

# Terms of Reference

## Energy Use and Greenhouse Gases Technical Working Group (TWG)

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# Introduction

The TAG Terms of Reference make provision for the formation of Technical Working Groups (TWGs) to support the technical and scientific work of the TAG. Typically, a TWG will be comprised of technical experts external to ASC’s governance bodies with a member of the TAG acting as sponsor to facilitate communication and understanding between the TAG and the TWG and support the ASC technical lead. ASC’s Secretariat will provide logistical support to the group and a technical coordinator from ASC will be appointed to provide the group with the technical resources. This may include a white paper to initiate discussion and a draft Standard following TWG deliberations. An external facilitator may be appointed for complex topics.

## References

- [ASC Programme Revision and Development Procedure](#)
- [ASC Metrics Methodology](#)
- [ASC Complaints Procedure](#)
- [TAG Terms of Reference](#)

# 1. Terms of Reference

## 1.1 Statement of Purpose

The purpose of the Technical Working Group is to provide recommendations that will serve as guidance for the further development of the Energy Use and Greenhouse Gas Emissions criteria in the ASC Farm Standard and the ASC Feed Standard and supplementary tools and templates to support producers in implementing this guidance.

## 1.2 Background

Climate change is a critical environmental challenge demanding action from all sectors. Food systems account for a quarter to a third of global greenhouse gas (GHG) emissions (Vermeulen *et al.*, 2012; Crippa *et al.*, 2021) and production of animal protein in particular accounts for a large portion of impact via conversion of land for feed crops and grazing, soil carbon loss, enteric fermentation of ruminant livestock, and use of energy, fertilizers, and other inputs along supply chains. While the aquaculture industry contributes only an estimated 0.5% of global GHG emissions (MacLeod *et al.*, 2020), aquaculture production systems vary markedly in both their relative rates of GHG emissions and in the drivers of those emissions (Gephart *et al.*, 2021; Bohnes *et al.*, 2018). There is demand across stakeholders to better incorporate GHG emissions into metrics of environmental

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performance for aquaculture and to identify meaningful ways to measure, communicate, and reduce the climate impact of aquaculture products and supply chains.

The landscape of GHG accounting frameworks, standards, regulations, labels, and green claims is rapidly evolving with many parallel and often conflicting initiatives. Numerous standards are available to guide methods of GHG accounting for aquaculture production, including PAS 2050-2 (product category rules under PAS 2050), ISO 22948 (product category rules under ISO 14067), and the recent draft product category rules for marine fish under the European Product Environmental Footprint (PEF) method. Divergent methods and data sources and inconsistent measurement and reporting present industry-wide challenges in interpreting the GHG performance of aquaculture supply chains, potentially resulting in confusing messages, incomparable results, and unsupported claims of relative performance.

The ASC wants to ensure that its approach to addressing the energy use and GHG emissions of aquaculture products and supply chains is methodologically robust, reflective of best practice in science, effective in communicating the climate impacts of certified aquaculture products, and effective in identifying ways to minimize those impacts.

The ASC Feed Standard, several current farm standards, and the ASC Farm Standard currently in public consultation, each contain requirements for calculating and reporting energy use and GHG emissions. Under current species standards, requirements for measuring and reporting energy use and GHG emissions are inconsistent, and only four species standards (Salmon; Seabass, Seabream, and Meagre; Flatfish; and Tropical Marine Finfish) require calculation and reporting of GHG emissions from farm and feed.

Historically, ASC has not required that any particular methodological framework or set of data sources be used by feed suppliers or farms in calculating and reporting their energy use and GHG emissions. This has meant that, while producers are required to undertake the exercise, the data provided to ASC as an output of that exercise is of mixed quality and not comparable due to inconsistencies in methods. These data quality challenges hinder ASC’s ability to draw comparisons across different production practices, assess the performance of farms against industry averages, and reliably identify appropriate strategies to target and reduce emissions.

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## References

Crippa, M., Solazzo, E., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F. N., & Leip, A. J. N. F. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*, 2(3), 198-209. <https://doi.org/10.1038/s43016-021-00225-9>

Vermeulen, S. J., Campbell, B. M., & Ingram, J. S. (2012). Climate change and food systems. *Annual review of environment and resources*, 37, 195-222. <https://doi.org/10.1146/annurev-environ-020411-130608>

MacLeod, M. J., Hasan, M. R., Robb, D. H., & Mamun-Ur-Rashid, M. (2020). Quantifying greenhouse gas emissions from global aquaculture. *Scientific reports*, 10(1), 1-8. <https://doi.org/10.1038/s41598-020-68231-8>

Gephart, J. A., Henriksson, P. J., Parker, R. W., Shepon, A., Gorospe, K. D., Bergman, K., ... & Troell, M. (2021). Environmental performance of blue foods. *Nature*, 597(7876), 360-365. <https://doi.org/10.1038/s41586-021-03889-2>

Bohnes, F. A., & Laurent, A. (2019). LCA of aquaculture systems: methodological issues and potential improvements. *The International Journal of Life Cycle Assessment*, 24(2), 324-337. <https://doi.org/10.1007/s11367-018-1517-x>

### 1.3 Primary directives and deliverables

The TWG will be tasked with discussing the following questions in producing a set of recommendations to guide ASC’s energy use and GHG indicator development:

- To what extent can/should ASC align with other industry initiatives and methodologies for energy and GHG accounting? (e.g. Product Environmental Footprint, Science Based Targets Initiative, etc.)
- Should ASC set methodological requirements directly for GHG accounting or partially adopt methods of an existing standard?
- What key methodological guidance is needed to ensure that feed suppliers and farms effectively meet the intent of the energy use and GHG indicators in the standards, to provide consistent and useful data on energy use and GHGs of certified producers, to inform ASC of potential GHG risks in aquaculture supply chains, and to support GHG reduction initiatives?
- What requirements should be placed upon feed suppliers and farms in the development and implementation of energy efficiency and/or emissions management plans? (e.g. renewable energy requirements, emissions reductions, etc.)

In undertaking discussion of these questions and establishment of recommendations, the TWG will:

- Review and provide feedback on a summary of public consultation comments for Criterion 2.11 (ASC Farm Standard) Energy Use and Greenhouse Gas Emissions

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- Discuss methodological challenges in energy use and GHG accounting and make decisions or reach compromise on key challenges including but not limited to:
  - Partial or complete adoption of established standards or guidelines;
  - Scope of emissions for formal inclusion and important potential emissions sources outside that scope;
  - Use of primary and secondary data sources;
  - Resolution of data reporting;
  - Incorporation of land use and land use change;
  - Co-product allocation in multifunctional systems, including in feed production, farm production, and processing; and
  - Additional topics as identified by TWG.
- Produce a document containing an overview of the topics and challenges discussed, options for addressing each, key points of agreement or issues requiring further consideration, and a set of recommendations guiding the ongoing development of ASC’s indicators and calculation tools.

The intention of the TWG is not necessarily to reach unanimous agreement on each of the discussed topics, but rather to reach agreement that the guidance and recommendations produced effectively reflect the current state of understanding, the views of diverse stakeholders, and the considerations needed to promote transparent and meaningful reporting of the climate performance of ASC-certified producers.

## 2. Membership

TWG membership shall aim to balance interests from the standard’s key interest groups and geographical representation. All members should support the aims of the ASC, its Vision and Mission, and commit to engage constructively.

### 2.1 Technical competencies required

The working group shall include members with the following core competencies:

- Understanding of the methods involved in GHG calculations and life cycle assessment of aquaculture supply chains;
- Diverse experience of different types of aquaculture systems, including aquafeeds, and how the challenges in measuring, characterizing, and reducing energy use and emissions across systems will vary;
- Understanding of the various schemes, standards, and initiatives in GHG accounting and reduction in aquaculture and food production; and
- Experience in energy systems, identifying energy efficiency opportunities in industrial settings, and novel energy technologies (*e.g.* on-site renewable electricity generation, power purchase agreements, *etc.*).

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## 2.2 Registered interests

ASC Technical Working Groups need to understand the interests of individual members to manage conflicts. Members are asked to declare these to ensure stakeholders and decision-makers have access to this information.

**Table 1.** Technical Working Group members

Name	Role	Organisation	Stakeholder sector	Primary region represented
<b>Peter Tyedmers</b>	TAG Sponsor	Dalhousie University	Academic	
<b>Friederike Ziegler</b>	Member	Research Institutes of Sweden	Academic	Europe
<b>Dave Robb</b>	Member	Cargill	Industry (Feed)	UK/Global
<b>Erik Hognes</b>	Member	Asplan Viak	Consulting	Europe
<b>Heidi Alleway</b>	Member	The Nature Conservancy	NGO	Australia/Global
<b>Emily Moberg</b>	Member	World Wildlife Fund	NGO	United States
<b>Udo Censkowsky</b>	Member	Blue Sensus	Consulting	Europe
<b>Elias Rivadineira<sup>1</sup></b>	Member	LANEC Corporation	Industry (Farm)	Ecuador
<b>Robert Parker</b>	Technical Lead	Aquaculture Stewardship Council		
<b>TBD Facilitator</b>				

<sup>1</sup> Elias Rivadineira joined the group as a shrimp producer representative (Ecuador) but has not been able to join the meetings. Farm feedback on the content of the TWG’s output will need to be sought externally and multiple producers have expressed interest in providing this feedback.

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### 3. Reporting requirements

The TWG will report to the TAG upon completion of each of the three components of the terms of references (review of public consultation, methodological discussions, recommendations document). In each case, the output document (or summary of discussions) will be made available for review along with meeting minutes. Each deliverable will be informed by meeting discussions, prepared, and circulated to TWG members for input and approval before presentation to the TAG.

### 4. Duration and review times

The duration of the TWG will extend to the point of finalisation of indicators for the ASC Farm Standard in 2023. The TWG will meet regularly in lead-up to the final round of public consultation of the ASC Farm Standard to ensure that methodological guidance can be informed by the TWG’s discussions and recommendations, and subsequent meetings after the production of that methodological guidance will be less regular. A suggested timeline for meetings is in Table 2. The timeline and scope of each meeting will be further refined in consultation with the TWG at the first meeting and with a meeting facilitator (TBD).

**Table 2.** Technical Working Group suggested meeting timeline

Date	Activity	Outcome/Deliverable
<b>April 2022</b>	Completion of public consultation for Farm Standard	
<b>May 2022</b>	Meeting 1	Agreement on TWG scope, objectives, and timelines
<b>June 2022</b>	Meeting 2	Deliverable 1: Recommendations in response to public consultation
<b>July 2022</b>	TAG	Presentation of Deliverable 1
<b>July 2022</b>	Meeting 3	
<b>August 2022</b>	Meeting 4	Deliverable 2: Summary of discussions and provisional recommendations to support guidance documents

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<b>October 2022</b>	TAG	Presentation of Deliverable 2
<b>October 2022</b>	Meeting 5	Deliverable 3: Final recommendations to ASC
<b>January 2023</b>	TAG	Presentation of Deliverable 3 and final report
<b>January 2023</b>	Meeting 6	Completion of TWG

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