



CoolFish

Energy efficient and climate friendly cooling, freezing and heating onboard fishing vessels



KPN-project funded by Forskningsrådet (EnergiX) and industry partners

Project period: August 2019 – July 2023

Background

Reducing greenhouse gas emissions from the fishing industry is an effort that requires research and development of new technology. Cleaner primary fuel and modern propulsion technology is a vital step towards this goal, but one must also regard the **energy intense processes** on board, such as chilling and freezing of fish catches and production of hot water. These are necessary processes in order to **maintain shelf life and quality** of the fish and holds room for innovation.

Project description

The ambition of the project is to assist in the development of **energy efficient and climate friendly systems for cooling, freezing and heating on board fishing vessels**. New primary fuels and propulsion technology has altered the premises for thermal energy demands on board, and thus requires refrigeration technology improvements. At the same time, these alterations enables technology previously deemed economically impractical.

The project is being led by SINTEF Ocean with research partners SINTEF Energy and NTNU, and with industry partners MMC First Process, Ulmatec Pyro and Sørheim Holding. International partners includes Int. Institute of Refrigeration, South Bank University and Johnson Controls DK.



Global warming

There are two ways a refrigeration system can contribute to global warming; 1) primary energy (electricity) use and 2) leakage of refrigerants with high GWP (global warming potential). In recent years there has been a shift from using synthetic refrigerants with high GWP values towards so-called natural refrigerants, which have low-to-none negative environmental impact. This shift has led to innovation in refrigeration technology. Further technology development is central for the CoolFish-project, together with global knowledge transfer between research and industry. Minimizing the energy consumption of the refrigeration systems will also have a positive contribution on environmental impact and can be achieved by developing combined cooling and heating systems. Such solutions has already proven themselves successful within the Norwegian supermarket sector, and adaptations of these solutions must be made to accommodate for operational conditions on board fishing vessels. This will be conducted as part of the CoolFish-project.

Project participation benefits	Expected contribution from industrial partners
<ul style="list-style-type: none"> • Specific case studies adapted for each project partner, where the partner can actively contribute to topic formulation. Several students will be tasked with master theses within the project. • Gain knowledge and competence within an increasingly important and relevant field. • Provides opportunity to conduct tests which otherwise would carry too much cost and/or risk. • Increased focus on climate- and eco-friendly measures. 	<ul style="list-style-type: none"> • Participate on 1 workshop each year, and 1-2 joint Skype meetings. • Spend some few hours a month within related specific case study. • Annually contribution up to NOK 300 000,-.

Contact information

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