

# NFLA Policy Briefing No.203



Date: 20<sup>th</sup> July 2020

Subject: Investigation of 'near miss' incident between the passenger ferry 'Stena Superfast VIII' and a submerged Royal Navy nuclear powered submarine in the Irish Sea

## i. Overview of report

This Policy Briefing outlines the outcomes of an incident report published in mid-July of a 'near miss' incident between the Belfast – Cairnryan passenger ferry and a Royal Navy nuclear-powered submarine on the 6<sup>th</sup> November 2018. The Marine Accident Investigation Branch (MAIB) have now published their analysis of the incident, which has received substantial media coverage. NFLA has taken a keen interest in this incident, and a number of other 'near misses' and collisions between such submarines and boats, particularly fishing trawlers, over a number of years. This incident is the most serious to date, but it is by no means the first time such submarines have come close to hitting a vessel.

This report has been put together for the NFLA by the independent marine radioactivity consultant Tim Deere-Jones. It follows on from previous presentations made by Tim to the NFLA All Ireland Forum, and representations made by the NFLA to the MAIB and other relevant organisations. The NFLA Secretariat sincerely thanks Tim Deere-Jones for providing the background to this report and some suggested action points which the NFLA Secretariat is following up on.

## 1. Introduction

On November 6<sup>th</sup> 2018 a UK nuclear-powered submarine, based at the Royal Naval Base at Faslane, was at sea and submerged at periscope depth in the North Channel of the Irish Sea. The submarine was undergoing dedicated training in preparation for its next operational deployment, following a period of maintenance and a significant change of crew members. During the course of this mission the submarine came into close proximity with the passenger ferry 'Stena Superfast VII' and a collision was narrowly avoided. It was only due to the quick thinking of the ferry's crew that the proximity of the submarine was noticed and collision avoidance action was taken. Further details of the submarine and whether or not it was a Trident nuclear missile carrier have not been made public by the MAIB.

In the waters around the west coast of Scotland and Northern Ireland, there are permanently established exercise areas for submarine training, details of which are promulgated in the Admiralty List of Radio Signals and on electronic and paper navigational charts. The 2018 incident took place close to the coast of south west Scotland in a sea area known as "Beaufort", an area of the North Channel permanently allocated and designated as a "submarine training area". The training area is clearly marked as such on relevant charts

The area of the North Channel is a busy crowded sea area and includes a number of "choke points" where commercial marine traffic is regionally heavy and constricted due to the narrow nature of the channel. Marine traffic in the area includes many fishing vessels with nets deployed and/or on route for Atlantic grounds, numerous tankers and other cargo vessels moving into and out of the Irish Sea, and several different cross channel ferry routes with vessels transiting each route up to several times per day.

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NORTH CHANNEL IRISH SEA FERRY ROUTES at the time of the accident are shown below:

Route	Operating company	Number of vessels	Crossings per day
Belfast – Cairnryan	Stena Line	2	12
Belfast – Liverpool	Stena Line	2	4
Belfast – Heysham	Stena Line	2	4
Larne - Cairnryan	P & O	2	14

Under normal operating circumstances, all routes starting or terminating at Belfast, Larne or Cairnryan must inevitably carry out transit of the allocated/designated submarine training area. It can be seen that, at peak periods, there may be as many as 30 cross channel ferry transits of the North Channel region of the Irish Sea per day.

In the aftermath of the incident the Defence Safety Authority's (DSA) Defence Accident Investigation Branch (DAIB) conducted an initial triage assessment of the incident and determined that, in the context of the information made available to them, **a full DSA investigation was not required.**

However, the Chief Inspector of the MAIB concluded that, given the potential seriousness of the consequences of a laden ferry colliding with a nuclear powered submarine, the matter **should be the subject of a formal MAIB safety investigation** conducted with the co-operation of the Royal Navy.

## 2. Summary of the MAIB Analysis of the incident

The submarine's command team initially detected and tracked the ferry using visual, sonar and automatic information system data. At this stage they estimated that the ferry was at a range of 9,000 - 10,000 yards and on a heading likely to bring into collision with the submarine.

The submarine's Officer-On-Watch (OOW) called the Commanding Officer to the control room, reported that sonar operators had detected a potentially dangerous situation, announced a "close quarters procedure" and stated an intention to "go deep" should the ferry approach within 2,500 yards.

Based on the picture displayed by the submarine's computerised tactical picture system, **the commanding officer intervened to cancel the "close quarters procedure" and ordered that the submarine remain at periscope depth rather than "go deep" to its safe depth.**

**The MAIB noted that radar was not in use during this incident and there was only specific reception of Superfast VII's AIS transmission.**

As the ferry's range reduced, the submarine's officer of the watch altered course to avoid it, at which stage it was estimated that the ferry was 6,000 yards away from the submarine.

**However, the direction of this turn was mistakenly towards the ferry and reduced the time available for the submarine to keep out of the ferry's way.** At this stage in the event the ferry was travelling at 21 knots and covering 6,000 yards in 8 mins 34 seconds. The RN refused to disclose the actual speed of the submarine at the time. The MAIB have thus assumed that the submarine was travelling at 6 knots.

**The submarine's OOW had also miscalculated the ferry's speed as 15 knots and would have calculated it would take the ferry 12 minutes to travel the 6,000 yards. This led to action based on the assumption that there was more time to avoiding action than was the actually the case.**

Having made the erroneous decision to turn towards the ferry, the 2 vessels began converging at a combined speed of 27 knots and were on a collision course with the submarine and the ferry likely to converge in 6 minutes 40 seconds.

At about this time, Stena Superfast VII's lookout spotted a submarine periscope close on the port bow, and alerted the officer of the watch, who took immediate action (a rapid change of course away from the periscope) to avoid collision. After taking such an avoiding action, the ferry's crew (based on their photographic and visual evidence) reported that the closest point of approach with the submarine was about 250 yards, which was clearly unsafe and constituted a "near miss" scenario.

However, the submarine's commanding officer believed the passing distance to be about 1000 yards, or four times the actual range.

The MAIB analysis agreed with the ferry crew's report and concluded that the close proximity/near miss incident had occurred because the submarine's control room team overestimated the ferry's range and underestimated its speed. ***This combination meant that the submarine's commanding officer and its officer of the watch made safety-critical decisions that might have appeared rational to them at the time but were actually based on inaccurate information.***

The MAIB concluded that during safety training in the North Channel the command team of the submerged submarine failed to take sufficient action to prevent the ferry 'Stena Superfast VII' passing inside its "go deep range."

The MAIB report concluded that this was ***an unsafe event*** and placed the ferry's crew, passengers and cargo and also the submarine's, crew and contents in ***"immediate danger"***. Only rapid and effective action by Stena Superfast VII's bridge team reduced the risk of collision.

The MAIB report has noted that ***two previous collisions*** between Royal Navy submarines and surface vessels show a similarity in that key decisions on board the submarines were made based on an insufficient appreciation of the location of surface ships in the vicinity.

The Royal Navy has taken a series of actions in response to this incident, and previous similar accidents. As a result, the MAIB report makes a safety recommendation to the Royal Navy to undertake an independent review of its actions taken "to ensure that such actions have been effective in reducing the risk of collision between dived submarines and surface vessels."

**View of the submarine's periscope and wake from the Stena Ferry's bridge (source: taken from the MAIB inquiry report):**



### 3. **Conclusions**

This incident emphasises to NFLA that there remains a real and present danger of a collision between a Royal Navy nuclear-powered submarine and either a passenger ferry or a fishing trawler / oil tanker. The recommendations of the MAIB report need to be implemented by the Ministry of Defence and the Royal Navy as a matter of urgency.

NFLA also make the following specific recommendations in the context of this incident and a number of other previous events to the MOD / Royal Navy:

- In “choke points” and areas of heavy surface commercial vessel activity, nuclear submarines should either travel at “safe depth” or on the surface.
- No more training exercises should be held in “choke point” areas (North Channel, St George’s Channel, the Dover Straits and the Straits of Gibraltar etc).
- No more training exercises should be held in areas of heavy surface commercial vessel activity.
- There should be a major reassessment or redesign of computerised tactical picture systems by the Royal Navy.
- There needs to be improved and more intensive shore based simulator training for such events of Royal Navy submarine personnel.
- Mandate use of radar when transiting choke points at periscope depth.

The NFLA will be writing to the Ministry of Defence / Royal Navy, the MAIB and the International Maritime Organisation on these matters now that the report has been published, seeking to follow up on these recommendations.