





Royal Greenland offshore fleet and the environmental impact.

- Outbreak session 7- The Future of Maritime Operations
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Agenda

Royal Greenland Business

The off shore fleet

Sustainability goals

Fossil fuel and environmental impact

Energy improvements in new fleet

Next generation







Royal Greenland

- The North Atlantic champion
 - The largest seafood company in the North Atlantic
 - Independent company owned by the Greenlandic Government
 - Greenland is the world's largest island, roughly the size of Western Europe, but counts only 56.000 inhabitants
 - More than 2.200 employees around the globe, here of almost 1,400 in Greenland
 - Operates own fishing fleet and production units in Greenland, Atlantic Canada and Germany
 - Local presence in major world markets



Royal Greenland world map

Royal Greenland





FISHERY

PRODUCTS IN THE KITCHEN



Mission & vision

Mission

We sustainably maximize the value of marine resources to which we have privileged access, for the benefit of our owners and our local communities

Vision

The North Atlantic Champion

"We are closest to the fish, closest to the customers and closest to the consumers"





OUALITY

PROCESSING

PRODUCTS

FISHERY



IN THE KITCHEN

Fishing fleet

Our fishing fleet caught 68.000 tonnes in 2021

9 off-shore trawlers

- 3 prawn trawlers (Akamalik, Kassassuk & Nataarnaq)
- 2 fish trawlers (Sisimiut & Tuugalik) ٠
- 1 prawn/fish trawler (Avataq) •
- 2 pelagic (Tasiilaq & Tuneq) ٠
- 1 line vessel (Masilik) •

2 coastal trawlers (Lomur & Sermilik)

10 smaller coastal vessels



New trawlers

M/tr Sisimiut, halibut/cod/meal and oil,



M/tr Nataarnaq, prawns, 2021



M/tr Avataq, prawn/halibut, 2020



M/tr Tuugaalik, fish, new vessel 2022



Older fleet

M/tr Akamalik, prawns



M/tr Kaassasuk, prawns



M/line boat, fish



M/tr Tasiilaq, pelagic









Energy improvements - New vessels

Bigger vessels => about double storage => less time and energy for transport

Triple trawl for prawn fishery => more catch during fishing

Electrical >< hydraulic wire rolling

Full utilisation of energy for factory processing => e.g. no extra use for cooking of prawn



Fossil fuel and environmental impact - CO2e emission

Why Marine Gas oil?

Low in SOx content => risk of acidification is reduced

Low in black particles to the surroundings

BUT

The same CO₂e emission as other types of fuel!



MGO Marine Gas Oil No. 2 Bunker A	Emissions	Royal Greenland HEAVY Fuel Oil No. 6 Bunker C	
	MGO vs HFO		
		Requires heat for pumping	
Not regulated	CO ₂ emission		
3,2 tons CO2 / ton fuel	Depends on engine type Same and personel	3,1 tons CO2 / tons fuel	
0,4 g SOx / kWh	SOx emission Depends on fuel type https://www.arb.ca.gov/regact/2011/ogv11/ogv11appd.pdf	9 11 g SOx / kWh	
10-20 g NOx / kWh	NOx emission Depends on engine type Same	10-20 g NOx / kWh	
http://www.imo.org/en/(%E2%80%93-Regulation	<u> OurWork/Environment/PollutionPrevention/AirPollution/Pages/Nitrogen-oxin-13.aspx</u>	ides-(NOx)-	

Not regulated

0,3 g PM_{2,5+10} / kWh



PM emission

Depends on fuel type

1,5 g PM_{2,5+10} / kWh

Factor 5







Targets and ambitions - 2030



CO ₂ e-emissions								
GHG emissions from vessels, measured in tonnes of CO ₂ e/t catch:								
Prawn trawlers, offshore	1,56	1,57	1,66	1,65	-	25% reduction from 2018		
Fish trawlers and long-line, offshore	1,36	1,64	1,46	1,23				
Coastal vessels (trawlers, cutters, well boats) ⁵	0,61	0,76	0,82	0,48	-	25% reduction from 2018		
Pelagic vessels	0,61	0,53	0,46	0,34	-	25% reduction from 2018		





Future optimizing

- Next generation

New types of energy?

Power-X

Hydrogen

Electricity

Electricity at shore

Development of fishing gear





Vimeo link til film