Garrets

The Three-Dimensional Value of Food at Sea

How food provisioning on commercial vessels can improve GHG emissions reduction, cost efficiency, and crew retention.

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Introduction

The maritime industry is undergoing a profound transformation driven by decarbonization pressures, rising operational costs, and increasing competition for skilled seafarers.

Traditionally viewed as a controllable expense, on-board food provisioning can play a strategic role across all three areas, improving GHG emissions reduction, cost efficiency, and crew retention.

This article highlights how a data-driven and crew-centric approach to food provisioning can deliver measurable environmental, financial, and human capital benefits, reframing food from a cost centre into a high-impact operational asset.

The potential of on-board food to reduce GHG emissions

Global shipping is under increasing pressure to demonstrate action on climate change.

While food provisioning is not typically the first area considered in decarbonization strategies, it contributes to GHG emissions through supply chain inefficiencies, on-board provisions, and waste (1):

- The total of GHG emissions per crew per day sits in a range of 25-36 kgs (4).
- Red meat drives well over 60% of the total GHG emissions on a typical vessel (4).
- Food waste can reach up to 10-15% of total provisions purchased (3).

Given the high volume and cost of meat, poultry, and seafood in a standard vessel provision order, food waste has a direct impact on budgets and environmental performance.

+25kgs emissions per crew/day

+60% of emissions linked to red meat

+10% food waste of total provisions

Food as a driver of crew retention

In parallel, the industry faces a persistent crew retention challenge. High turnover – costing up to USD 15,000-30,000 per seafarer (5-6) – disrupts operations and erodes profitability.

Crew welfare is increasingly recognized as a core driver of operational performance, with food being a significant component of on-board life that influences crew wellbeing and productivity:

- Meal quality ranks alongside wages and rest hours as a key determinant of crew satisfaction (7).
- Poor provisioning leads to lower morale, reduced performance, and higher turnover (7).

Conversely, high-quality, varied, and culturally appropriate meals enhance daily life at sea, supporting both physical and mental wellbeing.

In a competitive labour market, these factors can be decisive in attracting and retaining skilled seafarers.

+15k turnover cost per seafarer (USD)

Aligning operational, environmental, and human outcomes

Food provisioning presents a compelling business case because it addresses multiple challenges simultaneously, creating value across environmental, financial, and human dimensions.

Emission reductions

Implementing more focused and widespread recipe development and menu planning, that targets a slight change in the mix of ruminant meat on menus, will:

- Drive measurable reductions in GHG emissions across the fleet (1-4).
- Support compliance with tightening ESG mandates and decarbonization strategies.

Operational savings

Implementing a provision budget management strategy that integrates sourcing and production planning will:

- Optimise purchasing efficiency and minimise hidden supply chain costs (3-4).
- Lower food waste and reduce spend by up to 10-12% annually (3).

Human capital ROI

Implementing targeted menu planning that focuses on high meal quality, variation, nutrition, and people composition can:

- Enhance morale and health, contributing to safer operations and higher productivity at sea across the fleet (5-7).
- Deliver a 5-10x return through lower crew turnover (5-7).

Pathways to action

To capture the environmental, financial, and human capital benefits, maritime operators must rethink how provisioning is managed.

Recommended pathways to action are embedding provisioning into ESG and cost strategies, focusing on four priorities:

1 Capability building

Train on-board cooks and stewards to ensure they understand the importance of menu planning that incorporates nutrition, variety, cultural diversity, and sustainability levers that reduce waste and GHG emissions.

2 Crew engagement

Involve crews in menu planning to improve satisfaction and adopt waste-tracking protocols on board to identify patterns in food disposal and reduce food waste.

3 Data-driven provisioning

Digitalize supply chains to monitor and predict consumption, enabling a more accurate and healthy product mix while reducing over-ordering and waste.

4 Responsible quality sourcing

Prioritize fresh, safe high-quality produce to support nutrition and performance, while reviewing protein usage, especially red meat, where cost and climate impact are highest.

Rethinking food at sea

As the maritime industry navigates decarbonization, cost pressures, and workforce challenges, incremental improvements are no longer sufficient. Strategic food provisioning offers a rare opportunity to address all three areas simultaneously.

By rethinking how food is planned, sourced, and managed, maritime operators can unlock measurable gains in efficiency, sustainability, and crew wellbeing.

The result is better meals on board and stronger, more resilient, and responsible operations across the fleet.

References

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