

## Department of Primary Industries, Parks, Water and Environment

### Response to Sub-Committee – Fin Fish Farming in Tasmania Inquiry

Date prepared: 22 January 2020

#### 1) Fish escape incidents

##### 1.1 What regulatory requirements are in place broadly and what specific licence conditions apply in relation to the escape of farmed fish?

###### Marine Fin Fish Farms

All Marine Farm Licences require that Licence holders shall not release into State waters any fish unless authorised in the licence.

All Marine Farming Development Plans (MFDP) contain Management Controls relevant to fish escapes as follows:

###### *Fish Escapes*

- *Lessees must not intentionally release into State waters fish of the species authorised in the relevant marine farming licence unless authorised to do so by that licence.*
- *Lessees must report to the Manager, Marine Farming Branch any significant incident of fish escapes within 24 hours of becoming aware of the escape. A significant escape is defined as any loss of licensed species to the marine environment in excess of 500 individuals at any one time.*
- *Lessees must recover escaped fish when and in a manner as directed by the Secretary\*.*

\*As taken from the D'Entrecasteaux Channel and Huon River MFDP

<https://dpiwwe.tas.gov.au/Documents/DEntrecasteaux%20Channel%20and%20Huon%20River%20MFDP.pdf>

###### *Additionally:*

- All Environmental Licences require Environmental Licence holders to report to the Director, EPA of any significant incident of fish escapes within 24 hours of becoming aware of the escape. A significant escape is defined as any loss of licenced species to the marine environment in excess of 500 individuals at any one time.

###### Inland Fish Farms

- Fish farming activities require a fish farm licence under the *Inland Fisheries Act 1995*.
- Conditions of a Fish Farm Licence include the implementation of a fish farm management plan approved by the Director, that addresses fish biosecurity.
- The Director Inland Fisheries is responsible for the regulation of fish escapes into the freshwater environment. All holders of an Inland Fisheries Licence must report to the Director, Inland Fisheries, of any loss of licenced species to the freshwater environment.

## **1.2 What biosecurity risks are presented by fish escape incidents? How are these risks assessed?**

Biosecurity Tasmania is not aware of any specific studies into the biosecurity risks caused by farmed fish escapes in the Tasmanian context. However, routine testing conducted by the Department as part of the Tasmanian Salmon Health Surveillance Program (the Program) provides data about the prevalence and distribution of diseases that affect the industry.

In all cases to date, the Program has determined the pathogens appear to have originated from native Tasmanian sources. Examples include POMV and reovirus, both of which have been detected in wild fish in and around salmon cages.

In comparison to wild fish populations, the number of individuals in stocked fish cages and their relative proximity to one another creates an increased opportunity for disease risk to amplify. It is therefore considered that, although escapees may present a low risk to wild populations of fish, the greatest risk is that escaped salmon carrying disease could transmit pathogens to other farmed fish should they come in close contact with stocked cages.

With regard to the longevity of escaped salmon potentially carrying disease, it is assumed that reduced population densities would limit transmission consistent with the already mentioned amplification risk. In addition, nutritional stress is likely to cause diseased fish to drop out of the marine environment relatively quickly. However, no formal testing of this theory has been undertaken by the Department.

Movement of escaped fish between growing regions could also present a biosecurity risk, but again the risk is considered higher for other farmed salmon than for wild fish populations. Such movements could occur via the natural movement of escaped salmon into another growing region (assuming they disperse far enough from the point of escape), or through mechanical movement whereby recreational fishers catch salmon in one region and later use it as bait in another.

## **1.3 What other environmental harm risks are presented by fish escape incidents? How are these risks assessed?**

*Jurisdiction of the EPA*

## **1.4 In response to fish escape incidents, what measures may be taken either by the company involved or by the EPA or Department to minimise biosecurity risks and environmental harm?**

Communication between companies about fish escapes allows an informed decision-making process to be implemented regarding planned movements of stocked pens and/or harvesting operations in the area.

Targeted messaging from the Department can assist to increase biosecurity awareness among recreational anglers. For example, Biosecurity Tasmania assisted the Marine Farming Branch with Facebook messaging regarding responsible use of salmon as bait in

cray fish pots after a recent fish escape event occurred just prior to the opening of the recreational cray fishing season.

Under the respective Marine Farming Development Plan(s), there are management control(s) that the Secretary, DPIPWE may utilise to instruct the leaseholder to recover the escaped fish. In practicality, escapee fish are thought to disperse from the lease area relatively quickly. In some cases, leaseholders have engaged contract fishermen to attempt to recapture escapee fish, however this approach isn't always appropriate. More recent escapee events have been publicly disclosed enabling a rapid recreational fishing effort increase.

Fish escapes from inland fish farms are reported to the Inland Fisheries Service (IFS). A review of the Fish Farm Management Plan is undertaken by the company in consultation with the IFS to identify improvements that will prevent future escapes.

**1.5 After specific fish escape incidents, how is the environmental or biosecurity impact of that escape incident measured or assessed?**

Biosecurity Tasmania is aware that IMAS run an escaped fish survey using recreational angler reports of salmon catches. Biosecurity Tasmania has not been directly involved in this survey.

Reported fish kill events provide another means of monitoring the impact of salmon escapes on wild fish populations. However, to date there has been no evidence collected by the Department that suggests a link between salmon escapes and wild fish kills.

There is no regulatory requirement within the Marine Farming Licence or MFDP Management Controls that requires the leaseholder, or licence holder to assess the environmental or biosecurity impact of escaped salmonids.

The impact of inland fish farm escape incidents is not measured; however the escape is assessed for disease risk.

**1.6 Over the past 5 years, please provide the Committee with details of fish escapes including: (a) the responsible company; (b) the number of fish in each escape; and (c) the identified cause of each fish escape incident?**

Date of Escape	Company	No. Fish Reported as Escaped	Marine/Hatchery	Reason for Escape
June 2016	Mountain Stream Hatchery	Unknown (thousands)	Hatchery	Inundation during major flood event.
24/02/2016	Huon Aquaculture	Between 300 and 2,000	Marine	Hole in net
16-Apr-16	Huon Aquaculture	unknown	Marine	Net tear
10-Jul-17	Huon Aquaculture	11,000	Marine	Hole found in net during crowding for bath

15-May-18	Huon Aquaculture	~60,000	Marine	Storm Event - The feed bin in this pen separated from the float and caused a large hole in the netting, it is believed this is the area where the fish escaped.
18-May-18	Huon Aquaculture	~48,000	Marine	Storm Event - The feed bin in this pen separated from the float and caused a large hole in the netting, it is believed this is the area where the fish escaped.
29-Jan-19	Petuna	~9,000	Marine	Harvest numbers of fish from a single pen significantly lower (ca 9,000) than predicted. Could not rule out potential escape event however a range of potential causes for reduced harvest; <ul style="list-style-type: none"> <li>• Pen had been subject to prolonged seal strike over a period of approx. 6 months.</li> <li>• Holes identified not large enough to have caused a single escape event.</li> <li>• Significant portion of fish in this pen also lost through POMV.</li> </ul>
June 2019	Petuna	4,000	Hatchery	Salmon smolts discharged into Brumbies Creek from loading operations and poor screening.
May 2020	SALTAS	250	Hatchery	Salmon smolts discharged into the River Derwent upstream of Wayatinah Lagoon from loading operations and poor screening.
11-Nov-19	Petuna	58,000	Marine	Mooring line damage to 3 nets (smolt)
23-Nov-20	Huon Aquaculture	50,000 - 52,000	Marine	A fire broke out on a pen damaging a third of the pen, burning through and melting the pen infrastructure above and just below the water line.
2-Dec-20	Huon Aquaculture	Between 120,000 and 130,000	Marine	Net tear in inner net (approximately 4m below the surface down to the base of the net) caused by net cleaning operations.

### 1.7 What actions have been taken by the EPA or the Department in relation to fish escapes over the past 5 years?

- DPIPWE and EPA ensure the Marine Farm Licence and/or lease holder had complied with the relevant conditions for the reporting significant incident of fish escapes, within 24 hours of becoming aware of the escape, to the Manager, Marine Farming Branch.
- Both DPIPWE and EPA coordinate investigations into potential causes and consequences of fish escapes, including meetings with company staff (Marine and Inland).
- DPIPWE and EPA coordinate research studies through the Sustainable Marine Resource Collaboration Agreement with the Institute for Marine and Antarctic Studies to understand the dispersal, survival and potential impacts of escaped salmonids (see, for example, Lyle, 2019).

- DPIPWE provides advice to recreational fishers to encourage responsible fishing of escaped salmonids via social and other media.
- DPIPWE coordinates communications about escapes with MAST to ensure that messages about safe boating practices were communicated timely to recreational fishers.

**1.8 How many fish escaped in the two recent incidents experienced by Huon Aquaculture? How is this number verified?**

- November 2020 – 50,000 to 52,000
- December 2020 – 120,000 to 130,000
- Number of individual escapees is verified by the Marine Farm Licence holder (when a stock count of the remaining fish is completed) this information is provided to the Manager, Marine Farming Branch.

All Marine Farm Licences contain conditions that enable the Director, Marine Resources to request records to be provided to enable compliance audit of the production data if required.

*The licence holder in respect of marine farming operations unless otherwise required by the Secretary of the Department of Primary Industries, Parks, Water and Environment shall:-*

- a) *keep records of all fish brought onto and taken off the area to which this licence relates. Those records must show:-*
  - i. *the date of each movement;*
  - ii. *a description of each consignment of fish being moved, including species, class and quantity of fish;*
  - iii. *for fish taken off the area, the place to which each consignment of fish was sent;* iv. *for fish brought onto the area, the place from which the fish came.*
- b) *keep the records at (a) above in a manner and form that enables rapid access to the information in the event of an emergency.*
- c) *keep the records at (a) above for not less than five years from the date of production of the record.*
- d) *supply the records at (a) above to the Director, Marine Resources upon request.\**

\*As taken from Marine Farming Licence 217 available at <https://dpiipwe.tas.gov.au/Documents/217lic.pdf>

**1.9 How did the EPA or Department respond to the two recent incidences of Huon Aquaculture fish escapes?**

- The Marine Farming Branch (DPIPWE) ensured the Marine Farm Licence and/or lease holder had complied with the relevant conditions for the reporting significant incident of fish escapes, within 24 hours of becoming aware of the escape, to the Manager, Marine Farming Branch.

- The Department conducted on the ground surveys at boat ramps in key hot spot areas five days after the first escape event to collect data relevant to fisher participation, fish dispersal, condition, and stomach contents. The survey was designed in collaboration with IMAS and will contribute to a larger escapee monitoring project (detailed below).
- The Marine Farming Branch is a member of the working group for the project developed by IMAS through the Sustainable Marine Research Collaboration Agreement (SMRCA) to monitor escapees from the November and December 2020 events with the aim to:
  - Characterise spatial and temporal patterns of escaped salmonids; and
  - Assess the condition of the escaped salmon over time; and
- Assess the impacts on native fauna.
- This project includes field sampling to catch escapees, assess their condition and analyse their gut content, which will help to provide relevant local information about the behaviour, dispersal and survival of escaped Atlantic salmon in Tasmania.
- As well as participating in the project working group, the Department has assisted IMAS with project field work.

## 2) Native fish loss

### 2.1 Is native fish death within salmon pens identified as an issue associated with the fin fish industry?

The fate of native fish that are trapped in fish pens during bathing and harvesting was raised during public hearings conducted by the Marine Farming Planning Review Panel relating to the Storm Bay planning processes. The Panel's addressed the issue in its reports, for example, [Marine Farming Planning Review Panel Report 22 August 2018 for draft Amendment No. 5 to the Tasman Peninsula and Norfolk Bay MFDP](#) (see 3.1.2.1 p12, 3.1.2.2 p13). The Panel indicates that it received advice that there are incidences of native fish species being trapped in pens. Any request for further information about the advice received by the Panel would need to be directed to the Panel.

Native fish species, primarily small schooling pelagic schooling species including both jack and blue mackerel, redbait, Australian sardine and blue sprat, may be found in association with marine farming equipment owing to the habitat (structure, protection, food source etc) this equipment provides and the potential availability of both natural food sources that may also be attracted to the marine farming equipment and/or as a result of the feed provided to the farmed species (salmonids).

These native species are common within the marine environment and with the exception of blue sprat, are commercially targeted species within the Commonwealth managed small pelagic fishery and are considered not overfished: [Small Pelagic Fishery | Australian Fisheries Management Authority \(afma.gov.au\)](#).

Native fish may move in and out of the confines of marine farming equipment (pens) until such time as their size prevents their movement past the containing net(s).

The Department understands that industry practices aim to exclude native fish wherever possible and that live fish are returned to State waters. There are a number of reasons for the industry to do so. Large numbers of any native species found in salmon pens may pose a potential biosecurity risk. Anecdotally, native species of an appropriate size may feed on salmon pellets. Further, some native species actively predate on smolt and cause injury by fin nipping.

Exclusion methods include manual removal and release of native fish by dipnet at appropriate times during farm management, such as during stocking, grading, bathing and harvest operations and management of smolt net deployments to limit opportunity for native fish to enter the net.

It would not be expected that the farmed species (salmon) would show any interest (predation) in the native species due to the readily available supply of pellets.

The operation most likely to cause mortality of entrapped native fish is bathing in fresh water, which is likely to be fatal for most marine species. Some estuarine species, such as mullet, have a greater tolerance for low salinity and may survive freshwater bathing. Regardless, the Department understands that it is widespread industry practice to remove native fish to the greatest extent practicable prior to bathing.

Further, the Department understands that the methods and equipment used for bathing using well boats, which is now the standard method of bathing in farming areas where routine bathing is required, excludes most native fish prior to bathing (and returns them to the wild).

Any request for more detailed operational information relating to management of wild fish should be referred to the industry.

Three permits, issued under the *Living Marine Resources Management Act 1995* (LMRMA), have been granted to Tassal to allow them to undertake sampling of wild fish to document the species, prevalence, numbers and potential mortality. Reporting to the Department in accordance with these permits, to date, indicates a very low level of interaction.

Any resulting mortalities of any native species associated with marine farming operations would be expected to be on very low scale relative to their abundance in the surrounding environment.

## 2.2 Are there other identified causes of native fish death associated with the fin fish industry

Not in the context of wild finfish, such as those described above. Fish is defined under the *Living Marine Resources Management Act 1995* as:

*any aquatic organism of any species, whether dead or alive, which, in the normal course of events, spends part or all of its life in the aquatic environment*

As this definition is very broad and includes microbes, a more strictly correct response would be that native 'fish' may be 'killed' at all stages of marine farming operations.

## 2.3 What regulatory requirements are in place broadly and what specific licence conditions apply in relation to native fish death related to fish farming operations?

All Marine Farming Development Plans (MFDP) contain management controls. Some of these controls may be relevant to native fish. Examples may include controls on monitoring, waste and disease:

*3.4.2 Lessees must keep the following records for each lease area held by the lessee and retain these records for a period of 5 years;*

*3.4.2.3 The names and quantities and date of use, of all chemicals which have been used on the lease area. This must include, but is not confined to, therapeutants, anaesthetics, antibiotics, hormones, pigments, antifoulants, disinfectants and cleansers.*

*3.7.2 All mortalities arising in connection with marine farming operations must be disposed of at a site that has the necessary approvals to receive this material.*

*3.8.1 Lessees must notify an inspector of any suspicion of a notifiable disease in accordance with the Animal Health Act 1995.*

*3.8.2 Lessees must remove dead fish from cages and report mortalities in accordance with any direction from the Secretary or Director, EPA.*

*3.8.3 Lessees must participate in any fish health management plan or fish biosecurity program as directed in writing by the Chief Veterinary Officer or Secretary.\**

\*As taken from the D'Entrecasteaux Channel and Huon River MFDP <https://dpiwwe.tas.gov.au/Documents/DEntrecasteaux%20Channel%20and%20Huon%20River%20MFDP.pdf>

More specifically, a marine farming licence authorises the holder of the licence to carry out marine farming in accordance with the licence. The licences specify salmonids as the species that may be farmed under the licence. Native fish are not authorised to be farmed. Marine farming includes the farming, culturing, enhancement, or breeding of fish for trade, business, or research. So, a salmonid farmer has no authority to commercially benefit from native species that may be incidentally caught. Pursuant to management controls (e.g. 3.7.2 above), the dead fish must be disposed of. With no capacity to benefit from entrapment of



native fish and for fish health, biosecurity and economic reasons, there is a strong incentive for industry to minimise interactions with native fish.

**2.4 Is the incidence of native fish death related to fish farming operations (e.g. native fish death within salmon pens) quantified and reported on to regulators?**

There are no direct reporting requirements for native fish that die in the course of salmonid farming operations, except in an unusual situation, for example, if a notifiable disease is suspected.

Three permits, issued under the *Living Marine Resources Management Act 1995* (LMRMA), have been granted to Tassal to allow them to undertake sampling of wild fish to document the species, prevalence, numbers and disease sampling.

Such permits include requirement to provide a report relating to activities under the permit.

**2.5 If companies are required to report, please provide a breakdown of the reported data for the previous 5 years by company, including number of native fish deaths and location/lease.**

No native fish deaths have been reported to be the Department by salmon farmers.

**2.6 In what way is the broad impact of native fish death associated with the fin fish industry measured or assessed?**

There are no specific reporting or assessment requirements. If research recommends an alternative or new management approach in relation to the management of effects of marine farming on wild fish, existing management controls would be suitable to initiate a management change. Additionally, powers under the *Environmental Management and Pollution Control Act 1994* or other relevant legislation may be exercised by the appropriate authority.

Catch and effort data collected for Tasmanian commercial fish and shellfish fisheries is reported annually by IMAS, to provide information about the status of fish stocks and trends. Reporting includes scalefish (e.g. Tiger Flathead and School Whiting), rock lobster and abalone. When trends in commercial fisheries stocks become evident, appropriate management responses are investigated. To date, such responses have not included specific requirements relating to finfish farms.

Reference Cited:

Lyle, J.M. 2019. *Fishing for Atlantic salmon following a major escape event: inferences about dispersal, survival and ecological impact*, Institute for Marine and Antarctic Studies, University of Tasmania.

### 3) Bird interactions and deaths

#### 3.1 What are identified as the main causes of bird interactions and deaths associated with the fin fish industry?

The main causes of bird interactions and deaths associated with the marine fin fish farming industry are entanglement in netting on fish pens (including aerial bird exclusion nets), and drowning (sometimes in association with entanglement). Birds are attracted to pens due to the presence of fish food pellets (e.g. gulls) or to the farmed smolt/mature fish themselves (e.g. cormorants, raptors, petrels, terns, penguins). Farm infrastructure also presents roosting (perching for rest) opportunities for birds.

#### 3.2 What regulatory requirements are in place broadly and what specific licence conditions apply in relation to bird interactions and deaths related to fish farming operations?

Most native birds involved in interactions with marine fin fish farming operations are listed as Specially Protected, Protected or Partly Protected under the *Wildlife (General) Regulations 2010* of the *Tasmanian Nature Conservation Act 2002*. Some species are also listed as threatened under the *Tasmanian Threatened Species Protection Act 1995*. Both sets of legislation provide broad protections to listed species.

The Minimum Requirements 2018A for the Mitigation of Seal Interactions with Aquaculture Staff and Infrastructure in Tasmania (the “Minimum Requirements 2018A”, supplementary to the Seal Management Framework 2018) is the industry-agreed policy document used to manage interactions between marine fin fish farming operations and protected wildlife in Tasmania. However, the requirements of the Seal Management Framework apply only to infrastructure and operations on a marine farming lease if a marine farming company seeks to use approved seal deterrent devices and management options on that lease.

When relevant, Section 1 (MRWEM) of the Minimum Requirements 2018A stipulates the regulatory requirements for industry regarding mitigation and response to bird interactions and deaths. These include specific infrastructure (wildlife exclusion netting) requirements (throughout the section), as well as handling and reporting requirements when entanglements do occur. i.e. Section 1.12, pg. 16:

##### **1.12 Requirements in relation to approved Wildlife Exclusion Measures**

1.12.1 Specially Protected, Protected or Partly Protected Wildlife, as defined and listed in the *Wildlife (General) Regulations 2010*, that become entrapped and/or entangled in any marine farming netting, infrastructure or equipment must be reported to DPIPWFE according to the following procedure:

- (i) If the wildlife is entangled and alive, immediate attempts to release the entangled wildlife must be made (except marine mammals – the Marine Conservation Program must be contacted (0427942537) immediately for

instruction regarding appropriate and safe response to live entangled seals, whales and dolphins);

(ii) If the immediate attempts to release entangled wildlife are unsuccessful then, the entanglement must, within one hour of the commencement of the attempt, be reported to a DPIPWE Contact Officer;

(iii) If the entangled wildlife is injured, a DPIPWE Contact Officer must be contacted before a decision can be made to release;

(iv) If the entangled wildlife is deceased then the carcass is to be immediately recovered and held. A DPIPWE Contact Officer must be contacted for advice regarding carcass disposal within four hours after carcass recovery; *and*

(v) A monthly report (Wildlife Incident Record sheet) for each marine farming lease held by a marine farming lease holder must be submitted to DPIPWE detailing numbers of all wildlife mortalities, injuries, entanglements and entrapments detected in wildlife exclusion netting or marine farming infrastructure. A report must be submitted for each marine farming lease even if there has been no wildlife incidents at a lease.

In addition, clauses in some Marine Farm Development Plans (MFDPs) specify the following:

3.13.9 Lessees must not undertake or cause or permit another person to deliberately interact with wildlife except in accordance with the Nature Conservation Act 2002.

3.13.10 Lessees must comply with any operational requirements notified by the Secretary in relation to managing, mitigating or avoiding interactions with wildlife as defined by the Nature Conservation Act 2002.

(NOTE – it is understood that the intention is to update all MFDPs to include these prescriptions).

### **3.3 Is the incidence of bird interactions and deaths related to fish farming operations quantified and reported on to regulators?**

The incidence of bird entanglements and deaths related to fish farming operations is quantified and reported to DPIPWE, through the reporting mechanisms outlined in Section 1.12 of the Minimum Requirements 2018A. In addition, some marine fin fish farming companies self-report this information on their own publicly available 'Sustainability Dashboard' websites (previous 12 months only).

### **3.4 If companies are required to report, please provide a breakdown of the reported data for the previous 5 years by company, including the number of bird interactions and deaths and location/lease.**

Companies that access and use seal deterrent devices on marine farming leases are required to report all bird entanglements, injuries and deaths in a "Wildlife Incident Record", submitted monthly to DPIPWE. The format for these returns has changed several

times in the last 5 years, including the number and types of reporting fields. On occasion, reports have been provided in the form of email text only.

Reports, including over the five years from 2016 to 2020 are stored and filed as individual reports, mostly electronically, but including a proportion of reports in hard copy. It has not been aggregated into a central record keeping sheet or tally. Hence, providing a breakdown of report data is currently not straightforward. However, steps are being taken to overhaul and refine DPIPWE record keeping of this data.