Marine Safety Investigation Report

VERY SERIOUS MARINE CASUALTY | **November 2025**

Heroic I
Grounding and subsequent sinking on 27 March 2024

The Bahamas Maritime Authority

The Bahamas conducts marine safety or other investigations on ships flying the flag of the Commonwealth of the Bahamas in accordance with the obligations set forth in International Conventions to which The Bahamas is a Party. In accordance with the IMO Casualty Investigation Code, mandated by the International Convention for the Safety of Life at Sea (SOLAS) Regulation XI-1/6, investigations have the objective of preventing marine casualties and marine incidents in the future and do not seek to apportion blame or determine liability.

Reports website
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What happened

On 25 March 2024, the Bahamas flagged tug Heroic I, departed Grand Bahama for Abaco with a loaded barge in tow. On entering the channel at Abaco, the tow line parted. Despite recovery efforts by the crew, the barge, and eventually the tug, grounded on a reef within the boundary of Fowl Cays National Park.

There was no reported oil pollution and the crew were safely rescued. Delays to salvage efforts mean that the barge and tug remain stranded at time of publication.

Why it happened

The tow line was shortened to navigate the narrow channel. With swells of approximately 3m, the line was subjected to shock loads that caused it to part, leading to the barge drifting and grounding on the reef.

The crew attempted to recover the grounded barge using emergency tow arrangements, which also broke. The tug, facing difficulties in the adverse conditions, was pushed onto another section of the reef.

The crew had means of checking the weather forecast prior to departure, but not while underway, unless they had cellular data reception.

The tug's operators did not provide guidance on operational weather limits, there was no towage plan, the tug's bollard pull was unknown and not all of the towing arrangements were certificated.

What we can learn

Discretion of the master and stop work authority are only effective policies when crew are empowered to exercise them.

Standard operating procedures deferring decision making to the master in emergency situations lose their effectiveness in absence of established contingency plans.

The four stages of passage planning, appraisal, planning execution and monitoring are just as important for short domestic voyages as they are for international voyages.

Plan continuation bias can impede a person's ability to recognise that the planned action is no longer viable. It tends to get stronger the closer they are to reaching their destination. Countering it is difficult but having clearly defined limits and identified go/no go decision points may help.

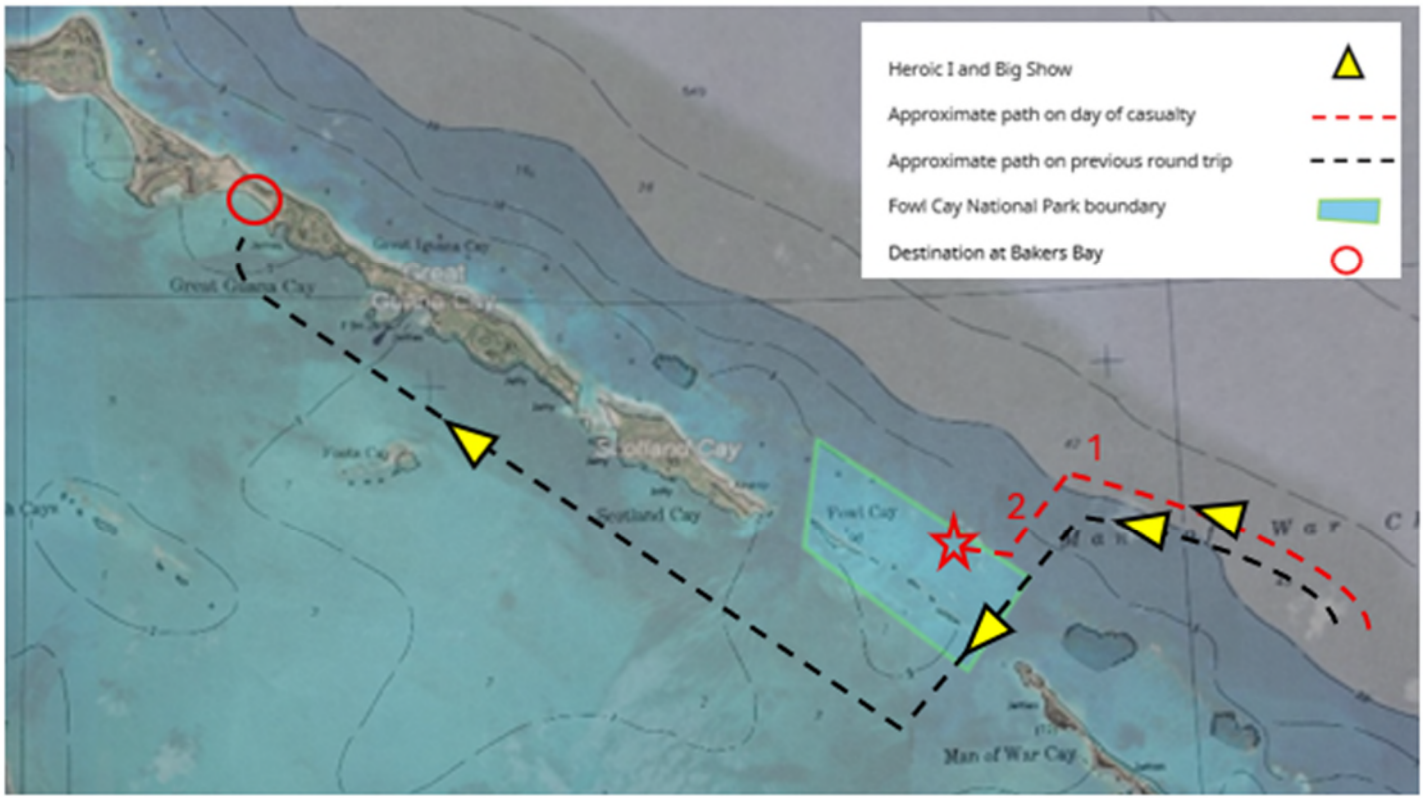
Narrative

On 25 March 2024, The Bahamas flagged tug, Heroic I, was making preparations for towing the barge Big Show from Freeport, Grand Bahama to Bakers Bay, Abaco. The tug loaded provisions, fresh water, and lube oil for auxiliary machinery throughout the afternoon. The barge was loaded with 2,500 – 3,000 tonnes of pea rock and aggregate cargo.

Onboard the tug were a captain, chief engineer, chief officer and two able bodied seafarers (AB's). There was also a barge hand accompanying Big Show, totalling six people on board the tug.

Shortly after 18:00, Heroic I departed Freeport in fair weather with barge Big Show under "long tow" arrangements, proceeding as planned.

In the early hours of 27 March the tug and barge were approaching the entrance of Man-O-War Cay channel.



Extract from US NGA Chart 26321 with satellite image overlay

In position **1** at approximately 07:30 on 27 March, Heroic I was approaching position 26°38.9'N 77°0.6'W proceeding at 4 knots. The tug prepared to make the turn into the channel between Man-O-War Cay and Fowl Cay, which serves as the entrance to Marsh Harbour, Abaco, and the subsequent destination of Bakers Bay.

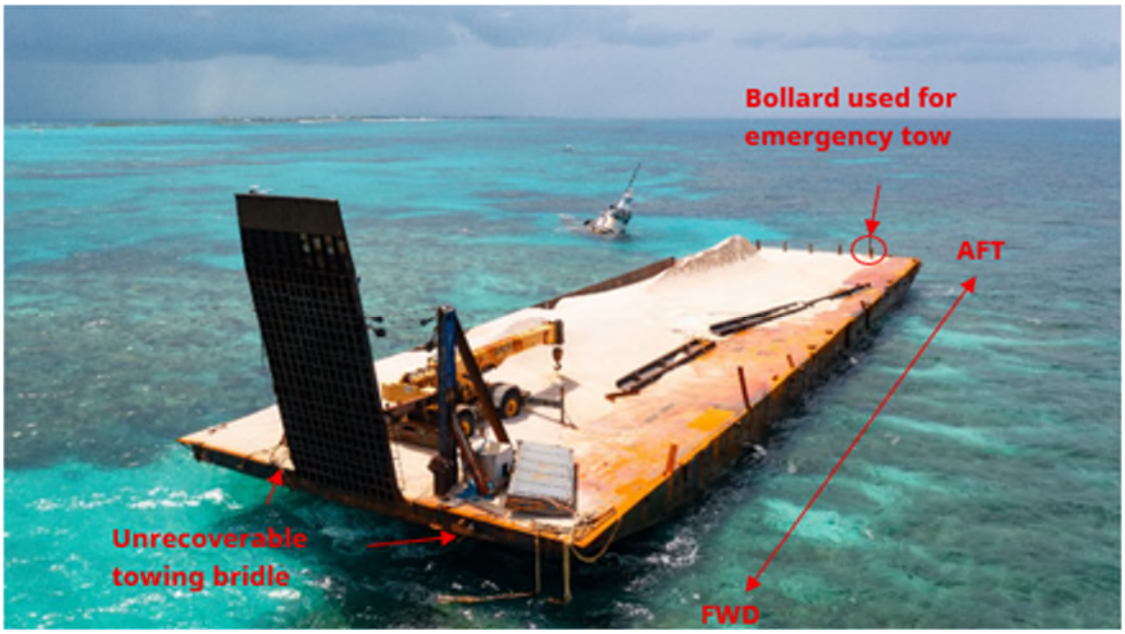
To make the manoeuvre through the narrow passage, the captain ordered the length of tow shortened, which was considered "normal procedure". The chief engineer went to the capstan on the aft deck to begin retracting the main tow line. This adjustment took the length of tow from 250m to approximately 150m. At the same time, the master reduced the tug's speed to reduce tension on the tow.

At position **2** after 07:40, the tug and tow were around position 26°37.8'N 77°01.5'W proceeding at 1.6 knots. The weather was deteriorating and the master found it hard to navigate the tug and tow towards the channel. The waves continued to increase in size, increasing the difficulty in maintaining course and increasing tension in the tow.

At around 08:35 the main tow line parted. The barge drifted towards Fowl Cays National Park's boundaries and the crew began preparing the emergency towing arrangements.

☆ Heroic I manoeuvred towards the drifting barge, allowing the chief officer to jump on its stern. The chief officer made his way to the bow of the barge and discovered the bridle wire could not be retrieved. He then confirmed with the master that emergency tow arrangements needed to be used.

An AB on the bow of Heroic I sent a heaving line, and the chief officer on the barge secured the emergency tow on the port bollard on the stern of the barge. The manoeuvre and reconnection took around 20 minutes.



**Heroic I and Big Show grounded at Fowl Cays National Park
(Photo from Bahamas National Trust)**

With the emergency towing arrangements connected, the tug attempted manoeuvring the barge to resume entry into the channel. The weather and waves further hindered the manoeuvre and the emergency tow line parted.

Heroic I manoeuvred to the stern of the barge again, attempting another recovery. However, the tug could not maintain position against the succession of waves and was slowly developing a list to starboard. The chief officer saw the tug begin to list from his vantage point on the barge, and instructed the AB on Heroic I's deck to send over the tug's mooring lines so that he could secure the tug to the barge.

Both tug and barge were now well outside the channel and amongst the coral reefs of the Fowl Cays National Park. On board Heroic I, the chief engineer assessed the engine room and reported to the captain that the engines were immobilised, but there was no evidence of water ingress.

A few minutes later, the engine room bilge alarm sounded and the chief engineer activated the remote emergency shutdowns for the main and auxiliary engines. The tug list then increased to 35-40° while the barge remained undisturbed.

With open space available on the barge's deck and the tug compromised, the crew determined they would be safer on the barge. The captain gave the order to abandon ship and contacted the Marsh Harbour authorities to notify them of the situation. No response was received from shoreside authorities or the Royal Bahamas Defence Force (RBDF).

The crew used a line throwing apparatus to launch additional ropes towards the barge in an attempt to prevent the tug from drifting and further submerging.

Another succession of waves swamped the tug; two crew members were on deck with donned lifejackets and were nearly swept overboard. Two AB's and the chief engineer were able to make it from the tug to the barge with some essential equipment: portable GMDSS radios, the EPIRB and logbook from the bridge. A final series of waves resulted in the tug sinking and grounding onto a reef.

The captain and barge hand remained on Heroic I in order to manually launch the life raft and gather additional documents and provisions. They disembarked Heroic I by boarding the life raft.

Later that morning, the captain and barge hand were towed alongside the barge via a small boat arranged by the operators. The remaining crew were safely recovered from the barge and transported to Marsh Harbour Abaco. No crew members reported any serious injuries as a result of the casualty.

At the time of publishing, Heroic I and Big Show remain stranded within the Fowl Cay National Park boundary in position 26°38'N 77°01.8'W.

Heroic I and Big Show grounded at Fowl Cays National Park (Photo from Bahamas National Trust)

Vessel and Crew

Heroic I was a 206GT tug built in January 1965 by Diamond Manufacturing Co. Inc. in Savannah, Georgia, United States. It was formerly classed with American Bureau of Shipping but disclassed in 2022. The vessel operated along the U.S Eastern Coast from its time of build until transferring to The Bahamas in 2023, under the ownership of Fowlco Maritime and Project Services Limited.

The tug's crew consisted of three officers: the captain, chief engineer, and chief officer along with two crew who were AB's. Campbell Marine Limited provided crew for the tug and acted in the capacity of specialist managers.

There are no available records for Port State Control history. Heroic I was subject to a Bahamas pre-registration inspection on 17 April 2023, where 11 deficiencies were identified.

While the inspection guidelines used by the BMA's inspectors has a supplement for Tugs, there is no specific requirement to inspect the towing arrangements outside of arrangements intended to be used for emergency tow, as this is deferred to Class.

None of the identified deficiencies related to the tug's ability to tow. Eight deficiencies remained during the initial inspection on 16 May 2023 and a valid Certificate of Inspection was issued by the BMA on 27 July 2023 once the deficiencies were rectified.

Documents and certificates on board were reportedly lost with the vessel, unable to be retrieved. Therefore, the vessel's owners and managers could not provide a bollard pull certificate, inspection checklists, or towing arrangement certificates for Heroic I.

Heroic I (left) Big Show (right)

Big Show was a 12,379 GT flat deck barge of 73m length and 22m breadth. It was owned by Executive Marine Management, who provided a barge hand to assist with the operation. It had last been surveyed in Amelia, Louisiana by Qubed Limited L.C on 01 June 2023. It was neither registered or Classed.

Weather

The Bahamas Department of Meteorology issues marine forecasts, notices, alerts and warnings across the regions of The Bahamas: Northern, Northwest, Central and Southeast. Heroic I's passage remained within the

Extreme Northwest[1] region of The Bahamas. The marine forecast for this region before departure issued at 12:00 on 25 March 2024 was:

WARNINGS: LINGERING LARGE SWELLS WILL CONTINUE TO PRODUCE POOR TO HAZARDOUS BOATING CONDITIONS OVER THE ATLANTIC COASTAL WATERS THROUGH THE FORECAST PERIOD. THE HIGH RISK OF LIFE-THREATENING RIP CURRENTS WILL CONTINUE AT ALL ATLANTIC BEACHES THROUGH THE LATTER PART OF THE WEEK. ROUGH SURF AND BREAKING WAVES WILL PRODUCE SIGNIFICANT RUNUP TO THE DUNE LINE OR SEAWALL, WITH THE POTENTIAL FOR SOME BEACH EROSION, ESPECIALLY AROUND HIGH TIDE.

GENERAL SITUATION: THE AREA CONTINUES TO BE UNDER THE INFLUENCE AN ELONGATED HIGHPRESSURE RIDGE THAT WILL BUILD EASTWARD, LEADING TO A GRADUAL VEERING OF THE WINDS OUT OF THE EAST AND SUPPORTING ANOTHER BREEZY AND GUSTY DAY. WINDS WILL CONTINUE TO VEER TOWARDS A MORE SOUTHEASTERLY FLOW AS THE RIDGE MIGRATES, RESULTING IN LIGHTER WINDS. A DEVELOPING MID TO UPPER-LEVEL TROUGH OVER THE CENTRAL U.S. WILL DRIVE A COLD FRONT TOWARDS THE AREA. THIS FRONTAL SYSTEM WILL BE SLOW-MOVING AND EVENTUALLY CROSS THE AREA THURSDAY EVENING INTO FRIDAY MORNING.

AREA: (GRAND BAHAMA, ABACO, BIMINI, AND THEIR ADJACENT WATERS) ADVISORY:

A SMALL CRAFT ADVISORY REMAINS IN EFFECT FOR THE EXPOSED ATLANTIC WATERS, WITH HAZARDOUS CONDITIONS DUE TO THE COMBINATION OF WINDS, WAVES, AND SWELLS. BOATERS AND MARINERS ARE STRONGLY URGED TO REMAIN IN OR VERY NEAR PORTS ON EXPOSED ATLANTIC WATERS.

WINDS: EASTERLY AT 15 TO 20 KNOTS WITH HIGHER GUSTS OVER OPEN WATERS.

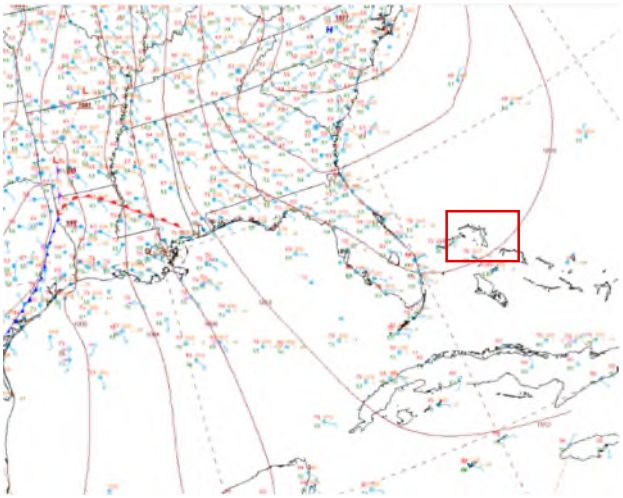
LOCAL SEAS: 4 TO 6 FEET BUT UP TO 10 FEET IN SWELLS ON THE ATLANTIC EXPOSURE AND 2 TO 4 FEET ELSEWHERE, BUT HIGHER IN GUSTS OVER THE OCEAN.

GULF STREAM: 6 TO 9 FEET WITH OCCASIONAL SEAS TO 11 FEET THIS AFTERNOON, SUBSIDING 4 TO 6 FEET WITH OCCASIONAL SEAS TO 8 FEET TONIGHT.

SWELLS: LARGE TO DANGEROUS NORTH-TO-NORTHEAST SWELLS ON THE ATLANTIC EXPOSED WATERS.

WEATHER: A SLIGHT CHANCE OF BRIEF PASSING SHOWERS THIS AFTERNOON.

The surface analysis chart for 1800Z (14:00 local time) on 25 March 2024:



NOAA Surface analysis chart (red square added for region of interest)

[1] Grand Bahama, Abaco, Bimini and their adjacent waters

Legislation and guidance

The International Convention for the Safety of Life at Sea, 1974 (SOLAS) Chapter V covers safety of navigation and applies to all ships on all voyages. Regulation 34 makes reference to the guidelines for voyage planning in IMO Resolution A.893 (21) and outlines the requirements for identifying a route for voyage planning; inclusive of ships routeing systems, sufficient sea room for passage of the ship throughout the voyage, navigational hazards and weather condition anticipation, and measures to avoid actions that can cause damage to the environment. The regulation also addresses charterers or companies not preventing or restricting the master from taking decisions necessary for safe navigation and protection of the marine environment.

IMO Resolution A.765 (18) provides guidelines on the safety of towed ships and other floating objects including installations, structures and platforms at sea. It includes guidance on categories such as planning, preparation, towing arrangements and operating manuals (amongst other areas).

The Bahamas Maritime Authority's Marine Notice 077 stipulates survey requirements for cargo ships of less than 500 gross tons. In this case, the definition of cargo ship means any ship which is not a passenger ship. The notice also states: *For ships operating in the Caribbean Trading Area, the BMA applies the CCSS Code and SCV Code, depending on the size of the ship.*

The Code of Safety for Caribbean cargo Ships (CCSS Code) has been developed to provide a regional safety standard and pollution prevention for cargo ships, new and existing, of more than 24 metres length and oil tankers and tankers irrespective of length which are less than 500GT engaged on voyages in the Caribbean Trading Area. Maritime Administrations within the Caribbean Trading Area that participate in the Caribbean Memorandum of Understanding (CMOU), apply the standards specified in this Code to registered vessels as far as is practicable and reasonable. Heroic I was surveyed by the BMA subject to the standards specified in the CCSS Code.

Previous similar cases

ASL Osprey (2022) Singapore
On 7 July 2022, the Singapore registered tug ASL Osprey was in the Arabian Sea towing the barge CB100-01, on a voyage from Singapore to Djibouti, when the towing pennant wire rope parted causing the barge to drift. A reconnection was made to tow the barge towards Mumbai. However, during the subsequent voyage, the barge capsized and presumed to have sunk.
www.mot.gov.sg/docs/default-source/default-document-library/capsize-of-barge-cb100-01-towed-by-asl-osprey-off-the-indian-coast.pdf

H.M Scout towing barges HM Blue Horizon and HM Tacoma (2016) Canada
On 2 March 2016, the tug H.M. Scout departed Victoria, British Columbia with the barges HM Tacoma and HM Blue Horizon in tandem tow. During the passage, the tug encountered severe weather, the tow line between the barges parted, and the HM Blue Horizon grounded near Clover Point, British Columbia. During the recovery attempt, a piece of the parted tow line fouled the tug's propeller, partially disabling the tug. The HM Tacoma subsequently grounded near Finlayson Point, British Columbia, and the disabled tug released the tow line and returned to Victoria. There were no injuries.
www.bst.gc.ca/sites/default/files/rapports-reports/marine/M16P0062/eng/m16p0062.pdf

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.

At the time of publication, the tug and barge remain stranded. Fuel and lubrication oils have been removed from Heroic I but salvage operations have been suspended, reportedly due to lack of insurance coverage.

Navigation and Planning

Campbell Marine Limited in their standard operating procedures (SOP's) stated:

> Tugs shall be in possession of the latest available navigation warnings and weather forecasts at all times.

The crew relied on internet based sources for weather forecasting, access was limited to when the tug had Wi-Fi or cellular data coverage. No evidence suggests that the crew received weather updates in real time once underway.

The crew had checked weather forecasts prior to departing Freeport. There were no active warnings for their route at departure, but they noted the forecasted deterioration of conditions for the Atlantic Coastal waters. The crew assessed that if the tug departed on the evening of 25 March, they would safely make it to Bakers Bay before encountering inclement weather.

This was not the first time Heroic I had made the passage and passage planning was limited to a set of waypoints on the tug's Time Zero chart plotter laptop[2]. This was not recovered.

Swells were estimated as between 0.5-1m height on departure, with similar heights anticipated upon arrival to Abaco. However, on arrival the crew experienced wind speeds upwards of 25 knots and the swells stated by the crew to be 8-10 feet (up to approximately 3m).

The SOP's did not prescribe any environmental limits for towing operations in general, for Heroic I in particular and there was no assessment for the specific operation.

Vessel suitability and Towing Operation

The ropes used as the main and emergency tow lines were certified by DNV for mooring to the ISO2307:2019 standards. The rope was a DANSTRONG+ 127,000 lb breaking load, 8-strand 3 inch diameter rope of 220m in length. A sample of the rope was tested for its maximum breaking load on 30 March 2023 and was within approved limits. No equipment or part of the towing arrangement was recovered for further testing and forces cannot be calculated with the incomplete information available.

The crew referred to adjustment of "the winch" when reducing the towing length. However, the vessel did not have an equipped towing winch, but a mechanical capstan.

[2] A non-ECDIS system. The safety equipment certificate specified paper charts as primary means of navigation.

Heroic I during initial inspection with capstan in red square

No formal towing plan or assessment of required bollard pull for the barge under tow were made available. Assessment of the bollard pull would have identified the required bollard pull of tug to maintain minimum speed, along with required strength of the elements of the towing arrangement and limiting weather conditions for the tow. DNV Towing Recommendations states that in these circumstances a speed of not less than 2 knots is considered best practice:

> 3.2 Towing force for coastal towing and towing in narrow or shallow waters representing a danger for grounding, shall be sufficient to maintain a speed over ground, in safe direction, of minimum 2 knots under defined environmental design conditions. Note that for an area with strong current this may lead to higher towing force than required for ocean tow. Also, passage through narrows may require additional tug(s) connected to the stern of the towed object.

AIS data in conjunction with crew testimony confirms the speed dropped to less than 2 knots during the approach to the channel preceding the casualty.

Two weeks prior to the casualty, Heroic I had made a roundtrip of the same route, without incident. While weather conditions were not the same, the vessel's speed did not drop below the recommended value of 2 knots while entering the narrow channel.

Another important aspect in a towing plan is the criteria for seeking shelter. The previously referenced SOP's state:

> Poor weather increases the risk to a towing operation and has to be properly assessed by the tug master. It is better to abort an operation than risk life.

The absence of a towing plan with limiting weather conditions and an associated designated place of refuge highlights that the voyage and navigational planning was not adequate for the intended route.

The lack of these supportive measures can encourage the crew to exhaust available means to recover a lost tow, and continue the operation, leading to a plan continuation bias, with no agreed upon contingency.

Plan continuation bias

When approaching Man-O-War Cay channel, the weather had deteriorated: conditions were worse than foreseen and the passage was now more difficult, but the final destination was close. Heroic I continued as planned. After the tow broke, the chief officer found that the towing bridle could not be retrieved and improvised to secure the emergency tow line. When the emergency tow line also parted, Heroic I again attempted to secure the barge. These actions all indicate that the people involved were not able to recognise that continuing the original plan was far more difficult than when they started.

Plan continuation bias is a way to describe the tendency for people to continue with an original course of action in spite of changing conditions. It is powerful but unconscious bias that can impede a person's ability to recognise that the planned action is no longer viable. Analysis of casualty investigations in aviation[3] has identified it tends to get stronger the closer they are to reaching their destination.

Overcoming the bias and recognising that carrying on is not the best course of action is difficult. Having clearly defined limits and identified go/no go decision points may help.

Campbell Marine Limited issued standing operating procedures on safety guidelines for tugboats. In the SOPs, there is an emergency towing arrangement which depicts normal towing condition, emergency tow gear deployment and emergency towing procedures. While the procedures were generic and not vessel specific (shown in Appendix 1), crew members stated the arrangements and procedures were followed for the operation.

During the initial tow, the weather deteriorated and increased tension on the tow line at a critical point of the voyage, ultimately resulting in its breakage. The bridle wire from the barge sank, therefore the crew, in following the emergency tow procedures, had to improvise connecting the tow line at the stern of the barge in order to attempt recovery as there was no appropriate means for recovering the bridle wire on the barge.

It is likely that, without the tow, the tug could have safely entered the channel.

Industry guidance

Over the years, the complexity of tug and barge operations have revealed numerous challenges in the maritime industry. In an effort to mitigate the consequences of incidents similar to those in this casualty, industry experts have produced various forms of guidance aimed towards improving safety of tug and barge towing operations.

DNV's towing recommendations provides guidance on various categories relevant to towing operations, thus encouraging best practice where applicable. It outlines items that should be contained in a towing manual, criteria for minimum bollard pull of tugs, calculations for tug efficiency during tow operations, standards of good practice for use of main and emergency tow lines, and behavioural characteristics to observe for the object being towed.

Maritime Mutual Insurance Association (NZ) Ltd issued Risk Bulletin No. 45 on May 7, 2021. The bulletin highlights towing and voyage planning being essential parts of navigational best practice and references the importance of tug bollard pull being sufficient to ensure towing safety in various weather conditions.
The bulletin concludes with emphasis on navigational safety, noting that tugs towing barges tend to have smaller crews and have to operate in confined waters and strong current conditions.

[3] See: https://humansystems.arc.nasa.gov/flightcognition/article2.htm

Conclusions

A Bahamas flagged tug and its towed barge grounded within Fowl Cays National Park. There was no reported oil pollution and no serious injuries. The tug and barge remain stranded.

The tug's main tow rope parted during the approach to the channel. Crew were able to connect emergency towing arrangements to the stern of the barge but it was likely already aground. The emergency towing arrangements also failed.

In attempting to recover the barge again, the tug was swamped and also grounded on the reef. All crew were eventually safely rescued by a rescue boat, organised by the tug's operator.

There was no indication the vessel received weather updates while out of range from shoreside internet, or cellular tower data, as there was no deviation from their course or communication about potential risks of continuing the voyage.

It is likely that without the tow, the tug could have sought shelter within the harbour. However, without sufficient guidance or decision support, the crew were unable to recognise their plan continuation bias when attempting to get the tow to its final destination.

The tug's master had experience in international towing. However, he was expected to conduct the operation without established environmental limits or detailed standard operational procedures. There was no formal towing plan, assessment of the tug's bollard pull, or bollard pull calculations for the tow made available. The vessel's operator could not provide calculations or certificates for the towing arrangements and there was no third party oversight of the operation.

Fowlco Maritime & Project Services Limited did not engage in the marine safety investigation or provide any evidence, despite requests.

Recommendations

The investigation found that while the BMA's inspection guidelines contains a supplement for Tugs, there are no specific requirements to inspect the towing arrangements outside of those intended to be used for emergency tow, as this is an area usually deferred to Class. However, the tug was disclassed at the time of pre-registration and initial inspections. Therefore it is recommended that:

The Bahamas Maritime Authority extends enhanced monitoring in the inspection regime for vessels accepted for registration which are not subject to third party oversight.

The investigation also found that while the master was experienced in the operation, there was insufficient decision support systems available to help guide him in emergencies. Therefore it is recommended that:

Campbell Marine Limited:

- Establish towage operations procedures that incorporate, as a minimum, best practice guidance on: risk assessing the operation, selecting tow methodology, selection, care and maintenance of towing equipment, planning the passage, stability, safe work on deck, avoidance of dynamic forces, effective monitoring during passage and emergency preparedness.
- Ensure vessels under their operation have suitable means of receiving weather updates at all times.

Vessel particulars	
Vessel name	Heroic I
Vessel type	Tug
Flag / IMO number	Bahamas / 6604781
Registered owner	Fowlco Maritime & Project Services Limited
Manager	Campbell Marine Ltd
Classification Society	Unclassed
Built	1965, Diamond Manufacturing Co. Inc. Savannah Georgia, United States.
Length / breadth / moulded depth	29.15m / 8.22m / 4.58m
Gross / net tonnage	206 / 61
Minimum safe manning	5

Voyage Particulars	
Departure port	Freeport, Grand Bahama
Arrival port	Marsh Harbour, Abaco
Distance / duration	Approx. 230 nautical miles
Cargo information	Barge in tow with cargo of aggregate / sand
Crew / passengers	5 / 1

Marine Casualty Information	
Severity of casualty	Very serious marine casualty
Date / time	27 March 2025
Geographical location	26°38'N 77°01'W (Abaco, The Bahamas)
Injuries / fatalities	0
Damage / environmental impact	Vessels stranded within boundaries of National Park, resulting in damage to reefs. No reported oil pollution.
Ship operation	Towing
Stage of passage	Arrival
External environment	Daylight. Wind: Easterly force 5-6. Sea: rough, swells reported to be 3m.

Appendices

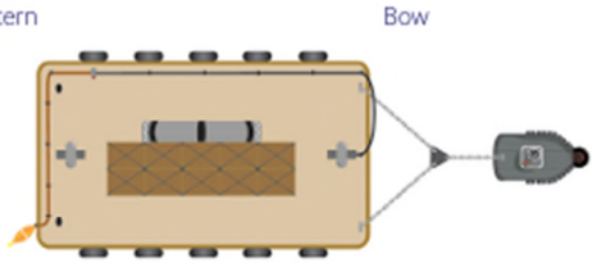
Appendix 1 – Emergency towing arrangement for barges

EMERGENCY TOWING
Arrangement for barges

Legends:

	Towing bridle chain
	Emergency towing pennant
	Buoyant float line
	Strong point
	Emergency towing pennant leading over main bridle, connected to strong point
	Soft lashings/metal clips
	Float with self-igniting light

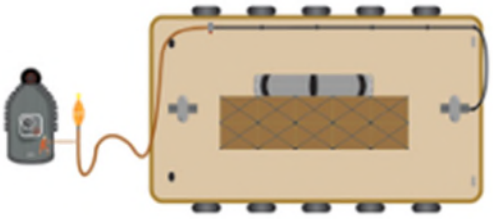
Normal towing condition



Emergency towing gear consists of:

1. Emergency towing pennant connected to a strong point on the bow (or stern) and clear of the main bridle and other obstructions.
2. A float line connected to the emergency towing pennant and a conspicuous floating buoy with a self-igniting light at the free end. The buoy is rigged at the stern so that it can easily be recovered by the tug. This must be of sufficient length to enable the buoy to float clear of the barge.
3. The pennant and the float line must be secured to the barge with soft lashings or metal clips which break free when pulled.

Deployment of emergency towing gear



Emergency towing procedures:

1. Disconnect main towing bridle from tug.
2. Manoeuvre tug to stern of barge.
3. Retrieve float line until the eye of the emergency towing pennant is onboard the tug.
4. Make fast the pennant eye to the tug towing hook.
5. Manoeuvre the tug slowly to the bow, gradually taking the weight of the tow.
6. Proceed to tow the barge to a safe location.
7. Emergency towing arrangements can also be replicated on the stern of the barge if the barge layout is suitable.

Emergency towing