

The New Zealand King Salmon Company Ltd

**Ngamahau, Richmond and Waitata
Marine Farms**

Marine Mammal and Shark Management Plan

15 October 2014

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1 Introduction

The New Zealand King Salmon Company Co. Ltd (NZKS) currently has five salmon farms (eight sites) in the Marlborough Sounds; Ruakaka Bay, Forsyth Bay, Waihinu Bay, Otanerau Bay, Te Pangu Bay, Clay Point, and two farms at Crail Bay. Resource consents for three new salmon farms have recently been granted and the following salmon farms will be established in due course: Waitata, Richmond and Ngamahau [Figure 1](#).

1.1 Statutory Requirements

NZKS as the resource consent holder for all of the farms listed above has overall responsibility for ensuring that all statutory requirements of the resource consent conditions are complied with and that all activities carried out at the farms occurs in accordance with this Marine Mammal and Shark Management Plan (Management Plan). The resource consent conditions relevant to this Management Plan and the methods of compliance are shown in [Appendix 1](#).

1.2 Management Plan Objectives

For all three new salmon farms, the resource consent conditions relating to marine mammals and sharks are identical; hence, this Management Plan is directly relevant to all salmon farms currently under establishment. This Management Plan will also be adopted for all existing salmon farms.

The objectives of this Management Plan shall be to:

- Minimise the adverse effects on marine mammals and protected sharks from the operation of the marine farm;
- Minimise the interaction of sharks with the salmon farms;
- Determine how the operation of the salmon farm will be managed adaptively to avoid, remedy and mitigate adverse effects on marine mammals and sharks;
- Ensure that the best practicable option is adopted to avoid entanglement or entrapment of marine mammals and sharks, having regard to best international practice, ongoing research and allowing for technological improvement in net design and construction;
- Establish a monitoring programme to assess the effectiveness of the Marine Mammal and Shark Management Plan; and
- Establish reporting and response procedures in the event of marine mammal and protected shark entrapment, entanglement, injury or death.

This Management Plan has been prepared in consultation with the Department of Conservation (DOC) and the iwi as outlined in Table 1.

Key management actions are highlighted in yellow throughout this Management Plan and a summary of these key management actions is provided in [Appendix 2](#).

Table 1: Tangata Whenua Iwi for each recently consented salmon farm

Salmon Farm	Relevant iwi
Ngamahau	Te Ātiawa o Te Waka-a-Māui Trust
Richmond and Waitata	Tangata Whenua Panel as established by Ngāti Kōata Trust Board Te Runanga o Ngāti Kuia

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1.3 Potential effects on marine mammals and sharks

It is not uncommon for marine predators to aggregate at salmon farms, as they naturally associate large aggregations of fish as a potential source of prey. The mechanisms of attraction are likely to include the salmon livestock, dead fish at the bottom of pens, farm feeding operations, farm noises, farm structures, and wild fish aggregating around the farm.

Adverse effects from finfish farms on marine mammals and sharks can be either direct or indirect. The direct effects are:

- 1) The potential for entanglement and entrapment (fatal or non-fatal); and
- 2) The potential for displacement from important habitat.

Indirect effects include effects from increased vessel traffic in areas where finfish farms occur (underwater noise disturbance and increased potential for ship strike) and possible flow on effects from changes in local trophic chains.

Several studies describe both the direct and indirect adverse effects from finfish farms on marine mammals as listed here du Fresne, 2008; Clement, 2013; Wursiig & Gailey 2002; Kemper et al. 2003; Wright, 2008.

Finfish farms may also confer some positive effects on marine mammals and sharks, principally through the aggregation of wild finfish under marine farm pens, which in turn provide increased prey potential for larger predators (Forrest *et al.* 2007). On an international scale, direct interactions between marine mammals and finfish farms are relatively common in places where a marine mammal distribution overlaps spatially with finfish aquaculture (e.g. Kemper and Gibbs, 2001; Kemper *et al.* 2003).

To date, such interactions in New Zealand have been relatively minor on account of the limited scale of finfish aquaculture occurring here (Clement, 2013). However, NZKS has extensive experience with regards to dealing with marine mammals and sharks in respect to its existing finfish operations.

With regard to direct effects on protected species, the most serious would be mortality from entanglement of marine mammals and sharks. Dolphin and seal entanglement mortalities have occurred at NZKS farms in the past and occasional entanglements are predicted to continue into the future. Accordingly this Management Plan thoroughly addresses this issue.

The potential for the displacement of protected species by NZKS salmon farms exists. However, as the farms occupy such a small proportion of the Marlborough Sounds in total, adverse effects from displacement and loss of habitat are considered to be negligible¹ and are not discussed further in this Management Plan. Likewise, the cumulative effect of additional underwater noise resulting from NZKS's operations is predicted to have no more than a minor additional effect on marine mammals and sharks relative to other existing noise sources in the Marlborough Sounds², hence this too is not considered further.

1.4 Salmon farm configuration

Each NZKS salmon farm typically consists of a series of pens anchored in place within an area boundary. Two different configurations are typically used by NZKS: circular plastic pens and rectangular steel pens.

¹ M. Cawthorn, hearing evidence

² A. Baxter, hearing evidence

Predator exclusion nets are a standard component of all salmon farms in the Marlborough Sounds. These nets are necessary to minimise damage to, and losses of, farmed fish from sharks and marine mammals. Well-constructed, tensioned and maintained nets also function to reduce the incidence of entanglement and entrapment of sharks and marine mammals at salmon farms. In addition, bird-nets are used on all NZKS salmon farms in the Marlborough Sounds to cover the pens and may provide additional protection from entry of the New Zealand fur seal (hereafter referred to as fur seal) entry.

The configuration of the predator exclusion nets in relation to the pens varies dependant on the type of pen structure. The majority of pens are rectangular as illustrated in Figure 2. The construction and maintenance of predator exclusion nets is an integral part of this Management Plan.

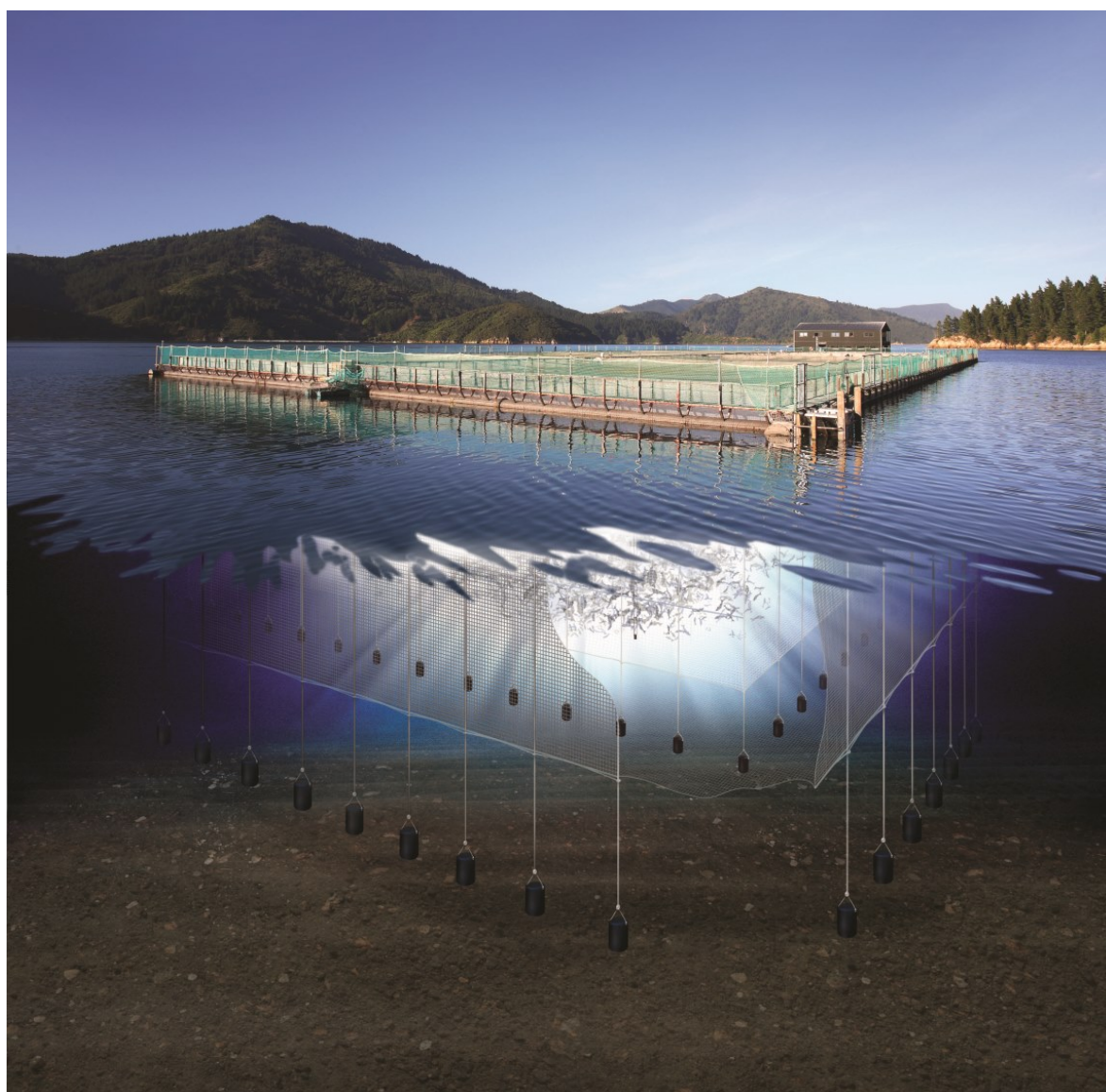


Figure 2: Diagram of the configuration of a typical NZKS salmon farm

2 General protocol

This section sets out all general protocols that relate to marine mammals and sharks.

2.1 Compliance with the Marine Mammal Protection Act 1978

All marine mammals in New Zealand waters are fully protected under the Marine Mammals Protection Act 1978. It is an offence to 'take' a marine mammal without a permit. 'Take' is defined as:

- To take, catch, kill, injure, attract, poison, tranquillise, herd, harass, disturb or possess;
- To brand, tag, mark, or do any similar thing; and
- To flense, render down, or separate any part from a carcass.

All interactions with marine mammals shall occur in accordance with the NZKS permit (issued by DOC) to 'take' marine mammals under the Marine Mammal Protection Act 1978 [Appendix 3](#). Any individual involved in any action in respect of this permit is responsible for their own actions within the terms and conditions of the permit and the Marine Mammals Protection Act 1978. NZKS is responsible for ensuring its permit is up to date and will apply to DOC for renewals and amendments as required.

It is company policy for all NZKS staff to strictly follow the requirements of the NZKS permit to 'take' marine mammals as issued by DOC. Any deviation from the conditions of the permit, regardless of their alleged merits, will not be accepted as 'best practice' by the company and will be considered serious misconduct.

It is also company policy that no action of wilful harm or potential hurt towards seals is allowed. Any contradiction of this principle may result in dismissal for serious misconduct and possibly render the individual and company liable to further legal sanction under the Marine Mammals Protection Act 1978.

It is company policy for all staff and contractors to strictly follow the requirements of the NZKS permit to 'take' marine mammals as issued by DOC on 20 June 2014 (and any subsequent renewals and amendments)

2.2 Compliance with resource consent conditions

The ongoing operations of NZKS salmon farms in the Marlborough Sounds are contingent on compliance with multiple resource consent conditions. Relevant conditions are outlined in [Appendix 1](#) and are addressed throughout the specific sections of this Management Plan.

2.3 Compliance with NZKS policy

All NZKS staff must comply with this Marine Mammal and Shark Management Plan.

It is company policy for all NZKS staff and contractors to strictly follow the guidelines of this Marine Mammal and Shark Management Plan

3 Predator exclusion

This section sets out all protocols that relate to the use of predator exclusion nets.

The potential for sharks and marine mammals to enter the marine farm is to be minimised through:

- The use of predator resistant materials;
- The use of predator exclusion nets; and
- Regular inspection and maintenance of predator nets and tensioning systems.

All practicable steps are to be taken by NZKS staff to reduce the risk of marine predators entering the pens. In addition to the protection measures outlined in Sections 3.1 and 3.2 below, the following general guidelines should be adhered to which will assist in preventing access from marine predators entering the pens:

- Bird nets should be tightly fitted over the pens;
- Grower nets are to be lifted under the walkways;
- Gates should, wherever practical, be installed on walkways to prevent access by fur seals; and
- Appropriate weighting systems should be used to ensure exclusion nets are maintained under sufficient tension at all times.

Predator exclusion nets must be used to minimise the potential for sharks and marine mammals to enter NZKS marine farms

3.1 Predator resistant materials

Predator resistant materials will be used in predator exclusion net construction. Recommended materials include:

- Light weight, ultra-strong net materials, such as Dyneema® (Cawthorn, 2011);
- Pemberton *et al.* (1991) suggested using nets of polyethylene net construction with a minimum twine gauge of 4 mm. With a preference for wire netting where possible (e.g. Boral Cyclone, pig mesh); and
- A steel product called MarineMesh® is recommended to prevent shark entry into marine farms in Australia (Hawkins, 2004).

The construction of predator exclusion nets from thick, soft 'Rochelle' netting is a current requirement under the NZKS permit to take marine mammals but may be superseded as better options become available.

3.2 Predator exclusion nets

3.2.1 Net specifications and configuration

Marine predator exclusion nets should completely enclose all salmon farm structures and should extend sufficiently high above the sea surface so as to exclude marine predators, but no higher.

The appropriate height of marine predator exclusion nets for salmon farms in the Marlborough Sounds, is deemed to be 2–3m above the sea surface (Cawthorn, 2011).

Marine predator exclusion nets should be installed in such a way that they are adequately separated from the grower nets with spatial separation of ideally 2-3m and no less than 1m.

The maximum mesh size of marine predator exclusion netting on all new salmon farms shall be limited to 200mm. This is the internal measurement when the net is stretched in the long diagonal direction. A number of existing NZKS farms currently use larger mesh for their predator exclusion nets³; however, these farms will be transitioned out as part of the repairs and maintenance programme, to meet the 200mm standard⁴.

To reduce the likelihood of marine mammal entanglement with NZKS predator exclusion netting, the minimum gauge (twine diameter) of the predator exclusion net mesh should be 3.5mm. It is difficult to assess whether all dolphin species can acoustically detect net mesh of this gauge, however international studies of captive bottlenose dolphins and harbour porpoises suggest that minimum detection distances for monofilament fishing net is 3–55m depending on the species (Kastelein *et al.* 2000). The nets used in NZKS farms vary in that they are heavier gauge than monofilament fishing nets, and that they do not occur in isolation (i.e. have other farm structure and a density of fish livestock associated with them); hence nets used in salmon farms should be more easily detectable by dolphins acoustically and visually.

New net materials are constantly being investigated by NZKS, hence net specifications and configuration are likely to change through time in keeping with best practice.

**The maximum mesh size of predator exclusion net is 200mm.
The minimum gauge of the mesh twine should be 3.5mm.
Predator exclusion nets should be 2–3m in height above the sea surface.**

3.2.2 Maintenance

In order to reduce entanglements of marine mammals and sharks it is critical that predator exclusion nets are maintained at tension; during standard farm operations the nets (both above and below water) should be kept taut⁵.

Marine mammal entanglements often occur when predator nets are not sufficiently tensioned. A lack of tension can occur:

- During periods of improper maintenance;
- During installation/removal; and
- During scheduled maintenance of predator exclusion netting.

Extra vigilance for potential marine mammal entanglements is required at all times. In particular:

- A visual surface marine mammal survey must be conducted prior to major net maintenance work, see [Section 3.2.4](#);
- Predator exclusion nets must not be opened, removed or shifted if dolphins are observed within 2km of the marine farm; and
- It is recommended that if reasonably possible changing of predator exclusion nets should coincide with periods when fur seal numbers are low.

Maintenance of predator exclusion nets is required. Daily checks should identify and remedy immediate problems which are detectable above water. Full maintenance assessments (including underwater assessments) should occur on a monthly basis. The protocols for both daily and monthly checks are outlined in Table 2.

It is advisable that the rope which is used to repair predator exclusion nets is colour matched to the predator exclusion net, as seals are able to detect colour changes which they associate with weak points in the nets (Hawkins, 2004).

³ 204 mm and 240 mm are still in use

⁴ In response to juvenile fur seal entanglement mortalities

⁵ This is typically more difficult to achieve on the circular plastic type farms

Remote net cleaning occurs throughout the farm on a near constant cleaning rotation. The net cleaning device is equipped with a camera, and is another means by which sections of net requiring maintenance can be brought to the attention of farm staff.

Table 2: Standards and scheduling for predator exclusion net maintenance

Daily assessment requirements (above-water)	
1. Make a visual assessment of the net tension	➤ Slack sections to be re-tensioned as soon as reasonably possible
2. Identify any holes and tears	➤ All holes and tears must be repaired as soon as reasonably possible
3. Identify any potential entrapment pockets	➤ All potential entrapment concerns must be remedied as soon as reasonably possible
Monthly assessment requirements (below water)	
1. Make a visual assessment of the net tension	➤ Slack sections must be re-tensioned as soon as reasonably possible
2. Identify any holes and tears	➤ All holes and tears must be repaired as soon as reasonably possible
3. Identify any potential entrapment pockets	➤ All potential entrapment concerns must be remedied as soon as reasonably possible
4. Identify any sections that require in-water cleaning due to marine biofouling (as required to maintain cleanliness)	➤ Make arrangements for in-water cleaning to occur

**Predator exclusion nets should be kept taut at all times.
Regular maintenance is critical and should follow the schedule in Table 2**

3.2.3 Opening and closing predator exclusion nets

It is recognised that the predator exclusion nets will need to be opened periodically in the following circumstances:

- To release an entrapped marine mammal or shark;
- During installation and removal⁶; and
- During some maintenance operations (e.g. re-tensioning sections of net and remedying potential entrapment pockets).

Prior to major net maintenance work visual surface marine mammal surveys must be conducted, see Section 3.2.4 to ensure that no dolphins are present within 2km of the farm.

During periods when the predator nets are open, extra vigilance for marine mammals and sharks must be maintained by operational staff. In addition, the duration for which

⁶ Pre In-water cleaning negates the need for predator nets to be changed out frequently

the nets are left open must be minimised, and all reasonable efforts will be made to ensure predator exclusion nets are not left open overnight.

The duration for which the nets are left open must be minimised and nets shall not be left open overnight.

3.2.4 Visual surface marine mammal surveys

These surveys must occur prior to major net maintenance work to ensure that dolphins are not present within 2km of the marine farm (for the area within the line of sight).

To conduct a visual surface marine mammal survey, the following steps shall be taken:

1. Immediately prior to the survey work commencing an observer should proceed to the best vantage point on the salmon farm;
2. The observer shall make a visual observation in the line of site up to 2km zone around the salmon farm;
3. The 2km radius can be estimated by the use of predefined terrestrial land marks in enclosed bays or proportions of a waterway for larger marine areas within the Marlborough Sounds.
4. During the observation period the observer should focus on dolphin detection. Signs to look for which will indicate dolphin presence are:
 - a. Dorsal fin/s visible when individual dolphins surface to breathe;
 - b. Splashes and aerial behaviours;
5. If dolphins are detected within 2km of the farm immediately prior to scheduled net maintenance, then the start of the maintenance operation must be delayed until such time that the dolphins have moved outside the 2km radius surrounding the farm.

Prior to major net maintenance, visual surveys for marine mammals must be conducted. Work shall not commence until dolphins have moved outside of the 2km radius surrounding the salmon farm.

4 Mitigating against entanglement

This section sets out all protocols that relate to measures designed to mitigate against entanglement of sharks and marine mammals within farm infrastructure.

The potential for sharks and marine mammals to become entangled in salmon farm infrastructure is to be minimised through appropriate management of predator exclusion nets, loose lines, anchor warps, nets and debris.

4.1 Predator exclusion netting

In addition to the exclusion of predators, the appropriate management of predator exclusion netting, as described in [Section 3](#), also serves to reduce the incidence of entanglement by eliminating loose sections of netting which pose an entanglement risk to marine mammals and sharks.

4.2 Loose lines

Loose lines/ropes increase the chances of marine mammal entanglement (particularly large whales). For this reason:

- All lines associated with NZKS salmon farms must be secured at all times;
- All loose lines must be secured and/or retrieved promptly; and
- For loose lines that must remain in the water, buoying off by way of a header float is required to ensure that the length of line through the water column remains as taut and vertical as possible, with the minimum amount of slack line.

Unsecured lines must not be present within the marine farm

4.3 Anchor warps

Anchor warps must be maintained under sufficient tension to prevent possible entanglement of cetaceans and large sharks.

The anchoring and mooring warp system shall be monitored and maintained in accordance with a 'Salmon Farm Mooring Monitoring and Maintenance Schedule'.

Anchor warps must be maintained under sufficient tension

4.4 Nets

All nets except those in use must be lifted clear of the water or removed. Raised nets may not remain unattended (visually observed) for more than 4 months and should be inspected following any significant storm. If the period of non-attendance is predicted to exceed 4 months the nets should be removed.

All submerged nets, except those in use, must be lifted or removed

4.5 Debris

All net and cordage debris, plastic strapping and other salmon farm, domestic or other non-biodegradable waste must be collected, retained and disposed of at an approved solid waste facility onshore.

If any loose debris does enter the water around NZKS salmon farms, it must be promptly retrieved from the seabed, water column or foreshore.

5 Marine mammals

5.1 Overview

The Marlborough Sounds provide coastal habitat for a variety of marine mammal species. [Table 3](#) lists species are known to frequent the sheltered waterways of the Marlborough Sounds, and those that visit the area less frequently.

Table 3: Marine mammal species in the Marlborough Sounds

Species	Scientific name	NZ threat status (Baker <i>et al.</i> 2010)	Frequency of sightings within the sounds
<u>Pinnipeds</u>			
NZ fur seal	(<i>Arctophoca australis forsteri</i>)	Not threatened	Resident – seen in all seasons (Baird, 2011)
<u>Dolphins</u>			
Killer whales	(<i>Orcinus orca</i>)	Nationally critical	Regular visitors - year round (Visser, 2007)
Hector's dolphins	(<i>Cephalorhynchus hectori</i>)	Nationally endangered	Commonly seen, particularly in summer (Mackenzie & Clement, 2014)
Dusky dolphins	(<i>Lagenorhynchus obscurus</i>)	Not threatened	Commonly seen in autumn, and winter (Wursig <i>et al.</i> 2007)
Bottlenose dolphins	(<i>Tursiops truncatus</i>)	Nationally endangered	Semi resident - seen in all seasons (Merriman, 2007)
Common dolphins	(<i>Delphinus delphis</i>)	Not threatened	Regular visitors - year round (Merriman, 2007)
<u>Whales</u>			
Humpback whales	(<i>Megaptera novaeangliae</i>)	Migrant	Occasional visitor in winter months (Gibbs & Childerhouse, 2000)
Southern right whales	(<i>Eubalaena australis</i>)	Nationally endangered	Occasional visitor in winter months (Patenaude, 2003)

Seals and dolphins are the most likely marine mammals to interact with salmon farms in the Marlborough Sounds, although interactions with large whales are also possible. Potential interactions with marine mammals include:

- Entanglement;
- Entrapment;
- Mortality;
- Damage to nets;
- Increased stress to livestock from presence of predators; and
- Damage to or loss of livestock.

The measures outlined in this Management Plan are intended to minimise interactions with marine mammals; however, both NZKS and DOC realise that the elimination of interactions with all individual animals is unrealistic. Hence, protocols for addressing such interactions are necessary. Population level effects from interactions are unlikely, but any human-induced mortality on threatened species (e.g. killer whales, Hector's dolphins, bottlenose dolphins and southern right whales) is of primary concern.

A key component of this Management Plan is the requirement for constant vigilance on the part of NZKS salmon farm workers to quickly identify potential threats to marine mammals and to immediately take steps to mitigate the threat identified.

No feeding of marine mammals is permitted at salmon farms. All fish mortalities shall be collected and disposed at an approved land-based site.

5.1.1 New Zealand fur seal

Fur seals are relatively abundant in the Marlborough Sounds and are expanding in their geographic range.

Fur seal attempts to gain access to salmon can lead to net damage, loss of stock through escape, stress and/or physical damage to individual fish⁷. The use of predator exclusion nets has been relatively successful in reducing these effects on livestock. However, as described by Cawthorn (2011), seals will patrol farms looking for points of weakness in the predator exclusion nets Figure 3. Once inside the farm they tend to either climb onto the net pen superstructure to enter the grower pens, or they will harass fish in pens causing them to school tightly before pushing the slack netting inward and biting passing fish.

NZKS has the following overriding policy on fur seals:

"While the natural instinct of the New Zealand fur seal is predatory towards the salmon livestock we must act with empathy and integrity in managing the incursions of seals so as to ensure their welfare is not endangered or harmed by any action of our operations or people."



Figure 3: A fur seal attempting to gain access to a NZKS salmon farm

⁷ M. Cawthorn, hearing evidence

5.1.2 Dolphins

Five dolphin species utilise the Marlborough Sounds at various times through the year. With regards to potential interactions with salmon farms, Hector's dolphins and bottlenose dolphins are of particular concern given their 'nationally endangered' threat status.

Historically a number of entanglement incidents have involved dusky dolphins at NZKS salmon farms. Single entanglements of a bottlenose dolphin and what was likely to be a Hector's dolphin have also been recorded. The primary contributing factors to these events are thought to be the process of removing/installing predator exclusion nets for cleaning and maintenance, and insufficient tension of predator exclusion nets⁸. In response to these incidents, NZKS changed its standard operating practice in these two areas by adopting a set protocol for changing predator nets, in-water cleaning of nets and predator exclusion nets are now maintained at tension.

5.1.3 Whales

Humpback whales migrate through Cook Strait in the winter months (Gibbs and Childerhouse, 2000) and occasionally venture into the sounds. Southern right whales also occasionally enter the sounds during winter months when they are present in temperate waters for breeding (Patenaude, 2003). Other whales that are observed in Cook Strait include sperm whales, blue whales, beaked whales and pilot whales.

Large whales could potentially interact with NZKS salmon farms. Loose ropes and buoy lines are a particular concern for these species as their size and curiosity mean that they easily become entangled in loose lines.

5.2 Audit procedures

Following a marine mammal gaining access into a salmon farm, and where necessary being removed from within a predator exclusion net, the steps outlined below must be followed to ensure the salmon farm is properly secured.

1. It is important to identify how the marine mammal gained access into the salmon farm, e.g. tear in predator exclusion net, via a walkway, grower net hanging loosely under the walkway etc.;
2. If the entry point of the marine mammal is known then audit activities should immediately focus to:
 - a. Identify any holes and tears;
 - b. Repair any holes or tears immediately;
 - c. Make a visual assessment of the net tension;
 - d. Re-tension slack sections immediately;
 - e. Take other actions as appropriate (e.g. install gate on walkway, pull up netting under walkways etc.); and
 - f. Monitor this section of the farm carefully over the subsequent days to minimise the reoccurrence of any problems.

If the entry point of the marine mammal is unknown, then:

- a. A full above-water assessment of the predator exclusion net must occur as described in Table 2;
- b. Appropriate repairs and/or re-tensioning must occur as soon as reasonably possible;

⁸ M. Cawthorn, hearing evidence

- c. In the event that the above-water assessment fails to identify the problem, then a below-water assessment must occur as described in Table 2 and
- d. Appropriate repairs and/or re-tensioning must occur as soon as reasonably possible.

All practical steps must be taken as soon as possible to correct any salmon farm security issues identified following a marine mammal gaining access inside a salmon farm predator exclusion net.

5.3 Capture and release

Procedures for capture and release of any entrapped or entangled marine mammal inside a salmon farm are provided below.

5.3.1 Required training

Only staff who have completed the "Demonstrate knowledge of the handling of seals on a finfish farm" see [Section 0](#) are permitted to 'take' seals under the NZKS permit. New untrained staff may handle seals only if directly supervised by another staff member who holds the appropriate unit standard. For the purpose of the NZKS permit, 'take' is defined as:

- Catch and release seals that have entered salmon pens;
- Harass seals while attempting to deter them from entering salmon pens; and
- Injure, attract, herd, disturb and possess seals in association with the above actions.

Seals are to be handled in accordance with the "Guidelines for Handling Seals" listed below.

Only trained staff are permitted to handle seals.

5.3.2 Guidelines for handling seals

Seals that are found inside the predator exclusion net or grower nets can be herded with a snatch net or bird net. These nets should only be used to catch seals when it is possible to release them from the farm immediately.

In the event that a seal gains entry to the farm, the following guidelines are to be followed.

5.3.2.1 General guidelines:

- Keep the animals calm - wherever possible cover the head with a soft cloth;
- Keep quiet - extra noise can frighten seals which can then become aggressive;
- Be quick and confident - fumbling makes seals uncertain and apprehensive;
- Do not attempt to move the seal by pushing it in the chest;
- Do not injure seals - take special care not to injure the seal's eyes and ensure flippers are tucked back in their natural orientation;
- Return seals to the open water as soon as possible;
- Take every precaution to avoid being bitten;
- Seek medical assistance if bitten or scratched by a seal (seals carry tuberculosis (TB) and other diseases that are transferrable to humans);
- Wear personal protective equipment (PPE) ie disposable rubber gloves when handling seals; and a facemask to prevent transfer of respiratory disease (in the event that a seal coughs or sneezes during handling).

**Take every precaution to avoid being bitten. Seek medical advice if bitten.
Wear gloves and other PPE when handling seals.**

5.3.2.2 Handling seals on the walkways and pontoons:

- Seals can be herded or chased over the top section of the predator exclusion net (top net) using dip nets and/or boat hooks;
- Lower the top net and herd the seal out of the farm by shouting or by pushing it with a blunt object using low to moderate force;
- It is important to ensure that lowering the top net does not allow more seals to enter the farm; and
- Ensure that you return the top net to its original position and tension once finished.

5.3.2.3 Handling seals inside the predator exclusion nets

- NZKS has two seal traps that are used to catch and release seals unharmed Figure 4;
- Set the trap with a fresh salmon;
- After capture, and when the seal has moved to the holding area at the rear of the trap, the trap can be re-set; a maximum of four seals can be caught in one trap;
- Seals should be released as soon as possible to minimise potential stress to the animal; but if provided with appropriate conditions such as in the shade and out of the water seals can be held for up to three days;
- When holding seals in temporary captivity, ensure that the holding area of the trap is above water - all seals must be able to sit down with their heads out of water and they must not be forced to keep swimming;
- Organise a boat with a hi-ab (e.g. Lana, JBS) to remove the seal trap from the farm and release the seal(s) into the wild;
- If a trap is not available: observe where the seal hauls out on the pontoons within the predator exclusion net; and
- When a haul out site has been identified; detach the top netting section from the main predator exclusion net to create an opening at the haul out site. When the seal has exited through the opening, return the nets to their original position.



Figure 4: A seal in a NZKS seal trap after capture

5.3.2.4 Handling seals inside grower nets

- Once a seal enters a grower net the focus should be to remove it as soon as possible;
- Lower the dive ladder to allow the seal to climb onto the walkway, and then herd it to the predator exclusion net and lower the top net so it can escape from the farm;
- The bird netting can be dropped (it may have to be weighted), and returned to its original position once the seal swims over. The seal can then be herded (in a similar fashion to moving fish in a snatch) to the side of the net. It can either be allowed to climb out of the net (when pens are not predator protected) or rolled up in the bird net and dragged to the edge of the farm before being set free outside the predator exclusion net;
- Drop panels may be unstitched and opened allowing the seal to be caught inside them while attempting to find its way out. The part of the drop panel containing the seal can be lifted over the handrail so the seal may be freed outside the pen. If the pens are predator protected the top net should be lowered first; and
- The side of the grower net can be lowered to the water level to allow the seal to exit into the predator exclusion net. Then the process of removing the seal from the predator exclusion net can be followed. This method can be risky as there is the potential for fish to be lost over the side of the net.

5.3.2.5 Dealing with seals while diving with them

- It is not uncommon for NZKS divers to encounter seals underwater Figure 5.
- If a seal is acting aggressively towards you, you should exit the water, do not attempt to make physical contact with the seal - terminate the dive;
- Log a seal incident on the 'Marine Mammal and Protected Shark Incident Report' spreadsheet [Appendix 4](#); and
- Inform the farm manager and shift supervisor of the incident.

Dives should be terminated if aggressive seals are encountered



Figure 5: A NZKS diver working in close proximity to a seal

5.3.2.6 Dealing with live entangled marine mammals

In the event of a live animal becoming entangled in a predator exclusion net; take action to set the animal free – however, all operations must take place from the surface and on no account should anyone enter the water to attempt to free an entangled animal.

No person shall enter the water with a live entangled marine mammal.

5.3.3 Passive dissuasion

Passive dissuasion of any seal may only take place within the area defined in the NZKS permit.

Passive dissuasion means any of the following; herding by boat, slapping sea water adjacent to the seals, shining lights in the eyes of the seals, shouting by farm staff, herding and capturing with a snatch or bird net and prodding⁹ with a boat hook or dip net. Any boats or equipment used to herd seals must not be used in any way that might result in injury to seals.

5.3.4 Reporting

See [Section 7](#) for reporting requirements.

5.4 Dead marine mammals

Procedures for the disposal of dead marine mammals are outlined below.

⁹ It is important to use a blunt instrument that is not likely to break the skin or injure the seal.

5.4.1 Notification

If any marine mammal mortality occurs, or if any dead marine mammal is discovered on a salmon farm, the first action must be to contact the farm's Regional Manager who in turn will make telephone contact to the Seawater Operations Manager.

Formal species identification is important as for some species DOC may require a necropsy.

For all Marine Mammal mortalities, DOC must be contacted by phone before the animal is moved.

5.4.2 Reporting

Before disposal occurs, log the fatality on the 'Marine Mammal and Protected Shark Incident Report' spreadsheet [Appendix 4](#); and also complete a 'Marine Mammal Fatality' form see [Section 7](#) that is then scanned and emailed to the DOC Program Manager and the Seawater Operations Manager.

Logging the fatality on the 'Marine Mammal and Protected Shark Incident Report' spreadsheet will ensure that the event is logged for inclusion in the annual report.

5.4.3 Disposal

Disposal must not occur until reporting is complete and permission for disposal has been granted. In some circumstances (e.g. dolphin mortalities) DOC may require a necropsy to be conducted and arrangements for transport to an appropriate necropsy facility will be determined in consultation with DOC on a case by case basis.

Once disposal permission has been granted then the carcass should be disposed of by towing to the shore and pulling up onto the beach above the mean high water mark to decompose at the designated disposal site [Appendix 5](#).

The Conservation Protocol between DOC as allowed for under the Deed of Settlement with the Crown, will ensure that relevant iwi will be notified of, consulted upon the disposal of, the potential harvest of cultural material from deceased marine mammals.

6 Sharks

6.1 Overview

At least 14 species of shark are known to occur in the Marlborough Sounds [Table 4](#). Their presence in the Sounds is highly seasonal and is thought to be related to the distribution of prey and reproductive behaviours. Observations of most large pelagic sharks in the region usually occur only during late spring and summer, although great white sharks are present year round in the Cook Strait area. A number of bronze whalers in particular are recorded seasonally in the Pelorus Sound and spiny dogfish are typically recorded in large numbers during autumn and spring¹⁰.

Table 4: Shark species known to occur in the Marlborough Sounds

Common Name	Scientific Name	Risk posed
Great white**	<i>Carcharodon carcharias</i>	Potentially dangerous – risk of unprovoked attacks
Bronze whaler*	<i>Carcharhinus brachyurus</i>	Potentially dangerous – risk of unprovoked attacks
Basking*	<i>Cetorhinus maximus</i>	Traumatogenic – could attack if provoked
Common thresher	<i>Alopias vulpinus</i>	Traumatogenic – could attack if provoked
Carpet	<i>Cetorhinus maximus</i>	Harmless
School	<i>Galeorhinus galeus</i>	Traumatogenic – could attack if provoked
Mako	<i>Isurus oxyrinchus</i>	Potentially dangerous – risk of unprovoked attacks
Porbeagle	<i>Lamna nasus</i>	Potentially dangerous – risk of unprovoked attacks
Broadsnouted sevengill	<i>Notorhynchus cepedianus</i>	Potentially dangerous – risk of unprovoked attacks
Blue	<i>Prionace glauca</i>	Potentially dangerous – risk of unprovoked attacks
Smooth hammerhead	<i>Sphyrna zygaena</i>	Potentially dangerous – risk of unprovoked attacks
Rig/Spotted dogfish	<i>Mustelus lenticulatus</i>	Harmless
Spotted spiny dogfish	<i>Squalus acanthias</i>	Traumatogenic – could attack if provoked
Northern spiny dogfish	<i>Squalus griffini</i>	Traumatogenic – could attack if provoked

* Species protected from commercial fishing

** Fully protected species

¹⁰ Paul Taylor, hearing evidence

The Fisheries Protocol covered under the Deed of Settlement allows identification to Taonga shark species such as School, Bule and rig/Spotted dogfish for some iwi.

The following potential interactions between sharks and salmon farms include:

- Entanglement;
- Entrapment;
- Mortality;
- Damage to nets;
- Damage to or loss of livestock;
- Increased stress to livestock from presence of predators; and
- Shark attack on staff.

6.2 Shark attack prevention

NZKS farming operations frequently involve divers for net maintenance, checking structures/moorings and recovering salmon mortalities. By their nature these operations carry the risk of divers being subject to attack by sharks. The presence of dead fish may exacerbate this issue. However, NZKS has had no shark attacks through its salmon farming operational history.

Members of the public, local residents and ecotourism operators have voiced their concerns in the past that salmon farms attract sharks into the area. The following policies have been put in place to reduce the likelihood of sharks being attracted to NZKS salmon farms and to ensure diver safety:

- Staff are not permitted to feed sharks from the workplace¹¹;
- Staff are not permitted to fish for sharks from the workplace; and
- Dead fish must be removed as soon as reasonably practical from the fish pens and disposed of at an approved land-based site or rendered¹².

With these mitigations in place the risk of a shark attack around the farms is thought to be no greater than the risk of shark attack elsewhere in the marine environment; and although salmon farms may encourage sharks to aggregate in the area, fish farms should not serve to increase the overall number of sharks in the Sounds¹³.

No feeding of sharks or fishing for sharks is permitted on salmon farms. Dead salmon must be promptly removed from the farm and disposed of at an approved land-based site or rendered.

6.3 Shark release

Procedures for the release of any entrapped or entangled shark within a salmon farm are provided below. The capture of protected sharks is not permitted so is not discussed here.

Any shark by-catch located in the grower pens during the harvest period is returned alive to the wild. With the exception of this, any shark interaction must be approved by the shift supervisor.

The shift supervisor will approve any shark related operation.

¹¹ The practice of feeding sharks at NZKS farms was stopped in 2008; a decline in shark numbers followed

¹² By airlift or divers before disposal by landfill or rendering

¹³ Clinton Duffy & Paul Taylor, hearing evidence

6.3.1 Required training

No formal training is available, but on account of the potential danger involved in a shark release operation, an experienced staff member must oversee any release attempt, and the plan for release must be discussed with the Farm Regional Manager beforehand.

6.3.2 Guidelines for releasing sharks

In circumstances when large sharks manage to gain entry beyond the predator exclusion net, the following release techniques should be attempted. These techniques are listed in order of preference below:

- **Technique 1:** Drop the top net and use a crowder net to guide the shark out over the submerged section of predator exclusion netting; or
- **Technique 2:** Cut a section of the predator exclusion netting in an attempt to release the shark:
 - a. A pruning hook can be used to place a vertical cut in the predator exclusion net;
 - b. The sides of the cut can then be pulled apart using a boat hook on either side creating a hole for the shark to swim through;
 - c. A crowder net can be used to guide the shark to the opening;
 - d. Once the shark has been released and no further sightings have occurred in the vicinity of the farm, the predator exclusion netting must be repaired, or the damaged section must be replaced as soon as reasonably possible in consultation with the shift supervisor; and
 - e. During the re-establishment of the predator-exclusion net, a scout must remain above water to watch for any sign of shark activity. This person must be able to communicate quickly and effectively to any divers in the event that they are required to leave the water on account of further shark presence in the area.

No person shall enter the water with a live entangled shark.

An example of the successful use of Technique 2 occurred when a white shark was trapped in a tuna cage off Port Lincoln, Australia in June 2003. During this occurrence a 9 m vertical cut was made in the cage netting and ropes were attached to each side of the cut. When lateral pressure was put on the ropes an opening was created which allowed the shark to swim free (De Maddalena & Heim, 2012).

6.4 Dead protected sharks

Procedures for the disposal of dead protected sharks are outlined below.

6.4.1 Notification

If any protected shark mortality occurs, or if any dead protected shark is discovered on the farm, the first action must be to contact the Farm Regional Manager who in turn will make telephone contact the Seafarm Operations Manager.

Formal species identification is important as for some species DOC may require a necropsy.

6.4.2 Reporting

Before disposal occurs, log the fatality on the 'Marine Mammal and Protected Shark Incident Report' spreadsheet [Appendix 4](#); and also complete protected shark incident

form Section 7 that is scanned and emailed to the DOC Program Manager and the NZKS Seafarm Operations Manager.

Logging the fatality on the 'Marine Mammal and Protected Shark Incident Report' spreadsheet will ensure that the event is logged for inclusion in the annual report.

For all protected shark mortalities, DOC must be notified through the submission of a protected shark incident form.

6.4.3 Disposal

Disposal must not occur until reporting is complete and permission for disposal has been granted. In some circumstances DOC may require a necropsy to be conducted and arrangements for transport to an appropriate necropsy facility will be determined in consultation with DOC on a case by case basis.

Once disposal permission has been granted then the carcass should be disposed of by towing to the shore and pulling up onto the beach above the mean high water mark to decompose at the designated disposal sites Appendix 5.

Staff Training

The following training is required before NZKS staff are permitted to become involved with marine mammal and shark operations at NZKS salmon farms in the Marlborough Sounds:

- Seal handling unit standard.
- Protected shark identification training.
- Dolphin identification training.

Training should occur according to the schedule outlined in [Table 5](#), and each component is described in greater detail in [Sections 6.6, 6.6, and 6.6](#) below.

Table 5: Marine mammal and shark training requirements for NZKS staff

Status of staff member	Training requirements	
	Seal Handling	Dolphin & Shark Identification
New staff member	Completion of this course is mandatory at induction	Provision of training is mandatory at induction
Existing staff member	Completion of this course must occur on an annual basis	No formal requirements

Only trained staff are permitted to handle seals. All staff must be trained in the identification of dolphin and protected shark species

6.5 Seal handling

Under the NZKS permit to 'take' fur seals, NZKS is required to undertake annual training courses for its farm staff on the handling and management of seals at its salmon farms.

To address this requirement NZKS have developed the following qualification:

Qualification Demonstrate knowledge of the handling of seals on a fish farm

Level 3 Credits 7

This qualification is a unit standard provided by the New Zealand Industry Training Organisation which is a recognised training provider of the NZ Qualifications Authority. The following elements are integral to this training course:

- Describe the legislative requirements for the protection and handling of seals on a fin fish farm;
- Describe measures to take to prevent seals from entering fin fish farms;
- Describe humane seal handling techniques;
- Describe measures to take to prevent injury when handling seals; and
- Take action to remove seals that have entered the fin fish farm.

Only staff who have undertaken seal handling training and hold an equivalent unit standard are permitted to 'take' seals under the NZKS permit. Any seal handling training or equivalent unit standards must be current. To be current, the training is to have occurred in the past 12 months.

6.6 Shark identification

The resource consent conditions require that the identification of protected shark species is included in staff training. [Appendix 6](#) sets out an identification key for great white sharks, bronze whaler sharks and basking sharks. New staff must be provided with this identification sheet.

6.7 Dolphin identification

The resource consent conditions require that the identification of dolphin species is included in staff training. [Appendix 7](#) sets out an identification key for Dusky, Hector's, Bottlenose and the Common dolphins. New staff must be provided with this identification sheet.

7 Reporting

7.1 Standard incident reporting

Reporting and record keeping in relation to marine mammal and protected shark incidents is important with regard to accuracy of annual reports, compliance with resource consent conditions and compliance with permit requirements under the Marine Mammal Protection Act 1978.

7.1.1 Marine mammals and protected sharks

After any interaction with a marine mammal (including all seal interactions) or a protected shark on a salmon farm, the individual staff member involved is responsible for logging the incident into the 'Marine Mammal and Protected Shark Incident Report' spreadsheet, and where necessary (fatality) completing the appropriate reporting forms see [Appendix 4](#).

Every six months the 'Marine Mammal and Protected Shark Incident Report' spreadsheet is emailed to the following parties:

- The Department of Conservation (DOC) Program Manager ATai@Doc.govt.nz
- The NZKS Picton Office, Seafarm Operations Manager
- The NZKS Environmental Dept, karen.mant@kingsalmon.co.nz
- The Marlborough District Council, Attention Steve.Urlich@Marlborough.govt.nz, and
- The Ngāti Kōata Trust Office, projects@koata.iwi.nz
- Te Runanga o Ngāti Kuia, raymond@ngatikuia.iwi.nz
- Te Ātiawa o Te Waka-a-Māui Trust, rm@teatiawatrust.co.nz
- Any other iwi which have expressed interest in receiving these forms.

For incidents where a marine mammal or protected shark is injured or killed reporting to the above parties must occur within 24 hours of the incident.

Reporting must occur within one week for incidents where actions were undertaken to remedy any unforeseen events such as a marine mammal or protected shark becoming entrapped or entangled at a marine farm.

Logging all incidents on the 'Marine Mammal and Protected Shark Incident Form' must be completed for every marine mammal and protected shark interaction. Where an animal is injured or killed this reporting must occur within 24 hours.

7.2 Annual reporting

Each NZKS farm is required to prepare an annual summary report of all incidents involving marine mammals and protected sharks becoming entangled or entrapped at a marine farm.

The annual report will be provided to all parties listed in [Section 7.1.1](#) above, and also to the NZKS Executive Environmental Management Committee. The provision of the annual report (and the associated incident reports) addresses one of the objectives of this management plan, which is to:

"Establish a monitoring programme to assess the effectiveness of the Marine Mammal and Shark Management Plan".

An annual report must be prepared for each farm to summarise marine mammal and protected shark incidents.

7.3 Media

Any media releases regarding NZKS's interactions with marine mammals are to be made in conjunction with the Chief Executive Officer of NZKS.

In the event that the media wish to gather further information in respect of any marine mammal or protected shark which has had to have been killed, this shall be done only through DOC.

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Appendix 1 - Resource Consent Conditions

Condition (50) Marine Mammal and Shark Management Plan for Waitata, Richmond and Ngamahau	Addressed by
A. Minimising the potential for sharks and marine mammals to enter the marine farm net pens through the use of predator-resistant materials in net pen construction and predator exclusion nets enclosing the marine farm net pen structures and extending sufficiently high above the water around the marine farm to exclude such predators, but no higher;	Section 3
B. Limiting the maximum mesh size of any predator netting to 200 mm (the internal measurement when the net is stretched in the direction of the long diagonal of the meshes);	Section 3.2.1
C. Ensuring predator nets are sufficiently tensioned and maintained at that tension at all times so as to avoid entanglement of marine mammals and large sharks;	Section 3.2.2
D. Ensuring the twine diameter of the predator net is of a sufficient gauge to: <ul style="list-style-type: none"> I. be detected acoustically by dolphins; and II. avoid the entanglement of marine mammals or large sharks; 	Section 3.2.1
E. Predator net maintenance requirements, including: <ul style="list-style-type: none"> I. standards and scheduling; II. repairing holes and tears immediately; III. avoiding predator nets being left open over night or for extended periods of time; IV. avoiding forming entrapment pockets in predator nets; 	Section 3.2.2
F. Procedures for auditing marine farm security following any marine mammal gaining access beyond a predator net, and taking all practical steps to correct any faults found;	Section 5.2
G. Procedures to ensure visual surface marine mammal surveys are conducted prior to major net maintenance work and that nets are not opened, removed or shifted if dolphins are observed within 2km of the marine farm;	Section 3.2.4
H. Procedures for capture and release of any entrapped or entangled marine mammal and protected shark species;	Section 5.3 & 6.3
I. Procedures for the retrieval, storage and transport of dead marine mammals and protected shark species for formal identification and autopsy purposes;	Section 5.4 & 6.4
J. Staff training requirements, including identification of protected shark and dolphin species;	Section 7
K. Ensuring there is no feeding of marine mammals and sharks;	Section 5.1 & 6.2
L. Ensuring dead fish are removed promptly from the fish pens;	Section 6.2
M. Ensuring anchor warps are maintained under sufficient tension to prevent possible entanglement of cetaceans and large sharks;	Section 4.3

N. Ensuring all lines associated with the marine farm are secured at all times, and that any loose lines are secured and/or retrieved promptly;	Section 4.2
O. Ensuring that all nets are removed from marine farm structures that are left fallow, untended or are abandoned;	Section 4.4
P. Ensuring all net and cordage debris, plastic strapping and other marine farm, domestic or other non-biodegradable waste is collected, retained and disposed of at an approved solid waste facility onshore, and that if any loose debris does enter the water around the marine farm, it is retrieved from the seabed, water column or foreshore promptly;	Section 4.5
Q. Reporting requirements to the Marlborough District Council and the Department of Conservation, and in particular: <ul style="list-style-type: none"> I. a minimum of annual summary reports of all incidents involving marine mammals and protected sharks becoming entangled or entrapped at a marine farm; II. immediate reporting (within 24 hours) of any incident where a marine mammal or protected shark may be injured or killed; III. reporting (within one week) of actions undertaken to remedy any unforeseen events such as a marine mammal or protected shark becoming entrapped or entangled at a marine farm. 	Section 8

Appendix 2 - Summary of Key Management Actions

General Protocol:

- It is company policy for all NZKS staff to strictly follow the guidelines of the NZKS permit to 'take' marine mammals as issued by DOC dated 20 June 2014.
- It is company policy for all NZKS staff to strictly follow the guidelines of this Marine Mammal and Shark Management Plan.

Predator Exclusion:

- Predator exclusion nets must be used to minimise the potential for sharks and marine mammals to enter NZKS marine farms.
- The construction of predator exclusion nets from thick, soft 'Rochelle' netting is a current requirement under the NZKS permit to take marine mammals.
- The maximum mesh size of predator exclusion net is 200 mm, the minimum gauge of the mesh twine should be 3.5 mm, and predator exclusion nets should be 2 – 3m in height above the sea surface.
- Predator exclusion nets should be kept taut at all times. Regular maintenance is critical and should follow the prescribed schedule.
- The duration for which the nets are left open must be minimised and nets shall not be left open overnight.
- Prior to major net maintenance, visual surveys for marine mammals must be conducted. Work shall not commence until dolphins have moved outside of the 2km radius surrounding the NZKS marine farm.

Mitigating Against Entanglement:

- Unsecured lines must not be present within the marine farm.
- Anchor warps must be maintained under sufficient tension.
- All submerged nets, except those in use, must be lifted or removed.

Marine Mammals:

- No feeding of marine mammals is permitted at NZKS farms.
- All practical steps must be taken to correct any farm security issues identified following a marine mammal gaining access.
- Only trained staff are permitted to handle seals.
- Take every precaution to avoid being bitten whilst handling seals. Seek medical advice if bitten. Wear gloves when handling seals.
- Dives should be terminated if aggressive seals are encountered.
- No person shall enter the water with an entangled marine mammal.
- For all marine mammal mortalities, DOC must be contacted by phone before the animal is moved.
- A Marine Mammal Fatality form must be completed for any mortalities.

Sharks:

- No feeding of sharks or fishing for sharks is permitted at NZKS farms. Dead salmon must be promptly removed from the farm.
- The NZKS shift supervisor will approve any shark related operation.
- No person shall enter the water with an entangled shark.
- For all protected shark mortalities, DOC must be contacted by phone before the animal is moved.
- A Protected Shark Fatality form must be completed for any mortalities.

Training:

- Only trained staff are permitted to handle seals.
- All staff must be trained in the identification of protected shark and dolphin species.

Reporting:

- The 'Marine Mammal and Protected Shark Incident Report' spreadsheet must be updated for every incident including protected sharks interaction.
- An Incident Form must be completed for every marine mammal or protected shark mortality. This reporting must occur within 24 hours of the event.
- The 'Marine Mammal and Protected Shark Incident Report' spreadsheet is required to be sent to DOC every six months.
- An annual report must be prepared for each farm to summarise marine mammal and protected shark incidents.

Appendix 3 - NZKS Permit to 'Take' Marine Mammals

Appendix 4 – Incident Reporting Spreadsheet

The **Marine Mammal and Protected Shark Incident Report** spreadsheet can be found on the NZKS network:

N:\Aquaculture\Marine Mammals\NZKS Seafarms Marine Mammal and Protected Shark Incident Report for DoC

NZKS Marine Mammal and Protected Shark Incident Report.						
Date	Seafarm	Type of Incident	Action take	Outcome	Report to DoC	Recommendation & Notes
3 August 2014	Ruakaka	Seal inside predator net	Found & repaired a seal size hole next to the valley	Released	No	
6 August 2014	Ruakaka	Other	Abort task in the area	Other (recommendation)	No	Seals harassing divers working in predator nets. H&S fo
24 August 2014	Ruakaka	Seal in pen	Remove seal from M14C loading the jump fence and let o	Removed	No	Follow up for reentering. Though is the enter was jumpi
1 September 2014	Wahinau	Seal inside predator net	Seal climbed out over bridge	Released	No	Jump fence checks done -FT due soon also
31 August 2014	Te Pangu	Seal in pen	Removed from the farm	Removed	No	Reported to FT. Jump fence checks completed
2 September 2014	Te Pangu	Seal in pen	Removed from the farm	Removed	No	Reported to FT. Jump fence checks completed
3 September 2014	Te Pangu	Seal in pen	Removed from the farm	Removed	No	Reported to FT. Jump fence checks completed
11 September 2014	Te Pangu	Seal in pen	Removed from the farm	Removed	No	Reported to FT. Jump fence checks completed
17 September 2014	Te Pangu	Seal in pen	moved from the farm. Contact Field Team.	Removed	No	Reported to FT. Jump fence checks completed
15 September 2014	Clay Point	Dead Seal	Photograph on Net Cleaner monitor,	Disposal	Yes	Removed from the net by Field team. Taken to the Tory Cl
10 October 2014	Te Pangu	Seal in pen	Removed from the farm. Contact Field Team.	Removed	No	Reported to FT. Jump fence checks completed
12 October 2014	Te Pangu	Seal in pen	Removed from the farm. Contact Field Team.	Removed	No	Reported to FT. Jump fence checks completed
14 October 2014	Te Pangu	Seal in pen	Removed the 2 seals from the farm. Contact Field Team.	Removed	No	Reported to FT. Jump fence checks completed
15 October 2014	Te Pangu	Seal in pen	Removed from the farm. Contact Field Team.	Removed	No	Reported to FT. Jump fence checks completed

Appendix 5 - Disposal Sites: Marine Mammals and Protected Sharks

Appendix 6 - Protected Shark Identification

Appendix 7 - Dolphin Identification Guide