AAC Recommendation on the draft guidance document on environmental performance in EU aquaculture

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I. Background

The Aquaculture Advisory Council (AAC) notes that the draft guidance document aims to support the authorities and aquaculture producers in increasing the environmental performance of aquaculture activities.

The AAC welcomes the inclusion of AAC recommendations on the first draft and improvements in the content of the second draft. The AAC also supports the intention to regularly update the document on the EU Aquaculture website of the European Commission.

Most, if not all, EU farmers already use indicators. Some of these are mandated in their licenses/permits, others are required in certifications schemes, such as the Aquaculture Stewardship Council (ASC) standards, while others are established internally for the purpose of internal benchmarking. The ASC Farm Standard has more than 100 indicators covering 12 environmental criteria and more than 150 indicators covering 4 criteria on animal health and welfare.

The draft guidance document contains 106 pages and over 33,000 words.

Table 7 presents 17 proposed environmental performance indicators. Farmers are also called on to record data on the indicators to support the calculation of their environmental footprint according to the Product Environmental Footprint (PEF) methodology.

Table 8 shows 8 additional proposed environmental indicators on "direct elementary flows" and notes that these flows are calculated using the same models to determine the PEF.

The purpose of the guidance document is to provide the authorities and aquaculture producers with a written reference in easily readable and user-friendly language.

II. Justification

The AAC argues that most EU farmers do not have the resources and the educational background to access the document. A readability test shows that the document is written at a post-secondary or academic level. In addition, most EU farmers are not familiar with the Product Environmental Footprint Category Rules (PEFCRs) methodology, and there are no PEFCRs for freshwater and bivalve aquaculture, which accounts for 96% of the EU's aquaculture enterprises.[1]

Based on this, the AAC concludes that the draft guidance is neither easily readable nor user friendly to EU farmers. It expresses concern about its practicability and impact on improving the environmental performance of EU aquaculture activities.

The AAC agrees that marine fish farmers can use the PEFCRs for marine fish[2], but this is not an option for freshwater and bivalve aquaculture.

Therefore, the AAC proposes that the document introduce a list of basic and quantifiable indicators applicable to freshwater and bivalve aquaculture, as well as to marine fish farmers who may be unable to use the PEFCR.

[1] The Aquaculture Economic Report, STECF 2024-14

[2] https://www.marinefishpefcr.eu/resources

III. Recommendations

Recommendations
To the European Commission:

The AAC proposes to include six indicators in the guidance document. These indicators do not require detailed insight into PEFCR methodologies, are applicable to microenterprises, and capture impacts of high environmental relevance and public interest. The six indicators are as follows:

1. <u>Feed conversion ratio (FCR): feed used (kg)/net production (kg)</u>
The net production for ***all-in-all-out*** production is calculated as follows:

(a) Net production: Harvested production – stocked production.

The net production for ***continuous production*** is calculated as follows:

(b) Net production: Δ Standing stock$_{\text{end - start year}}$ + harvested/removed volume + stocked production$_{\text{during year}}$.

The FCR can be supplemented with ***forage fish dependency ratios*** to measure the amount of forage fish in fish meal and fish oil used to produce 1 kg of farmed animal, as proposed in the ASC Farm Standard.

2. <u>Freshwater abstraction: m3/net production (kg)</u>
Permits often indicate the maximum abstraction of surface and/or groundwater. A permit can, for example, specify the maximum intake in l/s or the maximum volume that can be extracted from the source (e.g. 50%).

Land-based freshwater farms use different methodologies to measure the intake of freshwater, and the annual abstraction in m3 can be calculated or assessed. This may also depend on permit requirements.

3. <u>Electricity use: kWh/net production (kg)</u>
This indicator is most relevant for Recirculating Aquaculture System.

The ASC Farm Standard uses a more holistic indicator based on megajoules (MJ). It includes a table for converting various energy inputs (electricity, diesel, biogas, fuel oil, biomass, etc.) into MJ. The ASC MJ indicator is therefore relevant to all farming systems.

The ASC Farm Standard also includes an indicator on greenhouse gas emissions, but it requires the collection of an extensive dataset, and the calculations are complicated. On this basis, the exclusion of a greenhouse gas indicator is proposed until PEF methodologies for freshwater and shellfish aquaculture have been developed.

4. <u>Escapees: escapees/net production (kg)</u>

This indicator is relevant to fish aquaculture. It can be calculated in volume or in the number of escapees.

5. <u>Emissions of N and P: kg/net production (tonne)</u>

For simplicity, the inclusion of two proxy formulas for calculating the annual emissions of total N and total P is proposed. The formulas for N and P are identical, and T represents the annual total emissions of N and P.

<u>Diffuse sources: Marine farming (fish/shellfish) or land-based farms</u>

(a) $T_{(kg/tonne)}$ = T release$_{(kg)}$/Net production$_{(tonnes)}$ = (T feed$_{(kg)}$ – T animals$_{(kg)}$)/Net production$_{(tonnes)}$

(b) T feed$_{(kg)}$ = Feed use$_{(tonnes)}$ x T content feed (%) × 10

(c) T animals$_{(kg)}$ = Net production$_{(tonnes)}$ x T animals (%) × 10

The simple mass balance approach is likely to overestimate the total emissions, as it does not consider the internal turnover of N and P. However, at the farm level, the simple mass balance can be used to assess the changes in N and P emissions.

<u>Point sources: Land-based farms</u>

(a) $T_{(kg/tonne)}$ = (T Out$_{(kg)}$ – T In$_{(kg)}$)/Net production$_{(tonnes)}$.

(b) T Out$_{(kg)}$ = T Effluent$_{(mg/l)}$ × 0,001 x Volume Effluent$_{(m3)}$.

(c) T In$_{(kg)}$ = T Influent$_{(mg/l)}$ × 0,001 x Volume Influent$_{(m3)}$.

T Effluent and T Influent are the mean concentrations of N and P in effluent and influent water. Permits and national practices should provide details on how water sampling and analysis should be conducted. Other formulas may also be introduced.

6. <u>Benthic impact of marine shellfish off-bottom and suspended cultivation systems</u>

This indicator aims to monitor impact on the sea bottom as a result of the assimilation of organic materials. It includes sediment samples analysed for total free sulphide (ion-selective method or UV spectrophotometry) and redox potential using an oxidation reduction potential (ORP) probe.

Sediment sampling will be conducted according to permit requirements or national practices.

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