

RURAL ECONOMY AND CONNECTIVITY COMMITTEE

SALMON FARMING IN SCOTLAND

SUBMISSION FROM HEBRIDEAN WHALE AND DOLPHIN TRUST

The Hebridean Whale and Dolphin Trust (HWDT) has been leading the way for the conservation of cetaceans in the waters of western Scotland for over two decades, conducting scientific research on the abundance and distribution of the regions marine mammals as well as monitoring the anthropogenic impacts affecting them.

HWDT commends the Scottish Parliament for conducting this review into salmon farming in Scotland and welcomes the opportunity to provide comments on the impact of salmon farming on marine mammals to the Rural Economy and Connectivity (REC) committee. The reports compiled by the Scottish Association for Marine Science and the Environment, Climate Change and Land Reform (ECCLR) Committee on the environmental impacts of salmon farming are comprehensive, covering the main issues. As highlighted by these reports, the main impacts of salmon farming on marine mammals in Scotland are in relation to predator control practices, namely the underwater noise pollution and disturbance generated by the widespread use of Acoustic Deterrent Devices (ADDs) and direct mortalities through the shooting of seals. Both of these methods are unacceptable from a welfare and conservation point of view, but are also ineffective at reducing predation. Our response focuses on these two key issues, as these are our primary areas of concern for marine mammals in relation to salmon farming.

1. Do you have any general views on the current state of the farmed salmon industry in Scotland?

HWDT recognises that salmon farming is an important industry on the west coast of Scotland, providing employment and investment in rural coastal communities. HWDT does however have particular concerns about the avoidable impacts the salmon farming industry has on marine mammals and believes that the development of the salmon farming industry should not be at the expense of Scotland's natural environment.

Fish farm operators can apply for licences to shoot the two native species of seal (grey; *Halichoerus grypus* and common/harbour; *Phoca vitulina*) even though they are protected by Scottish¹ and EU² legislation. Both the SAMS and ECCLR report highlight the animal welfare implications of shooting. Necropsies have not been able to confirm that animals have been dispatched humanely and the large number of pregnant females being shot was especially concerning. Further, there is no evidence from seals that have been shot to support the assertion that these individuals were in fact predated on farmed salmon.

ADDs are powerful acoustic devices that emit loud acoustic signals and are used widely by the aquaculture industry in Scottish waters in an attempt to prevent seal depredation. Crucially the effectiveness of such devices for deterring seals from fish

¹ Marine (Scotland) Act 2010.

² Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

farms has not been consistently demonstrated, with seals frequently seen around facilities using these devices and no convincing peer-reviewed evidence available to show they are effective in reducing seal depredation; in some cases they may even attract seals (Götz and Janik 2013). Observations of seals frequenting farms with active ADDs lead Lepper et al. (2014) to suggest that these animals, which might be highly motivated by feeding opportunities, could expose themselves to levels of sound that could cause long-term damage to their hearing.

The sound output frequencies (2 – 40 kHz) for ADD devices currently used throughout Scotland are within the auditory range of non-target marine animals including cetaceans (Lepper et al. 2014). Cetaceans depend on sound for foraging, communication, navigation and detecting predators or threats and as a result have excellent underwater hearing. Consequently, even though cetaceans do not pose a threat to aquaculture facilities, they are impacted by disturbance and habitat exclusion from ADDs. ADDs have been shown to affect a range of species that can be found in close proximity to aquaculture facilities in Scotland including harbour porpoises (*Phocoena phocoena* - Johnston 2002; Olesiuk et al. 2002; Booth 2010; Northridge et al. 2010; Brandt et al. 2013; Lepper et al. 2014; Dähne et al. 2017; Mikkelsen et al. 2017), killer whales (*Orcinus orca* - Morton and Symonds 2002) and minke whales (*Balaenoptera acutorostrata* - McGarry et al. 2017). In particular, we would like to draw the committee's attention to the recently published report by McGarry et al. (2017) on minke whale responses to Lofitech ADDs. In the scoping reports for many salmon farm facilities minke whales are often considered to show a limited response to ADDs because it is argued that their hearing sensitivity to high frequencies is lower than that of dolphins and porpoises. However, the recent report by McGarry et al. (2017) clearly demonstrates that minke whales do show a pronounced avoidance to ADDs at considerable ranges.

All cetacean species are protected under both EU (Habitats Directive) and national (Nature Conservation (Scotland) Act) legislation and a range of international agreements to which the UK is signatory (ASCOBANS, OSPAR). Underwater noise is a recognised form of pollution that needs to be addressed, including through the EU Marine Strategy Framework Directive. Under the Nature Conservation (Scotland) Act, it is an offence to deliberately or recklessly disturb or harass any species of cetacean. ADDs are known to disturb cetaceans and this has been confirmed by many scientific studies, yet many aquaculture facilities are situated in critical areas of habitat such as within the candidate Special Area of Conservation (cSAC) for harbour porpoise (Evans and Prior 2012; Dolman et al. 2013) and a proposed nature conservation Marine Protected Area (ncMPA) for minke whales (Paxton et al. 2014).

Marine mammals serve as charismatic flagship species underpinning many financially important ecotourism activities in the region, such as whale-watching, which in 2015 generated an estimated £3.7 million in indirect revenue from an estimated 51,200 whale-watching passengers on vessels operating on Scotland's west coast (Ryan et al. 2018). This research highlighted that minke whales are the most important cetacean to whale-watch operators on the west coast of Scotland. The new research by McGarry et al. (2017) on the avoidance of minke whales to

ADDs is of particular concern given that these two economically important industries overlap geographically, in particular on the west coast of Scotland.

2. There have been several recent reports which suggest how the farmed salmon industry might be developed. Do you have any views on action that might be taken to help the sector grow in the future?

The ECCLR Committee noted “the same set of concerns regarding the environmental impact of salmon farming exist now as in 2002 but the scale and impact of these has expanded since 2002”. Salmon farming is set to continue expanding with output due to double by 2030, yet we still do not fully understand the environmental impacts of this rapidly expanding industry. The ECCLR committee report also states that “If the current issues are not addressed this expansion will be unsustainable and may cause irrecoverable damage to the environment”.

Based on these concerns and as a member of the Scottish Environment LINK Marine Group, HWDT support the joint statement that has been submitted to the REC Committee’s inquiry by the LINK Marine Group which states;

“LINK believes that there must be no new marine fish farms using current ‘open cage’ practices or any expansion of existing fish farm sites, including any increases in farmed fish biomass at existing sites until the current failings in the regulation of the salmon farming industry and the environmental problems the industry causes, as both identified by ECCLR Committee, are understood and resolved.

To approve any expansion of the industry now will be unsustainable and may cause irrecoverable damage to the environment. LINK would like to see the immediate introduction of incentives for salmon farm operators to adopt and innovate new designs, practices and technologies that aim to reduce their environmental impacts to acceptable levels. It is essential that both Government and industry growth targets are subject to independent environmental assessment and are in line with the environmental carrying capacity of Scotland’s marine environment.

LINK acknowledges the important role the salmon-farming industry plays in the Scottish economy, as an employer in rural coastal communities and in the supply of high quality protein, but this must not be at the expense of severe damage to Scotland’s natural environment.”

3. The farmed salmon industry is currently managing a range of fish health and environmental challenges. Do you have any views on how these might be addressed?

HWDT can demonstrate from its acoustic monitoring data that the use of ADDs has increased significantly in recent years. More sites are using them and more devices are being deployed at each site. This trend is predicted to accelerate as industry production increases in line with Scotland’s National Marine Plan. HWDT supports the ECCLR committee’s view that the industry should not be permitted to use ADDs as per the Aquaculture Stewardship Council guidelines.

Seal predation problems can most effectively be addressed by engineering solutions involving properly maintained weighted and tensioned nets physically preventing

seals from accessing the immediate area around cages, alongside careful consideration of the location of fish farms away from seal haul out sites. Coram et al. (2014) also outline other potential solutions. Under United States import regulations³, future exports of Scottish salmon to the major export market in the US will no longer be possible if any exported fish have come from fish farms where seals have been deliberately shot within the lifecycles of those fish. Therefore, predator control that does not involve killing seals will soon become a necessity. HWDT supports the ECCLR committee's view that the industry should not be permitted to kill marine mammals as per the Aquaculture Stewardship Council guidelines.

Emphasis should be placed on developing effective, non-invasive mitigation measures to decrease predation, which include more effective physical barriers to exclude seals and more careful consideration on the locations of aquaculture sites to ensure they are placed away from important areas for seals and cetaceans.

4. Do you feel that the current national collection of data on salmon operations and fish health and related matters is adequate? 5. Do you have any views on whether the regulatory regime which applies to the farmed salmon industry is sufficiently robust?

As highlighted in the ECCLR report, there is not a consistent approach to the monitoring and management of ADD use. Current records of the operating times, locations and duty cycles of ADDs are not adequate, nor are the data collected on seals that have been shot under licence. Government and regulatory bodies continue to allow ADDs and shooting as predator deterrents, yet neither has proven effective at mitigating depredation. More emphasis should be placed on developing effective predation mitigation measures and incentives introduced to develop innovative and effective, non-invasive methods to exclude seals.

6. Do you have any comments on how the UK's departure from the European Union might impact on the farmed salmon sector?

The UK is currently well-served by the EU's environmental regulatory framework and obligations, and great care should be taken that departing from the EU does not result in any weakening of environmental protection. We would hope that the UK will go above and beyond its current EU obligations and take the opportunity for Scotland to establish itself as a sustainable and responsible producer of high-quality salmon, which uses innovative practices and technologies to reduce the environmental impacts of this economically important industry to Scotland's coastal communities.

Hebridean Whale and Dolphin Trust (HWDT)
April 2018

³ Fish and Fish Product Import Provisions of the Marine Mammal Protection Act. United States Federal Register 81(157).

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