TOURISM: THE KEY PLAYER IN THE ECOLOGICALLY SUSTAINABLE DEVELOPMENT OF THE GREAT BARRIER REEF

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Abstract: Tourism on the Great Barrier Reef is a major and growing industry. Currently, it is estimated as worth more than A$1 billion p.a. and attracts about two million visitors per year. Reef tourism is mostly nature-based and generally non-extractive involving about 600 tourism operators providing a wide range of activities.

The Great Barrier Reef, declared a World Heritage Area in 1981, has been actively managed since the establishment of the Great Barrier Reef Marine Park Authority 20 years ago. Management strategies are based on multiple use zoning and ecological principles. While most commercial use is subject to permit and regulation, an ethic of "education rather than regulation" is espoused. An evolving approach of industry self regulation, accreditation and codes of practice is being developed between managers and industry.

In 1993, a cooperative Reef research network was established as part of an Australian Cooperative Research Centre Program, bringing together major science institutions, management agencies and industry groups in a joint venture for ecologically sustainable development of the Great Barrier Reef World Heritage Area.

The CRC Reef Research Centre undertakes an integrated program of research and development, training and extension, to expand Reef-based industries and provide information for better management and decision making. The Centre's programs are funded jointly by Reef industries, State and Commonwealth governments, and research institutions.

The Great Barrier Reef provides a model for sustainable tourism in the context of national policies for ESD, the responsibilities for stewardship of the GBRMPA and providing further opportunities for tourism growth. The interaction of industry groups and Reef managers in dealing with challenges such as increased visitor pressure, use conflicts and equity, benefits and disbenefits, is discussed.

Keywords: marine tourism, Great Barrier Reef, marine park, cooperative research

Introduction

Tourism in Australia is a leading industry. The Great Barrier Reef (GBR) is a major region and contributor to the economic value of the industry. Tourism in the GBR has been active for many decades but it is only in the last decade and a half that it has matured to a highly professional and comprehensive range of enterprises. The GBR tourism industry of private sector operators and investors has developed in a framework of government management of the Great Barrier Reef Marine Park (and more recently, the Great Barrier Reef World Heritage Area). Like the GBR tourism industry, the Marine Park management agencies have been innovative and globally trail-blazing in their approach to their charter of conservation, protection and wise use of the GBR. The development of the industry and the Park have not been without conflict and this history provides a model for consideration in other parts of Australia and globally. Many of the elements of this development and the issues to be confronted in the future are not unique to the GBR tourism industry and Reef managers.

The Setting: The Great Barrier Reef

The Great Barrier Reef is not a single place or physical entity. It is an ecological region comprising a range of geomorphological structures (islands, cays, reefs, lagoons) and tropical-island and marine habitats (coral reefs, seagrasses, mangroves) with coral reef structures, ecosystems and processes predominating as the core natural features. The globally unique size and diversity of the natural structures, marine and terrestrial habitats, and the plant and animal species, linked through physical, chemical and ecological interdependency, create the ecological entity of the Great Barrier Reef.

The Great Barrier Reef World Heritage Area (Figure 1) extends more than 2000 km north-south along the continental shelf of Queensland covering 348 700 km²—about 1 1/2( times the area of Great Britain—and is the world's largest marine protected area—the second largest protected region of the globe, after Greenland.

The Great Barrier Reef has an array of coral reef types (fringing, ribbon, platform) and a diversity of marine life forms, habitats and nesting and breeding grounds for birds, marine reptiles and mammals. The variety of physical and biological forms, habitats and species contribute to the special nature of the GBR and are fundamental to its attraction and opportunity as a tourist and recreational destination.
Figure 1. Great Barrier Reef World Heritage Area.
Regions of the Great Barrier Reef are readily accessible from the Queensland mainland. Towns and cities along the southern two-thirds provide primary access points for passive and active Reef use, the northern third of the Great Barrier Reef is relatively less accessible. Urbanisation and coastal land use of catchments for agricultural (e.g., sugar cane, bananas and other intensive crops) and grazing have, over the last 200 years of European settlement, contributed to changes in the quantity and quality in catchment discharge to the Reef waters. Coastal infrastructure (ports, marinas, aquaculture industry), and land-based industrial development is limited.

The Great Barrier Reef remains in a relatively pristine condition, in global terms and apart from small areas near major ephemeral river discharge and towns has been unduly affected by human activities (Kelleher, 1990). The potential for impact from land-based activities and land use remains a major concern and is a constant focus for the responsible management agencies and research activities.

The Great Barrier Reef is recognised globally for its ecological value and importance, along with cultural and scientific importance. It has perceived and realised economic value to Australia (Geen and Lal, 1991; Drinn, 1987, 1994; Hendloe et al., 1988). Sustaining these values provides challenges for Australia in stewardship and management of the Great Barrier Reef World Heritage Area in order to ensure protection and conservation and access and use. The special nature of the Reef as a regional ecosystem entity and its relatively pristine condition are the key elements for the marine tourism and recreation industry. The challenge has been, and continues to be, the maintenance and retention of these special qualities.

The Industry: Reef Tourism

Tourism is a major industry in the GBR with an estimated economic value in 1991–92 of about A$1.2 billion involving more than 2.2 million visitors (Drinn, 1994). Fishing and shipping/port industries in the GBR World Heritage Area are also significant economic activities.

The structure of the tourism industry is strongly based on vessels and boating accessing the Reef from the Australian mainland. However, 26 resorts on 22 islands are popular destinations accounting for 16% of the commercial accommodation in the GBR region, including mainland resorts, during 1989–90 (Ortson, 1992). Green Island, the major day-trip island destination, attracts 300,000 visitors per year. Over the last 15 years, the number of resorts has increased by six (most islands are Queensland National Parks and sites are limited) and total bed numbers have more than doubled to 1991 (from 3,000 to 7,000) (Kelleher and Craik, 1991). The mainland coast has experienced extensive resort development, especially in the Cairns and Whitsunday regions; visitor-nights in mainland and island resorts were 22.3 million in 1991-2; up 70% from 1984-5 (Drinn, 1994).

The tourism industry in the GBR is predominantly environmental or nature-based, and generally involves tourists in boat/vessel activities although helicopter and fixed-wing aircraft flights occur locally. Vistation by vessel-based day-trips predominate with extended and overnight cruises, cruise ships, yacht charter, island transits and charters for specific activities (e.g., gamefishing) representing specialist and additional activities.

A special feature of the tourism industry in the GBR has been the development and installation of pontoons at reef sites throughout the area, especially through the Cairns to Whitsunday regions. The 19 pontoons throughout these regions serve as day-trip destinations serviced by modern, luxury high-speed (25 knots) catamaran and "wavepiercer" vessels carrying up to 300 passengers. Mainland-to-pontoon transits of up to two hours provide opportunity for "educational" briefings on the GBR and special features of the destination.

Major tourist activities at resort islands and pontoon destinations include: scuba diving, snorkel, "resort-dives," glass bottom boat semi-submersible trips, underwater observatories, and limited reef walking.

Elsewhere seasonal whale watching, sailing, windsurfing, and motorised sports (water-skiing, paraflying) and fishing are major demand activities. The diving industry has expanded enormously with more than one million scuba dives and two million snorkelling activities in 1992 (David Windsor, pers. comm.). Camping on coral cays and opportunities for "wilderness experiences" are niche markets of ecotourism operations.

Passive and active tourism opportunities and activities differ regionally throughout the Great Barrier Reef, reflecting Reef access and natural structure, and support infrastructure, such as international and domestic airports. Domestic visitations exceed international visitor numbers although there are regional differences, again reflecting direct airport access. The Cairns sector is strongly commercial with day-trips to reef pontoons, Green Island and Low Isles and diving and fishing expeditions dominating over private recreational visits. The region attracts a high level of international tourists flying directly to Cairns International Airport. Domestic tourists predominate in the Whitsundays and southern region. Resort islands, reef pontoons, sailing and motor cruising activities are major attractions in the Whitsundays-Mackay
region with its multitude of high islands and spectrum of beaches and cruising waters.

Even then it was an attraction, offering relatively low-key activities associated with resort islands, cruising and day trips, diving and fishing. Over the last 15 years, the industry has increased dramatically and is predicted to have potential to double again into the turn of the century, particularly with the Sydney Olympics in the year 2000.

Today's highly professional tourist industry in the Great Barrier Reef developed as a result of innovative approaches by private sector operators to sustainably utilise the unique natural features of the Reef. Key features have been the development of new technologies (vessels, pontoons, marine engineering infrastructure), improved and expanded transportation and infrastructure, and private sector investment for quality of visitor experience.

Technology improvements for new and faster vessels carrying up to 600 passengers at 30-40 knots is likely to expand the cruising-pontoon tourism activities. On the other hand, tourism demands for educational or scientifically-based opportunities and total ecotourism experiences provides another direction for development.

The Context: Management and Development

In 1975, the Australian Government enacted the Great Barrier Reef Marine Park Act which provided a legal framework for planning and managing the Great Barrier Reef. The Act provided for the establishment of the Great Barrier Reef Marine Park Authority (GBRMPA) to manage and plan for protection, conservation and "wise use" of the Reef, a Consultative Committee of interest groups and government agencies, specified functions of the Authority (including preparation of zoning and management plans, education and management programs), and provided for cooperative functions with the Queensland Government. In 1981, the Great Barrier Reef was entered into the World Heritage List.

The Great Barrier Reef Marine Park Authority is the principle management agency for the Area, with the Queensland Government's Department of Environment responsible for most day-to-day management activities and management of State marine parks and island national parks. Other Queensland authorities are responsible for relevant activities including fisheries.

The Great Barrier Reef Marine Park Authority has the goal "to provide for the protection, wise use, understanding and enjoyment of the Great Barrier Reef in perpetuity through the care and development of Great Barrier Reef Marine Park" (GBRMPA 1993). In practice its management objective has been to provide for conservation and multiple use. Human use is integral to the approach and managed to be "ecologically sustainable" (Craig, 1992), whereby economic development and environmental maintenance are not antagonistic but that they are compatible goals in the sense of the Brundtland Report (WCED, 1987, ESD, 1990).

A cornerstone of management of the Great Barrier Reef has been zoning, to ensure separation of conflicting activities so that while some areas are protected from use, other areas are provided suitable for particular activities (Kenchington, 1990) e.g., General Use Zones, National Park Zones and Preservation/Scientific Zones. Commercial and recreational use (including fishing) is allowed in the General Use Zones. The National Park Zones allow "look but do not touch or remove" activities.

Zoning plans allow for tourism, under permits, to occur in 99.8% of the Marine Park. Zoning Plans are complemented by a range of special area/use instruments including Regional Management Plans, Reef Use Plans, Special Management Areas, Site Plans and Reef Appreciation Areas (Otteson, 1992). In practice, it has been estimated that tourism utilises 0.02% of the total Park area (Burgess, 1993).

Enhanced public awareness over the last two decades of the unique and special qualities of the Great Barrier Reef is apparent in the wider community and in the boardrooms and actions of the Reef industry users. "Education not regulation" has been a deliberate approach by GBRMPA and other day-to-day management agencies. Putting aside this awareness and any sense of altruism, it makes sound commercial sense for the tourism (and other) industry, with investments of millions of dollars in expenditure, to ensure the sustainable nature of the Great Barrier Reef environment on which each enterprise depends.

The 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area 1994–2019 helps "to ensure the persistence of the Great Barrier Reef World Heritage Area as a diverse, resilient, and productive ecological system, while retaining opportunity for a diverse range of experiences and was consistent with Australia's obligations under the World Heritage Area. " The Plan is the product of three years consultation between more than 60 organisations representing management agencies (Commonwealth, Queensland State), Aborigine and Torres Strait Island groups, Reef user groups (tourism, fisheries, scientific) and interest groups (conservation, coastal land use and agriculture). The internationally acclaimed Strategic Plan has extensive "ownership" by the array of stakeholder organisations who individually and
collectively are implementing the Plan in their activities of use and management.

Over the last few years the Australian government has been acting to enhance a range of international agreements, treaties and concepts relating to the environment and especially to the marine sector, for example, United Nations Convention on Law of the Sea (UNCLOS) and EEZ commitments. International Convention for the Prevention of Pollution from Ships (MARPOL, including “Special Area” designation for the Great Barrier Reef), United Nations Conference on Environment & Development (UNCED) (Agenda 21). National legislation dealing with Native Title (GBRMPA 1994) and Queensland State legislation for a revised Fisheries Act have implications for the processes and mechanisms of management and use of the Great Barrier Reef which are currently being evaluated.

Government actions have to date imposed a number of costs on users of the Reef, falling mainly on commercial operators rather than recreational users. Issuing of permits for tourism and other commercial operations on the Reef include significant costs for applications and bonds are required on infrastructural development (e.g., pontoons, moorings) to allow GBRMPA to remEDIATE sites should the operator be unable or unwilling to remove damage or abandoned structures. Conditions of practice and often a requirement for independent environmental monitoring of sites are usually attached to operator permits.

In 1993, an Environmental Management Charge (EMC) was instituted by the Australian Government (through GBRMPA) levying a charge of A$1 per head on tourism activiites in the Marine Park to assist in meeting the increasing cost of management and associated research on the Reef. The introduction of the EMC was not without discontent in the tourism industry—it remains applicable only to commercial tourism and does not apply to recreational users of the Reef. Of the revenue 25% contributes to management activities and 75% is applied to key research issues through the CRC Reef Research Centre—a joint venture between the tourism industry, the management agencies (GBRMPA, Queensland State agencies) and research agencies (Australian Institute of Marine Science, James Cook University).

Cooperative Reef Research

The CRC Reef Research Centre is one of over 60 Australian CRC’s bringing together outstanding researchers from universities, research institutes, management agencies and private industry. Over A$46 million is pledged for the CRC Reef Research Centre until the year 2000.

The Centre emphasises the importance of developing internationally competitive industry sectors, especially tourism, and offers some of the best research teams working with private industry. It is managed by a board of nominated representatives from its partner organisations, and a Director. Each of its five programs have a Program Leader and individual research tasks are developed with industry advisory groups focussed on achieving practical outcomes. The Centre uses a significant proportion of the environmental management charge (EMC) funds for research and development projects. In effect, 75 cents in every A$1.00 commercial operators pay to GBRMPA is directed to the Centre’s program. Other government contributions will be over six times this amount, to a total of A$46 million. Companies can enjoy financial support under the CRC Program while retaining full research and development tax incentives normally available to them. The five programs are:

1. **Regional Environmental Status Program**—Aimed at understanding and controlling water quality, sediment flow, effects of nutrients and pollution, impacts of cyclones, crown-of-thorns starfish, and other natural processes to the Reef.

2. **Operations Program**—Aimed at finding solutions to problems associated with increasing human use of the Reef, particularly tourism and recreational activities.

3. **Engineering Program**—Aimed at developing new engineering practices for the design, construction and operation of Reef facilities and coastal developments.

4. **Education Program**—Aimed at providing scholarships and support for outstanding tertiary students to conduct research into special areas.

5. **Extension and Training Program**—Aimed at facilitating interactive communication with Reef industry groups, researchers and management agencies, and distributing research results.

The Centre was established to keep pace with rapid marine industrial, policy and technological change. It has increased private investment in R&D, and therefore industry involvement and commercialisation of research benefits. It has helped build new partnerships between knowledge providers and knowledge users.

Australia’s national CRC Program is bridging the gap between reef researchers, educational institutes, government managers and private industries. It supports long-term high quality scientific and technological research which contributes to Australia’s national objectives, including social and economic development.
But any type of network demands cooperation to be effective. The reason for undertaking collaborative research is to get some advantage— to achieve something that would be more difficult or more unlikely to achieve without collaboration. Advantages can flow to individuals, organisations and regions through collaboration. Collaboration helps:

- get access to intellectual or physical resources
- spread the risk or the cost of some ventures
- learn from your partners
- build community support and participation
- access additional funds targeted at issues
- set industry standards, methods or approaches

The Future: Tourism and the Reef

Tourism in the Great Barrier Reef region has potential to double over the next decade, particularly with the Sydney 2000 Olympics. Sustainable development will require the maintenance of balance between the conservation of Reef qualities and use by tourist and other industries.

Tourism activities on the Reef are mostly environmentally oriented towards appreciation of environmental features and qualities rather than resource harvesting. It is anticipated that the “ecotourism” direction will expand (Department of Tourism, 1994) and as a consequence the tourism industry will be fully reliant on: maintenance of high water quality, relatively pristine environmental features and a diversity of settings, access to key resource sites on the Reef across the wide geographic range, and an ability to meet tourist expectations for a range of experiences and quality of experience within a variety of settings.

Managing the implications of the external issues on the sustainable development of the Reef will require an awareness and understanding of scientific findings and consultation by industry and Reef managers with other national and state management agencies. The internal issues will require information and consultation within the interest groups of the Reef. Here, resource allocation and an array of social elements largely dealing with access and amenity are the central issues.

The Reef area is not unique in having conflict between commercial and recreational fishing interests over access and entitlement to fish stocks. While commercial fisheries operate a major industry in the Great Barrier Reef (economically valued about A$400 million pa; Dnrm, 1994), recreational fisheries are considered to be of about half that value and comprise a significant part of the tourism and recreational use of the Reef. Commercial operations are working to improve financial return with a constant or diminished catch by value-adding initiatives.

Part of the recreational fishery (tourism sector) are practising catch and release, but resource harvesting for table use remains a primary goal. Access and allocation of the apparently finite fisheries stocks remains at issue.

Broad public concerns have been expressed about retention of areas of the Reef devoid of structures (moorings, pontoons), especially near population centres. In the Cairns region of the Great Barrier Reef, a No Structure Sub Zone has been introduced covering 22% of the reefs in this relatively high visitation sector. “Carrying capacity” is a major issue; a current difficulty is understanding of the term and translation of perception to realities in a measurable way to guide Reef managers in the ecologically sustainable use of the Reef.

Resolution of the social issues (particularly access, amenity, and opportunity for a range of visitor experiences) through consultative processes seems less tractable at this stage; government determination looms large. The major difficulty is the lack of coherent databases and information to subdue the emotional arguments of interest groups.

Reef management agencies need to maintain a rational and dynamic approach to environmental and social balance in use of the Great Barrier Reef, gain enhanced knowledge of the ecosystems and their response to impacts and importantly, sustain an understanding of the thresholds for maintenance/growth processes in Reef ecosystems. Scientific research needs to actively address Reef issues through applied science, delivering timely and unambiguous outcomes to managers and industry, based on data, not dogma. The new joint venture—CRC Reef Research Centre—between the tourism industry, Reef managers and Reef research institutions, supported in part by the Australian Government will contribute significantly to the provision of useful scientific results from its issues-driven, applied research approach.

Continued and enhanced consultation and an adaptive management approach will assist the process and outcomes. Reef managers and the tourism industry are working to put in place codes of practice for sectoral activities and key Reef sites. Industry self-regulation and accreditation schemes are being developed. These incremental and cooperative developments are part of the process of developing maturity in the tourism industry and Reef management agencies.

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COMMUNITY, ENVIRONMENT AND TOURISM: A SUSTAINABLE PARTNERSHIP

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Abstract: Ecotourism and community-based tourism are growth niche markets in tourism. This case study presents the involvement of a community and local environment centre to establish a community-based ecotourism product, on the Sydney seaside resort of Manly.

The study discusses the potential for community-based ecotourism within cities such as Sydney. To examine this, a region already successful in tourism and containing a wealth of natural assets was chosen for review. This area within sight of Sydney's skyscrapers includes national parks, other natural bush reserves, beaches, marine and harbour reefs of significant biological interest and built environment with significant heritage. Led by the Manly Environment Centre, there is strong community interest in the environment, and desire to explore the potential of tourism as a means of conservation education and income generation.

The objectives of this initial study were:

- to investigate and describe the environment; the environmentally minded community and the small business community involved in tourism;
- to investigate potential ways for these three interests to interact for mutual advantage of ecological and economic sustainability, and community involvement in tourism planning and product development;
- to establish a year long pilot study leading to guidelines and educational materials to promote and sustain community-based ecotourism in a cityscape; and provide a model for community involvement in tourism planning.

The paper will highlight how the partnership between community and environment is essential in the sustainable tourism equation. It contends that sustainability requires:

- valuing all elements that make a tourism product—the natural assets, the community context, the financial potential, and the infrastructure
- integrating all elements
- developing cooperative partnerships

Keywords: ecotourism, community, environment, partnership, sustainability

Introduction

Ecotourism and community-based tourism are major growth areas. There appears to be advantages in regional economics, sustainability of the industry and ecological sustainability over more traditional mass tourism, in this trend. One tends to think of ecotourism as involving a relatively undegraded natural environment remote from major urban areas. However, Sydney NSW is fortunate in being one of the few major cities in the world to have large areas of natural bushland within its boundaries and in particular, is fortunate in being intersected by large areas of waterways. Therefore there is a potential to add ecotourism to Sydney's already valued tourist activities. Sydney is also fortunate in having ecologically minded community interests. This includes groups such as the NSW Wildlife and Rescue Service, various regional and local conservation societies and bushland regeneration groups. Thus, an opportunity exists to combine eco and community-based tourism with all their advantages of sustainability in the ecological, social and economic senses.

The question arises—what is the potential for a sustainable community-based ecotourism industry within cities such as Sydney. To examine this, a region already successful in tourism and containing a wealth of natural assets was chosen for review, with a view to establishing a twelve-month study into this activity. This area, Manly, is within sight of Sydney's skyscrapers and yet includes national parks and other natural bush reserves, beaches, marine and harbour reefs of significant biological interest and built environment with significant heritage. Manly community, led by the Manly Environment Centre, also has strong community interest in the environment, and has been proactive in exploring the potential of tourism as a means of conservation education and income generation.

Background to the Program

It is our contention that a sustainable industry will be one that is well integrated, planned and managed with other industries and with the "host community." Tourism literature supports this position. The role of the host community has been stressed by many authors, and community participation in tourism planning much discussed. But there is little evidence of successful implementation of this approach. Community participation is considered an important aspect of decision making in many areas but mostly not within the context of the development of an "industry." It is particularly important in tourism because it is so reliant on public goods for its product, and the goodwill and co-operation of local people. How tourism is managed depends on how it is viewed. There is, for example, debate about the status of tourism as an industry.
Tourism is an unusual phenomenon, because despite its obvious economic importance globally, it defies common definition of an industry. It does not produce a distinct product; the customer, the tourist, consumes ‘product’ from many different businesses, and these businesses, such as transport, entertainment, food service and so on, may not differentiate the ‘tourist’ customer from others, and may not even see themselves in the tourism business; hence the supply-side of the market is ill defined; how revenue from this ‘industry’ is counted is therefore questionable; and the consumer travels to the product. Most of these features make it unusual. Without wanting to extend the discussion about whether it is or is not an industry, it is important to realize that there are several unusual characteristics of this important economic activity. The characteristics are inherent in the difficulties encountered by tourism planners and regional tourism managers, without attempting to cast the net even wider to also consult the wider community in planning processes. Yet, it is important.

Murphy (1985) states “whether one classifies tourism as an industry or not, one cannot ignore the resource base which is its raison d’être, or the delivery system which permits people to utilize those resources, if tourism is to be understood and managed for the benefit of society. Modern tourism must develop and protect its attractions.” As Murphy identifies, it is a resource-based ‘industry.’ These resources are the social setting of the tourist experience and product, the environment and the ‘uniqueness’ (cultural context). These are all public good resources which the ‘industry’ or ‘businesses’ do not own or even have responsibility for their management. Yet they ‘sell’ them as part of the tourist experience. Hence, these resources require very careful management, and normal business practices, or management and planning strategies are not necessarily appropriate for the partially industrialized (Leiper, 1989), highly fragmented and transient nature of tourism.

The move toward greater public participation needs equally careful consideration. Simmons (1994) suggests “mechanisms must be chosen to match the desired output from participation and the current stage of planning.” Westing & McLean (1996) include an excellent section on techniques for community participation.

To further complicate the process, there are many variables beyond the control of those responsible for tourism planning and management. Not the least of these are the different value systems of the tourism business, the host community and the visitor. To the host community, the assets, the public goods are the heritage and essence of the community. For the visitor, who by definition does not belong and does not remain at the location, is investing discretionary time and income (and often relatively large amounts of the latter), on the visit. They usually intend to ‘get good value for money’ and ‘make the most of the visit.’ They may not expect or intend to return and so will perceive the assets from a very short term perspective. Likewise, the business operator/owner/developer may not belong to the local community, or region or even host country. Like the tourist, they will be interested in maximizing their return, and may have very short term objectives with little knowledge or regard for the desires or aspirations of the host community. These differences create many ethical, social and economic concerns. The planning process can help to ameliorate these if it assists in the formation of a shared community vision for that community, and helps to define and articulate the community’s shared values for their social, cultural and ecological environment. This would enable and empower local government authorities to make informed development decisions, and assist tourism marketing efforts to attract visitors who are more aware of the local assets and their importance to the community.

Most tourism planning is business/economically-oriented with numeric goals of ever increasing numbers of visitors. There are many examples world wide, and sufficient experience and knowledge to know that ‘more is not better,’ either for the small businesses involved in tourism (the concept of ‘profitless volume’) or the local community or the visitor. All are dissatisfied as a location becomes ‘popular’, crowded and spoiled. Hence the way the local tourism ‘product’ is conceived, developed and sold has considerable impact on its sustainability.

Substantial amounts of government tourism marketing and infrastructure dollars are spent supporting the large vertical operations as they are the most visible; and vertical marketing strategies are seen to be very efficient. Only those companies involved in the vertical integration benefit.

A sustainable approach that encompasses social, cultural and environmental elements not only economic elements involves horizontal integration and provides benefit to the wider community, not only those generating an income (through their business or employment) from tourism. For example, local culture should feature in all tourism, not only in ‘cultural tourism.’ “Community cultural planning is an important building block ensuring that programs of cultural tourism benefit residents and tourists alike” (Scott, 1991).

Sustainability requires:
- valuing all elements that make a tourism product:
  - the natural assets, (1)
  - the community context, (2)
  - the financial potential, and (3)
  - the infrastructure (4)
- integrating all elements in an authentic way
- developing co-operative partnerships which minimize cost, and maximize benefit/efficiency
Benefits to residents from this approach, which remain after the tourists have gone may include:
- revival and maintenance of the environment, heritage and cultural features, and
- enhanced and developed 'cultural capital.'

Culture is a whole way of life with material, intellectual and spiritual content. It is related to a place, to a community and its people. It has elements of the past (heritage), present and future (Young, 1995).

Tourism involves the visitor experience of the 'way of life of the locals.' There is an element of learning. Learning about history, geography, social science, natural science, customs, food, religion, etc.

The essence of the tourism product involves:
- sense of place/pride/history
- uniqueness
- authenticity

These are equally desirable and part of the successful mix of any regional tourism activity, not just 'cultural tourism.' These elements can come only from localized, community-based, horizontal integration. "Tourists want to go where locals go—to be part of the local scene" (Coombes, 1995). The element of learning, of curiosity, of exploring other cultures is in all forms of tourism. The extent may vary. The focus should be to enhance local assets through tourism, rather than tailor culture to particular tourists. That is, it should be supply led not demand driven.

Communities can share their region with visitors, enhance the return to all the community and enhance civic pride. Sporting events, general exhibitions, festivals, local shopping which are an integral part of the communities' life, are part of tourism.

Like all development, tourism must be planned. Not only so that tourism is profitable, but so it is acceptable and hence sustainable. Success depends on how that planning is done who is involved and the aims and objectives. Countries like Thailand with a very rich culture planned for cultural tourism. They achieved a 317% growth over ten years (Murphy, 1991). Massive success, or was it? We are all aware of the significant costs to the host 'Thai' community and their values. Craik (1995) warn that cultural tourism is developing as a new niche in response to economic crises; exhaustion of traditional attractions such as beaches and fauna; the shift away from mass tourism and demands of more sophisticated tourists. As the impetus for this development has been economic imperative rather than altruistic search for a more sustainable form of tourism, cultural tourism itself may exacerbate problems rather than solve them.

The community needs to be excited and willing to share, but also needs to agree to and understand the limits. The concept of the "Limits of Acceptable Change" are discussed most often in relation to natural assets such as National Parks. There are many other assets that the community values which need to be protected. With good planning, tourism can not only protect but enhance these assets by raising awareness of their value.

If locals identify what elements of their community are important and why—locals learn more about themselves. Tourists will value what locals value if planning encourages them to do so. The creation of appropriate tourist information, transport systems, signage, and hospitality can reinforce those values. Building cultural training into human resource development for the industry can assist to create informed and enthused hosts.

How do small business operators 'capture' these essences and involve a sense of place and community in their product? We believe Tourism Partnering is the answer. The concept of partnerships across small businesses, (local, state and federal) government and community allows the creation of supportive networks. They enable "no risk venture" or "win/win enterprise" to develop. The basis is that all partners value sharing rather than the conventional parochial competitive approach to doing business. Part of the process of forming partnerships needs to involve 'cultural mapping' of the regions assets, values and identity. Local government, tourism organizations and small business all need to participate together with community groups. Consultation is not enough.

Partnerships can form around geographic location—precincts—themes—activities. They can link the obvious such as local government with community, or one operator with another. It is necessary for tourism operators to link with community through partnering, if there is to be an authentic cultural element.

Partnerships can be exciting and link the unlikely to create new product, new ideas and opportunity and interest. Synergies are created. Large and small business can benefit equally. Non-tourist operations and the general public will benefit.

Successful Tourism Partnering is where business and the resources of tourism develop harmonious and sustainable relationships.

Tourism Partnering takes advantage of existing tourism markets through aggregation of enterprises and tourism resources into non-competing units to form high yielding opportunities. The business opportunities in tourism partnering can be described in marketing parlance as "horizontally integrated."
This description compares with the high volume tourism market typified in much of Australia's international tourism. Much of the volume business tourism generated out of operations from Asia and North America can be best described as “vertically integrated.” Vertical integration involves operations “owning” the customer for a large part of the tourism experience through company “owned” travel agents, accommodation, shopping experiences and transport arrangements. The organizations created to represent this sector of the industry are also vertical (and narrow) in their focus.

Table 1 illustrates this difference with mainstream most often representing vertical structures and soft involving horizontally integrated operations:

<table>
<thead>
<tr>
<th>Mainstream or “Hard” Tourism</th>
<th>“Soft” Tourism</th>
</tr>
</thead>
<tbody>
<tr>
<td>• large group size</td>
<td>• small group size</td>
</tr>
<tr>
<td>• office-based companies</td>
<td>• home-based companies</td>
</tr>
<tr>
<td>• high volume/low margin</td>
<td>• low volume/high margin</td>
</tr>
<tr>
<td>• appearance</td>
<td>• substance</td>
</tr>
<tr>
<td>• features</td>
<td>• benefits</td>
</tr>
<tr>
<td>• consistent</td>
<td>• diverse</td>
</tr>
<tr>
<td>• isolated</td>
<td>• integrated</td>
</tr>
<tr>
<td>• industry-driven</td>
<td>• client-driven</td>
</tr>
<tr>
<td>• based around purpose-built features</td>
<td>• based around existing features</td>
</tr>
<tr>
<td>• “been there, done that”</td>
<td>• “I understand”</td>
</tr>
</tbody>
</table>

To be successful and sustainable as a small, non-integrated business in tourism, the enterprise can join forces with the resources which make up the tourism product:
• the community, its precincts, its arts, its businesses, its government;
• the environment, cultures and history—all of which have a shared ownership bestowed in the community and its participation in the tourism process; and
• the tourism businesses and the associated tourism support infrastructure involving local government, regional development organizations, transport infrastructure.

The benefits to individual tourism businesses arise from their capacity to compete and gain access to new tourism markets. This means the new business that is generated through Tourism Partnering is potentially higher yielding (more profitable) and more sustainable in terms of the community’s ownership of the resources.

Tourism business can become horizontally integrated by alignment across a category, such as:
• Nature based operators working with artists, interpretative guides, transport and accommodation in their region
• Regionally based galleries, museums, attractions linked with adventure tours.
• Theme-based product (heritage, nature, adventure, entertainment) links across regions and inter-regional markets.

Market segments which suit integration include: heritage, environment, entertainment, scenic, arts (visual, performing, craft-based, culinary), rural (or regional industry, i.e., military, maritime, education, forestry etc.).

Partnering allows for growth of tourism enterprises, broadening the market opportunities and minimizing the impact of small individual businesses competing in a market beyond their size and mass. The higher the local content, the more authentic, the more appealing and the greater the community becomes part of the product. This in turn facilitates greater ongoing participation in the tourism planning process, which must involve constant evaluation, monitoring and reconsideration.

Oelrichs (1994) explains:

The landscape (regional, setting or site) values are some of the most widely distributed, most accessible, most abundant, most productive, most cost effective and most efficient to access, most conservable, most protectable, most sustainable, most community friendly ways of establishing and guaranteeing a “unique selling position.” Then, is it not the most sensible way to go, to draw the theme and purpose of a tourism activity from the landscape (ecology overlaid with culture) to use as the foundation for ones tourism venture, town, regional, or even a national tourism plan

The elements of successful Tourism Partnerships is:
• collaboration
• community participation
• developing high yielding sustainable business through non-competitive partnerships utilizing horizontal tourism segments which exist in your region
• all partners are equal
• developing a genuine sharing attitude in a “win/win” or “no-risk enterprise”
• a management plan with clear structures for involvement and clear objectives
• identify all stake holders with an interest and make involvement non-threatening and enjoyable
• embrace the communities and the resources which sustain your tourism business
• identifying the ‘assets’ and ‘values’ of the community through a process of ‘cultural mapping’ and determine limits of acceptable change to these assets
• creating a unique and interesting tourism product/precinct
Manly Ecotourism Partners Case Study

In this case study, we seek to illustrate an evolving partnership of environment, community and tourism.

The Manly peninsula is situated approximately 12 kilometers east from the center of Sydney. It has unique assets for a cityscape. Surrounded by ocean and estuarine waters, it is endowed with national parks and has a strong community interest in promotion and protection of its natural assets. The area is a major tourist destination, at 8.5 million visitors per annum (Manly Visitors Information Bureau). Manly already offers a variety of environmental experiences for tourists, including scuba diving and bushwalking throughout its national parks and reserves.

Led by the Manly Environment Centre, the area has developed a strong community environmental culture. The Centre is a focal point for local conservation and community groups. It has extensive contact with voluntary conservation groups working to preserve and enhance the natural environment. Education is a strong focus of these groups. They have extensive local knowledge and experience of their local environment which they enjoy sharing with residents and visitors alike. In this situation a unique opportunity exists for a city area, to integrate community, ecological attributes and tourism.

It has been proposed to investigate the opportunity to link these co-developing interests with the following potential benefits:

- for the community, a greater understanding of the value of Manly’s ecological attributes by others, enhancing support for their activities;
- for the tourist, providing contact opportunities with the local environmental culture and community—a true basis for endemic tourism;
- for the business community, enhancement of the attraction base for “long stay” and “returning” tourists; and
- for the environment, an opportunity to control access and increase protection of sensitive ecological areas by only allowing guided tours in small groups and involving tourists in the environmental restoration/protection process.

The project, to take place over the next 12 months, proposes to identify local ecological assets such as rock platforms, distinct bushland, native fauna habitats and restoration projects, suitable for the production of packages for education of interested ecotourists. These packages when produced would identify the local community groups associated with restoration and regeneration of native flora and fauna (such as WIRS) and would show how these groups are protecting the environment. The project would also identify tourist interests and needs with the help of local tour operators. These packages would be designed for marketing of the product as well as providing education concerning the survival of native habitats and their species within a city landscape. The project will then produce a pilot package involving the appropriate community group.

What are the Objectives of the Project?

- To promote value of the natural environment by linking the environmental attributes of a region and the community associated with their protection to economic activity associate with tourism.
- To use this process as a model for other regions which are currently urbanizing. The objective being to demonstrate that preservation of the local natural environment is compatible with economic activity in the form of ecotourism.

The development of a package would bring together tourists with an interest in nature-based tourism and a voluntary conservation group dedicated to education and preservation. It is hoped that this will be a model project for communities across Australia.

The package would include tours, of local bushland, for small groups of tourists. This would include a local guide and the opportunity to meet a wildlife or bushland carer who would personally expand upon the role of their local group. Opportunities for the tourist to become involved in wildlife or bushland care will be identified.

An information package for the tourist to take home which would not only enrich their personal experience but which they could share with their relatives and friends.

Manly Ecotourism Partners Preliminary Study

However, in order to initiate this program the question arises, “what is the situation now?” To answer this, a preliminary review was undertaken by the University of Western Sydney-Hawkesbury, and the Manly Environment Centre. The objectives of this review, were to determine the numbers environmental assets in the Manly region, the numbers of active community groups with the potential and interest to be involved in tourism and to identify the types of business interests associated with tourism in the area. These objectives were addressed by investigation of tourism research literature, Manly regional literature and by attending meetings with community and tourism interests and local government.
The review revealed that Manly has numerous environmental assets; the major ones include the following:
- 25 km of harbour and ocean frontage,
- 19 beaches,
- 49 bush reserves,
- North Head, sandstone cliffs, coastal heath vegetation (National Park), and
- Harbourside Walk, sandstone cliffs, coastal heath vegetation (National Park).

Manly also has numerous environmentally-minded community groups. The current active groups include:
- Bushland Volunteer Network
- Cabbage Tree Bay Consultative Group
- Wildlife Information and Rescue Service (WIRS)
- Association for Growing Native Plants
- Project AWARE Workshop Participants (rock platform awareness)
- Anglers Action Group
- Manly Community Streamwatch Team (Water Quality Monitoring of Manly Lagoon)
- 12 Precinct Groups (Community Representatives)
- Save Manly Dam catchment (Resident Group)
- Manly Lagoon Residents Committee
- Manly Waste Action Group
- Bird watching groups

As would be expected, tourism at Manly involves a large number of small businesses from tour operators to retail outlets and accommodation providers. It has been estimated that tourism generated employment at Manly is approximately 2000 jobs (Larcombe & Associates, 1993).

Interaction Between Environment, Community, and Business

It was identified that there has been significant tourism interest in Manly’s natural assets—it’s beaches, national park and reefs (although the interest at this time is generally short term and of a mass tourism nature). This activity has quite extensive involvement of small business. Quite separately, there is strong community interest in the restoration and protection of the region’s natural assets.

Needs of both tourism and the environmental community have emerged from this preliminary investigation. These include:
- for tourism, ways of extending stays of visitors to the area, and
- for the environmental community include support in valuing the environment and help to undertake remedial and protective works.

The objective of the proposed pilot study is to achieve this interaction.

On the basis of this initial investigation, UWS-H in conjunction with the Manly Environment Centre and the Manly Tourist Association will conduct the 12-month program, as outlined above, to link the tourism community and the environmental community together to promote ecologically sustainable development and provide a pilot for the rest of Sydney and other urban centres. The program supported by UWS-H Sustainable Futures Program will be reported at the Tourism Research Conference to be held in Manly in 1997.

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SURFING THE VIRTUAL COAST: CMT COMMUNICATION AND COLLABORATION TOWARD THE 21ST CENTURY

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Abstract: By the year 2010, the coastal population of the United States is expected to dramatically increase in size, swelling by nearly 27% above 1980 levels as more than 151 million additional people move into coastal counties. The recreational activities of new residents, throngs of tourists and increasing numbers of enterprises serving them are increasing the pressures on fragile coastal resources. While stricter enforcement of regulations can reduce some of the anticipated environmental degradation, expanded information and education are critical to advancing appropriate human behaviors.

The challenge is how best to deliver that information in a manner that encourages people to take personal responsibility for decreasing their own impact on the environment. This enormous educational task is made difficult by sweeping reductions in public funding for traditional outreach activities such as workshops, classes and publications.

New electronic tools are being employed to address the challenge of coastal and marine tourism (CMT) educational outreach. The imaginative use of emerging information technology is a strategic response for addressing the growing demand for educational outreach with a shrinking set of human and financial resources.

Our paper presents three examples of techniques being used to boost CMT communication and collaboration. These include: 1) applying Low Power AM Radio technology to CMT education, 2) distributing CMT educational resources via the Internet and World Wide Web, 3) forming a “virtual CMT community.” Section participants will gain an understanding of the strength and pitfalls of each strategy presented.

Keywords: distance education, low power radio, Internet/WWW, networked computing

Introduction

By the year 2010, the coastal population of the United States is expected to dramatically increase in size. The nation’s coastal population is expected to swell by nearly 27% from 1980 levels, with more than 151 million additional people moving into coastal counties (Culliton, 1993; Edwards, 1989). The recreational activities of new residents, throngs of tourists and increasing numbers of enterprises serving them are increasing the pressures on fragile coastal resources. While increased enforcement of regulations can help reduce human degradation of the environment, expanded information and education are critical to advancing appropriate human behaviors.

The challenge is how best to deliver that information in a manner that encourages people to take personal responsibility for decreasing their own impact on the environment. This enormous educational task is made difficult by sweeping reductions in public funding for traditional outreach activities such as workshops, classes and publications directed at coastal residents, tourists and recreation enterprises.

Communication systems can serve as an information bridge, expanding the awareness of visitors and residents alike by alerting them to recreation opportunities, encouraging appropriate behavior and enhancing resource appreciation and stewardship.

New electronic tools are being employed to address the coastal and marine tourism (CMT) educational challenge at hand. The imaginative use of emerging information technology is a strategic response for addressing the growing demand for educational outreach with a shrinking set of human and financial resources. This paper shares insights on how cities, parks, businesses and governmental agencies can use emerging information technology to communicate with visitors and/or related CMT enterprises.

Distance Learning via Low Power Radio

We are witnessing a rapid expansion of distance learning through the creative use of digitized electronic technology. Application of distance learning technology to tourism is characterized by the deliberate use of educational media by visitors to enhance the quality of their leisure time (Verduin and Clark, 1991). One communication medium rapidly emerging as a tourism information tool is Low Power AM Radio (LPR).

LPR made its debut in the late 1970s as a traveler information source on traffic, highway and weather conditions. During the following decade, the U.S. National Parks Service deployed Low Power Radio to provide visitor information on park attractions, safety tips and camping sites. These successful applications encouraged other organizations to consider LPR as a visitor information tool.
By definition, LPR is a low-wattage radio station which broadcasts information on AM frequencies. Low power AM transmitters fall into two categories: systems operating with 100 milliwatt (mw) power output or less, and those systems which operate with more than 100 milliwatt power but less than ten watts. Both types hold potential for providing coastal travel information along with targeted informal education (McFadden and Shoad, 1979).

Regardless of the signal strength, LPRs function with four system components:
1. an audio recorder to record and repetitively play back voice messages;
2. a vertical antenna;
3. an AM transmitter to broadcast that message; and
4. signs alerting travelers to tune in to an AM radio frequency so they can receive the broadcast over their vehicle radios.

During Low Power Radio’s advent, audio messages were recorded on a tape. The inherent problem of tape wear caused performance difficulties and required frequent maintenance. With the use of digital technology, recorders are now more dependable; messages can be recorded or altered via telephone, and the technology allows for the storage and variable sequencing of up to 32 broadcast messages.

The least powerful TIS radio station typically broadcasts with 0.1 watts of power, covering an area of about .5 miles. Such a station’s limited broadcast range is offset by increased flexibility in use. No licensing is required under U.S. Federal Communications Commission (FCC) Rules—Part 15. The AM frequency may be chosen from unused channels available in local areas. Almost any message contents may be broadcast, including commercials.

The most powerful TIS radio station typically broadcasts with ten watts of power, covering about 2.5 miles of relatively flat terrain. In some areas, broadcast information may be heard for up to 20 miles. For this reason, ten-watt AM radio stations must be licensed by or in association with a governmental unit if operating in the United States. Frequencies 530 kHz and 1610 kHz are currently available for ten watt AM travelers’ information broadcasting in the U.S. Recently, 1620 kHz became available for the purpose under the FCC’s expansion of the AM radio band to 1700 kHz.

CMT Applications of Low Power Radio

During peak tourism seasons, many coastal highways are clogged by sightseers’ vehicles. When interpretive signs are placed in small turnout areas, they can cause traffic congestion or accidents. As compared to road signs, radio can be a more appropriate informal learning medium and dispersion strategy for travelers. Not only that, but the medium can be accessed from water as well as on land.

The use of a ten watt LPR can revolutionize coastal interpretation along linear coastal highways or within waterfront communities. Natural or cultural resources “distance learning” can take the form of a guided tour of expansive coastal areas. With a broadcast diameter of about 5 miles, this option can also provide a broadcast message to fast moving vehicles. Here again, general tourist information provided by LPR can be augmented with educational messages encouraging appropriate care and use of coastal resources.

Chambers of Commerce in Oregon are using ten watt LPR units to provide general tourist information augmented with educational messages encouraging appropriate care and use of natural resources. In rural Oregon, the Oregon State University Extension Forestry unit has created a network of four LPR stations to provide educational information concerning forest resources. Sea Grant specialists in Florida and New York State have initiated LPR stations in the Florida Keys and Hudson River valley to share research and other information.

Enterprises such as marinas and boat launch ramps can use LPR to share information with recreational boaters on available services, safety information and tips for protecting water quality. At the mouth of the Columbia River, for instance, a ten watt LPR station is transmitting boating safety information which includes scheduled cargo ship movements and retransmission of NOAA weather radio broadcasts. Broadcasts also include angling and fisheries management information of interest to recreational fishers.

The future of LPR as a nature-based tourism education tool is also promising. For instance, a .5 mile LPR station could be used to provide on-site interpretive information at the scene of a marine resource disaster event such as a vessel grounding, oil spill, massive shorelne erosion or exotic species intrusion. Beyond explaining to visitors the immediate significance of what is taking place, the LPR broadcast can also encourage personal actions to reduce the recurrence of such events in the future.

Coastal resorts and parks can use .5 mile LPR transmitters to broadcast interpretive information about nearby tidepools, wildlife viewing areas or ecosystem restoration sites. In Reedsport, Oregon, this type of LPR application is being used at an elk viewing area. Visitors to this coastal site park their vehicles in a designated area and tune into an LPR station for a narrated field trip of the local habitat and behavior of these beautiful animals. This LPR broadcast also encourages use of appropriate stewardship practices to maintain the ecosystem being observed.
In considering the use of Low Power Radio for outreach communications, key questions include:

- Who is the target audience and where/when are they expected to receive the LPR broadcast?
- What are the communication objectives for this LPR application?
- Which power level of LPR transmitter is appropriate for this application?
- Who will be responsible for planning, equipment purchase and installation of the LPR unit?
- Who will be responsible for changing the message contents and quality of broadcast?
- How will the LPR's effectiveness be evaluated?
- Will this LPR be a “stand alone” unit or part of a network of other transmitters located in a region?
- How will potential listeners be alerted to the broadcast?

As with all communications, successful use of Low Power Radio is made possible through good planning and implementation activities.

Sea Grant Spins the Web

By now, thanks to the popular press, most people are at least passingly familiar with the phenomenon of the World Wide Web. Developed by a young British programmer less than a decade ago (Berners-Lee, 1996), the Web—with its intuitive, point-and-click navigation, its ability to display pictures and sound as well as text, and the relative ease of setting up a Web server—has driven the recent explosion in public interest in, and use of, the Internet.

Research indicates that somewhere between 20 to 30 million people around the world already use the Internet on a regular basis. This consumer interest is fueling the construction of World Wide Web pages, the Web's graphical interface with information seekers. The Web is presently stocked with more than 22 million pages of content, with an estimated one million new pages being added each month. These statistics suggest this communication tool is not a passing fad but perhaps the most profound new communication technology since the invention of the printing press almost 600 years ago (Wiener, 1996).

When the Web boom began in late 1994, Oregon Sea Grant had already spent nearly five years experimenting with new means of providing information to its client base and its own remote staff via other relatively new on-line tools (DeYoung and Foley, 1991). A limited number of Sea Grant documents had been made available through an e-mail server known as Almanac, and a graduate intern with computer skills had been hired to help develop e-mail networking capabilities among Oregon Sea Grant staff and members of the state’s Ocean Policy Advisory Committee (OPAC).

In addition, Sea Grant had purchased a Sun SPARC Station 20 computer with a 5.2 GB hard drive and 96 MB of random access memory—a computer designed specifically for use as an electronic information server. The intent was to devote at least part of the machine’s substantial capacity to establishing a Sea Grant presence on gopher, a text-based information search-and-retrieval system used primarily by universities (and now largely being supplanted by the more versatile World Wide Web).

With the hardware in place, a part-time computer expert on board and a vacancy on the program’s communications staff, Oregon Sea Grant found itself uniquely positioned in early 1995 to take advantage of the rapidly expanding phenomenon of the World Wide Web. Internal discussion focused not so much on whether Sea Grant should become a presence on the Web, but on how to do it.

Discussions focused on questions not unlike those raised in other organizations considering their own first forays into Internet publishing: Who is the audience for Sea Grant Web content? How is that audience likely to change or grow as a result of the new medium? How does the potential Web audience compare with Sea Grant’s “traditional” audiences—the research community, coastal residents and business, educators and their students? What information belongs on the Web? How do we address issues of copyright, document security, design and staff privacy? How do we track who actually uses our site, versus who we expect to use it? How do we design on-line documents so that they are useful, attractive and still available to low-end users? How do we make sure our own stuff, some of whom are located in small coastal towns with only minimal Internet access, can contribute to and benefit from the information on our Web site? Because Oregon Sea Grant is part of a national network of Sea Grant College Programs, how would our site fit within that larger network and its emerging World Wide Web plans?

Sea Grant’s graduate student computer expert and a newly hired communications staffer spent the spring of 1995 learning the fundamentals of Web site development and management, and drafting prototype Web pages for review by the Oregon Sea Grant administration and program staff. The Oregon Sea Grant Web site made its “official” debut in early July, 1995.

Applications of the Web

Nearly a year later, even some early in-house skeptics find themselves using the Sea Grant site regularly as a reference for program-related material. Some have begun to request their own Web sub-pages for specific purposes, from
publicizing academic conferences to promoting networking among constituent groups. Most Oregon Sea Grant staff have Web access, and a few, according to server access statistics, log on to the Sea Grant site almost daily.

Sea Grant staff across the nation report finding the Web useful primarily as a reference tool. In Oregon, staffers use the Web to look up staff phone numbers, mail and e-mail addresses; to access program news releases dating back a year; to access current and back copies of Restoration, our watershed newsletter; to look up and order items from our publication catalog (while we do not yet offer interactive on-line order forms, we do have an order form they can print and send by e-mail or postal mail); to refer to currently funded research projects, and to link to other Sea Grant programs across the country, including a searchable, nationwide staff directory which is updated much more regularly than its paper counterpart (Jacobs, 1996).

Latest server statistics indicate that the Oregon Sea Grant server is receiving an average of 218 information requests a day—better than nine such requests per hour. Although the activity is low by comparison with the most popular commercial sites, the numbers are significant when compared with similar requests received by telephone or mail. Nine such phone calls in a single hour would be considered unusual; 218 letters in a single day asking for Sea Grant publications or program information would be phenomenal.

Are "traditional constituents" using the pages? That is difficult to quantify, since the statistical tracking program identifies visitors by the Internet address of the computer/server where their requests originate, and not by individual user ID; one machine may host many users. Anecdotally, we can confirm:

- Web pages concerning three separate conferences, two regional and one international, have brought on-line requests for conference registration materials.
- E-mail to the Sea Grant Webmaster brings several requests per week for additional information; those requests typically come from state and federal agency staffers, researchers interested in grant funding, teachers and students in coastal public schools, and members of various communities of interest, fishermen’s associations, for instance, and watershed restoration councils.
- Most of our remaining e-mail contacts come from managers of similar or related Web sites who want to be added to our long "hot list" of on-line ocean and coastal resources. Many of them agree to list our pages in return.
- Oregon Sea Grant’s publications coordinator reports increasing numbers of publication requests from people who say, "I saw this on the web."

Because Oregon Sea Grant got "out of the gate" early, we were able to play an influential role in subsequent network-wide talks aimed at establishing a cohesive national Sea Grant Web presence. The authors of this paper both served on a task force that hammered out guidelines to make sure that program Web sites reflect the strength of that national network while still maintaining their state and regional identities (NSG Electronic Information Task Force, 1996). At this writing, 26 of 29 Sea Grant programs have active Web pages, as do National Sea Grant (Jacobs, 1996) and its media relations office (Sherman, 1996).

The next step is the development of regional or national "specialty" pages aimed at specific sectors of the traditional Sea Grant constituency. Oregon is again at the forefront of the pack with the development of a set of Web pages devoted to Coastal Recreation and Tourism. Although physically housed on the Oregon server, this web page will "belong" to the entire National Sea Grant network and incorporates contributions from Sea Grant programs across the country. It will serve as a central repository for coastal recreation and tourism information, as well as an information support tool for the Sea Grant MarineNet Project.

Virtual Communities: Collaboration Tool of the Future

For the past three decades the National Sea Grant College Program goal of enhancing appropriate use of ocean and coastal resources has been carried out by a network of universities throughout the United States. This applied research, outreach and education is cooperatively supported by the U.S. Department of Commerce (NOAA), states, universities, local government, and private sources.

With more than 375 marine outreach staff spread across 36 coastal states and territories, Sea Grant is challenged to find innovative ways to meet the information and educational needs of its staff, as well as its constituents. Too often the high cost of travel and long-distance telephone charges discourage professional collaboration among Sea Grant outreach staff based in far-flung locations. The decentralized nature of Sea Grant can also make it cumbersome to respond as a national network to CMT questions of coastal clientele.

Despite financial and geographic roadblocks, the need for Sea Grant staff to collaborate with each other and their clientele has never been higher. Exploding coastal populations are placing stress on limited, fragile natural resources. For community, business and agency leaders, information provided by marine outreach professionals is critical to sustaining economies and ecosystems.
To overcome vexing communication roadblocks, Sea Grant is using the Internet to foster collaboration both within the network and without (DeYoung, 1995). Until the invention of the Gutenberg printing press in the 15th century, information could take centuries to spread across the civilized world. Now networked computing is bringing ideas to people and encouraging collaboration in their use at light speed. Recognizing the strategic importance of the Internet as an “information appliance,” Oregon Sea Grant is working with others to form networks of virtual coastal communities.

A virtual community may be defined as a group of individuals with similar interests brought into fellowship across space, time and culture through the use of telecommunication technology. The ease of communication within these virtual communities encourages collaboration among the members.

In its simplest form, a virtual community is an electronic mailgroup. Mailgroups are formed by entering the electronic mail addresses of subscribers into an information server, a computer equipped with software designed for this purpose. Mailgroup members can communicate with each other, as a group, by using a single common email address. The server sends the messages to all members of the group, without the sender having to individually address the note to each group member. This also insures some degree of message security within the defined community, which is growing in importance to enterprises and public agencies alike (Spar and Basgang, 1996).

In the formation of virtual communities for outreach communications, key questions include: Who is the target audience and are its members equipped to participate in electronic mailgroups? How will mailgroup administration be handled in terms of adding/deleting subscribers? Should the group be open to the world at large, or to a defined set of member? What are the communication objectives for initiating such a virtual community? Will “rules of the road” be created and shared with subscribers? Who will be responsible for insuring computer hardware and software functions appropriately? What is the duration of this virtual community? How will the mailgroup be managed under conditions of too few or too many subscribers?

Oregon Sea Grant staff now use in-house mailgroups to communicate with their in-state colleges, saving time and money in the process. Additionally, Oregon Sea Grant hosts 26 electronic mail groups on various topical themes within the National Sea Grant network. Together, these mailgroups connect more than 486 subscribers, ranging from Sea Grant field staff, communicators and administrative leaders to such diverse marine clientele as port managers, teachers and harbormasters.

Our newest electronic mailgroup connects Sea Grant staff across the nation with marina operators, private consultants, scholars and regulatory agency staff. Sponsored by MarinalNet, a two year project linking Sea Grant resources with the marine trades industry, the mailgroup is just one of several tools for enhancing communication and the exchange of ideas. Several other Sea Grant programs have followed Oregon’s lead and established mailgroups on their own information servers. A relatively complete listing of Sea Grant mailgroups can be found at: http://seagrant.orst.edu/mgroups.html.

Conclusion

New residents, throngs of tourists, and the enterprises that serve them are all increasing the pressures on fragile coastal resources. While increased regulatory enforcement can reduce some of the environmental degradation that can be expected to result from these pressures, it will take information and education to change the human behaviors that threaten our coasts.

The challenge is how to deliver that information and education in a timely fashion that encourages people to take personal responsibility for decreasing their environmental impact. This enormous educational task is made difficult by sweeping reductions in public funding for outreach with coastal residents, tourists and recreation enterprises.

New electronic tools can help address the challenge of coastal and marine tourism education. The imaginative use of emerging information technology is a strategic response for addressing the growing demand for educational outreach with a shrinking set of human and financial resources. To meet the nation’s coastal educational needs, Sea Grant professionals are collaborating with each other and clientele by using emerging digital technologies. This is integrating the Sea Grant system across state lines in a fashion never before dreamed possible. The result is high-quality marine outreach being delivered across the continent to a broad spectrum of coastal and marine audiences.

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