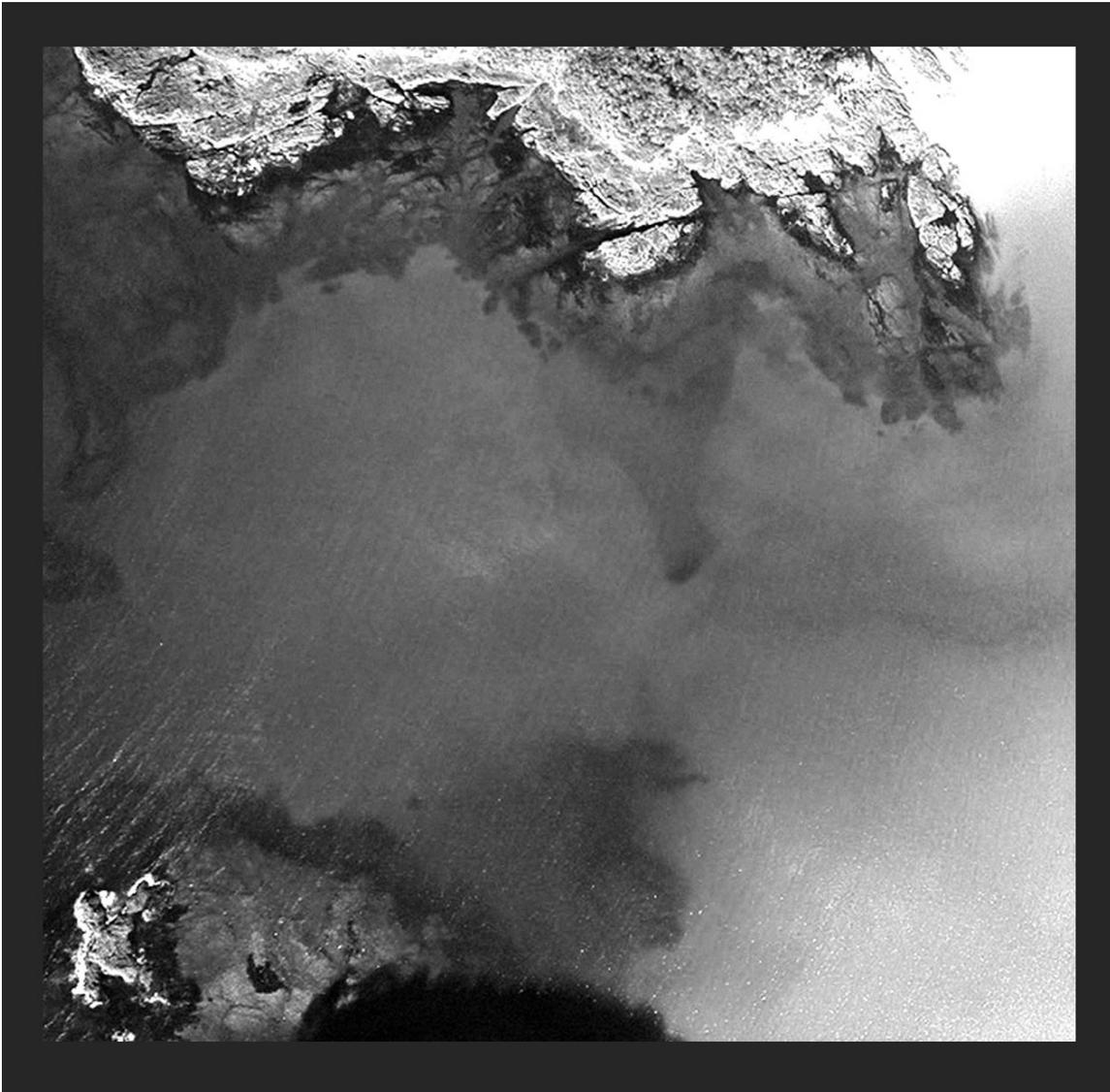


# Northland Marine Protection Strategic Framework: A Planning Discussion Document

by Vince Kerr, April 11,2007



A June 2005 aerial taken 1500 feet above Matapouri Bay, Northland by Roger Grace  
Note the extensive 'kina barren' condition shown here as light gray reef. In this locality shallow algal forest is reduced to approximately 10% of what it was in the 1970's.

**Client's Brief:** This paper is intended to provide a basis for discussion for Northland Conservation managers and people from the community with an interest in the MPA process. Management of the coastal environment is a complex matter and as signalled by the MPA policy we are currently going through significant changes at the policy and governance level. My aim is to put Northland's past efforts in marine conservation into context with the current and future landscape of trends and policy directions. The focus is on planning for the nearshore environment which extends out to approximately 100m depth or about half way out to the drop-off of the continental shelf. I have made an attempt to put this NZ MPA planning landscape in the context of international work, progress and best practice. I make suggestions for pathways going forward in advancing marine protected area work in Northland. I would like to stress that this work represents my interpretation of the literature, experience with communities in Northland and research with marine conservation practitioners here and overseas. Accordingly this work should be taken as a useful guide for discussion amongst decision makers, interested groups and individual and not as a prescriptive plan.

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## **Executive Summary**

There is a pressing need to develop a clear view on how MPA process will unfold in Northland. Evidence is mounting that the need to establish a network of protected areas in biodiversity terms is now urgent. There is an even more pressing need to communicate this effectively to Northland communities. There is much interest from a range of interested parties. From a DoC internal perspective there is a need to be able to articulate to staff and the wider community what the possibilities are, how it they evolve over time, what are the objectives in a Northland context and what are the DoC Northland and Governmental roles and commitments to this process.

The current landscape of views on marine conservation and the MPA policy and related fisheries management issues and agendas is summarized and explored. In summary people are very poorly informed about marine conservation and even less so about the MPA Policy. There is a wide range of views commonly expressed with strong support and strong opposition a frequent scenario. Fisheries management issues feature very strongly in people's stated questions and agendas for change.

The current MPA Policy is examined in the context of how we can proceed in Northland and contrasted with 'best practice' internationally. A practical approach is outlined for DoC Northland to proceed with a program to support 'bottom up – community based' sub-regional processes over the next 2-3 years. A key feature of the suggested approach is the role of DoC as a support and facilitator and advocacy participant. Emphasis is placed on best practice process management recommendations and statements of intent arising from the full range of policy documents and the international literature.

The requirements of the suggested strategy in terms of science information provision and planning are outlined. An approach and 'cultural shift' is proposed to support the integration of science and community relations work emphasizing a collaborative model for staff. A key recommendation is a set of considerations and a decision making framework for managers designed to support the integration of science and the process based MPA work.

## **Northland Goal Statements**

Northland Conservancy has a considerable history of commitment to marine conservation planning. The Conservancy was the first in the country to adopt a Conservancy strategy and goals for achieving a network of marine protected areas, (Kerr, 2000). The Northland Conservation Board has a similar set of strategic goals for achievement marine conservation which they also endorsed in 2000. Our Existing CMS has some general endorsement statements and some site specific recommendations that are limited in scope and reflect interest which existed in certain sites like Mimiwhangata at the time of writing the CMS. Most of this positive effort by our Conservancy was well in advance of any implementation directives that were coming out of national or regional offices. Our early goal statements included the general biodiversity strategy statements but went on to put emphasis on achieving a 'network of marine protection' with a 10%

goal identified. Important awareness building, education and community involvement actions and objectives were identified. Rather than dwell on the past ‘progress’ or difficulties stemming from the 2000 strategy, this paper will focus on the path ahead and the largely changed landscape we now find ourselves in. The crucial lessons learned from our experience to date, the information resources we have accumulated and the relationships and partnerships we have built all become part of a new evolving situation.

Looking forward it is suggested that it is important for the Conservancy to have its own vision statement which explains to the community and our partners what we are committed to. Our statement clearly needs to be underpinned by legislative mandate as well as national and regional policy positions. The national policy will be discussed in some detail in following sections. For the Northland goal statements I suggest we have a set of generalised statements that reflect the biodiversity strategy objectives and emphasises ‘process’ and positive involvement of our communities in marine conservation . It would be possible to add more detail or more specific goals and objectives and even actions that we commit to , however this level of goal statement needs to come from a full discussion and understanding of our strategic direction. This approach would reflect the general change in the landscape that demands a much more process oriented approach to determining the details of how MPA planning will actually work. Implied in this is the need to have flexibility to shape the process and work programs as we proceed.

## **Major Drivers - National and International Policy**

Taken in its totality there is a myriad of legislation and governmental roles and authorities that are involved in management of the marine area and a complex of vested and community interests. There is a Fisheries Act (MinFish) context, a Conservation Act (DoC) context, a RMA and local authority context and specific legislation like the Foreshore and Seabed Act and Aquaculture Reform Acts that are major drivers. It is important to be aware of these influences and the operating agendas that come with them. There is also the MPA process context which in many ways is the ‘new kid on the block’. This paper will focus on this MPA process and consider all the other legislation and agendas which are important to the process, but not necessarily in a hierarchal sense more important. Underpinning this complex analysis is a fundamental role of the Department of Conservation as an advocate for Conservation which involves actively working towards ‘setting the table for the MPA process to run’.

### ***Policy and Legislation***

Below is a brief summary of the major policy and legislative drivers

The Conservation Act (1987) –

- Creates DoC’s mandate to advocate, protect and administer the marine reserves
- Sec 4 has implications affecting DoC’s relationship with tangata whenua and management or facilitation of a process which recognises Maori interests

The NZ Biodiversity Strategy (2000)

- Has the goal statement of a 10% network of marine protected areas created by 2010, (note MPA's not clearly defined) also worthwhile secondary goal statements emphasising the biodiversity objective.

### The Marine Protected Areas Policy and Implementation Plan (2006)

The MPA Policy and Implementation Plan is a government policy and strategic plan with ministerial sign off. The Policy is divided into two parts, the first part is an overarching policy statements are general in nature but important, 'we will establish a protected area network, biodiversity is important and this will meet Biodiversity Strategy objectives, the process will be participatory and transparent'. Also this first part includes the 'network design and planning principles' (sections 65-99). This section is included with this paper as Appendix 1 to allow for frequent reference to these statements. This is the first official attempt at a set of design guidelines and objectives statements. While the general principles (long since established internationally) are covered, it is useful to examine the sections which affect what we can actually go out and do with these guidelines. This practically focused assessment will lead us to the second part of the MPA Policy which is the 'Implementation Plan' where the devil truly is in the detail. Only careful understanding of where this work is heading and where it leaves us in practical terms will allow us to arrive finally at a Northland perspective of how to move forward.

### ***The MPA Policy Design and Planning Principles a practical assessment, (refer Appendix 1)***

Section 66 introduces the concept that the network should be representative at an 'agreed scale'. This is a crucial element and while it's good to consider scale as a design element, this effectively pushes a fundamental principle on to a further process to resolved later. Understand that scales in the sea vary to a far greater extent than on land – it is a much bigger issue in marine conservation planning than with terrestrial systems where we have some familiarity with its impact on achieving representation of habitats under protection. In practical terms, make the scale too large and many important habitats fall through the design process and very likely don't get represented in protection. A tide pool has a scale of meters, a nearshore rocky reef has a scale of 100's m a mid shelf offshore area has a scale of km's and deep sea areas have scales of 100's and 1,000's of km's. In the sea we deal with many scales and the way we do this varies greatly in method and cost when moving from one scale to another.

Sec 67 goes on to say that a classification of marine habitats will be formulated and used to inform decisions. Scale is again mentioned as part of the classification. There is an inherent problem in this section which will take some time to resolve. This is the confusion between information and governance. Marine classification systems can inform but at best they can only put basic information on biogeography, physical environments, environmental drivers and biota into some sensible and practical hierarchy. This then becomes a proxy for real ecosystems and habitats. Any scientist will tell you there are unlimited possible classifications and that the task becomes to devise a practical and useable classification for a specific objective with in the limits of the information at hand. A major aspect of the objective of the classification approach is scale. Again very little guidance is given how this aspect will be resolved.

Section 83 introduces the concept of a ‘protection standard’ which simply put is some measure that has a biodiversity protection outcome and meets a set standard. This measure or management regime/area becomes an MPA in the network. The vital element here is that the criteria is unresolved and left for the implementation plan **or** process to resolve.

In summary while the network and planning principles state some worthwhile general concepts the design elements and governance elements of scale of representation, amount of protection, protection standard and classification system are left for the Implementation Plan **or** the ‘Process’ to resolve.

## ***The Implementation Plan***

At the time of writing this paper Stage 1 delivery of the classification system(s), the protection standards and gap analysis of existing MPA’s is overdue by 9 months and MCU officials can not give a definite timeline. A positive view is that this difficult work will be resolved over the coming year as the conflicting governance decisions on scale and amount of protection is unbundled from the clearly practical task of getting our two existing classification systems into a usable format for MPA design work. The protection standard issues should never have been an issue as all fisheries management actions can presumably be justified in fisheries management terms and presumably will be monitored against those objectives and not as biodiversity protection measures. Therefore they will and should go ahead on that basis. If there is a case made that there are biodiversity gains this should be simply supported in any way possible. Marine reserves automatically pass any possible criteria as the high end of the protection spectrum so their planning can proceed. A simple distinction between highly protected and partial protection mechanisms is all that’s needed. If this simple approach is taken then the un-stated governance issues are unbundled and can be addressed. The governance issues referred to here are: the amount goals for representation (Note: would need clarification between partial and highly protected). Related to this is again the decision on scale of representation in the differing marine areas (i.e. offshore verses shelf and deep sea etc.)

## ***Governance Issues continued.....***

Stage 2-4 of the Implementation Plan goes on to talk about regional processes and process management in general terms. Once again the key governance issues are not addressed and are left for resolution by some future process. These issues are:

- The scale of representation in protection that is desired
- The amount of protection that is desired in relation to protection standard
- Who will decide the above or what process will be put in place to arrive at the above
- The scale at which planning processes will be undertaken and how will these process groups be formed?

It is important to note that government officials are actively working to resolve these issues and we can expect progress in this area. However our current landscape is one where the above issues are unresolved. This leaves us with several options ranging from:

- Do nothing & wait, just advocate generally for marine conservation awareness, or

- Work towards facilitating community led ‘open ended process’ where effectively they resolve the governance issues themselves as part of the process, or
- Focus on advocacy and prepare for future government lead process.

These forward directions will be further discussed.

This practical assessment of the NZ MPA Policy skips analysis of the many positive aspects of the policy, and as such is a very unbalanced review. This was done for the sole reason of illuminating the paths forward.

A historical anecdote is perhaps appropriate here. Following a long and careful dissection of the newly released MPA Policy last year. Dr Bill Ballantine’s ever positive reaction to the document was,

*“After 30 years of having marine reserves we finally now have a government policy which talks about creating a network of marine reserves – this is indeed marvellous news – if we created thirty some marine reserves with no policy imagine what it will now be like with a policy!”*

UN Secretariat of the Convention of Biological Diversity (CBD Tech Series No 13), Statement of Network Principles.

This document is included here as a ‘best’ example of an international statement of MPA design guidelines. This document is also important as it represents the practical extension or implementation of the UN Convention on Biodiversity which NZ is signatory to. There is an interesting NZ connection with this document as well. A NZ scientist was a participant in the technical workshop and NZ, lead by DOC’s MCU, hosted the workshops and science staff helped with facilitation and editing of the proceedings. Section 4 of the document is included here as Appendix 2. This section contains the all important network design principles and guidelines and in addition very effectively sets out the context and rationale for the establishment of networks of marine protected areas. This document is widely quoted and used in international literature - key elements of this document can clearly be seen in the best and most successful of current overseas MPA programs. This best practice international guideline is useful for us in a number of ways:

- To better understand our own MPA policy and where it is likely to evolve to
- To be able to explain the issues around MPA process to participants and partners and staff
- To be solution orientated – to be able to suggest ways participants can move a process forward in positive ways even if government process are temporarily stuck.

It is strongly recommended that Appendix 2 is carefully read, better yet the entire paper. In relation to the key governance issues discussed above the CBD #13 document includes detailed well referenced statements on:

- Scale – ‘each biogeographic region should be recognised. Within each bio-region all major habitats should be represented. All habitats in each region should be replicated within the network.’ Putting this in the Northland perspective – we have three biogeographic regions: the West Coast which extends to Taranaki, the Three Kings Islands group and the East

Coast which extends from the northern end of 90mile beach around and down the east coast to and including Bay of Plenty. So we are talking about representing the ‘major habitats’ in each of these bioregions. Note there is still a remaining decision on how to define ‘major’. This is a key decision point, scientists can give advice on this and the classification information will support this advice, but it then is clearly a governance decision which profoundly affects the outcomes and the running of design process from that point onwards.

- Protection standard – discussed in general but not resolved as the reality is that partial protection is fundamentally different from highly protected in terms of biodiversity outcomes and results from partial protection will vary and involve very real monitoring challenges. The guideline is therefore based on ‘highly protected marine and coastal protection areas’.
- Amount of protected area in network – This is discussed in Section 3 of the document (not in Appendix 2) – no set amount goal is suggested, instead the paper reviews international opinion and the decisions made behind currently established MPA networks. The amounts discussed range between 10% and 40 % protection. This discussion is well backed by ecological considerations and well referenced.
- Replication this is a key design element which has been all but omitted from the NZ MPA policy – the statement here is ‘all habitats in each region should be replicated within the network, and these should be spatially separate.’

Note: The documents discussed in this section are all accessible along with other relevant background papers on the Northland Marine Library CD.

## Major drivers and considerations technical

In this section there is a brief review of some of the most important literature and science information supporting the concept and need for establishing networks of highly protected areas. In terms of summary documents with a NZ perspective there are two that will be mentioned here. The glossy marine booklet, *Protecting Our Seas*, a NZ govt document with Ministerial sign-off and an internal DOC advice paper, *Benefits of Marine Reserves*, (Owens, 2004). Note that the CBD #13 documents in Appendix 2 is well referenced and there is a further reference section for this paper. The Northland Marine Library CD also attempts to draw together a ‘best collection’ of international and NZ focused MPA literature.

Internationally there is a growing marine science consensus that a network or system of marine reserves of sufficient size and inclusive of a full range of marine habitats will best protect ecosystem functions and key species under threat from exploitation, (Ballantine 1997; Ball & Possingham 1999; Murray et al., 1999, Bohnsack, 2000, Roberts et al, 2001, Leslie et. al., 2003; PISCO 2002; Sala 2003).

In New Zealand the first marine reserve was established nearly thirty years ago, (at cape Rodney-Okakari Point, Leigh). Results from monitoring in New Zealand marine reserves have been reported in Babcock et. al. 1999; Babcock & Cole 1993; Cole, Villouta & Davidson, 2000; Babcock R.C. 2002; Denny 2003; Shears, 2003 & 2006). These and other New Zealand case studies were reviewed in (Cole 2003). A pattern is now clearly established where even newly

established marine reserves show significant increases in abundance and average size of individuals of exploited species. In fact some of the world's best demonstrations of the effectiveness of marine reserves come from New Zealand. There are two internationally published NZ multi-reserve reserve studies, (Denny & Babcock, 2004 and Shears et al 2006). These studies look at long term data sets for crayfish and snapper. The first study is focused on reef fish, and specifically snapper and compares the performance of partial protection at the Poor Knights marine reserve prior to full protection and the partial protected Mimiwhangata Marine Park with Poor Knight Marine Reserve following the establishment of full protection and also the Leigh Marine Reserve. The second study reports on a comparison of partially protected Mimiwhangata Marine Park to the fully protected Tawharanui Marine Park and is focused on crayfish. These studies are particularly valuable to the consideration of partial protection measures as an option for MPA's. In both studies the conclusion is that for species that have been fished down to very low levels, the partial protection measures used, (Rec fishing only with some limits on techniques used), were not successful, especially when compared to the dramatic increase in numbers and size of fish which build up inside reserves under full protection.

Marine reserve research in NZ has also lead to new understandings of the ecological implications of high levels of fishing and reduction of key predators on shallow rocky reef habitats. These studies have been focused on Mimiwhangata, (Kerr & Grace 2005) and the Leigh Marine Reserve. (Shears & Babcock 2003). In summary the studies establish the link between predators (snapper and crayfish) and grazing species (kina) and algal forests. Inside the fully protected marine reserve at Leigh there is extensive decade scale recovery of algal forest and elsewhere in places like Mimiwhangata serious decade scale decline of algal forest is taking place. While these studies demonstrate the value and importance of full protection from a habitat and ecological perspective they also clearly show how great the need is to establish a network of highly protected reserves on this type of coast given the impacts of fishing.

It is clear that the pressures on marine systems and especially fished species are mounting. There is now a very strong science case for the establishment of an MPA network in Northland. It is certainly not the lack of science information that is holding back a decision on whether or not to progress with the establishment of protected areas.

## **Major Drivers Social and Economic**

The most significant change in the current context of MPA establishment is the growing importance of stakeholder involvement in the process. This change from how things have been done in the past, with limited stakeholder involvement in the process in marine reserves or marine parks, is signalled from all directions; international best practise and successful case studies, consultation and process outlined in the Marine Reserve amendment Bill, the MPA Policy, public interest generally and the increased activity and of special interest user groups. In Northland in particular the growing capacity and eagerness for maori to actively engage in marine management is also a major factor.

## ***Stakeholders views, perspectives and agendas***

Fortunately from our past experience and social research projects we have a lot of information on the very wide spectrum of stakeholder views. Starting with an overall NZ public wide perspective we have two important sources of information. There is a history of social research on the social implications of marine reserves. Two relatively recent NZ reports provide a useful overview (Taylor & Buckenham, 2003 and .WWF-NZ, 2005). These reports focus on public opinion surveys completed by independent researchers. In summary, NZer's overwhelmingly support the concept of marine conservation and its importance. These studies also show that there is general acceptance that marine reserves are desirable and that we should have more of them. Often the percentage of positive support is as high as 80%. It is also interesting that typically NZer's had a very poor understanding of how much area is now protected and they grossly underestimated this. When asked how much should be protected an average response was 30%. The very positive response started to erode however when questions were asked about 'your local area'. To these questions people were more guarded with their response and the level of support lowered.

A more locally focused view on the establishment of protected areas is typically different from the national focus or general view. We can look in some detail at targeted research and analysis of submissions to marine reserve applications. Our Northland experience is typical of both the national experience and internationally reported trends. A majority of submissions to the Mimiwhangata marine reserve proposal were in support but in a much lower majority than the national opinion results. It was also apparent that there was a significant level of strong opposition. During the time leading up to the Kamo High School, Whangarei Harbour marine reserve application there was a very large (over 2,000 surveys) effort which demonstrated strong support for the proposal and marine conservation generally. Formal submissions to the Application were overall in support, but not by as large a proportion as in the pre-Application survey. Again a minority of strong and vocal opposition also surfaced during the Application period.

A further important result of past social research looks at the aftermath of the establishment of protected areas. Two clear trends are typical; the strong vocal opposition to the reserve diminishes over time as the reserve becomes established and support tends to increase as people become familiar with the concept, used to the idea and start to see the benefits accruing for their community.

## ***Specific interest group views***

While it is inherently dangerous to generalise the views of various special interest groups, there are some patterns that can be noted:

- **Commercial fishing organisations** usually oppose the creation of protecting areas of the sea. They fear that their economic returns and 'rights' will be infringed upon. They have been quite willing to pursue this view through legal challenges in the past. Views of individual commercial fishers are much more mixed, with some ex-fishers speaking out in support of marine protection but overall the view would be negative.

- **Recreation fishers** are the hardest to characterise as this is a very large and very diverse group of people. Certainly recreation fishing organisations and their officials have been frequently in opposition to marine protection initiatives and at times very strongly so, however it is not clear how the greater body of recreation fishers would respond to a marine protection initiative. With recreational fishers a very big factor is the local aspect. Where people see that their area is selected for protection there is often a strong negative reaction as along side some positive support and the situation quickly becomes highly polarised. Strong lobbying activity then dominates the scenario as opposed to serious consideration of the conservation and management issues at hand.
- **Maori** are perhaps the hardest of all to characterise and for various reasons. They often become a pivotal participant in the process. This is due to Treaty obligations expressed in both the Fisheries Act and the Marine and Conservation Acts, but also it is because Maori are often there on the ground and very keen to be involved in local management of the resources. While there is a traditional urge to protect, maori typically have long lists of grievances or things that need resolution in the fisheries management. In such cases it can be very difficult to get high level protection concepts on the agenda. Having said this where Maori adopt the concept of setting up highly protected reserves they can be effective advocates for conservation and willing partners. This is the future potential that we must work towards. It will require nothing short of excellent process and patience in dealing with the fisheries management agendas that will part of every scenario on the Northland coast.
- **Environmental groups** active in the marine conservation area on the Northland scene are limited to the Nga Maunga kī e Moana Conservation Trust's Experiencing Marine Reserve Program which now has two full time staff in the summer season and considerable profile in Northland. It should be noted that there is considerable potential for growth in this area. An example is the Landcare groups model that has grown to a considerable size. The larger national and international NGO's maintain a watching brief on Northland and provide support to local groups and projects. They would be keen to get involved and support significant positive approaches in Northland if they emerged.

### ***Community based initiatives currently active in Northland***

A few of the more significant groups will be mentioned here.

The **Tutukaka Coast Marine Park Proposal** – This proposal was put to the Northland Conservation Board more than a year ago. Dive Tutukaka sponsored this initiative. There is a presentation and a well written proposal document. Essentially the proposal calls for a process to be established for the creation of an integrated management plan and a National Marine Park to be created for the Tutukaka Coast area extending out to the Poor Knights Islands. This proposal makes the case for a balanced mix of management options including marine reserves and special fishing regulations. The proposal highlights the very high recreational and eco-tourism values of this area as well as the need for biodiversity protection to work along side good local scale fisheries management. To sum up this is a perfectly good basis for starting a process except that it hasn't achieved participation from all the interested parties who need to become involved. The proposal reads very much in line with stated MPA Policy objectives. This process, if it were to be supported, could become the basis for a sub-regional process which could then input into a larger regional process under the MPA Implementation process. There are currently two iwi

groups applying for rohe moana within this area and there are at least two more with an interest in addition to specific interests.

**Bay of Islands** – a group of local leaders has been working on restoration plans for the BOI for over a year with a combined focus of catchment management and marine management. They have recently announced plans to proceed with a ‘process’ to ‘reform the BOI Maritime Park. They are forming an Incorporated Society called BOI Maritime Park Inc. They are currently releasing a background document entitled, *Reforming the Bay of Islands Maritime Park*. They are intending to seek funding for two full time facilitator/coordinator positions and begin a public process. This group has some very able people behind it and it could be said that the BOI is boiling over with reasons why a process like this should be initiated. Again, like the Tutukaka Coast proposal, their aims and objectives and proposed process appear to fit well with MPA Policy Implementation Planning as a sub-regional process which will input into a regional process. At least three iwi groups are involved in registration of rohe moana areas in the BOI. One group has achieved registration. There is considerable ‘shared’ or overlap areas recognised by these groups.

**Doubtless Bay** – there is a well established community group in Doubtless Bay who have been actively exploring options for the Bay, doing research and holding meetings for the public and hapu. They have published a comprehensive research report on uses and options for Doubtless Bay and worked with the DoC sponsored habitat mapping project (Grace and Kerr 2005) which supports the marine planning work there. Ngati Kahu Runanga also has an active program exploring the options for customary management in Doubtless Bay and for the rest of their rohe which includes all of Cape Karikari. They have been focused on upskilling their people and have stated that they wish to focus on the creation of Mataitai areas. Recently efforts have been increased by all parties with DoC Area staff supporting to bring these two groups and their planning efforts together. The Doubtless Bay protection group has further meetings in the community planned as well as the publication of a discussion document planned for release soon. They are also currently forming an incorporated society legal structure.

**Kaipara Sustainable Fishery Plan** – This is a well known process that has asole fisheries management focus. A long process lead to a report and a series of recommendation of changes to fisheries management for the Harbour which is has been sitting with MinFish for over a year with little action other than some changes to scallop regulations. This was a difficult process that was well lead by local leadership to a point where they had a good consensus on measures to take. Hard to see where they went wrong with their process, however the response from MinFish has not arrived. There are lessons here to be learned about running a process like this in a Northland community. Strong local leadership and involvement was and remains the strength of this group’s work.

**Iwi Maori** – there are few maori groups in Northland who are not vitally interested in marine management. There is no coastline in Northland which doesn’t have strong traditional connection for one or a number of groups. As resource management and treaty settlement groups increasingly find their feet, it is predictable that a set of marine issues starts to emerge. The number of groups that are involved in planning registration of rohe moana or are involved in current application is growing all the time. Most groups have aspirations to ‘manage’ specific areas, sometimes large areas under provisions of the Kaimoana Regs or under general fisheries regulations. It is common that they are suspicious and cautious about the process involved with doing this under legislation and with MinFish, however there is some progress being made. It is also common that time and resources are severely limited and the view is often expressed that consideration of the

establishment of conservation reserves is not seen as a priority compared to the immediate fishery management concerns that they wish to address. Having said this some groups do express an interest in establishing conservation reserves using the marine reserve tool. Often expressed objectives of hapu and iwi groups include a range of conservation measure that they wish to put in place consistent with their traditional values using other management tools from the Fisheries Act. An obvious way forward seems to be to support as much as possible iwi/hapu aspirations where there are local fisheries and conservation outcomes.

*Processes in motion in Northland which influence MPA planning, Aquaculture management planning, Fisheries management, Traditional and Customary management*

In Northland the two processes of Aquaculture Reform lead by the NRC and the Customary Management Provision administered by MinFish will have an impact on or are part of marine protected area planning. It is disappointing that more integration of the objectives including biodiversity considerations and MPA planning couldn't have been made a part of these processes from the outset, but is a typical result of issue-based legislative based processes. The essential point here is that a fundamental part of any MPA planning process is to integrate these two important aspects and the interested parties involved.

## **Major Drivers Political - Community Perceptions**

It is not the intention of this paper to advise or predict the political sense and its affect on forward planning for the Department or the Conservancy. However it is worthwhile to attempt to characterise perceptions in our community and then managers and decision makers can compare and contrast this to information coming their way from Wellington through institutional channels.

Northlanders typically can be characterised politically as being very independent if not cynical towards government. Especially for rural Northland there is a long history and even longer memories of government policy and government officials not delivering or worse. Government officials of course like to think that good practise and more positive processes are over time turning all that around. There are signs that this is the case.

Looking specifically at the social/political perceptions around the ocean, we find ourselves in a particularly difficult landscape. Understanding of this context is crucial to the success of any process. Again it is very risky to generalise, but this is attempted here to because it is so important to process management.

**Local government** - for many people efforts at marine management are seen as too little, ineffectual and focused on development and to the expense of protecting 'natural values'. This is a harsh call and obviously our local bodies can site numerous advances in coastal management that they have worked hard to achieve, however this remains a prevailing perception.

**MinFish and fisheries management** – this is the big one - fisheries management is what most people are aware of and vitally interested in. For many people their whole perception of what we do in the sea is about fisheries management. There is quite simply a long history of decline in local fisheries, local fishing opportunity and many people see government policy and MinFish as largely a failing to recognise or protect their interests. There is a very large backlog of frustration and in

places long held grievances. As a result people involved in these issues are often operating in a conflict mode expressing a desire to 'take back local control'. There is often an understandable attitude that until some progress is made towards their list of concerns in fisheries management, that they will not support any government lead initiatives especially conservation initiatives that can be described as further 'confiscation' or 'locking up resources'. The lack of MinFish's performance in delivering on 'customary management' in Northland is a sore point for many maori and is really for MinFish to explain. On the positive side there is another section of the community that values the MinFish role especially in the compliance area. Currently MinFish is receiving more 'Rohe Moana' applications and talking to maori groups who are interested in proceeding with what is possible under the Fisheries Act.

The **Department of Conservation** – in relation to management and conservation of the sea, the first perception that is often observed is that people are unclear about the DoC role as they see the marine environment in the context of fisheries management and that is done by MinFish. Then there may be a generic expression about DoC as a government department or in some cases there is a positive perception that it is good to bring a conservation perspective into the ocean management arena. Perceptions around marine reserves and DoC's role also vary widely, there is a range between the highly negative, 'DoC is there to take resources', to, yes 'this is good that DoC is involved and why not get on with it and create more reserves'. What can be taken from all this is the conclusion that DoC has just begun to establish an image and reputation for playing an important, positive and effective role in local management of marine areas. Consistent positive engagement with community, technical contribution and effective process management are key elements to developing the DoC role in local marine management. A central message expressed by DoC that will require a consistent and large effort is that conservation in the sea is important, worth doing and achievable.

The **general political scene and legislative activity** –an unkind view of people's perception is that it is a bit of a graveyard presided over by a politically hung Parliament. The Marine Reserve Reform Bill process seems dead in the water. There is a lingering distrust and dissatisfaction with the 'Foreshore and Seabed' legislation. Add to this an Ocean's Policy that has seemingly disappeared and a range of fears around the Aquaculture Reform process and you have a somewhat negative landscape. This is the hard negative view of perceptions out there. The more positive view is that some people would look at all this as positive first attempts to sort out a long list of unresolved issues around coastal management and that it is good that we have made a start.

However you take this range of views and perceptions, there are not many runs on the board for government departments or local government in this area. Another way of putting this is that we are just beginning to really act on these issues - things like biodiversity protection in the sea and effective catchment management. **So is this all a problem or an opportunity?**

It is all a problem if we continue the status quo or if we fail to understand social/political landscapes in Northland when embarking on processes or management initiatives. The opportunity is in the recognition that behind the distrust and grievance there is strong potential for commitment to making things better and getting on with it. The key for process managers is to tap into these positive desires and values and work with them.

## What can we learn from over seas?

The use of marine reserves on a broader scale, arranged to maximize benefits as a system or network is currently being put into practice or is in planning stages in a number of countries, (Environmental Conservation Council 2000; Parks Victoria 2002; PISCO 2002; GBRMPA 2003; Ugoretz 2002; U.S. Department of Commerce 2000). In this country the New Zealand Biodiversity Strategy, (Department of Conservation et. al. 2000), outlines our overall goal of achieving a network of marine protected areas. Central to all the overseas programs and as stated in our NZ Biodiversity Strategy, the aim becomes to protect a system of **both** special and representative sites. This leads to the need to bring together best available information to support a logical process to define and describe both 'special' and 'representative'. The considerations of how much of each special area should be protected and at what scale to use for design of representative protection areas become key issues. This work is increasingly guiding how and in what form marine biodiversity information is collected and analysed, (Barrett et al., 2001; Kingsford & Battershill 2000; Sala 2003).

An attempt to review this very large body of literature here will remain limited, but it is important to note that there are very good international examples to go to for direction and that with each passing year there are more success stories of MPA processes achieving results. The overwhelming scientific consensus continues to grow that networks of highly protected areas are necessary for biodiversity conservation and effectively support fisheries management regimes.

## A Strategic View Implementing a Northland MPA Process

### ***The MPA Policy and transition into Implementation phase - what will it deliver to Northland and what does it require of us***

A Bill Ballantine pointed out, we now have a policy that introduces a further refinement of some goals for establishing an effective network of protected areas in New Zealand. Some principles are stated and government intentions for moving forward are offered. This has to be good news.

The hard part is obviously that some key elements; the protection standard the classification system(s) and the design guideline around amount of protection and replication are not yet resolved and a further set of governance issues around process management are only early stages resolution. At first glance this may seem an impossible scenario as these are all the things that are actually required to proceed. In reality what is happening our current revolution exactly parallels what happened in Australia and the USA where the above list of the 'starting points' were debated for over ten years, before a successful MPA process emerged. Underpinning these elements are some policy areas which are new territory for a government and government departments to deal with.

The situation then is that we know what the elements will look like in due course, we know the goal in general terms and we know quite a few things about what sort of process is now required. We also know that we will end up having whatever is worked out for Northland go through some

sort of regional process which will be charged with at a minimum approving proposals to government departments to finalise legal establishment. This regional design or approval process will take into account regional and national gap analysis and the elements and governance provisions which will emerge over the next couple of years. Here is a suggested positive Northland interpretation of this position:

Within a 2-5 year timeline the MPA establishment national/regional systems are expected to be in place and will be able to provide a process and a framework for any/all Northland MPA proposal to be evaluated for their contribution to the national MPA network and advanced through legislative process. For proposals generated now or within the next few years that are well founded and arise from very strong processes this is good news as they will end up being supported by the regional and national processes on their way to inclusion into national system. The key issue is what we should be doing **now** that could lead to practical positive outcomes within this 2-5 year time frame.

### ***The need for an integrated approach and what this means***

This is the most important of the changes signalled by the MPA Policy. Historically marine reserve campaigns set out to achieve widespread consultation during their informal and formal statutory stages., They also often attracted an active anti lobby that claimed they didn't widely consult. What is signalled in the MPA Policy and re-enforced in the Marine Reserve Amendment Bill is that future processes must be more inclusive; fully including interested parties at the earliest objective setting and design stage. This is in line with international best practice and was typically not a feature of past marine reserve campaigns that normally went to their communities with a fully worked proposal and essentially advocated for it through the statutory process. There is a lot written internationally about MPA process management. In Appendix 3 of this paper there is a summary section from a leading US review, (NOAA, 2004) study of MPA processes. The recommendations in this review entitled '*Lessons Learned.....*', are a virtual guide to what our processes should look like going forward. As expected there is a heavy emphasis on full stakeholder involvement early in the process. There is really instructive comment there on the roles of the participants, role of information, role of scientists and guidelines around all important governance issues referred to in this paper.

### ***The top down approach what does it offer how would it work what does it offer Northland, how would we work with it.***

This concept refers to the MPA Policy and Implementation, the other legislation and government lead initiatives designed to implement the Policy. It will be important that government officials can clearly state what the government is doing intending to do and what the roles of the Departments are. In our present scenario we can explain that government is committed the Biodiversity goals and the general developing process at the regional and national level. We have to be up front on the progress of the design elements and the governance issues discussed in this paper and then go on to say that we expect these elements and governance guidelines to emerge in time. And we can say that until this part of top down process happens, interpretation of these elements in practical

terms lies with any sub-regional or community level process that undertakes to proceed with a design and proposal process. In essence the community or sub-regional process assumes the responsibility to make decisions that central government is not yet prepared to do. The key difference is that this is happening at the local scale and via a full participatory process. This in principle fully reflects the stated intent of the MPA Policy and the Marine Reserves Amendment Bill. So in this next period the 'top down' part of the overall process is a limited one, but of course it remains very important in terms of national goals.

### ***The bottom up approach what will it look like where will it come from, how will it work***

Initial stages of the bottom up approach are really in progress in Northland now in the form of the various groups that are now actively planning processes and developing proposals. There is actually no part of Northland that doesn't have a group of people currently engaged in this process. These processes have naturally evolved out of a strong community level concern for the marine area and concerns that current management arrangements are not effective or sustainable. They didn't wait for a governmental decree - typically they want their process to be community based and often express a lack of faith that any process lead by Wellington or government departments would lead to good outcomes for them. It is not too hard to see that this is a very suitable base to build on to develop MPA processes in Northland that could reach actual results. In essence the whole discussion on participatory processes coming from the top down approach encourages us to fully involve communities.

### ***The strategic importance of Northland in marine conservation terms and the need and case for a sub region approach to emerge***

From a conservation perspective and an ecological perspective there is a strong argument that MPA work in Northland should be a national priority. A short list of the arguments follows:

- Northland has the greatest diversity of marine environments from a biodiversity perspective, we have three bio-regions, (West Coast, Three Kings, and Northeastern Coast) in or partly in our area, we are the only Conservancy in the country with three bio-regions
- Three Kings Islands bio-region is arguably is the most unique in biodiversity terms with the highest level of endemism of any area in NZ and there is no protected areas there currently
- The Northern part of Northeast bioregion has the richest biodiversity of any region in NZ, beyond Poor Knights Islands there are no protected areas.
- Northland is information rich scientifically compared to all other regions of NZ.
- Scientific studies have demonstrated on the northeast coast that (1) marine reserves work in terms of restoring population of exploited fish species, (2) there are dramatic differences between inside and outside of marine reserves illustrating the extent of prolonged overfishing on this coast

- There is a strong science case that crucially valuable algal forests across a wide area of Northland's east coast are under threat. This is a high priority biodiversity concern which current fishery management cannot address.

There is another list of considerations that could be described as social/economic/political - here there is more of a pro and con set of arguments

- Pro: Northland has experienced a steady build-up of capacity and activity in MPA work over the last seven years. There has been a considerable investment in information systems and collection, advocacy work, expert group processes, partnerships in conservation results, relationship building as staff capacity growth. This has been a steady planned effort dating back to strategic plans put in place at the Conservancy in 2000.
- Pro: Northland is arguably quite advanced in developing marine advocacy and awareness, partnerships with community groups and Maori and has more community and Iwi groups actively involved in marine planning than in any place in the country.
- Pro: Northland has arguably the most advanced supporting information system in the country. For some years now as part of its MPA preparation work the Conservancy program has had a focus on how to get this information out into the community in a MPA process friendly format. The *Northland Marine Library CD* is a useful start to this process.
- Pro: Northland has a big and economically important marine area, commercial fishing, recreational fishing, customary fishing, diving and eco-adventuring and all the supporting industries around these activities are very significant in Northland and represents million of dollars of economic activity. All this is based on a declining resource dependent on habitats that are threatened from prolonged overfishing of the nearshore area.
- Pro: the Mimiwhangata marine reserve proposal process was put on hold to be 'folded into' the future MPA processes. The hapu which supported the proposal is remains in support. Other hapu remain opposed or undecided. This proposal was all but ready for formal notification before this decision was taken. In any analysis the extensive history of research and consultation and the well advanced documentation will place it on the agenda of any MPA discussion or design process, the Mimiwhangata marine reserve as proposed was set to be NZ's largest mainland marine reserve and arguably would become an extremely valuable protected area
- Con: Northland can be seen as a difficult place to go to do MPA planning, because there are so many interested parties involved including the very large and complex Maori traditional dimension to resource management in Northland
- Con: Northland is a long way from Wellington and is quite stable in terms of Parliamentary representation

- Con: a perception that there is such a big list of unresolved treaty claims and frustration and related to Fisheries Management that it is very difficult to get Maori to positively engage and support marine conservation planning

## ***Visualising the Path Forward***

One way to develop a path forward in Northland is to visualize the task in the context where all the elements of the MPA policy were in place now – what would we do. Here is a suggested action list:

### ***Suggested Northland MPA Program Actions***

1. We would immediately shore up any of the technical information levels that were required to design MPA's. This is a practical approach based on the idea that we can and will make reasonable decisions on a best possible set of classification and descriptive information within the agreed timeframe of our process. So this would be time-bound, say a one year program, (in reality it would continue as you never finish this task, you only make the info better over time). It is reasonable that DOC would lead this work with others contributing and involved.
2. We would develop a program to engage and involve communities of interest in Northland around the task of designing protected areas. While in this idealised scenario DOC and MinFish might lead this process, it is more likely that they would assume facilitation and support roles as is common in overseas best practice. The facilitation/support role is also consistent with the current stage of MPA process development.
3. We would look long and hard at the issues around process and process management and with the interested parties resolving a set of operating procedures.
4. In this scenario design elements are prescribed by the national MPA design guidelines, however local groups have a role of interpreting those guidelines in the local context and also it is possible for the sub-regional process to exceed the minimum national guidelines in their recommendations and proposals if this is the end result of their process.
5. Through the above process along with the participants we would confront the issues of how many communities, how many sub-regional processes and arrive at a Northland formula to run sub-regional process or processes. This is a practical thing that is all about the communities themselves and how they can or prefer to work. There is no real reason why 'communities' can't overlap or join if it is advantageous. It is the quality of the process and the outcome that is important.
6. The process or processes run when they are ready which have as their output a proposal recommendation which has been locally reviewed and endorsed via a robust process.
7. Representatives of the Northland sub-regional process or processes then take the Northland proposals to the Regional process group for evaluation and recommendation for final statutory processing and inclusion into the MPA network.

Now if we look at the real scenario where MPA guidelines are not yet fully prescribed at the outset of the process, how would this plan of actions differ for the first 3-5 years? Answer - well it doesn't materially change with one important difference in Action 4. In our real scenario the MPA

design elements and governance guidelines will emerge over sometime possibly as long as years. This means that in our real scenario the sub-regional processes assume the governance role as required by the process they run and the outcomes that they are committed to achieving. Typically when countries are beginning their MPA planning this how it works. Many decisions are left to sub-region processes to work out as best they can. There is an argument that it is a preferred approach to have a more 'open ended' process. If you ask communities in Northland at the moment they will say almost without exception that they want to own the process, i.e. decide on guidelines and governance issues as much as possible themselves. There is some precedence of success with a more 'open ended' process approach here in NZ. The Fiordland process arose in the absence of an MPA policy and dealt with design guidelines and governance issues through their own stakeholder process with minimal involvement of government departments in the early important stages, (Guardians of Fiordland 2002). Applying the Fiordland experience to Northland is not straight forward as our situation is far more complex in a planning and process sense, but the Fiordland experience illustrates the point that the 'open ended' or 'bottom up' process can be effective and lead to worthwhile gains.

So a re-write of Action 4 to fit our real scenario could read as follows:

Action 4). A initial set of design elements are prescribed by the national MPA design guidelines, however local groups have a role of interpreting those guidelines in the local context. This interpretation will be guided by the participatory process that they run and the eventual objectives that they create. It likely that recommendations for MPA's that result from the work of a sub-regional or community based process will be fed into a further Regional process which will examine the proposals in the context of meeting the regional and national MPA goals established by a GAP analysis process. This will then lead to the Regional process making recommendations to Government to further process the proposal through the final legislative processes leading to establishment. It is possible for the sub-regional process to exceed the minimum national guidelines in their recommendations and proposals if this is the end result of their process.

Lessons learned in the US and Australia where they have worked through these issues and run many MPA processes reinforces this interpretation of the path forward. Appendices 2&3 are examples of the current best practice advice which consistently place the emphasis on:

- Getting the information systems in shape to support MPA design process
- Relationship building –setting the scene
- Information dissemination and awareness building regarding the need to do MPA planning and how it works
- Engagement process with interested parties starting at the very earliest stage of the work
- Committing resources and placing considerable focus on facilitation and process management and support tasks involved in the participatory and community based planning processes.

The result of the little mental exercise we just did comparing a 'mature or top down prescribed' MPA policy to the 'immature, less structured more bottom up' one we have now is the vital conclusion that the first steps of the processes are very similar in both scenarios. They are clearly focused on information systems, communication and process. These are all things that we can and

should commit to doing now. In fact we are well down the track on many parts of this work. What is needed now is to:

- Restate our commitment,
- Focus and further develop our efforts and approaches in the new context
- Communicate this effectively to staff in the Department and partners in the community.

## ***Suggested and Potential Vision and Objectives statements for Northland Conservancy's MPA Program***

A topline vision statement could be along the lines of:

*To establish an effective network of marine protected areas in Northland through positive engagement and involvement of Northland's communities. (Note you can of course add more to this if you want)*

Then a suggested list of our objectives we commit to:

- Achieve a very high standard of management in all existing marine protected areas in our Conservancy
- Collect and communicate to the community the best possible science based information focused on informing and supporting MPA design process - this covers monitoring and research results, habitat survey information, classification systems and best practice process recommendations and design guidelines
- Engage with communities with aim of raising awareness of marine conservation issues and the need to commit to involvement in MPA process
- Advocate for the need to establish protected areas
- Become effective and committed to support and facilitation roles underpinning MPA processes

## ***Managing and Developing Information Systems in support of effective MPA planning***

### ***Some principles and guidelines***

Science information plays a key role in conservation planning for marine systems. Some basic principles affecting marine science work and the key areas of work that support Marine Protected Area planning are presented here. Brief notes on the status of this work for Northland and future priorities are included.

**The marine environment is very big, very diverse and complex.** In contrast to terrestrial systems the marine environment has dynamic links between different habitats that are potentially

fully functioning. This critical aspect and the evolution of marine organisms that exploits the possibilities of life in a dynamic fluid environment is a uniquely marine feature and offers a golden opportunity for restoration and regeneration of natural systems. It means that positive networking properties in the form of ecological connections will automatically emerge as we start to establish more than one reserve area. As the network grows and develops the positive network connections grow, but not in a lineal manner as might be expected. Instead with the addition of each protected area to the network there is an exponentially growing possibility for positive connections. A simple arithmetic example can illustrate this. If you have two reserves the possibility of connection is in simple terms is 2, back and forth between the reserves. If you construct a network by adding reserves, by the time you have 8 reserves there are 56 possible connections between reserves! This simplified example illustrates a fundamental property of emerging networks and supports the argument for establishing MPA networks globally. In a real sense they protect and restore the potential for the natural ecological connections in the sea currently impacted by exploitation.

**Our knowledge of marine systems is limited** - A second principle in the sea is that we really don't know very much about the sea. It is quite simply too big and too difficult to gain a total understanding of a system that can be ten times the complexity of a neighbouring terrestrial system. What this means in practical terms is that we need to devise simplified ways to study impacts in the sea and test efficiency of any given management action - all this while we continue fundamental learning. In addition we can devise helpful working models that can over time help us to manage and design protected areas. A simple example is a habitat map that is constructed around an agreed classification that best describes major functional groups of organisms or physical environments and a combination of these two. It is a well established principle that habitats described in this way can serve as useful proxies for ecosystems. Depth of a marine environment also has a profound impact on how much we know. As a general rule information is exponentially more difficult to obtain and costly as one travels outward from the intertidal zone into deeper environments. This pattern is directly reflected in the current state of our knowledge. We have very good information on the intertidal zone and very poor information at depths in excess of 100m. The history of studies also follows this pattern. Intertidal studies date back two centuries, whereas exploration of habitats at 30m depth only began in the 1960's with the first generation of diver/scientists who are still alive today.

**A vitally important principle to MPA planning is the 'Precautionary Principle'**. This principle is expressed in various forms in many of statutory documents including the Fisheries Act and is stated as a guiding principle in the current MPA policy. In short the key meaning is that decisions need to be based on best possible information and that lack of information should not be a reason for delaying decisions. Sometimes a stated corollary is that where there is lack of information regarding an MPA planning decision that the decision should be taken erring on the conservative side in relation to the desired conservation outcome. Given the challenges of assembling information systems in the sea it is clear that this principle needs to be constantly emphasised and adhered to.

**Scale** - Lastly a principle that directly affects MPA planning is that the marine systems operate over a vast range of scales from a micro scale to scales 1,000km's in size. Rather than be bewildered by this property of the system, what is required is that a pragmatic approach is taken and that a relevant and workable scale for MPA planning is simply 'agreed' by a governing body or by a process. This is actually an entirely practical consideration but of course it becomes

political in a sense that it has a definite influence on the application of the design process. Looking at the Northland nearshore example you can examine the physical setting and habitats and perhaps social constraints on the size of reserves and maybe a preferred minimum size for reserve areas. However you do this you come up with a working scale that is 10's or 100's of kilometres, but it is not meters or 1,000's of kilometres. In this example the eventual MPA design may not be idealised for some very small and relatively immobile components of the system or a small special habitat could be missed out entirely. On the other end of the scale the system is unlikely to have major impacts on the Central Pacific scale, but in practical terms for the Northland nearshore coast it represents the best possible compromise and a worthwhile and practical start point.

A summary of the major information areas which inform MPA process

### ***Research: Biological/Ecological***

New Zealand and Northland in particular is well served by a history of marine scientific development and research. Historically this work was aimed at describing environments, habitats and organisms, but more recently much work has been focused on management questions around pollution, fisheries impacts and the effectiveness of marine protected areas. This body of work is summarised and referenced from a Northland perspective in the Northland Marine Library CD. There is a much larger body of research for NZ as a whole as well as many International studies.

Northland Conservancy has an important role in the research of effectiveness of marine protected areas. This is reflected in the multi-reserve studies currently being carried out that incorporate long term data sets comparing fish densities at the Poor Knights Islands Marine Reserves, fished reference sites at Cape Brett and the partial protection and adjacent fished referenced sites of Mimiwhangata Marine Park. In this suite of studies there is also long term crayfish study at Mimiwhangata that dates back to the 1970's. From this suite of studies that the Department has sponsored over the years a number of leading international publications have been produced indicating the importance of this body of information internationally as well as for NZ.

In future there are a no shortage of burning issues that call out for research projects. It will be important for the Department to be highly focused and effective in working in partnerships to maximise the possibilities for this work. Projects that focus on key ecosystem decline indicators of threats or changes as a result of increasing fishing activity are a clear need. Marine reserves are fundamentally important to these studies as they provide a 'control' study area to compare against the impacted study areas. An example of priority study would be to look at changes in shallow algal forests on a Northland scale.

### ***Monitoring***

We have monitoring programs in place or being established at Poor Knights, Cape Brett, Mimiwhangata and at Motukaroro in the Whangarei Harbour. These monitoring efforts are linked to other sites in the Northeast Bioregion, by common methodologies. Taken as a whole, the multi-reserve analysis capability of this system to detect change over time of exploited fish species represents current state of the art practice. Within this system there is considerable flexibility to

vary a work programs in relation to time scales and the intensity of analysis and results that are desired.

There is no monitoring in place to look at threats or changes in estuarine systems, (other than Motukaroro), the Three Kings Island group, (separate Bioregion), rocky reef systems North of Cape Brett and for any West Coast habitat. Prioritisation of monitoring effort given the size and scope of the task will remain a challenge and important strategic planning task.

## ***Survey and Site Based Investigations***

More than any other Conservancy Northland has a considerable history of site based investigations that are focused on biological inventories, descriptive work and habitat mapping projects. In the case of the Doubtless Bay and Mimiwhangata habitat mapping projects, this site based work was undertaken to meet specific objectives of providing a basis on which MPA planning could be done at a site level. This very site and project focused approach can be very valuable and essential to the process as it was shown to be at Mimiwhangata. The Northland Marine Library has a complete reference collection of these studies.

## ***MPA specific information layers***

There is a current project in the Conservancy which involves participation in a Northern Region Technical Group. The purpose of this group and the Conservancy project is to identify key information layer gaps that are required to underpin MPA planning at the Northland and Regional scale. The gap analysis stage of this work is nearly complete and a list of task and actions is currently taking shape for the Conservancy. In summary the objective will be to assemble accessible information first in a GIS format and then field projects will be proposed to fill information gaps. The main information layers under consideration are:

- Bathymetry
- Wave exposure
- Intertidal habitats, sand, mud, rocky shore, (soft bottom habitats may be further broken down)
- Major physical habitats, soft bottoms and rocky reefs
- Major subtidal biological zonation depths
- Estuarine systems – a national classification system is being established as DoC, MCU project

For sites where habitat mapping projects have been completed like Doubtless Bay and Mimiwhangata, the minimum requirements for data have already been met. Elsewhere there is a significant amount of work to incorporate existing information into appropriate GIS formats. Analysis of aerial photos and the collection of suitable aerial photos for areas missed out in current photo sets will provide most of the information for the layer to 15m depth. Some field 'ground truthing' effort will be required for this method. There is a major lack of information on rocky reef habitats beyond 15m depth. This will be the hardest and most expensive information layer to complete as it requires considerable survey field work.

At the end of this process there will be a very workable GIS based map based system of information that will fulfil the requirements of the presently envisioned MPA design process for the nearshore environment.

It is a priority task at the moment for the Conservancy technical team to cost and plan this program.

### ***Social/cultural/information***

It is now recognised that effective MPA processes include social and economic constraints and interested parties and stakeholders input as fully as possible as early as possible. While this is an easy concept to state, actually doing it is another matter. Some beginning guidelines are offered below.

A starting point is to develop along with participating stakeholders a series of GIS spatial layers consistent with the above described science based layers that attempt to portray social/cultural information. Stakeholders would need to be involved in this information gathering process from the beginning. Examples of the info layers could be:

- Commercial fishing activity – methods-activity levels, (can be supported by existing info sources)
- Recreational fishing effort and activity, special places, use patterns, access and shelter patterns, (can be supported by existing info sources)
- Cultural information, special resource or use areas, nursery areas, special places, special management areas, traditional use
- Other marine uses
- Perceptions of high natural values – different definitions
- Coastal landscape values
- Existing Fisheries Act regulations, (already included in Northland Marine Library)

### ***Guidelines for maximising integration of the tech and the social/political process elements***

Every publication on MPA establishment today emphasises the importance of social/economic/political factors. There is in fact an emerging science around the integration of these fields of information and process management. The prevailing view, (see Appendix 3 NOAA Lessons Learned', 2004), is that objectives and results are closely tied to the effectiveness of 'process management'. Out of this discussion come two key recommendations:

- Planners and managers should be familiar with every stage of the MPA process and have a thorough understanding of the social –political context they are working in as well as the science based context. They need to be able to clearly articulate the authority and objectives under which they work.

- Value laden conflicts can and should be addressed through the use of skilled experienced facilitators. Where possible, third party process managers should guide the process from the outset. If this is not possible, neutral professional facilitators should at a minimum be employed to run the meetings.

The picture clearly emerging here is that process and process management is all important and that objectives and results are closely tied to process and the accompanying work in awareness raising education and information provision. A logical conclusion therefore points to some guidelines for the management of science and information that are focused on the result via an examination of how any proposed work supports and informs the process.

### ***Creating a New Technical Staff Culture***

The first and possibly most important consideration is the job brief, commitment and personal skill set of every technical staff, conservation officer and manager involved. We need to foster a culture where all staff involved see themselves as having a role in the community engagement process. This has to be done by doing as opposed to talking about it - in a word engagement. This understanding and commitment must be reflected in a commitment to design their work and the way they work to maximize benefits to the process and community engagement. This commitment includes a commitment to skill training where needed in things like presentation skills. A simple example here may illustrate this point. The end product of the Northland Marine Library CD arose out of a technical problem. The technical problem was that gaps had been identified in key information areas which were seen as important to future MPA planning areas. In addition the various information sources that were available were scattered in all directions, much of it unpublished and a lot of it completely inaccessible to the public or even technical people working in the field. One important bit of technical work that was done over several years and represented a substantial DoC investment was finally tracked down under an ex-Conservancy scientist's bed! There are many possible technical solutions to this problem, however the Conservancy made a conscious decision to go with a system that **maximised** the MPA process potential of this task. The end result has been positive and continues to offer engagement opportunities in presenting this material. It is worth mentioning that this project has and continues to offer opportunities for staff development and training in engagement, so this is a third outcome that is not technical it is process orientated.

It is common when referring to cultural change around integration of community awareness work and technical work to focus on the technical side and ignore the role that community awareness staff or programs have in moving to a more effective ways of working. In short what often happens is that community relations people often are so totally focused on relationships and engagement with communities that they fail to engage with other staff. Sometimes there is a perception that 'it is not their role' to involve themselves with technical work. A useful example here is the case study of the *Marine Library CD*, this project had by design considerable input from highly skilled communication and community relations people, and it underwent considerable testing on target audiences. In summary lots of things happened to this project that arose from the expertise that these people possessed. The eventual key was the combination and working collaboration of the technical people and the process and communication professionals. The take home lesson here is that if science based work is to be effective it requires input and collaboration with specialists in

the social and communication fields. The key word here is collaboration. A further result of the collaboration is that all parties learn new skills and ways of working from the collaboration.

The next section offers some initial suggestions on a management level to help bring forward these cultural and process orientated changes.

### ***Prioritising MPA technical support work - a decision making matrix for managers***

In future an important management consideration will be the allocation of resources and staff time between science based research, monitoring and site and project based work and awareness/ education and process management.

It is suggested that once a Conservancy based MPA Strategy is adopted this difficult task will become more do-able. It will be important to develop a decision making matrix that includes an analysis to what extent a science based expenditure or projects meet requirements of MPA process objectives, i.e. helps the 'process' move towards a result. A starting point here is that resources will always be severely limited relative to the scale of the job. In addition the actual MPA process itself will entail resource demands.

Beyond the normal criteria based system we now use for assessing science based work here are some initial criteria that could be used in a weighted decision making matrix to assist managers.

- What external involvement, engagement or input has been part of this project design?
- Are there any specifically designed community engagement or MPA process outcomes?
- To what degree were community relations specialists or process managers involved in design of this project?
- What part of MPA process is this work relevant to?
- What partnership or joint venture possibilities have been explored in the design of this project?
- What partnership possibilities for future would be supported or created by this project?
- What specific outputs will be used in MPA process or some other management function and how will they be used?
- What is the potential of these outputs to alter outcomes of MPA process or Management actions i.e. to increase probability of achieving stated objectives and intended results?
- Who will own this output, how is that ownership expressed?
- Who will use the outputs – who is the target audience?
- Who will be involved in the transfer of the information to target audiences?
- What is the shelf life of this work?
- What future commitments are created in taking on this project? For who?

In using this list there are many possibilities, it could be a very informal unstructured guideline for staff or it could be adapted to a subjective/objective weighted decision making matrix. In reality probably the best use is some sort of mix where this guideline serves a purpose of literally changing the way tech staff approach the design of their work. This could have far reaching

positive results overall if embraced. From here there is a process and a learning road for staff and managers to go down together.

## A Final Word

How does all this come together in a successful MPA process? While I have put a lot of detail in this discussion paper, there is a vast amount omitted, especially in the form of case studies of process management from what is a large number of MPA processes that have been run around the world. The two countries that stand out in the last five years in MPA process are the US and Australia. These case studies are easily obtainable on the Internet and references provided here. As we approach the serious end of MPA work here in Northland it is strongly advised that people read as much of this literature as they are able. In addition to the process management readings it is worth mentioning here that marine science work focused on the design and effectiveness of highly protected areas and networks is rapidly expanding globally with each year that passes. The Northland Marine Library CD is designed to highlight these two bodies of literature and brings them together in a selected literature set for you in a useable format. The bibliography included with this paper is a useful start point for you reading also. In the near future you, all of us really will be presenting or having discussions about MPA planning, we will all have a part to play, so you and the ocean will benefit from this reading.

It is hoped that this discussion paper provides enough structure for people in decision making positions in Northland to begin serious work on designing an MPA process which will work for Northland in conjunction with the emerging National MPA approach. It is hoped that the comment and analysis of our current MPA policy is taken as constructive as opposed to simply critical. It is suggested that this is part of a natural evolving process of creating an MPA network which will mature and in time will offer more and more of a process and governance framework within which we can do our job at the Northland level.

The conservation issues more than ever demand that we do not delay or waver in this task. We also know there is broad public support for a process to happen and a result to be achieved. We must now begin.....

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## **Appendix 1 MPA Policy Design Principles**

## **Appendix 2 CBD #13 Chapter 4 Network Design**

## **Appendix 3 NOAA Lesson's Learned in MPA Process**

# Implementing Principles

- 62 The principles set out in this section will guide the implementation process to establish a network of representative MPAs under this policy, and ensure the management tools adequately provide for the maintenance or recovery of biodiversity.
- 63 These implementing principles are organised as follows:
- a) network design principles – to guide the design of the MPA network; and
  - b) planning principles – to guide MPA planning and management.
- 64 Each principle is followed by a brief explanation to guide interpretation and application of the principle.

## Network Design Principles

- 65 Development of the representative network of MPAs will be guided by the principles set out below.

### **Network Design Principle 1: The MPA network will protect examples of the full range of natural marine habitats and ecosystems.**

- 66 The sites included in the MPA network should be representative of all marine environment areas (at the agreed scale) and should cover centres of endemism and rare habitats or ecosystems.

### **Network Design Principle 2: MPAs should be designated based on a consistent approach to classification of habitats and ecosystems.**

- 67 To establish a representative MPA network, decisions are needed by Ministers on the classification approach to be used, including the scale or scales at which marine habitats and ecosystems will be classified and the extent to which other biological and physical information may be used to assist classification. The classification approach may be reviewed in response to new information on the marine environment or classification systems.
- 68 A transparent process will be used to determine and review the classification approach.

### **Network Design Principle 3: The MPA network should be viable.**

- 69 The marine environment is subject to ongoing stresses both natural and human-induced. A viable network will be more likely to withstand and recover from such impacts, increasing the likelihood of sustainably achieving the overall network. Viability will depend on matters including: the nature of the protection; the presence of replicate MPAs protecting particular habitat and ecosystem types; connectivity between MPAs; the nature of actual or potential threats to a particular habitat; and the amenability of those threats to mitigation using MPA management measures.
- 70 Where possible, MPA network planning should be designed to ensure the maintenance of ecosystem processes. The number of replicate MPAs included in the network will usually be two. However, in circumstances where a habitat or ecosystem is particularly vulnerable to irreversible change, more replicates may be established as a national priority.
- 71 Agencies will need to work together to respond effectively to external threats (such as sedimentation, incursion of exotic invasive species, or oil spills) to the MPAs.

### **Network Design Principle 4: National priorities for additions to the MPA network will be developed, and reviewed on an annual basis.**

- 72 National priorities for MPA planning will be set for a five year period and the priorities will be reviewed annually. National priorities will guide and inform biogeographic region and offshore MPA planning.

- 73 The overall goal is to protect the full range of marine habitats and ecosystems. Prioritisation of actions will therefore be driven by the requirement to protect the under-represented habitats and ecosystems. “Outstanding, rare, distinctive, or internationally or nationally important” habitats or ecosystems will then be considered. Priorities will then be influenced by consideration of threats to under-represented habitats and ecosystems. Progress could also be made quickly where under-represented habitats and ecosystems can be protected with insignificant impact on existing users and Treaty settlement obligations.
- 74 A transparent process will be used to determine and review national priorities.

**Network Design Principle 5: An evaluation programme will be undertaken.**

- 75 Evaluation will focus on the implementation of the MPA Policy. It will:
- a) assess progress in achieving the MPA Policy objective; and
  - b) assess MPA planning processes to ensure consistency with the implementing principles.
- 76 A stocktake of MPAs will be prepared each year to assess progress against priorities. Protected areas established outside the MPA planning process will be recognised as part of the MPA network provided they are representative of particular habitat and ecosystem types, and their management measures meet the protection standard.
- 77 The evaluation programme will provide information that will be fed into an annual report to decision makers to enable progress on implementing the network and consistency with the MPA Policy to be measured in a timely manner. The report will also be made publicly available.

**Network Design Principle 6: A monitoring programme will be undertaken.**

- 78 The monitoring programme will assess the performance of the MPA network, with respect to its viability, and the effectiveness of the individual MPAs at achieving their own specific biodiversity objectives. Results from the monitoring programme will be made publicly available.
- 79 For each MPA the monitoring programme will be based on the:
- a) site biodiversity objectives – based on the attributes of the habitat and ecosystem; and
  - b) performance of the MPA management tools.
- 80 Where monitoring reveals that management tools are not adequately protecting the area, the management tools for that MPA will need to be reviewed.

**Planning Principles**

- 81 The planning process to establish new MPAs to contribute to the network will be guided by the principles set out below.

**Planning Principle 1: Every MPA should be designated on the basis that it is representative of one or more habitats or ecosystems, and in a manner consistent with the national network priorities and the MPA implementing principles.**

- 82 This will provide clarity about the anticipated contribution of each MPA to the network, guidance on tool selection, and a reference for performance monitoring. The attributes of the habitat and ecosystem that each MPA is protecting will be recorded in the inventory of MPAs.

**Planning Principle 2: The management tool(s) used at a site must be sufficient to meet the protection standard.**

- 83 To meet the protection standard, a management tool must enable the maintenance or recovery of the site's biological diversity at the habitat and ecosystem level to a healthy functioning state. In particular, the management regime must provide for the maintenance and recovery at the site of:
- a) physical features and biogenic structures that support biodiversity;
  - b) ecological systems, natural species composition (including all life-history stages), and trophic linkages;
  - c) potential for the biodiversity to adapt and recover in response to perturbation.
- 84 Maintenance and recovery include, where feasible, the avoidance of change from human induced pollution, sedimentation, fishing, tourism or visitor-based disturbance, undersea or seafloor commercial activities, or scientific/research activities. The selection of tools for the management regime will require assessing their ability to address such human-related threats and activities.
- 85 The NZBS contemplates the use of some management tools that allow some level of extractive use in MPAs. Management tools must, however, not allow levels of biological removals or physical disturbance that would breach the requirements outlined above in paragraph 83.

**Planning Principle 3: The special relationship between the Crown and Maori will be provided for, including kaitiakitanga, customary use and mātauranga Maori.**

- 86 This principle reflects the need to take into account obligations that arise from Treaty of Waitangi commitments to tangata whenua that are included in marine management legislation and Treaty settlement legislation. Agencies need to ensure effective participation of tangata whenua in relevant processes. Whilst these commitments do not give tangata whenua a veto over MPA proposals, they do mean that where MPAs are being considered for a particular area, tangata whenua should be involved at an early stage.
- 87 Consideration of the impacts of MPAs on customary use and management practices is an essential part of creating an effective MPA network and avoiding unnecessary conflict.

**Planning Principle 4: MPA establishment will be undertaken in a transparent, participatory, and timely manner.**

- 88 Support for MPAs is likely to be increased where affected parties are adequately informed and have confidence in the integrity of the decision-making process. MPA implementation will be undertaken in a manner that constructively engages tangata whenua, regional councils, other government agencies and particular interests whose use of marine areas will be affected by MPAs, in addition to groups with an interest in marine biodiversity. These processes will be undertaken in a transparent manner that informs and allows for participation and input from the public.
- 89 In addition, agencies will meet any statutory consultation and participation obligations associated with implementing their management tools.
- 90 The establishment process will be documented to aid transparency for stakeholders. Each planning exercise will result in a report that outlines the marine protected area proposals identified.

**Planning Principle 5: Adverse impacts on existing users of the marine environment should be minimised in establishing MPAs.**

- 91 MPAs are more likely to be established in a timely and efficient manner where appropriate recognition is given to the rights and responsibilities of users of the marine environment. Gaps in the network may be able to be addressed at a number of different sites, and the protection standard will be able to be met using a variety of management measures.

- 92 Where there is a choice of several sites, which if protected would add a similar ecosystem or habitat to the MPA network, the site(s) chosen should minimise adverse impacts on existing users and Treaty settlement obligations. Where there is a choice to be made among minimum impact sites, selection may also be guided by:
- a) accessibility for management and enforcement requirements; and
  - b) benefits such as educational, diving and tourism opportunities.
- 93 The tools used to meet the protection standard will be selected primarily on the basis of adequately managing foreseeable threats to the site's biodiversity. A marine reserve will be established to protect at least one sample of each habitat or ecosystem type in the network. A range of management tools may be used to protect further samples provided the tools meet the protection standard and minimise adverse impacts on existing users. Tools selected will be implemented consistent with legislation and Cabinet decisions.
- 94 The process to consider sites and tools in a region can be undertaken concurrently.

**Planning Principle 6: The management tools used to establish MPAs should be consistent and secure in the long term, subject to any necessary changes to allow them to better achieve the MPA Policy objective, taking into account natural dynamics.**

- 95 Many improvements in biodiversity will not happen in the short term. The MPA Policy represents a long-term investment in the marine environment with the expectation that benefits will arise over time. It therefore makes sense to work towards long-term protection. Nevertheless, it may be necessary to adjust the design and/or location of some MPAs in light of changing environmental conditions, improving knowledge and changes in the use of the marine environment.

**Planning Principle 7: Best available information will be taken into account in decision-making.**

- 96 Understanding of marine habitats and ecosystem processes is limited, as is information on current uses and the effects of those uses on biodiversity. MPA decision-making will be informed by the best available information. Best available information means the best information relating to ecological, environmental, social, cultural and economic aspects of the marine environment that is available without unreasonable cost, effort or time. Standards will be developed to outline the quality requirements for the use of information in MPA planning.

**Planning Principle 8: Decision-making on management actions will be guided by a precautionary approach.**

- 97 Management actions to implement MPAs should not be postponed because of a lack of full scientific certainty, especially where significant or irreversible damage to ecosystems could occur or indigenous species are at risk of extinction. Each agency will need to apply the precautionary approach in a manner consistent with its statutory obligations.

**Planning Principle 9: The MPA management regime must be enforceable.**

- 98 Where compliance and enforcement is inadequate, the MPA Policy objective is unlikely to be achieved. The level of enforcement and compliance required will be based on the risk of non-compliance and the impact of that non-compliance on achieving the MPA Policy objective.

**Planning Principle 10: MPA research will be effectively planned and co-ordinated.**

- 99 MPA research is important for a number of reasons. These include developing the classification approach, determining whether individual MPAs are meeting the MPA Policy objective, how MPAs should best be designed and managed, and the social and economic impacts of MPAs. MPAs also provide invaluable comparisons or controls for research investigating the ecological structure and function of marine communities, with potential benefits for fisheries and environment management.

## 4. CREATING AND DESIGNING MCPAS AND NETWORKS

### NETWORKS AND CONNECTIVITY

The aim of the MCPA network should be to create a coherent whole, with emergent properties and values, not simply a collection of individual MCPAs and regulatory controls.

Connectivity between MCPAs is critical, given the presence of mobile life stages in most organisms (see context section above). This means that the viability of one area may be dependent on what happens elsewhere (e.g. in the area where spawning occurs). There is also strong connectivity between marine and terrestrial processes, particularly in relation to movement of water, sediments, seabirds and all other organisms that use both environments.

In general, creating a large number of small reserves will provide greater connectivity benefits than fewer larger ones, but smaller reserves may be less effective in achieving settlement of dispersing organisms (Roberts and Hawkins, 2000. See also Rachor & Guenther, 2001, who consider sizes and distances of MPAs). It has been suggested that the more critical issue is the proportion of marine space protected: with increasing levels of connectivity achieved as the proportion increases. Roberts and Hawkins note that the great variability in dispersal abilities among species necessitates high levels of connectivity (achieved by reserve networks) for assuring persistence of the full spectrum of biodiversity. The authors summarise the importance of a network of marine reserves (highly protected marine areas) based on the following:

- isolated reserves have many benefits but will only be able to protect a limited fractions of marine biodiversity;
- large numbers of marine species have open water dispersal phases and can potentially be transported long distances from where they were spawned;
- individual reserves may be able to sustain self-recruiting populations of species that disperse

short distances, but networks will be necessary to protect many species that disperse long distances; and

- reserves in networks need to be close enough for protected populations to interact through dispersal.

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### PRIORITIES

A strategic planning approach, embracing sustainable use and ecosystem-based management, to enable the implementation of an ecologically viable framework for MCPA development, should be adopted at the national and regional levels. This should enable future MCPA development to be based on important aspects such as past experience in effective management, large scale factors affecting MCPA viability and long term goals.

For a country with no or very few MCPAs, the priority would be to establish some. These first MCPAs should have objectives relating to increasing the community's understanding and acceptance of MCPAs as a tool for marine and coastal biodiversity management. The location of these may be dictated largely by where it is easiest to establish the MCPA in terms of community acceptance, feasibility of establishment and management and similar considerations, or where the MCPA will provide the greatest flow of benefits to the community. The process should also establish appropriate governance arrangements that will facilitate future MCPA creation.

For a country that already has a significant number of MCPAs, the priorities would be to:

1. improve effectiveness of existing MCPAs;
2. address the most significant gaps in terms of representativeness, addressing urgent threats, and providing benefits to all communities;
3. begin to develop local, national or regional networks; and
4. achieve an improved balance between the three framework elements.

If offshore MCPAs are lacking, the creation of such reserves should be encouraged.

#### ESTABLISHING OBJECTIVES

It is vital to clearly establish the objectives of each MCPA and MCPA networks. For ‘highly protected’ MCPAs the prime objective should be to protect marine and coastal biodiversity, including the principle of full representation and with a short-term priority of attention towards rare, threatened, declining or degraded habitats or species. These objectives should influence the following:

1. The choice of where to establish the MCPA. For example, if the primary objective of the MCPA is to protect a particular value (e.g. a seabird-nesting colony, or the occurrence of an important, but rare offshore habitat), then the location of that value will dictate the location of the MCPA. But if the primary objective is to provide an educational resource, then proximity to an educational lodge may be the important consideration, regardless of the diversity of marine environment present there.
2. The choice of how to establish the MCPA. For example, if a primary objective is to improve community acceptance and understanding of MCPAs, then development through a careful participatory approach will be essential, even if this delays establishment. But if the primary objective is to address an urgent threat, then a faster and less participatory approach may be

unavoidable.

3. The choice of type of MCPA. If the primary objective is to provide a basis for research into the normal functioning of an ecosystem, then a highly protected MCPA with no extractive uses will be necessary. If the primary objective is to protect a marine mammal population, then restrictions on certain fishing methods and protection from harassment and exploitation may be all that is required.
4. The type of management regime. This would include consideration of who should be involved in management, the type of enforcement approaches that would be used, and the priorities for management effort. For example, if a key objective of the MCPA is to increase community support for the establishment of an MCPA network, then increasing community involvement in management may be particularly important even if this was more costly or would take longer to produce a fully effective regime.
5. The methods of evaluating success. As discussed in the section below, evaluation of success would be done in terms how well the MCPA or network met the objectives.
6. There should be considered an additional “objective”: to establish a protected area as a compensation measure for destructive human activities on neighbouring marine areas (e.g. as a result of an environmental impacts assessment for a permission of a destructive/disturbing use).

## ECOLOGICAL CONSIDERATIONS

The context section above addressed the key characteristics of marine environments and their implications for MCPAs.

MCPAs, particularly highly protected MCPAs, will in effect become islands in the same way that natural vegetation remnants on land behave like islands. This occurs especially if the pressures on the surrounding areas lead to ecosystems losing species critical to sustaining functionality and biodiversity. Work to address fragmentation issues in terrestrial ecosystems may, therefore, help to inform our thinking about MCPAs.

Ideally, MCPAs should be large enough to encompass all the key processes that affect the ecology of the area. Such processes might include sediment movements, spawning and recruitment, food webs and natural dynamic patterns. Where this is not possible, providing protection for the cross-boundary processes (e.g. through establishment of an ancillary MCPA, through networking between MCPAs, or through regulatory controls) will be essential if the MCPA is to be viable in the long term.

Connectivity issues that are important in the marine environment include the following:

- Allowing species to continue to access their required range of food sources, whether these vary on a diurnal, seasonal or age-related pattern.
- Allowing species to continue to access their required range of habitats during their life cycle (e.g. spawning, juvenile feeding and dispersal, settlement, adult migration habitats).
- Maintaining metapopulation complexes.

Vulnerability to invasion by alien species may also be an important ecological issue. Identifying vulnerability will require a knowledge of likely entry points (e.g. ports), and natural dispersal patterns from those points.

As on land, the marine areas that lie between MCPA 'islands' will determine the extent to which:

1. there are impacts from the general marine area directly on the MCPA (e.g. pollution, invasion of alien species, loss of biomass as a result of spillover, changes in natural sediment movement); and
2. the connectivity between MCPAs is maintained or lost.

Therefore management of the wider marine and coastal environment needs to be designed to address these key ecological issues for the MCPA networks.

## CHOOSING A COST-EFFECTIVE APPROACH

Decisions on alternative approaches to marine biodiversity management, or alternative designs/locations for MCPAs, will need to consider both costs and benefits. The approach chosen needs to be effective in meeting its objective, but it is also clearly desirable to minimise (as far as practical) the costs and maximise the benefits of MCPAs and networks. To do this will require an assessment of those costs and benefits.

The direct costs of establishing and maintaining MCPAs may include infrastructure, equipment, administration, demarcation, monitoring and assessment. Indirect costs also need to be considered, and these may include economic impacts on traditional livelihoods, and socio-cultural impacts of increased tourism-related activities on coastal communities. Benefits will include ecological benefits, but may also include protection of cultural values, provision of a more diversified economy from new sources of income to local communities (e.g. from tourism operations or servicing scientific centres), knowledge to support resource management, and support for fisheries in surrounding areas. Costs and benefits may be short or long term, and must be adequately defined if there is to be a complete assessment.

In most cases, costs and benefits of MCPAs have not been assessed in detail, and have not been looked at over the full range of protection levels.

An assessment of alternative biodiversity and economic development strategies may well result in identification of highly protected MCPAs as the most cost-effective means of sustainable marine and coastal resource management. One of the reasons for this is that they are the only mechanism that can provide some benefits with any certainty (see the section above). Another is that the rules associated with them tend to be simple, and administration costs are therefore likely to be lower.

Similarly, the benefits of facilitating effective participation by stakeholders have often been underestimated, in comparison to the direct costs (financial and human resources, and delays in decisions). A fuller assessment of costs and benefits would be likely to show the long term net benefit of such participation, including through reduced compliance costs, greater effectiveness, reduced social impacts, and improved design.

#### DESIGN PRINCIPLES FOR HIGHLY PROTECTED MCPAs

These principles draw on material provided by Dr W. J. Ballantine to the first meeting of the AHTEG. The material in relation to individual principles was elaborated by AHTEG from reference to the relevant literature.

##### REFERENCES:

Ballantine, W.J. 1997a. 'No-take' marine reserve networks support fisheries. Pages 702-706 in 'Developing and Sustaining World Fisheries Resources: The State and Management', D.A. Hancock, D.C. Smith, A. Grant, and J.P. Beumer (eds.). 2nd World Fisheries Congress, Brisbane, Australia, 797 p.

Ballantine, W.J. 1997b. Design principles for systems of 'no-take' marine reserves. Paper for workshop: The Design and Monitoring of Marine Reserves at Fisheries Center, University of British Columbia, Vancouver, Feb 1997.

Murray et al. 1999. 'No-take reserve networks: sustaining fishery populations and marine ecosystems.' Fisheries 24:11:11-25.

#### Principles for Individual Highly Protected MCPAs

##### Principle 1: Minimising human disturbance on all biodiversity.

By definition, a highly protected MCPA is one in which human disturbances are minimised. This will require control of extractive activities (e.g. fishing, mining, sand extraction); activities which change natural processes (e.g. changes to sediment, salinity, wave action through structures, pollution or changes to sediment and water inputs from the land); any other human disturbance (e.g. from recreational uses, fish feeding).

All species within highly protected MCPAs should be protected, because ecological interactions are complex and mostly unknown. Allowing any fishing jeopardises goals of maintaining ecological structure and function and confounds the scientific ability to achieve understanding.

A key role for highly protected MCPAs is to allow scientific research and increase public understanding of marine biodiversity. Both scientific research and public education may require some extraction or deliberate disturbance. Extraction should only be allowed where it is necessary to support essential scientific research and public education, and should be limited and controlled through a permit system.

##### Principle 2: Permanence

The protection of the MCPA should be permanent, based on their selection as areas of critical habitat, highly productive ecosystems, source areas for eggs and larvae, key areas for biodiversity protection, or prime examples of naturally functioning systems. Long term changes cannot be effectively measured if highly protected areas are temporary. Since the establishment of two highly protected marine reserves in New Zealand there have been significant

changes in fish, invertebrates and kelp forest cover. The overall change to community structure and function was not apparent until over 20 years after reserve establishment. Fisheries benefits may not accrue for several years and resources can be over-fished and habitats damaged very rapidly.

**REFERENCE:**

Babcock, R.C., Kelly, S., Shears, N.T., Walker, J.W. and Willis, T.J. 1999. 'Changes in community structure in temperate marine reserves' *Marine Ecology Progress Series*, Vol. 189, November 1999.

**Principle 3: Viability**

The MCPA should be ecologically viable. This will require it to be large enough so that most ecological processes will be able to operate within the area.

The MCPA should also be legally and socially viable, so that the rules established are observed in practice. Ideally, boundaries should be simple to identify and enforce.

**Principle 4: Human Enjoyment**

As with national parks, a key role for highly protected MCPAs is to allow people to experience and appreciate the resulting natural state. Appropriate non-extractive use should be facilitated, and information provided to allow people to better understand the MCPA and the marine and coastal environment. The one exception to this would be where such access jeopardises biodiversity protection objectives. Minor impacts on the biodiversity in highly protected MCPAs are acceptable if it allows public understanding and support to be built. Under these circumstances, such impacts should best be confined to a part of the MCPA thereby enabling the impacts to be managed.

**Principles for a Network of Highly Protected MCPAs**

**Principle 1: Representativeness**

All biogeographic regions should be represented. Within each region, all major habitats should be represented. Conservative and widely accepted

definitions should be used when identifying regions and habitats. The section below provides further guidance on identifying representative networks.

**Principle 2: Replication**

All the habitats in each region should be replicated within the network, and these should be spatially separate, to safeguard against unexpected failures or collapse of populations. Where replication is not possible then other design principles may need to be reconsidered, such as size and number.

**Principle 3: Viability**

The ultimate objective is to create a network of geographically dispersed sites that are self-sustaining, independent (as far as possible) of what happens in the surrounding area (Murray et al 1999). The network should be ecologically viable with MCPAs achieving viability collectively and avoiding (genetic) isolation.

**Principle 4: Precautionary Design**

In designing the network, a precautionary approach should be taken wherever there is uncertainty (e.g. regarding habitat diversity, species habitat needs, threats by human activities, connectivity processes, etc). The precautionary approach in this circumstance is to use best available information to make decisions rather than delaying to await more and better information. Where there is uncertainty, the precautionary approach would favour erring on the side of biodiversity protection. While it is important to maintain as natural an IMCAM as possible, the network of MCPAs should ideally be designed so that complete failure of the management regime in the IMCAM will not significantly affect the viability of the MCPA network.

**REFERENCE:**

Lauck, T., C.W. Clark, M. Mangel, G.R. Munro. 1998. Implementing the precautionary principle in fisheries management through marine reserves. *Ecol. Appl.* 8(1): Supplement: S72-S78.

Appendix 3 Lessons Learned  
from  
Recent Marine Protected Area Designations in  
the United States

A Report to:  
The National Marine Protected Areas Center NOAA

By:

Brock Bernstein, The National Fisheries Conservation Center  
Suzanne Iudicello, The National Fisheries Conservation Center  
Charles Stringer, Law Offices of Charles M. Stringer  
in association with MRAG Americas, Inc.

FINAL REPORT  
June 11, 2004

The National Fisheries Conservation Center  
308 Raymond St.  
Ojai, CA 93023  
(805) 646-8369  
(805) 646-3849 (fax)  
nfcc@nfcc-fisheries.org

## 1.0 Executive Summary

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In the United States and around the globe, governmental agencies use marine protected areas (MPAs) as a tool to manage human impacts in ecologically and culturally sensitive areas. Defined in the U.S. as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein" (E.O. 13158, Federal Register, 2000), MPAs are designated through various processes that attempt – some more successfully than others – to merge the prerogatives of often disparate stakeholder groups with the physical needs of complex ecological systems.

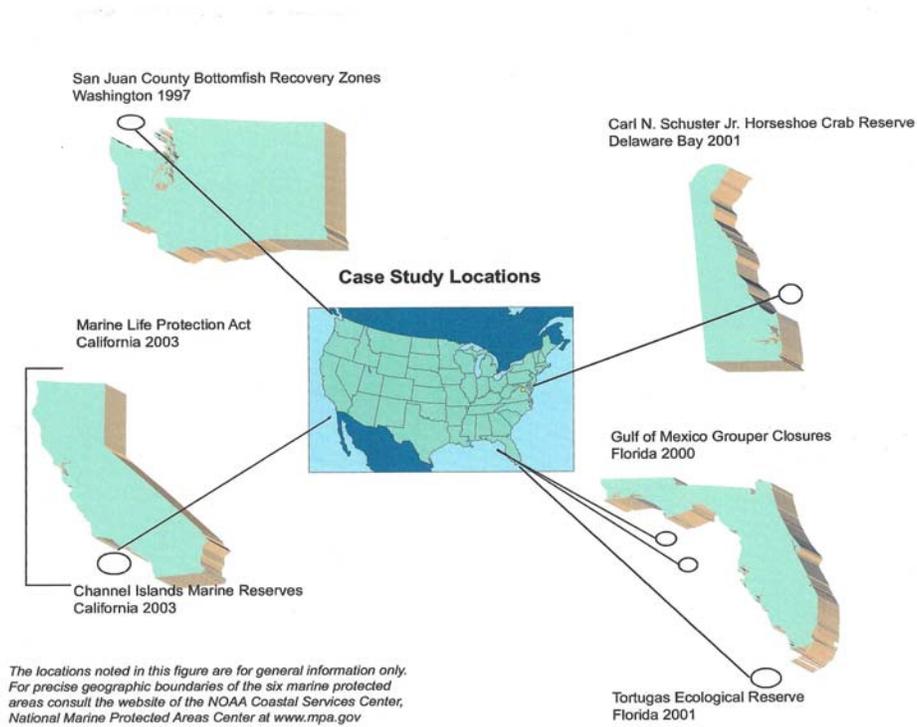
This report is a study of six separate and distinct efforts to designate MPAs in the United States. Based on the assumption that within their unique details lie lessons that can be broadly applied to other efforts, the case studies were carefully selected to represent diverse geographic areas and a spectrum of social, political, and ecological complexity. The assumption was correct. Through review of the written record and numerous interviews with those intimately involved in and affected by the six MPA designation processes, patterns emerged that formed the basis for important, broadly applicable lessons.

### ***Case Studies***

The six case studies that form the analytical basis of this report, illustrated in Figure 1, are:

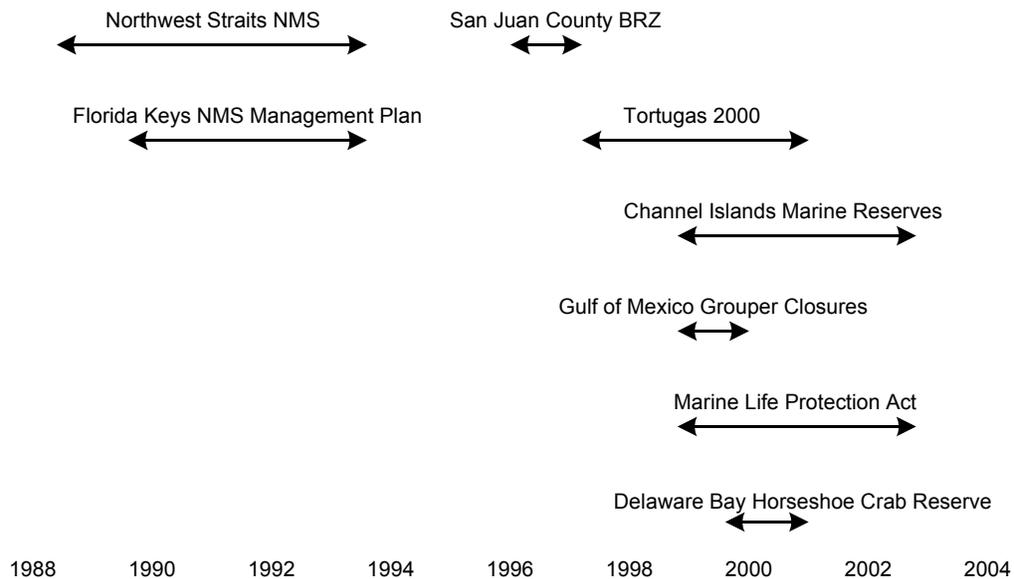
- The attempt to designate a National Marine Sanctuary in the Northwest Straits and the related establishment of Bottomfish Recovery Zones in San Juan County, Washington
- The designation of the Channel Islands Marine Reserves off the Coast of Santa Barbara, California
- Phase I of the establishment of marine reserves under California's state-wide Marine Life Protection Act:
- The creation of the Tortugas Ecological Reserve in the Florida Keys
- Grouper Closures off the coast of Florida in the Gulf of Mexico
- The establishment of the Carl N. Schuster Horseshoe Crab Reserve in Delaware Bay.

Figure 1. Locations of the six case studies that form the basis of the evaluation. Size of case studies not to scale.



The case studies cover the period from the late 1980's through 2003 and extended from one year to approximately five years in length (Figure 2).

Figure 2. Timeline for each of the case studies. NMS refers to national marine sanctuary and BRZ to bottomfish recovery zones.



While all are unique in their settings, historical backgrounds, degree of conflict, scope, and other essential characteristics, clear themes emerged from the case studies that provided the basis for explicit findings and recommendations.

### ***Findings and recommendations***

The findings and recommendations from the case studies were derived, analyzed, and then synthesized into lessons learned and, ultimately, the report's Findings and Recommendations. To ensure their relevancy and usefulness to agency managers, the lessons are organized to coincide with the typical stages of an MPA process, from inception through designation and review.

### **Setting the Stage**

Beginning with “setting the stage”, the report reveals the critical role that history, process design, goal setting, and science all play in laying the foundations for a productive effort to designate an MPA. While it may seem obvious that MPA processes do not emerge from a vacuum, several case studies revealed that avoidable challenges surfaced when process managers failed to take the time to fully understand the social, political and ecological landscape that informs a designation process. These historical factors often reveal the motivations and goals of stakeholders, and, when understood, support a more nuanced approach to avoiding or diminishing potential conflict.

Surprisingly, some process managers also overlooked (or at least undervalued) the central role that authorizing statutory or regulatory language plays in determining explicit goals and objectives. Vague or confusing expressions of goals with respect to a designation effort can lead to ambiguous and conflicting expectations about roles and outcomes, as well as other serious pitfalls. Managers should therefore clearly articulate the underlying authority driving governmental action and then build on that authority to develop, as much as possible given their sometimes fluid nature, meaningful statements of goals. This will help participants know what is at stake for them and understand precisely how stakeholder advice, decisions, or recommendations will affect authorized decision making.

### **Process Management**

Once initiated, MPA efforts turn to the “process management” phase of a designation. Process management factors include political considerations, the presence or absence of effective leadership, conflict management techniques, the role and timing of map making, and the availability of resources to fund a process. All these elements affect how efficiently and effectively a process moves through the inevitable twists and turns that occur in any designation. The case studies demonstrate that even processes that appear to be a straightforward application of scientific information to resource questions are significantly affected by their political settings and the push and pull of how user groups perceive the potential impacts of the proposed MPA(s). If not carefully managed and planned for, these allocation, socioeconomic, and political considerations can dominate a process. Effective leadership at the political, agency, stakeholder, and process levels is also a significant factor in the success or failure of a designation effort, as is the availability of skilled, interest-based conflict management tools.

Of course, intensive processes cost money, especially when facilitators, process design specialists, and sophisticated process techniques are utilized. But while stakeholder participation and process is an expensive, time-consuming, staff intensive undertaking, the case studies underscore the significant inefficiencies that occur when there is no clear staff oversight of a process, or when staff and management frequently change. In addition, staff must have the experience, stature, and core skills needed to understand and influence a processes' evolution, and to successfully flag and discuss emerging issues with program leadership.

## **Decisions and evaluation**

The final analytical phase of a designation process is the point or points at which decisions are made, and how those decisions and the outcomes they produce are evaluated. Here, the case studies demonstrate the importance of managing expectations among stakeholders by ensuring that participants understand the role they play in making decisions, and what happens to their decisions or recommendations once a participant's role in the process is concluded. Is the process collaborative, consensus building, or simply input for the agency? Precisely where does the decision-making authority lie? Participants must know the answers to these questions.

An issue related to decisions is how they are evaluated once made. A number of the case studies exhibit the problems that can occur when evaluation measures are not designed into a process. Evaluation should not only focus on the degree to which an MPA is meeting its stated goals, but also on the effectiveness of the designation process itself. Obviously the more clear the MPA's goals, the easier it is to design a monitoring system to measure those goals. Where goals are less clear, a secondary process may be required to establish interim and longer-term monitoring targets or benchmarks.

## **Recommendations**

In addition to these broader insights, the evaluation identified a number of specific recommendations.

1. Early planning efforts must include a thorough assessment of past history and its potential effects on stakeholder perceptions and the goals to which they will agree, as well as on their willingness to participate, and the groundrules they will accept.
2. Process managers must have a grasp of the underlying authority for a designation process, as well as the ability to explain it to participants.
3. Managers must have a vision of the process steps from beginning to end, not just the stakeholder participation stage.
4. Managers should design and manage MPA processes with an understanding of stakeholder motivation, an expectation that stakeholder goals will differ, and be prepared to handle disagreements and conflict.
5. Processes should incorporate appropriate flexibility and adaptability. Convenors and process managers should look at the full array of decision tools that are available and not feel locked into a complex consensus model or a rigid fishery management model.
6. Process managers need to remember that scientists are people, with motivations and biases like other stakeholders. Scientists should not work separately from other stakeholders, even on seemingly non-controversial issues. Scientists should be selected to ensure that their skills match the areas of expertise defined by the objectives of the process, and their role made clear to stakeholders.
7. Planners and managers should treat politics as the natural expression of human and interest group dynamics that reflect stakeholders' genuine interests and perceptions. They are part of the policy process and need to be recognized, accommodated and planned for. Such interest group dynamics often lead to conflict, which should be seen as a natural part of such complex processes.
8. Leadership is needed at the political level that initiates and supports the process, at the upper levels of involved agencies that ensure consistent commitment and follow through on decisions, at the process level where facilitation, negotiation, and conflict management skills are crucial, and at the interest

group level, where perceived stature, relationships with constituents, and the effective framing, control, and communication of a core message are important.

9. Value-laden conflicts can and should be addressed through the use of skilled, experienced facilitators. Where possible, third-party process managers should guide the process from the outset. If this is not possible, neutral third-party professional facilitators should at a minimum be employed to run the meetings.
10. Maps have many applications from identifying gaps to analyzing the implications of proposed boundaries. Process planners should consider three important aspects to maps – the process by which they are made, the information they contain, and how, when, and by whom they are used.
11. Upper level managers and agency decision-makers must ensure that key program staff are formally assigned to manage the process from start to finish, and that they have the experience, stature and core skills needed to understand and influence its evolution, and to successfully flag and negotiate emerging issues with the program leadership.
12. Process planners should be familiar with every stage in an MPA designation process, how long each step takes, and how much of it is set in law and regulation. They must know not only the stages of the stakeholder process and how long they will take, but be familiar with actions beyond the stakeholder process, where the stakeholder results go, what weight they carry, where results go in the next stage and how much of this is set in law and regulation. They must be able to communicate the overall picture to participants, and may need to do so more than once to be sure stakeholders do not lose sight of where their deliberations fit in the overall picture, or conceive unrealistic expectations about the outcome.