

The Bahamas
Maritime Authority

Marine Safety Investigation Report

into a fatal man overboard during tender
operations from The World on 19 February 2022



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1. Summary

What happened

On 19 February 2022, the Bahamas flagged passenger vessel, The World, was anchored off Fatu Hiva in French Polynesia. In the afternoon, residents were being taken to and from shore in the vessel's inflatable boats, driven by staff from a specialist expedition company that had joined the vessel for this section of its itinerary.

After several shuttle runs had been completed without incident, a boat with its coxswain and ten passengers, was shaping up to enter the harbour when it was caught in a breaking wave. In the trough of the swell, the boat's propellor touched the seabed, stopping the engine and halting the boat's momentum. Subsequent waves washed passengers overboard and took the boat close to the beach.

As passengers were being helped ashore the coxswain noticed someone was trapped under the boat. Once freed the unconscious victim was transferred to shore where a medical team made efforts to resuscitate but he could not be revived.

Why it happened

Entry into the harbour was made difficult by the passage of a larger set of swells than had been experienced previously and complicated further by the presence of surfers in the water nearby.

The boat's engine stopped when its propellor touched the seabed, leaving the boat and its passengers at increased risk from breaking waves.

Once passengers were washed out of the boat, the coxswain had to deal with multiple issues without support of another member of crew in the boat. Once in the water, any effort to conduct an immediate head count was confounded by the distribution of passengers on the beach and the presence of people coming to assist.

What can we learn

The use of inflatable boats for tendering operations or coastal expeditions is not addressed by any specific International Maritime Organization (IMO) instruments. The industry could benefit from further assessment of risks posed and a legislative framework to operate in.

The operation was prepared to deal with an onshore emergency with a nurse and defibrillator present at the landing site but with the coxswain as the sole member of crew in the boat, their ability to instantly respond to multiple passengers overboard may have been a factor.

2. Factual Information

The World

Vessel Type	Passenger	Flag	Bahamas	
Owner	The World of ResidenSea II Ltd.	Manager	Row management Ltd.	
Classification Society	DNV	Gross/Net Tonnage	43,188 / 15,444	
Built	2002	Propulsion	Two engines (Total Power: Mcr 11,040kW) driving controllable pitch propellers	
IMO No.	Callsign	Length overall	Breadth	Moulded depth
9219331	C6RW4	196.35m	29.8m	9.2m
Last BMA Inspection		Last PSC Inspection		
Dubrovnik, 26 August 2021. No deficiencies.		San Juan, 01 November 2021. Four deficiencies, not related to casualty		



The World, image courtesy of Row management Ltd.

Crew Details

Rank/Role on board	Master	Staff Captain	OOW	Naturalist / Coxswain
Qualification	Master (unlimited)	Master (unlimited)	Chief mate (unlimited)	Power boat level 2
Certification Authority	Norwegian Maritime Authority	Norwegian Maritime Authority	Swedish Transport Agency	Royal Yachting Association
Time in rank	20 years	12 years	3 years	3 years ¹
Time on board	20 years	19 years	3 years	9 days

The victim was a 77 year old Australian businessman and resident of The World.

Environmental Conditions (at anchorage)

Wind Direction	Wind speed (Beaufort)	Wave Height	Swell Height	Precipitation / Sky	Visibility Range	Light Conditions
SSE	5	0.5m	0.5m	Partly cloudy	Good	Daylight

Voyage Details

At the time of the casualty, The World was anchored in position 10° 27.7'S 138° 40.4'W off Baie des Vierges in Fatu-Hiva, the southern-most island in the Marquesas, French Polynesia.

¹ This was the third expedition with EYOS (duration 3-5 weeks), previous experience as a coxswain of small boats

Narrative

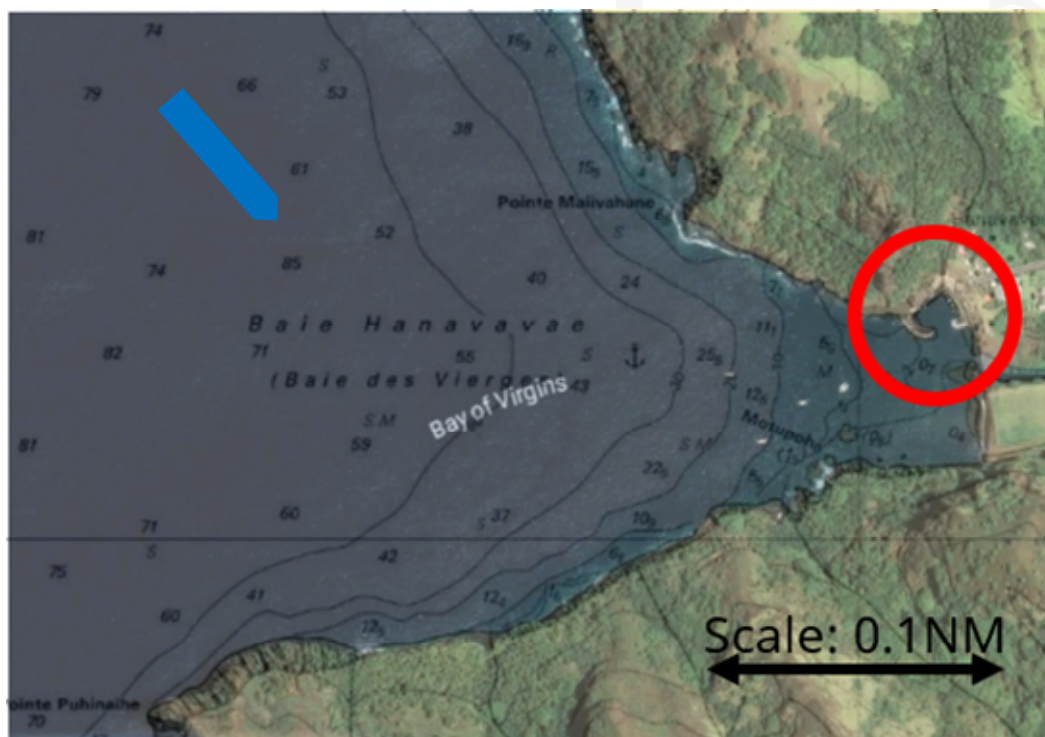
All times in this report are local time (UTC-9.5)

On 19 February 2022, The World was anchored off Omoa, Fatu Hiva, in French Polynesia. The vessel had been touring the Marquesa Islands for several days, conducting daily excursions and activities in the vessel's inflatable boats, driven (coxswained) by ship's crew and staff from EYOS, a specialist expedition company that had joined the vessel for this section of its itinerary.

Having conducted a planning meeting (and debrief of that day's activities) with the EYOS team and ship's senior management the evening before, at 07:00 the EYOS expedition leader went to the bridge to assess the conditions and discuss the forecast with the master and officer of the watch. The conditions were considered favourable for running residents ashore and at 07:45 the first boat conducted a scout run ashore, followed by several trips by the other boats to familiarise the boats' coxswains and set up the landing site for passengers.

At around 08:30 five inflatable boats were tasked with shuttling passengers for local tours and a cross-island hike; runs were generally completed with 10 passengers plus the boat's coxswain. At 10:00 one boat was re-tasked as support for a scuba dive and at 12:00 the last boat returned passengers to The World, which then weighed anchor to reposition at Hanavave, approximately three nautical miles north along the coast, anchoring in its new position at 13:04.

With the ship underway to its anchoring position in the Bay of Virgins, the boats repositioned by sea and surveyed the landing site – providing input for the ship's operational risk assessment of the harbour at Hanavave. It was found to have some surge but was considered workable. Locals (French speaking) that were surfing near the harbour entrance, were asked to keep clear by the English-speaking coxswains.



**Hanavave. Extract from French chart SHOM 7354 with satellite image overlay.
The World's position (to scale) shown in blue, harbour ringed.**

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At 13:15, the landing site was set up with comfort and safety equipment (including an automated external defibrillator) and controlled by EYOS staff along with ship's crew (including a nurse). Four boats were then tasked with shuttling passengers with one boat assigned to assist a kayaking group.

At 14:29, one inflatable boat, "Zodiac #10" had completed three runs and was alongside The World, ready to receive its next passengers. At the same time, eight adults and two children attended a pre-departure brief and safety check and donned their ship-issued personal floatation devices (inflatable lifejackets for the adults, buoyancy aids for the children). They started embarking Zodiac #10 at 14:31 via the port side tender gate and departed for shore at 14:35.



14:33 The last passengers readying to board Zodiac #10 (frame from The World's CCTV)



14:38 Zodiac #10 (ringed) inbound to Hanavave (frame from The World's FLIR)

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At 14:41, Zodiac #10 was at the entrance to the harbour, the swell was higher than on earlier entries and, whilst the coxswain was positioning for entry, clear of the surfers, the boat was caught in a breaking wave, inflating one passenger's lifejacket and driving the boat sideways.



14:41 Zodiac #10 at harbour entrance (photograph taken by resident)

Due to the breaking wave, Zodiac #10 was unable to make the entry into the harbour and the coxswain took a clear exit towards deeper water. At the trough of the wave, Zodiac #10's propellor touched the seabed, stopping the engine and halting the boat's momentum.

At 14:42, the next wave broke over Zodiac #10, washing out the passenger sat furthest aft (port side) and inflating several lifejackets. The coxswain then managed to restart the engine but the next breaking wave washed out the remaining passengers on the port side and pushed the boat in to shallow water at the beach.



**14:42 Another breaking wave washes more passengers out of Zodiac #10
(photograph taken by staff photographer)**

With the water shallow enough to stand, the coxswain stopped the engine and exited the boat, in an attempt to control its movement. People ashore, locals, crew and EYOS staff, identified that they were in difficulties and attempted to help.

At 14:44 the EYOS shore controller contacted The World and informed them that Zodiac#10 had “flipped in the surf” - initiating the shipboard response. At about the same time, passengers were being helped ashore when the coxswain noticed that there was someone trapped under the boat.



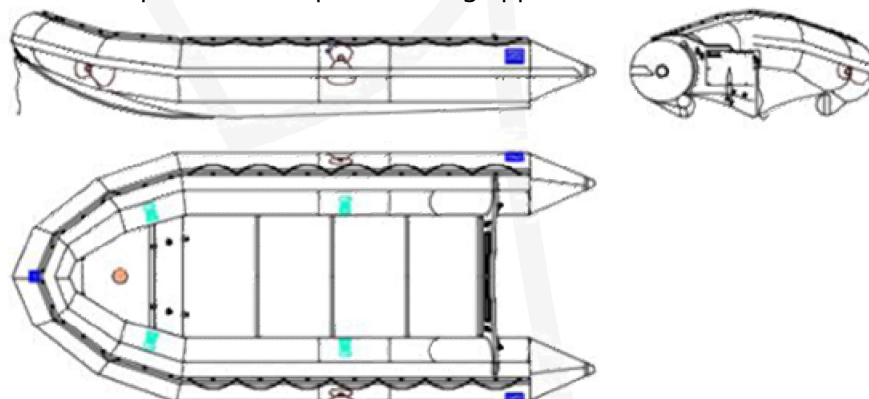
**14:44 Zodiac #10 with coxswain stood in shallow water passengers receiving assistance from
locals (photograph taken by resident)**

After initial difficulties, the coxswain pulled the casualty free on the crest of the next swell and he was floated ashore, unconscious. The casualty was then carried up the beach and placed in the back of a pick-up truck, where the ship's nurse and EYOS expedition leader deflated and removed his lifejacket. The nurse applied an automated external defibrillator (AED) which advised no shock². The nurse and EYOS team then started cardio-pulmonary resuscitation.

At 14:53 the ship's doctor departed The World with a second AED, relieving the expedition leader when on scene approximately 15 minutes later. The second AED also advised no shock; the casualty was intubated, given adrenaline and cardio-pulmonary resuscitation continued. The casualty was ventilated with oxygen using a bag mask valve when it arrived at approximately 15:10 and cardio-pulmonary resuscitation continued until 15:45 when casualty was declared dead.

The inflatable boat

Zodiac #10 was a Zodiac Milpro Mark 5 (heavy duty) inflatable boat with a maximum capacity 15 persons (5.85m long, 1.22m wide, tare weight 250kg). It was propelled by a Yamaha 90 horsepower (electric start) outboard engine, with tiller steering and an exposed propellor. The boat and engine were ship's equipment but did not form part of the ship's lifesaving appliances.



From Zodiac Milpro Mark 5 technical data sheet

The expedition

EYOS is a specialist expedition company that provides expedition experiences for paying guests in a variety of formats, including providing operational support for vessels operating in remote regions. For the expedition onboard The World in French Polynesia, EYOS deployed an expedition leader and 21 expedition staff on 10 February to conduct various walking, boat, kayak and scuba diving activities along their planned itinerary. Excursions were planned and executed by EYOS staff with assistance from ship's staff as required. For tours and trips ashore, the ship's boats were driven by EYOS staff and crew from The World.

Legislation and guidance

The use of inflatable boats from a mother ship is not addressed by specific International Maritime Organization (IMO) instruments. MSC.1/Circ.1417 (as amended) – Guidelines for Passenger Ship Tenders - was adopted in 2012 but applies to tenders used for transferring more than 12 passengers and was not intended to apply to inflatable boats (or rigid hull inflatable boats).

² a "no shock" instruction from an AED can mean one of three things: the patient has a pulse, the patient has now regained a pulse, or the patient is pulseless but is not in a "shockable" rhythm.

At the time of the casualty The Bahamas Maritime Authority had no applicable legislation or guidance on this type of operation.

Safety management systems

The World's safety management system included *Operational Management Procedures for Zodiac Operations* (document DO 507-2) and a *Zodiac manual*. In addition to risk assessment for boat launching, maintenance and fuelling, an operational risk assessment tool was populated for each port where "Zodiac operations" were conducted along with a pre & post use equipment and condition checklist. The World operated an in-house training and familiarisation programme for ship's crew to become "Zodiac drivers" with additional training provided by third party trainers using the ship's boats.

EYOS had a standard operating procedure *Small Boat Operations* and a small boat touring and landing operations handbook which included a generic risk assessment for small boat operations. In addition, they created an operations plan for each port they conducted tendering or excursions by boat.

As well as being shown on The World's Zodiac *safety* video, passengers received a safety briefing on safety onboard boats at the beginning of the expedition.

Previous similar casualties

World Explorer, 2022 (Portugal)

All occupants of a cruise ship's excursion boat were ejected when it was capsized by breaking waves during a sightseeing expedition. Two passengers died.

See: www.gama.mm.gov.pt/images/Relatorios_Tecnicos/492-2022_Zodiac_4_WE.pdf

Sea Spirit, 2013 (Bahamas)

Coxswain and passengers were ejected from a cruise ship's excursion boat when it was capsized by breaking waves close to shore, trapping at least one passenger under the boat. One passenger died and two were injured.

See: www.bahamasmaritime.com/wp-content/uploads/2020/10/BMA-Investigation-Report-Passenger-fatality-onboard-Sea-Spirit.pdf?swcfpc=1

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.

An autopsy found that the victim died by *vital submersion with abdominal polytrauma*. It did not indicate if the abdominal trauma occurred before or after his death. The victim had a number of underlying health conditions but these were not considered contributory to the casualty.

Risk assessment

A risk assessment was completed for boat operations at Hanavave, using The World's operational risk assessment tool. The operation risk assessment tool assigned a point score to each factor, which were then totalled to provide a risk score. With a total risk score of 38 (see below), risk was considered low and no additional mitigation measures were required.

OPERATIONAL RISK ASSESSMENT TOOL		
FACTORS		
Wind Condition at tender gate	5 - Fresh Breeze	5
Wind Condition during transit	5 - Fresh Breeze	5
Wind Condition at landing site	5 - Fresh Breeze	5
Current at tender gate	0-0.5 kts	1
Current during transit	0-0.5 kts	1
Current at landing site	0-0.5 kts	1
Sea conditions: Height of waves/swell at tender gate	2 - 0.10-0.50m - Smooth	2
Sea conditions: Height of waves/swell during transit	2 - 0.10-0.50m - Smooth	2
Sea conditions: Height of waves/swell at landing site	2 - 0.10-0.50m - Smooth	2
Weather	b - Partly clouded	2
Visibility	D - Good visibility / 5.0-25.0nm	3
Operation in daylight or night	Daylight	0
Operation in sight of the Bridge	In sight	1
Landing site distance from the Ship	Yes, less than 0.5nm	0
Landing site terrain	mud	3
Approach to landing site	low inclination of depth sand/mud/shells	1
Surge at landing site	10 -20cm	0
Tidal Range at landing site	50-100cm	1
Traffic in Ship's vicinity	None	0
Landing site occupation	No people swimming in area	0
	No boat traffic in the area	0
	No water sports in the area	0
Zodiac drivers	Experienced Crew	3
Miscellaneous factors - Determined by Captain		
Total score:	Low Risk	38

Risk Category	Risk Score	Description
Low Risk	0-75	No Additional mitigation measures necessary more than normal.
Medium Risk	75-150	Additional measures should be considered in order to lower the risk score as much as possible.
High Risk	>150	Unacceptable risk, ship should not go ahead with activity or cancel activity if the score should increase from Medium to High after arrival.

Operational risk assessment tool for Hanavave

The tool did not allow for any risks associated with entry to the harbour being restricted, the presence of nearby shallows, the potential for deterioration of conditions and was not revised to include the presence of surfers at the entrance to the harbour, or difficulties experienced in communicating with them.

The risk assessment included a factor for risk associated with "Zodiac drivers", this was marked as experienced crew (with a risk score of 3). Single handed operation of the boats was not considered to be a risk factor.

Training, certification and manning

At the time of the casualty, The Bahamas had no guidance or legislation covering coastal expedition excursions or tendering operations using inflatable boats. MSC.1/Circ.1417 (as amended) – Guidelines for Passenger Ship Tenders - are intended for ship-carried tenders used for transferring more than 12 passengers from a stationary passenger ship to shore and back. The guidelines are explicitly not applicable to inflatable boats (or rigid hull inflatable boats) or for coastal sightseeing excursions, which are not considered appropriate operations for such tenders.

Notwithstanding the above, the guidelines are clear that the minimum number and competence levels of crew members should be satisfactory to the flag Administration of the ship from which they operate (as appropriate to the operation) but sets out recommended standards of training as a tender boat operator with baseline knowledge, understanding and proficiencies (and how to demonstrate and evaluate each of them) across six competency categories: Take charge of a tender boat during and after launch, Operate a tender boat engine(s), Manage passengers during normal tender operations, Use communication and navigational equipment, Operate and manoeuvre tender boat, and Manage emergencies.

As the guidelines do not apply, flag Administrations have no oversight or direct control of tendering operations using inflatable boats; this is solely covered by the safety management system of the ship from which they operate.

As part of its safety management system, the Company facilitated advanced piloting training courses by an external trainer for the World's crew, using the ship's boats (last course was 21-29 October 2021). It also operated a "Zodiac drivers' incentive³ program" with training sessions conducted twice a month.

There was no detail of boating qualification requirements for EYOS expedition staff in the Company's letter of engagement with EYOS. EYOS's standard operating procedure *small boat operations* identified that boat drivers should hold an approved powerboat driver certificate or equivalent – approved certification was not defined but potential drivers were subject to an in-house on-water assessment (although this was not formalised).

Zodiac #10's coxswain held a Royal Yachting Association (RYA) powerboat level 2 certificate, issued by an accredited UK training establishment on 14 June 2019. The RYA's powerboat level 2 is an entry level qualification, there is no assumed knowledge/pre-course qualification requirements.

The syllabus is focused on safe boat handling and seamanship and includes theory and practical elements covering preparation for getting afloat, boat handling and recovery of a man overboard. Certification is based on the successful completion of a practical boat handling assessment. RYA powerboat level 2 is not considered a certificate of competence⁴.

³ monetary bonus for attendance

⁴ RYA certificates of competence - Advanced Powerboat and Yachtmaster - have a minimum seetime, background knowledge and ancillary qualification requirements and are subject to an extended assessment.

Course	Assumed knowledge	Course content	Ability after the course	Minimum duration	Minimum age
Level 1	None	Boating safety, boat handling and basic theory	A basic understanding of powerboating	1 day	8
Level 2	None	Close quarters boat handling, planing speed manoeuvres, man overboard recovery and collision regulations	Able to handle a powerboat in familiar waters by day	2 days	12
Intermediate	Boat handling to Level 2 standard. Navigation to Day Skipper shorebased standard recommended	Daytime navigation skills, passage planning, use of plotting instruments, GPS and electronic navigation	Able to navigate a powerboat on coastal passages by day	2 days	16
Advanced	Boat handling to Intermediate standard. Navigation to Coastal Skipper/ Yachtmaster™ Offshore	Skippering techniques for coastal passages including night pilotage	Able to navigate a powerboat on coastal passages by day and night	2 days	17
Safety Boat	Powerboat Level 2 certificate required	Recovery techniques for various craft and fleet management	Able to provide safety cover in a racing or training environment	2 days	16
Tender Operator	Powerboat Level 2 certificate required with coastal endorsement	Passenger safety and comfort, basic day and night pilotage, emergency situations	Able to carry out short ship to shore transfers by day and night	2 days	17

Extract from RYA Powerboat courses leaflet

BMA Yacht Notice 05 sets out requirements for commercially operated small charter yachts. It is not applicable to this operation but is the closest comparable standard for the operation of vessels under 24m length, employed in similar operations. It is based on the United Kingdom's Small Commercial Vessel Code⁵.

An RYA powerboat level 2 (supplemented by 12 months' relevant experience) is deemed an acceptable skipper's qualification for category 6⁶ waters with the addition requirement: "Unless operating in the single-handed mode in accordance with Paragraph 7 of this Annex, a second person capable of assisting the Skipper in an emergency should also be on board."

⁵ The Code has been developed for application to United Kingdom (UK) vessels of up to 24 metres Load Line length which are engaged at sea in activities on a commercial basis, which carry cargo and/or not more than 12 passengers, or provide a service in which neither cargo nor passengers are carried, or are UK pilot boats (and any such vessel registered or owned in another country when it operates from a United Kingdom Port).

⁶ Area Category 6 - to sea, within 3 miles from a nominated departure point(s) named in the certificate and never more than 3 miles from land, in favourable weather and daylight;

Table 1									
	CATEGORY		6	5	4	3	2	1	0
SKIPPERS QUALIFICATION ACCEPTABLE FOR GIVEN CATEGORY	Certificate of Competency – Yachtmaster Ocean (MCA Accepted)	Note A	P	P	P	P	P	P	P
	Certificate of Competency or Service – Yachtmaster Offshore (MCA Accepted)	Note A	P	P	P	P	P	P	
	MCA Boatmasters Licence Grade 1,2 & Modified Grade 3	Note A Note B	P	P	P	P	P		
	RYA/DfT Certificate of Competency or Service - Coastal Skipper	Note A	P	P	P	P			
	RYA/DfT Advanced Powerboat Certificate	2 years relevant experience	P	P	P	P			
		12 months relevant experience	P						
	Certificate of competence for appropriate area issued by Competent Authority	Note A Note C	P	P	P	P			
	RYA/DfT Day Skipper Theory & Practical Certificate	Note A 12 months relevant experience	P	P					
	Local Authority Licence for appropriate area	Note A Note D	P						
	RYA/DfT Day Skipper Practical Certificate	Note A	P						
	RYA/DfT Powerboat Level 2 Certificate	12 months relevant experience	P						
ADDITIONAL REQUIREMENTS	Unless operating in the single-handed mode in accordance with Paragraph 7 of this Annex, a second person capable of assisting the Skipper in an emergency should also be on board		P	P	P	P			
	There should also be on board a second person deemed by the skipper to be experienced.						P		
	There should also be on board a second person holding at least an RYA/DfT Certificate of Competency or Service as Coastal Skipper.							P	
	There should also be on board another person holding at least an RYA/DfT Certificate of Competency as either Yachtmaster Ocean or Yachtmaster Offshore.								P

Extract from Yacht Notice 05

Paragraph 7 is not included in the text of Yacht Notice 05 but can be found in the Small Commercial Vessel Code:

The MCA does not recommend single handed operations. Vessels operating under this Code, *other than those engaged as Pilot Boats or in any other business which involves the transfer of personnel at sea*, may be operated single handed providing that the person operating the vessel complies fully with the minimum requirements for a skipper (appropriately qualified for the operating area) and the following conditions...

As standard for tendering operations from The World, Zodiac #10's coxswain was the only member of crew in a boat with 10 passengers (including two children).

Loss of propulsion

When Zodiac #10's propellor touched the seabed it stopped the engine, leaving the boat vulnerable in an area of breaking waves. Propellor guards may be used on outboard engines to protect people or the propellor but their advantages and disadvantages are subject to fierce debate in the leisure boating industry.

Ultimately the decision on whether they should be fitted to an outboard motor is a matter for risk assessment by the operator; as with all risk assessments though, if the hazard is not identified the risk can't be assessed and controls identified.



Zodiac #10's outboard engine / damage to propellor

Personal floatation devices

The personal floatation devices worn by the adult passengers in Zodiac #10 were inflatable 150 Newton (single CO₂ cylinder inflation) lifejackets supplied from a stock of lifejackets onboard The World. The victims' lifejacket was last serviced (onboard) on 05 January 2022.

The victim's lifejacket automatically inflated, as designed. It is unknown whether this was a factor in the victim becoming trapped under the boat.

It is unknown how well fitted the victim's lifejacket was as it was removed to facilitate cardio-pulmonary resuscitation, but photographs taken of the other occupants of Zodiac #10, post-casualty, show inflated lifejackets that would not have effectively kept the wearer's face above the water if it had been necessary.



**Still from The World's Zodiac safety video – loose waistbelt in demonstration.
Post-casualty - passenger with ill-fitting lifejacket**

Properly fitted lifejackets with fastened crotch straps help keep an unconscious or incapacitated casualty's airways clear of the water and therefore significantly increase their chances of survival.

Emergency response

Once the passengers were washed out of Zodiac #10 the coxswain had to deal with multiple issues without support. Any effort to conduct an immediate head count was confounded by the distribution of passengers on the beach and the presence of people coming to assist. Despite the challenging situation the coxswain managed to identify that the victim was trapped, free him and get him to the beach.

Once the victim was on the beach, EYOS staff and crew from The World acted quickly to provide first aid. The ship's senior nurse, part of the shore party, was on site within approximately three minutes of the casualty with an AED; cardio-pulmonary resuscitation started quickly albeit with difficulty. During the attempted resuscitation the victim was intubated, given adrenaline, oxygen and two separate AEDS were used.

4. Conclusions

- One passenger died and several passengers sustained minor injuries after an inflatable boat that was being used for passenger transfer operations got caught in a series of breaking waves, close to the beach, washing several passengers overboard and into the sea.
 - Prior to the casualty, the boat's coxswain experienced difficulty entering the harbour due to an increase swell height and the presence of surfers in the water. After being forced to abort entry, the boat's propellor touched the seabed, stopping the engine and leaving the boat vulnerable in the surf. Successive waves washed out passengers and pushed the boat in to shallow water. The victim was trapped underneath.
 - The coxswain was the only member of crew in a boat with 10 passengers. Once passengers were washed out, the coxswain had to deal with multiple issues without another member of the crew to hand. Once in the water, any effort to conduct an immediate head count was confounded by the distribution of passengers on the beach and the presence of people coming to assist.
 - EYOS staff and crew from The World acted quickly to help boat's passengers and provide first aid. Due to the thorough preparations of the landing party, essential equipment was quickly on hand to attempt to resuscitate the victim.
 - During the casualty, all inflatable lifejackets inflated on immersion as designed but they were not fitted with crotch straps nor were the waistbands appropriately adjusted for every individual, leading to reduced performance.
 - The use of inflatable boats for tendering operations and sightseeing expeditions is not addressed by specific International Maritime Organization (IMO) instruments.
-

5. Lessons to be learned

- The use of inflatable boats for tendering operations or coastal expeditions is not addressed by any specific International Maritime Organization instruments. The industry could benefit from a legislative framework to operate in.
 - In the context of the Small Commercial Vessel Code and related legislation, boats used for transfer of persons are not recommended to be operated singled handed. Operators conducting tendering operations and coastal expeditions in small boats may benefit from further assessment of the risk of operating them single handed, taking into consideration relevant mitigation measures.
 - An appropriately prepared and equipped landing site significantly reduces response time in the event of emergency – landings conducted in remote areas may benefit from having trained personnel and medical equipment (including a defibrillator) at hand.
 - Wearing a crotch strap on a correctly fitted lifejacket improves lifejacket performance.
 - The decision on whether to fit propellor guards on an outboard motor is a matter for risk assessment. Expedition operators may benefit from considering the risk to their operations holistically.
-

6. Actions taken

ROW Management Ltd. has:

- Replaced inflatable lifejackets with new twin-chamber lifejackets, fitted with crotch straps
- Updated their in-house *Zodiac Operations* safety video to further focus on small boat safety details.
- Conducted a risk assessment on fitting propellor guards.
- In cooperation with EYOS, updated and expanded its standard operating procedures to include the following:
 - Introduction of a dedicated “Beach Master” with responsibility for monitoring and controlling the landing site: managing the shore-party, reporting changing conditions to the bridge and coxswains, suspending or cancelling landing operations if required, and controlling boat traffic into the landing site.
 - Introduction of a dedicated “Basecamp” team member stationed on the bridge during operations with responsibility for managing communications for all off-ship activities, including boating activity. Intended to relieve the officer of the watch from responsibility for these extensive communications, allowing them to focus on normal duties.
 - Introduction of a dedicated “Safety Zodiac” with enhanced emergency equipment onboard. Coxswain is responsible for briefing all drivers and monitoring the boat operation from the water. Reports if any changes of conditions and assists in case of emergency.
 - Introduced a graded “Zodiac operation system” (considering sea/weather/landing site challenges) and screening of passengers.

As well as cooperating with the ROW Management Ltd for the above, EYOS has:

- Improved communications with boat passengers through and enhanced in-person briefing at the start of the expedition and a more detailed briefing to passengers during the transit to shore, detailing the landing conditions and procedure.

The Bahamas Maritime Authority has:

- Issued Bahamas Marine Notice 97– Excursion Boats on 04 July 2022. The Marine Notice sets out construction standards, minimum equipment requirements and operational guidance. It does not specify coxswain qualifications or minimum crewing requirements, leaving the Company to determine the appropriate levels of training and certification.

7. Recommendations

The Bahamas Maritime Authority is recommended to:

Consider, together with other interested States, proposing to the International Maritime Organization the expansion of MSC.1/Circ.1417 (or another IMO instrument) to cover the use of inflatable boats for expeditions and tendering operations.

8. Glossary and Definitions

AED	Automated external defibrillator. A portable electronic device that automatically diagnoses cardiac arrhythmias of ventricular fibrillation.
CCTV	Closed-circuit television
Company	Company means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship and who on assuming such responsibility has agreed to take over all the duties and responsibilities imposed by the International Safety Management Code.
Coxswain	The coxswain is the person in charge of a boat, its navigation and steering.
DNV	Det Norske Veritas – The World’s Classification Society
FLIR	Forward Looking InfraRed camera
Intubated	Intubation is a process where a flexible plastic tube is inserted through a patient's mouth (or nose) into their trachea so that air can get in and out of the lungs unobstructed.
RYA	Royal Yachting Association
Tendering	Tendering is when boats and/or lifeboats are used to transport passengers from a passenger vessel to a port. It occurs when the cruise ship is unable to enter the port for any reason.
Zodiac	Manufacturer’s trade name for a type of inflatable boat, used in this casualty to transport passengers on excursions from the passenger ship.