

PROPOSAL FOR A NEW AQUACULTURE ZONE IN THE NORTH OF MALTA

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Representation by Prof Alan Deidun on behalf of the Qala local council

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Preamble

In line with government's strategy to sustainably develop the aquaculture sector, as prescribed by the National Aquaculture Strategy (NAS) of 2014-2015, whilst limiting the socio-economic impact of aquaculture operations and thus reduce public complaints about the same, the Department of Fisheries and Aquaculture (DFA) been, since 2011, looking into the possibility of developing a second, offshore aquaculture zone, this time in the north of the island, emulating the relative success of the South Aquaculture Zone (SAZ). Subsequently, a Site-Sieving Exercise (SSE) was conducted over the 2011-2016 period and a Project Description Statement (PDS) was submitted by the DFA in 2017, with an Environment Impact Assessment (EIA) and Appropriate Assessment (AA) being commissioned by the ERA by virtue of anticipated impacts of the development of species or habitats of conservation importance (as dictated by the Habitats and Birds Directives). These studies were completed in 2019, but the same planning application was not followed upon any further at that stage. In the autumn of 2022, the same planning application was re-activated by the DFA and the undersigned was subsequently engaged in December 2022 by the Qala local council to critically assess the documentation associated with the Environment Impact Assessment (EIA) and Appropriate Assessment (AA) conducted in response to the same NAZ proposal. The 4.5km² NAZ is expected to house a total of 4,500 tons of bluefin tuna biomass, a marked increase over the current capacity (3,300 tonnes) held by the AJD facility further to the south-east, at roughly 2km from its south-easternmost point and at roughly 4km from its north-westernmost point (distances estimated from EIA document Figure 3.8).

This representation acknowledges the need for the designation and implementation of the NAZ given that relocating all currently active fish farms to the South Aquaculture Zone (SAZ) is not a feasible option given the risks associated with concentrating all such operations within a single site and given that the SAZ has already reached its maximum operational capacity of 9,000 tonnes. Consequently, the ultimate scope of this representation is to:

- (i) Highlight the putative environmental and socio-economic impacts that the relocation of the NAZ will represent for the coastal zone of Qala and for the entire south coast of Gozo and to
- (ii) Identify potential alternative sites for the same relocation as a means of mitigation of the impacts identified in (i)

Site-sieving exercise (SSE)

The SSE has been conducted in a rigorous and prescriptive manner, being constrained by a considerable number of spatial restrictions imposed by ongoing human activities and active marine site designations, including:

- Location within the north of the island
- Potential site to be able to accommodate an aquaculture zone of at least 3km x 1.5 km
- Minimum distance of 4.5-5.0 km from the coast
- Maximum distance of 8km from the coast
- Minimum water depth of 50m
- Maximum water depth of 100m
- Minimum distance from additional aquaculture units of 1km

The same SSE was conducted over a protracted period, in two phases, namely:

- (i) Phase 1 – evaluating the technical potential of different sites north of the Grand Harbour which satisfy the criteria adopted within the SSE, so as to identify a ‘long list’ of Residual Areas of Search (RAS); completed in 2011.
- (ii) Phase 2 – assessing, along planning, environmental and social criteria (i.e. not along technical criteria), the suitability of each of the RAS identified in Phase 1; completed in 2017.

It is worth noting that the SSE:

- (i) identified the area north of the bunkering zone and south of the preferred location/Scheme (as marked in Figure 2.1) as technically suitable, as per extensive list of determining criteria applied within the same exercise. The only reason behind the elimination of the same area from further consideration, as confirmed within the SSE report itself, is that Government was still considering at the time (2011) the same area as congenial for the development of an offshore wind farm, plans which have, since then, been dropped;
- (ii) concluded that there might be scope for investigating further areas to the east of the preferred location/Scheme (as marked in Figure 2.1) as these meet the selection criteria established within the SSE; presumably, these ‘areas’ were not explored further due to their overlap with the LDMI (as shown in Figure 3.9).

In addition:

- (i) whilst it is not clear why the maximum distance of 8 km was included within the list of technical criteria adopted to govern the SSE, it can be safely assumed that this criterion was probably prescribed by the tuna penning operators themselves, as any distances above the 8 km threshold are expected to further inflate costs associated with the same operations;
- (ii) it is also not immediately evident from the corresponding EIA document as to why the relocation of existing tuna penning operations located 2.1 km to the south-east of the selected new site (shown in Figure 3.8) is being proposed, apart from a motivation to intensify the same tuna penning operations, which can only be supported through a formalised NAZ. In fact, any putative benefits arising from the Scheme in the form of the relocation of more inshore current aquaculture operations (shown in Figure 1.1) are not expected to be major/significant given that the same operations either do not feature the fattening of bluefin tuna or else are low-intensity operations, which are not expected to represent a major source of fish oil.

Closest distance from land and bathymetric considerations

Within the EIA Addendum submitted by ADI Associates to the ERA in October 2019, it emerges that the proposed NAZ site lies approximately 4.56 km away from Qala Point, whilst the tentative westwards extension, delineated through a dashed red line within maps of the proposed scheme provided by ADI Associates, is only 4 km from the same Point. Against this background, it is worth noting that:

- (i) the proposed NAZ site lies a mere 60m further from Qala Point than the minimum distance (4.5 km) from shore for such installations as permissible under planning law
- (ii) all distances cited by ADI Associates are qualified within the same EIA Addendum as being approximate ones, as denoted by the prefix 'c.' placed in front of each distance quoted in the same report, thus raising legitimate doubts concerning the actual compliance of the NAZ siting proposal with current planning legislation and
- (iii) the NAZ potential westward extension lies at 4 km away from Qala Point, thus rendering it ineligible for aquaculture purposes as per current, prevailing planning law and that
- (iv) the proposed NAZ site is potentially deeper than the prescribed 100m, as suggested by Figure 5.4 included within the EIA document.

Impacts from fish-farm operations

Of the total of 21 marine ecology and water quality impacts included within the Summary of Impacts (Table 5.11), the putative impacts arising from the dispersal of fish oil should be the one of most concern to the water quality along the southern coast of Gozo given that this impact is not restricted to the near proximity of the tuna pens but, under the right conditions, is expected to be dispersed over a large distance. Additionally, water current speeds within the north Comino Channel, by virtue of their typology, are expected to be considerably higher than baseline levels, thus resulting in a facilitated dispersal of any surface material emanating from the tuna pens once this reaches Qala Point under the right conditions. One must highlight the Excellent bathing water quality levels characterising bathing areas situated along the southern coast of Gozo, as confirmed within Malta's EU Bathing Water Directive annual reports.

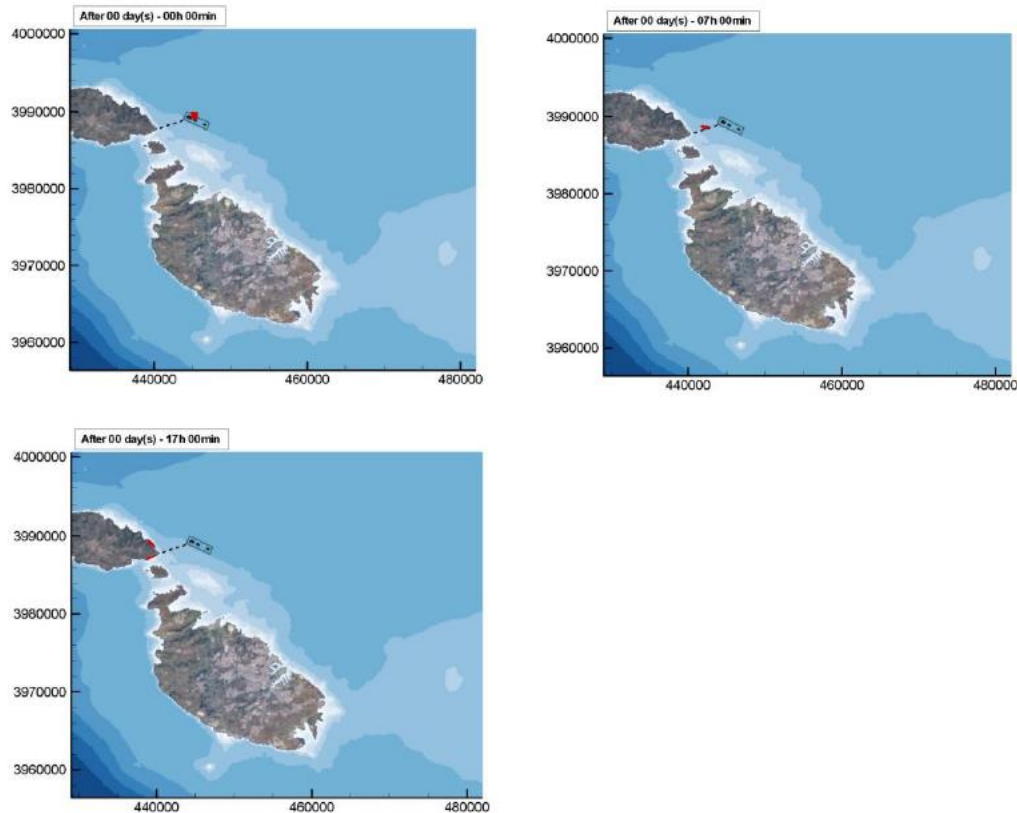
Citing the NAZ EIA document itself, 5% of the baitfish fed to the reared bluefin tuna will be lost as fish oil, totalling 264.7kg of fish oil per cage per day, with a total of 34 cages expected to be housed within the NAZ. Whilst the aquaculture operators strive to recover the same fish oil, through the use of booms and by a stand-by contractor outside the cages and by means of a skimmer inside the cages themselves, the EIA document acknowledges that the fish oil recovery process is not 100% efficient.

The conclusions of the ad hoc hydrodynamic study commissioned as part of the EIA exercise confirms this, stating that:

- (i) a total of 10m³ of fish oils per day are expected to be released by the tuna penning operations arising from the total 5,500kg of baitfish fed to each cage on a daily basis;
- (ii) the fish oil slick (consisting of fish oils, melting ice, body fluids, and fish mucus) is expected to be generated twice a day, in synch with tuna feeding operations, in the morning and in the afternoon and that
- (iii) under 'Scenario 2' conditions (wind blowing predominantly from the East, a scenario which arises on approximately 28% of all days, considering both NE and E wind directions), the fish oil plume disperses westwards, reaching the south Gozo coast in just 17 hours if there is no containment.

Conclusion (iii) is also reproduced within the EIA document's Figure 5.16, as follows:

Figure 5.16: Location of particles depending on time elapsed in Scenario 2



Source: Artelia, 2018

The EIA study document recommends the adoption of a number of mitigation measures in order to reduce the spread of the fish oil slick, including the following relevant ones which have been extracted verbatim from the same document:

- Consider the benefits of thawing and washing of baitfish on shore prior to feeding to reduce the amount of fish oils and mucus released into the marine environment;
- Deployment of permanent oil booms inside all tuna pens to contain any released fish oils inside the cages and the use of oil skimmers or similar equipment to collect the released fish oils from within the cages.
- Availability of additional oil collection services outside each farm to ensure immediate collection of any slick escapes from the farms to avoid wide dispersal of same;
- Consider the deployment of additional oil booms (to the permanent ones within the cages) on the farms' perimeters if acceptable from a navigational safety point of view (partial deployment in the direction of the prevailing currents could also be considered);

Whilst the rigorous implementation of the same mitigation measures is expected to recover considerable volumes of the fish oil slick, considerable uncertainty and apprehension over the effectiveness of the same measures (which largely revolve around the deployment of oil booms and of surface skimmers) still persist, for the following legitimate reasons:

- (i) As acknowledged within points 3.9 and 3.10 of the PDS document, surface skimmers are not '100% effective';
- (ii) the significant water depths and water current speeds (ranging between 5m/s and 15m/s) characterising the proposed tuna penning relocation site render the securing through mooring of oil booms all the more challenging and increase the likelihood of the booms getting detached or tangled;
- (iii) Malta's poor track record in adopting environmental impact mitigation measures out at sea, with repeated evident shortcomings in the deployment of measures such as silt curtains and oil booms during the implementation of a number of marine-oriented development projects.

Given these concerns, it is thus inconceivable how the putative water quality impact arising from the foreseen fish oil slick is even considered as potentially having a 'Minor Beneficial' effect on Tourism within the corresponding Summary of Impacts Table on the premise that inshore cages will be relocated to a more offshore site through the implementation of the proposed NAZ. The 'offshore' relocation will result in an intensification of tuna penning activity and will site the tuna pens closer to the Gozitan coastline.

An additional water quality impact which might potentially be of concern to the Qala community is related to the unavoidable release of blood within the water column as a result of the culling of tuna within the pens. However, given that blood disperses rapidly within the water column and is highly labile (biodegrades rapidly), this aspect of tuna penning is not expected to impinge on the water quality along the southern coast of Gozo.

Recommendations

The following set of recommendations are being fielded in order to mitigate as much as possible the significant socio-economic impact expected to arise from the dispersal of fish oil along the south Gozitan coastline bathing areas, whilst still managing to implement the proposed NAZ:

- (i) In general, the precautionary principle should be applied, given that the outcomes of the commissioned hydrodynamic modelling exercise are dogged by a high degree of uncertainty, as acknowledged within point 5.73 of the EIA document, namely that *'It must be emphasised that depending on the hydrodynamic conditions, a wide range of trajectories can be obtained and since the tuna are fed each day, a new oil slick could be generated daily and each one could be under the influence of different winds and currents and follows a different trajectory. The scenarios can therefore be very complex. The outputs from these models are therefore not absolute and represent a qualitative assessment showing a high variability due to wind and are mostly useful for comparisons. A quantitative assessment, on the other hand, will require a long modelling duration and must be carefully chosen to consider also previous problematic spills.'*
- (ii) Authorities should consider implementing one of the following two scenarios than the one being proposed for the envisaged NAZ:
 - a. Maintaining the status quo (i.e. going for the 'zero option' and not relocating the current tuna penning operations located 5km from I-Ahrax peninsula and 4.9km from Qawra Point, given that the socio-economic benefits to result from such a relocation (e.g. those arising from the relocation of inshore aquaculture operations, an intensification of aquaculture operations)

are outweighed by the anticipated deterioration in water quality along the south coast of Gozo as confirmed by the results of the commissioned hydrodynamic study. The implementation of this option has the advantage of not impinging on the 'il-Bahar Madwar Ghawdex' SPA, as the proposed NAZ location will;

- b. Opting for an alternative location/site to the south-east of the proposed NAZ but still hosted within Area B as identified within Figure 3.9 and identified within Figure A below:

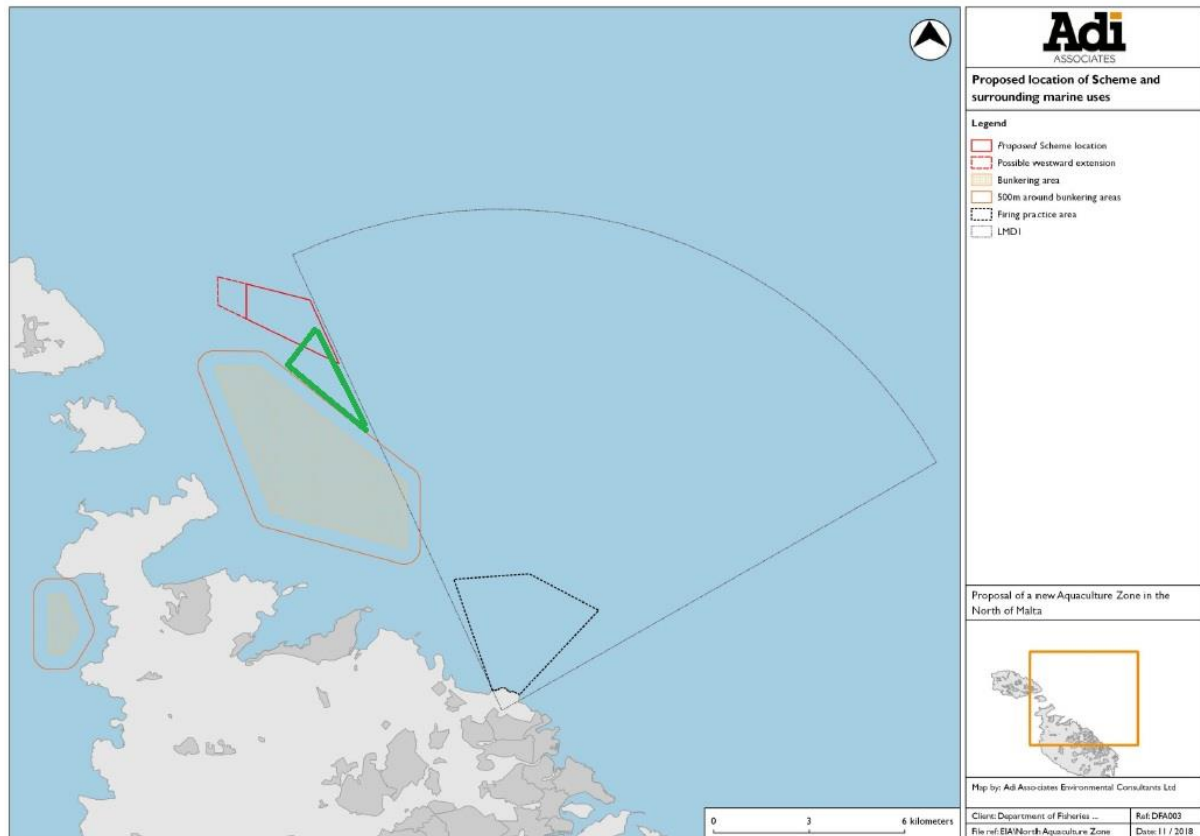


Figure A – alternative proposed NAZ as identified through the green polygon (adaptation of EIA document Figure 3.9)

The implementation of this option has the following advantages:

- i. It does not impinge on the 'il-Bahar Madwar Ghawdex' SPA, as the proposed NAZ location will, as confirmed through Figure 3.10 within the EIA document;
- ii. It will represent a lower probability of the anticipated fish oil slick reaching the south Gozitan coastline due to sheltering by the eastern coastline of the island of Comino for most (but not all) of the easterly wind directions and
- iii. It will represent more congenial operational water depths for the tuna penning industry given that water depths within the proposed new site are shallower than those within the proposed NAZ (EIA document Figure 5.4, in fact, seems to suggest that extensive swathes of the 'Scheme' feature waters which are considerably deeper than the prescribed maximum depth of 100m),

whilst still complying with all the technical, planning, environmental and social criteria listed in the EIA's Table 1.1. Part of the alternative NAZ site overlaps with the proposed scheme and is in fact located outside the prescriptive confines of alternative sea uses in the area, including those operated

by the AFM and TM (e.g. bunkering area), whilst no concrete plans for an offshore wind farm in the area are currently in place. The only selection criterion which is partly countered by the alternative NAZ location is the environmental one stating that preferred locations should not be sited over maerl beds (Table 1.1). In fact, Figure 5.19 suggests that the alternative NAZ location as proposed within these Recommendations is located over the following benthic habitats:

- Predominantly Atlantic and Mediterranean low-energy circalittoral rock
- Predominantly Mediterranean communities of muddy detritic bottoms and
- Predominantly association with rhodoliths in coarse sands and fine gravels under the influence of bottom currents (50-100% rhodolith cover)

However, as stated through point 2.4 of the PDS, it is not only rhodolith beds that are susceptible to organic enrichment:

'Beyond this area, at increased depth, the benthic habitat is dominated by bare sediments. These deep benthic communities are generally carbon limited, controlled by low input of organic matter from the overlying water column. While the possibility of locating the NAZ on such habitats may seem more attractive environmentally, as advised by Holmer (2010), fauna that does occur in these areas are likely to be less tolerant to organic enrichment than more coastal species given that they are adapted to low food conditions, and oxic or oxidised sediments. In addition, the operation of tuna farms in such deep waters remains a concern for operators who are not keen to operate at such depths.'

Consequently, the alternative NAZ location should be favourably considered by the relevant responsible authorities.
