



UNITED STATES COAST GUARD

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE INCIDENT INVOLVING A PARASAILING ACCIDENT ON THE

FL0238HY

**ONE MILE OFF HILLSBORO INLET,
POMPANO BEACH, FLORIDA ON 08/15/2012
WITH THE LOSS OF ONE LIFE**



MISLE ACTIVITY NUMBER: 4412409

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

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16732/IIA#4412409
17 June 2022

**LOSS OF LIFE INVOLVING THE UNINSPECTED PASSENGER VESSEL
FL0238HY DURING PARASAIL OPERATIONS IN THE VICINITY OF
HILLSBORO INLET NEAR POMPANO BEACH, FLORIDA
ON AUGUST 15, 2012**

ACTION BY THE COMMANDANT

The report of investigation, records and other evidence associated with the informal investigation into the circumstances surrounding the harness failure and resultant fatality of a para-sailor has been reviewed. These records including the findings of fact are approved subject to the following comments.

ACTION ON RECOMMENDATIONS

Recommendation 1: It is recommended that the Commandant of the Coast Guard, in consultation with national parasailing organizations, the parasailing industry and the American Society for Testing and Materials (ASTM), establish a parasailing endorsement for Coast Guard Merchant Mariner Licenses. The parasailing endorsement should be required for the licensed operator or master of any vessel engaged in commercial parasail operations.

Recommendation 2: It is recommended that the Commandant of the Coast Guard, in consultation with national parasailing organizations, the parasailing industry and the ASTM, develop standards for the selection, inspection (periodic and event-based), maintenance, storage and retirement (removal from service) of parasail equipment used in commercial service. These standards should also establish evaluation procedures to determine the suitability for service of equipment not purchased directly from the equipment's manufacturer.

Recommendation 3: It is recommended that the Commandant of the Coast Guard require that each person participating in a parasail flight wear a Coast Guard-approved PFD that is designed to turn an unconscious wearer to the face-up position and is in serviceable condition and of the proper size for the wearer. The PFD should be donned prior to the person's connection to any parasail equipment other than the harness, and should remain properly worn throughout the entire parasail operation.

Recommendation 4: It is recommended that the Commandant of the Coast Guard require that each vessel conducting commercial parasail operations have a deckhand onboard acting as an observer at all times when a parasail is aloft with passengers. The observer should be required to have training on identifying and responding to emergency situations, the proper fit of harnesses and PFDs, and the processes for launching and recovering the parasail. The observer should be prohibited from having any other duties while a parasail is aloft with passengers. (SR8456)

Recommendation 5: It is recommended that the Commandant of the Coast Guard in consultation with national parasailing organizations, the parasailing industry and the ASTM, develop recordkeeping standards for equipment used in parasail operations including, but not limited to: parasails, line/rope, harnesses, PFDs, connection apparatuses, winches and their associated equipment, masts and pulleys. The record for each piece of equipment should document: date of purchase, condition when purchased, date the equipment was placed into service, date the equipment was removed from service, all maintenance performed on the equipment, date of each inspection of the equipment, and damage or failure of the equipment. These records should be maintained for the service life of the equipment and should be available for review by the Coast Guard.

Recommendation 6: It is recommended that the Commandant of the Coast Guard in consultation with national parasailing organizations, the parasailing industry and the ASTM, develop recordkeeping standards for tallying flight cycles on safety-critical parasail equipment, including, but not limited to: parasails, harnesses, tow lines and yokes. In consultation with the parasail industry, the periodic inspection standards in recommendation two should correlate to the number of flight cycles for each type of equipment.

Recommendation 7: It is recommended that the Commandant of the Coast Guard in consultation with national parasailing organizations, the parasailing industry and the ASTM, develop recordkeeping standards for each parasail flight, including, but not limited to: the parasail used; the harnesses used, the estimated weight of each passenger on the flight; the observed wind and sea states; the duration of the flight, and the details of any incident that occurred during the parasail operation. These records should be available for review by the Coast Guard.

Recommendation 8: It is recommended that the Commandant of the Coast Guard, in consultation with the parasailing industry, require that each parasail, harness, and apparatus used to connect the passenger to the parasail be labeled or otherwise fitted with a permanent, unique identifier. This identifier should allow the owner, operator or investigative agency to determine the equipment's place of manufacture, date of manufacture, and the materials used in its construction. This identification system should be able to be applied to other-than-new equipment.

Recommendation 9: It is recommended that the Commandant of the Coast Guard require operators of commercial parasail vessels to provide a comprehensive passenger safety briefing prior to the start of parasail operations to include discussion of the risks inherent in parasailing and the operational limits imposed to mitigate those risks. The briefing should also convey the proper procedures to be followed in the event of parasailing emergencies to include, but not limited to: catastrophic or non-catastrophic equipment failure, unintended landing on water, winch malfunction, towline failure, and a loss of propulsion with a passenger in flight.

Recommendation 10: It is recommended that the Commandant of the Coast Guard, in consultation with national parasailing organizations, the parasailing industry and ASTM, review, modify, and ultimately adopt and incorporate by reference in 46 C.F.R. Subchapter C and 46

C.F.R. Subchapter T, the ASTM standards for parasail operations, or a similarly produced and recognized industry standard.

Recommendation 11: It is recommended that the Commandant of the Coast Guard provide written guidance to marine investigators for use during the investigation of parasailing marine casualties. This guidance should cover all aspects of parasail operations including, but not limited to: flight procedures, purpose and function of all equipment, applicable industry standards and regulations, and post-casualty evidence collection and equipment testing. This guidance should be taught at the Marine Inspection and Investigations School at Training Center Yorktown and be made available in an alternative format to the public and the parasailing industry.

Recommendation 12: It is recommended that the Commandant of the Coast Guard develop and implement a Coast Guard-wide Voluntary Commercial Parasailing Vessel Safety Examination Program modeled after the program instituted by Coast Guard Sector St. Petersburg. The examination procedures in this program should be based on recognized industry standards.

Recommendations 1-12: I concur with the intent of these recommendations. The Coast Guard currently lacks regulatory authority to compel compliance with regard to parasailing operations, equipment, or parasail specific endorsements for merchant mariner licensing. However, since 2009, the Coast Guard has shepherded the development of consensus standards with Industry stakeholders including the Water Sports Industry Association (WSIA).

In January 2012, the Coast Guard requested that stakeholders and WSIA develop voluntary standards for the parasailing industry using the American Society for Testing and Materials (ASTM) consensus standards process. A subcommittee was formally established in the fall of 2012, and the first ASTM standards were published in April 2013.

The ASTM "Standard Practices for Parasailing" continue to be reviewed and have undergone multiple revisions over the past nine years, the most recent version being F3099-19. The parasail industry has taken extensive action towards improving operational safety. Key elements of the standard are: Weather Monitoring and Limits, Equipment, Towline Care, Operations, Crew Requirements, Emergency Procedures, and Patron Responsibility. The Coast Guard continues to monitor the industry's implementation of the ASTM standards and evaluate their effectiveness. This is completed through Coast Guard presence at annual parasailing conferences and engagement with the Water Sports Industry Association (WSIA) and by periodically providing casualty data to measure ASTM standard effectiveness.

Since 2009, the Coast Guard has issued multiple Safety Alerts and Marine Safety Information Bulletins (MSIBs) to the public, which are specific to the parasailing industry and include the following:

- 2009: 06-09 Safety Alert 'Parasailing Incidents'
- 2011: 05-11 Safety Alert 'Parasailing: Know your Ropes'
- 2012: The Commandant sent message (R 191851Z Jan 12) regarding commercial parasailing vessel safety and included the "Commercial Parasailing Vessel Safety Guidance," which prescribes how outreach to parasail operators should be conducted by Coast Guard units.
- 2013: 07-13 Safety Alert 'Parasailing Operations – Know Your Ropes (2)'
- 2014: 05-14 Safety Alert 'Overheating of Parasailing Vessel Hydraulic System'
- 2015: MSIB 003-15 'Parasailing - Flight Safety and Rules'
- 2015: 07-15 Safety Alert 'Prevent Parasail Accidents: Follow ASTM Standards and Follow Manufacturer Instructions!'
- 2018: 12-18 Safety Alert 'Hazards of Parasail and Watersport Passenger Transfers'
- 2019: MSIB 002-19 'Parasailing - Navigation Rules and Flight Safety'

A hazardous condition is any condition that may adversely affect the safety of any vessel, bridge, structure, or shore area or the environmental quality of any port, harbor, or navigable waterway of the United States. In July 2015, the U.S. Coast Guard issued Navigation and Vessel Inspection Circular (NVIC) 1-15, "TITLE 46, CODE OF FEDERAL REGULATIONS (CFR), PART 4 MARINE CASUALTY REPORTING PROCEDURES GUIDE WITH ASSOCIATED STANDARD INTERPRETATIONS." NVIC 1-15 clarifies that parasailing accidents not reaching reportable marine casualty thresholds in 46 CFR § 4.05-1 would still constitute a hazardous condition as defined in 33 CFR 160.202 and meet the subsequent reporting requirement of hazardous conditions as defined in 33 CFR §160.216.

In 2015, U.S. Coast Guard Training Center Yorktown added a parasail casualty scenario to the Investigating Officer Course curriculum. This scenario offers Coast Guard Investigators the opportunity to consider the unique investigation considerations associated with parasail operations.


Since this incident occurred, parasailing fatalities and injuries have declined. The Coast Guard will continue to monitor parasail safety and encourage the combined efforts of stakeholders to improve safety.

Through safety initiatives in public education and outreach, established ASTM standards, and continued partnership with WSIA and ASTM representatives, it is clear that the intent of these recommendations has been addressed as is evidenced through the downward trends in casualties. The closure of this case will allow the Coast Guard to share it and any third party safety recommendations with our parasailing industry partners to further strengthen safety measures within the parasailing industry.

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This report, along with similar parasailing cases, will be posted and available to the public on the DCO website here:

<https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Office-of-Investigations-Casualty-Analysis/Marine-Casualty-Reports/>.


J. D. NEUBAUER
Captain, U.S. Coast Guard
Acting Director of Inspections and Compliance



16732
15 Aug 2013

MEMORANDUM

From: [REDACTED] CDR
CG Sector Miami (sp)

Reply to: [REDACTED] LT
Attn of: 305-535-8754

To: A. J. Gould, CAPT
CG Sector Miami

Thru: CG Sector Miami (sp)

Ref: (a) Investigating Marine Casualties, 46 U.S.C., Chapter 63
(b) Marine Casualties and Investigations, 46 C.F.R., Part 4
(c) Marine Safety Manual, Volume V; COMDTINST M16000.10
(d) CG-INV Policy Letter 01-2011; Subj; Marine Casualty Report of Investigation (ROI) Policy

Preliminary Statement:

In accordance with the above references, I conducted an informal investigation into a parasailing accident that resulted in the death of one passenger from the Florida-registered, uninspected passenger vessel FL0238HY on August 15, 2012. This casualty meets the definition of a marine casualty, but was not a reportable marine casualty due to the reporting exclusion in 46 C.F.R. § 4.01-3(a). Due to the severity of the casualty and the recent national attention to parasail accidents, United States Coast Guard Sector Miami conducted a joint investigation with the National Transportation Safety Board (NTSB) and the Florida Fish and Wildlife Conservation Commission (FWC). Each investigating agency is completing its own report of investigation.

Immediately following the casualty, First Flight Insurance Group, Inc., the company insuring Waveblast Watersports, Inc., retained Donna Albert & Associates, P.A. (hereafter referred to as "counsel") to provide legal representation for both members of the crew, the company, and the owner of the company. At the request of the USCG, NTSB and FWC (hereafter referred to as "investigating agencies") during the initial interview of the owner and crew, counsel wrote a letter stating that they "represented Waveblast Watersports and the various employees, agents and representatives of same." Due to a potential conflict of interest, the investigating agencies sought clarification into the relationship between counsel and the parties they were claiming to represent, however no response was provided. Additionally, counsel was not cooperative with regards to providing evidence necessary to establish the responsibility for equipment maintenance, or with allowing access to the crew and company owner for follow-on interviews.

All dates for events in the Incident Timeline are August 15, 2012, unless otherwise specified. All times contained in this Report of Investigation (ROI) are approximate and referenced in Eastern Standard Time. All distances in this ROI are approximate and referenced in nautical miles (NM), unless otherwise specified. All evidence, correspondence, and testimony gathered

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during the investigation were used to create this report and are included in the Coast Guard's electronic database Marine Information for Safety and Law Enforcement (MISLE) Incident Investigation Activity 4412409.

Executive Summary:

On Wednesday, August 15, 2012, at approximately 1515, the Florida-registered, Uninspected Passenger Vessel (UPV) FL0238HY was in the vicinity of Hillsboro Inlet conducting parasailing operations in concurrent federal and state waters. The FL0238HY was manned by a Coast Guard licensed master, [REDACTED] and an unlicensed deckhand, [REDACTED]. There were two passengers onboard the vessel: Mrs. Kathleen Miskell and Mr. [REDACTED]. The two passengers were launched together in a side-by-side configuration without incident. Their flight lasted 10-15 minutes. During their recovery and with several hundred feet of towline paid out, Mrs. Miskell became separated from the parasail and fell from an approximate height of 450 feet into the Atlantic Ocean, near Pompano Beach, Florida, inside state waters.

Upon realizing that one of his passengers had become detached from the parasail, Mr. [REDACTED] navigated the vessel to prevent the collapse of the now-unbalanced parasail which would have jeopardized the safety of the passenger who remained connected to the parasail. After gaining control of the parasail, Mr. [REDACTED] brought in the towline, brought the second passenger, Mr. [REDACTED] onboard the FL0238HY and unclipped him from the parasail with the assistance of his deckhand. After collapsing the parasail, Mr. [REDACTED] searched for and located Mrs. Miskell. Mr. [REDACTED] navigation while retrieving the second passenger had resulted in the FL0238HY being located approximately 30 yards from the victim's location in the water. Mr. [REDACTED] entered the water and swam to Mrs. Miskell, who he found face-down in the water and unresponsive. Mr. [REDACTED] recovered the victim and with the help of the deckhand and the second passenger, she was lifted out of the water and placed on the parasail platform.

Once Mrs. Miskell was onboard the FL0238HY, Mr. [REDACTED] determined that she was unconscious and not breathing. Mr. [REDACTED] directed Mr. [REDACTED] to drive the vessel back to the dock and he began administering rescue breathing and cardio-pulmonary resuscitation (CPR). During the transit into Hillsboro Inlet, Mr. [REDACTED] made a call to 911 to request assistance.

The 911 operator dispatched a Broward Sheriff's Office (BSO) vessel at 1518. The BSO vessel escorted the FL0238HY to the nearest dock in Hillsboro Inlet where Emergency Medical Services (EMS) met the vessel and transferred both passengers to the North Broward Health hospital in Pompano Beach, FL. At 1551, Mrs. Miskell was declared deceased.

An autopsy was performed on August 16, 2012 at the Broward County Medical Examiner's facility. The cause of death was stated as "asphyxia due to drowning and multiple blunt force injuries" with the circumstances of death listed as "fell from height while parasailing." The manner of death was deemed an accident. The Medical Examiner's (ME) report is numbered 12-1134 and signed by Dr. [REDACTED], Deputy Chief Medical Examiner.

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Vessel Data:

NO NAME (FL0238HY)	
Flag:	United States/Florida
State Registration Number:	FL0238HY
Role:	Involved in a Marine Investigation
Vessel Class:	Uninspected Passenger Vessel (UPV)
Length:	28 feet
Composition:	Fiberglass-reinforced plastic (FRP) hull manufactured in 1994 by Premium Parasail Boats, Inc. ¹
Propulsion:	Inboard Mercury 8.2 liter (V8) gasoline motor with Mercury Stern drive
Horsepower:	375
Owner:	Waveblast Watersports, Inc. ² Waveblast Watersports II, Inc. (Third Party Owner)
Operator:	Waveblast Watersports, Inc.



Figure 1 - FL0238HY immediately following casualty.

¹ According to Florida Department of State, Division of Corporations, Premium Parasail Boats, Inc. was administratively dissolved on September 26, 2008.

² According to the Florida Department of State, Division of Corporations, Waveblast Watersports, Inc. was administratively dissolved on September 28, 2012.

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Personnel/Resource Data:

Deceased	Age	Role	Cause of Death
Kathleen Miskell	█	Passenger	Asphyxia due to drowning and multiple blunt force injuries
Survivor			
█	█	Passenger	
Crew			
█ (master)	█	4 seasons (season is Feb to Sept)	4 seasons
█ (deckhand)	█	Approximately 2 months	Approximately 2 months
Other Involved Parties		Role	
█		President and registered owner of Waveblast Watersports, Inc.	
Waveblast Watersports Inc.		Registered owner of the FL0238HY	
Personnel Involved		Alcohol Test Results	Drug Test Results
█		Did not submit	█
█		Did not submit	█

Findings of Fact:

Parasailing:

1. Section 4105 of Title 46 United States Code (U.S.C.) makes Title 46 U.S.C. Chapter 43 (Recreational Vessels) applicable to uninspected passenger vessels. Accordingly, this statutory regime is applicable to both recreational vessels and UPVs, and their associated equipment including fuel systems, ventilation systems, electrical systems, sound producing devices, firefighting equipment, lifesaving devices, signaling devices, ground tackle, life and grab rails, and navigational equipment. Currently, the only equipment and operating regulations applicable to the FL0238HY are codified in 46 C.F.R. Subchapter C.
2. The only specific federal regulations that address parasailing are found in 14 C.F.R. § 101 - Aeronautics and Space. Parasails are defined as kites that weigh more than five pounds and are intended to be flown at the end of a rope or cable (14 C.F.R. § 101 - Applicability). Per 14 C.F.R. § 101.13, no person may operate a kite more than 500 feet above the surface of the earth.

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3. The Professional Association of Parasail Operators (PAPO) was founded to promote safety and standards throughout the parasail industry. In 2005, PAPO developed a set of parasailing guidelines that are entitled the Operating Standards and Guidelines (OSAG). All PAPO members, as a condition of membership, must adhere to the OSAG while conducting commercial parasail operations. These guidelines are available to PAPO members, the parasailing industry, and the public.
4. The Water Sport Industry Association (WSIA) is an industry advocate that communicates, produces and distributes safety and educational materials for towed water sports. The WSIA works with local, state, and federal agencies in partnership with national and international governing bodies to allow for the continued growth of towed water sports, including parasailing.
5. In 2010, PAPO and Custom Chutes Incorporated (CCI) collaboratively developed a parasailing training manual, which was sponsored by WSIA. Since then, WSIA has been working with the American Society for Testing and Materials (ASTM) to develop parasailing standards. In the interim, the parasailing training manual is still guidance that can be used by the parasailing industry.
6. The Coast Guard does not endorse PAPO or its OSAG, the organization and its standards and guidelines. Additionally, the Coast Guard does not endorse WSIA, however, there has been Coast Guard involvement with the ASTM F24-65, a workgroup that has been working to develop ASTM standards related to the parasailing industry.
7. The United States does not have any regulations that govern a commercial parasail vessel's parasail winch, towline, harnesses, associated parasail equipment or the parasail itself.
8. The State of Florida does not have any regulations that govern a commercial parasail vessel's parasail winch, towline, harnesses, associated parasail equipment or the parasail itself.

Company:

9. The registered owner for Waveblast Watersports, Inc. is Mr. [REDACTED]
10. Waveblast Watersports did not have any documented policies that directed personnel operating its vessels to be aware of or adhere to any PAPO or WSIA guidelines.
11. On February 7, 2012, Sector Miami personnel conducted a voluntary UPV examination on the Florida-registered commercial parasail vessel WET MONEY (FL3741GB), which was owned by Waveblast Watersports. The WET MONEY was later replaced by the FL0238HY. The FL0238HY was never subject to a Coast Guard UPV exam.
12. During the February 7, 2012 UPV exam, Mr. [REDACTED] stated that the vessel master was limited to operating in winds that do not exceed 13 mph and seas that do not exceed 3 to 3.5 feet,

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but that it was the master's responsibility to determine whether or not to cancel a trip. Weather information was said to be obtained by VHF radio.

13. During the February 7, 2012 UPV exam, it was noted that there was an established maintenance program and that the maintenance log was kept by the master of the vessel. The extent of the maintenance program and what equipment was part of it was not documented in the UPV examination.

14. During the February 7, 2012 UPV exam, it was noted that the company had an established weight limit of 425 pounds and a maximum of three people for parasailing operations.

15. During the February 7, 2012 UPV exam, it was noted that neither the company owner nor members of the crew were members of PAPO.

16. During the February 7, 2012 UPV exam, it was noted that the company's training program was ad hoc and consisted of "on the job" training with experienced parasail masters.

Vessel:

17. The FL0238HY is less than 5 net tons and is registered in the State of Florida. The vessel was built in 1994 by Premium Parasail Boat, Inc. and is constructed from fiberglass. The FL0238HY is powered by a single, gasoline-powered, 8.2 liter Mercury inboard engine with a single Mercury outboard drive unit.

18. The primary owner listed for the FL0238HY is Waveblast Watersports, Incorporated. Waveblast Watersports II, Incorporated is listed as a third party owner.

Crew:

19. The master of the FL0238HY, Mr. [REDACTED] age [REDACTED] is licensed as a Master of Steam or Motor Vessels of not more than 100 Gross Registered Tons upon Near Coastal Waters and he is additionally authorized to engage in Commercial Assistance Towing. Mr. [REDACTED] license was issued to him by the Coast Guard on June 23, 2011 and it will expire on June 23, 2016.

20. Mr. [REDACTED] stated that he had worked on commercial fishing vessels since the age of 18 and had served as master of the FL0238HY since July, 2011. Prior to becoming the vessel's master, he had worked for two seasons on the WET MONEY and the FL0238HY as a deckhand.

21. Mr. [REDACTED] attended the Maritime Professional Training Center in Fort Lauderdale, Florida where he completed the Master 100 GT and Commercial Assistance Towing training courses on February 11, 2011.³

³ Maritime Professional Training Center certificate of completion number 101-11-02-02, issued February 11, 2011.

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22. The deckhand on the FL0238HY, Mr. [REDACTED] age 19, did not possess a Coast Guard-issued Merchant Mariner's Credential (MMC), nor was he required to hold a MMC in order to serve as a deckhand on the FL0238HY.

23. Mr. [REDACTED] did not have any formal maritime training. The 2012 parasail season was his first season on a parasail vessel and he had been working on the FL0238HY for approximately two months. Mr. [REDACTED] estimated that he had been acting as crew for approximately 100 trips with Mr. [REDACTED] as the master.

Waveblast Watersports Parasail Operations:

24. At the time of the casualty, there was no evidence that Waveblast Watersports had any formal or informal policies, procedures, guidance or protocols for parasail operations, equipment procurement or equipment maintenance.

25. There was no evidence that Waveblast Watersports had established operating or training standards, other than as required to obtain a Coast Guard license, for an individual to serve onboard a vessel owned by Waveblast Watersports as either the vessel master or a deckhand.

26. There was no evidence that Mr. [REDACTED] Mr. [REDACTED] or Mr. [REDACTED] were at the time of the casualty, or had ever been, members of PAPO, WSIA or any other professional parasail organization.

27. There were significant inconsistencies in the expressed employer/employee relationships at Waveblast Watersports. Mr. [REDACTED] and Mr. [REDACTED] stated that they worked for Mr. [REDACTED] the owner of Waveblast Watersports. Mr. [REDACTED] stated that Mr. [REDACTED] and Mr. [REDACTED] were independent contractors. Sector Miami Investigators attempted to clarify the employer/employee relationship by subpoenaing employment/compensation records from the company and tax returns from Mr. [REDACTED]. The counsel for the involved parties refused to comply with the subpoenas because they alleged that it was outside the scope of the marine casualty investigation. Sector Miami's attempts to enforce the issued subpoenas were not supported by the Seventh District Legal Office; therefore, the investigating agencies were unable to conclusively determine the nature of the business relationship between the parties involved in this casualty.

28. The level of involvement in the parasail operation by the owner is unclear. During his interview, he gave contradictory information by stating that he was only "involved whenever the captain tells me to be involved" and that he would provide equipment to the master only upon request. On the other hand, he also stated that he boarded the FL0238HY once or twice a week to make sure the vessel was working properly and that the equipment was serviceable. During the interview, the owner stated that the last time he went onboard the FL0238HY and examined the parasailing equipment was about 4 days before the casualty.

29. With the exception of the towline, which is replaced approximately once per year, all parasailing equipment is replaced or repaired solely on an as-needed basis. According to the

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owner, the master is responsible for identifying when equipment needs to be repaired or replaced and then notifying the owner. The owner would then either provide a replacement or repair parts, or if he had multiple replacements (i.e. harnesses) then the master would select from the available equipment.

30. Waveblast Watersports bought both new and used parasail equipment. Due to a complete absence of purchase or repair records provided by the owner or any representative of the company, and a lack of a unique identifier on any of the equipment, the investigating agencies were unable to conclusively determine the history of any of the parasailing equipment onboard the vessel at the time of the casualty. There was one exception to the lack of documentation; the parasail that was used during the casualty was reinspected on September 9, 2010 by [REDACTED] the owner of Custom Chutes, Inc. The reinspection date was recorded on the parasail's label and was followed by the initials "CCI". "CCI" is the abbreviation for Custom Chutes Incorporated, and was routinely used as initials by Mr. [REDACTED] when he inspected a parasail. The parasail did not have a serial number recorded on it, though there was a place on the label to record one.

31. At the request of the investigating agencies, CCI provided copies of all receipts and invoices that listed Waveblast Watersports Incorporated or [REDACTED] as the purchaser. CCI provided 58 receipts and invoices dated from 2004-2012 for equipment and services. According to these receipts and invoices, the last time Waveblast Watersports or the owner of Waveblast Watersports purchased new harnesses from Custom Chutes was on October 26, 2004 when [REDACTED] purchased 10 new harnesses: 2-XL, 4-Large, 2-Medium and 2-Small.

32. In the invoices provided by CCI, it was noted that from 2004 to 2012, Waveblast Watersports purchased some harness components. This indicates that the owner or the master may have been performing some level of maintenance or repair to their harnesses.

33. Waveblast Watersports had acquired used harnesses and other used parasailing equipment from other parasailing operations. The owner stated that he had not had to purchase new equipment because he had bought sufficient existing equipment from other companies, including companies that had gone out of business. The harness involved in this casualty had been purchased used on or about May, 2012 from a company that had gone out of business, but Mr. [REDACTED] could not recall the name of the company or the person he had bought it from.

34. There was no evidence that used equipment was ever tested, inspected or returned to a reputable manufacturer to determine if it was suitable for service.

35. There was no documentation of any formal inspections of the parasail equipment onboard the FL0238HY or that there was a schedule for equipment replacement or retirement.

36. There were no records that documented the purchase of harnesses or other parasail equipment from manufacturers, dealers, or from other parasailing operations. In response to

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subpoenas for records related to the parasail operation, the owner only provided receipts for two lengths of towline from Pelican Rope Works in Santa Ana, California.

37. Mr. ██████ stated that he was the only person conducting maintenance on the vessel or the parasailing equipment at the time of the casualty. There were no maintenance records onboard the vessel and none were provided by the owner or master.

38. The owner did not conduct any formal evaluations of the master or deckhand's performance. He stated that he observes the master from a window at his condominium and provides verbal feedback as necessary. An investigator visited the property and did a cursory evaluation of the owner's claim, and it appeared that it would have been exceedingly difficult for the owner to observe the vessel's parasail operation. The owner also stated that he had never been onboard the FL0238HY with Mr. ██████ during a parasailing operation.

Incident Location:

39. The exact location of the casualty cannot be conclusively determined because the vessel did not have a position-fixing device onboard and the crew did not fix their position during the voyage. Mr. ██████ stated that the FL0238HY was operating about ½ to 1 NM outside Hillsboro Inlet in Florida state waters. Hillsboro Inlet is in Broward County, Florida.

40. A line of position was established for the location of the casualty using the photograph in Figure 10. In this photograph of the moment the casualty occurred, the Hillsboro Lighthouse can be seen in the bottom-left corner of the photograph aligned with a multi-story building. The multi-story building is the Hillsboro Light Towers and using mapping software, it was determined that the casualty occurred ½ to 1 NM from shore on a bearing of 113 degrees true from the Hillsboro Lighthouse (Figure 2). The orange markers in Figure 2 indicate aids to navigation.

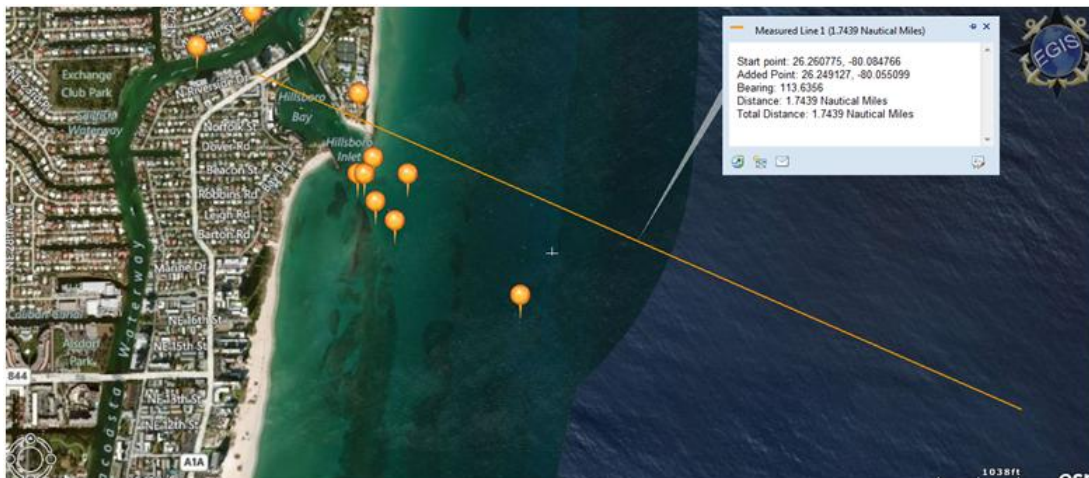


Figure 2 - Line of position for the location of the casualty.

Subj: PARASAILING ACCIDENT FROM THE FL0238HY ONE MILE OFF HILLSBORO INLET, FLORIDA ON AUGUST 15, 2012 WITH THE LOSS OF ONE LIFE

Sources of Reported Weather:

41. August 15, 2012 at 1515, NOAA/National Weather Service Coastal Waters Forecast message for 958 EDT Wed Aug 15 – Coastal Waters from Deerfield Beach, FL to Ocean Reef, FL.
42. August 15, 2012 at 1514, Weather Underground (www.weatherunderground.com), Daily History for Station KFL LIGHT2 (Lighthouse Point, FL).

Reported Weather Conditions:

Temperature:	86.7 Fahrenheit
Heat Index:	99.8 Fahrenheit
Dew Point:	78.2 Fahrenheit
Barometric Pressure:	30.01 Inches and Falling
Wind Direction:	Southeast
Wind Speed:	5-10 Knots
Humidity:	76%
Rainfall Rate:	0.00 inches/0.02 inches total
Seas:	Approximately 2 Feet
Sea Period:	4 Seconds
General Conditions:	“Inter-coastal waters a light chop. Slight chance of showers and thunderstorms.”

Incident Timeline:

43. All times are approximate and all events, unless otherwise specified, occurred on August 15, 2012.
44. The Florida State registered vessel FL0238HY was operating commercially as an UPV and could carry up to six passengers, including at least one passenger for hire.
45. The FL0238HY conducted three parasailing trips on the date of the casualty. Mr. [REDACTED] operated the vessel for all three trips. Mr. [REDACTED] was the deckhand on all three trips. On the first trip of the day they carried four passengers. On the second trip, they also carried four passengers. On the third trip, they carried two passengers: Mr. [REDACTED] and Mrs. Miskell.
46. All passengers carried by the FL0238HY were embarked and disembarked at the Sands Harbor Resort and Marina in Pompano Beach, FL.
47. At 1315, Mr. and Mrs. Miskell arrived at the Sands Harbor Resort and Marina and went to Waveblast Watersports with the expressed intent to participate in parasailing. They did not have a reservation.

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48. A small storm with rain and lightning had moved into the vicinity of Hillsboro Inlet near the end of the second parasail trip, so the master had decided to cancel any further trips until it passed. After approximately 1 hour and 15 minutes, the storm had passed and the master decided it was safe to get underway and conduct parasail operations.

49. Prior to their departure from the Sands Harbor Resort and Marina, Mr. and Mrs. Miskell filled out and signed a "Personal Watercraft Rental Operations Liability Release Waiver, Assumption of Risk & Indemnity Contract." Investigators were only supplied with the first 2 out of 3 pages of the waiver. Mr. and Mrs. Miskell had both signed page 2 of the same waiver rather than signing individual waivers.

50. Prior to getting underway on the FL0238HY, the passengers were each given Cabela's® Type III personal floatation devices (PFDs) to wear while parasailing. There are conflicting accounts of when the passengers donned their PFDs. The crew stated that the passengers donned PFDs prior to getting onboard the vessel, while Mr. Miskell stated that the crew helped them put the PFDs on after they had boarded the FL0238HY.

51. At 1430, the FL0238HY got underway from the Sands Harbor Resort and Marina with two passengers and two crewmembers bound for open water outside Hillsboro Inlet.

52. Between 1430 and 1500, the FL0238HY transited the Intracoastal Waterway from the Sands Island Hotel to Hillsboro Inlet. The master stated that during the transit he had given a safety briefing that covered what to do in the event of an engine failure and line break. Mr. ██████ stated that they were not given a comprehensive safety brief, but rather were only told to keep their legs up when the parasail was launched and retrieved so that their legs would not hit the platform.

53. During the outbound transit, the two passengers donned their parasailing harnesses under the direct supervision of the deckhand. The harnesses were fitted over the passenger's PFDs. The deckhand also asked the passengers for their weights so that he could ensure that the flight bar was properly configured and the passengers were connected to the correct straps.

54. Once outside of Hillsboro Inlet and in the Atlantic Ocean, the master maneuvered the vessel to a location north or northwest of where the casualty would ultimately take place. At the deckhand's direction, the passengers moved to the flight platform on the stern of the FL0238HY and were clipped onto the flight bar by the deckhand.

55. In relation to the vessel, Mrs. Miskell's harness was clipped to the hanging straps marked with blue blazing on the starboard side of the flight bar and Mr. ██████ harness was clipped to the corresponding hanging straps on the port side. The carabineer for the weight difference adjustment on the flight bar was in the second notch of the adjustor slot (see arrow in Figure 3).

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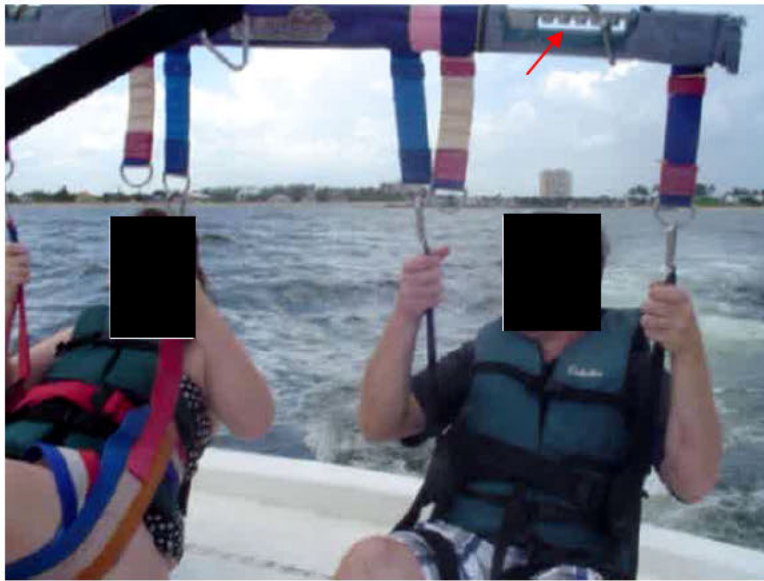


Figure 3 - Passengers attached to the flight bar, just prior to launch.

56. Both passengers were wearing their harnesses over their PFDs. The seat strap on Mrs. [REDACTED] harness was positioned approximately mid-thigh and she was in a semi-reclining position with both hands holding onto the hanger straps connected to the flight bar. The seat strap on Mr. [REDACTED] harness was positioned further back on his thighs and his body position was more upright than Mrs. Miskell's (Figure 4).

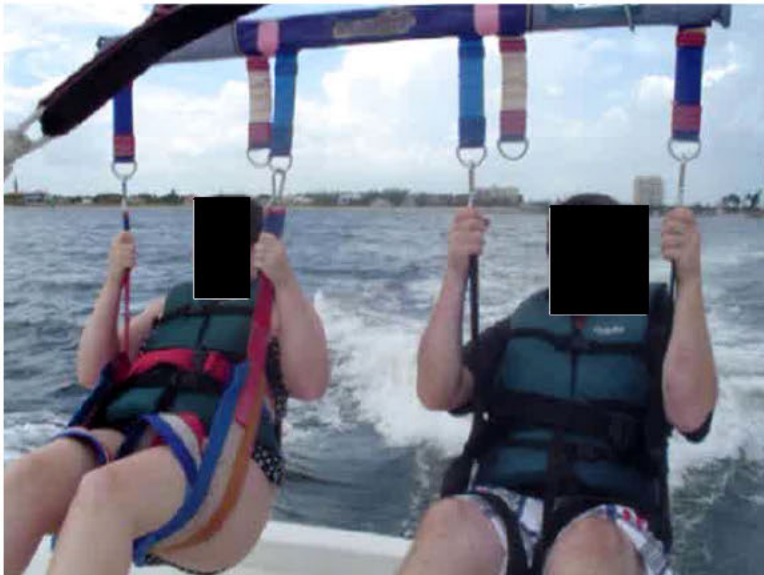


Figure 4 - Passengers just prior to launch.

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57. At 1500, the passengers began their parasail flight (Figure 5). The master put the FL0238HY on a southeasterly course into the wind. He accelerated the boat and began to let line out using the winch controls mounted on the right side of the helm.



Figure 5 - Passengers immediately after launch.

58. While the parasail was being launched, the deckhand picked up a Sony Mavica digital camera and captured approximately 30 seconds of video.

59. The master let out approximately 800' of towline (Figures 6, 7, 8 and 9). He stated that the winds were consistently out of the southeast at about 6 knots and that the sea state consisted of a "little chop".

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Figure 6 – The parasail being let out.



Figure 7 – The parasail being let out.

60. Once the two passengers were near their maximum height, the deckhand switched the camera to picture mode and captured 31 pictures of their flight (Figures 8 and 9).

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Figure 8 – The parasail being let out.



Figure 9 – The parasail at maximum altitude. Black mark on towline is 800' mark.

61. At 1507, the master began to retrieve the parasail and the two passengers using the vessel's winch.

62. At 1508, Mrs. Miskell separated from the parasail and fell into the water from a height of approximately 450' (Figure 10). Mr. [REDACTED] heard a quick tearing sound and lost sight of his wife. He did not witness her impact the surface of the water and neither crewmember saw her separate from the parasail.

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Figure 10 - Mrs. Miskell separates from the parasail. The picture captures her at nearly mid-fall.

63. Mrs. Miskell's separation from the parasail unbalanced the parasail because the remaining passenger was no longer counterbalanced. The parasail began to oscillate and dive to port, endangering the passenger that remained connected to the parasail. In an effort to prevent injury to Mr. [REDACTED] the master maneuvered the FL0238HY back towards the parasail and retrieved the line at the winch's highest rate of speed. This took the towing load off of the parasail and it stopped oscillating and began to descend vertically towards the water. Once the parasail was close to the water, the master turned the FL0238HY back into the wind, took a strain on the tow line and retrieved the parasail using normal procedures.

64. At 1512, the parasail and Mr. [REDACTED] were safely retrieved. Once the parasail was secured on the flight deck of the FL0238HY, the deckhand disconnected Mr. [REDACTED] and collapsed the parasail. At the completion of the maneuvering done to stabilize and recover the parasail, the FL0238HY was positioned approximately 30 yards from Mrs. Miskell's location in the water.

65. At 1513, the master entered the water and swam to Mrs. Miskell. When he reached her, he observed that she was floating face down and that the sea state was causing her to roll back and forth from her side to a face down position. Mrs. Miskell was unresponsive and both eyes were open.

66. At 1515, the master had retrieved Mrs. Miskell and she was lifted from the water and placed onto the flight platform by the deckhand and Mr. [REDACTED]

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67. After being brought onto the flight platform of the FL0238HY, Mrs. Miskell was still unresponsive and the master began to perform unprotected CPR while Mr. [REDACTED] helped stabilize her. The master directed the deckhand to drive the boat back to Hillsboro Inlet and to call for help.

68. At 1516, the deckhand called 911 using his cell phone, reported the incident, and requested assistance from EMS. He then started piloting the FL0238HY back towards Hillsboro Inlet at full speed.

69. Once the FL0238HY was at the mouth of the inlet, the master suspended CPR and took the helm of the vessel because he did not think that the deckhand was capable of safely piloting the vessel into Hillsboro Inlet and through the State Road A1A Bridge (locally referred to as Hillsboro Inlet Bridge) at full speed. The deckhand went aft to the flight deck and stabilized Mrs. Miskell's head.

70. At 1518, a marine patrol unit from the BSO was dispatched to meet the vessel. The BSO marine patrol unit intercepted the FL0238HY during its transit into Hillsboro Inlet and escorted the vessel to the Hillsboro Inlet Marina.

71. At 1520, the FL0238HY arrived at Hillsboro Inlet Marina and after mooring the vessel with assistance from people on the pier, the master resumed CPR on Mrs. Miskell until EMS met the vessel. The BSO marine patrol unit slowed passing vessels in order to minimize wake while the master was performing CPR.

72. At 1521, EMS arrived at the vessel. The master and EMS personnel removed Mrs. Miskell from her harness and she was transported to North Broward Health Hospital.

73. At 1551, Mrs. Miskell was declared deceased at North Broward Health Hospital.

Post-Casualty Events:

74. At 1630 on August 15, 2012 the FL0238HY and both crewmembers were taken to a BSO facility located at Alsdorf Park in Pompano Beach, FL.

75. At 1645, Sector Miami was notified by a FWC officer of a marine casualty involving a parasailing fatality aboard a Florida-registered uninspected passenger vessel.

76. At 1745, Marine Investigators from Coast Guard Sector Miami arrived at Alsdorf Park.

77. At 1830, Mr. [REDACTED] [REDACTED] a Coast Guard Marine Investigator, spoke on the deckhand's cellular phone with a person who identified himself as Mr. [REDACTED] the owner of the company which operated the FL0238HY. During the phone call, the investigator noted that the display on the deckhand's phone labeled the caller as "Boss". During this conversation, the investigator spoke with the owner about post-casualty chemical testing and Mr. [REDACTED] stated that post-

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casualty drug and alcohol testing was to be conducted at Imperial Point Medical Center (IMPC) located in Pompano Beach, FL.

78. During a conversation between Coast Guard investigators and Mr. [REDACTED] it was discovered that he had conducted unprotected CPR on the victim and had been exposed to the victim's blood and other bodily fluids. The investigating agencies agreed to interview the master at a later time so that he could go to the hospital and get prophylactic treatment for exposure to bodily fluids. He was also reminded by Coast Guard Marine Investigators to get post-casualty drug and alcohol tests as required by Mr. [REDACTED] his marine employer. Mr. [REDACTED] brother was on-scene and transported him to the hospital at approximately 1930.

79. At 2015, FWC and the Coast Guard Investigators conducted an interview with the deckhand in the presence of his counsel.

80. At 2130, a Coast Guard Marine Investigator directed the deckhand to get drug and alcohol testing as required by Mr. [REDACTED] his marine employer. When Mr. [REDACTED] left the BSO facility, he indicated he was going to get the alcohol testing done.

81. At 2150, the FL0238HY was loaded onto a trailer by a representative of Waveblast Watersports.

82. At 2245, the vessel, and all equipment onboard the vessel, were transported to FWC's Fort Lauderdale station in Port Everglades and placed in a secure evidence bay.

83. On September 10, 2012, Coast Guard Sector Miami received a CG-2692 "Report of Marine Accident, Injury or Death" form. [REDACTED] signed as the person making the report.

84. On September 17, 2012, Sector Miami received form CG-2692B "Report of Required Chemical Drug and Alcohol Testing Following a Serious Marine Incident". [REDACTED] signed as the person making the report.

Post-Casualty Examination of the FL0238HY:

85. After the victim and her husband had been transported to the hospital, the FL0238HY was moved to the Broward Sheriff's Office facility at Alsdorf Park (Figure 11) where investigators examined the vessel and its equipment.

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Figure 11 - FL0238HY at BSO office in Alsdorf Park.

86. Figure 12 shows the FL0238HY and the equipment onboard from an amidships position looking forward.



Figure 12 - Bow of the FL0238HY.

87. Figure 13 shows the FL0238HY and the equipment onboard from an amidships position looking aft.



Figure 13 - Stern of the FL0238HY.

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88. In the under-seat storage area on the port side of the FL0238HY, investigators found multiple Type 1 PFDs that were used for compliance with 46 C.F.R. Subchapter C. These PFDs were not being worn by the passengers at the time of the casualty (Figure 14).



Figure 14 - Inside view of FL0238HY.

89. Investigators found the upper portions of both the left and right hook riser from the victim's harness still connected to the flight bar (Figure 15).



Figure 15 - Flight deck on FL0238HY with flight bar and remains of victim's harness straps.

90. On the aft flight deck, investigators found the parasail and yoke attached to the towline, the two PFDs worn by the passengers during the flight, the flight bar, the remnants of the victim's harness, and the harness that the victim's husband had worn (Figure 16).

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Figure 16 - Parasail equipment in use during the casualty on flight deck.

91. Investigators found that the parasail remained attached to the towline using a bowline knot with multiple half-hitches tied to the parasail's yoke (Figure 17).



Figure 17 - Towline connection to yoke was a bowline with multiple half-hitches.

92. Investigators found approximately nine harnesses clipped to a horizontal rail on the forward side of the vessel's operating console (Figure 18). All of these harnesses appeared to be previously used and several appeared to have significant sun damage and/or physical damage.

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Figure 18 - Harnesses clipped to rail on forward side of console.

93. The victim's harness had been returned to the FL0238HY after having been removed by EMS after the victim had been moved ashore. Investigators found that the right and left hook riser on the victim's harness had parted where the risers transitioned from two layers of webbing to single webbing (Figures 19, 20).



Figure 19 - Victim's harness showing failed strap (wearer's right side).



Figure 20 - Victim's harness showing failed strap (wearer's left side).

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Post-Casualty Testing:

Chemical Testing:

94. On August 15, 2012, when Mr. [REDACTED] and Mr. [REDACTED] went to IPMC for post-casualty chemical testing as directed by their marine employer, they were told by the staff at the hospital that IPMC was unable to conduct tests for drug and alcohol as required by 46 C.F.R. Part 16. By the time they had been discharged from IPMC, the 8 hour time limit for conducting alcohol tests had passed and as a result, neither Mr. [REDACTED] nor Mr. [REDACTED] was post-casualty tested for alcohol.

95. On August 16, 2012 Mr. [REDACTED] and Mr. [REDACTED] were chemically tested for dangerous drugs; tests were conducted in accordance with the regulations in 49 C.F.R. Part 40. The collection took place at Any Lab Test Now in Boca Raton, Florida.

96. On September 10, 2012, Sector Miami received the drug test results for Mr. [REDACTED] and Mr. [REDACTED]. Both results were [REDACTED] and were verified as [REDACTED] by the Medical Review Officer (MRO) on August 18, 2012.

Equipment:

97. On August 21, 2012, investigators from Sector Miami, Sector St. Petersburg, and FWC conducted a detailed examination of the FL0238HY and the equipment onboard the vessel at the FWC's secure evidence bay in Port Everglades, Florida. All equipment was removed from the vessel, examined, photographed and cataloged (Figure 21). As lead agency, investigators from FWC seized all the parasail equipment from the vessel, tagged it with evidence control labels and entered it into their evidence control system. FWC also retained the FL0238HY itself.



Figure 21 - Evidence from the casualty was catalogued and photographed.

⁴ Name mistyped on MRO form and labeled "ZABEDAT".

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98. On August 31, 2012 the investigating agencies conducted operational pull tests of the parasail line winch (hereafter referred to as “winch”) onboard the FL0238HY (Figure 22).



Figure 22 - FL0238 removed from evidence bay for winch test, and the configuration of the test equipment.

99. On August 31, 2012, at the completion of the winch tests, FWC transferred the victim’s harness, the second parasail passenger’s harness, the flight bar, and 149’2” of towline to the NTSB investigator for testing at the Office of Research and Engineering, Materials Laboratory Division in Washington, DC. The evidence was securely packaged and mailed to the NTSB laboratory on the same day (Figure 23).



Figure 23 - Evidence being transferred to NTSB.

100. At the request of the Coast Guard and FWC, the NTSB Office of Research and Engineering, Materials Laboratory Division, examined and conducted destructive and non-destructive testing of the multicolored harness worn by the victim, black harness worn by the second passenger, towline and the Multiflyer™ flight bar. Results of this testing are documented in the NTSB Materials Laboratory Factual Report No. 13-010, dated April 9, 2013. The complete NTSB report is included in evidence.

101. On September 18, 2012 an investigator from Sector Miami took temporary custody of the parasail involved in the casualty, the 11 remaining harnesses, the yoke, the first 10’11” section of the towline, and the bowline knot in order to have them examined by CCI in Bradenton, Florida.

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These 11 harnesses had been on the vessel at the time of the casualty, but had not been worn by either passenger. On September 19, 2012, this equipment was examined and tested by [REDACTED] the owner of CCI. The examination and testing were conducted at Sector St. Petersburg and the results are detailed in the analysis section of the report. The complete report is included in evidence.

Autopsy

102. An autopsy was performed on the victim by [REDACTED], MD, Ph.D. Dr. [REDACTED] is the Deputy Chief Medical Examiner for Broward County, Florida. The medical examiner's report indicated that Mrs. Miskell had sustained (not inclusive of all injuries): multiple contusions and lacerations, fractures of right ribs 3 through 5 and 7, a fracture of the right clavicle, fractures of the fourth and fifth thoracic vertebrae, subluxation of the first and second cervical vertebrae with a fracture of the left lamina of the second cervical vertebra, a right hemothorax, and scattered liver lacerations. The report also stated that Mrs. Miskell was found prone in the water, had sanguineous fluid in her sphenoid sinus, and had foam emanating from her airway when her body was recovered; all indications of drowning. The cause of death was determined to be asphyxia due to drowning and multiple blunt force injuries. The manner of death was deemed to be an accident.

Analysis:

Regulatory:

Federal:

1. Parasail vessels that carry six passengers or less, including at least one passenger for hire, are not subject to inspection under 46 U.S.C. § 3301 and are considered to be UPVs for purposes of equipment and operating requirements. The regulations specifying the equipment and operating requirements for UPVs are found in 46 C.F.R. Subchapter C, but these regulations do not specifically address any aspect of parasail equipment or operations. The only substantive differences in 46 C.F.R. Subchapter C between the requirements for an UPV of a similar size/configuration to the FL0238HY and a recreational vessel are the requirements for an UPV to conduct a safety orientation (46 C.F.R. 26.03-1) and have emergency instructions posted in a prominent and accessible location (46 C.F.R. 26.03-2).

- a) The FL0238HY was carrying two passengers for hire at the time of the casualty and was legally operating as an UPV.
- b) The equipment onboard the FL0238HY was examined and found to be in compliance with the requirements of 46 C.F.R. Subchapter C.
- c) There was conflicting testimony given with regards to the sufficiency of the required safety orientation. Mr. [REDACTED] stated that he had given a complete safety orientation

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during the transit from the hotel to Hillsboro Inlet. In contrast, the surviving passenger stated that the only safety orientation that he and his wife received was to “just lift your legs, because there's a lip on the back of the boat.”

- d) Investigators did not find any emergency instructions posted onboard the FL0238HY as required by 46 C.F.R. 26.03-2.

2. In accordance with 46 C.F.R. 4.01-3, operators of state-registered UPVs which are subject to 33 C.F.R. 173.51 are excluded from the marine casualty reporting requirements in 46 C.F.R. § 4.05. Instead, operators of state-registered UPVs are required by 33 C.F.R. § 173.55 to report the casualty to the “reporting authority,” which, as defined in 33 C.F.R. § 173.59 is the State in which the casualty occurs.

- a) Mr. [REDACTED] submitted a CG-2692 - “Report of Marine Accident, Injury or Death” form to Sector Miami on September 10, 2012. The date of the CG-2692’s submission was 26 days after the casualty, however since the FL0238HY is excluded from the reporting requirements of 46 C.F.R. § 4.05, the 5 day limit for submitting a written report does not apply.
- b) At 1516 on August 15, 2012, the deckhand called 911 and reported the casualty. This constitutes a proper report of marine casualty to the State of Florida, as required by 33 C.F.R. 173.55.

3. All companies that operate uninspected parasail vessels are required to comply with the chemical testing requirements of 46 C.F.R. Part 16. It was apparent from the investigation into this casualty that Waveblast Watersports did not have a chemical testing program in place that was in substantial compliance with the requirement of 46 C.F.R. Part 16. The following deficiencies were noted during the investigation:

- a) There was no evidence that Mr. [REDACTED] or Mr. [REDACTED] were subjected to pre-employment drug testing as required by 46 C.F.R. 16.210.
- b) There was no evidence that Mr. [REDACTED] or Mr. [REDACTED] were subject to random drug tests at any time during their employment onboard the FL0238HY, either by Waveblast Watersports or a recognized drug testing consortium. Random drug testing is required by 46 C.F.R. 16.230.
- c) At the direction of Mr. [REDACTED] post-casualty drug testing was conducted on Mr. [REDACTED] and Mr. [REDACTED] on August 16, 2012 at Any Lab Test Now in Boca Raton, Florida. When Mr. [REDACTED] spoke on the phone with Mr. [REDACTED] on the day of the casualty, Mr. [REDACTED] stated that he had a drug and alcohol program and that his program required the crew to get post-casualty drug and alcohol testing done at IPMC. On the night of the casualty, both crewmembers went to IPMC and attempted to get drug and alcohol tested, but were informed that IPMC does not do drug and alcohol testing that is in compliance

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with 49 C.F.R. Part 40. This is evidence that Mr. [REDACTED] had not previously identified a location for post-casualty chemical testing.

- d) Waveblast Watersports did not have an established Employer Assistance Program (EAP) in place for the crewmembers involved in the casualty as required by 46 C.F.R. 16.401. In an August 17, 2012 subpoena, Coast Guard investigators commanded Waveblast Watersports to produce “certified true copies of any logs ... chemical testing programs ...” Waveblast Watersports did not produce any records that indicated that an EAP was in place at the company.

4. A Serious Marine Incident (SMI), as defined in 46 C.F.R. 4.03-2(a)(1), includes “One or more deaths.” In order for this casualty to be classified as a SMI, it would have to have been “required by § 4.05-1 to be reported to the Coast Guard ...” (46 C.F.R. 4.03-2(a)). Since the FL0238HY is excluded from the reporting requirements in 46 C.F.R. 4.05-1 by the reporting exclusion in 46 C.F.R. 4.01-3, this casualty does not meet the definition of a SMI and the mandatory post-casualty chemical testing requirements in 46 C.F.R. Subpart 4.06 and 46 C.F.R. 16.240 are not applicable.

State and Local:

5. The State of Florida does not have any regulations that are specifically applicable to uninspected parasail vessels. There have been legislative efforts to pass bills that regulate parasailing at the State and/or local level, particularly in the wake of casualties such as this one, but to date none of these bills have been passed.

Industry:

6. There was no evidence that Mr. [REDACTED] Mr. [REDACTED] or Mr. [REDACTED] were, at the time of the casualty or at any time before the casualty, members of PAPO, WSIA or any other maritime or parasailing organization.

Licenses and Endorsements:

7. The operator of an UPV of less than 100 gross tons is required by 46 C.F.R. 15.605 to hold a valid Coast Guard-issued license as an Operator of Uninspected Passenger Vessels (OUPV). To obtain an OUPV license, a mariner is required to document appropriate sea time, pass a written examination, undergo chemical testing, and successfully complete approved training courses as defined in 46 C.F.R. Parts 10 and 11. Parasail operations are not specifically addressed in the process of obtaining an OUPV license.

8. Towing vessels are defined by 33 C.F.R. 161.2 as a commercial vessel engaged in towing another vessel astern, alongside or by pushing ahead. Towing vessels are required by 46 C.F.R. 15.610 to be under the direction and control of a person holding a license endorsed as a master or mate (pilot) of towing vessels, or as a master or mate of inspected vessels of greater than 200

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gross tons with a towing endorsement or a completed Towing Officer's Assessment Record. Parasailing is also an act of towing, though parasail vessels are not considered to be towing vessels because 33 C.F.R. 161.2 requires that object being towed be *another vessel*. Towing operations are sufficiently specialized that a person operating a towing vessel is required to demonstrate experience and proficiency in towing operations in order to obtain the required license and endorsement.

9. Assistance towing is defined by 46 C.F.R. 10.107 as the act of towing a disabled vessel for consideration. Vessels that engage in assistance towing are typically smaller, state-registered vessels that provide towing services to disabled recreational boats in exchange for consideration. Mariners operating vessels that conduct assistance towing are required by 46 C.F.R. 11.482 to obtain an endorsement authorizing them to engage in assistance towing. Similar to towing vessels, assistance towing as defined in 46 C.F.R. 10.107 only applies to vessels that are engaged in towing *another vessel; specifically a disabled vessel*. Accordingly, vessels conducting parasail operations are not considered to be engaged in assistance towing. Assistance towing is also sufficiently specialized that an assistance towing endorsement is required for all licenses except a master or mate (pilot) of towing vessels. To obtain the endorsement, a mariner has to demonstrate knowledge of assistance towing operations by passing a written examination.

10. Operating a sailing vessel or an auxiliary sailing vessel is another activity which requires specialized skills and experience. The Coast Guard has addressed this by requiring that a master of a vessel with sail or auxiliary sail propulsion obtain a sail or auxiliary sail endorsement on their license. In order to earn this endorsement, the license holder is required to show that they have an appropriate amount of sea time onboard sailing or auxiliary sail vessels. The amount of sea time required is dependent upon the tonnage and route as endorsed on the holder's license.

11. Operating a parasail vessel, like operating towing vessels, assistance towing vessels, or sailing/auxiliary sailing vessels is a unique maritime activity that requires specialized skills and experience. The skills and experience necessary for safely conducting a parasail operation are not comparable to any other maritime activity that requires a Coast Guard-issued license. A passenger who engages in parasailing is put in a situation with inherent risks, and their safety is totally dependent upon the operator of the parasail vessel. Currently, a passenger has no assurances that the operator of the vessel has the requisite skills and experience to safely conduct the parasail operation. A parasail endorsement would standardize requirements for training and experience, and improve consistency and safety.

Parasailing Operations:

12. It appears that it was normal practice for the crew of the FL0238HY to put the harness on over the passenger's PFD. This is contrary to the published instructions in the CCI "Product owners and maintenance manual" and the procedures employed by a majority of other parasailing companies in the local area. Fitting the harness over the PFD is an improper procedure that may prevent the harness from being tightened sufficiently to prevent the passenger from inadvertently coming out of the harness.

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13. Both Mr. [REDACTED] and Mr. [REDACTED] stated that Mr. [REDACTED] was very cautious and conservative when it came to operating in marginally poor weather conditions. This is evidenced by the fact that Mr. [REDACTED] postponed the [REDACTED] flight on the day of the casualty in order to allow a localized storm to pass.

14. The deckhand had two contradictory responsibilities onboard the FL0238HY. First, the deckhand was responsible for safety-sensitive parasail operations which include, but are not limited to: selecting and fitting the appropriate harness for each passenger, properly connecting the passengers to the flight bar, acting as a safety observer during the flight, and disconnecting the passengers from the flight bar at the end of the flight. Second, the deckhand was responsible for taking video and pictures during the passenger's flight. The camera in use onboard the FL0238HY was an older Sony Mavica that has a viewfinder that restricts the user's field of view sufficiently that while the deckhand was taking pictures, he would have been unable to act as an effective lookout or safety observer. The investigation revealed that Mr. [REDACTED] had taken a picture of the casualty without knowing it, demonstrating that his ability to act as a safety observer was compromised by the requirement that he also act as a photographer.

Management:

15. Waveblast Watersports did not have a formal or informal training program for their masters or deckhands, or any program in place to evaluate their job performance. Crewmembers were hired based on word of mouth. Mr. [REDACTED] served as a deckhand for a period of time before he was allowed to serve as the master of the FL0238HY, but it is unknown if this was a normal process or unique to Mr. [REDACTED]. Mr. [REDACTED] stated that if a person possessed a Coast Guard-issued OUPV or masters license, that was sufficient evidence that they had the appropriate skills and experience to operate a parasail vessel and conduct parasail operations.

16. Waveblast Watersports did not have any formal or informal policies, procedures or standards for conducting parasail operations. Parasailing is very unique in that there are substantial inherent risks associated with participating in the activity, and once a passenger is engaged in a parasail flight, their safety is totally under the control of the crew on the parasail vessel. The failure of Waveblast Watersports to develop any policies, procedures or standards to mitigate the risks faced by parasail passengers represents a gross inattention to safety.

17. With the exception of two receipts for towline purchases, Waveblast Watersports did not provide any records or logs of any equipment purchases, repairs, inspections or retirements. Without these documents, it was impossible to conclusively identify the service history of any of the parasailing equipment onboard the FL0238HY.

18. Waveblast Watersports did not provide any evidence that they maintained normal business records such as payrolls, tax documents, or work schedules. Without this information, the investigating agencies were unable to conclusively determine the roles and responsibilities of the owner, master and deckhand.

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19. None of the parasailing equipment examined in this investigation were marked or labeled with a serial number or other means to uniquely identify the equipment. Without a serial number, the investigating agencies were unable to determine when each piece of equipment was manufactured or what materials were used in its construction.

Maintenance and Inspections:

20. Waveblast Watersports did not have a formal or informal inspection or maintenance program for any of the parasailing equipment onboard the FL0238HY.

21. Waveblast Watersports provided no records or logs that indicated that anyone in the company had ever performed maintenance on the parasail equipment owned by the company. No evidence was provided that showed that anyone in the company had ever made repairs to the company's parasailing equipment or had retired any parasailing equipment from service.

22. Mr. [REDACTED] stated that he had been onboard the FL0238HY on numerous occasions. During each visit he checked the towline, winch, harnesses, VHF radio and running lights. Mr. [REDACTED] stated that he had performed this inspection on FL0238HY approximately four days before the casualty.

23. Mr. [REDACTED] stated that he performed a series of mechanical checks on the boat each day and inspected the harnesses every other day. His harness inspection consisted of looking at the stitching where the hook risers, seat strap and back strap are sewn together to make sure the stitching was not frayed or broken, and then clipping each harness around a stanchion post and pulling hard on it to see if it would fail. Mr. [REDACTED] stated that he inspected all the harnesses on the FL0238HY on the day of the casualty, which included the victim's harness.

Equipment:

Harnesses:

24. On the day of the casualty, investigators noted 13 harnesses onboard the FL0238HY that were apparently in service and may have been used at some point to carry passengers. Of the 13 harnesses, two were being worn by passengers at the time of the casualty; a multicolored harness that was worn by the victim and a black harness that was worn by the surviving passenger. The multicolored harness and the black harness were transferred to the NTSB for examination and destructive testing. The remaining 11 harnesses were found clipped to the front of the operating station. FWC seized the remaining harnesses as evidence and they were subsequently examined and non-destructively tested by CCI.

25. Figure 24 shows the components of a parasail harness.

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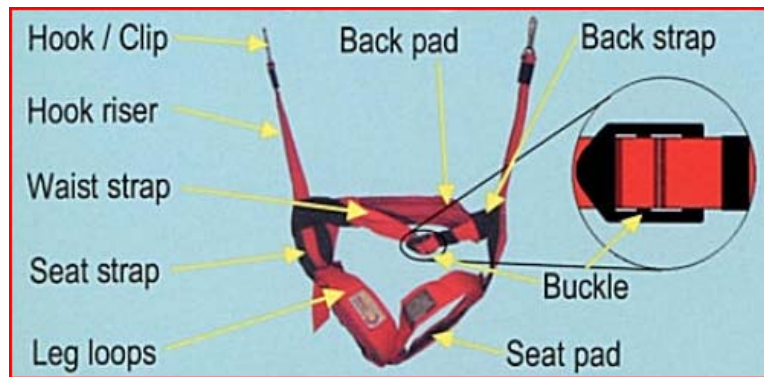


Figure 24 - Harness components (courtesy of Custom Chutes, Inc.'s Product owners and maintenance manual).

Multicolored Harness:

26. The victim's harness, referred to in this section as the multicolored harness, was examined extensively by the investigating agencies and was then transferred to the NTSB Office of Research and Engineering, Materials Laboratory Division for a detailed examination and destructive testing.

27. The multicolored harness was red, white and blue in color and was determined to have been manufactured in the late 1990's or early 2000's by Waterbird Parakites in Kent, England. The multicolored harness had a single warning label and was marked "Made in England", but it did not have any labeling that provided identifying information such as manufacturer, date of manufacture, or serial number. The lack of labeling prevented the investigating agencies from determining any manufacturing details or establishing a maintenance history for the harness.

28. The multicolored harness was constructed with 2 belt carabineers (stamped with an encircled "K", "AISI 316 ITALY", and "MAX 8kN"), two single 1-7/8" wide lengths of nylon webbing for the hook risers, two single 1-7/8" wide lengths of nylon webbing used as partial-length doublers for the hook risers, a single length of 1-7/8" wide nylon webbing for the waist strap, a single length of 2-7/8" wide nylon webbing for the back strap, two lengths of 2-7/8" wide nylon webbing for the leg loops, and a length of 5-3/4" wide nylon webbing for the seat strap. It was determined that the webbing in the hook risers was manufactured in the late 1990's or early 2000's by an Amsafe Bridport company called Arthur Harts Limited. Arthur Harts Limited was out of business at the time of the casualty and the parent company did not have any product information for the webbing in the multicolored harness.

29. The multicolored harness was an example of an early harness design. A significant difference in the design of the casualty harness and a more recently manufactured harness was the use of a single piece of webbing for each hook riser in the casualty harness. This single piece of webbing was sewn to the outside of the seat strap with an overlap of approximately 6", then passed upwards (in relation to the harness in use) to the belt carabineer, passed through the slot in the belt carabineer, and was then sewn back on itself with an overlap of approximately 3". A

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doubler of approximately 6” in length was then sewn onto the inside of each hook riser/seat strap such that it overlapped the hook riser and the seat strap equally. Figure 25 shows the doubler on the inside of the harness (left image) and the attachment of the hook riser to the outside of the seat strap (right image). In more recently manufactured harnesses, the hook risers are formed by a continuous piece of webbing that is attached to the harness in such a way that it doubles the hook risers over their entire length and passes under the entire seat strap.



Figure 25 - Inside and outside portions of the hook risers where they connect to the seat strap.

30. Analysis indicated that two elements in the design of the multicolored harness contributed to the casualty:

- a) The first design element that contributed to the casualty was the use of a single length of webbing for the hook risers. While in operation, the hook risers are constantly supporting the entirety of the passenger’s weight, so the use of a single piece of webbing does not offer any safety margin in the event of wear and/or damage to the hook riser. In this casualty, the strength of the webbing in the hook riser had been severely degraded by sunlight (ultraviolet light) damage and inadequate maintenance such that there was insufficient strength remaining to support the weight of the victim.
- b) The second design element that contributed to the casualty was the use of a doubler sewn into the inside of the hook riser. The doubler ended approximately 3” from the top of the seat strap, which resulted in a transition from doubled webbing to single webbing. Since the doubler was sewn to the hook riser, the two pieces of webbing could not move independently and the doubled section was stiffer than the rest of the hook riser. Analysis indicated that this led to the singled section of the hook riser weakening at the terminus of the doubler, much in the same way that tying a knot in a line weakens the line at the knot. This is evidenced by the fact that both hook risers failed just above the terminus of the doubler.

31. The investigating agencies conducted extensive visual examinations of the multicolored harness and found it to be in poor condition. The colors on the polypropylene webbing were heavily faded and there were broken strands in the webbing. It was also noted that the stitching

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in some areas of the harness had broken or had come loose. The remnants of the hook risers had a soft hand and were substantially more flexible than same-sized new webbing. The hook risers also had some fraying on the edges and broken strands in the webbing. In the video taken of the passengers at the start of their flight, a defect can be seen on the leading edge of the passenger's left hook riser. The quality of the video is low, but the defect is sufficiently consistent from frame-to-frame that it is unlikely to be an artifact caused by the low quality of the video.

32. Coast Guard investigators analyzed the fit of the victim's harness and observed that it was not properly fitted. First, the deckhand incorrectly put the harness on over the victim's PFD, which prevented the harness from being properly tightened. In the video of the flight's launch, it can be seen that the waist strap is loosely secured on the outside of the victim's PFD. Second, because the waist belt was over the PFD and not properly tightened, the seat strap was able to move forward on the victim's thighs until it was approximately two-thirds of the way from her buttocks to her knee. The position of the seat strap placed the victim in a reclined position that she compensated for by pulling on the hook risers for support. This position also loaded the hook risers unequally, with more weight on the trailing edge of each hook riser than on the leading edge. The unequal loading of the straps caused "scalloping" on the leading edges of the hook risers. The fit of the multicolored harness can be seen in figure 26.

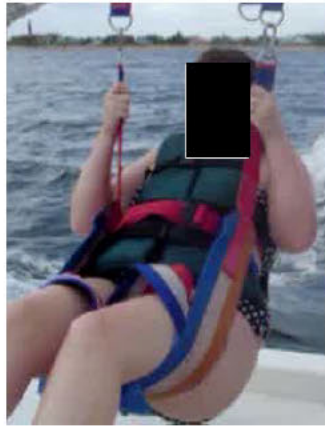


Figure 26 - Fit of the multicolored harness.

33. The NTSB's examination of the failure points on both hook risers showed that the filaments in the webbing at the point of failure were raveled, which is evidence of an overload event. In addition, the manner in which the filaments failed indicated a low energy separation, which is consistent with the assertion that the hook risers on the multicolored harness had insufficient tensile strength at the time of the casualty for the weight of the passenger.

34. The NTSB conducted destructive tensile strength testing on the multicolored harness. Because there was an insufficient length of the webbing from the hook risers to conduct the test, a section of the waist belt was used instead. The function of the waist belt is to prevent the passenger from falling out of the harness in a forward direction. The waist belt also provides an adjustable means to properly secure the harness around the passenger. In contrast to the hook

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risers, the waist belt is not subjected to the constant loading of the passenger's weight and would therefore be expected to retain its tensile strength over a longer period of time than the hook risers.

35. As a comparison of tensile strength, the NTSB obtained 2" exemplar webbing from TapeCraft®, which had supplied the webbing for the construction of the black harness worn by the surviving passenger. Using webbing from TapeCraft® was necessary because Arthur Harts Limited was out of business and exemplar webbing no longer existed. The exemplar webbing was destructively tested in the same manner as the waist belt from the multicolored harness.

36. During the NTSB tensile strength testing, the waist belt from the multicolored harness failed at 906 pounds, which is significantly less than the test results for the exemplar webbing, which failed at an average of 3980 pounds. Since over the course of its service life the waist belt was subjected to a lesser cumulative load than the hook risers, it was determined that the tensile strength of the hook risers on the multicolored harness was significantly less than 906 pounds.

37. The NTSB examined the waist belt from the multicolored harness using a Fourier Transform Infrared spectrometer and found photo-degradation of the polypropylene that makes up the waist belt. Photo-degradation is the process of decomposition of a material by sunlight. The photo-degradation was evidenced by the presence of oxygen-hydrogen bonding and carbon-oxygen bonding. Per the NTSB report, the presence of oxygen-hydrogen bonding and carbon-oxygen bonding is consistent with the presence of carbonyls and hydro-peroxides, which are byproducts of the photo-degradation of polypropylene. These results are consistent with the visual appearance of the harness.

Black Harness:

38. The surviving passenger's harness, referred to in this section as the black harness, was examined extensively by the investigating agencies and was then transferred to the NTSB Office of Research and Engineering, Materials Laboratory Division for a detailed examination and destructive testing.

39. The black harness was manufactured by CCI and was of a more modern and safer design than that of the multicolored harness. In the black harness, the hook risers are doubled over their entire length and are formed with a single piece of webbing that also passes under the entirety of the seat strap. Neither of the design elements on the multicolored harness that contributed to the casualty was present in the design of the black harness.

40. A visual examination of the black harness revealed that it was in serviceable condition. There was some fading of the polypropylene webbing from exposure to sunlight and some minor defects in the stitching and webbing; none of which would have rendered it unserviceable.

41. As was done during the testing of the multicolored harness, the NTSB used the waist belt from the black harness as the sample for the tensile strength test. The waist belt failed at 3,100

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pounds, which is slightly less than the test results for the exemplar webbing, which failed at an average of 3980 pounds. A tensile strength of 3,100 pounds is adequate for carrying a passenger of an appropriate weight and size for the harness in the weather conditions that existed on the day of the casualty. This is particularly true when it is considered that the waist belt was a single piece of 2" wide webbing, but the hook risers were constructed with doubled 2" wide webbing.

42. The NTSB also examined the waist belt from the black harness using a Fourier Transform Infrared spectrometer. As was found in the multicolored harness, oxygen-hydrogen bonding indicated that photo-degradation of the polypropylene in the waist belt had occurred; however it was at a significantly lower level than was found in the multicolored harness. There was not a significant presence of carbon-oxygen bonding in the black waist belt. The lesser amount of photo-degradation found during examination of the webbing in the black harness was consistent with the results of the visual examination.

NTSB Harness Tensile Strength Testing Results:

43. Figure 27 shows the results of the NTSB's tensile strength testing of the waist belts from the multicolored harness, the black harness, and 5 exemplar pieces of webbing from TapeCraft®.

SPECIMEN IDENTIFICATION	SPECIMEN DESCRIPTION	LOAD AT FAILURE (pounds)
A	Red Waist Belt	906
B	Black Waist Belt	3,100
C1	Webbing Sample	4,000
C2	Webbing Sample	3,970
C3	Webbing Sample	3,980
C4	Webbing Sample	3,970
C5	Webbing Sample	3,970

Figure 27 - NTSB tests results for passenger harnesses.

Other Harnesses:

44. The 11 remaining harnesses that were not involved in the casualty were examined and non-destructively tested by CCI. Of note, only two of the 11 remaining harnesses were deemed to be serviceable without repairs, and six harnesses were completely unserviceable. The 11 harnesses examined by CCI are referenced by their FWC-assigned evidence control number. The results of the examination and testing is as follows:

- a) Harnesses #34, #35, #36, #37, #39 and #43 were not suitable for service due to unacceptable levels of photo-degradation from exposure to sunlight (Figures 28 and 29).

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Figure 28 - Harnesses 34, 35 and 36 were not suitable for service.



Figure 29 - Harnesses 37, 39 and 43 were not suitable for service.

b) Harness #38 needed a new waist strap to bring it to a serviceable standard (Figure 30).



Figure 30 - Harness 38 needed a new waist strap.

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c) Harnesses #40 and #41 were serviceable (Figure 31).



Figure 31 - Harnesses 40 and 41 were serviceable.

d) Harness #42 needed new hook risers to render it serviceable (Figure 32).



Figure 32 - Harness 42 needed 2 new clip straps.

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- e) Harness #44 needed new pads and hook risers to render it serviceable (Figure 33).



Figure 33 - Harness 44 needed new pads and clip straps.

Towline:

45. The towline onboard the FL0238HY at the time of the casualty was reported to be 5/16" 12-strand Spectra® ultra-high molecular weight polyethylene (UHMWPE) rope. The towline was reportedly in service from late March 2011 until early September 2011 and then again from July 2012 to the date of the casualty. This represents an approximate total of seven months of service. There were no identifying marks or labels on the towline and Waveblast Watersports did not have any records or logs that indicated when the towline was put into service and/or when any maintenance was conducted.

46. The towline was marked with black tape wrapped around the towline at the following locations (as measured from the bowline knot): 1-5" section of black tape at 590'10", 1-1" section of black tape at 741'4", 2-1" sections of black tape at 880'9", and 3-1" sections of black tape at 939'1" (figure 34). The total length of the towline was 1,022'8".

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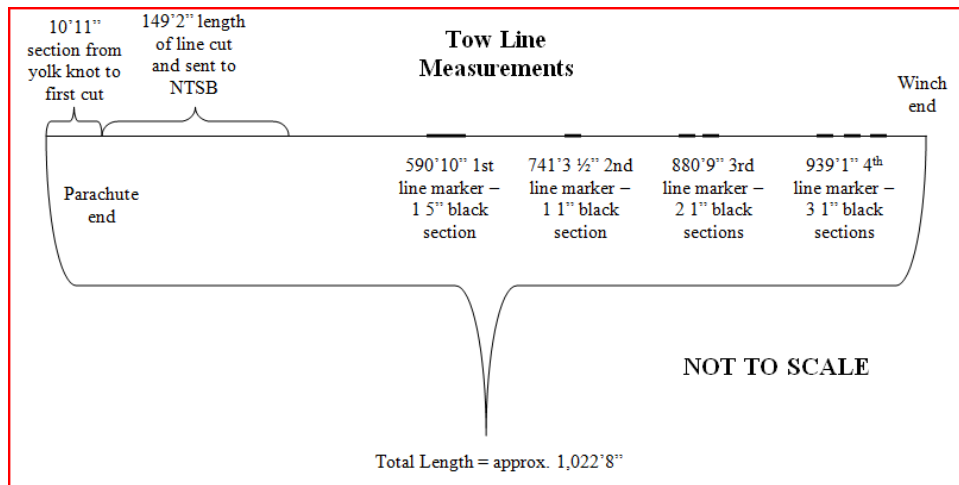


Figure 34 - Towline measurements and markings.

47. The towline was coated with noticeable wax buildup, which was consistent with the master's statement that he waxed the line with surfboard wax in order to reduce "hot spots." Further supporting his statement, bars of Palmer's Surf Wax were found on the FL0238HY.

48. The NTSB Office of Research and Engineering, Materials Laboratory Division received a 149'2" section of towline which had been cut from the towline starting at 10'11" from the bowline knot. The NTSB obtained advertising documents from Pelican Rope Works which indicated that 12-strand Spectra® ropes are produced from an UHMWPE that is light grey urethane-coated for extra abrasion resistance. The advertised average tensile strength of the line was 9,500 pounds.

49. The NTSB cut the towline into 9 sections and pull-tested each section to its failure point. The 9 section were prepared as follows: sections 3, 6, and 9 had eyes spliced into both ends of each section; sections 2, 5 and 8 had eyes spliced into one end and a bowline knot tied into the other end; and sections 1, 4 and 7 had an eye spliced into one end and a bowline knot with half-hitches tied into the other end.

50. The NTSB testing found that the sections of towline from the FL0238HY with splices in both ends failed at an average load of 11,933 pounds, which significantly out-performed (+26%) the advertised tensile strength of 9,500 lbs, despite having been in service for approximately 7 months. The sections with a bowline knot failed at an average load of 4233 pounds, which represents a 55% reduction in the advertised tensile strength of the towline and a 65% reduction in the actual strength of the towline. Finally, the sections with a bowline knot and half-hitches failed at an average load of 3567 pounds, which represents a 62 percent reduction in the advertised tensile strength of the towline and a 70% reduction in the actual strength of the towline. In the test sections with both ends spliced, the failure occurred in the towline between the splices. In the test sections with either a bowline, or a bowline and half-hitches, the failure occurred at the knot. See the table in figure 35 for test results.

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Test Sample ID	Knot Type	Load at Failure (pounds)	Failure Location	Percent Reduction of New Average Tensile Strength	Percent of Casualty Line's Average Breaking Strength
1	Bowline & Hitch	3,500	Knot	-63%	-71%
4	Bowline & Hitch	3,600	Knot	-62%	-70%
7	Bowline & Hitch	3,600	Knot	-62%	-70%
Average:		3567		-62%	-70%
2	Bowline	4,400	Knot	-54%	-63%
5	Bowline	3,800	Knot	-60%	-68%
8	Bowline	4,500	Knot	-53%	-62%
Average:		4233		-55%	-65%
3	None	12,000	Towline	+26%	-
6	None	12,000	Towline	+26%	-
9	None	11,800	Towline	+24%	-
Average:		11,933		+26%	-

Figure 35 - NTSB towline tensile strength test results.

51. A bowline knot is commonly used throughout the parasail industry to connect the towline to the tow yoke. All knots damage the line and reduce its breaking strength by a substantial amount. The bowline is popular in the parasailing industry because it is easy to tie, will not come undone under normal circumstances, and reduces the breaking strength of the line by a smaller amount than other suitable knots. On the FL0238HY, the towline was tied to the tow yoke using a bowline knot followed by 4 half-hitches.

52. It is a common practice in the parasailing industry to “clip/trim the knot/line.” This process involves periodically cutting off the bowline knot and a short length of towline. Conducting this procedure removes areas that were damaged by the bowline knot and/or the stresses associated with flying the parasail. Mr. ██████ stated that he trims the line 2’ every third time he had to tie a bowline knot (such as for parasail changes), or every two days if the same parasail is flown the entire time. Mr. ██████ statements about trimming the line could not be verified because the trimmings were thrown away and no records were kept of when the line was trimmed or how much of the line was cut off.

53. A 10’11” section of towline that included the bowline knot was examined by CCI and was found to be serviceable, though Mr. ██████ noted that waxing the towline was of limited benefit.

54. Mr. ██████ examined the bowline knot and found that it had tightened to the point where it was almost unrecognizable. It also appeared that the bowline knot had been tied backwards. Mr. ██████ indicated that putting half-hitches into the line after tying the bowline was a common practice on Premium Parasail boats because they use a narrow pulley block to feed out line from the winch. The half-hitches form a buffer for the bowline by making contact with the pulley instead of the load-bearing bowline knot.

55. The towline showed significant wear and deformation. The breaking strength tests performed by the NTSB showed an expected and significant decrease in breaking strength for the

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towline when a bowline knot or a bowline knot with half-hitches was tied into the line. However, the breaking strength of the towline when both ends were eye-spliced was significantly *higher* than the advertised breaking strength of the line (+26%), despite being in service for 7 months. This increase in breaking strength cannot be explained unless the line is not 5/16" Spectra® as reported, or the advertised breaking strength of the line is extremely conservative. It is noteworthy that tying a bowline with half-hitches into the towline involved in the casualty reduced its strength by 70%, which is significantly greater than expected (35% to 40%). It is unknown whether or not this dramatic reduction in strength is due to the unique characteristics of Spectra® lines, or of this line in particular.

56. The towline showed signs of significant wear, but it did not fail in this casualty and there is no evidence to suggest it contributed to the casualty.

Winch:

57. The winch onboard the FL0238HY at the time of the casualty was a CSG winch system that was distributed or manufactured by CCI on an unknown date.

58. On August 31, 2012, investigators tested the winch at the FWC storage facility in Port Everglades, Florida in order to determine the maximum pulling force it could apply to the towline. The boat and its trailer were moved slightly outside the storage bay, a garden hose connected to a fresh water source was connected to a dedicated fitting on the sea chest, a plug was inserted into a cooling line on the drive unit that had been cut on the night of the casualty in order to raise the engine, and after proper cooling water flow was verified, the engine was started.

59. A Dillon EDXtreme dynamometer was connected to a double-braided nylon line that was tied around an overhead beam in the storage bay. The towline from the FL0238HY was connected to the other end of the dynamometer.

60. After the engine was warmed up, three pull tests were conducted by revving the engine to a moderate RPM (vessel's gauges were not functional) and engaging the winch lever so that winch pulled in the towline. Once the winch took a strain on the towline, the lever was moved all the way forward and held in that position until the winch stopped. At that time, the winch direction was reversed and the strain on the towline was released. Once the towline became slack, the results on the dynamometer, measured as pound-force (lbf), were noted and recorded. The first test was conducted at a lower engine RPM than the other tests. The three test results, in order, were 1460 lbf (lower RPM), 1600 lbf and 1600 lbf (higher RPM). See Figure 36.

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Figure 36 - Winch test results.

61. There is no evidence that the winch had any failure or difficulty retrieving the parasail on the day of the casualty. Additionally, operational tests demonstrated that the winch operated smoothly and did not surge or stutter. The winch test results were lower than expected, but because the RPM gauge was inoperable, it was impossible to set and maintain an appropriate RPM for the tests.

Parasail:

62. The parasail involved in the casualty was 39' in diameter (model unknown) and was manufactured by CCI on June 9, 2008. The parasail had a CCI label on it that indicated its size, its maximum wind speed (12 mph), and its working weight range (150 lbs to 560 lbs). The label also had fields for recording inspections with a single entry indicating that the parasail had been reinspected on September 9, 2010 by [REDACTED] [REDACTED]. There was a field on the label for recording a serial number, but it was not filled out. The labeled wind speed and minimum/maximum weights are consistent with the entry for a 39' parasail with air management zippers (closed) on the "Custom Chutes Wind and Size Chart for Commercial Parasails" chart in the CCI "Product owners and maintenance manual."

63. The combined weight of the passengers involved in the casualty was approximately 335 lbs and the wind speed at the time of the casualty was approximately 6 knots, so the flight was conducted within the published guidelines for the parasail involved in the casualty.

64. On September 19, 2012, the parasail was inspected by CCI and it was determined that the materials of the parasail were in a serviceable condition; however, it would have required some repairs in order to be serviceable (by CCI's standards). The parasail needed 4 replacement panels, two patches, a new set of shroud lines, and the launch strap needed to be re-sewn. CCI also noted that the parasail was heavily contaminated with salt and needed rinsing in fresh water.

65. The parasail involved in the casualty had notable material defects and its condition reflected inadequate maintenance, however there is no evidence that the parasail's condition contributed to the casualty.

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Flight Bar:

66. The flight bar, which is also known as a “passenger bar”, was identified as a Multiflyer™ bar manufactured by CCI on an unknown date. The Multiflyer™ bar was examined by the NTSB and was found to be a metal bar covered with a padded cover. One end of the bar had a single, nonadjustable twisted shackle connecting the bar to the bridle. The other end of the bar had a horizontal slot (“adjuster slot”) with six notches on the upper-side of the slot. A twisted shackle was connected through the adjuster slot such that the shackle pin could be positioned in any of the six notches. Hanging down from the bar were six webbing hanger straps that each terminated in a D-ring.

67. The configuration of the flight bar is critical to balancing the parasail during flight, and the instructions for configuring it are found in the CCI “Product owners and maintenance manual.” Selection of the hanger straps and the correct notch in the adjuster slot is dependent on the number of passengers, their weights, and the differences between their weights. According to the manual, when viewed from the front of the flight bar the hangers are identified as A, B, C, D, E and F (from left to right) and the six notches in the slot are identified as positions 0, 1, 2, 3, 4 and 5 (from right to left).

68. The approximate difference in weight of the passengers involved in the casualty was 15 lbs. The CCI “Product owners and maintenance manual” indicates that for doubles with a 15 lb weight difference, the heavier person should be connected to hangers A and C, the lighter person should be connected to hangers D and F, and the shackle should be in position 1 of the adjuster slot. Analysis of the video footage obtained from the camera in use onboard the FL0238HY indicated that the flight bar was correctly configured (Figure 37).



Figure 37 - Configuration of the flight bar.

69. The NTSB examined the flight bar and did not note any significant material defects that would affect its serviceability. The examination did reveal minor defects in the padded cover near the ends of the bar and remnants of adhesive from where several labels had become unfixed. The flight bar was in a serviceable condition and was correctly configured for the flight.

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Tow Yoke:

70. The tow yoke is used to connect the parasail to the towline and has D-rings for attaching the flight bar. On September 19, 2012, the tow yoke that was involved in the casualty was inspected by CCI. The inspection by CCI determined that the tow yoke was serviceable, but heavily contaminated with salt.

PFDs:

71. Per 46 C.F.R. 25.25-5, the FL0238HY was required to carry one Type I PFD for each person onboard the vessel and the investigation revealed that there were a sufficient number onboard at the time of the casualty. While a Type I PFD is appropriate for a passenger that has to enter the water in the event of a vessel emergency, they are not generally used in the parasail industry because the design of the Type I PFD is inappropriate for prolonged use during active activities like parasailing. Accordingly, the majority of parasail companies, including Waveblast Watersports Inc., have their customers wear Type III PFDs during parasail operations. Notably, there is no requirement to wear a specific type of PFD, or even that a PFD must be worn, during parasail operations.

72. The performance requirements for Type III PFDs are specified in 46 C.F.R. § 160.064-3(a) to be “as accepted by the Commandant for listing and labeling by a recognized laboratory, and shall ... meet the requirements specified in this section.” Per 46 C.F.R. 160.064-7(a), the only recognized laboratory for Type III PFDs is Underwriters Laboratories.

73. Underwriters Laboratory (UL) standard 1123 is applicable to Marine Buoyant Devices and specifies the testing requirements for Type III PFDs. Sections 16.4.1 and 16.4.2 of UL 1123 state that a Type III PFD:

“shall maintain each subject in an attitude of relaxed static balance (such as an upright or backward position) so that the subject’s respiration is not impeded at any time, and shall not have a tendency to turn a subject face-down from the position of relaxed static balance in the water.”

74. While section 16.4.2 of the UL 1123 standard states that a type III device “shall permit each subject to attain at least a slightly backward of vertical position ... when starting from a face-down position in the water.” The result of this standard is that a person in an approved Type III PFD would have to take explicit actions in order to attain that position, which would be impossible for an unconscious victim.

75. The victim and the surviving passenger were both wearing Coast Guard-approved Type III PFDs at the time of the casualty. Both PFDs were the same make and model, and were the same size and color (Figure 38):

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Manufacturer:	Cabala's®
Coast Guard Approval #:	160.064/A4596/0
Type:	III
Model:	CG-160
Size:	XL-XXXL
User Weight:	More than 90 lbs (41 Kg)
Chest Size:	40 to 60 inches (102 to 152 cm)
UL Listing:	Marine, Flotation Aid Issue No. K-5710



Figure 38 - PFDs on the flight deck immediately following the casualty.

76. The victim's PFD was labeled with the following: "Strength tested at 50 MPH (22.4M/S) – Not tested for personal protection from impact." There was no evidence to suggest that the victim's PFD either minimized or exacerbated the injuries she suffered as a result of the fall.

77. Investigators noted that the victim's PFD had minimal damage consisting of a partially torn belt loop located on the lower portion of the back of the PFD. It is unknown whether or not the damage to the belt loop occurred during the casualty or was a pre-existing condition.

78. The Type III PFD worn by the victim provided sufficient flotation to float her on the surface of the water after the casualty; however it did not turn her to a face-up position. When the master entered the water and swam to Mrs. Miskell, he noted that she was face down in the water, which is consistent with the Medical Examiner's report that Mrs. Miskell died from drowning and multiple blunt force injuries. Analysis indicates that if Mrs. Miskell had been wearing a PFD designed to float an unconscious victim face-up, she may not have drowned.

Broward County, Florida Parasail Companies:

79. On October 17 and 18, 2012 investigators from Sector Miami and FWC visited five companies in Broward County that were advertising parasailing trips. The purpose of these visits was to examine the condition of their equipment and learn about their operating practices

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in order to make a peer-to-peer comparison with Waveblast Watersports. Investigators found that of the five companies visited only three were actively conducting parasailing trips. The following observations were made at these three companies:

- a) At all three companies, the deckhand was responsible for selecting the harnesses. The deckhands were also responsible for helping each passenger don their harness. While it was the deckhand's responsibility to select a correctly sized harness and assist the passenger with donning it, all of the vessel masters stated that they were responsible for overseeing and verifying the correctness of the deckhand's work.
- b) Two out of three companies had parasailing gear that appeared to be in better material condition than the equipment that was in use on the FL0238HY. Most of the crew stated that this casualty was an impetus to purchase at least some new equipment. One company had harnesses that appeared to be of similar material condition to the harnesses in use onboard the FL0238HY. This company also had some Waterbird® brand harnesses that were similar in construction and vintage to the victim's harness.
- c) At all of the companies, the crew kept written logs to document their daily operations. There was variability in the type and consistency of the information that was logged, as well as variances in the length of time that the logs were retained.
- d) At two out of three companies, the deckhands asked the passengers for their weights. At the third company, the deckhand asked each pair of passengers to discuss their weights amongst themselves and then inform the deckhand of the difference in their weights.
- e) The masters and deckhands at all of the companies were able to demonstrate the safety orientation that they give to customers.
- f) The masters at all of the companies stated that they frequently checked the weather in order to make a determination about whether or not it was safe to conduct parasail operations. Each company had a different maximum wind speed threshold for ceasing operations. Each of the masters made weather determinations based on visual observations and the use of internet applications such as weatherfinder.com.
- g) All parasail operators stated that parasailing gear that was deemed unserviceable was retired and discarded. Two out of three companies ensured that the harnesses were permanently rendered unserviceable (i.e. clips cut off or sawed into pieces) and then discarded.
- h) None of the companies purchased pre-owned or previously-used parasail equipment.
- i) At two out of three companies, the masters stated that harnesses are stored topside for easy access when the vessel is in operation, but that they are stored in a compartment or storage area when the vessel is not in operation. The remaining parasail operation

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appeared to keep their harnesses clipped to the forward part of the operator's console for extended periods of time.

- j) All operators stated that they rinse their harnesses in fresh water, though the frequency of the fresh water rinses varied.
- k) All operators stated that they wash their parasails on a regular basis, but the frequency of the washes varied.
- l) The masters or owners at two of the three companies stated that they send all parasail equipment that needs repair or servicing to the manufacturer, such as CCI. One operator indicated that he would take harnesses that needed repair to a local canvas shop and parasails that needed repair to a local sail repair loft.
- m) All masters and deckhands at the three companies visited stated that they had current memberships with recognized drug consortiums.

Fatigue and Medications:

80. The master had worked from approximately 0900 to 1000 until 1800 to 1900 on each of the three days prior to the casualty. There was no evidence that Mr. [REDACTED] was fatigued on the day of the casualty.

81. The deckhand had worked the day before the casualty until 1700 and had gone to bed at 2230. There was no evidence that Mr. [REDACTED] was fatigued on the day of the casualty.

82. Neither the master nor deckhand stated that they were taking prescription or non-prescription drugs at the time of the casualty.

Conclusions:

- 1. In accordance with reference (c) the initiating event, also known as the first unwanted outcome, for this casualty was the material failure of the hook risers on the passenger's harness while the passenger was in flight.
- 2. The causal factors that led to this casualty were:
 - a) Personnel: There are three primary causal factors that involve human error on the part of the company owner and the vessel master.
 - 1) The failure of the master to:
 - a. identify significant material defects in the harnesses that were in service onboard the FL0238HY. Of the 13 harnesses onboard the vessel, only three were

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serviceable at the time of the casualty. Harnesses are a critical passenger safety component in parasail operations and material defects endanger human life;

- b. provide a proper parasailing brief to the passengers. A proper parasailing brief provides passengers with the information necessary to accept or mitigate the risks inherent in parasailing, or choose to abstain from the activity; and
 - c. ensure that the harnesses worn by the passengers were properly fitted before they commenced their parasail flight.
- 2) The failure of the deckhand to ensure that the harnesses worn by the passengers were properly fitted before they commenced their parasail flight.
 - 3) The failure of the company owner to:
 - a. ensure that the vessel master and crew were provided with equipment that was of a suitable design and condition to ensure passenger safety while engaging in parasail operations;
 - b. ensure that the vessel master and crew had appropriate training and experience to ensure safe parasail operations on the vessel;
 - c. ensure that prior to being entered into service, used and other-than-new harnesses purchased from other companies were inspected by a reputable manufacturer or dealer and determined to be suitable for service; and
 - d. develop and promulgate policies, procedures and standards for employees of Waveblast Watersports that mitigated the risks inherent in parasailing.
- b) Equipment: There are five primary causal factors that involve equipment.
- 1) The tensile strength of the failed harness was severely degraded due to photo-degradation from sunlight and inadequate maintenance. The tensile strength of the hook risers on the failed harness is estimated to be substantially less than the tensile strength of the waist belt (906 pounds). At the time of the casualty, the tensile strength of the waist belt was only 23% of the exemplar webbing.
 - 2) The improper fitting of the victim's harness over her PFD led to the seat strap being improperly positioned on her body. This resulted in the victim being positioned in a reclining position that unequally loaded the hook risers on her parasailing harness.
 - 3) The design of the parasailing harness worn by the victim was flawed in two ways. The use of a single piece of webbing in each hook riser meant that photo-degradation and inadequate maintenance had a greater negative impact on the tensile strength of the hook risers than if they had been constructed with two pieces of webbing sewn

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together. The use of webbing doublers to attach the hook risers to the seat strap resulted in a point on each hook riser with differing flexibility. The flexing at the point caused the fibers in the nylon webbing to weaken faster than in other parts of the webbing.

- 4) The lack of a unique means to identify and track parasailing harnesses. None of the harnesses onboard the FL0238HY were labeled with a unique identifier that could have been used to document their inspection, maintenance or repair histories.
 - 5) The failure of the PFD to float the victim in a face-up position led to the victim drowning after falling from the parasail.
- c) Safety Standards: There are eight primary causal factors that involve safety standards.
- 1) The lack of industry standards for the selection, inspection, maintenance and retirement of parasail harnesses. Parasail harnesses are subjected to severe weather and operating conditions that continually degrade their strength and suitability for service. Failure to properly inspect, maintain and retire parasail harnesses greatly endangers human life.
 - 2) The lack of industry standards for the design and construction of parasailing harnesses.
 - 3) The lack of industry standards for the proper sizing, fitting and wearing of parasailing harnesses.
 - 4) The lack of industry standards for the proper stowage and cleaning of parasailing harnesses.
 - 5) The lack of industry standards for the selection, inspection and determining the suitability of service for used or other-than-new parasailing harnesses.
 - 6) The lack of industry standards for the documentation and logging of parasail flight and casualty details, equipment inspections, entry-into-service dates, history of repairs and maintenance and equipment retirement dates.
 - 7) The lack of training, experience and licensing requirements for masters of parasail vessels. Parasail operations are highly specialized and passengers are exposed to significant risks that are beyond their control to mitigate; however, masters of parasail vessels are not required to demonstrate proficiency in conducting parasail operations.
 - 8) The lack of industry standards in training, qualification and experience requirements for deckhands on parasail vessels.

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3. There is evidence that the company owner through his actions or inactions, committed acts of negligence and/or misconduct that contributed to the cause of this casualty and the death of one passenger:
 - a) The company owner failed to take appropriate action to ensure that the parasail equipment he provided to the crew of the FL0238HY was suitable for its intended service of carrying parasail passengers for hire.
 - b) The company owner failed to implement any program, policy, or guidelines that would have established at least a minimum level of safety for the passengers engaging in the company's parasail operations.
 - c) The company owner failed to conduct reasonably prudent safety-related documentation and/or recordkeeping practices for the company, its employees or contractors, the vessel, and/or the company's commercial parasail operation.
4. There is evidence that the master of the FL0238HY through his actions or inactions, committed acts of negligence and/or misconduct that contributed to the cause of this casualty and the death of one passenger. The master of the FL0238HY, who was solely responsible for the safety of the passengers while they were onboard the vessel or engaged in parasailing, failed to identify and correct visually-apparent, safety-related defects in the harnesses that were in service on the vessel.
5. There is no evidence that the use of dangerous drugs or alcohol contributed to this casualty.
6. There is no evidence that work/rest related issues contributed to this casualty.
7. There is no evidence that any act of misconduct, incompetence, negligence, lack of professionalism, and/or willful violation of law committed by any officer, employee, or member of the Coast Guard contributed to this casualty.

Recommendations:

Safety:

1. It is recommended that the Commandant of the Coast Guard, in consultation with national parasailing organizations, the parasailing industry and the American Society for Testing and Materials (ASTM), establish a parasailing endorsement for Coast Guard Merchant Mariner Licenses. The parasailing endorsement should be required for the licensed operator or master of any vessel engaged in commercial parasail operations.
2. It is recommended that the Commandant of the Coast Guard, in consultation with national parasailing organizations, the parasailing industry and the ASTM, develop standards for the selection, inspection (periodic and event-based), maintenance, storage and retirement (removal from service) of parasail equipment used in commercial service. These standards should also

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establish evaluation procedures to determine the suitability for service of equipment not purchased directly from the equipment's manufacturer.

3. It is recommended that the Commandant of the Coast Guard require that each person participating in a parasail flight wear a Coast Guard-approved PFD that is designed to turn an unconscious wearer to the face-up position and is in serviceable condition and of the proper size for the wearer. The PFD should be donned prior to the person's connection to any parasail equipment other than the harness, and should remain properly worn throughout the entire parasail operation.

4. It is recommended that the Commandant of the Coast Guard require that each vessel conducting commercial parasail operations have a deckhand onboard acting as an observer at all times when a parasail is aloft with passengers. The observer should be required to have training on identifying and responding to emergency situations, the proper fit of harnesses and PFDs, and the processes for launching and recovering the parasail. The observer should be prohibited from having any other duties while a parasail is aloft with passengers.

5. It is recommended that the Commandant of the Coast Guard in consultation with national parasailing organizations, the parasailing industry and the ASTM, develop recordkeeping standards for equipment used in parasail operations including, but not limited to: parasails, line/rope, harnesses, PFDs, connection apparatuses, winches and their associated equipment, masts and pulleys. The record for each piece of equipment should document: date of purchase, condition when purchased, date the equipment was placed into service, date the equipment was removed from service, all maintenance performed on the equipment, date of each inspection of the equipment, and damage or failure of the equipment. These records should be maintained for the service life of the equipment and should be available for review by the Coast Guard.

6. It is recommended that the Commandant of the Coast Guard in consultation with national parasailing organizations, the parasailing industry and the ASTM, develop recordkeeping standards for tallying flight cycles on safety-critical parasail equipment, including, but not limited to: parasails, harnesses, tow lines and yokes. In consultation with the parasail industry, the periodic inspection standards in recommendation 2 should correlate to the number of flight cycles for each type of equipment.

7. It is recommended that the Commandant of the Coast Guard in consultation with national parasailing organizations, the parasailing industry and the ASTM, develop recordkeeping standards for each parasail flight, including, but not limited to: the parasail used; the harnesses used, the estimated weight of each passenger on the flight; the observed wind and sea states; the duration of the flight, and the details of any incident that occurred during the parasail operation. These records should be available for review by the Coast Guard.

8. It is recommended that the Commandant of the Coast Guard, in consultation with the parasailing industry, require that each parasail, harness, and apparatus used to connect the passenger to the parasail be labeled or otherwise fitted with a permanent, unique identifier. This

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identifier should allow the owner, operator or investigative agency to determine the equipment's place of manufacture, date of manufacture, and the materials used in its construction. This identification system should be able to be applied to other-than-new equipment.

9. It is recommended that the Commandant of the Coast Guard require operators of commercial parasail vessels to provide a comprehensive passenger safety briefing prior to the start of parasail operations to include discussion of the risks inherent in parasailing and the operational limits imposed to mitigate those risks. The briefing should also convey the proper procedures to be followed in the event of parasailing emergencies to include, but not limited to: catastrophic or non-catastrophic equipment failure, unintended landing on water, winch malfunction, towline failure, and a loss of propulsion with a passenger in flight.

10. It is recommended that the Commandant of the Coast Guard, in consultation with national parasailing organizations, the parasailing industry and ASTM, review, modify, and ultimately adopt and incorporate by reference in 46 C.F.R. Subchapter C and 46 C.F.R. Subchapter T, the ASTM standards for parasail operations, or a similarly produced and recognized industry standard.

11. It is recommended that the Commandant of the Coast Guard provide written guidance to marine investigators for use during the investigation of parasailing marine casualties. This guidance should cover all aspects of parasail operations including, but not limited to: flight procedures, purpose and function of all equipment, applicable industry standards and regulations, and post-casualty evidence collection and equipment testing. This guidance should be taught at the Marine Inspection and Investigations School at Training Center Yorktown and be made available in an alternative format to the public and the parasailing industry.

12. It is recommended that the Commandant of the Coast Guard develop and implement a Coast Guard-wide Voluntary Commercial Parasailing Vessel Safety Examination Program modeled after the program instituted by Coast Guard Sector St. Petersburg. The examination procedures in this program should be based on recognized industry standards.

Enforcement:

13. It is recommended that the Commander of the Seventh Coast Guard District consider this case for forwarding to the U.S. Attorney General for review for possible criminal liability of the company owner and master of the FL0238HY under 18 U.S.C. § 1115, and other laws, as per 46 C.F.R. § 4.23-1.

14. It is recommended that Sector Miami, which exercises OCMI authority closest to Mr. [REDACTED] home of record, conduct a personnel action investigation and if appropriate, initiate Suspension & Revocation proceedings against [REDACTED] Coast Guard license.

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15. It is recommended that Sector Miami, which exercises OCMI authority closest to the owner of the FL0238HY, initiate civil penalty action against the company owner and vessel operator for failing to have a chemical testing program in accordance with 46 C.F.R. §16.

16. It is recommended that the Seventh Coast Guard District Drug and Alcohol Program Inspector conduct an audit of Waveblast Watersports, Incorporated.

Other:

17. It is recommended that the Commandant of the Coast Guard provide a copy of this report to the following entities:

- a) Area, District, and Sector Commanders;
- b) Estates of the deceased;
- c) U.S. Attorney
- d) Professional Association of Parasail Operators;
- e) Parasail Safety Council;
- f) Passenger Vessel Association;
- g) Water Sports Industry Association;
- h) Custom Chutes, Incorporated;
- i) Florida Fish & Wildlife Conservation Commission;
- j) Mayor, City of Pompano Beach; and
- k) The National Transportation Safety Board

18. It is recommended that this marine casualty investigation be closed.

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