

SCOTTISH MARINE ENVIRONMENT PROTECTION DISCUSSION DOCUMENT

also see: www.blue-skye.org.uk

Salmon Aquaculture in Scotland: Failure of Environmental Impact Assessment in the Highland Planning Process

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AUTHOR'S CREDENTIALS

- Independence: Qualified and experienced research scientist (retired). No financial or other vested interests. Conclusions and opinions not constrained by the need to protect employment prospects or income. Under no obligation to adjust opinions to match the government's political aspirations or employer's instructions. Therefore, able to reach objective, properly informed conclusions and provide authoritative, unbiased advice.
- Qualifications: M.Phil, D.Phil¹ (York), Biology (experimental field ecology).
- Experience: 40 years writing about and teaching a wide range of biological topics (including marine ecology).
- Relevant Publications: author of *HOLES – Scotland's Salmon Sewage Scandal* and *The Highland Council's User-Friendly Seashore Guide*.^{2,3}
- Also, author of a website with a substantial, evidential, non-hysterical fish farms section.⁴
- Has analysed five fish farm planning applications in detail (n.b. having actually examined the documents), thereafter routinely alerting the Highland Council's planning department in public consultations to alarming deficiencies in the aquaculture industry's assessments of environmental impact.⁵

¹ Oxbridge & York equivalent of MSc, PhD.

² Blue-Skye Books (Amazon).

³ Full Publications List: <http://www.blue-skye.org.uk/index.asp?pageid=556935>

⁴ <http://www.blue-skye.org.uk/index.asp?pageid=584660>

⁵ Hyperlinks to Merryweather consultation documents (PDF) are listed in the Appendix at the end of this document.

“Scotland’s seas provide rich and diverse ecosystems that are home to a wide array of plants and animals, including internationally important species. It’s our duty to protect this precious environment.”

– Richard Lochhead MSP, Cabinet Secretary for Rural Affairs and the Environment, Scotland.

“The Scottish Government supports Scotland’s aquaculture industry to achieve sustainable growth targets, with due regard to the marine environment, by 2020. The targets are to increase: Marine finfish production sustainably to 210,000 tonnes.” – The Scottish Government.

“The application of these [OSPAR] guidelines in this report indicates for the first time the full extent of nutrient pollution from Scottish aquaculture: this year [2000] some 7,500 tonnes of nitrogen, comparable to the annual sewage inputs of some 3.2 million people; and 1,240 tonnes of phosphorous, comparable to that from 9.4 million people. In 1997 Scotland’s population was 5.1. million.” – Malcolm MacGarvin, Modus Vivendi.

“Environmental Assessment: Scotland has some of the most unique and fragile environments in the world. The Scottish Government helps to protect these for future generations through Environmental Assessment legislation.”

– The Scottish Government.

“We believe that the people who live and work in Scotland are best placed to make decisions about our future – the essence of self-determination, therefore we support subsidiarity and local decision making. It follows, therefore, that any government committed to that policy should listen to the views expressed across all of Scotland ...”

– Alex Salmond MSP, First Minister, Scotland.

SUMMARY

1. Criticisms of aquaculture in this document refer only to fish farms in which salmonid fishes are kept in open net-cages (pens) at sea, from which all waste is released untreated into the marine environment.
2. Environmental Impact Assessment (EIA)⁶ is a legal requirement for and a vital constraint on developments that have the potential to harm the natural, scenic and cultural environment.
3. Aquaculture companies who wish to install fish farms in Scottish sea lochs are obliged to apply to local councils (in the cases discussed here The Highland Council) for planning permission which should be supported and informed by an EIA.
4. It is generally presumed that the EIA documents or Environment Statement (ES) submitted will be competent. The public presume that it should be so and expect that, according to published guidelines, it will be competent.
5. **When examined, aquaculture EIA documents are found to fall a long way short of competent standard, indeed the quality of the science they report as well as the reports themselves are of exceptionally bad quality.**
6. It is the habit of Scottish Natural Heritage (SNH) not to criticise these documents as harshly as they manifestly deserve. When applicants’ EIA documents and SNH statutory consultee statements are compared it becomes evident that sub-standard work is considered good enough for the planning process. **This state of affairs is conspicuous only if reports are examined critically, a rare occurrence.** Thus the planning officers and planning committees are advised by their official advisers that ineffectual EIA will suffice to protect the environment or that environmental harm is predicted to be negligible, which is demonstrably untrue.
7. **Environmental harm caused by net-cage salmon farms is not negligible.** The ecological impact of 800-900 tonnes per annum of fish excrement (estimated by Hjaltland in their Loch Eishort planning applications) laced with excess therapeutic chemicals and excess feed, also thus laced, will be profound. In all natural ecosystems, excessive nutrient loads always cause ecological change, which is usually deterioration. Therefore, it is inevitable and obvious, as well as well documented, that local habitats beneath fish farms change for the worse, drastically. Not only does a fish farm always create a zone of habitat obliteration in its immediate vicinity, but less obvious (though well researched!) ecological impacts spread over a wide area, effects that are generally but erroneously considered insignificant.

⁶ See: SNH EIA Guidance Manual (2013). www.snh.gov.uk/docs/A1198363.pdf

8. The ‘Allowable Zone of Effect’ (AZE) permitted by the Scottish Environment Protection Agency (SEPA) is ludicrously euphemistic – for ‘Effect’ read ‘Extinction’. Whether habitat obliteration should be *allowable* is highly questionable, though of course the causative pollution is *allowed* by SEPA. Considering what we know today about pollution effects on the environment, surely an Allowable Zone of Extinction should not even be considered, let alone allowed?
9. Blatant flouting of EIA guidelines (devised and published, but irregularly implemented by SNH) is common practice among aquaculture planning applicants. I contend that that amounts to malpractice that should not be tolerated. Few people have the time or competence to ‘fine-toothcomb’ planning documents, so it will be confidently expected by applicants (and true) that deficiencies in them will go undetected.
- 10. It is surely not good practice for SNH routinely to approve demonstrably sub-standard EIA submissions. Council planning officers rely upon SNH to advise them appropriately, so that they in turn can advise planning committees that by-and-large consist of non-specialist politicians who require sound advice when making decisions. Clearly, this chain of advice is not working.**
11. As concerned members of the public submitting comment letters during public consultations on fish farm planning applications, I and others have consistently pointed out many major deficiencies in EIA documentation. It is incredible that aquaculture companies routinely submit sub-standard documents reporting appallingly sub-standard studies simply because that is the way the planning process works – for them.
12. In planning departments, it will be expected that any public outcry will be concentrated on conventional objections rather than in-depth scrutiny of applicants’ documents and procedures. **We have been very disappointed to discover that well reasoned criticism based upon careful analysis of application documents is not being taken more seriously.**
13. In its recent decision on an application by Hjaltland Seafarms Ltd. (14/01467/FUL; report PLN/086/14) advice by me and other public consultees was officially disregarded in preference to that from SNH. I contend that those public criticisms of Hjaltland’s EIA were well argued and valid whilst SNH’s supine acceptance was ill-judged and imprudent.
14. We await decisions on two fish farm applications also by Hjaltland Seafarms Ltd. for sites in Loch Eishort, Isle of Skye. It was marginally encouraging to note that this time SNH’s consultee response criticism had increased a little (not enough, relative to guidelines in SNH’s own EIA manual and good environmental science). Pessimistically, based on previous experience, one would predict that well reasoned marine conservation concerns submitted by knowledgeable advisers contributing to the public consultation will, as in 12 above, also not be allowed to impede the applicant’s development ambitions. Hopefully, other planning constraints will.
15. Applicants’ documents, responses from statutory consultees and letters from the public may all be scrutinised at the Highland Council’s ePlanning website. Therefore, the argument that follows may be verified and, unless found wanting, validated.
16. When members of the public expose developer malpractice that the statutory authorities:
 - a) are unable or unqualified to recognise; or
 - b) have been unable to bring to light because they are under resourced (the frequently acknowledged situation at SNH); or
 - c) are obliged not to obstruct applications so that the Scottish economy might better be served (I have been informed by an SNH officer that they are under notice that the developer shall take precedence);... surely it would be reasonable to expect that informed views provided by the public should be heard, verified and acted upon by planning officers and planning committees?

17. It is time for everyone involved in the planning process (aquaculture) to examine applicants' documents more carefully and critically, and deal with them according to their merits. If they are competent, diligent and well presented they may be used in the decision making process. When – as is the case with EIAs submitted by aquaculture companies – the ecological and landscape impact studies and reports are of such appallingly low standard as to be deceptive (as is argued in the discussion below) they should be summarily rejected, not allowed free passage through the system unchallenged.

INTRODUCTION

The primary purpose of Environmental Impact Assessment (EIA) is environment protection, an exercise to discover the ecological status of a geographical location before any development which might cause environmental harm is allowed to begin, and then to ensure that appropriate mitigation measures are implemented. Ecology – the core evaluation study of any EIA – is a branch of the biological sciences and, therefore, we might expect the originators of an EIA (trained biologists) to prepare it according to well established scientific principles. Ecological survey methodologies are well established, so there should be no excuse for a developer with staff biologists not to provide planning authorities with the ecological information required to determine the environmental safety of their proposed development with a competent and informative Environment Statement (the report that contains the findings of an EIA).

This does not happen with aquaculture in the Highlands: Developers provide inadequate documentation based on 'science' that would fail any junior academic examination and the planners approve planning applications for which lamentably bad science is offered as supporting evidence. This situation does not serve the public good or the safe maintenance of Britain's biodiversity, yet both are matters of Scottish Government policy.

"Biodiversity – nature to most people – underpins our lives, our prosperity and the very essence of our world. The wildlife, habitats and other forms of nature with which we share planet Earth are valuable in their own right quite apart from the pleasure we take from their existence and the ways in which they support us.

"*The Nature Conservation (Scotland) Act 2004* places a 'Biodiversity Duty' on public bodies to further the conservation of biodiversity and to have regard to the *Scottish Biodiversity Strategy (2004)*."⁷

In the planning applications 14/01467/FUL, 14/01595/FUL, 14/02574/FUL and 14/02577/FUL, biologists in the employ of Hjaltland Seafarms Ltd. failed dismally to provide the information required to assess the environmental impact of proposed fish farms. This is not merely my biased opinion, but a measured evaluation of Hjaltland's documents submitted in support of their applications. I have no vested interests and need not take sides, other than to satisfy my passionate concern that truth be served. In common with Carl Sagan, my opinions presented here are founded firmly, not on hasty presumption, but on the honest appraisal of evidence:

"I try to show both sides but – I freely admit – I have a point of view deriving from my assessment of the weight of the evidence."⁸

Not only are Hjaltland's EIA documents, provided along with the aforementioned applications, published so that anyone might assess them, but when competent public advisers alert the planning authority to the extremely poor quality of these documents and the deeply flawed science used to create them, their advice is merely noted, then side-lined and discounted (see application 14/01467/FUL; report PLN/086/14).

This discussion, therefore, constitutes a 'whistle-blowing' exposé of malpractice in the aquaculture industry and ignorance of science among those responsible for making planning decisions. I do not accuse the Highland Council or SNH of malpractice. Any who object to the

⁷ Introduction to *2020 Challenge for Scotland's Biodiversity - A Strategy for the conservation and enhancement of biodiversity in Scotland*. <http://www.scotland.gov.uk/Publications/2013/06/5538/2>

⁸ Sagan, C. (1998). *Billions & Billions*. Ballantine Books.

suggestion they might be ignorant of science might care to consider that they must, then, surely have recognised that Hjaltland’s submissions were well below standard (particularly after being alerted by the public in their comment letters), so why did they not advise the planning committee that they should reject applications containing inadequate documentation rather than approve them (e.g. 14/01467/FUL, Snizort East)?

There is no doubt that net-cage salmon farming pollutes the marine environment in many ways, whereas in systems that closed containment aquaculture systems cause little or no environmental harm.

There is every good reason:

a) To ensure via the EIA that marine ecosystems will not become polluted or otherwise damaged.

“One reason net-cage industrial farming is profitable is due to externalised costs. At present the salmon farming industry pays nothing for waste disposal. Fish faeces and uneaten feed pellets go directly into the ocean. Our environment and wild marine species pay the price that secures the industry’s profits.” – Living Oceans⁹

b) To disallow any further development of net-cage aquaculture whilst encouraging developers to adopt fully contained, environmentally safe salmon culture methods.

“ASF supports the development of land-based closed-containment aquaculture. The closer one examines this technology, the more convincing the case for it being the future of salmon farming. In fact, the first commercial operations have already entered market production” – Atlantic Salmon Federation¹⁰

The following table compares disadvantages/advantages of net-cage vs. closed containment aquaculture:

NET-CAGE	CLOSED CONTAINMENT
Full of holes, open to the sea ✗	No holes, fully contained ✓
Waste disposed of in the sea ✗	Waste contained ✓
Marine environment polluter ✗	Marine environment polluter ✓
Waste treatment non-existent, therefore completely free ✗	Waste treatment costs ✓ money, but see next two:
Waste is thrown away ✗	Waste can be reused ✓
Waste is not recycled ✗	Waste can be recycled ✓
Pests & Diseases affect farmed fishes ✗	Pests & Diseases almost eliminated ✓
Pests & Disease affect wild fishes ✗	Pests & Diseases do not affect wild fishes ✓
Pesticides & Medicines required ✗	Pesticides & Medicines much reduced ✓
Pesticides & Medicines pollute ✗	Pesticides & Medicines do not pollute ✓
Fishes escape ✗	Fishes do not escape ✓
Genetic contamination of wild fishes ✗	Genetic contamination of wild fishes ✓
Invasion by carnivorous mammals and birds ✗	Carnivorous mammals and birds excluded ✓
Carnivorous mammals and birds ‘culled’ ✗	Carnivorous mammals and birds excluded ✓
Cages damaged or destroyed by rough seas ✗	Cages not damaged by rough seas ✓
Creates a few new jobs =	Creates a few new jobs =
Contribution to local economy? =	Contribution to local economy? =
Fish feed contains wild caught fish as meal =	Fish feed contains wild caught fish as meal =

⁹ www.livingoceans.org

¹⁰ <http://www.asf.ca/landbased-aquaculture.html>

ENVIRONMENTAL IMPACT ASSESSMENT DEFINED

The term Environmental Impact Assessment (EIA) conveys specific meaning, both by official definition and by implication through logical interpretation. In the first place it literally means that the *impacts* of any development on the natural *environment*¹¹ are to be or are being *assessed*. The purpose of that assessment may be discovered by reference to its definition in documents that advise specifically on the subject, for example:

The Crown Estate (1999). *Environmental Assessment Guidance Manual for Marine Salmon Farmers*.

The term “environmental impact assessment” describes the process by which information about the environmental effects of a project is collected by the developer and taken into account by the relevant authority in forming a judgement on whether approval should be granted to enable the development to go ahead.

Scottish Aquaculture Research Forum, the Highland Council and the Scottish Executive (2007). *Environmental impact assessment practical guidelines toolkit for marine fish farming*. SARF024.

“**Environmental Impact Assessment (EIA):** The systematic, reproducible and interdisciplinary identification, prediction and evaluation, mitigation and management of significant impacts from a proposed development and its reasonable alternatives. The need for a planning application to be accompanied by EIA can be established with reference to The Environmental Impact Assessment (Scotland) Regulations 1999 (as amended).”

The Scottish Government (2011). *User’s guide to the environmental impact assessment (Scotland) regulations 2011*.

What is Environmental Impact Assessment (EIA)? Environmental Impact Assessment (‘EIA’) is the process by which information about the likely significant environmental effects of a project, and the potential for reducing, avoiding or offsetting any adverse impacts, is collected and assessed by the developer; this information, together with comments received from the consultation authorities and the public, must be taken into account by the planning authority before any planning decisions are made.

Scottish Natural Heritage (2013). *A handbook on environmental impact assessment*.

The Guidelines set new standards for the assessment of the ecological impact of projects and plans, so as to improve the consideration of the needs of biodiversity and thereby reduce the impacts of any development.

5. The Guidelines aim to:

- Promote a scientifically rigorous and transparent approach to Ecological Impact Assessment (EcIA).
- Provide a common framework to EcIA in order to promote better communication and closer cooperation between ecologists involved in EcIA.
- Provide decision-makers with relevant information about the ecological impacts associated with a project, positive and negative.

6. With the purpose of:

- Ensuring structured ecological input at all stages of project design and implementation.
- Obtaining best possible outcomes for biodiversity resulting from changes in land use and developments.
- Improving the effectiveness of current EcIA practice on five key fronts through:
 - identifying and evaluating ecological features;
 - characterising and quantifying impacts and assessing their significance;
 - minimising negative impacts and maximising positive outcomes through the project design process;
 - identifying legal and policy implications and their consequences for decision making; and
 - identifying the role of stakeholders in achieving maximum benefits for biodiversity.

These and other relevant documents leave us in little doubt of the definition and ultimate purpose of EIA, which is to identify and then eliminate or mitigate for detrimental impacts that a development may be predicted to impose upon the environment. They also go to great lengths to explain, in easily understood terms, precisely what is required of a developer in devising an EIA.

¹¹ The surroundings or conditions in which a person, animal, or plant lives or operates: *survival in an often hostile environment*. – O.E.D. More specifically we mean the built or rural environment and even more specifically – since the subject of this discussion is salmon aquaculture – the marine environment.

It is also clear that it is the duty of the developer to conduct an EIA and prepare an Environmental Statement (ES). Guidelines such as are provided by these advisory documents ought to ensure that developers know precisely what is expected of them, so presuming that developers' staff actually refer to them, the quality of their environmental reports might be expected to be at least organised, informative and competent, achieving the statutory requirements of the EIA process.

In my experience of salmon fish farm planning applications submitted to the Highland Council,¹² aquaculture companies take heed of EIA guidelines only inasmuch as they provide documents appropriately titled but containing little of EIA worth. However, the content of those documents is far from organised, informative and competent. Aquaculture industry EIA submissions are, frankly, deplorable. Bad EIA documents should render planning applications invalid until resubmitted in a form that demonstrates a decent standard of competence and attention to requirement, and provides the planning authority with the information it needs to make wise decisions that will, as best can be expected, protect the environment from harmful aspects of development.

Where EIA investigations (surveys etc.) are themselves faulty – as is demonstrably true of Hjaltland's appalling attempts to conduct scientific studies – they should be criticised and corrected so that the EIA documents that report on them may also be competent. A workman who actually has bad tools *should* blame them for his deficiencies.

EIA EXPERIMENTAL DESIGN, DATA COLLECTION AND PRESENTATION

An ecological survey, as is the basis of an EIA, is a form of scientific experiment. Ecological science (which surely includes Environment Protection through Environmental Impact Assessment), requires disciplined, pre-planned experimental design. There is little evidence of any experimental structure in Hjaltland's reports, for instance and conspicuously their seabed surveys in which the science is deficient at all levels:

1. Presentation of, for instance Hjaltland seabed survey reports, bears scant resemblance to the convention followed in all formal scientific reporting: *Summary, Keywords, Introduction, Materials and Methods, Results, Discussion, References*. Why not? It is the universally accepted format that benefits both reporter and reader by placing all information from a study in a structured document that both may readily understand, and it works. All British biology undergraduates learn this convention at the beginning of their careers and it should be their method of choice when, fully trained, they enter employment as company biologist.
2. Lack of the above conventional structure for report writing proclaims that Hjaltland's seabed surveys are not designed according to standard scientific convention. They are quite obviously cobbled together.
3. Any ecological survey should be a conventional time course study in which habitats are monitored periodically over at least one year: weekly, monthly or seasonally depending upon intelligently hypothesised data requirements. Hjaltland habitually have conducted just a single seabed survey which has gone wrong every time as their boat drifted far away from preordained transect trajectories and the ROV, which carried the camera from which observations were to be made, misbehaved in a spectacular fashion. The latter was so severe that the camera did not actually record much of the seabed, other than occasional lucky glimpses, yet that has been considered acceptable by both Hjaltland and SNH! The inadequacy of the video footage presented as evidence has to be seen to be believed.
4. Data gathering relied entirely upon the ROV camera footage showing the nature of the seabed along three predefined transects. Since it failed to do so, data (animal identifications) were gathered only when the camera permitted and, therefore, very few data were gathered and then shoe-horned into arbitrarily constructed tables.

¹² Notably 12/03607/FUL; 14/01467/FUL; 14/01595/FUL; 14/02574/FUL; 14/02577/FUL.

5. Quantification of animals – impossible because of the lack of data – was further rendered meaningless by the use of the scoring procedure: *occasional, common, prolific*, generated by guesswork rather than counting, which tells us precious little about true abundances. It is difficult to understand why, even if a valid data set had made it possible, Hjaltland’s biologist did not use the conventional ACFORN scale (*abundant, common, frequent, occasional, rare, none*) employed by field biologists everywhere. In addition, the term ‘prolific’, being an arbitrary measure of productivity and not abundance, is thoroughly inappropriate and, therefore, meaningless.
6. The types of macro-organism recorded (when seen) are more often than not given only a common name, sometimes routinely imprecise or misused (e.g. ‘Fish ? wrasse’; ‘nephrop [*sic*] burrows’) or in the odd instance of a biological name being supplied, it is misspelt (e.g. *Peachia cylindrical*; *Mundina rugosa*) both of which errors tend to indicate an inadequate understanding of marine biological science and lack of application to field guides.
7. Hjaltland’s seabed data tables provide: a) too little information; b) information collected randomly, only as available; c) incorrectly reported information; d) meaningless quantification.
8. As ecological studies to inform the EIA, Hjaltland’s seabed surveys are completely useless.
9. Any repeat of the exercise should require: a) transects that follow pre-ordained trajectories and do not stray away from those trajectories or outside the site being studied; b) sampling (by ROV camera) at pre-ordained, known stations along the transects; c) samples of sufficient quantity to characterise the seabed of the proposed site accurately; d) successful deployment of the ROV resulting in video imagery from which a usable data set may be obtained; e) if quantification is possible (not to be guessed if impossible), quantification according to a meaningful abundance scoring system.
10. The above considerations illustrate breathtaking incompetence or lack of care for process that, when submitted as authoritative, surely constitutes barefaced deception. It is extraordinary that the regulatory authorities routinely give rite of passage to such rubbish.

What about matters of truth and untruth? As well as ecological aspects, the EIA includes assessment of impacts on the landscape and people in the visual and noise impacts document (LVIA). Applicants, including Marine Harvest and Hjaltland, routinely have to revise and re-submit their LVIA documents because their photomontages showing where a proposed installation will be and what it will look like are *invariably* incorrectly positioned and shown smaller than reality, under emphasising visual impacts.

Because of the obfuscatory manner in which their charts showing fish farm visibilities from various viewpoints are presented – with opaque zones obscuring geographical features – they are very difficult to interpret. Once carefully checked, however, they are frequently found to present an ‘over optimistic’ estimation. Applications 14/02574/FUL and 14/02577/FUL are accompanied by such a chart that purports to show benign limitations of visibility of three fish farm sites applied for. They are completely wrong, ‘errors’ which if left unnoticed would be very much to Hjaltland’s advantage and very much to the visual detriment of residents and visitors.

Hjaltland asserted in EIA templates accompanying 14/02574/FUL and 14/02577/FUL that: “The site location was chosen so as not to be close to any known seal haul outs.” Reference to maps of seal haul out distribution and seal densities in Loch Eishort by the Seal Management Research Unit shows that to be entirely untrue. The statement was accompanied by an undertaking to shoot only one seal per year. How do they know that only one seal per year, in a loch full of hungry, piscivorous seals, will become problematical? Also, since culling has to be carried out by an accredited marksman who needs to be contacted, engaged and then travel to the site to do his work, one wonders how Hjaltland intends to show him which seal he has been contracted to kill?

Any published scientific report has to pass peer review. If found wanting, the work is summarily rejected. I know this because I have had to suffer the frustrations of this intellectually vital process many times and approve of it wholeheartedly. All of Hjaltland's EIA presentations that I have seen pretend to be scientifically valid. But they are not just a bit below par, they are woefully inadequate. I have examined the poor structure of Hjaltland's studies and reports, which ought to be of at least basic scientific standard, and next I will consider the planning committee's response to guidance provided them by statutory consultees and public commentary.

BAD DECISION MAKING: MISMATCHES OF EIA QUALITY, EXPERT ADVICE AND PLANNING DECISIONS

I and others have criticised Hjaltland's application documents in comment letters, increasingly stridently as the situation became clearer to us by experience. We never expected to see such appalling work, so it took some time for the truth of the matter to sink in. You will see – if you review public comments with regard to Slapin, via Snizort East to the two Eishort applications – that our critiques have become increasingly detailed and condemnatory, not without good reason and, I contend, competent reasoning.

On 16 December 2014 the North Planning Applications Committee reported its decision to grant planning permission to Hjaltland Seafarms Ltd. (recently rebranded 'Ocean Quality') in their considered response to application 14/01595/FUL. In their report PLN/086/14, they noted that:

Material considerations raised by members of the public are summarised as follows:

- **POOR QUALITY SEABED SURVEY** - the seabed survey report and ROV video footage supplied by the applicant is poor quality and makes it difficult to gauge the likely impact on the seabed;
- **THREAT TO WILD SALMONID FISHERY** - the proposed fish farm's location close to the River Snizort (regarded as the best salmon fishing river on Skye) would threaten the wild salmonid fishery in this river if the fish farm generates elevated levels of sea lice [*one respondent expressed the view that Hjaltland has a particularly poor record for managing levels of sea lice infestation*];

The report continues:

5.2 **Scottish Natural Heritage** does not regard the proposal as raising any issues of national importance and has expressed no significant reservations. It has however provided detailed advice for the Council to consider in the context of its own policies. This advice is useful also when considering the weight to be attached to representations from members of the public (see above), which majored on sustainability and impacts on wildlife and the landscape.

The report continues:

9.1 In reaching a view on this planning application all relevant planning policies and guidance have been considered, along with the applicant's supporting information, consultee responses and public comments.

9.2 While the proposed development could impact on various types of wildlife in a localised or temporary sense this should not be to a significant degree.

The fact that "Scottish Natural Heritage does not regard the proposal as raising any issues of national importance and has expressed no significant reservations" reveals the fact that SNH has not noticed that Hjaltland's science is unacceptable (or overlooked that), has not been reading the scientific literature lately and is overlooking evidence that ought radically to change its stance on the matter.

1. **POOR QUALITY SEABED SURVEY** – The quality of Hjaltland's seabed surveys is not so much poor as appalling. The data are sporadic, extremely limited and dictated by availability in a very poor data set haphazardly obtained from an 'experiment' with no discernible structure; just a desperate grasp at any scraps of information they were lucky enough to obtain from an exercise that almost entirely failed. An ecological study requires pre-planning followed by meticulous execution and critical analysis. Data must be collected objectively, in

an organised, predetermined fashion. Also, any ecological study must be conducted over a time course of at least one year and competently replicated. **Hjaltland demonstrably did not attempt or achieve any of these fundamental methodological values and, therefore, did not gather the information necessary to inform their EIA. The Precautionary Principle should be implemented.**

“Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. Competent authorities should adopt the precautionary approach in considering environmental information and when deciding whether to give consent to projects, in accordance with Government policy.”¹³

2. The planning authority should expect Environmental Impact Assessment to consist of an effective, informative, trustworthy, accurate and competent assessment of the environmental impact of any proposed development. Hjaltland’s EIAs clearly fail to meet that simple, obvious expectation on many counts, exposed by comments submitted by the public. Why pass any of their applications? Why did SNH not automatically adopt the precautionary approach and advise the planners against acceptance?
3. The committee’s report found that “... the seabed survey report and ROV video footage supplied by the applicant is poor quality and makes it difficult to gauge the likely impact on the seabed”. Presumably, therefore, they *were aware* that the requirements of EIA had been flouted. Why approve the application?
4. **THREAT TO WILD SALMONID FISHERY** – I have routinely cited research by Krkošek *et al.* – particularly their 2012 study¹⁴ – and Thorstad *et al.* 2014¹⁵, which have unequivocally demonstrated that wild populations of both Atlantic salmon and sea trout are severely affected by the presence of net-cage salmon farms installed in their migration routes. They do not mince their words and define the effect as ‘extinction’. Has anyone mapped wild salmonid migration routes in Lochs Snizort and Eishort? More to the point, did Hjaltland as part of their EIA? **In the light of published scientific research and lack of local information, SNH and the planning authority cannot reasonably suppose (as they did) that the proposed Snizort East salmon farm will have no significant effects on the River Snizort’s salmon population. Nor can they say the same with regard to any other rivers adjacent to proposed fish farms. The Precautionary Principle should have been implemented.**
5. In view of 1-4 above, the committee was not justified in its conclusion that “While the proposed development could impact on various types of wildlife in a localised or temporary sense this should not be to a significant degree”, and every reason to conclude otherwise. I note that the committee acknowledges that “... the proposed development *could* impact on various types of wildlife ...” yet chooses to overlook this vital observation. For me, that sets alarm bells ringing. SNH may have advised them to take this line, but the science and public consultees’ comment letters strongly suggest that it was ill advised. **Which should inform the planners’ decisions: sound scientific evidence or slapdash guesswork?**
6. Hjaltland may be going to repeat some of their EIA studies in Loch Eishort, but is there any reason to be confident that they will adhere to scientific experimental conventions or simply submit, as habitually, their simplistic, error-infested and completely inadequate apologies for reports? No beating about the bush: to date, Hjaltland’s attempts at scientific surveying have been deplorable.
7. If Hjaltland provide amended EIA documents and members of the public once again detect malpractice, how will the planners know? Inexplicably (we have been firmly instructed on this

¹³ See the *SNH EIA Guidance Manual* (2013). Section E.1, pp. 134-135.

¹⁴ Krkošek, M., Revie, C.W., Gargan, P.G., Skilbrei, O.T., Finstad, B & Todd, C.D. (2012). Impact of parasites on salmon recruitment in the Northeast Atlantic Ocean. *Proceedings of the Royal Society Biological Sciences*, 280(1750): 20122359.

¹⁵ Thorstad, E.B., Todd, C.D., Bjørn, P.A., Gargan, P.G., Vollset, K.W., Halttunen, E., Kålås, S., Uglem, I., Berg, M. & Finstad, B. (2014). Effects of salmon lice on sea trout – a literature review. *NINA Report* 1044.

point), the public is allowed just one opportunity to comment on planning applications and has no right of appeal against decisions. We have had that one chance, so how may we now guide the planners? They may be assured that, no matter what the rules say, we will have our say.

8. It is discouraging to read that “representations from members of the public, which majored on sustainability and impacts on wildlife and the landscape”, presented with cogent arguments supported by proficient reference to the scientific literature, have been considered less worthy of consideration than assertions presented by SNH which are presented without formal scientific justification. Had the public comments available consisted of paltry ranting, SNH declarations would have been the only authority available to the committee, but that was not the case. **The committee should have been advised that arguments had been raised and discussed by the public that should inform them that net-cage fish farms in Skye sea lochs are inadvisable for specific, validated, evidence-supported reasons. That public comments contradict SNH’s consultee reports should have been noted and subjected to appraisal, not sidelined just because SNH said otherwise.**
9. Would it be cynical to suggest that in certain circumstances (e.g. Scottish salmon aquaculture) SNH might find it difficult to acknowledge scientific truths that threaten obstruct the Scottish Government’s economic policies?
10. In Lerwick on 25 July 2013, the then First Minister Alex Salmond MSP gained national attention and engendered cautious optimism when he issued what has become known as The Lerwick Declaration, quoted at the beginning of this report.¹⁶

Notwithstanding a change in leadership, The Lerwick Declaration remains prominent on the Scottish Government’s website, so we may justifiably infer that it remains a true representation of the Scottish Government’s ethos:

“We believe that the people who live and work in Scotland are best placed to make decisions about our future ...”

In democratic Scotland, the public should surely have every opportunity to have their voices heard and – if their comments are compelling – acted upon.

APPENDIX

References to the author’s comment letters contributing to public consultations on five aquaculture planning applications. If you receive the message Document Unavailable, please use the Documents Index link and scroll down the page.

Marine Harvest Loch Slapin [12/03607/FUL]

http://wam.highland.gov.uk/wam/files/E37769D8BE21EAEDDA033FB98CD0488B/pdf/12_03607_FUL-Dr_James_Merryweather-439525.pdf
http://wam.highland.gov.uk/wam/files/DD5AE52366D902269279FF8A8D8EEFB8/pdf/12_03607_FUL-Dr_James_Merryweather-453107.pdf

Documents Index: <http://wam.highland.gov.uk/wam/applicationDetails.do?activeTab=documents&keyVal=MAJ5LIH09500>

Hjaltland Seafarms Ltd. Loch Slapin [14/01467/FUL]

http://wam.highland.gov.uk/wam/files/B73E41F70DAB92681FF96FB651F82108/pdf/14_01467_FUL-Dr_James_Merryweather-680611.pdf
http://wam.highland.gov.uk/wam/files/3B2BD50D852F7111893D4135099FDC28/pdf/14_01467_FUL-Dr_James_Merryweather-686540.pdf

Documents Index: <http://wam.highland.gov.uk/wam/applicationDetails.do?activeTab=documents&keyVal=N3VEIBIH09K00>

Hjaltland Seafarms Ltd. Loch Snizort East [14/01595/FUL]

http://wam.highland.gov.uk/wam/files/6EDC84B64C26F8112D2FF9D8C4E4FA3C/pdf/14_01595_FUL-Dr_James_Merryweather-699308.pdf

Documents Index: <http://wam.highland.gov.uk/wam/applicationDetails.do?activeTab=documents&keyVal=N4FVWQIH09K00>

Hjaltland Seafarms Ltd. Loch Eishort 2 [14/02577/FUL]

http://wam.highland.gov.uk/wam/files/76F415B7D67D356D7CD14E6ED6EBA0AB/pdf/14_02577_FUL-Dr_James_Merryweather-741972.pdf

Documents Index: <http://wam.highland.gov.uk/wam/applicationDetails.do?activeTab=documents&keyVal=N82XXJIH09K00>

Hjaltland Seafarms Ltd. Loch Eishort 1 [14/02574/FUL]

http://wam.highland.gov.uk/wam/files/85EAE89140764500B7154D49B75F273C/pdf/14_02574_FUL-Dr_James_Merryweather-739084.pdf

Documents Index: <http://wam.highland.gov.uk/wam/applicationDetails.do?activeTab=documents&keyVal=N82UOMIH09K00>

¹⁶ The Lerwick Declaration. <http://news.scotland.gov.uk/News/Lerwick-Declaration-2a7.aspx>