ACCIDENT REPORT

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

Report on the investigation of

the capsize of the motor cruiser

Norma G

resulting in one fatality

in the Camel Estuary, north Cornwall, England

on 25 May 2020

VERY SERIOUS MARINE CASUALTY REPORT NO 13/2021 OCTOBER 2021

The United Kingdom Merchant Shipping

(Accident Reporting and Investigation)

Regulations 2012 – Regulation 5:

"The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 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

For all enquiries:

Marine Accident Investigation Branch
First Floor, Spring Place
105 Commercial Road
Southampton
SO15 1GH
United Kingdom

Email: maib@dft.gov.uk
Telephone: +44 (0)23 8039 5500

Press enquiries during office hours: +44 (0)1932 440015
Press enquiries out of hours: +44 (0)300 7777878

CONTENTS

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

SYNOPSIS 1

SECTION 1 – FACTUAL INFORMATION 2

1.1 Particulars of *Norma G* and accident 2
1.2 Narrative 3
1.3 Emergency response 7
1.4 Environmental conditions 8
1.4.1 Weather 8
1.4.2 Swell near the Doom Bar 8
1.5 *Norma G* 9
1.5.1 Overview 9
1.5.2 Recreational Craft Directive 10
1.5.3 Safety equipment 10
1.6 Wadebridge Boating Club 10
1.7 Boating qualifications, training and experience 10
1.8 River Camel and Estuary 11
1.8.1 Overview 11
1.8.2 The Doom Bar 11
1.8.3 Passage guidance 11
1.9 Padstow Harbour Commissioners 12
1.9.1 Overview 12
1.9.2 Navigation guide 13
1.9.3 Port passage plan 13
1.9.4 Harbour patrol and patrol officer 13
1.10 Emergency services 13
1.10.1 Her Majesty's Coastguard 13
1.10.2 Padstow Lifeboat Station 15
1.11 Guidance and regulations 15
1.11.1 Maritime and Coastguard Agency 15
1.11.2 Port Marine Safety Code 16
1.11.3 A Guide to Good Practice on Port Marine Operations 16
1.11.4 Royal Yachting Association 17
1.11.5 Royal National Lifeboat Institution 17
1.12 Previous similar accidents 17
1.12.1 Fletcher speedboat 17
1.12.2 *James 2* and *Vertrouwen* 18
1.12.3 *Anna-Marie II* (WK875) 18
1.12.4 Bayliner Capri 2000 speedboat 18
1.12.5 *Le Men Du* 19

SECTION 2 – ANALYSIS 20

2.1 Aim 20
2.2 The accident 20
2.3 The capsize 20
2.4 The return passage 20
2.5 The entrapment 21
2.5.1 Use of lifejackets 21
2.5.2 Boat construction 21

2.6 Experience, training and guidance 22
2.6.1 Owner 22
2.6.2 Padstow Harbour Commissioners 22
2.6.3 Wadebridge Boating Club 23
2.7 Emergency services response 23

SECTION 3 – CONCLUSIONS 25

3.1 Safety issues directly contributing to the accident 25
3.2 Safety issues not directly contributing to the accident that have been addressed or resulted in recommendations 25

SECTION 4 – ACTION TAKEN 26

4.1 Actions taken by other organisations 26

SECTION 5 – RECOMMENDATIONS 27

FIGURES

Figure 1: River Camel and Estuary and (inset) extract from UKHO Admiralty Chart 2, showing location of Padstow, Cornwall, England

Figure 2: Extract from UKHO Admiralty Chart 1168, showing approaches to Padstow and (inset) chart extract 1156, showing Padstow Lifeboat Station and accident location

Figure 3: Inside *Norma G*'s cabin

Figure 4: Extract from UKHO Admiralty Chart 1168 – track from anchored position to approximate capsize position

Figure 5: Padstow Lifeboat Station

Figure 6: Change of wave dynamics due to shallowing of the water depth

Figure 7: Padstow Harbour port passage plan

ANNEXES

Annex A: Wadebridge Boating Club new member chart

Annex B: Padstow Harbour Commissioners channel entrance risk assessment, dated 06/01/2020

Annex C: Padstow Harbour Commissioners channel entrance risk assessment, dated 26/06/2020

Annex D: Padstow Harbour Commissioners Byelaws Map

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

°C	-	degrees Celsius
ALB	-	all-weather lifeboat
CPR	-	cardiopulmonary resuscitation
DfT	-	Department for Transport
GPS	-	global positioning system
hp	-	horsepower
HPO	-	harbour patrol officer
ILB	-	inshore lifeboat
kt	-	knot
m	-	metre
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
N	-	newton
nm	-	nautical mile
PHC	-	Padstow Harbour Commissioners
PMSC	-	Port Marine Safety Code
RCD	-	Recreational Craft Directive
RNLI	-	Royal National Lifeboat Institution
RIB	-	rigid inflatable boat
RYA	-	Royal Yachting Association
SAR	-	search and rescue
SHA	-	statutory harbour authority
UKHO	-	United Kingdom Hydrographic Office
UTC	-	universal time coordinated
VHF	-	very high frequency
WBC	-	Wadebridge Boating Club

TIMES: all times used in this report are UTC+1 unless otherwise stated.

Norma G

SYNOPSIS

At 1242 on 25 May 2020, the 5.48m motor cruiser *Norma G* was capsized by a large wave while making an approach into the River Camel near Padstow, north Cornwall, England. The boat capsized close to an area of sand known as the Doom Bar. Two of the four family members on board were in the boat's forward cabin; one managed to swim out, the other, a 17-year-old girl, was unable to escape. Following her rescue by a harbour patrol officer and the RNLI, the casualty was transferred to Padstow Lifeboat Station and later airlifted to hospital where, despite all attempts by the medical staff, she died at 1712 the same day.

The MAIB investigation found that:

- The dangers of being near the Doom Bar in a small boat close to low water were not fully appreciated by *Norma G*'s owner, who had limited boating experience.

- The Doom Bar caused the water depth to shallow very rapidly. This caused the sea swell to abruptly shorten into large steep plunging waves, which were unnoticed by those on board *Norma G* until it was too late.

- There were no aids to navigation marking the extremities of the Doom Bar and, because the boat was not equipped with an electronic chart system, the owner navigated by eye, unaware of how close his boat was to the north-east end of the Doom Bar.

- *Norma G* was constructed in the 1970s to lower safety standards than apply now. Specifically, it had limited reserve buoyancy, causing it to sink by the stern, making the rescue of the casualty difficult.

- The Wadebridge Boating Club *Membership Card and Club Rules* booklet did not provide club members with sufficient guidance on safe navigation within the River Camel.

Recommendations have been made to Padstow Harbour Commissioners to consider placing a navigation mark at the north-east extremity of the Doom Bar, and to the Wadebridge Boating Club to review and amend the navigation information available to users of the Camel Estuary.

SECTION 1 – FACTUAL INFORMATION

1.1 PARTICULARS OF *NORMA G* AND ACCIDENT

VESSEL PARTICULARS	
Boat's name	*Norma G*
Type	Motor cruiser
Construction	Glass reinforced plastic
Year of build	Unknown
Length overall	5.48m
Engine power and type	75hp Yamaha long shaft petrol outboard
VOYAGE PARTICULARS	
Port of departure	Wadebridge
Type of voyage	Pleasure
MARINE CASUALTY INFORMATION	
Date and time	25 May 2020 at 1242
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	Camel Estuary, England
Place on board	Cabin
Fatalities	1
Persons on board	4
Environment	Wind: Westerly 5kts Sea State: Calm Swell: 1.5m Visibility: Good

1.2 NARRATIVE

During the afternoon of 24 May 2020, the owner of the 5.48m motor cruiser *Norma G* and his family arrived at the Wadebridge Boating Club (WBC) on the River Camel, Cornwall, England, **(Figure 1)** to prepare their boat for a family trip the following day. At about 1830, the owner and his wife launched *Norma G* from the boating club's slipway and secured it to a nearby mid-river mooring buoy. The owner used a tender to row them both back ashore.

At about 0830 on 25 May 2020, the owner drove his wife, son, and 17-year-old daughter, Gillian Davey, to a floating pontoon on the river near the WBC. The children waited while the owner and his wife then rowed out to *Norma G* and motored over to the pontoon. By 0930, they had all made their way on board, donned their auto-inflatable lifejackets and prepared themselves and the boat for their day on the water.

The owner drove the boat down the River Camel and into the Camel Estuary towards Padstow. At about 1045, they arrived at a set of moorings off the village of Rock and secured the boat to a friend's mooring buoy. They remained there for about 30 minutes, had a coffee, and the owner and his son set up their fishing rods.

At 1125, *Norma G* was steered north out of the estuary and then westwards around Stepper Point, towards Butter Hole Beach **(Figure 2)**. At about 1145, they arrived off the beach with the intention to land ashore, but saw that there was a confused swell breaking onto the shore so decided to stay clear. After a short discussion, they motored back around Stepper Point into the shelter of the estuary where, at about 1210, they anchored *Norma G*.

The owner and his son started fishing, while his wife and daughter went into the cabin to do some crafting. Once inside the cabin, both women removed their lifejackets and placed them on the seats next to them **(Figure 3)**. After about 20 minutes of fishing, the owner decided to refill the main petrol fuel tank using an additional container carried on board. The vapours from the petrol, coupled with the boat's movement, made his daughter feel unwell in the cabin. Because of this, the owner decided to stop fishing and return to the River Camel to have lunch.

At about 1240, the owner started the engine, raised the anchor, steered the boat eastwards, parallel with the Doom Bar, and headed towards Greenaway rocks and the entrance channel to the river at a speed of about 8 to 9kts. The owner and his son were on deck, while his wife and daughter remained in the cabin.

After about one minute motoring eastwards, *Norma G* neared the end of the Doom Bar **(Figure 4)** and the owner started to make a turn to starboard to enter the channel. As he did so, he looked behind and saw a large steep wave rapidly approaching. He shouted a warning but, before he could increase speed or change direction, the wave picked up *Norma G*'s stern, broke onto the deck, and caused the boat to capsize. The owner and his son were thrown clear of the boat, but his wife and daughter became trapped in the forward cabin. Both women were tossed about in the cabin as the boat was hit by successive waves. They each grabbed their lifejackets and put them on. As further waves hit the boat, it sank by the stern, leaving the bow afloat. As the cabin filled with water, an air pocket remained in the bow, debris floated all around the cabin, and the owner's wife was hit by and trapped under the dislodged cabin table. Both of the women's lifejackets automatically inflated as the boat was tossed about. Although she had ingested a lot of water, the

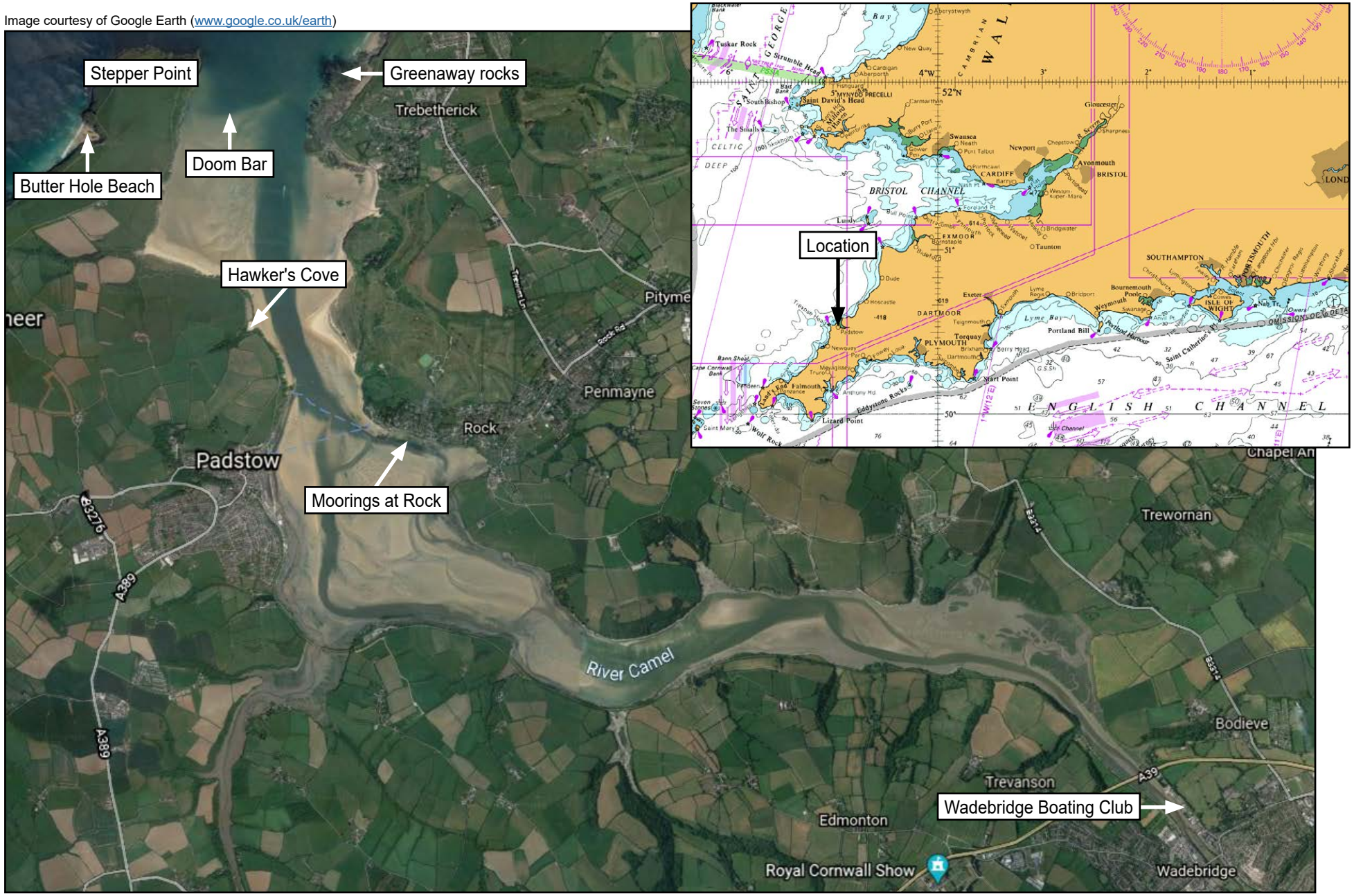

Figure 1: River Camel and Estuary and (inset) extract from UKHO Admiralty Chart 2, showing location of Padstow, Cornwall, England

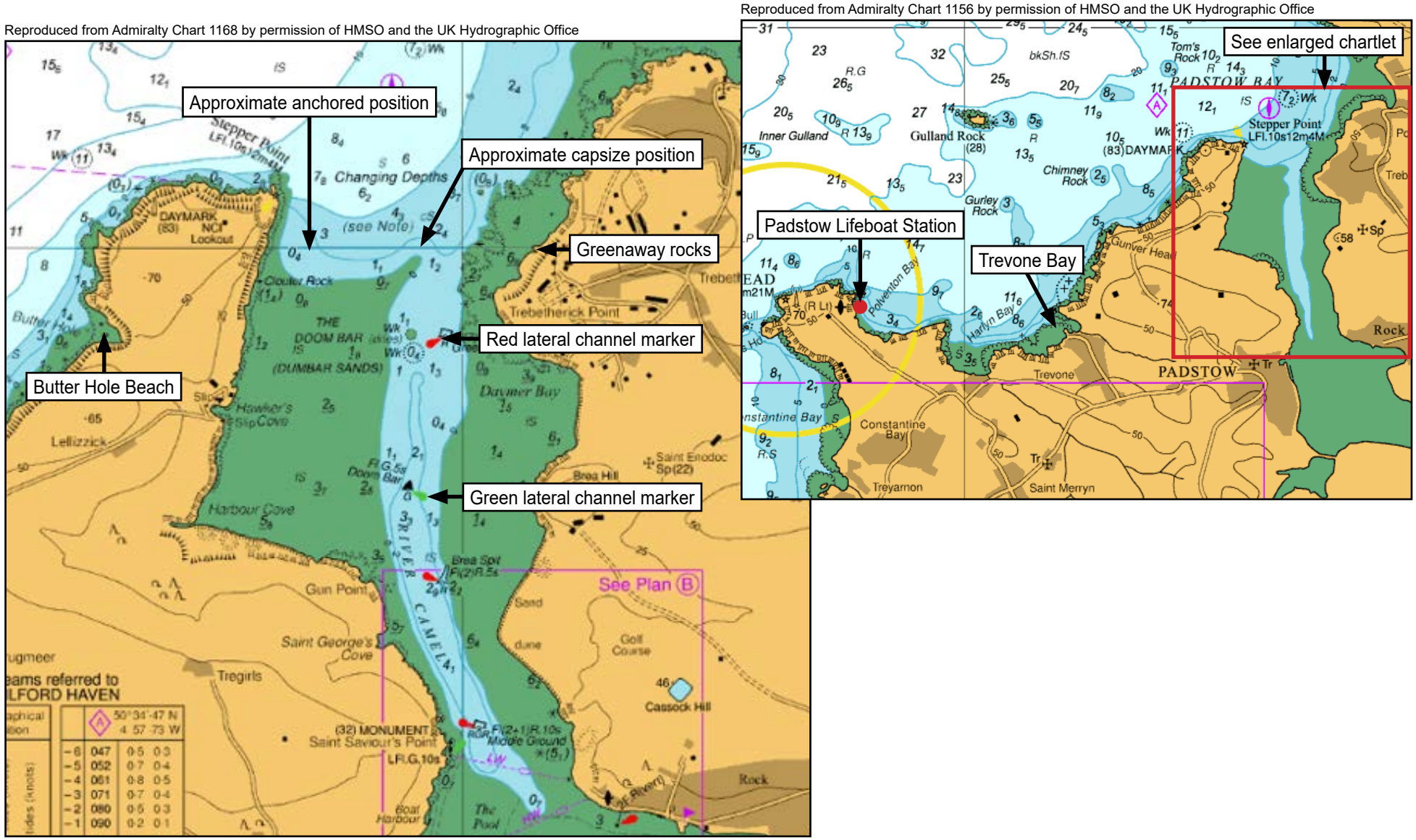

Figure 2: Extract from UKHO Admiralty Chart 1168, showing approaches to Padstow and (inset) chart extract 1156, showing Padstow Lifeboat Station and accident location

Image courtesy of *Norma G*'s owner

Figure 3: Inside *Norma G*'s cabin

Reproduced from Admiralty Chart 1168 by permission of HMSO and the UK Hydrographic Office

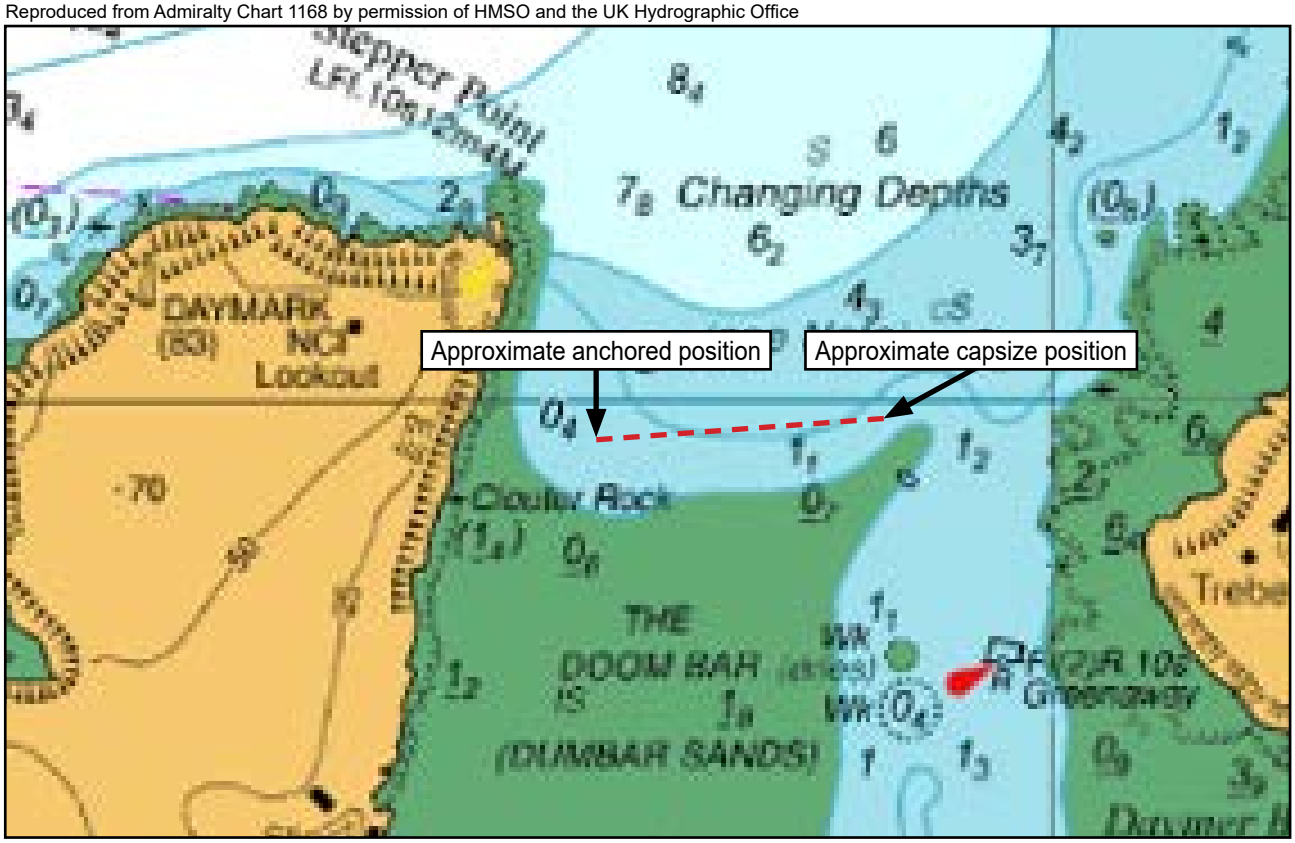

Figure 4: Extract from UKHO Admiralty Chart 1168 – track from anchored position to approximate capsize position

owner's wife was able to remove her lifejacket and swim down and out through the cabin door, surfacing next to the boat. Her daughter remained trapped in the cabin in the air pocket towards the bow; she was being kept afloat by her inflated lifejacket and was banging on the boat's hull.

The owner heard his daughter banging on the inside of the upturned hull. He took off his lifejacket and made multiple attempts to reach down to the cabin door to rescue her; but, with the boat inverted and sunk by the stern, the swell made this very difficult and none of his attempts were successful.

1.3 EMERGENCY RESPONSE

At 1242, the National Coastwatch Institution watchkeeper stationed at Stepper Point was the first to report the upturned boat in the surf on the Doom Bar to the coastguard.

At the time of the capsize, the Padstow Harbour Commissioner's (PHC) harbour patrol officer (HPO) was in the vicinity of the Doom Bar on board his 9m rigid inflatable boat (RIB) and saw *Norma G*'s upturned hull in the surf.

The HPO headed towards the upturned hull where he found three people in the water, clinging to it. At 1243, he alerted the harbourmaster and the coastguard and, after a few minutes, managed to get the owner's wife and son into the RIB; the owner remained in the water and, as he could still hear his daughter banging on the inside, would not leave the upturned hull.

The coastguard tasked Rock's Royal National Lifeboat Institution (RNLI) D-class inshore lifeboat (ILB) and, at 1247, it was launched. At 1300, the ILB arrived on scene and, following a brief from the HPO, its crew attached a tow rope to *Norma G*'s bow ring. With the owner now in the HPO's RIB, the ILB coxswain attempted to tow the boat level to enable the rescue of his daughter. The first attempt to tow the sinking boat was unsuccessful. On the second attempt, *Norma G*'s bow rose out of the water but its stern and engine remained submerged. As the ILB towed *Norma G* slowly ahead, the HPO positioned his RIB alongside and the owner climbed on board *Norma G*. He pulled open the boat's cabin door, grabbed hold of his daughter and pulled her out. She was unconscious and was not breathing. She was quickly transferred to the ILB, where the RNLI crew immediately began cardiopulmonary resuscitation (CPR).

At 1313, at the coastguard's request, Padstow RNLI's Tamar-class all weather lifeboat (ALB) was launched to assist the ILB and rendezvous with it in Trevone Bay. The intention was to transfer the casualty to the larger, more stable boat and transport her to Padstow Lifeboat Station **(Figure 5)**. At 1316, the ILB coxswain requested a coastguard search and rescue (SAR) helicopter to evacuate the casualty to hospital. However, the SAR helicopter had been tasked to another incident and was not immediately available to assist.

At 1331, as the two lifeboats approached each other, the coastguard retasked the ALB to another nearby emergency. Because the ILB was more than halfway across the bay, and following a brief discussion between the ILB coxswain and the coastguard controller, the decision was taken to continue the passage to Padstow Lifeboat Station. At 1339, the ILB arrived at the bottom of the lifeboat station's slipway and was met by its shore staff. The casualty was carried up the slipway and

Image courtesy of Visiting Cornwall (visiting-cornwall.co.uk)

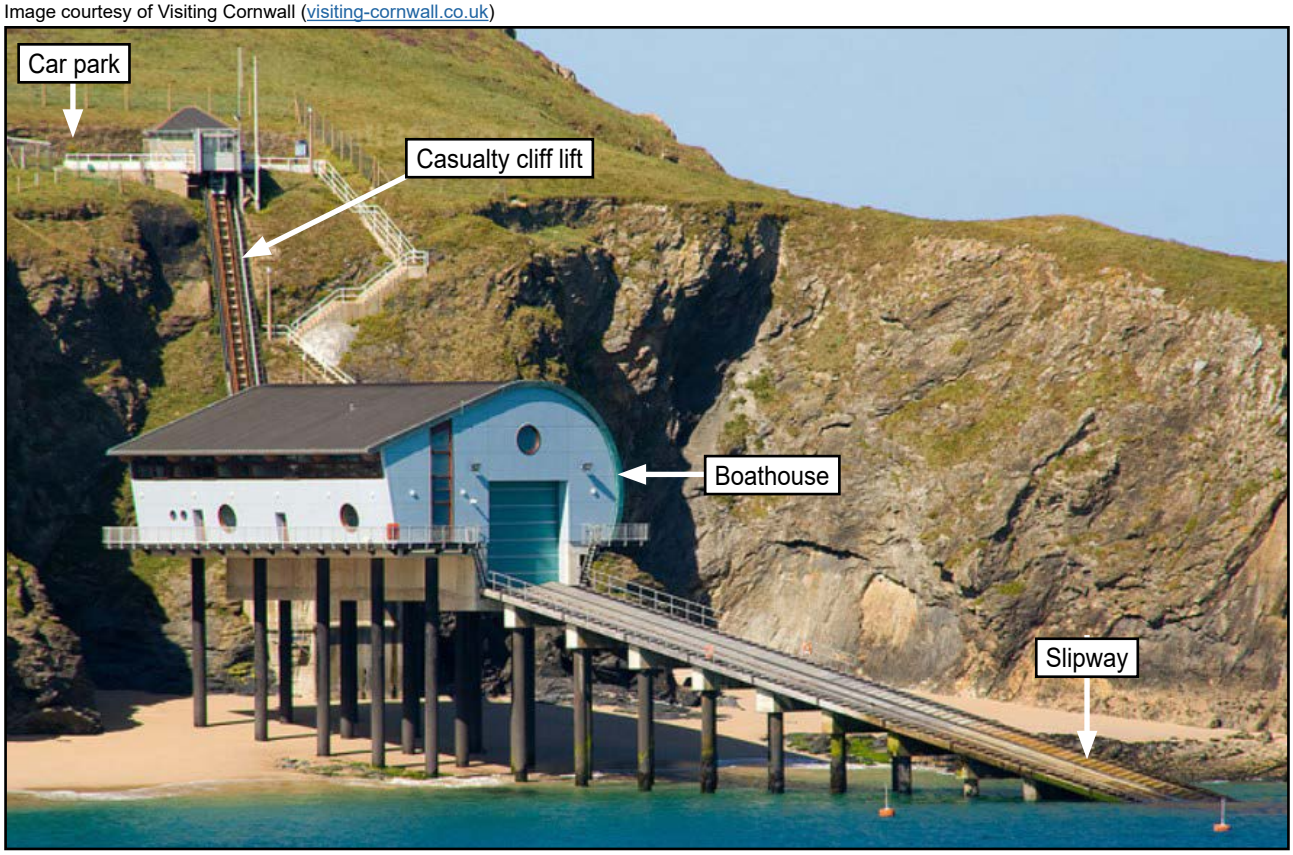

Figure 5: Padstow Lifeboat Station

into the bottom level of the station's boathouse, where CPR continued. At 1352, an ambulance team and rapid response paramedic arrived on scene, made their way down the cliff path to the boathouse, and commenced critical care. At 1400, a helicopter air ambulance landed in a field close to the clifftop car park. Before moving the casualty and carrying her up the stairs out of the lifeboat station, the paramedics ensured her medical stability. Once out of the boathouse, a casualty lift was used to ascend the cliff to the car park, from where the casualty was taken by ambulance to the waiting helicopter. At 1620, the helicopter took off. It landed at The Royal Cornwall Hospital, in Treliske, about 20 minutes later. At 1712, despite the hospital staff's efforts, Gillian Davey was pronounced deceased.

1.4 ENVIRONMENTAL CONDITIONS

1.4.1 Weather

During the day, visibility was good. At midday, the air temperature was about 20°C. There was a gentle breeze blowing from a westerly direction at about 5kts and the sea was calm, although there was a long Atlantic swell from the west-north-west running into the estuary. At the time of the accident the tide was falling, with low water at Padstow predicted to be at 1407 with a height of 1.0m. The tidal range on the day was 6.0m.

1.4.2 Swell near the Doom Bar

The geographical position of the Camel Estuary means it is subjected to long swell waves that originate in the Atlantic Ocean. These tend to occur in sets, where several waves appear together interspersed with periods of calmer water. Around low tide, the depth of water to seaward of the Doom Bar changes from around 15m

to less than 2m over a 200m distance. The long ocean swell reaches the estuary and as the water depth reduces the wave period shortens, and each wave steepens, grows in height, and has a near vertical face before breaking **(Figure 6)**.

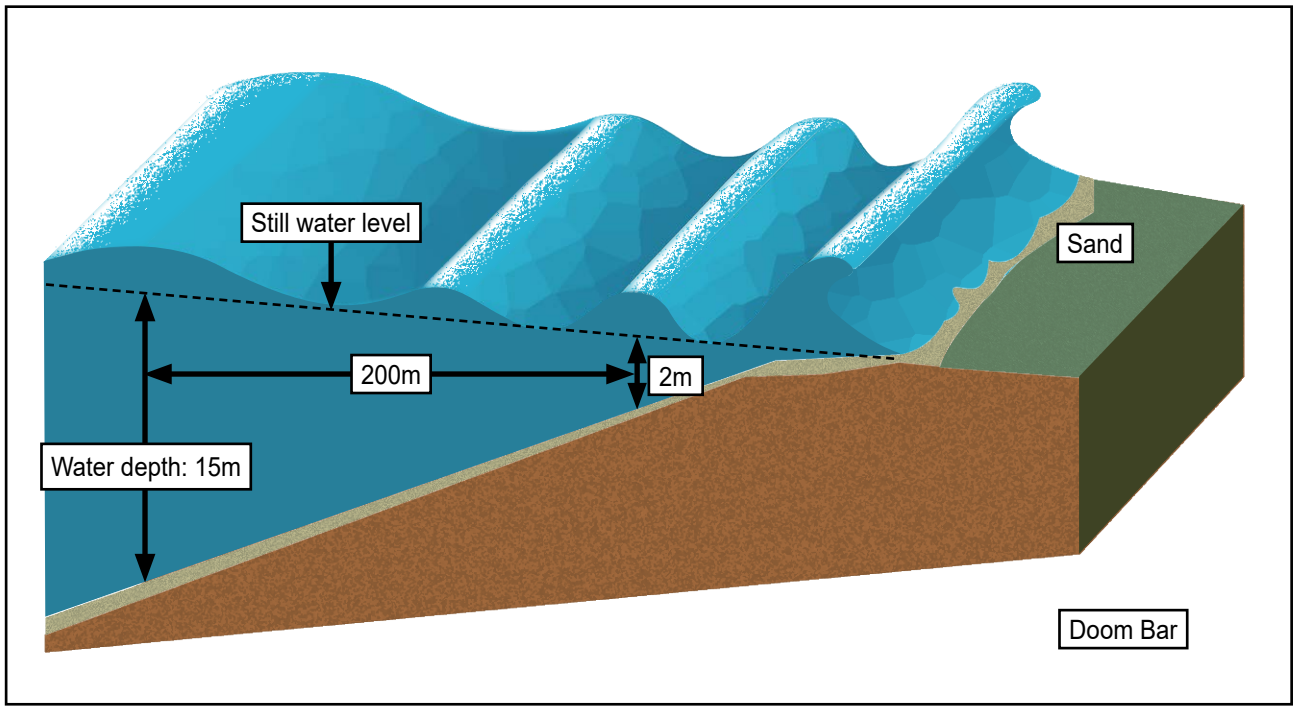

Figure 6: Change of wave dynamics due to shallowing of the water depth

The swell forecast on the day of the accident was between 1.5m and 2m in height from a west-north-west direction. A local wave buoy measured the significant wave height[1] at the time of the accident to be 1.5m, with a wavelength of about 150m from peak to peak, and a maximum wave height of 3m was recorded.

1.5 *NORMA G*

1.5.1 Overview

Norma G was a 5.48m Norman 18 Mk2 motor cruiser built from glass-reinforced plastic. It was purchased by the owner in 2019 and, although the actual build date is unknown, was probably constructed in the late 1970s by Norman Cruisers Limited in Lancashire, England. It was equipped with a long shaft 75hp Yamaha petrol outboard engine, the largest engine that Norman Cruisers Limited recommended for this model of boat. It was also fitted with an auxiliary outboard motor. The main fuel supply came from a 25 litre plastic container, with spare fuel carried in several other smaller containers. Over the winter of 2019 and spring of 2020, the owner completely refurbished the boat's interior.

Norma G was equipped with a Global Positioning System (GPS) receiver that displayed the boat's latitude, longitude, course and speed, and a fish finder with integrated echo sounder. It did not have an electronic chart display system, paper charts or a steering compass.

The boat was principally designed for use on rivers, lakes and inland waterways. When it was built, it was advertised as being able to cruise in coastal waters.

[1] The significant wave height is the mean height of the highest one-third of the waves. Some waves will be double this height.

1.5.2 Recreational Craft Directive

Since June 1998, the Recreational Craft Directive 94/25/EC (RCD), as amended, has set out design and technical requirements for recreational boats. The small craft international standard, ISO 12217-3:2017, covers stability and buoyancy assessment criteria for boats of a less than 6m hull length.

The RCD requires that a new-build boat has sufficient stability and freeboard for its design category (based on anticipated environmental conditions) and the manufacturer's recommended maximum load.

For fully loaded small motorboats similar to *Norma G*, operating in waters such as the Camel Estuary, the RCD (Category C) would require a 400mm minimum freeboard (or down flooding height). Additionally, boats of less than 6m in length that are, when used in their design category, susceptible to swamping, should be provided with appropriate means of flotation in the swamped condition. *Norma G* was built prior to the RCD's introduction, had an open deck with no internal subdivision or built-in flotation, and the cutaway section at the stern, where the outboard motor was attached, meant that it had a less than 400mm freeboard.

1.5.3 Safety equipment

The outboard engine controls were fitted with a kill cord, to be worn when the engine was running. The owner equipped the boat with a buoyant waterproof handheld very high frequency (VHF) radio, automatic 150N inflatable lifejackets, and a fire extinguisher. The boat was not fitted with a radar reflector, and there were no distress signals on board.

1.6 WADEBRIDGE BOATING CLUB

In May 2019, *Norma G*'s owner joined the WBC because it was close to where the family lived and he wanted to gain local knowledge and learn from more experienced boat users. Upon joining, he was given a booklet explaining the club rules and a simplified chart of the area, which showed the river and estuary speed limits. The WBC *Membership Card and Club Rules* booklet (April 2012) that he was provided with stated, in rule number 1, that '*The objective of the club is to promote safe and affordable boating for local people*'. The booklet contained no information regarding the safe operation or navigation of boats, other than urging members to wear buoyancy aids and lifejackets, and nothing to suggest that members should undertake some form of training.

The new member's chart of the area **(Annex A)** did not mention the dangers posed by the Doom Bar or indicate where members might find such information; nor did it refer to the Padstow Harbour Commissioners (PHC), the statutory harbour authority (SHA) responsible for issuing byelaws governing the operation of boats within its jurisdiction.

1.7 BOATING QUALIFICATIONS, TRAINING AND EXPERIENCE

Norma G's owner held no formal boating qualifications and had received no formal navigation or on water safety training. Although *Norma G* was his first boat, he had, over a period of several years, been out on the water many times with a close relative, and had been taken out on friends' boats for trips on the River Camel and into the estuary. The owner was aware of the PHC website and used it as a source of knowledge. His wife and children had no boating qualifications and little or no

boating experience. Since purchasing *Norma G*, the owner had taken it out onto the river about six times during the summer season, but not with his whole family, and had taken it out of the estuary to sea only once.

To operate a VHF radio there was a legal requirement to obtain, as a minimum, a short-range certificate of proficiency and for the boat to be licenced. There was no mandatory requirement for the owner to undertake any boat operation or navigation training. The owner recognised his lack of knowledge and experience and had attempted to book himself onto training courses; however, because training schools were closed due to COVID-19 restrictions, this was unsuccessful.

1.8 RIVER CAMEL AND ESTUARY

1.8.1 Overview

The Camel Estuary is at the mouth of the River Camel on the north coast of Cornwall, England, with the village of Rock on the east and the town of Padstow on the west shoreline. The town of Wadebridge is about 5 miles upstream from Padstow. The river and estuary dry out extensively at low tide, restricting navigation. A buoyed navigable channel extends for 1.4nm into the estuary, from the harbour at Padstow to a port hand lateral buoy (Greenaway) off Trebetherick Point. The starboard hand channel buoy (Doom Bar) does not mark the seaward extremity of the Doom Bar **(Figure 2)**.

1.8.2 The Doom Bar

The Doom Bar (Dunbar Sands) is an extensive sandbank that lies along the western side of the channel, extending over halfway across the estuary, and dries at low water. This sandbank is prone to moving over time as the environmental conditions change. There is a sand bar that runs right across the deeper water channel. It is not clear in published guidance if this forms part of the named Doom Bar. In published guidance, the Doom Bar is regarded as a significant danger to shipping.

1.8.3 Passage guidance

The United Kingdom Hydrographic Office (UKHO) Admiralty Chart 1168 covers the entrance to the River Camel. To the north of the shallow bar across the estuary is the legend *Changing Depths* (see note). The relevant note on the chart warns:

> *The height and shape of the sand banks in the river frequently change. The channel should not be attempted without local knowledge*.

The Admiralty Sailing Directions (NP37) *West Coasts of England and Wales Pilot*, chapter 2, section 2.73. referred to the approaches and entry into the Camel Estuary and River Camel:

> *The best time for entering the harbour is between half-flood and HW; in heavy W or NW swells the sea may break over the bar especially if the height of tide is below half-tide level.*

It went on to state that the approach track into the channel:

> *...leads S into the buoyed entrance channel avoiding a detached shoal which dries, close NE of the NE corner of the Doom Bar.*

Reed's Nautical Almanac, section 9.11.26, also described the approaches to the estuary and River Camel, advising that the best time to approach is 2½ hours before high water and that an approach should not be made 1½ hours before or after low water. It cautioned:

- *Shifting banks in the estuary require care and a rising tide. If in doubt, consult the harbourmaster.*

- *Identify the first 2 channel buoys before entry. In strong onshore winds or heavy ground swell, seas can break on Doom Bar and in the adjacent channel.*

The *River Camel to Padstow* section of chapter six of the *West Country Cruising Companion* stated:

> *Enter the river on a flood tide, ideally no earlier than three hours before local high water and do not attempt it in any ground swell from the north-west, or if breaking water can be seen.*

1.9 PADSTOW HARBOUR COMMISSIONERS

1.9.1 Overview

PHC is the statutory harbour authority (SHA) for the Camel Estuary and tidal River Camel, which includes the area of Wadebridge. PHC operated a safety management system based on the UK government's Department for Transport (DfT) non-mandatory Port Marine Safety Code (PMSC).

On 18 July 2019, PHC formally declared to the Maritime and Coastguard Agency (MCA) that it was compliant with the requirements of the PMSC.

The PHC safety management system included a risk assessment folder. Risk assessment 009/10, titled *Channel Entrance* **(Annex B)**, was updated on 6 January 2020, and identified the following two hazards:

- *Broaching leading to capsize, risk heightened during darkness*

- *Pooping leading to capsize, risk heightened during darkness*

The risk assessment's control measures were identified as insufficient to reduce the risk to as low as reasonably practicable and, to further reduce it, issuing a risk and voyage planning Local Notice to Mariners was identified as a requirement. This Local Notice to Mariners was not issued before the accident.

PHC's website included a navigation and tours section, which contained a navigation guide, passage plan, copy of Admiralty Chart 1168 for the area, and a July 2018 channel depth survey report.

1.9.2 Navigation guide

The navigation guide was a reproduction of an article written for a boating magazine, which included the following extracts provided by a former Padstow harbourmaster:

> *Although there's a minimum of about 0.8m of water in the main channel, don't attempt entry if there's a big ground swell running. About three hours before local high water is the ideal time to start your approach.*

And:

> *The approach to Padstow is dominated in the minds of many sailors by the fearsomely named Doom Bar, but … in the right weather entry is neither difficult nor dangerous. Also, the word Doom is actually a derivation of Dun or Dunne meaning sand. At the wrong time and in the wrong weather the entrance can be treacherous though, even at HW.*

1.9.3 Port passage plan

PHC had produced a port passage plan for estuary and river users and made it available on their website **(Figure 7)**. This plan indicated a safe route to follow when entering or exiting the estuary, river, and port of Padstow, and contained local information for those not familiar with the area.

In reference to the Doom Bar, the PHC's passage plan for entry into the River Camel stated that:

> *Dangerous breaking seas may occur across the bar during times when there is a heavy swell running – particularly when the tide height is below half water.*

1.9.4 Harbour patrol and patrol officer

PHC operated a RIB, which was used to patrol the harbour and assess sea conditions over the bar and approaches to the estuary. This information was relayed to the harbour office and made available to the general public on request.

Employed by PHC for four years, the HPO had also been a Rock RNLI lifeboat volunteer crew member for 10 years and held the rank of senior helmsman.

1.10 EMERGENCY SERVICES

1.10.1 Her Majesty's Coastguard

Her Majesty's Coastguard is a division of the MCA that coordinates emergency services and volunteer agencies to respond to accidents and incidents around the coast. To assist with SAR, the coastguard has 'declared assets', including rescue service helicopters and volunteer organisations such as the RNLI, at its disposal. Ambulance services, including helicopter air ambulances, are not declared assets, and calls for assistance from the coastguard are triaged against other incidents that these services are dealing with at the time.

Passage plan courtesy of Padstow Harbour Commission (padstow-harbour.co.uk)

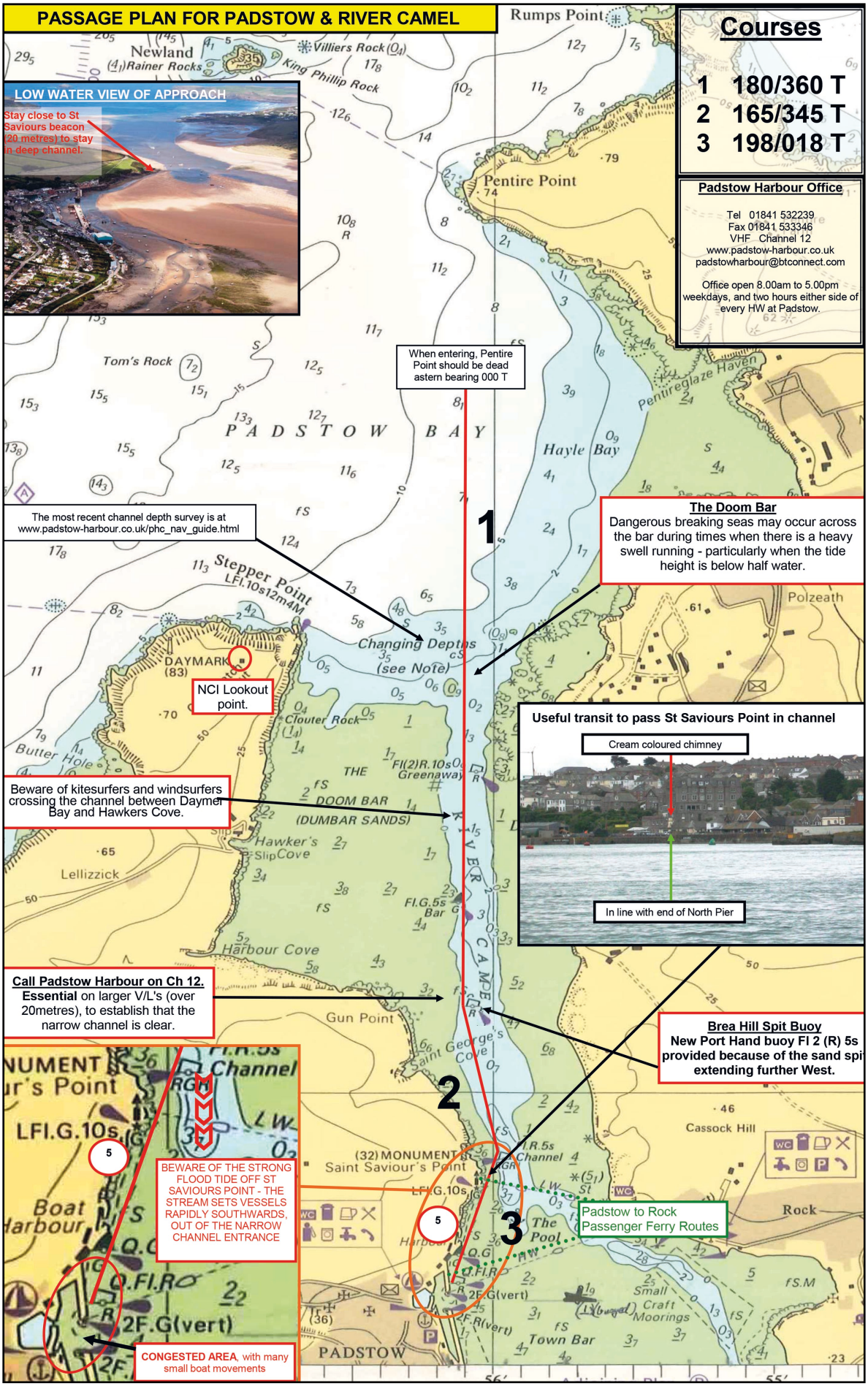

Figure 7: Padstow Harbour port passage plan

When they are received, incidents are assigned a level of urgency by the coastguard. There are three levels:

- Distress – people in grave and imminent danger, requiring immediate assistance.
- Alert – concern for safety, requiring timely but not immediate assistance, a potential distress condition.
- Uncertainty – where there is a degree of uncertainty regarding the severity of an incident, pending further information.

Once the coastguard was informed of *Norma G*'s capsize, the incident was classified as an 'Alert'. At 1243, the HPO informed the coastguard that Gillian was trapped in the boat's hull and, along with three other people in the water, was in grave and imminent danger. At 1310, the incident was raised to the more urgent 'Distress' level.

1.10.2 Padstow Lifeboat Station

This was located at the bottom of a steep cliff, about 3.7 miles west of the town of Padstow, and sat on piles above the sea. The station's ALB was launched down a slipway into the bay. The boathouse was designed so that the returning ALB could easily transfer casualties from the boat and straight outside on the same level. A lift was then used to transfer casualties from the boathouse up the cliff to the car park at the top **(Figure 6)**. There were no facilities for the recovery of D-class lifeboats at the lifeboat station. Casualties arriving by D-class were landed on the slipway and had to walk, or be carried, into the lowest level of the boathouse. There were then three flights of stairs between this and the cliff lift.

1.11 GUIDANCE AND REGULATIONS

1.11.1 Maritime and Coastguard Agency

Although there is no legal requirement in the UK to be trained in the safe use of a privately-owned pleasure vessel, the MCA issues best practice guidance.

Section 13.1 of the MCA's Marine Guidance Note MGN 599 (M), *Pleasure vessels – Regulations and Exemptions – Guidance and Best Practice Advice*, states the following:

> *It's strongly recommended that these best practice guidelines are followed at all times: –*
>
> - ***Get Trained** – It is sensible to undertake some form of training suitable to the intended voyage(s) of your vessel; if you do get trained you will be far less likely to be involved in a maritime incident. If you get into difficulty you will also know how to get the right help quickly, reducing the impact of your problem;*
> - ***Check the Weather and Tides** – Always check the weather and tidal conditions before you set out so that you can prepare accordingly. At sea, changes in tidal streams could make conditions worse, particularly if the wind and tide are against each other. Tidal heights may also hide underwater hazards.*

Section 7.3 of the guidance states:

- ***Limitations of the Vessel****: consider whether your vessel is up to the proposed trip and that you have sufficient safety equipment and stores with you.*

- ***Crew****: take into account the experience and physical ability of your crew. Crews suffering from cold, tiredness and seasickness won't be able to do their job properly and could result in an overburdened skipper.*

- ***Navigational Dangers****: make sure you are familiar with any navigational hazards and dangers you may encounter during your boating trip. This generally means checking an up-to-date chart and a current pilot book or almanac covering the area of intended voyage.*

1.11.2 Port Marine Safety Code

Following a 1998 review of the Pilotage Act, the PMSC was established to summarise the legal duties and powers of SHAs in relation to marine safety. SHAs were expected to voluntarily work to achieve the PMSC's agreed standards, implementing the requirements and following the associated guides to best practice. One of the aims of the PMSC is to enhance safety for those who use or work in ports, their ships, passengers, and the environment. The PMSC requires harbour authorities to conduct a formal risk assessment of all aspects of their operation and, from this, derive a register of the risks involved and an effective safety management system to control them. The PMSC contains guidance on the responsibilities of the duty holder, who is accountable for safely and efficiently managing port operations. Their duties include:

- *maintaining strategic oversight and direction of all aspects of the harbour operation, including marine safety.*

- *responsibility for the development of policies, plans, systems and procedures for safe navigation.*

- *ensuring that assessments and reviews are undertaken as required, to maintain and improve marine safety.*

PMSC compliance was by self-assessment, and port operators were invited to inform the MCA if they considered that their operations met the requirements.

1.11.3 A Guide to Good Practice on Port Marine Operations

A Guide to Good Practice on Port Marine Operations (referred to as the Guide) reinforces and builds on the principles of the PMSC and explains what a harbour authority should do to comply with the Code. Section 8 of the Guide described the *Management of Navigation*, including guidance on the content of a port passage plan for a harbour or marine facility.

Section 3.3.8 of the Guide encourages harbour authorities to advertise that they are undertaking risk assessments, and to seek input from those most likely to make a meaningful contribution. While it is not compulsory, many harbour authorities achieve this by establishing port user committees. Section 3.3.12 goes on to state:

> *The counterpart of effective consultation arrangements is an effective means of communicating appropriate information, advice and education to harbour/ facility users. Organisations should consider the most appropriate and effective methodologies to employ, certainly making use of appropriate technology including social media in order to reach their target audience*.

1.11.4 Royal Yachting Association

The Royal Yachting Association (RYA) is the national body for dinghy, yacht and motor cruising. It operates an internationally recognised training programme for leisure and professional boaters, delivered at numerous RYA approved training centres. The RYA offers free advice and guidance through its website[2], one section of which, *Knowledge and Advice*, includes sub-sections on regulations, safe boating and cruising tips, providing information and guidance to experienced boaters and novices alike. In its publication *Equipment for UK Pleasure Vessels*, the RYA recommends that vessels of less than 13.7m in length are equipped with charts, a compass and GPS/chart plotter.

1.11.5 Royal National Lifeboat Institution

The RNLI is a charity volunteer organisation of highly trained staff whose prime function is the saving of lives at sea. The RNLI operates a community safety team who explain boating risks and share safety knowledge with anyone going out to sea. In addition, the RNLI provides a free Advice Onboard service where, on request, trained and experienced volunteers from the local lifeboat station provide safety advice about equipment on board, tailoring the session to the type of boat and boating activity to be carried out. In addition, the RNLI provides boaters with extensive advice and guidance through its website[3].

1.12 PREVIOUS SIMILAR ACCIDENTS

1.12.1 Fletcher speedboat

At approximately 1142 on Saturday 2 May 2015, an unnamed Fletcher speedboat with one adult and three teenage children on board capsized after encountering a large wave. Three of the occupants managed to swim clear of the upturned hull but one of the children became trapped. She was recovered 25 minutes later but never recovered consciousness.

The MAIB investigation (MAIB report 21/2015[4]) found that the skipper of the boat had limited experience and no suitable qualifications for operating the boat at sea. The report further concluded that:

- The weather, tidal and sea conditions were not investigated fully before setting out.

---

[2] https://www.rya.org.uk/

[3] https://rnli.org/

[4] https://www.gov.uk/maib-reports/capsize-of-fletcher-155-speedboat-resulting-in-1-fatality

- If the speedboat had met the RCD harmonised standard to float horizontal when swamped, it would not have sunk by the stern.

- Buyers should be cautious and aware of the potential shortcomings of leisure craft constructed before the introduction of the RCD in 1998, or those that might have been substantially modified.

Following this accident, the family involved launched Emily's Code with the support of the RYA to highlight factors that are essential for safe boating[5].

1.12.2 *James 2* and *Vertrouwen*

At 0026 on 6 August 2017, *James 2*, a glass-reinforced plastic hulled Norman 18.5 motor cruiser, was swamped by the fishing vessel *Vertrouwen* and quickly sank (MAIB report 2/2018[6]). Three of the four occupants drowned. *James 2* had been manufactured by Norman Cruisers Ltd in the early 1970s with a cabin forward and open deck aft. The Norman 18.5 was principally designed for recreational use on lakes, rivers and inland waterways, but was also marketed as being suitable for use in coastal waters. *James 2* was built prior to the introduction of the RCD, it had an open deck with no internal subdivision, built-in flotation or means of pumping out flood water. Its freeboard aft, with no people on board, was 250mm.

1.12.3 *Anna-Marie II* (WK875)

At about 1550 on 23 September 2019, the 6.2m fishing vessel, *Anna-Marie II*, capsized as it entered the mouth of the Brora river while returning from its creel fishing grounds. The vessel broached and was capsized in the waves, resulting in both its skipper and crewman entering the water. Neither was wearing a personal flotation device; the crewman managed to swim ashore but the skipper drowned.

The MAIB investigation (MAIB report 12/2020[7]) found that:

- *Anna-Marie II* capsized because it broached and was turned side on to the breaking waves as it crossed the bar at the entrance to the Brora river.

- The waves at the time of the accident were very unusual for the Brora harbour entrance and had developed very quickly to a height of approximately 3 to 3.5m. The experienced skipper underestimated the risk of capsize in the prevailing conditions and was caught out by the unusually high waves that he encountered.

1.12.4 Bayliner Capri 2000 speedboat

On the morning of 10 March 2014, three men set out from Great Yarmouth, England, in a 5.7m Bayliner Capri speedboat in deteriorating weather conditions to recover fishing gear they had laid the previous day.

The men were recreational fishermen but had little recent experience of operating a boat at sea. The boat was not equipped with a VHF radio or distress flares and the men were not wearing lifejackets or thermal flotation suits. The boat had a low

[5] https://www.rya.org.uk/knowledge/safety/emilys-code

[6] https://www.gov.uk/maib-reports/collision-between-fishing-vessel-vertrouwen-and-motor-cruiser-james-2-resulting-in-motor-cruiser-sinking-with-loss-of-3-lives

[7] https://www.gov.uk/maib-reports/capsize-of-fishing-vessel-anna-marie-ii-with-loss-of-1-life

freeboard at the stern (360mm) and there was an opening for engine control cables 260mm above the waterline. While the men were recovering the gear, the propeller became fouled by rope and, in worsening conditions, water probably entered the boat, which led to its capsize. The sea temperature was 6°C.

The MAIB investigation (MAIB report 28/2014[8]) found that:

- The men were not sufficiently experienced for the deteriorating weather conditions encountered and had probably not studied the forecast.
- The boat had a low freeboard at its stern, making it vulnerable to swamping when its propeller became fouled.
- The boat had no VHF radio, no distress flares and, apart from the men's mobile phones, there was no means of raising the alarm as the situation deteriorated.
- The men were not wearing lifejackets or thermal flotation suits and did not have personal locator beacons. Only one of the men wore a buoyancy aid, which, unlike a lifejacket, was not able to turn him face-up and keep his mouth clear once he entered the water.

1.12.5 *Le Men Du*

At about 0550 on 5 September 2017, the 15m scallop dredger *Le Men Du* grounded on Greenaway rocks, close to the entrance of the channel in the Camel Estuary, while inbound to Padstow. The skipper had become distracted from navigating his boat and lost awareness of his location and proximity to the shore shortly before running aground on the rocks.

An investigation by the harbourmaster resulted in a recommendation that Padstow Harbour Commissioners review their navigational risk and issue a Local Notice to Mariners warning all masters of the risks and of their responsibility to plan voyages and make sound command decisions.

This Local Notice to Mariners had not been issued prior to the accident.

[8] https://www.gov.uk/maib-reports/capsize-of-an-open-speedboat-being-used-to-recover-longline-fishing-gear-off-lowestoft-england-with-loss-of-3-lives

SECTION 2 – ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future.

2.2 THE ACCIDENT

Gillian Davey died because she became trapped in *Norma G*'s cabin when the boat capsized. She was unable to escape, and could not be freed before the cabin filled with water. She was unconscious when recovered from the boat, and could not be revived. In this section of the report the reasons why *Norma G* capsized will be analysed, and the post-accident emergency response will also be discussed.

2.3 THE CAPSIZE

The owner made the decision to return to the river without fully appreciating the risks posed by steering *Norma G* beam-on to the deceptively large ground swell that was building to seaward of the Doom Bar, and navigating the vessel through the area of shallow water at the entrance of the Camel Estuary as the tide neared the time of low water.

The calm seas and apparently low swell to the north of the estuary lulled the owner into a false sense of security, and he was caught out by the rapidity of the changing shape of the swell as it was altered by the depth of water. He had little warning of the wave that reared up and capsized the boat, breaking onto the deck as it did so, and, once he was alerted to the wave's presence, he had no time to react to prevent the accident.

2.4 THE RETURN PASSAGE

It had been the family's intention to spend the day at sea and return later in the afternoon when the tide would have been rising after the low water. However, their plans changed when Gillian started to feel unwell.

Having made the decision to return to the sheltered waters of the river, *Norma G*'s owner started steering east. He knew he had to keep *Norma G* away from the Doom Bar and used his echo sounder to regularly monitor the depth of water. However, with no electronic chart display system or paper charts on board, the GPS was of little help. As a consequence, the owner was navigating solely by eye with no means of monitoring his passage or the proximity of the Doom Bar.

The entrance to the River Camel has the potential to be confusing for the inexperienced mariner. UKHO Admiralty Chart 1168 **(Figure 2)** clearly shows the Doom Bar (Dunbar Sands) on the west side of the estuary, and to the east of it is the buoyed channel leading upriver to Padstow and Wadebridge. What is less obvious is that shallow water extends right across the mouth of the estuary, with only slightly deeper water in the vicinity of the approach channel, as marked on the port passage plan **(Figure 7)**. The entrance to the approach channel was not marked on

either side with buoys where it crossed the shallow area. This would have indicated the north-east extremity of the Doom Bar, and that slightly deeper water existed between any marks placed there.

Guidance from numerous sources, including Admiralty Sailing Directions NP37 and the PHC website, advised against boaters making an entry into the estuary and river 1½ hours before or after low water, especially when there is a heavy west or north-westerly swell running. The PHC website provided a greater safety margin by advising that an approach should not be attempted until 3 hours before high water. On the day of the accident, the swell was from the north-north-west, with a significant wave height of 1.5m and a maximum wave height of 3m. *Norma G*'s owner was aware of the hazard of the Doom Bar, but the fact that he was steering his boat to the east indicated that he was attempting to reach the approach channel, which, at low water and with a heavy swell running onto the bar, was no guarantee of a safe passage into the river.

The owner's limited boating experience in that area meant that he did not fully appreciate the danger posed by the quickly shallowing water in the proximity of the Doom Bar, particularly as the ebbing tide neared low water, and he unwittingly drove *Norma G* into an area of steep and breaking waves.

2.5 THE ENTRAPMENT

2.5.1 Use of lifejackets

Once *Norma G* capsized, both women quickly donned their lifejackets, despite being tossed around the cabin by the successive waves hitting the inverted boat, and being buffeted by floating debris. Once the cabin started to fill with water their lifejackets inflated automatically. As the boat began to sink by the stern, the owner's wife became trapped under the cabin table, below the rising water level, separating her from Gillian. It was only when she removed her lifejacket that she was able to duck down, find the cabin door and escape through it. When the owner's daughter did not take off her lifejacket, she became trapped in the cabin while rescue attempts were undertaken.

Without doubt, the wearing of personal flotation devices, such as lifejackets, saves lives. However, there are circumstances when wearing automatically inflating lifejackets can be hazardous, for example when in enclosed spaces such as accommodation areas and cabins.

2.5.2 Boat construction

Norma G complied with construction standards that were in place at the time it was built, but it meant that, like *James 2* (section 1.12.2), the boat had no forward escape hatch, no internal subdivision or built-in buoyancy, and a very low freeboard. When the wave caused it to capsize and invert, the lack of built-in buoyancy resulted in it sinking quickly by the stern. It was fortunate that a pocket of air was trapped in the inverted cabin, which gave the two women air to breath and time to put on their lifejackets. Had *Norma G* been fitted with a forward hatch, this would have given both women a means of escape from the cabin.

Older boats are popular for a variety of reasons: some because they are cheap to purchase, others for their classic status and traditional lines. However, owners choosing to purchase and operate older craft should understand that such craft were built to comply with lower safety standards. Extra caution must be taken when using older craft at sea if they were built to lower safety standards than more modern boats and, where safety deficiencies are identified, steps should be taken to mitigate them. While the 5.48m Norman 18 Mk2 was advertised in the 1970s as suitable for coastal cruising, if it had been assessed against the RCD requirements at the time of purchase it would have been judged unsuitable, therefore should only have been operated at sea with extreme caution.

2.6 EXPERIENCE, TRAINING AND GUIDANCE

2.6.1 Owner

MGN 599(M) (section 1.11.1) strongly recommends that pleasure craft owners undertake training '*suitable for the intended voyage(s) of your vessel*' and Emily's Code (section 1.12.1) provides similar advice in shortened form. Both were published to increase the safety awareness of leisure boat owners and to encourage them to undertake training.

The owner had experience of boating with a close family member prior to purchasing *Norma G*, but he was aware that he lacked both training and experience for operating his boat. It was unfortunate that UK government COVID-19 pandemic restrictions prevented him from undertaking formal training as he had intended. Consequently, when he took *Norma G* to sea on 25 May, he was relying on limited previous experience, information he had found online, and WBC guidance. Although the owner recognised his lack of experience and knowledge, this was not sufficient to become a barrier to him operating the boat at sea with his family on board. Had the owner undertaken RYA training to the standard of Level 2 Powerboat Handling before taking *Norma G* out of the estuary, he would have gained a better understanding of passage planning, the effects of tides and tidal streams, hull forms, sea-keeping ability, and boat control in waves.

2.6.2 Padstow Harbour Commissioners

Had *Norma G*'s owner undertaken appropriate navigation training, he might still have found the guidance on entering and leaving the Camel Estuary confusing. Inconsistencies included:

- The United Kingdom Hydrographic Office (UKHO) Admiralty Chart 1168 **(Figure 2)** and the Padstow harbour port passage plan **(Figure 7)** differed significantly in respect to showing the limits of the Doom Bar and the depths in the approach channel.

- On the Padstow harbour port passage plan **(Figure 7)** the Doom Bar was shown as the green 'drying' area to the west of the approach channel, yet the label referring to the hazards across the bar, which was also titled Doom Bar, pointed to east of the approach channel.

- The WBC new member chart **(Annex A)** made no mention of the hazards at the harbour entrance.

Increased involvement with port user groups, such as the WBC, and proactive dissemination of clear, unambiguous guidance would have negated the need for ad hoc information such as the WBC new members chart **(Annex A)** and, importantly, would have helped ensure consistent, reliable information on harbour hazards was available to all local mariners, including *Norma G*'s owner.

Following the grounding of a fishing vessel on Greenaway rocks in 2017, Padstow Harbour Commissioners identified the need to review its navigational risk assessment, and to issue a Local Notice to Mariners (See section 1.12.5), but that had not resulted in clearer guidance on safely entering or leaving the River Camel.

Notwithstanding the advice in numerous publications and on the PHC website for mariners not to attempt an entrance to the estuary in certain conditions of tide and swell, there could be benefits to marking the north-east corner of the Doom Bar (Dunbar Sands). To the east of such a mark, vessels entering would be following the port passage plan into the deeper water of the River Camel, whereas to the west of the mark they would be heading into shallowing water over the Dunbar Sands.

2.6.3 Wadebridge Boating Club

Rule number 1 of the WBC *Membership Card and Club Rules* booklet stated that '*The objective of the club is to promote safe and affordable boating for local people*', and *Norma G*'s owner had joined the club because he wanted to gain local knowledge and learn from more experienced boaters. Unfortunately, there was little guidance in the booklet that would have helped prevent this accident.

There is no obligation for any members' boating club to affiliate to a parent organisation. However, the national governing body in the UK for most leisure boating activities, the RYA, does provide support to affiliated organisations. This includes, inter alia: promoting and protecting safe, successful and rewarding British boating; the provision of advice and guidance; and assistance with training and development. WBC was affiliated to the RYA, which would have enabled WBC to advise *Norma G*'s owner about training sources or, given the COVID-19 restrictions in place at the time, provide him with wider safety advice.

Rather than produce its own new member's chart, directing new members to the guidance on the Padstow Harbour Commissioners' website would give them direct access to the latest harbour information and advice on hazards. In this case, while there where some shortcomings in the Padstow Harbour port passage plan **(Figure 7)**, the warning about dangerous breaking seas might have prompted *Norma G*'s owner to reconsider his plan to seek shelter inside the harbour near the time of low water.

2.7 EMERGENCY SERVICES RESPONSE

When *Norma G* capsized, the coastguard was dealing with an elevated number of emergency calls. Multiple separate distress incidents had occurred within an hour that required all RNLI declared assets along the north Cornwall coast to mobilise. The coastguard retasked the Padstow ALB because it was deemed the most suitable and available asset to send to the most recent, developing, distress incident. RNLI personnel were also already attending to Gillian on a declared asset.

The ILB helmsman was aware that ambulance teams had been sent to the Padstow Lifeboat Station area, and that shore staff were available at the station to assist. Although he briefly considered alternative landing options, these were dismissed: taking the casualty anywhere else would have involved a longer sea passage and a possible beach landing through breaking surf, with no medical staff waiting to assist; and returning to Rock village or Padstow town was not possible due to the low level of the tide.

D-class lifeboats had landed casualties at the Padstow Lifeboat Station slipway on previous occasions, but they had always been able to make their own way out of the boathouse and into the casualty cliff lift **(Figure 5)**. It was not envisaged that an unconscious casualty on a stretcher would be landed to the slipway and need to be carried up the three flights of stairs to access the lift. There were no facilities to lift Gillian out of the boathouse that avoided use of the stairs, and her precarious medical condition required the paramedics to restabilise her before she was carried up each stair level. As a consequence, it took nearly two hours to transfer Gillian to the air ambulance while maintaining her in a stable condition.

It is not known if raising the urgency level of the incident to ‘Distress’ sooner would have prompted the earlier launch of the Padstow ALB, but there is no doubt that, had the ALB taken Gillian to Padstow Lifeboat Station as originally planned, she could have arrived at hospital much earlier. However, given the gravity of her medical condition, it is not possible to assess whether this would have improved her chances of survival.

SECTION 3 – CONCLUSIONS

3.1 SAFETY ISSUES DIRECTLY CONTRIBUTING TO THE ACCIDENT

1. Gillian Davey died as a result of drowning after being trapped in the cabin of *Norma G* when it was capsized. [2.2]

2. *Norma G*'s owner's limited boating experience meant that he did not fully appreciate the dangers posed by the quickly shallowing water in the proximity of the Doom Bar, particularly as the ebbing tide neared low water, and he unwittingly drove *Norma G* into an area of steep and breaking waves. [2.4]

3. Gillian's inflated lifejacket prevented her from being able to swim down and out of the submerged cabin door. The wearing of personal flotation devices saves lives. However, there are circumstances when wearing automatically inflating lifejackets in enclosed spaces, such as accommodation areas, can be hazardous. [2.5.1]

4. The Norman 18 Mk2 was advertised in the 1970s as being suitable for coastal cruising. It would not have met the more stringent safety standards required of more modern boats, which would have included the fitting of an escape hatch to cabin spaces forward, built-in buoyancy, and increased freeboard. [2.5.2]

5. Had the owner of *Norma G* undertaken appropriate training, he would have been equipped with a better understanding of passage planning, the effects of tides and tidal streams, hull forms, sea-keeping ability and boat control in waves. [2.6.1]

3.2 SAFETY ISSUES NOT DIRECTLY CONTRIBUTING TO THE ACCIDENT THAT HAVE BEEN ADDRESSED OR RESULTED IN RECOMMENDATIONS

1. The information provided by Padstow Harbour Commissioners on its website to aid mariners with passage planning lacked clarity and consistency. [2.6.2]

2. The information supplied to the members of Wadebridge Boating Club within its *Membership Card and Club Rules* booklet was not detailed enough to meet its stated objective of promoting safe boating. [2.6.3]

3. The RNLI had not envisaged extracting an immobile casualty from the boat ramp at Padstow Lifeboat Station. There were no facilities to lift a casualty on a stretcher directly to cliff lift level, and this delayed Gillian's delivery to the hospital. [2.7]

SECTION 4 – ACTION TAKEN

4.1 ACTIONS TAKEN BY OTHER ORGANISATIONS

Padstow Harbour Commissioners has:

- Reviewed and amended its channel entrance risk assessment 009/10 **(Annex C)**.

- Issued Local Notice to Mariners No.14/2020, dated 30 June 2020, which outlined the dangers posed by the Doom Bar and reiterated the recommended time to enter the estuary.

- Introduced a commercial safety group, which meets twice a year at the beginning and end of every season. It includes all commercial port users, clubs, associations, facility owners and launch recovery companies as well as Padstow and Rock RNLI.

Wadebridge Boating Club has:

- Included Padstow Harbour Commissioner's Byelaws Map **(Annex D)** in the new member information pack. The map includes a warning about the hazard posed by the Doom Bar.

RNLI has:

- Commenced a review of the process for the extraction of casualties from the Padstow Lifeboat Station, including those being landed by stretcher on the slipway.

SECTION 5 – RECOMMENDATIONS

Padstow Harbour Commissioners are recommended to:

2021/129 Update their port passage plan and navigation guide to provide up-to-date chart information and unambiguous guidance to mariners entering or leaving the River Camel.

2021/130 Consider, as part of their navigation risk assessment, placing an aid to navigation to mark the north-east extremity of the Doom Bar.

Wadebridge Boating Club is recommended to:

2021/131 Review and amend the information provided to its members, including the *Membership Card and Club Rules* booklet, to include, inter alia:

- reference to navigational safety information published by Padstow Harbour Commissioners.
- reference to boating safety information published by the RYA, RNLI, and local sources of training.

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

Marine Accident Report

INVESTORS IN PEOPLE