



BirdLife Malta Feedback to the Terms of Reference for an Environmental Impact Assessment of a Fish Rearing Open Sea Facility (EA/00026/20)

07/11/25

BirdLife Malta submits the following recommendations for the Terms of Reference for the Environmental Impact Assessment (EIA) of the proposed Fish Rearing Open Sea Facility. We would like to emphasise that all relevant stakeholders, including fishers and NGOs, should be actively engaged throughout every stage of the planning process, and that their feedback must be given due consideration.

Given that the full extent of aquaculture's impacts on Malta's marine ecosystems cannot be accurately predicted, it is essential that a system for continuous monitoring and adaptive management during the operational phase be made mandatory for all new aquaculture developments.

The proposed project site is located only 230 metres from the boundary of the Special Protected Area Żona fil-Baħar fil-Lvant (MT0000108). Such close proximity is expected to have a direct impact on the integrity of this protected area and on the avifauna that make use of it. The fish farm's location may disturb seabirds using the area for rafting and other behaviours before returning to their colonies, potentially leading to their displacement. Over time, this could result in increased energy expenditure for seabirds commuting to and from their colonies, thereby placing additional stress on breeding populations, particularly during the chick-rearing period.

In light of this, BirdLife Malta presents below the potential impacts on avifauna, along with proposed methods for their monitoring and mitigation.

Site Selection

The site selection process for the proposed Fish Rearing Open Sea Facility requires a thorough assessment and careful consideration within the framework of Malta's Maritime Spatial Planning. In particular, the following points should be taken into account:

- In 2024, BirdLife Malta participated in a workshop on the Action Plan for the Development of Sustainable Aquaculture in Malta, specifically to discuss the criteria for site selection. To our knowledge, the area identified for sustainable



aquaculture development lies on the eastern side of Malta. Ideally, any new aquaculture projects should be confined to nationally planned sites designated for aquaculture expansion, in order to minimise the overall extent of marine areas occupied by such activities.

- Offshore wind farms are also being proposed to the south of Malta. The cumulative impacts on marine ecology arising from both the offshore wind facility and the fish rearing open sea facility warrant careful assessment. The potential for multi-use between offshore wind farms and aquaculture should be explored as a means to optimise marine space and reduce the footprint of commercial activities at sea. However, the core principle of multi-use must be to make efficient use of space without increasing pressure on marine ecosystems or causing additional environmental harm.
- A comprehensive assessment of existing fishing activities within the proposed site should also be undertaken, including a socio-economic impact assessment to identify and address any potential conflicts with fisheries.

Oil Slicks

The formation of oil slicks should be thoroughly assessed, and strict measures should be implemented to minimise their occurrence. Oil slicks can travel long distances depending on prevailing currents and weather conditions, therefore, modelling of their potential movement should be carried out to identify which coastal areas could be affected.

Oil slicks are known to attract seabirds, particularly olfactory foragers such as shearwaters and storm-petrels, as well as gulls and terns which are attracted to shoals of juvenile fish typically attracted to pens^{1,2}. Attraction to these oil-slicks puts seabirds at risk of exposure to the oil. When birds are exposed to oil, their waterproofing ability and thermoregulation is impaired as a result of damage to the insulative properties of their feathers. If an oiled bird is unable to maintain thermal homeostasis, hypothermia and death can follow rapidly. A small amount of oil on seabirds is sufficient to break down the feather barrier that is necessary to prevent water penetration and hypothermia. In a study in Britain, it resulted that seabird feathers exposed to the thinnest fish oil resulted in measurable feather weight gain (from oil and water uptake) and significant feather microstructure disruption. Both feather weight gain and

¹ Morandin, L. A., & O'Hara, P. D. (2014). Fish oil disrupts seabird feather microstructure and waterproofing. *Science of the Total Environment*, 496, 257-263.

² Borg, J. J. (2012). Tuna farms - A seasonal supplementary food source for storm petrels *Hydrobates pelagicus melitensis*. *Avocetta* 36: 91-94.



microstructure disruption increased with increasing fish oil thickness. In addition, interviews conducted with wildlife rehabilitation professionals with experience rehabilitating seabirds after edible oil exposure indicated that physical contact with fish and other 'edible oils' in the marine environment is at least as harmful to seabirds as petroleum oils³.

In view of the above, training should be provided to employees regarding the prevention of fish oil release from feed, methods for its collection, and measures to prevent its spread - should also be formally recorded and subject to inspection by the environmental authority to ensure due diligence.

Collisions

The platform will rise to approximately 20 metres above sea level in addition to emergency and service vessels which accompany the platform. This poses increased risk of seabird collisions with fish farm structures. Collisions may occur at night due to disorientation caused by inappropriate lighting on fish farm structures and service vessels. Collisions can lead to increased stress causing vomiting of collected forage or death of the seabirds, which can be particularly threatening between May and October. During this critical period, shearwaters chicks hatch and their parents go out to sea foraging, bringing food back to their chicks.

Lighting and Noise

We stress the importance of minimising deck lighting on all vessels associated with farm operations, including harvesting vessels. Any lighting over and above that required for navigation of vessels is unacceptable. Red lighting is the most appropriate option for navigational safety lights, as it minimises attraction and disorientation among seabirds. We therefore recommend the exclusive use of red lights on fish farms. Where red lighting presents safety concerns for seafarers, the next best alternative would be warm white/yellow lights. Ecologically sensitive lighting should:

- Use light sources with a Correlated Colour Temperature (CCT) below 3000K, or
- A Spectral G-index of 1.53;
- None of the lights should be directed upwards;
- Avoid white LEDs and high-intensity lights, which are particularly disruptive to wildlife.

³ Tuarze, P., Stephenson, M., Mazzocco, P., & Knopper, L. (2021). A Physiologically Based Oiling Model (PBOM) to Predict Thermoregulatory Response in Birds. *Environmental Toxicology and Chemistry*, 40(1), 251-260.



- In addition, all non-essential lighting on board vessels should be turned off during night-time operations⁴.

Noise during the construction phase should be mitigated for using bubble curtains to minimise impacts of cetaceans.

Attraction

Even though the cages will be submerged, the attraction of avifauna merits further assessment. Ongoing monitoring (through on-board observation surveys and/or autonomous monitoring) should be carried out to determine the extent of attraction and to enable adaptive management during the operational phase. The attraction of avifauna to the site increases the risk of entanglement in cage mesh, predator nets, or bird netting during diving activities.

Attractions may vary:

- Shoals of fish aggregating around the cages are expected to attract avifauna that prey upon them.
- Availability of food debris (including pellets) attract many bird species, which also find resting space and shelter.
- Opportunistic seabirds (mainly gulls) concentrate around fish farms foraging actively on fish carcasses, wastes or even directly on fish food pellets
- Presence of various types of artificial structures (i.e. buoys, ropes) can function as important sites for optimizing energy consumption i.e. perching during feeding events, roosting areas and stopover sites during migration.

Training to staff on bird handling and reporting

A plan for training staff on bird rescue, handling and reporting. Vessels should have a plan in case of bird strikes and the necessary equipment and expertise to deal with an incident. This should include where to find boxes and store birds, and an understanding of reporting procedures. BirdLife Malta takes this opportunity to offer our cooperation in ensuring appropriate handling of birds in case of entanglement by providing training on appropriate bird handling and reporting.

⁴ Crymble, J. (2020). GUIDELINES FOR ECOLOGICALLY RESPONSIBLE LIGHTING. <https://birdlifemalta.org/wp-content/uploads/2020/07/Guidelines-for-Ecologically-ResponsibleLighting.pdf>.



Reporting entanglement as well as collisions with farm structures and vessels, both fatal and non-fatal, should be mandatory to better understand the impact of these events and inform mitigation measures. Reporting additional information such as bird observations and interactions would provide additional valuable data. With regards to collisions, reporting will facilitate the identification of high-risk collision factors including locations, weather conditions and times of year. Data collected during collision events should include deck lights on/off, color of deck lights, wind speed, temperature, number of birds, bird species, age of birds involved (if possible), cause of death (if fatalities). With regards to entanglement, reporting on where and how entanglement occurs could provide valuable insights on how to mitigate such events.

Monitoring for Avifauna

Given the limited availability of data, we emphasise the importance of establishing a monitoring programme covering: Rafting behaviour, Attraction to fish farms, Impact of fish oil, Diet and increased presence of marine raptors due to fish aggregation and, Impact of artificial lighting. Avifauna monitoring should be conducted prior to the construction of the farm and during the operational phase to monitor the impacts and interactions with seabirds. The proposed monitoring would provide data to inform the adaptive management and mitigation measures:

- ESAS surveys should be conducted to collect data on seabird diversity, abundance and interactions before and during the operational phase of the aquaculture farm. Presently, the full extent of impacts resulting from the expansion of aquaculture in Maltese waters and the Mediterranean are unknown, hence such surveys would provide valuable data on the impacts, seabird interactions and how to possibly mitigate if necessary.
- Installing monitoring devices such as cameras on aquaculture buoys would increase the time periods for which observations are made gathering further data on species present, their abundance and interactions. GPS-tagging and radio tagging of specific individual birds would provide further insight into the frequency of visits to aquaculture sites and behaviour at the site. Radio-tagging would involve receiver antennas installed at the aquaculture facilities, and would not only pick up signals from any locally tagged seabird but also migratory birds on passage through Maltese waters.



Fish farms as ecological traps

The potential for fish farms to act as ecological traps warrants further assessment. Currently, data on aggregating megafauna has only been opportunistic. Monitoring should be carried out specifically to evaluate the extent of this impact. High fish densities around farms may also attract larger predators, such as dolphins, and fishing activities, raising some ecological concerns. Researchers are encouraged to measure survival and reproduction in wildlife associated with farms to establish direct links between aquaculture and its effects on natural populations. Although farms may provide foraging opportunities, these are often offset by negative impacts, including altered diets, exposure to contaminants, disease, and possibly increased mortality. For instance, dietary shifts in farm-associated wildlife, caused by changes in feed composition, can lead to nutritional deficiencies. The initial step should be a comprehensive review to identify the most critical and harmful effects⁵.

Compensatory Measures

Compensatory measures for projected environmental impacts should be in place. Past experience shows that such funds are often redirected to unrelated land-based projects. We strongly urge that, in such cases, planning gains be directed towards meaningful conservation and restoration initiatives led by NGOs or competent authorities. These should be an integral and ongoing part of the permitting process, reflecting a long-term commitment to environmental enhancement in line with the "polluter pays" principle.

⁵ Barrett, L. T., Swearer, S. E., & Dempster, T. (2019). Impacts of marine and freshwater aquaculture on wildlife: a global meta-analysis. *Reviews in Aquaculture*, 11(4), 1022-1044.