



“Safety drill, meeting at the bridge 1300”

An investigation about safety drills onboard and their quality, quantity and possibilities to improve

Bachelor thesis for Marine Engineering Program

CAROLINE JANRIK
RUBEN LJUNGGREN

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Department of Mechanics and Maritime Sciences
Division for Maritime Studies
CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden, 2023

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Department of Mechanics and Maritime Sciences
Chalmers University of Technology
SE-412 96 Göteborg
Sweden
Telephone: + 46 (0)31-772 1000

Cover:

A picture of a whiteboard similar to what you can see on a ship when a safety drill is coming up. Picture painted and taken by Katarina Ljunggren 2023.

Department of Mechanics and Maritime Sciences
Chalmers University of Technology
Göteborg, Sweden 2023

PREFACE

We are two students from the fourth year at marine engineering at Chalmers University of Technology. We have both done internships onboard several vessels and we have both experienced safety drills with deficiencies, this sparked the interest for investigating the improvements that could be done in order to make the safety drill better onboard.

We would like to thank Jan Skoog, our supervisor and everyone that answered the questionnaire and joined in the interviews, also the contact we have had with the Swedish Transport Agency for making this bachelor thesis possible.

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SAMMANDRAG

I den här rapporten har metoderna enkät, semi-strukturerad intervju och fokusgruppsintervju används för att ta reda på sjöfarares tankar och upplevelser om säkerhetsövningars kvalitet och kvantitet ombord på fartyg. Syftet med detta är att se om det finns ett behov för förbättring och vad det skulle kunna vara. När förbättringspotentialen hos säkerhetsövningar utforskats har också några exempel har tagits upp i intervjuerna och enkäten för att se vad sjöfararna tror om dessa. Enkäten har skickats ut till sjöfarare via fackförbunds nyhetsbrev och i olika grupper för sjöfarare på sociala medier. Intervjuerna har hållits med kontakter som kommit via utbildningen på Chalmers tekniska högskola. Resultaten i denna rapport är generellt liknande mellan intervjuerna och enkäten, både kvaliteten och kvantiteten är upplevda varierande beroende på olika faktorer exempelvis vilket fartyg eller vilken fartygstyp respondenten jobbar ombord på. Förbättringspotential finns för säkerhetsövningar ombord, och det som togs emot mest positivt av de testade förslagen var att ha en extern övningsledare med ombord för genomförande av övningar. Med tanke på resultatet har avgränsningar på tid och kostnader gjorts i rapporten.

Nyckelord: Säkerhetsövningar, SOLAS, STCW, sjöfart, sjöfarare, säkerhetskultur, säkerhet, övningar ombord.

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ABSTRACT

In this report, the methods of questionnaire, semi-structured interview, and focus group interview were used to investigate the thoughts and experiences of seafarers on the quality and quantity of safety drills aboard ships. The aim was to determine if there is a need for improvement, and if so, what that would be. Once the potential for improvement in safety drills was investigated, some examples were also presented in the interviews and questionnaire to see what the seafarers thought of them. The questionnaire was sent out to seafarers through union newsletters and various social media groups for seafarers. The interviews were conducted with contacts made during the education at Chalmers University of Technology. The results in this report are generally similar between the interviews and the questionnaire, with both the quality and quantity perceived as varying depending on different factors such as the type of ship the respondent is employed. Conclusions is that there are potential for improvement in safety drills on board, and the proposal that received the most positive feedback was to have an external drill leader on board to conduct the drills. Considering this result, limitations have been made based on time and cost.

Keywords: Safety drills, SOLAS, STCW, Shipping, seafarers, safety culture, safety, drills onboard.

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ACRONYMS AND TERMINOLOGY

Advanced firefighting	A course included in STCW-requirements for officers onboard.
Basic safety	A course included in STCW-requirements for every crew onboard that are included in the safety crew.
Class of society	A society for classifications for ships.
Flag state	Is the state under whose legislation the ship is registered, certified and issues national requirements.
FRB	Fast rescue boat.
IMO	International Maritime Organization.
ISM	International Safety Management.
JRCC	Joint Rescue Coordinate Centre.
Muster list	A list of the functions each member of the crew is required to do in an emergency.
Muster station	The place/places onboard where the crew and/or passengers shall gather in an emergency.
Port state controls	Controls made on foreign ships in ports.
Safety Crew	Minimum requirements for the crew onboard a ship and the crew involved in the muster list.
SOLAS	Safety of Life at Sea.
SMS	Safety Management System.
SSRS	Swedish Sea Rescue Society, Sjöräddningssällskapet.
STCW	Standards of Training, Certification and Watchkeeping.
Swedish economic water/Zone	The zone beyond the national territorial water.
The Maritime Administration	Swedish authority for the shipping industry, Sjöfartsverket.
Trade areas	A geographic division for the ocean made with length from shore as the starting point.
Transport Agency	Swedish representing authority for flag state. In charge for doing the port state controls.
VHF	Very High Frequency, maritime radio system.

1. INTRODUCTION

A significant difference between working at sea compared to working ashore is the inaccessibility of getting assistance in case of need at short notice. Therefore, the crew must be trained to manage emergency situations on their own. Because of this, there are regulations in the Safety Of Life At Sea (SOLAS) convention on how and when this training should be done (International Maritime Organization, 2004). SOLAS is a convention under the International Maritime Organization (IMO), which operates under the United Nations (UN). SOLAS was implemented in 1914, following the Titanic disaster, and marked the beginning of international cooperation on rules and regulations for seafarers and the shipping industry.

The International Safety Management (ISM) Code is a part of SOLAS. The purpose of this code is to establish an international standard for the safe management of ships and shipping companies. The code stipulates that every ship must have a Safety Management System (SMS) in place (Transportstyrelsen, 2023). In the Swedish Transport Agency's rules on life-saving drills, it says: *“Exercises must, as far as possible, be carried out as if it were a real emergency.”* But among discussions at school after internships on different vessels, many of the students do not agree that this is the case. According to a bachelor thesis from two students who have completed the Nautical Science Programme at the Linnaeus University, Kalmar Maritime Academy, a large part of the students thinks this way (Larsson & Åkerlund, 2018).

Several reports already exist regarding the topic of 'Safety Drills', therefore, the research questions for this report will be selected from these previous reports. Questions that have been worked on but can be updated or made more specific. The report will include questionnaires and interviews from students and working seafarers that will be analysed, and from this, the first research question can be answered. According to a previous report, lack of time and interest are two reasons for drills to drop in quality (Glifberg & Karlsten, 2010). By analysing this and other reports, as well as interviewing a maritime training centre, suggestions to improve the quality of the safety drills can be made.

A few examples of safety drills conducted onboard include; enclosed space, fire drills, man overboard, abandon ship, and ship search. These drills should be conducted at various intervals. The main topic of this report will be about safety drills, seafarers' opinions on the drills, and improvements on the quality and quantity of the drills. A few topics that will be addressed in this report are the use of pre-made examples for drills, having a person from a third party on board to conduct the drills, and whether seafarers think harder documentation will make better drills.

1.1 Aim of the study

The aim of this report is to investigate what seafarers think about the safety drills conducted onboard. It will examine how seafarers perceive the quality of the drills, that is, how authentic and rewarding they are. It will also assess the quantity, frequency of drills, and whether sufficient time is allocated to them or if they are rushed through. Furthermore, it will explore ways to improve the drills by gathering suggestions from seafarers and presenting proposals to them to gauge their potential effectiveness.

1.2 Research questions

- How is the quality and quantity of the safety drills onboard ships, according to seafarers?
- What can be done to improve the quality of the safety drills?

1.3 Delimitations

In this report the process, time, and cost regarding changing the laws and regulations will not be considered. The extra costs and time for safety drills to be held onboard with personnel from shore will not be considered either. In the results from the questionnaire and the interviews, the number of ships and different types of ship the respondents have been on is not considered. There are also no considerations for which trading area the respondent worked in or how big crew of the ship was. The study will also be limited to the merchant navy.

2. THEORY

The theory chapter will present useful information to understand this report's aim and results. The authorities, rules and regulations for safety drills made onboard, some information about typically ship types and crew sizes, external controls for ships, land based rescue centres in Sweden, safety culture and summary of previous reports written about safety drills carried out onboard will be presented.

2.1 Rules and regulations

The maritime industry is an international industry so the ships that travel through international water, or more than their nationality's water are affected by rules and regulations from more than their flag state.

2.1.1 SOLAS

In 1912, the Titanic sank in the Atlantic Ocean. Over 2000 were onboard and 1500 died (*Titanic -- Britannica Academic*, n.d.). After this catastrophic accident, it was decided that there is a need to be international rules for the shipping industry. In 1914 the first version of SOLAS was adopted (International Maritime Organization, n.d.-a). The SOLAS conventions include fourteen chapters, and their main purpose is to establish minimum standards for constructions, equipment and operations of ships, in order to ensure their safety. For a convention to apply in a country, it needs to be approved and adopted, and then the flag state of the ship is responsible for ensuring the rules being followed. When a ship enters another country's ports, it can also be inspected through so-called port state controls.

In SOLAS chapter III, regulation 19 -3.1 Emergency training and drills, the rules about how and when drills are supposed to be held. It says: "*Drills shall, as far as practicable, be conducted as if there were an actual emergency.*" In chapter III, regulation 19 -3.4.1 it also specifies for fire drills: "*Fire drills should be planned in such a way that due consideration is given to regular practice in the various emergencies that may occur depending on the type of ships and the cargo.*" (International Maritime Organization, 2004). The rules for how often drills shall be held depend on the type of drill. For example, abandon ship and fire drills, every crew member should participate in at least one every month. These drills should take place within 24 hours of leaving port if more than 25% of the crew have not participated in the drill onboard the previous month.

2.1.2 STCW

In 1978 the first Convention on Standards of Training, Certification and Watchkeeping for seafarers (STCW) was established which set basic requirements on training, certification and watchkeeping for seafarers on an international level. This means that seafarers from countries that are a part of IMO need to meet or exceed the standards set by the convention. The convention is divided into eight chapters. The regulations in the STCW convention are supported by the STCW code, which is divided into two parts: part A is mandatory and part B is recommended. Part A is also divided into eight chapters (International Maritime Organization, n.d.-b).

Chapter VI in the STCW code sets standards regarding emergency, occupational safety, medical care, and survival functions. In this chapter the information about what is required to be included in the familiarization and the basic training can be found. Familiarization training is required before a seafarer can be assigned to shipboard duties. These trainings need to include

essential information about the ship and instructions on how, for example, to act if a person falls overboard (International Maritime Organisation, 2001). Basic training is a course that a seafarer needs to have completed before signing on as a safety crew member or if the crew member has any safety or pollution prevention duties. This training contains knowledge about, for example, personal survival techniques. The required level of knowledge is divided into four parts, first: competence, second: knowledge, understanding and proficiency, third: methods for demonstrating competence and fourth: criteria for evaluating competence (International Maritime Organisation, 2001).

2.1.3 ISM

After some accidents in the 1980s and 1990s that were considered to have happened due to deficiencies within safety management onboard ships and in the shipping companies, IMO conducted an investigation that found that the problem was in the relationship between the ships and the shipping companies ashore. In 1994, the code was made mandatory through a new chapter in SOLAS. The code requires all shipping companies to have a SMS that focuses on the safety culture within the shipping company. When the company has an approved SMS, they receive a certificate, and all the ships in the company must also have an individual certificate for their safety organization onboard (Transportstyrelsen, 2020). The SMS should have routines for identifying and describing how to act in emergency. It should also have lists of all the safety drills that should be held onboard and how often, as well as routines for who will do what in which emergency.

2.2 Ship types and crew sizes

Ships are divided into separate groups depending on the type of transport they are intended for. Some of the most common ship types include passenger ships, fishing boats, pleasure ships, traditional ships, barges, tugboats, pilot boats, and cargo ships (Transportstyrelsen, 2013). Cargo ships are further divided into smaller groups, including tanker ships, bulk ships, general cargo ships, ro-ro ships (roll on – roll off), container ships, reefer ships, and different kinds of workboats. These different kinds of ship types are also used in laws and regulations so that the laws and regulations can be specified for which ship they apply (Transportstyrelsen, 2008).

Every registered ship is required to have a certificate that specifies the minimum crew requirements in terms of numbers and qualifications, also known as safety crew. In Sweden, the Transport Agency is responsible for issuing the certificate specific to each ship. The requirements for the safety crew's numbers and qualifications are stated in the Swedish law *Fartygssäkerhetslagen* and depend on the ship's size, type, equipment, use, and which trade areas the ship will go through. Then the Transport Agency considers how the work onboard will be organized and ensures that the standards for working hours can be followed. The aim is to have a safety crew so that the ship can be operated safely and that safety at sea can be guaranteed (Sveriges Riksdag, 2019). Every person who will be included in the safety crew needs to have a valid health certificate, basic training certificate, and familiarity with the specific ship.

2.3 Classification societies and Port state controls

Classification society is an organization for classification of ships and marine installations. The classification societies are one part of the organizations making suggestions for rules for ships and the shipping industry. They also do inspections that the rules are followed and that installations are correctly done. To classify a ship there are requirements for the ship to fulfil and the society will conduct an inspection to approve the ship (Lloyd's Register, n.d.).

The classification societies are one of the ways that the shipping industry is maintaining safety on the ships trading on international waters another way to ensure safety is port state controls. Port state control is inspections on foreign ships made by an authority from shore. In Sweden, the transport agency is responsible for carrying out these inspections (Transportstyrelsen, 2021). Through communication with the Swedish transport agency, they confirm that they do inspections on foreign ships and lets the crew do safety drills and the inspector monitors to see that the crew knows how to handle an emergency and confirms that they do safety drills onboard (*Personal communication* 2023). Other ways for the inspector to ensure that, is to do inventory onboard of the safety equipment and make sure that everything is functional and in order. When the inspectors from the Sweden Transport Agency was asked what the most common safety defects onboard, the answers were: errors in the fire and safety plan, the documentation of the safety drills made onboard, risk assessment done onboard and the crew onboard are not familiar and trained right for the safety drills.

2.4 Land based rescue centers – Sweden for an example

The emergency number in Europe is 112 and in Sweden there are different authorities that will respond to different kinds of emergencies. In an emergency at sea in the Swedish economic water The Maritime Administration is responsible for the rescue, in case of an environmental rescue it is the responsibility of the Swedish coastguard. When there is a rescue operation ongoing the role of the rescue leader is vital. That person is responsible and can direct people around to where they are most needed. (Krisinformation, 2021). There is a person in a rescue operation at sea called the on-scene coordinator, and that could be a captain on a rescue ship, coastguard ship or merchant ship. The most important is that the person is at the scene of the emergency. In Sweden, this person helps the rescue leader in charge from The Maritime Administration with tasks as leading the search of a person or coordinates evacuation of passengers.

In emergency situations at sea, the ship in need of help will send out an emergency call, “Mayday”-message on the emergency channel 16 at the VHF-radio to call on ships close by. The Joint Rescue Co-ordination Centre (JRCC) or close by ship will send out an “Mayday Relay”-message to alert more ships that can help. The coastguard, *Sjöräddningssällskapet* (SSRS), police boats, and military ships usually listening at channel 16 to answer to ships in need (Sjöfartsverket, 2020). SSRS is a voluntary organization for anyone with an interest of helping people in need at sea. It started for more than 100 years ago and are involved in around 90 percent of the rescue situations at sea in Sweden (*Sjöräddningssällskapet*, n.d.).

2.5 Safety culture

In a text written by Henriqson, Schuler, van Winsen and Dekker (2014), they discuss the emergence and development of safety culture in the discourse of accident prevention. The text explains how safety culture emerged as an object of knowledge and how it encompasses a set of discursive practices that focus on governing workers and organisations. The normative homogeneity of the definition of safety culture has a strategic role, and it takes the focus away from other factors, such as risks related to the environment and technology. Safety culture produces and legitimises a bureaucratic machinery that locks the conduct of individuals into administrative standards, reinventing accountability in several forms. The text proposes an archaea-genealogical approach, which highlights the importance of treating safety research not dissociated from its broader organisational context that includes permanent conflicts and negotiations among several goals. It also emphasises the need for including the issue of power in the agenda of organisational safety studies. The Foucauldian approach to power provides

interesting insights into how certain discursive objects are constituted and display effects of discipline, biopolitics, and governmentality.

2.6 Previous research

There has been a lot of research done in this field before, and here are some parts that are interesting for this report. In the Swedish maritime schools, there are many bachelor's and master's theses written about safety drills, some of which are also interesting for this report.

2.6.1 Seafarers and maritime students' attitude and experiences of safety drills

Glifberg and Karlsten (2010) wrote in their report *The Attitude towards Safety Drills Onboard Ships* about the attitude towards safety drills onboard. In the report, they interviewed seafarers to determine if they experienced a negative attitude towards safety drills, and if so, what the reasons behind this negative attitude were, and how it could be changed. The results of the reasons for the negative attitude were stated as follows: not enough variation in the drills, lack of time, drills held outside the usual work schedule, not enough challenging drills, and a lack of interest from the drill leader. In the report, the drill leader is mentioned as an important person. The results say that if the drill leaders have a good attitude towards the safety drills, it is easier for the crew to follow.

The report *Safety Drill Onboard* written by Larsson and Åkerlund (2018) is intended for students from Linnaeus University to share their experiences of safety drills from internships onboard ships, both the general feeling and the quality. They gave a questionnaire to all the students and got results that the quality depends on the type of ship and the size of the crew. Mostly the experiences from safety drills were that they were well performed, but they thought there was room for improvement. The most common perceived deficiency was a lack of time and a lack of commitment from the crew and the drill leader. In the report, the factor of not speaking one's native language will affect the result of the drill. From their questionnaire, they got the result that on ships with only crew from the same country, the drills were experienced better. Another question was about how well the SOLAS-requirements for safety drills were followed on the ships, and most of the responders answered that the requirements were not followed up.

Another report that focuses on safety drills onboard experienced by students doing their internships is *Importance of the Onboard Crew Trainings and Drills for the Improvement of the Vessels' Safety* written by Szczesniak (2014). One question asked in the report is if the drills are taken seriously by the crew or not. In an abandon ship drill, the author mentions that the crew takes the uncomplicated way out and only gathers at the muster station and reads through the checklist on what to do next if they would fulfil the drill, and this will not help in an emergency. In the report, the importance of taking alarms seriously and not assuming that it is a drill or false alarm is highlighted.

2.6.2 Safety drill made by the safety organizations ashore in comparison to onboard

In the report titled *Safety drills --- a comparison* authors Andersson and Wramler (2012) investigated what safety organizations ashore can teach seafarers about their actions in emergency situations. They discussed crucial factors for successful drills, such as pedagogy, planning, leadership, and commitment. The authors conducted interviews with various rescue service professionals, including a firefighter, a police officer, an ambulance paramedic, a

military personnel, an employee from the rescue service training centre, and an employee from the sea training centre. Departments that specialize in a particular segment, such as firefighting, also specify their knowledge and drills for the most common scenarios. For instance, if the station is close to a beach, they will have more drills for drowning. Factors they brought up for better safety drills: moment drills, theoretical drills with photos, feedback, documentation through film and external drill leader. The report also highlighted the idea of having an external group solely dedicated to coming onboard different ships to help them with their safety drills and safety work.

Szczesniak (2014) writes about the positive impact of including a theoretical part in the drill and providing feedback afterward. The theoretical part of a drill is essential for the crew to understand the hazards and emphasize the significance of the drill. Planning and ensuring that equipment is in the right place are also critical factors for a successful drill. Communication is also important during the drill and should be done as it would in a real situation, with the same equipment and phrases. The report describes two different safety drills conducted onboard, namely abandoning ship and oil spill during cargo unloading, and discusses the problems and conclusions drawn from these drills. In the conclusion, the author emphasizes the importance of the crew viewing safety drills as an opportunity to improve their skills, knowledge, and safety onboard the ship.

2.6.3 Leadership onboard and the drill leader

Rosell and Lundén (1997) writes in their book about leadership that leadership is a transfer of enthusiasm. Onboard every ship there is a part of, or the whole crew that is the safety organization. That means that even the chefs and waitresses can have important tasks to do in a case of an emergency (Johansson Amanda & Liljered Pontus, 2016). On ships with large crews the safety organization can be divided into smaller groups with specialties, as fire groups, man overboard (MOB) group, first aid group, helicopter group and evacuation groups. It is important that these groups practice their tasks, so they know what to do, and to find eventual faults.

The drills onboard are usually held by the captain, chief officer or second officer. The drill leader is supposed to plan and prepare the drill and to motivate the participants. The chief engineer is usually in charge of the fire safety onboard so either him or the first engineer is the drill leader for the fire drills. The planning for a drill takes time and it needs fantasy to make up new or good drills that will challenge the crew enough. Today there is no extra course or education for officers that is the drill leaders, if not the company has their own.

In an emergency everyone reacts different and to make the prerequisites for the crew to do their right tasks, drills and to have broad knowledge in what kind of emergency situations that can occur and what to do to manage them. This is for the drill leader to ensure so everyone in the crew knows what to do and when to do it (Johansson Amanda & Liljered Pontus, 2016). To ensure this knowledge it is important that everyone is participating and focus on the drill, one person's lack of focus can disturb the whole drill. Here is the drill leader's job to motivate the crew. Factors that will help the leader is social competence, pedagogy, involvement, and knowledge in the subject. To make a drill fun and rewarding helps the participants to see the drill as rewarding.

3. METHODS

This report will utilize three methodologies: literature search, questionnaire, and interviews. The different methods will complement each other, the questionnaire serving to gather quantitative data and provide insight into seafarers' general perceptions. The interviews will provide more qualitative data, allowing the report to delve deeper into the issue and provide potential solutions. Literature search will be used to build upon prior research and gather information on relevant laws and regulations.

3.1 Literature search

Literature search is important research for reviewing and analysing relevant existing literature and studies related to the topic of this report. The search will be conducted at Chalmers library and through the Google search engine. This method provides valuable insights into the current state of knowledge and understanding in the field and helps to identify gaps and opportunities for further research. This information will also be utilized in the conclusion of the report to support the findings and to inform the design of the questionnaire and interviews.

Keywords for searching: Safety drills, SOLAS, STCW, Shipping, seafarers, safety culture, safety, drills onboard.

3.2 Questionnaire

A questionnaire has been made and to get the desired selection, it was clearly stated in the description the qualifications of the responding persons. Additionally, the questionnaires questions were formulated in such a way that the respondent should have worked on board ships and participated in safety drills to be able to answer them. The questionnaire was conducted in both Swedish and English and over the internet to gather as many responses as possible, so that seafarers from different cities, countries, and those on board could have the opportunity to respond. The data collected was done with the software Google Forms. The link was posted on various social media groups for seafarers and in a newsletter from a seafarers' union.

The questionnaire was designed based on the report's research questions and consisted of fifteen short questions, with the possibility of commenting on nine of these questions. The fact that the questions were short was mentioned in the questionnaire's description to encourage more people to respond (Trost & Hultåker, 2016). The comments were for those who wanted to spend more time on the questionnaire and thus provide us with more qualitative answers. The first question is to get the responders consent to use the answers in this report. Questions two to five are about the person's background as a seafarer, and the remaining questions are quantitative questions to gather information for the report. At the end of the questionnaire, there was an opportunity for comments if the person had something they thought was important regarding the subject or feedback for the questionnaire to add beyond the questions.

3.3 Semi-structured Interview

In the report, semi-structured interviews were used, which are based on having a set of questions as support for the interview, but which can change the order and wording depending on what the interview situation allows (Höst Martin et al., 2006). The questions in the interview were based on the report's research questions. During the interview, one person was responsible for asking the questions and the other for taking notes of the answers. The interview was also

recorded, with the consent of the interviewees, so that no information would be lost or misunderstood and to get correct citations.

The selection of those who were interviewed was chosen to obtain as broad information base as possible. A chief engineer, who is responsible for the onboard fire drills, a safety officer who conducts the drills, a second officer who is not responsible for the drills but who participates in them along with the rest of the crew, an instructor from a marine training centre on land who trains seafarers and a voluntary employ from SSRS. In table 1, the persons who were interviewed are presented. A representative selection of individuals who are in some way affected by safety drills onboard ships.

Table 1 *Presentation of interviewees.*

Respondent	Department	Years working at sea	Current professional roll
1	Deck	5	Safety officer
2	Deck	1.5	Navigational officer
3	Engine	12	Chief engineer
4	Personal at maritime training centre	1*	Instructor
5	Personal at SSRS	9	Captain

*At a maritime training centre

3.4 Focus group interview

Focus group interview were also a method used in the report. Five seafarers with different backgrounds participated, presented in table 2. Different types of groups act differently depending on the mix of people in the focus group (McQuarrie & Krueger, 1989). In this case, all the participants were old classmates and acquaintances. This made the participants feel comfortable and everyone participated and contributed with opinions and experiences.

Table 2 *Presentation of interviewees.*

Respondent	Department	Years working at sea	Current professional roll
6	Engine	5	Second Engineer
7	Engine	7	First Engineer
8	Deck	9	Safety Officer
9	Engine	13	Second Engineer
10	Engine	14	Second Engineer

3.5 Analysis of data

After the interviews had been listened to and the notes read, the answers from them and from the questionnaire were analysed. The answers that were relevant to the report were presented in the results chapter. Then, the results were discussed in the discussion chapter. The questionnaire was answered by 212 people, of whom two people did not want their answers to be used in the report, so 210 answers were analysed. There were five semi-structured interviews and one focus group that were gone through.

3.6 Ethics

It will be made clear to the respondents that participating in the questionnaire is voluntary and that their answers will be anonymous. Respondents will have the option to contact the authors for the report for the possibility of being selected for an interview or if they have question about the questionnaire. The respondents from the questionnaire and the persons interviewed for the report will be anonymous in the report. The responses from the questionnaire and interviews will be used exclusively for this report, this will be communicated to the respondents.

4. RESULTS

In the results section, the answers from the questionnaire, semi-structured interviews, and focus group interviews will be presented. These three methods will be divided into three chapters and presented one by one.

4.1 Questionnaire

In this chapter the answers from the questionnaire will be presented. There were 212 answers, but only 210 used because two respondents would not want their answers included in a report. The first part contains questions about the respondent's identity and their current relationship with working at sea, which are shown in figure 1 to 4. After these figures, the answers from the questionnaire that relate more to their feelings and experiences with safety drills are presented.

The respondents consisted of 122 individuals currently working at sea, 44 studying in a maritime program, and 46 who had previously worked at sea, as seen in figure 1. Figure 2 displays that the most common amount of time spent working at sea was over eight years, with 118 answers. Figure 3 shows that the majority of respondents were from the deck department, with 121 responses. Finally, figure 4 indicates that the most common positions onboard were other crew members or other officers with 81 responses for both categories. The questionnaire has been able to answer in both Swedish and English, and the Swedish answers have been translated into English.

Figure 1 The currently relation to shipping industry.

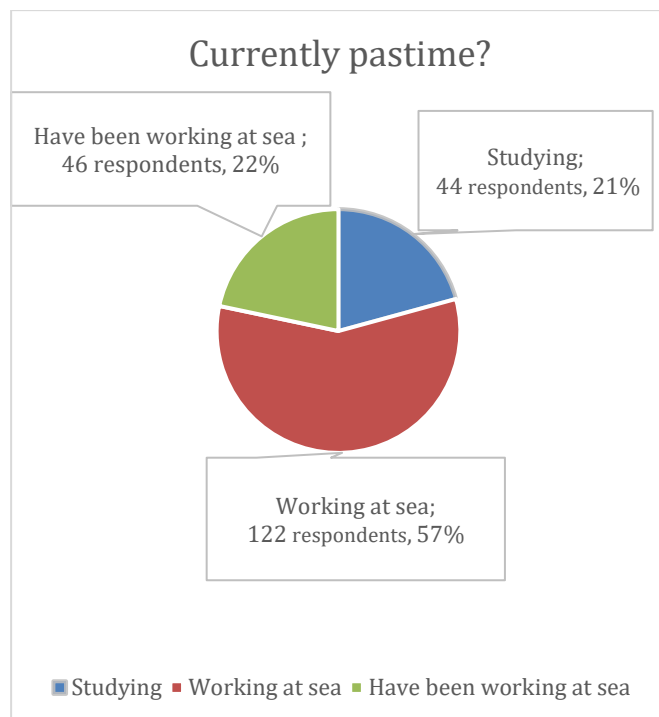


Figure 2 Time the respondents spent working at sea.

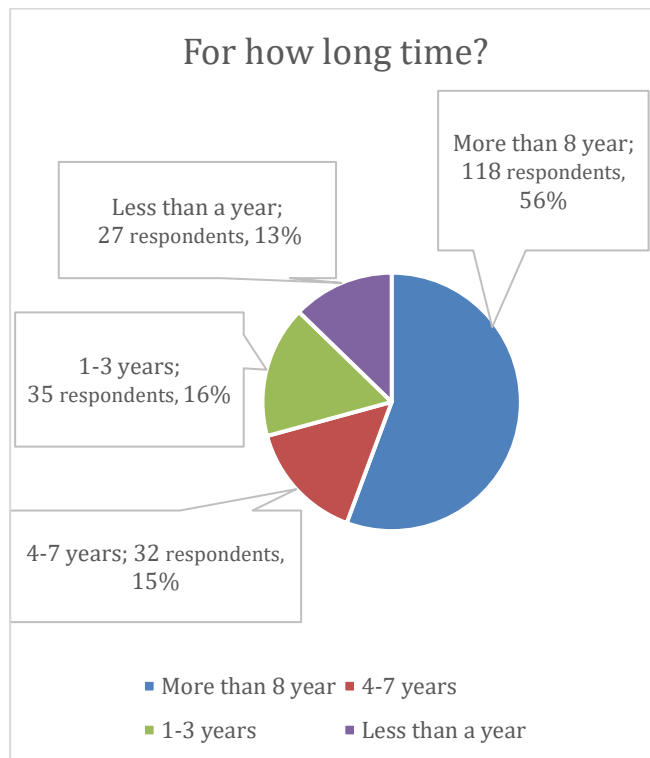


Figure 3 Which department the respondents is from.

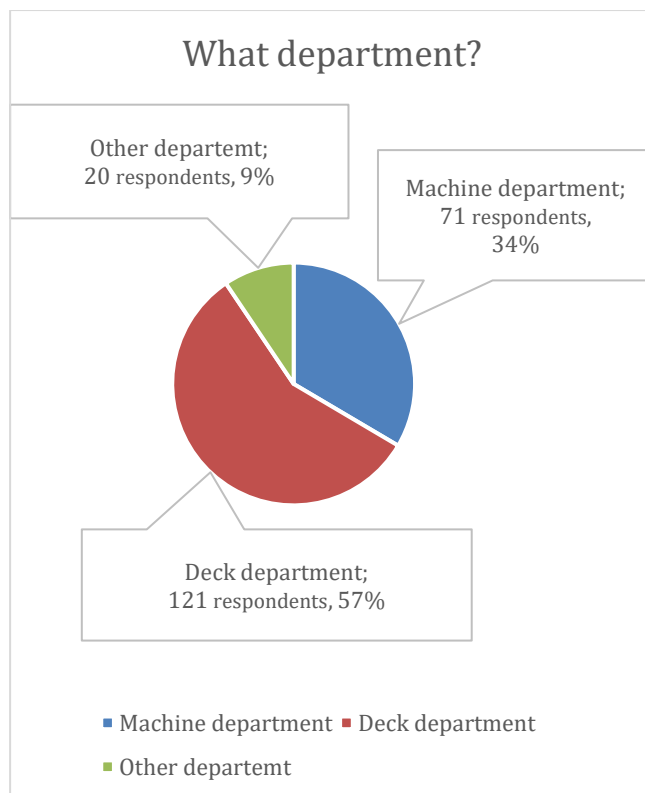
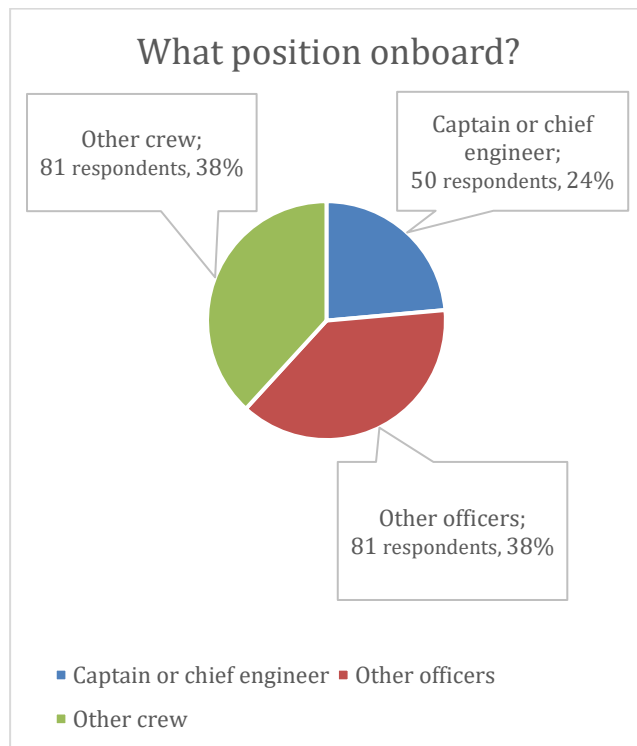


Figure 4 Which position the respondents have onboard.

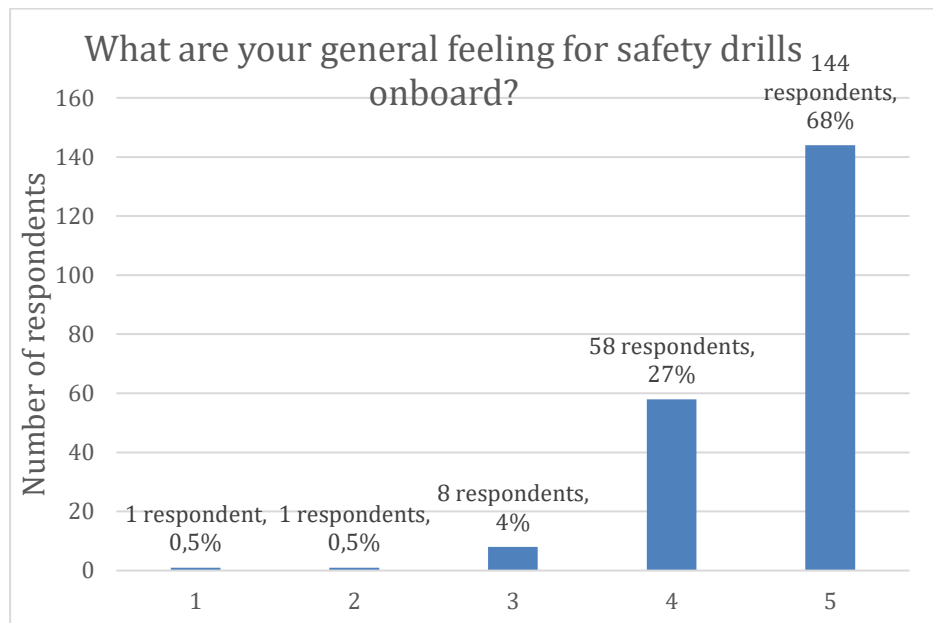


In the following figures, the answers from the respondents to questions about safety drills in the questionnaire will be presented. Figure 5 shows the responses to the question regarding the respondents' general feelings about safety drills. Figures 6 and 7 present their views on how authentic and rewarding they find the safety drills, respectively. Figure 8 displays their opinions on the quantity of the safety drills.

Overall, 144 respondents rated the importance of safety drills with a score of 5, indicating that safety drills are very important. However, the answers to the questions about how authentic and rewarding the safety drills are, were not as high. In Figure 6, the most common response was 3, with 100 respondents, which is in the middle between "not at all" and "very authentic." In Figure 7, the most common answer was 4, with 80 respondents, but the answer 3 was also close with 76 respondents. The score of 4 indicates that the safety drills are one step closer to being "very rewarding" (score of 5) and away from being "not at all" (score of 1).

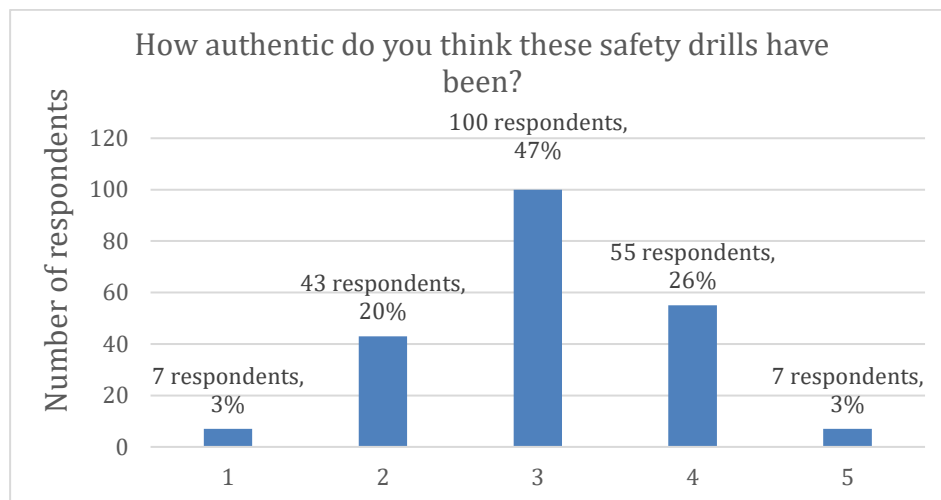
Respondents generally feel that the quantity of safety drills is good, as shown in Figure 8, where the most common answer is 3, representing the middle ground between "too few" (score of 1) and "too many" (score of 5). In Figure 9, the answers to a question that includes a citation from the Swedish Transport Agency about the similarity of the drills to real emergencies are presented. Finally, Figure 10 displays the answers to two similar questions about a pre-made list of safety drills. The first question asked whether the pre-made list would make the safety drills more authentic, while the second question asked whether it would make them more rewarding."

Figure 5 The respondents general feeling for safety drills onboard.



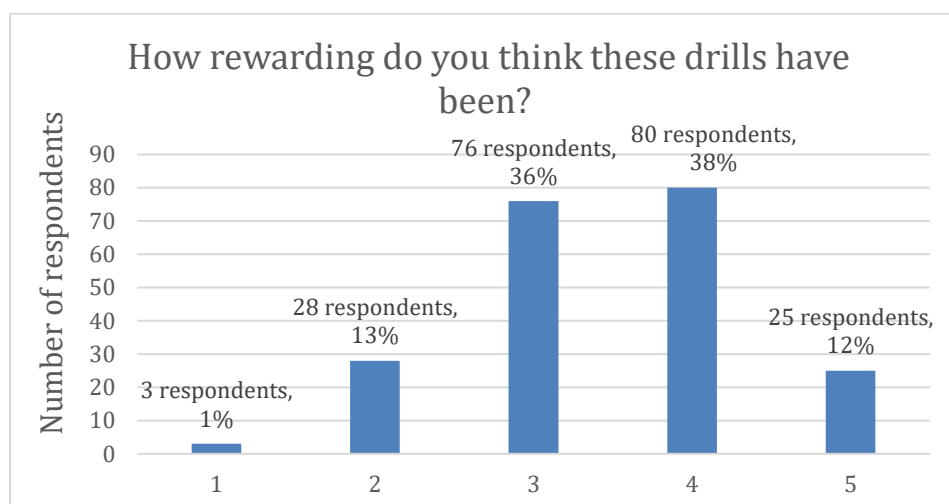
1- Unnecessary, 5- Very important.

Figure 6 How authentic the safety drills are experienced onboard.



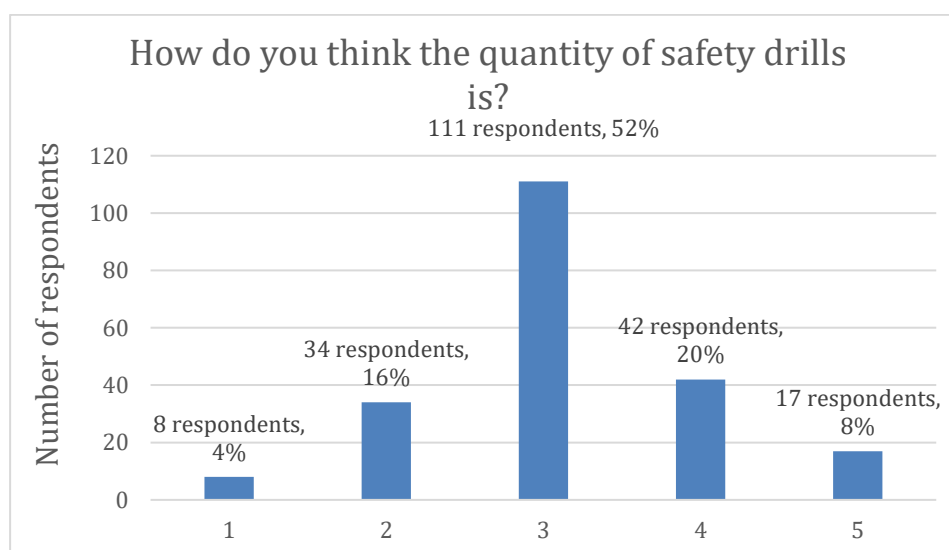
1- Not at all, 5- Very Authentic.

Figure 7 How rewarding the safety drills are experienced onboard.



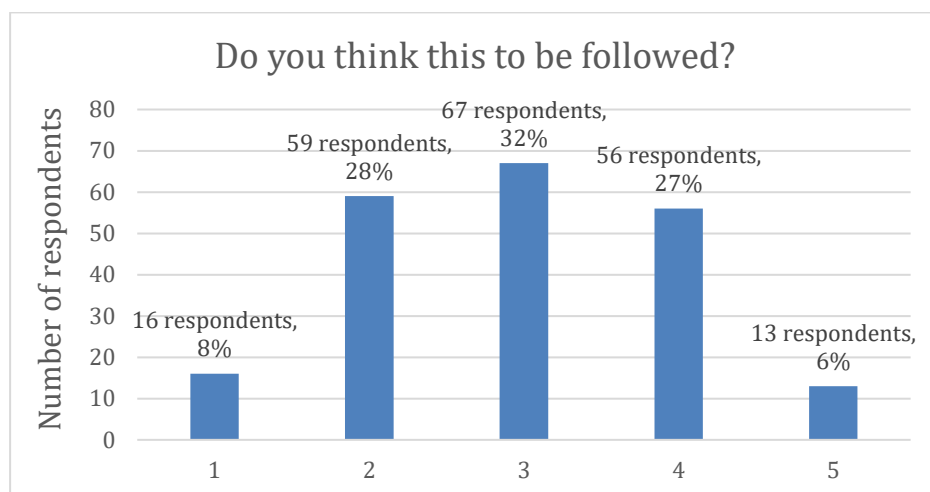
1- Not at all, 5- Very rewarding.

Figure 8 How the quantity of safety drills onboard are experienced.



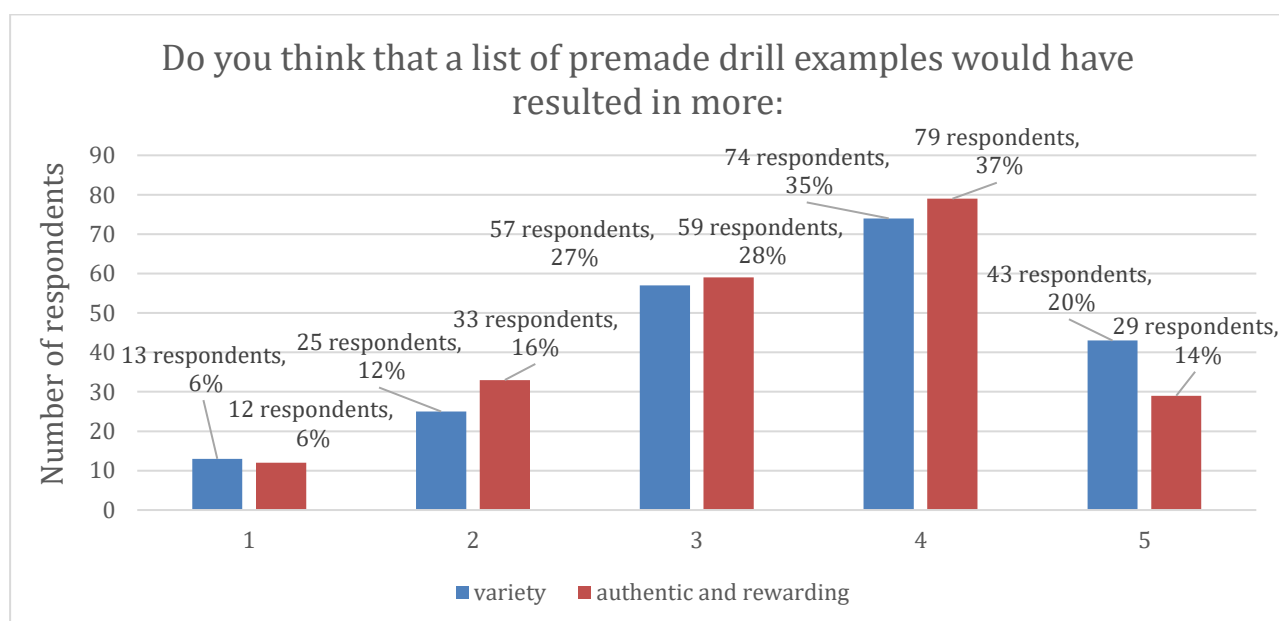
1- Too few, 5- Too many.

Figure 9 In the Swedish transport agency's rules on life-saving drills, it says: "Exercises must, as far as possible, be carried out as if it were a real emergency".



1- Not at all, 5- Completely.

Figure 10 If the respondents think a premade list with drill example make the safety drills more variety, authentic and rewarding.



1- No, I don't think that would help, 5- Yes, I think that would help.

The last section of the questionnaire was more open, with one question allowing respondents to provide their own answer as an alternative. This resulted in 37 different alternative responses. Table 3 summarizes these responses by showing the percentage of respondents who chose each alternative. The questionnaire also included some yes-or-no questions, the answers to which are presented in Table 4 along with the percentage of respondents who chose each option.

Table 3 Reasons to the respondent experienced that safety drills have been shortened or rushed through:

Percent:	Respondents answer:
47	Lack of time.
32	Lack of commitment.
11	Not considered important enough.
<1	Skipped feedback talk.
<1	Not planned events on the ship.
<1	Crews rest hours.
<1	Indolence from the crew.
<1	Other operations or navigational happenings.
<1	Too many drills made at the same time.
<1	Lack of knowledge.
<1	Communication difficulties

Table 4 The answers from the yes and no questions in the questionnaire.

Percent	Respondents' answers:
80	have tried out someone else's tasks in a safety drill.
88	have done safety drills in smaller groups.
84	have experienced that safety drills are shortened or rushed through.
73	do not think less rules for safety drills would not make it easier to adopt the drills for each ship.
73	do not think that stricter rules about documentation would make the safety drills more authentic and rewarding.

4.1.1 Summary of the comments from the questionnaire

After nine of the questions, respondents were given the opportunity to provide their own comments related to the specific question. Additionally, at the end of the questionnaire, respondents were given the opportunity to leave comments for the report with their thoughts on

what they think is important regarding safety drills. A total of 387 comments were written by the respondents, and a selection of these comments will be presented below:

“I would have liked to do safety drills more often if there was time. But with frequent port calls and cargo operations, it is difficult. It only becomes what needs to be done and nothing extra.”

“Sometimes it is safety drills a little bit too much. Difficult to get the crew to be enthusiastic when the same drills must be done four times a month.”

“If carried out properly and taken seriously by all crew, especially C/O or master I would tick the box 5. But most of the drills I experienced were only to fulfill the schedule of the drills and for the books.”

“Different sometimes very rewarding sometimes very little rewarding difficult to plan drills you should perhaps take this up when you do your five years fire course. How to post rewarding and realistic drills on a ship. Maybe something the firefighters can teach?”

“When there is a lack of time, as it often is with us, it would sometimes be nice to have suggestions and examples to follow. It can also be nice to use when the imagination is not flowing so that there is still variety.”

4.2 Semi-structured interviews

The first interview was with respondent 1 from Table 2 in Chapter 3.3. The respondent said that the drills are conducted according to SOLAS and SMS, i.e., once, or twice a month, and multiple drills are performed at the same time.

The quantity was generally considered adequate but can sometimes feel frequent depending on the drills and their size. Therefore, it is considered that they should not be held more often. However, if they become less frequent, aspects may be lost unless the quality increases. The interviewee mentioned that sometimes there is some negligence with the drills, and if SOLAS and SMS are read, they are not always achieved. Drills are often shortened due to time constraints, lack of engagement, and disturbance of resting hours. When practicing in a comprehensive manner, details may be missed, and people may have difficulty focusing for an extended period. Sometimes, things are read out by the officer instead of performing the drill.

The proposal to have an external instructor on board during drills was considered beneficial and good to have someone on board who is not there to catch someone out. However, it may be difficult to arrange with ports and it is not sure that the shipping company are willing to pay if it is too expensive. Harder requirements for documentation would not be well received and may lead to cheating. It is necessary to have some leeway as the maritime industry is already heavily monitored. Allowing the crew to create safety drills was seen as a clever way to break patterns, but it is difficult to get the crew to make suggestions. The proposal for a list of pre-made safety drills received the response that it might work.

The second interview was with respondent 2. They have drills at least once a month and have multiple drills at the same time. The interviewee believes that this is a good amount, especially for drills that occur once a month.

The interviewee's opinion is that drills are very important, but that quality can be improved. Sometimes drills are shortened, usually due to rest hours, but not often. This vessel does not berth as often as some other vessels, so there is plenty of time for drills. On board this vessel,

they have a good atmosphere and drills are taken seriously, and the atmosphere was also mentioned as an important aspect of having good drills. If there is time, they always have good drills where suggestions are welcomed. Notes are taken during the drills and discussed afterwards, what went well and what could be improved.

The suggestion of having pre-made drill proposals was seen as good, but they must be quite general. It is good to have when the imagination for producing drills is lacking. They can be adapted to areas where accidents and similar incidents occur more often. Having stricter documentation may be looking better on paper, but it may not be received well onboard. There are already high demands on it, so it is hard to see that it would be difficult to document more. Now that there is such a positive view of drills on board, it is better to keep it that way. Having an outsider on board to lead the drills was seen as a particularly good idea for training purposes. Having their own course for those who lead the drills is not considered a promising idea, if so in the course basic training.

Respondent 3 had drills once a month and was responsible for fire and engine drills. This interval of drills was considered good, if there were drills once a week, there would probably be more cheating due to lack of time. But drills should not be less frequent, especially if you work on a ship for four-week shifts, then it becomes one drill per shift. The interviewee said that in some cases, the drills could be shortened, but in those cases, they would compensate next time so that it would not become a habit. Cheating is not acceptable, as it becomes a habit. The general opinion was that drills could be done better, when you have taken the time to do drills, you might as well make something useful out of it.

Sometimes the respondent could turn some of the drills held into competitions, such as having the person who put on the firefighting equipment the fastest win a bag of chips, to get the crew more engaged. A briefing and feedback session are usually held and explain the scenario before the drill starts. This has its pros and cons, in a real scenario the crew doesn't know what they will encounter, but without explanation, people often run around, and it easily becomes chaotic. Engagement is contagious, so it is important for the officers to be engaged for it to spread and become a good drill.

Allowing the crew to produce their own drills has not been tested, but it was a clever idea as the imagination to produce new drills decreases as years goes. Therefore, the drills become quite similar after a while. The suggestion to have a pre-made list of drills to choose from was seen as a good idea, for example, if the captain says that there will be a drill after lunch, there are pre-made drills instead of just choosing something simple because there is no time to come up with a new one. However, the suggested fire drills should not be too complicated. The respondent believes that there will be stricter documentation of the drills in the future, even though there is already a lot of documentation being written today.

Having an external instructor on board for the drills is believed to provide valuable feedback and raise the level of the drills. But some older captains may be against someone coming to their ship and telling them what to do. However, it would probably be more appreciated than if there is a failure during port state control. If the person in the crew who conducts the drills needs extra knowledge, it could be appropriate for, for example, fire drills, to also cover how to conduct them during advanced firefighting and when renewing papers, different things may be included depending on the position.

Respondent 4 has been working at a maritime training centre for one year in the department that involves water exercises, such as FRB (Fast rescue boat) and lifeboats, among others. Before this job, the interviewee worked with safety exercises on land and has ten years of experience in SSRS.

The training centre's biggest clients are maritime schools and various shipping companies. There is a list of tasks that must be completed to obtain or renew their papers. The respondent says that the quality of those who come to the centre is varied. If there were tests instead of tasks to be completed, not everyone would meet the requirements. The ones who are usually the most eager and engaged in the exercises are those who take the basic course and are usually younger, but apart from that, there is no significant differences seen in different age groups.

Examples of exercises that people usually find more difficult in water survival are how to turn over a life raft and knowledge of survival suits. The centre always has the same amount of time for each group and therefore does not experience a shortage of time during the exercises but has heard that it is a problem on some ships. They do not usually have feedback after all the exercises, but instead discuss directly if something went wrong. When they have discussed what did not go well, they repeated the task. They also emphasize the importance of course participants performing good and serious drills onboard the ships.

Serious drills were also considered the most important by the interviewee in the subject. They also mentioned the army and SSRS as they have many safety drills, and one can learn from them. At the centre, they said they would like to participate onboard ships during drills. Just to observe as well as instructors.

Respondent 5 has been active in SSRS for nine years and has been one of the captains in one of their stations since 2017. SSRS has about seventy stations and 2400 active volunteers with the vision of "*zero fatalities at sea*". The station is active with missions when the sea is ice-free and works both to prevent accidents and to assist when accidents occur. They receive missions from their own emergency phone and from JRCC.

Most of their time is spent on exercises, and most of it is during the summer. Stations with fewer missions have more time to practice. To become a regular crew member at a station, one must attend their own safety training. They choose what exercises to do themselves, but they try to keep it varied. During a year, there is also a certain number of exercises they should have done. At each station, there is a person responsible for training, but the exercises are usually led by the captain, although it can be delegated. Sometimes they have larger drills with an external drill leader. Drills with other actors also take place, such as rescue services, pilots, or the coast guard. They are also involved in joint drills held by the Swedish Maritime Administration. The interviewee believes that practicing helps, especially for stations with fewer missions to maintain competence. It is most important for those who are new to the organization.

The respondent has also worked in the Swedish merchant fleet for a couple of years, and when asked if he sees a difference between SSRS exercises and the safety drills made onboard ships, the respondents says that the drills on ships are more rushed and have less feedback, but that it also depends on the crew. At SSRS, all involved are volunteers, and exercises are a big part of it, so they take them more seriously.

Within SSRS, they have an exercise bank with pre-made exercises that they can adjust and use. The respondent believes this would be good on ships as well. If the requirements for documentation become stricter, it is not believed that they will produce better results. Having been with SSRS gives a certain advantage when it comes to conducting exercises, they have training for this, but the focus is more on pedagogy than on conducting an exercise. Within SSRS, they believe there is a difference between exercise and education, and that this can also be implemented on ships. The respondent emphasized that feedback is important.

4.3 Focus group interviews

Here will the results from the focus group interview be presented, this part will be referred to respondent six to ten from table 3 in chapter 3.4. Of those participating, safety drills were held either twice a week or one drill per week in groups, as well as two per month for the entire crew. The quality was varied. Crew members are considered lazy and want to rush through to get back to work or their cabin if it interferes with their rest schedule.

On ships with larger crews, it was considered easier to set aside time for the drills and drills with larger crews were usually seen as more serious. The drills that were considered the most qualitative and educational were when the crew themselves participated in shaping the drills, as there was more variation and new things emerged. When national emergency forces or, for example, the coast guard participated in drills, there was also variation, more practice in communication, and insight into how those with more experience operate. Drills in places other than usual, such as a fire on the bridge where the team had to muster at the backup station, bring out shortcomings when things do not go according to routine. And when drills are done with other roles, for example if one of the crew is missing, there are often mistakes that can be discussed later.

On ships with smaller crew the difference when a person is missing becomes a larger problem. This group believes that it could be difficult to implement a list of pre-made drills suggestions among different ships, as they have different conditions, but that similar lists already exist in some ships' SMS. They think that the proposal for stricter documentation of drills will only lead to cheating and not make the drills more qualitative. They believe that having an external instructor on board during drills would have a positive impact, but it could be challenging on ferries due to the tight schedule.

5. DISCUSSION

In this chapter, the research questions will be presented along with a discussion of the methods chosen for the report. The results from the interviews, questionnaire, and previous research from the theory and results chapters will be compared to answer the research questions. The individuals who participated in the interviews, completed the questionnaire, and previous research all provided similar responses, which enhances the credibility of the presented findings.

5.1 How is the quality and quantity of the safety drills onboard ships, according to seafarers?

The quality of the drills carried out on board ships seems to vary. When asked in the questionnaire how authentic the drills were, 47% answered a three on a scale of one to five, 26% a four, 20% a two, and 3% respectively a one and five. The most common comment on this question was that the quality varied greatly depending on which vessel and which shipping company you are in. Reasons that were mentioned in the questionnaire that lowered the quality were when the drills were ticked off on the bridge instead of being carried out, and when there was not enough time. Lack of time and lack of commitment is the most common answers that Larsson and Åkerlund (2018) got in their questionnaire made 2018 with maritime students, which is the same as in this report. Glifberg and Karlsten (2010) made interviews in 2010 and also got similar answers then that enough variation in the drills, lack of time, drills held outside the usual work schedule, not enough challenging drills, and a lack of interest from the drill leader is reasons to why the quality of the safety drills vary.

In the interviews, the importance of the crew's engagement was brought up several times, especially the engagement among the higher-ranking officers. If the captain who sets aside time for the drills or the officers who conduct the drills are not engaged, the quality will suffer for the entire crew. Respondent 2, who was most positive about the quality of the drills on board their vessel, had a captain who thought it was important to have drills and emphasized that there should be time for them and that they should be carried out seriously. Glifberg and Karlsten (2010) do also mention the importance of the drill leaders' good attitude towards safety drills and that this attitude makes it easier for the crew to follow the drills.

The quantity of drills can be seen in two different ways, how often they are held and how long they are each time. From the interviews, everyone is relatively agreed that the drills are held often enough, if the drills are held more often, they will be rushed through and the quality of them will probably decrease and it can also be difficult to fit them in with the crew's rest periods, but if they are held less often, not all the aspects will have time to be covered. More importantly, it is important not to rush through the drills when they are held. From the questionnaire, a majority, 52%, answered three on a scale of one to five, and in the comments, many say that it is okay, but there are several who wrote that they should be held both more and less often. The intervals between drills also vary between different types of vessels and how often the crew is replaced, and those who respond seem to agree that the intervals between drills should not be longer than the duration of the crew's stay on board. Also, how often the vessel is in port and at sea comes into play, the more often the vessel is in new ports, the harder it becomes to find time for the drills.

5.2 What can be done to improve safety drills?

One of the proposals suggested is to have an external person with more experience on board to lead the drills. This question was not included in the Questionnaire, but everyone who was

interviewed believed that this would be beneficial for training purposes. Respondent 5 also stated that this is something that is already done within the SSRS. However, it was mentioned that on certain types of vessels, this may be difficult to manage due to factors such as the frequency of the vessel's berthing. During the interview with respondent 1, it was also noted that the shipping companies may not be willing to pay for it if it is too expensive, but this report has limited itself from the costs. When this question was discussed with respondent 4 from the maritime training centre, they expressed that they would like to be on board ships as instructors. Andersson and Wramler (2012) interviewed personnel from different shore-based rescue centres which all were positive to have external drill leaders in their daily work to raise the standards in their drills and work.

The proposal of having pre-made drill suggestions was predominantly positive among those who responded to the questionnaire, as can be seen in Figure 10. During the interviews, they agreed that it could work or was a good idea. Both in the questionnaire and during the interviews, it was mentioned that this would help increase the variation of drills, and when there is a time constraint for coming up with drills, one can take them from the list and still have a good drill. However, the drills in the suggestion list needs to be quite general to be implementable on different ships or divided into different ship types or crew sizes. Another way to increase the variation in the safety drills carried out onboard, which was brought up during the focus group interview is to allow other crew members to join the planning stage for drills and contribute to the creative aspect.

Making the documentation stricter to increase the quality of the drills is not considered a good idea by 73% of the questionnaire respondents. None of the interviewed individuals believe that this would help, instead, they think that it would lead to more cheating with the documentation. However, respondent 3 believes that these stricter rules will happen anyway in the future.

5.3 Method discussion

In this report, several different methods were used to obtain relevant and valuable answers. The methods used included both qualitative interviews and quantitative questionnaires. The questionnaire was designed to be simple and short to maximize the number of responses. It was also provided in both Swedish and English to attract a larger pool of respondents. The questionnaire was restricted to individuals who have worked, had an internship, or are currently working on a ship. This was done to increase the number of responses. If the questionnaire had only targeted currently employed seafarers, there would have been only 122 respondents instead of 212. Respondents who wanted to provide comments were given the opportunity to do so, allowing them to explain any areas of confusion. The questionnaire was sent out to respondents as early as possible to provide ample time for them to respond. If the questionnaire had been sent out later, the questions could have been more specific to this report. However, the decision was made to include a wide range of questions that covered extensive information about the subject, with the intention of selecting the relevant questions and excluding the rest.

In the questionnaire, there was no way for respondents to specify the type of ship they are or have been working on, which prevents an examination of differences in experience based on ship types. The reason for excluding this question was that most seafarers have experience on multiple ship types, and it would be challenging to answer for only their current ship without considering their entire seafaring career. A similar problem exists with the question regarding the department the seafarer belongs to. Many individuals may have started in one department and then changed, but there are not as many choices for departments as there are different ship types. Therefore, this question was included in the questionnaire. SOLAS has not specified

drills based on ship types, except for some details such as cruise ships needing to conduct drills more frequently and inform their passengers.

To enhance the reliability of the report, semi-structured interviews and one focus group interview were conducted. Semi-structured interviews were chosen due to their flexibility, allowing the conversation to flow in the most interesting direction. However, there were still predetermined questions that all interviewees answered. These questions were closely aligned with the questionnaire, resulting in three different sources of answers. In total, there were five semi-structured interviews and one focus group interview. The choice of this number was initially aimed at facilitating productive discussions within the group and assessing the outcomes. The semi-structured interviews included two individuals from different land-based parties in the rescue organization and three active seafarers with different positions onboard. These choices were made to represent a diverse range of knowledge and experience related to safety drills onboard.

A problem with questionnaires arises when the creator is unable to verbally explain the questions to the respondents. Each person has their own unique experience in similar situations, influenced by their individual prior knowledge. This discrepancy leads to another issue where the questionnaire employs a grading system, allowing people to assign different grades even if they have the same sentiment towards the question. As an improvement, it would be beneficial to include a reference point to provide a more general meaning to the grades. To ensure there were no misunderstandings during the interviews, the interviewer made sure that the interviewees shared the same understanding of expressions such as safety drills.

The authors had the opportunity to conduct an onboard observation during a safety drill. Initially considered as a complementary method, it was ultimately excluded from the study. The reason for this decision is that observing a single safety drill on one ship would not be representative of safety drills on all ships. If observation were to be used as a method, multiple observations across different ships would be necessary. Additionally, time constraints prevented the inclusion of observations in this report as it would have required more time to conduct an adequate number of observations. However, this method would have been valuable for comparing how safety drills are conducted on different ships and exploring the variations in drills. It could also provide insights into how seafarers experience safety drills if opportunities for interviews or follow-up questionnaires were available.

The purpose of this report was to gather seafarers' opinions on the safety drills conducted onboard. The most straightforward approach to achieving this goal was to directly ask them. In the questionnaire, the respondents' identities were kept anonymous to encourage honesty in their responses. The interviewees for the report were also anonymous, although their identities were known to the authors. While this might impact their willingness to be completely honest, the similarity of answers both among the interviewees and in comparison, to the questionnaire suggests a high likelihood of honesty. The interviewees were individuals the authors connected with through school, and there was communication before and after the interviews, establishing a good rapport. All interviewees had at least one year of onboard experience and represented different shipping companies. This diversity strengthens the validity of the report.

6. CONCLUSION

In the conclusion, the research questions are presented and answered, with the responses being taken from the discussion chapter. This chapter is as the discussion chapter divided after the research questions in the report. There is also a part where suggested further research is presented and discussed.

6.1 How is the quality and quantity of the safety drills onboard ships, according to seafarers?

The quality of safety drills onboard varies between ships, ship types and the shipping companies. An important factor usually brought up in the interviews were that the drill leaders and higher-ranking officers' commitment to the safety drills have an impact to the rest of the crews' experiences of the safety drills. Other reasons for lacking quality in the safety drills onboard is lack of time and lack of commitment. The quantity of safety drills was mostly experienced as good, the quantity also varies between ships and ship types but there are factors, such as how long the crew is onboard that makes the variations between ships and ship types noticeable.

6.2 What can be done to improve safety drills?

Out of the three proposals presented, having an external person on board to conduct the drills was perceived as the most helpful. However, this would have to fit in with the schedule of the ship, including how often the ship is berthing. The shipping companies would also need to be willing to pay for this but maybe the better result in safety will be worth the expense. The proposal of having pre-made drills in a list was also seen as a good idea, but more work needs to be done to find the right place for the list, whether it should be somewhere everyone has access to, or if it should be specific to each shipping company to better suit each vessel. The proposal to make the documentation stricter was not seen as a good idea as it is likely to lead to more cheating instead of improving the drills.

6.3 Recommendations for further research

This report only includes a small portion of seafarers worldwide, mostly consisting of crews from ships with the Swedish flag state. Therefore, an investigation into how seafarers around the world feel about safety drills would be interesting. It would be particularly intriguing to compare the findings with another Scandinavian country. Additionally, comparing safety drills with other professions facing similar safety situations, such as nuclear plants or other electrical power facilities, could provide an opportunity for exchanging experiences.

Different ship types have safety drills with varying focuses. However, in this report, no consideration was given to these differences. It would be interesting to examine the variations between ship types, but the questionnaire for respondents who have been on multiple types should clearly indicate how to answer the questions. Conducting onboard observations to assess the differences in safety drill practices among different ship types could also yield valuable insights. However, this method would require a significant amount of time to ensure sufficient observations for reliable results.

During the interviews conducted for this report, some seafarers mentioned that the crew member in charge of leading safety drills may benefit from additional courses or education in pedagogy and leadership. One idea proposed was to divide the basic safety course, which

seafarers already undergo every fifth year, into two groups: officers and other crew members. The officers' group could receive additional focus on pedagogy and potentially engage as drill leaders for the other group. Testing and studying the impact of this approach on enhancing the standard of safety drills onboard would be worthwhile.

Throughout this report, efforts have been made to explore the reasons why an open, pre-made list of safety drills would assist the responsible personnel in conducting more effective safety drills onboard. The result is positive but further research is needed to determine the practical implementation of such a list and its potential format.

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APPENDIX 1

The questionnaire

An investigation about safety drills quality, quantity and possibilities to improve.

We are two students in the marine engineering program at Chalmers tekniska högskola writing our bachelor thesis. We are writing about safety drills at sea and now we need seafarers experience as help. Please answer all questions as likely as possible. You will be anonymous. We will also have interviews with seafarers so if you want participate in one, contact us by caroline.janrik@gmail.com or ruben.ljunggren@telia.com

Vi är två studenter på sjöingenjörsprogrammet på Chalmers tekniska högskola som skriver vårt examensarbete. Vi skriver om säkerhetsövning till sjöss och behöver nu sjömäns erfarenheter till hjälp. Snälla svara så sanningsenligt som möjligt. Du kommer vara anonym. Vi kommer även ha intervjuer med sjömän och om du skulle vilja vara med på en sådan kan du höra av dig till oss genom mail till caroline.janrik@gmail.com eller ruben.ljunggren@telia.com.

Is it okey if we use your answers in the report? (anonymous)

Är det okej om vi använder dina svar i rapporten? (Anonymt)

*

- Yes. Ja.
- No. Nej.

What is your experience with maritime jobs like?

Hur ser dina erfarenheter ut från jobb på sjön?

*

- Working at sea right now. Jobbar just nu på sjön.
- Have been working at sea. Har jobbat på sjön.
- Currently studying a maritime program (Have done interships at sea). Studerar inom sjöfart (har gjort praktik på fartyg).

How long time have you been working/done interships at sea?

Hur länge har du jobbat/gjort praktik på sjön?

*

- Less than a year. Mindre än ett år.
- 1-3 years/år
- 4-7 years/år
- More than 8 years. Mer än 8 år.

What deparment do you work/have you been working in?

Vilken avdelning har jobbat/jobbar du i?

*

- Machine department. Maskinavdelningen.
- Deck department. Däcksavdelningen.
- Other. Övrigt.

What position do you have/had?

Vilken befattning har/hade du?

*

- Captain, chief engineer. Kapten, maskinchef.
- Other officers. Övriga befäl.
- Other crew. Manskap.

What are your general feeling for safety drills onboard?

Vad är din generella åsikt om att ha säkerhetsövningar?

*

unnecessary. Onödigt.

1

2

3

4

5

Very important. Mycket viktigt.

Comment (optional). Kommentar (frivillig).

Ditt svar

How authentic do you think these safety drills have been?

Hur verklighetstroga tycker du dessa har varit?

*

Not at all. Inte alls.

1

2

3

4

5

Very authentic. Mycket verklighetstroga.

Comment (optional). Kommentar (frivillig)

Ditt svar

How rewarding do you think these safety drills have been?

Hur givande tycker du dessa övningar har varit?

*

Not at all. Inte alls.

1

2
3
4
5

Very rewarding. Mycket givande.

Comment (optional). Kommentar (frivillig).

Ditt svar

How do you think the quantity of safety drills?

Hur tycker du kvantiteten av säkerhetsövningar är?

*

Too few. För få.

1
2
3
4
5

Too many. För många.

Comment (optional). Kommentar (frivillig).

Ditt svar

Have you ever in a safety drill tried out someone else's tasks?

Har du någon gång i en säkerhetsövning provat att göra någon annans uppgifter?

*

- Yes. Ja.

- No. Nej.

Have you ever done safety drills in smaller groups?

Har du någon gång gjort säkerhetsövningar i mindre grupper?

*

- Yes. Ja.

- No. Nej.

In the Swedish Transport Agency's rules on life-saving exercises, it says: "Exercises must, as far as possible, be carried out as if it were a real emergency". Do you think this to be followed?

I transportstyrelsens regler om livräddningsövningar står det: "Övningar ska i möjligaste mån genomföras som vore det en verklig nödsituation". Anses du att detta följs?

*

Not at all. Inte alls.

- 1
- 2
- 3
- 4
- 5

Completely. Helt och hållet.

Do you think that a list of ready-made exercise examples would have resulted in more variety in the exercises?

Tror du att en lista med färdiga övningsexempel hade gjort att det blivit mer variation i övningarna?

*

No I don't think that would help. Nej det hade inte hjälpt.

- 1
- 2
- 3
- 4
- 5

Yes I think that would help. Ja det hade hjälpt.

Comment (optional). Kommentar (frivillig).

Ditt svar

Do you think a list with suggestions of drills would make the drills more rewarding/authentic.

Tror du att en lista med färdiga övningsexempel hade gjort övningarna mer givande/verklighetstroga?

*

No I don't think that would help. Nej det hade inte hjälpt.

- 1
- 2
- 3
- 4
- 5

Yes I think that would help. Ja det hade hjälpt.

Comment (optional) If you would like to give an example for a good drill, you can do it here.

Kommentar (frivillig). Vill du lämna ett förslag på en bra säkerhetsövning går det bra här!

Ditt svar

Have you experienced that safety drills are shortened or rushed through?

Har du upplevt att säkerhetsövningar blir förkortade?

*

- Yes. Ja.
- No. Nej.

Comment (optional). Kommentar (frivillig).

Ditt svar

If you have experinced that, what do you think is the cause?

Om du upplevt det, vad tror du är anledningen?

*

- Lack of time. Tidsbrist.
- Lack of commitment. Brist på engagemang.
- Not considered important enough. Anses inte viktigt nog.
- Övrigt:

Do you think less regulations regarding safety drills would make it easier to adopt them to each ship?

Tror du att färre regler om säkerhetsövningar hade gjort det enklare att anpassa för varje fartyg?

*

- Yes. Ja.
- No. Nej.

Comment (optional). Kommentar (frivillig).

Ditt svar

Do you think more rules about the documentation would make the safety drills more authentic and rewarding?

Tror du hårdare regler för dokumentation hade gjort att övningarna hade blivit mer verklighetstrogna och givande?

*

- Yes. Ja.
- No. Nej.

Comment (optional). Kommentar (frivillig).

Ditt svar

If you have anything else you want us to know or think about, you can write it here!

Om det är något annat som du tycker vi borde veta eller tänka på så kan du skriva det här!

Questions used in the interviews:

- Your background regarding maritime works with safety drills?
- How often do you conduct drills on board?
- Do you think the quantity of drills is sufficient? How would you prefer it otherwise?
- Have you experienced drills shortened? For what reason?
- What is your general opinion about safety drills on board?
- Who is responsible on board for conducting the drills?
- How is your documentation structured, and who is responsible for it once you've completed a drill?
- Have you had situations where the crew creates drills as well? How were they, if any?
- How do you believe a good drill should be conducted?
- Do you usually have feedback/reflective meetings afterwards? How does that typically happen, and do you find it beneficial?
- Do you think having a list of drill suggestions would improve onboard drills? (In terms of time and variation)
- Do you think such a list would be used?
- Do you think drills are helpful when it really matters?
- Do you perceive there to be an engagement on board for safety drills? How does it manifest?
- Do you have any drill you have participated in that you think has been very effective and would like to share?
- What do you think about extra courses for the safety officer?



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