

REPORT OF INVESTIGATION

INTO THE COMMERCIAL DIVE VESSEL NIUHI (O.N. 1093374), PASSENGER LOSS OF LIFE AT BRASS WRECK 20 NM SOUTHEAST OF PENSACOLA, FL ON OCTOBER 06, 2023



United States Coast Guard



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16732/IIA #7805561 21 March 2025

LOSS OF LIFE WHILE DIVING FROM THE SMALL PASSENGER VESSEL NIUHI (O.N. 1093374) AT THE BRASS WRECK DIVE SITE, 20 NAUTICAL MILES SOUTHEAST OF PENSACOLA, FLORIDA ON OCTOBER 6, 2023

ACTION BY THE COMMANDANT

The record and the report of investigation completed for this marine casualty have been reviewed by the Office of Investigations & Casualty Analysis. The record and the report, including the findings of fact, analyses, and conclusions are approved. This marine casualty investigation is closed.



E. B. SAMMS Captain, U.S. Coast Guard Chief, Office of Investigations & Casualty Analysis (CG-INV)

United States Coast Guard



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16732

FEB 1.4 2025

COMMERCIAL DIVE VESSEL NIUHI (O.N. 1093374), PASSENGER LOSS OF LIFE AT BRASS WRECK 20 NM SOUTHEAST OF PENSACOLA, FL ON OCTOBER 06, 2023

ENDORSEMENT BY THE COMMANDER, EIGHTH COAST GUARD DISTRICT

The record and the report of the investigation convened for the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendations are approved. It is recommended that this marine casualty investigation be closed.

COMMENTS ON THE REPORT

1. The loss of the passenger was a tragic and preventable accident. I offer my sincere condolences to the family and friends of the passenger who lost his life.

2. The investigation and report contain valuable information which can be used to address the factors that contributed to this marine casualty and prevent similar incidents from occurring in the future.

J. E. FOTHERGILL

Commander, U.S. Coast Guard Chief of Prevention, Acting Eighth Coast Guard District By Direction

United States Coast Guard



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16732

February 11, 2025

COMMERCIAL DIVE VESSEL NIUHI (O.N. 1093374), PASSENGER LOSS OF LIFE AT BRASS WRECK 20 NM SOUTHEAST OF PENSACOLA, FL ON OCTOBER 06, 2023

ENDORSEMENT BY THE OFFICER IN CHARGE, MARINE INSPECTION

The record and the report of the investigation convened for the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions and recommendations are approved subject to the following comments. It is recommended that this marine casualty investigation be closed.

COMMENTS ON REPORT

M. O. Vega Captain, U.S. Coast Guard

Officer in Charge, Marine Inspection

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United States Coast Guard



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16732 February 11, 2025

COMMERCIAL DIVE VESSEL NIUHI (O.N. 1093374), PASSENGER LOSS OF LIFE AT BRASS WRECK 20 NM SOUTHEAST OF PENSACOLA, FL ON OCTOBER 06, 2023

EXECUTIVE SUMMARY

On the morning of October 06, 2023, at approximately 0730, the 30-foot commercial dive vessel, NIUHI (O.N. 1093374), departed from its dock in Pensacola, FL. Onboard was the Master, Divemaster and six passengers ready to explore multiple dive sites, located approximately 12 to 20 nautical miles southeast of Pensacola, FL. The Divemaster provided the passengers a thorough safety brief which included an overview of drills, hand signals, and the location of life jackets and oxygen kits should a passenger become distressed.

Their first destination was a site known as "Timber Holes", the Divemaster entered the water to scout the area and report back. The six passengers were split into two groups. Group 1 was composed of Passenger 1, Passenger 2, and Passenger 3 who entered the water first followed by Group 2 ten minutes later. Each group conducted two dives at the location. The vessel moved the divers to another wreck site where some of the passengers conducted another set of dives. Finally, the vessel proceeded to "Brass Wreck" for last dives of the day.

Shortly after arriving to "Brass Wreck" dive site, Dive Group 1 entered the water. Passenger 2 quickly descended to explore the dive site. Meanwhile, Passenger 1 descended 10 feet and then resurfaced briefly without inflating his buoyancy chamber. Afterwards, Passenger 1 was found unresponsive face down on the sea floor with his gloves, fins, and buoyancy chamber partially removed. Passenger 2 attempted to inflate Passenger 1's buoyancy chamber but was unsuccessful and ascended to notify the crew of Passenger 1's condition and get additional assistance. The Divemaster quickly entered the water and recovered Passenger 1 with the help of others on board. The Master made way towards CG Station Pensacola while communicating to the station via radio that they had an emergency with Passenger 1. Passenger 2 and Passenger 3 immediately began performing CPR on Passenger 1, alternating for approximately 40 minutes while they made way towards the Pensacola. CG and EMS arrived on scene and relieved those that provided initial aid to Passenger 1. EMS crew triaged Passenger 1 while both vessels quickly proceeded to CG Station Pensacola. Passenger 1 was pronounced dead by EMS crew upon arrival to the station. The autopsy report determined the cause of death to be accidental drowning and noted accumulation of dissolved gas in tissues consistent with dive injuries.

Through its investigation, the Coast Guard determined the initiating event for this casualty was decompression illness of Passenger 1. The causal factors contributing to this marine casualty were,1) Fatigue from five deep dives within a five-hour time frame, and 2) Lack of adherence to decompression dive time. A subsequent event was the death of Passenger 1. Causal factors leading to the subsequent event were, 1) Inadequate buddy system of Group 1, and 2) Failure to follow company dive instruction.

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16732 February 11, 2025

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INVESTIGATING OFFICER'S REPORT

1. Preliminary Statement

1.1. This marine casualty investigation was conducted, and this report was submitted in accordance with Title 46, Code of Federal Regulations (CFR), Subpart 4.07, and under the authority of Title 46, United States Code (USC) Chapter 63.

1.2. No individuals, organizations, or parties were designated a party-in-interest in accordance with 46 CFR Subsection 4.03-10.

1.3. The Coast Guard was the lead agency for all evidence collection activities involving this investigation. No other persons or organizations assisted in this investigation.

1.4. All times listed in this report are in Central Standard Time using a 24-hour format and are approximate.

2. Vessel Involved in the Incident

Official Name:	NIUHI		
Identification Number:	1093374		
Flag:	United States		
Vessel Class/Type/Sub-Type	Small Passenger Vessel/Commercial Dive		
	Vessel		
Build Year:	1999		
Gross Tonnage:	Unknown		
Length:	30 Feet		
Beam/Width:	Unknown		
Draft:	Unknown		
Main/Primary Propulsion:	Twin Outboard Engines		
Owner:	NIUHI Dive Charters LLC		
Operator:			



Figure 1. NIUHI moored in Pensacola, FL (March 15, 2024/USCG)

3. Deceased, Missing, and/or Injured Persons

Relationship to vessel	Sex	Age	<u>Status</u>
Passenger 1	Male	50	Deceased

4. Findings of Fact

4.1. The Incident:

4.1.1. On October 6, 2023, at 0700, the NIUHI was moored in Pensacola, FL. The Master and Deckhand arrived at the vessel and prepped for dive operations. The six passengers arrived at approximately 0715 and completed their gear checklists, signed liability release and waiver forms, and assembled and tested their SCUBA gear on the dock.

4.1.2. At approximately 0730, the NIUHI departed from South Wind marina in Pensacola, Florida and was underway toward the Timber Holes dive site with six passengers, the Master, and Divemaster onboard. The Divemaster conducted a safety brief to include an overview of drills, hand signals, and the location of life jackets and oxygen kits.

4.1.3. At approximately 0840, the NIUHI arrived at the "Timber Holes" dive site (Dive Site 1). Upon arrival, the divemaster descended to check the dive site.

4.1.4. The passengers were split into two groups of three. The first Group was made up of Passenger 1, Passenger 2, and Passenger 3. The second group was made up of

passenger 4, passenger 5, and passenger 6. The groups were instructed to stagger their entrance into the water by 10 minutes.

4.1.5. Dive Site 1.

- 4.1.5.1. Dive 1. At approximately 0843, Group 1 entered the water to a max depth of 112 feet. Group 2 entered approximately 10 minutes later.
- 4.1.5.2. Dive 1 total underwater time was approximately 23 minutes and 06 seconds for Passenger 1.
- 4.1.5.3. Dive 1 Surface interval time (SIT) for Passenger 1 was approximately one hour on the vessel.
- 4.1.5.4. Dive 2. At approximately 1016, Group 1 entered the water to a max depth of 116 feet. Group 2 entered approximately 10 minutes later.
- 4.1.5.5. Dive 2 total underwater time was approximately 19 minutes and 23 seconds for Passenger 1.
- 4.1.5.6. Dive 2 SIT for Passenger 1 was approximately one hour on the vessel.

4.1.6. After the two dives, the NIUHI proceeded to a new location where the groups conducted another set of dives, which were referred to as "chicken coop" or "bounce dives" (Dive site 2).

4.1.7. Dive site 2.

- 4.1.7.1. Dive 3. At approximately 1139, Group 1 entered the water to a max depth of 82 feet. Followed by some members of Group 2 approximately 10 minutes later.
- 4.1.7.2. Dive 3 total underwater time for Passenger 1 was approximately 11 minutes and 12 seconds.
- 4.1.7.3. Dive 3 SIT for Passenger 1 was approximately one hour on the vessel.
- 4.1.7.4. Dive 4. At approximately 1245, Group 1 entered the water to a max 92 feet. Followed by some members of Group 2 approximately 10 minutes later.
- 4.1.7.5. Dive 4 total underwater time for Passenger 1 was 11 minutes and 50 seconds.
- 4.1.7.6. Dive 4 SIT for Passenger 1 was approximately 30 minutes.

4.1.8. The vessel took the groups to dive site "Brass Wreck" (Dive site 3).



Figure 2. Chart 11382 with location markings generated by Coast Guard. (February 29, 2024/USCG)

- 4.1.9. Dive site 3.
 - 4.1.9.1. Dive 5. At approximately 1329, Group 1 entered the water except for Passenger 3.
 - 4.1.9.2. Dive 5. Passenger 2 descended to the wreck site.
 - 4.1.9.3. Dive 5. Passenger 1 made an initial descent to 10 feet and then briefly resurfaced for approximately 1 minute, then his body made a rapid sharp descent to 89 ft.



Figure 3: Graph of Passenger 1's fifth dive retrieved from his personal dive computer. (March 20, 2024/USCG)

- 4.1.9.4. Dive 5. Group 2 made up of Passenger 4, 5, and 6 entered the water. Passenger 3 and the Divemaster prepared gear to enter water and noticed a dive glove floating.
- 4.1.9.5. Dive 5. At approximately 1335 Passenger 2 found Passenger 1 unresponsive and face down with both fins off, regulator out of mouth, and buoyancy chamber partially removed.
- 4.1.9.6.Dive 5. Passenger 2 attempted to attach his inflator hose to Passenger 1 to bring them to the surface but was unsuccessful. After multiple attempts, Passenger 2 resurfaced to the vessel to get assistance.

4.1.10. After Passenger 2 alerted the vessel crew to Passenger 1, the Divemaster entered the water and resurfaced with Passenger 1. Another passenger assisted in bringing the unresponsive Passenger 1 on board the NIUHI.

4.1.11. Once the divemaster and Passenger 1 were on board, Passengers 2 and 3 began chest compressions alternating. The divemaster administered oxygen in accordance with the vessel's emergency procedures.

4.1.12. At approximately 1345 Group 2 reboarded the vessel.

4.1.13. The Master made way towards Coast Guard Station Pensacola with the six passengers onboard.

4.1.14. At approximately 1348, the Master notified the Coast Guard of Passenger 1's condition and that the NIUHI was making way towards Pensacola Pass.

4.1.15. At 1351, Coast Guard Station Pensacola deployed a CG-45 with 03 EMS crew towards NIUHI's location.

4.1.16. At 1424, the CG-45 arrived on scene with NIUHI and 03 EMS crew and 01 CG crew were transferred to the NIUHI. EMS Crew relieved those providing initial aid and triaged passenger 1, while both vessels proceeded towards Station Pensacola.

4.1.17. At approximately 1449, CG-45 and NIUHI arrived at Station Pensacola and Passenger 1 was pronounced dead by EMS crew.

4.1.18. On October 9, 2023, at 1000, medical examiners at Sacred Heart Hospital of Pensacola, FL performed an autopsy on Passenger 1.

4.1.19. On December 14, 2023, the autopsy report stated the cause of death was drowning while scuba diving.

4.1.20. The Master and Divemaster aboard the NIUHI were determined to be directly involved in the incident and were subject to mandatory chemical testing for evidence of drug and alcohol use in accordance with 46 CFR 4.06. The Master and Divemaster tested negative for both alcohol and drug use.

4.2. Additional/Supporting Information:

4.2.1. The NIUHI was a 30-foot uninspected passenger vessel with required manning to include one Master and was authorized to carry six passengers. The vessel conducted recreational diving charters in the Gulf of Mexico waters surrounding the Pensacola, Florida area.

4.2.2. The company, NIUHI Dive Charters, served as the managing owner of the NIUHI.

4.2.3. The Master of the NIUHI was self-employed by NIUHI Dive Charters. He was the holder of a USCG Merchant Mariner Credential with an endorsement for selfpropelled vessels not including sail or auxiliary sail of less than 100 gross registered tons upon near coastal waters. The Master holds an Advanced Open Water Certificate and has conducted approximately 2,000 open water recreational dives in the past. The Master has owned and operated the vessel for 11 years and offered recreational scuba diving charter trips seven days a week throughout the year.

4.2.4. The Divemaster had been certified as a Dive Master for 17 years. He has worked as the Divemaster onboard the NIUHI for approximately seven years. His responsibilities did not include instruction, only as a dive tour guide.

4.2.5. The company, NIUHI Dive Charter, required all divers to be certified. Each diver was also required to bring the following items for their dive charter:

- 4.2.5.1. certification card for their specific type of dive,
- 4.2.5.2. scuba system to include regulator, BC, gauges,
- 4.2.5.3. dive system to include mask, snorkel fins, boots, weight/belt, and
- 4.2.5.4. two tanks of NITROX or AIR. Dive computers are highly recommended, but not required.

4.2.6. The "Brass Wreck" site was approximately 20 nautical miles southeast of Pensacola, Florida.

4.2.7. Dive Group 1 for Dive 5 was made up Passenger 1 and Passenger 2. Passenger 1 was the deceased.

4.2.8. Passenger 1 was a 50-year-old, 6 ft 3 in, 239-pound male and a certified diver. Passenger 1 arrived at Pensacola, FL on October 6, 2023, for a planned dive trip. Upon his arrival on October 06, 2023, Passenger 1 conducted a check of all scuba diving equipment which was in good working order and properly fitted.

- 4.2.8.1. Passenger 1 held a diving certificate #2588377 for SSI Deep and Nitrox and had indicated a completion of 80 previous dives.
- 4.2.8.2. Passenger 1 was a return customer of NIUHI Dive Charter and had made a previous dive on September 1, 2023.

4.2.8.3. Passenger 1 utilized Dive Rite Buoyancy Device (BCD), Aqualung Legend Regulator Set, Perdix 2 Shearwater Dive Computer and three NITROX mix tanks.

4.2.9. On October 9, 2023, Coast Guard had Dive Pros, a dive equipment inspection company, conduct an inspection on Passenger 1's Aqualung Legend Regulator and Nitrox tanks. The inspection report showed that all hoses and connections on the regulator passed the safety inspection. The inspection also showed that the Oxygen level in the tanks used during the last dive was sufficient.



Figure 4: Passenger 1's diving gear and equipment. (October 9, 2023 /USCG)

4.2.10. Nitrox refers to a gas mixture consisting of oxygen and nitrogen. Divers use Nitrox to either extend their dive time, reduce their decompression stress, or reduce surface interval times.¹

4.2.11. Passenger 1 dove with a 28% O2 and 72% N2 Nitrox mix bottle attached to their BCD. According to dive experts, this was considered a normal mixture.



Figure 5: Inspection of Oxygen levels in Passenger 1's diving tank. (October 9, 2023/USCG)

4.2.12. Dive computers monitor depth, time, and dive profiles. Integrating advanced predictive models into dive computers allows for real-time nitrogen uptake and elimination calculations when diving.²

4.2.13. Decompression sickness (DCS) is a potentially life-threatening condition that occurs when dissolved gases (commonly nitrogen) form bubbles in the bloodstream and tissues. This condition predominantly affects individuals who experience rapid ambient pressure changes, such as scuba divers. DCS may be prevented by following safe diving practices, including appropriate ascent rates, adherence to decompression schedules, safety stops, and conservative dive planning.

¹ Information provided in 4.2.13 was retrieved from the Divers Alert Network at https://dan.org/alertdiver/article/nitrox/

² Information provided in 4.2.14 and 4.2.15 was retrieved from the National Institute of Medicine at Decompression Sickness - StatPearls - NCBI Bookshelf (nih.gov)

4.2.14. Recognized dive tables from the following recognized diving institutions show recommended decompression stops and surface interval times for subsequent dives:

4.2.14.1.U.S. Navy

4.2.14.2. Professional Association of Diving Instructors (PADI)

4.2.14.3. International Association of Nitrox and Technical Divers (IANTD)

4.2.15. Surface interval time (SIT) is the time spent on the surface between dives. During this time, the body is eliminating excess nitrogen in a process often referred to as "off gassing" which decreases DCS. This SIT can be calculated using dive tables or a dive computer. Recognized diving institutions recommend spending an hour or more at the surface depending on the depth and time of dive to allow the accumulated gasses to naturally off gas from the body. It is recommended that deeper dives are followed by longer surface interval times.

5. Analysis

- 5.1. Fatigue from five deep dives within a five-hour timeframe. Passenger 1 undertook five consecutive dives between the times of 0843 and 1329, spanning roughly five hours. Each dive was between 82 to 116 feet below the surface of the water. Total underwater time for dives 1 and 2 was approximately 20 minutes each. Total underwater time for dives 3 and 4 was approximately 12 minutes each. Every 33 feet underwater equals to 1 standard atmospheric pressure (atm) unit, which also equals to 14.7 pounds of pressure. During each dive, Passenger 1 was subjected to approximately 50 to 66 pounds of additional weight on his body for approximately 12 to 20 minutes during four separate occasions. This can be equated to moderate to intensive exercise on four occasions. In addition to the added stress of 4 dives, Passenger 1 had a clinical history of asthma and pre-diabetes, which according to health professionals could be exacerbated by diving. It is reasonable to assume, given Passenger 1's age, body type, number of dives, and clinical history, Passenger 1 was physically and mentally exhausted on Dive 5. According to medical professionals, mental and physical fatigue contributes to confusion and in extreme cases loss of consciousness. If Passenger 1 had not been fatigued during Dive 5 he may not have succumbed to decompression sickness and death.
- 5.2. Lack of adherence to decompression dive time. Recognized decompression dive tables show recommended decompression stops and surface interval time (SIT), which allow for adequate "off gassing" of inert gasses from the body. In additional, many dive experts have general guidelines for decompression, which include the 120-Rule for underwater time and the "One-Hour Golden" rule for surface time. The 120-Rule is that the depth in feet underwater and the time spent underwater should never equal to more than 120. For example, a diver can spend 60 minutes at 60 feet, 30 minutes at 90 feet, and 20 minutes at 100 feet. The "One-Hour Golden" rule is general guidance to spend one hour on the surface between each dive. Passenger 1's Dive 1 was at 112 feet for 23 minutes and Dive 2 was 116 feet for 19 minutes. Both dives fell outside the recommendation of the decompression tables and dive expert general guidance.

According to the decompression table, Dive 2 exceeded the recommended total underwater time following Dive 1 increasing the residual nitrogen levels in Passenger 1's body for each subsequent dive. In addition, the SIT of 30 minutes between dives 4 and 5, fell outside the recommended dive table SIT. According to the Decompression Tables and Passenger 1 dive computer record, Passenger 1 was required a 55-minute SIT between dive 4 and 5 to allow for adequate "off gassing". Passenger 1's SIT of 30 minutes between Dives 4 and 5 was not adequate amount of time. If Passenger 1 adhered to the decompression table or general guidance during all his dives, specifically his final dive, he could have decreased his chances of succumbing to decompression sickness and death.

- 5.3. *Inadequate buddy system of Group 1.* According to NIUHI company documents, the dive line would be set by the Dive Master. Then each Group would get into the water, one at a time, following the line down to the site. According to company waivers, passengers were to always remain with their dive buddy. At Dive Site 3, Group 1, made up of Passenger 1 and Passenger 2, entered the water first. Passenger 2 went straight down to the dive site and did not see Passenger 1 during the descent. Passenger 1 made an initial descent of 10 feet before momentarily resurfacing. Passenger 2 had explored the dive site for approximately 5 minutes, before he noticed Passenger 1 faced down and unresponsive on the sea floor. It is reasonable to assume if Group 1 abided by the buddy system, Passenger 2 may have noticed Passenger 1 was in distress and may have been able to provide aid sooner, decreasing the chances of Passenger 1's drowning and death.
- 5.4. Failure to follow company dive instruction. According to the company, the passengers were given instructions that if they were to become distressed, they would drop their weights and inflate their buoyancy chamber. Passengers were also instructed that anytime they are on the surface, even for a few minutes, they were required to inflate their buoyancy chamber. During Dive 5, Passenger 1's dive computer showed that he resurfaced shortly after descending 10 feet. When a diver needs to resurface after descending it is most likely due to an issue with their equipment, or they may be in distress. Testing of Passenger 1's buoyancy chamber was never inflated. Passenger 1 was found without gloves, fins, and his buoyancy chamber device partially removed. It is likely that Passenger 1 attempted to inflate his buoyancy chamber but succumbed to decompression sickness and fatigue. Had Passenger 1 inflated his drowning and death.

6. Conclusions

6.1. Determination of Cause:

6.1.1. The initiating event for this casualty was decompression sickness of Passenger 1. The casual factors leading to this event were:

6.1.1.1. Fatigue from five deep dives within a five-hour timeframe.

6.1.1.2. Lack of adherence to decompression dive time.

- 6.1.2. The subsequent event for this casualty was the death of Passenger 1. Defense factors that may have prevented this were:
 - 6.1.2.1. Inadequate buddy system of Group 1.
 - 6.1.2.2. Failure to follow company dive instruction.

6.2. Evidence of Act(s) or Violation(s) of Law by Any Coast Guard Credentialed Mariner Subject to Action under 46 USC Chapter 77: There were no acts of misconduct, incompetence, negligence, unskillfulness, or violations of law by a credentialed mariner identified as part of this investigation.

6.3. Evidence of Act(s) or Violation(s) of Law by U.S. Coast Guard Personnel, or any other person: There were no acts of misconduct, incompetence, negligence, unskillfulness, or violations of law by Coast Guard employees or any other person that contributed to this casualty.

6.4. Evidence of Act(s) Subject to Civil Penalty: This investigation did not identify any evidence of acts that would warrant a civil penalty.

6.5. Evidence of Criminal Act(s): This investigation did not identify violations of criminal law.

6.6. Need for New or Amended U.S. Law or Regulation: This investigation identified no matters needing new or amended U.S. law or regulation.

7. <u>Recommendations</u>

7.1. Safety Recommendation: There were no proposed actions to add new or amend existing U.S. law or regulations, international requirements, industry standards, or U.S. Coast Guard policies and procedures as part of this investigation.



Lieutenant, U.S. Coast Guard Investigating Officer