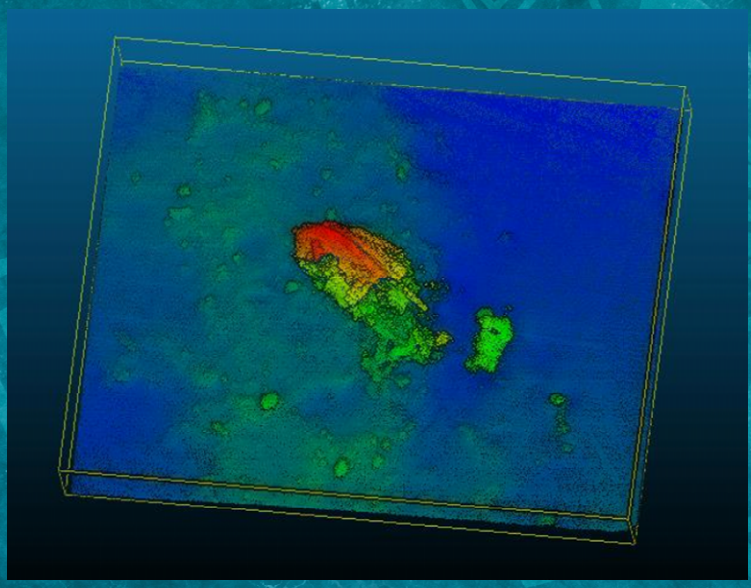
The Bahamas Maritime Authority

Government of JERSEY

Marine Safety Investigation Report

into a collision between Commodore Goodwill and L'Ecume II resulting in the loss of three lives on 8 December 2022



Extract from The Bahamas Merchant Shipping (Marine Safety Investigations) Regulations, 2026 Regulation 4:

The purpose of a marine safety investigation is to prevent future events by establishing the facts of the marine casualty or marine incident and making safety, pollution prevention or emergency response recommendations as appropriate.

The purpose of a marine safety investigation shall not be to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame.

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1. Summary

What happened

In the early morning of 08 December 2022, the Bahamas registered roll-on, roll-off cargo vessel, Commodore Goodwill, and the Jersey registered fishing vessel, L'Ecume II, were approaching each other off the west coast of Jersey.

As a close quarters situation developed, the officer of the watch on Commodore Goodwill made two small alterations of course to starboard - resulting in a small closest point of approach and bow crossing range.

When the two vessels were less than one nautical mile apart, L'Ecume II made a small alteration course to port, as Commodore Goodwill altered its course further to starboard. The vessels collided two minutes later. L'Ecume II sank moments later. None of the vessel's three crew survived.

Why it happened

On Commodore Goodwill, the officer of the watch's mental model was that L'Ecume II was a fishing vessel and that he should keep out of its way - he felt the small adjustments of course were sufficient and was comfortable passing L'Ecume II at a close distance. Commodore Goodwill's lookout could not effectively assist the officer of the watch as he had been instructed to complete certain pre-arrival checks as the close quarters situation developed.

On L'Ecume II, the skipper was almost certainly in the generator room, , leaving no certificated watchkeeper on the bridge. It is unclear what precipitated L'Ecume II's alteration of course to port two minutes before the collision but, the action was contrary to the requirements of the International Regulations for the Prevention of Collisions at Sea.

Neither vessel's actions would have been immediately apparent to the other and neither made the prescribed sound signals.

What can we learn

Action to avoid collision needs to be early, substantial and in line with the requirements of The International Rules for the Prevention of Collisions at Sea. Monitoring the effectiveness of action taken is vital. Use of the appropriate sound signal helps clarify the action being taken to the other vessel. The need to maintain a lookout applies equally to all.

Effective use of bridge resources is key. Active incorporation of available personnel, appropriate set-up of equipment and useful settings on alarms increase the bridge team's likelihood of identifying and reacting to critical situations whilst they can still be avoided. If alarms need to be muted as standard, they are not being used correctly.

Fatigue impacts performance and decision making. People are poor judges of their own level of fatigue. Fatigue modelling tools are available to enable identification of fatigue hazards in duty schedules and help inform the adequate allocation of resources.

Different members of the bridge team may have vastly different interpretations of acceptable passing distances. What is written down will have significantly less weight than behaviour that is modelled.

Broadcasting a 'Mayday' (distress) or 'Pan-Pan' (urgency) message on the appropriate channel ensures that all near-by traffic is aware of a situation where they may provide assistance and can hasten the response.

2. Factual Information

Commodore Goodwill

Vessel Type	Ro-ro cargo	**Flag**	Bahamas
Owner	Condor Limited	**Manager**	Condor Marine Services Ltd.
Classification Society	Det Norske Veritas	**Gross/Net Tonnage**	11,166 / 3,350
Built	Vlissingen, 1996	**Propulsion**	Twin engines driving two controllable pitch propellers (total power 11,692 HP)

IMO No.	Callsign	Length overall	Breadth	Moulded depth
9117985	C6NU8	118.7m	21m	14.7m

Last BMA Inspection	Last PSC Inspection
Portsmouth, UK, 15 May 2022. Two deficiencies (unrelated to casualty)	Dunkirk, France, 11 August 2022. Eight deficiencies (unrelated to casualty)

Crew details – Commodore Goodwill

Rank/Role on board	Master	Second Officer (Navigation)	AB (Lookout)
Qualification	Master (unlimited)	OOW (unlimited)	OOW (unlimited)
Certification Authority	Poland	UK	Ukraine
Nationality	Polish	British	Ukrainian
Age	46	28	32
Time in rank	8 years	2 years	1½ years
Time on board	13 years	2 years	6 weeks

Voyage Details – Commodore Goodwill

Departure Port	St Peter Port, Guernsey	Arrival Port	St Helier, Jersey
Time of departure	04:12, 08 December 2022	Estimated time of arrival	06:30, 08 December 2022
Voyage duration	2 hours	Voyage distance	27 nautical miles
Cargo	Ro-ro freight	POB	23 crew, 3 passengers
Stage of passage	Coastal	Traffic density	Light

L'Ecume II

Vessel Type	Wooden hulled fishing trawler	**Flag**	Jersey
Owner	IFISH4FISH Ltd.	**Gross Tonnage**	60.6
Built	Audierne, 1968	**Propulsion**	Single Cummins diesel engine driving fixed propellor (total power 221kW)

Registration No.	Callsign	Length overall	Breadth	Max draught
J158	MVTE5	17.66m	5.9m	3.2m

Last Jersey Spot Inspection	Last PSC Inspection
St Helier, Jersey, 21 June 2022. No deficiencies.	Not applicable

Crew details – L'Ecume II

Rank/Role on board	Skipper	Deckhand A	Deckhand B
Qualification	Fishing vessel Skipper's Certificate of Service (12m - 24m registered length)	Navigation Watch Rating	Navigation Watch Rating
Certification Authority	Registry of British Ships Jersey	Maritime Authority Philippines	Maritime Authority Philippines
Nationality	British	Filipino	Filipino
Age	62	31	33
Time in rank	32 years	20 months	13 months
Time on board	32 years	Second 9 month contact	First 9 month contract

Environmental Conditions

Wind Direction	Wind Force	Wave Height	Swell Height	Precipitation / Sky	Visibility Range	Light Conditions
NE	4	1m	1m	Clear	Very good	Night

Background to the investigation

The investigation was carried out jointly between the Bahamas Maritime Authority (BMA) and Government of Jersey. It was conducted in accordance with the International Maritime Organization's Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code). Jersey agreed that The Bahamas would act as the lead investigating state.

Under Shipping (Jersey) Law 2002 the Minister is prevented from authorising publication of a report until a decision has been made not to prosecute any individual in connection with the incident concerned or any prosecution including any appeal has been completed.

In July 2024, Jersey's Law Officers' Department laid charges against crew of Commodore Goodwill with a trial held in Jersey's Royal Court in September 2025.

On 29 May 2026, the Minister was formally advised that the provisions of Article 166(6)(b) of the Shipping (Jersey) Law 2002 had been met and that this report could therefore be released for publication.

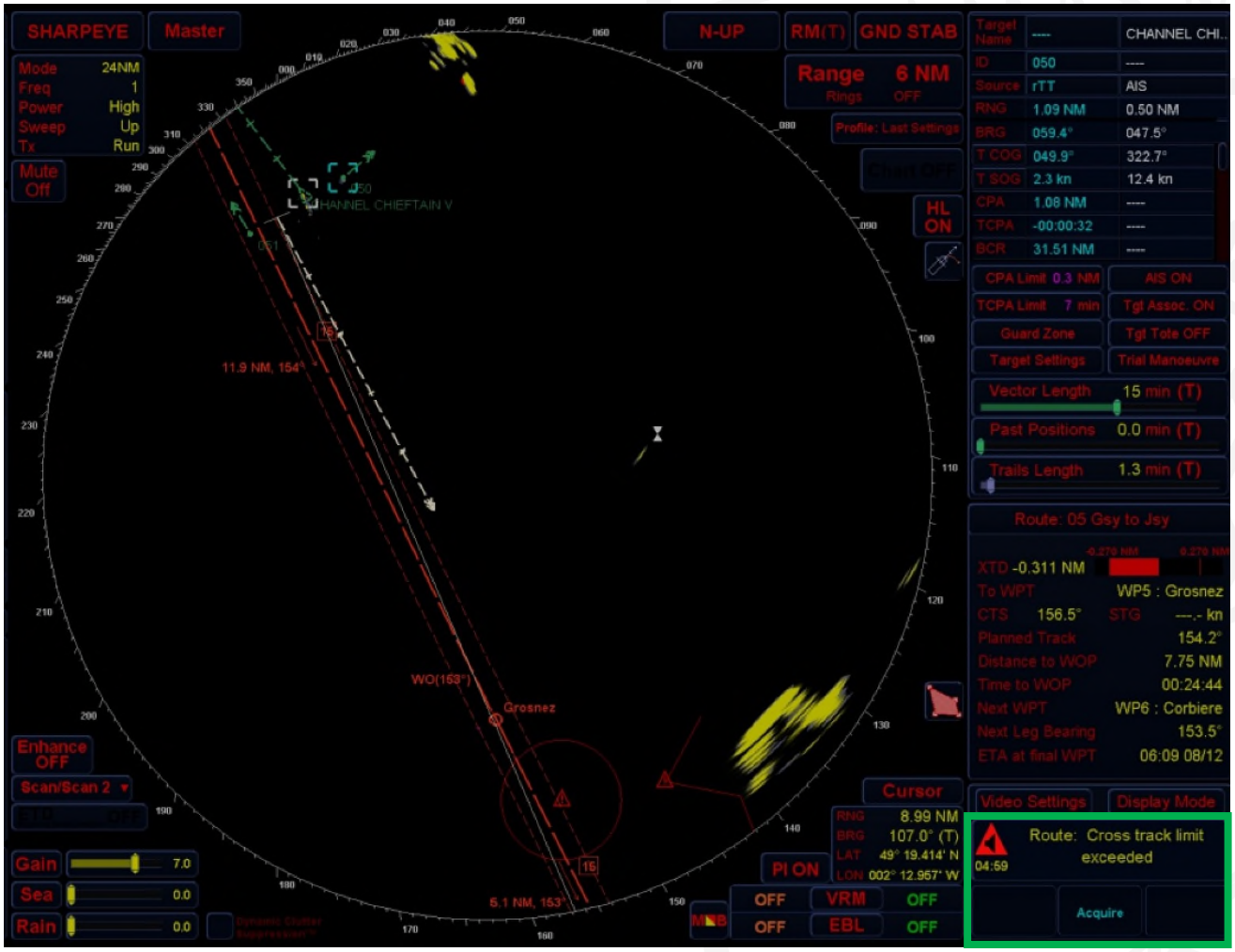
Narrative

In the early hours of 08 December 2022 the skipper and two crew of L'Ecume II boarded the vessel and prepared for departure. At 04:11 they called St Helier vessel traffic services (VTS) for permission to depart and shortly afterwards sailed from St Helier, Jersey, bound for fishing grounds to the west. During the passage, the skipper set about investigating a fault on the 12/24 Volt electrical system that was affecting the operation of the vessel's CCTV and bridge navigational watch alarm system, following up on advice received from his electrical contractor the previous day.

At the same time, Commodore Goodwill was on its regular run between Portsmouth (UK) and the Channel Islands (British Crown dependencies in the English Channel). Having sailed from Portsmouth at 19:00 the previous evening, at 04:12 it departed St Peter Port, Guernsey, and was on passage to St Helier with a cargo of roll-on, roll-off freight and three passengers.

For departure from Guernsey, the bridge team consisted of the master, chief officer and an able seafarer acting as helmsman/lookout. The duty second officer, who had started watch at 01:00, was in charge of the aft mooring station. At 04:52, having cleared the port limits, the duty second officer took the conn from the master and assumed the role of officer of the watch (OOW). Shortly before 05:00 the helmsman/lookout was relieved by the oncoming able seafarer who assumed the role of lookout. At this time, the vessel was on a heading of 157°T at full sea speed (19 knots) and at the limits of the prescribed cross-track error of 0.25 nautical miles.

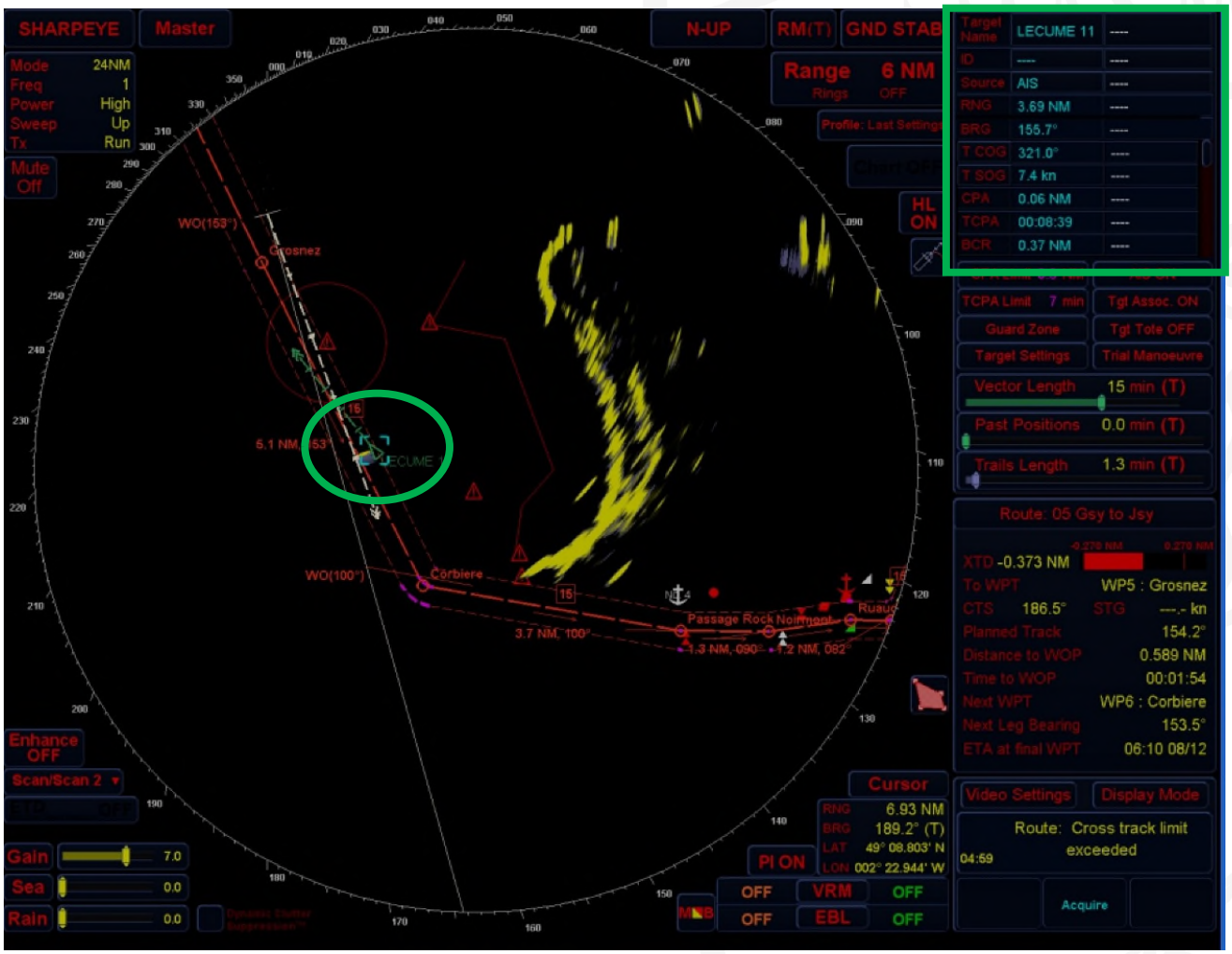
Twelve minutes later, having passed between two vessels heading in the opposite direction, the officer of the watch asked the lookout if he would like to go to breakfast. The lookout then went down, leaving the OOW alone on the bridge taking but a handheld VHF radio.



Screenshot from Commodore Goodwill VDR: Radar at 05:03 passing between Channel Chieftain and fishing vessel (Cross track error alarm in green box)

At 05:08 L'Ecume II's skipper sent a text message to his shore-based electrical contractor, indicating that he had found abnormal voltage on the Bridge Navigational Watch Alarm System. Two minutes later L'Ecume II rounded La Corbière, the southwest extremity of Jersey, and settled on a new course of 320°T and a speed of 7.9 knots (both over the ground). In clear visibility, it was seen by Commodore Goodwill's OOW a few minutes later.

At 05:22, when the lookout returned to the bridge, the OOW pointed out the echo of L'Ecume II on the radar. Using binoculars, the lookout could see L'Ecume II's sidelights and deck lights. Three minutes later, the OOW selected L'Ecume II as an AIS target on the 'Sharpeye' radar. He then altered course 7° to starboard and called Jersey Coastguard on VHF radio to give one hour's notice for arrival. Whilst on the radio, the radar displayed a collision alarm.



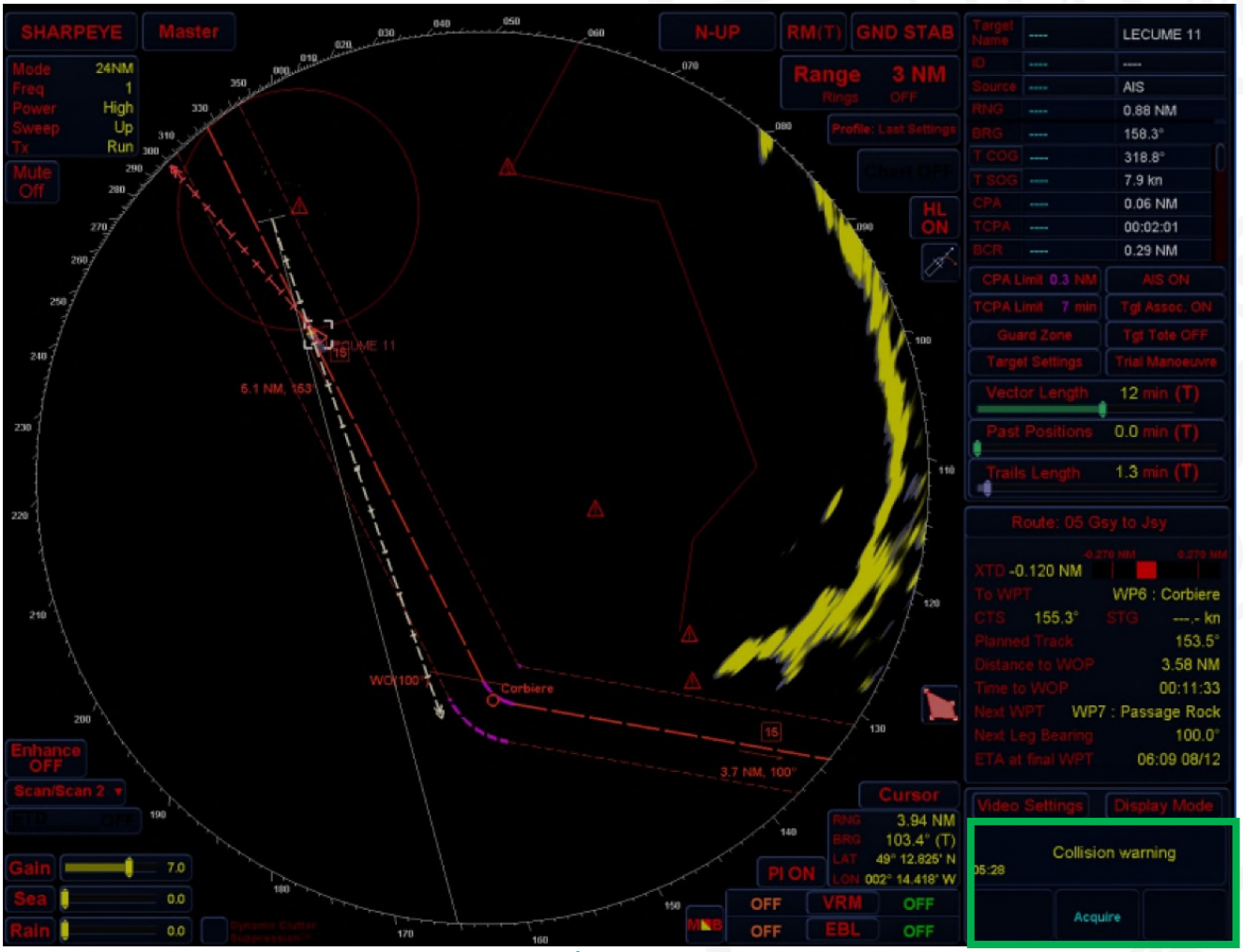
Screenshot from Commodore Goodwill VDR: Radar at 05:26 with L'Ecume II selected as an AIS target (radar return and AIS overlay in green ring, AIS data in green box)

At about the same time, the lookout selected L'Ecume II on the X-band radar. Noting its closest point of approach (CPA) was 0 nautical miles (NM), he tried to discuss this with the OOW but, as the OOW was now on a telephone call to the engine room, the lookout did not interrupt. The call completed, the OOW instructed the lookout to prepare the bridgewing manoeuvring controls for arrival. The OOW then telephoned the master to give 15 minutes notice to Corbiere Light, the point where the master would normally come to the bridge.

The lookout then went to the port bridge wing to prepare the manoeuvring controls for arrival, without passing his information to the OOW. Removing the control panel's large glass reinforced plastic covers required him to face aft. Involved in his new task, he ceased to visually observe L'Ecume II.

With the lookout on the bridge wing, the OOW made progress through the pre-arrival checklist but was also monitoring L'Ecume II visually. At 05:33:19, with a range of 0.88NM and the radar displaying a closest point of approach of 0.06NM he judged that they were passing too close and altered course further to starboard using the autopilot. L'Ecume II altered course approximately 10° to port, 36 seconds later[1] at 05:33:55.

[1] The alteration may have been made slightly earlier; this is when it became apparent on in the AIS data recorded at St Helier VTS



Screenshot from Commodore Goodwill VDR: Radar at 0533 - L'Ecume II at 0.88NM (collision warning in green box). Note: AIS vector is ground stabilised

Having been on the bridgewings for approximately three minutes, Commodore Goodwill's lookout returned to the bridge at 05:35:05. He exclaimed surprise at the fishing vessel's inaction whilst the OOW increased the alteration of course to starboard on the autopilot and then sounded a succession of short blasts on the ship's whistle. The two vessels collided at 05:35:18.
On Commodore Goodwill, the OOW and lookout went on to the port bridge wing to look for L'Ecume II but no lights were seen. Commodore Goodwill continued its alteration and at 05:36 had attained the course set on the autopilot – 255°T.

At about the same time, the OOW returned to the centre console, activated the man overboard marker on the GPS, called the master and reset the course on the autopilot to take the vessel to the La Corbière waypoint. There was no adjustment of the propulsion.

The master arrived on the bridge at 05:38, the OOW then called Jersey Coastguard to report the collision and the master initiated post-collision actions, with the vessel in hand steering back to the location of the collision. With no lights or radar return from L'Ecume II seen, he started the man overboard checklist to prepare to rescue L'Ecume II's crew from the water.

In the Maritime Operations Centre at St Helier, the Jersey Coastguard & VTS Watch Officer was not in front of their screen as the close-quarters situation developed outside the VTS area. They noticed the apparent proximity of L'Ecume II and Commodore Goodwill, on returning from a toilet break, and was

reviewing the apparent close-quarters situation in the vessel traffic management system when they received the call about the collision. They then alerted the Duty Acting Harbour Master & Search Mission Coordinator and was instructed to launch the Royal National Lifeboat Institution all-weather and inshore lifeboats from St Helier.

By 06:02, Commodore Goodwill had returned to the position of the collision and, at 06:16, launched the designated rescue boat[2] to investigate a light in the water. At 06:19 they were joined by an inshore lifeboat, followed by multiple search assets.

The wreck was located on the seabed by a fishing vessel later that morning and was positively identified later that day, using a remotely operated underwater vehicle. Its 44m depth precluded the deployment of divers in the absence of on-scene decompression facilities.

The search continued during daylight hours and resumed the following day. Over the course of 35 hours, search and rescue assets, including two fixed wing aircraft, two helicopters, three lifeboats and over a dozen volunteer vessels, searched for the crew but they were not found.

The bodies of L'Ecume II's three crew were later recovered from the wreck.

Previous similar and related casualties

Accolade II v Sandgroper (2020) Australia
A fishing vessel and bulk carrier collided off the entrance to Port Adelaide resulting in significant structural damage to the fishing vessel. A proper lookout was not being maintained on board either vessel in the time leading up to the collision. On the bulk carrier, effective use was not made of radar and a dedicated lookout was not posted in darkness.
www.atsb.gov.au/publications/investigation_reports/2020/mair/350-mo-2020-001

Polar Spirit v Zhe Xiang Yu 41020 (2018) Bahamas
An LNG tanker collided with a fishing vessel in an area of relatively high traffic density in the East China Sea. Prior to the collision, the tanker made a series of small alterations to starboard, to pass close astern of fishing vessel which then made a bold alteration of course to port when the vessels were less than half a mile apart. The fishing vessel sank moments after the collision and none of the eight crew survived.
www.bahamasmaritime.com/wp-content/uploads/2020/10/BMA-Investigation-Report-Collision-between-Polar-Spirit-and-Zhe-Xiang-Yu-41020.pdf

Condor Vitesse v Les Marquises collision (2011) Bahamas
A high speed passenger ferry was on passage from France to Jersey when it collided with a fishing vessel, resulting in the loss of two crew from the fishing vessel. Whilst the speed of the ferry in reduced visibility was a significant factor, the investigation identified sub-optimal use of radar and distractions on the bridge as contributory factors.
www.bahamasmaritime.com/wp-content/uploads/2020/10/Investigation-Report-Collision-between-the-Condor-Vitesse-and-Les-Marquises.pdf

L'Ecume II stranding (2020) Jersey
Whilst on passage with two crew members onboard, L'Ecume II grounded after the deck hand on watch fell asleep. The vessel was subsequently refloated with minor damage. The owner took steps to avoid recurrence including fitting a Bridge Navigation Watch Alert System.

[2] starboard lifeboat

https://cdn.ports.je/web/LEcume-II-Report-on-stranding-in-St-Aubins-Bay-and-subsequent-refloating-May-2020.pdf

Legislation and guidance

International Regulations for Preventing Collisions at Sea

The International Regulations for Preventing Collisions at Sea, 1972, as amended (Collision Regulations hereafter) provide internationally agreed standards and rules to prevent collisions between vessels. The Collision Regulations generally apply to all vessels at sea and include requirements for keeping a look-out, assessing risk of collision with other vessels as well as the responsibilities between vessels and actions to be taken to prevent collisions.

The Collision Regulations also describe the requirements for vessels to exhibit specific lights (navigation lights) and manoeuvring and warning signals.

Standards of Training, Certification and Watchkeeping for Seafarers

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended (the STCW Code) applied onboard Commodore Goodwill.

Section A-VIII/1 (Fitness for duty) includes:
All persons who are assigned duty as officer in charge of a watch or as a rating forming part of a watch and those whose duties involve designated safety, prevention of pollution and security duties shall be provided with a rest period of not less than:

- a minimum of 10 hours of rest in any 24-hour period; and
- 77 hours in any 7-day period.

The hours of rest may be divided into no more than two periods, one of which shall be at least 6 hours in length, and the intervals between consecutive periods of rest shall not exceed 14 hours.

Section A-VIII / Part 4 includes:
A proper look-out shall be maintained at all times in compliance with Rule 5 of the International Regulations for Preventing Collisions at Sea, 1972 and shall serve the purpose of: maintaining a continuous state of vigilance by sight and hearing as well as by all other available means, with regard to any significant change in the operating environment.

Along with: The lookout must be able to give full attention to the keeping of a proper look out and no other duties shall be undertaken or assigned which could interfere with that task.

And: The officer in charge of the navigational watch may be the sole look-out in daylight provided that on each such occasion:

- the situation has been carefully assessed and it has been established without doubt that it is safe to do so;
- full account has been taken of all relevant factors including, but not limited to: state of weather, visibility, traffic density, proximity of dangers to navigation, and the attention necessary when navigating in or near traffic separation schemes; and
- assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

L'Ecume II's manning requirements were covered by the provisions of the Shipping (Fishing Vessels Safety Codes of Practice) (Jersey) Regulations 2015[3]. The manning of L'Ecume II was compliant with the above requirements.

The United Kingdom's Maritime and Coastguard Agency issued **Marine Guidance Note 313 (F) Keeping a safe navigational watch on fishing vessels** in 2006 which includes the summary: Investigations into collisions, groundings and near misses involving fishing vessels had continued to show that poor watchkeeping was a major cause. Guidance in the Notice includes: watches must be kept by competent people; a proper lookout should be kept at all times; and activities of all other vessels in the area should be monitored.

Ports of Jersey (on behalf of the Jersey Maritime Administration) issued **Safety Bulletin 01 of 2020** '**Keeping a Safe Navigational Watch – potential issues for all seafarers**' addressing similar issues.

The International Maritime Organization **Guidelines on Fatigue** (Circular MSC.1/Circ.1598) highlights fatigue as a hazard because it may affect a seafarer's ability to do their job effectively and safely. It goes on to state that "Effectively dealing with fatigue in the maritime environment requires a comprehensive and holistic approach that recognizes ship design, and the roles and responsibilities of all stakeholders in the mitigation and management of fatigue. An effective fatigue management strategy begins with determining operational workload requirements and matching onboard manning levels and onshore support resources, combined with efficient management of workload and hours of work and rest on board the ship. There is no one-system approach to addressing fatigue, but there are certain principles that should be addressed in order to gain the knowledge and the understanding to manage this human element issue."

The International Maritime Organization's Principles of Minimum Safe Manning (Resolution A.1047(27)) provides for an assessment of the tasks, duties and responsibilities of the ship's complement to ensure that manning levels are adequate at all times to meet all conditions and requirements including meeting peak workload situations and emergency conditions.

[3] See: www.jerseylaw.je/laws/current/Pages/19.885.38.aspx

3. Analysis

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

Application of the Collision Regulations

Both vessels were required to comply with The International Regulations for Preventing Collisions at Sea, 1972, as amended (Collision Regulations). Rules including maintaining a lookout, proceeding at a safe speed, assessing risk of collision and action to avoid collision apply to all vessels, in any condition of visibility.

Lookout and risk of collision

The keeping of a proper lookout enables the risk of collision to be assessed in sufficient time for early and appropriate action to be taken. The requirements for keeping a lookout and assessment of the risk of collision are described in the Collision Regulations:

Rule 5 (Lookout)
Every vessel shall at all times maintain a proper lookout by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

Rule 7 (Risk of collision)
(a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.
(b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.
(c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.
(continues...)

Rule 5 requires that a lookout be kept not only by sight and hearing, but by all available means. This would include radar, AIS (which were carried by both vessels) and information from other sources (such as radio communications between either vessel and St Helier VTS).

The term 'prevailing circumstances and conditions' is not explicitly defined but other Rules within Collision Regulations provide context. Rule 6 (Safe speed) lists factors that are also relevant to the keeping of a lookout, such as the state of visibility, traffic density (including concentrations of fishing or any other vessels) and the impact of navigating at night. For vessels with operational radar, it requires the characteristics, efficiency and limitations of radar (including its range and any interference) and the constraints imposed by the radar range scale in use to be taken into account.

The factors required for keeping a lookout are intrinsically connected with the need to assess risk of collision. For example, the use of radar significantly enhances a watchkeeper's ability to make a fuller appraisal of the situation, particularly during darkness or when visibility is restricted. Rule 7 makes specific mention of the proper use of radar equipment to obtain early warning of the risk of collision. It also highlights the risks of making assumptions based on scanty information.

Onboard Commodore Goodwill, the OOW was aware of the presence of L'Ecume II at an early stage but his understanding of the situation was limited. The OOW's radar set-up was not optimised for collision avoidance in terms of range and stabilisation and tools such as the automatic radar plotting aid or electronic bearing line were not utilised. His decision to monitor the situation "by eye" deprived him of a more accurate appraisal that might have been possible using other means that were available.

Commodore Goodwill's designated lookout was not on the bridge when L'Ecume II was first detected but used the radar, AIS and binoculars to make an appraisal of the situation on his return. However, as the close-quarters situation developed, both he and the OOW were distracted from the task of maintaining an effective lookout by the completion of the pre-arrival checklist.

At the time of the collision, L'Ecume II's skipper was in the generator room, likely preparing to start fishing or investigating the electrical fault he had been in contact with his electrician about that morning. It is not known at what stage he left the bridge. L'Ecume II's deck ratings both held navigation watch certificates but the syllabus for this qualification is limited to keeping a lookout by sight and hearing. The deck ratings may have been familiarised with L'Ecume II's radar and other equipment that would help their understanding of the developing situation but no records are available.

Action to avoid collision and the steering and sailing Rules

Onboard Commodore Goodwill, the OOW was aware that risk of collision existed. Selection of L'Ecume II as an AIS target on the radar provided information that the vessels' closest point of approach was less than 0.1NM and L'Ecume II would pass close ahead of Commodore Goodwill.

As risk of collision existed, at least one of the vessels was required to take action to avoid collision. Rule 8 sets out the parameters of such action.

Rule 8 (Action to avoid collision)
(a) Any action taken to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.
(b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.
(c) If there is sufficient sea-room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.
(d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.
(continues...)

Neither vessel was navigationally constrained – there was sufficient water depth available for either to make a substantial alteration of course.

On Commodore Goodwill, the officer of the watch's mental model was that L'Ecume II was a vessel engaged in fishing and that he should keep out of its way[4]. He expected L'Ecume II to maintain course and speed and considered the 7 degree alteration of course to starboard (11 minutes before the collision) to be both in line with the requirements of Collision Regulations and to be sufficient to pass clear. He made no assessment on how effective the action would be in advance and did not check how it affected the closest point of approach. Similarly, no assessment was made of the effectiveness of the additional small alteration of course to starboard made 1 minute, 59 seconds before the collision.

Regardless of their potential effectiveness, the OOW's alterations of course would not a have been readily apparent to L'Ecume II if the situation was being monitored. The effectiveness of the final alteration of course (100° to starboard) was then limited by it being executed using the autopilot which had 5° rudder limit setting[5]. In any event, it was made too late to avoid the collision.

L'Ecume II was not engaged in fishing[6] and was on passage as the close-quarters situation developed. L'Ecume II was therefore a power-driven vessel for the purposes of collision avoidance. As such, the developing situation was either a head-on or crossing situation.

Rule 14 (Head-on situation)
(a) When two power-driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other.
(b) Such a situation shall be deemed to exist when a vessel sees the other ahead or nearly ahead and by night she would see the mast head lights of the other in a line or nearly in a line and or both sidelights and by day she observes the corresponding aspect of the other vessel.
(c) When a vessel is in any doubt as to whether such a situation exists she shall assume that it does exist and act accordingly.

Rule 15 (Crossing situation)
When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

Regardless of which rule applied, L'Ecume II was required to take action to avoid collision.

L'Ecume II's small alteration of course to port before the collision was not anticipated by Commodore Goodwill and may not have been immediately apparent. The alteration was contrary to the requirements of the Rules and indicates that whoever was on the bridge was either unaware of the imminent risk of collision or of the appropriate action to take to avoid collision.

[4] as required by Rule 18
[5] To avoid unnecessarily tight turns and resultant excessive heel, autopilots are generally fitted with a maximum rudder angle control. Commodore Goodwill was equipped with high-lift rudders so generated a large rate of turn with relatively small rudder angles.
[6] L'Ecume II was proceeding at full sea speed. Wreck surveys confirmed that no fishing gear was deployed.

Lights and sound signals

The Collision Regulations also describe the requirements for vessels to exhibit specific lights (navigation lights) from sunset to sunrise. These lights are dependent on vessel length with additional lights required under certain circumstances and conditions.

Commodore Goodwill was displaying the required lights for a power driven vessel of its size, a white masthead light forward, a second masthead light abaft of, and higher than, the forward one, sidelights and a stern light.

L'Ecume II was not engaged in fishing at the time of the collision and therefore, as a power driven vessel, was required to display a single masthead light, sidelights and a sternlight. It is common for fishing vessels to display the distinctive navigation lights that would identify them as a "vessel engaged in fishing" at all times. This was not the recollection of the witnesses and these lights were not visible on the airport CCTV or footage that captured L'Ecume II's departure from Jersey.

The Collision Regulations prescribe sound signals for manoeuvring and warning. Use of the correct sound signal clarifies what actions are being taken or that the vessel does not understand the intention of another.

Rule 34 (Manoeuvring and warning signals)
(a) When vessels are in sight of one another, a power-driven vessel underway, when manoeuvring as authorized or required by these Rules, shall indicate that manoeuvre by the following signals on her whistle:
- one short blast to mean "I am altering my course to starboard";
- two short blasts to mean "I am altering my course to port";
- three short blasts to mean "I am operating astern propulsion".

(d) When vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other, or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle. Such signal may be supplemented by a light signal of at least five short and rapid flashes.

Neither vessel made the required sound signals when altering course and apparently lacked awareness of what the other was doing. Commodore Goodwill's attempt[7] to sound the signal prescribed in 34(d) was made eight seconds before impact.

Bridge manning

Onboard Commodore Goodwill, a lookout was required to be on the bridge to assist the OOW in hours of darkness but the operation of the ship required the lookout to leave the bridge in hours of darkness. The Master's Standing Orders allowed for the lookout to leave the bridge to carry out safety/security patrols, investigate fire alarms and check door alarms but pre-arrival checks required the lookout to leave the bridge for short periods of time.

Commodore Goodwill's trading pattern involved three port calls in a day: Guernsey in the early hours of the morning, Jersey later that morning and Portsmouth in the afternoon/evening. Prior to arrival in each

[7] The OOW sounded eight short blasts

port, Commodore Goodwill's bridge team were required to complete a pre-arrival checklist to ensure that the vessel and crew were ready.

For arrival at Jersey, these checks started with the OOW calling Jersey Coastguard on VHF channel 82 to provide one hour's notice to arrival. The OOW then had to telephone the engine room to give 15 minutes' notice to prepare for manoeuvring, start additional steering motors, telephone the chief officer and master, set the VHF radios for local communications and fill in the logbook.

For the lookout, this meant removing the covers from the manoeuvring consoles on the bridge wings, raising the appropriate flags and waking up the crew. For arrival in Guernsey the lookout was also tasked with waking up passengers that were disembarking. All of these tasks required the lookout to leave the bridge.

Having arrived on the bridge at 04:52, the lookout was sent down for breakfast at 05:04[8], returning 18 minutes later. Sending the lookout down for breakfast was a workaround to enable him to be available to assist on the car deck during discharge and loading in Jersey. As he did when leaving the bridge to complete other pre-arrival tasks, the lookout took a handheld radio so he remained contactable from the bridge and could return quickly if required to.

The lookout being absent from the bridge to enable the smooth running of the ship was normalised. This has been a recurrent factor in investigations into collisions and groundings in The Bahamas fleet and worldwide.

When the lookout returned to the bridge he and the OOW discussed the presence of L'Ecume II. The lookout was not sufficiently integrated into the bridge team to engage with the OOW whilst he was on the phone, even in a developing close-quarters situation. Neither did he feel empowered to depart from the OOW's direction to complete non-pressing pre-arrival tasks as the distance closed between the vessels. The lookout's allocation to this task also meant he was not in a position to take the vessel into hand steering when the OOW realised that they needed to make a bold alteration of course.

The collision occurred 25 minutes after the skipper of L'Ecume II sent a text message to his electrician indicating he had discovered an abnormal voltage on the 12/24 volt system. Based on the wreck recovery operation, the skipper was almost certainly in the generator room at the time of the collision. Given the L'Ecume II's previous stranding incident, the skipper likely considered rectification of the issue with the Bridge Navigational Watch Alarm System to be important for the upcoming voyage, even though it was not navigationally essential at the time.

On L'Ecume II, the skipper was the sole certificated watchkeeper. The Jersey Administration did not require all fishing vessel watchkeepers to be qualified but they did require watchkeepers to be experienced, capable and instructed in their duties. Both deckhands held navigational watch ratings certificates and were regularly used to keep watch when the skipper needed to rest.

The design and function of L'Ecume II's autopilot indicates that at least one of the deckhands was on the bridge to conduct the alteration of course shortly before the collision, indicating that the skipper had sufficient confidence that he could leave the bridge in their hands. The turn to port indicates that the watchkeeper did not have the ability to make a full appraisal of the situation and of the risk of collision.

[8] Sunrise was at 07:49

On both Commodore Goodwill and L'Ecume II seemingly important operational needs distracted available personnel from the critical task of collision avoidance.

Acceptable passing distance – mental models

On Commodore Goodwill, the Master's Standing Orders required that the OOWs closely observe and plot other traffic and maintain a minimum closest point of approach of 1 nautical mile (NM) with the "correct" CPA/TCPA entered into the "RADAR and ECDIS alert settings".

At the time of the collision the radar on the port side of the bridge ('Sharpeye') had collision alarm settings of 0.3NM at 7 minutes, the starboard radar (X-Band) had collision alarm settings of 1NM at 12 minutes. These settings were not altered during the period captured by the Voyage Data Recorder.

Interviews with the master indicated that he would expect a call from the OOW if a 1NM CPA could not be achieved but he rarely got a call for close-quarters situations. Interviews with the OOW identified that the minimum CPA depended on the other vessel involved and the situation, including if he knew what to do and was confident that he had the situation under control. He generally saw the limit for smaller vessels as 0.5NM and felt comfortable with the developing situation with L'Ecume II, assuming they would pass at a distance of 0.2NM.

When the OOW took over the watch from the master at 04:52, the radar was displaying a collision warning: the ship was on course to pass between two vessels proceeding in the opposite direction. Commodore Goodwill passed between them both at approximately 0.5NM from each.

Between the collision warnings and exceedance of the set 0.25NM cross-track limit for the passage, at least one radar was in a state of alarm for the whole time the OOW was on the bridge prior to the collision. The audible alarm was muted, which significantly reduced the alarm's effectiveness to draw the OOW's attention to the situation.

The decision by the vessel's bridge teams to not have audible alarms may have been informed by settings on the radar not reflecting how the vessel was navigated in practice. This meant the effectiveness of the alarms were reduced when there was a real departure from operational norms or when a significant risk was developing.

Fitness for duty

Alcohol breathalyser tests were conducted onboard Commodore Goodwill immediately post-casualty. Further alcohol breathalyser tests were conducted by Jersey Police on the vessel's arrival in St Helier. The results of all tests indicated zero alcohol present in any of the bridge team. Post-mortem analysis of the crew of L'Ecume II indicated zero alcohol.

Onboard Commodore Goodwill, the two second officers worked on a two-weeks-on, two-weeks-off contract. They equally split all watchkeeping duties at sea and in port, also being in charge of the aft mooring station for arrival and departure. The master, a pilotage exemption certificate holder for the regularly scheduled ports, and the chief officer were both on the bridge for manoeuvring and pilotage. The chief officer was responsible for overseeing all cargo operations.

In the two weeks immediately preceding the casualty, the second officers' watchkeeping rota had been adjusted from their standard four hours on / four hours off / eight hours on / eight hours off pattern in an

attempt to provide them with more rest[9]. They had adapted an eight hours on / eight hours off system (known onboard as 'rolling eights') with watch handovers at 01:00, 09:00 & 17:00.

The 'rolling eights' arrangement did not meet the prescribed minimum requirements for rest in any 24-hour period. The Bahamas Administration indicated that watchkeeping arrangements that do not meet this requirement may be accepted as an exception[10] if incorporated in the crew's collective bargaining agreement where compensatory rest is included.

Review of The Bahamas Administration's exemptions identified that permission had been granted for one operator to use a 'rolling eights' watch system but neither the operator nor The Bahamas Administration had made an assessment or follow-up study into the impact of the system on watchkeepers' performance or quality of rest.

Notwithstanding the above, both second officers reported that the 'rolling eights' system left them feeling more rested than the previous watchkeeping arrangements where they might get as little as six hours of sleep in a 24-hour period.

In 2016, researchers from Solent University and the University of Stockholm completed *an Investigation of the 8-hours on/8-hours off Seafarer Watch Keeping System*[11] . The study looked at a rolling eights system with watch handovers at 04:00, 12:00 & 20:00. The study concluded that this rolling eights regime resulted in lower watchkeeper fatigue than those on a 6 on/6 off system, except during the circadian low period (02:00-04:00). The study was clear that further testing would be required on a case by case basis.

To understand the impacts of the watchkeeping system further, the investigation requested that Baines Simmons' Fatigue Risk Management experts undertake a fatigue assessment of the patterns worked by the second officers on the Commodore Goodwill.

Fatigue assessment

The assessment considered the working pattern of the second officers on both the "rolling 8's" and the "alternative" working pattern adopted by the Company (four hours on / four hours off / eight hours on / eight hours off and the reverse).

The actual sleep data for the second officers was not available, so the assessment considered whether the average individual working the second officer's planned hours would be likely to experience elevated fatigue, and specifically if fatigue was likely to have been elevated at the time of the collision.

The bio-mathematical fatigue model SAFTE-FAST was used for the analysis because:

- The model provides the ability to generate a predicted fatigue level for every minute of a 24 hour period, allowing a greater granularity of analysis. This means that the changing level of fatigue across 24 hours can be seen, alongside predicted circadian and sleep parameters at the time of the collision
- The model provides both a mean predicted fatigue level and upper and lower estimates for this level, based on a statistical measure of variability in data (one standard deviation above and below the mean, which covers 68% of a normally distributed population)
- The model provides predictions for sleep that is based on what is scientifically credible for the average individual sleeping around a working pattern

[9] This change was made without consultation with Owners or their representatives

[10] As per paragraph 5 of BMA Marine Notice 35

[11] See https://assets.publishing.service.gov.uk/media/5a82bb79e5274a2e87dc2b3e/Fatigue_Research_8on_8off.pdf

It is important to note that this cannot be applied to a specific individual, as there will be variation between individuals and a population average.

To determine whether the period of leave allowed sufficient time to recover from any fatigue accumulated during the previous trip, for each watchkeeping pattern, a six week period was modelled. This captured two weeks onboard, two weeks of leave and then two weeks onboard. Modelling was aligned with leave, watchkeeping patterns and times of sunset and sunrise in the lead up to the collision.

The model presents fatigue in terms of 'predicted performance effectiveness', a value on a 0-100% scale, where higher scores reflect lower fatigue. SAFTE-FAST graphs are separated into four colour-coded zones, which represent different predicted fatigue levels:

Zone	SAFTE-FAST score	Equivalent to:
Green	90-100%	Predicted performance during a 16-hour day following 8 hours of excellent sleep. A fully rested person working during the day would remain in this effectiveness zone. It is important to note that time in the 'green zone' is not necessarily fatigue free: the output is merely an estimate based on average data, albeit one that is well supported by research findings. SAFTE-FAST scores in the this range are equivalent to KSS scores of KSS1 to KSS 4.5
Yellow	77 - <90%	Predicted performance during a window following 16 to 19 hours of wakefulness. SAFTE-FAST scores in this range are equivalent to KSS scores of KSS 4.5-KSS 6.9
Orange	65 - < 77%	Predicted performance during a window of between 19 and 40 hours of continual wakefulness (for example, remaining awake for 24 hours following a 16h day). A score of 77% is associated with reaction times ~30% slower than well rested and a likely increase in lapses of 2.7 times, and has been shown (in the laboratory setting) to be equivalent to the reaction time performance of an individual with a blood alcohol concentration (BAC) of 0.05%. A score of 70% is associated with the reaction time of an individual with a BAC of 0.08%. SAFTE-FAST scores in this range are equivalent to KSS scores of KSS 7.0-KSS 8.0
Red	<65%	Predicted performance following 2 days and 1 night of sleep deprivation (40 hours of wakefulness). Scores in this level are associated with >50% slower reaction times and are normally considered unacceptable for safety-critical operations. SAFTE-FAST scores in this range are equivalent to KSS scores of KSS 8 to KSS 9

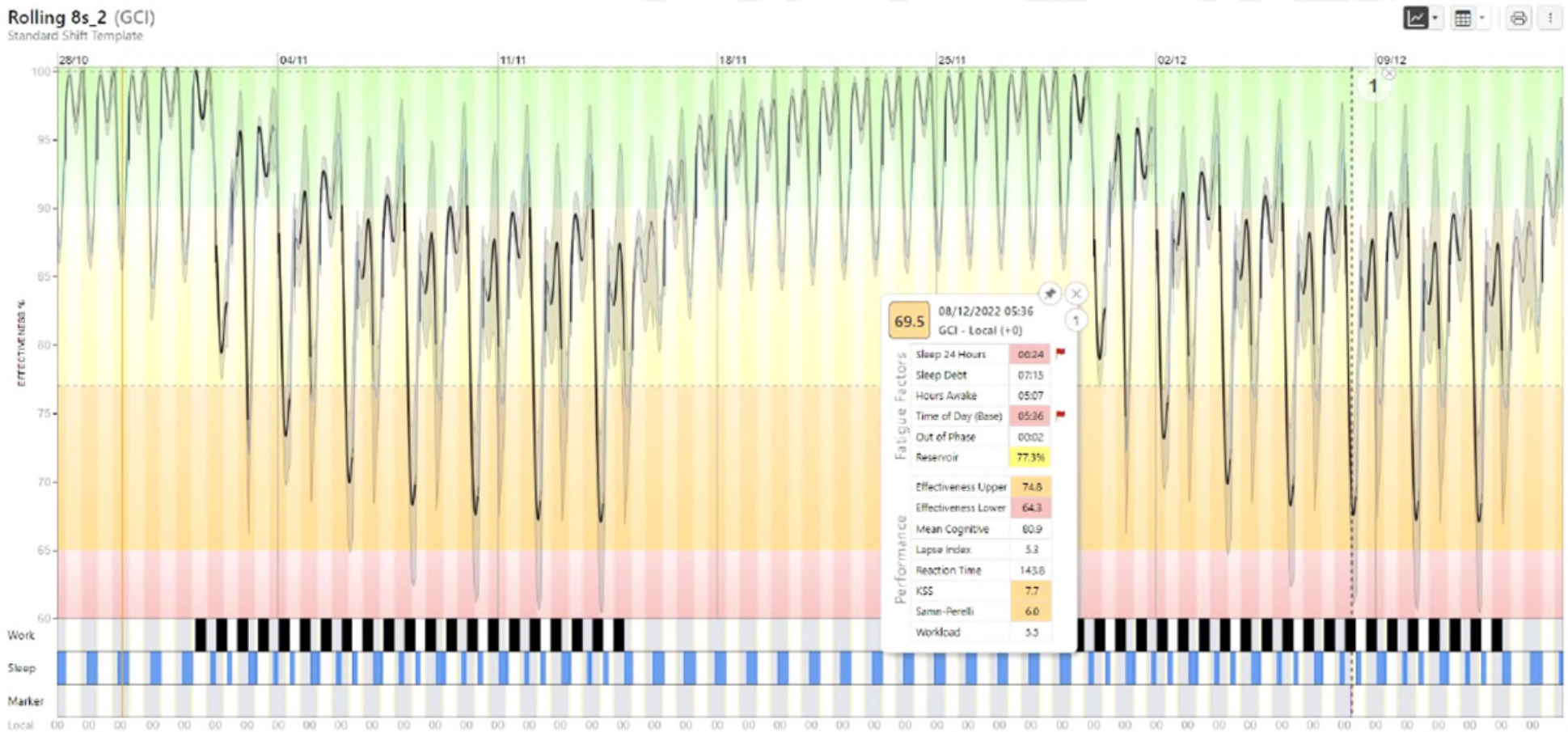
Interpreting the SAFTE-FAST colour-coded zones

A fatigue 'threshold' is set at a predicted performance effectiveness of 77% (between the yellow and orange 'bands'). This threshold is for analysis purposes, and it cannot be said that scores above this level are definitely 'fatigue free'. Rather, the lower the predicted performance effectiveness, the higher the likelihood of an average individual experiencing elevated fatigue levels.

The analysis does not include actual sleep data, so three variations were modelled. The same assumptions have been provided for both work patterns.

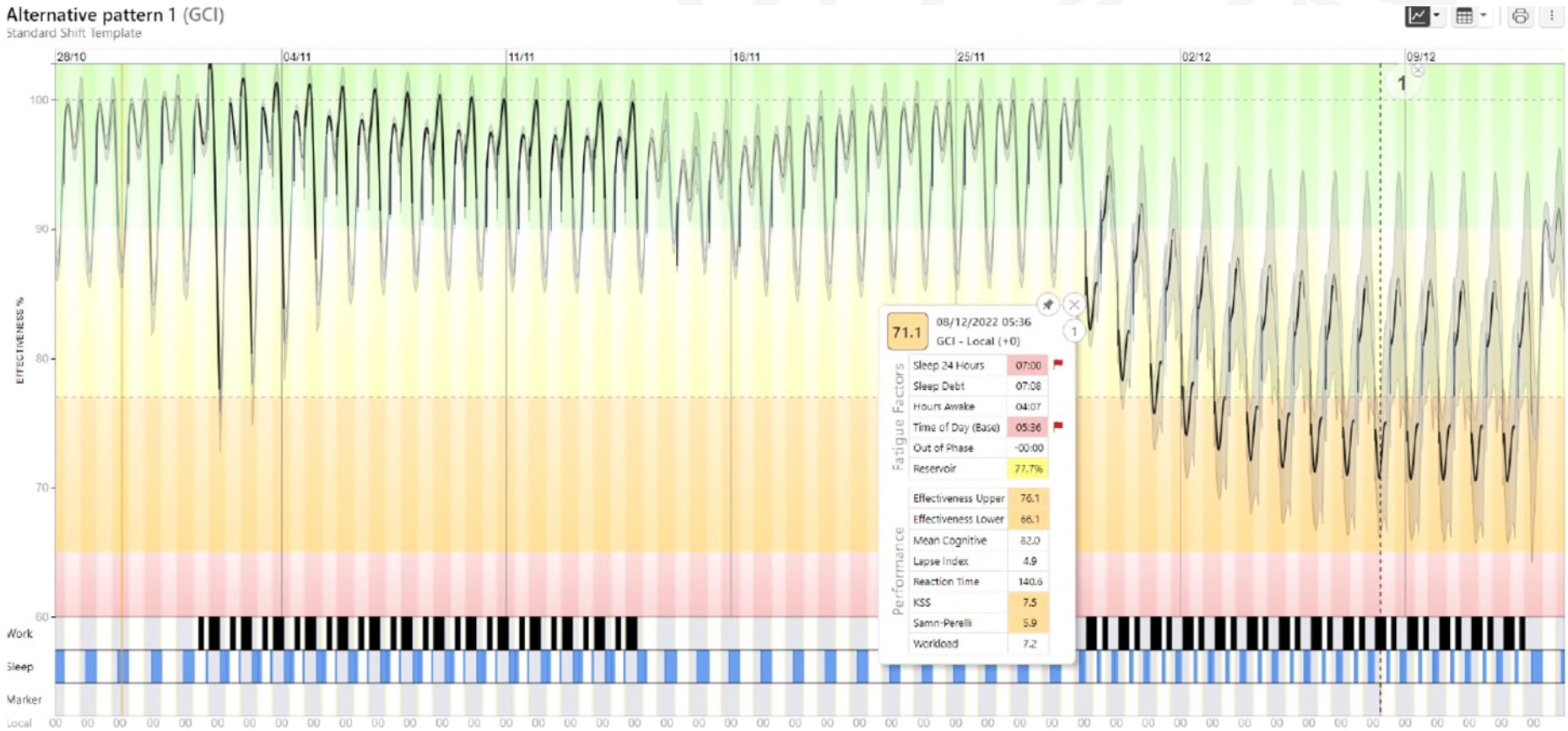
- Variation 1: 'average sleep'. Allows 30min pre- and post-work for waking/eating and wind-down/preparing for sleep, if the work period overlaps a time when sleep would be reasonably predicted. Napping to catch up on lost sleep is permitted within the pattern, if time allows
- Variation 2: 'shorter sleep'. Allows 45min pre- and post-work for waking/eating and wind-down/preparing for sleep, if the work period overlaps a time when sleep would be reasonably predicted. Napping to catch up on lost sleep is not permitted
- Variation 3: 'longer sleep'. Allows 15min pre- and post-work for waking/eating and wind-down/preparing for sleep, if the work period overlaps a time when sleep would be reasonably predicted. Napping to catch up on lost sleep is permitted

Modelling for 'average sleep' on both watchkeeping patterns is shown below:



SAFTE-FAST analysis of a 6-week period of the "rolling eights" watchkeeping pattern.
Point in the cycle that collision occurred indicated with the dashed line and associated dashboard

The 'dashboard' shows the factors predicted by SAFTE-FAST to have contributed to elevated fatigue levels (those shaded red), and performance measures which are discussed below. Within the SAFTE-FAST graph, thick black lines, and the black blocks at the bottom of the graph show work periods, blue lines and blocks show sleep periods, and thin black lines show time spent awake but not working. The grey 'shading' shows the range covered by 1 standard deviation either side of the mean.



SAFTE-FAST analysis of a 6-week period of the "alternative" pattern covering the same period.
Point in the cycle that collision would have occurred indicated with the dashed line and associated dashboard

Based on the SAFTE-FAST modelling, Baines Simmons' Fatigue Risk Management experts made the following observations on how the watchkeeping pattern might have affected the average individual.

For the "Rolling eights" pattern, the model predicted elevated fatigue for the average individual at the time of the collision. This was due to a short sleep in the prior 24 hours and the time of day.

This predicted average fatigue level is equivalent to:

- A KSS score of 7.7 (where microsleeps[12] are likely)
- A reaction time for the average individual 43.8% longer than when well-rested
- An average individual being 5.3 times more likely to have a lapse in attention

Despite the constant cycling of this pattern, the model does not predict that the average individual would experience excessive circadian rhythm disturbance by the 10th day of the pattern. The model predicts that disruption occurs early in the pattern, and when returning from leave, but that it resolves while working, due to circadian adjustment.

For the "alternative" pattern, the model predicted a slightly lower level of fatigue for the average individual at the time of the collision (a score of 71.1% predicted performance effectiveness vs a score of 69.5% predicted performance effectiveness in the rolling-8s pattern). The predicted causes of fatigue in this pattern are the same as for the rolling-8s.

This predicted average fatigue level is equivalent to:

- A KSS score of 7.5 (where microsleeps are likely)
- A reaction time for the average individual 40.6% longer than when well-rested
- An average individual being 4.9 times more likely to have a lapse in attention than when well rested

Baines Simmons' Fatigue Risk Management experts were requested to provide comment on the overall working patterns, from a sleep and fatigue perspective:

> Both patterns are predicted to be associated with elevated fatigue risk for the average individual working them.
>
> In the alternative pattern, this elevated fatigue risk is entirely dependent on which part of the pattern is currently being worked, as the work and rest timings swapped for each two weeks at work. In the rolling-8s pattern, the fatigue exposure relating to work timing is the same for each trip, as all work timings are worked per trip.
>
> In both cases, one of the biggest challenges is the number of days worked consecutively, with multiple work periods per day, and a very limited opportunity to stop sleep loss accumulating due to the rest periods being 8h or 4h long. This means that, in both patterns, fatigue levels are predicted to be elevated at the end of 8h work periods, particularly where they have been worked through the deep night period.

The assessment identified that the average individual, working the watchkeeping pattern of the OOW, would be expected to experience elevated fatigue when working these patterns. It also identified that at

[12] The human brain can respond to sleep deprivation by reducing alertness and generating microsleeps – involuntary episodes of sleep lasting a few seconds. During a microsleep, the subject may appear to be awake but the brain will not process information.

the point in the watchkeeping cycle that the collision occurred, the average individual on duty at the time would be expected to have been experiencing elevated fatigue, irrespective of the pattern worked.

Impact of fatigue on watchkeeping

The International Maritime Organization's Guidelines on Fatigue (Circular MSC.1/Circ.1598) highlights fatigue as a hazard because it may affect a seafarer's ability to do their job effectively and safely. As well as identifying the causes of fatigue and seafarer-specific factors, it outlines how impairment of performance due to fatigue might manifest in cognitive performance:

COGNITIVE	
PERFORMANCE IMPAIRMENT	SIGNS/SYMPTOMS
Inability to concentrate	• Unable to organize a series of activities • Preoccupied with a single task • Focuses on a trivial problem, neglecting more important ones • Reverts to old but ineffective habits • Less vigilant than usual • Decline in ability to solve complex problems • Lapses of attention • Difficulty in multitasking
Diminished decision-making ability	• Misjudges distance, speed, time, etc. • Fails to appreciate the gravity of the situation • Overlooks items that should be included • Chooses risky options • Greater indecisiveness
Poor memory	• Fails to remember the sequence of task or task elements • Difficulty remembering events or procedures • Forgets to complete a task or part of a task • Memory lapses
Slowing of cognitive processes	• Responds slowly (if at all) to normal, abnormal or emergency situations

Importantly, it establishes that people are poor judges of their own level of fatigue, performance and decision-making.

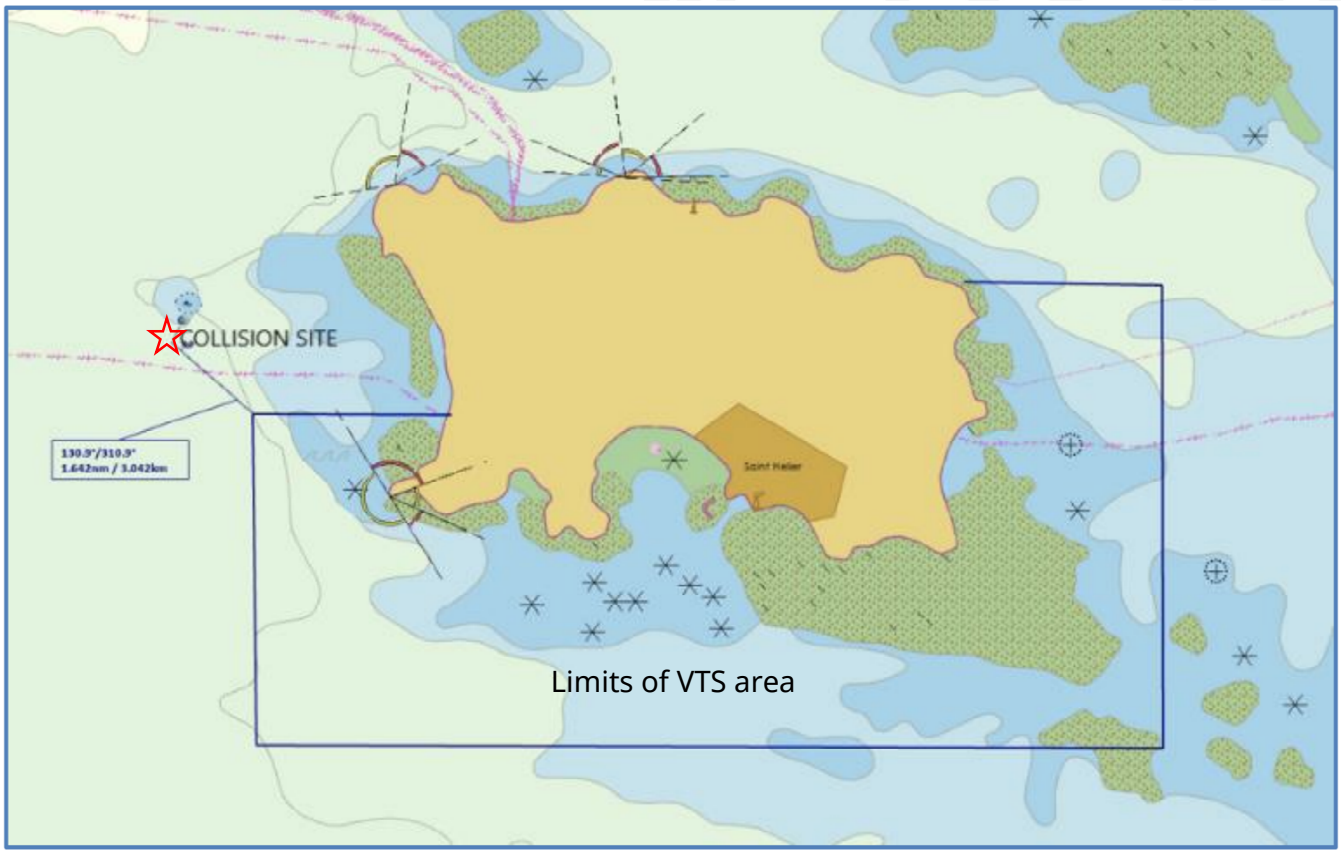
When considering the results of the fatigue study, the OOW's performance in the lead up to and after the collision correlates with these symptoms. His focus on completing the pre-arrival checklist, misjudgement of the effectiveness of the alteration of course and subsequent passing distance, along with the general failure to appreciate the seriousness of the developing close-quarters situation indicate that fatigue was a likely a significant contributing factor in the collision.

When considering the findings of the study of both the rolling eights and alternative watchkeeping pattern, reduced watchkeeper performance in the early morning was built into the system due to the manning levels which were approved by the Bahamas Administration.

Traffic monitoring

At the time of the collision, Jersey Maritime Operations Centre was staffed by a single watch officer. This was standard practice overnight (20:30-06:00). As such, the watch officer was required to provide St Helier's vessel traffic services function on VHF Channel 14, Jersey Coastguard's Maritime Rescue Co-ordination Centre function monitoring digital selective calling and VHF channels 16, 82 as well as providing Jersey Coastguard's maritime safety information function.

With L'Ecume II almost clear of the VTS area, and Commodore Goodwill having given notice but yet to enter, the watch officer took the opportunity to take a toilet break at 05:27. The watch officer was able to continue to monitor the VHF on loudspeaker, but not the screens. The watch officer returned to the monitoring station at 05:35, shortly after the collision.



Limits of VTS area, location of collision

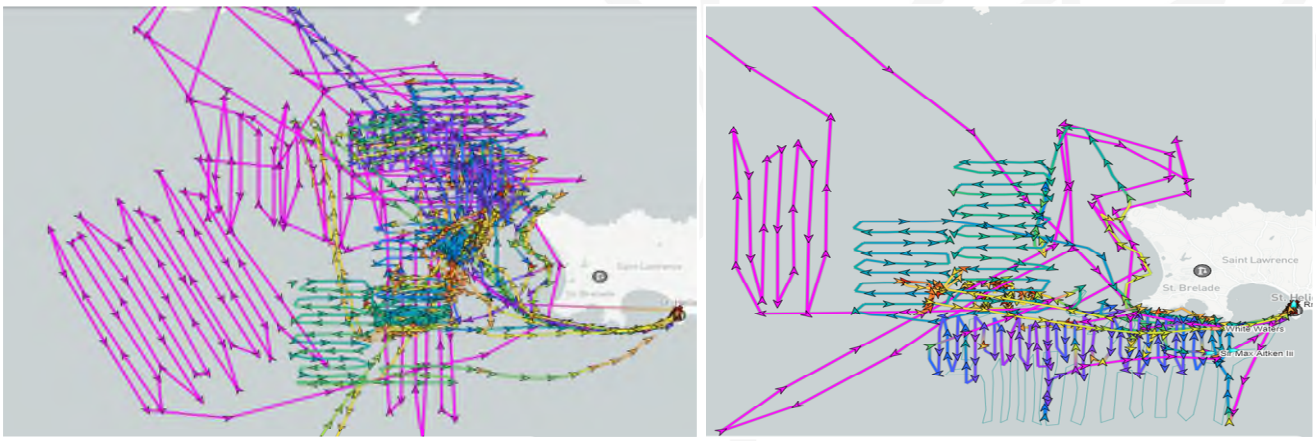
On their return to the monitoring station, approximately 90 seconds after the collision, L'Ecume II's AIS plot was still visible on the screen. Noting its proximity to Commodore Goodwill, the watch officer was reviewing what appeared to be a close-quarters situation in the vessel traffic management system when they received the call from Commodore Goodwill.

The call from Commodore Goodwill was on Jersey Coastguard's working channel (VHF 82)[13], rather than International Maritime Channel used for distress, urgency and safety working (VHF 16). The call did not follow the format to indicate either Distress or Urgency but clearly communicated that they had been in a collision with L'Ecume II and the latter vessel required assistance.

[13] The OOW used the same radio set that he had used to give one-hour's notice to Jersey Coastguard, the channel remained unchanged

On receipt of the call from Commodore Goodwill the watch officer immediately notified the Duty Acting Harbour Master & Search Mission Coordinator and was instructed to immediately task both of the RNLI assets located in St Helier - an All-Weather Lifeboat and an Inshore Lifeboat - to the scene. This call initiated a cascade that involved the Harbour Master and other key personnel being assembled at meeting rooms linked to the Maritime Operations Centre, and communications with the emergency services. These actions enabled wider support of the search and rescue (SAR) operation and the putting in place of other required non-SAR actions.

Over the course of 35 hours, search and rescue assets, including two fixed wing aircraft, two helicopters, three lifeboats and over a dozen volunteer vessels searched for the crew but they were not found.



Combined asset search tracks, 8 & 9 December 2022

The handling of the SAR operations into this accident was the subject of an independent review carried out by the United Kingdom's HM Coastguard at the request of Jersey Coastguard. The resulting report was shared with the combined marine accident investigation team. It is yet to be published by the Government of Jersey.

The conclusion of the independent review was that: The SAR response coordinated by Jersey Coastguard was appropriate and that no alternative actions would have changed the outcome of the incident. The stages of the SAR plan as outlined in the International Aviation and Maritime Search and Rescue Manual and the principles of cooperation outlined in the Ango- French-Channel Island MANCHEPLAN were followed appropriately. All available declared Search and Rescue Units were utilised and the Maritime Rescue Co-ordination Centre was staffed in line with normal practices. The co-location of the Tactical Coordination Group (involving the four emergency services together with the Harbour Authority and Government representatives) improved information sharing. The incident entered its conclusion phase some 35 hours after the initial collision. By this time the realistic survival time for the three missing crew members had long expired and the search area had been saturated by air and maritime assets.

The report included nineteen observations highlighting positive aspects of the incident which sit outside international guidance and had a positive impact to the overall incident coordination.

Twelve considerations for enhancements, none of which would have impacted the outcome of the incident, were also included to enable further development of Search and Rescue plans for similar incidents by Jersey Coastguard.

Collisions – disproportionate impact on fishing vessels

In the 10 years 01 Jan 2013 - 31 Dec 2022, The Bahamas merchant fleet suffered 155 collisions[14]. Of these collisions, 24 (15.5%) were with fishing vessels.

For collisions that did not involve a fishing vessel, 90% of collisions were low consequence with 8% classed as serious marine casualties and one case (2%) a very serious marine casualty (with a fish transportation vessel, no life was lost).

For collisions with fishing vessels, the outcome is very different: 67% were low consequence, 16.6% were classed as serious marine casualties and 16.6% were very serious marine casualties with a total of 28 lives lost, all on the fishing vessels involved.

[14] counting only those collisions where both vessels were underway

4. Conclusions

- L'Ecume II sank after colliding with Commodore Goodwill. None of L'Ecume II's three crew survived.

- L'Ecume II was not engaged in fishing and therefore both vessels were power-driven vessels for the purposes of collision avoidance. A close-quarters situation developed as Commodore Goodwill made two small alterations of course to starboard as the vessels approached each other. L'Ecume II made a small alteration of course to port less than two minutes before the collision. Neither vessel's actions would have been immediately apparent to the other and neither made the prescribed the sound signals.

- Onboard Commodore Goodwill, the officer of the watch's mental model was that L'Ecume II was a fishing vessel and that he should keep out of its way – he was comfortable passing L'Ecume II at a close distance and considered the small alterations to be sufficient to pass clear. Sub-optimal set-up and use of the radar meant his understanding of the developing close-quarters situation did not reflect the reality shown on instrumentation.

- Onboard Commodore Goodwill, the lookout was not effectively integrated into the bridge team – having been sent down to breakfast earlier and then tasked with completing pre-arrival checks as the close-quarters situation developed.

- Onboard L'Ecume II, the skipper was almost certainly in the generator room, likely investigating an electrical fault, leaving no certificated watchkeeper on the bridge.

- It is unknown what precipitated L'Ecume II's alteration of course to port before the collision but, in any event, it was action contrary to the requirements of the Collision Regulations and was neither anticipated nor readily apparent to Commodore Goodwill.

- Onboard both Commodore Goodwill and L'Ecume II, seemingly important operational needs distracted available personnel from the critical task of collision avoidance.

- Onboard Commodore Goodwill, it was likely the OOW's performance was reduced by the effects of fatigue – this may have influenced his ability to focus, his judgement of the effectiveness of the alteration of course and his estimation of passing distance along with the general failure to appreciate the seriousness of the developing close-quarters situation.

- L'Ecume II sank in 44m of water. The absence of on-scene decompression facilities precluded the early deployment of divers to the site to search for any survivors within the wreck.

- Over the course of 35 hours, search and rescue assets, including two fixed wing aircraft, two helicopters, three lifeboats and over a dozen volunteer vessels searched for the crew but they were not found.

5. Lessons to be learned

- Action to avoid collision needs to be early, substantial and in line with the requirements of The International Rules for the Prevention of Collisions at Sea. Monitoring the effectiveness of action taken is vital. Use of the appropriate sound signal helps clarify the action being taken to the other vessel. The need to maintain a lookout applies equally to all.

- Effective use of bridge resources is key. Active incorporation of available personnel, appropriate set-up of equipment and useful settings on alarms increase the bridge team's likelihood of identifying and reacting to critical situations whilst they can still be avoided. If alarms need to be muted as standard, they are not being used correctly.

- Fatigue impacts performance and decision making. People are poor judges of their own level of fatigue. SAFTE-FAST and other similar fatigue-modelling tools are available to enable identification of fatigue hazards in duty schedules and help inform the adequate allocation of resources. Compliance with minimum requirements for provision of rest should not be confused with best practice.

- Different members of the bridge team may have vastly different interpretations of acceptable passing distances. What is written down will have significantly less weight than behaviour that is modelled.

- Broadcasting a 'Mayday' (distress) or 'Pan-Pan' (urgency) message on the appropriate channel ensures that all near-by traffic is aware of a situation where they may provide assistance and can hasten the response.

- Fishing vessels and their crews carry a disproportionate risk when they are involved in collisions – further work needs to be done in the international community to reduce these risks.

6.Actions taken

As a result of the casualty, Ports of Jersey (as the operators of both Jersey Coastguard and St Helier VTS):

- Commissioned an independent peer review of the limits of St Helier VTS. That review concluded that the existing VTS limits remain appropriate, subject to continuous review of the Navigational Risk Assessment. The most recent independent external audit, undertaken in April 2025, confirmed that the navigational control measures in place (including VTS) remain appropriate to the assessed level of risk.
- HM Coastguard conducted a peer review of Jersey Coastguard's response to the incident. Twelve recommendations for enhancement were identified; all have been reviewed and the resulting actions have been implemented.

As a result of the casualty, Condor Marine Services Ltd.:

- Conducted a program of qualitative reviews of deck officer's application of Collision Regulations.
- Appointed a Marine Standards Officer to monitor and develop maritime standards within the fleet.
- Started a program of integration of lookouts into its Bridge Task Sharing simulation training program.
- Expanded its navigation audits to measure effectiveness of implementation.

7. Recommendations

Publication of this report was delayed by more than two years due to the provisions of Article 166(6)(b) of the Shipping (Jersey) Law 2002. Therefore, it is recommended that:

The States of Jersey:

- Amend its legislation to prioritise sharing of lessons that might be learned from marine casualties through the removal of restrictions on publication of marine safety investigations.

Commodore Goodwill was manned in accordance with its Safe Manning Document but the operation of the vessel and its levels of manning required a two-watch operation. Evaluation of the Company's prescribed pattern and the watchkeeping pattern in use indicated that both result in detrimental impact on watchkeeper performance due to fatigue. Therefore, it is recommended that:

The Bahamas Maritime Authority:

- Work with interested member states to make a proposal to the International Maritime Organization to amend Resolution A.1047(27) Principles of Minimum Safe Manning in line with the IMO's Guidelines on Fatigue MSC.1 Circ. 1598, module 2 paragraph 7 and Module 6 paragraph 2.4. To ensure that, when submission for a minimum safe manning document includes a deviation from a three-watch system, appropriate tools are used to analyse planned work routines to ascertain the risk of fatigue.

8.Glossary and Definitions

AB	Able seafarer
AIS	Automatic identification system
BMA	The Bahamas Maritime Authority
Collision Regulations	The International Convention on the International Regulations for Preventing Collisions at Sea 1972, as amended
CPA	Closest point of approach
Fatigue	A state of physical and/or mental impairment resulting from factors such as inadequate sleep, extended wakefulness, work/rest requirements out of sync with circadian rhythms and physical, mental or emotional exertion that can impair alertness and the ability to safely operate a ship or perform safety-related duties (from MSC.1 Circ 1598)
GPS	Global positioning system
KSS	Karolinska Sleepiness Scale. A validated scale that describes subjective sleepiness levels. At KSS scores of 7 and above, the likelihood of microsleeps increases significantly. They are particularly likely at scores of 8 or 9.
kW	Kilowatt
m	Metre. Unit of measurement: 1 metre = 1000mm
Microsleep	involuntary episodes of sleep lasting a few seconds. During a microsleep, the subject may appear to be awake but the brain will not process information.
NM	Nautical mile. Unit of measurement 1NM = 1852m
OOW	Officer of the watch
SAR	Search and rescue
STCW Code	The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended
TCPA	Time until closest point of approach
VTS	Vessel traffic services