

## SUMMARY IN ENGLISH

The Swedish Accident Investigation Authority (SHK) received information about a number of occurrences where the Swedish SAR-helicopters (search and rescue), operated by the Swedish Maritime Administration (SMA), had not been available as expected. Due to this SHK made a synoptic pre-study which revealed that under a period of approximately seven months there were twelve such occurrences. The pre-study resulted in SHK initiating a theme study regarding rescue services by Swedish SAR-helicopters. The investigation is based upon five occurrences that have been more thoroughly examined. The occurrences are:

- **Missing yachtsman the 25 October 2017:** A missing yachtsman, whose boat had foundered, was not located until he had spent two days on a small islet. During the initial search, helicopter could not be used.
- **STENA NORDICA – fire in engine the 29 October 2017:** The vessel was en route from Lithuania to Germany and reported that there was a need to evacuate two crew members that had inhaled smoke. The rescue helicopter in Ronneby was alerted, but it could not take off. Instead, the crew members were evacuated by a ship from the Swedish Armed Forces.
- **FISHING BOAT – crew member intoxicated by carbon monoxide the 2 November 2017:** The boat was underway from Fårö to Nynäshamn. The person on board reported that he was dizzy with a risk of falling unconscious. The nearest helicopter base was Visby, but it was un-manned. The Norrtälje base was then alerted, but the helicopter there could not take off. The helicopter in Ronneby was then activated and arrived at the site about two hours later, at the same time as a pilot boat. Meanwhile, an aircraft from the Coast Guard noted a person on deck, seemingly unconscious.
- **AMORELLA – man-over-board the 2 January 2018:** A man-over-board situation was observed and a search-and-rescue operation with near-by vessels was initiated. The SAR-helicopter in Norrtälje could however not take off, and consequently the JRCC contacted the Finnish Coordination Centre to get helicopter assistance. It was concluded that the calling-up time would be long, two hours, and that there would be no chances for survival under the circumstances. The SAR-operation had to be performed without helicopter.
- **Four helicopter bases out of operation at the same time the 16 January 2018:** Out of the five helicopter bases, Visby was unmanned, according to plan. At the same time, another three bases went out of operation, namely Umeå, Norrtälje and Ronneby. As a result, only Säve was in operation during parts of the day.

## Conclusions

The investigation shows that the Swedish Maritime Administration fulfils the general requirements regarding search and rescue, which mainly is performed by other resources than helicopters. However, there are obvious difficulties to maintain readiness at the five helicopter bases that SMA controls. The investigation shows that in adherence to the five examined occurrences, the helicopter units has had limitations which resulted in them not being in operation on 13 individual occasions. This has influenced the performance of SAR-operations to a variable extent as well as the readiness for search and rescue in general, which, in turn, has influenced the ability for the armed forces to execute their flight operations.

The investigation concludes that the factors that mainly have influenced the availability are the fact that the organization is undersized in relation to the ambitions set out in the SMA program for search and rescue, and the conflict between employer and employees, which was on-going during the time in question. The investigation also shows that there is potential for improvements regarding the Swedish Transport Agency's (STA) possibilities to carry out inspection of the maritime search and rescue services, SMA's planning of the helicopter services based upon operational risk management, and the legislation for public access and confidentiality. Of these, the two latter has also influenced the availability.

**The size of the helicopter services** is too small in relation to the ambition to maintain SAR-helicopter readiness on five bases in the country at all times. With the current number of helicopters (seven) and the required maintenance, it is not even in theory possible to keep up readiness at five bases at all times. If the need of training is taken into consideration, the circumstances are even worse and one can conclude that also the number of crews is too small.

**There has been a severe conflict between employer and employees.** The conflict has influenced the safety climate negatively and possibly damaged the safety culture. The conflict has directly influenced the **operational risk management procedure** that is performed before each flight operation, and has on a number of occasions hindered helicopters to take off as the results have showed a negative influence on crew members' status. The negative result has been reinforced by the fact that the **planning of the operations** is such that there are regularly circumstances that causes unnecessary high values in the risk assessment, which increases the risk that flight operations cannot be carried out. Another circumstance that has influenced the conflict is the deficiencies in the legislation regarding **public access and confidentiality**. Due to these deficiencies, the air personnel have a weaker protection of integrity than in other aviation business.

### **Safety recommendations**

There are currently actions taken by SMA in order to improve the safety climate within the helicopter services, and in order to improve the reporting of occasions where the readiness is decreased to the inspectorate. Furthermore, an analysis of the safety culture has been initiated and is performed by STA. Hence, SHK issues no safety recommendations regarding these matters.

### **The Swedish Government is recommended to:**

- Authorize STA to issue regulations regarding maritime rescue services.  
(RO 2019:01 R1)
- Review the level of protection regarding CVR and FDR data within state aviation, with the view to ensure that aviation personnel has the same protection of integrity as in civil aviation. (RO 2019:01 R2)
- Analyze the need of helicopters for the rescue services performed by SMA. The analysis should consider, amongst others, the number of helicopters, the chosen maintenance concept's influence on the availability, and the manning level. The intention should be to ensure that the helicopter services are satisfactory dimensioned in regard to the number of units needed for civil as well as military rescue services.  
(RO 2019:01 R3)

**The Swedish Government Offices are recommended to:**

- Take action in order to better analyse future EU instruments within aviation and assess the need for additional rules in laws or ordinances. *(RO 2019:01 R4)*

**The Swedish Maritime Administration is recommended to:**

- Take action to reduce the limitations of the helicopter availability, in regard to e.g. crew members' recurrency and periods off duty and the planning of exercises and duty schedules. *(RO 2019:01 R5)*
- Review the possibility to save the forms, or parts of them, used for operational risk management, performed before each flight operation, in such a way that relevant information may be used as input for better planning, follow-up and analysis of the SAR readiness. At the same time, the integrity of individual air personnel has to be taken into consideration. *(RO 2019:01 R6)*