



25/6/2024

**RE: Application for a licence to disturb or injure marine European protected species (EPS) - FS0933  
Clashnessie Bay**

[Redacted]

Thank you for your response email dated 11/6/2024. Loch Duart Ltd (LDL) would like to provide some clarification to the points raised within this email. *MD LOT comments are highlighted in Blue and italicised*, LDL responses are in black text.

Use of predator nets

*...application notes that predator nets are available if necessary. It is unclear if these have been deployed. If they have, can you provide details of seal predation when they have been deployed in comparison to when they have not been deployed. If they have not been used, can you provide justification for this or evidence to demonstrate their ineffectiveness.*

*In your predator risk assessment, you note that for full enclosure nets there is an insufficient gap between pen net & predator net on circle pens to prevent seal access to pen netting. Can you clarify if there is a reason that the gap cannot be larger?*

Prior to 2022, predator nets were not required for use due to ADDs being permitted at Clashnessie Bay. During the 2022 – 2023 cycle, predator nets were not deployed due to questions over the integrity of the deployment with the consented pen equipment. The pens in use at Clashnessie Bay are 80m circumference circular pens with a useable walkway width of approximately 1m (constructed of 2 x 400mm Ø pipes which are fully decked at the surface). Predator nets require deployment from below the decked walkway piping. Due to the weight of the predator nets themselves, in addition to the required weighting to correctly tension them, the stability of the walkway was seen to be compromised. This is primarily due to the smaller pen sizes in use at the site. This results in implications for both the safe working of site operatives, but also pen integrity to maintain stock containment. This problem is mitigated in bigger pen sizes (and indeed the 24m square steel pens LDL also operate) due to increasing walkway widths with increasing pen circumference. For the 80m pens in use at Clashnessie Bay, these would require significant direct modification to resolve this issue.

The width of the walkway also comes into consideration with regards to understanding why the gap between predator nets and pen nets is also insufficient. The width of the walkway dictates the width of the gap between the pen nets and predator nets; for 80m pens this gap is approximately 1m. To mitigate this, other than the forementioned direct modification of the pen walkway, consideration has also been given to deploying the predator nets from the mooring points off the grid. This however would result in the total enclosure of the pen grid and essentially, a navigational hazard preventing the safe movement of vessels in the area.

Furthermore, using predator nets at a site essentially creates a double layer of netting that can reduce water flow (particularly when small mesh sizes (75mm apertures) are currently advised for use as a precaution against potential seabird interactions with subsurface predator nets by NatureScot). Reduced water flow can have subsequent impacts on pen-net fouling rates. LDL do not use antifoul coatings on subsurface nets due to the release of harmful compounds from these into the waterbody. Biofoul growth creates an additional weight burden to nets and therefore pen equipment. Whilst a programme of net cleaning is standard during LDL production to control biofouling, increased organism growth on nets brings additional risks to fish health and welfare during production. For these reasons, whilst predator nets have been available and successfully deployed and used at other LDL site depending on pen specifications, they have not been successfully deployed at Clashnessie Bay during recent production cycles, and while continuing to use the consented 80m circumference pens.

From the 2018 cycle, pen nets at Clashnessie Bay were upgraded from nets of a nylon construction to a stronger, knotless HDPE netting material as a measure to deter seal interactions without additional predator net deployments. From 2024 onward this has again been upgraded to a knotted HDPE. This net type has been proven at other LDL operations for its seal deterrence attributes without the use of additional predator nets. It is the use of knotted HDPE nets, without the additional predator net deployment, that is intended to be supplemented by the use ADDs should the EPS licence be granted.

#### ADD Use prior to 2022/23

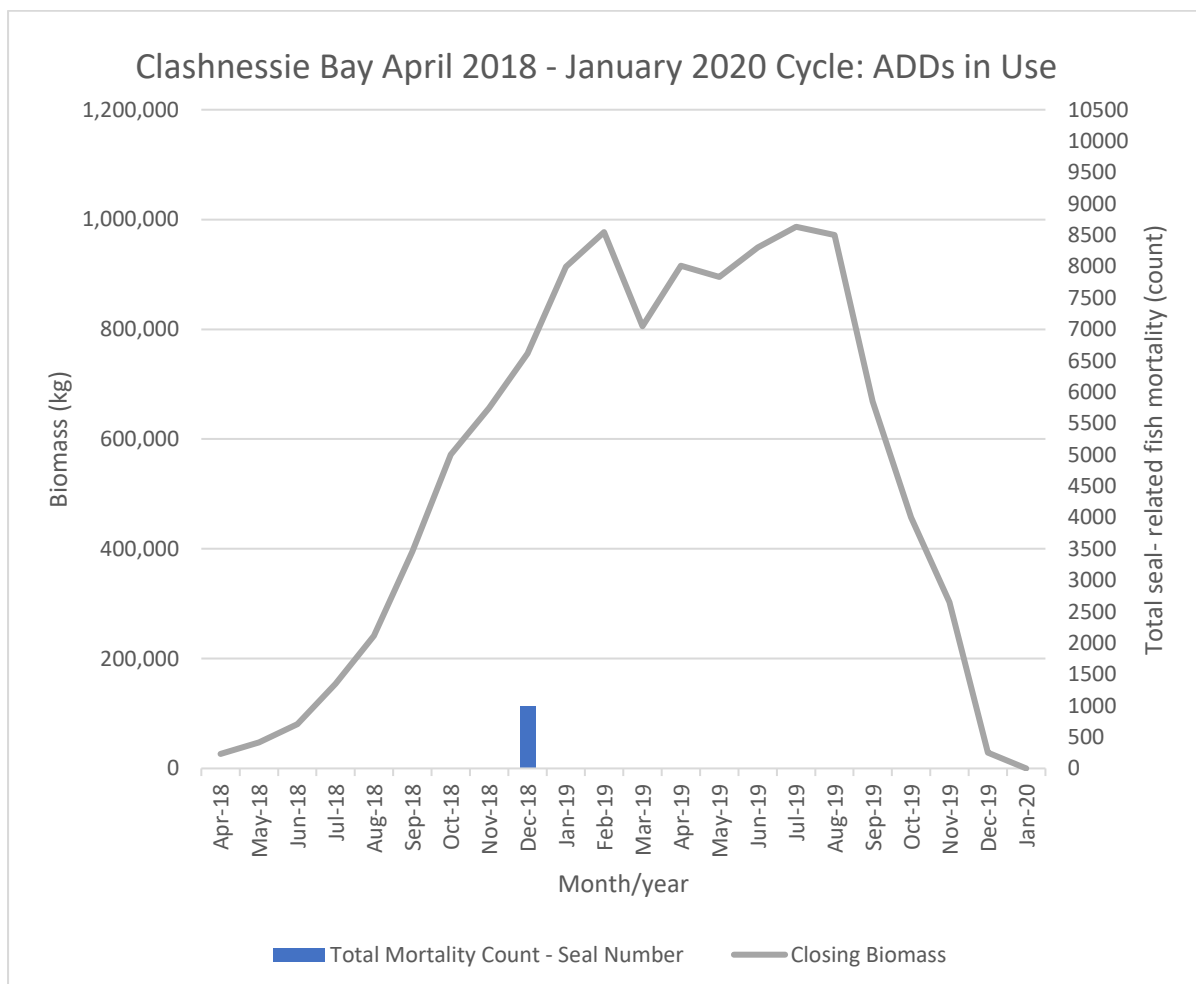
*... provide further details of ADD use prior to 2022/23, when the evidence of ADD effectiveness was gathered, specifically;*

*Was the RT1 Flex the only type of ADD used at the site or were other models deployed as well? We also require information regarding other factors that may also influence predation rates to be presented alongside the data on seal depredation rate. We require details of stocking density, number of ADDs, settings of ADDs and any temporary gaps in use.*

Seal-related fish mortality numbers for the Clashnessie Bay production cycles dating back to April 2018 are shown graphically below, these numbers are shown alongside the stocked biomass of the site. Details of ADD type, use cycles, frequency of use, pen net type and use of additional deterrence methods at the site are also discussed for each production cycle.

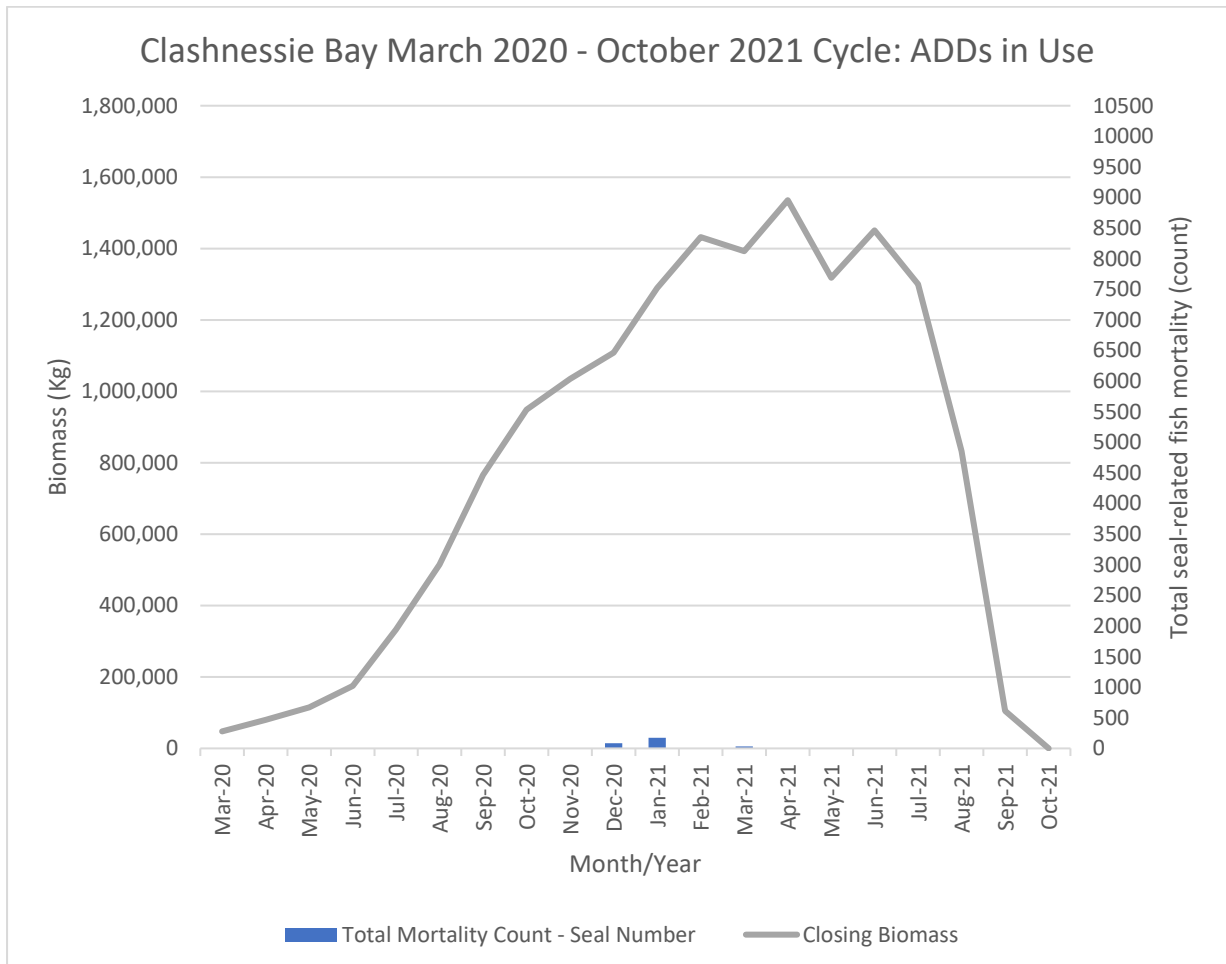
## Clashnessie Bay April 2018 – January 2020 Cycle

- 6 x Ace Aquatec US3 Mid Frequency Devices installed.
- ADD devices operational at 144 scrams per hour on Mains Power/72 scrams per hour on battery power and playing tones at 8-20kHz.
- Total seal-related fish mortality in cycle: 999
- Devices deployed for the duration when fish were present on site.
- An additional, portable Ace Aquatec RT1 device was also on hire to supplement the US3s if required.
- MS Seal licencing was still in place at this time. LDL submitted a return detailing the cull of 1 Grey seal (20/12/2018) responding to the peak of seal mortalities in that month. After which, mortality levels returned to normal with just the use of the US3 devices as a deterrent.
- Knotless HDPE pen nets were deployed, no additional predator nets were deployed.
- Stocking density during the cycle operated at RSPCA Assured limits 15kg/m<sup>3</sup>.



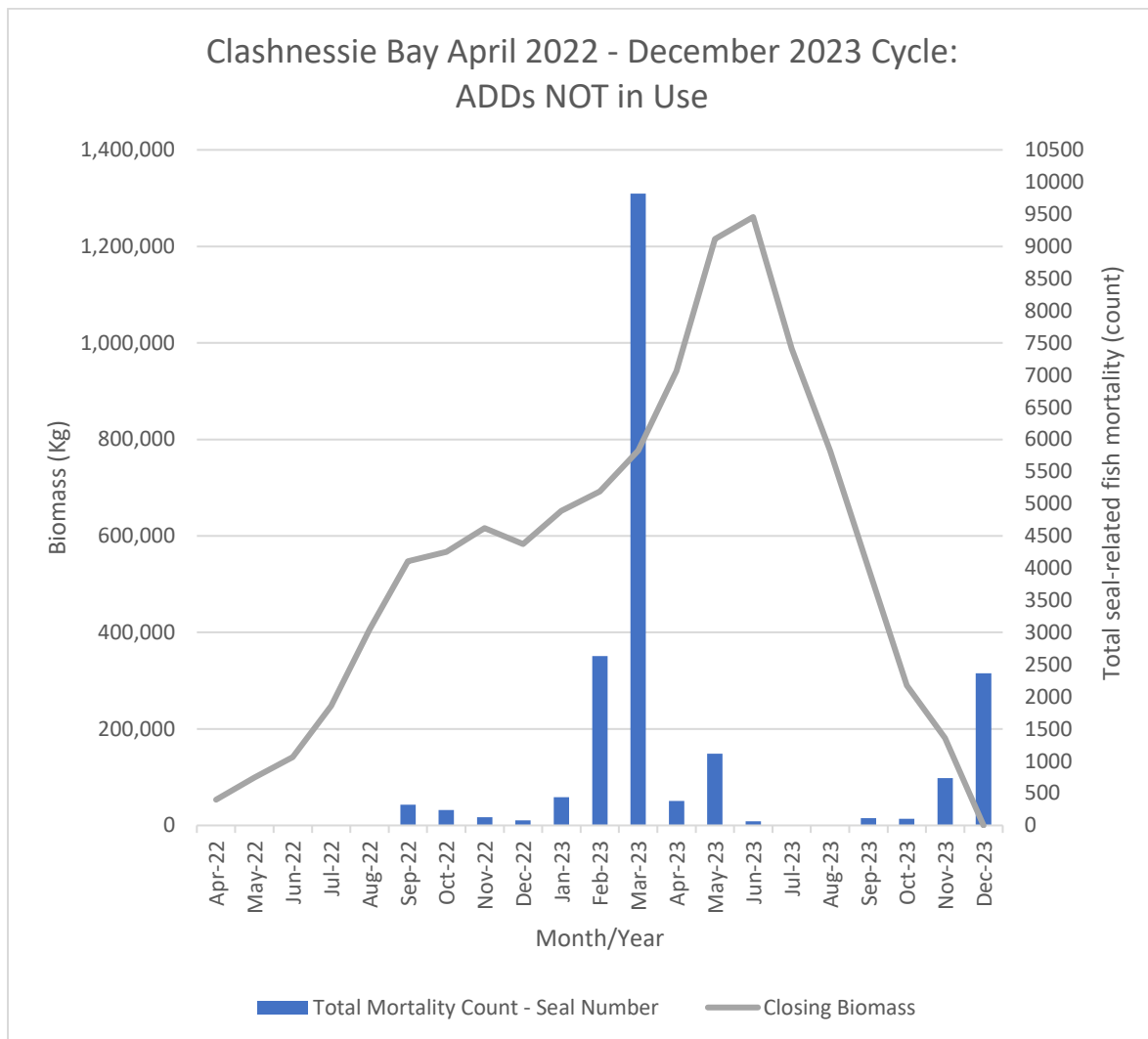
### Clashnessie Bay March 2020 – October 2021 Cycle

- 6 x Ace Aquatec US3 Mid Frequency Devices installed.
- ADD devices operating at 144 scrams per hour on Mains Power/72 scrams per hour on battery power and playing tones at 8-20kHz.
- New settings for the US3 devices were implemented in August 2021 using 8-11kHz at max 177dB.
- An additional, portable Ace Aquatec RT1 device was also on hire to supplement the US3s if required.
- Total seal-related fish mortality in cycle: 301.
- Prior to December 2020, when the peak predator related fish mortalities were recorded, devices were only used when required. During December 2020 – April 2021 devices were activated for the duration of when fish were present on site. Device use was again reduced to when required from April 2021.
- Knotless HDPE pen nets in use, no additional predator nets were in use.
- Stocking density during the cycle operated at RSPCA Assured limits 15kg/m<sup>3</sup>.

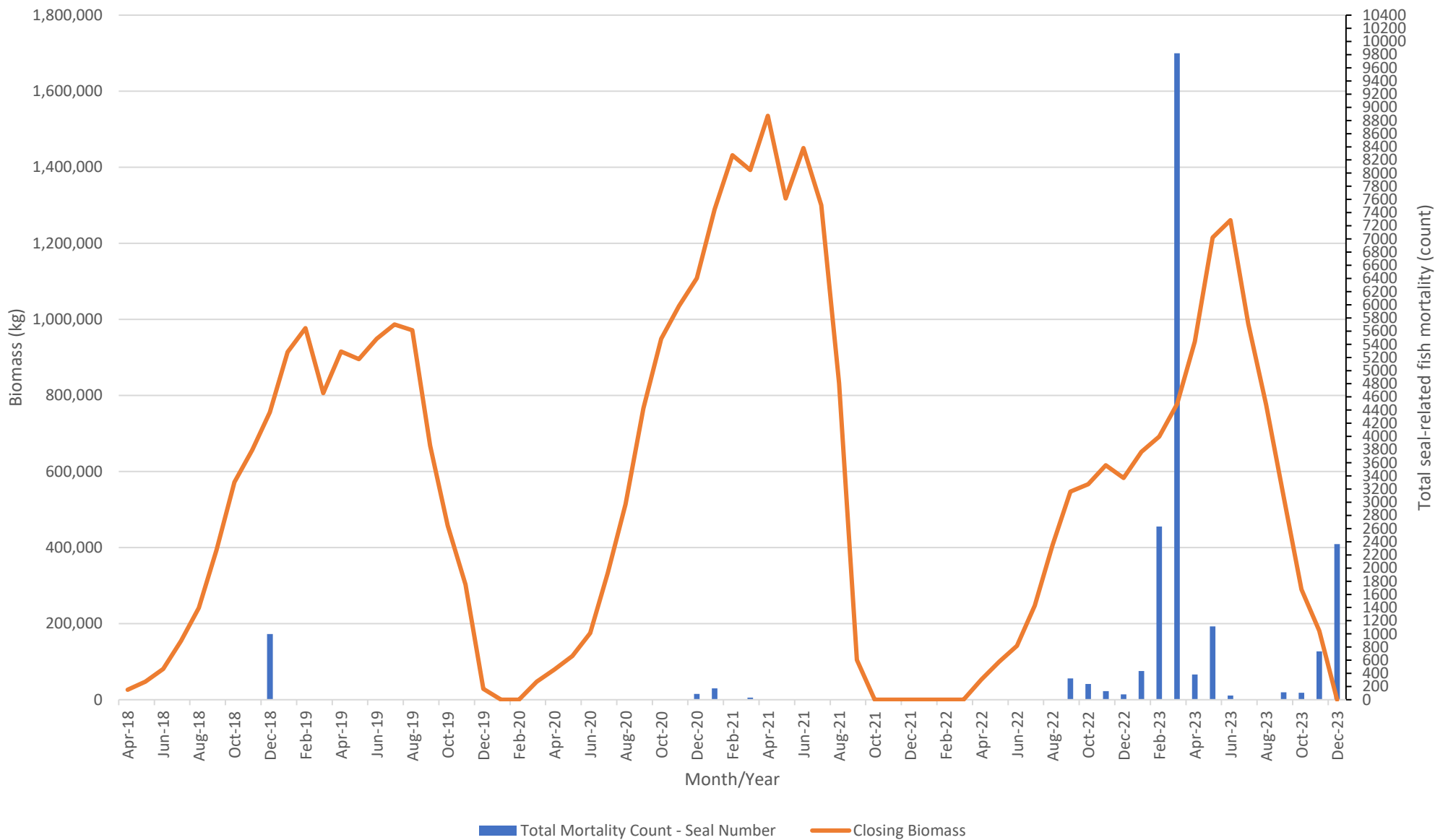


### Clashnessie Bay April 2022 – December 2023

- No ADD devices deployed.
- Total seal-related fish mortality in cycle: 18,539.
- Interactions clearly occurred throughout the cycle not just when site was at highest biomass.
- Knotless HDPE pen nets in use, no additional predator net deployment occurred.
- Stocking density during the cycle operated at RSPCA Assured limits 15kg/m<sup>3</sup>.



### Clashnessie Bay April 2018 - December 2023 Cycles



## Triggers for use

*...Some of the triggers appear to be subjective and it would be useful if further clarity could be provided. What criteria is required for predation to be a known occurrence? Does this mean a single event, more than one, a certain number or type of events within a particular time frame? Does seal activity mean that seals are seen at the site, particular activity, frequency of any particular activity? More specific details of stress behaviours that require to be observed should also be provided.*

Daily walkway records are kept of seal presence in the vicinity of the site and the scale and nature of interactions with the pens/fish including details of:

- Number and species of seals being observed within eye sight (50m), without visual aids (i.e. binoculars) and the approximate distance from pens. Seals within 50m of the site reflects the distance to which the ADD deterrent systems deter seal interaction therefore suggesting intention of interaction.
- Types of seal interactions with equipment (i.e. hauling out on walkways, getting access to pens via top nets etc)
- Encircling of pens (in the water) by one/multiple seals
- Particular focus of seal activity at one/multiple pens
- Seals diving into sides of nets (viewed on underwater cameras used during feeding)

During the 2022 – 2023 cycle, in the months when the highest mortalities attributable to seal interactions were recorded, notes on the walkway records/health reports included:

- “Seals are focussed on one pen on site where most of the predation is happening. They are getting into the pen over the top of the nets during rough weather. Extra weights were added to the affected pen, top nets tied down and repairs done on stitching between top and pen net”
- “Small amount of seal predation - seal found in pen - went in over the top.”
- “Seal have been a problem this month. The seals are going over the net.”

Seal activity becomes perceived as a predatory when:

- direct interaction with the pens becomes more apparent
- salmon feeding patterns are disturbed
- the above, coupled with recovery of morts attributable to seals is recorded

It is difficult to provide a quantitative set of seal predatory indicators to trigger ADD deployment given that the intensity, frequency and nature of predatory seal interactions can be highly variable. For example, the following types and patterns of predatory behaviour have previously been observed by one or multiple individual seals at LDL sites:

- Intense direct attacks on pens over a short period of time
- Repeatedly returning on multiple occasions over a longer period of time to make direct attacks on pens
- Maintaining a presence in the area, circling the pens but with relatively infrequent attacks
- Focus on one pen specifically
- Focus on multiple pens
- Breaching of containment protections resulting in direct access into pens

- Interaction with pens during specific operational activities which require crowding activities (e.g. harvests or treatments) with seals having learnt fish are easier to target at this time and are not deterred by the presence of staff or activity occurring alongside.

While such seal attacks may result in the direct mortality of some fish, others may survive for a period leading to a need to cull on welfare grounds (i.e. delayed indirect mortality). As such, it is also difficult to define a quantitative threshold of fish mortality for the deployment of ADDs.

Site personnel are acutely aware of fish behaviours and their reactions to seals being in the vicinity of the site. As discussed in Attachment 1 of the EPS application (1. Response to MSS) while LDL would be keen to quantify the impact of stress induced from seeing seals circling the pens, this is not practical due to the number of variables that would influence the data. Furthermore, to sample for physiological indicators of stress would be detrimental to the health and welfare of the salmon. Therefore, we believe that relaying behavioural observations made by LDL personnel on a daily basis, from personnel who are trained to identify and document poor salmon welfare, is sufficient evidence for stress impacts in fish as a result of seal presence/attack. Such stress behaviours include but are not necessarily limited to:

- Reduced feed intake
- Fish ignoring feed in water
- Fish avoiding sides of pen
- Fish sitting high in the water in pens
- 'Dolphining' behaviours (surface charging as an escape response)
- Change of colour in fish (an obvious lighter blue)
- Fish are harder to catch for health checks
- Abnormal shoaling behaviour being observed on underwater cameras.

These stress behaviours, together with mortality numbers and photo-documented physical injuries to fish (Attachment 3 of the application (Evidence of seal impact at Clashnessie Bay farm site (FS0933)), are the criteria that are used to class seal interactions as predatory events and an indicator to activate ADDs.

#### Triggers for deactivation

##### *Site fallow*

*No seal interaction evident – what does this mean? No seals present at the site, no attacks? Over a particular time period etc? Where any cetacean is present in the immediate area of the farm What does immediate area mean – is there a defined radius? In the event of a seal becoming trapped within a pen with fish Lack of efficacy in preventing seal interaction with the farm i.e. interactions are increasing over a period of time despite ADD use – can you provide details of the specific criteria required to determine lack of efficacy – e.g. number and type of interactions, time period etc?*

No seal interaction is defined as

- No seal activity/presence within 50m of the site is noted on daily walkway checks for a week.
- Fish stress symptoms (see above) and direct attacks have significantly reduced, or stopped for a minimum of a week.
- No fish mortality attributable to seal predation recorded.

Cetacean presence is also already recorded by site personnel as part of daily walkway checks. The immediate area is defined as within eye sight, without visual aids (i.e. without binoculars).



Lack of ADD efficacy will be demonstrated by:

- Continued, consistent, seal-related fish mortalities being recovered from a pen/pens on a daily basis.
- Seals continuing to be in the immediate area of the site (within 50m).
- Seals encircling pens, and fish continuing to display evident stress symptoms from seals being present.

Such triggers are considered on a daily basis facilitating responses from personnel on site swiftly. As noted above, these triggers are based on the nature of seal activity and could be highly variable in any given situation which is why all such factors are monitored on a daily basis.

Loch Duart Ltd thank you for this opportunity to provide clarity on the above points and if any further information is required, please contact me directly.

Yours sincerely

[Redacted]

Environmental Manager, Loch Duart Ltd