PART D:
ISSUES

PART D : ISSUES

1. INTRODUCTION

1.1 This part of the scheme identifies issues which form part of the Authority's responsibilities for the maritime planning area. The discussion of these issues forms the basis from which the objectives and policies in sections 3 - 9 of Part C of the Scheme have been derived.

Public Ownership
Maori Concerns
Historic Concerns
Economic Development
Adjoining Land Use
Water Quality
Ecological and Environmental Concerns

2. PUBLIC OWNERSHIP

2.1 Introduction

2.1.1 The Marlborough Sounds Maritime Planning Area is comprised of resources which are in public ownership. These include the waters, seabed and foreshores of the Sounds up to mean high water mark. The biological resources inhabiting these areas are also included.

2.1.2 Public ownership in the Sounds extends beyond mean high water mark, with extensive areas of land being administered by the Department of Conservation. A large proportion of coastline is in Sounds Foreshore Reserve, which is usually a 20 metre wide strip of land adjoining mean high water mark. Large areas of scenic reserve make up the rest of the Marlborough Sounds Maritime Park. In places, these public assets provide an opportunity to create areas of continuous reserve from ridge top to seabed.

2.1.3 Private properties with riparian frontage (ie: having mean high water mark as their boundary) remain in a few parts of the Sounds. This prevents public access above mean high water mark, but does not affect public rights seaward of that mark.

2.1.4 The location of title boundaries below mean high water mark also does not limit the operation of this Scheme seward of actual mean high water mark.

2.2 Authority's Role Regarding Public Ownership

2.2.1 The fact that the maritime planning area is in public ownership is an important influence on the Authority's approach to its planning task. On the one hand, the Authority's role towards the resources of the Sounds is one of guardianship. This carries the onus of ensuring

that these resources, the qualities associated with them, and the habitats on which they are dependent, remain available for the use, enjoyment and benefit of future generations.

On the other hand, the Authority also has a role in allocating public resources for private benefit.

2.2.2 The Authority recognizes the potential for conflict between these two roles. A major purpose of this Scheme is to provide a mechanism for weighing up the costs and benefits of various proposals.

2.2.3 This Scheme does not represent a curtailment of any development rights associated with private ownership. In the absence of private ownership within the maritime planning area, individuals cannot anticipate development rights. The procedures of the Scheme instead effectively create private use rights which did not previously exist.

2.3 Right of Public Access

2.3.1 An important expectation arising from public ownership is the right of public access to the maritime planning area and its resources. Some maritime activities compromise this right of access, while others may change its nature. For example, foreshore developments - ranging in scale from private jetties to public marinas and port facilities - essentially alienate part of the foreshore and adjoining waters from public use, although they do provide access to both private and public property. Marine farming, while having the potential to bring economic benefits to the region, not only physically impedes access over the water, but also has a psychological effect in limiting peoples' interest in an area for recreational purposes.

2.3.2 Consequently, the effect a proposal has on public access will be a major factor taken into account when considering the merits of either private or public developments in the maritime planning area.

2.3.3 The Authority supports the concept of resource rent as one means of compensation for the loss of resources otherwise available to the public, provided that a means of appropriate rent assessment can be developed.

3. MAORI INTERESTS

3.1 Introduction

3.1.1 The Act imposes a statutory obligation on planning authorities to take Maori interests into account in the preparation of planning schemes. This directive is first given in Section 3 of the Act, where:

> "The relationship of the Maori people and their culture and traditions with their ancestral land"

is declared to be a matter of national importance.

3.1.2 This directive is followed up in the schedules to the Act, where regional and district planning schemes are required to make:

> "Provision for marae and ancillary uses, urupa reserves, pa, and other traditional and cultural uses."

3.1.3 A maritime planning scheme is required to make:

> "Provision for Maori traditional and cultural uses, including fishing grounds."

3.1.4 Apart from these statutory directives, this Scheme recognises that Maori people are both an integral and distinct part of the communities which have interests in the Sounds and therefore in the content and effects of this Scheme.

3.2 Scheme Options

3.2.1 There are different ways in which these obligations can be met. At the simplest level, the Scheme can recognise specific uses and activities which are important to Maori people and make provision for these activities to be carried out. At a more comprehensive level, Maori attitudes, values and perspectives could be incorporated in the overall philosophical approach of the Scheme, directing its policies on a range of issues - not just in a chapter or section labled "Maori Interests".

3.2.2 These two approaches can be seen as points on a continuum of recognition and understanding of Maori interests. The first represents perhaps a basic level of provision which all planning schemes should meet. The second is likely to be possible only where there is considerable input from Maori people (requiring an appropriate forum or mechanism). This also requires a readiness from planning bodies to create conditions which will encourage Maori people to give that input, and a readiness to respond to that input when it is offered.

3.2.3 The very existence of a maritime planning scheme separate from a district or regional planning scheme implies a compartmental view of the physical, ecological and social world which does not correspond to the integrated view of the natural world (including man) which Maori people hold. Recognising that limitation, three matters are identified at this stage for the maritime scheme to deal with.

3.3 Water Quality

3.3.1 In an historic context, the coastline was an important source of protein requirements for the indigenous people of a land whose natural animal population was limited. The importance of the sea and coastline as a source of

food continues for Maori people today and is bound up with cultural associations which make the sea and its resources major elements in the link between traditional and contemporary lifestyles. The coast is a place where important food sources are nourished. Conservation of those resources, including the avoidance of pollution, are critical to Maori concepts of well being.

3.3.2 A high value is placed on food from the sea. In the social interaction between hapu, the mana of both givers and receivers is reflected in, and can be affected by, the abundance and variety of food given or exchanged. Sea food is important in this context.

3.3.3 Further, much sea food is consumed raw by Maori people, requiring that the waters from which the food is taken must not be polluted. However, Maori people have a much greater sensitivity than do Europeans towards water quality. This transcends the European clinical or scientific standards of hygiene and derives from a spiritual concept that anything to do with food must be separated from anything to do with waste.

3.4 **Conservation and Resource Management**

3.4.1 Maori people want to ensure that resources are managed at sustainable levels. This would preferably be at levels of relative abundance rather than at the minimum levels necessary for survival of each species. Limitations on access, quantities taken, methods and seasons for taking are regarded as necessary.

3.4.2 Maori people want to be involved in the management of species or areas which are important to them. This would preferably be to the extent of having full responsibility for those species or areas, but certainly involving full consultation and recognition of their particular points of view before decisions are made on the management of natural resources.

3.4.3 They also recognise that species can only be managed successfully if the habitats are also managed and protected.

3.4.4 Management policy should also take into account historical knowledge (probably oral) relevant to fisheries management. This would be in contrast to current practice which assumes a right to take resources unless indisputable scientific data demonstrates irreparable damage is being done.

3.4.5 Traditional knowledge may be no less significant if it is based on repeated observations of the same phenomena. Because of the longer time base, the period of observation by Maori people may provide a more substantiated basis for management policies than the

relatively haphazard, short term and isolated studies of modern fisheries research. The principal difference is that in the absence of written records, the orally transmitted policies of rahui, tapu and other customary rights and practices are more apparent than the data on which they are based. In contrast modern scientific practice requires rigorous testing and challenging of data before management policies are derived and applied.

3.5 Places of Importance

3.5.1 Places may have special significance to Maori people because of events which occurred there, through being associated with important people, or through a particular use of the place (eg Urupa). That significance can be hurt by inappropriate or insensitive activities or developments being carried out at or near such locations.

3.5.2 This is of course not peculiar to Maori people. The Europeon population sets aside and marks the sites of historic events, reveres places and events associated with important people, and holds graveyards in respect. Possibly Maori people more readily acknowledge and show greater sensitivity to such matters.

3.5.3 One difficulty in preparing a planning scheme is for Maori people to be confident about identifying such sites and explaining their significance (or for the Authority/community to accept the importance of the nominated sites without requiring justification in a European sense), and also indicating what management policies they would like to see applied through this Scheme to maintain these special sites.

4. HISTORIC CONCERNS

4.1 Introduction

4.1.1 Throughout its early history, settlements in the Marlborough Sounds were built near the water, first by Maori people and later by Europeans. Transport in the area was largely by water also. These facts combine to give a degree of historic importance to the Sounds, particularly the margin between the steep hills and the sea.

4.1.2 Sites of early occupation or sites associated with particular people or events, are of historic and/or scientific importance. For Maori people such sites may have a significance which transcends European concepts of objective scientific inquiry or chronological historic fact.

4.1.3 Sites of historic importance may be on the land, the shoreline, or on the seabed. Sites, or events, need not be old to be of historic importance. A recent event such as the sinking of the Mikhail Lermontov is a matter of history for future generations.

4.2 **Scheme Options**

4.2.1 The issue for the Authority is in what way can it, through this Scheme, assist in the protection of historic sites? The Authority cannot directly protect sites above mean high water mark, but it can limit developments below mean high water mark in the vicinity of historic sites on the land, if activity associated with the maritime development is likely to adversely affect the historic site. A number of European shipwrecks are known and can be listed. It is likely there are events of comparable importance from Maori history which could also be recorded.

4.2.2 Recording and mapping historic sites can of course lead to greater disturbance than might otherwise occur and the Authority does not intend identifying sites without the sanction of those bodies responsible for them, or of those people for whom the sites are of such importance that secrecy is the most effective form of protection.

4.2.3 This Scheme therefore makes no specific provision for the protection of historic sites at this stage.

5. ECONOMIC DEVELOPMENT

5.1 **Introduction**

5.1.1 The Sounds environment makes a wide range of activities possible. Marine farming and commercial fishing, transport services and port development, recreational and tourist activities, all have potential to provide economic benefits in varying degrees at local, regional and national levels. Economic benefits are spread among people who:

a. gain their livelihood in the Sounds;

b. provide goods and services for Sounds activities;

c. process, transport and export Sounds products;

d. operate support industries.

5.1.2 Further benefits arise from Picton's function in the transport link between the North and South Islands, and as a port of export.

5.1.3 Comments made in this section will govern the Authority's approach to economic development within its own area of control, as well as that occurring on land.

5.2 **Profit-Motivated Activities**

5.2.1 Activities such as commercial fishing, marine farming and organised tourism ventures are obviously profit-

motivated. These in turn stimulate associated upstream and downstream industries. For example, mussel farming creates a demand for farm equipment, ongoing farm servicing and eventually the processing and marketing of the harvested product.

5.3 Non Profit-Motivated Activities

5.3.1 On the other hand, activities associated with residential development and recreation are not profit-motivated, but are undertaken primarily for lifestyle and "use and enjoyment" motives. However, these activities still have economic importance. For example, the house construction and boat building industries require materials, labour and transport. Recreational activities such as boating, diving, tramping and sight-seeing all have their own service requirements ranging from specialized equipment to food, fuel and accommodation.

5.4 General Issues Relating to Economic Development

5.4.1 The Authority recognises it has an important role in maintaining opportunities for people to realise the economic benefits to be achieved in the Sounds. Three major considerations relevant to the Authority's approach to economic developments are:-

a. The extent to which activities are exploitive or benign in relation to the resources on which they are based.

   For example, commercial fishing has potential to deplete the resource on which it is based. The need to manage fisheries on a sustainable yield is therefore well recognized by all parties involved in the industry. By contrast, tourism operations (eg: commercial launch cruises) do not consume the resources they "use", which are the scenic attractions of the Sounds, although they may have side effects which detract from some other aspect of the area.

b. The extent to which activities affect the resources or qualities on which other activities are based.

   For example, marine farming may restrict access for log extraction; recreational boating may restrict areas available for marine farming, and land uses may affect appreciation of the "natural" environment of the Sounds.

c. The extent to which various activities are mutually supportive.

   For example, increasing activity in primary production in the Sounds would increase the viability of a wider range of services for existing and future residents such as transport and maybe educational services.

5.5 New Forms of Economic Development

5.5.1 Where a new form of economic development is likely to become widespread (as with mussel farming during the 1970's and early 1980's) the Authority will consider the necessity of allocating specific areas for that activity. If so, a change to this Scheme will be prepared and advertised for public comment. For "one-off" activities, the Authority will use the procedure of exceptions to the Scheme to assess the merits of allocating part of the public resource to the proposers.

6. ADJOINING LAND USE

6.1 Introduction

6.1.1 Mean high water mark has been used to divide administrative responsibilities for the land and water areas of the Marlborough Sounds, between the Marlborough County Council and the Authority.

6.1.2 But planning issues are not confined to one side or other of that administrative boundary. The recreational potential of the Sounds - in their composite land/water components - creates demand for the development of holiday accommodation (private and commercial) on the land. This creates an ancillary demand for foreshore structures in the immediate vicinity of these sites, and for boat storage or launching/haul-out facilities at points of access to the Sounds.

6.1.3 Land management practices contribute material to the maritime planning area. This may be imperceptible, as in the run-off from normal rainfall, or it may be readily apparent as in a landslip or erosion from cleared or otherwise disturbed land. Similarly the results may be beneficial - the addition of nutrients to the marine environment, or harmful - the smothering of an area of seabed with its dependent biota.

6.1.4 It is difficult to quantify the relative significance of land management practices affecting the marine environment in comparison with natural processes occurring throughout the area, especially beyond say a 5 year time scale. Consequently it is difficult to gauge the degree of intervention warranted in management practices to be applied to both land and water areas of the Sounds.

6.1.5 Issues in the inter-relationship between maritime planning and land use include:

* visual aspects
* the influence of drainage
* land use demands on the maritime planning area;
* the influence of maritime activities on land use.

These issues are discussed in the following sections.

6.2 Visual Aspects

6.2.1 Visually, the Sounds landscape varies with different types of land use.

a) Residential development in some locations has a semi-urban appearance, while elsewhere dwellings are relatively discretely sited amongst regenerating bush.

b) Jetties, boatsheds and other foreshore structures associated with residential development are a visual reminder that the Sounds offer lifestyle and recreational opportunities different to those of the urban and rural environments familiar to the majority of the country's population.

c) Reserves, generally clad in mature or advanced regenerating native bush, are a strong visual component of the Sounds at both the Foreshore Reserve level and in more distant and higher altitude areas.

d) Pastoral farming and forestry are two primary productive uses of land in the Sounds, each with its distinctive modification from the natural character of the area.

e) Areas of private land also exist where no productive use is in progress at present. This provides extensive areas of land in varying stages of regeneration. These areas are often contiguous with reserves, and as boundaries frequently are not discernable without survey work, in many locations this undeveloped private land visually extends the apparent reserve land.

f) There are two major settlements in the Sounds which provide a built-up urban context to their surrounding landscapes. The Borough of Picton has a population of approximately 4,065 and is situated on the southern side of Queen Charlotte Sound. The town has developed at the head of Picton Harbour, extending into Waikawa Bay to the east. Havelock is a community of approximately 420 people, situated at the head of Pelorus Sound between the mouths of the Pelorus and Kaituna Rivers. Both towns have developed as major points of access to the Sounds and include prominent port and marina facilities.

6.3 The Influence of Drainage

6.3.1 Land use and land management practices primarily affect the maritime planning area through the natural process of drainage. Water quality can be affected, and the nature of seabed material is a product of both land forming processes and subsequent land management practices. Both water quality and seabed material are determinants of the life forms supported in the marine environment.

6.3.2 Direct causal relationships between land use and the marine environment may not be readily apparent. The carrying capacity of moving water - through the drainage process on land and in the tides and currents of the sea - may mean changes to water quality or seabed material occur at considerable distance from the activity or process which is the source of the change.

6.3.3 Physical characteristics of the Sounds such as the high annual rainfall, high incidence of storm events, steep topography and unstable geological structure, make it susceptible to run-off and erosion which can in turn affect water quality in the Sounds. Extensive forest areas in the Sounds perform important soil and water conservation functions including the stablisation of soils and slopes, and the trapping of sediments and nutrients. Land clearance associated with forestry and farming operations, and residential subdivision, can therefore increase the potential for soil erosion. It is not known whether human-induced erosion is a significant addition to that occurring naturally, but it is considered that land clearance should be undertaken only when necessary, and in a way that minimizes the risk of soil erosion. Also, it is important to recognise that land clearance activities taking place on inland catchment areas contribute to the silt burden which eventually drains into the Sounds. The Pelorus estuary has formed in that manner since sailing ships moored at Havelock last century.

6.3.4 Assistance to agriculture and forestry in the Sounds by the use of fertilizer, herbicides and pesticides is a potential source of organic and inorganic material in the marine environment. Whether they provide nutrients (and too much nutrient may be a pollutant) or pollute the water will depend on quantity, the nature of the chemicals, and the rates and products of their decomposition.

6.3.5 Effluent from sewerage systems serving major settlements can affect water quality in localised areas. Expansion of these systems to cope with growing populations or industrial development has potential to threaten local marine communities and the enjoyment of water recreation activities.

6.3.6 Scattered residences in isolated areas of the Sounds are usually served by septic tanks which normally do not pose water quality problems unless misused or overloaded. However, each septic tank needs adequate soakage and maintenance, and intensification of residential development in the Sounds may eventually require alternative forms of sewage disposal.

6.3.7 The proliferation of untreated effluent outfalls could not only harm natural marine life and limit recreation opportunities, but also be a major problem for the

operation of marine farms which are now well established in the Sounds. Stockyards near the water, serving farms that are dependent on water access, are another source of effluent. Consequently, criteria have been developed to avoid marine farms being located near stockyards and effluent outfalls.

6.4 Land Use Demands on the Maritime Planning Area

6.4.1 Land use creates a number of demands on the maritime planning area, which the Authority recognises as an important consideration in the preparation and administration of this Scheme. A range of these demands is discussed below.

6.4.2 Attractions of the Sounds environment have prompted residential development of the coastline, for permanent occupation and for holiday purposes. Many of these properties are dependent on sea access creating a demand for easy and safe navigational routes. There is also a steady demand for foreshore structures such as jetties and boatsheds to enable convenient shore access and the storage of boats and associated gear. A further expectation of residents and of visitors to the Sounds, is the maintenance of an attractive landscape and a high standard of water quality.

6.4.3 Farming in the Sounds has been equally dependent on access by sea, and has similar demands for navigational routes and foreshore structure. There is also a need for adequate port facilities, particularly at Havelock, to enable the transport of farm equipment and products.

6.4.4 Forestry development is another land use which places a number of transport-related demands on the maritime planning area. Road transport of logs is inappropriate for many forested areas in the Sounds. The barging of logs is the preferred means of water transport, compared to the navigational and pollution problems associated with rafting. However, it is recognised that there is a production threshold to be met before barging becomes viable. (Aerial transport is also being examined by forestry and transport interests as a possible alternative.)

6.4.5 Potential log marshalling and log loading sites throughout the Sounds have been identified by the New Zealand Forest Service and are recorded on the planning maps. Planning for the future use of these sites requires restrictions to be placed on other uses in order to avoid conflict. An example of such conflict is that between log loading and mussel farming.

6.4.6 Mussel farms that are sited too close to a loading site will constitute a nuisance to barge manoeuvring, and will in turn be at risk of physical damage from rafts or

barges, or mussel deterioration resulting from increased water turbidity. A 300 metre wide accessway around recognised loading sites is currently provided for in this scheme to avoid such conflict.

6.4.7 However, further study is needed on whether these sites are in fact acceptable to the Authority for log loading operations, and on devising an appropriate form for log loading facilities. Options include : loading barges by vehicles traversing the foreshore; the construction of a quay type facility (either by building up a section of foreshore or by reclamation); or direct loading from aerial cable systems.

6.4.8 Another demand associated with log transport is for appropriate port facilities for the receipt of raft and barge shipments, from which logs can be transported for further processing or export. The planning implications of future proposals for port expansions at Picton or Havelock require careful consideration by this Authority.

6.4.9 The issue for the Authority in relation to demands generated by land-use is three-fold:

a) to recognize the probable implications for the maritime planning area of development proposals on the land;

b) to determine whether or not those implications are in accord with the Authority's policies for the area;

c) to decide to what extent the Authority will participate in the planning processes of other authorities such as the Marlborough County Council and the Marlborough Catchment Board and Regional Water Board.

6.5 The Influence of Maritime Activities on Land Use

6.5.1 It is equally important to recognise that water activities can in turn generate demands on the adjoining land.

6.5.2 The demand for residential accommodation generated by opportunities for water recreation has already been mentioned.

6.5.3 The demand for maintenance of a high quality marine environment requires limitations on pollution from adjoining land uses.

6.5.4 Marine farming operations often include land-based worker accommodation and storage facilities. The marine farming industry as a whole requires port facilities for handling its products and the transport of farm equipment. A further implication for land use could be a need for

restrictions on residential development in the vicinity of established marine farming areas. One reason is to avoid any threat to water quality for marine farms, another is to avoid the visual amenity of residential developments being reduced by the presence of marine farms.

6.5.5 Commercial fishing is another marine industry requiring suitable port facilities for the off-loading of fish catches.

6.6 **Conclusion**

6.6.1 To conclude, it is to some extent an arbitrary exercise to try to identify one-way causal relationships between land and water use. However, the mean high water mark boundary is a significant influence on resource management in the Sounds in that it puts the control of land and water use under different agencies. Consequently, the Authority does not have direct control over all things affecting the maritime planning area. In accordance with directives of the Act, the Authority therefore sees a responsibility to participate in the land use planning procedures and policy development carried out by other organisations in the area.

6.6.2 The need for integration of the planning and management of the land and water areas of the Marlborough Sounds is obvious, whether by separate bodies or a single administering authority.

7. WATER QUALITY

7.1 Introduction

7.1.1 A high level of water quality is characteristic virtually throughout the waterways of the Sounds. The absence of major urban and industrial developments in the Sounds catchments contribute to this, but it will be necessary to monitor development proposals throughout these catchments to ensure there is minimal effect on water quality in the Sounds.

7.1.2 A range of factors potentially affects the generally high water quality in the Sounds and there are some locations where water quality is already under threat. This section of this Scheme looks at factors affecting water quality in the Sounds and how these might be controlled.

7.1.3 The Third Schedule to the Act gives:

"The maintenance or attainment of water quality appropriate to the circumstances"

as a matter for a maritime planning scheme to deal with.

But this is constrained by Section 114 (2) of the Act, which includes:

"Provided that nothing in this part of the Act shall be construded to limit or affect any right or authorisation permitted or authorised under the Water and Soil Conservation Act 1967."

7.1.4 Under this constraint, the Authority cannot prevent water quality being affected by actions authorised under the Water and Soil Conservation Act, for example through a water right or a general authorisation.

7.2 Factors Affecting Water Quality

7.2.1 Vessels and Associated Uses.

a. **Fuel Spillage**

Fuel spillage is likely to occur when vessels re-fuel. Quantities are likely to be small for each event, but could become a problem at peak periods. Small quantities of oil are likely to be present in bilge water. Pollution from these sources is unlikely to be significant away from marinas or outer Sounds fuel installations.

b. **Oil Changing**

Oil changing on boat engines could be a source of pollution unacceptable either in a marina or at isolated moorings or slipways if waste oil is dumped overboard. Marlborough Harbour Board bylaws for marinas include:

> "No person shall throw or cause to be thrown into a marina any material of an objectionable or offensive nature."

It is considered the effect that oil dumping would have on a persons own vessel is likely to deter the practice as much as the Harbour Board bylaws.

c. **Sewage**

Sewage from people on vessels is a potential problem. Marlborough Harbour Board bylaws prohibit people from living on board vessels in the Board's marinas. Sewage has been apparent at popular anchorages at peak holiday periods. Options (other than do nothing) are to promote the provision of onshore toilet facilities or to advocate the use of holding tanks in vessels. Without provision of disposal facilities at marinas, holding tanks could be discharged at sea provided vessels were a minimum distance of say 500m offshore. (Note: While sewage from the Picton and Waikawa areas is pumped to a sea out-fall with minimal prior treatment, there is little advantage in terms of water quality, in advocating the provision of facilities for the discharge of holding tanks at marinas.) Sewage disposal will be a major factor in consideration of any proposal for floating holiday homes in the maritime planning area.

d. **Boat Maintenance**

Hull cleaning, anti-fouling and repainting could also cause localised water quality problems where there is continual activity: for example, at marina haul-out or commercial slipway facilities. In such locations boat maintenance areas should be located above ordinary high water spring tides, with drains and settlement traps installed to prevent pollution entering the sea water. The material collected from such drains should be disposed of on land - in a toxic wastes dump site if appropriate.

e. **Anti-fouling Paints**

The Ministry for the Environment has established a working party to investigating the effects of TBT-based anti-fouling paints. The results of that work are awaited before the merits of endeavouring to control the use of anti-foulings through this Scheme are evaluated. However the Authority advocates the use of anti-foulings and other marine paints which do not have the ecological effects associated with TBT paints in overseas research and regulations.

f. **Overseas Shipping**

The development of export port facilities in the Sounds would create additional risks to water quality, from:

* loading/unloading and storage of potentially pollutant cargoes;
* sewage disposal;
* cleaning of vessel decks while in port or underway within the maritime planning area.

The provision of facilities for cargo storage, loading and unloading will be subject to public planning procedures, whether as applications or scheme proposals. Potential for pollution, and possible prevention or abatement measures, will be considered in that process.

Sewage disposal and cleaning of vessels may be more appropriately regulated through Harbour Board bylaws.

g. **Summary**

Of these problems, existing and potential, some can be minimised by appropriate facilities being incorporated in the development of marinas and slipways, by the provision of onshore toilets, or by provision of refuse disposal facilities. Others are more dependent on the practices adopted by individual members of the boating public. A national "code of

practice" for recreational boating may be more effective in influencing peoples' behaviour than ordinances and regulations which cannot be readily enforced because of the extensive nature of the maritime planning area and the casual manner in which it is used.

7.2.2 **Marine Farming**

a. Marine farming affects water quality in a number of ways.

(i) Nutrients are removed from the water by mussel or seaweed farming.

(ii) Nutrients are added to the water in salmon farming.

(iii) A build up of detritis on the seabed is likely from all forms of marine farming - from excess feed, faecal material and dead stock.

Depending on the nature and volume of these changes, a range of water quality effects is possible. Decomposition of nutrients or detritus may deplete dissolved oxygen, or release further nutrients, methane or sulphides into the water. These will affect other marine species, and may be toxic to the farmed species itself.

b. Interactions between water quality factors and biological processes are complex. Nutrient enrichment for instance may lead to plankton blooms. This in turn may result in oxygen depletion or the release of toxins which may be accumulated by filter feeders such as mussels, creating a potential health hazard for people who eat affected mussels.

c. It is in the interests of marine farmers, other users of the marine environment, and consumers of marine species, to minimise changes to water quality and disruption to established ecological systems.

d. Further research is required to establish the extent to which site characteristics can minimise the effects of marine farming on water quality, and/or to establish whether management practices can be devised to mitigate those effects. The "MAF Policy for the Issue of Salmon Sea Cage Farming Licences" Ministry of Agriculture and Fisheries - September 1987 will assist in providing information.

e. Where new species or techniques are proposed, the Authority considers any experimental permit, licence or consent should be subject to conditions requiring monitoring of environmental effects, particularly water quality. The Ministry of Agriculture and Fisheries policy quoted above could be adapted for this purpose.

7.2.3 **Land Use**

Land use have the potential to affect water quality through several causes.

a) **Sewage Discharges**

(i) Urban sewage discharges enrich the supply of nutrients in the water. They also increase bacterial and viral concentrations creating a potential health hazard for recreational activities involving contact with the water or consumption of any seafood taken from such areas. There are cultural reactions against water pollution from sewage, but the European population appears less sensitive to this than are Maori people.

Principal discharges in the Sounds are at Picton (where pre-treatment involves a reduction in particulate size only), and Havelock (where effluent from an oxidation pond is discharged). Others, at a smaller scale, are the mussel processing factories at Havelock, the hotel at Portage, the camping ground at Momorangi Bay and the Outward Bound School at Anakiwa.

All of these discharges are lawfully established existing uses, subject to water rights granted by the Marlborough Catchment Board and Regional Water Board.

The Authority can have little direct influence on public sewage disposal systems or other discharges authorised under the Water and Soil Conservation Act 1967. It can, of course, participate in any public application or consent procedures associated with such works. It can require application for associated structures which extend below mean high water mark, but the Authority interprets Section 114 of the Act to mean it cannot grant or refuse consent in relation to the quantity or quality of a proposed discharge where this has been authorised under the Water and Soil Conservation Act 1967.

Section 64 of the Act allows territorial authorities to locate public utilities - including sewerage systems - as of right throughout their districts. Under section 64 the Picton Borough Council is entitled to lay sewer pipes and install pumping stations immediately adjacent to its boundary with the

maritime planning area, that is, immediately above mean high water mark. The Authority considers it impracticable to require consent procedures or to impose conditions to regulate emergency discharges from the sewerage reticulation system.

(ii) **Isolated Discharges**

At a number of holiday locations in the Sounds, there is a possibility of septic tanks systems overflowing in the peak holiday period. Examples are at Te Mahia, Raetihi and Endeavour Inlet.

The prospect of sewage entering Sounds waters from residential properties throughout the Sounds is dependent on requirements of the Marlborough Catchment Board and Regional Water Board and the Marlborough County Council at the stages of subdivision and development, and on the subsequent maintenance of disposal systems by their owners. It is not a matter which can be readily policed, although a study of a number of sample sites would be useful to indicate the extent of any problems.

The marine farming section of this Scheme includes a requirement that marine farms should not be located near residential development. One reason for this requirement is the need to prevent the discharge of sewage near marine farms. An exception has been made to allow accommodation for marine farmers near their licenced areas. This exception has been made on the basis that marine farmers would recognise it is in their own interests to ensure that domestic sewage disposal systems operate in a manner that will not affect marine farming activities.

The water quality requirements of aquaculture suggests that applicants for water rights to discharge into the Sounds should be required to demonstrate that their proposal will have no adverse affect on aquaculture.

b. **Run-off**

Rural run-off may include chemical residues, faecal material and sediment, from agriculture, horticulture or silviculture operations.

Faecal material carries bacteria and viruses into the Sounds waters. The significance of this to the mussel farming industry has been recognised by the Department of Health policy which restricts mussel harvesting for various periods in response to the intensity of rainfall events. Should stocking rates increase on Sounds farms, mussel harvesting restrictions may need to be extended. There are no indications at present that stocking rates are likely to be increased.

Sediment is likely to be localised, resulting from land management practices involving the removal of ground cover and/or disturbance to the ground surface. Residential and tourist developments, farming, forestry, road construction and maintenance create conditions for the erosion/sedimentation process which follows rainfall events.

Although water quality is likely to be affected for only short term periods, this may be sufficient to have a longer term effect on the populations of various marine species. However, the principal effect of sediment is likely to be on the sea floor and benthic community, not directly a water quality matter.

There is little existing information on "natural" nutrient levels in the waters of the Marlborough Sounds, and even less on additions and deletions being made to the natural systems. It is therefore not possible to assess the capacity of the Sounds waters to absorb additional nutrient material before the generation of algal blooms, oxygen depletion, reduction in water clarity or other problems are likely to occur. Changes in nutrient levels are likely to be localised, short term and associated with rainfall events. There is insufficient information at present to indicate whether these changes would be beneficial or not.

The paper "Impacts of land use on the waters of the Marlborough Sounds" prepared as a contribution to "A Research Strategy for the Marlborough Sounds." Marine Sciences Liaison Group Report No. 2, 1987, discusses the use of copper oxychloride to combat needle blight in young pine plantations, and also the herbicide 2,4,5 - T, in the Marlborough Sounds.

The paper suggests the input of copper from spraying could be similar to natural losses which have been estimated from erosion rates and natural soil copper levels. The possibility of localised problems is recognised, as mussel spat are sensitive to copper. However, the impact of high levels of copper input is uncertain as it can be rapidly absorbed into sediments and rendered as non-toxic.

Referring to organic herbicides, the paper considers these are unlikely to cause any threat to aquatic life in the Sounds or people consuming Sounds products, because of their relatively low toxicity to aquatic life and the relatively small amounts used in the area.

Further information is required to confirm or negate these views and work on organic herbicides is part of an ongoing project by the Water Quality Centre - Ministry of Works and Development, Hamilton.

c. **Industrial Waste**

Industrial waste in the rural land-use planning area is negligible at present. The Authority monitors applications for planning consent and/or water rights, assessing likely impacts in the maritime planning area and will continue to seek decisions which will prevent a decline in water quality.

d. **Rubbish Dumps**

Rubbish dumps at Picton and Havelock are in locations where leachates may reach tidal waters. These are established existing uses. The Authority will participate in proposals for new dump sites when these are required, to draw attention to the potential for leachates from dump sites to reach tidal waters.

8. ECOLOGICAL AND ENVIRONMENTAL CONCERNS

8.1 Introduction

8.1.1 The coastal environment is important to large numbers of New Zealanders for its recreational opportunities. Less well recognized is the productive capacity of the coastal environment and its relationship to inshore fisheries. A third factor is the role of the coastal environment in terms of the "Heritage New Zealand Concept". That is, that the coastal environment consists of a number of marine habitats, supporting a variety of marine species, and is just as relevant to the natural history, cultural and economic well being of New Zealand, as is the range of habitats, reserves and species - protected and otherwise - on the land.

8.1.2 The Act in Section 3(1)(c) requires all planning schemes to recognize and provide for, as a matter of national importance :

> "The preservation of the natural character of the coastal environment and the margins of lakes and rivers and the protection of them from unnecessary subdivision and development."

This creates a statutory responsibility which encompasses the recreational, productive and heritage aspects of the coastal environment.

8.2 Biological Importance of the Coastal Environment

8.2.1 There are two principal reasons for the biological importance of the coastal environment. Firstly, shallow coastal waters where light can penetrate, enables the growth of photosynthetic plants and organisms. Secondly coastal waters receive nutrient enrichment by run-off from the adjoining land The biological energy transactions and nutrient transformations which occur in coastal waters, especially sheltered harbours, inlets, estuaries and swamps, are of major importance in the chains and webs of inter-dependence among marine species. The significance of these processes to the few marine species which are of direct importance to commercial or recreational interests is perhaps not widely understood nor readily demonstrated. But the value attached to those species should not be the only justification for minimizing interference with these coastal processes. The habitats, circumstances and processes enabling the valued species to be successful are just as important as those few species themselves.

8.3 Sensitivity to Change

8.3.1 The Marlborough Sounds marine environment harbours many species of current and potential importance. But it is an environment sensitive to change. It contains habitats suitable for colonization by species previously not indigenous to the area, such as the pacific oyster or spartina grass. It is also suitable for aquaculture : the artificial rearing of marine species in numbers far exceeding their natural occurrence in the area. The marine ecology can also be changed by land use practices, as discussed in section 7 of this part of the Scheme.

8.3.2 Aquaculture is an increasingly important factor in the maritime planning area, with ecological as well as economic, social and cultural significance. Careful consideration needs to be given to the likely ecological effects of introducing species non-indigenous to the area, or of farming indigenous species in intensive numbers in artificial habitats. Concerns include:

* changing the composition of local ecological communities;
* changing the nutrient regime of a particular habitat: by depletion of nutrients from the water column, by addition of nutrient material to the water column or seabed, or by increased mortality of stock in a confined area;
* altering the physical nature of a habitat by the introduction of artificial structures.

8.3.3 Some of the changes referred to may be contained in localized areas, other could become widespread. There is a need for wider awareness of the sensitivity of the Sounds ecological systems to modification or damage, and a need for processes to evaluate the likely consequences of potential changes to these systems. This Scheme is one response to those needs.

8.4 Effects of Sedimentation

8.4.1 Accelerated sedimentation processes in the maritime planning area can be important in localized areas.

8.4.2 The effects of the sedimentary process occur in two stages. The first occurs while material is in suspension. While this is a temporary phase, it can be fatal to some species if the water remains turbid for prolonged periods. Effects may be:

* reducted light penetration, inhibiting photosynthetic organisms;
* filter feeders - mussels - may be unable to obtain sufficient nutrient to sustain the filtering required;
* fish gills may be clogged.

8.4.3 The second stage is the settlement of sediments on the seabed. Effects will vary according to the depth of sediment, but could range from reducing the area of stable seabed material on which particular organisms can find anchorage, to smothering bottom dwelling organisms.

8.4.5 These comments are qualified by recognition that areas of the Sounds near river mouths receive a considerable amount of sedimentary material from catchments beyond the control of the Authority. The origins of this material are in a combination of natural processes and land management practices.

8.4.6 At present the relative proportions of sediment entering the Sounds by natural processes on the natural environment and by natural processes on the developed environment is not known. This information is necessary before any decision can be made on the need to control run-off from land development practices, although there are localized examples of major changes to seabed ecology resulting from sedimentation after land clearance.

8.5 Marine Habitats

8.5.1 The Sounds include a range of marine habitats. Some contain rare species such as the banded rail in salt marsh communities, while others sustain a healthy diversity of species - birds, fish, shellfish, seaweeds, plankton. The 1976 report: "A Strategy for the Conservation and Development of the Marlborough Sounds"

(Ministry of Agriculture & Fisheries; New Zealand Forest Service; Department of Lands & Survey; Ministry of Works & Development, 1976) called for the protection of valuable flora and fauna and their habitats, particularly the limited number of wetlands and the offshore island habitats of the outer Sounds. Preservation of a number of representative habitats is necessary not only for the reasons outlined previously but also as:

* an historical record of Sounds ecosystems.
* an educational resource
* an area of scientific study.

8.6 Wetlands

8.6.1 Wetlands in the Sounds most commonly occur in the inner reaches, which are also the areas with the greatest pressures for development. Potential port developments in the estuarine areas of Havelock led the Marlborough United Council and Ministry of Works and Development to initiate a "Havelock Planning Study" (Ministry of Works & Development, for the Marlborough United Council, 1986). The Study sought to balance a variety of interests in the future development of Havelock, particularly by suggesting limits to development on the Kaituna and Pelorus estuaries.

8.6.2 In Queen Charlotte Sound also, any further marina proposals are likely to impinge on wetlands or relatively shallow inter-tidal areas, especially if they are to have reasonable road access.

8.6.3 The Authority considers it appropriate to recognise estuarine and wetland areas as protected areas, requiring development proposals in those areas to be publicly notified as exceptions to this Scheme.

8.6.4 This provision, together with the environmental assessment procedures being developed by the Ministry for the Environment and the management policies for coastal areas being devised by the Department of Conservation, should ensure comprehensive evaluation of the merits and losses likely with any proposals for development in estuarine and wetland areas.

8.7 Changes in Sea Level

8.7.1 Scientific opinion advises that sea levels are expected to rise in the next 50-100 years, although there is uncertainty about the rate and extent of change likely.

8.7.2 Implications for the maritime planning area are;

a) the zone of natural shoreline erosion will be inshore of its present position;

b) the sea may extend inshore over low-lying areas at the heads of bays or Sounds;

c) some foreshore structures, including harbour works, may be rendered obsolete.

8.7.3 The changes are likely to be slow and imperceptible on a year-by-year basis, but apparent through longer term records.

8.7.4 For small-scale foreshore structures such as private jetties, the necessary periodic maintenance and eventual replacement should ensure structures remain serviceable despite sea level changes. (The change may be more limiting in relation to the use of boatsheds than the use of jetties.)

8.7.5 The implications may be more serious for more substantial structures, such as harbour works, which are intended to have a longer functional life.

8.7.6 Effects in estuarine areas may not be simple to predict, where the sea acts on an actively farming shoreline. The interaction between the deposition processes of river-borne sediments and the action of wind, waves and tide at the shoreline may have more complex results than simply greater inundation of mudflats or wetlands.

8.7.7 The principal apparent effect of a rise in sea level may be to reduce the extent of Sounds Foreshore Reserve : in low-lying areas by inundation, in other areas by a combination of inundation and immediate erosion of unstable material at the new (and changing) shoreline.

8.7.8 Monitoring of the expected rise in sea level will be needed to assist in determining whether it has any effects which could or should be addressed through provisions added to this scheme.