MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

ACCIDENT REPORT

VERY SERIOUS MARINE CASUALTY | REPORT NO 1/2021 | JANUARY 2021

Collision between the motor yacht *Vision* and the anchored motor yacht *Minx*, resulting in one fatality at Île Sainte-Marguerite, near Cannes, France on 25 May 2019

SUMMARY

At 2052[1] on 25 May 2019, the Gibraltar registered motor yacht *Vision* collided with the UK registered motor yacht *Minx*, which was anchored at Île Sainte-Marguerite, near Cannes, France. *Minx*'s crewman was on the foredeck and fatally injured by the collision.

Vision and *Minx*'s guests had spent the afternoon and evening drinking and partying together. On departure from the anchorage, *Vision*'s skipper attempted a high-speed close pass of the anchored *Minx*. The aim of the close pass was, at the suggestion of *Vision*'s charterer, to provide an opportunity for the guests to wave goodbye to their friends on board *Minx*. However, during the manoeuvre *Vision*'s skipper lost control of the yacht and it collided with the anchored *Minx*.

The accident happened because *Vision*'s skipper underestimated the risks associated with the close pass manoeuvre, and prioritised his perception of the charterer's wishes over the safe navigation of the vessel. Blood sample tests conducted the day after the accident indicated that *Vision*'s skipper was under the influence of cannabis, which was likely to have impaired his judgement.

This report includes a recommendation to the Royal Yachting Association and the Professional Yachting Association to promulgate the safety lessons from this investigation to owners and operators of commercial motor yachts.

FACTUAL INFORMATION

Narrative

At 1200 on 25 May 2019, the beneficial owner, her husband (who was the charterer) and their seven guests consisting of family and friends, embarked on board *Vision* in Monaco. *Vision* then proceeded to Île Sainte-Marguerite near Cannes, France, anchoring there about an hour later. After anchoring, *Vision*'s guests were taken ashore to a restaurant for drinks and a meal. At about the same time, the motor yacht *Minx* departed its marina berth in Antibes, then proceeded to Villefranche-sur-Mer where the owner and his eight guests, also a group of family and friends, were embarked by tender; *Minx* then headed to join *Vision* at Île Sainte-Marguerite, arriving about 1430. By about 1500, all the guests[2] from both yachts were ashore at the restaurant; both crews remained on board the yachts.

[1] All times in this report are UTC +2 hours.

[2] The guests were all known to each other and, during a social event the previous evening, had agreed to meet up at Île Sainte-Marguerite the following day.

During their meal, the guests agreed to continue the party back on board, and *Vision*'s charterer called the skipper and asked him to raft up with *Minx*. *Vision*'s skipper contacted *Minx*'s skipper and discussed the plan, then let out more anchor chain and manoeuvred the yacht alongside *Minx* **(Figure 1)**. By about 1830, everyone was back on board and the drinking and partying continued with most of the guests on board *Vision*. During the party, *Vision*'s skipper, encouraged by the guests, did a daring swallow-dive into the sea from the flybridge.

Figure 1: *Vision* and *Minx* at anchor and rafted together near Île Sainte-Marguerite

At about 2030, *Vision*'s crew started preparing to return to Monaco, so the guests were all asked to return to their own yachts; it was still daylight with good visibility, light airs and the sea was calm. *Vision*'s skipper went to the flybridge with the charterer and one of the guests; the engines were running, and the mate[3] was raising the anchor. When on the flybridge and in conversation with the skipper, *Vision*'s charterer asked if there would be an opportunity to pass *Minx* when departing the anchorage to allow the guests to wave goodbye to their friends on board the anchored yacht. At about the same time, *Minx*'s skipper started the engines and the crewman, Jake Feldwhere, went to the foredeck to prepare for lifting the anchor.

Figure 2: *Vision*, seen from *Minx*, initially opening to the west

After *Vision* had been manoeuvred clear of *Minx*, it was discovered that a guest's mobile phone had been left on board. *Vision*'s skipper then manoeuvred the yacht back close to *Minx* so the mobile phone could be returned, then *Vision* started opening away on a westerly heading **(Figure 2)**. Having opened to a distance of 750 metres (m) from *Minx* **(Figure 3)**, *Vision*'s skipper turned the yacht to an easterly heading, moved down from the flybridge to the internal wheelhouse, then began to accelerate ahead. The skipper's intention was to conduct a fast slalom-type manoeuvre close down the port side of the anchored *Minx*. As its speed increased, *Vision* started planing and its propellers were creating a 'rooster tail' water spray astern **(Figure 4)**. As the distance between the two yachts rapidly decreased, *Vision*'s

[3] The term 'mate' has been used to describe the second crewman on board *Vision* as he was qualified to command vessels up to 200 tonnes, so was certified as competent to command the yacht.

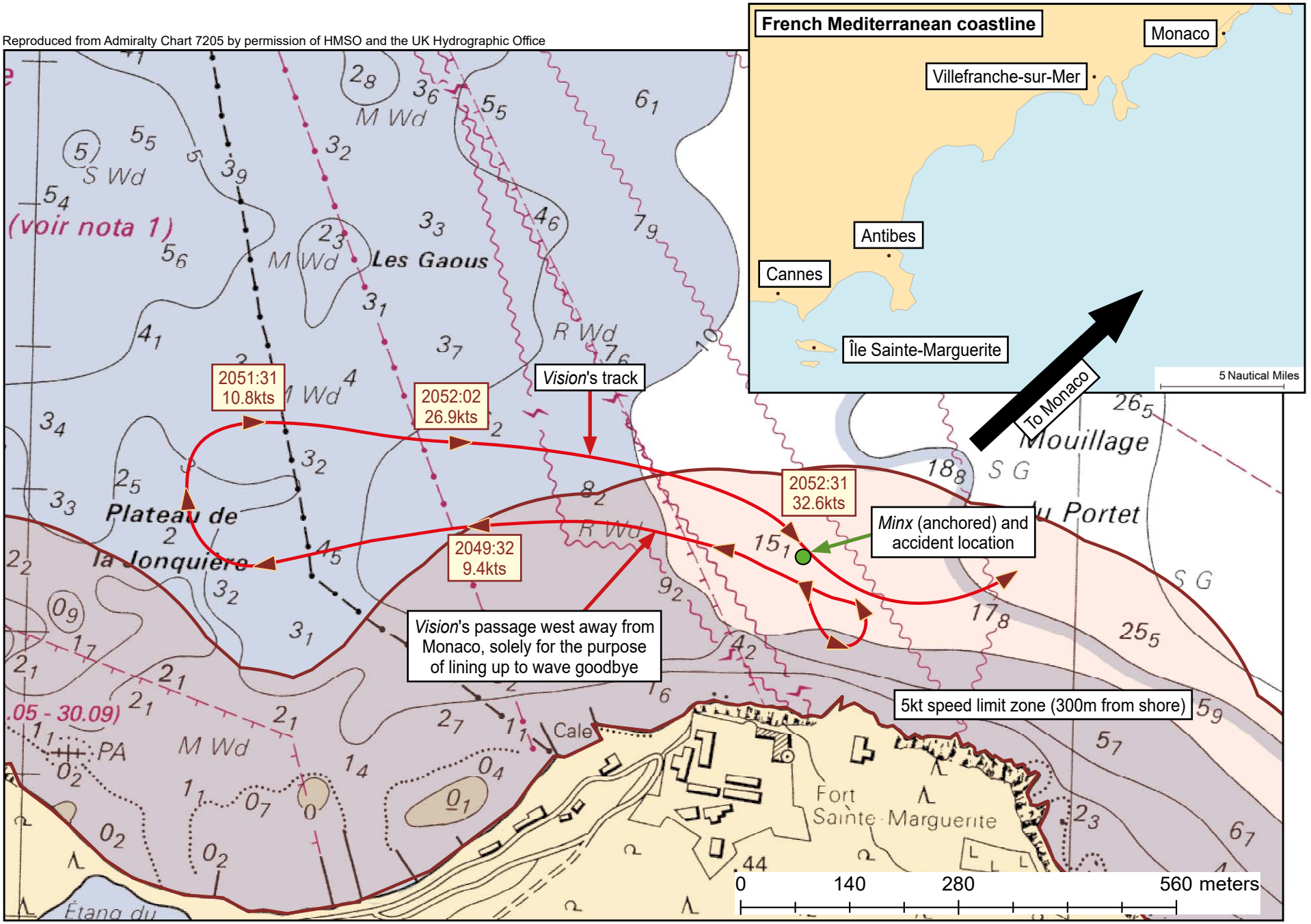

Figure 3: *Vision*'s track derived from AIS data with times and speeds shown

Figure 4: *Vision* immediately prior to collision with *Minx*

mate, who had been stowing fenders, had joined the skipper at the internal steering position. In the final approach, *Vision*'s skipper made an alteration of course to starboard to head directly towards *Minx*, intending to then swing almost immediately back to port close by the anchored yacht. During the manoeuvre, *Vision* did not respond to the skipper's application of port wheel and it collided with *Minx*'s bow, striking the crewman. Automatic identification system (AIS) data shows that *Vision*'s speed immediately prior to collision was just under 33 knots (kts).

On impact, *Minx* shuddered violently and heeled to starboard, resulting in most of the crew and guests being thrown to the deck, with several suffering minor injuries. It was immediately apparent to *Minx*'s skipper that the crewman was very seriously injured, so he reported the accident to the French authorities by a very high frequency radio "Mayday" call. One of *Minx*'s crew and three of the guests went to the foredeck to help the injured crewman, but the severity of his injuries meant that there was little they could do to help him.

Vision's skipper was shocked by what had happened so the mate took control and anchored the yacht. After the accident, French emergency services and maritime police attended the scene; the injured crewman could not be resuscitated. Later that evening, both yachts proceeded under police escort to marina berths in Cannes. Both yachts were damaged in the accident **(Figure 5)**.

Île Sainte-Marguerite

Île Sainte-Marguerite is the largest of the Lérins Islands, lying about 1 nautical mile (nm) south of the French Riviera town of Cannes. The island was a popular tourist area and anchoring was permitted on its north coast. A 5kts speed limit, applicable to all vessels, extended out to 300m from the island's shoreline. There was also a 10kts speed limit for vessels crossing between Cannes and Île Sainte-Marguerite. *Vision*'s skipper was familiar with the area and aware of the speed restrictions.

Vision and crew

Vision was a 78 gross tonnes (gt) Pershing 92 motor yacht. *Vision* was built in Italy in 2013 and had a registered length of 23.96m; it was certified to carry up to ten passengers. *Vision* was propelled by two 1939-kilowatt (kW) diesel engines powering two surface-piercing propeller drive units (surface-drives), delivering a design top speed of about 40kts.

Figure 5: Detail of damage to both vessels

Vision was not fitted with rudders; instead, it was steered by horizontal movement of the surface-drive units. The surface-drive propeller shafts **(Figure 6)** were locked together by an articulating bar and could be operated in tandem in both the horizontal and vertical axes. Vertical (or elevation) movement of the surface-drives, described as 'trimmed up' or 'trimmed down', was used to optimise the propulsion power and minimise drag by having only the lower half of the propeller underwater when at high-speed. When the surface-drives were trimmed up, the yacht would tend to adopt a bow up angle and a large fan-like wake or 'rooster tail' would be produced. *Vision* had a defect with the surface-drives' indication system, which meant that the exact elevation position was not always indicated correctly on board; the skipper was aware of the defect.

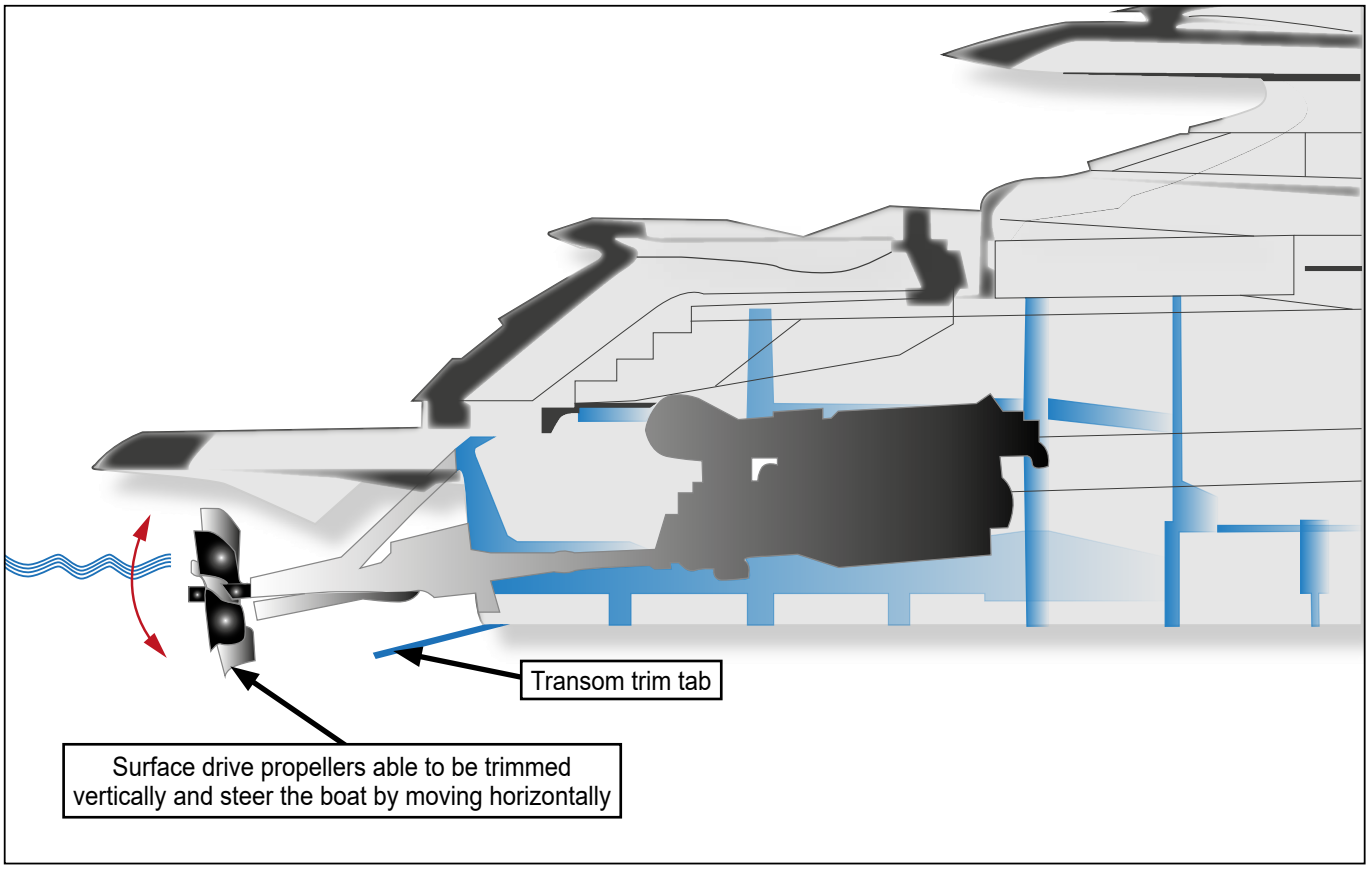

Figure 6: Diagram of *Vision*'s surface-drive propulsion system

Vision's registered owner was Ceratops Consulting Limited, a company registered in Gibraltar. The husband of Ceratops Consulting's beneficial owner regularly chartered *Vision* and was the commercial charterer on the day of the accident.

Vision was operated by three permanent crew; a skipper, mate and stewardess. *Vision*'s skipper was a 42-year-old French national who had been involved in commercial sail and motor yachting all his working life. He held a Royal Yachting Association (RYA) Yachtmaster (Offshore) (Power) Certificate of Competency, issued in 2001. The skipper had been in charge of *Vision* since May 2018; prior to which, he had operated a smaller surface-drive propelled motor yacht.

At 1400 on the day after the accident, French authorities took a blood sample from *Vision*'s skipper, which showed the presence of the following cannabinoid compounds derived from the use of cannabis:

- THC[4] : 0.7 micrograms per litre (µg/l)
- THC-acid[5] : 6.2µg/l; and,
- Hydroxy-THC[6] : no report of detection.

[4] Delta-9-tetrahydrocannabinol, known as THC.

[5] Tetrahydrocannabinol carboxylic acid, known as THC-COOH or THC-acid.

[6] 11-hydroxy-tetrahydrocannabinol, known as 11-OH-THC or hydroxy-THC.

The skipper had not consumed cannabis between the accident and the time of the sample. The French laboratory's toxicology report stated that '*since the skipper had not consumed cannabis between the time of the incident and the taking of samples, he was under the influence of cannabis at the time of the incident*'. Seven months later, in December 2019, a second test of the skipper's blood sample returned a negative result with no cannabinoids detected.

The Gibraltar *Merchant Shipping (Manning, Training and Certification of Seafarers) Regulations 2014* prohibited crew members from being on duty or operating vessels while under the influence of drugs. The use of illegal drugs was also specifically prohibited in the skipper's contract of employment.

Minx and crew

Minx was an 87gt UK registered Princess 88Y motor yacht. It was built in the UK in 2014 and had a registered length of 23.95m. *Minx* was based in Antibes, France; it was available for commercial charter and operated by a permanent crew of four; a skipper, crewman, chef and stewardess.

Minx's skipper was a 50-year-old Republic of Ireland national who held a Maritime and Coastguard Agency (MCA) STCW[7] Certificate of Competency as skipper (coded vessels); he had been in the owner's employment for 11 years.

The crewman was a 27-year-old British national who had some previous experience of the boating industry. He had made contact with *Minx*'s skipper as he was known personally to the stewardess. Having flown to France and met the skipper, he was offered the position as *Minx*'s crewman. He held an RYA powerboat level 2 qualification that had been obtained so he could operate *Minx*'s tender. The accident occurred on the crewman's first day at sea on board *Minx*. The autopsy report stated that the crewman died from traumatic head injuries.

The Small Commercial Vessel and Pilot Boat Code

Vision and *Minx* had both been certified for commercial operations in accordance with the MCA's Small Commercial Vessel and Pilot Boat Code of Practice[8][9] (SCV Code). Both yachts were certified for operations in Category 2 waters, limiting them to a maximum of 60nm from a safe haven.

Article 2.10.2 of the SCV Code obligated operators of small commercial craft to '*take a proactive approach to safety and consider what particular hazards are likely to arise in the context of work activities on board. They should then take appropriate measures to remove the risks in so far as possible*'. Although risk assessments did not need to be written down, there was a requirement that the crew had appropriate health and safety instructions.

Annex 3 to the SCV Code set out the requirement for the manning of small commercial vessels. Skippers of commercial vessels using an RYA Yachtmaster qualification were required to have completed the RYA's Professional Practices and Responsibility Course (PPR course). The aim of the PPR course was to introduce seafarers to relevant international maritime legislation, the requirements of the SCV Code with particular focus on safety management, and operation of vessels in a commercial environment. Successful completion of the RYA PPR course was a prerequisite for a commercial endorsement of an RYA qualification. *Vision*'s skipper had not completed the PPR course and his RYA Yachtmaster qualification had not been commercially endorsed. Annex 3 Section 8 to the SCV Code stated that it was the responsibility of the owner or managing agent to ensure that the skipper and crew held the necessary qualifications and had '*recent and relevant experience of the type and size of vessel*.'

[7] Standards of Training and Certification of Watchkeepers, 1978, as amended.

[8] The Small Commercial Vessel and Pilot Boat Code of Practice (SCV Code) was published in 2004 by the MCA as an Annex to Marine Guidance Note (MGN) 280 (M): *Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards*.

[9] The SCV Code applied to Gibraltar registered yachts in accordance with the Gibraltar Maritime Administration's Shipping Guidance Notice 054, issued in May 2014.

Annex 3, Section 9 to the SCV Code emphasised the requirement for skippers of small commercial vessels to ensure that a safe navigational watch was maintained at all times, taking into account '*all the factors affecting the safety of the vessel, including the proximity of navigational hazards, and the density of traffic in the area*'.

Vision had been examined by a surveyor registered with the Yacht Designers and Surveyors Association (YDSA), on behalf of the Gibraltar Maritime Administration, on 28 February 2019 and issued with an SCV Code certificate valid until 17 December 2019. This certificate stated that the vessel complied with the requirements of the SCV Code. *Minx* had been examined by a surveyor from Mecal Limited, on behalf of the MCA, on 2 August 2015 and issued with an SCV Code certificate valid until 2 August 2020, also stating that the vessel met the requirements of the SCV Code.

ANALYSIS

Overview

The collision occurred because *Vision*'s skipper attempted an unsafe, close high-speed pass, then lost control immediately after turning directly towards *Minx*. *Minx*'s crewman was on the foredeck and could do nothing to avoid being struck and was killed instantly by the force of the impact.

The close pass

As professional seafarers in a commercial environment, motor yacht skippers have a duty of care to the guests, the vessel, their crew and other water users. In the motor yacht industry, owners and charterers are on vacation; they will want to relax, be pampered and party, but they might also want to be entertained, perhaps even thrilled, by the experience of being at sea for their leisure. In this environment, motor yacht skippers and crew must stay in control of the yacht and not allow themselves to get caught up in the party atmosphere. However challenging it may be, the presence of powerful owners or demanding charterers must not have any influence on safe operations and the professional conduct of the crew. *Vision*'s skipper had swallow-dived into the sea during the party and then driven the yacht at over six times the local speed limit when attempting to provide an opportunity for the guests to wave to their friends on departure from the anchorage. These were actions that illustrate that *Vision*'s skipper had not placed the safety of the yacht and its occupants as his absolute top priority. However, the skipper's behaviour, in attempting the pass, was heavily influenced by the charterer's wish to provide a good opportunity for his guests to wave goodbye to their friends.

Irrespective of its size or purpose, every vessel should have a safe navigational plan intended to avoid all identified hazards, considering factors including the characteristics of the vessel, the local environment, and the density of traffic. Although there was no written passage plan, *Vision*'s skipper had been preparing for departure and his navigation from the anchorage position directly back to Monaco on a north-easterly heading. The charterer's request for an opportunity to wave goodbye disrupted the skipper's plan and introduced the risk of collision. Instead of proceeding directly north-east towards Monaco, *Vision*'s skipper set off to the west, opposite to his intended direction, and solely for the purpose of opening a sufficient distance to conduct a high-speed pass **(Figure 7)**. Once this decision was made, *Vision*'s skipper constructed a mental model of the manoeuvre, intending to slalom past *Minx*'s port side **(Figure 7)**. However, this intent to weave close to *Minx* was unsafe and not part of the skipper's original plan; no consideration was given to safe passing distances, nor were the crews or guests on either yacht warned of the event; the speed limit was also disregarded.

In summary, *Vision*'s skipper's plan to depart the anchorage and head directly back to Monaco was disrupted by the idea of conducting a pass to provide a good opportunity for the guests to wave goodbye; thereafter, there was no safe navigational plan. *Vision*'s skipper then placed both yachts and their occupants in danger by effectively heading directly towards *Minx* at speed with no margin for error; during the approach any misjudgement, loss of control or material failure would create a high risk of collision.

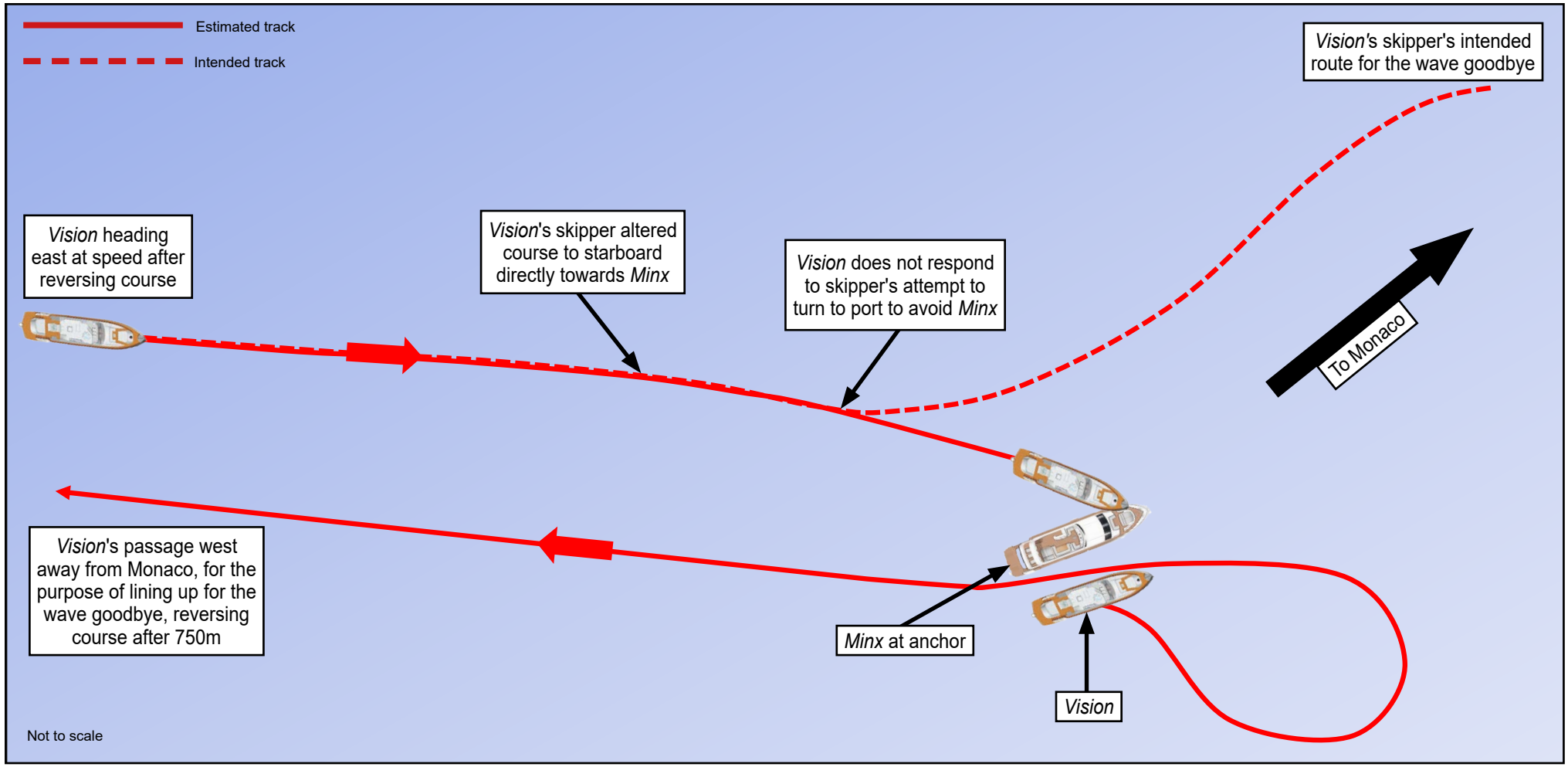

Figure 7: Diagram showing the intended and actual track of *Vision*

The loss of control

The image at **Figure 4** was taken immediately prior to collision and shows *Vision* planing[10] with a slight bow up angle, slight heel to port and rooster tail wake. In this condition, *Vision* would have been difficult to accurately steer because of a combination of hydrodynamic effects restricting the skipper's ability to turn significantly to port.

The turning force (or lever) achieved was a function of the distance between the surface-drives and the centre of lateral resistance; the larger the distance, the greater the turning lever or 'tightness' of the turn. The presence of the rooster tail wake **(Figure 4)** indicates that *Vision* was planing with the surface-drives almost certainly trimmed up; in this condition, the yacht would tend to adopt a bow up angle, reducing the 'wetted' hull surface area. In turn, this would cause the centre of lateral resistance to move aft, reducing the turning lever **(Figure 8)**. When adjusting the surface-drives horizontally to turn significantly to port, *Vision* would have heeled to port, which would have resulted in the port surface-drive going lower into the water and developing a higher 'grip' and, therefore, more power, counter-intuitively creating a starboard turning force **(Figure 8)**. Additionally, after the slight turn to starboard, the momentum of *Vision* was directly towards *Minx*, and the attempt to steer away, when planing, would almost certainly have resulted in a momentary 'lateral slip', where the yacht would tend to slide sideways over the surface, rather than turning through the water.

In the brief moments prior to the accident, a series of hydrodynamic effects resulted in a momentary loss of control, preventing *Vision*'s skipper from avoiding *Minx*. Although *Vision*'s skipper had experience with surface-drive propulsion craft, this combination of factors would have been difficult to predict or counter; therefore, it is almost certain that the skipper underestimated the difficulty he would experience trying to keep *Vision* under control in very close proximity to another vessel.

Use of cannabis

Cannabis is a central nervous system depressant, which can significantly impair the execution of tasks. The effects of cannabis use can be similar to alcohol, including reduced reaction times, lack of co-ordination and difficulty with complex or skilled tasks requiring divided attention such as driving.

Forensic analysis of a blood sample, taken from the skipper of *Vision* about 17 hours after the accident, detected a significant quantity of THC and THC-acid. THC is the psychoactive component of cannabis and blood concentrations vary depending upon the potency of the drug and time since smoking. Unlike alcohol levels, back calculating blood THC levels against time is not possible due to large variations between individuals in their disposition and metabolism of the drug. THC-acid is a biotransformed product of cannabis and, although not psychoactive, can be used to assess the frequency of cannabis use, and time since last consumption.

The MAIB commissioned a toxicological review of the blood test results. This was undertaken by a consultant clinical scientist and analytical toxicologist with over 40 years' experience of delivering expert opinions about the effects of drugs, alcohol and other poisons. Key extracts from the toxicologist's report include:

- *'THC was detected at a concentration of 0.7µg/L in the crew member's blood which was collected 17hrs after the collision. Assuming that the crew member had not smoked cannabis during the preceding 17hrs, by comparison with detoxification studies where blood was collected at intervals following last cannabis intake, the results in this case indicate that the crew member was a moderate, user of cannabis. If he had not smoked for 17hrs my view is that his blood THC concentration would have been much more elevated at the time of the accident…*
- *Regarding THC-acid, after smoking a single recreational quantity of cannabis the THC-acid blood level increases slowly and plateaus for an extended period of time. The concentration of THC-acid in the crew member's blood was 6.2µg/L. Regular users of cannabis will most likely have THC-acid plasma levels of not less than 45µg/L twelve hours after last ingestion at*

[10] Planing usually occurs when the formula velocity (kts) ÷ √ waterline length (feet) equals between 2.5 and 3.5. Using *Vision*'s waterline length of 21m (69 feet) results in a transition on and off the plane between speeds of 21kts and 29kts.

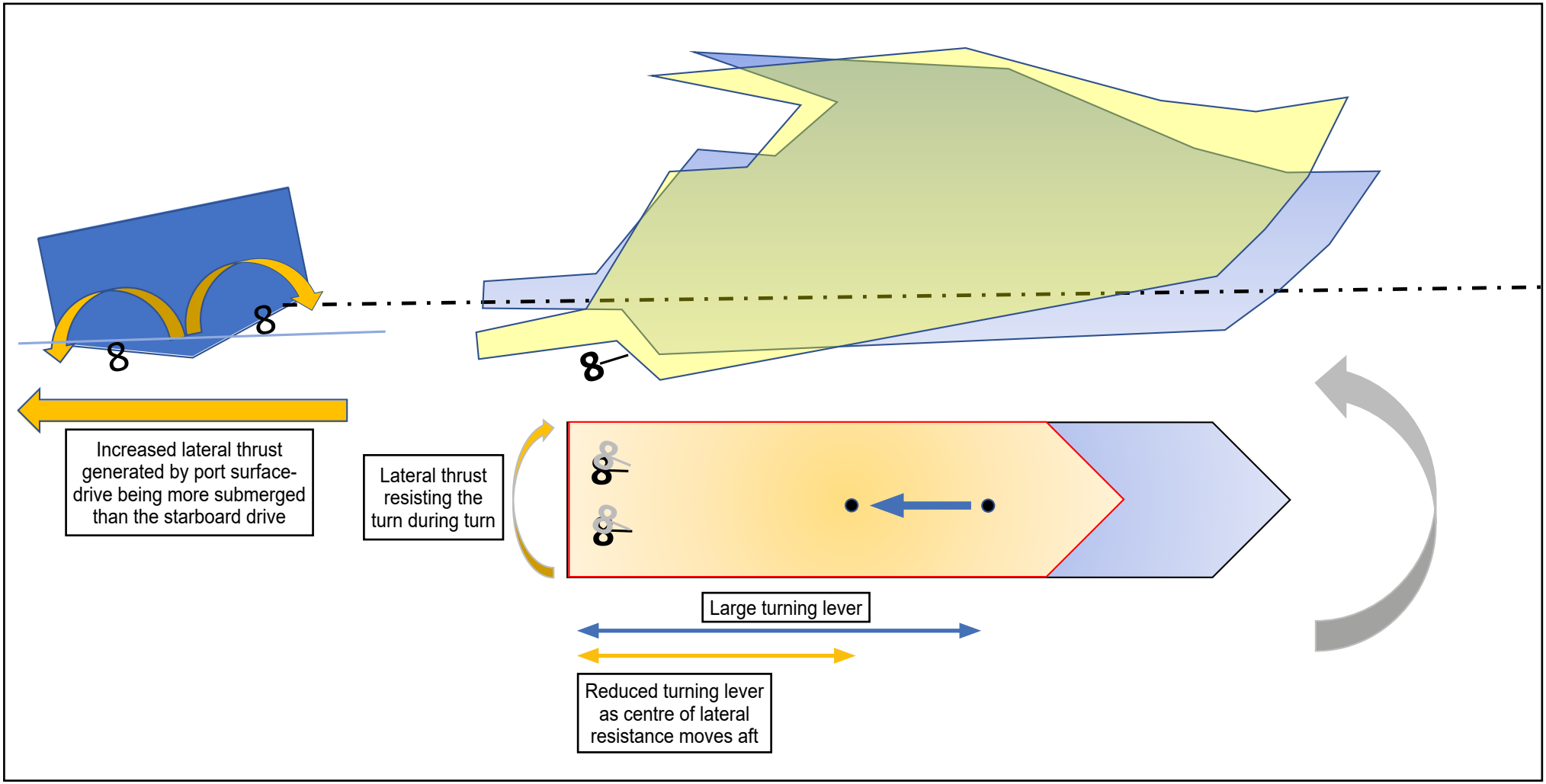

Figure 8: Factors affecting *Vision*'s manoeuvrability immediately prior to collision

which time corresponding THC levels may be less than 1µg/L. The crew member's THC-acid concentration is less than 45µg/L although the time delay is longer than 12hrs. …a THC-acid of between 5 and 75µg/L combined with a THC concentration which is greater than zero is considered to be consistent with moderate, use of cannabis defined as one joint per day or less.

- *The analytical method also tests for hydroxy-THC and none was detected in this case. Hydroxy-THC is an indicator of recent use and the result indicates that the crew member had not used cannabis within the previous 17hrs.'*

The conclusions from the toxicologist's report were:

1. *'The crew member is a regular, moderate user of cannabis.*
2. *At the time of the accident the concentration of THC in the crew member's blood would have been in the range which is likely to cause impairment even in a "tolerant" individual.*
3. *The blood THC concentration at the time of the accident would be likely to affect the crew member's ability to carry out complex tasks such as driving and controlling the vessel.'*

Seven months after the accident the skipper's blood sample was retested and produced a negative result; however, cannabinoids are susceptible to degradation over time when in storage, which is the most likely explanation of the different result.

Safe manning arrangements

Vision's skipper did not have a commercial endorsement on his RYA Yachtmaster qualification. The purpose of the PPR course was to highlight to professional skippers the importance of safety management in a commercial environment. A commercial endorsement was mandatory for skippers operating commercial vessels under the SCV Code. As a result, *Vision*'s skipper was not suitably qualified and had not benefitted from the PPR course with its emphasis on safe operations. Although *Vision* had been certified as compliant with the SCV Code, which included manning requirements, it was the responsibility of the owner to ensure that the skipper and crew were suitably qualified and experienced.

CONCLUSIONS

- The collision occurred because control of *Vision* was lost during an unsafe, close high-speed pass.
- *Minx*'s crewman was killed instantly by the force of the impact; he was on the foredeck and there was nothing he could have done to avoid being struck.
- *Vision*'s skipper's decision to undertake the high-speed pass was heavily influenced by his perception of what the charterer wanted, and this took priority over compliance with the local speed restrictions and the safe navigation of the yacht.
- Control of *Vision* was lost as a result of a series of hydrodynamic effects immediately prior to collision. These effects would have been difficult to predict or counter.
- *Vision*'s skipper was not suitably qualified to take charge of the yacht, as his RYA Yachtmaster certificate had not been commercially endorsed.
- *Vision*'s skipper was a regular user of cannabis, and his blood test results indicate that he was under the influence of cannabis at the time of the accident. This was likely to have impaired his judgment, and his ability to respond and react appropriately.

ACTIONS TAKEN

Vision's skipper completed the RYA PPR training course on 21 September 2019 and subsequently received a commercial endorsement, on 1 October 2019, for his RYA Yachtmaster certificate.

RECOMMENDATION

The **Royal Yachting Association** and the **Professional Yachting Association** are recommended to:

2021/101 Promulgate the safety lessons from this fatal accident as widely as possible to owners and operators in the commercial motor yacht industry sector.

SHIP PARTICULARS		
Vessel's name	*Minx*	*Vision*
Flag	United Kingdom	Gibraltar
Certifying Authority	MECAL	YDSA
Type	Motor Yacht	Motor Yacht
Registered owner/manager	Insignia 88 Limited	Ceratops Consultants Limited
Construction	Glass reinforced plastic	Glass reinforced plastic
Year of build	2014	2013
Length overall	26.57m	28.0m
Registered length	23.95m	23.98m
Gross tonnage	78	87
Minimum safe manning	4	3
Authorised cargo	Passengers	Passengers

VOYAGE PARTICULARS		
Port of departure	Antibes	Monaco
Port of arrival	Cannes	Cannes
Type of voyage	Coastal	Coastal
Manning	4	3

MARINE CASUALTY INFORMATION		
Date and time	25 May 2019, at 2053 (Local)	
Type of marine casualty or incident	Very Serious Marine Casualty	
Location of incident	Île Sainte-Marguerite, Cannes, France	
Place on board	Bow	Bow
Injuries/fatalities	One fatality	None
Damage/environmental impact	Damage in bow area	Damage in bow area
Ship operation	At anchor	On passage
Voyage segment	At anchor	On passage
External & internal environment	Wind light airs, air temperature 16ºC, daylight, good visibility	
Persons on board	13	12