ACCIDENT REPORT

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

Report on the investigation into the

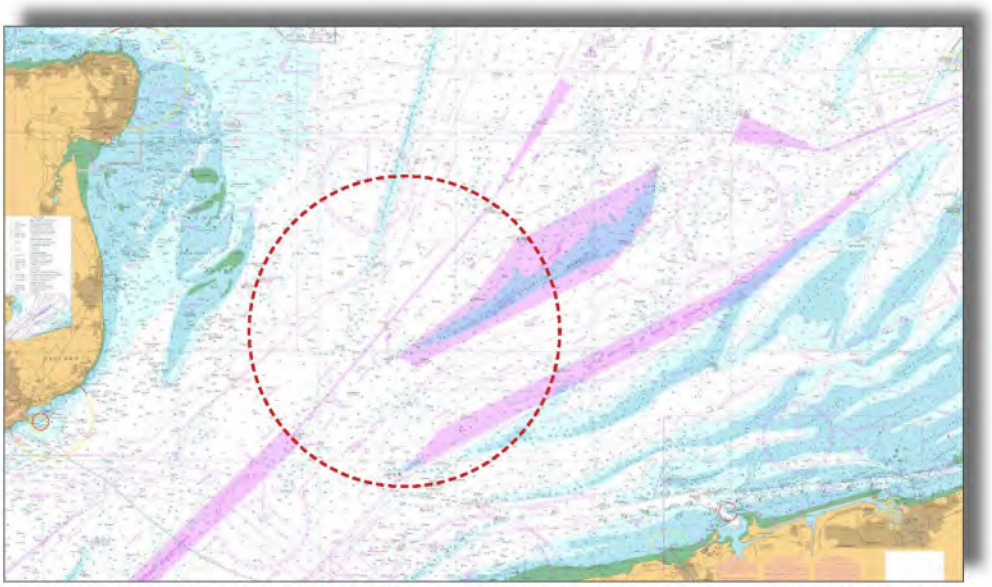
flooding and partial sinking of an

inflatable migrant boat

resulting in the loss of at least 27 lives

in the Dover Strait

on 24 November 2021



VERY SERIOUS MARINE CASUALTY REPORT NO 7/2023 NOVEMBER 2023

The United Kingdom Merchant Shipping

(Accident Reporting and Investigation)

Regulations 2012 – Regulation 5:

"The sole objective of a safety investigation into an accident under these Regulations shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame."

NOTE

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

All MAIB publications can be found on our website: www.gov.uk/maib

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

µm	-	micrometre
AIS	-	automatic identification system
BMT	-	BMT Limited
°C	-	degrees Celsius
CCTC	-	clandestine channel threat commander
CNIS	-	Channel Navigation Information Service
CEFAS	-	Centre for Environment, Fisheries and Aquaculture Science
COLO	-	clandestine operations liaison officer
CPV	-	coastal patrol vessel
CROSS	-	Centre Régional Opérationnel de Surveillance et de Sauvetage
CTV	-	crew transfer vessel
DfT	-	Department for Transport
ft	-	feet
GMDSS	-	Global Maritime Distress and Safety System
GPS	-	global positioning system
gt	-	gross tonnes
HM Coastguard	-	Her/His Majesty's[1] Coastguard
HMC	-	Her Majesty's cutter
IMO	-	International Maritime Organization
IAMSAR	-	International Aeronautical and Maritime Search and Rescue
JCR	-	Joint Control Room
JIATF	-	joint interagency task force
JMOCC	-	Joint Maritime Operations Coordination Centre
JMSC	-	Joint Maritime Security Centre
JRCC	-	Joint Rescue Coordination Centre
kts	-	knots
MCA	-	Maritime and Coastguard Agency
MC	-	mission coordinator
MCC	-	Maritime Command Centre
Met Office	-	Meteorological Office, the UK national weather service

[1] HM refers to Her Majesty up to 8 September 2022 and His Majesty from 8 September 2022, inclusive.

mlx	-	millilux
MoD	-	Ministry of Defence
MONIM	-	Met Office Night Illumination Model
MOO	-	maritime operations officer
MRCC	-	Maritime Rescue Coordination Centre
NASH	-	NASH Maritime Limited
m	-	metre
nm	-	nautical mile
NMIC	-	National Maritime Information Centre
NSMS	-	National Strategy for Maritime Security
NSS	-	National Security Strategy
NVG	-	night vision goggles
Op	-	operation
PFD	-	personal flotation device
RCC	-	Rescue Coordination Centre
RHIB	-	rigid-hulled inflatable boat
RNLI	-	Royal National Lifeboat Institution
SAR	-	search and rescue
SBTC	-	small boats tactical commander
SMC	-	SAR mission coordinator
SMOO	-	senior maritime operations officer
SOLAS	-	The International Convention for the Safety of Life at Sea, 1974
SRR	-	search and rescue region
TSS	-	traffic separation scheme
UAS	-	unmanned aircraft system
UAV	-	unmanned aerial vehicle
UTC	-	universal time coordinated
VHF	-	very high frequency
VTS	-	vessel traffic services

TIMES: all times used in this report are UTC unless otherwise stated.

SYNOPSIS

At about 1300 on 24 November 2021, a French registered fishing vessel reported sighting bodies in the water approximately 9 nautical miles from Calais within French waters. This triggered a French search and rescue operation, with UK support. A total of 27 bodies and two survivors were reported recovered from the sea and taken to France.

During the evening of 23 November 2021, a number of small boats carrying migrants attempted to cross the Dover Strait from France to the UK. About 33 people boarded one of the boats and, at about 2100, departed from a beach near to Dunkirk, France to attempt the crossing. About 4 hours into the journey the boat began to take on water and some of the occupants made distress calls via mobile telephone to both UK and French authorities. Despite a UK search and rescue response, including a "Mayday Relay" broadcast, and deployment of a UK Border Force cutter and a rescue helicopter, the boat was not located. At some point in the early hours of 24 November 2021, the water ingress became uncontrollable and the occupants of the boat entered the water.

Given the navigational and environmental hazards in the Dover Strait, and the number of people the boat was carrying, the inflatable boat and equipment provided by the people facilitating the crossing were entirely unsuitable. The occupants had no training or seafaring experience and so were not equipped to deal with the unfolding emergency. By providing an unsuitable craft and inadequate safety equipment for the crossing, and by crowding 33 people onto the boat, the people who facilitated the attempted crossing put the occupants of the boat at high risk of coming to harm. This risk was realised when the boat was swamped and the occupants entered the sea, resulting in at least 27 people losing their lives.

Despite extensive requests, the investigation was not granted access to any information held by French authorities so it has not been possible to analyse the French search and rescue response to the accident, assuming they were aware of the vessel's plight.

The MAIB's investigation has found that the effectiveness of the UK search and rescue response on the night of the accident was hampered due to poor visibility and by the lack of a dedicated aircraft conducting aerial surveillance of the Dover Strait. This lack of surveillance meant that coastguard operators were heavily reliant on the limited information passed to them by French authorities and calls from the occupants of the boats themselves to try to identify the number of boats attempting the crossing, their location and their level of distress. Reconciling and correlating the information from emergency calls was extremely challenging for coastguard operators as multiple calls were received from different callers on the same boats, there was conflicting information, and they had difficulty distinguishing one boat from another. This meant the coastguard operators were faced with a confusing picture and it was difficult to locate and identify discrete distressed boats. This challenge was exacerbated by the high workload on the coastguard operators at the Dover Maritime Rescue Coordination Centre, resulting in the search mission coordinator becoming involved in answering emergency calls and so restricted in their ability to maintain an overview.

The routine demands of reconciling and responding to migrant boat activity on HM Coastguard staff, in particular at Dover Maritime Rescue Coordination Centre, had been recognised and various longer-term improvements were planned. These included an increase in operations room staff and the formation of a dedicated migrant team at Dover. However, these changes had not been implemented at the time of the accident and there was no additional manpower available locally to assist the coastguard staff at Dover during the early hours of 24 November.

Three migrant boats were located in UK waters during the search for the distressed and sinking boat, all with similar numbers of people on board to those reported to be on the stricken craft; however, none were in the expected level of peril when located. The investigation found that there was an assumption that the first boat to be found was the stricken craft. This likely happened because there was no reliable way to identify a particular boat, or easily distinguish between boats, and the number of boats that had entered UK waters was unknown. Emergency calls were continuing to be received from other boats and the rescue helicopter had already located another boat. Against this backdrop, events moved on and the plight of the genuinely stricken craft became masked by the increasingly busy task of dealing with crossing events.

Analysis of communications from the stricken craft indicated that its occupants likely entered the water between 0312 and 0333 on 24 November 2021. The last reported position, received at 0221 via WhatsApp, was within UK waters and analysis suggested that the boat was likely drifting at the time. However, the investigation was unable to determine the location of the partial sinking or where the victims succumbed to immersion. Post-accident analysis indicated that the helicopter search was in the appropriate location and that the pattern was suitable for detecting small boats in the prevailing conditions; it was likely that the occupants of the stricken boat were not found because of the relatively poor visibility and the aerial search was optimised for detection of small boats rather than people in the water.

Since 2018, attempts to cross the Dover Strait by small boats had increased and the reaction of the UK government had adapted in response. As the response to crossing events defaulted to being that of a search and rescue mission coordinated by HM Coastguard the posture was necessarily reactive and assets were not dispatched until there was a search and rescue incident to respond to. On the night of the accident this resulted in a lag of approximately 2 hours between a migrant boat reaching UK waters and a surface asset arriving on scene. The investigation found that, despite capability uplifts and improved liaison between Border Force maritime and HM Coastguard, the two overlapping missions of intercepting migrants and rescuing those deemed to be in *Distress* had not been fully reconciled into an effective consolidated maritime response.

At the time of the November 2021 accident a number of capacity and capabilty enhancements were in hand that have since been delivered and, in early 2022, a joint interagency task force was established under Ministry of Defence leadership. The fruition of these endeavours coupled with other actions taken by HM Coastguard substantially improved multiagency operations and enhanced the UK's ability to mount an effective response to migrant crossing attempts of the Dover Strait.

As a result of this investigation recommendations have been made to the Maritime and Coastguard Agency and Border Force to develop procedures to ensure effective surveillance is possible when aviation assets are unavailable. A recommendation has also been made to the Maritime and Coastguard Agency to work with French authorities to develop agreed modalities for improving the transfer of information between the UK and French Coastguard agencies pertaining to migrant boats during crossing events.

SECTION 1 – FACTUAL INFORMATION

1.1 PARTICULARS OF VESSEL AND ACCIDENT

VESSEL PARTICULARS	
Vessel's name	Unnamed
Flag	Not applicable
Classification society	Not applicable
IMO number/fishing numbers	Not applicable
Type	Inflatable boat
Registered owner	Not applicable
Manager(s)	Not applicable
Construction	Inflatable
Year of build	Unknown
Length overall	About 8m
Registered length	Not applicable
Gross tonnage	Unknown
Minimum safe manning	Not applicable
Authorised cargo	Not applicable

VOYAGE PARTICULARS	
Port of departure	Near Dunkirk, France
Port of arrival	UK coastline (intended)
Type of voyage	International (intended)
Cargo information	Not applicable
Manning	No professional crew

MARINE CASUALTY INFORMATION	
Date and time	24 November 2021, time unknown
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	Last reported position: 51° 09.045N 001° 45.568E
Place on board	Unknown
Injuries/fatalities	At least 27 fatalities
Damage/environmental impact	Unknown
Ship operation	On passage
Voyage segment	Mid-water
External & internal environment	Wind north-easterly force 2 to 3, occasionally 4, with a smooth sea state near the coasts and slight offshore; minimum air temperature 2°C; sea temperature 13°C; coastal fog; patchy cloud mid-strait and light rain on the French coast; visibility 1000m at the Sandettie Lightvessel.
Persons on board	Approximately 33

1.2 BACKGROUND

1.2.1 Nomenclature

The term 'migrant' in this report is used to describe a person who is relocating their place of residence from one country to another. The use of the term is not intended to be pejorative, and no motivations are ascribed to the migrants.

1.2.2 Evidence from France

Despite extensive requests the UK Marine Accident Investigation Branch (MAIB) has not been permitted to examine the migrant boat that was involved in this accident, nor have any details of flotation devices, equipment carried, survivors or the deceased been forthcoming from French authorities. Further, no information has been forthcoming about the actions taken by the French Search and Rescue Centre at Gris-Nez or by the French government vessels in the area at the time.

1.2.3 Scope

The MAIB investigation has focused on the causes and circumstances of the accident and the UK's emergency response as information about the French authorities' response to events on 24 November 2021 has not been forthcoming. However, where interactions occurred between UK agencies and their French counterparts the report comments on these interactions to the extent possible.

The following areas were outside the scope of the MAIB investigation:

- criminal activity;
- immigration control;
- matters of national maritime security;
- motivation of migrants attempting to cross the Dover Strait and enter the UK;
- actions undertaken to deter migrants from attempting the crossing.

1.2.4 Media reports

The MAIB is aware of various media reports regarding the events of the 23 and 24 November and actions of various parties during the unfolding event. The MAIB investigation has not considered media information that it has not been able to verify by other means.

1.3 NARRATIVE

The narrative of events leading up to and through the night of 23/24 November 2021 is lengthy and, it is acknowledged, confusing to read. This is a function of the many simultaneous events ongoing at particular times and the need for comprehensive detail on salient events. The grouping of events to ensure a coherent narrative means that not all activities appear in the narrative and those that do may not appear in chronological order.

1.3.1 Background

The most recent small boat migrant activity in the Dover Strait prior to 23/24 November occurred on 20 November 2021, when 827 people were intercepted. At the time of the accident the busiest migrant crossing day to date was on 16 November 2021, when 1200 people were intercepted.

On Monday 22 November, Her Majesty's (HM) Coastguard held its scheduled weekly migrant red days[2] planning meeting, which was attended by 14 people, the majority of whom were HM Coastguard personnel supplemented by a representative from the Royal National Lifeboat Institution (RNLI) and a representative from 2Excel as one of the providers of coastguard fixed-wing aviation. A representative from the UK Border Force sent their apologies and instead provided input via a written brief.

The meeting discussed projected migrant activity for the forthcoming week. The forecast indicated a *weather window* for favourable crossing conditions from 0300 on 24 November to 0900 on 25 November. It was noted that crossings were *likely* during the morning of 24 November, moving to *highly likely* by the afternoon, and that forecasted strengthening wind on 25 November would see an increase in wave heights and elevated risk for crossings from around 0900.

The meeting then discussed any risks to mounting an effective response. The RNLI representative confirmed there were no planned off service periods for its lifeboats and the Border Force briefing note stated that it was *planning to ensure good Operation Deveran coverage from Border Force maritime* during the weather window. One unmanned aerial vehicle (UAV) was scheduled to fly on 24 November, and a fixed-wing patrol flight was requested for the period from 0300 to 0800. Participants at the meeting discussed that recent migrant activity had started much earlier than anticipated and it was agreed that aircrew should be made aware of a possible change to patrol timings.

Staffing levels were also considered and it was noted that there was sufficient availability of search and rescue (SAR) mission coordinators (SMC) across the network but that scheduled numbers at Maritime Rescue Coordination Centre (MRCC) Dover were low with two operators scheduled for the nights of 23 and 24 November, and three on the night of 25 November. A meeting participant raised concern that two operators working nights at Dover was insufficient and it was agreed that volunteers would be sought for additional overtime to support MRCC Dover. It was recorded that there was no additional external support during the nights but that an additional SMC from another station would support MRCC Dover during the day on both 24 and 25 November. The discussion noted that coordination would be moved to the Joint Rescue Coordination Centre (JRCC) in Fareham if a member of staff was to fall ill at Dover.

The meeting went on to raise further concerns about staffing numbers at Dover on the night of 23 November and the possibility that migrant activity would begin earlier than forecast. It considered the observation that, during recent busy crossing days, the amber (likely) crossing day had been almost as busy as the record red (highly likely) day.

The next red day planning meeting was scheduled for 29 November, with an option to arrange an internal coastguard meeting to discuss resilience options should the staffing change at MRCC Dover.

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[2] Red days were days when migrant activity in the Dover Strait was forecast to be highly likely.

Following the meeting an email was sent to HM Coastguard staff requesting volunteers to travel to Dover and support the MRCC on the nights of 23 and 24 November. The SMC who was scheduled to support MRCC Dover during the day amended their hours to start watch early at 0500 on 24 November 2021.

1.3.2 Events on board the inflatable boat

At about 2100 on 23 November 2021, around 33 people, including a number of women and children, boarded an inflatable boat on a beach close to Dunkirk, France. The crossing attempt had been arranged by a network of facilitators in France who had provided the boat and equipment that was used. The group set off from the beach and headed west towards the UK coast. After about 4 hours the rigid floor of the boat damaged the flexible material of the boat's floor and sides and water began to enter the bottom of the boat. The occupants initially managed to control the flooding by bailing out the water until, shortly after 0100, the water ingress became uncontrollable. At the same time, the boat's inflated collar began to lose pressure. Some of the occupants attempted to reinflate it using the hand-operated air pumps provided, but they were unsuccessful. Several of the people on board made emergency calls to the French and British emergency services and provided their position to both sets of authorities via WhatsApp, but no rescue arrived before the boat became completely swamped and its occupants entered the water. Some of the victims managed to cling to the submerged remnants of the boat; others drifted away. Over a period of hours occupants of the boat perished, with around eight reported to be still alive at sunrise[3].

1.3.3 Recovery

At about 1300 on 24 November 2021, the French registered fishing vessel, *Saint Jacques II*, reported sighting bodies in the water at 51° 05.58N 001° 43.41E, about 9 nautical miles (nm) from Calais **(Figure 1)**. This report triggered a SAR operation involving multiple French and British vessels and aircraft. A total of 27 bodies and two survivors were recovered from French waters and taken to France.

1.3.4 UK emergency response

During the evening of 23 November 2021, the day watch at MRCC Dover handed over to the night watch. An SMC trained team leader led the night watch and was supported by a maritime operations officer (MOO) and a trainee. The team leader was the designated SMC. The recorded staffing for the night watch noted that there was one sickness absence and one member of staff on leave at MRCC Dover and that the JRCC was providing support for the SMC function and coverage for meal breaks. At 2100, the maritime tactical commander at the JRCC discussed network management and staffing with the MRCCs around the country. During this brief it was recorded that migrant small boat activity was likely according to the Home Office Operation (Op) Deveran forecast. At this time the Border Force cutter *Valiant* was alongside in Dover. Coastguard rescue helicopter *R163* (referred to as *R163* in this report) was at its base in Lydd at 45-minutes[4] readiness and the coastguard fixed-wing aircraft CG25, operated by 2Excel, was at its base in Doncaster and scheduled to launch for a coastguard patrol flight with an 0300 to 0800 sortie time. A Home Office clandestine patrol flight flew between the late evening of 23 November and the early hours of 24 November. The flight was operated at an altitude of around 19,000ft. The exact timings and patrol details were not available to HM Coastguard.

[3] Sunrise at Dover, UK was at 0726 on 24 November 2021.

[4] *R163* was 45 minutes readiness to launch between 2200 and 0800. See section 1.11.10 for further details.

Reproduced from Admiralty Chart 0323 by permission of HMSO and the UK Hydrographic Office

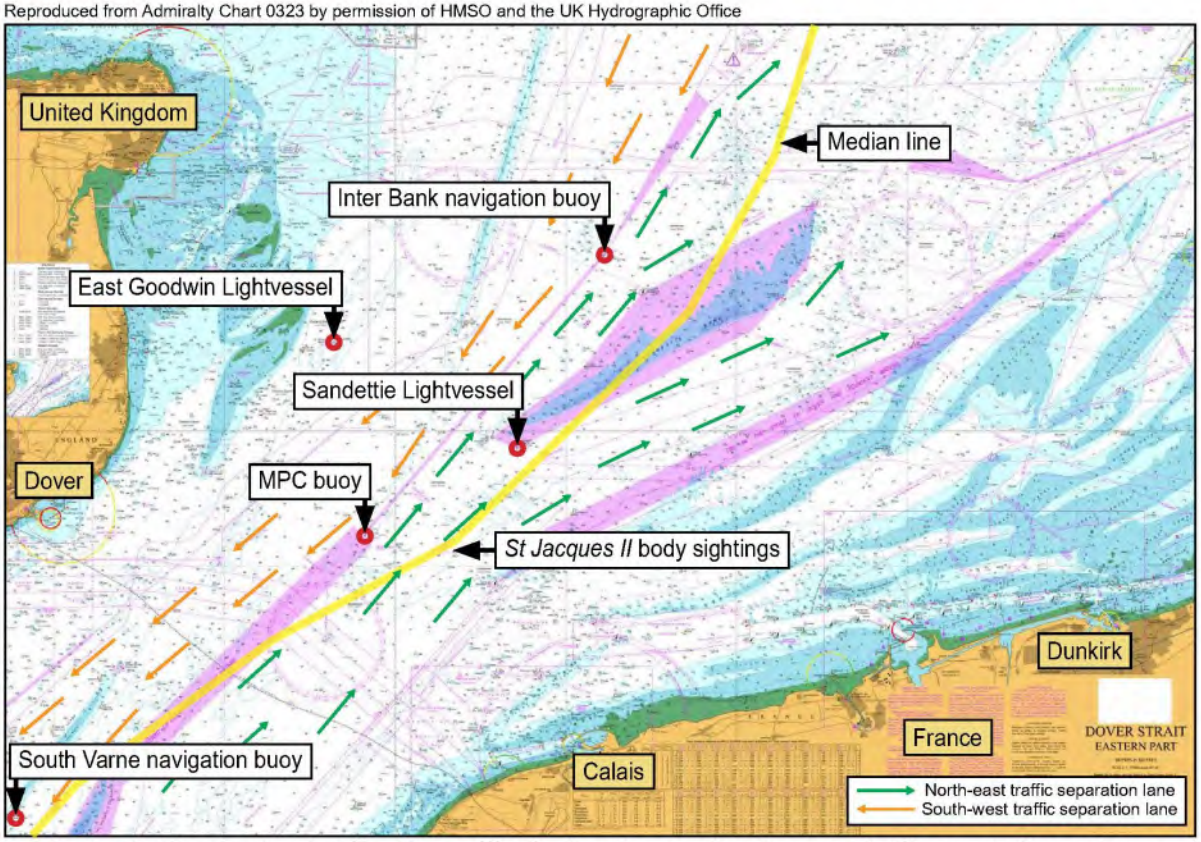

Figure 1: Chart extract of the Dover Strait, showing median line and traffic separation scheme and the reported location of *St Jacques II* initial body sightings

At 2315, the designated SMC function at MRCC Dover was passed to the JRCC while the SMC at Dover provided break cover for the Channel Navigation Information Service (CNIS). At around 0130, the SMC at MRCC Dover resumed their duties. The national coastguard network provided support to MRCC Dover throughout the night, which included the JRCC in Fareham monitoring very high frequency (VHF) channel 16, taking some routine and emergency calls and raising incidents in the coastguard incident management system.

At 0026 on 24 November 2021, the operations officer at the Port of Dover called MRCC Dover to report a call that had been received and was believed to be from a migrant boat. The caller had asked for help and shouting could be heard in the background. The operations officer recorded the telephone number and passed this to MRCC Dover, which logged the call as incident *Alpha*[5], denoting the first migrant boat incident of the night, and attempted to call the telephone number (referred to as M1 in this report). The call began ringing with an international tone but did not connect. Taking the international ring tone as an indication that the migrant boat was outside UK waters, MRCC Dover recorded incident *Alpha* as being in the monitoring[6] phase and located within the French search and rescue region (SRR).

[5] Each report of a migrant boat received by Dover MRCC was designated a sequential phonetic alphabet letter. Once the alphabet had been exhausted, the number 1 was added (e.g. Alpha 1) at the start of the next cycle, increasing to number 2 and so on with each subsequent phonetic rotation (e.g. Alpha 2, Alpha 3).

[6] The monitoring phase was outside of the three emergency phases of *Uncertainty*, *Alert* and *Distress* and for migrant boats referred to boats that HM Coastguard were aware of but were outside UK waters and were not the subject of an ongoing rescue operation.

Shortly after the attempted call, MRCC Dover telephoned its French counterparts at MRCC Gris-Nez and informed them about incident *Alpha*, noting that the international ring tone suggested the boat was in French waters. MRCC Dover then asked if there had been any migrant incidents on the French side of the Dover Strait; MRCC Gris-Nez replied that it was aware of four boats. Following the phone call MRCC Dover and MRCC Gris-Nez exchanged by email the details of incident *Alpha* and a copy of the French migrant tracker document[7]. After receiving the French tracker, MRCC Dover created incident *Bravo* based on the French migrant 1[8]. The French position for *Bravo* placed the boat around 1nm from the median line 3 hours before; assuming that the boat was now in UK waters the incident phase was recorded as *Distress*. As incident *Bravo* was being created the Border Force Maritime Command Centre (MCC) called MRCC Dover to discuss the position of *Bravo* on the French tracker. Border Force wanted to establish whether the position was an error or whether the boat had reached UK waters, noting that if that was the case Border Force would need to deploy a vessel immediately. MRCC Dover agreed to clarify the position with MRCC Gris-Nez.

Meanwhile, at 0030, at the JRCC the maritime and air tactical commanders discussed the availability of aviation surveillance for the night because 2Excel had reported that all planned fixed-wing aircraft flights were postponed due to concerns about forecasted poor weather and visibility in the Dover Strait and the lack of a suitable diversion airport. The two commanders were concerned that, without a fixed-wing aircraft surveillance flight and in restricted visibility, they would have a limited overall picture and insufficient awareness of migrant boat activity in the Dover Strait.

At 0106, MRCC Dover called MRCC Gris-Nez to discuss the French tracker information recorded for incident *Bravo*. MRCC Gris-Nez provided a position in French waters for *Bravo* and confirmed that there were no French assets with the boat but that it appeared to be in good condition. MRCC Dover recorded the updated position for *Bravo* and changed the incident phase from *Distress* to monitoring as the boat was not located in UK waters.

During the discussion about incident *Bravo*, MRCC Gris-Nez informed MRCC Dover about migrant 7, a boat that was not yet recorded in the French tracker. Migrant 7 had reported a position via WhatsApp[9] that was 0.6nm outside UK territorial waters. MRCC Gris-Nez reported that there were 33 people on board, including 13 women and 8 children, and shared two mobile telephone numbers (referred to as M2 and M3 in this report) associated with the boat. After the call MRCC Dover recorded the position of and details for French migrant 7 in its incident management system and designated the boat as incident *Charlie*. At 0120, MRCC Dover passed the position and details for incident *Charlie* to the Border Force MCC and informed it that the boat was likely now in UK waters. Border Force MCC stated that it would plot the boat's position and task an asset accordingly. Ten minutes later, at 0130, Border Force MCC called MRCC Dover to confirm that it had tasked Border Force cutter *Valiant* to respond to the incident.

At 0126, MRCC Dover transmitted a supplementary information service broadcast on VHF channel 11, requesting vessels to post additional lookouts when transiting the south-west lane of the Dover Strait traffic separation scheme (TSS) between the

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[7] The French tracker document detailed six small boats, four with positions and two recorded as *No Crossing*.

[8] Detections of migrant boats by French agencies were designated in numeric sequence.

[9] The mobile telephone application WhatsApp can be used to send the location of a mobile phone to another application user.

Inter Bank navigation buoy and the South Varne navigation buoy **(Figure 1)** and to report any sightings of small craft on VHF channel 16. At around the same time as the broadcast, MRCC Gris-Nez called MRCC Dover to report that it had received a telephone call from migrant 7 (UK incident *Charlie*) via telephone number M2 and an updated position via WhatsApp from a separate telephone number (referred to as M4 in this report) associated with the boat. The updated position was within UK waters **(Figure 2)**.

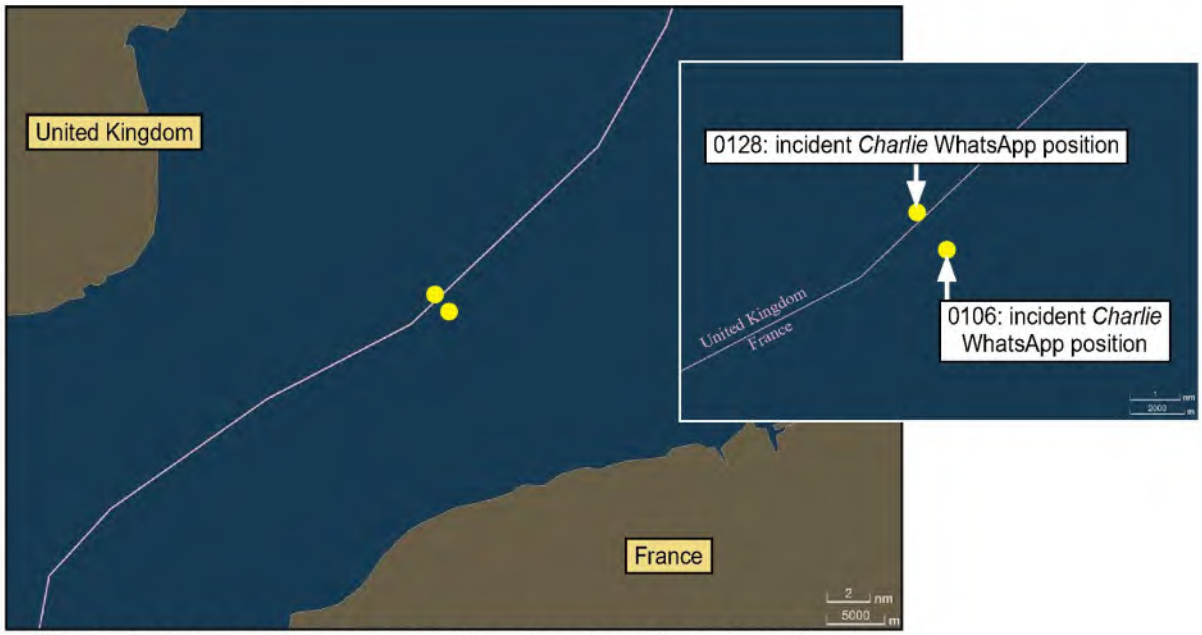

Figure 2: Reported WhatsApp positions for migrant 7/incident *Charlie* received from MRCC Gris-Nez

At 0133, 2Excel reported that the weather was not looking favourable for its flight or workable with its equipment, noting a lack of diversion airfields. 2Excel reported that it was continuing to monitor the situation with a view to getting airborne in 90 minutes and would advise if that was not possible.

At 0136, the Port of Dover attempted to transfer a call to HM Coastguard from a person who was screaming for help; however, the line disconnected as the port operator was trying to transfer the call. The caller contacted the port operator again and the second transfer attempt was successful. The call was taken by an operator at the JRCC and lasted several minutes. A lot of shouting could be heard in the background and the caller was unable to provide a position. The caller requested a helicopter and said, "*I am finished*" and that they had no internet. The JRCC operator passed on the telephone number for the coastguard mobile phone[10] and asked the caller to send their position via WhatsApp and call 999 so that their position could be traced through the emergency call. After the call ended, the JRCC operator telephoned the port operator and recorded that the caller had made contact via telephone number M1. The port had received three calls from the same number. The incident was recorded as *Foxtrot* (incidents *Delta* and *Echo* having been created based on French incidents migrant 3 and 6, respectively)[11].

[10] The coastguard mobile phone was a standalone mobile, used primarily to send and receive WhatsApp messages. It was not connected to the HM Coastguard main communication systems.

[11] French migrant incidents 4 and 5 were recorded as being detected in France and no crossing made.

At 0138, the Border Force MCC called MRCC Dover and requested a course and speed for incident *Charlie*; Border Force cutter *Valiant* was about to get underway from Dover and this information would enable it to locate the boat. MRCC Dover reported that a course and speed for incident *Charlie* was unavailable and that the only information it held was a WhatsApp position and that the boat's destination was the UK. MRCC Dover also confirmed that the fixed-wing aircraft would not be flying due to weather restrictions and suggested that *Valiant* should head towards the WhatsApp position while it tried to obtain an updated position in the meantime. MRCC Dover then sent two text messages to telephone numbers M2 and M3. The first message contained a link to download the WhatsApp application and the second requested that the reader downloaded WhatsApp and used it to send a position. At 0143, MRCC Dover updated incident *Charlie* to the *Distress* phase on the basis that the boat was now within UK waters, the condition of the boat and its occupants was unknown and no French asset had made contact with the boat. At 0149, MRCC Dover sent two WhatsApp messages to telephone number M4 requesting a position.

At 0148, shortly before MRCC Dover sent its message to M4, MRCC Gris-Nez transferred a call it had received from one of the telephone numbers associated with incident *Charlie* to MRCC Dover, where it was answered by the SMC. The call lasted around 20 minutes, during which a lot of shouting and background noise could be heard and the SMC asked several times that only one person speak at once as it was difficult to hear what was being said. The caller and others on the boat repeatedly asked for help, reporting that their boat was broken and that they were "*finished*". The caller was unable to state the colour of the boat but informed the SMC that there were 40 persons on board. The SMC provided the caller with the coastguard mobile phone number and the caller relayed two telephone numbers to the SMC, one of which was M4 (the second is referred to as M5 in this report). The coastguard mobile phone was used to send an SMS and WhatsApp message to M5 and, at 0201, a WhatsApp position was received from it. The SMC confirmed that a rescue vessel was on its way to the boat's location, but that it would take time for the vessel to reach the boat as it was quite far from shore. The caller asked for confirmation that they were in UK waters and the SMC replied that they were believed to be. The background noise and shouting continued and a person on board started to shout that they could see a light. There then followed a period of shouting and confusion where those on the boat asked the SMC to look to the left for their light. The SMC explained that they were not on a vessel at sea but in an office in Dover and that the rescue vessel would take time to reach the caller. The SMC further explained that: they were trying to contact the vessel that was the source of the light the caller could see; MRCC Dover was trying to locate the caller's boat; and, they were sending someone to help. The connection was lost after more shouting.

At 0200, *Valiant* sailed from Dover and started heading into the Dover Strait towards the WhatsApp position received via MRCC Gris-Nez for incident *Charlie*[12].

At 0206, having received the incident *Charlie* WhatsApp position, MRCC Dover used VHF radio to hail the German registered LPG tanker *Gaschem Shinano* **(Figure 3)**. MRCC Dover relayed that a small craft had been reported in the vicinity of *Gaschem Shinano* and asked if anything could be seen. The crew of *Gaschem*

[12] To proceed directly to *Charlie*'s last reported position, *Valiant* was unable to cross the TSS at 90 degrees, contravening Rule 10 of the Convention on the International Regulations for the Prevention of Collisions at Sea, 1972. On passage, *Valiant* asked for approval not to comply with this rule, which was approved by MRCC Dover.

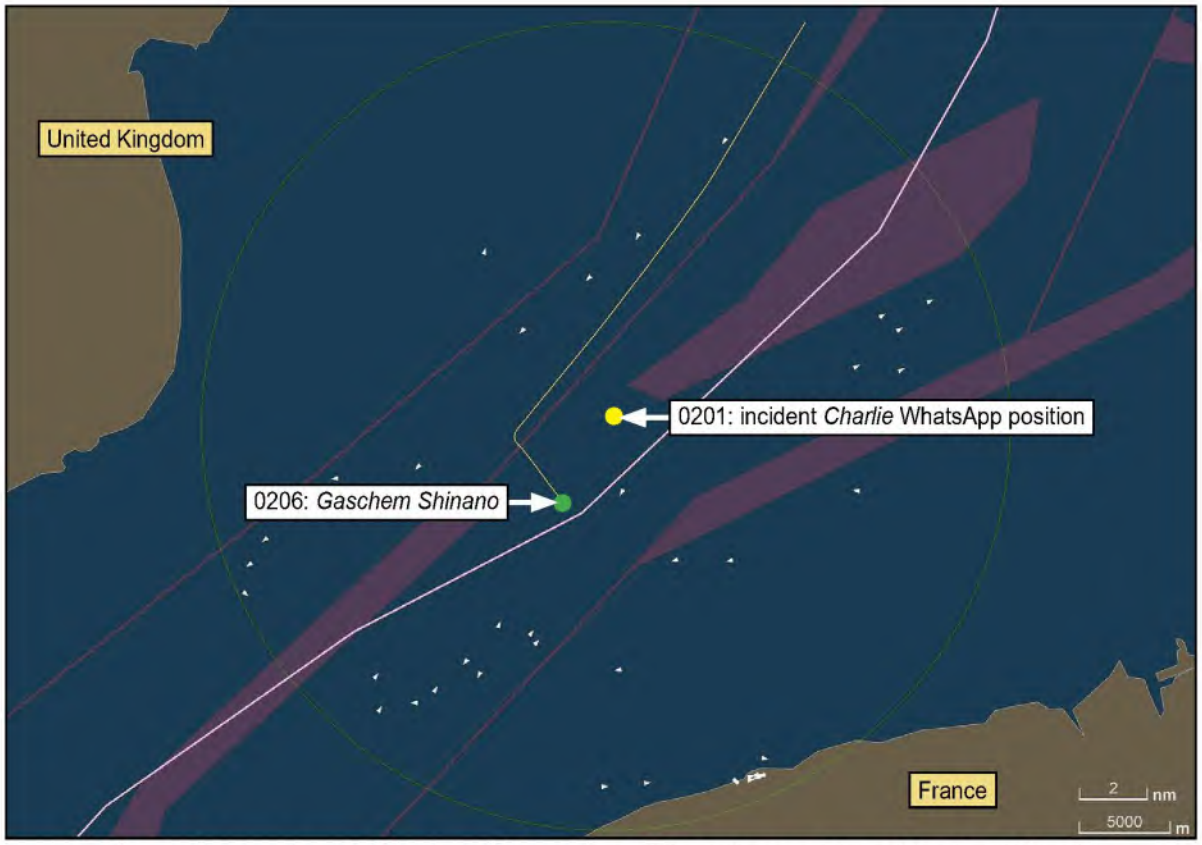

Figure 3: Location of *Gaschem Shinano* and WhatsApp position of incident *Charlie* received at 0201

Shinano reported no small vessels in sight. MRCC Dover requested that the vessel maintain a sharp lookout and navigate with caution. The chief engineer on board *Gaschem Shinano* went up to the bridge and an additional lookout was posted to complement the bridge watch of the captain, second officer and a lookout. The lookouts reported all lights seen and the crew adjusted both radars to try and locate the craft. All reported lights were resolved as coming from other vessel traffic in the Dover Strait or from navigational marker buoys and no small craft were detected.

In the meantime, HM Coastguard received a French tracker update from MRCC Gris-Nez and an operator at the JRCC created new UK incidents *Hotel*[13], *India* and *Juliet*, based on respective French designations of migrant 8, 9 and 10. The French tracker identified migrants 1, 7 and 9 (UK incidents *Bravo*, *Charlie* and *India* respectively) as possibly being the same incident.

At 0204, the coastguard mobile phone received a call from M2, which was not answered; a second call from M2, received at 0210, was also unanswered. At 0207, MRCC Dover sent a WhatsApp message from the coastguard mobile phone to M5, the telephone number that had provided the 0201 position for incident *Charlie*. The message asked the recipient to resend their location. MRCC Dover also sent an SMS to M5, requesting that the recipient shared their Google Maps location. At 0217, the coastguard mobile phone received a 3-minute phone call from M5. This was not recorded in the coastguard incident management system and there is no record of any conversation. At 0220, the coastguard mobile phone received a WhatsApp position from M4; neither its receipt nor the position sent were recorded

[13] Incident reference *Golf* was not used on 24 November 2021.

in the coastguard incident management system. At 0221, a WhatsApp position was received from M5; at 0328 the coastguard recorded this as the updated position for incident *Charlie*.

At about 0200, the maritime and air tactical commanders at the JRCC again discussed aviation coverage for the night in light of the confirmed migrant boat activity in the Dover Strait. Based on the emergency calls that were being received, and the postponed flight of the fixed-wing aircraft due to weather concerns, the lack of a diversion airfield and low probability of success, they agreed that the air tactical commander would contact the captain of the Lydd-based *R163* to discuss the weather and the possibility of tasking the helicopter to search for migrant boats. At around 0215, the air tactical commander contacted *R163*'s captain and they discussed the weather, particularly the visibility and forecast of fog for the Lydd area, which had the potential to impact on the helicopter's ability to return to base. It was agreed that *R163*'s captain would assess the weather conditions and report back to the air tactical commander with a decision on whether to launch the helicopter. At 0231, the maritime tactical commander logged a narrative message in the incident management system confirming that the fixed-wing aircraft was unable to fly and outlining the plan to contact *R163*'s captain.

R163's captain evaluated the weather and woke the helicopter's co-pilot to discuss the situation with them. The captain then spoke to the JRCC air tactical commander and, while noting that they had reservations about the weather conditions and the possibility of fog preventing a return to Lydd, accepted the tasking and aimed to be airborne at 0330. The captain confirmed that *R163* would patrol the south-westerly traffic separation zone with a mission to search for, identify and localise the positions of migrant boats. The initial plan was for a 90-minute sortie and *R163*'s captain was requested to carry a liferaft in the helicopter. *R163* was recorded as being tasked at 0246.

The level of shouting and the tone of the 0148 call from incident *Charlie* and the potential seriousness of the situation led the SMC at MRCC Dover to prepare a "Mayday Relay"[14] message to alert shipping in the immediate vicinity. The broadcast[15] was based on the 0201 WhatsApp position received for incident *Charlie* and stated:

> *Small craft with 40 persons on board in position 51°08.5N 001°44.5E, this bears 244°, 1.8nm from Sandettie light vessel, taking water and requiring immediate assistance any vessel that can assist to contact Dover coastguard.* [sic]

The JRCC broadcast the "Mayday Relay" on behalf of MRCC Dover at 0227 and repeated it at 0247, 0301 and 0320. At the time of the first "Mayday Relay" broadcast the SMC at MRCC Dover identified via the automatic information system (AIS) that the closest government vessel to the mayday position was the French navy patrol vessel *Flamant* **(Figure 4)**.

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[14] The International Convention for the Safety of Life at Sea (SOLAS) 1974, Chapter V, obliges a vessel in receipt of a "Mayday Relay" to establish communications as directed and render such assistance as required and appropriate. Such a message should be acknowledged within an appropriate timescale via the associated frequency in the same band in which the distress was received. Where the duty to assist cannot be met, such as when a vessel is unable to assist or if it is unreasonable or unnecessary to do so, the RCC should still be contacted, and an entry made into the ship's logbook. For example, it may be considered unreasonable to respond if the distress is too far away, or if it endangers their own vessel.

[15] The full broadcast was: "*Mayday Relay (x3), All Stations (x3), This is Dover Coastguard (x3), Mayday information number 1, Small craft with 40 persons onboard in position 51° 08.5N 001° 44.5E, this position bears 244°, distance 1.8 nautical miles from Sandettie Light Vessel, Taking Water and requires immediate assistance, Any vessel that can assist call Dover Coastguard, Date time group 240224UTC. This is Dover Coastguard.*" [sic]

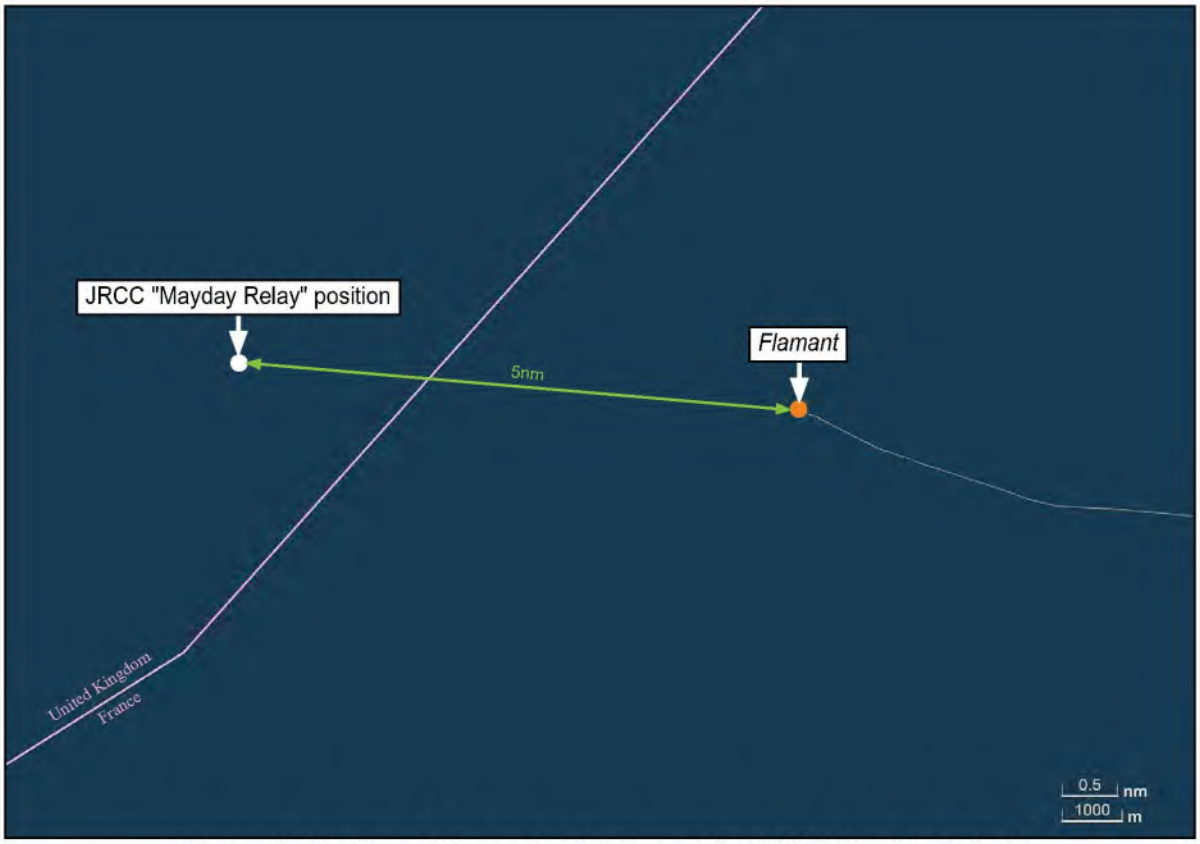

Figure 4: Position of *Flamant* at the time of the 0227 "Mayday Relay"

Around the same time as the "Mayday Relay" was being prepared for broadcast MRCC Dover received an emergency[16] call from a migrant boat. The caller stated that they were in the middle of the sea between France and England, their engine had stopped and the boat was sinking. Screaming and shouting could be heard in the background and the caller went on to say that their boat had departed from Dunkirk at about 2100 and that they could see a vessel approximately 3km away. The call disconnected after nearly 5 minutes. MRCC Dover were able to determine that the call had come from a Vodafone mobile telephone; no position data or phone number was available. HM Coastguard initially raised the call as a separate incident in its incident management system and, at 0248, closed it as a repeat of incident *Charlie*.

Valiant responded to MRCC Dover 4 minutes after the first "Mayday Relay" broadcast. *Valiant* advised that the crew had heard the broadcast and plotted the Mayday position, which would take about 45 minutes to reach. MRCC Dover requested confirmation of which migrant incident *Valiant* was attending. *Valiant* stated that it had been tasked to an incident at 0130 and was unsure if this was the same event as the distressed craft referred to in the "Mayday Relay". After discussion with MRCC Dover, *Valiant* confirmed that it was heading to the *"Mayday Relay" position*. MRCC Dover highlighted that it believed *Flamant* was the closest vessel to the migrant boat. The coastguard incident management system was then updated to show that *Valiant* was proceeding to incident *Charlie*.

[16] 999 and 112 were the UK emergency telephone numbers. 112 was the pan-European equivalent to 999, which could be used in the UK. Emergency Call Handling Centre operators would transfer the caller to the emergency service requested. 999 and 112 calls to the coastguard from vessels in the Dover Strait were transferred to MRCC Dover.

At 0232, the SMC at MRCC Dover received a 7-minute call from a migrant boat. The caller repeatedly asked for help and stated that the boat *was broken*. The caller informed the SMC that the boat had left from Calais and there were 40 people on board but was unable to tell them the colour of the boat. During the call the SMC heard a voice in the background that they recognised as the 0148 incident *Charlie* caller. The SMC asked if the occupants of the boat had called the coastguard before and explained that they needed to stop making repeat calls as this gave the impression that there were multiple boats in distress and that searching for these nonexistent boats may hinder the attempts to find *Charlie*. The SMC reiterated that a rescue vessel was on its way to them and confirmed that they were from the UK authorities. HM Coastguard raised the call as a separate incident within its incident management system and then immediately closed it as a repeat of incident *Charlie*.

By 0237, the HM Coastguard migrant tracker had reached incident *Lima*, incident *Kilo* having been created by MRCC London based on a call to the Metropolitan Police from a migrant boat in the Dover Strait; about an hour after incident *Kilo* was created the coastguard reconciled it as being a repeat of incident *Juliet*, which was then closed. Incident *Lima* was created based on French migrant 10[17], which was reported by *Flamant*.

At 0240, the Port of Dover called MRCC Dover to report that it had a caller from a migrant boat on the line; this was the fourth call from the same telephone number. The call disconnected before it could be transferred to MRCC Dover and was identified in the coastguard incident management system as being a repeat of incident *Alpha*, which was itself a repeat of incident *Foxtrot*.

At around the same time as the call from the Port of Dover, MRCC Gris-Nez called MRCC Dover and spoke to the SMC about French migrant 7 (UK incident *Charlie*). MRCC Gris-Nez asked if a rescue vessel was proceeding to the incident as it was receiving calls requesting help and reporting that people were in the water. During the 4-minute phone call MRCC Gris-Nez informed MRCC Dover that the telephone number from which the calls were received was the same as that recorded for UK incident *Alpha* and that there was a possibility that *Alpha* and *Charlie* were the same incident. The SMC at MRCC Dover responded that lots of calls from the boat had been received and a "Mayday Relay" had been broadcast. The SMC then explained that *Valiant* was proceeding to the incident but was 9.5nm away and that *Flamant*, at 3nm away, was the nearest vessel able to respond to the distressed and reportedly sinking migrant boat. MRCC Gris-Nez stated that *Flamant* was currently escorting migrant 10 (recorded as both UK incident *Kilo* and *Lima*). The SMC asked for the status of migrant 10 given that UK incident *Charlie* was sinking and reaffirmed that HM Coastguard had broadcast a "Mayday Relay" and *Valiant* was making best speed. The French coastguard operator explained that a colleague was on the telephone with migrant 7 (UK incident *Charlie*) and that it was "*not good*" that MRCC Gris-Nez kept receiving calls from them. The operator asked how long it would be until *Valiant* would reach the craft, to which the SMC replied that *Valiant* was proceeding at 15 knots (kts) with a further 9.5nm to go, making an estimated time to the scene of 35 to 40 minutes. The French operator gasped on hearing *40 minutes* and the SMC reiterated that *Valiant* was making best speed and *Flamant* was the closest vessel **(Figure 5)**.

At 0249, *R163*'s captain spoke with an operator at MRCC Dover to reiterate their aim to be airborne at 0330 and confirm that distress calls had been received from migrant boats. The operator at MRCC Dover then transferred the call to the SMC

[17] Note that UK incident *Juliet* was also created on the basis of French migrant 10.

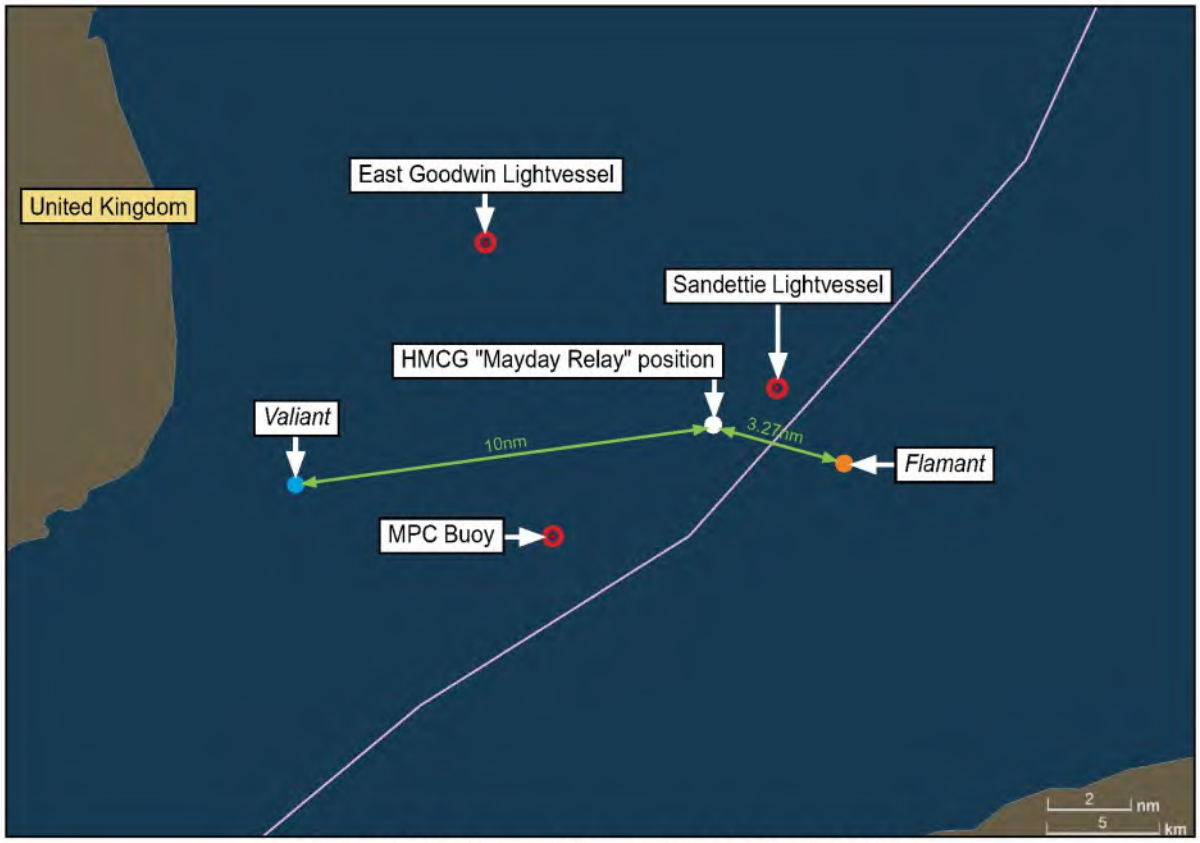

Figure 5: Positions of *Flamant* and *Valiant* at 0242

and *R163*'s captain explained to them that they would need tasking instructions once airborne. The SMC responded that there had been multiple calls from migrant boats, some of which were suspected to be duplicates from the same boat. The SMC requested an initial search area from the MPC buoy up to the Sandettie Lightvessel and to the East Goodwin Lightvessel, taking into account the north-easterly tidal stream. The SMC confirmed that this was a search mission rather than a rescue mission, noting the difficulties of winching people to safety from a small boat; *R163*'s captain confirmed that the helicopter would carry a liferaft. The SMC further noted that *Valiant* was heading to one migrant boat and another two were reported to be heading for the search area.

At 0257, the coastguard mobile phone received a WhatsApp call from M5. This was not answered. Shortly after 0300, the HM Coastguard incident management system was updated to record that incident *Bravo* was closed as a repeat of incident *Charlie* and that incident *Alpha* was closed as a repeat of incident *Foxtrot*. The SMC recorded a comment that due to the similarities in call narrative and background noise it was possible the *Foxtrot* calls were from incident *Charlie*.

At 0306, an emergency call handler transferred a call to MRCC Dover when the caller asked for a rescue boat. The call lasted about 1.5 minutes before the line failed. The caller stated that they were in a small boat with 35 people on board, including children and pregnant women. They reported that they were about an hour away from the UK coast, that the boat was broken and sinking and that half their body was in the water; neither a position nor a telephone number were available from the emergency call handler. The call was not assigned as a duplicate of any of the open incidents from *Alpha* to *Lima* nor was a new small boat reference assigned to the incident.

Meanwhile, at 0311 the SMC and Border Force MCC held a discussion about the UK migrant tracking spreadsheet (UK tracker) and the status of various incidents. The MCC requested clarification on incidents *Bravo* and *India*. The SMC stated that they believed these incidents to be repeats of *Charlie* as the numbers and narratives matched; they also clarified that no boats had been picked up by the French. The SMC went on to say that *Valiant* was proceeding to incident *Charlie*, which was thought to be south-west of the Sandettie Lightvessel. They explained that one reason for transmitting the "Mayday Relay" had been to generate a response from *Flamant* as it was the closest government vessel to incident *Charlie*, which was reportedly *full of water*, but *Flamant* had not responded. The SMC went on to say that *Flamant* was, by then, proceeding away from the median line, which suggested that the two migrant boats it was previously escorting had probably crossed into UK waters. The SMC and MCC discussed the information received from the French about the numbers of migrants on board each vessel and the capacity of *Valiant*. The SMC then confirmed that the French tracker showed French migrants 10 (recorded as both UK incidents *Kilo* and *Lima*) and 11 (later created as incident *Mike*) had entered UK waters along with migrant 3 (UK incident *Delta*). While plotting the position of migrant 3 (*Delta*), using information from the French tracker, the SMC noted that it was to the south of *Valiant* and in the same vicinity as *Charlie* and that migrant 10 and migrant 11 were in the vicinity of the Sandettie Lightvessel. The SMC affirmed that *R163* had been tasked and they hoped it would be on scene soon to assist with an area search.

At 0312, the coastguard mobile phone received a call from M5, which was not answered. Also at 0312, MRCC Dover received a call on its routine telephone line. The caller requested help, saying that they were in the water, that there were 40 people on board, and that they were "*finished*". The coastguard operator asked where they were, to which the caller responded that they were in English waters. The coastguard operator asked where in English waters and advised the caller to try calling 999 as they might then be able to obtain position data from the call. The caller replied, "*It will not work*", and the coastguard operator said that if 999 did not work, they were likely to still be in French waters. The call then disconnected. The call was not assigned as a duplicate of any of the open incidents *Alpha* to *Lima* nor was the incident assigned a new small boat reference.

After the discussion with the Border Force MCC, the SMC of MRCC Dover called *Valiant* and advised that there were migrant boats reported north of the Sandettie Lightvessel and to be aware as they arrived in the area. *Valiant* reported that it was in the vicinity and approaching slowly due to the concern of running over anything or anyone in the water. The SMC acknowledged the information and advised that *R163* intended to launch at 0330.

By this time incident *Mike* (French migrant 11) had been created with position and speed information relayed from MRCC Gris-Nez based on a sighting by *Flamant*. Incident *Lima* was changed to the *Distress* phase based on an update from the French tracker that placed the boat within UK waters.

At 0324, *Valiant* reported to MRCC Dover that it was in the vicinity of the last known position for incident *Charlie* and had not found anything; its intention was to proceed towards the Sandettie Lightvessel as a stopped boat might drift north.

Shortly before 0330, *R163*'s crew detected a technical fault as the helicopter was taxiing. The engines were shut down and the system was checked and restarted, which cleared the fault.

At 0328 MRCC Dover had updated the position of incident *Charlie* to that received at 0221 via WhatsApp. At 0333, MRCC Dover sent a further WhatsApp message to M5 requesting an updated position. The status of this message was *sent* but it was not recorded as *delivered*.

Meanwhile, the crew of *Valiant* detected two migrant boats at a range of about 0.7nm using the vessel's thermal imaging camera. One of the boats was stopped in the water and the other was moving. At 0334, *Valiant* reported the sighting and its position to MRCC Dover and began heading towards the stationary boat **(Figure 6)**.

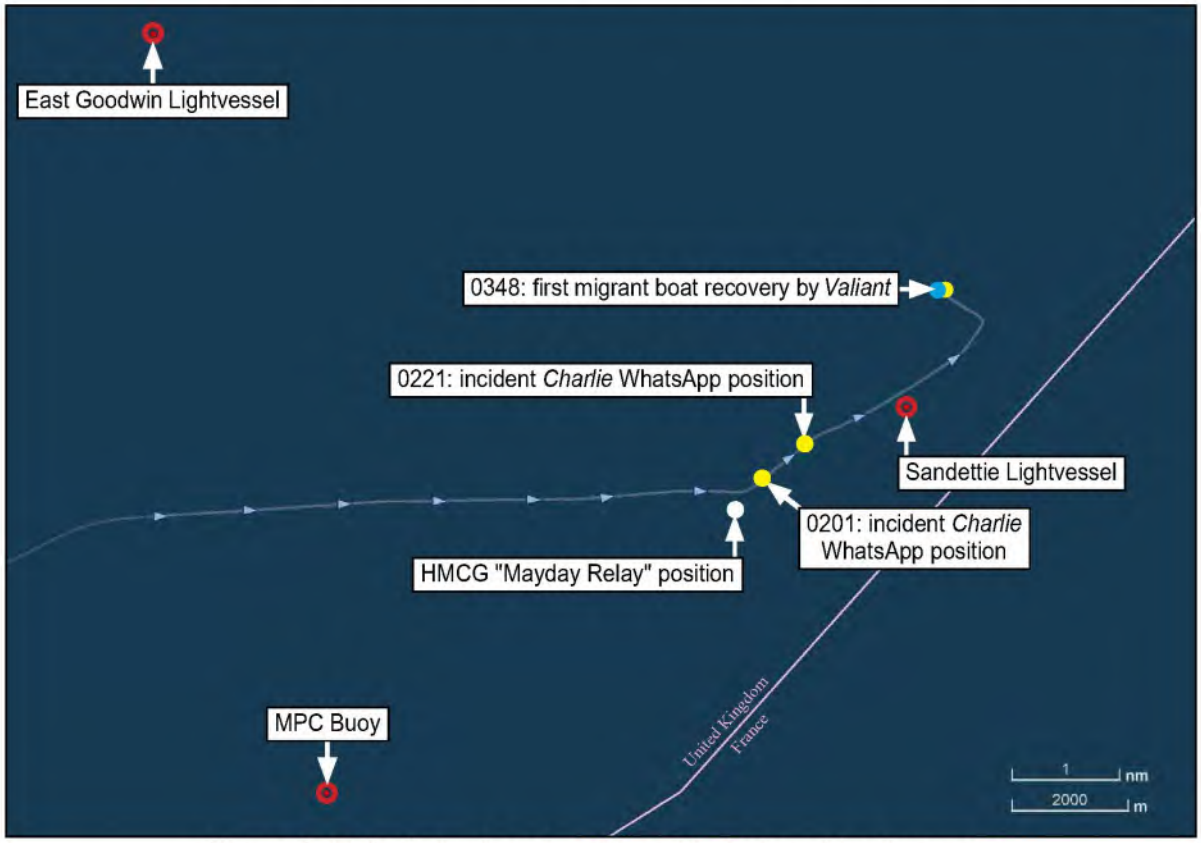

Figure 6: *Valiant*'s track and position of first migrant boat recovery

MRCC Dover discussed the "Mayday Relay" with the JRCC and it was noted that no further repeat broadcast was required as *Valiant* was in the vicinity of two migrant boats. The SMC at MRCC Dover logged comments on incidents *Lima* and *Mike* to the effect that *Valiant* was searching for incident *Charlie* in the vicinity of these boats and had spotted multiple targets.

As *Valiant* approached the stationary migrant boat it became clear that the situation was not as the master had expected; the boat was not taking on water and did not appear to be in distress, contrary to the reporting received during the passage to the search area. Nevertheless, *Valiant*'s crew prepared to recover the migrants from the stationary boat. As these preparations were ongoing the moving migrant boat that *Valiant* had also detected disappeared out of view.

At 0345, *R163* took off and began proceeding to the scene. Three minutes later, at 0348, *Valiant* hailed MRCC Dover via VHF to report its position and advise that the vessel was with a stopped migrant boat that had an estimated 40 people on board. The SMC of MRCC Dover suggested that this was likely to be incident *Charlie* and

shared the name and telephone number provided during the 0148 emergency call from the boat's occupants. *Valiant* confirmed that it would use this information when it engaged with the boat and reported that it had seen at least one other migrant boat in the area. The SMC acknowledged that *Valiant* had sighted two boats and noted that there may be multiple boats but that some could be duplicates of other calls or reports from the French authorities. The SMC further advised that there had been a delay with the helicopter and that they were hoping to get more information when it was airborne. This information was recorded against incident *Charlie* in the coastguard incident management system.

Just before 0400, the coastguard log was updated and incident *India* was closed as a repeat of *Charlie*.

Once *R163* was airborne it was assigned to incident *Charlie* and identified as being tasked from Lydd airbase with an endurance of 2 hours and 40 minutes. The SMC of Dover MRCC informed the crew of *R163* that *Valiant* was on scene with a migrant boat stopped in the water and had sighted one other craft. They recommended that *R163* search around the Sandettie Lightvessel with either an expanding square or parallel track pattern as it saw fit as boats had been reported in the vicinity; at 0402, *R163* began an expanding square search.

At 0404, the maritime tactical commander at the JRCC flashed a message to the national network stating that they were taking a meal break and provided their phone number; they then logged out of the incident management system. At 0557, they logged back in.

While *Valiant* was on scene with the stopped migrant boat, the occupants were asked whether they had called HM Coastguard. The migrants responded that they had not called the coastguard. At 0416, *Valiant* reported this information to MRCC Dover and advised that the found boat was a black rigid-hulled inflatable boat (RHIB). By 0436, *Valiant*'s crew had recovered 35 people from the boat: 20 males, 2 females and 13 minors. The reference *M957* is later recorded against incident *Charlie* in the HM Coastguard and Border Force tracker spreadsheets[18].

At 0416, MRCC Dover made an outgoing WhatsApp call to M5 that was unanswered. Meanwhile, *R163* located a migrant boat that was light grey in colour with 30 people on board. As the boat was under power and heading west with no perceived imminent threat or danger to life *R163* reported its position to MRCC Dover at 0418 and continued with the expanding square search **(Figure 7)**. MRCC Dover advised *R163* that *Valiant* would attend to the boat when it had finished with the stopped boat (*M957*). At 0443, *Valiant* began proceeding to the boat located by *R163*. This information was also recorded against incident *Charlie* on the coastguard incident management system.

At 0500, an additional officer came on watch at MRCC Dover. The additional officer was an SMC qualified team leader from another coastguard station who had volunteered to support MRCC Dover during periods of high migrant boat activity. On 24 November, they acted as a coastguard operator and did not perform mission coordination or SMC functions.

[18] After all the migrants had been recovered from a migrant boat by a Border Force asset, the boat was given a unique number for cross-referencing. Where possible, this was spray painted onto the boat if abandoned so that it could be reconciled if later found by another vessel or aircraft.

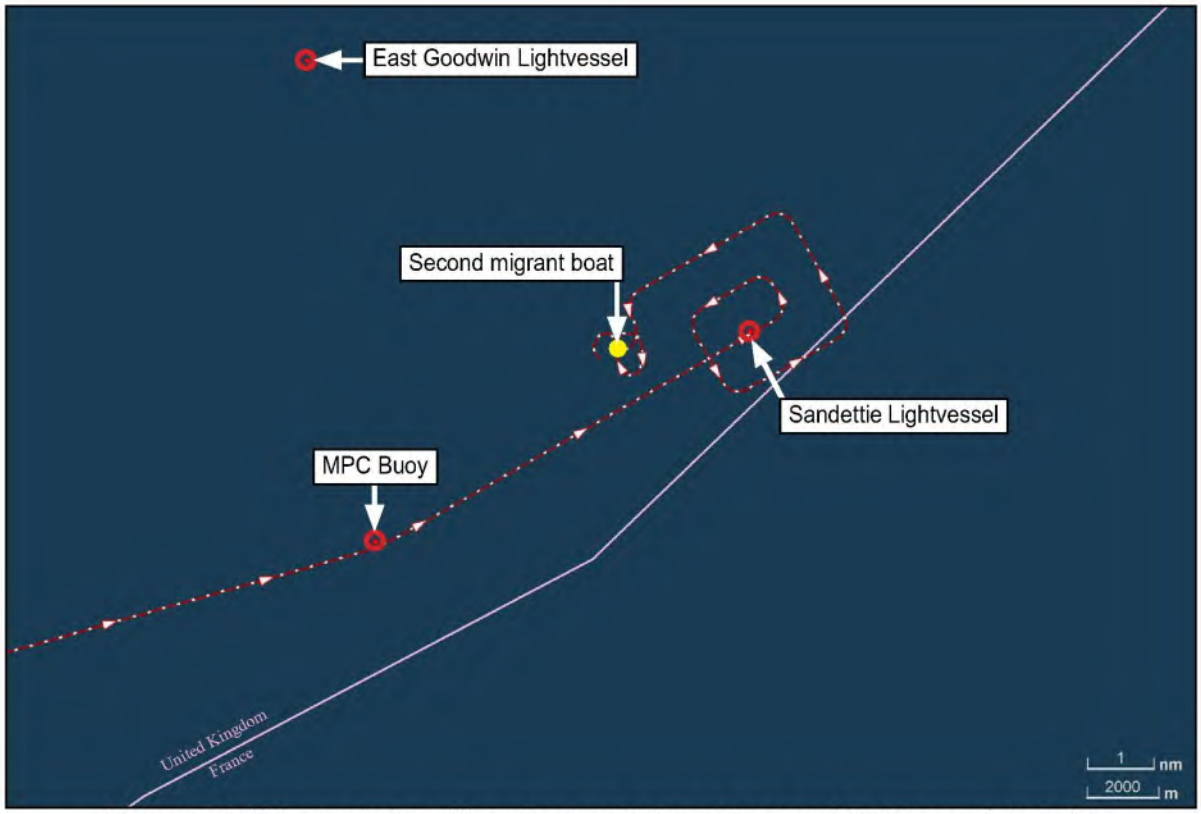

Figure 7: Initial reported position of second migrant boat and *R163* search to 0418

At around 0510, incidents *November* and *Oscar* were created. These incidents were based on separate calls received by Kent Police from a migrant boat with 32 people on board. The caller stated that the boat's colour was black, it was taking on water and the engine was running, but with limited fuel remaining. Position information was recorded for incident *Oscar*. Shortly after these incidents were created incident *Oscar* was closed as a repeat of incident *November*.

At about the same time, *R163* had provided an updated position for the second boat; neither a colour nor further description was provided as the helicopter's crew was using its infrared camera. *R163* confirmed to MRCC Dover that at the end of its fuel endurance the intention was to return to base at Lydd and not relaunch to the scene.

At 0519, *R163* relayed the position of a third migrant boat to MRCC Dover **(Figure 8)**, reporting that the boat was moving and it did not perceive a risk to life; however, the helicopter had since lost sight of the boat due to a fault with its infrared camera.

At 0521, *Valiant* reached the second migrant boat, which was underway. Border Force MCC designated the boat *M958*, which was later recorded against incident *Lima* in the HM Coastguard and Border Force tracker spreadsheets. *Valiant*'s crew recovered 31 males from the light grey boat and then marked and abandoned the empty craft. By 0555, the recovery had been completed. None of the boat's occupants initially claimed to have contacted the UK authorities but one later remembered seeing someone on board make a call.

While *Valiant* was engaged with *M958* the SMC of MRCC Dover continued to manage the ongoing migrant incidents. At 0527, they entered a comment against incident *Lima* stating that it was believed that this was the craft intercepted by *Valiant* at 0423 (*M957*).

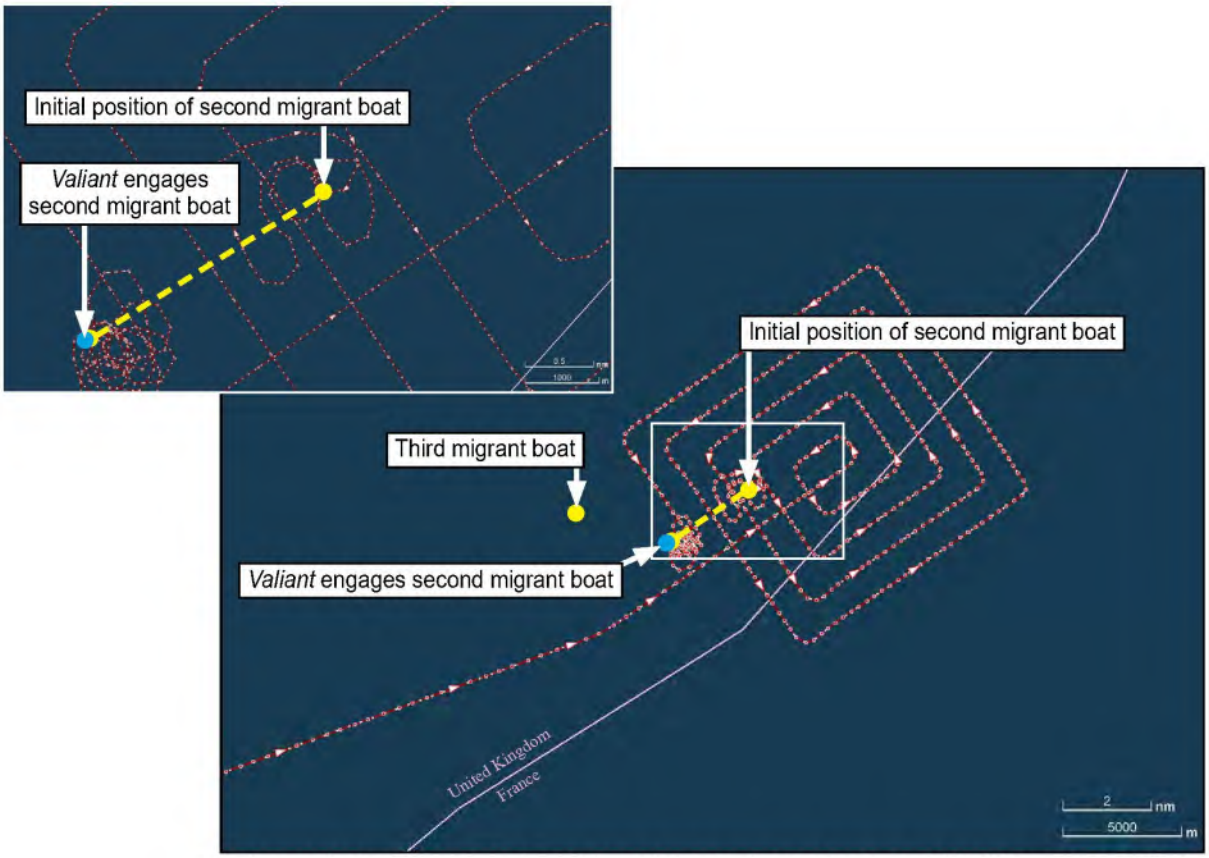

Figure 8: Initial reported position of third migrant boat and *R163* search to 0519

Between 0500 and 0530, staff, including the clandestine operations liaison officer (COLO), started work in the Dover Joint Control Room (JCR).

Meanwhile, *R163* continued its expanding square search and, at 0528, alerted MRCC Dover, via the JRCC, to the updated position of the third migrant boat. This boat, which was originally reported at 0519, was heading west and showing no signs of distress. *R163* estimated that the craft was 8m in length with approximately 30 people on board. *R163* separately advised the tanker *MT Elisabeth* that its heading would intercept the projected track of the migrant boat. About 10 minutes later, *R163* advised *MT Elisabeth* that it had safely passed the boat and could continue on passage. Shortly after *R163* had reported the updated position for the third migrant boat sighting MRCC Dover received an emergency call from a migrant boat. The caller stated that they could see the helicopter and gave their position. This call was designated as incident *Papa* but almost immediately identified as a repeat of incident *November*. The SMC added a comment against incident *November* that the boat from which the emergency call had originated had been observed by *R163* and that, based on the last known position, this could be a repeat of incident *Delta*. As *R163* had observed no visible signs of distress and the boat was making way at about 4kts in a westerly direction, MRCC Dover downgraded incident *November* from the *Distress* phase to the *Alert* phase. At this time, *Valiant* was 4.5nm from the boat. At 0544, *R163* resumed its search, having confirmed with MRCC Dover that it could continue as the boat was not in imminent danger. At 0607, *Valiant* began making its way to the third migrant boat (incident *November*).

At 0625, *R163* landed at Lydd having completed its expanding square search. At about the same time, *Valiant* made contact with the third migrant boat and launched its RHIB to investigate; this migrant boat was designated *M959*, which

was later recorded against incident *November* in the HM Coastguard and Border Force tracker spreadsheets. The boat was stopped in the water and its occupants were waving, information that was initially recorded against incident *Charlie* in the coastguard incident management system. Ten minutes later, the coastguard incident management system was further updated against incidents *Charlie* and *November* to record that *Valiant* was on scene. By 0722, *Valiant*'s crew had recovered 32 people from the third migrant boat (incident *November*, *M959*): 21 males, 4 females and 7 minors. With 98 migrants on board *Valiant* was at maximum capacity and began its passage back to Dover.

At 0700, the JRCC night watch maritime tactical commander handed over to the two daytime tactical commanders. At 0723, MRCC Dover's SMC entered an end of shift narrative into the coastguard incident management system and handed over to the day watch SMC. At 0730, the small boat tactical commander (SBTC) arrived at the operations room in Dover. Given the activity levels at the MRCC, the arriving SBTC acted as a mission coordinator (MC), assisting the day watch SMC.

At 0816, *Valiant* berthed in Dover and began disembarking migrants. At 1030, *Valiant* was stood down and instructed to proceed to Ramsgate.

At 1008, one of the JRCC maritime tactical commanders identified in the coastguard incident management system that the note against incident *Charlie* in the UK tracker spreadsheet showed it as resolved with *Valiant* tasked, 41 people recovered and the craft abandoned and marked.

Throughout the morning and early afternoon of 24 November, HM Coastguard continued to receive calls related to migrant incidents. These calls and reports were received from multiple sources, including: MRCC Gris-Nez, emergency call handlers, the Port of Dover, the UK police and merchant vessels in the Dover Strait. Migrants were picked up by Border Force vessels *Valiant*, *Hunter* and *Hurricane* and RNLI lifeboats from Hastings, Dover and Dungeness; there were also multiple beach landings. From 0729 until at least 1410, the Border Force UAV AR3 was airborne. Between 1010 and 1338, the Lee-on-the-Solent coastguard helicopter R175 provided aerial search support to an area of the Dover Strait in the Dungeness region. Between 1029 and 1544, the coastguard fixed-wing aircraft CG26 was airborne and searching for small boats. This flight was originally scheduled to be an Amber day patrol; however, the aircraft was re-tasked by HM Coastguard to respond to small boat sightings.

On 24 November 2021, HM Coastguard recorded 99 separate migrant incidents and 757 migrants were recorded as making the crossing.

1.3.5 Closing incidents

Between 1521 and 2135 on 24 November, the migrant boat incidents that remained open on the coastguard incident management system were closed, including *Charlie*, *Delta*, *Echo*, *Foxtrot*, *Hotel*, *Kilo*, *Lima*, *Mike* and *November*. Incident *Charlie* was closed at 1521, with the message *Incident is closed*. Some incidents were closed with the longer message:

> *After the cessation of multiple migrant incidents during today. No further calls have been received for this incident or further confirmed sightings. Areas of interest have been searched with nothing untoward found. With this in mind, it is being closed pending further information.* [sic]

1.3.6 Trackers

MRCC Gris-Nez, MRCC Dover and UK Border Force all maintained separate spreadsheets to keep track of migrant incidents. These spreadsheets, known as trackers, recorded information about migrant incidents, including position data, outcomes and the number and disposition of people on board. None of the trackers included information on the emergency status[19] of any particular incident. MRCC Gris-Nez sent French tracker updates to an email address monitored by both HM Coastguard and Border Force MCC. Throughout 24 November 2021, MRCC Gris-Nez shared tracker information with MRCC Dover and the two trackers were updated. MRCC Dover also shared information with UK Border Force. Outcomes for migrant boats on HM Coastguard's tracker were not usually updated in real time and were often resolved at the end of the day. HM Coastguard's tracker included information on which incidents were deemed to be repeats as well as the Border Force M numbers assigned for found boats and the French designations of UK migrant incidents.

The HM Coastguard tracker for 24 November 2021 recorded the three migrant boats disembarked by *Valiant* as follows:

- *M957* incident *Charlie*
- *M958* incident *Lima*
- *M959* incident *November*

This information matched the UK Border Force tracker update at 1000 on 24 November 2021. The time that the information was recorded in the HM Coastguard tracker is unknown.

1.4 ENVIRONMENTAL CONDITIONS

1.4.1 Tides and tidal stream

On 24 November 2021, the Dover Strait tide times, states and heights were as shown in **Table 1**. Between 0300 and 0730, the tidal streams were at 50% spring rates and setting in a north-easterly direction at up to a maximum rate of 2kts.

Dover			Calais		
Time (HHMM)	State	Height (m)	Time (HHMM)	State	Height (m)
0108	High	6.19	0145	High	6.6
0826	Low	1.60	0842	Low	1.7
1318	High	5.98	1400	High	6.5
2041	Low	1.76	2059	Low	1.9

Table 1: Tidal data for the Dover Strait

[19] The International Aeronautical and Maritime Search and Rescue (IAMSAR) emergency phases are detailed in section 1.13.1.

1.4.2 Ephemera and weather forecast

On 23 November 2021, moonrise was at 1841. On 24 November 2021, sunrise was at 0726 and astronomical twilight began 2 hours before; moonset was at 1204.

The shipping forecast at 0015 on Wednesday 24 November 2021, issued by the Meteorological Office (Met Office) on behalf of the Maritime and Coastguard Agency (MCA) for the period from midnight on Wednesday 24 November to midnight on Thursday 25 November 2021, for sea area Dover forecast variable winds, Beaufort force 2 to 4; smooth or slight seas; showers and good visibility.

Border Force received weather forecasts specific to the likelihood of Channel crossings by small boats. The forecast produced at 1800 on 23 November 2021, and valid until 0600 24 November 2021, indicated that the moderate north-north-easterly winds would quickly become light winds. The associated wave heights of 0.7m to 0.9m would ease throughout the night, becoming 0.2m to 0.7m by the end of the period. This forecast also noted a risk of fog at Lydd, Dover and Doncaster airfields, though fog was unlikely over the Dover Strait. Patchy cloud with associated light showers was forecast for the French coast. Sea surface temperatures were forecast to be between 12°C and 14°C throughout the period. From midnight, air temperatures were due to drop from 5°C to 2°C at 0600, before rising again to 5°C. Further, favourable to optimum conditions were forecast for small boat launches from the beaches between Boulogne-sur-Mer and Calais through until 1800 on 24 November 2021.

1.4.3 Actual weather observed

The weather conditions recorded by the Met Office automatic weather station at Sandettie Lightvessel for 24 November 2021 are summarised in **Table 2**.

Time	Wind direction	Wind speed	Visibility	Air temp	Dew point	Vapour pressure	Relative humidity	Sea surface temp
(HHMM)	(from)	(kts)	(m)	(°C)	(°C)	(g/kg)	(%)	(°C)
0100	350	8	1000	10.1	7.3	102	83	13.0
0200	340	8	1000	9.8	7.5	104	86	13.1
0300	330	8	1000	9.7	7.6	104	87	13.0
0400	340	8	1000	9.5	7.1	101	85	13.0
0500	340	8	1000	9.6	6.8	99	83	13.0
0600	000	10	1000	9.6	6.9	100	83	12.9
0700	000	8	2000	9.4	6.6	97	83	12.9
0800	350	8	2000	9.3	6.5	97	83	12.9
0900	330	9	2000	9.1	6.4	96	83	12.9
1000	350	8	2000	8.7	6.1	94	84	12.9
1100	350	7	2000	8.6	6.2	95	85	12.9
1200	340	7	2000	8.4	5.9	93	84	12.9
1300	350	5	2000	8.4	6.0	9.4	85	12.9
1400	350	5	2000	8.4	6.0	9.4	85	12.9

Table 2: Weather data collected by Sandettie Lightvessel

1.5 THE BOAT AND ITS OCCUPANTS

1.5.1 The deceased

There were reported to be 33 occupants on board the inflatable boat, including men, women and children. Following the accident 27 bodies were recovered, 4 people reportedly remained missing and there were 2 survivors. The MAIB was unable to access a comprehensive list of the deceased and missing. The only detail provided was an incomplete list obtained through UK lawyers acting on behalf of some of the families of the deceased **(Annex A)**. The MAIB investigation was provided with information that telephone numbers M1, M2 and M5 were associated with named victims of the accident.

1.5.2 The inflatable boat

The size and construction of the inflatable boat used in the crossing attempt was not made available to the investigation, but examples of boats used in crossings with similar numbers of persons on board indicate that it was likely about 8m in length and of rudimentary construction. The boat was described as having an inflatable collar with four inflation points, a wooden and metal rigid floor and a flexible base. The MAIB investigation did not have access to the boat itself and was not provided with definitive detail of its construction, including the material used or whether it was made by a recognised manufacturer.

1.5.3 Equipment on board

It was variously reported that 14 of the occupants were wearing lifejackets and, conversely, that all on board were. The construction of the flotation devices and the consequent level of support they would have afforded to a person in the water was not available to the MAIB investigation. No information was available on whether any of the flotation devices were fitted with lights.

It was reported that the occupants of the inflatable boat carried two fuel containers, two manually operated air pumps and a small handheld global positioning system (GPS) device. No further details were available on the functionality of the GPS device and it is not known how or if position data was displayed and reported on the device. None of the emergency calls received made reference to the GPS device. The boat was not reported to be equipped with any lights.

1.5.4 Crewing

It was reported that the people facilitating the crossing attempt in France selected one of the occupants of the boat to helm the craft. This individual was given instructions on how to operate the engine and instructed to follow the direction indicated on the handheld GPS.

1.6 DEPLOYED ASSETS DURING EARLY HOURS OF 24 NOVEMBER

As detailed in the narrative, a number of surface and air assets were deployed during the course of the response to migrant crossings on 24 November 2021. The sections below detail the operations of the two UK assets that were dispatched in response to incident *Charlie* in the early hours of the morning, along with an overview of the characteristics and operation of the French vessel *Flamant*.

1.6.1 Border Force cutter *Valiant*

Her Majesty's Cutter (HMC) *Valiant* was a Damen Stan Patrol 4207 vessel built by Damen Shipyards in Holland and delivered in 2004 **(Figure 9)**. It was 42 metres in length and powered by two diesel engines driving controllable pitch propellers. It carried a jet-driven RHIB capable of transporting a boarding team. It was equipp ed with Radar, floodlights, thermal night imaging and day vision cameras. The cutter was capable of 26kts, with a normal patrolling speed of 13.5kts. It had a crew of between 10 and 12 that was led by a cutter commander.

Image courtesy of David David Potter (MarineTraffic.com)

Figure 9: HMC *Valiant*

HMC *Valiant* was alongside in the Port of Dover at 30 minutes' notice to deploy when tasked by Border Force MCC. The cutter had been used to recover people from small boats for the preceding 5 years. It was considered to have a good offshore surveillance capability and Border Force assessed it could safely carry up to 100 people in addition to its normal crew.

1.6.2 Summary of *Valiant* activity on 24 November

Following a discussion with HM Coastguard at 0120, at about 0130 on 24 November 2021, Border Force MCC tasked *Valiant* to deploy to the position of a suspected migrant boat inside UK waters. At 0200, *Valiant* departed from Dover and proceeded towards the position of incident *Charlie* that had been reported at 0128 via WhatsApp; *Valiant*'s target was updated to the "Mayday Relay" position while underway. On board were 11 crew and a member of the immigration enforcement Criminal and Financial Investigation team. At about 0324, *Valiant* arrived at the "Mayday Relay" position and, finding nothing, started searching towards the Sandettie Lightvessel. *Valiant*'s crew were using the cutter's mast-mounted mid-wavelength infrared thermal imaging camera when, at about 0335, they identified two suspected migrant boats, one moving and one stopped. *Valiant* proceeded towards the stopped migrant boat and deployed its RHIB to investigate. *Valiant* subsequently embarked 35 migrants from the stopped boat before proceeding towards the position of a second migrant boat, which had been reported by *R163*. At about 0519, *Valiant* made contact with the second boat and embarked 31 migrants. *Valiant* was then tasked to a third boat and, at about 0630, embarked a further 32 migrants. With 98 migrants on board *Valiant* had reached maximum capacity and so returned to Dover, where it berthed at about 0816 and, by 1030, had completed the disembarkation of the migrants **(Figure 10)**.

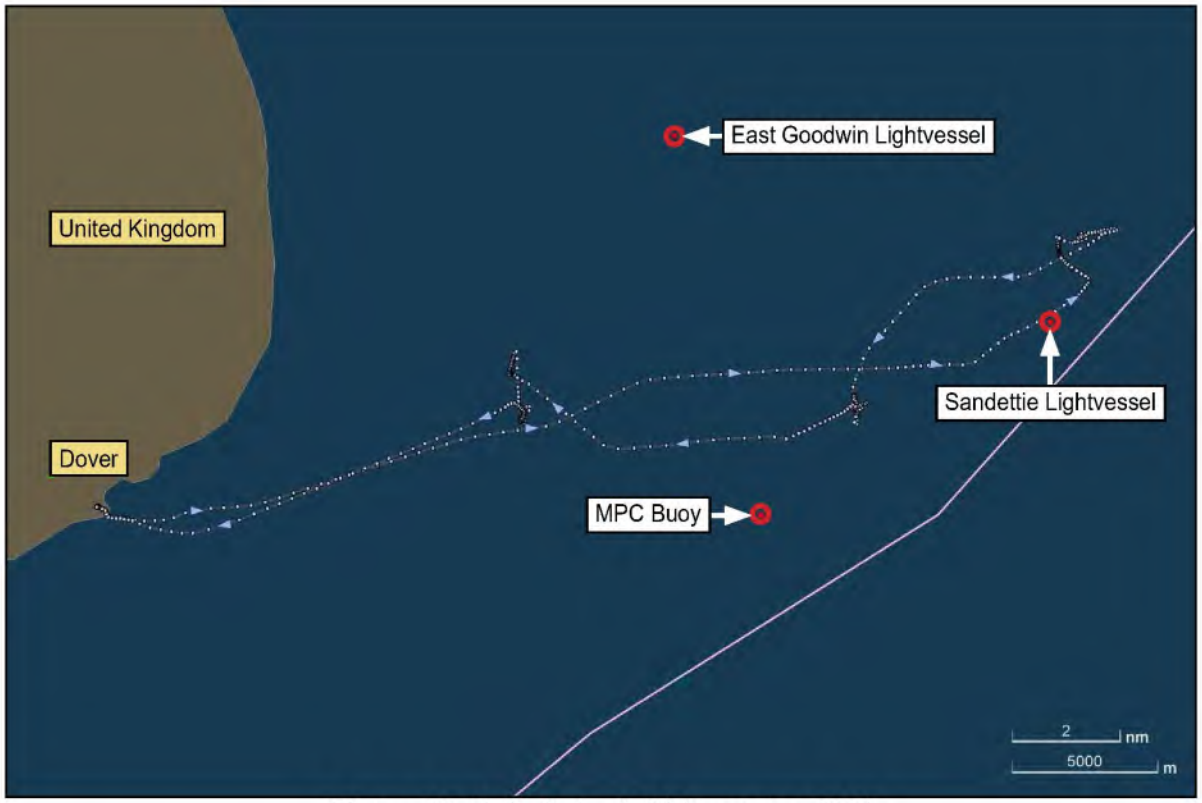

Figure 10: *Valiant*'s track 24 November 2021

1.6.3 Coastguard helicopter *R163*

R163 was a Leonardo AW189, twin-engine helicopter constructed in 2014 and operated by Bristow Helicopters on behalf of HM Coastguard. It was designed for offshore operations and could be configured with 16 passenger seats. It could cruise at 144kts and had a 443nm range and an endurance of over 3 hours. The crew were capable of operating with night vision goggles (NVG) and the aircraft was fitted with a forward looking infrared (FLIR) camera[20] to support SAR operations **(Figure 11)**.

Figure 11: An AW189 coastguard variant

[20] The FLIR covered mid-wavelength infrared, short-wavelength infrared and the visible spectrum. The FLIR was also equipped with a laser for target designation and enhancement of any target when using night vision goggles.

1.6.4 Summary of *R163* morning search on 24 November

On 24 November 2021, *R163* performed two flights. During the first flight, *R163* was airborne for 2 hours and 40 minutes between 0345 and 0625 and performed an expanding square search for migrant boats with the Sandettie Lightvessel as the datum point **(Figure 12)** at an altitude of around 250ft above mean sea level and a track spacing of 0.7nm. The suggestion of the expanding square search or parallel track pattern was based upon the SMC at MRCC Dover's experience of effective search patterns for locating migrant boats, particularly those that were moving. *R163* was manned by a captain and co-pilot in the front of the aircraft and a winch operator and winch paramedic in the rear. The aircraft crew searched using their NVG and the FLIR. Three migrant boats, including the boat initially located by *Valiant*, were detected and their positions were passed to *Valiant* via MRCC Dover. On completion of the expanding square search, and nearing the end of its fuel endurance, *R163* was stood down by the SMC and returned to Lydd.

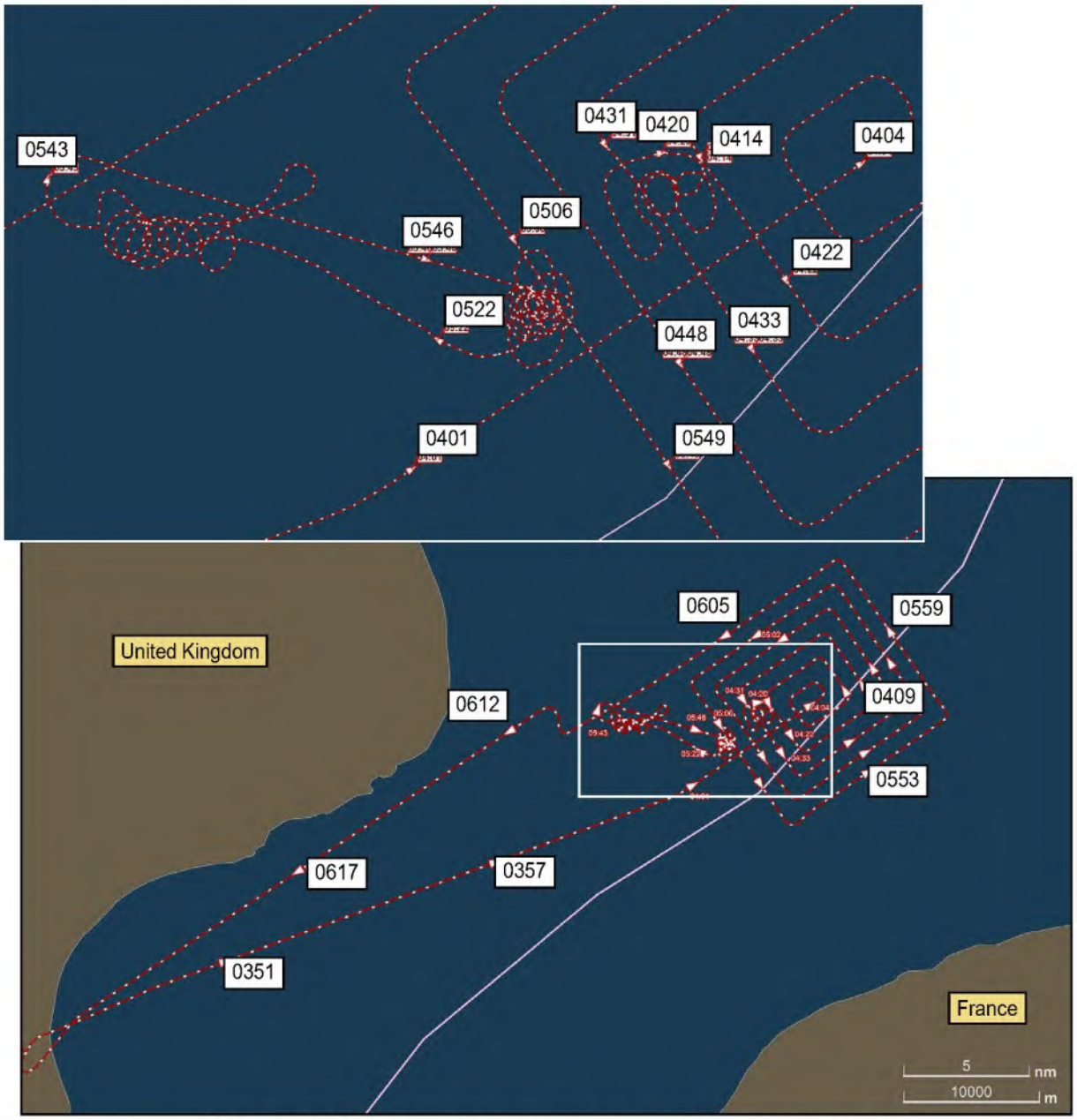

Figure 12: *R163*'s expanding square search 24 November 2021

1.6.5 French patrol vessel *Flamant*

The French navy patrol vessel *Flamant* was one of three *Flamant* class patrol vessels built by Constructions Mécaniques de Normandie, Cherbourg, France and entered service in 1997. It was 54 metres in length and had a maximum speed of 23kts. It carried a jet-driven RHIB with a maximum speed of 30kts. It had a crew of 21 and was based in Cherbourg, France.

1.6.6 Overview of *Flamant*'s activities on 24 November

The MAIB's investigation was not provided with details of *Flamant*'s tasking or operation on 23/24 November 2021. An overview of the vessel's movements was reconstructed through examination of AIS tracks and has been presented to add context to the narrative **(Figure 13)**.

1.7 THE DOVER STRAIT

1.7.1 General

The Dover Strait (Pas-de-Calais) is the body of water that connects the North Sea to the English Channel and is bound on either side by the coasts of the UK and France. At its narrowest point, the strait is approximately 18nm wide. A median line **(Figure 14)** separates UK and French territorial waters. The strait was the busiest shipping lane in the world and over 400 commercial ships transited it daily: the vessels would pass between the Atlantic, to the west, and European ports, to the east, and from the UK coast, in the north, to the French coast, in the south. Cross-channel ferries provided a key transit route for traffic crossing between the UK and mainland Europe with over 100 large freight and passenger ferry movements in the area per day. Fishing vessels also routinely operated in the area.

1.7.2 Traffic separation scheme

An International Maritime Organization (IMO) approved TSS existed for the safety of navigation of vessels transiting the strait **(Figure 14)**. An IMO approved mandatory vessel reporting scheme[21] also existed, which required all vessels over 300 gross tonnes (gt) to report entry and exit from the scheme.

The CNIS was established in 1972 and was responsible for providing a navigational safety service for shipping in the area. The CNIS was operated jointly by the UK and France from MRCC Dover and the Centre Régional Opérationnel de Surveillance et de Sauvetage (CROSS[22]) in Gris-Nez. Vessels over 300gt that were transiting the south-west lane reported to MRCC Dover, while those in the north-east lane reported to Gris-Nez Traffic.

1.7.3 Search and rescue in the Dover Strait

The Dover Strait was divided into two SRRs, with the SAR responsibilities shared almost equally between the UK and France. At the narrowest part of the Channel, the Dover Strait, the boundaries of the UK and French maritime SRRs aligned with

[21] Details of the reporting scheme were promulgated to mariners via the Admiralty List of Radio Signals (ALRS) Volume 5.

[22] CROSS had several missions covering SAR, navigation surveillance, pollution monitoring, fisheries control, environmental surveys and maritime safety information (MSI) broadcasting. CROSS Gris-Nez provided its SAR service through MRCC Gris-Nez and traffic monitoring through Gris-Nez Traffic.

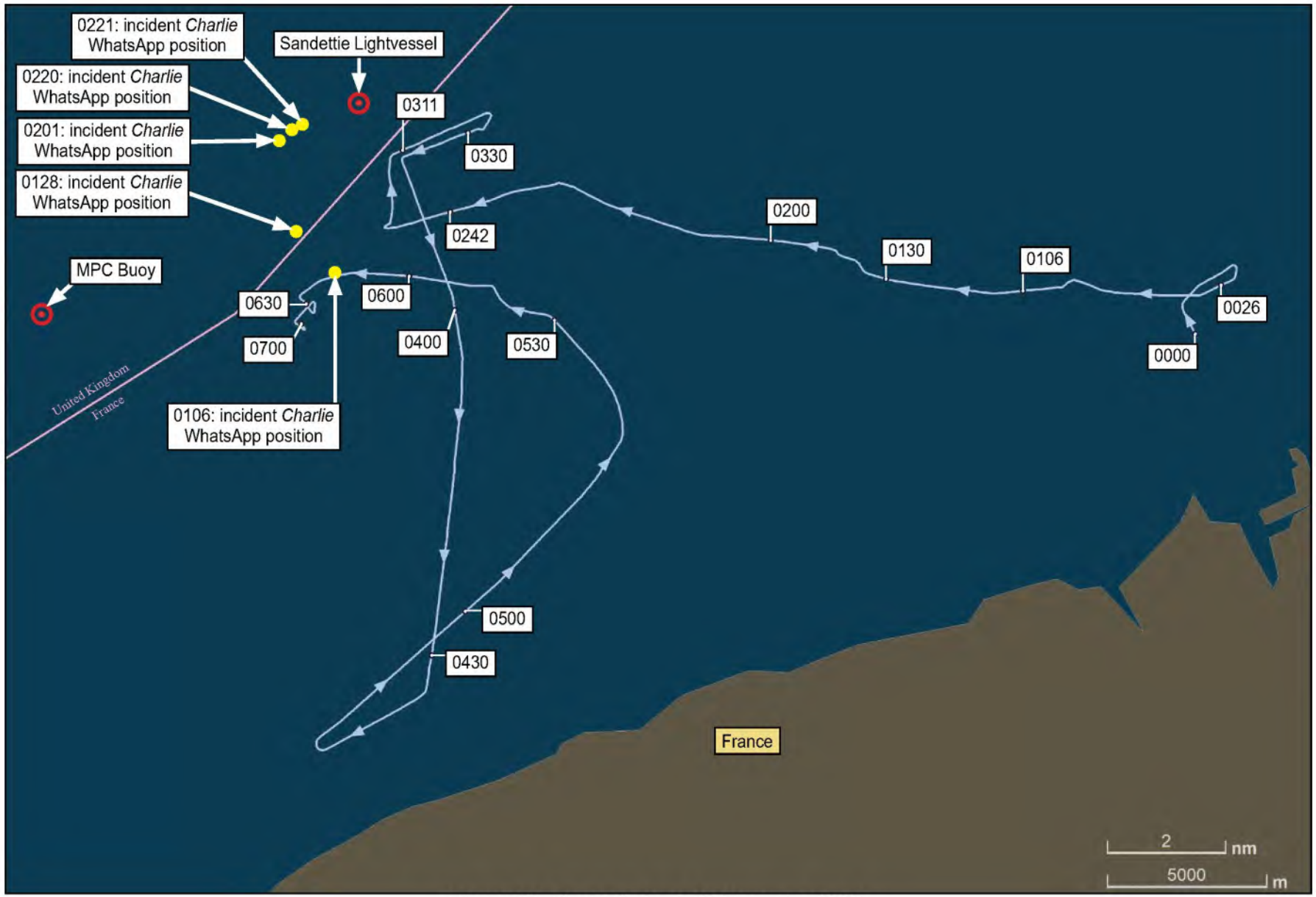

Figure 13: *Flamant*'s track 24 November 2021

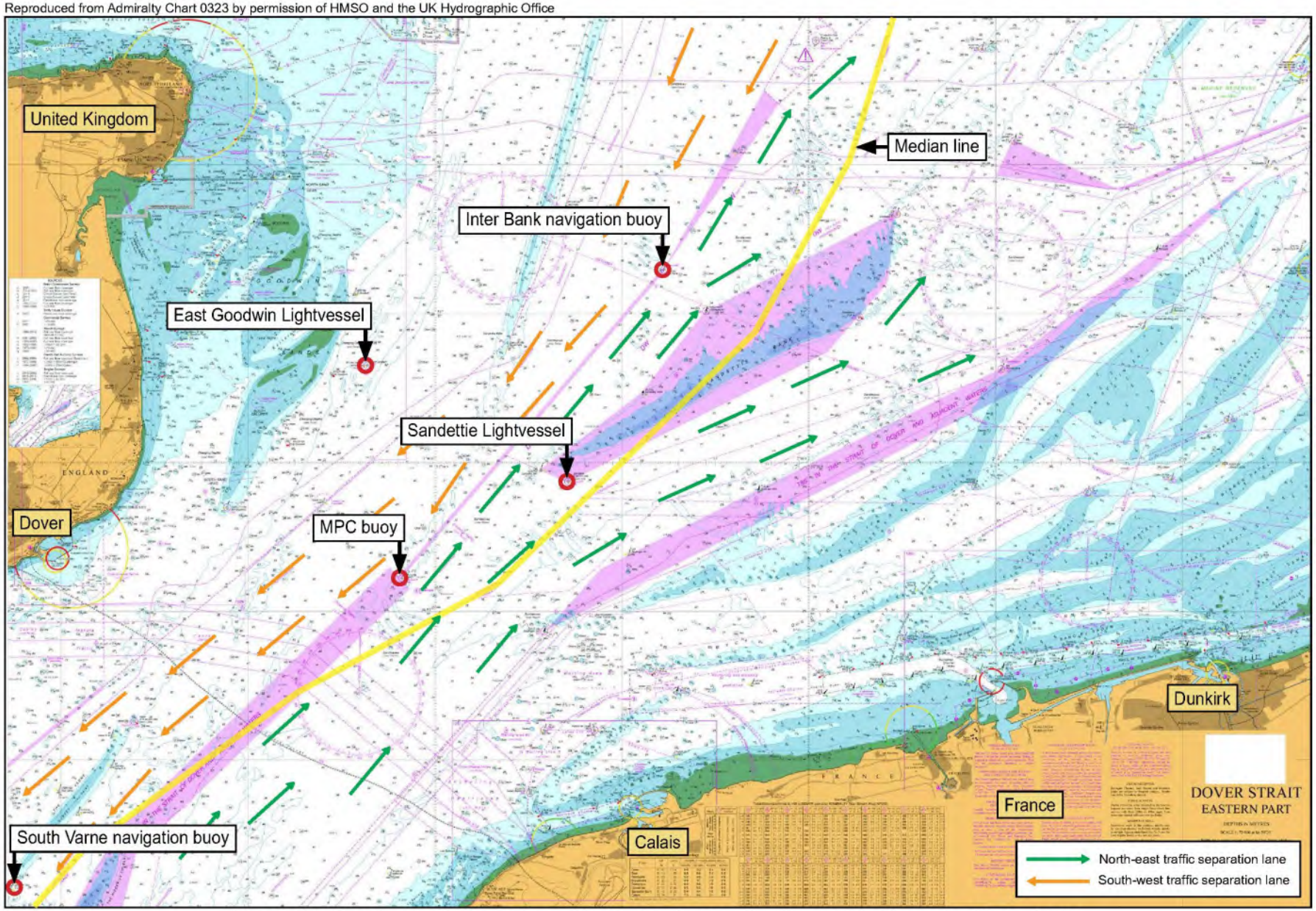

Figure 14: Chart extract of the Dover Strait, showing median line and traffic separation scheme

the territorial waters of the two nations. The SAR service in the Dover Strait was primarily coordinated by MRCC Dover for incidents occurring in UK waters and MRCC Gris-Nez for incidents occurring in French waters. The 2018 Anglo-French Joint Maritime Contingency Plan (Mancheplan)[23] for the English Channel provided the basis for the coordination and cooperation of SAR between the UK and French authorities.

The UK's aeronautical boundaries for the SRR were similar to its maritime boundaries. However, the UK's aeronautical SRR boundary did not precisely follow the territorial limits in the Dover Strait and partially extended into French waters.

1.8 MIGRANT BOAT ACTIVITY IN THE DOVER STRAIT

After at least 221 migrants had been intercepted on small boats in the Dover Strait during November and December 2018, the UK Home Secretary declared that the issue was a major incident. This decision brought national attention to migrant boat crossings, introduced ministerial briefings and allocated resources to the effort to detect and recover the migrants.

In 2019, the UK Home Office[24] recorded 164 incidents of small migrant boats detected arriving to or heading for the UK, carrying a total of 1843 people. In 2020, this had increased to 641 boats and 8466 people **(Figure 15)**. Numbers continued to rise significantly and, in September 2021, Border Force intercepted 160 boats carrying 4602 migrants; more migrants were intercepted crossing the channel that single month than during the whole of 2019. In contrast to 2020, when migrant numbers tailed off after September, the numbers in 2021 remained high throughout the autumn and, of the 28,526 people who arrived that year, 6971 of these did so in November.

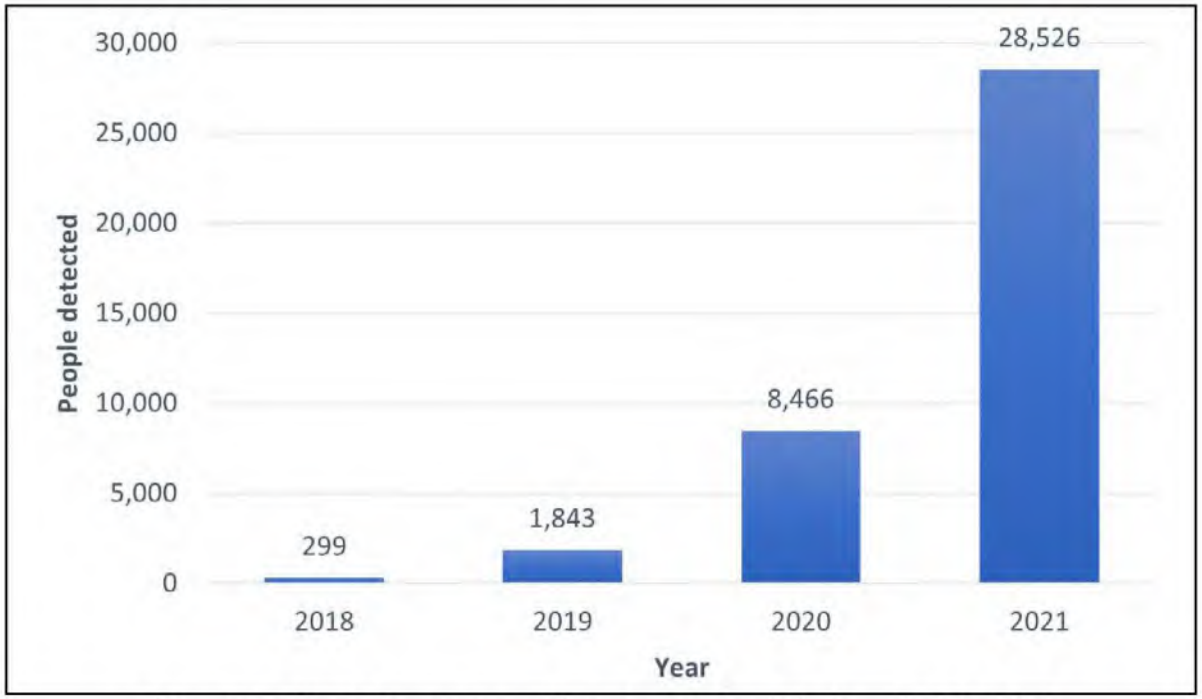

Figure 15: Graph showing escalation of migrant activity from 2018 to 2021

[23] https://www.premar-manche.gouv.fr/uploads/ckeditor_storage/manche/ManchePlan2018.pdf

[24] Home Office irregular migration to the UK statistics, published 24 August 2023.

The frequency of migrant crossings was closely related to the sea state rather than the seasons[25]. Those facilitating the crossing attempts were known to use mobile phone weather apps to identify when sea conditions were favourable for crossings.

The majority of crossings were attempted in inflatable boats, ranging from small inflatables intended for use as tenders **(Figure 16)** to larger boats of up to 10m that were capable of carrying greater numbers of migrants; routinely 40 to 50, occasionally up to 80 or more. It was reported that recovered boats often showed signs of poor construction and substandard materials and that many showed no sign of having been constructed by a recognised manufacturer. The migrant boats generally carried no safety equipment and there was no evidence of VHF radios, personal locator beacons or Emergency Position Indicating Radio Beacons; equally, the boats were neither registered nor fitted with radar reflectors, navigation lights, flares or AIS transponders. The wearing of a personal flotation device (PFD) was reported to be patchy, with some migrants recovered wearing solid foam lifejackets or buoyancy aids while others either had no flotation devices at all or were equipped with inflatable rubber rings designed as swimming pool toys **(Figure 17)**.

Crossings routinely started from the French coast during hours of darkness. Migrant boats were hidden or buried and, when the sea conditions were assessed to be acceptable, boats and migrants would come together and set off. The pattern of

Figure 16: A typical migrant boat

Figure 17: A migrant crossing, showing swimming pool toys used as flotation devices

[25] Border Force data indicated that 96% of crossings were attempted when the predicted wave height was less than 0.5m.

migrant behaviour was to make way to UK waters, trying to avoid French assets and refusing rescue, sometimes with threats to harm the boat or enter the water if approached in French waters.

Migrant behaviour broadly fell into two categories, those that were actively seeking rescue in UK waters and those attempting to reach the UK without interception and to make a beach landing undetected.

For those migrants actively seeking rescue once in or near UK waters the alarm would be raised by making phone calls to UK agencies. The migrants attempting the crossing were generally made aware that they had crossed the median line as the people facilitating the crossing would use the *live locator* facility on the WhatsApp mobile phone application to track the boat. Crossing the median line into UK waters was generally the trigger for payment to the facilitators for completion of a successful crossing.

The people facilitating the crossing would brief the migrants on phrases to use when calling UK emergency services. The calls made by the migrants were routinely, but not exclusively, to the UK emergency services, where emergency call handlers would transfer the caller to the relevant emergency service: police, fire, ambulance or coastguard. Migrant calls were typically transferred to HM Coastguard and handled by MRCC Dover. The coastguard's experience was that migrants would make repeated and desperate calls for help, screaming to be rescued and claiming a variety of distress situations, such as medical emergencies or failure of equipment. Upon recovery by the UK authorities such accounts were often found to be exaggerated or false. Once inside UK waters and on sighting rescue craft it was common for migrants to jettison any mobile phones carried and deny knowledge of having contacted the UK emergency services. This was so that the phones could not be used to trace the people who had arranged the crossing and to avoid being considered as a facilitator.

1.9 GOVERNANCE OF THE UK MARITIME DOMAIN

1.9.1 National Security Strategy

HM Government's 2010 National Security Strategy[26] (NSS) set out the UK's intention to be a prosperous, secure, modern and outward-looking nation that promoted its values and ideas globally.

In 2011, the NSS was instrumental in the establishment of the National Maritime Information Centre (NMIC). This multiagency body was set up to harmonise government departmental and agency maritime activities by delivering improved identification and assessment of surveillance and operational risks to maritime security, and a permanent architecture for facilitating national, regional, and international information sharing.

In October 2017, the Joint Maritime Operations Coordination Centre (JMOCC) was established, and co-located with the NMIC, to coordinate and manage the deployment of seagoing assets, including those of the Royal Navy, Border Force and Inshore Fisheries and Conservation Authority.

[26] A Strong Britain in an Age of Uncertainty: The National Security Strategy, 2010, c61936.

In line with the NSS, the 2014 National Strategy for Maritime Security (NSMS) aimed to safeguard and promote UK interests by upholding freedom of the seas, by mitigating national security threats (ideally at range) and by exploiting opportunities across the maritime domain. The NSMS was co-signed by the Secretaries of State for the four key government departments involved: the Foreign and Commonwealth Office[27], the Home Office, the Ministry of Defence (MoD) and the Department for Transport (DfT).

1.9.2 The Home Office

The Home Office was the government department responsible for the security of UK borders and the control of immigration.

Border Force was formed in March 2012 as a law enforcement command within the Home Office. It was responsible for securing the UK border by carrying out immigration and customs controls for people and goods entering the country.

The wider remit of Border Force included: checking the immigration status of people arriving to and departing from the UK; patrolling the UK coast and searching vessels; and, gathering intelligence and alerting the police and security services to people of interest. One of its priorities was to *deter and prevent individuals and goods that would harm the national interests from entering the UK.*

Increasing small boat activity in the Dover Strait in 2018 resulted in the desire for improved coordination, following an increase in the number of Royal Navy vessels committed to assisting Border Force assets in the Dover Strait.

The Joint Maritime Security Centre (JMSC) was created in 2019. The JMSC was designed to be at the centre of the UK's maritime security coordination and to act as the umbrella organisation for NMIC and JMOCC. The JMSC provided a mechanism for the UK's maritime and law enforcement focused organisations to fuse intelligence, data and capabilities. The JMSC Operations Centre provided 24/7 monitoring of UK waters to identify maritime security incidents and enable effective coordination of the UK's aerial and at-sea assets to respond.

In August 2020, with the numbers of migrant crossings continuing to rise, the Home Office created the role of clandestine channel threat commander (CCTC). The CCTC's task was to provide leadership across Home Office commands and to coordinate the efforts of government bodies, including the police, National Crime Agency and JMSC, under the Operation (Op) ALTAIR cross-government response, to end the viability of small boats as a route to entering the UK illegally. Op ALTAIR's strategic aims were to save lives, secure the UK border, improve public confidence and identify vulnerable people. The CCTC's role included oversight of the work of the Clandestine Threat Command, which coordinated the operational response to the threat posed by high-risk attempts to enter the UK, alongside a Clandestine Investigations Brigade, which bolstered the overall investigative response.

1.9.3 The Department for Transport

In the autumn of 2018, with migrant numbers starting to rise and ministerial attention mounting, the DfT's Maritime Security section became increasingly involved in cross-government meetings between the Home Office, MCA, and Border Force.

[27] In 2020, the Foreign and Commonwealth Office became the Foreign, Commonwealth and Development Office.

These meetings discussed the UK's response to the migrant situation, including the allocation of people and vessels and policy positions on potential interventions. The Maritime Security division also worked closely with the MCA to agree how HM Coastguard would continue to maintain effective SAR with respect to Border Force plans to counter small boat migration.

1.10 UK BORDER FORCE AND MIGRANT CROSSINGS

1.10.1 Border Force maritime command

Border Force maritime command operated from the MCC in Portsmouth and was responsible for managing Border Force maritime operations.

In November 2021, the Border Force maritime command's fleet comprised five cutters and six coastal patrol vessels (CPV), supported by a contingent of tactical watercraft and dedicated mobile RHIBs. The purpose of Border Force vessels was to undertake strategic patrols, tactical surveillance and enforcement activity in support of Border Force and other government agencies, providing a law enforcement capability at sea. For example, the craft would often be used to intercept vessels that were suspected of smuggling prohibited or restricted goods or involved in tax fraud. The assets could be deployed individually or in combination, depending on the operational task and specific threat presented.

1.10.2 Operation Deveran

Op Deveran, which began in May 2019, was the Border Force-led maritime response at sea to the threat of either opportunistic and/or facilitated illegal migration using small boats. Op Deveran covered the Border Force maritime strategic, tactical, and operational response in support of Op ALTAIR. Op Deveran's operational order (maritime plan) identified a number of maritime strategic objectives regarding small boat crossings. These included an objective to identify and safely interdict those attempting to illegally enter the UK in small boats. The overarching priority was identified as public safety and safety of life at sea. As part of this the operational order noted that Border Force vessels were likely to be required to support declared SAR operations and rescue migrants. The operation order stated that primacy of coordination for SAR incidents lay with HM Coastguard.

The operational order outlined preferred, acceptable and unacceptable outcomes for the operation. The preferred outcomes included that migrants were to be prevented from entering the sea in France in unsuitable small boats. The operational order deemed it an acceptable outcome if a migrant boat was intercepted in UK waters and the migrants on board safely rescued and brought to the UK. Unacceptable outcomes included migrant loss of life following location and interception by Border Force assets.

The operational order identified a number of risks in relation to small boats attempting to cross the Dover Strait, noting that the risk to life or serious injury to migrants crossing the Dover Strait was *high*.

The operational order identified six patrol areas in the Dover Strait – three on the French side of the median line and three on the UK side of it – that had been agreed with French authorities. It was stated that patrol patterns would be agreed jointly between the MCC and French authorities. The MAIB investigation found no evidence regarding planned patrols in the UK areas for 23/24 November 2021.

Under Op Deveran the Dover Strait was continuously served by one cutter and two CPVs, with a second cutter available within 12 hours. At the time of the accident, this requirement was met by the cutter HMC *Valiant* and CPV *Hunter*. The second CPV slot was covered by a crew transfer vessel (CTV), BF *Hurricane*. Border Force vessels were deployed in the Dover Strait by the MCC and, once deployed, became 'additional facilities' that could be tasked as SAR assets for HM Coastguard to coordinate. **Annex B** contains further details of Border Force vessels assigned as Op Deveran assets.

The Border Force Op Deveran vessels were the principal assets for responding to migrant boats in the Dover Strait. Border Force vessels had a larger survivor capacity than RNLI all-weather lifeboats, allowing more people to be recovered on each tasking. In the Dover Strait, almost 90% of all migrant vessels identified in UK waters were dealt with by a Border Force asset, with the rest met by RNLI lifeboats.

Border Force crew were deployed as law enforcement officers. Their primary role was border security, tackling organised immigration crimes and preventing and detecting clandestine entry by sea. However, under Op Deveran, their role was modified to include safety at sea because of the specific risks associated with migrants crossing the Dover Strait in unsafe boats. Consequently, there was an expectation that Border Force assets would be tasked for SAR activities by HM Coastguard, including rescuing migrants or supporting declared SAR assets. In contrast to the RNLI, Border Force vessels did not have an official SAR capability; cutters and CPVs were neither explicitly designed for SAR activities nor crewed by trained SAR responders. Their ability to perform SAR duties in the Dover Strait was founded on the SAR experience gained through deployments to the Mediterranean between 2015 and 2021 to support the Hellenic Coast Guard[28] to rescue migrants crossing the Aegean Sea. Outside of the Dover Strait, except when Border Force assets were tasked to respond to SAR incidents, Border Force had no official involvement with HM Coastguard.

1.10.3 Operation Deveran forecast

Op Deveran sought to identify days when there was a high probability of crossings being attempted and to position assets to intercept the boats and recover their occupants. In support of this a weather assessment matrix was developed, through which Met Office forecasts of weather and sea conditions were used to predict the likelihood of migrant crossings for the following week.

Colours were used to indicate the predicted likelihood of crossing attempts for each day, for which the key was as follows:

- red – highly likely;
- amber – likely or probable;
- yellow – a realistic possibility;
- light green – unlikely; and
- dark green – highly unlikely.

[28] The national coastguard of Greece.

1.10.4 Joint Control Room

The JCR was located in a room at MRCC Dover to support the Clandestine Channel Threat Command. It had been established to coordinate the landing and processing of recovered migrants at Dover so that the assets involved in recovering the migrants could quickly head back out to sea. The JCR was manned according to forecast migrant activity levels and was only operational on days when the likelihood of migrant crossings was assessed to be red, amber or yellow. On operational days the JCR start time was tailored according to timings of migrant crossings leaving French beaches the preceding night.

The JCR was led by a silver commander immigration officer and comprised a Border Force maritime liaison officer, the COLO, an information recorder, a communications officer, Kent Police, Border Force UAV operators, clandestine finance investigation, and Royal Navy personnel.

The JCR gathered information on migrant activity from a range of sources that included French authorities, tracker spreadsheets and aerial surveillance. The JCR also had access to imagery from Border Force UAVs. Responsibility for SAR coordination remained with the coastguard SMC.

1.11 THE UK SEARCH AND RESCUE SERVICE

Under its international obligations as a coastal state[29], the UK government was responsible for SAR within the UK SRR (see **Annex C** for further detail on background to UK SAR obligations). The overall provision for national civil maritime and aeronautical SAR policies rested with the DfT, which delegated these duties to the MCA as its executive agency. The MCA was responsible for providing a 24-hour maritime and coastal search and rescue emergency coordination and response service for the UK, as delivered by HM Coastguard.

1.11.1 HM Coastguard overview

HM Coastguard comprised of almost 600 full-time staff and 3,500 volunteers. It operated with a rank-based structure **(Figure 18)**. New joiners started as MOO trainees and could then progress by completing specific training packages and obtaining relevant qualifications. After completing the minimum training required, including the communications qualification, a trainee was confirmed in post as a MOO. The MOO would primarily act as a radio operator, including monitoring VHF channel 16, and manage the emergency telephone lines, specifically calls transferred from emergency call handling centres. It was necessary to complete MC training to progress to senior maritime operations officer (SMOO). MCs assisted with search planning and coordination in support of the designated SMC.

With sufficient SMOO experience, completion of the SMC training package, and a successful promotion application, SMOOs could progress to team leader. Team leaders were in charge of the duty watch at each RCC and managed the watch team. They predominantly acted as SMCs during their watch.

With search planning, coordination and execution experience a team leader could progress to tactical commander, either supervising the national network at the JRCC or managing an individual MRCC. The next rank was strategic commander, either

[29] As a signatory to SOLAS 1974.

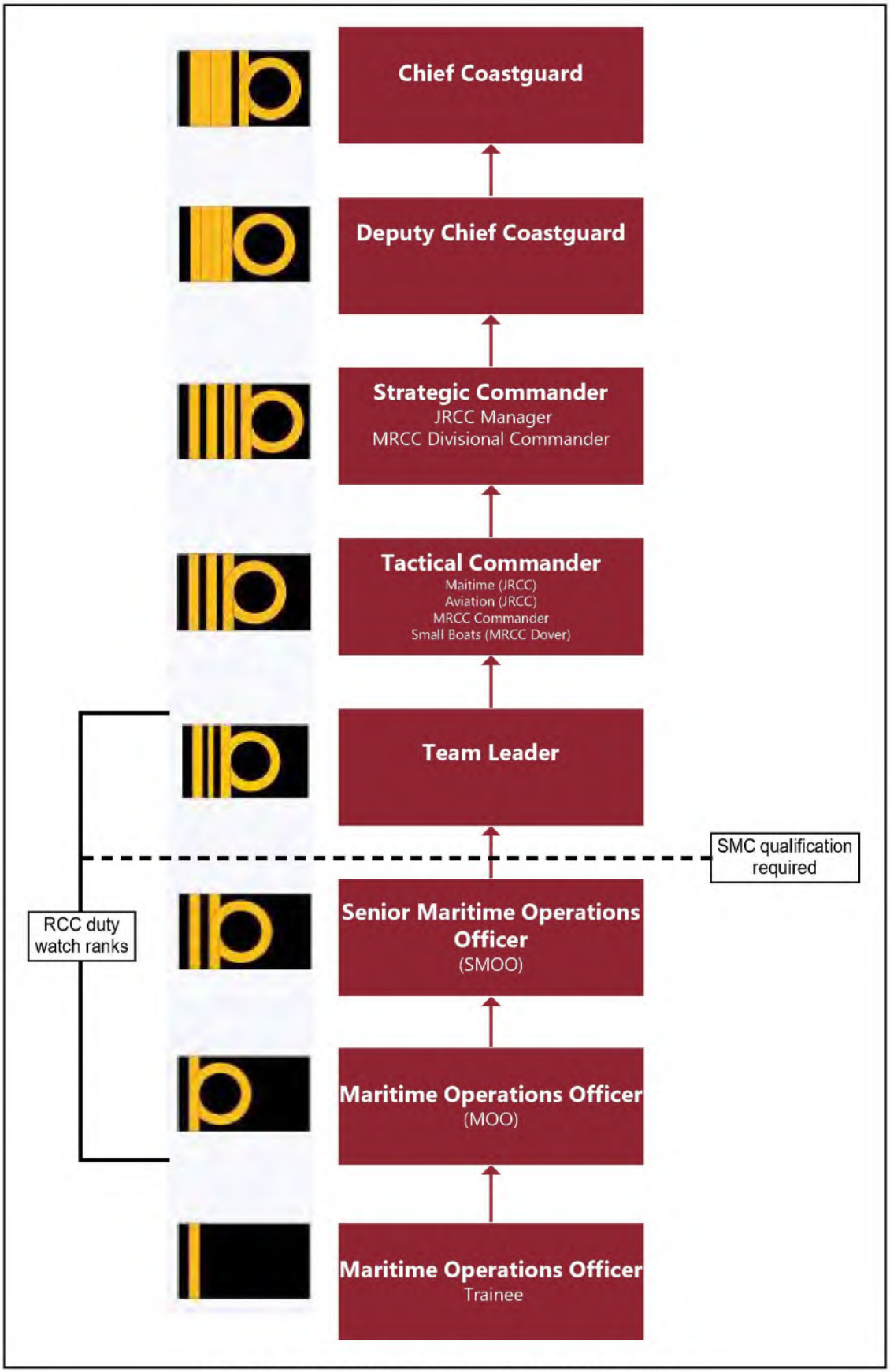

Figure 18: HM Coastguard organisational structure

managing the JRCC or as division manager for multiple MRCCs. HM Coastguard recruited tactical and strategic commanders both through internal promotion and external recruitment.

HM Coastguard's senior leadership team was responsible for the policy, planning and execution of the coastguard service.

1.11.2 Search and rescue mission coordinator

The International Aeronautical and Maritime Search and Rescue (IAMSAR) manual (see section 1.13) stated that an SMC should be designated for each specific SAR operation. The IAMSAR manual noted that in multiple incident situations the SMC could be the SMC for all incidents or that the SMC role for some could be delegated to another suitably qualified person. An SMC was formally required from receipt of notification of a distress situation until a rescue had either been achieved or it became apparent that further search efforts would be to no avail. HM Coastguard delivered the role of SMC and the associated training package in line with IAMSAR guidance.

The SMOOs were required to complete SMC training and achieve the qualification within 24 months of appointment. The 3-week training course included a mixture of theory, written papers and role play assessments. The content included IAMSAR, coastguard procedures, search planning, search instructions and communications, mission conduct, human factors, and error analysis. The training provided an SMC with the skills to manage a SAR mission. The training syllabus did not include coordinating a response to multiple *Distress* incidents, managing multiagency assets or responding to migrant activity.

The SMC's primary responsibilities were to; gather information about distress situations, develop accurate and workable SAR action plans and dispatch and coordinate the resources to carry out SAR missions.

The coastguard preferred to have at least one qualified SMC on duty at every MRCC, but this was not mandated. If no SMC-qualified officer was on duty at an MRCC it was standard practice for the JRCC to assign an SMC from another MRCC or the JRCC to cover the role remotely. When a single SMC was on duty at an MRCC, breaks were managed through the network using a remote SMC; breaks could be managed locally if two SMCs were on duty at an MRCC.

1.11.3 Coastguard network

HM Coastguard delivered search and rescue, vessel traffic management, maritime security, pollution response, maritime safety information and emergency and disaster management through the national network. The national network was formed of 10 individual Rescue Coordination Centres (RCC) connected through two data centres, allowing for real-time information sharing and a fully integrated and flexible response.

The 10 RCCs included a JRCC based in Fareham, UK and 9 MRCCs strategically located along the UK coast, including one at Dover[30]. Each RCC was capable of performing command and control, search planning, asset tasking and distress

[30] In addition to the RCCs was London Maritime Rescue Sub Centre (MRSC), which covered the River Thames.

Image courtesy of HM Coastguard

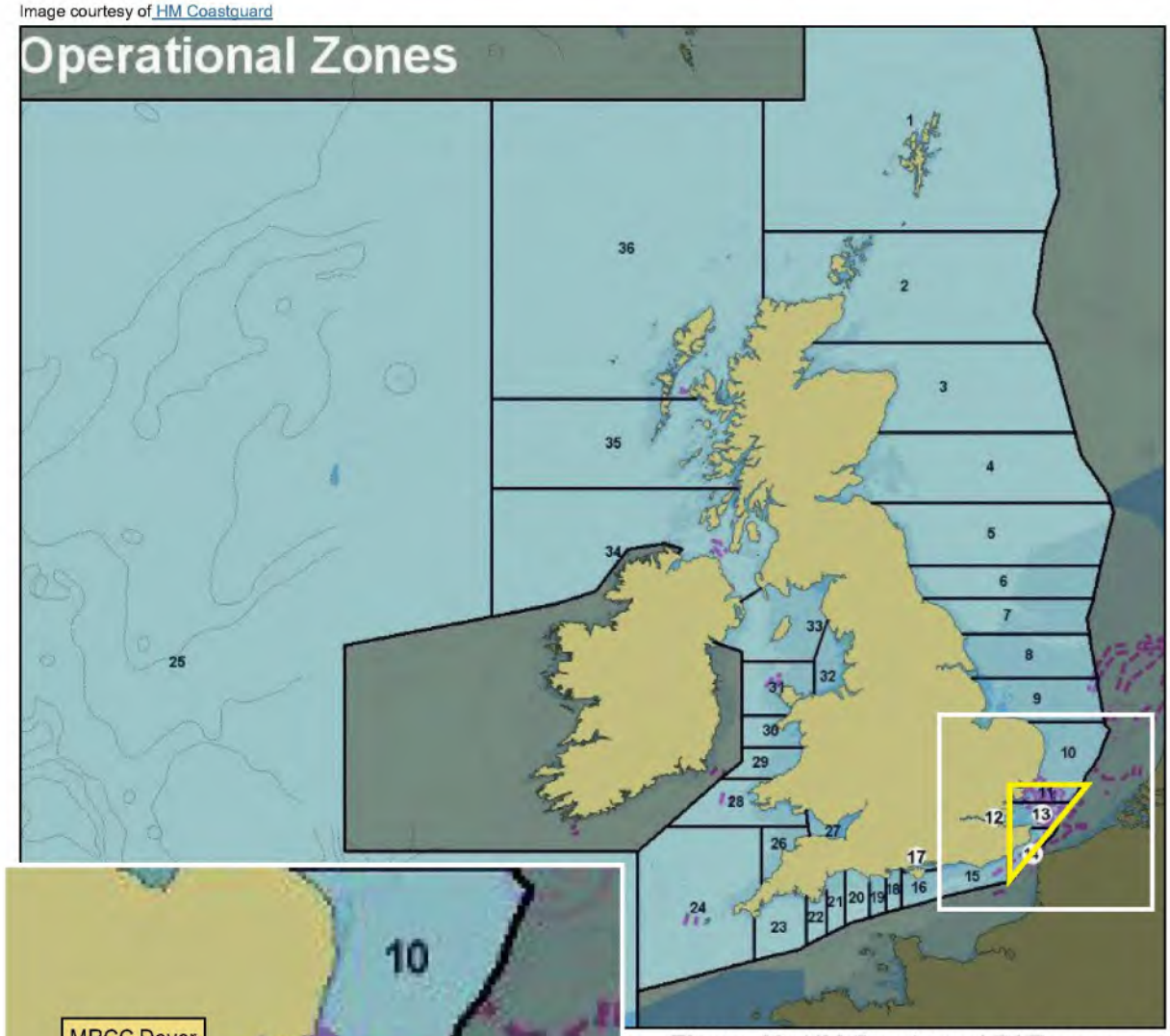

Figure 19: HM Coastguard SAR zones

communications, with authority to start and terminate SAR activities. The UK SRR was divided into sequentially numbered maritime zones **(Figure 19)** around the British Isles. Each RCC was assigned specific maritime zones closest to its geographical location with the expectation that they would coordinate SAR activity in those areas. However, the coastguard network enabled each centre to receive, respond to and coordinate distress, urgency and alert situations throughout the UK SRR. This was possible because each RCC had access to every routine and emergency telephone line and all 166 radio communications sites in the UK. The maritime zones could therefore be reassigned across the network, allowing an RCC to remotely manage an area in a different part of the country. This was known as zone flexing, which ensured sufficient redundancy across the network and allowed resources to be allocated to the operational zone where they were needed. Network support and zone flexing was used in situations where an individual RCC could not meet its operational demands alone, such as multiple SAR missions or during training or staff shortages.

All RCCs were ready to respond to incidents 24 hours a day, 7 days a week, 365 days a year. To maintain this round the clock coverage each RCC used a shift-based working pattern, with each watch working a 12-hour shift. The start and end times of the watches were staggered across the network to avoid the RCCs all handing over the watch at the same time. The duty staff on every watch comprised a combination of team leaders, SMOOs and MOOs. Staff worked a combination of day and night shifts, weekdays and weekends.

As part of the 2014 Future Coastguard Programme[31], the coastguard established minimum staffing levels across the national network. The minimum number required to be on duty was based on seasonal activity and delivering the various coastguard functions. These minimum numbers were known as 'resilience' and were reviewed periodically. With a national network in place, it was not necessary to set minimum staffing levels at each MRCC because other staff across the network could be tasked remotely. However, each MRCC did have a suggested seasonal manning level to provide the most effective service and drive recruitment. Arrangements and meetings were in place to review the network staffing on a 30, 60 and 90-day look ahead basis.

On the night of 23/24 November 2021, 36 staff were on duty across the network[32], exceeding the minimum requirement of 22 people; 13 of the staff were SMC-qualified. The subsequent day shift also surpassed its minimum required staffing levels. A duty strategic maritime commander, duty operations director and additional tactical commander were on call and available to the tactical commanders as required. Over the course of 24 November 2021 12 members of coastguard staff logged into zone 14, the maritime zone for Dover.

1.11.4 Joint Rescue Coordination Centre

The JRCC[33] was HM Coastguard's national command and control centre, providing maritime and aeronautical assistance to the network. Its responsibilities included:

- providing strategic, tactical, and operational support to MRCCs;
- ensuring sufficient resources were in place at all times to coordinate SAR across the UK SRR;
- coordinating and monitoring the Solent maritime zones;
- taking on the role of MRCC for other maritime zones when required;
- reassigning maritime zones to different MRCCs;
- providing support to an MRCC that was short-staffed or without the required competencies; and
- tasking aviation SAR assets.

Each JRCC watch was divided into two specialist teams – maritime and aviation – with each team led by a tactical commander based in the operations room. The tactical commanders worked together when a combined aeronautical and maritime response was required.

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[31] This was part of the MCA's 2013-2014 business plan to modernise HM Coastguard to offer a more sustainable and efficient service.

[32] This does not include JRCC (Air).

[33] The JRCC was formerly known as the National Maritime Operations Centre (NMOC). Its name was changed in 2021, following the merger of several coastguard services including the Aeronautical Rescue Coordination Centre (ARCC) and Solent MRCC.

1.11.5 Joint Rescue Coordination Centre (Maritime)

JRCC (Maritime) included eight maritime tactical commanders, two assigned to each of the four watches needed to cover the 4-day watch cycle. They were each supported by a team of six to twelve operators, comprising a mixture of team leaders, SMOOs and MOOs. While the minimum requirement was to have one maritime tactical commander in each watch, it was preferable to have two on duty to improve oversight, reduce mental fatigue, maintain continuous situational awareness and ensure adequate rest breaks were in place. However, due to leave, training, sickness or isolation, it was not uncommon for just one maritime tactical commander to be on watch.

The maritime tactical commander was responsible for the network, maintaining an overview of all raised incidents. They assessed the risk across the network and arranged support or redistributed resources to ensure that all coastguard functions were delivered. During SAR operations the maritime tactical commander provided tactical oversight and support to the SMCs, verifying that each incident received a suitable response and that appropriate assets had been tasked. Maritime tactical commanders were experienced in search planning and coordination and an SMC could contact them at any time for support and guidance.

The maritime tactical commanders were responsible for reviewing the numbers and competence level of staff across the network on a shift-by-shift basis to ensure that individual MRCCs and the network as a whole met or exceeded the minimum recommended staffing levels and that sufficient SMCs were available. If insufficient officers were on duty at a specific MRCC the maritime tactical commander could bolster its numbers remotely using the network or 'flex' a maritime zone to another MRCC. They could also assign remote SMCs where necessary to ensure SAR could be activated in any maritime zone. Staffing arrangements were discussed during a network-wide meeting held 2 hours into each 12-hour watch.

Maritime tactical commanders were also responsible for monitoring redundancy in the system and maintaining oversight of the available resources. They needed to assess the network dynamically, have backup plans and consider what actions were required should the JRCC or any MRCC become overloaded, suffer an outage or be unable to perform SAR missions in line with coastguard procedures. Balancing the operational and staff welfare needs was also a primary consideration, ensuring MRCCs had cover in place so its staff could take breaks or rotate operational roles.

When a maritime tactical commander required advice, reassurance, or decision-making support, they could contact the duty strategic commander. The strategic commanders worked an on-call roster, with one always contactable. The duty strategic commander had to be called for a major incident or multiple fatalities, when significant SAR support was requested from another state, if business continuity was affected or doubt existed over the actions to be taken. Further, a duty operations director and one or two additional on-call tactical commanders were rostered for all shifts.

On the night of 23/24 November 2021, the JRCC Maritime team included one tactical commander and 10 coastguard officers[34], two of whom were SMC-qualified. Another maritime tactical commander was on the rota but was unavailable due to illness. The team monitored the Solent maritime zones, and supported the network,

[34] Team leader, SMOO, or MOO.

including MRCC Dover, throughout the night. The maritime tactical commander took a meal break from 0404 to 0557, during which they remained available on-call via phone.

1.11.6 Joint Rescue Coordination Centre (Air)

JRCC (Air)[35] was responsible for tasking aeronautical SAR assets such as UAVs, fixed-wing and rotary-wing aircraft. Each watch was led by an air tactical commander who supervised a team of operators. When a request for aeronautical assistance came in from an MRCC or other recognised emergency service the operator determined whether it was appropriate and achievable relative to the incident circumstances. JRCC (Air) tasked the appropriate asset if the request met its criteria; however, the captain of the relevant aircraft had the final authority before flying.

During SAR operations JRCC (Air) maintained oversight of the air assets and assessed the contingency plans to ensure suitable aircraft remained available across the network. JRCC (Air) liaised with an aircraft until it was airborne and, once in the air and headed toward the incident location, the aircraft communicated with the appropriate MRCC for specific search and rescue instructions. JRCC (Air) would resume communications to arrange refuelling, casualty transfer or alternative airport options once the directing MRCC had instructed the aircraft to stand down. JRCC (Air) did not monitor an assigned aircraft's search effort once on scene and instead relied on updates from the MRCC regarding its progress and status.

On the night of 23/24 November 2021, there were seven JRCC (Air) officers on duty, including the air tactical commander, which was above the minimum staffing requirement of five.

1.11.7 Maritime Rescue Coordination Centre Dover

MRCC Dover was responsible for maritime zones 11, 13 and 14 **(Figure 19)**, covering the eastern side of the English Channel. Before the accident on 24 November 2021, the JRCC had reassigned (flexed) zones 11 and 13 away from MRCC Dover. This allowed the team at Dover to focus on zone 14, the area of the Dover Strait with the highest volume of migrant activity.

The regularity of small boat activity meant the staff at MRCC Dover became accustomed to dealing with migrant boats. Because of the specialised nature of these incidents zone 14 generally remained with MRCC Dover, with network support for small boat activity usually coming from the JRCC rather than from other stations across the network.

Dover was the only MRCC within the network that held operational responsibility for a vessel traffic service (VTS). The operations room therefore encompassed two teams, SAR and CNIS. The SAR team leader was the designated SMC for SAR operations. Supporting SMOOs and MOOs were assigned as communications operators, one to oversee the emergency radio channels and the other to manage the telephones and provide mission support to the SMC. The VTS team leader, supported by operators, handled radio traffic for vessels reporting into the CNIS. Staff at Dover were trained to perform both SAR and VTS roles and could be rotated between these during the watch, but did not perform the roles simultaneously. This

[35] In 2021, its name was changed from ARCC to JRCC (Air).

ensured flexibility within the watch and allowed the staff to vary their work over a shift. The suggested seasonal manning for MRCC Dover's SAR function for a night watch in November was three coastguards, including a team leader.

On 23/24 November 2021, there were five personnel at MRCC Dover: two team leaders, two MOOs, and a trainee. One team leader and a MOO were assigned to SAR and to VTS. The trainee assisted the SAR team leader (the designated SMC) and MOO. At about 0500, another team leader who was SMC-qualified and loaned from another MRCC joined the watch. This ensured that the designated SMC at MRCC Dover had additional support during the projected busiest times of small boat activity. It also provided watch continuity between the night and day watches.

1.11.8 Small boats tactical commander

As the number of migrant incidents continued to grow it became increasingly difficult for the maritime tactical commanders at the JRCC to maintain situational awareness at a tactical level as well as manage the network. Hence, the new role of SBTC was created to support MRCC Dover with the migrant crisis by providing in-station tactical oversight and reduce the risk of JRCC tactical commanders losing network awareness during busy periods with high levels of migrant activity. The SBTC held the same rank as the tactical commanders at the JRCC, but did not undertake training to manage the network because they did not have a requirement to provide network tactical support.

A team leader was promoted and assigned to the SBTC role in August 2021. Their working hours and schedule were dynamic and responsive to Op Deveran weather forecasts. When amber or red days were forecast the SBTC would adjust their working hours to join the watch when migrant activity was expected to be at its highest. Outside of the SBTC's allotted work hours they were available on an on-call basis during busy migrant crossing events. Due to shortages of suitably qualified staff at MRCC Dover the SBTC often acted in an operational role, filling in as an SMC, MC or operator as necessary rather than performing their intended role.

The SBTC was also responsible for planning the fixed-wing aircraft surveillance flights. The SBTC would review the Op Deveran weather assessments and then liaise with Border Force to agree the flight timings and send an aviation request to JRCC (Air), who would then arrange the taskings with 2Excel.

On 24 November 2021, the SBTC came on watch at MRCC Dover at 0730. However, because of a lack of locally available MC cover, and to avoid the need for additional remote cover from the JRCC, they performed the role of MC in support of the SMC.

1.11.9 Development plans for MRCC Dover

As the number of migrant crossings increased, the number of reported distress incidents also rose. The ensuing additional workload at MRCC Dover was recognised in mid-2021 and, with significant predicted increases in small boat crossings in 2022, senior coastguard management identified a requirement for additional staff. In August 2021, it was decided that a separate team would be created within MRCC Dover to oversee migrant boat activity. The team would consist of 24 additional coastguard officers, split across the day and night watches, who would be based in the operations room with a dedicated team leader, thus

separating small boat activity from other SAR undertakings. During periods of low migrant activity these staff would be retained and integrated into the network to support other MRCCs.

A significant recruitment drive followed, but the additional staff were not in place by 23/24 November 2021. To help meet its operational needs in the interim it was common for JRCC (and sometimes MRCC Humber) to take on some of MRCC Dover's routine operations or cover for staff during their rest periods on days with migrant activity.

A team leader from another MRCC was also temporarily assigned to MRCC Dover to boost staff numbers in the operations room. The team leader was SMC-qualified and assigned a different watch pattern to other staff that was tailored to the anticipated level of migrant activity and, specifically, the Op Deveran weather assessments.

1.11.10 Bristow Helicopters Limited

In April 2015, Bristow Helicopters Limited (Bristow) took over aeronautical SAR operations within the UK SRR on behalf of HM Coastguard. Bristow's 10-year contract with the MCA was to provide all-weather helicopters. This was delivered through a fleet of search and rescue configured helicopters that were strategically located across 10 UK bases, including two on the south coast at Lydd and Lee-on-the-Solent.

Lydd Airport covered the south-east of England, including the Dover Strait. Two AW189s were based at Lydd; one acted as the designated rescue aircraft and the other was on standby. The aircrew worked a 24-hour shift. Between 0800 and 2200, the crew were required to be airborne within 15 minutes of being notified about an incident. From 2200 until 0800, the readiness time was set to 45 minutes to ensure the crew had sufficient rest. The SAR commander was both in charge of the shift and the captain of the helicopter.

1.11.11 Royal National Lifeboat Institution

The RNLI was an independent charity providing a 24/7 lifeboat service that could be tasked by HMCG. Both parties were signatories to a Memorandum of Understanding that formalised their ways of working, communicating and training. In the Dover Strait area the RNLI maintained a variety of rescue craft at Ramsgate, Walmer, Littlestone, Dungeness, Hastings and Dover.

RNLI lifeboats were primarily staffed by volunteers and were available for SAR purposes. RNLI lifeboats were unavailable to the coastguard for proactive searching.

1.12 MIGRANT SEARCH AND RESCUE AND HM COASTGUARD

1.12.1 Status of migrant boats in the Dover Strait

HM Coastguard considered all migrant boats entering the UK SRR to be in *grave and imminent danger requiring immediate assistance until information gathered from credible sources provides sufficient evidence for the SMC to determine that a*

distress response is unnecessary. The effect of this was that all incidents involving migrant boats in the UK SRR were initially placed in the *Distress* phase (see 1.13.1). The presumption of *Distress* was based on several factors that included:

- vessel overloading;
- lack of maritime experience of the migrants on board;
- unseaworthy and unsuitable vessels used in crossing attempts;
- risk of transit across the busy Dover Strait and TSS;
- operation at night without navigation lights;
- potential for vulnerable persons on board;
- potential for those on board to be suffering from hypothermia;
- lack of PFDs and/or other life-saving apparatus;
- mobile phone as sole communications equipment;
- lack of position determination equipment or knowledge; and
- general sea and weather conditions in the Dover Strait.

Following information gathering about the above factors by UK authorities on the status of a particular boat, and upon determination that a boat was not in need of immediate assistance, it was possible for incidents to be downgraded from the *Distress* phase. The coastguard operational procedures in force at the time for incidents involving migrants included, as part of the initial actions, the requirement to, *Task appropriate resources, considering the priority if multi-incident working based on the information received*.

After due consideration, DfT and Home Office officials agreed that migrant boats in UK waters should, due to their evident vulnerability, be considered by default to initially be in the *Distress* phase.

1.12.2 Protocol for termination of a search and rescue incident

HM Coastguard's standard operating procedures included direction on the protocol for SAR termination. The protocol allowed for SAR efforts to be terminated based on receipt of credible information that the emergency situation had ceased and that SAR assistance was no longer required. The protocol set out how the incident would then be closed and recorded. The protocol detailed factors to be taken into account when considering downgrading migrant incidents from the default *Distress* designation.

The procedure in force at the time of the accident did not contain particular actions to be taken when closing migrant incidents.

1.12.3 Clandestine operations liaison officer

The role of COLO was created after the JCR at MRCC Dover had been established. The primary functions of the role were to provide HM Coastguard with a representative within the JCR and to facilitate communication between the coastguard and the Clandestine Channel Threat Command. The coastguard had seconded a dedicated officer to perform this role; on 24 November 2021, this officer was off duty and another coastguard officer performed the COLO role within the JCR.

1.12.4 Identification of risk

The MCA maintained a corporate risk register to manage high level risks within the agency. In early November 2021, a new risk was added to the register to the effect that HM Coastguard might become overwhelmed due to migrant activity in good weather and that loss of life would ensue. Mitigations against the risk included: the presence of onsite SAR mission coordinators; the use of forecasting intelligence to ensure adequate staffing, air and surface assets being available on anticipated high traffic days; and revised and exercised operating procedures. The MCA's planned actions to better manage this risk included:

- Establishing a new migrant operational cell and an uplift of 24 staff at MRCC Dover, to be in place by March 2022;
- Reassessing the use of air assets in the Dover Strait, including relocating the UAV and its operator to Dover;
- Exploring the provision of alternative SAR surface units for summer 2022 to relieve pressure on the RNLI;
- Reorganising the building at MRCC Dover to accommodate additional staff (started November 2021).

1.12.5 Maritime and Coastguard Agency Project CAESAR

In 2021, there was a growing concern within the MCA that HM Coastguard needed a dedicated Dover Strait aviation capability. With increasing numbers of boats attempting the crossing simultaneously on a given day, it was becoming more difficult for MRCC Dover to maintain situational awareness without sufficient assets on the scene. The use of Bristow helicopters for surveillance purposes removed a valuable SAR asset, and the fixed-wing air assets had other taskings, including pollution patrols, oil spill response and other surveillance work. RNLI crews were trained to perform search and rescue, not surveillance, and were volunteers who also held regular jobs. The coastguard therefore recognised a growing risk that existing assets did not meet the increasing operational need.

In October 2021, the MCA started working on a new project to provide dedicated aviation assets to the Dover Strait; this was known as Channel Aviation Emergency SAR, or Project CAESAR. The MCA presented a business case to the DfT for several aviation assets to be explicitly tasked to the migrant crossing response. The requested assets included fixed-wing aircraft, to provide surveillance cover throughout the day to help MRCC Dover align every target with each reported incident. An end-of-day sweep was also planned to ensure that any outstanding boats were reconciled with the incident tracker.

The MCA also recognised that MRCC Dover required a real time visual picture of the Dover Strait to improve situational awareness. Consequently, Project CAESAR included the procurement of several unmanned aircraft systems (UAS) fitted with both conventional and infrared cameras that could operate day and night.

Project CAESAR was approved on 24 January 2022, and the DfT was allocated £39,700,000.00[36] for the project.

[36] Amount excludes VAT. Details from *DfT's exceptions to spending controls January to March 2022* (published 30 June 2022).

1.13 THE INTERNATIONAL AERONAUTICAL AND MARITIME SEARCH AND RESCUE MANUAL

The IMO and International Civil Aviation Organization jointly published the three-volume IAMSAR manual as a guide to member states for providing and organising a SAR service and executing their responsibilities under the applicable aviation and maritime conventions[37]. The following sections describe IAMSAR manual guidance on the relevant aspects of SAR.

1.13.1 Emergency phases

The IAMSAR manual defined three emergency phases to classify incidents and assist in determining the actions to be taken for each incident.

These were:

Uncertainty phase – *A situation wherein doubt exists as to the safety of a marine vessel, and or the persons on board.*

Alert phase – *A situation wherein apprehension exists as to the safety of a marine vessel and of the persons on board.*

Distress phase – *A situation where there is reasonable certainty that a vessel or other craft is threatened by grave and imminent danger and requires assistance.*

1.13.2 The datum

A datum was necessary to initiate a search. Factors to consider in determining the datum position included the reported position and time of the SAR incident, bearings or sightings, time interval between the incident and arrival of SAR facilities and the estimated surface movements of the distressed craft or person (drift).

The IAMSAR manual recommended for both vessels and aircraft that if a datum marker buoy or other highly visible object was available it should be selected as the datum, and any search pattern should be performed relative to it.

1.13.3 Search patterns

The search pattern used to search an area depended on the circumstances of the distress and the search object of interest. The IAMSAR manual highlighted that there were many variables during SAR operations, often unforeseeable, and many factors therefore needed to be considered; for example, the type and size of the distressed craft, time of day, available assets, size of the search area and environmental conditions.

One IAMSAR search pattern was the expanding square search. Expanding square searches were most effective when the location of the search object was known within relatively close limits. The search began at the datum point and the pattern then expanded outward in concentric squares, providing nearly uniform coverage of the area around the datum **(Figure 20)**. This search pattern was unsuitable for multiple aircraft or vessels due to the size of the area involved. The direction of the

[37] International Civil Aviation Organization adopted the Chicago Convention on International Civil Aviation in 1944, which made similar provisions to the IMO's SAR Convention. The Air Navigation Commission developed international standards and recommended practices for performing SAR operations, which were added and adopted as an annex to the Convention.

Image courtesy of International Maritime Organization International Aeronautical and Maritime Search and Rescue Manual

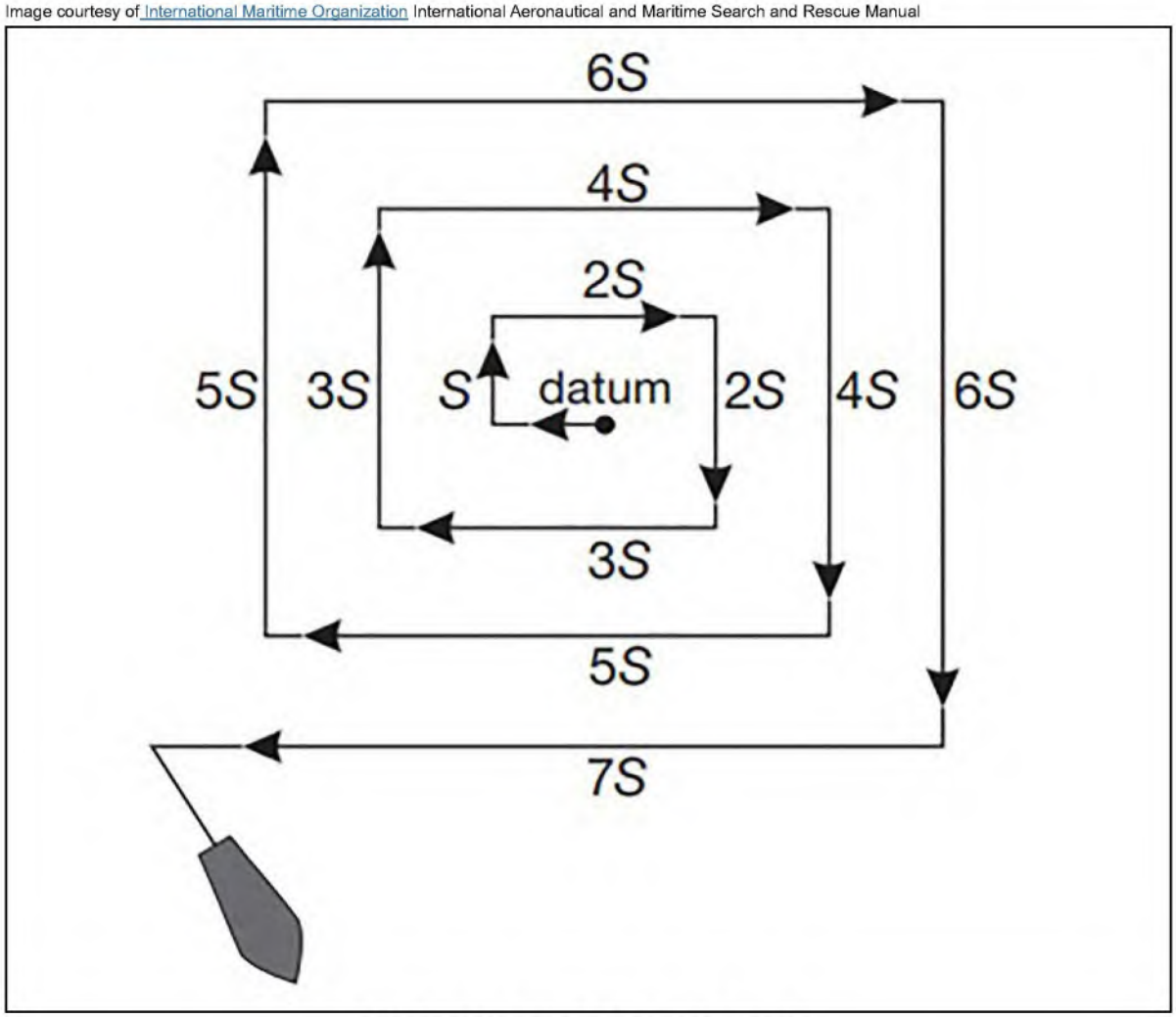

Figure 20: Expanding square search

search legs was to be rotated by 45° for successive searches in the same area. Expanding square searches were often appropriate for vessels, small boats or helicopters when searching for people on the water or other objects where little or no leeway was expected. Further details of IAMSAR search patterns can be found at **Annex D**.

1.13.4 Initiation of search at sea

The IAMSAR manual stated that when a search facility arrived on the scene in advance of other assets it should proceed directly to the datum and commence an expanding square search. If possible, the datum could be marked by putting over a liferaft or other floating marker with leeway similar to the search object as a check on the drift of the distressed craft or person. The object could then be used as the datum throughout the remainder of the search.

The manual suggested that an expanding square search was completed when there was good visibility or sufficient search facilities were available. Additional assets were guided to conduct a parallel track search on arrival at the scene. In restricted visibility, or if sufficient search facilities were not available, IAMSAR advised that the first asset should break off the expanding square search and initiate a parallel track search.

1.13.5 Search altitudes

The IAMSAR manual provided recommended flight search altitudes for air assets according to the nature of the search object and terrain. It suggested 60m to 150m for a person or small raft in the water or 300m to 900m for a medium-sized raft. These recommended altitudes were subject to adjustment and the final search altitude was at the pilot's discretion and depended on the circumstances and environment at the time of the search.

1.13.6 Sweep width and track spacing

Most search patterns consisted of straight, parallel, equally spaced tracks that helped ensure effective and complete coverage of the area to be searched. The distance between the adjacent tracks was called track spacing. Recommended track spacings could be calculated using the formulae contained in the IAMSAR manual, by first obtaining the sweep width. The sweep width, measured in nautical miles, was an index or measure of the ease or difficulty of detecting a given search object based on the type of search unit (merchant vessel, helicopter, fixed-wing aircraft), meteorological visibility and weather conditions.

According to the IAMSAR guidance the recommended track spacing was the same as the sweep width in most situations. However, the search unit or SMC could amend the track spacing based on the circumstances at the time of the incident, which included, among others, the time of day, changes in the weather and effectiveness of observers.

Based on the IAMSAR tables and formulae, the following sweep widths[38] were recommended for a helicopter based on a visibility[39] of 1nm[40] or 1900m, winds of 0kts to 15kts or seas of 0m to 1m:

- 0.0nm – person in water
- 0.5nm – boat less than 5m
- 0.7nm – boat 6m
- 0.7nm – boat 10m

1.14 DETECTION AIDS

1.14.1 Detection, recognition and identification

The three definitions of note during a search are detection, recognition and identification.

Detection is the ability to distinguish an object as discrete from the background. This is where some form of anomaly becomes evident, but does not include the capacity to know what has been detected. At this point there is no information giving insight as to what has been seen. Routinely the sensor must be brought closer to the object, or other frequencies exploited to deliver more information. An approximate geographic or relative location of the detected object can be determined at this stage.

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[38] In circumstances where sweep width was the same as track spacing these could also be taken as the recommended track spacing.

[39] Meteorological observations from the Sandettie Lightvessel estimated that visibility was about 1000m at the approximate time of the accident.

[40] A standard nm is 1852m.

Recognition is the ability to have sufficient information to allow classification of the object. This includes the capacity to recognise an object as a person or a boat, but be unable to ascribe greater detail than the most basic classification. Recognition can occur at varying ranges dependent on the physical size of the object; the bigger the object the easier it is to classify it at distance and the smaller the object the more difficult it becomes to classify it, even at short range.

Identification is the ability to describe the detected object in sufficient detail to allow objects of the same classification to be differentiated one from the other, such as the capacity to identify one boat from another or to distinguish between different people in the water. To be able to identify objects there is a requirement to be at relatively close range and with the capacity to discriminate sufficient detail.

Without initial detection the path to identification is lost. Detected objects can easily be lost or confused with each other in poor conditions or at range. Greater interrogation is required to deliver recognition and eventual identification.

1.14.2 Night vision

Both *R163* and *Valiant* carried NVG systems on board. NVG enhanced visual images by amplifying the available ambient light in the near infrared wavelengths (0.4 micrometre (μm) to 1.0μm) and projecting that image on to a phosphor screen[41]. Predominantly reliant on reflected light and the presence of background light these systems were most effective when there was a clear sky and strong moonlight or where shore lights were reflected, or scattered, onto the sea surface by features of the atmosphere. Further, the greater the visual contrast between the target and the background the better the detection. Water vapour in the air and other mixed gasses absorbed light in the near infrared spectrum, effectively reducing detection ranges. In the middle of the Dover Strait any background, cultural, light from the coast was minimal.

Met Office night illumination model (MONIM) forecasts, which predicted the amount of available light in millilux (mlx), were available to *R163*. A full moon at maximum elevation on a cloudless night could produce light values of around 250mlx to 300mlx. The common lower threshold for successful detection using NVG was 10mlx and most NVGs stopped sensing any light contrasts below 2mlx. At 0300 on 24 November 2021, the MONIM forecasts predicted that, with a clear sky and no cultural lighting, the maximum light levels would be around 9.25mlx.

1.14.3 Forward looking infrared

The FLIR sensor on board *R163* and the thermal imaging camera fitted to *Valiant* both operated in a similar fashion by detecting contrasts in mid-wavelength infrared radiation (within the range of 3 μm to 5 μm) from available sources within their field of view. Such systems relied on digital image processing to portray infrared contrast data. Human body temperatures provided good contrast to seawater around the UK coast. However, body temperatures were easily masked by clothing and frequent immersion in seawater could reduce thermal contrasts and render casualties in the water difficult to see with these systems. Where the area being observed was all the same temperature then the cameras would not portray any meaningful images. The data could appear as if in daylight conditions to the human eye where temperature contrasts were high.

[41] Revell S.J. & Hignett P., Meteorol. Appl 11, 221-229 (2004).

The operational height changed the aspect of observation. When a FLIR (or similar) was operated near the sea surface then waves and water vapour in the air could hinder detection ranges. FLIRs operated from aircraft were less impacted by surface waves and near-surface water vapour. Aside from temperature differences, these systems were impacted by the size of the target object to be detected and the capacity of the system to discriminate and detect small objects at range; a number of people in a small boat powered by outboard engines provided a good concentration of heat that allowed detection at range. However, even with a large temperature difference, small objects might effectively blend into the background; for example, the core temperature of a single person immersed in water would be masked by the waves and their relatively small observable size would result in greatly reduced detection ranges. Thresholds for temperature contrasts were less straightforward to ascribe than light levels for NVGs. However, temperature differences of less than 2°C would be difficult to detect for objects the size of a human being at sea where the waves were similar in height to a person floating near upright in the water.

1.15 IMMERSION IN SEAWATER

The human body's typical reaction to immersion in cold water (under 15°C) is considered in four stages:

1. Cold water shock takes place within the first 30 seconds to 2 minutes and is generally associated with a gasp reflex as the body comes into contact with cold water, along with hyperventilation and a dramatic increase in heart rate and blood pressure. If the head goes underwater during this stage the inability to hold one's breath will often lead to water entering the lungs in sufficient quantities to cause death. The increased heart rate and blood pressure can result in cardiac arrest, especially if the casualty has an existing cardiovascular condition. Panic can cause the hyperventilation to continue, even after the initial physiological effects have subsided.

2. Cold incapacitation usually occurs within 2 to 15 minutes of entering cold water. The blood vessels are constricted as the body tries to preserve heat and protect the vital organs. This results in the blood flow to the extremities being restricted, causing cooling and consequent deterioration in the functioning of muscles and nerve ends. Useful movement is lost in the hands and feet, progressively leading to the incapacitation of arms and legs. Unless an effective lifejacket is worn, death by drowning occurs as a result of impaired swimming ability.

3. Hypothermia occurs when the human body's core temperature drops below 35°C (it is normally about 37°C). This can occur after 30 minutes, depending on circumstances. Symptoms of moderate hypothermia, when the body's temperature is between 28°C to 32°C, include inattention, confusion, difficulty moving and loss of coordination. Loss of consciousness is associated with severe hypothermia, when the body's temperature drops below 28°C. The body's core temperature can continue to drop even after the casualty has been recovered from the water if rewarming efforts are ineffective.

4. Circum-rescue collapse can occur just before, during or after rescue due to a variety of mechanisms that result in unconsciousness or death. Collapse just before rescue may occur when a casualty relaxes mentally resulting, among other things, in a sudden drop of stress hormones, possibly leading to a drop in blood pressure.

Survival time of people in the water was dependent on a number of factors, including clothing, body type, weather conditions and body temperature. The IAMSAR manual provided guidance on realistic upper survival times for people in the water wearing normal clothing. For a water temperature of 13°C the IAMSAR manual indicated a realistic upper survival limit of about 20 hours.

1.16 POST-ACCIDENT ANALYSIS

1.16.1 Mayday Relay response

MRCC Dover transmitted a "Mayday Relay" broadcast at 0227, 0247, 0301 and 0320 on 24 November 2021. Post-accident analysis of AIS data identified 17 IMO registered merchant vessels that passed within 6nm and 20 minutes of the broadcast "Mayday Relay" position. The investigation attempted to contact these vessels to seek responses to a "Mayday Relay" questionnaire, 13 of which responded to the MAIB **(Table 3)**.

Question: Was the "Mayday Relay"...	Yes	No	Unknown or not reported
...broadcast heard on board?	6	6	1
...broadcast recorded on board by any means?	5	7	1
...plotted on board?	5	7	1
...entered into the ship's log?	5	7	1

Table 3: "Mayday Relay" questionnaire response

Of the six vessels that reported hearing the "Mayday Relay", two responded to MRCC Dover and one responded to Gris-Nez Traffic, the remaining three did not respond. The reported actions of the three vessels that responded are detailed below:

The 180m Singapore registered tanker *Concerto* was underway in the north-east lane of the TSS on passage from Le Havre, France to Rotterdam, the Netherlands on 24 November 2021. The vessel's log recorded no actions taken following the first two broadcasts at 0227 and 0247. After the third broadcast at 0301 *Concerto* contacted Gris-Nez Traffic on VHF channel 13 to report that it had not found anything in the "Mayday Relay" position. At 0323, after the fourth broadcast, *Concerto* contacted Gris-Nez Traffic again to report that it had sighted a small unlit boat with people on board passing close to the vessel. Gris-Nez Traffic acknowledged this message and advised *Concerto* not to wait while it contacted MRCC Dover. Despite this message *Concerto*'s engines were stopped and the vessel awaited instruction on any action that might be required. At 0324, Gris-Nez Traffic instructed *Concerto* to resume passage and advised that the French coastguard would take over the search and rescue. *Concerto* then resumed passage. *Concerto*'s recorded log position at 0323 was approximately 2.2nm east of the "Mayday Relay" position, the closest point of approach was 1.27nm to the south-south-east at 0314. The MAIB investigation found no evidence that this information was passed to HM Coastguard.

The 242m Singapore registered tanker *KWK Excelsus* was underway in the south-west lane of the TSS on passage from Primorsk, Russia to Le Havre, France on 24 November 2021. On hearing the broadcast the master (who had the con) was informed and the "Mayday Relay" was recorded and plotted on board. The master contacted MRCC Dover and was requested to maintain a sharp lookout and report any sightings of distressed craft. No sightings were observed and *KWK Excelsus* reported this to MRCC Dover. *KWK Excelsus*'s closest point of approach to the "Mayday Relay" position was 2.96nm to the north-west at 0228.

The 217m Malta registered cargo vessel *Sixtine* was underway in the south-west lane of the TSS on 24 November 2021 and reported hearing the "Mayday Relay" at 0227 on VHF channel 11. The officer of the watch plotted the position, entered details into the vessel's Global Maritime *Distress* and Safety System (GMDSS) logbook and contacted MRCC Dover on channel 11. The vessel's GMDSS log shows that MRCC Dover responded, saying that a rescue boat was underway and no assistance was required. *Sixtine* maintained a continuous radio watch on channels 11/16. *Sixtine*'s closest point of approach to the "Mayday Relay" position was 3.03nm to the north-west at 0241.

1.16.2 Meteorological Office visibility analysis

The investigation engaged with the Met Office to understand and assess the visibility and potential performance of infrared and night vision equipment on the 23/24 November 2021. The environmental conditions observed at the Sandettie Lightvessel were used to support this work. It was concluded that infrared visibility conditions were poor to moderate at best and that night-time illumination levels were likely below 10mlx during the night of 23/24 November 2021.

Key to infrared effectiveness was that a thermal contrast of at least 2°C existed between the sea and the boat and people being searched for. The analysis concluded that a thermal contrast of 2°C was a reasonable assumption for a laden boat but that much lower contrast values were possible. No model data was available for an individual in the water; however, thermal contrast values were probably below 2°C. Thermal contrast values below 2°C result in much diminished infrared visibility.

1.17 DRIFT ANALYSES

The MAIB commissioned expert reports from forensic oceanography specialists at the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), NASH Maritime Limited (NASH) and BMT Limited (BMT). The analyses used numerical modelling to simulate possible drift trajectories of people in the water given the tidal and weather conditions. All three analyses modelled the drift forward in time from the last reported WhatsApp position received from migrant boat *Charlie* at 0221 on 24 November 2021. NASH also modelled the backtrack from the 1258 found position to the 0221 position. The three sets of analysis are summarised in the following subsections[42].

[42] The links to the three expert reports were made available on the MAIB's website as part of this report's publication. Alternatively, the expert reports can be requested via publications@maib.gov.uk

1.17.1 Centre for Environment, Fisheries and Aquaculture Science

The CEFAS analysis used Copernicus Marine Service's *Atlantic - European North West Shelf - Ocean Physics Analysis and Forecast* tidal data[43] and the ERA5 wind data model as inputs to a modelling suite.

The projected forward track from the last reported WhatsApp position from migrant boat *Charlie* was simulated twice, once assuming people had entered the water at 0221 in the last reported position and a second time assuming that people had drifted within the partially inflated boat without the engine running.

Both scenarios showed a similar flattened anticlockwise elliptical trajectory with movement initially to the north-east, before returning at around 0700 in a south-westerly direction. At about 1215, the projected drift turned back towards the north-east. The predicted position at 1300 was to the south-west of the last reported position and almost directly north of the found position. The closest the projected drift of people in the water came to the found position was approximately 5km at 1245 on 24 November 2021. For both modelled scenarios the predominant influence was tidal stream rather than wind **(Figure 21)**.

Image courtesy of Centre for Environment, Fisheries and Aquaculture Science

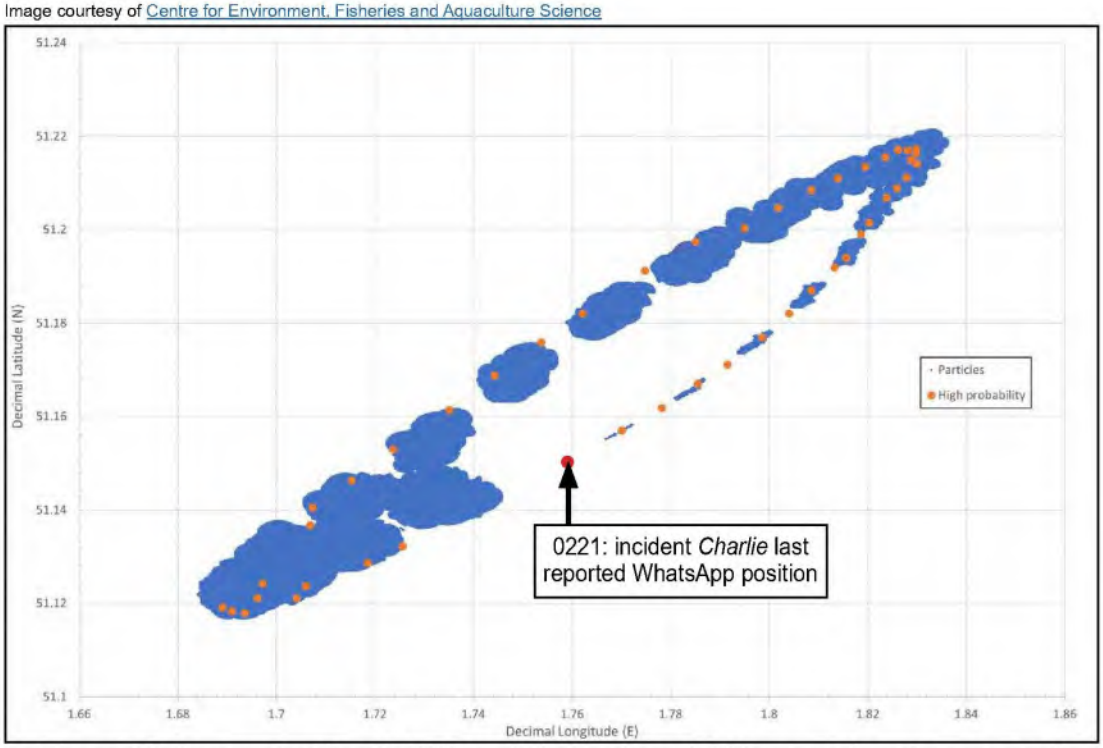

Figure 21: Image showing CEFAS modelled projected drift pattern from last reported WhatsApp position

To understand what scenario would result in the modelling reaching the found position, a series of variations were modelled assuming a southerly movement of the inflatable boat for 1 hour, at varying speed, from the time and location of the last reported position. This further analysis showed that a southerly movement at 2.5kts for 1 hour would reconcile the modelled drift track with the found position.

[43] https://data.marine.copernicus.eu/product/NORTHWESTSHELF_ANALYSIS_FORECAST_PHY_004_013/description

To further understand the possible movement of people on the night, and noting the results of the CEFAS modelling, the MAIB commissioned additional reports from NASH and BMT.

1.17.2 NASH Maritime Limited

The NASH analysis used Copernicus Marine Service's *Atlantic - European North West Shelf - Ocean Physics Analysis and Forecast* tidal data and observed wind data from the Sandettie Lightvessel as inputs to open-source drift modelling applications. The projected forward and backward track was modelled using a selection of model objects, including people in the water in a variety of states and objects with characteristics considered similar to a migrant boat.

The modelled scenarios showed a range of mean trajectories with movement initially to the north-east, before returning in a south-westerly direction and then turning back towards the north-east. The mean trajectories described similar rectilinear movement, either in a flattened anticlockwise ellipse or hooked pattern, with the different sections skewing further to the south-east.

Using different variables NASH reported a wide possible range of outcomes but concluded that the model results indicated it was possible that the wind and tidal currents could largely explain the drift of objects from the last reported to the found position. The closest match between the incident's last reported position and assumed found position was achieved with a 3% wind drift applied to the fixed average measured wind data and modelled time/space varying surface flow data. Using this data both the forward and backward tracks resulted in a projected start or end position at or within 50m of the last reported or found position **(Figures 22a** and **22b)**.

1.17.3 BMT Limited

The BMT analysis used the Copernicus Marine Service's A*tlantic - European North West Shelf - Ocean Physics Analysis and Forecast* tidal data and observed wind data from the Sandettie Lightvessel as inputs to its drift and SAR planning software. BMT also modelled three other tidal data sets and forecast wind data for comparison purposes including the POL CS3 tidal model. The projected forward and backward track were modelled using a liferaft object with characteristics assumed to be similar to a migrant boat and an object representing a person in the water. BMT observed that environmental factors were more important than the nature of the modelled object as individual characteristics would be overshadowed by environmental effects. BMT further observed that, for trajectory modelling, the selection of target, although important, only added some variability into the base trajectory.

Modelled trajectories showed similar flattened anticlockwise ellipses oriented on a north-easterly axis. The closest modelled path was achieved using the liferaft object with the Copernicus tidal data and the observed wind resulted in a distance of 0.57km between the end position and the found position and the found position was within the 'high' band of probability predicted by the modelling **(Figure 23a)**. The same tidal and wind inputs with a person in the water resulted in a 1.7km distance between the end position and the found position. The closest modelled path with a person in the water was achieved using POL CS3 tidal data and wind-driven current based on observed wind. This resulted in a distance of 1km between the end position and the found position and the found position was within the 'high' band of probability predicted by the modelling **(Figure 23b)**.

Images courtesy of NASH Maritime

Figure 22a: Image showing the closest match NASH modelled projected drift pattern from last reported WhatsApp position

Figure 22b: Image showing NASH modelled drift pattern backtrack projection from found position

Images courtesy of BMT

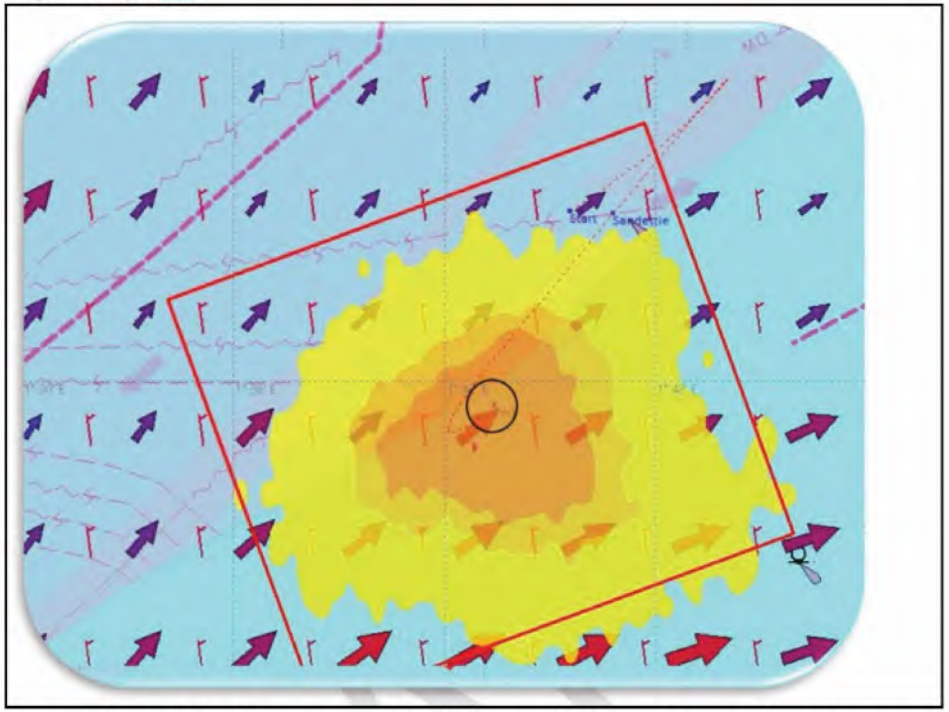

Figure 23a: Image showing high, medium and low end location probability bands around the found position using the BMT actual wind model for a liferaft

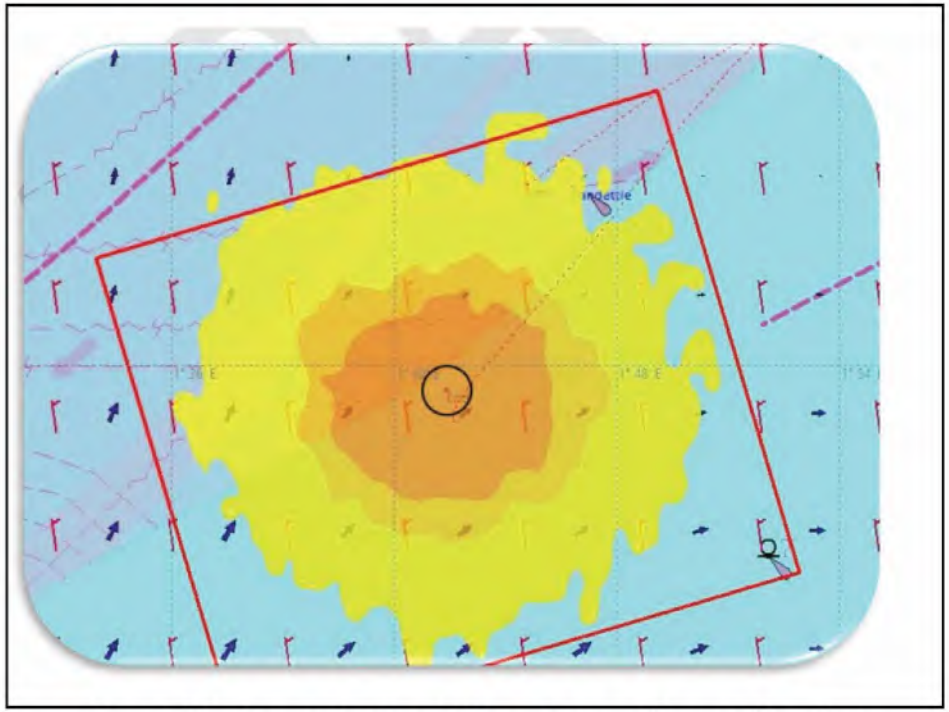

Figure 23b: Image showing high, medium and low end location probability bands around the found position using the BMT actual wind model for a person in the water

1.17.4 Summary

Although there was variation between the reports, all three concluded that the predominant factor for drift would be the tide, with limited minimal wind effect. There was also general consensus that the drift from 0221 would have been in a broadly north-eastwards direction then, as the tide flow direction changed, a return in a broadly south-westwards direction, before another slowing and potential reversing of direction at the next slack water before the 1258 found time. Both the NASH and BMT analyses concluded that the found position was congruent with an assumed start location at the 0221 WhatsApp position from migrant boat *Charlie*.

1.18 COASTGUARD MOBILE PHONE DATA

1.18.1 Mobile phone data extraction

The MAIB used Cellebrite specialist forensic equipment[44] to extract data from the coastguard mobile phone at MRCC Dover. The use of this equipment protected the phone's contents from alteration, provided access to content not normally available to the user and presented the contents in a convenient format for examination. The data extracted covered the period from 1900 on 23 November 2021 until 1900 on 24 November 2021. A summary of the interactions between the phone numbers associated with incident *Charlie* and the coastguard mobile phone is at **Annex E**.

1.18.2 WhatsApp message status

WhatsApp messages had three status levels:

Sent – alone, this indicated that the message had been sent from the outgoing phone but not received by the recipient phone.

Delivered – the message had been successfully received by the recipient phone, but not read.

Read – the message had been opened by the recipient.

There were a number of possible reasons why a WhatsApp message could be sent but not delivered to the recipient phone, which included:

- recipient phone turned off
- recipient phone battery depleted and phone had shut down
- recipient phone had shut down due to physical or water damage
- WhatsApp application deleted from recipient phone
- WhatsApp service outage or account problem
- loss of mobile data coverage because phone is out of range, signal is obscured by other signals, signal is physically blocked by a solid object or recipient phone is underwater.

[44] Cellebrite DI Ltd were a global provider of digital forensic products, services and training. The MAIB used Cellebrite Universal Forensic Extraction Device (UFED) and Cellebrite Physical Analyzer to extract, assess, filter, and then export the data in a format usable for further analysis.

1.18.3 WhatsApp positions

MRCC Dover obtained positional data for incident *Charlie* from positions sent via WhatsApp. WhatsApp positional data could be derived from the phone's inbuilt GPS receiver or from geolocation based on proximity to receiver aerials and was therefore necessarily subject to errors that could be difficult to quantify.

Over the course of incident *Charlie* HM Coastguard received five WhatsApp positions from the boat's occupants. Two of these were in French waters and were passed via MRCC Gris-Nez while the remaining three were in UK waters. The positions received along with the time of receipt and approximate distances between positions are shown in **(Figure 24)**. Positions 2 and 4 were received from the same telephone number (M4) as were positions 3 and 5 (M5); it is unknown what telephone number position 1 was received from.

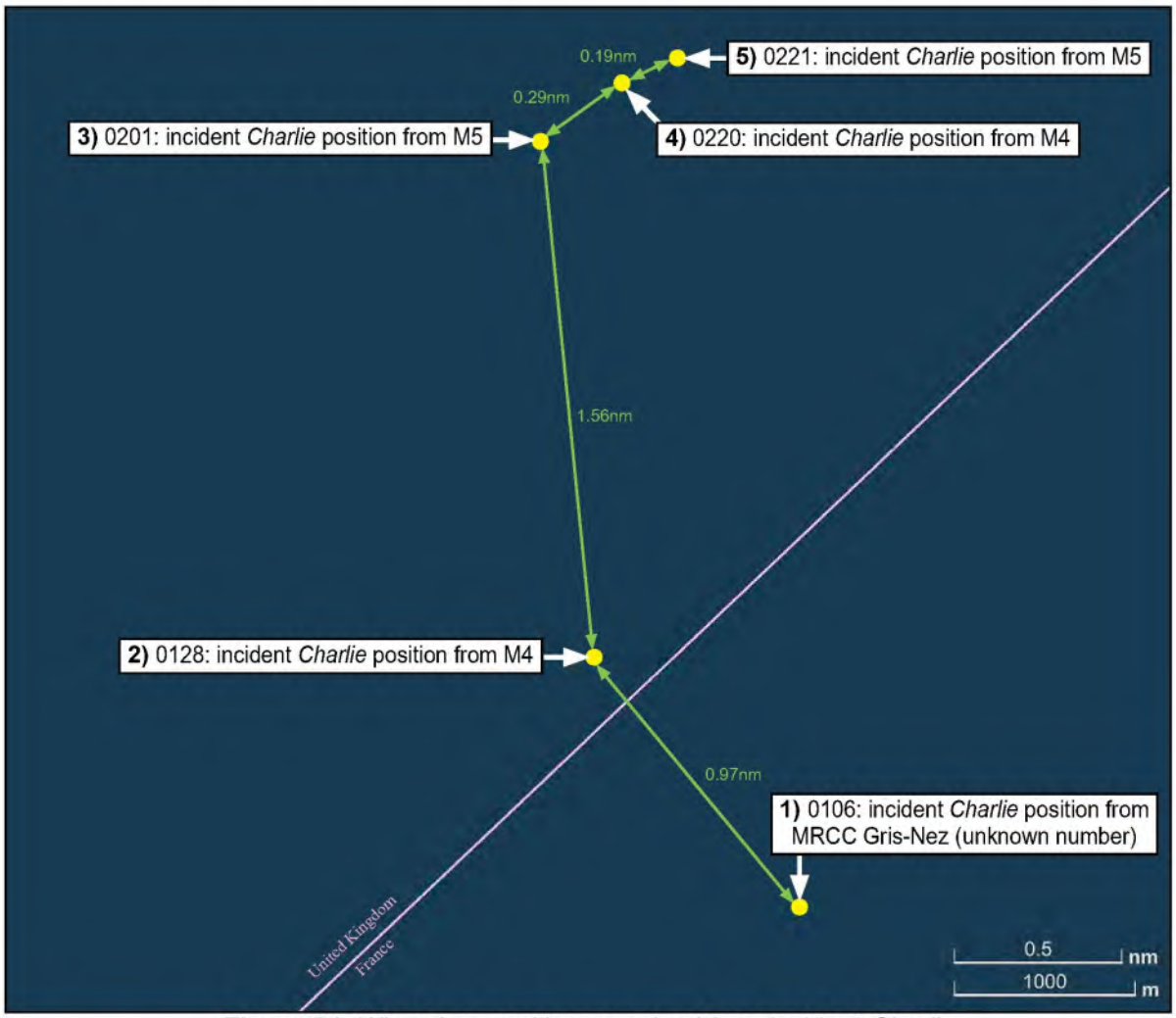

Figure 24: WhatsApp positions received from incident *Charlie*

The approximate distance between positions 1 and 2 was 0.97nm and there was a time difference of 18 minutes, equating to an approximate speed of 3.2kts. The approximate distance between positions 2 and 3 was 1.55nm and there was a time difference of 33 minutes between them, equating to a required speed of 3.4kts. Both of these speeds would be reasonable for a laden migrant boat under engine power.

The distance between positions 3 and 4 was about 0.29nm and there was a time difference of 19 minutes, equating to a speed of 1kt. This could indicate a stopped migrant boat drifting with the tidal stream. If the distance was instead measured between positions 3 and 5 (given the discrepancy described below and that positions 3 and 5 were from the same phone) it equated to 0.48nm and a time difference of 20 minutes. This equated to a speed of approximately 1.4kts, again indicating a potentially stopped and drifting boat.

Positions 4 and 5 were received 41 seconds apart and the distance between them was approximately 349m. To travel this distance in the available time would require a speed of 16.55kts. This was not a reasonable speed for a migrant boat and was inconsistent with other positional data. Possible reasons for this discrepancy included:

- A positional error in one or both messages – including the possibility that location sharing WhatsApp settings were set to 'approximate' rather than 'precise', that there was a difference in GPS accuracy between the two phones, or that external GPS influences affected the position.
- A timing error in one or both messages – the time of the WhatsApp message may not have accurately reflected the time the position was recorded. This could have happened if there was a delay in WhatsApp obtaining the location and the message being sent.
- The phones not being located in the same boat – while this was unlikely due to both numbers being linked to incident *Charlie* it could not be discounted.

SECTION 2 – ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributory causes and circumstances of the accident, with the aim of making recommendations to prevent similar accidents occurring in the future.

2.2 OVERVIEW

During the early hours of 24 November 2021, at least 27 people perished in the Dover Strait when their boat flooded and partially sank during an attempt to cross from France to the UK. The victims lost their lives because they entered the sea without the ability to survive prolonged immersion, and they were not found by search and rescue assets before they succumbed to the cold water. This section of the report will analyse the causes of the accident and the factors contributing to the fatalities.

2.3 THE ACCIDENT

The investigation determined that the stricken craft was almost certainly the migrant boat designated as HM Coastguard incident *Charlie* (for ease of understanding the boat is hereafter referred to in this analysis as migrant boat *Charlie*). This was determined by comparing the mobile telephone numbers associated with those who lost their lives with the telephone numbers recorded from coastguard communications with migrant boat *Charlie*. Three telephone numbers (M1, M2 and M5) were established to be associated both with the victims and coastguard communications with migrant boat *Charlie*. Two further telephone numbers, M3 and M4, were not positively linked to any of the named victims; however, they were associated with coastguard communications with migrant boat *Charlie* and various interactions on the night linked them to numbers M2 and M5. In particular, telephone number M4 was relayed during the same emergency call as M5.

2.3.1 The flooding

The distress situation started when migrant boat *Charlie*, began to take on water during the crossing to the UK. Although the people on board attempted to bail the water out there came a point when the water ingress was uncontrollable and the boat was swamped. As the boat flooded it also lost inflation pressure and started to sink, resulting in the occupants entering the sea. Although the MAIB investigation did not have access to the boat involved in this accident, based on similar recovered craft it was likely of homemade type construction. The initial water ingress was described as being at the bottom of the boat and likely occurred after movement of the edge of the rigid floor against the flexible material of the sole and inflatable collar wore away the fabric and allowed water to enter. The boat was reported to be carrying around 33 people. This number of occupants overloaded the craft, causing it to sink lower in the water and likely causing some deflation of the inflatable collar. Efforts of the people on board to pump up the collar were unsuccessful, probably because of the difficulties of operating the pump in the over-crowded and flooded boat, exacerbated by the panic exhibited by some of the occupants. It is also possible that the pumping efforts caused more air to escape from the buoyancy

tubes. Without a means to free the water or repair the damage to the craft, and with an increasingly deflated flotation collar, the people on board the small boat could not avoid entering the water.

Given the navigational and environmental hazards in the Dover Strait, and the number of people the boat was carrying, the inflatable boat and equipment provided by the people facilitating the crossing were entirely unsuitable. The occupants had no training or seafaring experience and so were not equipped to deal with the unfolding emergency. By providing an unsuitable craft and inadequate safety equipment for the crossing, and by crowding 33 people onto the boat, the people who facilitated the attempted crossing put the occupants of the boat at high risk of coming to harm. This risk was realised when the boat was swamped and the occupants entered the sea, resulting in at least 27 people losing their lives.

2.3.2 Time of accident

The occupants of the stricken migrant boat *Charlie* entered the sea when their boat became swamped. Analysis of mobile phone communications between the coastguard and the boat's occupants has determined an approximate position and potential time window for when they entered the water. However, without accurate time and position data from the stricken craft at the point of swamping, the exact location of the accident and the time the victims entered the water cannot be known.

Analysis of the coastguard mobile phone showed that it received an incoming WhatsApp call from telephone number M5[45] at 0312, which went unanswered. At 0333, a WhatsApp message was sent to M5 from the coastguard phone. The message status was *sent* but there was no delivery record, indicating it was not received by the recipient's phone. This suggests that telephone number M5 ceased receiving messages within this time window. It is possible that the phone had been turned off or the battery had run out of power, but also that the phone had become immersed in water. These events indicate that the boat became swamped and its occupants entered the water between 0312 and 0333 on 24 November 2021. MRCC Dover did receive a call at 0312 from a boat reporting to be in severe distress and that persons had entered the water, but the information within the call was insufficient to link it to any of the ongoing incidents. The 0312 incoming call coincided with the second missed call to the coastguard mobile phone from M5. This potentially indicates a scenario where one of the occupants of migrant boat *Charlie* attempted to call the coastguard mobile phone and, when unsuccessful, then called the operations room at MRCC Dover.

2.3.3 Drift analyses

The MAIB commissioned three sets of expert drift modelling analysis to understand the possible movement of migrant boat *Charlie* and people in the water. Both the NASH and BMT reports concluded that it was possible for the victims to have drifted from the last reported WhatsApp position at 0221 to the found position at 1258 on 24 November 2021. This drift was also possible if the victims were assumed not to have entered the water at 0221, but instead remained within the partially inflated boat.

[45] M5 was associated with one of the deceased victims from the accident.

The variability between the results highlighted the difficulties inherent in simulation using complex drift models and the multiple sources of variation, including tidal factors and wind. Both the NASH and BMT analyses found the best agreement between the last reported and found positions was achieved using actual observed rather than forecast wind. This likely explains why the CEFAS analysis, which used a model based on forecasted data, did not result in a trajectory that reached the found position whereas the NASH and BMT analyses did.

Without position data from the victims between the last reported WhatsApp position and the found position around 10.5 hours later, and without knowing the time and position they entered the water, the exact trajectory of their drift can never be established. However, drift modelling established plausible projected tracks that illustrate how the victims might have drifted through the water. In addition, the most likely modelled drift plots from all three analyses were within the search pattern covered by *R163*, indicating that the search was being conducted in the appropriate area.

2.3.4 Raising the alarm

The ability to raise the alarm in an emergency is considered an essential crucial component of sea survival. When in difficulties the ability to accurately and reliably communicate the position, nature of distress and information about the casualty vessel is vital to ensure the most effective and timely SAR response.

Those on board the stricken boat raised the alarm using mobile phones and alerted both the French and UK emergency services to their plight. This included passing WhatsApp positions to MRCC Dover and MRCC Gris-Nez. However, the positions reported were static and not updated until a new position was sent. This meant that the emergency services did not have a continuous update on the location of the distressed vessel and relied on the occupants being able to send regularly updated positions. In the case of migrant boat *Charlie* the last reported position was sent at 0221 via WhatsApp, which may have been over an hour before the boat became swamped and the occupants entered the water. Although there was reported to be a handheld GPS device on board to enable the person helming to steer towards the UK, it was not referred to in emergency calls and its functionality and the occupants' level of understanding of its operation are not known.

Although mobile phones can be used for alerting maritime distress they are not recommended as an alternative to marine radiotelephony means and have some disadvantages. Mobile phones provide a direct communications link and cannot be used to broadcast distress to any vessels in the area. Mobile phones are also reliant on having a signal, which cannot be guaranteed near sea level in the middle of the Dover Strait. They also require sequences of buttons to be pressed or touch screens to be used to compose a text or make a call, both of which can be challenging with cold hands or in wet conditions. Furthermore, a mobile phone that is not waterproof or stored in a waterproof pouch will cease to function when immersed in water. Once the occupants of the stricken migrant boat *Charlie* had entered the water it would have been hard for them to report the deterioration of their situation using mobile phones, even if the phones had survived the initial swamping and not been lost. The victims were then cut off without an effective means of continuing to raise the alarm, hail any passing vessels or provide the emergency services with their updated position.

2.3.5 Survival in the water

Unexpected immersion in cold seawater has profound and immediate effects on the human body. Once the occupants of migrant boat *Charlie* had entered the water the most pressing danger was the cold water. Without immersion suits or a liferaft to protect them from the elements, the victims' prospects of survival following their unexpected entry into the sea in winter depended on the rapidity of rescue and the effectiveness of any PFD worn.

This investigation did not have access to definitive information on how many of the occupants of migrant boat *Charlie* were wearing PFDs. However, any occupants not wearing PFDs would have been vulnerable to the effects of cold water shock in the 13°C water, and those that experienced cold water shock may have succumbed almost immediately on entering the water. Those surviving the initial cold water shock response but not wearing a PFD would then have been vulnerable to the increasingly debilitating effects of cold water incapacitation. The survival time of those occupants of migrant boat *Charlie* that were wearing PFDs was dependent on a number of factors, including the efficacy of the flotation device and their body type. To be effective for survival, a PFD needs to maintain an individual's airway out of the water and keep them floating on their back. A low-quality uncertified flotation device, or one that is improperly fitted, can allow drowning to occur if the material becomes saturated with water and loses its buoyant properties or it fails to keep the person's face and airway clear of the water. Individuals in this category may have survived the initial cold water shock and cold incapacitation before later drowning because they were wearing improperly fitted or poorly manufactured flotation devices. For someone surviving the cold water shock and cold water immersion the realistic upper survival time in 13°C water was about 20 hours, which might explain why there were two survivors.

This investigation did not have access to sufficient evidence to analyse the survival of individuals in depth and there are many uncertainties. That said, the victims likely perished over a period of time, starting from when they entered the water up until they were located, with deaths occurring over time from a mixture of cold water shock, cold water incapacitation and hypothermia. The survival time for each individual is undeterminable with any level of certainty and it further follows that it is not possible to determine where each victim succumbed and whether that was in UK or French waters.

2.4 SEARCH AND RESCUE RESPONSE TO INCIDENT *CHARLIE*

2.4.1 Events in French waters

Migrant boat *Charlie* left France at around 2100 on 23 November 2021, and reached the UK SRR around 4.5 hours later at about 0130. Communications between MRCC Gris-Nez and HM Coastguard indicate that MRCC Gris-Nez had received calls from the boat indicating distress both before and after it crossed the median line and entered the UK SRR. Information on the actions taken by French authorities and any emergency response, including the tasking and movements of French assets, was not available to the MAIB's investigation. However, MRCC Gris-Nez referred to the French patrol vessel *Flamant* during its communications with HM Coastguard and the AIS track of the vessel give an overview of the vessel's movements, although not the actions it was undertaking at the time.

Based on *Flamant*'s position around the time migrant boat *Charlie* was approaching the median line (between 0106 and 0130) it does not seem that the vessel was in contact with the migrant boat at this point. This is further supported by MRCC Gris-Nez stating that no French assets were with the boat. Later, at around 0240, MRCC Gris-Nez referred to *Flamant* being with another migrant vessel (French migrant 10). A conversation at 0311 between the Border Force MCC and the SMC at MRCC Dover noted that *Flamant* was moving away from the median line and the French tracker showed French migrant boats 10 and 11 had entered the UK SRR. Along with *Flamant*'s AIS track, this supports the narrative that *Flamant* accompanied at least two migrant boats to the median line, leaving them as they crossed into the UK SRR.

Although it could not be determined conclusively without access to further evidence, it is likely that *Flamant* was not in contact with migrant boat *Charlie* as it approached the median line and crossed into the UK SRR. This meant that the calls from the occupants of the boat were the only source of information for the boat's condition, number of people on board and their levels of distress.

2.4.2 Tasking of UK Border Force cutter

As migrant crossings of the Dover Strait increased, UK Border Force and HM Coastguard procedures within the UK SRR also developed in an attempt to preserve safety of life at sea while also achieving the strategic objective that no migrant should land on the UK coast without a UK Border Force official in attendance. As part of the evolution of the response Border Force cutters had become one of the key surface assets for recovering migrants. Unlike RNLI lifeboats that were manned with volunteer crews, Border Force cutters were crewed by employed staff and maintained on standby, ready to deploy if needed, and had more capacity to recover migrants from multiple small boats. Over the course of the morning of 24 November 2021, assets from both RNLI and Border Force were tasked with proceeding to migrant boats and recovering the occupants but the initial task of responding to incident *Charlie* in the UK SRR was allocated to the Border Force cutter *Valiant*.

The conversation about Border Force assets and the subsequent tasking of *Valiant* preceded the 0148 call from migrant boat *Charlie* that indicated high levels of distress and prompted the SMC at MRCC Dover to initiate "Mayday Relay" broadcast action. At the time of tasking *Valiant* the only information available about the incident had been supplied by MRCC Gris-Nez and there was no IAMSAR descriptor provided nor any indication that the boat was in peril. The initiation for *Valiant*'s tasking was credible information that a migrant boat was about to enter UK waters rather than a specific distress message from the boat itself. Although the Port of Dover had already received calls from a distressed boat, at that time these had not been linked to incident *Charlie* and the calls had not provided any position information. At the time of tasking, there was no indication that *Valiant* was proceeding to a boat in severe distress. *Valiant* was already underway and heading towards the scene by the time information from the 0148 distress call from migrant boat *Charlie* had been assimilated and its position plotted.

Given the absence of specific indications of distress at the time when *Valiant* was assigned there was no reason to deviate from the standard response to a typical mass migrant crossing event. The UK authorities were anticipating a busy migrant crossing night owing to it being the first night for several days where the weather would not prohibit migrant crossing attempts and it is possible that the need to spread asset usage throughout the event contributed to the tasking of the Border Force cutter as the first unit to deploy.

Once *Valiant* was underway no further UK surface assets were sent, despite subsequent concern about the level of distress of migrant boat *Charlie*. This may have been because the SMC at MRCC Dover was focused on trying to secure the assistance of French vessel *Flamant* as it was the closest government vessel to the scene. However, with respect to the UK response, *Valiant* had been identified as an appropriate asset with sufficient capacity to respond, and any further UK SAR assets would have taken additional time to deploy and might not have arrived any sooner. Until information was linked to incident *Charlie* to the effect that the occupants of the boat had actually entered the water, and with *Valiant* already proceeding to the scene at best speed given the prevailing visibility, there was no reason for the SMC to task further surface assets during the early hours of the morning.

2.4.3 Mayday Relay handling

2.4.3.1 General

Issuing a SOLAS "Mayday" should compel vessels in the vicinity to respond to an unfolding emergency situation. MRCC Dover broadcast a "Mayday Relay" on the night of the accident seeking the assistance of nearby vessels in response to incident *Charlie*. Despite four broadcasts of the "Mayday Relay" only two merchant vessels responded directly to MRCC Dover, one to Gris-Nez Traffic, and none of these were directed to proceed to the scene to assist.

2.4.3.2 MRCC Dover

The SMC at MRCC Dover became sufficiently concerned about incident *Charlie* following the 0148 phone call from the migrant boat that, on receipt of its WhatsApp position, broadcast action was initiated and a "Mayday Relay" prepared for broadcast on VHF radio. This was in addition to a supplementary information broadcast on VHF channel 11 alerting merchant vessels to migrant activity in the Dover Strait and requesting the posting of additional lookouts and reporting of sightings on VHF channel 16. A "Mayday Relay" was not routinely transmitted in response to every migrant incident and this was the only "Mayday Relay" transmitted on 24 November 2021, despite MRCC Dover receiving over 90 reported incidents involving distressed migrant boats. In this case the SMC had recognised the potential seriousness of the situation and was motivated by the knowledge that a French government vessel (*Flamant*) was in the vicinity, which the SMC hoped would respond to the "Mayday Relay" and proceed to assist the distressed vessel.

Two merchant vessels, the Malta registered cargo vessel *Sixtine* and the Singapore registered tanker *KWK Excelsus*, contacted MRCC Dover shortly after the first "Mayday Relay" broadcast at 0227 and offered to assist. Both vessels were over 200m in length and were transiting within the south-west traffic separation lane at the time of the transmission, passing within around 3nm of the "Mayday Relay" position, which was in the north-eastbound lane. Diverting either of the vessels out of its traffic lane and into the opposite lane to locate and assist migrant boat *Charlie* was potentially unsafe and fraught with attendant hazards, including the risk of collision with merchant vessels travelling in the opposite direction or with the boat itself. The size and manoeuvrability of the two vessels also made them unsuitable as search assets and, without lights and likely presenting a low radar signature, migrant boat *Charlie* would have been difficult for them to detect. In addition to considering the risks associated with diverting the merchant vessels, at the time the two vessels responded to MRCC Dover the SMC was still hoping that *Flamant* would assist and

had yet to be informed by MRCC Gris-Nez that the vessel was otherwise engaged. By the time the SMC was aware that *Flamant* would not be proceeding to the scene the two merchant vessels had been sent on their way under direction to maintain a sharp lookout and report sightings; no further merchant vessels responded to MRCC Dover offering assistance. The hope that *Flamant* would assist and the knowledge that *Valiant* was enroute to the "Mayday Relay" position likely influenced this direction from MRCC Dover. In the context of the search for an unlit small boat at night, somewhere between the busy traffic lanes of the Dover Strait, the SMC's decision to await more suitable vessels to assist incident *Charlie* rather than proceed with the potentially hazardous tasking of large merchant vessels was reasonable.

After the 0320 broadcast there were no further "Mayday Relay" broadcasts. HM Coastguard made the decision to cease "Mayday Relay" broadcasts on the basis that *Valiant*, a more suitable search and rescue asset than a passing merchant vessel, was now on scene in the vicinity of two migrant boats. This was reasonable; however, the investigation found no evidence that the "Mayday Relay" was formally cancelled with the broadcast of a closure message.

2.4.3.3 Gris-Nez Traffic

The Singapore registered tanker *Concerto* heard the "Mayday Relay" but responded to Gris-Nez Traffic rather than MRCC Dover. *Concerto* was proceeding in the north-east lane of the TSS, which was under Gris-Nez Traffic for VTS reporting. It may therefore have seemed more logical for the crew to contact Gris-Nez Traffic rather than MRCC Dover as directed by the "Mayday Relay" broadcast. When *Concerto* reported sighting a possible migrant boat close by their vessel, Gris-Nez Traffic directed *Concerto* to proceed on passage highlighting that rescue was on the way. This investigation has not included the actions of French authorities and it would be inappropriate to analyse the rationale for the direction provided by Gris-Nez Traffic or the reason that this information was not relayed to HM Coastguard.

Concerto's logged position at 0323 was 2.2nm from the "Mayday Relay" position and approximately 1.6nm east-south-east of migrant boat *Charlie*'s last reported WhatsApp position. Analysis of AIS data **(Figure 25)** showed that *Concerto*'s closest point of approach to the "Mayday Relay" position occurred at 0314, when the vessel was 1.27nm to the south-south-east. At 0317, *Concerto* began to slow down from 14.5kts, reducing its speed to 7.9kts by 0330, after which the vessel's speed began to increase again. This indicated that *Concerto*'s crew likely sighted a migrant boat shortly before 0317. *Concerto*'s position at this time was approximately 1.5nm from the "Mayday Relay" position and 1.3nm from migrant boat *Charlie*'s last reported WhatsApp position at 0221. *Concerto*'s crew did not record that the migrant boat it sighted was in distress or displaying any recognised distress signals, only that it was unlit. This investigation's analysis (see section 2.3.2) has concluded that, by this time, migrant boat *Charlie* was likely to have been in a severely distressed state and may have been swamped, with people in the water. Consequently, it is unlikely that migrant boat *Charlie* was the boat seen by *Concerto* and the crew had likely seen one of the other small migrant boats in the area. That said, without knowing the exact location of the boat sighting, its distance from *Concerto*, and with migrant boat *Charlie*'s position uncertain, the possibility that the boat seen by *Concerto* was incident *Charlie* cannot be completely discounted.

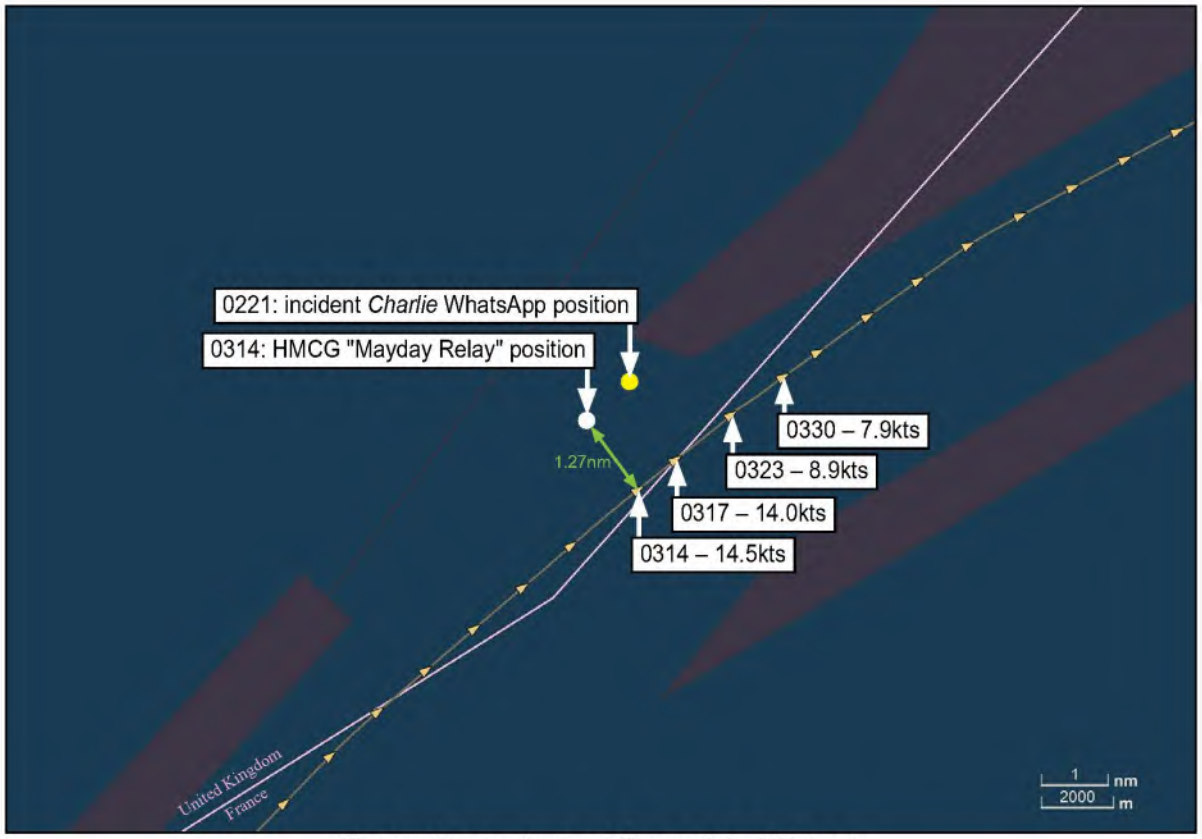

Figure 25: Analysis of *Concerto*'s AIS track

2.4.3.4 Summary

In summary, MRCC Dover's decision to issue a "Mayday Relay" demonstrated the initial level of concern that HM Coastguard had for incident *Charlie*. However, having asked for the assistance of all vessels, neither of the two merchant vessels that responded to MRCC Dover were tasked to proceed to the scene and the SMC was unaware that *Concerto* had responded to Gris-Nez Traffic. The investigation found that the primary reason for issuing the "Mayday Relay" was to generate a response from *Flamant* rather than divert merchant vessels out of the TSS to search, something that would likely have introduced greater hazards. Once it became clear that *Flamant* was not going to respond the coastguard continued with the "Mayday Relay" broadcasts but, having decided not to divert the two merchant vessels that responded, no further vessels contacted the coastguard, the "Mayday Relay" was not cancelled, and it seemed that events moved on.

2.4.4 Mayday Relay response from merchant vessels

Of the 13 merchant vessels that responded to this investigation's questions, only six reported hearing the "Mayday Relay" message **(Table 3)**, and only two of those responded directly to MRCC Dover. The low reported response rate appears contrary to the obligations SOLAS places on merchant vessels in the event of "Mayday Relay" broadcasts. The examination of reasons behind the low response rate was outside the scope of this investigation; however, it is important to note the context of the busy shipping environment of the Dover Strait and the constraints of the TSS, coupled with the uncertain nature and location of the distressed vessel.

2.4.5 Effectiveness of search pattern and detection probabilities

During the early morning of 24 November 2021, both *R163* and *Valiant* detected migrant boats while searching for incident *Charlie* but did not find the stricken boat. However, by the time the helicopter and cutter were on scene in the vicinity of *Charlie*'s last reported position it is likely that the boat had already become swamped and the occupants had entered the water.

R163's expanding square search was conducted in the appropriate area and was demonstrably effective in detecting small boats as it found three migrant boats. This validated the SMC's decision to include the expanding square pattern as one of the two suggested patterns for *R163* and tallied with previous experience where it had been found to be effective for locating small boats. However, the occupants of the swamped migrant boat *Charlie* were not detected until many hours later when the victims were found by a French fishing vessel. This may have been because the search pattern's track spacing of 0.7nm aligned with the IAMSAR recommendations for searching for boats, not people in the water, and the likelihood of the victims being detected by the helicopter was therefore much reduced. Effective detection of people in the water required a lower track spacing than that required to detect small boats and the IAMSAR manual recommendation given the visibility on the night was for a sweep width of 0.0nm. This effectively meant that the chance of detecting those in the water was negligible unless the helicopter flew almost directly over them.

Both *R163* and *Valiant* used thermal infrared methods to search and detect boats on 24 November. As evidenced by both assets having detected boats in this way, *Valiant* at a range of 0.7nm, the thermal methods were effective in locating loaded migrant craft. However, a person in the water exhibits a much lower thermal contrast when compared to a loaded boat, particularly if they have little positive buoyancy and have water washing over them. In such circumstances there is a very low chance of being able to distinguish a person from the surrounding seawater. This lack of thermal contrast may have contributed to neither *Valiant* nor *R163* locating the occupants of migrant boat *Charlie*.

R163 also used NVG to search for migrant boats. The level of ambient light during the hours of darkness was at best 9.25mlx, which was at the lower end of the range of efficacy for night vision equipment, again reducing the chances of locating and detecting objects the size of a partially submerged human being.

The nature of flotation devices on board the stricken boat and the number of people wearing them is not known; however, it is considered unlikely that any were equipped with lights. Without lights, and given the possibility that many victims were without support in the water, the chances of then being visually detected were further lowered.

Both *R163*'s and *Valiant*'s searches were predicated around searching for boats and not people in the water, and their methods were successful when locating boats. People in the water are much more difficult to detect than laden migrant boats, particularly if they are cold, are lower in the water, and have a low thermal contrast with the surrounding seawater. The visibility on the night was also such that *R163* had a very low chance of detecting the victims once they had entered the water.

2.4.6 Determination that migrant boat *Charlie* had been found

When *Valiant* located the stationary migrant boat it was in the area where a boat would be expected to drift given the last reported WhatsApp position from migrant boat *Charlie*, and MRCC Dover had suggested this was likely to be the boat involved in the incident. However, contrary to expectations, the boat was not swamped and was not exhibiting the expected level of distress. This section of the report analyses possible reasons behind the belief that the boat located by *Valiant* was migrant boat *Charlie* and why that assumption likely prevailed.

By the time *Valiant* and *R163* were on scene in the vicinity of the Sandettie Lightvessel, HM Coastguard was aware that there were likely to be at least three migrant boats within UK waters, including migrant boat *Charlie*. However, without aerial surveillance from the fixed-wing aircraft, and with scant information available from MRCC Gris-Nez and the boats themselves, the coastguard did not know how many boats there were, their locations or the level of distress each boat was experiencing. There was also no way to reliably differentiate one boat from another. None of the boats were registered or had distinctive markings and, at the time, HM Coastguard procedures did not include passing the coastguard designation of the incident to those making the calls. Consequently, there was no quick way to reconcile calls and establish which were duplicates and which were discrete incidents. In the absence of reliable identifiers and known positions the only way to attempt to differentiate between boats was through the numbers of people on board. However, this in itself was subject to uncertainty; for example, migrant boat *Charlie* was reported by MRCC Gris-Nez to have 33 people on board, while the 0148 call from the boat stated that there were 40 people. The lack of a reliable method of differentiating between boats and identifying specific vessels meant that it was extremely challenging for the SMC to establish when a particular boat had been found. When *Valiant* encountered the stationary migrant boat, later designated as *M957*, in the area close to *Charlie*'s last known position, and with 35 people on board, these factors likely led MRCC Dover to initially assume that this boat was migrant boat *Charlie*.

Following the 0148 call from migrant boat *Charlie*, the SMC at MRCC Dover was highly concerned for the welfare of those on board. This prompted the initiation of "Mayday Relay" broadcast action in an attempt to hasten a response to the reportedly stricken boat. Subsequently, the first boat encountered by *Valiant* was not exhibiting the level of peril expected. Although this information was not reported by *Valiant* to MRCC Dover, it does not seem to have prompted either *Valiant*'s crew or MRCC Dover to consider that the boat found was not migrant boat *Charlie*. It is possible that this was because Border Force cutter crew and HM Coastguard staff had previously experienced calls from migrant boats indicating high levels of distress that subsequently had turned out to be falsely exaggerated when followed up. This habituation to actual peril not matching the level reported may have caused the responders to rationalise incident *Charlie* as being another instance of exaggerated distress.

At least two emergency calls received throughout the night indicated that people on board migrant boats had actually entered the water. Neither of the calls received at 0306 or 0312 contained information to positively link them to incident *Charlie* at the time, and there was no indication that HM Coastguard appreciated that it was the occupants of migrant boat *Charlie* who had entered the water or that the boat had been swamped.

MRCC Dover attempted to validate the assumption that the found boat (*M957*) was migrant boat *Charlie* by asking *Valiant* to confirm whether those on board had called the UK emergency services. After 25 minutes, at 0416, *Valiant* informed MRCC Dover that no one on board *M957* claimed to have made any such calls. As with exaggerated levels of distress, it was not unusual for migrants to jettison their phones at point of recovery or to claim not to have called the emergency services so their phone calls could not be linked to the people facilitating the crossings. The timing of *Valiant*'s report at 0416 coincided with an attempted call from the coastguard mobile phone to one of the numbers associated with incident *Charlie* (M5). No details were recorded; however, it may have been an attempt to contact migrant boat *Charlie* to further support or disprove the assertion it had been found. The fact that this call was not answered may have reinforced the supposition that migrant boat *Charlie* had been recovered and phones jettisoned.

The MAIB investigation found no evidence of any further attempts to establish the identity of the found boat.

With the helicopter on scene and searching, and *Valiant* beginning to recover migrants from the found boats, events moved on. Although the search for migrant boats continued there was no further mention of the specific sinking boat or dedicated efforts to find it. This indicates that the coastguard had collectively formed the opinion that migrant boat *Charlie* had been found and that the initially high level of concern for the boat was insufficient to overcome the assumption that *M957*, being found in a similar location and with similar numbers of people on board, was migrant boat *Charlie*. This impression was likely reinforced as there were no more distress calls from any of the mobile phone numbers associated with incident *Charlie* after boat *M957* was recovered. As analysed above, mobile phone evidence indicates that the occupants of migrant boat *Charlie* likely entered the water between 0312 and 0333. Without knowing that the boat had become swamped and that the occupants had entered the water, the absence of any further emergency calls from incident *Charlie* may have reinforced HM Coastguard's impression that the boat had been found.

Evidence from the UK Border Force tracker indicated that, by 1000 on 24 November 2021, *M957* was assigned against incident *Charlie* on the UK trackers; however, the precise time of that assignment is unknown. During the mass migrant crossing events of 24 November, coastguard incidents were not being resolved in real time and the incidents unfolding over the course of the night were not closed until many hours later. This meant that the tracker spreadsheets did not provide a real time update of either the incidents that were still outstanding or those that had been resolved. Coupled with the lack of an overall surveillance picture showing how many discrete migrant boats were in the UK SRR there was no information to indicate to the oncoming day watch or others within the coastguard that a migrant boat in distress had potentially been missed.

2.5 PICTURE COMPILATION AND FORECASTING

An effective response to migrant boats attempting to cross the Dover Strait required an all-weather area search, detection, recognition and identification capability that could distinguish between migrant boats that were completing the crossing under their own power, and so required intercepting and recovering while on passage or intercepting on arrival, and those that were in actual peril and so required immediate priority SAR intervention. Assets could then be tasked appropriately. Intelligence

that provided advance warning of migrant boats about to enter UK waters could also assist UK authorities in responding to crossing events. This section of the report will analyse the reasons for the lack of compilation of an overall picture on the night of the accident.

2.5.1 Routine monitoring of vessels in the Dover Strait

The Dover Strait was the busiest shipping lane in the world with both an IMO endorsed TSS and mandatory reporting zone. These safety features were managed by HM Coastguard through the CNIS, in close cooperation with French counterparts at Gris-Nez Traffic to monitor vessels transiting the Dover Strait. Although separate from the MRCC function, the CNIS was co-located in the Dover Coastguard building and watchkeepers worked closely with the SAR team and MRCC Gris-Nez.

Relying as it did on AIS, radar and VHF reporting from vessels, the CNIS system was neither designed for nor capable of detecting or tracking small migrant boats in the Dover Strait. This was because the boats were not calling CNIS at the recognised reporting points to check in, were not transmitting on AIS and were barely detectable on primary radar. It is likely that the occupants of the boats were unaware of these monitoring mechanisms and the boats themselves did not have the necessary equipment to participate in the reporting scheme. This meant that there was no means for CNIS or MRCC Dover to identify or track the boats through their AIS transmissions or contact them via VHF. Use of radar systems was also largely ineffective at detecting the small boats used by the migrants because the craft were low to the water and provided a small radar echo, making them difficult to distinguish from the background sea returns. Manned by untrained people and sometimes actively seeking to avoid detection, migrant boats did not follow the rules for crossing TSS or comply with navigational protocols such as the collision regulations[46]. Detecting migrant boats in the dense commercial shipping area of the Dover Strait was therefore complex and could not be achieved by the existing conventional traffic monitoring systems.

2.5.2 Air surveillance patrols

The detection and tracking of migrant boats in the Dover Strait was primarily achieved by air assets including fixed-wing aircraft, helicopters, and UAVs. This was re-emphasised by the MCA's recognition in August 2021 that further air assets were required. However, on the night of the accident 2Excel reported at 0030 to HM Coastguard that the planned 0300 to 0800 patrol was postponed, and by 0231 it had been confirmed that the aircraft would not fly due to forecast poor visibility in the Dover Strait and the lack of suitable diversion airfield. The only UK aircraft undertaking government activity in the Dover Strait was a Home Office flight at high altitude whose presence and purpose was not disclosed to HM Coastguard. The lack of a fixed-wing aircraft patrol meant that the staff at MRCC Dover had no overall picture of the number, location and level of distress of the migrant boats approaching UK waters and were thus heavily reliant on information passed on by MRCC Gris-Nez and the calls from migrant boats to develop an understanding of the situation.

Recognising the potential difficulties the lack of airborne surveillance would cause, the JRCC maritime and air tactical commanders developed a plan to task coastguard helicopter *R163* to fly a patrol along the median line between UK and

[46] The International Regulations for Preventing Collisions at Sea 1972 (as amended).

French waters. Although initially concerned about weather conditions, *R163*'s captain agreed to fly the patrol despite it not being a conventional SAR flight. However, by the time *R163* was airborne its tasking had changed to search for specific migrant boats in distress, which meant that there was no UK patrol flight on the 24 November as the tasking for the scheduled coastguard aircraft mid-morning amber day patrol was also amended.

The introduction of fixed-wing flights to assist with migrant surveillance on busy crossing days was a positive step that increased the level of information available to HM Coastguard. However, although air surveillance being unavailable was a foreseeable occurrence, there was no backup plan in place. When faced with a forecast busy night for migrant crossings, and without the fixed-wing surveillance patrol, the duty team discussed the problem and later attempted to devise a solution involving use of the helicopter as the next best option for achieving aerial surveillance. However, due to subsequent SAR tasking the plan was not delivered. The difficulties faced by Dover MRCC staff were exacerbated because the cancellation of the 2Excel aircraft was not notified to the JRCC until migrant crossing attempts were well underway. This happened because none of the agencies involved had fully appreciated the negative impact the lack of aircraft surveillance would have on MRCC Dover's ability to understand the overall picture and there was no procedure in place for situations when the fixed-wing surveillance aircraft was unavailable. Without a predetermined contingency plan, the air and maritime commanders were left to try and engineer an airborne surveillance patrol on the night, an endeavour that was ultimately unsuccessful.

2.5.3 Availability of surface assets

Aerial surveillance had become the primary method for compiling an overview of migrant boat activity in the Dover Strait and when this coverage was unavailable the JRCC tactical commanders sought to provide an alternative aviation solution. This investigation has found no evidence that any of the agencies on the night, including the tactical commanders and the Border Force maritime commander, considered exploring the use of surface vessels as an alternative to the fixed-wing air patrol. HM Coastguard had no vessels of its own and other vessels, including RNLI lifeboats and Border Force cutters, were unavailable to the coastguard until they were tasked for SAR operations. Although Border Force Op Deveran contained provisions for surface patrols in the Dover Strait, these were not being conducted on the night of the accident. It is possible that, as high levels of migrant activity were forecast overnight on the 23/24 November, the Op Deveran assets were not made available for other tasks in anticipation that they would be required to recover migrants.

2.5.4 Prioritisation of incidents

Both *Valiant* and *R163* encountered other migrant boats while searching for migrant boat *Charlie*. Although these boats were not in an obvious state of distress and were not what *Valiant*'s master was expecting to find, dealing with them became the priority for the SMC at MRCC Dover. This happened because all migrant boats found in UK waters were initially deemed to be in distress and therefore requiring immediate assistance. With no coastguard air patrol and reliant only on information gleaned from emergency calls and passed by MRCC Gris-Nez, MRCC Dover was unable to determine the actual number of migrant boats reaching UK waters or the level of distress each boat was experiencing. Prioritisation of one boat over another was only possible following visual contact, as subsequently occurred when *Valiant* prioritised a stationary migrant boat over one that was moving.

2.5.5 Summary

It was extremely challenging to effectively respond to multiple migrant boats crossing the Dover Strait without an operational overview from which critical decisions could be made to prioritise assets to tasks. This was exacerbated by the absence of any conventional tracking, reporting or distress alerting from the migrant boats. By necessity, a persistent, multiagency, proactive surveillance system was required to detect, recognise, identify and track migrant vessels. This level of migrant boat surveillance was not deliverable by conventional maritime traffic monitoring. On the night of the accident, without the coastguard fixed-wing aircraft patrol flight and with the helicopter otherwise tasked, there was no overarching coverage capable of identifying, triaging and maintaining tracking on multiple migrant boats, nor any plan to achieve an overall picture of migrant boat activity in the absence of aerial assets.

2.6 MIGRANT SEARCH AND RESCUE AND HM COASTGUARD

The UK SAR system complied with all international requirements and HM Coastguard was regarded as a world leader in SAR provision. Migrant small boat SAR activities were unlike conventional emergency situations and, as migrant numbers increased, HM Coastguard processes and procedures had been undergoing a period of adaptation to deal with the challenge of preserving life at sea during migrant crossing attempts.

2.6.1 Usable information from emergency calls

On the 24 November 2021, HM Coastguard recorded 99 separate incidents involving migrant boats. Calls and information came from a variety of sources, with some providing duplicate information as a result of multiple calls from the same boat, and others reporting new incidents. For many of the incidents recorded that day the only information available came from the direct calls made by the migrants themselves. It was extremely challenging for coastguard operatives to distil useful information from these calls and correlate it with information obtained from other sources such as the French tracker. However, without this correlation the information provided in a single call was often insufficient to enable the coastguard to mount an effective response. Some of the calls provided almost no usable information other than that there was a boat in distress. Without a telephone number, position, name of caller or any distinguishing characteristics of the boat some calls could not be positively linked to ongoing incidents at the time. This was the case with the 0312 call to MRCC Dover, which neither provided information that would have helped mount a response to the reported severe distress nor linked the call to any of the ongoing incidents. While the content and timing of the call indicated that it may have originated from migrant boat *Charlie*, without a telephone number, name or any other data this cannot be proved, and there is no evidence that MRCC Dover considered a possible link at the time. Against the context of a busy night with multiple calls and information coming from a variety of sources, and without an overall picture of events, linking and reconciling various calls was extremely challenging. For example, the 0312 call was taken by the MOO whereas the 0148 call from migrant boat *Charlie* was answered by the SMC, which meant that even if the calls had been from the same boat there was no opportunity for coastguard staff to recognise voices or background noises in common.

Another reason for the coastguard's difficulties in extracting reliable information from emergency calls made by migrant boats was the advice from facilitators for callers to claim high levels of distress when in UK waters in the hope of expediting

rescue. This exaggeration of distress resulted in a high volume of calls indicating severe peril that had the potential to mask genuine distress. It is also possible that continued exposure to incidences of exaggerated distress introduced an expectation in coastguard personnel that migrants were in less severe peril than indicated, and this habituation[47] created a mental threshold that needed to be overcome. The level of concern for migrant boat *Charlie* and the initiation of broadcast action by the SMC at MRCC Dover indicated that, initially at least, the reports of distress exceeded any threshold of concern that might have existed and distinguished the call from others that night. However, the level of concern for migrant boat *Charlie* did not sufficiently make it stand out from the other unfolding incidents for it to remain a cause for concern or override the impression that it had been found and ensure the incident was pursued to conclusion.

The lack of useable information from emergency calls and the significant challenges inherent in attempting to correlate various sources of information and reconcile them into discrete cases also contributed to the difficulty of resolving incidents. Many of the incidents on the day were closed with little or no information recorded as to how the decision to close had been made. This happened because there was insufficient information available to the coastguard to distinguish migrant boats from one another and, without knowing exactly how many boats had attempted the crossing there was no way to properly resolve the incidents.

As the calls continued to come into MRCC Dover through the early hours and into the morning of 24 November 2021, there was limited time and resource available to reconcile the information from calls in real time. This introduced a risk that important information would be overlooked.

2.6.2 Staffing level at MRCC Dover

The coastguard planning meeting on 22 November 2021 had identified that 23/24 November was likely to be a busy night as a window of weather that was favourable for crossings was opening up from the early hours of 24 November. The meeting discussion noted concerns with the level of staffing at Dover, particularly that two operators on watch at night was insufficient. There was discussion in the meeting about potential ways to bolster night numbers at Dover and efforts were made to find volunteers to boost the numbers, resulting in one operator adjusting their hours to start their watch at 0500. Despite these concerns the night watch at MRCC Dover on 23/24 November 2021 consisted of one SMC supported by a MOO and a trainee; one fewer qualified operator than the suggested seasonal manning of three.

The coastguard network provided support to MRCC Dover throughout the night, including JRCC staff providing SMC coverage when MRCC Dover's SMC was taking a meal break or covering CNIS staff meal breaks, and with support for other functions including VHF and routine telephony. HM Coastguard became aware of migrant crossing activity at 0026 on 24 November, which was 5 hours into the night shift, but additional support at MRCC Dover, as opposed to remote support from the JRCC, did not become available until 0500; even then, the supporting SMC trained officer acted as an operator to bolster the watch numbers. This resulted in a period of 4.5 hours when almost all migrant SAR activity at MRCC Dover was being dealt with by just two trained officers.

[47] Habituation (psychology): the diminishing of an innate response to a frequently reported stimulus leading to a drop in arousal level in these subjects.

Although network support was available, the operations room staff at MRCC Dover had a high volume of activity to deal with during the night shift. This included communicating with *Valiant* and *R163*, answering emergency calls and interfacing with the coastguard mobile phone. In this respect, remote support from the JRCC was of limited effectiveness in relieving the pressure on Dover and the operation of the coastguard mobile phone could not be undertaken remotely. The SMC at MRCC Dover was unable to effectively perform their role of managing the overall search effort because of the high volume of calls, the ongoing management of multiple incidents, and becoming involved in other tasks. This involvement extended to taking emergency calls from migrant boats, a task that an SMC would not normally undertake but was necessary to try to prevent calls from going unanswered. As well as being a challenging call, the 0148 call that the SMC answered from migrant boat *Charlie* lasted 20 minutes, during which time the SMC was performing an operational role rather than monitoring calls taken by other staff and maintaining an overview of events. By the time additional support arrived in the operations room at MRCC Dover at 0500, the incident management system had reached incident *Mike*, Border Force cutter *Valiant* was proceeding to the second migrant boat and the occupants of incident *Charlie* had probably been in the water for over 90 minutes.

As well as affecting the SMC's ability to perform their role, the lack of staff at MRCC Dover meant that there were insufficient resources to correlate information from emergency calls, MRCC Gris-Nez and other sources in real time. This inability to effectively process information received may have contributed to the erroneous determination that migrant boat *Charlie* had been found.

The JRCC maritime tactical commander role aimed to balance the network and support regional SMCs by providing central oversight and guidance, primarily with incidents at distress level. Although this worked effectively for conventional SAR situations, the localised nature and number of distress incidents associated with migrant crossings made it challenging for JRCC tactical commanders to provide local situational awareness at Dover on a tactical level as well as meet the demands of the network. To alleviate this, the role of SBTC had been created to provide local tactical support at MRCC Dover during busy migrant crossing events. This local tactical support was unavailable to Dover's SMC on the night of the accident because the sole SBTC did not start work until 0730 the next morning. Although the SBTC was available on an on-call basis they were not called during the night; possibly because the SMC at MRCC Dover was too busy to recognise they needed additional tactical support. Further, on the night of 23/24 November, there was a single maritime tactical commander on watch at the JRCC instead of the desired two and, during the early hours of the morning, the lack of aerial surveillance added to their workload as they spent time with the air tactical commander trying to devise an alternative solution. The maritime tactical commander was taking a meal break for the majority of *R163*'s search period and, although they remained on-call they were not actively providing tactical support during this period.

In summary, although it had been recognised that MRCC Dover required additional support during busy migrant crossing periods both immediately and in the long term and some initiatives had been put in place, there was a lack of support available locally during the night watch of 23/24 November. Additional support was scheduled to assist with the daytime period and the assumed escalation of activity from the early morning onwards. However, despite recognition at the planning meeting that migrant activity might begin earlier than forecast, and attempts to seek additional support for MRCC Dover, there was no local resource in the operations room to help from 0026 when HM Coastguard first became aware of migrant activity. Planned

staffing uplifts had not yet been implemented and network support was of limited assistance. Staff sickness and annual leave further reduced the number of operators available at MRCC Dover on 23/24 November, leaving the night watch below the suggested seasonal manning on a night with high levels of anticipated and actual migrant activity. This placed a high workload burden on the team at MRCC Dover that was only partially mitigated by network support.

2.6.3 Use of coastguard mobile phone

As migrant crossing attempts of the Dover Strait increased it had become practice to use WhatsApp as a means for migrants to pass their location to the coastguard. In the absence of navigational equipment or seafaring knowledge, WhatsApp location sharing provided the migrants with an accessible way to transmit their position using a mobile phone. Although WhatsApp location information assisted HM Coastguard in responding to migrant search and rescue events, MRCC Dover's use of a standalone mobile phone for WhatsApp communication was not without disadvantages.

MRCC Dover's mobile phone had been introduced as a measure to allow direct communication with migrants via text and WhatsApp messages. However, the phone was not integrated into the coastguard's incident management system. This meant that operations room staff needed to actively monitor the phone to pick up incoming communications and were not alerted to incoming calls via their usual systems. Analysis of the mobile phone showed that on the night of the accident there were two incoming missed calls, at 0257 and 0312, from one of the phone numbers (M5) associated with incident *Charlie*. Based on information available to this investigation these are likely to have been some of the last calls from the stricken boat and do not appear to have been answered. This may have been because the incoming call on the standalone phone went unnoticed in the busy operations room and the small number of staff working on migrant search and rescue that night were at the time focused on information coming in via the conventional incident management system.

A lack of awareness of activity on the mobile phone may also have contributed to the delay in updating incident *Charlie* with the WhatsApp position received at 0221, which was not actioned until 0328. Given the paucity of information on the distressed vessel it was unhelpful that there was a delay of over an hour before its position was updated. However, post-accident analysis of *Valiant*'s track showed that the cutter passed through this position during its initial attempt to locate migrant boat *Charlie* and nothing was found. This indicated that the failure to update the position in the coastguard incident management did not adversely impact the search for migrant boat *Charlie*.

A further disadvantage of conducting some aspects of communication using the standalone mobile telephone was that there was no longer one single method of reaching HM Coastguard via the emergency services telephone numbers 999 and 112. This may have caused confusion for migrants as to the primary method of communication by which to seek assistance; using the coastguard mobile telephone number also required that both its number and those of the migrants' mobile phones were communicated to one other, which introduced potential for errors and a risk that calls would become disconnected without the numbers being exchanged. Furthermore, communicating outside of the usual coastguard system meant that the calls were unrecorded and could not be reviewed. This was demonstrated by the

0217 phone call to the coastguard mobile phone that lasted approximately 3 minutes and was made via a number associated with incident *Charlie*. This investigation has found no evidence of a record of this call or its content and it does not appear to have been recorded in the coastguard incident management system.

The use of a mobile telephone for transmission of WhatsApp messages and positions was a practice that had developed in response to migrant crossing attempts and was not reflected in official coastguard procedures at the time of the accident. The use of a standalone mobile telephone brought with it a risk of missing information and opened a channel of communication outside of the official standard coastguard system, which was, logged, recorded and continuously monitored. This happened because the coastguard response to SAR operations involving migrants was an evolving process and the solution of a mobile telephone for communication via WhatsApp appears to have been implemented before the service's weaknesses could be fully mitigated.

2.6.4 Anglo-French information sharing

Due to lack of usable information and evidence, the actions of MRCC Gris-Nez and other French authorities were outside the scope of the MAIB investigation; however, it is appropriate to analyse the effectiveness of communications between MRCC Gris-Nez and MRCC Dover. Throughout 24 November 2021, the two MRCCs shared updates on migrant boat activity. The French tracker spreadsheet was the primary basis for these communications, which MRCC Dover used to anticipate when migrant boats would enter UK waters.

Without the coverage from the fixed-wing aircraft, HM Coastguard was heavily reliant on information from its French counterparts to understand the number of boats attempting the crossing and when they were close to UK waters. During the night of 23/24 November, MRCC Gris-Nez did not alert the UK to any migrant crossing attempts until prompted by MRCC Dover's call about migrant boat *Alpha* at around 0030. At this time, MRCC Gris-Nez was aware of four boats making crossing attempts but had not notified MRCC Dover. This meant that there was little opportunity for HM Coastguard to develop a picture of migrant boat activity that night, to understand the potential number of boats heading to the UK and possibly take proactive action to intercept them as they crossed into UK waters.

As small boats crossed the median line and passed from French to UK SAR coordination they also gained a different identifier as the two authorities used different identification systems. This meant that some effort was needed to understand which migrant boat incident was being discussed when French and UK authorities were exchanging information. The situation was further complicated as several of the incidents reported were duplicates of the same boat; in particular incident *Charlie*, which eventually encompassed UK incidents *Alpha*, *Bravo*, *Charlie*, *Foxtrot* and *India* and French incidents migrant 1, 7 and 9. This added to the difficulty of identifying and reconciling discrete incidents, as evidenced by the apparent double accounting of French migrant 10, which formed the basis for the creation of UK incidents *Kilo* and *Lima*. The lack of a common frame of reference for migrant boats may have introduced additional confusion between the UK and French authorities and contributed to the overall uncertainty about how many migrant boats were crossing the Dover Strait. Without knowing how many boats had crossed into the UK SRR, HM Coastguard could not be certain if all incidents were resolved or if boats remained unaccounted for.

It is unknown if French authorities assigned any IAMSAR distress to migrant incidents on the night of 23/24 November; the tracker contained no information as to how the French authorities had categorised the boats and the information was not passed on during phone calls between MRCC Gris-Nez and HM Coastguard reviewed as part of this investigation. This further reduced the information available to HM Coastguard to assist in prioritisation and identification of discrete boats.

2.7 COORDINATION AND DIRECTION

2.7.1 Adjusting to the migrant boat crisis

The numbers of migrants crossing the Dover Strait had been increasing since the emergency declaration in 2018, and 2021 was a particularly busy year. The Home Office, UK Border Force and HM Coastguard adapted their response in reaction to these rising numbers and various initiatives were put in place throughout 2020 and 2021 to try and deal with the escalation of crossings and to foster collaborative working. Although the common aim for all parties was preserving life at sea, the Home Office, and by extension the UK Border Force, were also working to protect the UK's maritime borders. As part of this, their aim was to ensure that migrants did not arrive in the UK without being intercepted by Border Force officials. However, DfT and Home Office officials had agreed that migrant boats in UK waters should initially, due to their evident vulnerability, be considered by default to be in the *Distress* phase (see 1.12.1). This meant that HM Coastguard had primacy as it was the authority responsible for coordinating the UK's SAR response to vessels in distress. Consequently, the parallel missions of saving life at sea and intercepting migrants meant that Border Force was drawn into performing search and rescue tasks while the mission of locating and intercepting crossing boats was coordinated by the coastguard. Each agency was thus performing tasks that supported the other's objectives.

However, the two missions had not been consolidated under a unified command structure. This lack of a single coordinating authority operating above the level of MCA and Border Force hampered their ability to proactively cohere activity and resource into an effective consolidated maritime response.

2.7.2 Consequences of search and rescue primacy

In the normal course, SAR is a largely reactive business. HM Coastguard responds to alerts and distress messages that usually mark the commencement of a distress incident, rather than conducting proactive surveillance patrols in the anticipation that a distress incident might be about to occur. With HM Coastguard leading red day planning the posture adopted was largely reactive, with planning meetings focused on having enough assets available to effectively cater for the numbers of crossing boats anticipated, not for proactively building an overall picture of crossing activity.

HM Coastguard's experience of information provided by those attempting the crossing themselves was that it was scant and often unreliable (see 2.6.1). However, under the bilateral Manche Plan 2018 agreement, MRCC Gris-Nez should have been a 'credible source', from whom information on the level of peril the boats were experiencing would have enabled HM Coastguard to prioritise incidents and attach appropriate IAMSAR designators. However, on 24 November, MRCC Gris-Nez did not notify MRCC Dover that four migrant boats had started crossing the Dover Strait until contacted, and when the French tracker was sent it did not include any IAMSAR

designations, even though *Flamant* had been reportedly shadowing some migrant boats as they approached the median line. In this respect, the flow of information from the French SAR system did not facilitate the timely and appropriate deployment of UK SAR assets.

When adequate forewarning of migrant boat crossing was unforthcoming, as was the case on 24 November, adopting a reactive posture meant that a UK presence or SAR assistance near the median line for the earliest vessels crossing into UK waters on any particular day could be an hour or more late. Specifically, at night SAR helicopters were maintained at 45 minutes notice to launch, and Border Force vessels were at 30 minutes notice to sail, to which needed to be added transit time. In poor visibility and at night, search time would also be needed unless a reliably accurate location of the distressed boat was available.

MRCC Dover received notice that the port of Dover had received a migrant boat call at 0026 on 24 November 2021, which was the first indication of migrant crossing activity on the night. However, when received the French tracker showed four boats were attempting the crossing. Following reactions to the first migrant boat entering UK waters, *Valiant* arrived at the search area at about 0324, around the time that the occupants of migrant boat *Charlie* are believed to have entered the water, and *R163* started searching at 0402. Given the paucity of reliable information on which to base a reactive posture, proactive surveillance was necessary to ensure that crossing migrant boats were intercepted in UK waters and, if necessary, assistance rendered at the earliest opportunity.

2.7.3 Staffing support and coordination

The reactive posture adopted by UK authorities had other impacts, specifically:

- Coastguard staff were rostered to arrive on watch during what was anticipated to be the busiest period, which resulted in lower levels of staff support in the early stages of a migrant crossing night (see 2.6.2). On 24 November, the JRCC maritime tactical commander took their meal break from 0404 to 0557; at 0500, an additional officer came on watch at MRCC Dover; and the SBTC, albeit on call overnight, was due on watch at 0730.
- Although the JCR was intended to achieve better collaboration between Border Force and coastguard staff it was not beneficial to the SAR effort during the early hours of 24 November as it was only staffed from 0500, when the COLO also came on watch, and then was focused on ensuring the shore response was prepared for the landing of incoming migrants. In addition, the JMSC did not feed information into the coastguard-led SAR effort unfolding in the Dover Strait.

On 24 November, during the critical time period from around 0100 to 0500, the SMC at MRCC Dover was receiving limited useful information and little additional tactical support to assist them to manage the unfolding situation.

2.7.4 Summary

By November 2021, interdepartmental cooperation and response procedures had evolved significantly as crossing attempts had escalated. Despite a degree of common purpose, as outlined above there were a number of areas where coordination was lacking.

A more holistic approach by HM Coastguard and Border Force to the problem of locating, prioritising and then intercepting to recover or, if necessary, rescue the occupants of migrant boats might have led to the acknowledgement that early alerting to the movement of migrant boats and improved awareness of their locations were necessary to ensure that assets were in the right place to intercept them on entering UK waters. In turn, this may have ensured that higher priority was given to the value of information sharing, the development of pre-emptive surveillance to build situational awareness and the need for contingency plans.

2.8 CAPABILITY LAG

The risk of fatalities in the Dover Strait posed by escalating numbers of migrant boat crossings was foreseeable and had been reflected on the MCA corporate risk register at the beginning of November 2021, with a risk that the coastguard might become overwhelmed and loss of life would ensue. At the time of the accident further initiatives were planned to guard against this risk coming to fruition, including an uplift in unmanned aviation capability and provision of a dedicated migrant team at Dover. Although these plans were in the pipeline and procurement and recruitment action had started, there was a lag between formal recognition of the risks and delivery of the mitigating measures. This meant that at the time of the accident the risk remained extant and effective mitigation was not in place.

SECTION 3 – CONCLUSIONS

3.1 THE ACCIDENT

1. On 24 November 2021, at least 27 people lost their lives in the Dover Strait when they entered the sea following the flooding and partial sinking of the inflatable boat in which they were attempting to travel to the UK. Only two of the boat's occupants survived and at least four people remain missing. The cause of the initial water ingress could not be determined with the evidence available to the investigation; however, the reported construction of the boat provided by the crossing facilitators indicated that it was entirely unsuitable for the intended voyage and number of people on board. By providing an unsuitable craft and inadequate safety equipment for the crossing, and by crowding 33 people onto the boat, the people who facilitated the attempted crossing put the occupants of the boat at high risk of coming to harm. This risk was realised when the boat was swamped and the occupants entered the sea, resulting in at least 27 people losing their lives. [2.3.1]

2. Analysis of HM Coastguard's mobile phone interactions indicated that the victims likely entered the water between 0312 and 0333. [2.3.2]

3. Analysis of projected drift of the victims of migrant boat *Charlie* determined that their trajectory from the last reported WhatsApp position to the found position was plausible. Furthermore, the analyses indicated that the victims were likely within the search area covered by *R163* although a definitive track could not be established. [2.3.3]

4. The occupants of the stricken craft used mobile phones to report their position and communicate with both the French and UK authorities. However, there were no on board means of persistent position reporting to assist search assets in locating and rescuing them or to identify their individual boat. Although the mobile phones' degrees of immersion protection is unknown, it is likely that once the occupants of the inflatable boat had entered the water their mobile phones ceased to function and the sole means of communication was lost. [2.3.4]

5. Information on the number of people on the inflatable boat who were wearing personal flotation devices, the nature of any flotation devices worn and the level of support these provided to people in the water was not available to this investigation. It is likely that many of the victims of this accident wearing flotation devices succumbed to the effects of hypothermia; however, any without flotation support would have succumbed over time to a mixture of cold water shock, cold incapacitation or hypothermia. Given the uncertainty over individuals' survival time in cold water, and the range of time over which their deaths likely occurred, it cannot be determined whether individual victims died in UK or French waters. [2.3.5]

3.2 HM COASTGUARD RESPONSE TO INCIDENT *CHARLIE*

6. The initial decision to task a UK Border Force cutter in preference to other surface assets was reasonable given the information available to MRCC Dover at the time, the vessel's capabilities and the lack of specific indications of peril. By the time further information about the level of distress had been received *Valiant* was already proceeding to the scene and MRCC Dover sought assistance from the French vessel *Flamant* as the nearest government asset. *Valiant* was well on its way to the scene and proceeding at best speed when it was realised that *Flamant* was unavailable to assist, and there was no immediate reason to task further surface assets. [2.4.2]

7. The SMC at MRCC Dover initially believed that the migrant boat involved in incident *Charlie* was potentially in serious difficulty and prepared and had transmitted a "Mayday Relay". However, neither of the two vessels that responded directly to MRCC Dover were requested to proceed to the "Mayday Relay" position and assist. This happened because diverting merchant vessels into the opposing lane of the TSS would have introduced additional hazards. In addition, the primary intent in issuing the "Mayday Relay" was to encourage the nearby French government vessel *Flamant* to respond. When MRCC Dover was informed that the French vessel was otherwise occupied, and with *Valiant* proceeding to the scene at best speed, the assistance of merchant vessels was not pursued further. [2.4.3]

8. One merchant vessel, *Concerto*, reported sighting a migrant boat after the third "Mayday Relay" broadcast; however, this report was made to Gris-Nez Traffic rather than MRCC Dover. Gris-Nez Traffic directed the vessel to proceed. Given *Concerto*'s location in the north-east lane of the TSS and in the Gris-Nez Traffic reporting zone it may have seemed more logical for the crew to contact Gris-Nez Traffic. This investigation did not analyse the actions of French authorities, including the reason that *Concerto* was directed to proceed on passage or why this information was not relayed to HM Coastguard. Given the timings and location of *Concerto* when the migrant boat was sighted it is unlikely that the boat was migrant boat *Charlie*; however, the possibility cannot be completely discounted. [2.4.3]

9. Both *Valiant* and *R163* detected migrant boats on the 24 November; however, neither located the people in the water. This was because, in the case of *R163*, the helicopter's expanding square search was optimised for detecting boats not people in the water. The visibility at the time of the helicopter search was sufficiently low that the likelihood of detecting an unlit person in the water was slim. The light levels were at the lower end of efficacy for NVG and anyone in the water would have presented a low thermal contrast for detection via infrared means. The chances of visual detection of people in the water by either *R163* or *Valiant* were therefore extremely low. [2.4.5]

10. When *Valiant* reported a boat with a similar number of migrants on board and in a location where migrant boat *Charlie* was expected to drift, the initial assumption was that migrant boat *Charlie* had been located. This was despite the levels of distress exhibited by the boat and its occupants when found not being as expected, and those on board claiming not to have called the UK emergency services. This likely happened because there was no reliable means to differentiate between specific migrant boats and MRCC Dover did not know exactly how many migrant boats were in UK waters. *Valiant*'s master and the SMC may also have been influenced by previous instances where migrants had provided unreliable information about the level of danger they were in and whether they had contacted emergency services. The fact that no further distress calls were received from migrant boat *Charlie* likely reinforced the belief that the boat had been located and its occupants rescued. [2.4.6]

11. Although *R163* continued to search for migrant boats until the expanding square search was complete and *Valiant* recovered migrants from two more boats, the search for the specific sinking migrant boat *Charlie* appears to have ceased after recovery of the occupants of the first migrant boat by *Valiant*. This happened because, despite initial concerns, incident *Charlie* never reached a level of urgency to sufficiently distinguish it from the multiple other incidents that night, to challenge the assumption that the first boat located was *Charlie*, or for searchers to appreciate that people had actually entered the water and so ensure the search was pursued to its conclusion. [2.4.6]

12. The high number of incidents and volume of work for HM Coastguard, particularly MRCC Dover staff, meant that incidents were not reconciled in real time and closure actions were completed many hours later. Additionally, many incidents were closed with scant information recorded. With many incidents remaining open there was nothing to alert the oncoming day watch as to which had been resolved and which remained to be found. [2.4.6]

3.3 PICTURE COMPILATION AND FORECASTING

13. On the night of the accident multiple migrant boats entered UK waters without either UK Border Force or HM Coastguard having a clear understanding of how many individual craft were crossing or the level of distress each was experiencing. Although JRCC tactical commanders understood that the absence of a fixed-wing flight would negatively affect their ability to understand what migrant traffic was crossing, there was no predetermined contingency plan for achieving surveillance during poor visibility or other situations where fixed-wing aircraft were unavailable, and they were left to try and engineer a surveillance solution. Although the lack of aerial surveillance was a foreseeable occurrence the detrimental effects of its absence had not been fully recognised and no backup procedure was in place. [2.5.2]

14. On 24 November, no surface assets were available to the coastguard to arrange a surveillance patrol in the absence of fixed-wing air coverage. This was because HM Coastguard had no surface assets of its own and Border Force vessels were only available to the coastguard for SAR purposes. [2.5.3]

15. Without a clear picture of the number of migrant boats crossing the Dover Strait, their location or the level of distress each boat was experiencing, HM Coastguard was severely limited in its ability to mount an effective SAR response. The lack of overall picture meant that prioritisation was only possible after boats had been located and, before visual contact was achieved, the only information available was that gleaned from emergency calls. In addition, without an indication of how many boats were crossing, HM Coastguard did not know how many discrete incidents there were in the Dover Strait and could only prioritise effectively following visual contact being obtained with each migrant vessel. [2.5.4]

3.4 HM COASTGUARD RESPONSE TO MASS MIGRANT CROSSING EVENTS

16. Emergency calls from migrant boats required a lot of effort to distil key information and determine the appropriate response and asset to send when compared to a more conventional distress alert. Reconciling the pertinent information from each call in real time was almost impossible for MRCC Dover on a busy night with a high volume of calls. The inability to accurately derive key information from each call and link it to a specific incident in real time, or at all in some cases, increased the likelihood that boats would be missed and resolving specific incidents became extremely challenging. In addition, the tendency for multiple calls to be made from the same boat, and with most reporting high levels of distress, increased the likelihood that pertinent information would be masked. [2.6.1]

17. MRCC Dover's operational night watch team was insufficient to deal with the volume of calls and activity on the night of the accident. This situation was not improved by efforts to assist with MRCC Dover's workload during periods of high activity because local additional support was unavailable until the morning and network assistance only partially eased the situation, which left a heavy workload on the remaining team. The SMC at MRCC Dover by necessity became involved in activities outside their search coordination role, such as taking emergency calls, and so was hindered in their ability to maintain an overview of events. The JRCC maritime tactical commander role was not intended to provide local tactical oversight of mass small boat crossing events and the dedicated SBTC was only available on an on-call basis until the day watch and, even then, did not perform that role. This placed a high workload on the team at MRCC Dover that was only partially mitigated by network support. [2.6.2]

18. The use of a mobile phone enabled HM Coastguard to obtain positions from migrant boats via WhatsApp. However, the phone was not integrated into the coastguard incident management systems and was neither continuously monitored nor its calls logged. This increased the likelihood that information would be missed. [2.6.3]

19. Although MRCC Dover and MRCC Gris-Nez shared information at various points during the night there was no common picture of events and the two MRCCs used different tracking designations for incidents. The information flow from France was insufficient by itself to provide a clear understanding of the actual number of migrant boats expected to reach UK waters. On the night of the accident no information was provided to HM Coastguard until prompted, despite known migrant activity in French waters. This limited HM Coastguard's ability to make preparations or mount a proactive response. [2.6.4]

3.5 COORDINATION AND DIRECTION

20. The parallel missions of saving life at sea and intercepting migrants meant that Border Force was drawn into performing search and rescue tasks, while the mission of locating and intercepting crossing boats was coordinated by the coastguard. Each agency was thus performing tasks that supported the other's objectives. A more holistic approach by HM Coastguard and Border Force to the problem of locating, prioritising and then intercepting to recover or, if necessary, rescue the occupants of migrant boats might have led to the acknowledgement that early alerting to the movement of migrant boats and improved awareness of their locations were necessary to ensure that assets were in the right place to intercept them on entering UK waters. In turn, this may have ensured that a higher priority was given to the value of information sharing, the development of pre-emptive surveillance to build situational awareness and the need for contingency plans. [2.7]

3.6 CAPABILITY LAG

21. At the time of the accident HM Coastguard was still in a period of adaptation from undertaking conventional SAR activities in the Dover Strait to the demands of coordinating the response to small boat crossing attempts. [2.8]

SECTION 4 – ACTIONS TAKEN

4.1 OVERVIEW

Since the accident there have been several changes and capability developments in the response of the UK authorities to migrant small boat crossings in the Dover Strait. Many of the capability developments have their origins in decisions made before 24 November 2021; however, these were not in place at the time of the accident and are therefore described as actions taken.

4.2 MARITIME AND COASTGUARD AGENCY

The **Maritime and Coastguard Agency** has:

- Carried out an internal review of small boat incidents, including a forensic examination of the events on 24 November 2021.
- Introduced the operational performance board, presided over by the Director of HM Coastguard and supported by senior leadership from the MCA and coastguard, to monitor coastguard standards, performance and operational risk, and address organisational concerns.
- Awarded the UK Second-Generation Search and Rescue Aviation programme (UKSAR2G) to Bristow Helicopters Limited to deliver rotary and fixed-wing services across the UK SRR for a period of 10 years.
- Implemented Project CAESAR to provide dedicated aerial support in the Dover Strait with additional UAVs, fixed-wing aircraft and provision of livestream video footage to the operations room at MRCC Dover.
- In conjunction with the Department for Transport hosted industry-led events to discuss key safety messaging in respect of small boats crossing the Dover Strait Traffic Separation Scheme with vessel owners and operators.

4.3 HM COASTGUARD

HM Coastguard has:

- Created and recruited the new role of assistant chief coastguard that reports directly to the chief coastguard and provides strategic oversight of coastguard operations involving small boats, maritime security, and collaborations with other interested agencies.
- Recruited additional maritime tactical commanders so that three are allocated to every watch at the JRCC.
- Allocated two team leaders to every watch, one for small boat activity and one for other SAR operations.
- Recruited the following positions at MRCC Dover:
  - MRCC commander, a position that was vacant at the time of the accident;
  - a second SBTC;
  - two dedicated call handlers to take emergency calls from migrants;

- 20 additional operational staff, bringing the total number to 24, to provide a dedicated small boats cell on days with migrant activity or be absorbed into the network when there are fewer small boat crossings;

- Changed the physical setup at MRCC Dover and has:
  - reconfigured the operations room layout;
  - moved CNIS out of the operations room and created two teams to separate SAR and VTS;
  - stationed representatives from the Home Office and Ministry of Defence in the operations room to facilitate direct communication with the SMC.
- Updated various coastguard standard operating practices relating to small boat crossings and migrants, including the requirements to:
  - use alphanumeric reference numbers when discussing specific small boats to avoid misunderstandings;
  - provide alphanumeric references to the caller at the end of every call originating from a migrant boat and ask them to use the reference if they call the emergency services again;
  - obtain SMC approval to merge reported small boat incidents;
  - record the rationale for closing an incident in the incident narrative;
  - correlate the information recorded in the migrant tracker with the information recorded in HM Coastguard's primary information recording system, ViSION.
- Introduced a replacement search planning tool across the national network with enhanced capability, incorporating probability of detection and particle drift analysis to optimise search patterns.
- Started work on a commercial solution to obtain geographical positions from unregistered mobile phones and avoid reliance on WhatsApp.
- Discussed better ways of working, technology sharing and monitoring assets at regular meetings with French counterparts at MRCC Gris-Nez through the existing Anglo-French Technical Advisory Group.
- Instructed 2Excel Aviation to identify suitable landing sites in France in the event of poor visibility at UK airports.
- Reminded tactical commanders to notify the MCA's Regulatory Compliance Investigations Team when vessels nearby to a distress position do not respond to a "Mayday Relay" broadcast.
- Set up an operators' group to share small boat knowledge between HM Coastguard, the RNLI and UK Border Force.
- Worked with the RNLI to identify better methods for recovering multiple people from the water, including the testing of new recovery equipment and carrying out joint mass casualty exercises.
- Implemented regular multiagency tabletop exercises.
- In conjunction with the Ministry of Defence, under Op Isotrope:
  - tasked Royal Navy Archer Class (P2000) patrol boats to recover empty migrant boats where the migrants have been rescued and their boats left abandoned;
  - improved situational awareness by communicating with Royal Navy assets under a temporary memoranda of understanding;

- worked with UK Border Force maritime to increase the number of CTV from one (BF *Hurricane*) to five to provide better surveillance and patrol capabilities;
- worked with the Home Office and Ministry of Defence to ensure more efficient processing of migrants ashore and thereby improve turnaround times of RNLI and Border Force surface assets.

- Started a procurement project to replace the P2000 patrol boats with equivalent vessels in preparation for the end of Operation Isotrope (Op Isotrope).

4.4 MINISTRY OF DEFENCE

4.4.1 Joint interagency task force and defence involvement

The Royal Navy Commander UK Strike Force planning staff led the initial engagement and planning, which resulted in the establishment of a joint interagency task force (JIATF). It was recognised that, although MoD involvement gave no greater access to Royal Navy vessels or manpower than already available under standard military aid to civil authorities arrangements, the benefit of military primacy was derived from improved command and control, better coherence of the intelligence product to support operations, surveillance and the ability to track people and the efficient allocation of resources.

4.4.2 Operation Isotrope

In March 2022, as a result of political direction, Op Isotrope came into force. Op Isotrope was a multiagency operation managed by JIATF HQ and aimed to coordinate multiagency assets to optimise capability for surveillance, asset allocation, command and control and recovery effort. Op Isotrope ceased, as planned, on 31 January 2023, with the newly-formed Small Boats Operational Command standing up.

SECTION 5 – RECOMMENDATIONS

The **Maritime and Coastguard Agency** is recommended to:

2023/110 Build on existing liaison with French authorities to devise a tracking and identification system that, to the greatest extent possible, removes the possibility of confusion and error when compiling an overview of small boats attempting the crossing.

The **Maritime and Coastguard Agency** and **UK Border Force** are recommended to:

2023/111 Develop procedures for achieving, as far as is practicable, an overview picture of migrant boat activity during periods when aerial surveillance is limited to rotary wing aircraft or is unavailable.

Safety recommendations shall in no case create a presumption of blame or liability

Annex A

Partial list of the deceased and missing

Vital status	Name	Gender	Age
Missing	Twana Mamand Mohammed	M	21
Deceased	Sirwan Alipour	M	23
Deceased	Mohammad Hussein Mohammed	M	Not known
Missing	Zanyar Mustafa Mina	M	Not known
Deceased	Fikeru Shiferaw Tekalegn	M	Not known
Deceased	Niyat Ferede Yeshiwendm	F	22
Deceased	Meron Hailu Gebrehiwet	F	22
Missing	Pshtiwan Rasul Farkha Hussein	M	Not known
Deceased	Deniz Afraiso Ahmed Mohamed	M	27
Deceased	Harem Serkout Pirot Mohamed	M	Not known
Deceased	Bryar Hamad Abdulrahman	M	Not known
Deceased	Shakar Ali Pirot	M	Not known
Deceased	Muslim Ismael Hamad	M	Not known
Deceased	Rezhwan Yassin Hassan	M	Not known
Family group			
Deceased	Kazhal Ahmed Khidhir (Mother)	F	Not known
Deceased	Hadiya Rizgar Hussein (Daughter)	F	22
Deceased	Mubin Rizgar Hussein (Son)	M	16
Deceased	Hasti Rizgar Hussein (Daughter)	F	7

Annex B

Further detail on Border Force Operation Deveran assets

HMC *Hunter* was a former offshore support rescue boat purchased by Border Force in 2016 **(Figure A)**. It was 18.8 metres long and coded as a Category 2 workboat under the Workboat Code[A] for operations up to 60 miles offshore. HMC *Hunter* had a maximum speed of 32kts (cruise speed of 20kts) and was considered to have good coastal surveillance capabilities. It was equipped with radar, floodlights, thermal night imaging, and day vision cameras. HMC *Hunter*'s readiness was 60 minutes, and its declared survivor capacity was 50 persons. It was crewed by five Border Force staff.

BF *Hurricane*, a 25-metre catamaran, was coded as a Category 2 Workboat **(Figure B)**. It had previously operated as an offshore renewables CTV but was transferred to Border Force in 2021 to support the maritime response to the migrant crisis. It had a declared survivor capacity of 150 persons in addition to the crew of three.

Border Force crew worked 2 weeks on duty, followed by 2 weeks off duty and were trained according to STCW95[B].

Border Force Maritime Command used other RHIBs and tactical watercraft as part of its inshore patrol pattern to prevent beach landings. Two additional RHIBs, *Athena* and *Artemis*, based in Dover, were available to support the patrol boats but were predominantly used to collect empty migrant boats and bring them ashore.

Image courtesy of John Pitcher (MarineTraffic.com)

Figure A: HMC *Hunter*

Image courtesy of John Pegden (MarineTraffic.com)

Figure B: BF *Hurricane*

Endnotes

[A] The Safety of Small Workboats and Pilot Boats – A Code of Practice, Maritime and Coastguard Agency.

[B] International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1995, as amended.

Additional search and rescue background

International obligations for maritime SAR

International maritime law and the law of the sea imposed duties on signatories to the relevant conventions, on flag states, coastal states and shipmasters to assist persons in distress at sea. These duties, which reflected a long-standing maritime tradition, were set out in several international conventions. Article 98 of the UN Convention on the Law of the Sea (UNCLOS) 1982 mandated that every state require its ships *to render assistance to any person found at sea in danger of being lost*. The convention also obliged states to operate an effective search and rescue service and to cooperate with neighbouring states. These obligations were echoed in the Geneva Convention on the High Seas 1958[A] and similarly in the International Convention for the Safety of Life at Sea (SOLAS) 1974.

In the UK, the duty to assist was enshrined in law through the Merchant Shipping Act 1995[B] and applied equally to masters of UK ships and masters of foreign-flagged ships when in UK waters.

Under SOLAS, Chapter V, regulation 7, member states were required to ensure the necessary arrangements were made for distress communication and coordination in their area of responsibility and for the rescue of persons in distress at sea. The arrangements included establishing, operating and maintaining search and rescue facilities and providing adequate means of locating and rescuing people.

International Convention on Maritime Search and Rescue 1979

The IMO adopted the International Convention on Maritime Search and Rescue (SAR Convention) in 1979 to support coastal states to fulfil their SAR obligations. The Convention's purpose was to develop an international SAR plan so that, no matter where an accident occurred, the rescue of persons in distress at sea was coordinated by a SAR organisation and, when necessary, by cooperation between neighbouring SAR organisations.

The SAR Convention[C] defined *search* as an operation, usually coordinated by a Rescue Coordination Centre (RCC), using available personnel and facilities to locate persons in distress. It defined *rescue* as an operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety. A *search and rescue service* was defined as the performance of distress monitoring, communication, coordination, and search and rescue functions through the use of public and private resources, including cooperating aircraft, vessels and other craft and installations.

Parties to the SAR Convention were required to ensure that arrangements were made to provide adequate SAR services in their coastal waters. Coastal states were encouraged to enter into SAR agreements with neighbouring states, including determining SRRs, pooling facilities, establishing standard procedures, training and liaison visits. It also asserted that coastal states should take measures to expedite entry into their territorial waters of rescue units from other parties.

The SAR Convention defined an RCC as a unit responsible for promoting the efficient organisation of search and rescue services and coordinating search and rescue operations within an SRR, its purpose being to use SAR units and other available facilities to ensure that assistance is rendered to any person who is, or appears to be, in distress at sea. An RCC had to be capable of receiving distress alerts that originated from within its region and arranging for communications with persons in distress, with SAR facilities, and with other RCCs. The convention required that RCC's were operational 24/7 and continuously staffed by trained personnel.

RCCs were required to have operating procedures in place, including detailed information on the available assets, operational plans for SAR services, and methods of communication during emergencies.

Endnotes

[A] Article 12

[B] Section 93

[C] Annex, Chapter 1, Terms and definitions.

Further detail on IAMSAR search patterns

The following visual search patterns were determined to cover most circumstances:

- **Sector search**

  Sector searches are most effective when the position of the search object is accurately known and the search area is small. They are used to search a circular area centred on a datum point[A]. The sector pattern consists of the search craft travelling down-drift over the datum point and making a series of turns that take the craft back over the datum on repeated crossings, covering the circle's diameter on each occasion. Due to the small area involved, the search pattern would not be suitable for multiple aircraft or vessels. Instead, an aircraft and vessel may be used together to perform independent sector searches of the same area.

  If the search object is not located by the time the sector search pattern has been completed one time, it should be rotated and repeated with the second set of search legs falling halfway between the search legs followed during the first search.

- **Track line search**

  Track line searches are typically used when a vessel or aircraft has disappeared without a trace while enroute from one point to another. It is assumed the vessel has foundered on or near an intended route and therefore focuses the search effort near this datum line. It is usually assumed that the survivors can attract the search facility's attention at a considerable range by some means, such as a pyrotechnic, mirror or electronic beacon.

  Track line searches, typically used by aircraft because of their high speed, consist of a rapid and reasonably thorough search along the intended route of the distressed craft or a search on either side. The pattern is an effective initial search as it is quick to implement and requires minimal planning. However, a more intensive search is required if the casualty is not found. It is recommended that ships following the same or a similar route as the missing craft are diverted to assist in the search.

- **Parallel sweep search**

  Parallel sweep searches are most effective when the uncertainty in the distress location is significant, requiring a sizable area to be searched with uniform coverage. The search pattern covers a rectangular area. It should be used when an extensive search area must be divided into subareas for assignment to individual search facilities on the scene simultaneously.

  To perform the search pattern the search facility moves up and down legs parallel to the rectangle's long sides. This search pattern can be particularly effective and efficient because multiple ships can be asked to divert along specific parallel tracks, passing through the search area or subareas while maintaining a sharp lookout for survivors.

- **Creeping line search**

  Creeping line searches are similar to parallel sweep searches except that the search legs are parallel to the short sides of the rectangle instead of the long sides. The creeping line search requires many more turns to cover the same area. It is therefore considered inefficient unless used by an aircraft working in coordination with a vessel.

- **Creeping line search coordinated**

  A coordinated air-maritime search is usually accomplished by coordinating the movements of an aircraft flying a creeping line search with a vessel moving parallel to the long side of the rectangle in the direction of the aircraft's creep. Therefore, the aircraft's search legs are flown perpendicular to the vessel's track.

Endnotes

[A] A datum point is a point, such as a reported or estimated position, at the centre of the area where it is estimated that the search object is most likely to be located.

Summary of HM Coastguard mobile phone interactions with incident *Charlie*

During the early hours of 24 November 2021, HM Coastguard associated five telephone numbers with either incident Charlie or other incidents that were determined to be duplicates of incident Charlie. The interactions between these numbers and the coastguard mobile phone are detailed below. In all cases incoming and outgoing refers to the coastguard mobile phone.

M1 – no evidence of interaction with the coastguard mobile phone

M2 activity:

Time	Interaction	Detail	Outcome
0142	Outgoing text message	Check out WhatsApp Business, I use it to connect with my customers. Get it for free at...	Delivered 0202 No record of message being read
0142	Outgoing text message	...https://whatsapp.com/biz/	Delivered 0202 No record of message being read
0143	Outgoing text message	This is the UK coastguard. Please download WhatsApp to send us your position	Delivered 0202 Read 0203
0143	Saved to contacts	Added to contacts as *Charlie 24 Nov*	Not applicable
0204	Incoming call	00.00 duration	Missed call
0210	Incoming call	00:00 duration	Not answered

M3 activity:

Time	Interaction	Detail	Outcome
0144	Outgoing text message	Check out WhatsApp Business, I use it to connect with my customers. Get it for free at https://whatsapp.com/biz/	Not recorded as delivered
0144	Outgoing text message	This is the UK coastguard. Please download WhatsApp to send us your position	Not recorded as delivered
0144	Saved to contacts	Added to contacts as *Charlie 24 Nov*	Not applicable

M4 activity:

Time	Interaction	Detail	Outcome
0145	Saved to contacts	Added to contacts as Charlie 24 November	Not applicable
0149	Saved to contacts	Added to contacts as Charlie 24 Nov	Not applicable
0149	Outgoing WhatsApp	This is the UK Coastguard.	Delivered 0202 Read 0220
0149	WhatsApp System message	Messages and calls are end-to-end encrypted. No one outside of this chat, not even WhatsApp, can read or listen to them. Tap to learn more	Not applicable
0149	Outgoing WhatsApp	Please send us your position.	Delivered 0202 Read 0220
0220	Incoming WhatsApp position	Position data as a shared location	Status read (no time recorded). Not logged in CG incident management system.

M5 activity:

Time	Interaction	Detail	Outcome
0159	Saved to contacts	Added to contacts as Charlie 24 Nov	Not applicable
0200	Outgoing WhatsApp	Please send us your position	Delivered 0200 Read 0200
0200	WhatsApp System message	Messages and calls are end-to-end encrypted. No one outside of this chat, not even WhatsApp, can read or listen to them. Tap to learn more	Not applicable
0201	Incoming WhatsApp position	Position data as a shared location	Status read. This position was recorded in the CG incident management system at 0201
0207	Outgoing WhatsApp message	Can you re send your location	Delivered 0212 Read 0221
0209	Outgoing text message	Can you share your Google maps location	Not recorded as delivered
0217	Incoming call	00:03:03 duration	Answered. No record of this call in CG incident management system
0221	Incoming WhatsApp position	Position data as a shared location	Status read. This position was recorded in the CG incident management system at 0328
0257	Incoming WhatsApp call	00.00 duration	Missed
0257	System message	Missed Voice Call	Not applicable
0312	System message	Missed Voice Call	Not applicable
0333	Outgoing WhatsApp message	Re send your position please	Status sent. Not recorded as delivered or read.
0416	Outgoing WhatsApp call	00.00 duration	Not answered

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