



# Collective action on GHG emissions in seafood systems

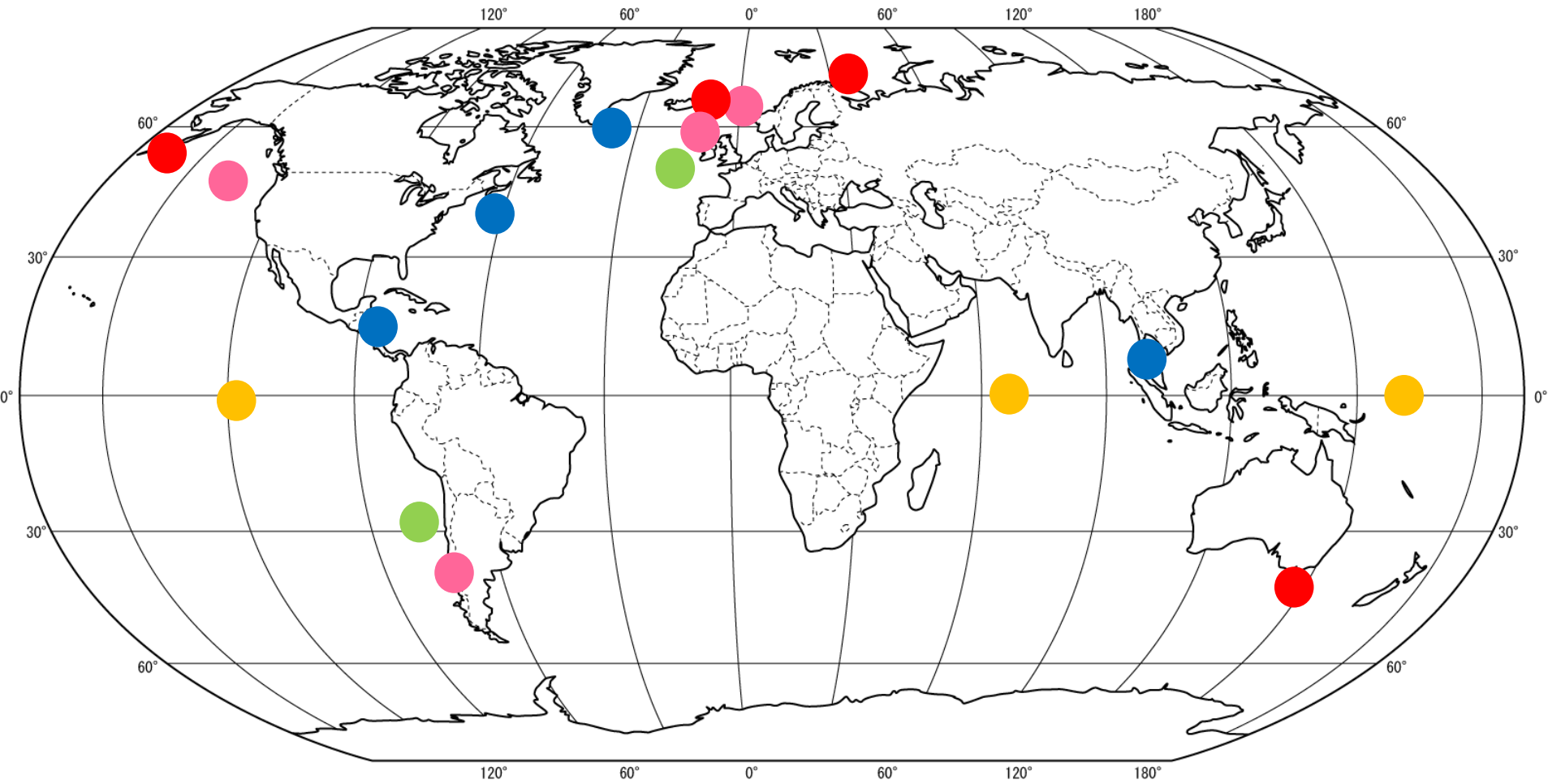
Angus Garrett  
4 March 2013

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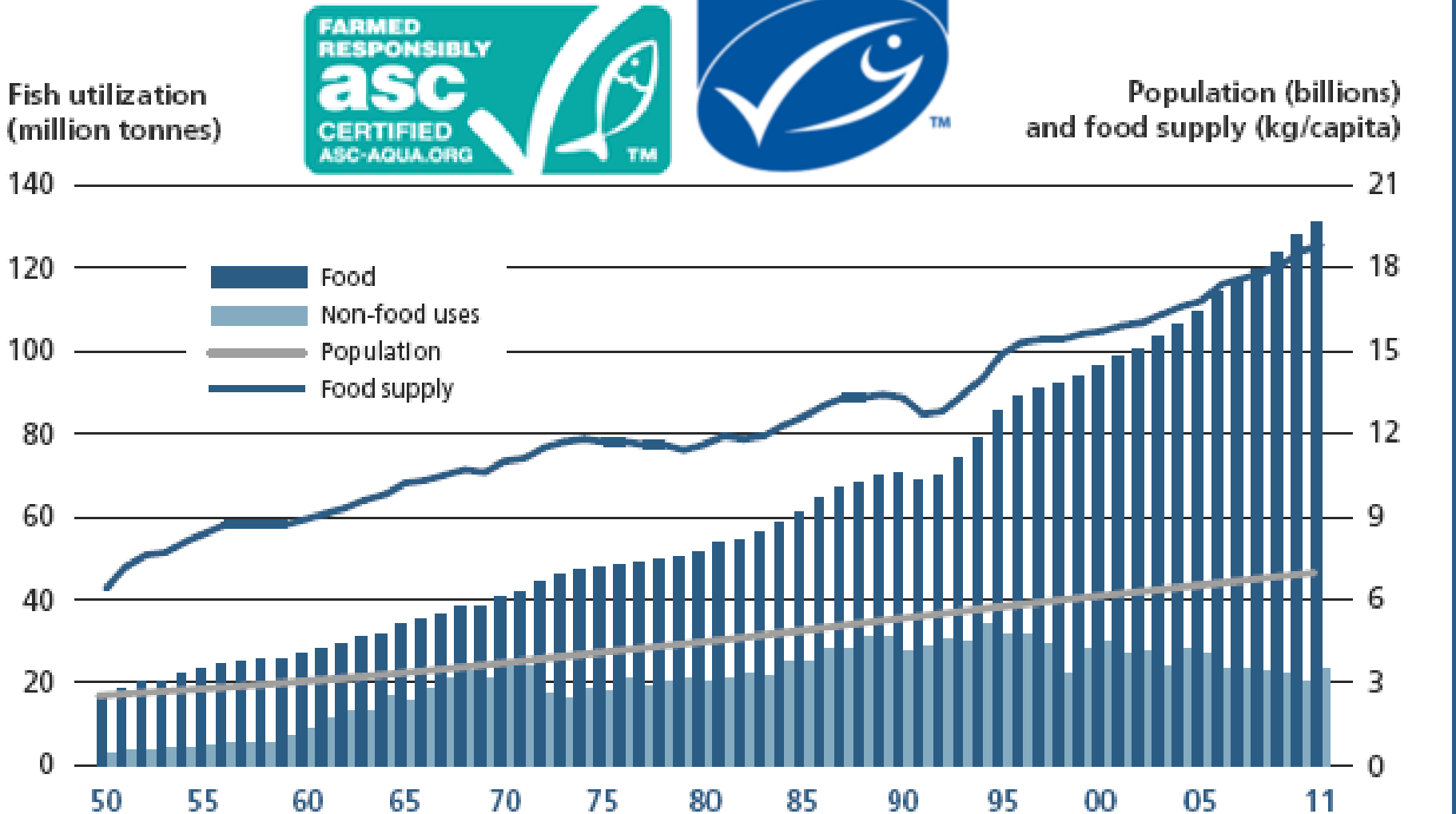




*supporting the seafood industry for a sustainable, profitable future*

# Industry landscape – commitment to responsibility

## World fish utilization and supply



# Industry landscape – myth busting and reputation

**theguardian**  
Newspaper of the year

## Go green, Miliband tells supermarket bosses

- Government demands targets for CO2 cuts
- New report shows more damage from 'food miles'

Julia Finch, City editor

Friday July 21, 2006

[The Guardian](#)

**theguardian**  
Newspaper of the year

## CO2 output from shipping twice as much as airlines

- Maritime emissions not covered by Kyoto accord
- Studies suggest 75% rise in 15 years as trade grows

John Vidal, environment editor

Saturday March 3, 2007

[The Guardian](#)



90% of the world's goods are carried by sea and world trade is increasing all the time.

Photograph: Macduff Everton/Corbis



Scotland

  
THE SCOTSMAN

Mon 25 Sep 2006

• [Comments \(40\)](#)

## Jobs lost as Scottish scampi sent on round trip to China

KURT BAYER

A SCOTTISH seafood company has cut 70 jobs after revealing plans to ship its scampi 5,000 miles to China for processing before bringing it back again to sell.

[30. Ou Tjalie](#), Edinburgh / 12:53pm 25 Sep 2006

Dawnfresh have not updated their website - they have nothing on it about all the **extra food miles** and nothing about a reduction in price ~~this may have bought about~~ Another company to boycott.

**SEAFISH**  
the authority on seafood

able future

# Industry landscape – hard and soft

Raw material

Market

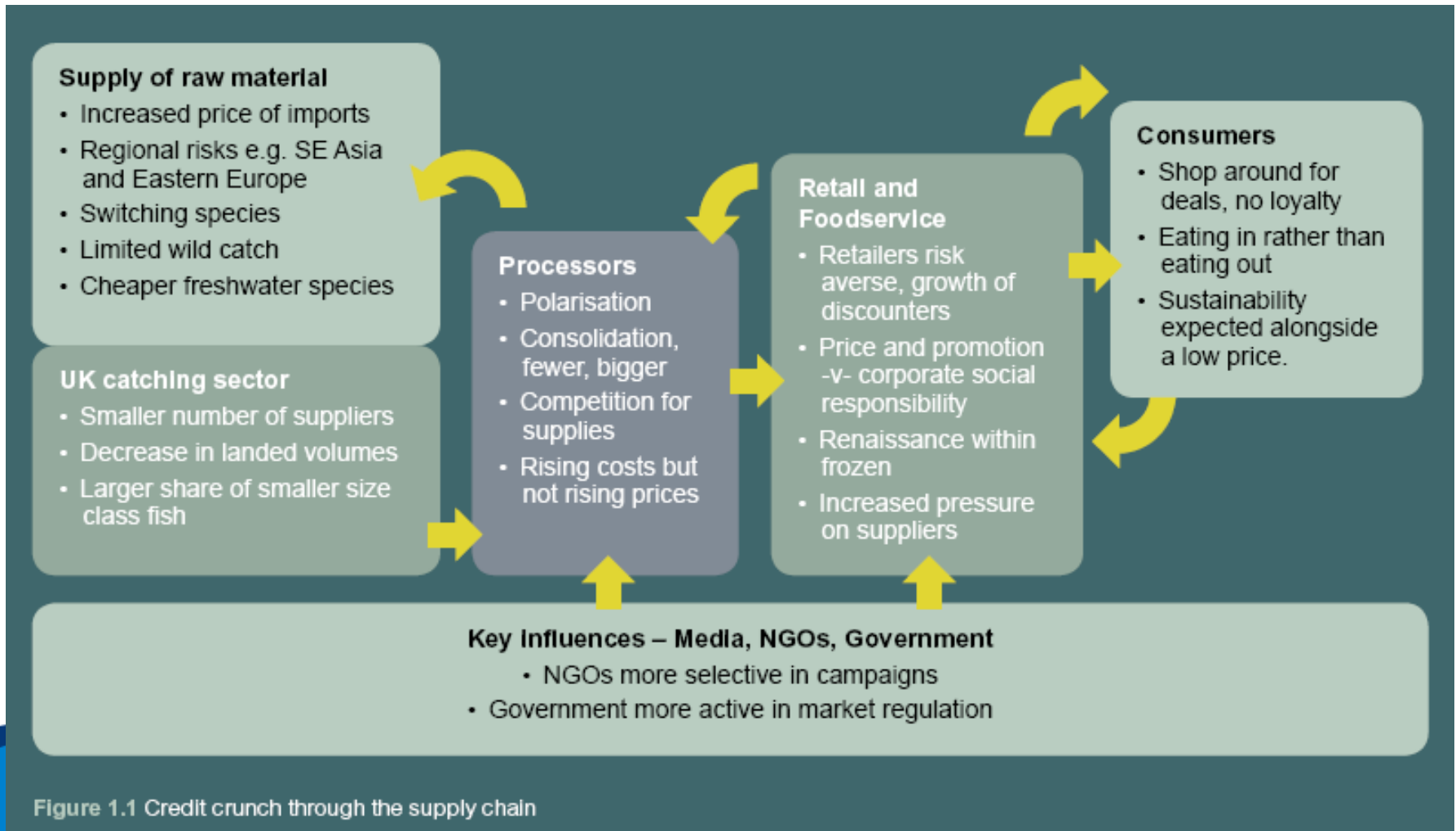


Figure 1.1 Credit crunch through the supply chain

# Collective action - a path forward

1. Working together in a loose coalition:
  - i. FAO
  - ii. Seafish, SINTEF, Dalhousie and other LCA scientists
  - iii. Industry emissions group
2. Seafood performs relatively well
3. Industry should be active in this area
4. “Collectively understand seafood systems; identify hotspots, & change practices to drive down emissions”

# Challenges & hurdles – lack of clarity

In seafood GHG emissions, there is lack of clarity:

1. On stakeholder interests and methods to support those interests
2. On standard methods for assessment
3. On who has done work on this issue (risk of re-inventing the wheel)
4. That estimating emissions can be a costly exercise

# A path forward .... some initial steps in a collective action

- **Action 1 Methods (expertise and engagement)**

- Methods and boundaries
- Common methodological approach

- **Action 2 Standards development**

- Draft and final specification (seafood interpretation of BSI PAS2050)

- **Action 3 Understanding seafood systems**

- Review of existing studies to date in seafood
- New research (Whitefish, Shellfish, Pelagic, Salmon systems – emissions & drivers)

- **Action 4 Sharing data**

- Data sharing rules
- Quality assurance for collating and pooling

Month 1  
Year 2012

5

10

15

# Patterns in capture fishery and aqua cases

## 1. System

- Of 113 cases most focus on production to customer gate and a minority to the full life cycle

## 2. Impact hotspots

- Wild capture - fuel use
- Aquaculture - feed production and on farm energy
- Exception - air transport

## 3. What is known/unknown

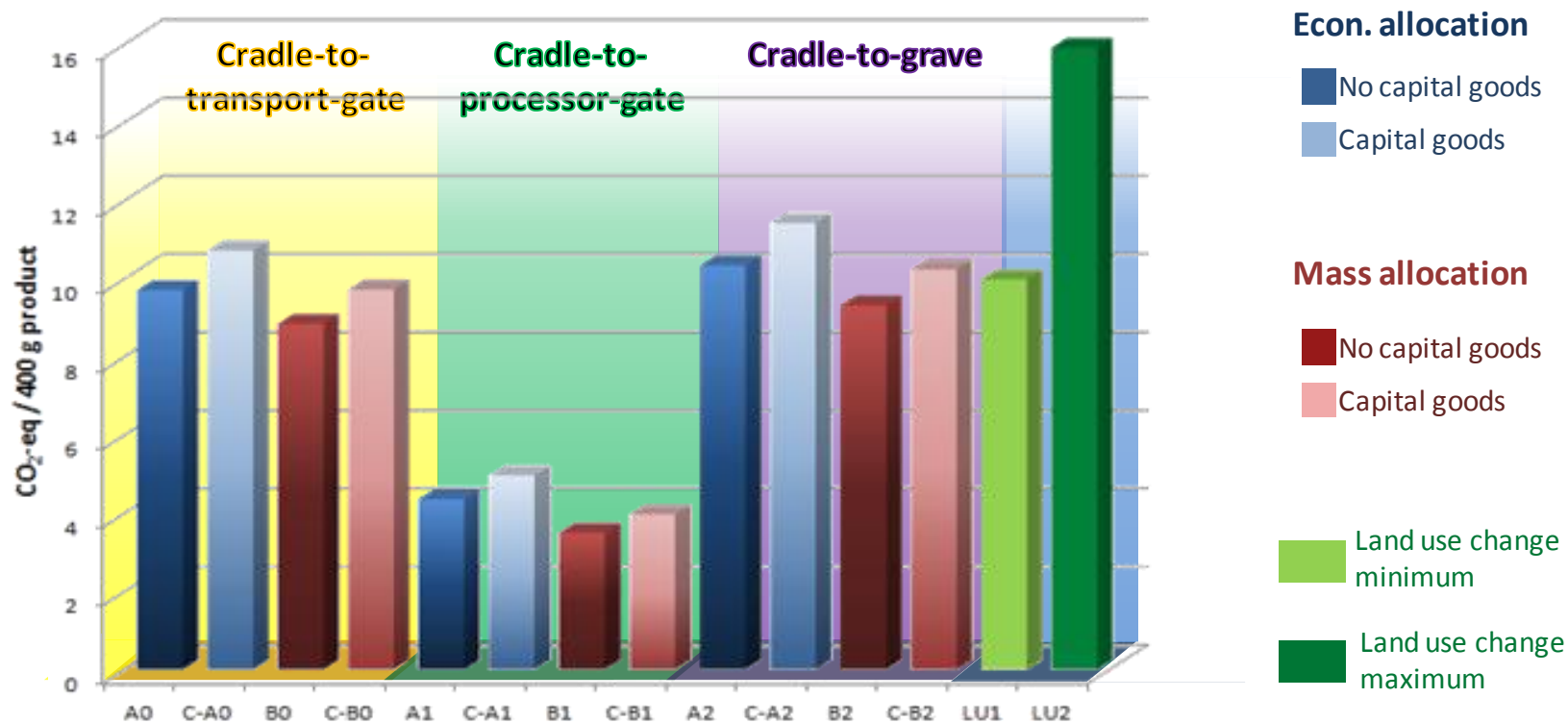
- Wild capture - Most in whitefish and small pelagic but not in largest global fisheries
- Aqua culture - Most in salmonids, but not in other globally significant species



# Points of debate

- Never mind looking for differences between products or sectors, there are serious differences in ways of assessing GHG emissions
  1. Where do we draw the boundary?
  2. What is included within that boundary
  3. How do we allocate emissions as material gets split into multiple products?
  4. What functional unit should we be talking about?

# Carbon footprint of farmed Atlantic salmon fillet applying different methods:



Source: Collective action on GHG emissions in seafood: BSI Pas2050-2, Seafish and Rob Parker, 2012

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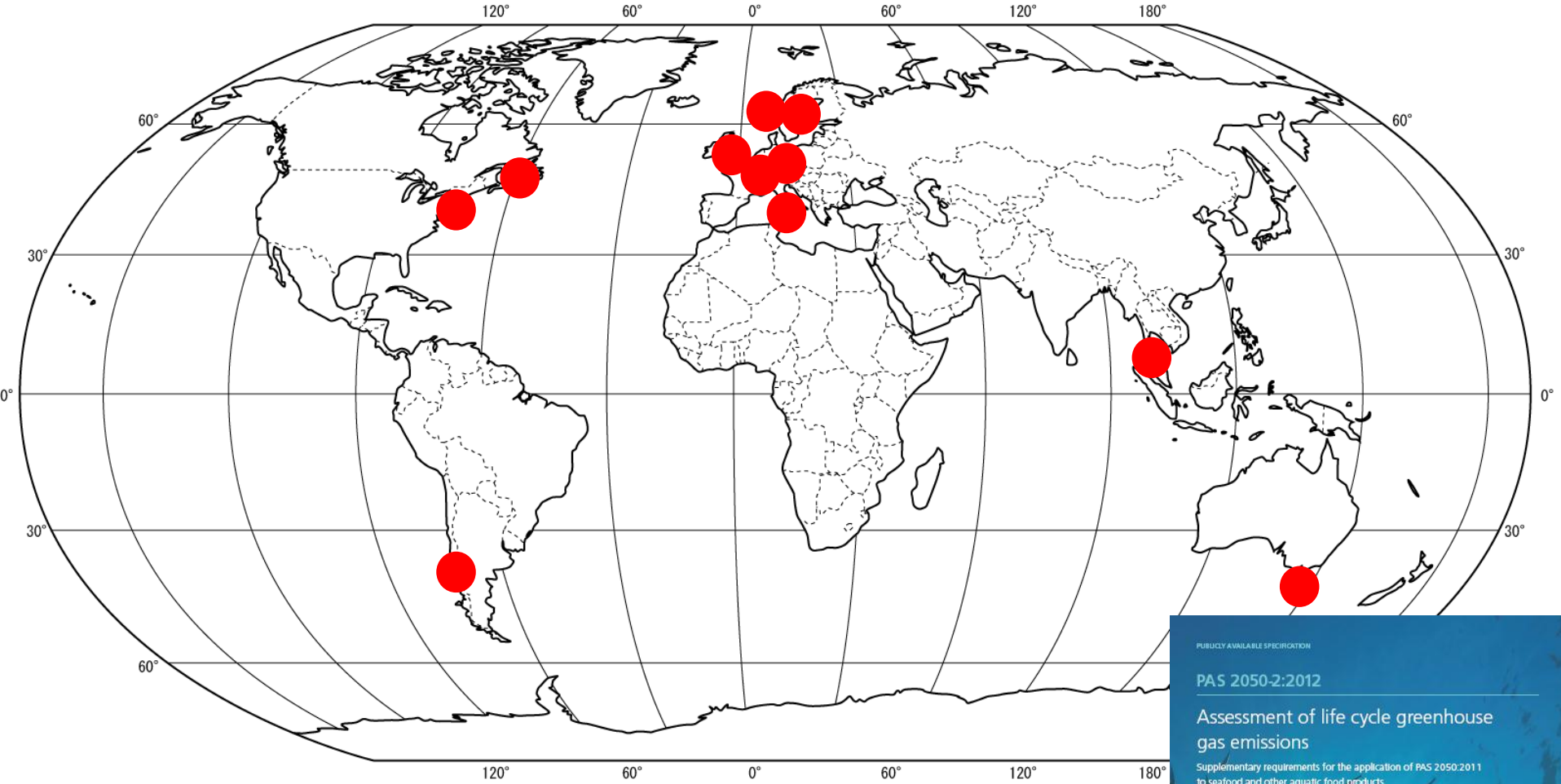
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# Why a standard, and why BSI?

1. Process of **synthesis** rather than demonstrating **compliance**
2. Above points of debate can have winners and losers
3. There needs to be an opportunity to challenge standards ongoing
4. Why, BSI PAS2050?



PUBLICLY AVAILABLE SPECIFICATION

PAS 2050-2:2012

## Assessment of life cycle greenhouse gas emissions

Supplementary requirements for the application of PAS 2050:2011 to seafood and other aquatic food products

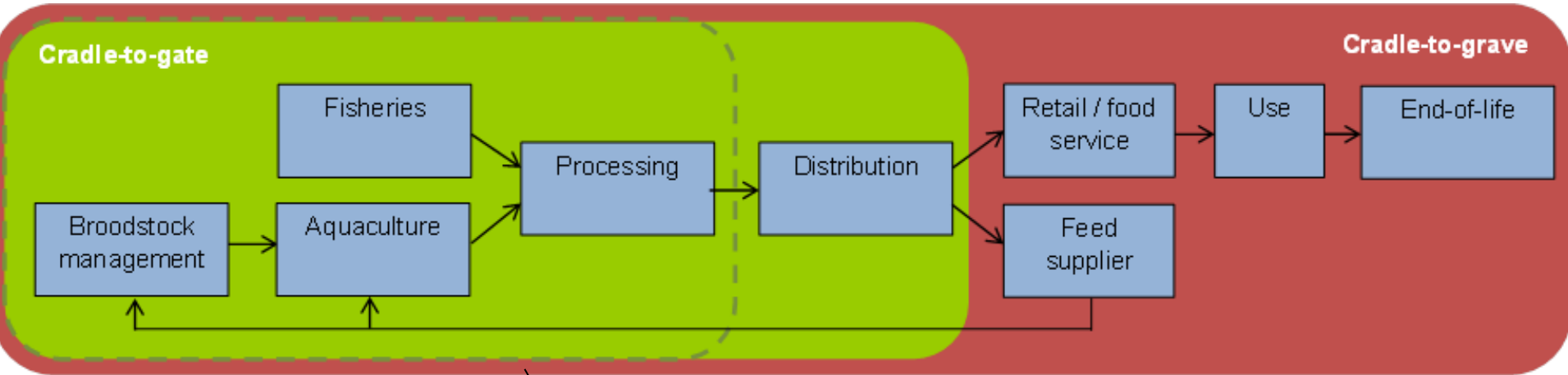


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**bsi.**

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# Some key decisions



**No capital equipment**

**Allocating co-products by mass**

**Standard reporting of 1kg of edible product**

# Opportunities looking forward...

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## Seafood CO2 Emissions Profiling Tool

Welcome to the Sea Fish Industry Authority's greenhouse gas emission profiling tool for seafood products from capture fisheries.

The purpose of this tool is to allow users to explore the carbon implications of sourcing and supplying seafood. This will provide a better understanding of the **major contributors** to the "carbon footprint" of seafood products. It also provides insight into the influence that some aspects of the seafood production chain have on carbon emissions. Major potential drivers of emissions that the tool addresses include direct fuel inputs to fishing, the form and scale of transport used and the amount of time products are held in cold storage. In this tool, we have also incorporated yield rates and the degree to which processing co-products (wastes) are utilized, and users may alter these variables.

In many instances, the tool will result in estimates of total greenhouse gas emissions associated with finished seafood products that accurately reflect real world conditions (over 90% accurate). In some cases, however, the emissions estimated by this tool will not adequately reflect real world conditions because aspects of the production chain are not accounted for. Examples of these could include emissions associated with bait acquisition and storage, emission intensive packaging, etc.

Please note that this tool is intended for information purposes only and *is not intended to establish the carbon footprint of a seafood product*. If you are looking for a definitive carbon footprint for your product, please contact the [Carbon Trust](#) for further guidance. It should also be noted that aquaculture-sourced products are not currently supported. We hope to add this if interests warrants.

We have attempted to build a tool that is robust, easy to use and flexible. Please try it out and let us know what you think. You can reach us at: [carbon@seafish.co.uk](mailto:carbon@seafish.co.uk).

Description of your supply chain	
	<b>Enter your data</b>
Please provide a name for the chain you wish to model:	<input type="text" value="Angus chain"/>
Fishing / Harvesting Method	
Choose the fishing technique and target which most closely represents those used in your chain:	<input type="text" value="Trawling for cod (North Sea)"/>
Is this fuel input level representative of the fishery from which you source your seafood?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Yield of landed to live weight Value between 1% and 100%:	<input type="text" value=""/> % (e.g. after gutting at sea)
Yield of final processed form to landed weight Value between 1% and 100%:	<input type="text" value=""/> %
Please click here for typical conversion factors from landed or processed to live weights.	
Are the co-products from processing used in any other product?	<input type="radio"/> Yes <input checked="" type="radio"/> No

## Transport

Which length unit are you using ?

- Km
- Miles

How far does your product travel **pre**-processing by:

Long Haul Flight (over 4 hours)

Km

Short Haul Flight (under 4 hours)

Km

Truck transport

Km

Select type of truck

- Delivery Van (3.6 tonne)
- Lorry (16 tonne)
- Tractor Trailer units

Ship

Km

How far does your product travel **post**-processing by:

Long Haul Flight (over 4 hours)

Km

Short Haul Flight (under 4 hours)

Km

Truck transport

Km

Select type of truck

- Delivery Van (3.6 tonne)
- Lorry (16 tonne)
- Tractor Trailer units

Ship

Km

## Pre-processing refrigeration

Was the fish frozen upon landing prior to be transported to processing?

- Yes
- No

Total days refrigerated on fishing boat:

days

Duration of outbound refrigerated container transport:

days

Duration refrigerated storage pre processing:

days

## Post-processing refrigeration

Was the product frozen after processing?

- Yes
- No

Duration refrigerated storage post processing:

days

Duration of inbound refrigerated container transport:

days

Duration of refrigerated tractor trailer truck transport:

days

Duration of refrigerated delivery van transport:

days

Duration of final product refrigerated storage:

days

Calculate

## Headline results for the "Angus chain" chain

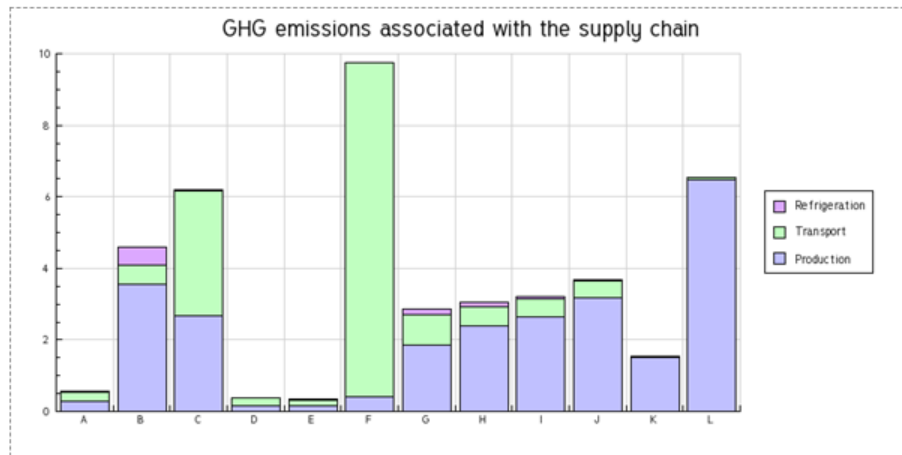
[Back to the form](#)

The summary table provides an indication of your greenhouse gas emission profile expressed in CO2 equivalents. Please bear in mind that these results are not intended to provide a definitive carbon footprint of your seafood product but illustrate where the majority of your emissions are likely sourced and to provide a basis of general comparison with other product chains. These results will also provide direction as to where further data collection and/or emission reduction efforts may be targeted for maximum benefit.

Please note that this tool is intended for information purposes only and *is not intended to establish the carbon footprint of a seafood product*. If you are looking for a definitive carbon footprint for your product, please contact the [Carbon Trust](#) for further guidance.

Tonnes CO2 equivalent emissions/tonne final product from:	
Primary production:	6.47
Transport:	0.06
Refrigeration:	0
<b>Total:</b>	<b>6.53</b>

Which comparison?  
Chain



- A- UK fresh seabass    B- Russian frozen cod    C- Icelandic fresh cod
- D- UK fresh sardines    E- UK IQF sardines    F- Maldive fresh tuna
- G- Spanish canned tuna    H- Canadian wild cooked prawns    I- Icelandic wild cooked prawns
- J- UK farmed salmon    K- UK chicken    L- "Angus chain" chain

# Pathways forward

- Key hotspots identified
- Revisit existing studies
- Work with industry to identify key hotspots, and mitigating action, in their back garden
  - Whitefish
  - Pelagic
  - Salmon
  - Shellfish
- Outlook for energy developments in Seafood