BirdLife Malta feedback to the EIA and AA update of PA/05908/23 & EA/00007/18:

PROPOSED CONVERSION FROM A TEMPORARY TO A PERMANENT TUNA FARMING AREA AS ESTABLISHED IN PA/02175/18

16th April 2025

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1. Tuna farming location in relation to protected areas and sea uses of avifauna

The proposed permanent tuna farm site lies within the boundaries of two marine protected areas: Il-Baħar ta' madwar Għawdex (MT0000112) and Il-Baħar tal-Grigal (MT0000107). Additional protected areas within the area of influence include Ramla tat-Torri/Rdum tal-Madonna (MT0000009), Kemmuna, Kemmunett, Il-Ħaġriet ta' Bejn il-Kmiemen u l-Iskoll ta' Taħt il-Mazz (MT0000017), and Il-Gżejjer ta' San Pawl (Selmunett; MT0000022).

The cliffs of Rdum tal-Madonna support the largest colony of Yelkouan Shearwaters (*Puffinus yelkouan*) in Malta, estimated at 300–575 breeding pairs—approximately 3% of the global population. Selmunett hosts an additional 45–70 pairs. Rdum tal-Madonna is also home to at least 1–10 breeding pairs of the Mediterranean Storm-petrel *(Hydrobates pelagicus melitensis*) and 25–60 breeding pairs of Scopoli's Shearwater (*Calonectris diomedea)*[1].

Breeding colony boundaries extend into nearby marine areas that seabirds use for feeding, social interaction, rafting, and maintenance behaviour. Non-breeding individuals, especially prospecting birds, also frequent these waters. Seaward extensions differ by species and are determined through a mix of ecological knowledge, land and boat surveys, and tracking data. Buffer zones have been defined as follows: 1 km for *H. pelagicus melitensis*, 4 km for *C. diomedea*, and 7 km for *P. yelkouan*.

Findings from the EU LIFE+ Malta Seabird Project (LIFE10 NAT/MT/090) confirm that *P. yelkouan, H. pelagicus melitensis*, and *C. diomedea* use the waters within the Il-Baħar madwar Għawdex SPA. As such, the proposed aquaculture site at Sikka l-Bajda falls within the 7 km rafting zone of *P. yelkouan* and is therefore likely to impact colonies at Rdum tal-Madonna and Selmunett.

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[1] BirdLife Malta. (2021). SEABIRD FIELDWORK REPORT 2021. https://era.org.mt/wp-content/uploads/2022/11/Seabird-Fieldwork-Report-2021-public.pdf.

This risk is heightened by the fact that seabirds use marine corridors not just for rafting but also for specific approach routes to their colonies, which must remain free of visual, physical, acoustic, or olfactory obstructions.

2. Impacts of the tuna farm operations on avifauna

Whilst the Appropriate Assessment (AA) gives an overview of the projected impacts on avifauna and presents an Avifauna Baseline Report (Appendix 3), the Environmental Impact Assessments (EIA) fails to thoroughly identify the impacts of the permanent tuna farm location on avifauna.

a) Risk Collisions

An oversight in the projected impacts of the tuna form operations on seabirds is the increased risk of collisions with fish farm structures. This has also been pointed out in the Terms of Reference presented in the Avifauna Baseline Report (Appendix 3 of the Appropriate Assessment). This report suggest that “an assessment of collision risks for seabirds shall be taken into account".

Collisions may occur with fish farm structures, including sea cages or vessels moored at night. The presence of a semi-permanently moored vessel could also potentially impact individuals of seabird species through collisions and disorientation due to inappropriate lighting on service vessels (particularly during fish harvesting phase), pens or navigation markers at night. Collisions can lead to increased stress causing vomiting of collected forage or death of the seabirds, which can be particularly threatening between May and July. During this critical period, Yelkouan Shearwater chicks have hatched and their parents go out to sea foraging, bringing food back to their chicks. Vomiting of forage is thereby depriving those nestlings of a single feed or death of the chick in case the parent bird will not come back to the breeding ground. Therefore, it is important to identify if seabirds strand during their journey especially during breeding period between the times of sunset and sunrise.

b) Displacement

Pen location can have an impact on seabirds using the area for rafting and other behaviours before returning to their colonies, causing a possible displacement of the seabirds utilising the area. Over time this comes at an energy expense to seabirds travelling to and from their colonies, thus placing stress on the colony as a result, especially during chick-rearing periods.

c) Light and noise pollution

The AA and Avifauna Baseline Report identifies noise and light pollution as the two primary threats to seabirds. Despite this, the EIA fails to propose any mitigation measures addressing these issues.

The AA attempts to justify lighting from the tuna farming by stating that "the more extensive lighting visible on the shore would be expected to have a greater impact than the limited lighting on the Scheme site." This argument is insufficient as the goal of an AA should be to prevent cumulative impacts - not to downplay them. Moreover, this reasoning overlooks the fact that lighting from tuna farm operations would occur directly within the immediate marine habitat of *P. yelkouan*.

Therefore, we stress the importance of minimising deck lighting on all vessels associated with tuna farm operations, including harvesting vessels. Any lighting over and above that required for navigation of vessels is inacceptable.

With regards to noise, the AA argues that noise from harvesting is not a concern, claiming that *P. yelkouan* would have already departed from the colonies by the time operations begin. However, these seabirds begin returning to their nesting sites as early as October, while fledging starts mid-June, with the last individuals typically departing by the end of July (latest recorded on 29 July)[2],[3]. Tuna harvesting operations, which commence in July and may extend through December, therefore overlap significantly with both fledging and early colony return. This seasonal overlap must be properly accounted for in the assessment of both noise and light impacts, as it poses a direct threat to sensitive life stages of the *P. yelkouan* population.

d) Entanglements

Entanglement in cage mesh, predator nets or protective bird netting occurs due to potential diving activities of the seabirds. This is mentioned on page 67 of the AA and evaluated as impacts being "unlikely to be significant", however, the assumption is

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[2] Gatt, M. C., Lago, P., Austad, M., Bonnet-Lebrun, A. S., & Metzger, B. J. (2019). Pre-laying movements of Yelkouan Shearwaters (Puffinus yelkouan) in the Central Mediterranean. *Journal of Ornithology*, *160*(3), 625-632.

[3] Borg, J. J., & Sultana, J. (2012). The Yelkouan Shearwater Puffinus yelkouan at l-Irdum tal-Madonna, Malta. In *Ecology and Conservation of Mediterranean Seabirds and other bird species under the Barcelona Convention. Proc. 13th Medmaravis Pan-Mediterranean Symposium. Medmaravis, Alghero* (pp. 48-53).

based on data unavailability. In our view, there is a need for these assumptions to be scientifically confirmed before such conclusion can be made.

e) Oiling of birds and compromised waterproofing

We hereby further stress the importance of understanding the implications of tuna farming on Malta's seabird populations, specifically on their thermoregulatory properties. Appendix 4 of the EIA presents the seasonal overlap between seabird oiling incidents and tuna farm operations, the geographical correlation between bird collection sites and fish farms, and the rising trends in both tuna farming and reported oiled seabirds suggest a potential causal relationship. Given the risks posed by oil-slicks accumulating around tuna farms, further assessments are required to determine the extent of seabird exposure to oil-slicks and fish farm oil-related mortality. Quantifying this risk is essential, as large-scale oiling events could compromise entire seabird rafts. Ultimately, further assessments are required to better understand the implications of tuna farming on Malta's seabird populations, as should the industry keep expanding its operations, and especially if these are close or coincidental with seabird rafting areas, it is possible that we will see an increase in numbers of compromised seabirds with an increased mortality on various protected species.

3. Monitoring of interactions between seabirds and aquaculture

Given the identified and potential impacts, BirdLife Malta would like to highlight the urgent need for scientific research into the interactions between seabirds and tuna farms, as well as consistent seabird monitoring throughout the operational phase of these farms. Closing the current knowledge gap is vital, particularly concerning interactions between marine aquaculture and seabird colonies within the Marine Special Protection Area Il-Baħar ta' Madwar Għawdex and the Marine Special Area of Conservation Zona fil-Baħar fil-Grigal ta' Malta.

In discussions held with the consultants, it appears that despite obligations to monitor and report seabird interactions, fishfarm operators have to date indicated a zero report. This is indicative that reporting obligations are either not taken seriously or further worse are being accepted as sufficient by the competent authority. Given our results on seabird oiling, and the known interactions between fishfarms and both resident and migratory bird species, there has been a clear lack of commitment and effort in this aspect which could have provided useful data at this stage of the application. We insist that realistic monitoring is undertaken and that reports signaling no interaction are questioned and verified if they result.

The implementation of effective mitigation measures and adaptive management strategies relies on comprehensive data regarding the species present and their interactions with aquaculture, especially the Yelkouan Shearwater, due to its proximity to colonies at Rdum tal-Madonna and Selmunett.

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.

In the long term, seabird monitoring should aim to observe and assess population trends, including behavioural and reproductive changes, fluctuations in population size, and adult survival rates at nesting sites such as Rdum tal-Madonna and Selmunett.

Monitoring methods can vary from:

- **Boat-based observation surveys**: These should be conducted during Malta's tuna season (approximately April to November) to monitor seabird behaviour around aquaculture structures. Surveys should take place at various times of the season and day to detect behavioural changes and inform species-specific management. If farm structures remain in the water outside the tuna season, potential disturbances or other impacts on seabirds must also be monitored. Additionally, boat-based surveys should gather data on seabird diversity, abundance, and interactions during the farm's operational phase. Observations may be carried out from operational vessels or a dedicated observation boat, with arrangements made in agreement with the operators.

- **Autonomous monitoring**: Installing monitoring devices such as cameras and thermal 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 monitoring would involve receiver antennas installed at the aquaculture faciliities, and would not only pick up signals from any locally tagged seabird but also migratory birds on passage through Maltese waters.

4. **Compensatory and mitigation measures to reduce impacts on avifauna**

As the tuna pens were relocated to the current site prior to the AA and EIA, mitigation options are now limited to site-specific management measures.

All mitigation measures aimed at avoiding or reducing environmental impacts should be formally included as permit conditions. These must also incorporate compensatory actions for impacts on marine ecosystems, such as collaboration with NGOs or other environmental entities for ecological surveys, habitat restoration and improvement of the local rehabilitation facility, specifically for seabirds and other megafauna. This has also been suggested in the AA where it is advisable that tuna farms operators should compensate for their impacts and carry out necessary studies.

The EIA fails to outline any compensatory measures to compensate for projected environmental impacts. Tuna farm operators should be required to contribute through planning gain fees. However, past experience shows that such funds are often redirected to unrelated land-based projects via local councils, despite the ongoing nature of impacts from marine operations.

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.

a. **Lighting Management Plan**

To reduce the risk of seabird collisions while ensuring maritime safety, we recommend that only lighting for navigational safety are used in the farm scheme. This should cover both the permanent and temporary lighting, ensuring that designs minimise additional light pollution - particularly in an area already affected by illumination from Malta's Bunkering Zone Area 1.

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[4];
- None of the lights should be directed upwards;
- Avoid white LEDs and high-intensity lights, which are particularly disruptive to wildlife.

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

b. **Training to staff on bird handling**:

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.

c. **Reporting Collisions and Entanglement:**

The AA identifies the risk of entanglement as unlikely to be significant given the limited data available. To mitigate this, 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.

[4] Crymble, J. (2020). GUIDELINES FOR ECOLOGICALLY RESPONSIBLE LIGHTING. https://birdlifemalta.org/wp-content/uploads/2020/07/Guidelines-for-Ecologically-Responsible-Lighting.pdf.

d. **Well maintained nets and appropriate mesh size**

To reduce entanglement of birds, appropriate mesh sizes, visibility and net tension should be employed. Camera trap monitoring should also be installed to monitor for bird entanglement under water. In addition, all nets should be well maintained to minimise the likelihood of entrapment.

5. Additional environmental concerns on the AA and EIA

BirdLife Malta would like to raise additional environmental concerns, beyond those related to avifauna, which include:

- **Increase in marine litter:** BirdLife Malta shares the concerns outlined in the EIA regarding the increase in marine litter resulting from fish farm operations. However, we also stress the need for greater attention to litter originating from harvesting vessels often Japanese-operated vessels. Fish farm operators should bear full responsibility for ensuring that crew members on these vessels receive formal training on proper waste management. This includes strict instructions not to discard any litter overboard and to retrieve any debris lost at sea. Such training sessions should be documented and subject to inspection by the environmental authority to ensure due diligence. These measures should be clearly specified within the EIA and incorporated as binding permit conditions.
- **Training to staff:** Any additional training provided to staff - particularly 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. This requirement should be clearly outlined in the EIA and incorporated into the permit conditions.
- **Invasive Alien Species and Disease-Causing Organisms**: The possible introduction of Invasive Alien Species or disease-causing organisms should be taken very seriously by the farm operators. As part of the permit, a rigorous plan for preventing and mitigating such introductions should be requested, with pausing operations should such introductions be suspected. In addition, given that fish farm operations involve harvesting vessels travelling to and from Japan, operators should take extra care to ensure these vessels do not introduce

Invasive Alien Species through the discharge of untreated ballast water. This can be achieved by ensuring that all harvesting vessels have valid ballast water management plans and certificates in line with international and regional regulations.

- **Tuna 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 effects[5].
- **Incomplete monitoring:** While we acknowledge that Benthic and Water Quality Monitoring from 2019 to 2023 has been included in the EIA, we note with concern that no monitoring was conducted during the month of July, and only one session took place in August. These two months represent the peak of the fattening phase of operations - when impacts on benthic communities, changes in water quality, and the risk of surface oil slicks are likely at their highest. It is therefore recommended that monitoring be extended to cover these critical months, allowing for direct comparison with periods prior to the tune penning operations. This would provide a more accurate assessment of the impacts of aquaculture activities, particularly regarding oil slick formation and benthic degradation.

[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.