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Part 1: Introduction

The following Operational Procedures (OPs) stipulate the requirements for mitigating incidental captures of marine mammals as agreed by quota owners. Please note that any references to fur seals and sea lions within this OP refer specifically to New Zealand fur seals and New Zealand sea lions.

Purpose of these Procedures

The purpose of this Marine Mammal Operational Procedure (MMOP) is to reduce the risk of incidental captures of marine mammals during deepwater trawling operations in New Zealand's Exclusive Economic Zone (EEZ) and to enable proper reporting.

This MMOP applies to all trawlers over 28 m in length fishing within the EEZ and relates to any of the protected marine mammal species encountered during fisheries operations including sea lions, fur seals and common dolphins.

This MMOP provides information on:

- Procedures you should follow if a marine mammal is incidentally captured (Part 1).
- Mitigation measures you should take to avoid such captures (Part 2).
- Crew health and safety when dealing with marine mammals.
- Identification guide for key marine mammal species.

***Disclaimer:** This MMOP does not replace any fisheries legislation or regulations. Vessel Operators are required to ensure that crew understand all regulations that are in place for the fisheries they are operating in.*

Objectives of the Procedures

The objectives of the MMOP are to:

- Minimise the incidental capture of marine mammals during trawling operations.
- Ensure safe and proper handling of live and dead marine mammals.
- Enable proper collection and reporting of information, this to further improve mitigation of marine mammal interactions.

Legislative Framework

The key legislation that underpins the management and protection of marine mammals in New Zealand includes:

- *Marine Mammals Protection Act 1978:* requires that the accidental capture of any marine mammal is permitted provided that the capture is reported to the appropriate authority without delay. It is an offence to accidentally capture a marine mammal and to not report it.
 - *Fisheries Act 1996:* requires that measures are taken to avoid, remedy or mitigate any adverse effects of fishing related mortality on any protected species.
-

OPERATIONAL PROCEDURES MARINE MAMMALS

Part 2: If a Marine Mammal Capture Occurs

The following outlines what to do if a marine mammal capture occurs.

Reporting and Record Keeping Obligations

DWG Trigger Points

Report breaches of trigger points immediately to DWG.

Species	Captures per 24hrs	Captures per 7 days	Trigger Action
Sea lion	1	n/a	<ul style="list-style-type: none"> ● Advise your vessel manager ● Record capture event including location of capture in ship's log ● Complete the sea lion capture questionnaire (Appendix 3) ● Report capture to DWG either directly or via shore management
Fur seal	2	5	<ul style="list-style-type: none"> ● Advise your vessel manager ● Record capture event including location of capture in ship's log ● Ensure gear failures are addressed with the gear either on board or at a depth >50m. ● Report capture to DWG either directly or via shore management
Dolphin	1	n/a	<ul style="list-style-type: none"> ● Advise your vessel manager ● Record capture event including location of capture in ship's log ● Contact and advise any other fishing vessels in vicinity (VHF) ● Ensure gear failures are addressed with the gear either on board or at a depth >50m. ● Report capture to DWG either directly or via shore management

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Ministry Reporting and the Law

It is not illegal to accidentally capture a marine mammal but it is illegal to fail to report the capture.

Report all captures as legally required at the end of every voyage, on the Ministry's Non-Fish / Protected Species Catch Return form. This form must be returned to the Ministry.

The vessel master should also record the capture event in the vessel's log, including the following information:

- The position of any captures and of returning any animals to the sea (latitude and longitude).
If there is any doubt regarding the identification of a sea lion take a clear photograph of the animal's head and of the whole body. Send these to DWG once voyage complete.
- The species name (if known). All care should be taken to correctly identify the species. Part 6 is a guide to help identify marine mammals.
- A brief description of the conditions and circumstances that may have contributed to the capture event.
- A brief description of the condition of the mammal when recovered from the gear.
- Any existing tag information (location, colour, and especially numbers).

Additional Reporting Requirements for the SQU6T Fishery

If you fish in SQU6T you must also:

- Comply with the reporting requirements detailed in the SQU6T Operational Plan for that season.
- Complete the Sea Lion Capture Questionnaire Reporting Form and submit to DWG immediately (see Appendix 3).

Retaining Dead Marine Mammals Onboard

Conditions of Retention

Whole dead marine mammal bodies may need to be retained onboard a vessel at the request of a Ministry observer. The Ministry observer will have hygienic body bags available for the storage of these mammals.

Food Safety Issues

The Ministry of Agriculture and Forestry (MAF) Verification Authority has approved the conditions for body bag storage in the vessel's fish hold.

Handling and Storage Procedures

If animals are required to be retained onboard the handling instructions below must be followed:

- Record any tag or branding information on the animal.
 - Marine mammals should be placed in a body bag and freezer hold as quickly as possible.
 - Ensure the body bag has no tears or leaks.
 - Handle the animals with care to minimise post capture damage.
 - Move animals in bags carefully, avoid tearing bags on sharp corners.
 - Lift, do not drag over the deck, and do not drop the bags down stairs or into the freezer hold.
-

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Returning Marine Mammals to Sea

Marking of Dead Fur Seals and Sea Lions Returned to Sea

Any dead fur seal or sea lion returned to the sea must be marked. The purpose of marking is to avoid the same animal being counted twice should the body be caught again.

When marking a dead animal please:

- Be sure you have made the correct identification between fur seal and sea lion. Use the ID guide in Part 6 to help identify marine mammals.
- Use either a cable tie or twine fixed firmly behind the lower or upper jaw canine teeth.



Drawing © M Cawthorn

Marking Dead Fur Seals and Sea Lions

OPERATIONAL PROCEDURES MARINE MAMMALS

Part 3: Mitigation Measures

The following outlines the mitigation measures for incidental captures.

General Measures to Reduce Fur Seal and Sea Lion Interactions

Risk Mitigation Measures

Marine mammals are most at risk when trawls are on or near (within 50 m) of the surface. Food in the net is the key attractant. Any action taken to reduce the time the net is on the surface is effective to reduce risk. All vessels must adopt the following practices to minimise accidental catches of marine mammals.

Shooting and Hauling

- Remove all 'stickers' (meshed fish) before shooting the trawl.
 - Undertake shooting and trawling as quickly as possible.
 - If large numbers (> 5) of fur seals or sea lions congregate around the vessel when the gear is hauled, the vessel should steam away from large (> 5) congregations of them before setting the gear again.
 - Always endeavour to mend the trawl with the whole net on deck. If this is not possible, avoid mending when hauling.
 - Each vessel shall designate one or more named crew member(s) to be on watch during every shoot or haul and determine if marine mammals have been captured and to organise timely humane assistance to release captured animals alive.
-

Gear Failures

Gear failures, particularly when shooting or hauling, create high risk situations for marine mammals.

Reports show that multiple marine mammal captures occur more often when gear failures leave gear on the surface of the water with the net mouth open for extended periods.

In the event of a gear failure which may delay the shooting or hauling of the gear either of the following should occur:

- Keep the gear deep in the water even if this means re-shooting the gear. If the gear is to remain in the water the gear headline height should be at least below 50 m and preferably below 100 m, or
 - Bring the gear on board – or at least the ground rope and headline to ensure the net mouth is closed.
-

Rationale

Marine mammals appear most at risk when trawls are on or near (within 50 m) of the surface especially for extended periods.

OPERATIONAL PROCEDURES

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Fish Offal and Rubbish Disposal

The management of offal and waste disposal is comprehensively addressed in your Vessel Management Plan (VMP).

However, the following information also supports the reduction in the risk to marine mammals.

- Fur seals and sea lions eat fish and offal discarded from fishing vessels. These discards are likely to keep marine mammals near a vessel and this is to be avoided.
- Fish offal and waste fish must be fish-mealed where possible. If fish waste discharging is unavoidable, then do not discharge while shooting or hauling the net. Ensure a fish waste holding facility is available to allow this (see your vessel's VMP for further information).
- Maritime Regulations prohibit the dumping of any plastic waste and netting at sea. Marine mammals may become entangled in such rubbish. Marine mammals and seabirds are known to ingest such waste.



Photo courtesy of DOC

NZ sea lion at Auckland Islands entangled in waste netting

Measures to Reduce Dolphin Interactions

Common Dolphin Captures

Dolphins are an iconic species and have an especially high profile amongst the community. Therefore it is essential that we:

- Manage risk to keep incidental captures of dolphins to a minimum.
- Ensure timely and accurate reporting of any incidents.

Jack Mackerel Fishery

Incidental captures of common dolphins occur mostly in the jack mackerel fishery in the Challenger and Central fisheries management areas (FMAs 7, 8 & 9).

Common dolphins may feed on mackerel so there will be times when fishing grounds and dolphin activity overlap. They are also believed to feed in groups, which can increase the risk of multiple capture events.

Current information shows that the risk of dolphin capture increases:

- During the early hours of the morning,
- When the headline is within 30 m of the surface,
- North of latitude 38°S (and with low risk south of 40°30'S)

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Operational Management Particular to Dolphins

The following procedures are particular to dolphin incidental capture mitigation:

- When visibility permits, the officer on watch will view the immediate area around the vessel for dolphin activity before shooting the fishing gear. If dolphin sightings are confirmed, the vessel will move from that immediate area.
- Before re-setting the gear, the officer on watch must confirm that the new area is also visibly clear of dolphins.
- When a vessel moves for this reason it should be recorded in the ship's log.
- If vessel turns are made during trawling, the doors must be hauled to (or above) the surface of the water so the trawl wing ends are closed before undertaking the turn.
- Shooting and hauling of fishing gear must be completed as quickly as possible. Turns at speed should be avoided when about to haul or during hauling.
- Vessels will not shoot or haul the net between the hours of 02:30hrs and 04:30 hrs *Note: this procedure does not apply below latitude 40° 30' S.*
- The Dolphin Dissuasive Device (DDD) shall be deployed on every JMA7 night time tow (record its deployment in the DWG- DDD log form).

Reporting

Each vessel must designate one crew member to observe each haul to determine if dolphins have been captured and to organise immediate and careful assistance to any live animals brought on deck.

Reporting Each Capture

When a dolphin is captured, the officer on watch will immediately contact any other vessels fishing for mackerel within the general vicinity (i.e. VHF range – approx. 20 nm and using the radar to indicate how many vessels to contact) notifying that a capture event has occurred and the vessel's hauling position. This will alert other vessel Captains that dolphins are in the immediate area.

The duty officer must also record in the ship's log:

- The haul position.
- The time the haul was made.
- The number of dolphins captured.
- Details of the other vessels contacted.

DWG Trigger Action

Vessels must report every dolphin incidental capture event on the day these occur to their vessel manager; the manager must ensure DWG are notified immediately.

Use the dolphin ID information (Part 6) of the current Marine Mammal Operational Procedures (MMOP), to ensure accurate species identification.

When a multiple capture event occurs the vessel will immediately contact their vessel manager for advice. Individual vessel or fleet decisions may be made to move from the immediate fishing area depending on numbers of dolphins captured and the risk of further captures.

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Part 4: Health and Safety Issues

The following outlines the health and safety requirements for incidental captures.

Handling Marine Mammals

Seals and sea lions can carry a number of infectious diseases which can infect humans. Live marine mammals can also be potentially dangerous to humans particularly when they are in stressful situations. Handling marine mammals should always be kept to a minimum and should only occur in when needed.

When attending to animals landed on deck the following steps should be followed to ensure crew safety:

- Whenever handling bodies of drowned sea lions, fur seals, or any other marine mammals, wear waterproof gloves and waterproof protective clothing (refer examples illustrated in Part 5).
- Where possible, avoid direct contact with blood, urine, faeces and other body fluids. It is also important to avoid the mouth of the marine mammal as this is a major source of disease. Take special care when marking an animal.
- If bitten or grazed by a marine mammal, wash and disinfect the wound immediately, apply betadine/antiseptic ointment and cover the wound. This minimises the risk of “seal finger”, a chronic and very painful infection caused by bacteria carried by some marine mammals.

After handling any marine mammal, crew should wash their hands and forearms with antibacterial soap and their protective clothing by hose down.

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Part 5: External Review – System Verification

The following outlines the external review requirements for incidental captures.

VMP and MMOP Ministry Observer Review

During any voyage with a Ministry observer present, they will review the vessel equipment and performance against the vessel's current VMP and MMOP.

The review form (Appendix 2) is used to document the assessment of vessel and crews' performance and can be used to identify what to expect during the process.

The review form is completed by the observer at the end of the voyage and submitted to the Ministry. A copy is also sent to the DWG for review, who then forward this to the vessel operator.

Any negative issues or events noted by the observer against the vessel or crew performance regarding the VMP or MMOP will be followed up and addressed with the vessel operator. Good performance will also be noted.

If in doubt, talk to the Observer about your performance and address any issues immediately. When the report is good, thank your crew.

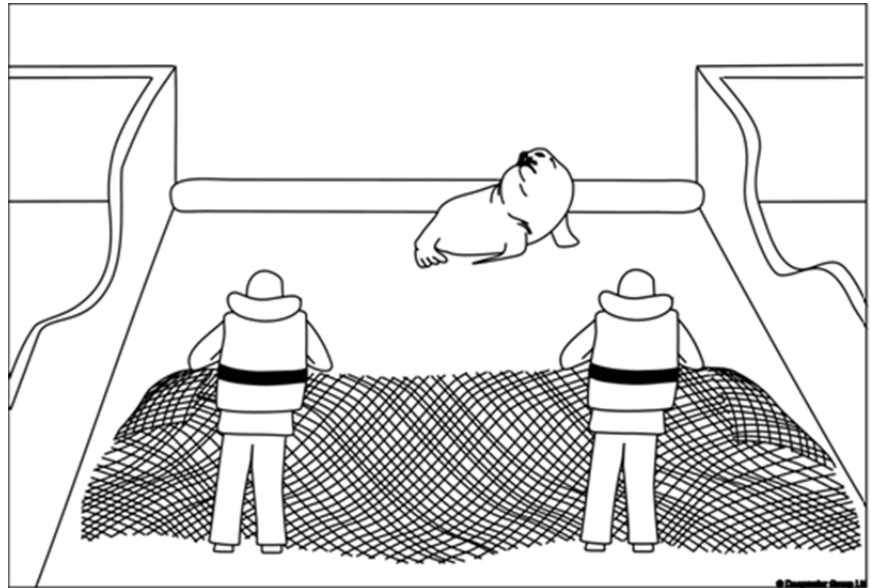
OPERATIONAL PROCEDURES MARINE MAMMALS

Part 6: Humane Removal of Live Seals/Sea Lions from Fishing Vessels

The following outlines how to humanely remove live seals or sea lions from fishing vessels.

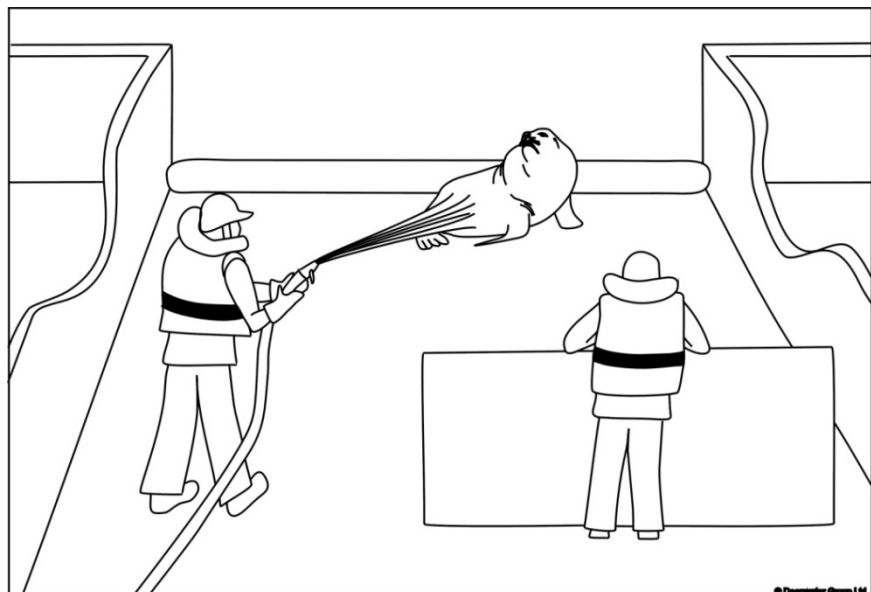
Using Netting

Netting used as a moving barrier to herd a seal along the deck.



Using Fire and Deck Hoses or Plywood Sheets

High pressure hoses or sheets of plywood can also move animals without causing injury.

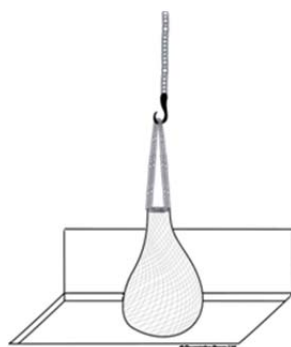
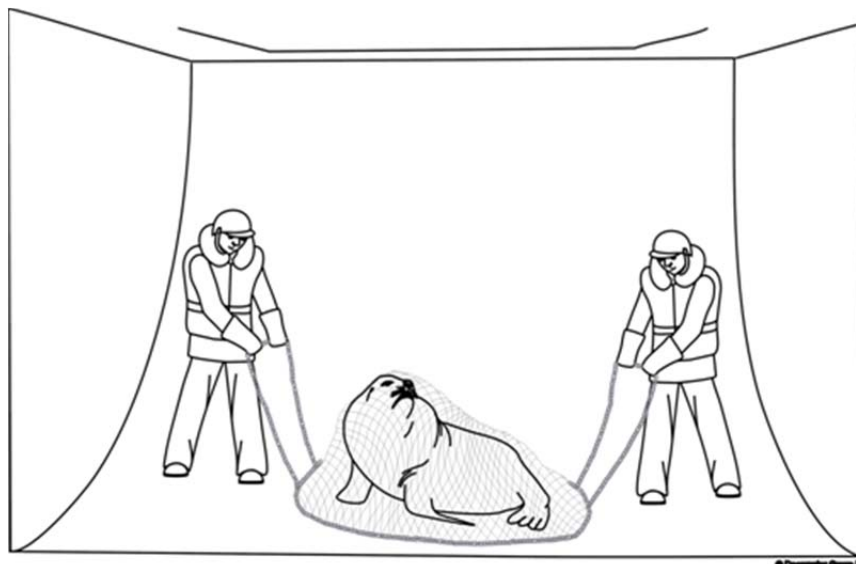


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Use Nets in the Pounds

Use circular nets that can be pulled together using two closing lines. This is the best method to remove large animals from enclosed areas, such as fish pounds or bunkers.



Returning Live Marine Mammals to the Sea

Every care should be taken to reduce stress on and ensure no injury to the animal when it is being returned to the sea alive. If possible give animal's time and space to leave the vessel. Do not take actions that will antagonise the animal and do not allow crew to be in its path or escape route. Watch carefully for signs of aggression in the animal.

OPERATIONAL PROCEDURES MARINE MAMMALS

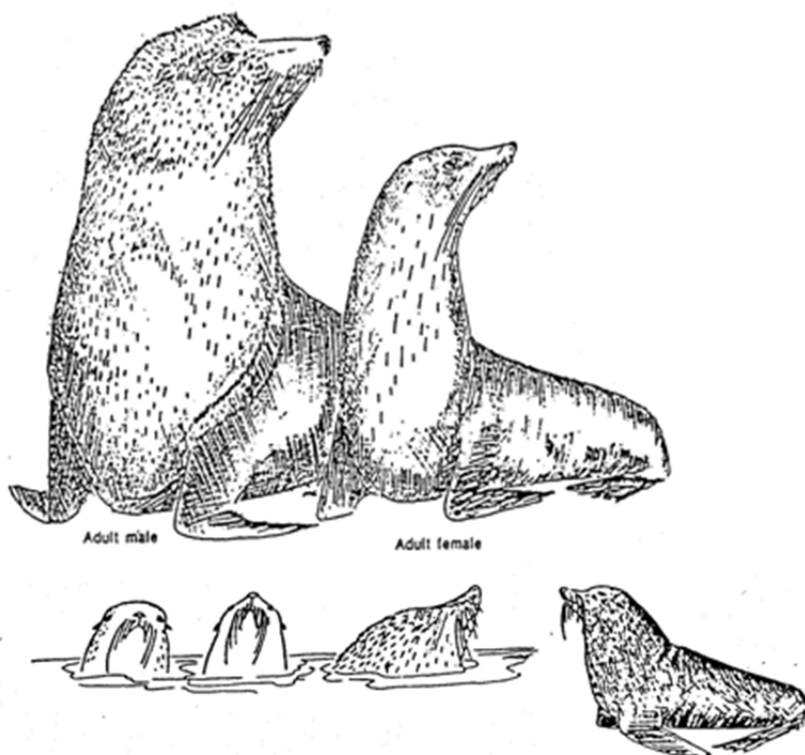
Part 7: Identification of Key Marine Mammal Species

The following outlines how to identify key marine mammal species.

New Zealand Fur Seal

Characteristics

- Sharp pointed nose
- Very long whiskers reaching back to ears
- Dense brown fur
- Ears on side of head
- Length of Males = 1.8 m
- Length of Females = 1.2 m



Drawings © M Cawthorn

Note: Long whiskers in diagrams above contrast with the short whiskers found on New Zealand sea lions.

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Identification Photos: NZ Fur Seals

Photo 1

New Zealand fur seal: Its nose is too pointy to be a young male sea lion, colour too dark to be a female sea lion (Note: tag on flipper, numbers from such tags should ALWAYS be recorded and reported)



Photo 2

New Zealand fur seal: See its long whiskers and pointy nose, dark coloured fur, not hair (Note: tag on flipper)



Photo 3

New Zealand fur seal: See again its long whiskers (notice they reach past ears), pointy nose and dark colouring



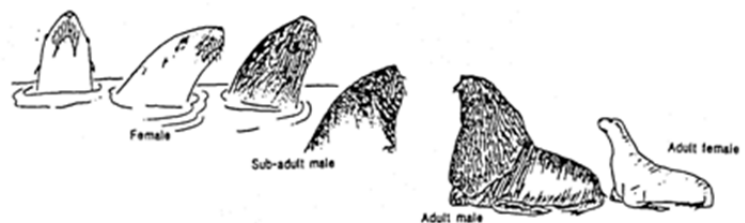
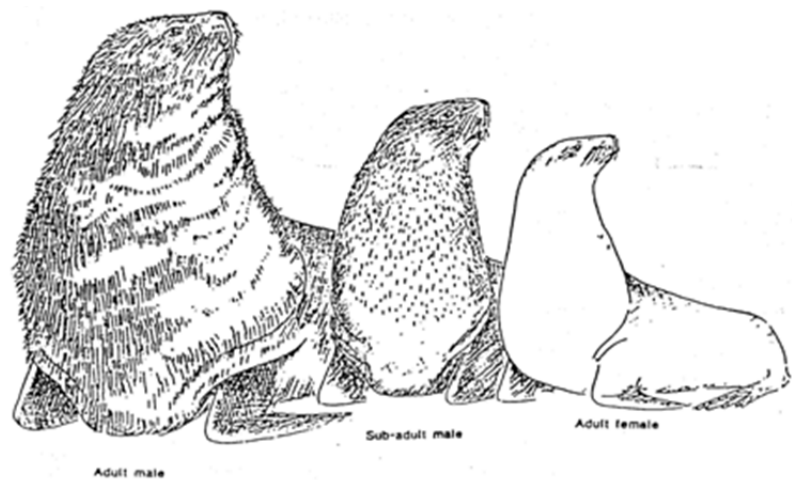
OPERATIONAL PROCEDURES

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New Zealand Sea Lion

Characteristics

- Blunt dog-like nose
- Short whiskers that do not reach ears
- Short hair not fur
- Ears on side of head
- Colour & length:
 - Males: grey-brown/brown, 3.3m maximum length
 - Females: grey-blue on back when wet, creamy white beneath, 2m maximum length



Drawings © M Cawthorn

Note: the short whiskers in diagrams above contrast with long whiskers found on New Zealand fur seal.

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Identification Photos: NZ Sea Lions

Photo 1

Female New Zealand sea lion: See light colouring, blunt nose, short whiskers (Note: tag on flipper, always record any numbers on these and report).



Photo 2

Male New Zealand sea lion: See very blunt nose and short whiskers, dark colouring, mane of hair not fur.



Photo 3

Mature male New Zealand sea lion: See very large size (twice that of a fur seal), blunt nose, short whiskers, dark colouring, mane of hair.



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Photo 4

Young male New Zealand sea lion: See again the blunt square nose and short whiskers, colour darker than a female sea lion, but no mane like a fully-grown male sea lion (Note: tag on flipper).



Other Less Common Seals

Elephant Seal



Photos Crown Copyright: Department of Conservation Te Papa Atawhai

Leopard Seal



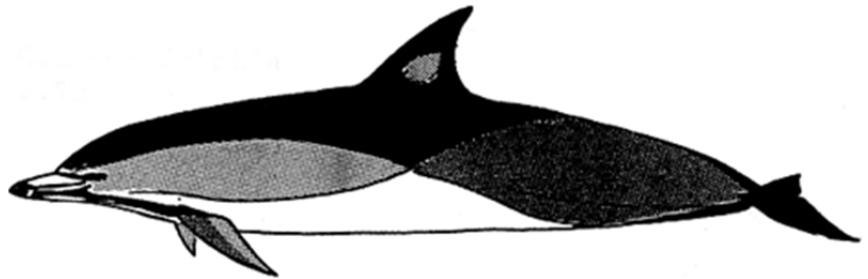
Photos Crown Copyright: Department of Conservation Te Papa Atawhai

Both the above seals have no ears, which is opposite to New Zealand fur seal and New Zealand sea lion. They are very unlikely to be taken in trawl fisheries but occur in New Zealand fisheries waters.

OPERATIONAL PROCEDURES MARINE MAMMALS

Dolphins

Common Dolphin
(Length 2.5m)



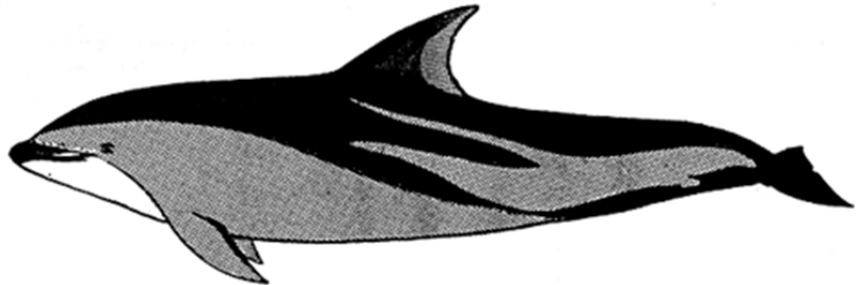
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Bottlenose Dolphin
(Length 3.8m)



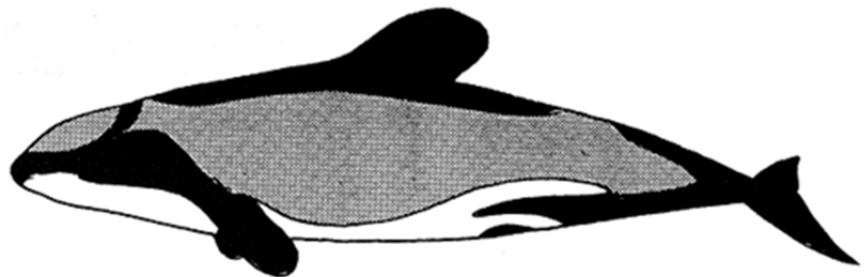
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Dusky Dolphin
(Length 2.0m)



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Hector's Dolphin
(Length 1.7m)



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Appendix 2: Ministry VMP and MMOP Observer Review Form

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**Vessel Management Plan/Marine Mammal Operating Procedure
Observer reviews** (Version 3 - Dec 2009)

1. Write the trip number start date of trip / /
and vessel name

2. If any of items 1-9 are "U" or "N" then a comment is required in section 5: Y/N/U

Item 1.	Did the vessel have a copy of the Marine Mammal Operating Procedure?.....	<input type="checkbox"/>
Item 2.	Was a Vessel Management Plan onboard and was it specific to this vessel?.....	<input type="checkbox"/>
Item 3.	Were key crew members familiar with the contents of the above documents?.....	<input type="checkbox"/>
Item 4.	Did the crew clear the net of "stickers" before shooting?.....	<input type="checkbox"/>
Item 5.	Did the vessel attempt to minimise the amount of time the net spent on the surface?.....	<input type="checkbox"/>
Item 6.	Did the vessel refrain from discarding plastic or netting?.....	<input type="checkbox"/>
Item 7.	Did the vessel use mechanisms or procedures that reduced accidental discharge of floor offal and fish to the sea (e.g. grates)?.....	<input type="checkbox"/>
Item 8.	Did the vessel steam away from large congregations of marine mammals?.....	<input type="checkbox"/>
Item 9.	Did the vessel refrain from setting gear when dolphins were nearby?.....	<input type="checkbox"/>

3. Items 10-12 use "Y" to indicate which options were present:

Item 10.	The seabird scaring devices available during this trip were: None Tori Line Bird Baffle Warp Scarer Other	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Item 11.	The most regularly used seabird scaring device was: None Tori Line Bird Baffle Warp Scarer Other	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Item 12.	The main offal management strategy employed during this trip was: Meal Held Batch Mince Other	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

4. If any of items 13-20 are "Y" or "U" then a comment is required in section 5: Y/N/U

Item 13.	When targeting JMA, was there evidence to suggest that the net was shot or retrieved between 2:30am and 4:30am NZST (Only applies north of 40 deg 30 mins S).....	<input type="checkbox"/>
Item 14.	Was offal or fish discharged during net shooting or net retrieval periods?.....	<input type="checkbox"/>
Item 15.	Was an additional seabird mitigation device(s) deployed during this trip?.....	<input type="checkbox"/>
Item 16.	During turns, were the doors ever fully submerged with a headline depth of less than 100m?.....	<input type="checkbox"/>
Item 17.	Was there a designated crew member looking for marine mammal captures?.....	<input type="checkbox"/>
Item 18.	Were any marine mammal or seabird 'trigger' points activated during this trip?.....	<input type="checkbox"/>
Item 19.	Were there equipment failures that increased seabird/marine mammal capture risk?.....	<input type="checkbox"/>
Item 20.	Were there any other notable seabird or marine mammal related events during this trip?.....	<input type="checkbox"/>

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Appendix 2: Ministry VMP and MMOP Observer Review Form

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5. Make a detailed comment for each Item when required.

Item No <input type="text"/>	
Item No <input type="text"/>	Item No <input type="text"/>
Item No <input type="text"/>	
Example Only	
Item No <input type="text"/>	Item No <input type="text"/>
Item No <input type="text"/>	
Item No <input type="text"/>	Additional Comments <input type="text"/>

OPERATIONAL PROCEDURES MARINE MAMMALS

Appendix 3: Sea Lion Capture Questionnaire Form

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Sea lion Capture Questionnaire Reporting Form			
Date Sea lion Captured:		Date form filled out:	
Voyage Start Date:		Voyage End Date:	
Company Name:			
Vessel Name:		Vessel Call Sign:	
Captain Name:		Observer (none, MFish, Comp etc):	
Vessel Fishing Gear & Performance			
Vessel Tow Speed		Name of Net	
Net Type – MW or BT		Headline height	
Door spread (m)		Wing end spread (m)	
Ave depth of tow line		# of turns during tow	
Shoot & haul position (lat/long)		Depth of doors when turning	
Length of time to haul gear		Any mechanical	
Vessel haul back or still maintained forward speed		Proximity to nearest other vessel and	
Environmental Conditions			
Water Temperature		Proximity to land	
Weather conditions / Swell height		Wind speed & direction	
Catch & Processing			
Processing state (DRE, etc)		Offal discharges during tow (continuous, etc)	
Catch total for the tow (kg)		Target species (squid + kgs)	
Bycatch total (kg)		Any other main bycatch (crabs)	
SLED			
SLED ID number		Is SLED damaged?	
If damaged – what is damaged?			
Sea lion			
Dead or Alive?		Warm and/or foaming mouth?	
Decomposed or smelly?		Was animal already tagged?	
Take photo of animal		Approx weight?	
Noticeable marks on		Male or female?	
Length of animal		Retained or returned to sea?	
Position when returned to		Released animal tagged & ID number	
Position animal found – where in net (codend / against SLED / in hood etc)			
Additional Comments			
Skipper's observations			

Return to the Deepwater Group Ltd either by post, fax or email as per below:
Post: Deepwater Group Ltd, PO Box 1460, Nelson, Attn: Marine Mammal Reporting
Fax: (03) 545 7021 Email: admin@deepwatergroup.org