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This document is a translation made by SHK of the original response in Swedish to the safety recommendation. In case of discrepancies between this translation and the Swedish original text, the Swedish text shall prevail in the interpretation of the response.

Swedish Armed Forces' response regarding recommendations from the investigation of the accident involving Combat Boat 826

1. Background

This response contains the Swedish Armed Forces' reply to the recommendations issued by the SHK in connection with the investigation into the grounding of Combat Boat 826 off the coast of Gothenburg on 25 February 2025.

The responses have been compiled by the Naval Staff and also include replies to the recommendations directed by the SHK towards the Älvsborg Amphibious Regiment (Amf 4).

2. Recommendations

2.1 Conduct a review of the requirements and conditions for the use of seat belts in Combat Boat 90 H. (SHK 2026:02 R1)

The seat belt in the Combat Boat 90 is essentially intended to prevent the driver and navigator from falling out of their seats in rough seas. As the belt is a simple two-point type without an automatic belt tensioner, there are other injury risks associated with its use. The current directive is that *Existing seat belts should be used when necessary, at speeds above 8 knots*¹.

The purpose of the *when necessary* clause is to allow the commanding officer to decide on the use of the belt in each individual situation, should the circumstances or sea state require it to prevent falling out of the seat. The intention is therefore not to absorb the forces from a high-speed collision with an island, as occurred in the case of Combat Boat 826.

In summary, the Swedish Armed Forces consider there to be a greater risk associated with the constant use of the seat belt in its current design in collisions similar to that involving Combat Boat 826. However, a clarification of the current regulations will be made, and clearer guidance will be provided to combat boat commanders as to when it is appropriate to use the seat belt.

¹ Amf 1 Bestämmelser sjösäkerhet stridsbåt 90H, all parts except HSM version 2025.1, Appendix 1, 7.4.3 Stolar. (FM2024-28671:16)

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2.2 Conduct a review of the use of helmets by personnel serving as crew members on Combat Boat 90 H, (SHK 2026:02 R2).

In 2011, the Swedish Armed Forces conducted crash tests in collaboration with the Swedish National Road and Transport Research Institute (VTI) to investigate the risks associated with wearing a combat vest, body armour, and combat helmet in combination with a seat belt.² Although these tests were carried out with road vehicles as a starting point, the forces to which a person is subjected in a serious collision should be considered comparable. The results concerning the wearing of the helmets then available to the Swedish Armed Forces (Helmet 90, 1.8 kg) in a collision at 46 km/h indicated small or even negligible chances of survival.

Since then, the Swedish Armed Forces have acquired a new combat helmet with a lower weight (small – 1050g, XXL – 1310g), which could potentially increase the chances of survival. In the case of Combat Boat 826, where a speed of nearly 70 km/h was involved, the chances of surviving the forces exerted on the body when wearing a helmet weighing over a kilo should still be considered relatively small.

However, this only concerns the crash situation; the constant jolts experienced by combat boat crews have previously been shown to cause wear and tear in the neck when wearing a helmet. Deviations reported in the early 2000s indicated that neck problems among combat boat crews were common, which is why helmets ceased to be worn by these crews.

In summary, the Swedish Armed Forces will not regulate the use of helmets in any way other than is currently the case, as this is considered to entail a greater risk of injury in the broader perspective.

2.3 Develop routines to ensure that relevant medical equipment is available onboard when using Combat Boat 90 H (SHK 2026:R3).

The current level of medical equipment for combat boats includes a first aid kit and a patient blanket. This is the minimum level of equipment that is mandated and corresponds with the level of training provided to the crew. The Navy will continue to review and update the equipment level as part of a comprehensive review of the overall system for medical equipment on naval vessels. However, an addition will be made to make less advanced medical bags available, rather than raising the equipment level by a full step. Such an upgrade would require medical equipment intended for personnel with combat medic training, which is significantly greater both in terms of quantity and training requirements.

2.4 Review the emergency communication equipment on the combat boats, (SHK 2026:02 R4).

The communications equipment on board the combat boats include, among other things, a fixed VHF with DSC and a handheld VHF. The Navy's own central investigation indicated that the force of the collision had torn the wiring from the fixed VHF, which was the reason it could not be used to issue a distress call. One of the measures taken following the Navy's central investigation has been to review delivery inspections from

² Personlig strids- och skyddsutrustning i kombination med fordons passiva säkerhetssystem, 2012-01-24, 14 995:80044.

the shipyards to ensure that regulations are adhered to, particularly with regard to compliance with installation requirements.

2.5 Conduct a renewed analysis of the functionality for retrieving data from the combat boat systems and subsequently take relevant measures, (SHK2026:02 R5).

Following the Navy's central investigation of the incident, measures have been taken to ensure that the default setting on the navigation system is for track data to be enabled.

2.6 Ensure that all conscripts have sufficient knowledge of the navigation systems used in the training, (SHK2026:02 R6).

The Älvsborg Amphibious Regiment (Amf 4) has contributed to the development of relevant training packages together with the Stockholm Amphibious Regiment (Amf 1), which holds responsibility for their creation. The training package has incorporated lessons learned from previous years' training. At Amf 4, the focus has been on using only one navigation system during the training of the current conscript intake. The purpose of this is to minimise the risk that inexperienced personnel confuse functions and system limitations between the different systems present in today's fleet of combat boats.

2.7 Conduct a renewed review of how the available time is utilized for practical navigation training. (SHK 2026:02 R7).

Balancing operations and resources, is achieved through meticulous preparatory work within the regiment's planning cycle, where the regimental staff, the commander of the training battalion, and the commander of the 5th Amphibious Battalion share a common situational overview regarding the allocation of resources and time for combat boat training.

The commander of the training battalion and the commander of the 5th Amphibious Battalion should, over time, maintain close dialogue so that any discrepancies between their activities (the training of conscripts versus the ordered and emergent activities of the amphibious battalion) are identified and addressed at an early stage through cooperation, or, alternatively, escalated to the commander of the Älvsborg Amphibious Regiment for prioritisation and coordination by command.

A deviation in the combat boat training is to be decided by the commander of the training battalion as a minimum, following risk management and consultation with the sea safety officer. Risk management must also be carried out by the course leader.

2.8 Take measures to strengthen safety efforts in the training activities. This should also include reviewing the procedures for risk management in all operations involving Combat Boat 90 H (SHK 2026:02 R8).

It is important that an understanding of boat operations exists within the organisation and that the crews, when necessary, provide descriptions of consequences or report limitations and opportunities, which is clearly linked to the issue of safety culture.

Within the ongoing combat boat training, a revised and clearer risk analysis has been developed, addressing the risks present in the training. The requirement from the course management that *sea safety analyses* must be carried out at least daily at all levels (course leader, navigation group leader, and commanding officer) has been clarified. Continuous follow-up and documentation of work regarding identified risks are conducted.

The procedures for risk management of operations involving the Combat Boat 90 have not fundamentally changed. All activities must be risk managed in accordance with the applicable operational safety regulations, supplemented by the rules for military maritime operations.

This response has been decided by Rear Admiral Johan Norlén. In the final processing, Senior Naval Medical Officer Commander Pär Åstrand participated, with Commander Jonas Thern acting as rapporteur.

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