

# Town & Country Planning Act 1990 Section 77 Anglesey County Council Planning Application by Anglesey Boat Company Ltd.

Gallows Point Marina Report L6805/  
X/00/513782

## 5. The Impact of the Proposals on the Mussel Fishery

### Contents

### The Likely Effect on Areas of Ecological Importance

#### 5.1 Case for the Applicants

- 5.1.1 It is agreed that the Menai Strait is an important mussel fishery in UK terms, which is based on the operation of 6 defined areas (lays) in the north-east end of the Strait. The whole Order covers some 761 hectares, of which 520 ha is allocated to the 6 lays on 7 year licences, granted to 4 layholders.
- 5.1.2 The contribution of these mussel lays to the total UK output varies, but it is typically between 80% and 90%. The current methods of mussel farming were introduced in the mid to late 1990's and production has varied between 3,000 tonnes (1998/99) and 9,500 tonnes (1995/96), whilst the estimated sustainable output would be 4,000-5,000 tonnes per year.
- 5.1.3 Although the fishermen claim that conditions in the eastern Menai Strait are perfect for mussel production, the record levels of production are only a little higher than in Dutch waters, which have to contend with higher silt levels than the Menai Strait. The estimated average production of 4,000-5,000 tonnes per year would be a yield of 5.2-6.7 tonnes per hectare, which is good, but not exceptional.
- 5.1.4 Mussel lays are not natural, because cultivation involves human intervention by laying seed mussels and periodically dredging with light dredges, which manipulates the substrate, substantially disrupts the ecosystem and creates a modified environment.

- 5.1.5 The water quality of the Menai Strait is Class B, requiring mussels to be depurated (cleaned with sterilised seawater), or cooked in an approved manner, before sale for human consumption. This is commercially disadvantageous compared to mussels cultivated in Class A waters, which do not require post-harvest treatment. This may improve if coastal sewage treatment improves water quality.
- 5.1.6 About 7 ha of the 10 ha marina development would affect mussel lay No 4, and of those 7 ha, only 4-5 ha is suitable for mussel production. This represents about 50-65% of the inter-tidal part of Area 4, and 13-17% of the total Area 4, which covers 30 ha. The 7 ha part of the marina is only some 1 % of the total Order area, or 1.4% of the operated part of the Order area.
- 5.1.7 The inter-tidal part of Area 4 is used as a nursery for mussels, which are re-laid in Area 6 and harvested the following year. Assuming an optimistic 30 tonnes/ha output from the nursery area, the 7 ha part would yield 210 tonnes of first year mussels, and provide some 420-630 tonnes of harvested mussels. But more realistic figures would produce 75 tonnes of seed and about 112 tonnes crop from a smaller area of 5 ha. These figures show that the development would be likely to reduce the total output of 4000-5000 tonnes per annui from the whole mussel fishery by between 3% (realistic) and 16% (pessimistic). The possibility of laying seed mussels directly would mean only a very small reduction in output, and therefore claimed losses of 30-40% of the total mussel fishery output cannot be substantiated.
- 5.1.8 Although they are linked by current leases, Area 6 should not be considered to be dependent on Area 4. There are no legal rights attached. and operators are known to have sought other opportunities for further development of the fishery. Alternative inter-tidal areas appear to be available. It is highly speculative to contend that the removal of this small nursery area would force abandonment of both leases.
- 5.1.9 The potential effects of marina construction and dredging would be mitigated by measures to control these factors and the discharge at Puffin Island. The ES estimates of risks are overstated. Substrate tests have shown that particle sizes are larger than predicted, the use of material for landfill would reduce the impact, and hydrodynamic conditions are such that less material would enter the main flow stream. Good codes of practice over construction methods and practice, and monitoring, mean that insignificant amounts of materials would itnpact on the water quality.

5.1.10 With regard to the potential effects of marina operation on mussel production, the ES considers the question of deoxygenation, anaerobic sediment and water quality risks associated with more static water within the marina basin. The present levels of boating activity, the boatyard and their untroubled co-existence with the mussel fishery indicates that there would be little impact. Concerns about sewage contamination, fuel/diesel spills and the release of copper-based antifoulant scrapings are legitimate and these matters need careful control. In accordance with the ES assessments, standards of practice and management would ensure no significant risks from the development, and this would be supported by the necessary physical infrastructure and would be open to external monitoring.

## 5.2 Case for the Menai Straits Mussel Fishermen and the North West & North Wales Sea Fisheries Committee (NW&NWSFC)

5.2.1 Issues concerning the effects of the proposed marina development on mussel lay Area No 4 and water quality in the eastern Menai Strait are raised by the Mussel Fishermen and the NW&NWSFC.

5.2.2 Mussel cultivation in Menai Strait is similar to terrestrial farming by tenant-farmers. The "lays" are bare until planted with seed mussels, gathered from as far afield as Caernarfon Bay, Conwy Bay and Morecambe Bay. Seed mussels are also brought in from the Solway Firth, Dornoch Firth and Burry Inlet in South Wales. Young mussels may be moved to different growing areas once or twice before final harvesting by large vessels towing dredges.

5.2.3 The tidal characteristics and shelter in the Menai Strait provide one of the most productive mussel growing areas in Europe. This form of aquaculture activity is regarded as being the best in the UK, and it is suitable for further development. The industry relies entirely on the unique growing grounds in the Menai Strait, identified in the Several Order. There are no other areas suitable for growing mussels in the Strait.

5.2.4 The development raises several concerns in relation to the mussel industry:

- (1) the direct impact on the business of one operator who would lose his growing ground and who cannot be accommodated elsewhere;
- (2) the effects of such a structure on the tidal flow, erosions and settlement patterns locally on neighbouring operators;
- (3) the impact of suspended dredge spoil during construction and its nature in relation to heavy metals;
- (4) the continued maintenance dredging once the marina has been built; and
- (5) the effect on water quality of 450 berth holders discharging effluent and fuel residues into a sensitive marine environment.

- 5.2.5 The loss of Area No. 4 due to the construction of the marina would mean that Area No. 6, farmed by the same operator, would become unproductive. Area 4 is used to harden off small seed mussels over winter before being re-laid onto Area 6 which is sub-littoral. Seed laid directly onto Area 6 is invariably lost to predation by crabs and starfish. The operator did try relaying small seed onto the upper edge of Area 6 in October 1999 but this only achieved a 10% survival, whereas the operator of Area 2 relaying the same seed has achieved a 90% survival on higher inter tidal ground, all losses due to crab predation.
- 5.2.6 The operator of Area 4 has consistently produced a high proportion of the total Menai Strait annual harvest. The loss of this operator would not only mean a financial loss to both himself and the fishery, but also to the other operators, because the critical mass that is generated together would be threatened. This operator has spearheaded the move to achieve dialogue with the South Wales SFC and access seed resources there.
- 5.2.7 The NW&NWSFC regards Area No 4 as a critical part of the cultivation process for mussels. The assertion in the ES that the loss to the industry would be proportional to the loss of some 2% of the Fishery Order area is incorrect. This argument overlooks the fact that not all of the Fishery Order area is suitable for mussel cultivation, and a large part is used for moorings. It is estimated that the loss of Area 4 could reduce mussel cultivation in the Menai Strait by up to 40%, and Mr Wilson's business in the area would cease.

- 5.2.8 It is not possible to relocate the operator of Area 4 elsewhere within the Fishery Order area. No other productive ground exists that is not already being utilised. Most of the productive ground in the Fishery Order area is within 1km of the proposed marina construction. Various tidal effects in relation to flow and sedimentation have been noted in the ES and are said to be slight. The flow conditions for mussel cultivation are very critical. Slight variations can result in wide differences in growth and survival rates. Conditions prevailing at the moment are perfect. Any change to the current regime could only be detrimental, and it is considered unwise to take this risk. The sedimentation plumes during construction should not adversely affect the mussels if construction is confined to the winter months, i.e. after November and assuming that they do not contain any heavy metals or radio-nucleitides.
- 5.2.9 Onshore toilet facilities are seldom used and the provision of pump out facilities is no guarantee that sewage would not be directly discharged into the sea. The presence of 450 vessels, equivalent to a small village, discharging sewage into the marina would be a significant source of faecal contamination. If it happened, this would be picked up during monthly sampling and could lead to a downgrading of the water classification or prevent the present improvements undertaken by Welsh Water from resulting in Class A water.
- 5.2.10 In either case the economic impacts would be enormous. A downgrade to Class C water quality would wipe the industry out and the inability to achieve Class A status would limit the marketing opportunities and therefore the quayside price.
- 5.2.11 The suspension of sediments during dredging for construction and during operation of the marina could suspend pollutants and contaminate mussels. Changes in tidal current regimes could make shellfish beds unproductive, as has happened elsewhere. The presence of the marina could cause changes in sedimentation patterns, which could cause the smothering of shellfish beds. The NW&NWSFC considers that such impacts could put the future of the mussel industry in Menai Strait in jeopardy, and insufficient information has been presented to assess the risk.

### 5.3 **Conclusions** (The bracketed numbers refer to source material in the parties' cases and documents)

- 5.3.1 In his report at Appendix 1, my Assessor Dr Terry Holt examines the issues regarding the likely impact of the development on the mussel fishery. These are dealt with in terms of the direct effects of the proposed marina on the mussel fishery, and the possible indirect effects on water quality in the Strait. I accept and endorse Dr Holt's conclusions on these issues. (I refer to his concluding paragraphs as A4.1 etc.)

- 5.3.2 The applicants acknowledge that the Menai Strait is an important mussel fishery in UK terms (5.1.1-5.1.2). As stated (5.1.4), this form of mussel farming is not part of the ecosystem of the Strait as it involves human intervention in the management of the seabed. Consequently, any impact that the proposed development might have on the fishery must be viewed in economic terms, that is to say, its effect on productivity and employment.
- 5.3.3 It is not disputed that the proposed development would remove most of the inter-tidal area of mussel lay No 4 (5.1.6, 5.2.5), or that the mussel productivity of Area 6 is linked to the use of Area 4 as a nursery bed for seed mussels (5.1.7, 5.2.7). It is also claimed by NW&NWSFC that the operator of these lays has consistently produced a high proportion of the total annual mussel harvest in the Strait, which is critical to the whole industry in this area (5.2.6).
- 5.3.4 I accept the Assessor's conclusions that the applicants' estimate of the productivity of Area 4 is conjectural (A5.6), not being based on actual production figures. The Assessor accepts the mussel farmers' and NW&NWSFC's view that lay No 4 is involved in up to 40% of mussel production in the Strait. It also appears that about 60% of lay No 4 would be lost to the proposed development and it is difficult to assess the viability of the remaining areas (A5.7).
- 5.3.5 It can be assumed therefore that the footprint of the development could render the whole of Area 4 unviable as an essential nursery lay, and with it remove mussel cultivation in Area 6 by the same operator (5.2.5). There is evidence that laying seed mussels directly into sub-tidal areas is unproductive, due to predation (A5.10). Consequently, I consider that the impact of the development on the mussel fishery could be significantly worse than a loss of production in the 3-16% range, estimated by the applicants' expert witness, Professor Muir (5.1.7).
- 5.3.6 Other mitigation measures suggested by the applicants (Doc ABC4), such as the extension of the Several Order to other parts of the Strait in compensation for the loss of lay No 4 and the sharing of lays, would be unlikely to prove practical or viable for the reasons given by my Assessor (A5.8-10). Productivity in the mussel fishery appears to have reached its optimum level (A5.10), and therefore the loss of Area 4 production would appear to be a large proportion of the total yield in the Menai Strait.
- 5.3.7 There is no evidence that the construction and operation of the proposed marina would cause a loss of water quality to the detriment of mussel cultivation, as long as the good practice and mitigation measures set out in the ES and Section 106 Agreement are followed (A5.13). Only strict adherence to these measures and careful monitoring would ensure the maintenance or improvement of water quality sought by the mussel farmers (5.2.9-11).

5.3.8 I conclude therefore that the development would have a significantly detrimental impact on the existing mussel farming industry in the Strait in terms of lost productivity, but it would be unlikely to harm the environmental conditions necessary for mussel cultivation on the remaining areas.