

Research Unit for Maritime Health and Technology (MHT)

Providing relevant research-based knowledge



MHT Strategy Plan 2025-2029



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Content: Research Unit for Maritime Health and Technology (MHT)

Introduction

MHT contributes to research on working conditions and health challenges faced by workers at sea, including psychosocial issues, and limited access to healthcare and welfare services. The unit also examines the impact of technology and environmental challenges on risk reduction and human-centered solutions to enhance safety and technological benefits.

The beneficiaries of MHT research are primarily: shipping and the offshore sector, as well as maritime educational institutions, regulatory bodies/authorities, the research community and society at large, and other interested parties.

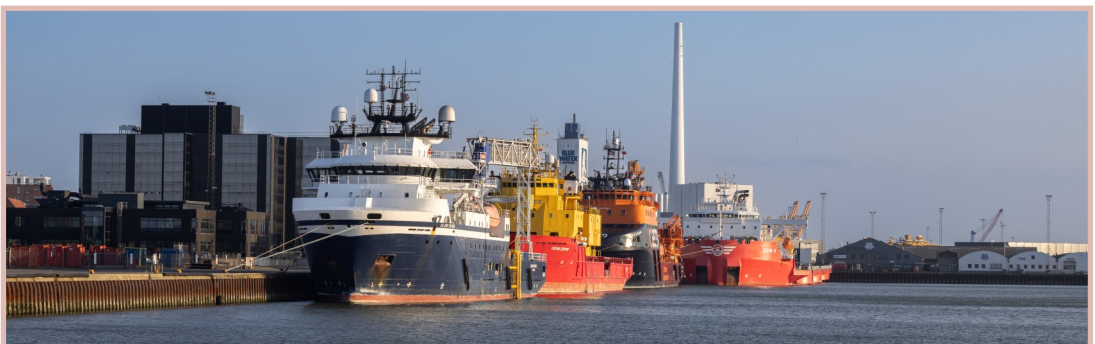
MHT receives external funding from national and international foundations.

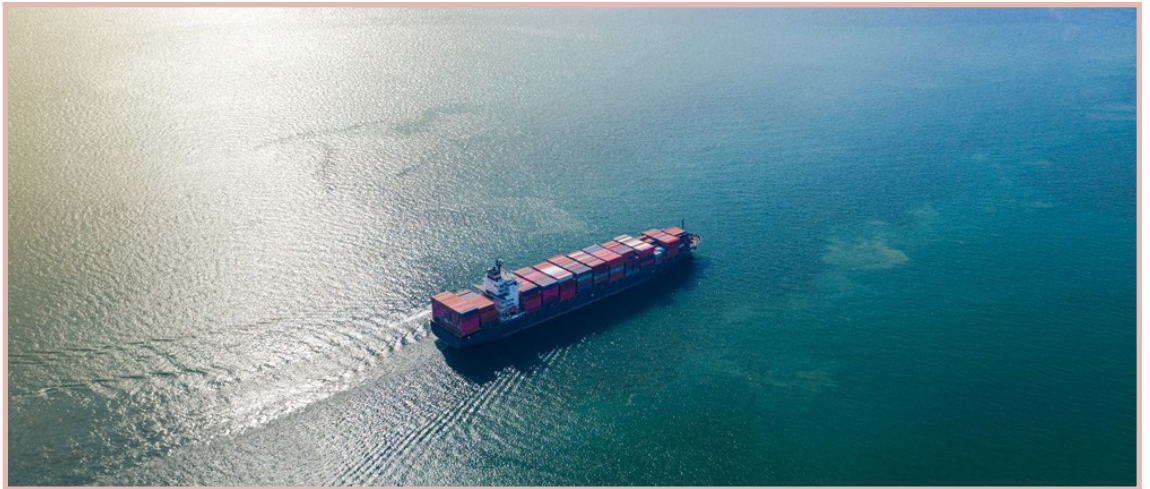
MHT is positioned under:

- The Department of Public Health at the Faculty of Health Sciences: <https://www.sdu.dk/en/ist>

The research unit engages in cross-disciplinary research and has access to a wide range of expertise and networks across the university. MHT conducts research within the two core areas:

1. Safety, health, and well-being
2. Humans and technology





Mission

MHT is committed to conducting impactful research on the working conditions and health challenges of workers at sea. Our mission is to develop human-centered solutions that enhance safety, reduce risks, and unlock the potential of technological advancements in the maritime sector.

Vision

To be a global leader in maritime research, driving transformative change in the safety, health, psychosocial work environment, and well-being of workers at sea. By fostering innovation and human-centered approaches, MHT envisions a maritime sector that thrives on sustainable, safe, and inclusive practices, setting new standards for technological and environmental excellence.

Maritime Safety, Health, and Well-being

Efforts to foster a safe and healthy work environment for workers at sea are essential to ensuring their well-being, maintaining good working conditions and promoting a sustainable maritime industry. MHT has a two-fold focus:

1. Protecting and promoting workers' physical and psychosocial safety and health in the workplace.
2. Improving workers' access to healthcare services.



Workers' Physical and Psychosocial Health

Workers at sea may experience physical and psychosocial health issues due to workplace isolation of the workplace, demanding work schedules, and the nature of their job.

Mental health and welfare services may not be readily accessible across the maritime sector, potentially compromising health and well-being onboard.

- Identify challenges in the psychosocial work environment, as well as physical and mental health issues, including bullying, harassment, and stress.
- Generate knowledge that supports the development of healthy, inclusive and attractive maritime workplaces, where a diverse work force can thrive and maintain a high level of well-being, free from the risk of psychosocial and somatic illness.





Workers' Unequal Access to Healthcare

Some workers may lack access to comprehensive occupational health programs, including regular health check-ups and preventive measures, potentially contributing to health disparities.

In certain regions and contexts, healthcare access may be limited or unavailable.

- Examine the challenges in providing health services and support ongoing capacity building in health and mental health to promote equitable healthcare access for those working at sea.
- Undertake studies on causes and outcomes related to the health of workers at sea, including studies of healthcare in collaboration with Radio Medical Denmark.

Humans and Technology

The accelerating growth of technology and the rise of environmental challenges are transforming the maritime sector. Technology affords potential benefits; however, careful consideration must be given to unlocking this potential with appropriate human-centred designs to avoid unnecessary safety risks. Research activities at MHT will support these developments within the two contemporary trends in the maritime sector:

- Decarbonization and shift to sustainable growth (the green transition).
- Human factors and interplay between humans and technology.



Decarbonisation and the Green Transition

- Explore demands for new skills, safe manning of ships, and benefits and risks to port operations for alternative energy sources in ship propulsion.
- Analyse scenarios minimising risks to seafarers and offshore workers, in maritime operations and to the environment.
- Understand human factors influencing work practices and safety culture, also identify barriers and enablers to reduce carbon intensity for ship navigation.

Human factors and interplay between humans and technology

- Study challenges and suggest solutions to improving the interplay between people and automation in maritime operations.
- Identify emerging risks and propose de-risking measures connected to the use of new information and communication technologies.
- Explore new opportunities that Artificial Intelligence and Data Mining can offer to improve the safety of maritime and port operations and support complex decision-making.



Dissemination

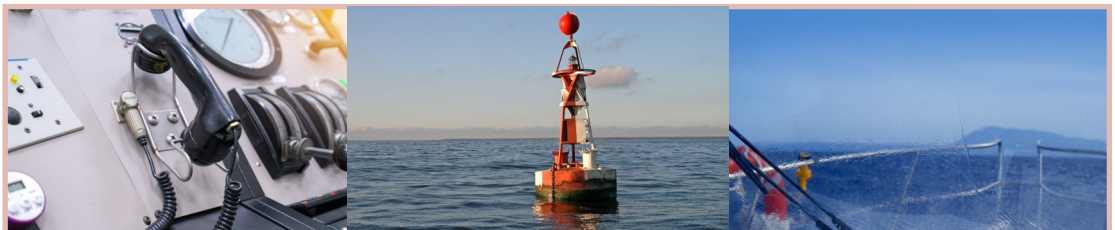
MHT aims to disseminate research-based knowledge for the benefit of the maritime sector, both nationally and internationally. The primary output of MHT research activities is to provide new and applicable knowledge for the maritime field in terms of scientific publications, reports and popular scientific communication, as well as teaching and supervision of students.

Education

MHT participates in the education and supervision of students and junior researchers at maritime academies, educational institutions, maritime companies, and SDU.

To contribute to these needs, MHT engages in:

- Educating training and supervising, including censor assistance of BSc, MSc and Ph.D. students, such as the SDU/AAU MSc on Risk and safety management.
- Providing assistance to maritime academies in Research and Development activities,
- Participating in the development of courses within relevant programs.



Impact

MHT is dedicated to:

- Increase awareness of the research conducted by MHT among authorities, policy makers, collaborators, and other maritime stakeholders about maritime safety, health, and work environment.
- Identify future challenges within the maritime sector
- Foster talented and qualified researchers in the field and at MHT, to ensure a high and sustainable level of quality maritime research.
- Inform policy making by providing research-based evidence.

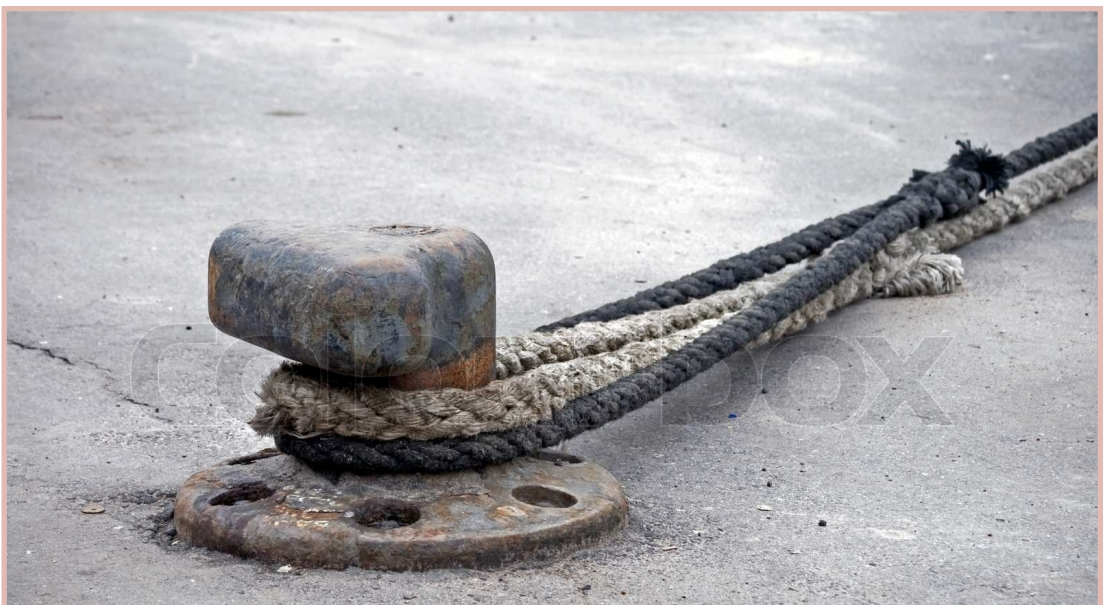


Partnerships, Outreach, and Capacity Building

MHT engages in efforts to form partnerships, create outreach activities, and capacity building to maximize impact, ensure sustainability, and contribute meaningfully to scientific and societal advancement.

Continued efforts will be made to create partnerships outreach and capacity building activities that enhance:

- Interdisciplinary research and partnerships which can expand the professional network of MHT, leading to new opportunities and collaborations that enable the exchange of ideas and best practices, innovation and continuous improvement.
- Opportunities for student and/or teacher involvement in research projects or provide data access, which may enhance the learning experience and the preparation of the next generation of maritime researchers.
- The development of skills and knowledge in the industry, as well as the wider maritime community, and contribute to the sustainability and ability of the industry to adapt to future challenges.



United Nations Sustainable Development Goals

The choice for one or another SDG requires continuous consideration. This is due to the fact that meeting some SDGs can reinforce or compromise the accomplishment of others. MHT strives to identify synergies (positive effects) and trade-offs (negative effects) across SDGs that are relevant to MHT, research activities and plan actions accordingly. The potential effects between the SDG and the existing MHT strategic objectives are examined when projects and collaborations are entered. In this way, it is the aim that MHT may identify the most influential SDGs, targets, and actions required.

MHT has identified the following United Nations Sustainable Development Goals (SDGs) as strategically relevant:

