



Skýrsla um slys

Málsnúmer: **2023-038-S-021 Katla RIB bátur**

Dags: **15. júní 2023**

Staður: **Ytri höfnin í Reykjavík**

Lýsing: **Tveir farþegar slasast alvarlega**

Rannsókn samkvæmt lögum nr. 18/2013 skal eingöngu miða að því að leiða í ljós orsakir samgönguslysa og samgönguátvika, en ekki að skipta sök eða ábyrgð, með það að markmiði að draga úr hættu á sams konar slysum og atvikum og afleiðingum sambærilegra slysa. Skýrslum rannsóknarnefndar um rannsókn einstakra slysa og atvika skal ekki beitt sem sönnunargögnum í dómsmálum.

Samantekt:

Þann 15. júní 2023 kl. 16:23 barst Neyðarlínu tilkynning um að þrjár manneskjur væru slasaðar um borð í RIB bát eftir stutta siglingu úr Reykjavíkurhöfn. Veður: S 2 m/s sléttur sjór.

Helstu staðreyndir:

Skipaskr.nr. 7828

Utgerð: Lundey ehf-náttúruferðir

Smíðaður Gdansk Póllandi 2017

Stærð:

Mesta lengd: 10,44 *Skráð lengd* 9,44 m

Breidd 3,56 m *Dýpt:* 1,31

Vél Tvær Suzuki utanborðs- bensín-vélar 300 hp

Fjöldi skipverja: 2

Fjöldi farþega: 9

Gögn:

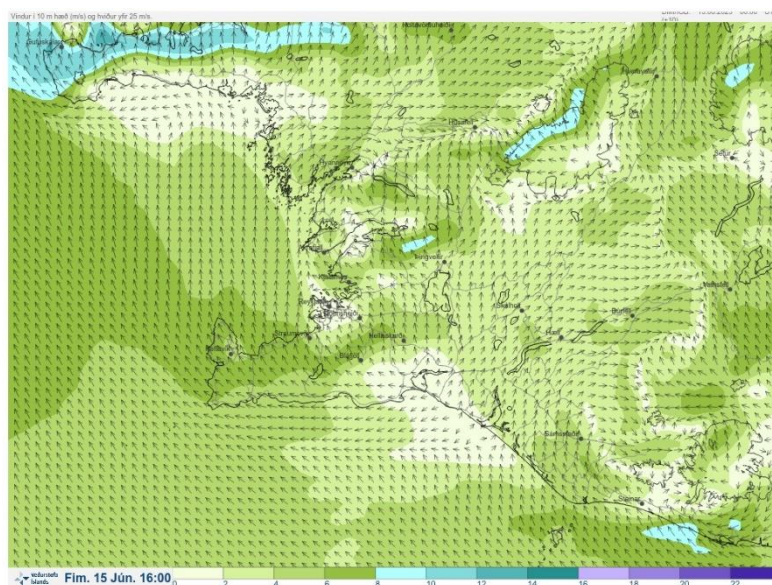
Gögn RNSA

Gögn LHG

Atvikalýsing:

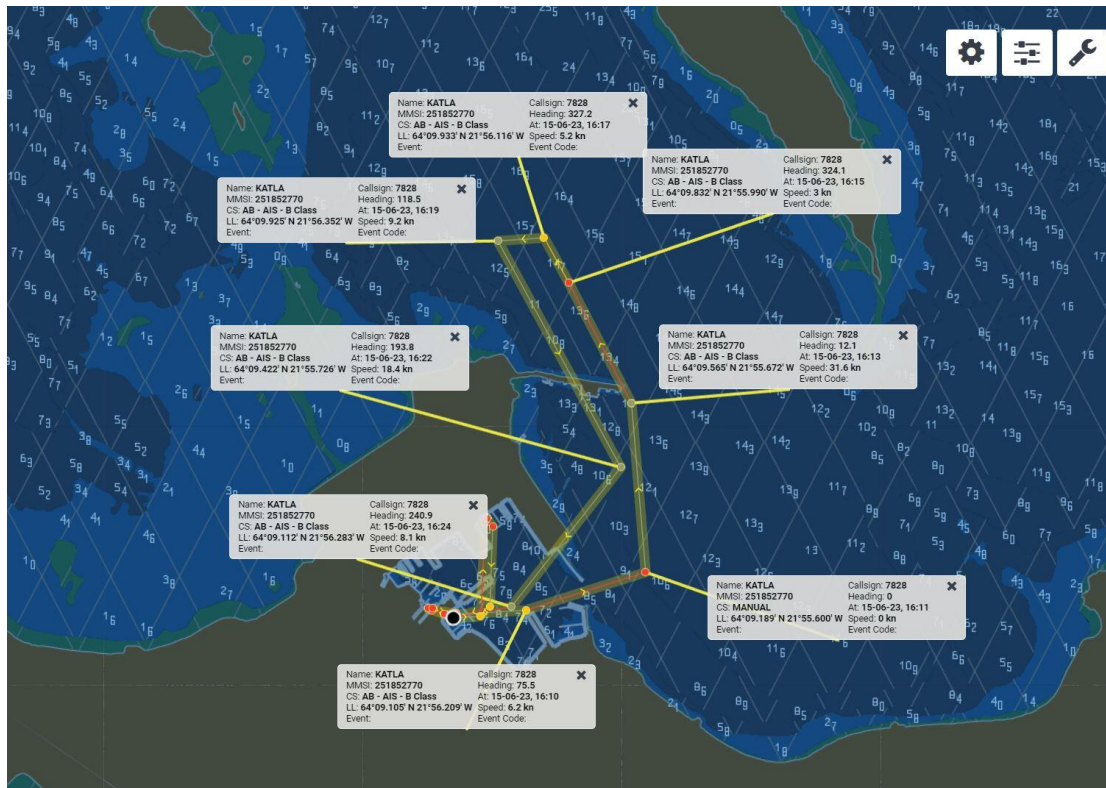
Áður en báturinn lagði af stað úr höfn fór stjórnandi bátsins yfir öryggisatriði þar sem farþegum var kennt að gefa merki með höndunum ef eitthvað bjátaði á.

Spákort sýnir að þennan dag var nánast logn í Reykjavíkurhöfn og sléttur sjór. Mynd 1



Mynd 1

Landhelgisgæsla Íslands mældi bátinn á sex hnúta ferð út úr höfninni en þegar hann hafði beygt í norður og kominn til móts við Eyjagarð var hann á 32 hnúta ferð (mynd 2). Samkvæmt framburði skipstjóra sigldi báturinn yfir kjölfar báts sem var nýbúinn að mæta RIB bátnum. RIB báturinn lyfti sér að framan og tveir farþeganna skullu niður. Gáfu þeir merki um að eitthvað



Mynd 2

væri að og dró skipstjóri strax úr ferð og bátnum snúið til hafnar fjórum mínútum síðar.

Tilkynning sem barst í gegn um neyðarlínu til RNSA hljóðaði upp á að þrír farþegar væru slasaðir en þar sem einn fór strax úr landi var ekki hægt að afla upplýsinga um afdrif hans. Tveir hinna slösuðu reyndust hryggbrotnir en þeir sátu í þriðju og fjórðu röð bakborðs megin talið aftan frá. Fremsta sætið bakborðs megin var bilað en enginn sat í fremstu röð. Sá hinna slösuðu sem sat í þriðju röð bakborðs megin fullyrti að enginn hefði setið við hliðina á sér. Farþeginn sem sat í fjórðu röð slasaðist mun verr. Þar sem fremsta röðin var ekki notuð og autt sæti í þriðju röð stjórnborðs megin var örlítið meiri þungi bakborðs megin.

Um borð í bátnum voru níu farþegar auk skipstjóra og leiðsögumanns.

Greining:

RNSA hefur rannsakað á annan tug alvarlegra slysa um borð í RIB bátum í farþegaflutningum og lagt fram tillögur til að bæta öryggi farþega. Tillögur í málum 03516 og 03616 hljóðuðu svo:

“ Í ljósi tíðra slysa um borð í RIB bátum, sem notaðir eru í atvinnuskyni, leggur nefndin til við Samgöngu- og sveitastjórnarráðuneyti að settar verði reglur sem tryggi öryggi farþega. Í því sambandi verði m.a. athugað hvort fjaðrandi sæti geti verið einn liður í því.”

Ráðuneytið taldi sér ekki fært að setja reglur um RIB báta þar sem þeir væru CE merktir hins vegar var ákveðið að útfærðar yrðu kröfur um að útgerðir RIB-báta framkvæmdu áhættumöt á mismunandi aðstæðum sem fæli í sér að við tiltekna aðstæður væri siglt hægar. Slíkar reglur hafa ekki verið settar.

Um borð í Kötlu voru fjaðrandi sæti (mynd 3). Sætin er hins vegar talsvert há, þrátt fyrir fjöðrun, sem leiðir til þess að lágvaxið fólk nær ekki að tylla fótum niður á þilfarið. Nái farþegar ekki fótastuðningi er hætt á að kraftur höggs leiði upp í gegn um sitjandann þegar bátar af slíkri gerð skella niður.



Mynd 3

Mynd 4 sýnir mælingu á sæti niður á þilfar.



Mynd 4

Í þessu tilfelli þurftu farþegarnir að standa en höfðu lítinn fótastuðning. Báðir hinir slösuðu voru 160 cm á hæð og náðu einungis að tilla tánnum niður.

Breska sjóslysa rannsóknarstofnunin (MAIB - Marine Accident Investigation Branch) sendi frá sér viðvörun (e safety bulletin), í september 2023, þar sem varað var við tíðum slysum á RIB bátum. Stofnunin lagði til, í samráði við breska hagaðila, að fremsti þriðjungur RIB báta sem notaðir eru til farþegaflutninga yrði skilgreindur sem umtalsvert áhættusvæði (e. Area of significant risk) óháð hraða bátanna.

Viðvörun MAIB fylgir með í viðauka.

Nefndarálit:

Helsta orsök slyssins var að bátnum var siglt á of miklum hraða yfir kjölfar annars skips og undirstöður sætanna voru of háar til að þau virkuðu sem skyldi þar sem ekki var unnt að stilla hæð þeirra til samræmis við hæð farþega.

Guðmundur Freyr Úlfarsson, Geirþrúður Alfreðsdóttir, Hilmar Snorrason, Pálmi Jónsson, Hjörtur Emilsson og Jón Finnbjörnsson.



Serious passenger injury on board a sea safari rigid inflatable boat

MAIB SAFETY BULLETIN 3/2023

This document, containing safety lessons, has been produced for marine safety purposes only, on the basis of information available to date.

The Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 provide for the Chief Inspector of Marine Accidents to make recommendations at any time during the course of an investigation if, in his opinion, it is necessary or desirable to do so.

The Marine Accident Investigation Branch is carrying out an investigation into a serious passenger injury on board a sea safari rigid inflatable boat.

The MAIB will publish a full report on completion of the investigation.



Captain Andrew Moll OBE
Chief Inspector of Marine Accidents

1. NOTE

This bulletin is not written with litigation in mind and, pursuant to Regulation 14(14) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, shall not be admissible in any judicial proceedings whose purpose, or one of whose purposes, is to apportion liability or blame.

This bulletin is also available on our website: www.gov.uk/maib
Press Enquiries: 01932 440015 Out of hours: 0300 7777878
Public Enquiries: 0300 330 3000

2. BACKGROUND

On 7 June 2023, a passenger on a rigid inflatable boat (RIB) sea safari suffered a spinal injury that left them paralysed from the waist downwards. Twelve passengers had boarded the RIB and, once it was clear of the jetty, the two crew gave them a safety briefing and instruction on the wearing of lifejackets. The RIB then proceeded out to sea and was increasing speed in choppy sea conditions when it encountered a steep-sided wave. The boat fell off the wave and slammed violently into the trough, dislodging a passenger from a forward jockey seat (**Figure 1**). The passenger immediately lost feeling in their legs.

The boat returned to the harbour and the casualty was removed by emergency services to an air ambulance and flown to hospital. There, diagnosis identified that the casualty had suffered a wedge compression fracture of the spine that left them with permanent paralysis below the waist. The passenger had no pre-existing conditions, was in good health and had normal bone mineral density (BMD).

The RIB was 3 years old, in good condition and certified under the Maritime and Coastguard Agency's (MCA) Small Commercial Vessel (SCV) Code, which was an annex to Marine Guidance Note (MGN) 280 (M)1.

The RIB's owner had several years' experience operating this type of excursion, and the boat's skipper was appropriately qualified.



Figure 1: Front of RIB with jockey seats

INITIAL FINDINGS

3. THE ACCIDENT

The accident happened in weather conditions that the skipper considered favourable for the trip. Although the RIB was not travelling at high speed, as the bow pitched up on encountering waves it restricted the skipper's view ahead. The steep-sided wave caught the skipper unaware and without time to mitigate the impact.

¹ Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards.

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When the boat hit the trough, the resulting force applied to the passenger's spine was of sufficient magnitude to fracture a vertebra. With a normal BMD level and no pre-existing conditions to increase their susceptibility to this type of injury, the factors contributing to the fracture related to the activity being undertaken. These included: ●

- the speed and movement of the RIB in the sea conditions
- the forward location of the seat that the passenger was using
- the passenger's seated posture and their ability to react and compensate for the RIB's motions
- the passenger's awareness of the hazards associated with the RIB's movement.

4. WIDER CONTEXT

Commercial passenger tours using RIBs, including sea safaris and thrill rides, have experienced a surge in popularity across the UK, with a corresponding increase in the occurrence of accidents. Since 2001, the MAIB has been notified of 54 accidents during RIB rides that have resulted in lower back injuries, 17 of which resulted in spinal fractures. Initial analysis of these previous accidents as part of this investigation indicates that passengers seated in the front third of a RIB's overall length (**Figure 2**) are exposed to a significantly higher risk of lower back injuries than those seated further back, as the vertical motions experienced are generally greater towards the bow.

For illustrative purposes only: not to scale

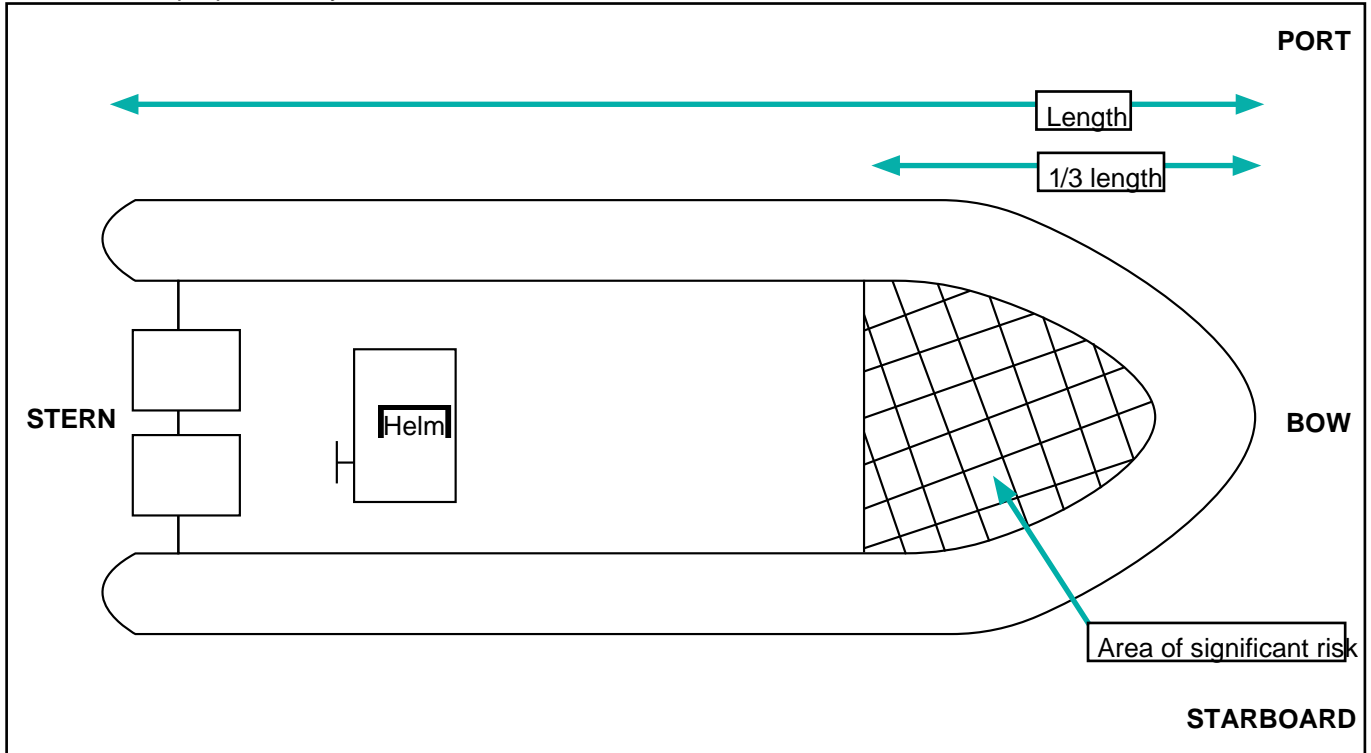


Figure 2: RIB outline highlighting the area of significant risk

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The passenger RIB industry has conducted research on shock mitigation and whole body vibration, primarily focused on high-speed operations, which has led to the development of codes of practice and seating designs. This accident, combined with the previous accident data, has highlighted concerns regarding the design, construction and location of seating on RIBs used for passenger operations, particularly when the seated individuals have little or no understanding of boat movement or how to mitigate its effects.

5. SMALL COMMERCIAL HIGH-SPEED CRAFT GUIDANCE

In the UK, commercial RIBs carrying no more than 12 passengers to sea are certified to meet the standards set out in the SCV Code, but the conduct of operations and safety management are currently largely self-regulated.

In 2010, in response to an MAIB investigation report², the Passenger Boat Association (PBA) and Royal Yachting Association (RYA) issued guidance on the safety of small high-speed passenger craft. In April 2019, issue 3 of the guidance was issued by the RYA, PBA and

British Marine as the *Passenger Safety on Small Commercial High Speed Craft & Experience Rides – A Voluntary Code of Practice (CoP)*. Additionally, in September 2021, MGN 436 (M+F)3 Amendment 2 was issued, which was further updated by Amendment 3 in July 2023. Both the CoP and the MGN include guidance on seating location, design and shock mitigation. Also included is advice on the design of vessels, the posture and stability of occupants and the content of pre-departure briefings.

6. SAFETY LESSON

There is a significantly higher risk of spinal fractures to people seated in the front area of RIBs, regardless of speed.

Owners and operators of small commercial passenger vessels are strongly advised to:

- Urgently review their operations and risk assessments, with reference to the CoP and MGN 436 (M+F). This review should assess and mitigate the risks associated with the requirement to seat passengers in the front area of a RIB and ensure that the risk assessment includes and addresses the variability of weather conditions and the ability of passengers.
- Review their passenger pre-departure briefing and ensure that it includes a specific explanation of how to use the seat(s) and their associated handholds, including how to maintain the correct posture and stability to mitigate against injury.

Issued September 2023

² <https://www.gov.uk/maib-reports/heavy-landing-during-boat-trip-on-the-rigid-inflatable-boat-celtic-pioneer-in-the-bristolchannel-near-penath-wales-with-1-person-injured>

³ MGN 436 (M+F) Whole Body Vibration: Guidance on Mitigating Against the Effects of Shocks and Impacts on Small Vessels.