BLUE ECONOMY
COOPERATIVE RESEARCH CENTRE

CODE OF PRACTICE FOR AQUACULTURE VESSELS

FINAL REPORT

AUGUST 2024

Australian Government
Department of Industry, Science and Resources

Cooperative Research Centres Program

Project Partners

Authors

Saeed Mohajernasab, Australian Maritime College, University of Tasmania

Dr Nagi Abdussamie, Australian Maritime College, University of Tasmania/Blue Economy CRC

Andrew Harris, BMT

Nick Tighe, BMT

Chris Shearer, BMT

Dr Ashraf Zaghwan, Australian Maritime College, University of Tasmania

Assoc Prof Hossein Enshaei, Australian Maritime College, University of Tasmania

Dr Christopher Chin, Australian Maritime College, University of Tasmania

Dr TM Rabiul Islam, Australian Maritime College, University of Tasmania

The Blue Economy CRC

The Blue Economy Cooperative Research Centre (CRC) is established and supported under the Australian Government's CRC Program, grant number CRC-20180101. The CRC Program supports industry-led collaborations between industry, researchers and the community. Further information about the CRC Program is available at http://www.business.gov.au.

Disclaimer

Copyright Notice

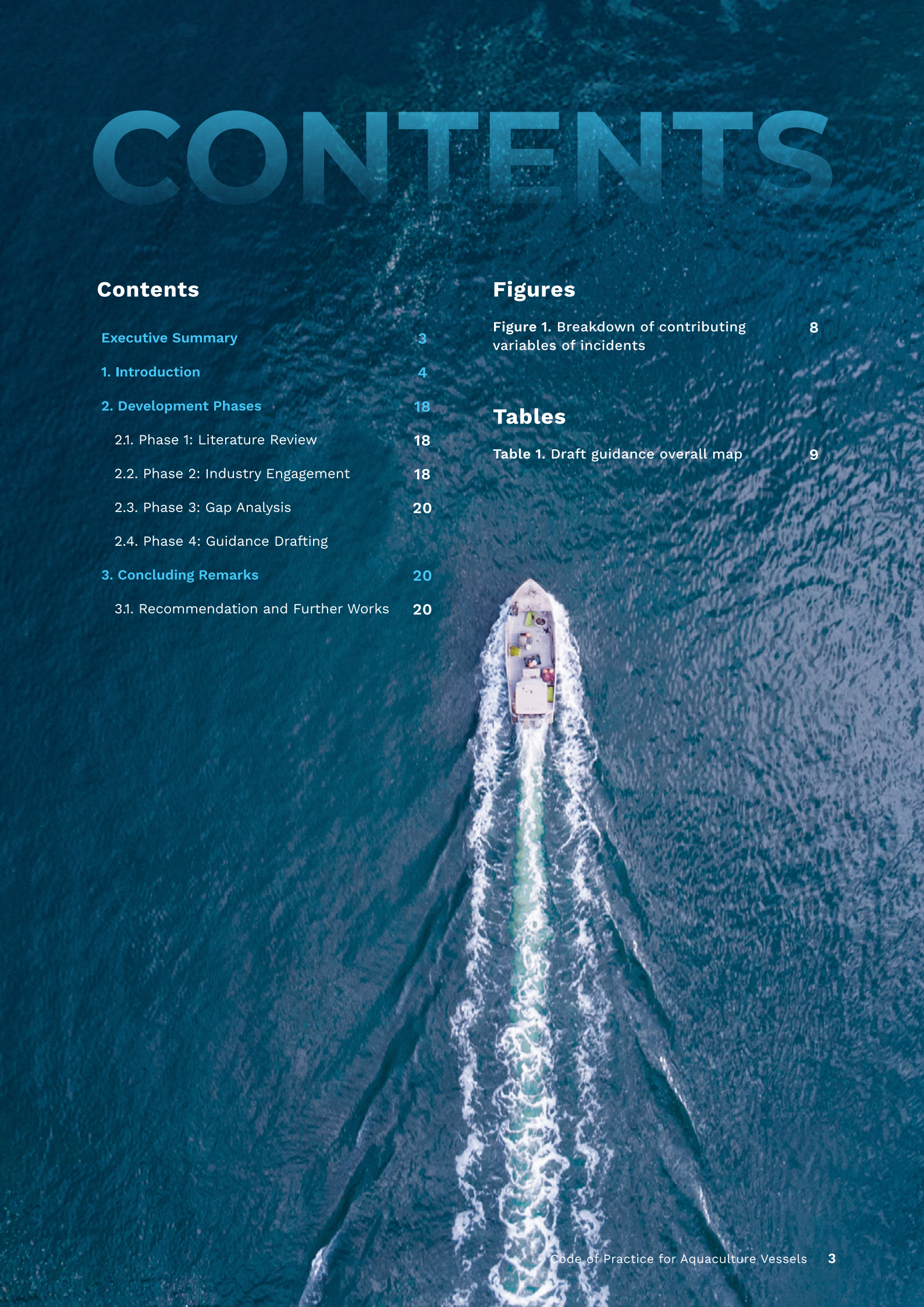
Cover image + page 2 image courtesy of BMT

CONTENTS

Contents

Figures

Tables



Executive Summary

The Australian Code of Practice for Aquaculture Vessels serves as a comprehensive guide for the planning, construction, surveying, and operation of aquaculture vessels within Australian waters.

Specifically tailored to domestic commercial vessels operating exclusively within the Exclusive Economic Zone, this Code addresses the unique challenges associated with aquaculture operations, recognising the hazards inherent in the industry.

The Code's development involved a systematic process:

- A review of existing rules and regulations within the National Standard for Commercial Vessels (NSCV), Australian Maritime Safety Authority (AMSA) publications, classification societies' guidelines, the IMO-developed Special Purpose Ships (SPS) Code, and insights from the Norwegian research centre for exposed aquaculture operations.
- Stakeholder engagement through interviews and workshops spanning four aquaculture sectors (research, authority, designer, and operator) focusing on design and operation, regulations, human safety, training and qualifications, and food safety management systems.
- Incident review and risk assessment of 167 fishing vessel incidents reported on the AMSA website. These incidents, initially classified as fishing vessel incidents, were grouped under this umbrella term that includes aquaculture vessels. The risk assessment encompassed incidents of varying severity, from minor operational issues to tragic loss of life, acknowledging the intricate relationship between aquaculture and fishing.
- Categorisation of findings into five themes, addressing challenges and potential solutions in design and operation, regulations, human safety, training and qualifications, and food safety management systems, as well as live animal health and welfare during transport.
- Development of the Code of Practice based on regulatory review and stakeholder input, ensuring its practicality and relevance through iterative refinement.

The resulting Code of Practice aims to enhance the safety and sustainability of aquaculture vessel operations by providing accessible guidance to stakeholders across the industry spectrum. It reflects a collective effort to address challenges and promote best practices, reinforcing the commitment to efficient and secure provision of aquaculture services within Australian waters.

1. Introduction

Aquaculture is experiencing a significant shift from traditional shorelines to challenging offshore locations, presenting both complexities and opportunities for the industry. This transition, attracted by the potential for larger space and pristine water quality, necessitates robust structures to withstand rough seas, highlighting the industry's resilience.

The benefits of offshore aquaculture include reduced sea lice problems and less severe impacts on ecosystems in the event of fish escape, given the broader dispersal over a larger area. As the industry embraces new frontiers, offshore farming becomes a testament to its adaptability and resilience, paving the way for sustainable practices in the vastness of the ocean.

When it comes to designing vessels for aquaculture, it's not a one-size-fits-all scenario. There are rules, and recently, the American Bureau of Shipping (ABS) added some guidelines specifically for aquaculture service vessels.

The ABS guidelines apply alongside the standard ABS rules for marine vessels and cover the design and construction of self-propelled aquaculture vessels. The guidelines touch upon key elements like structures, subdivision and stability, fire safety, equipment and navigation, and vessel systems and machinery.

Apart from the ABS guidelines, there aren't specific standards just for aquaculture vessels. For instance, in Norway, the rules vary based on the vessel's length and gross tonnage.

Small cargo ships fall into the category of vessels between 8 and 24 meters or with a GT under 500. Larger vessels, above 24 meters or with a GT above 500, follow the more comprehensive "Regulations on shipbuilding," covering everything from construction to safety systems.

In addition to all regulatory frameworks, aquaculture is a high-risk industry and is acknowledged globally as one of the most perilous occupations, with Norway ranking it as the second most hazardous. Working in this field exposes individuals to harsh weather conditions and significant vessel motion, making it one of the most dangerous professions.

Statistics from 2010 to 2016 highlight various operations, including delousing, handling equipment, and fish loading/unloading, contribute significantly to fish escapes. These challenges vary based on the species being farmed and the farm's location, making it challenging to establish explicit operational limits and safety criteria. Small vessels, prevalent in aquaculture fleets, exhibit the highest fatality rates, emphasising the need for robust safety measures.

The development of a distinct and comprehensive Code of Practice (COP) tailored to the specific challenges of aquaculture vessels is deemed essential. This Code plays a vital role for various stakeholders, including operators, vessel owners, regulators, researchers, and industry associations, primarily focused on the finfish and shellfish industry. All these entities are crucial in ensuring the safety of aquatic species, personnel, and adherence to environmental regulations.

Aquaculture vessels encounter unique operational challenges, such as the handling of live aquatic species, maintaining water quality, and complying with environmental standards.

2. Development Phases

The project unfolded across five planned phases, spanning from March 2022 to the projected completion date in March 2024. These phases served as the framework for exploration of the aquaculture vessels.

2.1. Phase 1: Literature Review

The first phase of the project, spanning from March to July 2022, was dedicated to conducting a literature review. This step laid the foundation for our understanding of the existing landscape in aquaculture vessel and their operations. The primary objective was to gather insights by reviewing a range of sources, including guidelines, regulations, and research studies.

The literature review was designed as a desktop-based investigation. This approach allowed us to encompass national and international perspectives on aquaculture vessels:

- An examination of guidelines and regulations such as the NSCV (National Standard for Commercial Vessels), marine orders, the Uniform Shipping Law Code (USL Code), and AMSA exemptions provided insights into the regulatory framework within Australia.
- Our review extended globally, encompassing international regulations to gain a broader perspective on best practices. This included an exploration of DNV rules, a specific guide for aquaculture vessels from ABS, new IMO resolutions, and offshore industry guidelines, particularly those relevant to operations like crane operations and crew transfer vessels.
- The literature review considered research studies, especially those conducted in Norway at SINTEF and NTNU. These studies focused on exposed aquacultures and their vessels, offering insights into international research efforts shaping the aquaculture industry.
- The review extended beyond traditional aquaculture boundaries. Topics such as crew transfer vessels, bunkering, and alternative fuels were explored to understand the interconnected nature of maritime operations.

Image courtesy of Tassal Group

In navigating the regulatory landscape governing aquaculture vessel design and classification, various guidelines and standards come into play. The design and classification of aquaculture vessels are primarily governed by rules and regulations based on factors such as gross tonnage (GT), length, passenger capacity, and operating speed. Notably, the American Bureau of Shipping (ABS) has introduced specific guidelines for the construction and classification of unrestricted self-propelled aquaculture service vessels. These guidelines incorporate five key classification elements, including structures, subdivision and stability, fire safety measures and systems, equipment and navigation, and vessel systems and machinery.

Despite the ABS guideline, there are generally no industry-specific standards for aquaculture vessels, leading to their classification based on existing regulations.

In Norway, for instance, vessels with lengths between 8 and 24 meters or GT under 500 fall into the category of small cargo ships. Those exceeding 24 meters or GT above 500 are subject to comprehensive regulations on shipbuilding, covering various aspects such as general arrangement, construction, maintenance, equipment, machinery, and safety systems.

Before 2015 in Norway, vessels below 15 meters were exempted from construction and inspection regulations, resulting in many aquaculture vessels being built within this size limit to reduce compliance costs. However, revised regulations in 2015 mandated approval and certification for all vessels above 8 meters due to safety concerns, particularly regarding stability during different operations. The Norwegian Standards now categorise aquaculture service vessels within the range of 8 to 24 meters.

The International Maritime Organisation's (IMO) Maritime Safety Committee recently incorporated a new chapter into the Safety of Life at Sea (SOLAS) treaty, known as Chapter XV. This chapter, complemented by the Industrial Personnel (IP) Code and the Code of Safety for Special Purpose Ships (SPS 2008), establishes minimum safety standards for ships engaged in industrial activities, including aquaculture. This recognition positions aquaculture as an industrial activity subject to corresponding regulations.

In Australia, marine vessel regulations are primarily governed by the Navigation Act 2012 and the Marine Safety (Domestic Commercial Vessel) National Law Act 2012. These acts empower the Australian Maritime Safety Authority (AMSA) to inspect and enforce both national and international standards for vessels. Vessels, including aquaculture vessels categorised under Class 3 (fishing vessels), are further classified based on their operational areas.

For vessels with unique characteristics, operation, or propulsion systems, AMSA may designate them as novel vessels. Notably, vessels with a length of 35 meters or more must adhere to classification society standards and Recognised Organisation (RO) guidelines as outlined in the Marine Surveyors Accreditation Guidance Manual 2014.

The outcomes of the literature review were presented at the OMAE Conference in June 2023 in Melbourne. This platform provided an opportunity to share our findings with industry professionals, researchers, and stakeholders, fostering collaboration and knowledge exchange.

2.2. Phase 2: Industry Engagement

Images courtesy of BMT

The second phase of our project, spanning from May 2022 to February 2023, marked a critical juncture where we actively engaged with key stakeholders in the aquaculture industry.

This phase comprised two integral parts, each contributing to our understanding of the challenges and dynamics within the sector. In addition to the interviews, a site visit was also conducted at Tassal's facility and vessels.

2.2.1. Part One: Stakeholder Interviews

In the initial part of this phase, the focus was on engaging with stakeholders across four distinct aquaculture sectors, namely authorities, designers, operators, and researchers.

Through an interview process, we conversed with 13 individuals representing a spectrum of expertise from eight different organisations.

The list of organisations that participated in the interviews includes the Australian Maritime Safety Authority, AMC Search, Tasmanian Oyster Research Council, Green Aqua, AEXGroup, DNV Norway, BMT, and Tassal Group. This study was approved by the University of Tasmania Human Research Ethics Committee (H002739).

2.2.2. Part Two: Incident Review and Risk Assessment

The second part of this phase involved a review of past incidents related to aquaculture, coupled with a risk assessment.

The monthly incident reports on the AMSA website were reviewed, examining a total of 167 fishing vessel incidents reported from 2018 to 2022.

The incidents have been classified as fishing vessel incidents based on AMSA recognition. This classification was made based on the current categorisation that includes aquaculture vessels within the broader definition of fishing vessels. However, due to the overlap and interconnection between the aquaculture and fishing industries, both types of vessels are presently grouped together under the umbrella term of fishing vessels.

In the process of evaluating these incidents, the distinction between specific aquaculture-related events and other fishing-related incidents was not always clear-cut. Some incidents could be readily identified as arising from aquaculture activities, while for others, the nature of the incident made it challenging to attribute it solely to one sector.

Recognising the intricate relationship between aquaculture and fishing, a decision was made to include all such incidents in the overall risk assessment. The incidents themselves span a spectrum of severity, encompassing minor operational issues to more serious accidents. The range of incidents includes cases that resulted in property damage, personal injuries to individuals involved, and tragically, instances where loss of life occurred.

2.3. Phase 3: Gap Analysis Outcomes

The responses have been categorised into five themes, namely Design and Operation, Regulations, Human Safety, Training and Qualifications, Food Safety Management Systems and Live Fish Health and Welfare During Transport.

2.3.1. Design and Operation

- Stability is a key concern for designers and operators, with catamarans being preferred due to their stability in sea motions.
- One issue in aquaculture vessel design and operation is material handling, especially lifting heavy weights for mooring.
- Mooring challenges are not limited to cages only but also for mooring well boats to feed barges, causing potential damage to vessels.
- Aquaculture vessels are designed to be small and versatile to reduce operational costs, but this can lead to stability limitations.
- Various challenges were identified across different sectors of the industry, including the need for adequate equipment, compatibility of interactions, shipping routes, crew transfer, crossover of operations, deck space, design purpose, dry docking, endurance, environmental sustainability, and manoeuvrability.
- The use of multi-purpose vessels and dynamic positioning, as well as considering vessels' size, were suggested as potential solutions to some challenges.

2.3.2. Regulations

- The main challenge with regulations for aquaculture vessels is service notation, which results in these vessels being classified as fishing vessels, leading to issues with compliance and safety.
- The lack of specific regulations for aquaculture vessels has led to the need for vessels to be developed with specific purposes, such as catamaran hull forms, to accommodate the unique requirements of aquaculture operations.

- Operators demand a risk-based approach for smaller vessels, separate from larger ships, to ensure optimal design and avoid blanket regulations that may not be suitable for all types of operations.
- Challenges and recommendations include the development of hybrid fishing-aquaculture vessels that can accommodate both types of operations, the separation of fishing and aquaculture operations to enhance safety and efficiency, and the need for regulations related to underwater operations.
- Novel vessels present a challenge as they may not fit neatly into existing regulatory frameworks designed for traditional vessel types.
- Separating industrial personnel on vessels and addressing issues related to safety, housing, and transportation are important topics addressed by the International Maritime Organisation (IMO).
- The importance of service notation for fishing and aquaculture vessels is recognised by both the authority and designer sectors for ensuring compliance with safety and environmental regulations.

2.3.3. Human Safety, Training and Qualifications

- Transitioning to offshore locations poses significant safety challenges for aquaculture vessels, requiring a complete rethink of operational practices and safety protocols.
- Rope handling is identified as the most hazardous offshore operation, and participants suggest improving training and working practices to minimise risks.
- Additional optional training courses are recommended to familiarise aquaculture workers with offshore operations and safety procedures.
- Stability and seakeeping issues are highlighted as important factors affecting human safety during offshore operations.
- Challenges and recommendations in the human safety, training, and qualifications domain include aquaculture management courses, managing assets contact, debris management, licensing of deckhands, proximity to emergency services, creating an association for aquaculture, and proper marking of cages and equipment.

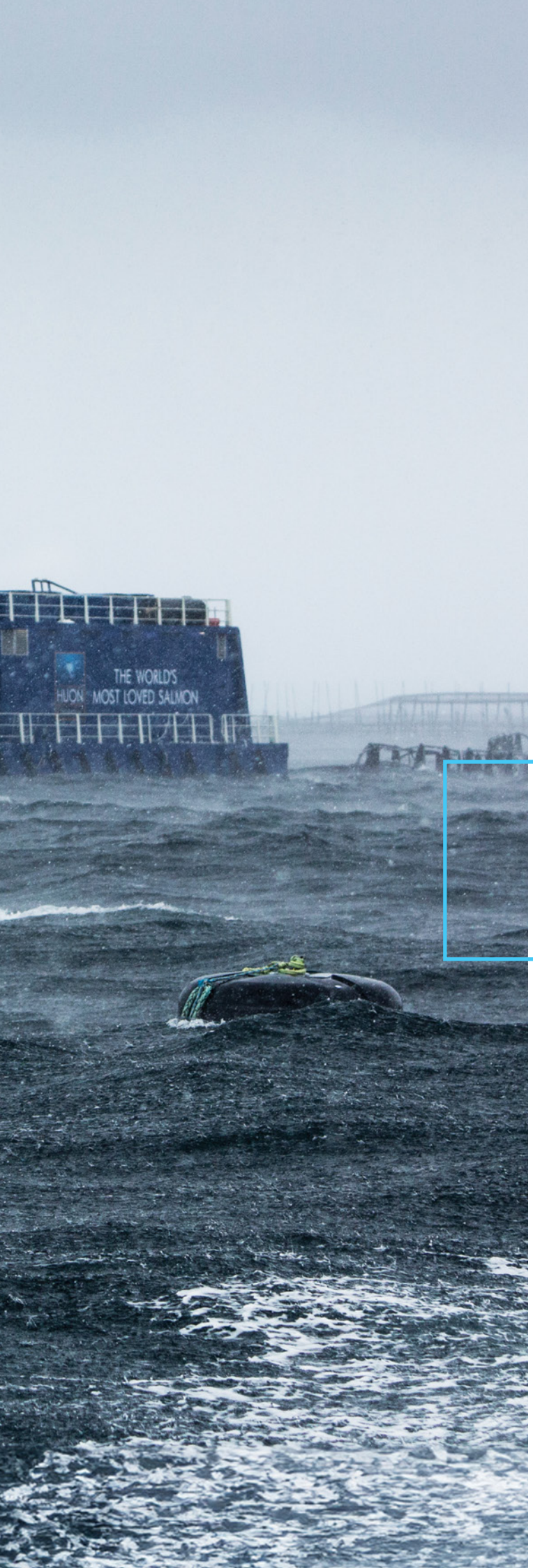
- Other concerns involve the number of crew members required for operations, managing interactions with other waterway users, risk management procedures, specific certificates for vessel inductions, equipment training, and surveying for accurate charts and navigational aids.
- Slips, trips, and falls are identified as major safety concerns that need attention during aquaculture operations.

2.3.4. Food Safety Management Systems

- Maintaining the cool chain for aquaculture products is crucial to ensure their quality and safety, as they are considered high-risk products.
- Vessels need specific features to prevent contamination, such as self-draining decks, proper fuel storage, and stringent hygiene practices.
- Food safety management challenges include the use of blockchain technology for traceability, maintaining the cool chain with temperature controls and proper packaging, and adhering to food safety standards and certifications.
- The authority sector is responsible for developing regulations related to blockchain technology and food safety, while the operator sector focuses on day-to-day operations for maintaining the cool chain.
- The designer sector's role involves designing facilities with food safety in mind and implementing systems for tracking and verifying food product safety.
- Food safety standards and certifications like Friends of the Sea, Natural Organics, Best Aquaculture Practice (BAP), and Aquaculture Stewardship Council (ASC) are used to promote safe and high-quality operations in the aquaculture industry.

2.3.5. Live Fish Health and Welfare During Transport

- The welfare of live fish during transport is crucial and requires gentle handling to minimise stress.
- Monitoring water quality parameters such as oxygen, temperature, ammonia, carbon dioxide, salinity, and ozone are essential during the transport process to ensure fish health and welfare.



- Challenges related to fish health and welfare fall under the responsibility of the designer and operator sectors.
- The designer sector is responsible for designing and managing fish farms, including addressing issues related to fish density and water quality standards.
- The operator sector manages day-to-day fish farm operations, including proper handling and feeding of fish and maintaining water quality.
- The designer sector is also responsible for developing systems for fish transportation, considering transport speed and suitable conditions to minimise stress and maintain good health.
- The authority sector plays a role in developing and enforcing regulations related to the use of ozone in aquaculture facilities to prevent the growth of pathogenic microorganisms in water treatment.

By analysing the data, we gain valuable insights into the challenges that the fishing industry faces, helping us identify key areas that require immediate attention for enhancing safety.

The two most frequently reported incidents among the identified challenges are stability issues and slips, trips, and falls. Stability-related problems were linked to a staggering 49 incidents, making it a crucial area of concern.

Ensuring vessel stability is of paramount importance as it directly impacts the vessel's ability to withstand various environmental conditions, preventing capsizing and potential loss of life and property. This emphasises the need for comprehensive stability assessments, adherence to stability guidelines, and the incorporation of appropriate design modifications to bolster vessel stability.

Simultaneously, slips, trips, and falls accounted for 52 incidents, indicating the pressing need to address this issue proactively. Such incidents can often result in injuries, disrupting fishing operations and potentially leading to more severe consequences. The implementation of safety protocols, non-slip surfaces, proper footwear, and adequate training for crew members in maintaining a safe working environment can significantly reduce the incidence of slips, trips, and falls on fishing vessels.

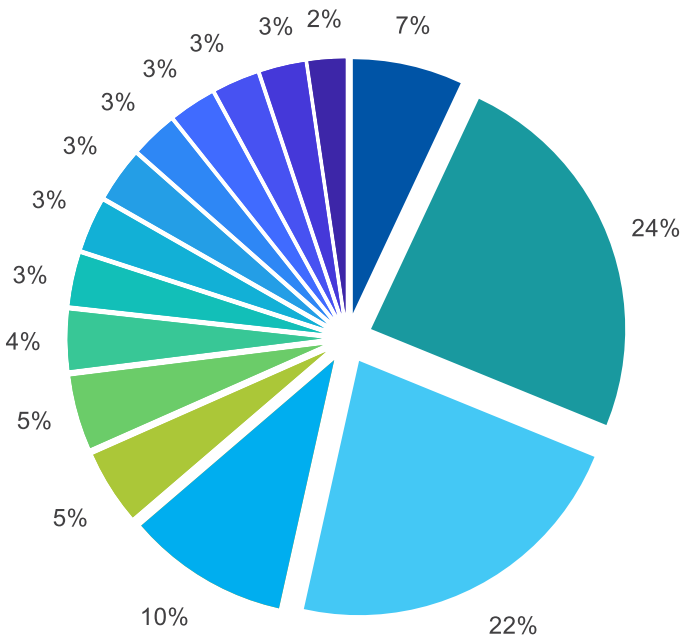
To enhance fishing vessel safety comprehensively, industry stakeholders and policymakers should prioritise these two areas - stability and slips, trips, and falls - through collaborative efforts. Conducting further in-depth analysis of stability-related factors and accident investigations can help identify root causes and develop targeted safety interventions. Similarly, gathering data on slips, trips, and falls, and their contributing factors, can guide the implementation of effective preventive measures to safeguard crew members on board.

By addressing these identified challenges and implementing proactive safety measures, the fishing industry can significantly reduce the number of incidents and improve overall safety standards.

It is crucial for industry participants, regulatory bodies, and researchers to work hand in hand to create a safer environment for fishing vessel operations.

Furthermore, it should be recognised that while the identified challenges were focused on the fishing industry, some may have broader implications in the aquaculture sector. Therefore, tackling these challenges not only benefits fishing vessels but also contributes to improving safety practices across the entire aquaculture industry. By sharing knowledge and best practices, aquaculture stakeholders can collectively strive for safer and more sustainable operations.

Figure 1. Breakdown of contributing variables of incidents



- Rope handling
- Considering shipping routes
- Sustainability (Environmental)
- Lack of underwater regulation
- Other Users
- Compatibility of interaction
- Mooring
- Emergency Services
- Crossover of operations
- Sea State
- Industrial personnel
- Assets Contact
- Stability
- Slips Trips and Fall
- Other

2.4. Phase 4: Guidance Drafting

In the first chapter, the guide lays the foundation by defining its scope and applications. This involves outlining the purpose of the guide, specifying the types of vessels or operations it addresses, and clarifying the intended audience. Additionally, it touches upon regulatory frameworks and international standards that serve as the basis for the guide.

Chapter 2 delves into the structural aspects of vessels and their stability. This section provides guidelines for designing and maintaining the structural integrity of aquaculture service vessels. It covers topics such as materials used in construction, hull design, and stability calculations to ensure safe and efficient operations.

Focusing on the machinery and technical aspects of vessels, **Chapter 3** explores the various systems and components that are integral to the functioning of aquaculture service vessels. This includes propulsion systems, and other machinery critical for the vessel's operation. References to established maritime codes and guidelines help ensure compliance with industry standards.

Chapter 4 concentrates on the specific operations related to aquaculture. Drawing from guidelines applicable to tugs, tows, oil and gas, and offshore wind operations, this section addresses crane operation, lifting, hoisting, towing, and work health and safety considerations. By referencing existing guidelines, the guide ensures a comprehensive and well-established approach to aquaculture operations.

Chapter 5 is dedicated to the electrical control and monitoring systems onboard aquaculture service vessels. It provides guidance on the design, installation, and maintenance of electrical systems to ensure reliability and safety. Compliance with relevant maritime regulations and standards, such as NSCV, USL, AMSA, and COLREGs, is emphasised.

Chapter 6 outlines the procedures for conducting surveys and obtaining certificates for aquaculture service vessels. It details the inspection processes and compliance requirements based on established codes and regulations, including NSCV, USL, AMSA, and COLREGs. The goal is to ensure that vessels meet the necessary safety and operational standards.

Chapter 7 shifts the focus to food safety management, addressing the unique considerations for aquaculture operations. It incorporates guidelines from Food Standards Australia, outlining processes, policies, and strategies to ensure the production of safe and high-quality seafood products.

The **final chapter** centres on fish welfare, acknowledging the ethical and humane treatment of aquatic species in aquaculture operations. It incorporates best practices, certifications, and strategies for maintaining the well-being of fish throughout the aquaculture process.

Table 1. Draft guidance overall map

Code of Practice	Content			References
Chapter 1: General	Scope	Definitions	Application	NSCV, USL Codes, AMSA Exemptions, Marine Orders IMO Resolutions ABS, Guide for Building and Classing Aquaculture Service Vessels. DNV, Rules for classification: High speed and light craft. MLC 2006.
Chapter 2: Structures and Stability	Hull	Supporting Structures	Stability	
Chapter 3: Systems and Components	Operation Equipment	Machinery	Fire Safety	
Chapter 4: Aquaculture Operations	Towing	Lifting	WHS	The Shipowners' Club, Tugs and Tows - A Practical Safety and Operations Guide. G+/DROPS: Reliable securing booklet for offshore wind. IMCA Guidelines for lifting operations. IOGP, RP 376: Lifting and hoisting safety recommended practice.
Chapter5: Electrical, Control and Monitoring Systems	Navigation	Electrical	Control - Monitoring	NSCV, USL Codes, AMSA Exemptions, Marine Orders. IMO Resolutions. COLREGs.
Chapter 6: Surveys and Certificates	Pre-construction	Post-construction	Crew Competency	
Chapter 7: Food Safety Management	Process	Policies	Managing	Food Standards Australia New Zealand, Safe Food Australia: A Guide to the Food Safety Standards.
Chapter 8: Live Fish Welfare	Factors	Strategies	Certifications	Best Aquaculture Practice (BAP)

3. Concluding Remarks

Addressing challenges in aquaculture vessel operations requires a comprehensive approach, considering design, regulations, human safety, food safety, and fish welfare. Stakeholder collaboration and proactive measures are essential to navigate these complexities and ensure the sustainability and safety of aquaculture operations.

The industry's commitment to continuous improvement and shared best practices will contribute to creating a safer and more sustainable future for aquaculture vessels.

Recognising this, the objective of creating a Code of Practice (COP) is underway. This code seeks to enhance the current NSCV document by incorporating insights from crew members, addressing issues from design to crew competency.

Given the unique challenges faced by aquaculture vessels, especially small-scale ones, a dedicated Code of Practice is crucial.

This code would serve as a comprehensive guide for operators, vessel owners, regulators, researchers, and industry associations. The aim is to establish best practices for offshore aquaculture vessels, providing a user-friendly approach and addressing various areas for improvement, including Design, Audit, Equipment, Machinery, Stability, Shape, Size, Operation, Maintenance, Safety, and Crew Competency.

Image courtesy of BMT

3.1. Recommendation and Further Works

The continuous refinement of the Code of Practice is an essential process to ensure it remains current and relevant in the rapidly evolving aquaculture industry by:

- Increasing workshops and stakeholder engagement to gather diverse perspectives and insights. This collaborative approach ensures that the updated code reflects the collective wisdom of industry participants, regulators, and other relevant entities.
- Considering biosecurity considerations in aquaculture. The update needs to explore the integration of additional measures related to biosecurity within aquaculture operations. This includes a comprehensive examination of protocols and best practices to prevent and control the spread of diseases and ensure the overall health of aquaculture environments.
- Active participation in various aquaculture operations. A proactive involvement in a broader spectrum of aquaculture operations, especially those in offshore locations, needs to be planned. This approach will gain practical insights, identify challenges unique to different settings, and facilitate the exchange of knowledge and expertise.
- Identifying and promoting best practices. The update needs to specifically focus on identifying and promoting best practices in aquaculture. By distilling successful approaches from various operations, the Code needs to set benchmarks that contribute to the overall improvement of efficiency, safety, and sustainability in the aquaculture industry.
- Enhancing emphasis on offshore aquaculture WHS. Recognising the distinctive challenges of offshore aquaculture, the updated Code needs to place a heightened emphasis on addressing Work Health and Safety (WHS) concerns in these environments. This includes developing targeted guidelines and protocols to ensure the well-being and safety of personnel engaged in offshore aquaculture activities.
- It is recommended by AMSA that a comprehensive review of the document be conducted by an independent reviewer to check for all factual accuracies.
- It is recommended by AMSA that further work be conducted considering the regulatory approach and experiences in New Zealand noting their strong aquaculture industry and their specific ruleset for aquaculture vessels - Maritime Rule 40 C – Section 3.
- It is recommended by AMSA that further work be conducted considering the stability requirements in the Cape Town Agreement, as this was noted as an area of concern. The Cape Town Agreement serves as an international minimum standard for fishing vessels.
- It is recommended by AMSA that a detailed review of the 90 series Marine Orders be conducted, in-particular the requirements for the management of garbage and marine plastic litter (MO95) and greenhouse gas emissions and air pollution (MO97) and their impacts on the marine environment.
- It is recommended by AMSA to consider Marine Order 32 as a reference for this document. Although it does not apply to DCVs, it may be a reasonable standard to refer to in the case of aquaculture vessels.
- It is recommended by AMSA to consider Work Health and Safety (WHS) requirements with respect to guidelines for crane operations.
- It is recommended by AMSA to consider the Code of Safe Working Practices for Merchant Seafarers, Section 17 as a reference for guidelines for working at heights.
- It is recommended by AMSA that work be conducted to verify if the SPS Code (IMO) applies to DCV's given that the Code is voluntary, and it would also depend upon whether an Aquaculture Vessel is a "fishing vessel", noting the internationally accepted definition is different to that of the NSCV. Fishing vessels are defined internationally as "A fishing vessel is a vessel used for catching fish, whales, seals, walrus or other living resources of the sea." Aquaculture vessels are thus likely to meet this definition.
- It is recommended by AMSA that the CoP refer to AMSA regulations where content has been included. This ensures references remain current as regulations are amended.

BLUE ECONOMY
COOPERATIVE RESEARCH CENTRE

Blue Economy CRC

PO Box 897, Launceston, Tasmania 7250

www.blueeconomycrc.com.au

enquiries@blueeconomycrc.com.au

Australian Government
Department of Industry, Science and Resources

Cooperative Research Centres Program

ISBN: 978-1-922822-17-8