The New Zealand Mussel Industry Council Limited (NZMIC) developed the Environmental Code of Practice in 1999 and revised the code in March 2004. The NZMIC commissioned development of this revised Environmental Code of Practice in 2006 to update the Code in accordance with latest industry best practice. The Code contains management practices for the NZMIC, mussel farmers, boat operators and processors aimed at environmentally responsible and sustainable management of the industry.

The NZMIC was integrated into Aquaculture New Zealand (AQNZ) in 2007. AQNZ now fulfils the roles under this guide previously fulfilled by NZMIC.


Financial assistance for the original document received also from the Minister for the Environment’s Sustainable Management Fund, Aquaculture Council Inc, Marlborough District Council and Environment Waikato.

Aquaculture New Zealand thanks URS New Zealand Ltd for their assistance in coordinating the development of this Code of Practice.
Minister's Foreword

The Greenshell™ mussel is a national icon and one of New Zealand’s largest seafood exports.

Over the past 30 years, Greenshell™ mussel farming in New Zealand has grown into a multi-million dollar industry. This growth has been based on innovation, technology and high environmental standards.

As mussels are a relative newcomer to our farming scene, this industry has always had to meet high environmental standards. This has resulted in an industry with a small environmental footprint and a comprehensive plan for managing its environment into the future.

The Mussel Farming Environmental Code of Practice sets out the environmental objectives for the industry and the management practices that will allow it to meet these.

The Code reflects years of experience and environmental stewardship. And it is comprehensive, covering the whole farming process from choosing appropriate farm sites, right through to mussel spat collecting, seeding, harvesting and maintenance.

The Code also sets out a rigorous means of assessing the industry’s performance.

Such standards and assessments will open doors to new domestic and international markets; make the industry more competitive in existing markets; and build public confidence. This in turn will help the industry grow and develop around New Zealand.

The aquaculture industry has a goal to be one the first truly sustainable primary industries in New Zealand. Its future success depends on embracing the principles of environmental stewardship and sustainability, and the Mussel Farming Environmental Code of Practice clearly demonstrates this commitment from the industry.

I am proud to endorse this Environmental Code of Practice.

Hon Jim Anderton

Minister of Fisheries,
Chairman’s Foreword

The release of the 3rd version of the New Zealand Greenshell™ Mussel Industry’s Environmental Code of Practice coincides with an exciting time for Aquaculture in New Zealand. The Aquaculture industry has developed a strategy to transform itself into a $1 billion industry by 2025. The Greenshell™ Mussel Industry has an important role to play in this transformation, and is committed to ensuring this growth takes place within a sustainable framework.

Greenshell™ Mussels are currently New Zealand’s largest seafood export earner and earnings from this sustainably grown product will only increase in the future. By providing a pathway to regional growth and development, the Industry is a major contributor to regional economies throughout the country, from the Far North to Stewart Island.

This contribution brings a level of responsibility, and the industry has understood for a long time that its success depends on a durable partnership with the environment, as farmers of Greenshell™ Mussels rely on a healthy and clean aquatic ecosystem in which to grow their product. As such, the Mussel Industry has a significant stake in the vitality of our marine ecosystems, and dear to our hearts is the protection of the environment.

In the pages that follow the New Zealand Greenshell™ Mussel Industry has candidly re-assessed its environmental impacts and developed environmental objectives and management practices for Industry Operators. The Mussel Industry is also committed to developing an auditing system to support the implementation of these management practices.

This Environmental Code of Practice is the platform for the industry to build on its impeccable record of sustainability, and will ensure the continued development of this industry in a manner that protects our marine environment for future generations to enjoy.

Peter Vitasovich
Chairman
Aquaculture New Zealand
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Introduction

Members of the New Zealand Greenshell™ mussel industry wish to be responsible custodians of any resource they use. The Industry has demonstrated this commitment through the public release of the Mussel Industry Environmental Policy in February 1997 and the Environmental Code of Practice in 1999 to give effect to the intentions of the Environmental Policy. Through the Code of Practice the mussel industry seeks to minimise adverse environmental effects and enhance its provision of positive environmental effects while still maintaining a viable industry, providing employment for New Zealanders and producing a quality product.

Aquaculture New Zealand (AQNZ) administers this Code on behalf of the mussel industry. NZMIC prepared the original code in 1999 and revised the code in 2004. NZMIC also commissioned this 2006 revision to update the Code to reflect best environmental practice in the industry and to provide a tighter focus on key environmental issues to the industry. Also, the targets, performance measures and annual checklist questions have been revised to provide a more rigorous method of assessing the industry’s environmental performance.

In accordance with section 165ZJ of the Resource Management Act 1991, when an existing marine farm consent nears the end of its term, the existing farmer’s application for a new consent will be determined, before an application by any other person for the same space, subject to certain criteria. The criteria include the requirement for the consent authority to consider the existing farmer’s conduct in relation to (amongst other things) the use of current industry good practice for any current aquaculture activities.

This 2006 revision of the Code of Practice is consistent with current industry good practice and has been refined to focus more closely on key environmental issues to the industry. It is AQNZ’s intention, that by operating under this Code, a consent holder will be considered to be using current industry good practice. AQNZ monitor compliance against the Code through a system of annual checklists and bi-annual audits.

In addition to addressing its own actions through this Code, the industry also wishes to take a proactive role in working with other users of the marine and land environments to ensure the continued protection of a high quality marine environment. The sustainability of the mussel industry is dependent on maintaining the existing high quality of coastal water and the industry supports initiatives aimed at:

- Ensuring that Marine Pollution Regulations provide adequate protection for the marine environment. Preservation of specified areas of the coastal marine area.
- Controlling land-uses that have the potential to affect water quality or result in increased sedimentation in the marine environment.
- Preventing the inadvertent introduction and spread of exotic species.
1.1 Background to the Mussel Industry

The mussel industry in New Zealand is based on the cultivation, harvest and processing of “New Zealand Greenshell™ Mussels” (Perna canaliculus). Most of New Zealand’s production is in the sheltered coastal areas of the Coromandel, the Marlborough Sounds or Stewart Island. Mussels are cultivated on ropes suspended from “backbone” ropes which are attached to floats and anchored to the sea-floor. Currently the Mussel Industry exports to more than 65 different countries around the world with export earnings of $141 million in 2004 as well as annual domestic earnings of $40 million. The industry is GE free and no BSE affected product is used.


Aquaculture New Zealand (AQNZ) is the national representative body for members of the New Zealand Aquaculture Industry. AQNZ’s role is to promote development and growth of the New Zealand Aquaculture industry and provide a co-ordinated approach to market promotions, research, environmental issues, public relations and communications, law reform, trademarks, patents and production monitoring. The AQNZ’s activities are directed by a Board of Directors and funded by levies on growers.

Marine farming associations, such as the New Zealand Marine Farming Association Inc and the Coromandel Marine Farmers’ Association Inc, are service organisations for marine farmers. Members of these organisations make up the growers representatives on the AQNZ. These local marine farming associations have a role under this Code associated with reporting of local concerns and obvious breaches of the Code by industry members.

1.2 Purpose of the Environmental Code of Practice

The purpose of this Environmental Code of Practice is:

- To educate industry members and other interested parties about the environmental effects of the mussel industry, its environmental legislative/regulatory requirements and practical options for addressing its environmental effects.
- To implement a procedure for ongoing recording of environmental outcomes that can be used to assess whether the Code is achieving the anticipated results. This monitoring of outcomes should lead to a process for improving the environmental performance of individual members and the industry as a whole.
- To satisfy the requirements of the Resource Management Act (1991) which states that every person has a duty to avoid, remedy or mitigate any adverse effects on the environment from any activity.
1.3 Environmental Objectives

Through this Environmental Code of Practice, the mussel industry will address the environmental issues identified in the Environmental Policy by:

1. Complying with all regulatory requirements.
2. Putting into practice the ‘5R’ principles of waste management (reduce, reuse, recycle, recover, residual disposal).
3. Minimising pollution.
4. Limiting impacts on other users of the Coastal Marine Area.
5. Limiting impacts on the natural environment.
6. Reducing resource consumption.

1.4 Document Overview

The Environmental Code of Practice has been divided into the following parts:

Introduction

Section 1 provides a background to the mussel industry, outlines the purpose of this Code of Practice, outlines the industry’s Environmental Objectives, provides an overview of this document and provides guidelines for use.

Implementation and Assessment

Section 2 outlines how the Code will be administered and implemented including monitoring, auditing reporting, reviewing and updating.

Environmental Management Plan

Section 3 contains the industry’s Environmental Management Plan. The Plan contains the industry’s environmental objectives, and then sets out the targets the industry has adopted to meet each objective and the management practices and recommended practices the industry proposes to implement to meet the targets. Performance measures identify how the industry proposes to measure if targets are being met.

The Environmental Management Plan is the core component of this Code of Practice and summarises in one place the requirements the industry must follow to provide consistency with this Code.
Operational Sections

Sections 4 to 16 detail the specific operational activities carried out by the industry. For each activity an overview of the process is provided followed by a summary of the key environmental issues for that activity. Each section also lists the management practices and recommended practices (contained within the Environmental Management Plan) that are relevant to that particular activity. The numbering after each management practice corresponds to the numbering in the management plan.

Appendix A – Environmental Checklists

Appendix A contains the Environmental Checklists that industry members who operate under this Code are required to fill in on an annual basis to allow the industry to assess performance against each target.

Appendix B – Environmental Legislation

Appendix B contains a comprehensive list of environmental legislation and regulation that may apply to the industry and summarises the requirements for the industry.

1.5 Guidelines for Use

Each of the operational sections presents an aspect of mussel farming, or processing activities in the following format:

An overview: provides a description of the issue and current practices.

Environmental Aspects: outlines the key environmental issues that relate to that activity.

Management practices. These are in two forms - “operator” practices for mussel farmers, boat operators or processors and “AQNZ” practices for AQNZ at a corporate level.

There are two levels of practices:

Management practices are compulsory for compliance with this Code

Recommended practices are optional but recommended by the industry to help achieve this Code.
2.1 Administration

The Environmental Code of Practice will be administered by a committee of the AQNZ.

The committee will be responsible for:

- Encouraging the adoption of this Code by industry members;
- Co-ordinating completion of the annual Environmental Checklists and AQNZ audits, assessing results against targets and reporting results to the industry and stakeholders;
- Maintaining a register of industry participants operating under the code, along with results of annual checklists and AQNZ audits;
- Reviewing and updating the Code;
- Linking with the Research Committee to promote research into environmental effects, alternatives to current practices and highlighting the environmental benefits of current research in accordance with this Code.

2.2 Implementation

This is a voluntary Code of Practice. AQNZ promotes the Code amongst the industry. Industry participants who volunteer are required to:

- Adhere to the management practices contained in the Environmental Management Plan.
- Implement recommended practices contained in the Environmental Management Plan wherever possible.
- Fill in an annual environmental checklist based on the performance measures contained in the Environmental Management Plan.

AQNZ maintains a register of mussel farmers, boat operators and processors who operate under this Code. The register is available to the public.

AQNZ management practices contained in this Code set out requirements for AQNZ to support members in implementation of the Code.
SECTION 2

Implementation and Assessment

2.3 Monitoring

Appendix A contains an environmental checklist which all industry members operating under this code are required to complete on an annual basis.

The Environmental Management Plan contained in this Code contains targets which the industry aims to achieve in order to meet objectives. The questions contained in this checklist are designed to collect information that will allow the industry to assess achievement of each target.

The environmental checklists therefore form the basis of an ongoing system for monitoring environmental outcomes. AQNZ collate the information and use it to assess how well the industry is performing against the targets and objectives contained in this Code. Where results show that targets contained in this Code are not being met, AQNZ will (where possible) implement additional actions to achieve targets. AQNZ will also use the results of the checklist to update future revisions of this Code.

2.4 Auditing

In addition to the monitoring function provided by the annual checklist, AQNZ will introduce an audit function to provide an additional level of rigour to the Code. It is currently proposed that elements of the audit function would include the following:

- The audits would be completed by a professional services company or by a trained member of AQNZ to ensure uniform objectivity and effectiveness of outputs;
- Companies will be audited against compliance with the Code of Practice;
- AQNZ to audit 5% of all participating companies in every two year period (approximately 15 companies);
- AQNZ to randomly select companies to be audited;
- Companies to be given advance notice of audits;
- AQNZ to report audit results to audited companies with recommendations for improvement. If a fail recorded, a follow up audit carried out within 6 months (at expense of company);
- If an company fails 2 successive audits, that company loses the right to claim operation under the ECOP, until such time as a third audit reveals a ‘pass’ (at expense of company);
- AQNZ will make audit results of a specific company available to regulatory authorities in the event of that company applying for a resource consent;
- A company can request AQNZ to complete an audit (at expense of company).

AQNZ will use audit results to identify how well the industry is performing against the targets and objectives contained in this Code. Where results show that targets contained in this Code are not being met, AQNZ will (where possible) implement additional actions to achieve targets. AQNZ will also use auditing outcomes to update future revisions of this Code.
2.5 Reporting

*Environmental Report*

AQNZ will produce an annual environmental report. The report will contain the results of the annual checklists, assessment of the industry against the Code and identification of areas where further actions or Code revisions are required. In every second year, the report will also contain the results of the AQNZ audits. AQNZ will distribute the environmental report annually to the industry and stakeholders.

*Company Reporting*

As outlined above, when an existing marine farm consent nears the end of its term, the existing farmer’s application for a new consent will be determined before an application by any other person for the same space, subject to certain criteria. The criteria include the requirement for the consent authority to consider the existing farmer’s conduct in relation to (amongst other things) the use of current industry good practice for any current aquaculture activities.

It is AQNZ’s intention, that by operating under this Code, a consent holder will be considered to be using current industry good practice. In order to demonstrate compliance with this Code to a regulatory authority, a company can submit results of annual checklists and (where available) bi-annual audits to a regulatory authority.

2.6 Reviewing and Updating the Code

This Environmental Code of Practice is a “living document” and requires regular review. The document will be assessed for review at least annually and if required will be updated to reflect changing practices, new technologies, increased knowledge of the effects of the industry on the environment and changes in environmental expectations. Most of these changes are likely to be in the management practices, performance measures and research priorities.

The Code is sufficiently flexible to enable the industry to respond to new technological opportunities and environmental understanding without requiring a Code change.
### 3.1 Potential Environmental Impacts in the Mussel Industry

If appropriately managed the environmental impacts of the mussel industry are relatively minor. Farming activities take place in a sensitive environment (the coastal marine area) and extreme care is therefore required to ensure any impacts are avoided or minimised and to ensure regulatory and public concerns are addressed and acknowledged.

AQNZ has assessed and identified ‘key’ environmental issues in the industry. These are issues that have potential to create the most significant environmental impacts, are issues of particular concern to regulatory authorities or are perceived as key issues by other users of the coastal marine area, including the public. AQNZ have addressed each of these key issues under the Environmental Management Plan contained in Section 3.2. The table below contains a summary of these key issues, provides a comment in relation to each and identifies which of the objectives contained in the Environmental Management Plan (Section 3.2) address each issue.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Comments</th>
<th>EMP Plan Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Waste</strong></td>
<td><strong>Disposal of synthetic materials (rope ties and floats).</strong> Inappropriate disposal results in material arriving on beaches and accumulating on the sea floor. This is considered a key issue by industry and regulatory authorities. Management measures include appropriate disposal, research into tie methods and beach clean ups.</td>
<td>Objective 2</td>
</tr>
<tr>
<td><strong>Disposal of mussel shells from processing factories.</strong></td>
<td>Mussel shells for disposal represent inert waste. Shells may be disposed to landfill or as an example of re-use can be used to provide base for access tracks in forestry areas or ground up and used as chicken feed.</td>
<td>Objective 2</td>
</tr>
<tr>
<td><strong>Hazardous Substances</strong></td>
<td>Management occurs in accordance with HSNO Act and Marine Pollution Regulations.</td>
<td>Objectives 1 and 3</td>
</tr>
<tr>
<td><strong>Public Access and Safety</strong></td>
<td>Consent conditions generally include a requirement to enable public access. Public may be inconvenienced by longer distances required to access coast. Management is required to ensure ongoing public access.</td>
<td>Objectives 1 and 4</td>
</tr>
<tr>
<td><strong>Safe navigation.</strong></td>
<td>Consent conditions generally include a requirement to enable safe navigation. Mussel farmers are required to provide navigation channels for boat users and to provide appropriate marker floats and navigation lights in accordance with Maritime Safety Act.</td>
<td>Objective 4</td>
</tr>
</tbody>
</table>
### Environmental Management Plan

**3.2 Environmental Management Plan**

The Environmental Management Plan contains the industry’s environmental objectives and outlines targets that the industry aims to meet in order to achieve objectives and the management practices and recommended practices the industry will adopt to meet each target.

The Environmental Management Plan is the core component of this Code of Practice and summarises in one place the requirements the industry must follow to provide consistency with this Code.

In this revised (2006) version of the Code, AQNZ has updated objectives, performance measures and management practices in line with current industry best practice and to focus more closely on those environmental issues that are key to the industry. The inclusion of targets is also new for this 2006 revision. Targets provide specific and measurable steps toward meeting each objective. Questions in the Annual Checklists help the industry to monitor achievement against targets.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 5</td>
<td>Potential mussel farm impacts on the aquatic environment include sediment and organic material accumulating on the sea floor, impacts of mussel food supply on the local and wider ecosystem, and impacts of any non natural items (e.g. anchors, ropes) deposited in the marine environment or on the sea floor.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Energy</th>
<th>Use of fuel in boats and transport vehicles, use of energy for refrigeration and machinery in processing factories.</th>
<th>Economic incentive already exists to limit fuel use owing to high fuel prices. Implementation of energy efficiency measures represents best practice.</th>
<th>Objective 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Quality</td>
<td>Release of fuels, chemicals, bilge water or sewage into water.</td>
<td>Appropriate management generally occurs already in accordance with HSNO Act and Marine Pollution Regulations. Ongoing management is required in accordance with best practice.</td>
<td>Objective 3</td>
</tr>
<tr>
<td>Discharges of water from processing factories.</td>
<td>Water is used to clean and process mussels. Cleaning and processing water is generally discharged as trade waste to the sanitary sewer.</td>
<td></td>
<td>Objective 3</td>
</tr>
<tr>
<td>Ecology</td>
<td>Impacts on marine mammals and seabirds.</td>
<td>Mussel farmers are required to comply with requirements of the Marine Mammals Act. Issues with marine mammals are infrequent; however a Department of Conservation (DOC) report notes that impacts on marine mammals and seabirds may occur.</td>
<td>Objectives 1 and 5</td>
</tr>
<tr>
<td>Biosecurity.</td>
<td>The industry has developed a range of responses to potential biosecurity risks including transfer of organisms. Continual management is required to ensure these requirements are observed to ensure biosecurity risks do not impact on the environment or industry.</td>
<td></td>
<td>Objectives 1 and 5</td>
</tr>
</tbody>
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**Print Date 06/06/07 Version 06/2007**
### Objective 1: Comply with all regulatory requirements

<table>
<thead>
<tr>
<th>Targets</th>
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<th>Operators</th>
<th>Recommended Practices</th>
<th>AQNZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% compliance with resource consents(^1) (1.1).</td>
<td>Annual number of infringement notices, abatement notices and enforcement orders related to non compliance with resource consents recorded by all operators in AQNZ annual checklist (1.1)</td>
<td>Follow the requirements of the Resource Management Act and the Regional Coastal Plan when applying for resource consent (1.1.1)</td>
<td>Wherever relevant issues arise, make submissions to notified resource consents, Regional Coastal Plans and district plans. Consider collaboration with other industry members or AQNZ prior to making a submission (1.1.3).</td>
<td>Provide information and advice to assist AQNZ members to achieve compliance with resource consents (1.1.5).</td>
</tr>
<tr>
<td>100% compliance with the Resource Management Act 1991 (1.2).</td>
<td>Annual number of abatement notices and enforcement orders related to general non compliance with the RMA (as opposed to non compliance against a resource consent) recorded by all operators in AQNZ annual checklist (1.2).</td>
<td>Comply with the general duty under Section 17(1) RMA to avoid, remedy or mitigate any adverse effect on the environment (1.2.1).</td>
<td></td>
<td>Make submissions to select committees or government agencies on any relevant legislative or regulatory changes to ensure provisions are environmentally effective and scientifically sound while still being cost efficient for both regulators and the industry (1.2.2). Coordinate submissions from the industry on Regional Coastal Plans and notified resource consents which relate to AMAs or mussel farming (1.2.3). Continue to develop good working relations with Regional Councils and Unitary Authorities (1.2.4).</td>
</tr>
<tr>
<td>100% compliance with all other legislation containing environmental aspects (1.3)</td>
<td>Annual number of enforcement mechanisms implemented relating to any non RMA environmental legislation recorded by all operators in AQNZ annual checklist (1.3).</td>
<td>Be aware of, and comply with your obligations under the provisions of the:</td>
<td>Cooperate with any AQNZ initiatives relating to marine mammals (e.g. record sightings of marine mammals in or around marine farms) if requested (1.3.2).</td>
<td>Make submissions to select committees or government agencies on any relevant legislative or regulatory changes to ensure provisions are environmentally effective and scientifically sound while still being cost efficient for both regulators and the industry (1.3.3).</td>
</tr>
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</table>

\(^1\) Resource consent refers to all types of resource consent issued under the RMA including coastal permits, discharge permits, land use consents and water permits.
**Objective 2: Put into practice the ‘5R’ principles of waste management (reduce, reuse, recycle, recover, residual disposal)**

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<tbody>
<tr>
<td>Reduce the quantity of non natural waste material from mussel farming activities entering the marine environment (2.1).</td>
<td>Annual record of waste attributed to mussel farming in annual AQNZ beach clean ups compared to total waste recorded in annual AQNZ beach clean ups (2.1).</td>
<td>Use spat catching methods that do not require weights (2.1.1).</td>
<td>Inform AQNZ if you identify any new or innovative methods to re-use or re-cycle mussel farm materials (2.1.10).</td>
<td>Encourage and support initiatives to minimise non natural waste entering the marine environment, for example: Improving best practice in farm set up and structures to reduce loss of materials (e.g. attachment of floats to backbones). Re-use and recycling opportunities (2.1.11). Organise three beach clean ups every year at beaches where mussel farm waste is known to occur. Assess the quantity of mussel farm waste compared to total waste. Ensure the same beaches are cleaned each year to allow performance measurement (2.1.12).</td>
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<td>Use stocking with the highest practicable percentage of bio degradable material when seeding out mussel spat (2.1.2).</td>
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<td>Ensure warp and backbone ropes are of a sufficient specification and condition to prevent breaking under prevailing environmental conditions (2.1.3).</td>
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<td></td>
<td>Secure all mussel farm materials to best industry practise to prevent loss to the environment (2.1.4).</td>
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<td></td>
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<td>Do not dispose of any non natural material into the marine environment (2.1.5).</td>
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<td></td>
<td></td>
<td>Retrieve any non natural materials (e.g. floats, ropes, droppers, anchors) no longer required from the marine environment (2.1.6).</td>
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<tr>
<td></td>
<td></td>
<td>Wherever possible repair and reuse materials and equipments as an alternative to disposal (e.g. rope, floats) (2.1.7).</td>
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<tr>
<td></td>
<td></td>
<td>Where not possible to repair or reuse, retain non natural materials on board for appropriate disposal on land (2.1.8).</td>
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<tr>
<td></td>
<td></td>
<td>Retrieve all loose floats from the marine environment (2.1.9).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimise quantity of organic material discarded into the marine environment (2.2).</td>
<td>Not practicably measurable* (2.2).</td>
<td>Minimise organic material discarded into the environment by adopting best farming practices, keeping equipment clean and limiting encrusting by unwanted organisms (2.2.1).</td>
<td>Inform AQNZ if you identify any new or innovative methods to reduce quantity of organic materials discarded into the marine environment (2.2.2).</td>
<td>Encourage and support initiatives to minimise organic material discarded into the marine environment, for example: Research into methods of reducing the level of settlement of encrusting organisms on marine farm structures. Co-ordinate the quantity of mussels grown with the projected demand. Research into the potential for over-settlement and investigating alternative uses for unwanted species such as blue mussels (2.2.3).</td>
</tr>
</tbody>
</table>

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* Non natural materials include any materials that do not naturally occur in the marine environment (including floats, ropes, droppers, anchors, litter, packaging etc).

* Measurement of organic material discarded into the marine environment may occur if benthic surveys are carried out below mussel farms, however it would be difficult to use survey results to measure reduction in material discarded. AQNZ’s focus is on research of methods to reduce quantity of waste discarded. AQNZ will monitor results of benthic surveys where possible to feed into ongoing research aimed at reducing the quantity of material discarded.
## Targets

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<tr>
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<tbody>
<tr>
<td>Reduce the quantity of mussel processing waste going to landfill (excluding mussel shell by-product) (2.3).</td>
<td>Record annual quantity of mussel processing waste (excluding mussel shell by-product) disposed to landfill (2.3.1).</td>
<td>Buy in bulk wherever possible to reduce packaging (2.3.2).</td>
<td></td>
</tr>
<tr>
<td>Annual quantity of mussel processing waste (excluding mussel shell by-product) being disposed to landfill recorded by operators in AQNZ annual checklist compared to annual green weight tonnage (2.3).</td>
<td>Discuss with suppliers, options for reducing or recycling the packaging on incoming goods or returning packaging for re-use where possible (2.3.3).</td>
<td>Use recyclable packaging for your own product where practical and mark the packaging accordingly (2.3.4).</td>
<td></td>
</tr>
<tr>
<td>Encourage staff to reduce resource use wherever practical (paper, energy, cleaning products etc) (2.3.5).</td>
<td>Develop and implement an internal recycling system (office waste, food and beverage waste) (2.3.6).</td>
<td></td>
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<tr>
<td>Examine options to supply organic waste material (mussel flesh) to composting fertiliser companies (2.3.7).</td>
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<tr>
<td>Reduce shell by-product waste (2.4).</td>
<td>Record annual quantity of shell waste disposed to landfill (2.4.1).</td>
<td>Encourage investigations into alternative options for waste shell utilisation and disposal and report to AQNZ any possibilities/options identified (2.4.2).</td>
<td></td>
</tr>
<tr>
<td>Annual quantity of mussel shell waste being disposed to landfill recorded by operators in AQNZ annual checklist compared to annual green weight tonnage (2.4).</td>
<td>Ensure shell by-product is disposed to landfill or in accordance with resource consent (2.4.3).</td>
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</table>
### Objective 3: Minimise pollution

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</thead>
<tbody>
<tr>
<td>Avoid discharges of pollutants into the marine environment (3.1).</td>
<td>Annual number of spills into marine environment from mussel vessels or facilities (e.g. wharves) recorded by operators in AQNZ annual checklist compared to total number of mussel boat operators (3.1).</td>
<td>Ensure that, other than those authorised in association with the normal operation of the mussel farm, there is no discharge of contaminants such as oil, diesel, petrol or effluent to the coastal marine area as a result of the exercise of resource consent (3.1.1).</td>
<td>Use biodegradable cleaning and degreasing compounds to clean vessels (3.1.6).</td>
<td>Encourage and support initiatives to minimise discharges of pollutants into the marine environment, for example: Promotion of good management practices in relation to storage of hazardous substances, chemicals and fuels. Promotion of the use of approved facilities for antifouling. Encouraging members to provide assistance in the event of any major spill. Educating members about the requirements of Regional Oil Spill contingency plans and sewage discharge requirements of Regional Coastal Plans (3.1.9).</td>
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<td>Adopt good management practices in relation to storage and use of chemicals and fuels on board, including: Use appropriate, quality containers Store in contained areas (to avoid spills into the marine environment or bilge system) Only carry quantities required Refuel at approved areas and supervise refuelling at all times Keep sorbent material on board to absorb on board spills (e.g. spill kit) (3.1.2)</td>
<td>Use biodegradable oils in engines (3.1.7).</td>
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<td>Abide by the requirements of the Regional Coastal Plan and the Resource Management (Marine Pollution) Amendment Regulations 2002 (3.1.3). Refer to Appendix X for information about this regulation.</td>
<td>Display the pollution hotline for the Regional Council on board and notify all spills (3.1.8).</td>
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<td>Be familiar with the requirements of your local Regional Oil Spill contingency plans and your responsibilities under the Plan (3.1.4).</td>
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<td>Carry out antifouling at an approved facility (3.1.5).</td>
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<td>Minimise impacts of processing wastewater discharges on the receiving environment (3.2).</td>
<td>Annual number of infringement notices, abatement notices and enforcement orders related to non compliance with resource consents (discharge permits) recorded by all operators in AQNZ annual checklist compared to total number of operators (3.2).</td>
<td>Monitor quality of wastewater discharges and complete inspections to ensure compliance with discharge permits occurs (3.2.1).</td>
<td>If you are experiencing difficulties in complying with your resource consent, contact the Council immediately to develop and agree a methodology to achieve compliance (3.2.2). Use biodegradable cleaning products (3.2.3).</td>
<td>Encourage and support preparation and implementation of hazardous substance management plans in processing factories (3.3.2).</td>
</tr>
<tr>
<td>Avoid spills of hazardous substances, chemicals or fuels at processing sites (3.3).</td>
<td>Annual number of spills from processing sites recorded by operators in AQNZ annual checklist compared to total number of operators (3.3).</td>
<td>Prepare and implement a hazardous substance management strategy aimed at avoiding spills or leaks of hazardous substances, chemicals and fuels (and implementing good health and safety practices) in processing factories. Strategy to address: Creation of hazardous substances inventory Staff training Provision and use of up to date Material Safety Data Sheets Correct storage, labelling, decanting/refuelling, use of bunded areas and disposal Compliance with any controls set by ERMA for specific hazardous substances (i.e. HSNO Act) Emergency management procedures (3.3.1).</td>
<td>Ensure and support preparation and implementation of hazardous substance management plans in processing factories (3.3.2).</td>
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### SECTION 3

#### Environmental Management Plan

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<tr>
<th>Targets</th>
<th>Performance Measures</th>
<th>Operators</th>
<th>AGNZ</th>
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<tbody>
<tr>
<td>Avoid the emission of any ozone-depleting substances (3.4)</td>
<td>Annual number of operators using No-Loss certified technicians for refrigeration equipment servicing recorded in AQNZ annual checklist compared to total number of operators (3.4).</td>
<td>Employ service technicians certified under the Institute of Refrigeration, Heating and Air Conditioning Engineers (IRHACE) No-Loss scheme for refrigerant, chiller and air conditioning equipment servicing and ask to see technician’s No-Loss cards prior to service commencing (3.4.1).</td>
<td>If upgrading or disposing of refrigeration or chiller equipment, ensure refrigerants are either recovered for re-use or for disposal via an approved safe destruction method (3.4.2).</td>
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# Objective 4: Limit impacts on other users of the Coastal Marine Area

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<tr>
<td>Zero navigational incidences attributed to mussel farms or mussel boats (4.1).</td>
<td>Annual record of navigational incidents attributed to mussel boats or farms as recorded by MSA; and non-compliance with resource consent conditions relating to navigational aids recorded by operators in AQNZ annual checklist (4.1).</td>
<td>Locate structures and boundaries in compliance with your resource consent (4.1.1).</td>
<td>Permanently brand each buoy within the mussel farm with owner/operator’s identification mark. Each corner of the marine farm structures and the middle of each of the seaward most and landward most longlines shall be marked with an orange marker buoy of a minimum diameter of 0.5 meters (4.1.9).</td>
<td>Maintain a log book on board all mussel farm vessels to record the details of any navigational incidences or complaints in relation to navigation or boat operation. Record time of incident, vessels involved, any injuries or damage and actions taken (4.1.10).</td>
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<td>Locate, install and maintain navigational aids in accordance with your resource consent and Maritime New Zealand’s Guidelines for Aquaculture Management Areas and Marine Farms, December 2005 (4.1.2).</td>
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<td>Inform the Regional Council/Unitary Authority if you cease to mussel farm in an area authorised by a resource consent (4.1.11).</td>
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<td>Ensure any access way required by the resource consent between long line blocks is free of surface structures and of the width specified (4.1.3).</td>
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<td>Fix a clear and legible sign to the outside corner of the farmed area displaying the consent holder’s name and resource consent number (4.1.4).</td>
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<td>Maintain all structures to ensure that they are restrained, secure and in working order at all times so as not to create a navigational hazard (4.1.5).</td>
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<td>Should any part of the marine farming structures be lost into the marine environment that is of a size that could constitute a navigational or safety hazard inform the Council Harbourmaster and Maritime New Zealand immediately. Take all practical steps to find and retrieve the lost structure (4.1.6).</td>
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<td></td>
<td>Advise any mussel farm operator of any observed non-compliance of their mussel farm (4.1.7).</td>
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<td>As soon as possible after any incident report it to the Maritime NZ Rescue Coordination Centre (RCNZ) Free phone: 0508 222 433, as soon as possible after that report the incident to the Harbour Master and report the incident in writing to the Harbour Master within 7 days (4.1.8).</td>
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<tr>
<td>Zero complaints received in relation to mussel boat operation (4.2).</td>
<td>Annual record of complaints received with relation to mussel boat operation from: Harbour Masters in mussel farming regions Recorded by all operators in AQNZ annual checklist (4.2).</td>
<td>Operate mussel boats in accordance with Maritime New Zealand’s Safe Ship Management system, including abiding by speed restrictions (4.2.1).</td>
<td>Limit noise emission in sensitive areas where practical (e.g. be aware of VHF use or loud music near sleeping residents) (4.2.2).</td>
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### SECTION 3  
**Environmental Management Plan**

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<tr>
<td>Make a positive contribution to navigational safety (4.3).</td>
<td>Results of annual consultation with Harbour Masters in principal mussel farming regions regarding mussel industry contribution towards navigational safety (4.3).</td>
<td>Inform the Harbourmaster of any known failures of mussel farm navigational aids (e.g. lateral and cardinal markers) (4.3.1).</td>
<td>When any navigational issues arise, work cooperatively with the Harbourmaster to resolve those issues. Consider collaboration with other industry members or AGNZ prior to making a submission (4.3.2).</td>
<td>Make submissions to Regional Coastal Plans and resource consents when navigational safety is identified as an issue (4.3.4).</td>
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<tr>
<td>Make submissions to Regional Coastal Plans and resource consents when navigational safety is identified as an issue (4.3.3).</td>
<td>Consult annually with Harbour Masters in principal mussel farming regions to monitor level of contribution towards navigational safety (4.3.5).</td>
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<td>All mussel related marine facilities allow for public use and access (where appropriate) (4.4).</td>
<td>Number of new and re-developed mussel related marine facilities that include public access provisions compared to the total number of mussel related marine facilities (4.4).</td>
<td>Include public access in design of all new and re-developed mussel related marine facilities (e.g. wharves) (4.4.1).</td>
<td>Industry should consult with local communities concerning their needs with respect to marine facilities and where appropriate encourage mussel farmers and boat operators to include public access in design of all new and re-developed mussel related marine facilities (e.g. wharves) (4.4.2).</td>
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</table>
## Objective 5: Limit impacts on the natural environment

<table>
<thead>
<tr>
<th>Targets</th>
<th>Performance Measures</th>
<th>Operational</th>
<th>Recommended Practices</th>
<th>AQNZ</th>
<th>Management Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero incidences of exotic organism spread attributed to mussel farming activities (5.1).</td>
<td>Annual record of exotic organism spread from Biosecurity New Zealand (5.1).</td>
<td>Clean floats and ropes during harvesting (5.1.1).</td>
<td>Be familiar and comply with the requirements of the NZMIC or AQNZ Exotic Disease Response Plan and any other endorsed industry codes of practice (including the Marine Fouling Organisms Guide (AQNZ), Styela Code of Practice (AQC)) (5.1.6).</td>
<td>Encourage and support initiatives to avoid the spread of exotic organisms by mussel farming activities, for example:</td>
<td>Continue to administer and encourage compliance with the New Zealand Mussel Industry Seed Transfer Code of Practice and the Exotic disease response plan Work cooperatively with Biosecurity New Zealand to identify and prevent the spread of exotic organisms (5.1.7).</td>
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<td>Turn cleaned floats over after harvest to expose the encrusted surface to the sun (5.1.2).</td>
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<td>Adhere to the New Zealand Mussel Industry Seed Transfer Code of Practice (5.1.3).</td>
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<td>Report any organisms not normally seen in New Zealand or any notifiable organisms (e.g. Styela) to Biosecurity New Zealand Exotic Pest and Disease hotline 0800 80 99 66 (5.1.4).</td>
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<td>Comply with Biosecurity New Zealand’s code of practice for transfer of species of concern (once published) (5.1.5).</td>
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<td>Industry shall support research into initiatives to reduce the impact of mussel farming and processing activities on the environment. Research will be targeted at confirming effects and identifying appropriate mitigation. Research will be targeted at key effects (5.2.1).</td>
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<td>Industry shall communicate to industry members, government agencies, consent authorities and other interested parties, any environmental effects identified and mitigation measures that could be implemented and ensure that future revisions of this Code accommodate research findings (5.2.2).</td>
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<td>Industry shall collaborate with Regional and District Councils, government agencies and science providers on research projects (5.2.3).</td>
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<td>Industry shall support the use of appropriate guidelines for ecological investigations of proposed sites (comparable with the Guidelines for Ecological Investigations for Proposed Marine Farm Sites in the Marlborough Sounds - Department of Conservation 1995) to ensure that reports contain the appropriate type and level of information and meet scientific reporting standards (5.2.4).</td>
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<td></td>
<td>Continue to research environmental effects of mussel farms (5.2).</td>
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<td>Research completed and disseminated into industry which has contributed to a positive impact on the environment (5.2).</td>
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### Objective 6: Reduce resource consumption

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<td>Minimise energy consumption (6.1).</td>
<td>Annual quantity of energy being consumed by type (e.g. diesel, petrol, gas, electricity) recorded by operators in ACNZ annual checklist compared to annual green weight tonnage (6.1).</td>
<td>Record annual total consumption of energy consumed used by type (e.g. diesel, petrol, gas, electricity) (6.1.1).</td>
<td>Participate in the “Energy-wise Companies Campaign” by the Energy Efficiency and Conservation Authority. The scheme promotes improvements to factory operational practices or plants where energy efficiencies can be improved (6.1.4).</td>
<td>Commission an independent energy audit of processing premises and implement recommended actions (6.1.5).</td>
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<td>Look at opportunities to implement cleaner production initiatives e.g. possibilities for re-circulation of chiller water for cooling (6.1.6).</td>
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<td>Minimise energy consumption in vessels and vehicles through: Regular anti-fouling and hull cleaning Regularly maintaining vessel engines Selecting fuel efficient engines when upgrading Driver education (6.1.2).</td>
<td>Consider use of bio-diesel as a replacement for diesel in vehicles (note bio-diesel is not currently suitable for vessels) when it becomes available (6.1.7).</td>
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<tr>
<td>Minimise fresh water consumption (6.2).</td>
<td>Annual quantity of fresh water consumed recorded by operators in ACNZ annual checklist compared to annual green weight tonnage (6.2).</td>
<td>Record annual total quantity of water consumed (6.2.1).</td>
<td>Examine options to minimise water consumption and re-use re-circulate water within the system wherever possible (6.2.2).</td>
<td>Include checks for freshwater leaks as part of regular maintenance programme (6.2.3).</td>
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<td>Implement a culture of water minimisation amongst staff including reporting leaks, turning off taps when not in use (6.2.4).</td>
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<td>Install water efficiency devices in bathrooms including dual-flush toilets, water efficient shower heads and push taps (6.2.5).</td>
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4.1 Legislation and Regulations

4.1.1 Overview

This section provides an overview of the key environmental legislation applicable to the New Zealand Mussel industry. Appendix B contains a comprehensive summary of all environmental legislation that may be applicable.

Resource Management Act 1991

The Resource Management Act 1991 is New Zealand’s main piece of environmental legislation, and provides a framework for managing the effects of activities on the environment. Local authorities are responsible for implementing the bulk of the RMA, and are divided into two tiers (district/city and regional councils) for this purpose.

- **District/City councils** are primarily responsible for controlling the effects of land use (including hazardous substances, natural hazards and indigenous biodiversity) and noise.
- **Regional Councils (and Unitary Authorities)** are responsible for controlling the discharge of contaminants to land, air or water and for activities in the Coastal Marine Area.

Under the Act, every district or city council must have a district plan and every regional council must have regional plans to help them manage their local environment. Activities that might be addressed under district and regional plans include effects of land use, noise, discharge of contaminants to land, air or water, taking and using water, activities in the Coastal Marine Area and maintaining indigenous biodiversity.

Resource Consents

Resource consent is permission from a regional council, city or district council to use a resource in some way or to do something that might affect the environment. Consents and their processes are covered by the Resource Management Act 1991. Resource consents are site and owner/operator specific. Resource consent types include coastal permits, water permits, discharge permits and land use permits.

Resource Consents for Marine Farming

The Aquaculture Reform Act came into effect on 1 January 2005. Under the Act, a person installing and operating a marine farm and/or spat catching with long lines requires resource consent (coastal permit) for
the activity from the relevant Regional Council in accordance with the Resource Management Act and must be registered as a marine farmer with the Ministry of Fisheries under the Fisheries Act 1996. Coastal permits provide an applicant with the right to occupy a defined area of water and to place structures in it.

Regional councils manage all environmental effects of aquaculture, consider environmental effects prior to granting a coastal permit and may only grant coastal permits within Aquaculture Management Areas (AMAs). Regional councils define AMAs in Regional Coastal Plans in accordance with the Resource Management Act. Effects on marine fisheries are taken into consideration during determination of AMAs through a test applied by the Ministry of Fisheries.

The allocation of space to mussel farmers is one of the principal means of controlling the effects of the industry on the marine environment and other users. The Resource Management Act gives Regional Councils control over the location of marine farms and the on-going management of their environmental effects. Regional Councils exercise this duty through the preparation of regional coastal plans and resource consent decisions, both of which are public processes. During the consent process applicants are asked to provide detailed information relating to the proposed activities including tidal currents, water depths, the proximity of other farms, management plans and any other factors that influence ecological values and effects on other users, amenity values and navigational safety. They are also asked to provide proof that they have consulted with affected parties and any response to the views of those consulted.

As part of the consent process Maritime New Zealand is asked to comment on any navigational safety aspects of the proposal. In conjunction with industry, Maritime New Zealand has prepared Guidelines for Aquaculture Management Areas and Marine Farms, December 2005.

Most resource consents place conditions on the holder which may require monitoring, provision of information, restrictions on activities or financial contributions. Resource consents are granted for a specified timeframe not exceeding 35 years.

Existing marine farm consent holders applying for new consents are provided with some protection in accordance with new section 165ZJ of the Resource Management Act 1991. When an existing marine farm consent nears the end of its term, the existing farmer’s application for a new consent will be determined first, before anyone else’s consent application for the same space, subject to certain criteria. The criteria include the requirement for the consent authority to consider the existing farmer’s conduct in relation to:

- compliance with the relevant regional coastal plan;
- compliance with resource consent conditions for current or previous aquaculture activities undertaken by the applicant; and
- the use of current industry good practice for any current aquaculture activities.

Regional Councils are responsible for the Coastal Marine Area. Tasman District Council and Marlborough District Council are Unitary Authorities and fulfill the role of a Regional Council in relation to the Coastal Marine Areas in Tasman and Marlborough. References to councils in this document should be read as Regional Councils and Unitary Authorities.
Resource Consents for Processing Activities

Processing companies could require the following resource consents under the Resource Management Act (1991):

- Discharge of wastewater onto land
- Discharge of wastewater to water
- Discharge to air
- Discharge of wastewater to the coastal marine area
- To abstract water
- For buildings and other land use activities

Whether all these consents are required for a specific factory will depend on rules contained in the local district or regional plans. For example, discharges to air may not require consent provided the boiler stack heights exceed a minimum height specified in the plan.

Factories that do not comply with rules in the district plans will require consent. If companies wish to change aspects of their operations which would change “the scale, characteristics and intensity of effects” (e.g. extend factory, increase operating hours) then they may require new consents.

Water and discharge permits do require a resource consent if they are not expressly allowed by a rule in a district or regional plan. There are no existing use rights associated with water.

Most resource consents place conditions on the consent holder which may require monitoring, provision of information, restrictions on activities or financial contributions.

Discharges of wastewater to the sanitary sewer may also require a trade waste permit from the District or City Council.
Other Legislation

In addition to the Resource Management Act, other legislation in New Zealand has environmental components that may be applicable to mussel industry participants.

Appendix B contains a comprehensive summary of all environmental legislation that may be applicable to the New Zealand Mussel industry.

4.1.2 Environmental Aspects

Compliance with legislation and regulatory requirements is the minimum requirement for any environmental management system, including this Environmental Code of Practice. Environmental regulation generally aims to avoid, remedy or mitigate adverse effects on the environment, therefore compliance with regulations will help the industry to minimise impacts on the environment.

4.1.3 Operator Management Practices

- Follow the requirements of the Resource Management Act and the Regional Coastal Plan when applying for resource consent (1.1.1).
- Ensure compliance with the conditions of your resource consent (1.1.2).
- Comply with the general duty under Section 17(1) RMA to avoid, remedy or mitigate any adverse effect on the environment (1.2.1).
- Be aware of, and comply with your obligations under the provisions of the:
  - Marine Mammals Protection Act 1978
  - Building Act 2004
  - Biosecurity Act 1993
  - Hazardous Substances and New Organisms Act 1996
  - Maritime Transport Act 1994
  - Fisheries Act 1996
  - Resource Management (Marine Pollution) Regulations 1998
  - Health and Safety in Employment Act 1999

Refer to Appendix B for information about each of these Acts (1.3.1).

4.1.4 Operator Recommended Practices

- Wherever relevant issues arise, make submissions to notified resource consents, Regional Coastal Plans and district plans. Consider collaboration with other industry members or AQNZ prior to making a submission (1.1.3).
If you are experiencing difficulties in complying with your resource consent, contact the Council immediately to develop and agree a methodology to achieve compliance (1.1.4).

Cooperate with any AQNZ initiatives relating to marine mammals (e.g. record sightings of marine mammals in or around marine farms) if requested (1.3.2).

4.1.5 AQNZ Management Practices

- Provide information and advice to assist AQNZ members to achieve compliance with resource consents (1.1.5)
- Make submissions to select committees or government agencies on any relevant legislative or regulatory changes to ensure provisions are environmentally effective and scientifically sound while still being cost efficient for both regulators and the industry (1.2.2)
- Coordinate submissions from the industry on Regional Coastal Plans and notified resource consents which relate to AMAs or mussel farming (1.2.3)
- Continue to develop good working relations with Regional Councils and Unitary Authorities (1.2.4).

Make submissions to select committees or government agencies on any relevant legislative or regulatory changes to ensure provisions are environmentally effective and scientifically sound while still being cost efficient for both regulators and the industry (1.3.3).
5.1 AQNZ Research

5.1.1 Overview

AQNZ commission research aimed at improving the industry’s understanding of environmental issues associated with mussel farming and processing activities and methods to manage and mitigate those issues. AQNZ’s research assists the industry to achieve the Objectives contained in this Code of Practice. AQNZ aims to ensure that research completed is effectively communicated to the industry and to stakeholders to ensure that management methods are adopted and to inform stakeholders of research results and any changes to best practice. AQNZ’s Research and Environment Committee are responsible for commissioning research. Where appropriate, results of research (e.g. identification of new management methods) would be incorporated into future editions of this Code of Practice.

5.1.2 Environmental Aspects

AQNZ research has a positive impact by identifying areas where environmental impacts may occur and identifying potential mitigation methods.

5.1.3 AQNZ Management Practices

- Industry shall support research into initiatives to reduce the impact of mussel farming and processing activities on the environment. Research will be targeted at confirming effects and identifying appropriate mitigation. Research will be targeted at key effects (5.2.1).
- Industry shall communicate to industry members, government agencies, consent authorities and other interested parties, any environmental effects identified and mitigation measures that could be implemented and ensure that future revisions of this Code accommodate research findings (5.2.2).
- Industry shall collaborate with Regional and District Councils, government agencies and science providers on research projects (5.2.3).
SECTION 6

Physical Establishment of Mussel Farms

6.1 Ecological Assessment of Proposed Sites

6.1.1 Overview

When applying for resource consent an applicant is required to provide a variety of information including an ecological investigation of the proposed marine farm area and the biological features and fisheries resources of the adjacent coast.

6.1.2 Environmental Aspects

This ecological reporting process, when well-regulated, ensures mussel farms are appropriately positioned relative to habitats, species or communities of high ecological, scientific or fisheries value.

6.1.3 AQNZ Management Practices

Industry shall support the use of appropriate guidelines for ecological investigations of proposed sites (comparable with the Guidelines for Ecological Investigations for Proposed Marine Farm Sites in the Marlborough Sounds - Department of Conservation 1995) to ensure that reports contain the appropriate type and level of information and meet scientific reporting standards (5.2.4).

6.2 Locating Farms

6.2.1 Overview

The boundary of the consent area for new farms or extensions of existing farms will be specified on a site plan using map coordinates and submitted with the resource consent application. Applicants may propose an adjustment to the size or position of the farm during the resource consent assessment process to avoid environmentally or ecologically sensitive features.

Most consents will also stipulate how farm boundaries are to be established, most commonly by a registered surveyor using DGPS (Digital Global Positioning System). Locating farms boundaries using cadastral survey techniques or boat radar systems is not recommended as these methods do not provide sufficient accuracy to ensure the farm is within the boundary stipulated in the consent.

6.2.2 Environmental Aspects

It is important that all farm structures are located within the boundaries designated within the final resource consent. Failure to locate farms accurately may result in adverse impacts on ecological values or navigational safety.
Physical Establishment of Mussel Farms

SECTION 6

6.2.3 Management Practices

- Locate structures and boundaries in compliance with your resource consent (4.1.1).

6.2.4 Recommended Practices

- Permanently brand each buoy within the mussel farm with owner’s/operators identification mark. Each corner of the marine farm structures and the middle of each of the seaward most and landward most longlines shall be marked with an orange buoy of minimum diameter 0.5 metres. (4.1.9).

6.3 Farm Anchoring Systems

6.3.1 Overview

Currently, concrete block, screw and steel Danforth anchors are used to secure surface structures. Concrete blocks are not used for spat catching or holding farms in some areas as the blocks provide habitat for predatory fish. Danforth anchors are popular for seasonal spat catching sites where resource consent conditions require all equipment to be removed at the end of the season. Danforth anchors are lighter than concrete blocks and easier to transport, place and retrieve.

6.3.2 Environmental Aspects

Movement of farm anchoring systems may move the farm outside of the area of resource consent, potentially impacting on sensitive environments. Loss or failure of an anchor is also costly to farmers. To prevent farm movement, anchor design and selection must take into account local conditions such as seafloor material, currents, water depths and farm size. Anchors have been constantly refined and strengthened as the industry has developed and considerable experience now exists within the industry on anchor design.

6.3.3 Operator Management Practices

- Secure all mussel farm materials to best industry practice to prevent loss to the environment (2.1.4).
- Retrieve any non natural materials (e.g. floats, ropes, droppers, anchors) no longer required from the marine environment (2.1.6).AQNZ Management Practices.
- Encourage and support initiatives to minimise non natural waste entering the marine environment, for example:
  - Improving best practice in farm set up and structures to reduce loss of materials (2.1.11).
6.4 Warp and Backbone Ropes

6.4.1 Overview

Anchor warp and backbone or longline ropes are synthetic ropes designed to last for long periods with only minimal maintenance. Warp ropes usually last for at least 12 years and backbones in excess of 3 to 5 harvest cycles. Recent developments in rope design have resulted in ropes that will last even longer.

Similar to anchor design, the choice of rope diameter must reflect local conditions such as tidal current and wave action. Industry members have built up considerable experience in appropriate diameters for various conditions.

6.4.2 Environmental Aspects

Any impact on the marine environment is due to encrusting organisms that settle on the ropes and are removed during harvesting or periodic cleaning and drop to the sea floor below the mussel farm. Predatory fish particularly Leatherjackets are often observed along heavily encrusted ropes. Development of a long lasting warp rope that resists settlement of encrusting organisms would reduce the deposition of material onto the sea floor and cleaning costs to the farmer (see Section 9.2).

6.4.3 Operator Management Practices

- Ensure warp and backbone ropes are of a sufficient specification and condition to prevent breaking under prevailing environmental conditions (2.1.3).
- Do not dispose of any non natural material into the marine environment (2.1.5).
- Maintain all structures to ensure that they are restrained, secure and in working order at all times so as not to create a navigational hazard (4.1.5).

6.4.4 Operator Recommended Practices

- Inform AQNZ if you identify any new or innovative methods to re-use or recycle mussel farm materials (2.1.10).
6.4.5 AQNZ Management Practices

Encourage and support initiatives to minimise non natural waste entering the marine environment, for example:

- Improving best practice in farm set up and structures to reduce loss of materials (e.g. attachment of floats to backbones).
- Re-use and recycling opportunities (2.1.11).

6.5 Navigation Lights, Reflectors and Floats

6.5.1 Overview

Maritime New Zealand is responsible for commenting on navigational related matters for resource consent applications and for prescribing standards and requirements for navigational aids. Often this function will be delegated to the regional harbour master.

In the event the regional council grants resource consent for a marine farm, the consent holder must ensure the marine farm complies with the applicable minimum marking and lighting requirements detailed in Maritime New Zealand’s Guidelines for Aquaculture Management Areas and Marine Farms, December 2005. The Guidelines provide detailed guidance on all aspects of marking and lighting marine farms and should be referred to for guidance.

A marine farm applicant must also submit NavAid Application Form 16006 to obtain written approval for the placement of navigational aids to their local/regional harbor master or Maritime New Zealand.

6.5.2 Environmental Aspects

Failure to comply with navigational requirements may lead to impacts on other users of the Coastal Marine Area.

6.5.3 Operator Management Practices

- Locate structures and boundaries in compliance with your resource consent (4.1.1).
- Locate, install and maintain navigational aids in accordance with your resource consent and Maritime New Zealand’s Guidelines for Aquaculture Management Areas and Marine Farms, December 2005 (4.1.2).
- Ensure any access way required by the resource consent between long line blocks is free of surface structures and of the width specified (4.1.3).
- Fix a clear and legible sign to the outside corner of the farmed area displaying the consent holder’s name and resource consent number (4.1.4).
Physical Establishment of Mussel Farms

- Maintain all structures to ensure that they are restrained, secure and in working order at all times so as not to create a navigational hazard (4.1.5).
- Should any part of the marine farming structures be lost into the marine environment that is of a size that could constitute a navigational or safety hazard inform the Council Harbourmaster and Maritime New Zealand immediately. Take all practical steps to find and retrieve the lost structure (4.1.6).
- Advise any mussel farm operator of any observed non-compliance of their mussel farm (4.1.7).
- As soon as possible after an incident report it to the Maritime NZ Rescue Coordination Centre (RCCNZ) Free phone: 0508 222 433, as soon as possible after that report the incident to the Harbour Master and report the incident in writing to the Harbour Master within 7 days (4.1.8).
- Inform the Harbourmaster of any known failures of mussel farm navigational aids (e.g. port and starboard channel markers) (4.3.1).

6.5.4 Operator Recommended Practices

- Permanently brand each buoy within the mussel farm with owner’s/operator’s identification mark. Each corner of the marine farm structures and the middle of each of the seaward most and landward most longlines shall be marked with an orange marker buoy of a minimum diameter of 0.5 meters (4.1.9).
- Maintain a log book on board all mussel farm vessels to record the details of any navigational incidences or complaints in relation to navigation or boat operation. Record time of incident, vessels involved, any injuries or damage and actions taken (4.1.10).
- Inform the Regional Council/Unitary Authority if you cease to mussel farm in an area authorised by resource consent (4.1.11).
- When any navigational issues arise, work cooperatively with the Harbourmaster to resolve those issues. Consider collaboration with other industry members or AQNZ prior to making a submission (4.3.2).
- Make submissions to Regional Coastal Plans and resource consents when navigational safety is identified as an issue (4.3.3).

6.5.5 AQNZ Management Practices

- Make submissions to Regional Coastal Plans and resource consents when navigational safety is identified as an issue (4.3.4).
- Consult annually with Harbour Masters in principal mussel farming regions to monitor level of contribution towards navigational safety (4.3.5).
6.6 Wharves/Marinas

6.6.1 Overview

The mussel industry use wharves or jetty facilities to service and access boats used for mussel farming, as well as loading and unloading mussels and marine farming materials. Existing, new and improved facilities can be an asset to the local community especially if safe public access to these facilities can be provided. Public uses may include fishing, walking and boat access.

6.6.2 Environmental Aspects

AQNZ encourages the industry to provide public access to mussel related marine facilities, when it is safe and appropriate to do so, to help mitigate the impact of mussel related facilities on the users of the Coastal Marine Area.

6.6.3 Operational Recommended Practices

Include public access in design of all new and redeveloped mussel related marine facilities (e.g. wharves) (4.4.1).

6.6.4 AQNZ Management Practices

Industry should consult with local communities concerning their needs with respect to marine facilities and where appropriate encourage mussel farmers and boat operators to include public access in design of all new and redeveloped mussel related marine facilities (e.g. wharves) (4.4.2).
7.1 Spat Collecting (Northland)

7.1.1 Overview

Spat collection in New Zealand is undertaken on 90 Mile Beach, Northland. Mussel spat from an extensive offshore mussel bed settle on drifting seaweed that periodically washes up on to the beach. These “spat falls” range in weight from a few kilograms to thousands of tonnes. The seaweed mostly remains behind the surf line and if it is not collected for spat harvest migrates north up the beach and eventually floats out to sea.

The volume of spat-bearing seaweed removed from the beach on any one day is determined by industry demand. Spat collectors use four wheel drive vehicles and trailers to patrol the beach and collect the spat-covered seaweed, which is then transported by air or road freight to mussel farmers.

Spat collecting from Ninety Mile Beach requires a fisheries permit under the Fisheries Act 1996 and is managed under the quota allocation scheme. In accordance with the current Northland Regional Coastal Plan, resource consent (coastal permit) is not required for collecting seaweed containing spat.

7.1.2 Environmental Aspects

Compliance with fishing permits is important to ensure impacts (e.g. resulting from spat collecting) are minimised or avoided.

7.1.3 Operator Management Practices

- Follow the requirements of the Fisheries Act when applying for fisheries permits (1.3.1).

7.1.4 Operator Recommended Practices

- Ensure compliance with any voluntary codes of practice initiated by any relevant industry group (AQNZ now coordinate a ‘quota owners representative group’ named the GLM 9 Representative Group which plans to set codes of practice in place for spat collecting on 90 Mile.

7.2 Spat Transfer

7.2.1 Overview

Spat collected at Ninety Mile Beach is transferred from Kaitaia and to other mussel farming areas of New Zealand.
7.2.2 Environmental Aspects

Transfer of spat and associated material may result in the transfer of toxin-producing algae, bacteria and secondary species. It appears from early research, that mussel viruses are relatively widespread in New Zealand and may be triggered by mussel stress or environmental factors. Similarly, many toxin-producing algae are also widespread in New Zealand. Continued monitoring for toxin-producing algae occurs in strategic locations throughout the country.

The industry have put in place a number of methods to avoid transfer of algae via spat transfer:

- The New Zealand Mussel Industry National Spat Transfer Programme aims to mitigate the risks associated with algal blooms. The programme facilitates the safe transfer of mussel spat around areas of New Zealand in a manner designed to minimise the spread of the toxin-producing organism Gymnodinium catenatum. It documents the prohibition criteria, opening criteria, procedures and responsibilities associated with the management of spat movements between detected areas, affected areas and unaffected areas. AQNZ also commission monitoring of phytoplankton at Ninety Mile Beach with the aim of early detection of a potential G. catenatum outbreak.
- The industry has developed spat cleaning plants and spat holding facilities that can be used if necessary in any future events.
- NZMIC developed the New Zealand Mussel Industry Seed Code of Practice in 2000 to mitigate the risk of mussel seed transfers inadvertently transporting unwanted organisms into areas they do not currently inhabit. (Mussel “seed” is spat which is ready to transfer to production lines for ongrowing). Prior to transferring mussel seed between three geographical zones, operators must ensure the seed meets specific criteria outlined in the Code of Practice. Also, operators must complete an Interzone Mussel Seed Transfer Declaration for every interzone transfer.

7.2.3 Operator Management Practices

- Adhere to the New Zealand Mussel Industry Spat Transfer Programme when this is deemed by AQNZ to be required.
- Adhere to the New Zealand Mussel Industry Seed Transfer Code of Practice (5.1.3).
- Report any organisms not normally seen in New Zealand or any notifiable organisms (e.g. Styela) to Biosecurity New Zealand Exotic Pest and Disease hotline 0800 80 99 66 (5.1.4).
- Comply with Biosecurity New Zealand’s code of practice for transfer of species of concern (once published) (5.1.5).

7.2.4 Operator Recommended Practices

- Be familiar and comply with the requirements of the NZMIC or AQNZ Exotic Disease Response Plan and any other endorsed industry codes of practise (including the Marine Fouling Organism Guide (NZMIC/AQNZ), Styela Code of Practice (AQC) (5.1.6).
7.2.5 AQNZ Management Practices

- Encourage and support initiatives to avoid the spread of exotic organisms by mussel farming activities, for example:
  - Continue to administer and encourage compliance with the New Zealand Mussel Industry Seed Transfer Code of Practice and the Exotic Disease Response Plan.
  - Work cooperatively with Biosecurity New Zealand to identify and prevent the spread of exotic organisms (5.1.7).

7.3 Spat Catching Materials

7.3.1 Overview

Catching spat involves the placement of a line into the water column during periods when and where spat are known to settle.

The Industry most commonly uses lead core rope to catch spat as it does not require an additional weight.

7.3.2 Environmental Aspects

Environmental impacts may occur if spat catching materials are lost to the marine environment. Impacts also occur through the consumption of materials required for spat catching. If more endurable material is used, replacement requirements will reduce, minimising resource consumption and costs.

7.3.3 Operator Management Practices

- Use spat catching methods that do not require weights (2.1.1).
- Secure all mussel farm materials to best industry practise to prevent loss to the environment (2.1.4).
- Retrieve any non natural materials (e.g. floats, ropes, droppers, anchors) no longer required from the marine environment (2.1.6).
- Wherever possible repair and reuse materials and equipments as an alternative to disposal (e.g. rope, floats) (2.1.7).
- Where not possible to repair or reuse, retain non natural materials on board for appropriate disposal on land (2.1.8).

7.3.4 Operator Recommended Practices

- Inform AQNZ if you identify any new or innovative methods to re-use or recycle mussel farm materials (2.1.10).
7.3.5 AQNZ Management Practices

Encourage and support initiatives to minimise non natural waste entering the marine environment, for example:

- Improving best practice in farm set up and structures to reduce loss of materials (e.g. attachment of floats to backbones).
- Re-use and recycling opportunities (2.1.11).

7.4 Over-Settlement of Non-Target Species on Mussel Lines

7.4.1 Overview

Species other than Greenshell™ Mussels frequently settle and grow on the spat catching lines (e.g. blue mussels, Pacific oyster). This over-settlement can reduce the volume and growth rate of the mussel crop and, because non-target species often have to be hand sorted, can substantially increase the operating hours involved in reseeding, harvest and processing. In some instances, over-settlement can be so significant that whole or part of a line cannot be used for production crops.

Over settled species may be discarded into the marine environment or harvested and sold as by-products or graded out at a processing factory and disposed to landfill.

7.4.2 Environmental Aspects

Over settlement may result in unwanted species being discarded into the marine environment or over settled lines failing and falling to the ocean floor, potentially creating impacts in the marine environment.

7.4.3 Operator Management Practices

- Minimise organic material discarded into the environment by adopting best farming practices, keeping equipment clean and limiting encrusting by unwanted organisms (2.2.1).

7.4.4 Operator Recommended Practices

- Inform AQNZ if you identify any new or innovative methods to reduce quantity of organic materials discarded into the marine environment (2.2.2).
7.4.5 AQNZ Management Practices

- Encourage and support initiatives to minimise organic material discarded into the marine environment, for example:
  - Research into methods of reducing the level of settlement of encrusting organisms on marine farm structures.
  - Co-ordinate the quantity of mussels grown with the projected demand.
  - Research into the potential for over-settlement and investigating alternative uses for unwanted species such as blue mussels (2.2.3).
8 Seeding and Harvesting

8.1 Seeding Stocking

8.1.1 Overview

Spat from 90 Mile Beach is seeded into a cotton-blend stocking. The stocking ensures seaweed and spat are not lost from the lines. Seeding stocking is manufactured in various biodegradability classes. Stocking with a higher component of non-biodegradable material is needed in areas of high wave action and tidal currents. The non-biodegradable portion of the stocking remains on the dropper and is retrieved during spat harvest. Mussels captured on spat lines are deployed intact into spat holding areas and therefore require no stocking.

As spat grow they are periodically harvested and reseeded in lower densities on holding droppers until they reach a suitable size for seeding onto the final production lines.

8.1.2 Environmental Aspects

Environmental impacts may occur if seeding stocking is lost to the marine environment.

8.1.3 Operator Management Practices

- Use stocking with the highest practicable percentage of biodegradable material when seeding out mussel spat (2.1.2).
- Secure all mussel farm materials to best industry practise to prevent loss to the environment (2.1.4).
- Retrieve any non natural materials (e.g. floats, ropes, droppers, anchors) no longer required from the marine environment (2.1.6).

8.1.4 AQNZ Management Practices

- Encourage and support initiatives to minimise non natural waste entering the marine environment, for example:
  - Improving best practice in farm set up and structures to reduce loss of materials (e.g. attachment of floats to backbones).
  - Re-use and recycling opportunities (2.1.11).
Seeding and Harvesting

SECTION 8

8.2 Rope Ties

8.2.1 Overview

During seeding, a standard 3 ply black polyester rope is widely used to attach dropper lines and floats to backbones. Traditionally droppers are tied to the backbone using a clove hitch which often leads to small pieces of rope entering the environment during harvesting, reconditioning of longlines or when re-lashing floats. Some mussel farmers have chosen instead to use a lasso tie. During harvest, one side of the lasso can be cut by the operator leaving the entire tie attached to the dropper. The lasso tie method requires a modified float management regime ensuring minimal jiggling of lines during the early seeded period.

8.2.2 Environmental Aspects

Environmental impacts may occur if rope ties are lost to the marine environment, creating litter on beaches and potential impacting on marine ecosystems.

8.2.3 Operator Management Practices

- Secure all mussel farm materials to best industry practise to prevent loss to the environment (2.1.4).
- Do not dispose of any non natural material into the marine environment (2.1.5).
- Retrieve any non natural materials (e.g. floats, ropes, droppers, anchors) no longer required from the marine environment (2.1.6).
- Wherever possible repair and reuse materials and equipments as an alternative to disposal (e.g. rope, floats) (2.1.7).
- Where not possible to repair or reuse, retain non natural materials on board for appropriate disposal on land (2.1.8).

8.2.4 Operator Recommended Practices

Inform AQNZ if you identify any new or innovative methods to re-use or recycle mussel farm materials (2.1.10).
8.2.5 AQNZ Management Practices

- Encourage and support initiatives to minimise non natural waste entering the marine environment, for example:
  - Improving best practice in farm set up and structures to reduce loss of materials (e.g. attachment of floats to backbones).
  - Re-use and recycling opportunities (2.1.11).
- Organise three beach clean ups every year at beaches where mussel farm waste is known to occur. Assess the quantity of mussel farm waste compared to total waste. Ensure the same beaches are cleaned each year to allow performance measurement (2.1.12).

8.3 Cleaning of Ropes and Floats During Harvest

8.3.1 Overview

During harvesting, encrusting organisms are cleaned from floats and backbone ropes using scrapers. Floats are later removed for storage or floating on other farms.

8.3.2 Environmental Aspects

This on site cleaning process ensures that encrusting biota and sediment are released within the permitted area and helps prevent the transfer of species among different farming areas.

8.3.3 Operator Management Practices

- Clean floats and ropes during harvesting (5.1.1).
- Turn cleaned floats over after harvest to expose the encrusted surface to the sun (5.1.2).
- Report any organisms not normally seen in New Zealand or any notifiable organisms (e.g. Styela) to Biosecurity New Zealand Exotic Pest and Disease hotline 0800 80 99 66 (5.1.4).

8.3.4 Operator Recommended Practices

- Be familiar and comply with the requirements of the AQNZ Exotic Disease Response Plan and any other endorsed industry codes of practise (including the New Zealand Mussel Industry Marine Fouling Organism Guide, and Styela Code of Practice (AQNZ) (5.1.6).
8.3.5 AQNZ Management Practices

- Encourage and support initiatives to avoid the spread of exotic organisms by mussel farming activities, for example:
  - Continue to administer and encourage compliance with the New Zealand Mussel Industry Seed Transfer Code of Practice and the Exotic Disease Response Plan.
  - Work cooperatively with Biosecurity New Zealand to identify and prevent the spread of exotic organisms (5.1.7).

8.4 Washwater during Harvest

8.4.1 Overview

Water is used to remove marine organisms and sediment from final crop mussels during harvest. The washwater and associated material cleaned from the lines is discharged overboard while harvesting is in progress.

8.4.2 Environmental Aspects

The point of discharge is variable and depends on the position of the harvesting vessel but is always within the consent area. It is probable that much of the discharged organic content (i.e. animals and plants) enters the food chain. Large inorganic material (i.e. sediment and shell) appears to settle out of the water column onto the sea floor relatively quickly and probably occurs within the consent area, while smaller particles travel a greater distance in the water column before settling out.

In most instances, the discharge during harvest creates a visible plume of muddy water which is carried away from the harvester by tidal currents, wind and wave action. The visual extent of the plume appears to remain relatively consistent but does vary depending on the strength of wind and tidal action. The amount of sediment in the washwater is related to the amount of sediment that has accumulated onto the lines, which itself appears to vary with location. Mussel lines accumulate sediment which is naturally present in the water column so the effects of the mussel lines are related to changing the timing and intensity of sediment flows rather than increasing the total amount of sediment released.

Discharge of organic material (sediment and shell) via washwater during harvest is generally authorised under resource consent. However, if chemicals or fuels stored on board the vessel enter washwater during harvest, discharge of unauthorised pollutants into the marine environment would occur, creating a potential environmental impact and non compliance with consent.
8.4.3 Operator Management Practices

- Ensure that, other than those authorised in association with the normal operation of the mussel farm, there is no discharge of contaminants such as oil, diesel, petrol or effluent to the coastal marine area as a result of the exercise of a resource consent (3.1.1).
- Adopt good management practices in relation to storage and use of chemicals and fuels on board, including:
  - Use appropriate, quality containers.
  - Store in contained areas (to avoid spills into the marine environment or bilge system).
  - Only carry quantities required.
  - Refuel at approved areas and supervise refuelling at all times.
  - Keep absorbent material on board to absorb on board spills (e.g. spill kit) (3.1.2).

8.4.4 AQNZ Management Practices

- Encourage and support initiatives to minimise discharges of pollutants into the marine environment, for example:
  - Promotion of good management practices in relation to storage of hazardous substances, chemicals and fuels (3.1.9).

8.5 Seed Transfer Code of Practice

8.5.1 Overview

The New Zealand Mussel Industry Seed Transfer Code of Practice mitigates the risk of transferring unwanted organisms between mussel farming regions during the transfer of seed. All operators transferring mussel seed between the zones outlined in the Code shall adhere to the provisions of the Code and complete seed transfer declarations as required.

8.5.2 Environmental Aspects

Compliance with Code helps reduce the incidence of transfer of unwanted organisms from zone to zone.
8.5.3 Operator Management Practices

- Adhere to the New Zealand Mussel Industry Seed Transfer Code of Practice (5.1.3).

8.5.4 AQNZ Management Practices

- Encourage and support initiatives to avoid the spread of exotic organisms by mussel farming activities, for example:
  - Continue to administer and encourage compliance with the New Zealand Mussel Industry Seed Transfer Code of Practice and the Exotic disease response plan.
  - Work cooperatively with Biosecurity New Zealand to identify and prevent the spread of exotic organisms (5.1.7).
Farm Maintenance

SECTION 9

9.1 Float Management

9.1.1 Overview

Mussel floats are the most visible part of a mussel farm. The number and placement of orange floats is usually stated in resource consent conditions and dictated by navigational requirements. The number of black floats used varies depending on the growth stage of each crop, the purpose of the farm and farm management practices. During mussel holding and production stages, considerable growth of mussels occurs and extra black floats are frequently added to lines to offset the weight increase.

9.1.2 Environmental Aspects

Float management during crop growth has implications for the visual impact of mussel farms. However, visual impact is influenced by other factors such as weather conditions, distance of viewer from the farm and the number of orange navigational floats. Potential measures which could address visual impact in the long term, are alternative growing structures or float design (colour, structure or shape).

Unattached floats (damaged or otherwise) impact on the marine environment if not retrieved for repair or disposal on land (refer Section 6.3).

9.1.3 Operator Management Practices

- Locate structures and boundaries in compliance with your resource consent (4.1.1).
- Locate, install and maintain navigational aids in accordance with your resource consent and Maritime New Zealand’s Guidelines for Aquaculture Management Areas and Marine Farms, December 2005 (4.1.2).
- Maintain all structures to ensure that they are restrained, secure and in working order at all times so as not to create a navigational hazard (4.1.5).

9.1.4 Operator Recommended Practices

- Permanently brand each buoy within the mussel farm with owner’s/operator’s identification mark. Each corner of the marine farm structures and the middle of each of the seaward most and landward most longlines shall be marked with an orange marker buoy of a minimum diameter of 0.5 meters (4.1.9).
9.2 Encrusting Organisms

9.2.1 Overview

Over time floats and ropes usually accumulate a cover of natural encrusting organisms. Heavily encrusted ropes appear to encourage predators such as Leatherjackets. Some farmers choose to remove encrusting organisms from warp ropes and permanent floats at intermittent intervals either by using divers or from on board boats. If the warp ropes are at a steep angle, encrusting organisms tend to fall off these ropes under their own weight. Floats and backbones are cleaned during harvest of spat and/or production mussels. During visits to check mussel condition and during float addition, small amounts of shell and sediment are disturbed from the lines. Detached solid material falls to the sea floor within the boundaries of the consent area.

9.2.2 Environmental Aspects

Environmental impacts may occur if encrusted floats or ropes are lost to the marine environment, creating litter on beaches and potential impacting on marine ecosystems.

9.2.3 Operator Management Practices

- Minimise organic material discarded into the environment by adopting best farming practices, keeping equipment clean and limiting encrusting by unwanted organisms (2.2.1).

9.2.4 Operator Recommended Practices

- Inform AQNZ if you identify any new or innovative methods to reduce quantity of organic materials discarded into the marine environment (2.2.2).

9.2.5 AQNZ Management Practices

- Encourage and support initiatives to minimise organic material discarded into the marine environment, for example:
  - Research into methods of reducing the level of settlement of encrusting organisms on marine farm structures.
  - Co-ordinate the quantity of mussels grown with the projected demand.
  - Research into the potential for over-settlement and investigating alternative uses for unwanted species such as blue mussels (2.2.3).
9.3 Waste Management

9.3.1 Overview

Non natural materials\(^5\) used in mussel farms may enter the marine environment if not securely fastened and retrieved as necessary.

9.3.2 Environmental Aspects

Non natural materials may impact on marine environments and ecosystems and create visual pollution in the water or when washed ashore.

Impacts also occur through the consumption of materials required for mussel farming. If endurable materials are used and/or materials that can be re-used/recycled, replacement requirements will reduce, minimising resource consumption and costs.

The industry encourages mussel farmers to implement the ‘5R’ principles of waste management, as described below, with the highest priority given to reduction, re-use and recycling, and responsible disposal only where reduction, re-use or recycling is not feasible:

- Aim to avoid or reduce waste wherever possible and as the first priority;
- Re-use or recycle products instead of discarding them;
- Recover resources (e.g. energy/minerals) from waste prior to disposal;
- Environmentally responsible disposal options for the remaining waste.

9.3.3 Operator Management Practices

- Use spat catching methods that do not require weights (2.1.1).
- Use stocking with the highest practicable percentage of biodegradable material when seeding out mussel spat (2.1.2).
- Ensure warp and backbone ropes are of a sufficient specification and condition to prevent breaking under prevailing environmental conditions (2.1.3).
- Secure all mussel farm materials to best industry practise to prevent loss to the environment (2.1.4).
- Do not dispose of any non natural material into the marine environment (2.1.5).

\(^5\) Non natural materials include any materials that do not naturally occur in the marine environment (including floats, ropes, droppers, anchors, litter, packaging etc).
Farm Maintenance

SECTION 9

- Retrieve any non natural materials (e.g. floats, ropes, droppers, anchors) no longer required from the marine environment (2.1.6).
- Wherever possible repair and reuse materials and equipments as an alternative to disposal (e.g. rope, floats) (2.1.7).
- Where not possible to repair or reuse, retain non natural materials on board for appropriate disposal on land (2.1.8);
- Retrieve all loose floats from the marine environment (2.1.9).

9.3.4 Operator Recommended Practices

- Inform AQNZ if you identify any new or innovative methods to re-use or recycle mussel farm materials (2.1.10).

9.3.5 AQNZ Management Practices

- Encourage and support initiatives to minimise non natural waste entering the marine environment, for example:
  - Improving best practice in farm set up and structures to reduce loss of materials (e.g. attachment of floats to backbones).
  - Re-use and recycling opportunities (2.1.11).
- Organise three beach clean ups every year at beaches where mussel farm waste is known to occur. Assess the quantity of mussel farm waste compared to total waste. Ensure the same beaches are cleaned each year to allow performance measurement (2.1.12).
9.4 Procedures Following Line Breakage/Sinkage or Anchor Failure

9.4.1 Overview

Occasionally longlines move out of position due to a break in a warp or backbone line or an anchor failure. These breaks or failures are rare, but can occur for a variety of reasons including chafing, line fatigue, strong tidal currents, storm events and boat mishaps.

9.4.2 Environmental Aspects

Depending on where the break occurs, structures can swing into or away from the other surface lines. This can result in floats either fouling adjacent lines, floats trailing away from the farm or line sinkage and subsequent loss of materials to the marine environment. In some instances, the anchor that remains attached to the longline can be dragged from its original position, potentially impact on sensitive marine environments.

Recovery of mussels from a sunken line depends on the water depth and the period of time mussels spend on or near the benthos. If floated within a period of days, most mussels can be recovered and ultimately harvested.

9.4.3 Operator Management Practices

- Ensure warp and backbone ropes are of a sufficient specification and condition to prevent breaking under prevailing environmental conditions (2.1.3).
- Secure all mussel farm materials to best industry practise to prevent loss to the environment (2.1.4).
- Do not dispose of any non natural material into the marine environment (2.1.5).
- Retrieve any non natural materials (e.g. floats, ropes, droppers, anchors) no longer required from the marine environment (2.1.6).
- Wherever possible repair and reuse materials and equipments as an alternative to disposal (e.g. rope, floats) (2.1.7).
- Where not possible to repair or reuse, retain non natural materials on board for appropriate disposal on land (2.1.8).
- Retrieve all loose floats from the marine environment (2.1.9).
- Minimise organic material discarded into the environment by adopting best farming practices, keeping equipment clean and limiting encrusting by unwanted organisms (2.2.1).
9.4.4 Operator Recommended Practices

- Inform AQNZ if you identify any new or innovative methods to re-use or recycle mussel farm materials (2.1.10).
- Inform AQNZ if you identify any new or innovative methods to reduce quantity of organic materials discarded into the marine environment (2.2.2).

9.4.5 AQNZ Management Practices

- Encourage and support initiatives to minimise non natural waste entering the marine environment, for example:
  - Improving best practice in farm set up and structures to reduce loss of materials (e.g. attachment of floats to backbones).
  - Re-use and recycling opportunities (2.1.11).
- Organise three beach clean ups every year at beaches where mussel farm waste is known to occur. Assess the quantity of mussel farm waste compared to total waste. Ensure the same beaches are cleaned each year to allow performance measurement (2.1.12).
- Encourage and support initiatives to minimise organic material discarded into the marine environment, for example:
  - Research into methods of reducing the level of settlement of encrusting organisms on marine farm structures.
  - Co-ordinate the quantity of mussels grown with the projected demand.
  - Research into the potential for over-settlement and investigating alternative uses for unwanted species such as blue mussels (2.2.3).
10 Boats

10.1 Potential Discharges into the Marine Environment

10.1.1 Overview

Chemicals, oils and fuels associated with boat and equipment running and/or maintenance may be stored on boats. In most cases these are for the purpose of boat maintenance and running or are general biodegradable cleaners used in living areas.

10.1.2 Environmental Aspects

If chemicals, oils or fuels leak or spill and enter the marine environment, impacts may occur on marine ecology.

Other discharges from mussel vessels may include sewage, litter, grey water (showers, sinks), bilge water and harvest washwater.

Mussel industry activities at marinas or wharves also have potential to generate pollution if not appropriately managed. Activities with potential to create pollution include refuelling, bilge water discharge, cleaning, unloading and hull maintenance.

Because water quality is critical to mussel production, the industry encourages all users not to discharge pollutants, sewage or litter into the marine environment.

The Resource Management (Marine Pollution) Regulations 1998 and Regional Coastal Plans control the discharge of sewage, bilge water, ballast water, garbage, oil and other waste in the coastal marine area. Refer to Appendix B for more information on your requirements under these regulations. The management practices listed below are consistent with measures contained in the Regulations.

The Hazardous Substances and New Organisms Act 1996 (HSNO Act) provides for management of the risks that hazardous substances pose to the health and safety of people and communities and the New Zealand environment. The term hazardous substance includes any substance that can damage the environment or harm human health and safety. The Act includes specific requirements for the management and control of hazardous substances. Refer to Appendix B for more information on your requirements under this Act and associated regulations.
10.1.3 Operator Management Practices

- Abide by the requirements of the Regional Coastal Plan and the Resource Management (Marine Pollution) Amendment Regulations 2002.
- Ensure that, other than those authorised in association with the normal operation of the mussel farm, there is no discharge of contaminants such as oil, diesel, petrol or effluent to the coastal marine area as a result of the exercise of the coastal permit (3.1.1).
- Adopt good management practices in relation to storage and use of chemicals and fuels on board, including:
  - Use appropriate, quality containers.
  - Store in contained areas (to avoid spills into the marine environment or bilge system).
  - Only carry quantities required.
  - Refuel at approved areas and supervise refuelling at all times.
  - Keep absorbent material on board to absorb on board spills (e.g. spill kit) (3.1.2).
- Be familiar with the requirements of your local Regional Oil Spill contingency plans and your responsibilities under the Plan (3.1.4).

10.1.4 Operator Recommended Practices

- Use biodegradable oils in hydraulic systems (3.1.7).
- Display the pollution hotline for the Regional Council on board and notify all spills (3.1.8).
- Use biodegradable cleaning and degreasing compounds to clean vessels (3.1.6).

10.1.5 AQNZ Management Practices

- Encourage and support initiatives to minimise discharges of pollutants into the marine environment, for example:
  - Promotion of good management practices in relation to storage of hazardous substances, chemicals and fuels.
  - Promotion of the use of approved facilities for antifouling.
  - Encouraging members to provide assistance in the event of any major spill.
  - Educating members about the requirements of Regional Oil Spill contingency plans and sewage discharge requirements of Regional Coastal Plans (3.1.9).
10.2 Noise

10.2.1 Overview

Noise in the coastal area is governed by Noise Bylaw or Noise Emissions Standards in Regional or Coastal plans. The operation of boats often results in the production of localised noise. Harvesting activities result in noise which may travel considerable distances in the marine environment. The level of noise generated varies depending on the boat and the activities being undertaken and noise transmission also varies depending on location and weather.

10.2.2 Environmental Aspects

Noise associated with mussel farming work such as radios (transistor and VHFs) and harvesting activities could impact on other users of the Coastal Marine Area and local residents, particularly when harvesting is conducted outside of daylight hours.

In accordance with Section 16 of the Resource Management Act, every person carrying out an activity in the Coastal Marine Area must adopt the best practicable option to ensure that the emission of noise does not exceed a reasonable level.

10.2.3 Operator Management Practices

- Operate mussel boats in accordance with Maritime New Zealand’s Safe Ship Management system, including abiding by speed restrictions (4.2.1).

10.2.4 Operator Recommended Practices

- Limit noise emission in sensitive areas where practical (e.g. be aware of VHF use or loud music near sleeping residents) (4.2.2).
Boats

SECTION 10

10.3 Boat Cleaning and Maintenance

10.3.1 Overview

Boat decks are regularly cleaned using a deck hose and scrubbing brushes. Living quarters are cleaned using biodegradable domestic cleaners. Mussel farm vessels must be fitted with holding tanks for sewage and for grey water.

Adequate boat maintenance is important to ensure boats operate efficiently with minimal fuel expenditure and consequently generate fewer emissions. A well-maintained boat is also less likely to cause an oil spill or fuel leak.

Regular antifouling of boats is important to discourage fouling organisms and thereby minimise the risk of transfer and spread of unwanted organisms. Antifouling should be carried out regularly in an approved manner and at an approved facility.

10.3.2 Environmental Aspects

Chemicals used to clean and maintain boats would be a source of pollutants if allowed to enter the marine environment, and could potentially impact on marine ecosystems.

10.3.3 Operator Management Practices

- Abide by the requirements of the Regional Coastal Plan and the Resource Management (Marine Pollution) Amendment Regulations 2002 (3.1.3).
- Be familiar with the requirements of your local Regional Oil Spill contingency plans and your responsibilities under the Plan (3.1.4).
- Carry out regular antifouling at an approved facility (3.1.5).

10.3.4 Operator Recommended Practices

- Use biodegradable cleaning and degreasing compounds to clean vessels (3.1.6).
- Use biodegradable oils in engines (3.1.7).
- Display the pollution hotline for the Regional Council on board and notify all spills (3.1.8).
10.3.5 AQNZ Management Practices

- Encourage and support initiatives to minimise discharges of pollutants into the marine environment, for example:
- Promotion of good management practices in relation to storage of hazardous substances, chemicals and fuels.
- Promotion of the use of approved facilities for antifouling.
- Encouraging members to provide assistance in the event of any major spill.
- Educating members about the requirements of Regional Oil Spill contingency plans and sewage discharge requirements of Regional Coastal Plans (3.1.9).

10.4 Boat Speed

10.4.1 Overview

Boat speed in particular areas and under certain circumstances is often regulated. Under normal operating circumstances, boats can still impact recreational craft and beaches. Maritime Safety Rules Part 91 (Navigation Safety Rules) under the Maritime Transport Act 1994 prohibits vessels from travelling at a speed exceeding five knots within 50 metres of any other vessel, raft or person in the water or within 200 metres of the shore or any structure.

Caution should be exercised in the presence of marine mammals. Boat operators should not deliberately approach marine mammals. If dolphins approach a vessel under way the operator should maintain a constant speed and avoid sudden changes of direction.

10.4.2 Environmental Aspects

Environmental aspects might include disturbance of other users of the coastal marine area, disturbance of marine mammals and effects (e.g. wash) on marine ecosystems.

10.4.3 Operator Management Practices

- Operate mussel boats in accordance with Maritime New Zealand’s Safe Ship Management system, including abiding by speed restrictions (4.2.1).
10.4.4 Operator Recommended Practices

- When any navigational issues arise, work cooperatively with the Harbourmaster to resolve those issues. Consider collaboration with other industry members or AQNZ prior to making a submission (4.3.2).
- Make submissions to Regional Coastal Plans and resource consents when navigational safety is identified as an issue (4.3.3).

10.4.5 AQNZ Management Practices

- Make submissions to Regional Coastal Plans and resource consents when navigational safety is identified as an issue (4.3.4).
- Consult annually with Harbour Masters in principal mussel farming regions to monitor level of contribution towards navigational safety (4.3.5).
11.1 Rejected Mussel Crops

11.1.1 Overview

Occasionally mussels cannot be harvested at a size which meets market specifications. Farmers may be unable to harvest due to an unforeseen circumstance such as over-supply or closure of harvest areas. To avoid oversupply, the industry attempts to co-ordinate the quantity of mussels available for harvest with the projected market demand. Through development of new markets and products, the industry is now able to harvest and use a wider range of mussel sizes which has significantly reduced the incidence of unwanted mussel crops.

11.1.2 Environmental Aspects

Unwanted mussels, blue mussels or damaged mussels should be discarded within the resource consent area to avoid impacts on potentially sensitive marine environments.

11.1.3 Operator Management Practices

- Minimise organic material discarded into the environment by adopting best farming practices, keeping equipment clean and limiting encrusting by unwanted organisms (2.2.1).

11.1.4 Operator Recommended Practices

- Inform AQNZ if you identify any new or innovative methods to reduce quantity of organic materials discarded into the marine environment (2.4.1).

11.1.5 AQNZ Management Practices

- Encourage and support initiatives to minimise organic material discarded into the marine environment, for example:
  - Co-ordinate the quantity of mussels grown with the projected demand.
  - Research into the potential for over-settlement and investigating alternative uses for unwanted species such as blue mussels (2.2.3).
11.2 Diesel, Oil or Chemical Spills at Sea, in Marinas or at Jetties

11.2.1 Overview

While many of the measures contained in this Code are aimed at avoiding spills, it is important that boat operators know how to respond to any spill including spills caused by others. Prompt action at the time of a spill either at sea or in the marina can help minimise the adverse effects on the marine environment.

Oil spill contingency plans, prepared under the Maritime Transport Act, describe the actions to be taken in response to an oil spill in NZ waters. There are three tiers of response, first the person/company responsible for the spill must ensure that control and clean-up begin immediately and notify the Regional Council or Maritime New Zealand. If the spill cannot be effectively contained then the Regional Council will take responsibility for clean-up. For even larger spills Maritime New Zealand will co-ordinate the response.

Regional councils must have in place Regional Oil Spill Contingency Plans that specify:

- potential sources or risks of a marine oil spill
- resources threatened by a marine oil spill (including marine farms)
- procedures for initiating a response
- procedures for co-ordinating and mobilising people and equipment
- standards for clean-up.

11.2.2 Environmental Aspects

An oil spill could impact on ecosystems and habitats, water quality and coastal amenity.

11.2.3 Operator Management Practices

- Be familiar with the requirements of your local Regional Oil Spill contingency plans and your responsibilities under the Plan (3.1.4).

11.2.4 Operator Recommended Practices

- Display the pollution hotline for the Regional Council on board and notify all spills (3.1.8).
11.2.5 AQNZ Management Practices

Encourage and support initiatives to minimise discharges of pollutants into the marine environment, for example:

- Encouraging members to provide assistance in the event of any major spill.
- Educating members about the requirements of Regional Oil Spill contingency plans and sewage discharge requirements of Regional Coastal Plans (3.1.9).
12.1 Wastewater and Stormwater

12.1.1 Overview

The discharge of substances from mussel processing facilities is site specific and will vary considerably depending on location, factory operations and resource consent conditions.

Contaminants in wastewater discharge are usually composed of variable quantities of organic matter, suspended solids, marinade, bacteria and cleaning chemicals. Some processing plants discharge wastewater directly to the sea, others discharge washwater as trade waste to a local sewerage treatment system and some irrigate their wastewater onto farmland.

Resource consents are required for wastewater discharge to water or land and trade waste consents are required for discharge to sewerage systems. These consents place strict controls on the quantity and quality of wastewater and can require monitoring of the contents of the discharge and/or the receiving environment. Consents can specify that wastewater systems are equipped with controls such as screens, sumps or filters.

Stormwater refers to rainfall and runoff from the site. Stormwater may discharge to trade waste (if it has the potential to contain contaminants prior to discharge into the stormwater system) or directly to the stormwater system. Depending on specifics of each site’s operation, stormwater discharges may require a consent (e.g. if product is stored outside or if material is hosed outside from inside the factory) or a trade waste permit.

12.1.2 Environmental Aspects

Contaminants contained in wastewater discharges or stormwater may affect aquatic ecology in aquatic receiving environments or create a source of contamination if discharged to land. Care is required to ensure discharges are in accordance with consent or permit conditions to prevent unanticipated effects occurring. It is also important to correctly manage hazardous substances within processing plants to ensure hazardous substances are not able to enter processing factory wastewater or stormwater.
12.1.3 Operator Management Practices

- Monitor quality of wastewater discharges and complete inspections to ensure compliance with discharge permits occurs (3.2.1).
- Prepare and implement a hazardous substance management strategy aimed at avoiding spills or leaks of hazardous substances, chemicals and fuels (and implementing good health and safety practices) in processing factories. Strategy to address:
  - Creation of hazardous substances inventory.
  - Staff training.
  - Provision and use of up to date Material Safety Data Sheets.
  - Correct storage, labelling, decanting/refuelling, use of bunded areas and disposal.
  - Compliance with any controls set by ERMA for specific hazardous substances (i.e. HSNO Act)
  - Emergency management procedures (3.3.1).

12.1.4 Operator Recommended Practices

- If you are experiencing difficulties in complying with your resource consent, contact the Council immediately to develop and agree a methodology to achieve compliance (3.2.2).
- Use biodegradable cleaning products (3.2.3).
13 Chemicals and Fuels at Processing Plants

13.1 Chemicals and Fuels

13.1.1 Overview

Processing sites may store and handle chemicals and fuels. The Hazardous Substances and New Organisms Act 1996 (HSNO Act) provides for management of hazardous substances, including any substance that can damage the environment or harm human health and safety. Chemicals and fuels used at processing sites can include hazardous substances managed under the HSNO Act.

The Environmental Risk Management Authority (ERMA) sets controls for each hazardous substance being dealt with. This may include obtaining a test certificate (previously a dangerous goods licence) and having an approved handler on site if the substance is highly hazardous or if the user deals with large quantities of the substance. Different requirements exist for labelling, containers, storage, use and disposal of hazardous substances. Refer to Appendix B for more information on your requirements under this Act and associated regulations.

13.1.2 Environmental Aspects

Appropriate storage, handling, management and disposal of chemicals and fuels are necessary to avoid impacts on employee health and safety and to prevent discharges of pollutants to the environment.

13.1.3 Operator Management Practices

Prepare and implement a hazardous substance management strategy aimed at avoiding spills or leaks of hazardous substances, chemicals and fuels (and implementing good health and safety practices) in processing factories. Strategy to address:

- Creation of hazardous substances inventory.
- Staff training.
- Provision and use of up to date Material Safety Data Sheets.
- Correct storage, labelling, decanting/refuelling, use of bunded areas and disposal.
- Compliance with any controls set by ERMA for specific hazardous substances (i.e. HSNO Act)
- Emergency management procedures (3.3.1).

13.1.4 AQNZ Management Practices

Encourage and support preparation and implementation of hazardous substance management plans in processing factories (3.3.2).
13.2 Refrigerants

13.2.1 Overview

Refrigeration systems may use chlorofluorocarbons (CFCs), hydrochlorfluorocarbons (HCFCs) and hydrofluorocarbons (HFCs) which are ozone-depleting substances or greenhouse gases.

13.2.2 Environmental Aspects

Under the Ozone Depleting Substances Act it is an offence to wilfully release CFCs and HCFCs into the environment. These substances are only released from the equipment via leakage or when the plant is maintained or replaced. The Institute of Refrigeration, Heating and Air Conditioning Engineers (IRHACE) operates the No-Loss training programme for people who work on refrigeration and air conditioning equipment containing fluorocarbons. People who have passed the No-Loss exam should carry the No-Loss card whenever they go on to a client’s site.

13.2.3 Operator Management Practices

- Employ service technicians certified under the Institute of Refrigeration, Heating and Air Conditioning Engineers (IRHACE) No-Loss scheme for refrigerant, chiller and air conditioning equipment servicing and ask to see technician’s No-Loss cards prior to service commencing (3.4.1).

13.2.4 Operator Recommended Practices

- If upgrading or disposing of refrigeration or chiller equipment, ensure refrigerants are either recovered for re-use or for disposal via an approved safe destruction method (3.4.2).
13.3 Chemical or Fuel Spills

13.3.1 Overview

Many potential chemical or fuel spills can be contained on site by quick and appropriate response by processing companies. Emergency planning, staff training and availability of spill response equipment play an important role in environmental protection. Emergency response plans for a site are required in OSH procedures or manuals. Staff require proper training in the use of spill kits and other containment/clean up options to clean-up significant spills. If a spill cannot be contained on site, the fire services are called in for assistance.

13.3.2 Environmental Aspects

Appropriate storage, handling, management and disposal of chemicals and fuels are necessary to avoid impacts on employee health and safety and to prevent discharges of pollutants to the environment.

13.3.3 Operator Management Practices

Prepare and implement a hazardous substance management strategy aimed at avoiding spills or leaks of hazardous substances, chemicals and fuels (and implementing good health and safety practices) in processing factories. Strategy to address:

- Creation of hazardous substances inventory.
- Staff training.
- Provision and use of up to date Material Safety Data Sheets.
- Correct storage, labelling, decanting/refuelling, use of bunded areas and disposal.
- Compliance with any controls set by ERMA for specific hazardous substances (i.e. HSNO Act).
- Emergency management procedures (3.3.1).

13.3.4 AQNZ Management Practices

Encourage and support preparation and implementation of hazardous substance management plans in processing factories (3.3.2).
14 Waste management in Processing Plants

14.1 Packaging

14.1.1 Overview

There are two main types of packaging: packaging on incoming goods and packaging of outgoing product. The packaging of outgoing products is determined by stringent international health and hygiene standards. Some countries who import NZ Greenshell™ Mussels require that any cardboard packaging on imported goods is recyclable. Most cardboard packaging used by processing companies is recyclable. Similar requirements do not exist for plastic packaging.

14.1.2 Environmental Aspects

Recycling packaging reduces resource consumption and waste disposal requirements.

14.1.3 Operator Management Practices

- Record annual quantity of mussel processing waste (excluding mussel shell by-product) disposed to landfill (2.3.1).

14.1.4 Operator Recommended Practices

- Buy in bulk wherever possible to reduce packaging (2.3.2).
- Discuss with suppliers, options for reducing or recycling the packaging on incoming goods or returning packaging for re-use where possible (2.3.3).
- Use recyclable packaging for your own product where practical and mark the packaging accordingly (2.3.4).

14.2 Mussel Shell By-Product

14.2.1 Overview

Considerable quantities of shell waste are generated by the mussel industry. There is a limited potential to reduce the amount of shell waste.
14.2.2 Environmental Aspects

Shell waste from processing is currently taken for disposal either at local landfills or on private land in accordance with resource consent. AQNZ researches re-use options for mussel shell waste including fertiliser, road base, and carbon sequestration. Re-using mussel shells reduces waste disposal requirements and may help return mussel shell constituents (e.g. calcium carbonate) to the environment.

14.2.3 Operator Management Practices

- Record annual quantity of shell waste disposed to landfill (2.4.1).

14.2.4 Operator Recommended Practices

- Encourage investigations into alternative options for waste shell utilisation and disposal and report to AQNZ any possibilities/options identified (2.4.2).
- Ensure shell by-product is disposed to landfill or in accordance with resource consent (2.4.3).

14.3 Other Solid Waste

14.3.1 Overview

Other solid waste including other mussel by-product, old equipment, used containers, rubbish and office waste is generated in the mussel processing industry.

14.3.2 Environmental Aspects

Wherever possible, processing factories should aim to minimise solid waste, requiring disposal in landfills through minimisation, re-use and recycling. Minimisation, re-use and recycling will minimise resource consumption and waste disposal requirements.

14.3.3 Operator Management Practices

- Record annual quantity of shell waste disposed to landfill (2.4.1).
14.3.4 Operator Recommended Practices

- Encourage staff to reduce resource use wherever practical (paper, energy, cleaning products etc) (2.3.5).
- Develop and implement an internal recycling system (office waste, food and beverage waste) (2.3.6).
- Examine options to supply organic waste material (mussel flesh) to composting/fertiliser companies (2.3.7).
15 Resource Use in Processing Plants

15.1 Energy Use

15.1.1 Overview

Energy may be consumed in processing factories to run equipment, refrigeration and chilling, to provide heating or cooking processes, for lighting and fuel for machinery or vehicles.

15.1.2 Environmental Aspects

Energy consumption may require burning of fossil fuels or environmental impacts resulting from energy generation (e.g. hydro power) and through discharges (e.g. emission of greenhouse gases). Minimising energy reduces environmental impacts and operating costs.

Energy efficiencies may be improved at factories through operational practices and upgrades and use of efficient machinery. When designing production facilities, consideration should be given to minimising energy consumption for example by reducing the number of heat phase changes and making use of waste heat (e.g. from refrigeration plants).

15.1.3 Operator Management Practices

- Record annual total consumption of energy consumed used by type (e.g. diesel, petrol gas, electricity) (6.1.1).

15.1.4 Operator Recommended Practices

- Participate in the “Energy-wise Companies Campaign” by the Energy Efficiency and Conservation Authority. The scheme promotes improvements to factory operational practices or plants where energy efficiencies can be improved (6.1.4).
- Commission an independent energy audit of processing premises and implement recommended actions (6.1.5).
- Look at opportunities to implement cleaner production initiatives e.g. possibilities for re-circulation of chiller water for cooling (6.1.6).
15.2 Water Abstraction

15.2.1 Overview

Processors may require resource consent (a water permit) to abstract surface or ground water.

15.2.2 Environmental Aspects

Reducing water consumption limits processing costs and environmental impacts both through limit of the use of metered water and minimisation of wastewater for disposal.

15.2.3 Operator Management Practices

Record annual total quantity of water consumed (6.2.1).

15.2.4 Operator Recommended Practices

- Examine options to minimise water consumption and re-use/re-circulate water within the system wherever possible (6.2.2).
- Include checks for freshwater leaks as part of regular maintenance programme (6.2.3).
- Implement a culture of water minimisation amongst staff including reporting leaks, turning off taps when not in use (6.2.4).

Install water efficiency devices in bathrooms including dual flush toilets, water efficient shower heads and push taps (6.2.5).
16.1 Vehicles

16.1.1 Overview
Adequate vehicle maintenance is important to ensure vehicles operate efficiently with minimal fuel expenditure and consequently generation of less greenhouse gases.

16.1.2 Environmental Aspects
A well-maintained vehicle with functioning oil seals and gaskets is also less likely to create an oil spill or fuel leak.

16.1.3 Operator Management Practices
- Record annual total consumption of energy consumed used by type (e.g. diesel, petrol gas, electricity) (6.1.1).
- Minimise energy consumption in vessels and vehicles through:
  - Selecting fuel efficient engines when upgrading.
  - Driver education (6.1.2).
- Develop plans for vessels and vehicles movements to minimise distance travelled and trip frequency (6.1.3).

16.1.4 Operator Recommended Practices
- Consider use of bio-diesel as a replacement for diesel in vehicles (note bio diesel is not currently suitable for vessels) when it becomes available (6.1.7).
Appendix A
Environmental Checklists

All mussel industry participants who are signed up to the Environmental Code of Practice are required to complete an annual checklist. The purpose of the checklist is to gather information to allow AQNZ to assess how well the targets in the Code of Practice are being met. This information will allow AQNZ to report on environmental improvements in the industry (e.g. reduction in waste volumes to landfill) and to identify areas where ongoing management is required.

In addition AQNZ will complete its own environmental checklist every year. This checklist will record how well AQNZ is performing against the management practices contained in the Environmental Management Plan that are the specific responsibility of AQNZ.

AQNZ will use the checklists below as templates for each annual checklist. For each question, operators will be requested to provide information for the previous 12 month period. AQNZ will send out the checklists at the same time every year to ensure results are provided for the same time period.
Note: Aquaculture New Zealand will develop electronic checklists as the preferred means of data collection.

### Operator Checklist

To be completed by all mussel farmers, boat operators and processors. Please complete one checklist per organisation. Please respond to all questions. Where a question is not applicable to your organisation please mark as not applicable (N/A).

<table>
<thead>
<tr>
<th>Question</th>
<th>Details</th>
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<tbody>
<tr>
<td>For year ending:</td>
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</tr>
<tr>
<td>Name of Company or Organisation:</td>
<td></td>
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<tr>
<td>Name of person completing checklist:</td>
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<td>Position of person completing checklist:</td>
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<td>Date of Completion:</td>
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<tr>
<td>ECOP Registration Number:</td>
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For all questions in this checklist, please provide information for the last 12 month period.

Please record the following details for each mussel farm operated by your organisation: (attach a separate list is necessary)

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Site Location</th>
<th>Site Zone</th>
<th>Site Size (ha)</th>
<th>Coastal Permit No.</th>
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Please record the following details for each mussel boat operated by your organisation: (attach a separate sheet if necessary)

<table>
<thead>
<tr>
<th>Name of Vessel</th>
<th>Location of Vessel</th>
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6 Select from Northland, Coromandel/Hauraki, Marlborough, Nelson, Canterbury, Southland, Other
# Appendix A
## Environmental Checklists

Please record the following details for each mussel processing factory operated by your organisation:

<table>
<thead>
<tr>
<th>Factory Name</th>
<th>Factory Location</th>
<th>Volume of greenweight tonnage processed in previous 12 month period</th>
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</table>

**Objective 1: Comply with all regulatory requirements**

1. How many infringement notices, abatement notices or enforcement orders related to non compliance with specific resource consents did your company receive in the last 12 month period?

2. How many abatement notices or enforcement orders related to non compliance with the RMA did your company receive in the last 12 month period?

3. How many any enforcement mechanisms related to any non RMA environmental legislation was your company subject to in the last 12 month period?

**Objective 2: Put into practice the ‘5R’ principles of waste management (reduce, reuse, recycle, recover, residual disposal)**

4. Please record (if any) the total waste (kg) collected during beach clean ups in the last 12 month period.

5. Of the total waste collected during beach cleanups in the last 12 month period (refer to 4 above), please record the total waste (kg) attributable to mussel farming.

6. Please record the quantity of mussel processing waste (kg, excluding mussel shell by-product) your company disposed to landfill in the last 12 month period.

7. Please record the quantity of mussel shell waste (kg) your company disposed to landfill in the last 12 month period.

**Objective 3: Minimise pollution**
### Appendix A
Environmental Checklists

**Objective 4: Limit impacts on other users of the coastal marine area**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>8</td>
<td>How many spills of pollutants into the marine environment resulting from mussel boat or harvesting activities was your company responsible for in the last 12 month period?</td>
</tr>
<tr>
<td>9</td>
<td>How many spills of pollutants from a processing site was your company responsible for in the last 12 month period?</td>
</tr>
<tr>
<td>10</td>
<td>Please list the type of substance spilled and any action you took (e.g. notified council, cleaned up spill etc).</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance spilled</th>
<th>Action taken</th>
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</tbody>
</table>

| 11 | Does your company use No-Loss certified technicians for refrigeration equipment servicing?  | Yes | No |
|    |                                                                                      |     |    |

**Objective 6: Reduce resource consumption**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>12</td>
<td>How many complaints did your company receive in relation to mussel boat operation in the last 12 month period?</td>
</tr>
<tr>
<td>13</td>
<td>Please record the reason for the complaint(s) and any action you took (e.g. reduced noise).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reason for complaint</th>
<th>Action taken</th>
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</thead>
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</tbody>
</table>

| 14 | Did your company develop a new or redeveloped mussel related marine facilities in the last 12 month period?  | Yes | No |
|    |                                                                                      |     |    |
| 15 | If yes, did that facility include public access provisions? |
|    |                                                                                      |     |    |
## Appendix A

### Environmental Checklists

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>14</strong></td>
<td>Please record the quantity of fuel your company consumed to power vehicles and vessels in the last 12 month period.</td>
</tr>
<tr>
<td><strong>15</strong></td>
<td>Please record the quantity of energy your company consumed in processing facilities in the last 12 month period. If you consumed more than one type of energy in processing facilities (e.g. electricity, LPG, diesel) please record the total quantity against each type.</td>
</tr>
<tr>
<td><strong>16</strong></td>
<td>Please record the quantity of freshwater your company consumed in the last 12 month period.</td>
</tr>
</tbody>
</table>
## AQNZ Checklist

To be completed by a representative of the AQNZ. Please respond to all questions. Where a question is not applicable please mark as not applicable (N/A).

<table>
<thead>
<tr>
<th>For year ending:</th>
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</thead>
<tbody>
<tr>
<td>Name of person completing checklist:</td>
</tr>
<tr>
<td>Date of Completion:</td>
</tr>
</tbody>
</table>

For all questions in this checklist, please provide information for the last 12 month period.

<table>
<thead>
<tr>
<th>Volume of greenweight tonnage processed in New Zealand in the previous 12 month period:</th>
</tr>
</thead>
</table>

### Objective 1: Comply with all regulatory requirements

1. Please record any information and advice AQNZ provided to members (when requested) to achieve compliance with resource consents.

2. Please record any submissions AQNZ made to select committees or government agencies with regard to the mussel industry’s ability to achieve compliance.

3. Please record any submissions AQNZ made on any relevant changes to legislation or regulation to ensure that provisions are environmentally effective and scientifically sound while still being cost efficient for both regulators and the industry.

4. Please record any AQNZ coordinated submissions on Regional Coastal Plans and notified resource consents which relate to AMAs or mussel farming.

5. Please record any examples of AQNZ’s effort to develop good working relations with Regional Councils and Unitary Authorities that have occurred.
**Objective 2: Put into practice the ‘5R’ principles of waste management (reduce, reuse, recycle, recover, residual disposal)**

6. Please record any AQNZ initiatives used to encourage and support improvement in best practice in farm set up and structures aimed at reducing loss of non natural materials to the environment.

7. Please record any AQNZ initiatives used to encourage and support re-use and recycling opportunities aimed at reducing the amount of non natural waste entering the marine environment.

8. Please record the three areas where AQNZ beach clean ups have occurred.

9. Please record the total waste (kg) collected during beach clean ups.

10. Of the total waste collected during beach cleanups (refer to 9 above), please record the total waste (kg) attributable to mussel farming.

11. Please record any AQNZ supported research initiatives aimed at minimising organic material discarded into the marine environment.

12. Please record any AQNZ supported research initiatives aimed at demonstrating ways to minimise organic waste in the future.

**Objective 3: Minimise pollution**

13. Please record any initiatives AQNZ used to encourage and support minimisation of discharges of pollutants into the marine environment.

14. Please record any AQNZ measures taken to educate members on the requirements of Regional Oil Spill contingency plans and sewage discharge requirements of Regional Coastal Plans.

15. Please record any AQNZ initiatives used to encourage and support preparation and implementation of hazardous substance management plans in processing factories.
Objective 4: Limit impacts on other users of the coastal marine area

16 How many navigational incidents attributed to mussel boats or farms was recorded by the MSA?

17 How many complaints did Harbour Masters receive in relation to mussel boat operation in mussel farming regions?

18 What were the outcomes of consultation with harbour masters in principal mussel farming regions regarding mussel industry contribution towards navigational safety?

19 Please provide a record of any AQNZ consultation efforts with local communities concerning their needs with respect to marine facilities.

20 Please record any methods AQNZ used to encourage mussel farmers and boat operators to include public access in design of new and redeveloped mussel related marine facilities.

Objective 5: Limit impacts on the natural environment

21 How many incidences of exotic organism spread did Biosecurity NZ trace to mussel or spat farming activities?

22 Please record any AQNZ supported research initiatives undertaken to reduce the impact of mussel farming and processing activities on the environment?

23 Please record any key environmental effects identified and mitigatory measures that came out of AQNZ supported research that can be accommodated in future revisions of the New Zealand Mussel Industry Environmental Code of Practice.

24 Please record efforts by AQNZ to communicate research findings to industry members, government agencies, consent authorities and other interested parties.

25 Please provide record of any AQNZ support of the use of appropriate guidelines for ecological investigations of proposed sites.
Appendix B

Environmental Legislation

Appendix B contains a comprehensive summary of legislation that may influence the environmental performance of mussel industry participants. This register was completed in July 2006. Operators should ensure that they remain aware of any changes to existing legislation/regulation or new requirements.

**Food Act 1981**

In New Zealand, food is regulated under the Food Act 1981 and delegated legislation under that Act. The Food Act 1981:

- Outlines prohibitions on sale (including unfit food).
- Prohibits misleading labelling and advertising.
- Contains provisions to make regulations and food standards.

**Animal Products Act 1999**

The Animal Products Act 1999 is New Zealand’s legal framework for processing animal material into food. It establishes a risk management system that requires all animal products traded and used to be ‘fit for intended purpose’ through meeting New Zealand animal product standards.

Section 2 of the Animal Products Act sets out its objectives to —

a. Minimise and manage risks to human or animal health arising from the production and processing of animal material and products by instituting measures that ensure so far as is practicable that all traded animal products are fit for their intended purpose; and

b. Facilitate the entry of animal material and products into overseas markets by providing the controls and mechanisms needed to give and to safeguard official assurances for entry into those markets.

The Animal Products Act is about the effective and efficient management of known physical, biological and chemical hazards that might present a risk, irrespective of where in the production/processing chain they occur. It also intends to ensure that products produced under the Act are wholesome and true to label.

The risk management system potentially covers operations from production and harvesting through processing, transportation, storage, to the domestic market or export for all animal materials and products. For exports it also enables the notifying of export requirements and the issuing of official assurances.

Part 4 of the Act provides for the establishment of New Zealand animal product standards that set criteria to be met so that particular animal products can be treated as fit for their intended purpose.
Appendix B

Environmental Legislation

Animal Products (Regulated Control Scheme: Bivalve Molluscan Shellfish) Regulations 2006

The New Zealand Shellfish Regulated Control Scheme came into force on 1 June 2006 and is effectively an update of the previous Industry Agreed Implementation Standard IAIS005.1.

The Regulation sets out standards, obligations and requirements in relation to growing, harvesting, sorting and transporting Bivalve Molluscan Shellfish (BMS) intended for human consumption. Standards, obligations and requirements aim to identify, monitor, evaluate and manage the risks associated with the commercial growing, harvesting, sorting and transporting of BMS.

The scheme applies to all activities involved in growing, harvesting, sorting and transporting BMS for commercial purposes up until the time when BMS are received by a wholesaler or retailer or sold direct to the consumer.

The regulation includes a transition period, whereby registered growing areas, harvesters, transporters and sorters remain registered until the expiry term of the original approval or 1 December 2006, after that time registration is required under the new regime.

Marine Mammals Protection Act 1978

The Marine Mammals Protection Act 1978 makes provision for the protection, conservation and management of marine mammals within New Zealand and within New Zealand fisheries waters and is administered by the Department of Conservation.

A permit is required under the Act for anyone to ‘take’ a marine mammal. The definition of ‘take’ includes actions that harm, harass, injure and attract. While the Act is effective in dealing with directed takes, it does not prevent the accidental (or incidental) take of marine mammals in fishing operations (by-catch).

The Act provides for the establishment of marine mammal sanctuaries, within which fishing activities can be strictly controlled by the Minister of Conservation. There are two marine mammal sanctuaries in New Zealand - around Banks Peninsula (to protect Hector’s dolphin) and the Auckland Islands (to protect the main breeding areas of the New Zealand sea lion and the southern right whale).

Marine Reserves Act 1971

The Marine Reserves Act 1971 is the current legislation used to establish and manage marine reserves administered by the Department of Conservation. The purpose of the 1971 Marine Reserve Act is ‘to preserve as marine reserves for the scientific study of marine life, areas of New Zealand that contain underwater scenery, natural features or marine life of such distinctive quality or are so typical or beautiful or unique that their continued preservation is in the national interest’.

In the 1971 Act the boundaries of a marine reserve do not extend inland beyond the foreshore, or beyond the 12 mile territorial limit. The reserves are protected from human impacts such as fishing and it is an offence to disturb marine life or pollute the water.
Appendix B
Environmental Legislation

As the current law is over 30 years old it is now not considered to be able to meet today’s marine protection needs, in particular to provide for the protection of marine biodiversity. The Marine Reserves Bill 2002 was introduced in June 2002 proposing significant changes to the current legislation about the purpose, establishment and management of marine reserves, with the purpose of conserving indigenous marine biodiversity for current and future generations. It will also allow reserves to be created in the exclusive economic zone whereas they can currently only be declared within the New Zealand’s 12 mile territorial sea.

A draft new Marine Reserves Bill was introduced to Parliament on the 7th June 2002. The Bill had its first reading in Parliament on the 15th October 2002, and was referred to the Local Government and Environment Select Committee.

The Local Government and Environment Select Committee is now expected to report back on the Bill by the 28th August 2006.

Mussel farmers or mussel industry boats operating near marine mammals or marine reserves must follow the requirements of these Acts.

*Maritime Transport Act 1994*

Under the Maritime Transport Act 1994 Maritime New Zealand’s principle objectives are to promote a safe maritime environment and provide effective marine pollution prevention and an effective marine oil pollution response system.

The Maritime Transport Act 1994 sets out the broad principles of maritime law, and also sets out the environmental controls inside the 12 nautical mile limit that are to be managed under the Resource Management Act 1991. Thus, in the Coastal Marine Area, the Maritime Transport Act has a management component which overlaps with the RMA.

Maritime rules relate to the safety and security of ships and people. The rules prescribe requirements for ship design, construction, equipment, crewing, operation and tonnage measurement, and for the carriage of passengers and cargoes. Many of the standards are based on international ship safety conventions. Marine protection rules are aimed at preventing pollution of the sea from ships and the disposal of waste.
Appendix B
Environmental Legislation

Maritime Rules Part 40C Design, Construction & Equipment - Non-SOLAS (Safety of Life at Sea) Non Passenger Ships

Part 40C applies to non-passenger motor ships which do not proceed beyond restricted limits, non-passenger motor ships which are less than 45 metres in length proceeding beyond restricted limits, non-passenger motor ships of less than 500 tons gross tonnage which undertake an international voyage, barges that carry any persons and barges of 24 metres in length or more which do not carry persons.

The Part is divided into 4 sections. Section 3 of part 40C deals with marine farming vessels and contains special provisions for marine farming vessels relating to design and construction, bulwarks and guardrail and safety equipment.

Maritime Rules Part 91 Navigation Safety Rules

A key object of Part 91 is to set basic national navigation standards. These in turn can be enforced locally by regional councils through consistent navigation safety bylaws made under the Local Government Act 1974. Regional variation is permitted in the navigation safety bylaws through mechanisms prescribed in Part 91. Regional councils can address local navigation safety issues through mechanisms such as temporary and permanent reserved areas, access lanes and speed upliftings.

Maritime Rules Part 21 Safe Ship Management (SSM)

Ship safety management has been introduced in New Zealand, in line with a global move towards a culture of putting ongoing safety measures in place to prevent maritime accidents.

The Safe Ship Management (SSM) System administered by Maritime New Zealand now makes ship owners and operators responsible for the daily safe operation of their vessels. This ensures that the safety of a vessel and its crew is maintained throughout the year instead of just on the annual ‘survey day’.

The monitoring of this system is done by inspections and audits which are carried out from time to time by approved SSM companies, replacing the previous system of an annual survey. After each inspection, each vessel’s safety profile is assessed. Higher risk vessels are inspected more often. The system covers construction, stability, equipment, operating limits, operating parameters, the qualifications of its crew, training of crew, vessel maintenance and emergency procedures. An SSM Certificate is a vessel’s maritime document. It replaces the Survey Certificate. Every commercial vessel must display a valid SSM Certificate and operate in accordance with its Safety Management Manual.
Appendix B
Environmental Legislation

Section 2 of part 21 applies to New Zealand ships which do not proceed beyond restricted limits, fishing ships, and ships of less than 45 metres in length which go beyond restricted limits but are not required to comply with section 1. These ships are required to operate in an approved safe ship management system managed by an organisation which has been approved by the Director for that purpose.

Section 2 prescribes the requirements that an organisation must comply with for approval by the Director and the conditions for a ship to enter an organisation’s approved safe ship management system. Once in the system the owner must maintain and operate the ship in compliance with the requirements of the New Zealand Safe Ship Management Code. The New Zealand Safe Ship Management Code provides a standard for the safe management and operation of ships and for pollution prevention, which is tailored to smaller ships. Compliance with the Code is verified by the organisation managing the approved safe ship management system. Section 2 does not cover those ships for which maritime rules require the owner to establish a safe operational plan.

The system covers every single aspect of a vessel and its operations. This includes construction, stability, equipment, operating limits, operating parameters, crew qualifications, training of crew, vessel maintenance and emergency procedures.

*Maritime New Zealand Guidelines for Aquaculture Management Areas and Marine Farms, December 2005*

This document sets out the guidelines of Maritime New Zealand in relation to Aquaculture Marine Areas (AMAs) and marine farms. The guideline is intended to support the appropriate authorities while they develop their Aquaculture Marine Areas, and to give guidance to marine-farm applicants on areas of concern for Maritime New Zealand with respect to navigational safety. The guidelines identify relevant navigational issues and describe the criteria that regional councils and marine farm applicants should be aware of during the process of the creation of AMAs, and the establishment and management of marine farms.

*Local Government Act 1974 and 2002*

The Local Government Act 2002 is the foundation legislation for the local government sector and is the power and responsibility of local authorities providing the general framework and powers under which New Zealand’s 86 democratically elected and accountable local authorities operate.

Under part 8 of the Act Territorial authorities are able to make bylaws to protect the public from nuisance, to protect, promote and maintain public health and safety, and to minimise the potential for offensive behavior in public places.
Appendix B
Environmental Legislation

Regional councils are able to make bylaws in respect of regulating their forestry operations, parks and reserves, flood protection and control works, water supply works. Pursuant to Schedule 18 of the Local Government Act 2002, Part 39A (Navigation) of the Local Government Act 1974 has not been repealed. Navigation bylaws are made under Part 43 section 684B of the Local Government Act 1974 and are read in conjunction with the Maritime Rules and Regulations of New Zealand.

Resource Management (Marine Pollution) Regulations 1998

Pursuant to the Resource Management Act 1991 the Resource Management (Marine Pollution) Regulations cover dumping, incineration and discharges in the coastal marine area. These regulations work in conjunction with Regional Coastal plans to control dumping and discharge of sewage, oil litter and ballast water from mussel industry and other boats.

Biosecurity Act 1993

The Biosecurity Act (1993) integrates a number of requirements from previous acts which covered pest control in New Zealand. The BSA (1993) enables Pest Management Strategies (PMSs) to be developed for each of the important pests. These PMSs are to be developed at the regional level (RPMSs) or at the national level (NPMSs), and define the role and responsibilities of pest management agencies in the control of pests, the procedures to be followed, and how pest management is to be funded.

Biosecurity New Zealand is the division of the Ministry of Agriculture and Forestry (MAF) that has the lead role in preventing unwanted pests and diseases being imported, and for controlling, managing or eradicating them should they arrive. Biosecurity New Zealand is tasked with a ‘whole of system’ leadership role, encompassing economic, environmental, social and cultural outcomes. It also has international trade and animal welfare responsibilities.

Hazardous Substances and New Organisms Act 1996

The Hazardous Substances and New Organisms (HSNO) Act was brought in to protect the environment, people and communities from the adverse effects of hazardous substances and new organisms. The Authority of ERMA New Zealand is governed by this Act.

The HSNO Act is all-embracing. It covers all new organisms and hazardous substances.

A new organism could be a plant, animal or micro-organism coming into New Zealand for the first time or a new species developed through genetic modification.

Hazardous substances could be explosive, flammable, corrosive, toxic or eco-toxic. For hazardous substances, the Act takes a ‘cradle to grave’ approach and allows the Authority to set controls on how substances are contained, labelled, stored, used, transported or disposed of. Substances may be reassessed if new information warrants it.
Appendix B
Environmental Legislation

Other laws continue to apply alongside HSNO and in some situations additional approvals may be required. These other Acts include the Agricultural Chemicals and Veterinary Medicines Act, the Biosecurity Act, the Medicines Act, the Food Act and the Resource Management Act.

Some pieces of legislation will be replaced when substances have been transferred to HSNO. These include:

- Explosives Act 1957
- Dangerous Goods Act 1974
- Toxic Substances Act 1979
- Pesticides Act 1979
- Gas Act 1992

Under the HSNO Act, a hazardous substance is any substance that exceeds the level defined in regulations of any of the following properties:

- an explosive nature (including substances, articles and pyrotechnics such as fireworks)
- flammability
- ability to oxidise (that is, to accelerate a fire)
- corrosiveness
- acute or chronic toxicity
- ecotoxicity, with or without bioaccumulation (that is, it can kill living things either directly or by building up in the environment)
- can generate a hazardous substance on contact with air or water.

The HSNO Act also controls compressed gas containers, whether or not the gas itself is hazardous. In reality, most hazardous substances have more than one hazardous property, that is, they are hazardous in a number of ways. For example, methylated spirits and petrol are not only flammable but also toxic. Anyone who uses or is involved with hazardous substances needs good information on their potential risks and how to use them safely. The Hazardous Substances and New Organisms (HSNO) Act provides a platform for completely assessing a hazardous substance so that it can be managed appropriately.
Appendix B
Environmental Legislation

*Fisheries Act 1996*

The purpose of the Fisheries Act 1996 is to provide for utilisation of fisheries resources while ensuring sustainability. Ensuring sustainability includes avoiding, remedying or mitigating any adverse effects of fishing on the aquatic environment. Utilisation is defined as conserving, using, enhancing and developing fisheries resources to enable people to provide for their social, economic, and cultural well being.

In addition, the Act’s environmental principles provide that:

- associated or dependent species should be maintained above a level that ensures their long term viability;
- biodiversity of the aquatic environment should be maintained; and
- habitats of particular significance for fisheries management should be protected.

*Aquaculture Law Reform Legislation of 2004*

Until 1 January 2005, aquaculture was governed by a combination of the Resource Management Act 1991 and the Fisheries Act 1983. Marine farming applicants were required to obtain resource consent from the relevant council before getting a marine farming permit from the Ministry of Fisheries.

This double permitting system was time consuming and ineffective in managing the rapidly growing aquaculture industry. The Ministry of Fisheries was at the time of writing this ECOP in the process of completing the “backlog” of marine farm permits that are outstanding from the old legislation.

As a result Aquaculture Law Reform Legislation was passed into law late in 2004 and commenced on 1 January 2005. The reform legislation, which included several Acts, amended five existing statutes and introduced two new ones.

The main features of the new regime are that:

- There is now a single process for aquaculture planning and consents through the Resource Management Act 1991 (RMA).
- Regional and unitary councils have clearer roles and responsibilities for managing all the environmental effects of marine farming, including any effects on fisheries and other marine resources.
- New marine farms can only occur in areas specifically zoned for aquaculture, these zones are known as Aquaculture Management Areas (AMAs).
- A new AMA can be initiated by regional and unitary councils, or privately.
- When an AMA is proposed, its effect on fishing (commercial, recreational and customary) activity will be assessed using the undue adverse effects test by the Ministry under the Fisheries Act 1996.
- Existing marine farm leases and licences are deemed to be coastal permits and AMAs by the transitional provisions.
- The Reform has also provided for the full and final settlement to Maori for commercial aquaculture since 1992.
**Health and Safety in Employment Act 1992**

The objective of the Health and Safety in Employment Act 1992 is to promote the prevention of harm to all people at work, and others in, or in the vicinity of, places of work.

The Act applies to all New Zealand workplaces and places duties on employers, the self-employed, employees, principals and others who are in a position to manage or control hazards.

The emphasis of the law is on the systematic management of health and safety at work. It requires employers and others to maintain safe working environments, and implement sound practice. It recognises that successful health and safety management is best achieved through good faith co-operation in the place of work and, in particular, through the input of those doing the work.

The Department of Labour administers and enforces the Act in most workplaces. Maritime New Zealand administers and enforces the Act in the maritime sector.

There are a number of Occupational Health and Safety (OSH) Regulations and “Approved Codes of Practice” developed under the Health and Safety Employment Act that detail measures to manage hazards in the workplace, for example, in relation to the storage and use of chemicals or fuels, staff training and emergency planning.

**The Building Act 2004**

The Building Act 2004 repeals the Building Act 1991 and dissolved the Building Industry Authority, which regulated the building industry under the 1991 Act. Administration of the Building Act has shifted to a government department – the Department of Building and Housing, which was established on 1 November 2004.

The new Building Act aims to improve control of, and encourage better practices in building design and construction. This means:

- more clarity on the standards we expect buildings to meet,
- more guidance on how those standards can be met,
- more certainty that capable people are undertaking building design, construction and inspection,
- more scrutiny in the building consent and inspection process,
- better protection for homeowners through the introduction of mandatory warranties.

Part 2 of the Act deals with matters relating to the building code. The Building Code articulates New Zealanders’ expectations about the quality of buildings. All building plans must be assessed by building officials to ensure they comply with the Building Code before a building consent is issued. The New Zealand Building Code is performance based. That means it specifies the level of performance for building work, not how the work should be done.