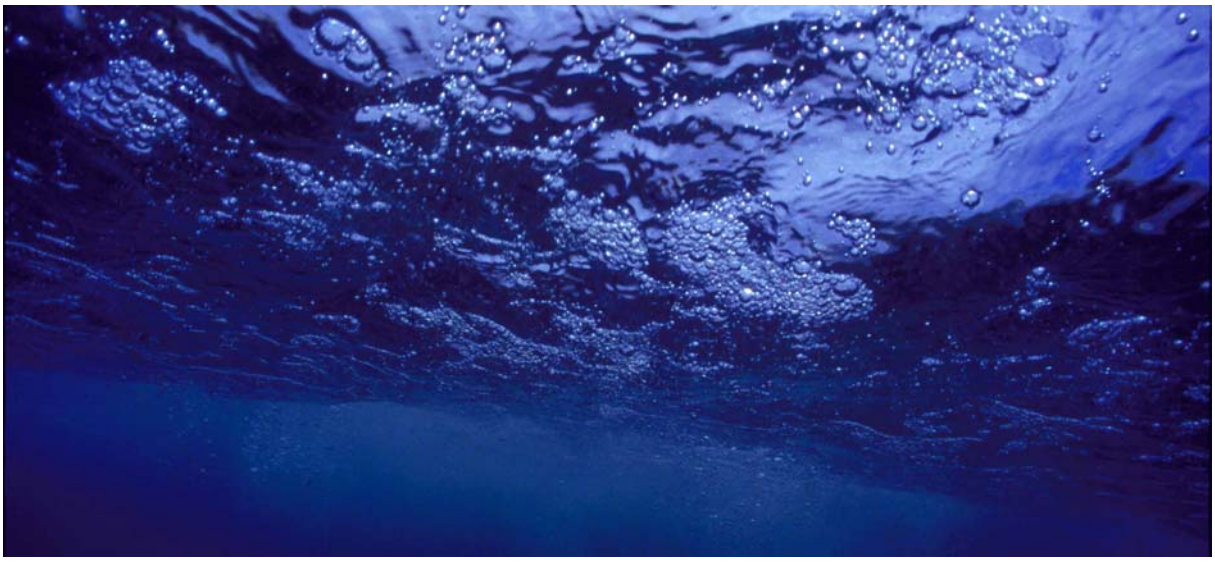

## The Winston Churchill Memorial Trust of Australia

The Lamington National Park Churchill Fellowship

# Building community support and stewardship for marine protected areas in temperate waters


Report by

Tim Allen
Year 2000 Churchill fellow

**Acknowledgements**
My sincere appreciation is extended to Tony Groom for his generous support to the Churchill Trust that enabled this investigation to be undertaken.
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# INTRODUCTION

Ecologically sustainable use of the marine environment requires that some marine areas be retained in their natural state or as near to natural as possible. MPAs are the best management tool, of a range of management tools available, to help achieve this – the recognition of which is increasingly driving both non-government organisations and governments alike to give serious consideration to their adoption.

The MPA label however, is an ambiguous, generic term. The International Union for the Conservation of Nature (IUCN) describes it as "an area of sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means". Here though the uninitiated should be wary – there is an ever-expanding range of nomenclature associated with MPAs, and the levels of protection under these terms can vary widely. The same words are used to describe different things in different places and different words are used to describe the same thing as well. It is important to remember that the level of protection is the key element, not the protection label.

Throughout the world MPAs are essentially being approached from two paradigms. The first is multi-zoned MPAs where uses are designated to different areas or zones, like a planning scheme (sometimes referred to as *marine parks*). Areas of high-level protection are sometimes included as a zone. The second approach focuses on the establishment of single fully protected or no-take zones (sometimes referred to as *marine reserves* or *marine national parks*). There is robust debate internationally concerning the relative merits of both approaches in meeting the objective of biodiversity conservation.

In addition, there is ongoing debate surrounding the creation of no-take areas for fisheries purposes. This too, has developed into a protracted debate, underpinned by differing philosophical beliefs and value systems.

For the purposes of this investigation I attempted to narrow the focus of study to programs and initiatives linked to establishment and management of "no-take" or fully protected MPAs in first-world countries. This approach was selected because of its relevance to Victoria in particular, where, at the time of this investigation, the State Government was attempting to create a system of no-take marine national parks to conserve representative examples of marine ecosystems. This system was successfully established through legislation on 16 November 2002, forming part of Australia's National Representative System of Marine Protected Areas.

Since 1991 successive Australian Federal Governments have actively supported the creation of a comprehensive, adequate and representative system of marine protected areas in both in State and Commonwealth waters. The Federal Government has established a number of MPAs in Commonwealth waters, while State and Territory Governments are in various stages of advancing MPA establishment.

Despite the various initiatives of Australian governments however, there are relatively few non-government organisations and programs that aim to build community support for marine protected areas in temperate waters, and only one, the Marine and Coastal Community Network (funded by the Federal Government), attempts to coordinate initiatives. Active support for MPAs in the pre-declaration phase is largely confined to non-government conservation organisations, and to a lesser degree, the marine science community. Building post declaration support for MPAs is usually left to government departments/management agencies.

This investigation was developed in recognition that a broader toolbox of approaches, strategies, programs and materials will be required to help engage the wider publics' support for MPAs in temperate Australian waters. Demonstrable community support will be crucial if a national representative system of MPAs is to become a reality.

## EXECUTIVE SUMMARY

This Year 2000 Churchill Fellowship investigated both non-government and government organisations and programs that aim to build community support for marine protected areas (MPAs) in temperate (cool water) ecosystems. The investigation looked at initiatives linked to both the pre and post declaration phases of MPA establishment, visiting sites over a six-week period in New Zealand, the United States and Canada.

***Key findings of this investigation include:***

- In New Zealand, the United States and Canada, as in Australia, low levels of community knowledge about the role of highly protected MPAs in protecting marine biodiversity have impeded progress to establish representative reserve systems. However, a number of significant community education initiatives have recently been established that are aiming to address this.

- The most entrepreneurial, strategic and innovative of these initiatives are being developed by non government organisations in the United States. The initiatives include COMPASS, The Ocean Project, and The Sustainable Seas Expeditions - all of which have the potential to significantly increase the constituency of support for marine protected area initiatives. The projects are all funded through extensive philanthropic support e.g. The Packard Foundation and Pew Charitable Trust.

- In first-world countries, the most effective method of implementing a representative system of highly protected MPAs appears to be a "top-down" approach were principles and policies are set by the Government, while regional, local and sectional interests are involved in arranging the specific locations and management details through a staged planning process. This moves the community debate associated with highly protected MPAs from "if" to "where". The sometimes intense debate associated with highly protected MPAs, if the debate is balanced and informed, can be constructive to the establishment process.

- The active engagement of, and public advocacy by marine scientists (particularly marine biologists and ecologists) and their professional scientific associations e.g. The American Association for the Advancement of Science, is influencing community and political opinion in support of marine protected areas. This is particularly apparent in the United States where community attitudinal surveys have identified marine scientists as "trusted messengers".

- Community attitudinal surveys and focus groups are proving to be an invaluable tool in developing communication and marketing strategies, and testing the salience of various communication techniques linked to MPA campaigns.

- Environment NGOs, and to a lesser degree, scientific associations, are leading the campaigns for building the active constituency of support for MPA initiatives. In the United States there has been a greater tendency for NGOs to promote the benefits to fisheries as a primary objective of reserve establishment.

- Building community stewardship for MPAs in temperate waters benefit from the identification of, and marketing of 'iconic' species and habitats that can capture the public's attention and imagination e.g. kelp forests, seagrass meadows. Such 'icons' are useful to market the representative nature of a region's marine ecosystem. Marine aquariums e.g. Monterey Bay Marine Aquarium, museums, television programs and innovative web sites e.g. the "Sliding Benchmarks" project are significant vehicles for promoting temperate marine ecosystems.

- Because highly protected MPAs essentially change the way a piece the sea is managed, the planning processes are inherently adversarial. The most successful campaigns for MPAs demonstrate strong leadership by NGO interests, broad networks linking local, regional, state and national groups , cross sectoral alliances, strategic planning, and have articulate spokespeople (for the duration of the establishment process) who are able to speak from a position of authority.

- Not all public misgivings about MPAs can be overcome prior to a reserve being created no matter the amount of public awareness, consultation etc. The investigation found that community stewardship for

reserves will develop in increments as there is recognition that a reserve has benefited both the marine environment and the local community. This recognition may take years to develop, although it can be assisted by projects and 'processes' that continue to engage the local community e.g. community reference groups/advisory committees, involvement of key community interests in research activities, public events focused on the reserve. The benefits to management agencies and the reserve can be marked e.g. assisting enforcement via community reports of reserve infringements as has occurred at the Leigh Marine Reserve in New Zealand.

***Recommendations***
General recommendations from this investigation include:

***Recommendation 1.***
National information networks that facilitate community involvement in MPA initiatives are essential to developing Australia's National Representative System of Marine Protected Areas. Australia's Marine and Coastal Community Network is well placed to continue its role as a support program for MPA initiatives Australia-wide. The project should be encouraged to refocus its attention on highly protected MPAs as a central component of its work program.

***Recommendation 2.***
Given the significance of the marine scientists as the public's perceived "trusted messengers" on marine conservation initiatives, the Marine and Coastal Community Network should facilitate discussions with the Australian Marine Sciences Association to scope the potential for an Australian equivalent of COMPASS – Communication Partnership for Science and the Sea.

***Recommendation 3.***
Community attitudinal surveys and focus groups are an invaluable tool in developing communication and marketing strategies, and testing the salience of various communication techniques and messages. Acquisition of this information should be undertaken on a regular basis, in a scientifically rigorous manner, and be given the same priority as the acquisition of biological and economic data linked to MPA development. Information should be gathered on areas including levels of community awareness, community values, messaging, and who the community see as 'trusted information sources'. The Marine and Coastal Community Network should scope the development of an Australian equivalent of The Ocean Project in conjunction with key Australian museums, aquariums, environment NGOs and professional scientific bodies and organisations e.g. The CSIRO, Australian Marine Sciences Association.

***Recommendation 4.***
The Marine and Coastal Community Network should seek funding and/or investigate conference opportunities to bring a number of key individuals to Australia to discuss their respective programs e.g. Dr Sylvia Earle (Sustainable Seas Expeditions), Dr George Leonard (COMPASS). The Marine and Coastal Community Network should arrange either speaking tours or workshop(s) as considered appropriate.

***Recommendation 5.***
Resource 'packs' or 'toolboxes' should be developed for NGO environment organisations to help build the capacity of MPA advocates. These packs should outline techniques to develop campaign strategies, case studies, refining communications techniques and media skills, identifying available resources and contacts etc. Focus group discussions should be held with key NGO groups to identify their needs, and follow-up workshops should be undertaken to guide people on how to use the resources. A 'best practice' guide for building community stewardship for MPAs in their post-declaration phase could also be developed.

Readers should note that a number of recommendations and lessons have also been identified in each case study.

***Distribution of the Investigation's Findings***

The results of this study have been, and will continue to be distributed throughout Australia via:

- Regional Coordinators of the Marine and Coastal Community Network, Coastcare Facilitators, and interested marine conservation NGOs.
- A four-page insert, detailing the main programs and organisations building community support for MPAs and marine conservation generally, will be included in a forthcoming edition of the Marine and Coastal Community Network's newsletter "Waves" that is distributed to over 10,000 marine and coastal organisations and individuals nationally.

- The Marine and Coastal Community Network's new website due for launch in late 2003.
- A workshop with State and Territory Coordinators of the Marine and Coastal Community Network at the MCCN's national meeting in February 2002.
- Conference and workshop presentations, including the International Rangers Conference (Wilsons Promontory, Victoria, 2003), MCCN Marine National Parks Workshop (December 2001) and World Wide Fund for Nature's Great Barrier Reef Representative Areas Program Workshop (October 2002).

In addition the vast array of material collected as part of the study has been collated into a resource library for use by participants of the MCCN.

## FELLOWSHIP PROGRAMME

**27 July 2000 – 3 July 2000: Leigh Marine Reserve, New Zealand**
***Meetings:***
Meetings with representatives of the New Zealand Department of Conservation, Leigh Marine Laboratory - University of Auckland, Coastal and Aquatic Systems Ltd, National Institute of Water and Atmospheric Research, and Seafriends

**5 July 2000 – 10 July 2000: Vancouver, Canada**
***Meetings:***
Meetings with representatives of the University of British Columbia Fisheries Centre, Canadian Parks and Wilderness Society, COMPASS, Dovetail Consulting Inc.
***Conference:***
The Economics of Marine Protected Areas, University of British Columbia
***Field Trips:***
Vancouver Aquarium

**11 July 2000 – 16 July 2000: Monterey National Marine Sanctuary, USA**
***Meetings:***
Meetings with representatives of the Seymour Center at Long Marine Laboratory, Center for Marine Conservation, Monterey Bay National Marine Sanctuary, COMPASS, Monterey Bay Aquarium, Marine Advanced Technology Education Center, Save Our Shores, and Bay Net - Monterey Bay National Marine Sanctuary Volunteer Network.
***Field Trips:***
Monterey Bay Aquarium, Elkhorn Slough, and the Elephant Seal colony near San Simeon.

**17July 2000 – 22 July 2000: Channel Islands National Marine Sanctuary, USA**
***Meetings:***
Meetings with representatives of the local commercial fishing industry, California Sea Grant, Sustainable Sea Expedition - National Geographic and NOAA, Department of Fish and Game, U.S. Institute for Environmental Conflict Resolution, Channel Islands National Marine Sanctuary, Ocean and Coastal Policy Center - University of California, Channel Islands National Park - U.S. National Parks Service, and the Center for Marine Conservation.

**24 July 2000 – 27 July 2000: San Francisco, USA**
***Meetings:***
Meetings with representatives from the Natural Resources Defence Council.
***Field Trip:***
Gulf of the Fallarone National Marine Sanctuary.

**28 July 2000– 2 August: Florida Keys National Marine Sanctuary, USA**
***Meetings:***
Meetings with representatives of the National Marine Fisheries Service - U.S. Department of Commerce (NOAA), Florida Keys National Marine Sanctuary, Team Ocean, and Friends of Florida Keys National Marine Sanctuary.

**2 August 2000 – 9 August 2000: Washington, USA**
***Meetings:***
Meetings with representatives of the National Marine Sanctuary Program –NOAA, SeaWeb, American Oceans Campaign, Centre for Marine Conservation, and the Marine Conservation Biology Institute.

**10 August 2000 – 14 August 2000: New York, USA**
*Meetings:*
Meetings with representatives of the Ocean Project

**15 August 2000 – 17 August 2000: Hallifax, Canada**
*Meetings:*
Meetings with representatives and/or staff of the Ecology Action Centre, Department of Fisheries and Oceans, Parks Canada and Dalhousie University

**17 August 2000 – 23 August 2000: Saint Johns, Newfoundland, Canada**
*Meetings:*
Meetings with representatives of the Department of Fisheries and Oceans, and the Memorial University of Newfoundland

## MAIN INVESTIGATION STUDY AREAS

Photo: The Leigh Marine Reserve, New Zealand

### NEW ZEALAND

New Zealand has sixteen fully protected marine reserves, which range in size from the Kermadec Islands Marine Reserves (748,000 ha) to the Te Awaatu Marine Reserve (93 ha). Most reserves are between 500 – 800 hectares. In total these areas account for approximately 4.8% of New Zealand's territorial waters. In addition New Zealand has three multiple-use marine parks, and two marine mammal sanctuaries.

Marine reserves are created through the Marine Reserves Act (1971), and are a "specified area of the territorial sea, seabed and foreshore which is set up and managed for the purpose of preserving it in a natural state as the habitat of marine life for scientific research".

The marine reserve legislation is particularly interesting in that it allows groups and organisations, in addition to the Director-General of Conservation, to generate proposals. The process by which groups can do this is divided into two stages, namely a non-statutory or informal phase, and a statutory (formal) stage. The only legislative obligation on proponents is to carry out the statutory process, although the Department of Conservation strongly advises groups to undertake the non-statutory consultative process to help secure broader community support before progressing to a formal application.

While the process is community driven, it is onerous for proponents. It is their responsibility to develop the documentation for the proposal, fund scientific work, draft the proposal for public release, notify key interests, and undertake public consultation. The public response dictates whether a formal application is lodged. If there is overwhelming objection, the proposal is abandoned.

If it does receive a favourable community response, the proposal is lodged with the Director General of Conservation. He/she places a public notification of the application, and objections are called for. The applicant can answer the objections at this stage. Then the Director General forwards the application, objections, and answers, to the Minister of Conservation.

The Minister then considers the objections, and decides whether to proceed. If a decision to proceed is taken, the Minister must then seek concurrences from the respective ministers for fisheries and transport before making a final decision to forward the proposal to the Governor-General.

While the outcome, if successful, is rewarding for groups, it can take anywhere between three to six years to be achieved. And, while a number of reserves have been created by this process, most are relatively small areas. It is telling that after thirty years since the Marine Reserve Act was passed, less than 0.1% of the territorial waters surrounding New Zealand's two main islands (note – this excludes the Kermadec Marine Reserve) is protected.

There is mounting pressure for a new approach in order to achieve a comprehensive, adequate and representative system of reserves. The present government has committed itself to having 10% of coastal waters in marine protected areas by 2010. Funding for the Biodiversity Strategy announced in June 2000 committed an extra $11.5 million on increasing the number of reserves over the next five years. Key actions include supporting the

setting up of new reserves, improving public support through the development and implementation of a public awareness strategy, and supporting research to address the critical knowledge gaps about where best to set up marine reserves and how big they should be. In addition, the Department of Conservation Strategic Business Plan 1998 –2002 proposed to increase the current number of marine reserves by developing three new proposals per year, and reviewing the Marine Reserves Act.

Note: In February, 2003, New Zealand's Conservation Minister announced that about 484,000 hectares of the Southern Ocean surrounding the Auckland Islands would become protected in a marine reserve. The reserve will stretch for 12 nautical miles around the islands, making it the second biggest marine reserve in New Zealand. In making the announcement the Minister said "I am optimistic that confirmation of this reserve breaks a logjam in marine reserve applications that has so frustrated marine scientists, conservationists and local communities throughout the country. This is the first marine reserve announced in four years. By the end of this year, I am hopeful we will have decisions on at least another five reserve applications, including proposals at Waiheke Island, Stewart island, the Wellington South coast, north Nelson and the Volkner Rocks in the Bay of Plenty."

Given the limited amount of time spent in New Zealand as part of the Churchill Fellowship, I decided to focus on New Zealand's first marine reserve as a case study, the Leigh Marine Reserve. I reviewed the history behind its establishment, the level of community acceptance to this reserve, the factors that have contributed to community acceptance, and emergence of the principles that underpin a systematic approach to reserve creation.

**CASE STUDY: THE CAPE RODNEY-OKAKARI POINT OR LEIGH MARINE RESERVE**

The Leigh Marine Reserve, New Zealand's first, and its most well known marine reserve, was gazetted in 1975. Its establishment owes much to the work of a small group of people with both vision and tenacity, who worked against both opposing interests and the bureaucracy to achieve success.

The push for the Leigh Reserve began in 1965, when the University of Auckland established a marine laboratory on the coast near the small township of Leigh, 100km northeast of Auckland.

The committee managing the laboratory started to think about the idea of a reserve as they became concerned with the level of fishing, particularly spearfishing, on nearshore ecosystems, and the effects that this was having on scientific research. The committee subsequently decided to approach the Marine Department to fully protect the area from extractive use.

The first hurdle was that no suitable legislation existed to create a reserve, and there was unwillingness from within the bureaucracy to progress the matter.

Frustrated, yet not to be outdone, the scientists began a protracted public campaign to sway public opinion in support of appropriate legislation and a reserve at Leigh. During 1965 and 1966 they held public meetings, courses for divers, consulted with commercial fishers and local landowners, as well as visiting schools and local clubs, with the objective of building community support for their cause.

The community became divided over the issue. The New Zealand Underwater Association supported the proposal in recognition that spearfishing was having the impact on the area, while the New Zealand Marine Sciences Society also backed the proposal. Yet opposition to the proposal was mounting from commercial and recreational fishers, local landowners, and the local Council.

By the late 1960s the proposal was gaining a degree of political momentum, yet bureaucratic delays and political agendas would not see the Marine Reserves Act passed until 1971.

With the legislation passed, the marine scientists now had the opportunity to move forward with the proposal for a reserve, and this was duly submitted within the year. The proposal was however, referred back to the scientists by the bureaucracy for yet further consultation. Undeterred, the scientists went back to the local community, and undertook the task requested. The proposal was resubmitted in 1973.

After public notification of the proposal, submissions were invited. This resulted in a small number of submissions both supportive of and objecting to the proposal. Yet political posturing delayed the gazettal of the reserve until 1975 – it was almost the last act of an outgoing government. The Reserve was officially opened in 1977, over a decade after it was first proposed - a fully protected reserve 5km long running 800 metres offshore.

Dr Bill Ballantine, who was one of the marine scientists intimately involved in the proposal to establish both the legislation and the reserve, said that the passage of the proposal was a sequence of bureaucratic delays and political agendas that ultimately worked in the favour of the reserve being established. In discussions with him, he noted that "Although we had a vision to create a reserve, the process that led to the creation of Leigh did not start with a plan or final aim. It developed through a series of fortunate accidents, at a fortunate time, to produce a final, lasting result (pers. comm.)".

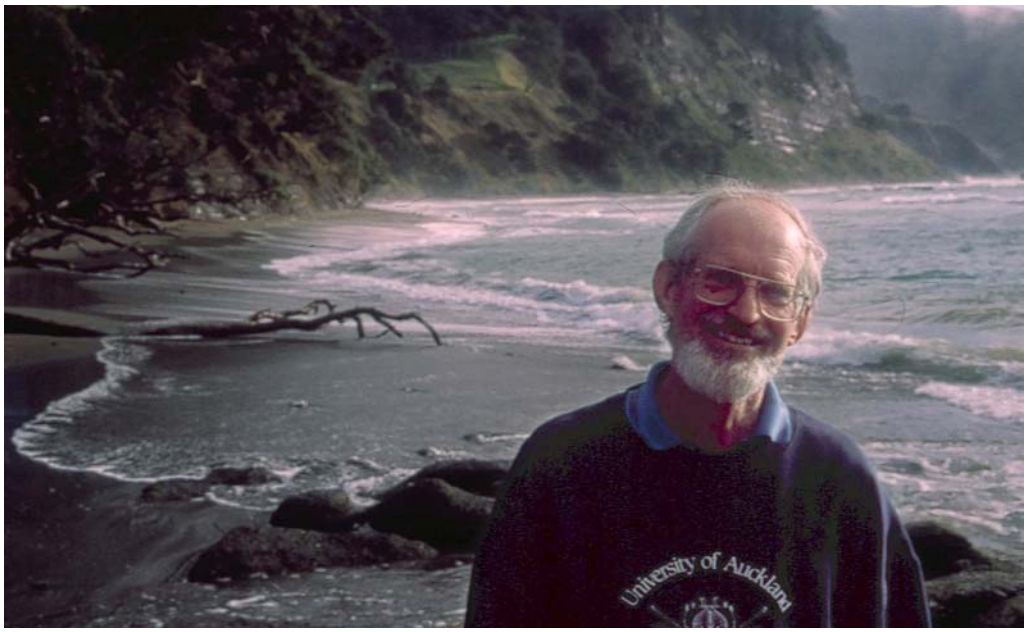

Photo: Dr Bill Ballantine at the Leigh Marine Reserve

***Post Establishment***

Initially, public interest and appreciation for the reserve was low, except for the scientific community who utilised the reserve for research.

In 1989, visitation to the reserve was estimated at about 14,000 people over summer. But as scientists and divers began to see increases in the general abundance of marine life within the reserve (particularly rock lobster, snapper, and red moki - a fish), the word about the prolific marine life started to spread. Dive clubs began to undertaken training in the reserve, while schools began to focus marine biology classes on the reserve. Many other people just came to picnic and swim.

By the early 1990s, the reserve was attracting an increasing number of academic research projects to the laboratory. The findings were consistent – marine life was responding dramatically to the protection afforded by the reserve, and the Leigh Reserve began to establish a name for itself in the scientific community both nationally, and internationally.

The research backed up what commercial fishermen had known since 1985. Since this time, lobster fishermen had been setting their pots on the seaward boundary of the reserve in the belief that their catches we better there. And with this belief, fishermen started to actively enforce the protection afforded to the area.

All of this began to build a picture of the reserve as not only beneficial to science, but to conservation, regional tourism, education, and commercial fisheries. And it was at this point that the reserve began to be promoted for its range of benefits as opposed to the specific purpose for which it had been created. It had also started to become a persuasive argument for creating reserves elsewhere.

As the northeast coast of New Zealand became increasingly fashionable as a holiday destination, visitation at Leigh continued to grow. In 1993/1994, a survey estimated that there were over 100,000 visitors to the reserve annually. A socio-economic study of the reserve found that residents of the nearby town believed that the community would be worse off without it

Businesses started to be established to capture the market. These included SCUBA tank filling stations, snorkel equipment hires, a café, marine education centre, a camping ground and glass bottomed boat – each venture actively promoting the reserve. Visitation is now estimated at some 200,000 people annually, with signs that the reserves popularly will necessitate greater management.

The Department of Conservation had been managing the reserve since 1987, and there have been active steps to improve facilities such as carparks, signage etc since this time. There is only one road to the shore of the reserve, which benefits management considerably.

Enforcement is an ongoing issue facing management. Although most people respect the reserve, there have been occasions where poaching for lobster and fish has occurred. It is impossible to completely prevent the lure of poaching, but the with the level of local support that the reserve now boasts, there is a greater probability that perpetrators will be apprehended.

As the popularity of the reserve is increasing with every year, so to the requirement for management will increase. There are however, indications that the public is aware of the ecological sensitivity of the reserve, and that people are amenable to modifying their behaviour to protect it. The behaviour of fish species for example had been altered in the most accessible area of the reserve due to divers and snorkelers feeding fish including

blue cod and snapper. These species were forming large schools adjacent to the shore to take advantage of the summer feeding. Although the activity had occurred consistently since the reserve was created (and impacted on about 5% of the reserve area), it has now been dramatically reduced (some believed stopped completely) through interpretive signage developed by an undergraduate student at the laboratory.

Photo: Interpretive signage at the Leigh Marine Reserve

**Key Lessons**

While some caution should be exercised in extrapolating too much from the Leigh example on its own, there are some key points that have underpinned the development of community stewardship for this reserve. These points include:

**The location and its accessibility**

a) The reserve area was publicly accessible and non extractive use was encouraged following the reserves establishment;
b) It is a very scenic location, is relatively safe to swim, snorkel, and dive at, and has a good beach i.e. its natural values attracted people;
c) Its proximity to the University of Auckland's has provided significant opportunities for marine research.

**Leadership and vision of the proponents**

a) There was recognition (at least in the scientific and dive community) of the intrinsic value of the local marine ecosystem and the threats facing these values;
b) It was clearly and widely articulated by marine scientists that a reserve could potentially address these impacts or threats, and protect the ecosystem for future generations i.e. a vision for the reserve was successfully shared/developed with other potential supporters;
c) The proponents were knowledgeable, credible, determined, persistent, and focused on achieving an outcome;
d) The proponents formed strategic alliances with other supporting interests e.g. divers.

**Community recognition of principles**

a) Although supporters came from different starting points i.e. they had different interests and different problems, and saw different potential benefits, their support followed similar 'principles' and were based on similar values.

**Community recognition that the reserve has benefited the marine environment <u>and</u> the local community**

a) The reserve provided social, environmental and economic benefits to the community that exceeded the initial objective of its establishment i.e. for scientific research;
b) It did not upset existing practices too severely;
c) People have seen direct financial benefits gradually flow back to their community from the creation of the reserve – as a result, opposition and indifference have given way to support;
d) There is a sense of community pride that the reserve has become a 'role model' both nationally and internationally.

**Other points:**

- Not all public misgivings about marine reserves can be overcome prior to a reserve being created no matter the amount of public awareness, consultation etc;
- Vocal opposition to the reserve appeared to rapidly dissipate once the reserve was created;
- Most of the benefits and opportunities that the reserve has subsequently created were never envisaged when the reserve was first established;
- Local people will actively support enforcement of the reserve's restrictions when they come to value the area;
- There is no single mechanism, by which widespread community recognition and support for reserves will be achieved.

**For further information**

**Contacts:**

Ms Katherine Walls, Department of Conservation – Northern Regional Office. Email kwalls@doc.govt.nz
Dr Bill Ballantine, Senior Lecturer, Leigh Marine Laboratory (University of Auckland) 0011 64 9 422 6111 or email b.ballantine@auckland.ac.nz

**Web**

See http://www.marine-reserves.org.nz/

**Books and Papers**

Ballantine, W.J. (1991) Marine Reserves for New Zealand. University of Auckland, Leigh Marine Laboratory, Warkworth

Ballantine, W.J. (1999) Marine Reserves in New Zealand: The Development of the Concepts and the Principles. Published in the Proceedings of an International Workshop on Marine Conservation for the New Millenium, Korean Ocean Research and Development Institute. pp 3-38.

**Video**

'Marine Reserves: A View from the Bridge' – Experiences of three local communities in New Zealand with marine reserves. Produced by Dr Laura Stocker from Murdoch University, Western Australia in conjunction with the Marine and Coastal Community Network. To obtain a copy email stocker@central.murdoch.edu.au (Laura Stocker) – note that costs apply.

**Courses**

For the past two years the Leigh Marine Laboratory, University of Auckland has offered an annual two-week accelerated course in "The Principles and Dynamics of Marine Reserves". The course has been developed with international students in mind and has no pre-requisites or co-requisites. Dr Bill Ballantine conducts the course. For further information contact b.ballantine@auckland.ac.nz (Bill Ballantine).


Photo: Scuba divers prepare to explore kelp forests in the Monterey Bay National Marine Sanctuary

## UNITED STATES OF AMERICA

The issue of marine protected areas started to attain greater prominence in the United States towards the end of the 1990's, and there is more activity on the issue presently than at any time in the previous decade. Activity is divided between specific programs of government and non-government organisations at both the federal and state level, and includes both interagency initiatives and congressional activities.

While there are a number of federal government programs in the United States that address marine protected areas in some way e.g. National Estuarine Research Reserves, National Parks, Fisheries Protected Areas, time constraints restricted my investigation of federal government initiatives to the National Marine Sanctuary program. This is administered by the National Oceanic Atmospheric Administration within the Departments of Commerce and Interior.

The National Marine Sanctuary program was initiated in 1972, 150 years after the first national park was created. Since 1972 twelve national marine sanctuaries have been designated, encompassing habitats including deep ocean areas, coral reefs, whale migration corridors, deep sea canyons, and maritime archeological sites. They range in size from one-quarter square mile in Fagatele Bay, American Samoa to over 5,300 square miles in Monterey Bay, California.

To the chagrin of many conservationists and marine scientists however, most areas within the national marine sanctuaries are at present "multiple use" areas with very few fully protected areas within them. While some activities are regulated or prohibited e.g. oil exploration and mining, generally there are limited restrictions on recreation, commercial fishing, and shipping. There is however, increasing evidence that public pressure is mounting to have greater restrictions apply within sanctuaries, and for a more comprehensive, adequate and representative system of sanctuaries to be created.

Political recognition of this came in May 2000 when President Clinton announced his Executive Order 13158 on marine protected areas. This order, which was retained by the Bush administration in June 2001, directed the Departments of Commerce and the Interior to "strengthen the management, protection, and conservation of existing marine protected areas (MPAs) and establish new or expanded MPAs". Their responsibilities are to:

1) develop a science-based, comprehensive national system of MPAs
2) strengthen existing MPAs and establish new MPAs
3) avoid harm to the natural and cultural resources in MPAs
4) limit pollution of beaches, oceans, and coasts using existing EPA authority, and
5) provide an annual report of actions taken to implement the Executive Order

Five specific tasks have been undertaken and are in the process of being completed since the announcement of the Order:

1) NOAA has established an institute for MPA science as part of the National Marine Fisheries Services in an effort to develop a framework for a nationwide system of MPAs;
2) A Federal Advisory Committee to provide recommendations for developing a science-based framework for a national system of MPAs is being established;
3) NOAA and the Department of the Interior developed a web site (www.mpa.gov) on Marine Protected Areas of the United States.
4) An institute for MPA Training and Technical Assistance was established as part of the National MPA Center.

In addition to this action, there are a number of federal legislative developments that are relevant including the Oceans Act of 2000 (S. 2327). This Act establishes a "Commission on Ocean Policy" to make recommendations to the President and the Congress for a coordinated and comprehensive national ocean policy. Yet, frustrated by the slow progress on this initiative, the Pew Charitable Trusts, a philanthropic organisation, established its own Oceans Commission in May 2000. As of October 2001, this commission is conducting hearings, and will produce interim reports before making their recommendations to Congress in 2002. This group is made up of scientists, public officials, business leaders and members of the conservation and fishing communities.
The announcement of the Executive Order, and its subsequent endorsement by President Bush, has bolstered the confidence of scientists, conservationists and Sanctuary staff. It has also leant support to current Federal and State MPA initiatives, including:

- The Management Review of the Channel Island National Marine Sanctuary
- The Californian Marine Life Protection Act (MLPA)
- The Tortuga's 2000 initiative to the west of the Florida Keys

## COMMUNITY EDUCATION PROGRAMS ASSISTING AWARENESS OF MARINE PROTECTED AREAS

### SEAWEB

SeaWeb is an independent, non-profit organisation dedicated to improving Americans' awareness and support for marine conservation. A specialist in strategic communication techniques aimed at influencing media, government, and the interested public, the organisation collects and communicates reputable scientific information about the importance and condition of the ocean, with the aim of mobilising social and political support for the ecologically sustainable use of coastal and marine environments.
Based in Washington, the organisation was established in 1995 as an initiative of the Environment Group within the Pew Charitable Trust. SeaWeb was developed as a direct result of the Trust's recognition that available scientific evidence is increasingly highlighting that the ocean environment is undergoing profound and often irreversible change as a result of human activity.
SeaWeb develops and manages its own programs and works collaboratively with other groups by offering advice on communication messages and strategies. It is not a membership organization or an environmental activist group, but is catalytic in executing targeted media campaigns and creating coalitions and networks to advance marine conservation. In SeaWeb's own words, their approach is "objective, but not neutral - our bias is to protect the living ocean."
SeaWeb, like the Ocean Project (a partner program), has conducted extensive public polling to identify and monitor public attitudes, to identify issues of concern, and to test the salience of various messages and communication techniques linked to the marine environment. The polling will be reviewed every five years. This research has directly shaped the campaigns and communication methods of the organisation.
While overfishing, sustainable seafood consumption and aquaculture have formed the basis of initial campaigns within the organisation, SeaWeb has also advanced public policy on marine protected areas in recent years.
In 1999, additional public polling research was undertaken to help direct national communication strategies to support both the establishment and management of marine protected areas.
Some of the successful strategies SeaWeb has developed for their campaigns, including marine protected areas, include:

- Identifying and establishing a scientific "spokesteam" for the media on ocean issues. The organisation also takes delegations of scientists to meet with journalists around the United States to discuss ocean issues.
- Conducting workshops and seminars (including 'Press Breakfasts') to increase the skills of journalists and other environmental groups to improve the translation of science for the public and policymakers. Over 500 journalists receive updated briefing papers on issues every six months.
- Providing strategic communications and message development work to support the efforts of other conservation groups.
- Maintaining a highly informative website.
- Providing a clearinghouse for authoritative and reputable information.

- Sponsoring and producing educational programs and announcements on radio, television, and film e.g. The Ocean Report – scripted radio pieces underpinned by good science.
- Conducting targeted public awareness campaigns focused on consumers e.g. the 'Give a Swordfish a Break' campaign that involved US chefs raising concern over the sustainability of swordfish stocks.

SeaWeb has been cautious not to duplicate the work of NGO conservation groups. SeaWeb works with NGOs to give them the best communication support for their campaigns, help deliver NGOs a supportive constituency, and "value add" to events to achieve better media coverage.
The SeaWeb team consists of scientists, researchers, educators, editors, and communication specialists. SeaWeb is supported by grants from a large number of national and international foundations, and the level of respect that the organisation enjoys throughout both the United States and Canada is well justified.
**For further information:**
Email Address:
Web Site Address: www.seaweb.org/
**Potential application in Australia:**
SeaWeb shares similarities with the Marine and Coastal Community Network, a national non government program administered by the Australian Marine Conservation Society under contract to the Federal Government's Marine Program. It's web-based communication techniques are instructive and should be considered by the MCCN and other NGO programs and organisations.

**COMMUNICATION PARTNERSHIP FOR SCIENCE AND THE SEA (COMPASS)**

The COMPASS program aims to advance marine conservation science and communicate this knowledge to policymakers, the public and the media.
Public polling undertaken by SeaWeb in 1996 identified that marine scientists were viewed as "trusted messengers" by the general public on marine conservation issues. Yet SeaWeb also recognised that scientific knowledge needed to become more integrated, better connected to policy, better interpreted to its intended audience, and that scientists had to learn how to communicate more effectively with policymakers, the media, and the public if it were to become influential in progressing marine conservation. COMPASS was formed with this in mind.
The COMPASS program was established in 1999 with funding from the David and Lucile Packard Foundation. It consists of four partners - Island Press, SeaWeb, Monterey Bay Aquarium, and a Scientific Advisory Board (made up of 11 leading marine scientists from universities, environmental organizations, and public agencies). Each partner was selected on the basis of expertise and experience.
Strategic planning for program was informed by focused interviews with 37 academic marine scientists and with 17 other professionals working on marine conservation. This research identified a number of significant themes:
- There is a high interest in marine conservation among academics. They would like to increase their involvement with conservation but they need activities to facilitate this involvement.
- A 'cultural gulf' exists between academic and government scientists, and they rarely interact. Marine conservation science would be advanced by contributions both from and between both types of scientists.
- Scientists are wary of the media. There needs to be expanded efforts to bring marine scientists and the media together, and targeted training in public communication for scientists is required.
- Small, topically focused meetings were required to improve discussions on marine conservation science.
- Better communication between scientists and the public is required. For example, in order of priority, scientists identified overfishing, pollution (nutrient overload), and habitat loss as the three most important problems facing the marine environment. Yet SeaWeb's 1996 survey of 1,300 adult Americans nationwide identified oil spills, chemical runoff, and improper sewage treatment as the top three marine issues of importance. The results demonstrate that the scientific understanding has not been well communicated to the public at large.

As a result of the research, COMPASS identified a number of key strategic campaign areas. This includes marine protected areas, which became the first campaign area of the program.
COMPASS was instrumental recently in facilitating media activities and scientific comment associated with 'A Scientific Consensus Statement on fully-protected Marine Reserves and Marine Protected Areas', a statement signed by over 160 of the world's top marine scientists (PhD<). The Statement was released as part of symposium concerning The Scientific Theory of Marine Reserves at the American Association for the Advancement of Science (AAAS) meeting in San Francisco in February 2001.
COMPASS identified key scientists to speak with the media, helped advance these scientists' communication skills, generated and distributed media releases, liaised with media organisations, provided briefings to journalists, and linked scientists to media outlets.
The result was excellent press coverage of both the Statement and the Symposium at an international, national, and local level. This included radio coverage by the BBC, print articles in The Economist and the Financial

Times (London) and numerous newspapers articles across the USA. The high media profile of the event also led to a number of key scientists being invited to Washington DC to brief members of Congress and the Bush administration about the science behind marine reserves.

**For further information:**

Email Address: gleonard@mbayaq.org

Web Site Address: http://www.compassonline.org/

**Potential application in Australia:**

There is sound potential for program similar to COMPASS within Australia. The Marine and Coastal Community Network should investigate opportunities in conjunction with the Australian Marine Sciences Association.

**THE OCEAN PROJECT**

The Ocean Project is a recent initiative of the Wildlife Conservation Society/New York Aquarium that aims to create long-term, measurable public awareness of the importance, intrinsic value, and environmental sensitivity of the marine environment. The project stems from awareness that the greatest impediment to healthy and productive marine and coastal areas is the public's low level of ocean awareness.

The project is led by a Steering Committee in collaboration with all aquariums, zoos, science and technology, and natural history museums that wish to participate.

Partnership aquariums with the Ocean Project include some of the United State's and Canada's most prestigious institutions including the Monterey Bay Aquarium, National Aquarium in Baltimore, New England Aquarium, New York Aquarium, John G. Shedd Aquarium, and Vancouver Aquarium Marine Science Centre.

The initial phase of the project has focused on comprehensive public polling studies to understand gaps in public awareness about the oceans. It conducted six focus groups across the country, and undertook a major national survey of the public's attitudes, values, and knowledge related to the oceans. This focused on aspects including peoples' connections to the oceans, awareness of ocean health, environmental concerns regarding the oceans, knowledge of the oceans, human impact on the oceans, personal importance of protecting oceans, values frameworks, message development, level of support for protecting oceans, finding effective solutions.

The research, the most comprehensive of its kind ever gathered, found:

1. Oceans are viewed as powerful, vast, relaxing, and fun.
2. There is little awareness of ocean health, especially beyond the beach.
3. Protecting the oceans is not an urgent issue - important but *not really important*.
4. The public possesses only superficial knowledge of the oceans, their functions, and their connection to human well being.
5. Oceans are viewed as vulnerable to lasting damage, but the public does not see individual actions having a great impact.
6. There are currently low levels of personal importance for protecting oceans.
7. The most effective values framework is the balance of nature.
8. Effective messages include recreation, responsibility, and future; most salient threat is pollution.
9. That Americans may sacrifice to protect the oceans.
10. The public can be divided into five attitudinal groups on the oceans.

The results of the research are now being used to plan and implement communication strategies throughout partner organisations to help build ocean awareness in visitors to aquariums, zoos and science, technology and natural history museums.

Public polling work undertaken by the Mellman Group for SeaWeb in 1998 highlighted that the general public identified zoos, museums and aquariums as one of the key 'trusted messengers' for information concerning marine conservation. In the United States, the combined visitation rates to aquariums, zoos, science and technology, and natural history museums exceed 100 million visitors annually. As a consequence, they are viewed by the Ocean Project as very important venues for developing an interest and caring attitude in the general public towards marine conservation. They are also viewed as places where people can be encouraged to take action for ocean conservation through nonprofit environmental and conservation organizations.

The Ocean Project has identified positive messages to interest and increase public understanding of the oceans and to create in people a personal rationale that makes ocean conservation sensible and compelling. The research from the project has also identified key messages, themes, target groups, and images that will help underpin strategies for external communications, marketing, and education programs linked to the establishment and management of marine protected areas. The challenge now is to build recognition within the partner programs i.e. aquariums of their role in advancing public awareness of, and support for, marine protected areas.

**For further information:**

Email Address: info@theoceanproject.org

Web Site Address: www.theoceanproject.org

**Potential application in Australia:**
Collaboration between Australian zoos, aquariums, science and technology museums, and natural history museums focused on ocean conservation would greatly benefit marine conservation initiatives in Australia. The Marine and Coastal Community Network should consider investigating opportunities to establish an Australian project to complement the work being undertaken by the Ocean Project.
The similarities between Australia and the United States in terms of culture and coastal settlement patterns, suggest that the results from the American research might provide some direction for external communications, marketing, and education programs linked to the establishment and management of marine protected areas in Australia. This availability of this information should be advertised through marine and coastal information newsletters.

### THE "SHIFTING BASELINES" PROJECT

In February 2003 a new partnership between marine biologists, ocean conservationists, underwater cinematographers, and Hollywood filmmakers was launched to raise awareness concerning the state of ocean decline. A jointly sponsored project of The Ocean Conservancy, Scripps Institution of Oceanography, and the Surfrider Foundation, it is based on the recently coined term, "shifting baselines", namely the slow iterative decline of marine ecosystems over the course of decades.
The project which involves two of the biggest names in Hollywood special effects; Industrial Light and Magic and Illusion Arts, has seen the creation of a website that shows computer animated "before/after" sequences showing a coral reef and a kelp forest in 1960 versus today. Both sets of images demonstrate the concept of "shifting baselines".
The website also features 30 pages of detailed information and a one minute animation about possible future scenarios titled, "Jellyfish and Bacteria." The website is the first initiative of the project that will culminate in a media campaign. The campaign will include a series of celebrity-driven public service announcements.
**For further information:**
Contact: Tom McCann, The Ocean Conservancy, Phone: 0011 1 202 429-5609
Web Site Address: www.shiftingbaselines.org

## COMMUNITY EDUCATION PROGRAMS ASSISTING AWARENESS OF MARINE PROTECTED AREAS DURING THE POST ESTABLISHMENT PHASE

### THE GREAT AMERICAN FISH COUNT

The Great American Fish Count (GAFC) is an annual, national event that trains volunteer divers and snorkelers in methodologies to identify and document fish diversity and population trends in marine sanctuaries and coastal areas.
The project is coordinated by a non-government organisation, the Reef Environmental Education Foundation (REEF) with the support of the National Marine Sanctuary Program (NMSP) out of the National Oceanic and Atmospheric Administration.
The aim of the GAFC is to:

1. Educate; raise awareness about fish populations and the marine environment, particularly amongst the diving community and public-at-large regarding marine habitats and trends in fish populations.
2. Generate information regarding trends in fish populations – information that is provided to researchers, marine resource managers and policy makers.
3. Encourage the participation and involvement of divers and snorkelers in ongoing fish monitoring

The GAFC surveys occur within a 2-week time frame from the start of July. The narrow time frame is an attempt to encourage maximum diver participation and attract media attention. The project aims to increase diver interest in fish monitoring to the point where they adopt sites that could be visited and surveyed year-round.
The GAFC began in 1992, when a small group of recreational divers and marine biologists gathered in California's Channel Islands National Park to conduct a standardized fish count. The project was modeled after Audubon's Christmas Bird Count. Fifty divers participated in the first GAFC at Anacapa Island within the Channel Islands National Marine Sanctuary. Five years later the program had grown substantially with 439 participants submitting 372 surveys from the Pacific, Atlantic and Gulf coasts.
The GAFC now has the support of many commercial, educational and environmental organizations.
Although the GAFC is conducted anywhere within the project area (Florida, Gulf of Mexico, Caribbean, Georgia, Gulf of California, California, Oregon, Washington, and British Columbia), participants concentrate their fish-sighting efforts in NOAA's National Marine Sanctuary communities.

Participants learn visual fish identification skills through free regional seminars. Participants register via email, and after completing their seminar, they are encouraged to conduct a fish survey on their next dive. Survey report forms are provided free of charge.
Surveys are undertaken using a 'roving diver technique'. Upon entering the water, divers have free swimming range around the dive site, within 100 meters of the starting point. They record all species seen that can be identified. In addition, estimates of abundance are recorded.
Following the dive, each surveyor records the species data along with survey time, depth, temperature, and other environmental information. Their data is then submitted to REEF for collation.
All data collected by volunteers is entered into a database that is accessible online. Summary reports can be generated on species distribution and population trends, for a specific reef or large geographic regions. Distribution reports can be generated for a specific species or family. And volunteers own lifelist of fish sightings is also available.
The program was designed in conjunction with marine scientists from the National Oceanic and Atmospheric Administration (NOAA), the University of Miami, and The Nature Conservancy. For over two years, a team of marine ecologists and fisheries managers monitored, evaluated, and improved the field methods and reporting procedures. This has helped strengthen the credibility of the program within the scientific community.
The program has substantially increased diver awareness of marine life in marine sanctuaries. Several scientific papers and a number of educational products have also been developed. In addition, the survey technique has become integrated into several other marine-monitoring projects.
**For further information:**
Email Address: GAFC@yahoo.com
Web Site Address: www.fishcount.org
**Potential application in Australia**
This project could be easily adapted for Australian fish species, and could complement projects such as Reef Watch funded through the Coastcare program.

**THE SUSTAINABLE SEAS EXPEDITIONS**

The Sustainable Seas Expeditions is a national marine exploration project that has a special emphasis on the national marine sanctuaries of the United States. The expeditions, begun in 1998, are a project of the National Geographic Society (NGS) with the cooperation of the National Oceanic and Atmospheric Administration (NOAA) and other government agencies, industry, and private institutions. The high profile project was initiated through a US $5million grant provided by the Goldman Fund.
Dr. Sylvia Earle, an Explorer-In-Residence of the National Geographic Society, is coordinating this five-year project. NGS is responsible for project management, while NOAA provides research vessels and scientific expertise.
The Sustainable Seas Expeditions has four goals, namely exploration and discovery, scientific research, underwater technologies, and public awareness of the marine environment with an emphasis on protection of marine species and ecosystems:
*Exploration and Discovery*
With the assistance of new technologies, the expedition team explores areas never, or only rarely, visited before. Observations are documented by both video and photo imagery.
*Scientific Research*
The expedition team conducts scientific investigations including habitat characterisation and productivity assessments.
*New Technologies*
A compact, one-person submersible is used, that takes people well beyond the depth achievable with SCUBA gear. Compact remote operated vehicles (ROVs), new camera systems, shipboard tracking systems, navigational tools, and geographic information systems are also used.
*Raising Public Awareness*
A key emphasis of the project is directed at engaging regional and national interest in the marine sanctuaries. There are four primary program elements in this area: development of teacher materials, development of teacher professional opportunities, development of student programs and informal education.
Development of teacher materials is based on multi-media classroom materials targeting the widest possible audience. Teacher professional development provides the instruction support necessary for teachers to take advantage of these new materials. Student programs provide hands-on activities for students to learn about the ocean and become participants in the expedition. Informal education uses the vast resources of the National Geographic Society and NOAA to develop internet site material, exhibits, family activities, public programs, books, television stories and magazine articles. Media, educational and outreach events are strategically targeted for every site visited by the expedition. The expedition also selects 'local' scientists, sanctuary staff, teachers and

extension staff to form part of the expedition team, fostering strong regional 'ownernship' of the expeditions' outcomes.
The first year of the program was dedicated to preparation for field visits. This included logistics, training, safety protocols, advisory committees, submersible engineering, and scientific review.
In April 1999, the inaugural expedition to Gulf of the Farallones National Marine Sanctuary was undertaken. This was followed by visits to a further eight National Marine Sanctuaries that year. In 1999, one hundred and thirty eight successful deep-sea dives were completed, with 12 open 'houses' to the public, over 30 educational events, eight student summits, and two teacher workshops.
In 2000 the Expedition visited the Hawaiian Islands Humpback Whale National Marine Sanctuary. It then returned to three sanctuaries; Channel Islands, Monterey Bay, and the Florida Keys, for extended research programs. Research priorities varied for each of the three sanctuaries.
The potential strengths of the project are numerous. The resources behind the expeditions have created a strong catalyst for research and public awareness of the national marine sanctuaries. The expeditions have also increased the profile of all sanctuaries, including more remote sanctuaries such as the Olympic Coast National Marine Sanctuary.
Media reporting of the expeditions have been sound, raising the public profile of the national marine sanctuaries (although to what extent is difficult to gauge at this stage).
The expeditions have been very successful is establishing partnerships with a wide range of organisations in the USA including the United States Navy, NASA, Sea Grant, SeaWeb, the National Science Teachers Association, the Monterey Bay Aquarium and Research Institute, and the Centre for Marine Conservation.
A key strength of the expeditions is the way they wed themselves to numerous local education and outreach programs through events and activities in all of the national marine sanctuaries, and others independent of the sanctuary program. This is where the potential to strengthen local stewardship for the national marine sanctuaries is at its greatest, and where the long-term benefits of the expeditions will be realised.
**For further information:**
Email Address: francesca.cava@noaa.gov
Web Site Address: http://sustainableseas.noaa.gov/
**Potential application in Australia:**
While a project of this nature would be extremely beneficial in Australia, issues including costs, the limited availability of appropriate technology, and the lower level of philanthropic support that Australia enjoys relative to the USA all work against a project of this magnitude.
While the Sustainable Seas Expeditions project team is interested in expanding the project internationally, and was amenable to further discussions to investigate the viability of the suggestion, Australia is at a disadvantage with the present value of the Australian dollar relative to the US dollar. There are also few organisations in Australia that could technically support a venture of this nature. One possibility may be the CSIRO's Marine Division in Hobart.
Some of the resources produced for the expeditions however could be adapted for use linked to Australian MPAs.
In the medium term, the Marine and Coastal Community Network, in conjunction with the CSIRO, Environment Australia, and/or the National Oceans Office, should give consideration to an Australian speaking tour by Dr Sylvia Earle.

## NATIONAL MARINE SANCTUARY PROGRAM EDUCATION PROGRAMS AND COMMUNICATION MATERIALS

Each National Marine Sanctuary has a range of products and services that aim to increase community awareness and appreciation of the Sanctuaries. Products include:

- Brochures and flyers
- Newsletters and newspapers
- Books
- Directories of local groups
- Maps, posters and charts
- Educational material, including school programs and public events
- Volunteer opportunities
- Internet
- Videos
- Slide presentations

Sanctuary superintendents largely determine the level of resources allocated to interpretation and education services and products. As a result there is considerable variation between each Sanctuary. The public

accessibility of the sanctuary, its public profile, and the level of human pressure facing a sanctuary are all factors that determine the level of priority given to public communication programs.
Whilst the types of products and services provided are not generally unique to the Sanctuary program, some aspects of would be useful to consider for use in Australia. A number of sanctuaries have developed interesting and successful Volunteer Programs for example, including the Channel Islands National Marine Sanctuary and the Florida Keys National Marine Sanctuary.

**FLORIDA KEYS NATIONAL MARINE SANCTUARY**

The National Atmospheric and Oceanic Administration (NOAA) and the non-government conservation organisation, The Nature Conservancy, jointly sponsor volunteer programs in the Florida Keys National Marine Sanctuary. This unique collaboration began in 1992 and provides a "hands-on" opportunity for the public to become involved in the protection and preservation of the Sanctuary.
Through its Volunteer Stewardship Exchange (VSE), the Nature Conservancy has recruited over 100, 000 hours of volunteer service for the Florida Keys since the project was initiated. This service has been provided for both terrestrial and marine area within the Keys. VSE acts as a source of information; fosters collaboration among a wide range of people and organizations; and recruits, trains and services a network of active conservation volunteers.
Some examples of these collaborative projects include:

**TEAM O.C.E.A.N.**
Team O.C.E.A.N. (Ocean Conservation Education Action Network) is an on-the-water education and information program that involves stationing trained volunteer teams in boats at heavily visited reef sites throughout the Keys during peak recreational boating periods in spring, summer and autumn. Volunteers (two per boat) visit popular dive and snorkel sites during busy weekends and holidays, providing directions, demonstrating the use of mooring buoys, and distributing safety information. Team O.C.E.A.N. boats are easily identifiable with the word “information” printed on the side.
In January 2000 staff from the FKNMS trained 24 new Team O.C.E.A.N. members in the upper, middle, and lower keys. This was in addition to the existing members in the Upper Keys (30), Middle Keys (12) and Lower Keys (6).
The program gets Team O.C.E.A.N. volunteers on water for most days of the season. Although some volunteers used their own boats in the past, this aspect of the project was not that successful as volunteers feel more comfortable explaining Sanctuary regulations to the public in FKNMS boats.
In addition, volunteers distribute information to boat rental venues, hotels, and dive shops.
Statistics from the 2000 season show that 992 brochures were distributed, 1157 boaters were given information, 124 dive flags were loaned, 17 ‘groundings’ were prevented, 18 divers were given assistance, 54 boats were stopped from fishing in no-take areas, and 461 pieces of rubbish were removed. The cost to the Sanctuary is about $80,000 per year – money considered well spent considering the outcomes achieved.

**CORAL REEF CLASSROOM**
Each spring and autumn, volunteers, local county school teachers, and staff members of the Florida Keys National Marine Sanctuary take local county eighth graders out on the water to learn about coral reefs firsthand. Since it was initiated in 1991, this program has provided free educational excursions for over 2,000 local students and teachers. The program is divided into one day on the water and one day in class. It teaches basic reef biology and concepts of habitat interdependence by involving students in activities such as water quality sampling, data collection, and evaluation. The aim is to improve environmental stewardship of local children for the Sanctuary - students develop their own hypotheses about the condition of habitats, record and compare field observations, and discuss ecosystem management strategies. The Sanctuary offers grants to teachers to encourage participation in the program.
Community volunteers and charter businesses in the Keys support the program. The Florida Keys National Marine Sanctuary also offers Coral Reef Classroom to out-of-county groups who charter their own boat.

**SEA STEWARDS**
Sea Stewards, is a program that monitors "no-take" areas within the Florida Keys National Marine Sanctuary. Volunteers receive training in scientific diving and monitoring marine species. Sea Stewards has adopted both a "no-take" area and a similar reef not protected by the special Sanctuary zones. The program visits both reef sites several times each year to observe and measure changes.

**ADOPT-A-REEF**
During the spring and autumn months, dive operators in the Keys participate in this reef clean-up program. The dive operator "adopts" a reef, scheduling special trips for divers to go out and clean the reef of debris, such as monofilament line and trash. Local dive operators offer discounted rates on boat transport and equipment rental fees to entice divers to support the clean-up program.

**OTHER INITIATIVES**
Other public communication initiatives used include public radio announcements, highway information booths, festivals and celebrations (opportunistic).

**For further information:**
Email: cheva.heck@noaa.gov
Web Site Address: http://www.fknms.nos.noaa.gov/edu/welcome.html

**THE CHANNEL ISLANDS NATIONAL MARINE SANCTUARY OUTREACH AND VOLUNTEER PROGRAMS**

Outreach programs of the Channel Islands National Marine Sanctuary (CINMS) include a student internship program, attendance at community outreach events, and several volunteer-based programs. These programs are aimed at increasing hands-on community involvement with the Sanctuary and promoting stewardship among the 1.4 million residents that live adjacent to the Sanctuary. In addition, the programs increase the demographic range of the Sanctuary's outreach efforts, improve the Sanctuary's ability to address important issues scoped in the development of management plans, and increase CINMS presence in Sanctuary waters.

**SANCTUARY NATURALIST CORPS (SNC)**
The Sanctuary Naturalist Corps project was established in 2001. Some 80 volunteer naturalists represent CINMS on marine excursion vessels. The program aims to educate the community about the Sanctuary, collect opportunistic data on sanctuary resources, and support cooperation among the whale watching community.

**SANCTUARY MARINE WATCH/ TEAM OCEAN**
As with Florida Keys Team O.C.E.A.N., the CINMS Sanctuary Marine Watch/ Team Ocean program uses volunteers to liaise with recreational user groups, such as boaters, kayakers, and SCUBA divers, to promote ecologically sustainable use of the CINMS.

**CINMS INTERNSHIP PROGRAM**
The CINMS offers volunteer internships to undergraduate or graduate college students to gain experience working directly with Sanctuary staff to manage the marine resources found within CINMS. All internship positions are voluntary, without compensation, and are selected on a competitive basis. Interns are responsible for paying all their expenses associated with relocation, travel, room and board. A minimum commitment of 3 months is required, 10 –20 hours per week.

**For further information:**
Email Address: Shauna.Bingham@noaa.gov
Web Site Address: http://www.cinms.nos.noaa.gov/edu/main.html

**OTHER**

**MARINE PROTECTED AREA NEWS**

Marine Protected Area News is a free, monthly newsletter that reports on the planning and management of marine protected areas worldwide. It provides information to the global MPA community with news, views, analysis, and tips gathered from experts around the world.
The newsletter and this website are published by Marine Affairs Research and Education (MARE), a not-for-profit corporation, in association with the University of Washington School of Marine Affairs, Seattle, Washington, USA. See http://depts.washington.edu/mpanews/

Photo: Whytecliff Mark Park near Vancouver

## CANADA

While the United State's has made some significant progress in expanding and improving its system of MPAs in a relatively short period of time, the implementation of MPAs remains elusive for its northern neighbour. Although a number of worthy policy initiatives have been instigated, and numerous attempts made to establish MPAs to assist marine biodiversity conservation in recent years, the implementation of new "on the water" reserves primarily for this purpose has been proceeding very slowly in Canada. No-take reserves, or no-take zones within MPAs, where all marine species and habitats are simultaneously protected through legislation, are virtually non-existent in Canadian waters, and there is little evidence to suggest a significant improvement to this situation, at least in the short term*.

The situation described may appear surprising, because on paper at least, the number of MPAs in Canada appears significant. Added together, there are presently 198 marine protected areas declared under various pieces of federal (71) and provincial (127) legislation. But this is where it becomes important to analyse the legislative designations and the objectives behind them. For the majority of provincial reserves for example, the MPAs tag has been applied to existing reserves that were not primarily legislated to conserve marine ecosystems or the biodiversity contained therein. Rather, they are generally terrestrial reserves with marine components, or sanctuary areas for migratory birds.

Restrictions on human activities in these areas vary greatly. Because the federal government retains exclusive constitutional jurisdiction over the conservation and management of all organisms in the water column, federal fisheries regulations supersede provincial regulations. As a result, fishing is generally allowed to continue in MPAs declared by the provincial governments (much to their chagrin in some instances). The exceptions are those areas where marine species and habitats are simultaneously protected through provincial legislation and federal fisheries regulations, although the numbers of areas that fall into this category are very small. The province of British Columbia in western Canada for example, has 5 such areas, the largest being XwaYeN (Race Rocks), some 251 ha. On the east coast, in the provinces of Nova Scotia, Newfoundland and Labrador, no areas are fully protected in this manner.

Federal initiatives to improve the implementation of MPAs have gone through fits and starts, and have been hampered on a number of fronts. Parks Canada (PC), the nation's federal parks agency, took the lead on MPAs in the early 1970s, and after much trial and error, released a National Marine Parks Policy in 1986. Eight years later, in 1994, the plan for National Marine Conservation Areas (NMCAs) was announced, and legislation was introduced to federal Parliament (Bill C-48) that provided a long-term goal of establishing representative NMCAs within each of PC's 29 identified natural marine regions (including the Great Lakes). Federal and provincial agreements saw the initiation of NMCAs for Fathom Five NMCA in Georgian Bay in the Great Lakes

(PC's policy statements do not differentiate between the Great Lakes and the ocean) and Gwaii Haanass NMCA in the Queen Charlotte Islands (some 3457.5 km2). Unfortunately however, Bill C-48 fell foul of political posturing and heated debate, and stalled, leaving the NMCAs in limbo. This situation was only resolved in June 2002 with the successful passage of a second bill, Bill C-10.

By contrast, January 1997 saw the federal Oceans Act approved, and the Department of Fisheries and Oceans, with its strong marine resource management mandate, waded into the Canadian MPA scene. Under this new Act, the Minister of Fisheries and Oceans Canada was given the authority to designate MPAs from tidal waters seaward to 200 nautical miles. MPAs could be established for a variety of reasons including the special protection of fishery and non-fishery resources, endangered and threatened species, marine areas of high biodiversity and productivity, and unique habitats. A raft of MPA policies within the Department of Fisheries and Oceans (DFO) were subsequently initiated, including the establishment of planning teams to pilot establishment procedures for MPAs. As of September 2000, five candidate MPAs had been identified, four in the Pacific (Endeavour Hot Vents, Bowie Seamount, Race Rocks, Gabriola Passage) and one in the Atlantic (Sable Gully). In addition further areas are being proposed through various planning processes.

Neither the Oceans Act nor the National Marine Conservation Areas Act provides minimum levels of protection for any species or habitat. Rather, the protection afforded to each area is determined on a site by site basis. The level of protection can be uniform i.e. a common level of protection applies over the entire area, or the area can be internally zoned with different levels of protection applying to each zone.

Academics put the slow progress on MPAs generally down to a range of factors, including the relative lack of experience with MPAs by marine interests, the lack of awareness in the general and affected public, a general lack of political momentum, and the paucity of on the water success stories. Yet, while all these factors have played their part, it must be said that generally there are two overarching impediments that remain a major challenge for Canada, namely a) overcoming the general resistance of the resource-use sector, particularly the fishing industry to MPAs (particularly on the Atlantic coast), and b) the general lack of an influential political MPA advocate (or network of advocates), at both the federal and provincial level.

That being said, there are some exceptions. In the province of British Columbia in western Canada for example, a number of conservation NGO's are starting to become more strategic and proactive on the MPA issue, and there is also evidence of growing community support for the concept. It would not be surprising if more strident leadership on MPAs starts to emanate from this province. In addition, there is also some evidence that elements of the fishing industry are starting to view the concept of MPAs with a more open mind. The Fisheries Resource Conservation Council (FRCC) for example, the groundfish advisory body which represents the interests of the fishing industry, has suggested MPAs should be considered as a management tool.

Given the relatively short amount of time spent in Canada as part of the Fellowship program, I decided to investigate a feasibility study into a proposed NMCA for the Bonavista and Notre Dame Bays area in Newfoundland (eastern Canada). This feasibility study was terminated in March 1999 after the process was unable to secure community support for the concept, but it provides some significant insights into the challenges facing individuals and agencies attempting to raise public acceptance of MPAs in areas where communities are economically hard-pressed, and where there are strong traditional ties to commercial fishing.

**CASE STUDY: THE ABANDONMENT OF THE FEASIBILITY STUDY INTO THE PROPOSED AND BONAVISTA AND NOTRE DAME BAYS NATIONAL MARINE CONSERVATION AREA, NEWFOUNDLAND (EASTERN CANADA)**

The island of Newfoundland on the north eastern Atlantic seaboard is, along with Labrador, Canada's most easterly province. For over 500 years the island has been linked with the exploitation of the North Atlantic Cod, a fish that was once abundant in the cold oceanic waters of the region.

In February 1997, the Canadian Federal Government announced a feasibility study into the possible establishment of a National Marine Conservation Area (NMCA) for the Bona Vista and Notre Dame Bays in north eastern Newfoundland. Yet in March 1999, after two years of investigation, the study came to an abrupt and clumsy end after strong rejection of the proposal from regional interests. The result appears to have unsettled Parks Canada's (PC) resolve to create NMCAs on the Atlantic seaboard, and has seemingly demoralised many MPA advocates and supporters. No new feasibility studies have been announced for the region as of early 2003, although the passage of the National Marine Conservation Area legislation in June 2002 may prompt new initiatives.

For a number of years prior to the announcement of the feasibility study, the Bona Vista and Notre Dame Bays region had been advocated by PC as a potential MPA site. Studies in the 1980's had indicated that the area, with its rugged coastline, deep bays and fjords, was representative of the Newfoundland Shelf region. The idea for marine protection was considered by PC as a logical extension of the terrestrial protection afforded to part of the region by the Terra Nova National Park, a park established in 1957.

By the early 1990's Parks Canada started low-key discussions with locals about marine conservation and MPAs. The agency wanted to demonstrate a role for itself in marine management, and was eager to get some initiatives in place.

Some sixty thousand people live in the Bona Vista and Notre Dame Bays region, spread amongst 100 communities. This includes 2000 commercial fishing licence holders, many of whom relied on the nearshore cod fishery, but fishermen who also caught other species such as rock lobster.

The region, like all Newfoundland, was severely affected by the events of 1992, when the micro-managed North Atlantic Cod fishery was completely closed by the Federal Government due to the ecological collapse of the fishery through overfishing. The moratorium put many thousands of people out of work overnight, with a massive impact on the economic and social fabric of many coastal communities. And the impacts on the province are still being felt with continuing population decline, and high unemployment rates (averaging 16.1 per cent for the province in 2001).

When the Federal Government announced the 18 month NCMA feasibility study for the Bona Vista and Notre Dame Bays region in February 1997, they emphasised that it was in response to the collapse of the cod fishery. They also emphasised that local communities would have control over the feasibility study to investigate the concept of an NMCA, that there would be extensive local consultation, and that the initiative would not proceed unless there was local community support. Some $500,000 was allocated to the project. Yet local buy-in to this process had yet to be established. Although the fishing union and the provincial government initially indicated their willingness to participate, many other groups and departments important to the process were noticeably silent e.g. the Department of Fisheries and Oceans, and the aquaculture industry.

In July 1997, Parks Canada, recognising that they could not build a constituency of support from a central office in St Johns, appointed 4 local coordinators to foster community dialogue about concerns and interests over the role that an NMCA might play. The coordinators also sought to identify key local leaders to become involved in the process.

Then, in March 1998, PC established a 20 person advisory committee to direct the feasibility study. The committee comprised of individuals with community or organisational interests in the area and/or the study itself. The fishing industry was given the majority of positions on the committee (10 fishers and a fishing union representative), while Government agencies e.g. PC, DFO, and provincial agencies, were given *ex-officio* positions.

Parks Canada's vision for the NMCA was that the concept be used to underpin sustainable resource use; for the region to become a centre of scientific research that would provide enhanced habitat management as well as educational, interpretive, and tourism benefits. The area would be managed through an advisory council; a partnership between the Provincial Government, Department of Fisheries and Oceans, Parks Canada, and members of the general public. Commercial fishing, aquaculture and other appropriate extractive uses would continue, and be encouraged.

The members of the voluntary advisory committee however, who were grappling with the intellectual and practical difficulties of regional marine planning, struggled with such vague direction. In the absence of a clear explanation as to how an NMCA would provide beneficial opportunities for regional progress (as opposed to an additional layer of bureaucracy), public confusion, scepticism and mistrust began to quickly emerge. The community, still reeling from the loss of a major industry, government cut-backs, and high unemployment, wanted clear, tangible options for their long-term viability. PC wanted a community driven recommendations for a National Marine Conservation Area. The task before the advisory committee was formidable.

In an attempt to progress, the advisory committee plotted a process to develop a concept model for an NMCA. To help scope the objectives and recommendations for the proposed model, and to provide members with an opportunity to examine issues, the committee proposed a series of community workshops in late 1998 and early 1999 focusing on a) benefits, education, tourism and communications, b) mistrust and how to build trust, c) aquaculture, and d) commercial fishing. The outcomes from these workshops were to form the basis of the model that was to be ready for public review by mid to late 1999.

The workshops were formal, with discussion papers prepared for each session. Participants included advisory committee and *ex-officio* members, panellists representing government and non-government interests, invited guests, advisory committee staff, and a workshop facilitator.

On analysis however, the outcomes of the workshops highlight a lack of understanding about the feasibility study process. Although there were some open and constructive discussions concerning fisheries management, the dominant themes that emerged were an inherent distrust of the Federal government, and the potential alienation of exploitative uses from a NMCA.

In the absence of clear guidelines and objectives from Parks Canada about what was expected, community interests started to interpret Parks Victoria's policy and legislation as the definitive statements of PC's intent. This became a major challenge for the study process. Parks Canada's Guiding *Principles and Operating Policies* document described the concept of marine zoning and the possibility that certain zones would restrict uses, even

though PC had said existing uses would continue and "be encouraged" in any NMCA proposed for the region. The aquaculture industry also interpreted PC policy as a potential impediment to their industry's expansion.
One of the most destabilising influences on the feasibility study however was the Federal Parliament's review of Bill C-48, legislation that would enable Federal Ministers and government officials to undertake necessary actions to manage a marine conservation area. The timing of this review, with its public hearings and consultations, became a significant barrier to constructive discussion concerning the feasibility study. This was essentially because Parks Canada's regional view of the feasibility study was in direct contrast to the language and list of potential restrictions contained in the proposed legislation. Local fishing interests, who had been at the receiving-end of Ottawa-based decisions in the past, were highly sceptical of the Federal Government's and PC's claims that the management directions for any NMCA would remain under the direction of the local community. The fishermen viewed enabling clauses as required restrictions within an NMCA.
In addition to the issues surrounding Bill C-48, the assessment process struggled to gain constructive input from either the Provincial Government or the Federal Department of Fisheries and Oceans. Although the Province of Newfoundland was a partner when the study was initiated, they barely participated in the feasibility study. For their part, the Department of Fisheries and Oceans simply claimed that they would remain responsible for fisheries management if an NMCA was to proceed. Fishermen interpreted this to mean that Parks Canada would just be another regulatory layer in fisheries management.
To make matters worse, Parks Canada (Ottawa) delayed funds to the process. This undermined the fragile relationship between the advisory committee and Parks Canada, slowed momentum, and limited both the advisory committee's and staff's ability to be both responsive and proactive in the feasibility study process. In two instances committee members had to personally guarantee loans to allow the continuation of committee functions. This had the effect of demoralising the committee and its staff, but it also seriously undermined the credibility of both the process and the NMCA concept i.e. if Parks Canada could not adequately fund the feasibility study, what did this signal for a future NMCA?
Public criticism of the NMCA process was now intensifying, largely without dissenting views. Fishermen, rural rights groups, small boat owners, aquaculture interests, and local politicians vilified the initiative in the media. Some public meetings attracted hundreds of people opposing the feasibility study. Discussion shifted away from resource conservation options to rhetoric focussed on past, present and future failings of government. Advisory committee members who lived in the feasibility study region came under significant personal pressure – committees members were seen by some as proponents of the initiative.
Although the process was desperate for advocates, there was limited involvement in the process by non government conservation organisations. From my analysis of the debriefing notes and discussions with local interests, it appears that neither the Protected Area Association nor the Natural History Association in Newfoundland (both groups largely city-based in St Johns) publicly endorsed the project.
In February 1999 several members of the advisory committee went to Ottawa and spoke negatively about Bill C-48. Disparaging comments were also expressed about the feasibility study.
The committee reconvened on 25 February but the division over the study was becoming more polarised. The following day, after heated debate, a secret vote on whether to continue the study saw a narrow victory to process supporters - 8 members voting in favour, 7 opposed. But with the committee bitterly divided, the study was severely wounded.
Committee members opposed to continuing now publicly denounced the study in the media, saying that they would do everything they could to stop the process. And in little over a week they gained their opportunity. Following the 25 February meeting the chair of the committee resigned to become the study's paid project officer. The new chair appointed was an employee of the Fishermen's Union, a group hostile to the study. On 8 March a non secret vote to abandon the process was called. The vote succeeded 12 votes to 4.
Parks Canada made a brief announcement after the vote and disbanded the process almost immediately. Although there was an internal review, the agency did not communicate with the communities involved. No summary of the consultative process was released, no conservation options articulated. The opportunity of National Marine Conservation Area for Bona Vista and Notre Dame Bays was lost.

Photo: Lobster fishing has expanded in Newfoundland since the collapse of the cod fishery

**Key Lessons**

Despite the failure of the study to deliver an option for an NMCA, the process was free of hidden agendas, and it generated a level of support. Local interests on the advisory committee also started to consider issues, problems, and began to think about ways of maximising marine conservation outcomes while sustaining local communities, perhaps within the framework of an NMCA.

The successful establishment of marine protected areas depends on a number of factors, but the predominant factors are demonstrable community and political support, factors built in incremental stages through any MPA process. Coming at the end of a 1000 year fishing spree, the Bona Vista and Notre Dame Bays feasibility study was arguably a case of the wrong concept, the wrongly conceived process, and the wrong time. But a considerable degree of fault laid in the lack of clarity about the objectives of the exercise, and the clumsy planning process that was neither proactive nor responsive enough to withstand the pressure of vested interests and the public debate associated with Bill C-48.

That Parks Canada attempted to give local community interests ownership over the feasibility study was amiable, but it is disappointing that there was no clear strategy to move forward when this approach failed. The issue remains that there is no long term vision for the ecologically sustainable use of the region's resources, a responsibility that neither the community nor the government can avoid.

From the failure of the process, other key lessons include:

- That MPA processes overseen by representative-based advisory committees dominated by vested interests may not deliver an outcome that is in the best interests of biodiversity conservation or long term resource sustainability.
- MPA initiatives will struggle without well organised supporting interests to continually advocate for MPA establishment. Department agencies alone cannot be relied upon to carry this responsibility.
- Support for MPA establishment needs to sourced from beyond regional communities where candidate sites are identified. This is because supporting interests at a local level may be intimidated by opponents.
- Communication strategies are integral components of an MPA planning process. They need to be strategically targeted, appropriate to the audience, well resourced, constantly evaluated against community knowledge and values, and therefore flexible. MPA processes are likely to be more successful if they have media spokespeople who can speak from a position of authority in support of the process.
- Establishing a system of marine protected areas for biodiversity conservation based on the principle of ecosystem representation is generally a very difficult concept to 'sell' to fishing communities who, if supportive of MPAs at all, generally want more direct benefits to their own interests e.g. habitat protection for target species. To progress MPA establishment the reserve objectives must be relevant to

the broader community where the reserve is established. Despite the collapse of the study for example, some fishermen have been prepared to voluntarily set aside small areas around particular islands as no-take zones as part of measures to conserve rock lobster stocks.

- MPA initiatives are likely to benefit from a staged approach that builds the ecosystem information base, identifies and articulates values (environmental, economic, and social) and issues, and actively facilitates community awareness of the benefits before progressing to an options phase.
- It is crucial that marine conservation and marine resource agencies work in partnership on MPA initiatives.
- Funding adequate to the task needs to be provided to the body that is given the responsibility for developing any MPA proposals.
- The importance of neutrality, clear terms of reference, capacity building and ongoing training for agency staff and advisory committees members.
- MPA planning processes need to accept and plan for a prevailing attitude of resistance to change from many user groups and vested interests.

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**Note:** In March 2003, the Province of Newfoundland announced that full cycle cod farming would receive significant support, with a focus on the Bona Vista and Notre Dame Bays region. The Provincial Government has identified aquaculture as one of its three areas of primary economic growth. As a result, the provincial government will direct significant resources and programs to promote the necessary infrastructure and research and development capacity for the industry.

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