Safety Information Bulletin

Operations

SIB No.: 2018-15

Issued: 07 September 2018

Subject: Use of Water Surfaces as Helicopter Safe Forced Landing Areas

Ref. Publications:

- Commission Regulation (EU) No 965/2012 on Air Operations dated 05 October 2012 (hereafter referred to as the Air OPS Regulation).
- Commission Implementing Regulation (EU) 923/2012 dated 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010, as amended (hereafter referred to as SERA).
- Federal Aviation Administration pamphlet "Flying in flat light and white out conditions".
- European Helicopter Safety Team (EHEST) video on degraded visual environment.

Applicability:

All helicopter operators of single-engine helicopters and twin-engine helicopters unable to maintain level flight in case of a power loss.

Description:

Operators may under-estimate the risks of flying over water as well as the difficulties associated with an emergency landing on water.

Helicopters use flight paths that follow waterways, especially when flying over congested areas, for several reasons, including the following:

- To comply with pre-defined helicopter routes.
- To comply with SERA.3105 and avoid creating undue hazard to persons or property on the surface.
- To comply with the requirements of ORO.SPO.110 of the Air OPS Regulation regarding high risk commercial specialised operations.
- To comply with CAT.POL.H of the Air OPS Regulation requirements and maintain a safe forced landing capability.

Helicopters may also fly over water because the purpose of the flight requires to do so.

It is acknowledged that the protection of third parties on ground is of paramount importance, and while safe forced landing options either on land or water are needed to achieve this goal, the risks associated with landing on water should not be under-estimated.

When flying over water, or when considering water surfaces as safe forced landing areas, helicopter operators and pilots should be aware that:

- The lack of horizon or surface reference is common during over-water flights.
- Flat light is an optical illusion that causes pilots to lose their depth-of-field and contrast in vision. Flat light conditions occur primarily in snow covered areas but also on glassy water. Flat light can completely obscure features of the surface, creating an inability to distinguish distances and closure rates. As a result of this reflected light, pilots may have the illusion of ascending or descending when actually flying level.
- Flying over calm glassy water is particularly dangerous, but even choppy water, with its constantly varying surface, interferes with normal depth perception and may cause a pilot to misjudge his height above the water.
- Pilots may lose reference of height during the final approach, depending on the water condition, unless visual references other than the water are available and used.
- Autorotation landing on water is especially challenging as the perception of height for the flare might be impaired, which might result in a hard water landing.
- It is much harder to safely land on water than it is on firm ground.
- Despite being equipped with emergency floats, a helicopter may still capsize immediately after a water impact, or soon after a safe landing on water.
- A helicopter not equipped with emergency flotation equipment will sink and/or capsize much faster.
- Underwater egress from a helicopter is challenging even if all occupants have been trained.
- Doors, windows or other openings in the passenger compartment are not always suitable for the purpose of underwater escape, and improperly stored cabin luggage may get in the way of an evacuation.

At this time, the safety concern described in this SIB does not warrant the issuance of an operational directive under Commission Regulation (EU) No 965/2012, Annex II, ARO.GEN.135(c).

Recommendation(s):

EASA recommends operators to include the use of water surfaces as suitable forced landing areas in their hazard identification and safety risk management process.
Among the possible mitigations the operator may consider to:

- Use flight paths from which safe forced landing areas are available on ground when possible, and to use water surfaces for emergency landing only when no better safe forced landing option is available on ground.
- Provide additional pilot training or briefing regarding overwater flights with reduced visual cues, emergency water landings and, for single-engine helicopters, autorotations.
- Review the operator's procedures and passenger briefings to address the use of doors and openings and the evacuation of the helicopter in case of an emergency landing on water.
- Ensure that the helicopter is properly equipped for over water flights and consider the installation of emergency flotation equipment.

Contact(s):

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