



OUTER HOUSE, COURT OF SESSION

[2021] CSOH 112

P348/21

OPINION OF LADY CARMICHAEL

In the Petition

ORKNEY MARINE FARMS LTD

Petitioner

against

THE LORD ADVOCATE

First Respondent

and

THE SCOTTISH MINISTERS

Second Respondent

**Petitioner: O'Rourke QC, Colquhoun; Blackadders**  
**Second Respondent: McKinlay; Scottish Government Legal Directorate**

29 October 2021

**Introduction**

[1] The petitioners, Orkney Marine, want to develop two salmon farms, Yinstay East and Yinstay West, off the coast of Orkney mainland in Shapinsay Sound. To do so, they need authorisations to discharge effluent and solid waste, under regulation 8 of the Water Environment (Controlled Activities) (Scotland) Regulations 2011 ("the 2011 regulations"). The contents of the discharge would include waste from fish food, faeces, medicines and

chemicals used at the fish farms. The Scottish Environmental Protection Agency (“SEPA”) refused Orkney Marine’s applications for those authorisations. Orkney Marine then appealed, unsuccessfully, to the Scottish Ministers under regulation 50 of the 2011 regulations. Two reporters determined the appeal on 15 March 2021. Orkney Marine now seek judicial review of their decision. The second respondents are the Scottish Ministers.

[2] Issues in the appeal included whether there were maerl beds under the sites where the farms were proposed, and what the effect of the discharges would be on any maerl beds. Maerl is a name for several species of purple-pink hard seaweed. It forms spiky underwater carpets known as maerl beds. Maerl beds are of environmental importance. They are one of eighty-one priority marine features listed by the Scottish Ministers in 2014, and feature in the OSPAR list of threatened and/or declining species and habitats.

[3] The reporters had submissions from Orkney Marine, from SEPA and from NatureScot.

[4] The agreed issues for the substantive hearing were these.

- (i) Whether the reporters acted unlawfully or irrationally in applying the policies of the National Marine Plan (NMP) and in particular the precautionary principle embodied in Policy GEN 19 in assessing the extent of damage likely to be caused to maerl beds in the vicinity of the application sites.
- (ii) Whether the reporters acted unlawfully or irrationally in their approach to the proposed re-location of the fish farms in order to mitigate damage to maerl beds.
- (iii) Whether the reporters acted irrationally in determining that the appeals should be refused on the basis that to allow the appeals would not be to act in the way best calculated to mitigate or adapt to climate change.

### **Legislation and policy relevant to the decision**

[5] Section 15 of the Marine (Scotland) Act 2010 (“the 2010 Act”) imposes requirements on public authorities so far as the NMP is concerned:

- (1) A public authority makes an authorisation or enforcement decision in accordance with the appropriate marine plans, unless relevant considerations indicate otherwise.
- (2) If a public authority makes an authorisation or enforcement decision otherwise than in accordance with the appropriate marine plans, it must state its reasons.
- (3) A public authority must have regard to the appropriate marine plans in making any decision-
  - (a) which relates to the exercise by them of any function capable of affecting the whole or any part of the Scottish marine area, but
  - (b) which is not an authorisation or enforcement decision..
- (4) “the appropriate marine plans” are -
  - (i) a national marine plan which is in effect,
  - (ii) to the extent that a decision falling within subsection (1) or (3) relates to a Scottish marine region, any regional marine plan which is in effect for the region.

[6] The policies in the NMP that are relevant are GEN 5, GEN 9 and GEN 19. GEN 5 relates to climate change, and requires marine planners and decision makers to act in the way best calculated to mitigate, and adapt to, climate change. The Scottish Ministers require to act in that way by section 4 of the 2010 Act.

[7] GEN 9 relates to natural heritage. It provides that development and use of marine environment must (a) comply with legal requirements for protected areas and protected species; (b) not result in significant impact on the national status of priority marine features; and (c) protect and, where appropriate, enhance the health of the marine area.

[8] Policy GEN 19 in the NMP says this:

“Sound evidence:

Decision making in the marine environment will be based on sound scientific and socio-economic evidence.

4.81 Where evidence is inconclusive and impacts of development or use on marine resources are uncertain, reasonable efforts should be made to fill evidence gaps and decision makers should apply precaution within an overall risk-based approach. This means that if impacts of an activity are uncertain, preventative measures may be required if there is concern that activity may harm human health, living resources, marine ecosystems, interfere with other legitimate uses of the sea or have other social and economic impacts. Modifications to proposals which would eliminate or minimise risk must be considered. The precautions taken should be considered based on risk, by balancing environmental, social and economic costs and benefits and should also take account of legal designations.”

[9] When considering the NMP, the reporters were not satisfied, applying the precautionary principle, that the effects of the proposal were such as to result in significant impact on the national status of a priority marine feature: GEN 9(b), paragraphs 86-90. At paragraph 91 they concluded, in relation to GEN 9(c):

“Part (c) of Policy GEN 9 says that development and use of the marine environment must protect, and where appropriate, enhance the health of the marine areas. However, in the light of our conclusions as to the likely effects on maerl beds ... and the importance of this declining, very slow-growing habitat, we do not find that the marine environment would be protected.”

[10] The reporters’ conclusions about GEN 5 are at paragraphs 92 to 94 of the decision:

“92. Policy GEN 5 Climate Change says that marine planners and decision makers must act in the way best calculated to mitigate, and to adapt to, climate change. In that respect it echoes the requirements of Section 4 of the 2010 Act ...

93. In its hearing statement, NatureScot states that calcareous biogenic habitats such as maerl beds are natural carbon stores. In recent years reports ... have sought to calculate the amount of inorganic carbon in maerl beds and the (much smaller) amount of organic carbon in live maerl. Although, because they are slow-growing, they sequester small amounts of carbon each year, their longevity locks carbon away for long time scales. In addition, recent research ... highlights the threats of climate change to Scotland's maerl habitats. Orkney is identified as a 'refuge area' where it is predicted that suitable habitat would be maintained.

94. We do not have any evidence as to other climate change-related effects of the proposed activities or of operating the fish farms more generally. But on this evidence, and in the light of our conclusion about the potential for effects on maerl beds, dismissing the appeals (as opposed to allowing them) would better mitigate, and adapt to, climate change."

## **Decision**

### *Issue (i)*

[11] One of the issues in the appeal was whether there were maerl beds present. The reporters dealt with it in paragraphs 18 to 35 of their decision. In relation to that issue, Orkney Marine submitted in the appeal that the reporters should consider the health of any maerl present in determining whether any accumulations of maerl constituted a bed. The reporters rejected that contention. Senior counsel did not advance any challenge to the reporters' conclusion that the maerl in and around the appeal sites generally constituted maerl bed.

[12] At the heart of this issue was the relevance or otherwise of the health of the maerl. Mr O'Rourke submitted that the reporters ought not simply to have concluded that there were maerl beds present and then gone on to consider the risk of damage to them in the light of the precautionary principle. They ought to have considered whether the health of the maerl beds was such that they were susceptible to any material damage from the discharge of effluent. There was evidence that the maerl in the maerl beds was unhealthy, and there were areas where there was much maerl that was already dead. If it was dead,

then it was not susceptible to further harm. Only where there was an absence of evidence could the precautionary principle come into play. I reject Orkney Marine's contentions for the following reasons.

[13] The reporters recognised that they had to determine whether there were maerl beds present. Maerl beds are a priority marine feature. Having concluded that there were maerl beds, the reporters required to consider the effect of Orkney Marine's proposed operation on them.

[14] They considered the evidence about the effect of the proposed fish farms on the maerl beds. They noted, at paragraph 36:

"From the written evidence before us it is clear that maerl is highly sensitive to the pressures associated with aquaculture, including organic enrichment and siltation, and that adverse results occur when the assimilative capacity of maerl is exceeded. Typically a reduction in live maerl cover and in biodiversity of infaunal species is observed. Damage results from smothering, lowered oxygen concentrations and the presence of hydrogen sulphide, and is long-lasting given maerl's extremely slow growth rate and consequent poor regenerative ability. If the maerl is killed but dead maerl substrates remain then the associated benthic community may partially recover within 2-10 years."

[15] The reporters considered the amount of waste that maerl could withstand before damage would occur. They considered the likely shape and intensity of the footprint of the material that would be deposited. There was no reliable evidence about how much material a maerl bed could tolerate: paragraph 38. The modelling ("AutoDepomod") used by Orkney Marine operated on the basis of assumptions about how much material seabed habitats could assimilate. It was developed to assess impacts on soft sediment communities, rather than the hard substrates of maerl beds: paragraphs 37 to 40. Because maerl was highly sensitive to organic enrichment, the reporters regarded it as prudent to keep in mind that the 192 grams solids/square metre/year figure used by AutoDepomod might very well

be too high for maerl beds to accommodate. The reporters then went on to comment about the 930 grams solids/square metre/year threshold proposed by Orkney Marine.

[16] They then looked at the likely footprint of the discharged material. They noted, in paragraph 42, that the appeal sites were highly dispersive. Mr O'Rourke, in the substantive hearing, placed some emphasis on the circumstance that the sites were in open water in Shapinsay Sound. The issue was essentially whether or not waste would largely be washed away by the currents. The reporters considered the evidence about this at paragraphs 42 to 56. Other than in respect of what was said to be a failure to take into account the condition of the maerl beds, there is no criticism of their analysis of the evidence, or their reasoning. It was not clear whether resuspension would occur, or to what extent.

Resuspension is when waste material assumed to have settled on the seabed is again picked up by strong currents: paragraph 42.

[17] It is not correct that the reporters left out of account Orkney Marine's view that the health or quality of the maerl beds was poor. They addressed Orkney Marine's contention that the impact of the discharge would be minor because the maerl beds were not viable, and their sensitivity therefore low: paragraph 47. The reporters noted in paragraph 49 that there were at least four ways of looking at the potential effects of the discharged material. The contention just referred to was one of those ways. The reporters considered it and took it into account.

[18] In addition to the uncertainty about the amount of waste that maerl beds could tolerate, there were uncertainties about what the effects of the water currents would be. The three dimensional structure of maerl might cause particles to be trapped rather than being picked up again by moving currents. The resuspension function of the model did not take into account the potential accumulation of waste within maerl beds. There was research

evidence that effects on maerl had been observed at highly dispersive sites: paragraph 52. In this passage, the reporters recorded Orkney Marine's contention that they should not reflect on that research because of the quality of the maerl. They rejected that argument, and explained why.

[19] They expressed their conclusions at paragraphs 53 to 56:

“53. It can be seen that any conclusions as to the likely effects of the proposed controlled activities on maerl beds will bring with it a high degree of uncertainty. We cannot identify an acceptable rate of deposition, although it seems on the advice of NatureScot that it may be less than the 192 grams used in AutoDepomod, in which case a great deal less than the 932 grams used in the appellant's modelling. In respect of resuspension, the modelling is based on a simpler seabed morphology rather than the more complex structure of maerl beds. Also, AutoDepomod is thought to be less accurate in more energetic marine environments. Put all together, the uncertainty is compounded.

54. NatureScot's figures assume loss of habitat only in the area directly below the cages. That would result in the loss of a notable amount of maerl beds. However given the fast flowing currents this calculation seems too simplistic. Material would be deposited (at last initially) across a wider area. It is conceivable that material would be resuspended to the extent that ultimately it is so dispersed that there is no significant effects on maerl beds. However such a conclusion would be highly speculative. We think it is more prudent to proceed on the basis that an area (the size of which is uncertain) below the sites and around them could see significant effects on maerl bed habitat. If that were to be the case, then the amount of maerl bed so affected would be greater than the 6 hectares or so which are directly underneath the area of both sites combined. The uncertainty we refer to does not give us sufficient confidence to conclude that material would re-suspended to the extent that there would be no significant effects on areas of maerl bed under and around the sites

55. We asked NatureScot to identify the ecosystem services that are likely to be provided by maerl beds in this location. Of most importance was habitat for other species, including commercially important fish and shellfish stocks, and carbon storage and climate regulation. Representations from the Orkney Fisheries Association also indicate that this area provides juvenile scallop and gadoid nursery habitat, as well as for King Scallop spat, juvenile crustaceans and their food sources. Habitat is also used by King Scallop and velvet crab. Given the potential loss of maerl, we consider that the provision of ecosystem services provided by the maerl beds under and around the cages could well be significantly affected.

56. We note NatureScot's view that, while the areas of maerl that have less than 20% coverage may not meet the definition of maerl bed, it is likely that they play a



role in supporting the long-term structure and function of the wider maerl bed habitat. We acknowledge that these areas would likely be subject to damage from fish farm wastes. Although not a direct effect on the maerl beds, we recognise the potential for this to have an indirect effect on them.”

[20] In summary, the reporters were faced with uncertainty as to how much waste maerl beds could accommodate without deterioration. They were also faced with uncertainty about precisely how and where the material would be deposited and whether it would stay where it was deposited. They found themselves uncertain about those matters having considered the available evidence. They accepted that maerl was highly sensitive to organic enrichment, and took account of research evidence that effects had been observed on maerl in highly dispersive sites. It is not correct to say, as Orkney Marine do at one point in their note of argument, that the use of the precautionary principle is excluded where there is available evidence. There may be evidence which leaves the decision maker legitimately uncertain in relation to material matters. That is what happened here. The reporters then applied policy GEN 19 correctly, by exercising precaution in the way that they did.

[21] The reporters did not accept the arguments of Orkney Marine as to the relevance of the condition of the maerl beds in assessing the effect of the discharges. They were not irrational in rejecting them. Orkney Marine’s complaint is one of disagreement with the conclusions of the reporters. That is not a ground for judicial review.

[22] It follows that there is no substance in the petitioner’s submission that the reporters misapplied the precautionary principle so as to inflate without justification the weight to be given to the risk posed to maerl. It did not cause them to err in law when balancing the risk to the maerl beds against other considerations, in particular the socio-economic benefits which they accepted would attend the development.

**Issue (ii)**

[23] Orkney Marine offered to move each of the two fish farms to the west by a distance of less than 150m. The intention was to take four cages in each farm out of the areas where the maerl coverage was greatest, and to an area where it was sparser. The total number of cages in Yinstay West was twelve, and in Yinstay East fourteen. The reporters considered this. At paragraph 57 they wrote:

“We cannot, given the uncertainty about the effects of the fish farms, conclude that this would avoid the risk of significant effects on maerl beds, particularly given the maerl bed records to the west of Yinstay.”

[24] Orkney Marine submit that the reporters should have compared the risk associated with the alternative location with the risk associated with the original location to see whether risk was reduced. They should not have considered whether development at the alternative location would create a risk of damage to a priority marine feature.

[25] In the first place, it is difficult to see how the reporters could have compared matters in the way Orkney Marine say they should if they did not assess the risk associated with both locations. Second, in determining whether to grant an authorisation for any proposal, the reporters would have had to consider what risk it posed to the priority marine feature. Whether a proffered mitigation will reduce risk sufficiently is a question of fact in every case. It involves an assessment of the risk that the development, with the proposed mitigation, would pose. The reporters did not ask themselves the wrong question. They had a great deal of material available to them about the marine environment at and near the sites of the proposed developments. They record at paragraph 25 information available to them about the survey of the site immediately to the west of Yinstay West, where there was observed coverage of between 15 and 80 percent. In the context of the uncertainties

regarding tolerance and dispersal and resuspension, they were entitled to take the approach that they did. That is sufficient to dispose of this issue.

[26] For completeness, I record that Orkney Marine went on to criticise the following passage, also in paragraph 57:

“In any case, SEPA has indicated that the regulations do not provide for such an amendment and that repositioning would require a new application as the impact of such a move would require new modelling and assessment.”

In the petition Orkney Marine admit that it would not be within the powers of the reporters under regulation 51 of the 2011 regulations to grant authorisation for a different scheme, under explanation that they were not invited to do so. At the substantive hearing Orkney Marine submitted that the reporters had power to direct that a modified proposal be authorised, if necessary by way of giving directions that conditions be attached to the authorisation. That was consonant with the requirement in GEN 19 to consider modifications that would eliminate or minimise risk. Orkney Marine lodged an affidavit of their sole director, Dr Barry Johnston. It mentions the proposal to move the fish cages to the west at both sites, and describes the move as “micro siting”: paragraph 20. According to his affidavit, “Micro siting would keep the application within SEPA’s 150m permissible move threshold to avoid the requirement to redo the studies.”

[27] The relevance or otherwise of the extent of the move, and of keeping it to less than 150m from the original site, was not focused in the pleadings or the petitioner’s note of argument. I do not require to determine whether or not the proposed move would be a different scheme from the one originally proposed, or whether it was a modification which might have been the subject of conditions attached at the direction of the reporters in terms of regulation 51.

**Issue (iii)**

[28] Orkney Marine submitted that the reporters acted irrationally in finding that either GEN 5 or section 4 of the 2010 Act was engaged. In the light of the evidence that the reporters accepted (paragraph 93), the conclusion they should have drawn was that the reduction in carbon sequestration caused by the death of live maerl was so small as to be *de minimis*. There was evidence before them that dead maerl would continue to sequester carbon, so the proposed fish farms would not cause the release of carbon into the atmosphere. The reporters were not entitled to take into account the likely effect of the farms on climate change so far as the effect on maerl was concerned.

[29] This ground of challenge fails. It is, again, in substance, a disagreement with the conclusion that the reporters reached. They were aware that the quantity of carbon sequestered by live maerl in any given year was small, because maerl grows slowly. They were entitled to conclude that even a small consequence, so far as climate change was concerned, was relevant. They were not bound to conclude that the consequence was so small as to be irrelevant. They had to act in the way best calculated to mitigate, and to adapt to, climate change. Having concluded that live maerl sequestered small amounts of carbon, but locked carbon away for a long time, they were entitled to conclude that refusing the appeals was the action best calculated to mitigate and adapt to climate change.

**Dr Johnston's affidavit**

[30] Dr Johnston's affidavit contains criticisms of the reporters' decisions which are not foreshadowed in the pleadings. One example is Dr Johnston's criticism that the reporters should not have concluded that the maerl constituted maerl beds. I have not considered

those criticisms. They do not appear in the petitioners' note of arguments, and senior counsel did not advance them in oral submissions.

### **Disposal**

[31] I sustain the Scottish Ministers' plea-in-law and refuse the petition.