Appendix 3

Decommissioning Marine Fauna Interaction Management Plan

Prepared Jointly By: *NSW Department of Primary Industries*

&

Huon Aquaculture Company Pty Ltd

February 2022

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Review history

Version	Date of review	Notes
2	May 2018	Listing of entanglement respondent members for the MARL updated.
3	July 2021	Updated for decommissioning
4	December 2021	Further updated to reflect proposed decommissioning activities
5	February 2022	Final update to reflect finalised decommissioning activities

1 Introduction

The Decommissioning Marine Fauna Interaction Management Plan has been developed to identify and mitigate potential impacts on marine fauna through direct and indirect interactions during decommissioning operations at the Marine Aquaculture Research Lease (MARL). The plan includes a Marine Fauna Interaction Protocol, Marine Fauna Monitoring Program, Light Spill Management Plan and an Observer Protocol which have been prepared as a combined document as the matters are interrelated.

In accordance with consent condition D12 & D12A of the State Significant Infrastructure Approval SS1-5118, the Marine Fauna Interaction Protocol component of this document details the following:

- Details of the measures employed to remedy, alleviate and reduce the incidence of marine fauna interactions; and
- Details of an Observer Protocol

In accordance with consent condition D16 of the State Significant Infrastructure Approval SSI-5118 (now SSI-5149), the Marine Fauna Monitoring Program component of this document details the following:

- Details of the White Shark and Grey Nurse Shark monitoring program;
- Cetacean interaction register; and
- Macrobenthic fauna monitoring.

The macrobenthic fauna monitoring has not been included in this plan as it has been incorporated within the Water Quality and Benthic Environment Monitoring Program.

In accordance with consent condition D21 of the State Significant Infrastructure Approval SS1-5118, the Light Spill Management Plan component of this document details the following:

- Details of any research proposed to be undertaken; and
- Details of procedures that will be implemented to minimise light disturbance.

The MARL is located within a Habitat Protection Zone of the Port Stephens – Great Lakes Marine Park. In addition, vessels involved in decommissioning operations at the MARL may pass through other zones within the marine park. The marine park zones have various specific restrictions that apply to the protection of marine fauna, for example, the Cabbage Tree Island Habitat Protection Zone has restrictions on the use of lights, which has been included in this plan.

The Decommissioning Marine Fauna Interaction Management Plan will be supported with relevant policies, protocols, and safe work method statements to promote a comprehensive approach to decommissioning operations that have the potential to impact on marine fauna.

2 Marine Fauna Interaction Committee

The original Marine Fauna Interaction Management Plan was been developed in consultation with the Marine Fauna Interaction Committee which consisted of the following personnel:

- Susan Crocetti (Wildlife Team Leader, Biodiversity and Wildlife Unit) National Parks & Wildlife Service NSW,
- Professor Robert Harcourt, Department of Biological Sciences, Macquarie University;
- Professor Wayne O'Connor (*Principal Research Scientist),* NSW Department of Primary Industries;
- Mr David Whyte *(former Group Technical Manager),* Huon Aquaculture Group Limited; and
- Mr Luke Erskine (*Manager, Port Stephens – Great Lakes Marine Park*), NSW Department of Primary Industries.

See Table 1 for the contact details of the Marine Fauna Interaction Committee and additional entanglement respondent members.

3 Light Spill Management Plan

The Light Spill Management Plan has been developed to monitor and mitigate any potential light disturbance to marine fauna species, notably seabird species. The Gould's petrel (*Pterodroma leucoptera*) is of particular importance due to the presence of critical breeding habitat on Cabbage Tree Island and Boondelbah Island (DECCW, 2010).

The decommissioning operations at the MARL involve the deployment of navigation marks which include flashing lights and the use of vessels. All staff operating at the MARL will be advised of the PSGLMP vessel light restrictions that relate to the CBT HPZ and should be observed when operating within proximity to Cabbage Tree Island. Refer to Section 3.2 for further details.

3.1 Navigation Lights

Navigation lights are required for the safe passage of vessels transiting near the location of the MARL. These lights will be placed on the extremities of the MARL to define the lease

boundaries and consist of a low intensity flashing light to meet legal maritime requirements. These lights are not known to have a significant impact on marine fauna.

3.2 Vessel Lights

It is anticipated that the decommissioning operations will occur during daylight hours at the MARL, however, should night time operations occur, the following mitigation measures will be implemented to minimise the potential for light spill impacting on marine fauna:

- All staff will be advised during their induction of the need to minimise all potential sources of light that may impact on marine fauna, especially seabirds;
- External vessel lights where practicable, will be shielded to primarily focus light downward on to work platforms or work sites;
- External vessel lights will be switched off when not in use or not required for safe navigation;
- Vessel windows where practicable, will be installed with a coating, blinds or shutters to mitigate potential light spill from the cabin of the vessel;
- Internal lights that are not required for personal safety or for safe navigation will be switched off; and
- All marine fauna interactions will be recorded in the Marine Fauna Interaction/Observation Register and reported to the Marine Fauna Interaction Committee.
- All staff will be aware that vessel light restrictions occur within the Cabbage Tree Island HPZ and surrounding sanctuary zone. Vessel lights can confuse and stress little penguins and Gould's petrels returning to their nests on Cabbage Tree Island at night. For these reasons light restrictions have been implemented in the CBT HPZ and will be communicated to all staff operating the lease:
    - No lights can be switched on for longer than 5 minutes in any 60 minute period, except for:
        - A light required to be used under the Navigation Act 1901 or the Marine Safety Act 1998; or
        - A bait collection light suspended less than 5 metres high and which projects a spread of light downwards that is less than 20 metres at its widest point.

4 Observer Protocol

The Observer Protocol aims to minimise adverse interactions between decommissioning operations at the MARL, marine fauna and other waterway users by early detection of marine fauna and associated issues. The Observer Protocol is a key component of the Decommissioning Marine Fauna Interaction Management Plan.

A nominated observer must be present during all vessel movements and decommissioning operations to minimise the risk of vessel strikes and navigational issues, as well as monitor marine fauna interactions. Appropriate distances from marine fauna where practicable will be maintained by decommissioning vessels when in transit.

If decommissioning activities are to be undertaken between the months of September to November the observer must be approved by NSW Office of Environment and Heritage (NSW OEH). Where safe to do so and following discussion with the vessel master, the directions of the NSW OEH approved observer must be complied with to mitigate any potential impacts on cetacean species particularly females with calves.

Observations of marine fauna interactions with the MARL and the service vessels or in close proximity to the MARL will be recorded on a separate Marine Fauna Interaction/Cetacean Report Form (See Attachment 1).

Particular attention will be given to dolphins and the movements of threatened and protected species, migratory species (e.g. Humpback and Southern Right whales, Great White Sharks, Grey Nurse Sharks, seals and Little Penguins) and light sensitive species (when conducting night work), as well as any vessel strike events, behavioural changes, entanglements and predatory interactions.

All observations will be summarised on the Marine Fauna Interaction/Observation Register (See Attachment 2) and these entries and any incident reports will be periodically reviewed to identify any issues of concern, areas of management, as well as contribute to the assessment of the impacts of the MARL as part of the research activities.

All records of marine fauna that are observed during decommissioning operations will be provided to the (i) ‘NPWS Wildlife Atlas’ database, (ii) local NPWS office at Nelson Bay, and (iii) to the Port Stephens – Great Lakes Marine Park office, for their records.

5 Marine Fauna Interaction Protocol

The Decommissioning Marine Fauna Interaction Protocol has been prepared based on the Marine Fauna Interaction Protocol which was in place during the operational phases of the MARL research trial. This protocol aims to minimise the potential for entanglement of marine fauna in sea pen and mooring infrastructure, as well as implement prompt and appropriate

management responses if an event occurs in order to maximise successful releases, as well as minimise injuries and stress to marine fauna.

If marine fauna become entangled the main priority is to assess their condition and determine the most appropriate and safe release method. It is also important to discern whether the animal needs to recuperate and be provided with further treatment under veterinary supervision. In the event of deceased animals, the carcasses of dead marine fauna will where possible be necropsied and then be disposed of appropriately following consultation with the Marine Fauna Interaction Committee. The method of disposal will be determined largely by the size of the carcase. Some carcasses may be kept for scientific purposes (e.g. Australian Museum or other authorised research institutions). National Parks and Wildlife Service (NPWS) – Wildlife Management Officers, will be consulted to ensure all relevant procedures have been carried out e.g. the incident has been recorded in Marine Fauna "Elements" Database.

All marine fauna interaction events will be recorded in the Marine Fauna Interaction/Observation Register (See Attachment 2). In the event of an entanglement, an incident report detailing the time, location, species and the entanglement circumstances, will be prepared and provided to members of the Marine Fauna Interaction Committee and any other relevant authorities. For further details refer to Attachment 3 – Marine Fauna Entanglement Report Form and Attachment 4 – Entanglement Assessment Process.

A risk assessment will be completed for all incidents which will form part of the post action report. In the event of a marine fauna entanglement, dependant on the species of marine fauna, the respective personnel listed in Table 1 should be contacted to ensure the appropriate fauna rescue/response team can be activated, e.g. cetacean – NPWS; sharks – NSW DPI.

Table 1: Listing of entanglement respondent members for the MARL.

Representative	Position	Name	Contact details
NSW DPI	Aquaculture Research Leader	Wayne O'Connor	T: 02 49163906 M: 0429 902893 wayne.o'connor@dpi.nsw.gov.au
Department of Biological Sciences, Macquarie University	Professor	Robert Harcourt	T: 02 9850 7970 M: 0421 780 434 robert.harcourt@mq.edu.au
Huon Aquaculture	Group Manager Sustainability	Matthew Whittle	M: 0438 566 259 mwhittle@huonaqua.com.au
NSW DPI	Research leader Scientist	Stewart Fielder	T: 02 49163902 M: 0408116007

			stewart.fielder@dpi.nsw.gov.au
NSW DPI	Policy Officer	Graeme. Bowley	T: 02 4916 3845 M: 0438264039 Graeme.bowley@dpinsw.gov.au
NSW DPI – Fisheries	Senior Research Scientist (sharks)	Nick Otway	T: 02 49163805 M: 0417273567 Nick.otway@dpi.nsw.gov.au
NSW DPI - Port Stephens – Great Lakes Marine Park	Manager	Luke Erskine	T: 02 4916 3976 M: 0427374561 E: luke.erskine@dpi.nsw.gov.au
NSW DPI - Port Stephens – Great Lakes Marine Park	Ranger	Richard McEvilly	T: 02 4916 3804 M: 0418710705 E: richard.mcevilly@dpi.nsw.gov.au
NSW DPI - Fisheries	Fisheries Officers	Rob Peever Mark Sherry	T 02 4916 3934 M:0427497341
NSW Roads & Maritime	Boating Safety Officer Myall Lakes	Tony Woodfield	M: 0428264316
NPWS	NPWS State Ops Duty Officer		T: 9895 6444
NPWS	Area Operations Coordinator Hunter Central Coast	Mark Ingram	T: 4984 8257

There are a series of requirements that the NSW DPI / Huon Research Team must adhere to in order to comply with the Marine Fauna Interaction Protocol including:

- Ensure all reasonable action to remedy, alleviate and reduce the incidence of adverse marine fauna interactions are undertaken;
- Conduct regular inspections of anchors, chains, ropes and buoys to ensure compliance with the ‘taut rope policy’ to minimise the chance of entanglement. These inspections should be conducted daily where practicable. Regular inspections also promote early detection of entanglements and/or entrapments which increases the chance of successful release of marine fauna and minimises the chance of infrastructure damage;
- Notify immediately relevant government agencies, including the NPWS and PSGLMP, if an entanglement incident occurs, including events where the entangled animal may have been released (assisted or self-released);

- Maintain a copy of the protocol and the contact details of members of the Marine Fauna Interaction Committee on all service vessels. In the event of an entanglement, the aquaculture permit holder must provide assistance to the committee if required, including the rescue team; and
- Document any incidence of death or injury to marine fauna associated with the infrastructure and activities of the MARL, including a statement of how the incident occurred and any action taken.

5.1 Shark Monitoring

Shark research has been undertaken by NSW DPI in collaboration with CSIRO and other researchers for a number of years. This research has included the monitoring of shark movements within NSW waters through the use of acoustic tagging and acoustic listening stations.

The monitoring program involves the capture and acoustic tagging of sharks which allows their movements to be monitored (for up to seven years, the life-span of the tags) around the Providence Bay region. Increasing numbers of White Sharks, Grey Nurse Sharks and other species of sharks are being tagged with R-coded acoustic tags (Bruce & Bradford, 2011; Otway & Ellis 2011) by NSW DPI, NSW MPA and the CSIRO for other research purposes. The data collected from the above research will assist in assessing if the MARL effected the behaviour and movements of White Sharks and Grey Nurse Sharks in the region.

All observations of shark interactions within the lease area during decommissioning operations will be recorded. In addition to the acoustic tracking, MARL staff will also use visual census techniques and recording of incidental sightings and behaviours (See Attachment 1). Observations will include occurrence, timing, behaviour and/or duration of shark occupation.

In accordance with environmental monitoring requirements of the State Significant Infrastructure Approval SS1-5118, sharks will continue to be monitored after the decommissioning of the MARL through the ongoing acoustic monitoring program.

5.2 Cetacean Monitoring

It is considered unlikely that dolphins or other cetaceans will represent a significant interaction concern during decommissioning operations at the MARL. However, a Cetacean Interaction Register has been developed (See Attachment 1) which will record the following details:

- Time and date of any cetacean interactions;
- Observer duration on the lease and purpose of observer visit;

- Sea conditions (e.g. sea state, wind, cloud cover) and boat traffic (on and adjacent to the lease);
- Number of individuals present including the number of calves;
- The nature of the interaction (i.e. duration of the cetacean visit, proximity to the vessel, direction of travel);
- Description of cetacean behaviour (i.e. resting, milling, feeding, socialising, travelling);
- A photo record of the visit if possible.

NSW DPI / Huon MARL Research Team will record all observations of dolphin interactions with the lease area. These records will be included in the Annual Report and distributed to the NPWS, the MPA and the NSW OEH offices in Nelson Bay.

5.3 Seal Monitoring

Given the MARL was fully destocked on 30 June 2018, there is unlikely to be any attraction for seals within the lease area during decommissioning operations. However, if any interactions with seals are observed, they will be recorded in the Marine Fauna Interaction Report Form (Attachment 1).

5.4 Training and Response

In accordance with consent condition D15 of the State Significant Infrastructure Approval SS1-5118, the NSW DPI / Huon MARL Research Team in consultation with NSW OEH, developed a training package for the staff working on the MARL during the operation stage. The training package will be updated and modified to reflect the decommissioning activities at the MARL. This training package will be delivered to all relevant Huon employees prior to decommissioning activities commencing.

6 Consultation

In the preparation of the original Marine Fauna Interaction Management Plan the following personnel were consulted.

- Geoff Ross (*Senior Wildlife Management Officer*), NSW Office of Environment and Heritage;
- Professor Robert Harcourt, Professor of Marine Ecology & Facility Leader, Animal Tracking, Integrated Marine Observing System, Department of Biological Sciences, Macquarie University;

- Professor Wayne O'Connor (*Principal Research Scientist),* NSW Department of Primary Industries; Conjoint Professor, School of Environmental and Life Sciences, Newcastle University; Adjunct Associate Professor, Genecology, University of the Sunshine Coast; Visiting Fellow, Biological Sciences, Macquarie University;
- Professor Natalie Moltschaniwskyj (Director Fisheries Research), NSW Department of Primary Industries & Conjoint Professor, School of Environmental and Life Sciences, University of Newcastle;
- Luke Erskine (*Manager, Port Stephens – Great Lakes Marine Park*), NSW Department of Primary Industries, and
- David Whyte *(former Group Technical Manager),* Huon Aquaculture Group Limited.

7 References

Bruce, B. D. and Bradford, R. W. (2011). *Near-shore habitat use by juvenile white sharks in coastal waters off Port Stephens.* Final Report to Hunter Central Rivers Catchment Management Authority. CSIRO Hobart June 2011.

Department of Environment, Climate Change and Water (2010). John Gould Nature Reserve and Boondelbah Nature Reserve Plan of Management. NSW DECCW, Nelson Bay.

Department of Primary Industries (2016) Port Stephens – Great Lakes Marine Park zoning plan user guide. NSW Marine Parks Authority 2007

Otway, N.M. and Ellis, M.T. (2011) Pop-up archival satellite tagging of *Carcharias taurus*: movements and depth/temperature-related use of south-eastern Australian waters. *Marine and Freshwater Research* **62**: 607–620.

8 Attachments

Attachment 1 – Marine Fauna Interaction / Cetacean Report Form

Attachment 2 – Marine Fauna Interaction / Observer Register

Attachment 3 – Marine Fauna Report Form

Attachment 4 – Entanglement Assessment Process

Attachment 1

Marine Fauna Interaction / Cetacean Report Form

	Date:	**Time:**
Name of observer/s	*Location:*_____ *Latitude:*_____ *Longitude:*_____ *GPS ref:*_____	*Description of location:*
Type of species (e.g. whale/dolphin/ turtle /fish/bird/Seal)	*Description of all animals present and numbers (including whether adults or calves)*	*Photo or video taken (attach if taken)* Yes No
Behaviour of animals	*Description of behaviour (e.g. resting, milling, feeding, socialising, travelling). Any signs of distress e.g. sudden or erratic changes in behaviour (e.g. quick dives, aggressive, irregular changes in swimming speed and/or direction)?*	*Animal alive?* Yes No
Duration of observation	*Time on lease* _____ *Time adjacent to lease*_____ *Proximity to cages*_____ *Direction of travel*_____	*Observer activity (e.g. feeding, maintenance)*
Weather and sea conditions	*Weather (e.g. wind, direction, rainy, cloud cover)*	*Sea State (e.g. swell/wave height, currents)*
Boat traffic and lease operation stage	*Is boat traffic present on or adjacent to the lease?*	*What is the stage of operation? How many sea cages are present and stocked? What is stocking density?*

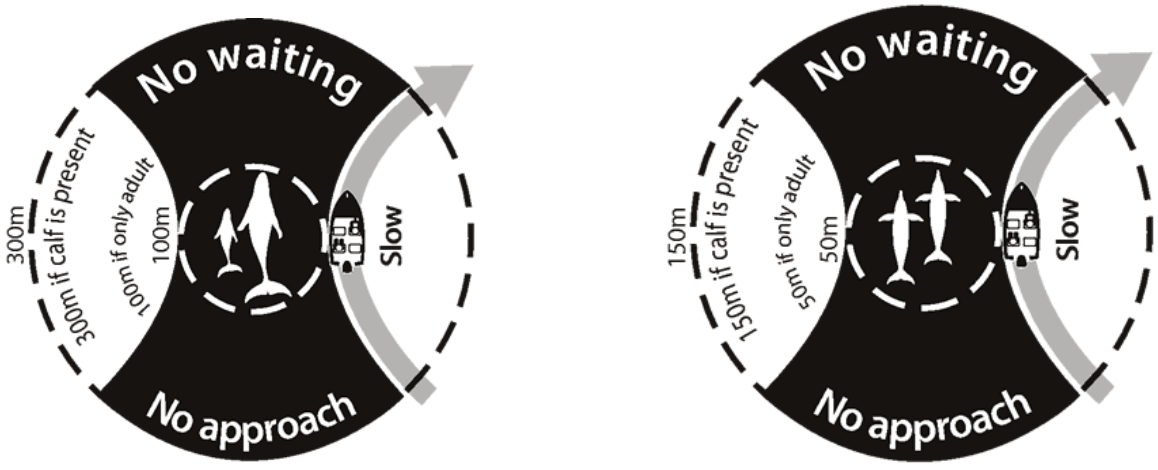


Figure 1: If approached by a marine mammal, reduce speed and maintain the recommended approach distance (Source: NSW OEH, 2014).

Attachment 2

Marine Fauna Interaction / Observation Register

Date	Time	Fauna species	No. of individuals	Size	Nature of interaction/observation	Management issues	Management actions

Attachment 3

Marine Fauna Entanglement Report Form

	Date:	**Time:**
Name of observer/s	*Location:* *Latitude:* *Longitude:* *GPS ref:*	*Description of location:*
Type of species (e.g. whale/dolphin/turtle /fish/bird/seal)	*Description of all animals and numbers*	*Photo or video taken (attach if taken)* Yes No
Behaviour of animals	*Description of behaviour and any signs of distress e.g. sudden or erratic changes in behaviour - quick dives, aggressive and irregular changes in swimming speed and/or direction.*	*Animal alive?* Yes No
Duration of observation	*Time on lease* _____ *Time adjacent to lease*_____	*Observer activity (e.g. feeding, maintenance)*

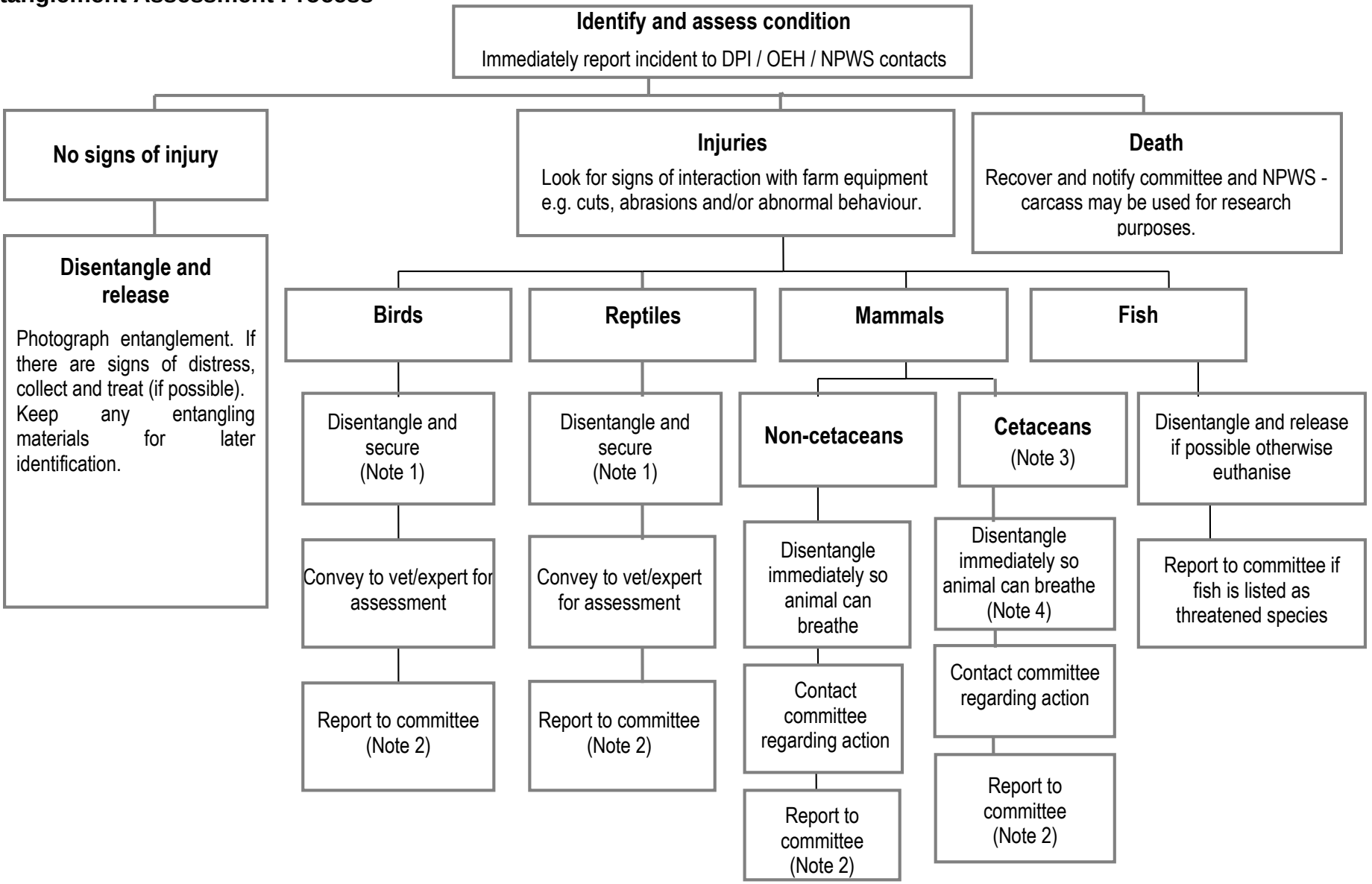
Drawing showing distinct characteristics, injuries and entangling gear.	Describe the animal as you have seen it: colour, shape, size, marks, scars etc. Overall size: _____ Head: _____ Back (fin?): _____ Tail: _____ Flippers/fins: _____ Other: _____

<table>
<tr><td>If animal left site, when was it last seen?</td><td rowspan="2">Describe the entangling gear: (e.g. net, rope, buoy, colour and trailing line).</td><td>Visible injuries?
Yes No
Scars?
Yes No</td></tr>
<tr><td>If the animal dives, how long? How often?</td><td>Fresh blood?
Yes No
Where?</td></tr>
<tr><td>If moving, what speed and direction?</td><td>Where/how on the body? (head, tail, flippers, mouth)</td><td>Is the animal thin or emaciated?</td></tr>
<tr><td>Name of officer contacted (OEH or NSW DPI):

Location:</td><td>Date:</td><td>Time:</td></tr>
<tr><td colspan="3">NOTE: Please attach photos with all reports that show entanglement as clearly as possible.</td></tr>
</table>

Attachment 4

Entanglement Assessment Process



Note 1: Secure means hold animal in a dark warm container such as a pet pack. For reptiles, a large plastic tub with additional padding on the inside is required.
Note 2: Report means prepare an incident report as detailed as possible stating all circumstances relating to the entanglement event including (if available) a veterinary report. The report will be submitted to the committee and relevant authorities.
Note 3: Cetaceans that are injured will have lacerations, irregular buoyancy and irregular swimming behaviour.

Note 4: When disentangling cetaceans personnel need to be as gentle as possible, suspend in the water and do not handle if possible.