



IN DEPTH

2.10 Energy Use and Greenhouse Gas Emissions

Stakeholder Consultation April 2024



**Setting The
Standard for
Seafood**



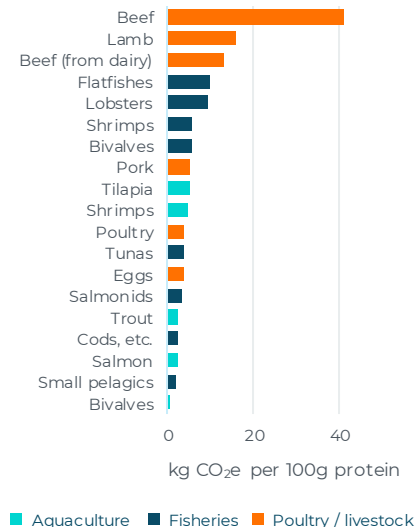
The issue and ASC's approach

The issue

- Climate change has wide-ranging environmental and socio-economic implications. It is driven by excessive emission of carbon dioxide and other greenhouse gases
- [Although typically lower than land-based alternatives, aquaculture also contributes to GHG emissions](#) through the use of fossil fuel-derived energy, production of feed ingredients, and deforestation for feed crops or farm siting
- Opportunities to reduce emissions from aquaculture production depend on the particular sources of emissions identified on a farm or in supply chains

Our approach

- Farms measure and report energy intensity and GHG to ASC
- ASC provides calculator tools to assist in calculating GHG emissions
- Species-specific emissions targets inform farm-level target-setting
- Farms develop GHG management plans including demonstrable actions to move towards these targets
- ASC communicates aggregated GHG performance data across species and systems to inform processors, retailers, and other stakeholders



What farms need to do



Keep records of on-farm energy inputs by source and calculate energy intensity of production



Calculate Scope 1, Scope 2 and Scope 3 GHG emissions



Compare GHG performance against established benchmarks and set targets



Develop GHG management plan to implement actions and track progress towards targets



Report energy use and GHG emissions to ASC annually

What farms need to do



Calculate GHG emissions

- Farms must calculate the GHG emissions intensity of production, in kg CO₂e/kg edible weight of product
- This includes emissions associated with on-farm use of energy production; processing and transport of feed; production of smolts, seed or juvenile inputs and production of other farm inputs such as fertilisers

Set quantitative GHG emission reduction targets in management plans

Farms must set out in their greenhouse gas management plans quantitative GHG emission reduction targets to work towards an emissions intensity below the higher of (a) 7.5kg CO₂e/kg edible weight or (b) the species-specific CO₂e benchmark provided in the Standard

Annual reporting to ASC

- Farms must annually report to ASC the on-farm energy intensity and GHG emissions as calculated in accordance with ASC data submission procedures. These data will be aggregated (by species, production method, and, if possible, region) and communicated to support accounting and management needs of processors and retailers

Setting greenhouse gas emissions targets

Species-specific benchmarks for setting GHG targets

Species group	kg CO ₂ e / kg edible	
	<u>Mass</u>	<u>Economic</u>
Abalone	3.2	3.2
Bivalves	3.2	3.2
Flatfish	10.0	6.5
Freshwater trout	5.4	3.7
Pangasius	7.8	6.1
Salmon	5.1	3.0
Seabass, seabream, meagre	10.0	6.5
Seriola and cobia	10.0	6.5
Shrimp	9.5	7.8
Tilapia	10.8	8.8
Tropical marine finfish	10.0	6.5



The ASC Farm Standard requires calculation and reporting in mass and economic allocation.

Either can be used in setting targets and developing plans.

Greenhouse gas emissions calculator

To improve completeness, consistency, and transparency of GHG data from certified production

- ✓ Supports feed suppliers and producers with custom-made tools to help measure and track emissions
- ✓ Ensures consistency with methodological requirements of the ASC Farm Standard
- ✓ Improves quality of GHG data reported to ASC
- ✓ Includes Scope 1, Scope 2, and Scope 3 emissions
- ✓ Helps identify key hot spots and drivers in emissions in aquaculture supply chains

1 Feed information

Year: 2022
Country: United Kingdom
Site information: ASC Feed Mill
Species and production: Salmon - Feed

2 Annual feed production on-site

Year - 2022: 100 tonnes

3 Fuel inputs for milling

Diesel
 Petrol
 Natural gas

Natural gas

Year - 2022: 2000.00 m³

Diesel

Year - 2022: 2000.00 L

RESULTS

Mass GHG emissions: **2562.8** kg CO₂e per tonne

By input | By scope | By category

Donut chart showing emission breakdown by category: Reduction fisheries, Soy inputs, Crop inputs, Other inputs, Electricity, Transportation, Energy carriers.

[View GHG emission summary](#)

Improvements on current species standards

The ASC Farm Standard addresses green house gas emissions more consistently

Existing species standards

- Most standards required energy use record-keeping and calculating on-farm energy use
- Four standards required GHG calculations for feed and farm
- Three standards required a plan to reduce GHG emissions

New ASC Farm Standard

- Consistent requirements for all species
- Energy use record-keeping and calculating on-farm energy use
- GHG calculations for feed and farm
- Target-setting against benchmarks
- GHG management plan to work towards benchmarks with demonstrated actions
- Reporting to ASC for aggregation and communication



Comparison to previous Standards

New Requirement	Existing	Changed	Not applicable

2.10.1 Calculate on-farm energy use

2.10.2 Calculate greenhouse gas emissions

2.10.3 Establish greenhouse gas targets

2.10.4 Have a greenhouse gas management plan

2.10.5 Report energy use and GHG to ASC

	Abalone	Bivalves	Flatfish	FW Trout	Pangasius	Salmon	SSM	Seriola / cobia	Shrimp	Tilapia	TMF
2.10.1											
2.10.2											
2.10.3											
2.10.4											
2.10.5											

The benefits

Why ASC is taking this approach

Transparent measurement and communication of GHG data between actors in the supply chain



Aligns previous species-specific requirements



Enables better management and reduction of greenhouse gases, providing flexibility for farms to manage based on their own local context and supply chains



Provides for a greater understanding and more evidenced communication of the emissions of aquaculture products to support needs of processors and retailers



Encourages target-setting and reductions while recognising the low emissions of farmed fish and shellfish relative to land-based protein sources



Setting The
Standard for
Seafood

The questions: General

Consultation questions

1

ALL

To what extent are the requirements in this criteria clear?

Reasons for finding clarity/lack of clarity

2

ALL

To what extent will there be challenges in implementing these requirements?

What challenges do you foresee?

3

PRODUCERS

What cost will be involved in meeting these requirements?

Scale (reduced costs → similar costs → moderate additional costs
→ significant additional costs)

What are the main sources of additional cost?

4

CABs

To what extent are these requirements auditable?

Please detail any challenges you foresee with auditing this criterion

5

ALL

What suggestions do you have for improving these requirements?

Specific Questions

Consultation questions

This criterion requires producers to report energy and greenhouse gas data to ASC for central aggregation and communication rather than for producers to publicly report data individually.

To what extent do you agree with the approach taken here by ASC?	All
<i>Reasons for agreement/disagreement</i>	

The Standard contains species-specific emissions benchmarks for producers to work towards. These are set out in Appendix 9.

To what extent do you agree with the approach taken here by ASC?	All
<i>Reasons for agreement/disagreement</i>	

How to get involved?

Email: consultation@asc-aqua.org



Materials are available in English, Spanish, Vietnamese, French, German, Turkish, Japanese, Korean



In depth topic slides on:

[2.4 Alien Species](#)

[2.6 Water Quality](#)

[2.10 Energy Use & GHG Emissions](#)

[2.14 Pre-grow Out](#)

[3.9 Working Hours](#)

[4.3-4.4 Fish and Shrimp Health and Welfare - Slaughter](#)



[ASC Farm Standard Slides](#) ([link](#))



[Full ASC Draft Farm Standard](#) ([link](#))




[Survey](#) ([link](#))



Setting The
Standard for
Seafood



Criterion 2.10 – Energy Use and Greenhouse Gas Emissions

Indicators:	
Indicator 2.10.1	The UoC shall record energy inputs to the farm and calculate annually the energy intensity of production, in MJ per tonne of live-weight farm production, following the method outlined in Appendix 9 .
Indicator 2.10.2	The UoC shall calculate annually the GHG emissions intensity of production, in kg CO₂-equivalent (CO₂e) emissions per kg of edible weight of product, following the method outlined in Appendix 9 , including emissions associated with: <ol style="list-style-type: none"> 1. On-farm use of energy; 2. Production, processing and transport of feed; 3. Production of smolts, seed or juvenile inputs; and 4. Production of other farm inputs as indicated in Appendix 9.
Indicator 2.10.3	The UoC shall set quantitative GHG emission reduction targets to work towards an emissions intensity below the higher of (a) 7.5kg CO ₂ -e/kg edible weight or (b) the species-specific CO ₂ e benchmark provided in Appendix 9 .
Indicator 2.10.4	The UoC shall have a GHG management plan including actions to reduce emissions towards the GHG performance targets determined in Indicator 2.10.3 and to maintain those targets thereafter. The UoC shall include in this plan actions which address the identified drivers of GHG emissions in their operations and supply chains as calculated in Indicator 2.10.2, reflecting the unique context of each farm's GHG emissions profile.
Indicator 2.10.5	 The UoC shall annually report to ASC the on-farm energy intensity and GHG emissions as calculated in Indicators 2.10.1 and 2.10.2 in accordance with ASC data submission procedures.

Thank you



**Setting The
Standard for
Seafood**

Aquaculture Stewardship Council
Daalseplein 101, 3511 SX, Utrecht, Netherlands
Tel: +31 30 230 5929

www.asc-aqua.org
communication@asc-aqua.org
Aquaculture Stewardship Council, 2016

Aquaculture Stewardship Council Limited, 27 Old Gloucester Street, London, WC1N 3AX. The ASC is a charity registered in England and Wales no 1150418. A non-profit making company limited by guarantee. Registered in England no 08172832. The ASC logo is a registered trademark.