U.S. Department of Homeland Security

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FEB 09 2016

MEMORANDUM

FINAL ACTION FOR THE MAJOR INCIDENT INVESTIGATION REPORT ON THE VESSEL KOLINA SAR RESPONSE

The report of the Major Incident Investigation Board, conducted under the provisions of the Major Incident Investigation Manual, COMDTINST M5830.4 (series) and CG PACAREA memo 5830 of 13 November 2015, that investigated the facts and circumstances surrounding the 5 November 2015 SAR response 20 nautical miles south of Maui involving the sailing vessel KOLINA and one fatality, complies with applicable laws and regulations. Accordingly, this report is approved.

C. W. RAY
Vice Admiral, U.S. Coast Guard
Commander, Pacific Area

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
USCGC EAGLE (WIX 327)

2401 Hawkins Point Road
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20 Jan 2016
5830

MEMORANDUM

From: [redacted]
M. T. Meilstrup, CAPT
Board President

To: C. W. Ray, VADM
Commander, Pacific Area

Subj: MAJOR INCIDENT INVESTIGATION (MII) INTO THE SAR RESPONSE ON 5 NOVEMBER 2015 APPROXIMATELY 20 NM SOUTH OF MAUI INVOLVING THE SAILING VESSEL KOLINA AND ONE FATALITY

Ref: (a) Major Incident Investigations Manual, COMDTINST M5830.4
(b) Your Memo 5830 of 13 Nov 2015

1. Executive Summary

On 5 November 2015 at 3:51 p.m., the mishap victim aboard the 30-foot sailing vessel KOLINA radioed Coast Guard Station Maui that he was adrift with a snapped tiller in the Alenuihāhā Channel between Hawai'i and Maui. The Search and Rescue Mission Coordinator (SMC) at Coast Guard Sector Honolulu assumed control of the case after the initial radio transmissions and the Sector Honolulu Command Center (SCC), working in conjunction with the SMC, performed all relevant functions for the case. After gathering additional information on the case, including on scene conditions of eight to ten foot seas and 25-30 knots of wind and a single line of bearing from the Haleakālā Remote Fixed Facility tower on Maui, SCC assumed control of and diverted Coast Guard helicopter CG-6547 to pinpoint KOLINA's location and confirm the nature of the distress. SCC initially diverted the Coast Guard patrol boat KISKA, which was already underway, to render assistance, and recalled the Coast Guard patrol boat GALVESTON ISLAND to tow KOLINA since KISKA had a mission-limiting casualty to the tow bitt. Factoring the size of KOLINA and the situation, KISKA notified SMC and SCC that the patrol boat could still tow. All concurred with the assessment, stood down GALVESTON ISLAND, and directed KISKA to tow KOLINA to the nearest safe haven.

CG-6547 located KOLINA 26 miles south of Maui at 6:27 p.m., established communications with the mishap victim aboard KOLINA, and provided an initial vector to KISKA prior to departing scene to refuel on Maui. SCC coordinated CG-6547's return to coincide with KISKA's arrival. CG-6547 relocated KOLINA, vectored KISKA to the scene, and served as a communication relay between KISKA and the sailing vessel. KISKA arrived on scene at 9:23 p.m., passed a handheld UHF radio to establish more reliable on scene communications, and directed the mishap

Figure 1: KOLINA and Mishap Victim (Exhibit 79)

victim to recover his trailing anchor line. The mishap victim retrieved the anchor and KISKA passed the towline at 10:12 p.m. CG-6547 departed the scene to refuel at 10:29 p.m. and the tow was established thirteen minutes later. KISKA established tow at 325 feet but did not have visual of the vessel or mishap victim due to darkness and the sea state. Sometime between 10:58 p.m. and 11:05 p.m., KISKA lost communications with the mishap victim. KISKA shortened tow to regain visibility of KOLINA and the mishap victim. Once the tow was shortened to approximately 100 feet, KISKA personnel noted the sailing vessel's mast was snapped and floating in the water, and could not see nor establish communications with the mishap victim. KISKA alerted SCC, further shortened the towline, and eventually cut the towline at 11:31 p.m. KISKA unsuccessfully attempted to locate the mishap victim and SCC directed CG-6547 back to the scene. CG-6547 conducted a brief trackline search, deployed the embarked Rescue Swimmer to confirm the mishap victim was not aboard, recovered the Rescue Swimmer, and conducted additional search patterns along with KISKA.

SCC deployed additional search assets the following morning including a C-130 maritime patrol aircraft, Station Maui's Response Boat Medium, and forward staged air assets for additional searches. At 9:17 a.m., the mishap victim was found underwater, entangled in the mast rigging, and unresponsive. KISKA recovered the mishap victim and transited to Kawaihae for post-mishap actions.

Figure 2: KOLINA Post-Mishap (Exhibit 80)

The mishap victim was harnessed to the mast and/or rigging when it broke, causing traumatic bodily injuries to the mishap victim's head and chest. This occurred aboard the sailing vessel and the mishap victim succumbed to his injuries prior to being pulled overboard.

I found by clear and convincing evidence that the cause of the mishap was two–fold. First, the Coast Guard established tow with KOLINA resulted in the de-masting and ultimately, the loss of a civilian life. Second, the lack of any deck fittings led the mishap victim to attach the towline to a jury-rigged mizzen mast stepped in the place of the mainmast and improperly supported with polypropylene line in lieu of wire rope standing rigging. This arrangement was insufficient to withstand the forces generated during a towing evolution.

I also found by a preponderance of the evidence that the following factors substantially contributed to the mishap: First, KOLINA was unseaworthy with recurring flooding, a lack of critical navigation and safety equipment, and in a general state of disrepair; this vessel should not have been on the water. Second, the inherent relationship between the two vessels in the towing evolution created dynamic forces that induced extra stress on the towline and attachment points of the tow, particularly the mast and rigging. Third, the responding Coast Guard units failed to adequately assess the risk associated with the towing evolution and continuously consider alternative options. Fourth, the inadvertent omission of pertinent information between SCC, CG-6547, and KISKA, along with the lack of a full, on scene towing brief between KISKA and KOLINA resulted in the affected Coast Guard units, particularly KISKA, not receiving all relevant information on KOLINA's construction and materiel condition. Fifth, the mishap victim had a fixation on sailing KOLINA to Moloka'i that precluded a realistic assessment of the

risks and any viable alternatives. Sixth, the enforcement of security regulations by the State of Hawai'i Department of Land and Natural Resources and Kawaihae harbor security officials led the mishap victim to anchor outside protected waters. They missed opportunities to provide temporary mooring or anchorage options while preparing for the voyage. Finally, darkness complicated the evolution.

2. Preliminary Statement

a. ***Authority:*** VADM Charles W. Ray convened this MII in accordance with reference (a). I was designated Board President per reference (b).

b. ***Purpose:*** This is an investigation convened to inquire into the facts surrounding the Coast Guard mishap involving Coast Guard patrol boat KISKA and sailing vessel KOLINA, to prepare a publicly-releasable report, and to gather and preserve all available evidence for use in any litigation, claims, disciplinary actions, administrative proceedings, and for other purposes.

c. ***Board Composition:***

(1) Board President: CAPT Matthew T. Meilstrup, USCG

(2) Legal Advisor: LT, USCG

(3) Search and Rescue/Command Center Subject Matter Expert: LT, USCG

(4) 110' Patrol Boat Command Subject Matter Expert: LT, USCG

(5) Towing & Seamanship Subject Matter Expert: CWO4, USCG

(6) Recorder/Admin Support: LT, USCG

d. ***Conduct of the Board:*** The MII Board was appointed on 13 November 2015 and convened in Honolulu, HI on 18 November 2015 (Exhibit 1).

e. ***Coordination:*** A Commandant Mishap Analysis Board (MAB) convened on 10 November 2015 in Honolulu, Hawai'i. The MAB President briefed the MII Board and provided non-privileged documentation and other evidence, including Coast Guard Mishap Analysis Report "Part A," RNO 1343616001, on 24 November 2015. The MII Board met with the Coast Guard liaison to the National Transportation Safety Board prior to starting the MII. KISKA, Sector Honolulu, Air Station Barbers Point, District 14, and Marine Safety Team (MST) Hawai'i provided unlimited access to personnel, equipment, facilities, and information to allow the MII Board to conduct its investigation. Hawaii's Department of Land and Natural Resources (DLNR), other local agencies, and commercial companies cooperated with all requests.

3. Table of Contents

4. Findings of Fact

a. *Accident Summary*

(1) Upon receipt of a distress call from the mishap victim aboard the disabled and adrift sailing vessel KOLINA at 3:51 p.m. on 5 November 2015, Coast Guard Sector Honolulu Command Center (SCC) assumed control of and diverted Coast Guard helicopter 6547 (CG-6547), already on a scheduled training mission, to locate and verify the nature of distress of KOLINA. A Small Craft Advisory was in effect for the Alenuihāhā Channel with forecasted wind speeds to 25 knots and seas 10 feet or greater. SCC classified the case as Distress and diverted KISKA, already underway, to render assistance and recalled GALVESTON ISLAND to establish a tow because KISKA had a broken tow bitt. After follow-on discussions between SCC, KISKA, and the Search and Rescue (SAR) Mission Coordinator (SMC), KISKA assessed they could tow KOLINA and subsequently SCC stood down GALVESTON ISLAND. At 6:27 p.m., CG-6547 located KOLINA 26 NM south of Maui, HI and established communications

with the mishap victim over VHF-FM radio. CG-6547 departed to refuel and returned on scene in advance of KISKA's arrival to help vector KISKA to KOLINA. Upon arriving on scene at 9:23 p.m., KISKA passed a handheld UHF radio as a secondary means of communication, had the mishap victim recover a trailing anchor line, and established tow to KOLINA at 10:42 p.m. KISKA maintained regular communications with the mishap victim while establishing the tow and ultimately made off 325 ft of towline to the aft port bitt at 10:50 p.m. At this distance, only the light on KOLINA's mast was intermittently visible.

(2) Sometime between 10:58 p.m. and 11:05 p.m., KISKA lost communications with the mishap victim and began shortening the tow to regain visual on the vessel and mishap victim. KISKA crew members observed that the mast had parted from KOLINA and was in the water alongside the sailing vessel. KISKA attempted to re-establish communications while shortening tow and eventually cut the towline at 11:31 p.m. CG-6547 returned on scene and verified the mishap victim was no longer aboard after lowering the Rescue Swimmer to the vessel. SCC coordinated a person-in-the-water (PIW) search of the area using on scene assets through the night and pre-staged additional air assets for first light searches. On the morning of 6 November 2015, a Coast Guard Response Boat Medium (RB-M) from Station Maui joined the search efforts and located the mishap victim entangled underwater in the rigging near KOLINA. Using the cutter small boat, KISKA recovered the mishap victim and subsequently transferred his body to local authorities ashore at Kawaihae Harbor. A Coast Guard C-130 maritime patrol aircraft continued to monitor KOLINA while awaiting additional surface support to tow the vessel. Shortly after 7:00 p.m., KOLINA was swamped by a large wave and sank 37 miles south of Maui.

b. ***Background***

(1) Coast Guard Pacific Area

Located in Alameda, California, Coast Guard Pacific Area (PACAREA) is the regional command element and force provider for maritime safety, security, and stewardship in the Pacific. PACAREA is the parent command of Coast Guard District 14.

(2) Coast Guard District 14

Located in Honolulu, Hawai'i, Coast Guard District 14 (D14) regularly performs missions in maritime safety, protection of natural resources, maritime security, homeland security, and national defense. D14 is the parent command of Coast Guard Sector Honolulu and the D14 Command Center monitors active search and rescue cases being conducted by the Sector Honolulu Command Center.

(3) Coast Guard Sector Honolulu

Sector Honolulu regularly performs missions in maritime and homeland safety and security, protection of natural resources, and national defense across a broad expanse of the Pacific that includes the navigable waters of the State of Hawai'i and out to sea 200 nautical miles from the main Hawaiian Island chain in addition to various United States territories and protectorates throughout the

Pacific. The Sector Commander directs, controls, and coordinates Coast Guard operations through the Sector Honolulu Command Center.

(4) Coast Guard Sector Honolulu Command Center

The Sector Command Center (SCC) directs the execution of USCG missions within its area of responsibility and provides valuable information and coordination capability to Sector Honolulu units, other government agencies, and port partners. The SCC provides a continuous command and control platform to coordinate missions, enhance operational effectiveness, and achieve mission objectives.

(5) Coast Guard Patrol Boat KISKA

Homeported in Hilo, Hawai'i, KISKA is a 110-foot patrol boat with 19 crew members assigned to her. KISKA was commissioned in 1990. Her primary missions include Maritime Law Enforcement, Living Marine Resource Protection, Search and Rescue, and Ports, Waterways, and Coastal Security. KISKA operated under the tactical control of Sector Honolulu during this incident.

(6) Coast Guard Station Maui

Station Maui is a subordinate unit of Coast Guard Sector Honolulu located at Maalaea Harbor on the South Shore of Maui, Hawai'i. Station Maui's boat crews and communications watch provide safety, security, and environmental protection for many mariners.

(7) Coast Guard Marine Safety Team Hawai'i

Marine Safety Team (MST) Hawai'i is a detached segment of Coast Guard Sector Honolulu that operates out of Kailua-Kona, Hawai'i. Two active duty Coast Guard members are responsible for inspected Small Passenger Boats, Regulated Facilities, Port State Control, Pollution Response, Marine Investigations, and Suspension and Revocation.

(8) Coast Guard Air Station Barbers Point

Air Station Barbers Point supports D14 with long range patrol, logistical support, and search and rescue response across the entire AOR. During Search and Rescue cases, Air Station Barbers Point aircraft operate under the control of the coordinating Command Center; in this incident, Sector Honolulu.

(9) Coast Guard MH-65D Short Range Recovery Helicopter

The Coast Guard MH-65D Short Range Recovery helicopter is designed for short range search and rescue operations. It is capable of visual and instrument flight conditions, day or night, and is configured with Night Vision Goggle compatible cockpit lighting.

(10) Sailing Vessel KOLINA

Constructed in Thailand in 1952, KOLINA was designed using Herreshoff H-28 plans as a template. A 30-foot wood-hull vessel with no means of mechanical propulsion, KOLINA was designed as a dual-masted, ketch rig. The vessel was owned by the mishap victim and most recently registered to the next of kin in the State of Hawai'i.

(11) Department of Land and Natural Resources (DLNR) – Division of Boating and Ocean Recreation (DOBOR)

DOBOR enhances, protects, conserves and manages Hawaii's unique and limited natural, cultural and historic resources held in public trust for current and future generations of the people of Hawai'i, and its visitors, in partnership with others from the public and private sectors. DOBOR falls under the DLNR which is a part of the Hawai'i state government.

(12) Department of Land and Natural Resources (DLNR) – Division of Conservation and Resources Enforcement (DOCARE)

DOCARE upholds the laws that serve to protect, conserve and manage Hawaii's unique and limited natural, cultural and historic resources held in public trust for current and future generations of visitors and the people of Hawai'i. DOCARE falls under the DLNR which is a part of the Hawai'i state government.

c. *Sequence of Events*

Note: Citations to audio recordings reference the Exhibit and time of the transmission.

(1) Mission:

(a) At 3:51 p.m. on 5 November 2015, Station Maui received a distress call from the mishap victim, the sole occupant aboard the disabled and adrift KOLINA. The Search and Rescue (SAR) Mission Coordinator (SMC) relieved Station Maui and assumed SAR mission coordination responsibilities. The Sector Command Center (SCC) established communications with the mishap victim and began collecting information concerning the mishap victim and his vessel . The mishap victim reported that he was in a jury-rigged sailing vessel, rigged as a sloop, the vessel's tiller had snapped, and he did not have a cell phone (Exhibits 2, 4, 6, 8, 10 (06:33)). The mishap victim reported having dragged anchor from the entrance of Kawaihae Harbor and had been adrift for a couple of days (Exhibits 2, 4, 6, 10 (06:33)). He asserted that he was not in

distress, unable to recover his anchor, and requested a tow so that repairs could be affected to KOLINA. The mishap victim approximated his position based on a visual bearing of Haleakālā on Maui and Upolu Point on Hawai'i. SCC further used a single line of bearing from the Haleakālā Remote Fixed Facility (RFF) tower to refine the preliminary search area for responding Coast Guard assets (Exhibits 2, 4, 8, 10 (06:33)). SCC did not fully complete all portions of the SAR checklist (Exhibit 20).

(a) The SCC Command Duty Officer (CDO) classified the case as 'Distress' because the CDO assessed that KOLINA had inadequate navigation and communication equipment onboard for its voyage and due to the heavy winds and seas in the Alenuihāhā Channel (Exhibits 2, 110).[1] Additionally, the SAR Mission Coordinator (SMC) and CDO reasoned that this situation resembled a SAR case that the SCC had responded to the previous year (Exhibits 1-2). In this previous case, Sector Honolulu responded to a disabled and adrift sailing vessel with a single line of bearing and ordered SAR response activities on 27 November 2014. The vessel drifted out of communications range before air and surface search assets could locate the vessel based on the estimated position. The mariner remained adrift at sea for nearly two weeks until his vessel drifted back into communications range and he was able to transmit another distress call. The mariner was subsequently located by Coast Guard and Navy assets and towed to a safe haven by a Coast Guard ship.

(b) The SCC correctly inferred, but did not confirm, that KOLINA had no GPS navigation system. SCC watchstanders misinterpreted the reported snapped tiller as a rigging issue when reporting the casualty to the SMC (Exhibits 1-2, 18 (00:22)).

(c) The estimated position of KOLINA, derived from the mishap victim's visual observations and a single line of bearing from the Haleakālā RFF tower, was used to ascertain the most suitable and readily available SAR unit to initially respond. KOLINA activated two separate EPIRBs but the D14 Command Center never received the signal (Exhibits 8, 11 (8:00), 17 (02:20)). The SCC determined an air asset was optimal given the large size of the preliminary search area based on a single line of bearing from the Haleakālā RFF tower on Maui (Exhibit 1-2, 19). The ready air crew assigned to Air Station Barbers Point was preparing to launch in a Coast Guard helicopter (CG-6547) for a scheduled night training mission with Station Maui. SCC assumed control of and diverted CG-6547 to locate KOLINA, verify the nature of distress, and to assess the on scene wind and sea conditions (Exhibits 2, 21).

[1] Emergency phase classification is made by SMC upon receiving a request for assistance. The three emergency phases are DISTRESS, ALERT, and UNCERTAINTY. The DISTRESS phase exists when grave or imminent danger, requiring immediate response, threatens a craft or person. In the DISTRESS phase, immediate response shall be made to render assistance to the mariner in imminent danger. This response may be provided by regular Coast Guard, Coast Guard Auxiliary, or other federal, private, state, local, or commercial entity resources. The SMC may use any available resources in a distress situation without concern for conflict with private enterprise. An ALERT phase exists when a craft or person is experiencing some difficulty and may need assistance, but is not in immediate danger or in need of immediate response. Apprehension is usually associated with the ALERT phase. An UNCERTAINTY phase exists when there is knowledge of a situation that may need to be monitored, or require additional information, but does not necessitate moving resources.

(2) Planning & Preparation:

(a) With CG-6547 diverted for the initial response, SCC considered options for surface response. Station Maui, in closest geographic proximity to KOLINA, was not considered a suitable response unit because the Small Craft Advisory in effect for the Alenuihāhā Channel placed environmental conditions at the edge of the operating limits for the Coast Guard Response Boat Medium (RB-M) (Exhibit 1). SCC had two cutters available for response: GALVESTON ISLAND and KISKA, both 110-foot patrol boats. GALVESTON ISLAND was moored at Coast Guard Base Honolulu in a two-hour recall status and KISKA, having satisfactorily completed repairs to her engine earlier that day, was underway transiting to Kawaihae Harbor in advance of a security boarding scheduled for the morning of 6 November 2015 (Exhibits 25, 37). At 4:45 p.m., KISKA was notified by SCC of the disabled KOLINA and SCC directed KISKA to proceed to the estimated location of the vessel while waiting amplifying reports from CG-6547 which was enroute the search area (Exhibits 1-2, 16 (00:00), 25, 37). Additionally, SCC recalled GALVESTON ISLAND to get underway from Honolulu and proceed toward KOLINA (Exhibit 19). SCC directed both cutters to respond knowing KISKA would arrive on scene in advance of GALVESTON ISLAND but would not be able to tow because the cutter was classified as Partially Mission Capable due to a tow bitt casualty (Exhibits 25, 27-28). KISKA Commanding Officer (CO), SMC, and CDO later discussed the cutter's towing limitations. KISKA CO believed that towing KOLINA was possible from the cutter's fantail and SMC agreed with the course of action (Exhibit 18 (3:15)). At 5:53 p.m., SCC stood down GALVESTON ISLAND from recall and returned the ship to a two-hour recall status at Base Honolulu (Exhibits 18 (5:00), 19).

(b) With air and surface assets responding to KOLINA, SCC maintained a communications schedule with the mishap victim and continued to gather vessel information. The mishap victim reported, on two occasions, that he was not in distress and that his vessel was riding well (Exhibits 8, 10 (06:33, 09:20)). The mishap victim requested a tow to affect repairs to his vessel and twice stated that he had no intent to abandon his vessel (Exhibits 8, 10 (07:37), 12 (00:03:25, 01:06:56), 13 (02:06:17)). The mishap victim reported having a safety harness and a life jacket, but he was not directed to wear the life jacket (Exhibits 1, 9 (1:43)). The mishap victim stated his vessel had been forced from harbor at Kawaihae and it had dragged anchor while anchored outside the Kawaihae Harbor entrance buoys. He stated he was unable to recover his ground tackle because he was uncomfortable working near the bow of the vessel out of fear that he would be injured due to the sea state (Exhibits 8, 10 (05:40)). The mishap victim stated that his vessel was a ketch rigged as a sloop, the mainmast was unusable, and, on three occasions, stated it was jury-rigged (Exhibits 8, 9 (00:50), 10 (6:30)). KOLINA had a dinghy trailing the boat (Exhibit 11 (14:40)). Additionally, the mishap victim stated he was 71 years old (Exhibit 12 (02:41)). SCC issued an Urgent Marine Information Broadcast to alert any mariners in vicinity of KOLINA's estimated position to report sightings to the Coast Guard. SCC contacted NOAA ship HI'IALAKI, 35 NM from the estimated position, requesting whether they would be comfortable towing the 30 foot vessel in 10 foot seas. HI'IALAKI reported they did not feel comfortable towing the vessel but offered to provide lifesaving equipment if desired (Exhibits 12 (32:38), 19).

(c) At 6:27 p.m., CG-6547 located KOLINA in position 20°09.43N, 156°18.655W, 26 NM south of Cape Hanamanioa on Maui, and assessed the disabled vessel's situation, including the nature of distress, environmental conditions, and condition of the mishap victim (Exhibits 19, 24, 27). The mishap victim reiterated that he wanted to remain aboard KOLINA (Exhibit 12 (01:06:56)). After 15 minutes on scene, CG-6547 informed the mishap victim they

needed to refuel on Maui, that a Coast Guard ship was closing on KOLINA's position to tow the vessel. CG-6547 then departed scene (Exhibits 12 (01:07:15, 01:21:40), 21).

(d) Based on the reported location of KOLINA, KISKA estimated it would take approximately four hours to arrive on scene with the disabled vessel (Exhibits 25, 28, 30). While enroute to KOLINA's position, KISKA made preparations for the towing evolution. KISKA CO and Department Heads assessed a modified deck configuration for towing because the primary tow bitt was Partially Mission Capable due to a severed tow horn caused by excessive surging while moored in homeport on 27 October 2015. This internal KISKA assessment informed a later discussion between KISKA CO, SMC, and CDO to clarify that KISKA would be able to tow KOLINA. The towline would be rigged with a bridle that would be fastened to the two points with the greatest structural integrity aboard KOLINA. KISKA First Lieutenant (1LT) and Engineer Petty Officer (EPO) configured the fantail for the tow evolution and in the process noted that there was a small crack located at the base of the aft starboard bitt. The crack was reported to KISKA CO and the 1LT and EPO proceeded to rig the deck such that the towline would run from the unaffected aft port bitt. A secondary tending line rigged with a shackle would be run from the aft starboard bitt to keep the towline centered astern of KISKA (Exhibits 25, 27-30, 42). KISKA CO assessed on scene conditions while enroute KOLINA and determined that the weather conditions exceeded parameters to launch the cutter small boat and the tow would have to be established directly from the cutter to KOLINA (Exhibits 25, 112).[2] At 9:04 p.m., an internal crew tow brief was conducted on the bridge. In accordance with Coast Guard policy, an Operational Risk Management assessment was conducted using the Green Amber Red (GAR) Model.[3] KISKA assessed the risk of the tow evolution based on six categories and scored the evolution in the Amber (33 out of 60 possible points). There was no evidence of discussion on mitigating the higher risk categories or alternative actions other than towing. Prior to arriving on scene, a separate discussion on towing positions, responsibilities, and safety was held on the fantail with all crew members that would be handling the towline to help mitigate the risk (Exhibits 25, 27, 29, 31, 37, 109).

(e) SCC coordinated with CG-6547 to delay their launch to better align with KISKA's arrival and vector the patrol boat to KOLINA. SCC informed the mishap victim that CG-6547 was being delayed to arrive at the same time as KISKA so that in case a tow could not be established CG-6547 could possibly hoist him from KOLINA. This possibility of hoisting was not discussed with CG-6547 or KISKA (Exhibits 2, 4, 13 (01:14:34), 21-22, 25). At 9:00

[2] Launch and recovery of the Cutter Boat on the 110' Patrol Boats should not normally be done in seas greater than six feet, however cutters may perform boat operations in combined seas up to eight feet. Risk versus gain must be considered. Ideally, the cutter boat is launched while the cutter is headed down-swell/sea at a speed between 5-9 knots. 110' Patrol Boats have a pitch and roll limits of 7°. These limits shall only be exceeded during urgent SAR or other missions that in the judgment of the Commanding Officer are significant enough to warrant the increased risk associated with the launch and recovery evolution.

[3] Under the GAR risk assessment model, participants rate aspects of an operation based on specified categories (i.e., supervision, planning, team selection, fitness, environment, event complexity, and (in some instances) equipment). Each category is rated from 1 to 10, with a 10 being most hazardous; the scores are then added. If the total risk falls in the green zone, risk is assessed as low. If the total risk falls in the amber zone, risk is moderate and procedures should be implemented to minimize risk. If the total risk reaches the red zone, measures should be initiated to reduce the risk prior to starting the event or evolution.

p.m., CG-6547 reestablished communications with the mishap victim and visually acquired both KOLINA and KISKA. While nearing KOLINA's position, KISKA was still unable to establish direct communications with the mishap victim but could only hear some radio transmissions from CG-6547 to the mishap victim (Exhibits 21, 25). The mishap victim reiterated twice that he wished to stay with his boat because it was taking on water and he needed to monitor his pump. This exchange occurred while CG-6547 was vectoring KISKA to KOLINA and was not received by KISKA (Exhibit 13 (02:06:20)). KISKA CO requested the Aircraft Commander relay communications, specifically details on locations to attach the towline. The mishap victim relayed that the mast was the strongest point of the vessel and keel stepped. The mishap victim also relayed he did not have a bullnose or secondary points to attach the tow (Exhibits 13 (02:10:00), 21, 25). KISKA relayed the intention to take him back to Kawaihae or Kona depending on the ride and the mishap victim stated he desired to either go to Maui or his home on Moloka'i (Exhibit 13 (02:13:10)). The mishap victim also relayed the mizzen mast was jury-rigged in place of the mainmast and that there was no rigging in the water on the windward side that would inhibit KISKA's approach (Exhibit 13 (02:18:15)). There was no indication that KISKA recognized the mizzen mast was jury-rigged even after CG-6547 passed that information during KISKA's first approach (Exhibit 13 (02:19:38, 02:36:22)).

(f) At 9:23 p.m., KISKA visually observed KOLINA drifting beam-to the seas and established weak, intermittent communications with the mishap victim via VHF-FM radio when within 1,000 yards of the sailing vessel (Exhibits 13 (02:10:00), 19, 25, 28, 31). In KISKA's initial situational assessment, KISKA CO assessed that he needed to establish tow or else the vessel would eventually be swamped by the heavy seas (Exhibit 25). KISKA CO also determined a need for reliable station-to-station communications with the mishap victim prior to executing the towing evolution. KISKA CO briefed the mishap victim that that the cutter would make an approach on KOLINA to pass a handheld UHF radio inside of a waterproof case (Exhibits 13 (02:30:52), 25). KISKA approached KOLINA from her starboard side and passed a heaving line with the waterproof case to the mishap victim at 9:48 p.m. At approximately 9:50 p.m., primary communications shifted to handheld UHF radio. KISKA CO maintained direct communication with the mishap victim on a separate UHF frequency from the one being used on the fantail (Exhibits 25, 29, 37).

(g) While passing close aboard to KOLINA, members of the KISKA crew noted seeing the mishap victim wearing what appeared to be dark shorts and a red, long-sleeved garment assumed to be a flotation jacket and observed a line trailing in the water off the starboard bow of the sailing vessel (Exhibits 25, 27, 30-31, 33-34). KISKA CO identified the line as a potential hazard and instructed the mishap victim to recover the trailing line prior to KISKA passing the tow rig. The mishap victim identified it as his trailing anchor line and positioned himself to recover it from a seated position on the forward deck of the sailing vessel (Exhibits 25, 28, 30-31). KISKA maintained station approximately 50 yards from KOLINA during this process and eventually had to reposition and make a third approach while the mishap victim struggled to haul the line aboard his vessel (Exhibits 21, 25). At one point, KISKA CO prompted the mishap victim to cut the trailing anchor line but the mishap victim hauled the anchor aboard at about the same time (Exhibit 25).

(h) Once the trailing anchor line was cleared, the mishap victim passed to KISKA CO that he would make the towline off to his mast (Exhibit 25). KISKA then approached KOLINA from her starboard side and passed a heaving line with the bridle and towline attached at 10:12 p.m. The mishap victim commenced hauling in the heaving line, bridle, and towline while KISKA maintained station off KOLINA's port bow (Exhibits 25, 28-29, 37). Approximately 20

minutes after the towline was passed, CG-6547 departed scene to refuel (Exhibits 19, 21-22). At 10:42 p.m., the mishap victim reported that the towline was made off to his vessel but did not state how it was attached to KOLINA. KISKA then slowly increased speed to pay out the towline and fully establish tow (Exhibits 25, 28-29, 37, 90). At 10:50 p.m., the towline was made off to the aft port bitt at 325 feet (Exhibits 25, 28-30, 37). This was estimated to be the shortest length of towline to enable the two vessels to gain an "in step" relationship with the on scene sea state (Exhibits 28, 114).[4] At this distance, in the darkness and heavy seas, only the light on KOLINA's mast was intermittently visible to KISKA crewmembers (Exhibits 27, 29, 34-35). KISKA CO assessed the environmental conditions and determined the most prudent course of action was to proceed toward Kona and take advantage of the lee of Hawai'i (Exhibits 25, 31, 37). At 10:53 p.m., KISKA commenced turning to a southerly heading and slowly increased speed, averaging 5.5 knots between when tow was established at 10:50 p.m. and when the last communication with the mishap victim occurred at 10:58 p.m. Maximum speeds of 7.6 and 6.7 knots were recorded at 10:57 and 10:58 p.m., respectively (Exhibit 90). Coast Guard towing guidance provides a safe tow speed calculation based on the waterline length of the vessel being towed and incorporates a 10% safety factor. Based on this formula, the safe tow speed for KOLINA was calculated to be 6.6 knots and maximum towing speed was 7.34 knots (Exhibit 114).[5] Note: Due to the 110-foot Patrol Boat engineering drive shaft design, KISKA clutches in at nine knots in single engine operations and can only regulate speeds below nine knots by actively engaging and disengaging the engine.

(3) Accident:

(a) KISKA crew maintained their Tow Bill assignments once the bitt was made off and tried to assess the length of tow, how KOLINA was riding, and whether the two vessels were "in step" with one another (Exhibits 25, 27, 29). At 10:58 p.m., the mishap victim passed to KISKA CO that the vessel was riding well but that the dinghy had broken loose. KISKA CO instructed the mishap victim to not worry about the dinghy and that the priority was the safety of the mishap victim and his vessel (Exhibits 25, 31). Sometime between 10:58 p.m. and 11:05 p.m., KISKA CO radioed to the mishap victim over UHF radio to determine how KOLINA was riding and received no response from the mishap victim. KISKA CO made numerous attempts to reestablish communications with the mishap victim on the UHF handheld radio and multiple VHF-FM radio channels. Additionally, the ship's whistle was sounded to alert the mishap victim that KISKA was attempting to communicate with him (Exhibits 25, 31-32). At 11:05 p.m., KISKA CO relayed to the crew that communications had been lost with the mishap victim

[4] "In step" refers to the relationship between vessels in which the vessel towing and being towed climb, crest, or descend waves together. Maintaining this relationship is critical to minimize the shock loading of the towline and fittings and is typically accomplished by lengthening rather than shortening the towline when possible.

[5] Safe tow speed is calculated using the following calculation:

$$Maximum\ Tow\ Speed\ = 1.34\ x\ \sqrt{VesselLength}$$
$$Safe\ Tow\ Speed = Maximum\ Tow\ Speed - (Maximum\ Tow\ Speed\ x\ 10\%)$$

Calculations for KOLINA:

$$Maximum\ Tow\ Speed\ = 1.34\ x\ \sqrt{30} = 7.34\ \text{knots}$$
$$Safe\ Tow\ Speed = 7.34 - (7.34\ x\ 10\%) = 6.6\ \text{knots}$$

and they needed to shorten the towline to reestablish a visual of KOLINA and the mishap victim. KISKA returned to a southwesterly (down sea) course and backed down to enable recovery of the towline. KISKA CO continued to utilize all available means to reestablish communications with the mishap victim. With the tow shortened to approximately 100 feet, KISKA crew observed that the mast appeared to be missing and they could not see the mishap victim on the vessel (Exhibits 27, 29-30, 35-36). KISKA continued to shorten the length of tow until there was approximately 25 feet of towline plus the bridle remaining. From this distance, crew members aboard KISKA were able to observe the mast of KOLINA in the water along with a significant amount of line and rigging. The towline was still attached to KOLINA however the mast was atop the towline and the crew could not determine if the towline was attached to KOLINA or the mast and rigging in the water. At 11:31 p.m., KISKA CO ordered the towline to be cut (Exhibit 37). KISKA then maneuvered away from the debris field to a position that enabled the crew to fully illuminate the decks and cockpit area of KOLINA. KISKA crew had no sighting of the mishap victim on the vessel, near the mast and rigging floating in the water, or alongside KOLINA (Exhibits 25, 27, 29-31).

(4) Search and Rescue:

(a) Upon losing communications with the mishap victim, KISKA notified SCC of the situation while continuing to search with all available crew (Exhibits 25, 27-29, 31-32). Based on KISKA's report, SCC transitioned to a PIW case and developed a Search Action Plan (SAP) for KISKA (Exhibits 2-3). KISKA searched the immediate area around KOLINA for any evidence of the mishap victim. KISKA observed the mast and rigging in the water near KOLINA and the dinghy tied along the port side (Exhibits 25, 28). SCC recalled CG-6547, which had completed fueling on Maui and was enroute Air Station Barbers Point, to the scene to assist in the search efforts (Exhibits 20-21). At 11:48 p.m., SCC issued an Urgent Marine Information Broadcast for a PIW (Exhibit 19).

(b) CG-6547 arrived on scene at 12:08 a.m., assessed that the mishap victim was not aboard or alongside, and commenced a trackline search to the last known position (Exhibits 19, 23-24). CG-6547 conducted three search patterns before returning to KOLINA and eventually deployed the Rescue Swimmer. The Aircraft Commander was concerned about the risks to the Rescue Swimmer due to the unknown amount of rigging and lines in the water and the on scene conditions (Exhibits 21, 23). The Rescue Swimmer was lowered from the aircraft and entered the water off the starboard quarter of KOLINA. The Rescue Swimmer surveyed the scene while making his approach to KOLINA and noticed there was a significant amount of debris in the water along the starboard bow that appeared to be a mast and sail (Exhibits 21, 23). After making an underwater visual inspection along the starboard hull with no sighting, the Rescue Swimmer embarked KOLINA at the starboard quarter. The Rescue Swimmer noted the deck space was cluttered with gear, verbally hailed the mishap victim, and inspected the cabin from the deck (Exhibit 23). There was no sign of the mishap victim though the Rescue Swimmer noted a personal flotation device stowed in the cockpit area aft of the cabin. The Rescue Swimmer disembarked KOLINA from her port side and made a visual inspection along the port hull under the water's surface and under the dinghy with no sighting (Exhibit 23). Shortly after recovering the Rescue Swimmer at 1:18 a.m., CG-6547 departed scene for the final time that

night as the aircraft was low on fuel and the embarked crew had exceeded their daily flight hours (Exhibits 20-24, 111).[6]

(c) SCC continued to coordinate response efforts. KISKA was assigned and executed a search pattern and additional air assets and crews were forward staged to Kona so that they would be available to provide first light searches. GALVESTON ISLAND was recalled at 1:15 a.m. from Base Honolulu and directed to proceed to KOLINA's position; GALVESTON ISLAND got underway at 2:37 a.m. (Exhibits 1-2, 19).

(d) At first light, Station Maui launched a RB-M to support the search efforts and assess whether they would be able to tow KOLINA (Exhibits 2-3). While the RB-M was maneuvering near KOLINA, the crew reported a significant amount of line and rigging in the water. Upon closer inspection, the RB-M crew discovered the mishap victim entangled in the line and rigging and submerged beneath the surface of the water (Exhibits 3, 25). The RB-M crew assessed the situation and determined they would not be able to recover the mishap victim from the water due to the risk associated with maneuvering the RB-M, outfitted with jet drives, near the debris field. KISKA CO assessed the conditions and informed SCC that KISKA would launch their cutter small boat to recover the mishap victim (Exhibits 3, 25).

Figure 3: Post-mishap with KISKA cutter small boat and Station Maui RB-M on scene with KOLINA (Exhibit 82)

(5) Recovery:

(a) KISKA launched the cutter small boat with three crewmembers. The coxswain maneuvered alongside the mast which was still floating and connected to KOLINA. The boat crew noted a significant amount of line and some cable in the water, including heaving line tied to the mast that was passed as part of the towline rig from KISKA to KOLINA (Exhibits 28, 32, 81). The mishap victim appeared to be approximately 15 feet below the surface and close to the splintered end of the mast (Exhibits 28, 32). While recovering the mishap victim, the cutter boat crew observed his left ankle entangled in a black line that was connected to a small cleat on a piece of wood that appeared to have broken off of KOLINA (Exhibit 28). In order to free the mishap victim, the cutter boat crew cut the line(s) that was wrapped around his ankle (Exhibits 28, 87). The cutter boat crew recovered the mishap victim for transport to KISKA.

[6] Because the risk of accident increases dramatically as fatigue rises, the Coast Guard (and other military services) has implemented aircrew flight limits to safeguard personnel and property. When the accumulated flight time totals 6.0 or greater for Coast Guard rotary wing pilots, pilots shall be required to take no less than 10-12 off-duty hours (dependent on previous day's duty schedule) before being assigned as an aircrew member. Upon landing, if the aircrew accumulates greater than 6 hours of flight time, they cannot take off again unless they receive a waiver granted by the Air Station Commanding Officer.

Figure 4: KOLINA mast in water with yellow heaving line wrapped around (Exhibit 81)

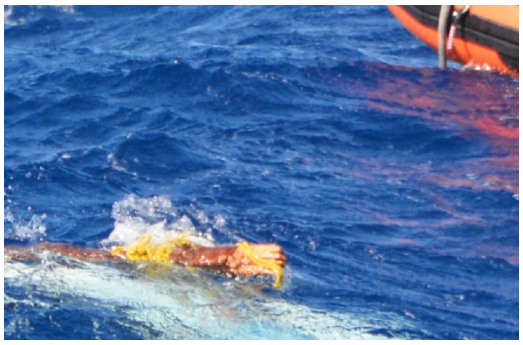

Figure 5: Heaving line and splintered end of the mast (Exhibit 81 - zoomed in)

(b) SCC coordinated with local and federal agencies in Kona to have representatives meet KISKA ashore to transfer custody of the mishap victim. KISKA proceeded to Kawaihae Harbor and transferred the mishap victim to Hawaii County Police Department officers (Exhibits 3, 25, 64).

(c) The RB-M determined it could not tow KOLINA due to the prevailing conditions and returned to Station Maui (Exhibit 19). SCC directed a C-130 maritime patrol aircraft to deploy a self-locating datum marker buoy in the vicinity of KOLINA so that the vessel's position could be tracked. As GALVESTON ISLAND steamed toward the position of the vessel, a C-130 observed the vessel floundering beam-to the seas. GALVESTON ISLAND was nearing KOLINA's position when the orbiting C-130 observed KOLINA take a breaking wave over the main deck and sink at 7:11 p.m. in 1,700 fathoms in position 19°58.64'N, 156°25.39'W. The C-130 observed that the dinghy did not sink with KOLINA and was adrift and being tossed around in over 30 knots of wind. GALVESTON ISLAND arrived on scene, visually acquired the dinghy but could not recover it due to the on scene seas and winds (Exhibits 14 (1:59:00), 15 (06:40), 19). GALVESTON ISLAND felt it was unsafe to remain on scene overnight with the weather conditions and departed for Base Honolulu (Exhibit 19).

d. ***Maintenance History:***

(1) KISKA:

(a) In accordance with the Coast Guard's 110-foot patrol boat maintenance schedule, KISKA completed a biennial dry dock from 13 May to 16 September 2015 at PSI Shipyard on Oahu. Following successful completion of dry dock, KISKA finalized several projects at Base Honolulu prior to returning to homeport on 25 September 2015 (Exhibit 42).

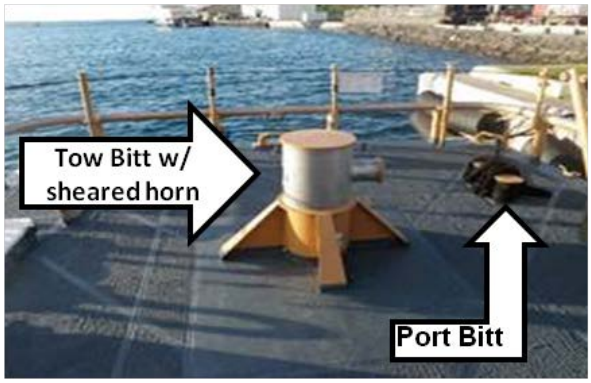

Figure 6: KISKA fantail (Exhibit 83)

(b) On 10 October 2015, KISKA entered an unscheduled maintenance period after suffering a casualty to one of the cutter's main diesel engines (Exhibit 42). KISKA's engine was repaired with a satisfactory operational test on 5 November 2015 and resumed underway operations (Exhibits 27, 37, 42).

(c) On 27 October 2015, KISKA experienced extreme surging from heavy weather while moored in homeport. An additional mooring line was made off to the tow bitt to provide additional protection for the ship. The force of the surging caused the starboard tow horn to shear from the tow bitt. KISKA documented the casualty in the Coast Guard's maintenance tracking system and notified Sector Honolulu. KISKA was classified as Partially Mission Capable due to the casualty (Exhibits 25, 27-28). Prior to designating KISKA as the response unit for the KOLINA case, KISKA CO, SMC, and CDO discussed the cutter's limitations given the tow bitt casualty, and determined the cutter could tow KOLINA (Exhibits 1-2, 18 (3:15, 25)).

(d) While rigging the fantail for the towing evolution, the 1LT and EPO noted a small crack located at the base of the aft starboard bitt. The crack was reported to KISKA CO and the 1LT and EPO rigged the towline to run from the unaffected aft port bitt (Exhibits 25, 27, 29).

(e) There were no other known maintenance issues for KISKA.

(2) CG-6547: There were no known maintenance issues for CG-6547.

(3) KOLINA: A complete maintenance history of KOLINA was unavailable and the vessel could not be assessed because it was lost at sea. The following synopsis of the condition of the vessel was developed using information gathered from the state registration, vessel documentation, sales records, photographs, videos, and individuals who had direct contact with the mishap victim in his capacity as the owner/operator of KOLINA.

Figure 7: Herreshoff H-28 (Exhibit 84)

(a) KOLINA was a wood-hulled, ketch rigged sailing vessel built in Thailand in 1952 based on the design of the Herreshoff H-28 model. The vessel was sailed to the Hawaiian Islands prior to 1984 under the name MEKALA. A few months later the vessel was sold, brought to Kona, and renamed KOLINA (Exhibit 70). During this period, the owner conducted a major refit of unknown scope to the vessel. The owner passed away and in August 2008 his widow transferred KOLINA, at no cost, to the mishap victim. At this point, the vessel had been out of the water for several years (Exhibit 70).

(b) The mishap victim continued to store KOLINA ashore upon receiving the vessel. The vessel was maintained at three known dry storage locations since September 2008 (Exhibits 56, 69, 70). Most recently the next of kin maintained a lease for dry storage at Kawaihae Boat Park since April 2013 (Exhibit 56). In July 2015, the next of kin received notification from the Kawaihae Boat Park property manager that KOLINA's dry storage lease would not be renewed due to the vessel's immobility, size, condition, and use of the vessel. The property manager and next of kin agreed that KOLINA would be removed by 30 September 2015 (Exhibit 57). The mishap victim hired a local crane operator to lift and transport KOLINA from Kawaihae Boat Park on 30 September 2015 (Exhibits 72, 91). The mishap victim still maintained some personal effects, vessel equipment, and miscellaneous gear at Kawaihae Boat Park after KOLINA was removed from the site. Among other items, KOLINA's mainmast, lifeline stanchions, sections of rigging cable, and a VHF radio were observed at Kawaihae Boat Park after the mishap (Exhibits 92-93).

(c) KOLINA's hull was constructed of teak planks that experienced significant drying while stored on land. In an effort to mitigate any sea keeping issues that may occur due to a prolonged period of time ashore, small pieces of softwood were inserted between the teak planks to expand and seal the seams when the vessel was put back in the water (Exhibits 70, 73). When KOLINA was initially floated, using a single point hoist, on 30 September 2015 at Kawaihae South Harbor, the vessel took on a significant amount of water and the mishap victim had no means of controlling the flooding. The flooding was observed between many seams between planks and, in at least one spot, through the middle of a plank (Exhibits 67, 72). After the failed attempt to float KOLINA, the hired crane operator removed the vessel from the water and positioned it on a rock embankment on the Kawaihae South Harbor property (Exhibits 68, 70-71). The mishap victim made efforts to restore the watertight integrity using caulk to seal and seawater to swell the planks of KOLINA (Exhibit 72). On 1 October 2015, the mishap victim received notification from DOBOR officials that dry storage was not authorized on the premise. Subsequently, the mishap victim received a written citation from DOCARE stating that his vessel needed to be removed or risk impoundment (Exhibits 58, 59-62).

Figure 8: KOLINA on rock embankment at Kawaihae South Harbor (Exhibit 85)

(d) On 7 October 2015, the mishap victim hired a different crane operator, who used a spreader bar configuration, to float KOLINA at Kawaihae South Harbor (Exhibit 72). Again, KOLINA's watertight integrity was compromised and the flooding exceeded the capacity of the mishap victim's portable dewatering pump. KOLINA was subsequently placed back on the rock embankment at Kawaihae South Harbor. After the second failed attempt to float the vessel, the mishap victim resorted to coating the underwater body of KOLINA with a roofing epoxy (Exhibit 67, 71). Throughout the time KOLINA was ashore at Kawaihae South Harbor, DOBOR and DOCARE officials communicated with the mishap victim to stress that the vessel had to be registered, removed from the property, and the mishap victim was not authorized to sleep onboard (Exhibits 59-62, 118). On 19 October 2015, the second crane operator returned and KOLINA was successfully floated at Kawaihae South Harbor (Exhibits 63, 67-68). Once moored in the loading zone berth, DOBOR personnel notified the mishap victim that his vessel was not authorized to remain at that berth and needed to be removed in accordance with DOBOR policy by 26 October 2015 (Exhibits 59-60, 72).

Figure 9: KOLINA moored at Kawaihae South Harbor loading dock berth (Exhibit 86)

(e) KOLINA was designed as a ketch which is a dual-mast configuration with a forward mainmast and a smaller mizzen mast positioned aft of the mainmast but forward of the rudder post. The mishap victim discussed the condition of the mainmast to acquaintances while moored at Kawaihae South Harbor and indicated the previous owner had not taken proper care of the mast and that it had developed significant dry rot (Exhibits 67, 92). KOLINA's mainmast remained stored at Kawaihae Boat Park and was observed to be a hollow, glue-laminated wood mast with significant dry rot and signs of delaminating near the base (Exhibit 92). Prior to departing the loading zone berth at Kawaihae South Harbor, the mishap victim stepped the mizzen mast through the mainmast deck fitting and to the keel of KOLINA (Exhibits 68, 70). While moored at Kawaihae South Harbor and while at anchor outside the Kawaihae Harbor entrance buoys, KOLINA was rigged with a single mast configuration (Exhibits 79, 85-86, 94). The MII Board was unable to confirm how the mishap victim was able to jury-rig the mizzen mast in place of the mainmast, verify whether the two masts had comparable sized bases to seat in the deck socket, or validate the condition of the mizzen mast.

(f) The rigging to secure the mast and sail was also jury-rigged. KOLINA had five chain plates on each side to secure standing rigging; only one of which was used on each side. The mishap victim rigged one backstay that was approximately two-thirds wire rope and one-third polypropylene line secured in the vicinity of the cockpit on the starboard side (Exhibit 79). The forestay was rigged with the polypropylene line approximately half-way up the mast and secured to the base of the bulwark on the bow. The mishap victim received the polypropylene line used for the forestay and backstay from a fellow mariner at Kawaihae South Harbor. The line was 3/8" Everbilt Diamond Braid Poly Rope purchased from Home Depot (Exhibits 65, 68, 87). The manufacturer's specifications rate the polypropylene line with a breaking strength of 244 pounds. The manufacturer's specifications state that the line is not designed for shock (stress/jerk) conditions and the working load should never be exceeded (Exhibit 74). The mast was supported by one shroud on each side connected to one of the five chain plates mounted to each side of the hull (Exhibits 79, 86, 89). The shrouds composition appears to be white nylon line (Exhibits 63, 79, 86). The normal rigging practices call for sailing vessel standing rigging (i.e., shrouds and stays) to be composed of wire rope to handle the loads induced by sailing (Exhibits 73, 116). The composition and rated strength of the connection points on the mast and hull is unknown.

Figure 10: Actual line provided to mishap victim and used as standing rigging (Exhibit 87)

(g) On 26 October 2015, the mishap victim departed Kawaihae South Harbor aboard KOLINA to locate a suitable berth for his vessel. The mishap victim rowed KOLINA into Kawaihae Commercial Harbor and was notified by the harbor security officer that he was not allowed to moor or anchor his vessel within the commercial harbor due to security restrictions. The Kawaihae harbor security officer requested the help of a local commercial company to tow KOLINA out of the harbor (Exhibit 63). The commercial vessel responded, rigged a towline to KOLINA's mast because there were no adequate deck fittings, and towed KOLINA outside the harbor to anchor. KOLINA anchored in vicinity of the Kawaihae Harbor entrance buoys in approximately 50 feet of water to a coral bottom (Exhibits 63, 65-66). The mishap victim stated he had 50 feet of anchor chain and 300 feet of anchor line. A local mariner and acquaintance of

the mishap victim reported that the anchor appeared to be adequate based on the size of KOLINA (Exhibit 67).

(h) While at anchor near the entrance to Kawaihae Harbor, the mishap victim received notification from DOCARE that a complaint had been filed concerning KOLINA's position. DOCARE investigated the complaint and informed the mishap victim that he was authorized to anchor in the area provided he moved the vessel at least every 72 hours (Exhibits 61, 75).

e. ***Vessel Systems:***

(1) Propulsion

(a) KISKA: KISKA's machinery plant was Fully Mission Capable and not contributory to the mishap (Exhibit 42).

(b) KOLINA:

1. The vessel had a small triangular sail that was not rigged during the mishap (Exhibits 10 (01:15), 13 (02:18:17)).

2. The mishap victim crafted an 18-foot laminated yuloh as an additional means of propulsion. This traditional tiller-like apparatus provides propulsion through a sculling motion (Exhibits 70-71, 115). The yuloh was not observed at the time of the mishap or afterward (Exhibit 8). KOLINA was outfitted with a normal rudder attached to the aft edge of the keel.

(2) Navigation Equipment

(a) KISKA: KISKA's navigation equipment was Fully Mission Capable (Exhibit 42). KISKA suffered a radar casualty during the search phase (Exhibits 19, 25, 31). There is no evidence that KISKA's navigation equipment played a role in the mishap.

(b) KOLINA:

1. There is no evidence to suggest the mishap victim had any navigation equipment to assess the vessel's position, course, or speed. The mishap victim approximated his location within the Alenuihāhā Channel based on visual bearings to Haleakālā on Maui and Upolu Point on Hawai'i (Exhibit 8). The mishap victim's visually estimated position was less than 7 NM from the actual position where CG-6547 located KOLINA. There is no evidence that KOLINA's lack of navigation equipment played a role in the mishap.

2. If the mishap victim was solely using the yuloh for propulsion, the vessel displayed the proper navigation lights as promulgated in the Navigation Rules and Regulations Handbook (i.e., one all around white light or an electric torch or lighted lantern showing a white light at the ready). However, if the mishap victim was sailing, the vessel lacked the required sidelights and sternlight as outlined in the Navigation Rules and Regulations Handbook (Exhibit 113). The mishap victim stated that because his vessel was jury-rigged he did not have his normal lights (Exhibit 12). KOLINA had one small white light rigged approximately one-third up the mast and the mishap victim also stated he had three flashlights (Exhibits 11 (15:59), 12

(42:46)). This light was visible to KISKA at the initial towing distance of 325 feet though intermittent as the KOLINA moved into and out of the troughs between the waves (Exhibits 27, 34, 35). While the small size of the light limited visibility of the vessel and mishap victim at this distance, there is no evidence that KOLINA's lighting played a role in the mishap.

(3) Communication Equipment

(a) KISKA: KISKA's communication equipment was Fully Mission Capable at the time of the mishap. KISKA CO reported difficulty establishing communications with the mishap victim over VHF-FM radio until within approximately 1,000 yards of KOLINA. KISKA mitigated this communication challenge by providing the mishap victim with a handheld UHF radio to establish direct station-to-station communication. KISKA CO and the mishap victim successfully established and maintained communications with these radios until the mishap occurred (Exhibits 25, 31-32). KISKA CO was the only person with direct UHF communications with the mishap victim. All other internal KISKA UHF communications were conducted on a separate UHF frequency (Exhibits 25, 27-29, 31). Unlike the VHF-FM communications in this case, the handheld UHF radio transmissions were not heard or recorded by the Sector Honolulu or D14 command centers. KISKA did not maintain a radiotelephone log in accordance with the Coast Guard's Telecommunications Manual.

(b) KOLINA:

1. The mishap victim's communications were limited to VHF-FM radio until receiving KISKA's handheld UHF radio. It is unknown whether the mishap victim's VHF-FM radio was installed or handheld. KOLINA did not have a radio antenna affixed which combined with the sea state, limited the range of VHF-FM communications. The mishap victim, with SCC concurrence, minimized radio communications to conserve battery power. SCC effectively maintained a communications schedule every 30 minutes with the mishap victim. Coast Guard air and surface assets established on scene VHF-FM communications upon arrival (Exhibits 11 (36:10), 12 (01:23:43), 13 (01:18:58)).

2. When requesting Coast Guard assistance, the mishap victim reported his cell phone was inoperable for the last three days and could not be used as a secondary means of communication (Exhibits 8, 72). The last contact from the mishap victim to his next of kin occurred on 2 November 2015. The mishap victim contacted his next of kin from a telephone that was not his and reported that his cell phone was damaged by water on 1 November 2015 and that he would need to get a replacement (Exhibit 76).

3. There is no evidence that the mishap victim communicated distress by radio or EPIRBs until making initial contact with the Coast Guard on 5 November 2015.

(4) Safety Equipment

(a) KISKA: KISKA's safety equipment was Fully Mission Capable and not contributory to the mishap (Exhibit 42).

(b) KOLINA:

1. The mishap victim reported to SCC that he had both a lifejacket and a safety harness aboard. The mishap victim reported he was inside the cabin when asked if he was

wearing his lifejacket. SCC did not direct him to wear the lifejacket (Exhibit 9 (01:49)). CG-6547 and KISKA crew reported the mishap victim wearing a red, long-sleeved outer garment that appeared to be a flotation device. On scene Coast Guard units did not determine whether the mishap victim was actually wearing a lifejacket nor direct its wear (Exhibits 21, 25). The Rescue Swimmer confirmed there was one serviceable lifejacket stowed in the cockpit area with no signs of recent wear (Exhibit 23). The mishap victim was not wearing a lifejacket when recovered nor was one discovered in the vicinity (Exhibits 28, 32).

2. The mishap victim was recovered wearing a nylon-webbed safety harness that included maroon shoulder straps and a brown waist strap. The mishap victim reported having the safety harness aboard during his initial radio call with SCC but there was no recorded discussion of whether he was wearing the harness or that it was passed to KISKA (Exhibit 9 (01:49)). Approximately three feet of synthetic triple-braided line was attached to the safety harness waist strap and the end of the line appeared to be cut. The boat crew reported cutting line from the mishap victim's left ankle to free him from the rigging (Exhibits 28, 32).

3. The mishap victim stated he had a flare kit aboard and used two red flares to assist CG-6547 in locating KOLINA (Exhibits 11 (08:03), 12 (52:07)).

4. The mishap victim borrowed two EPIRBs while in Hawai'i and activated them when directed by SCC (Exhibits 11 (08:43, 26:30), 67, 68). D14 Command Center never received 406 MHz signals from either EPIRB prior to CG-6547 locating KOLINA. As CG-6547 neared KOLINA's position, it received 121.5 MHz signals from the EPIRBs aboard KOLINA (Exhibits 17 (09:45), 21). This would indicate that the two EPIRBs were older, obsolete versions that are not tracked by the D14 Command Center's equipment. Following the mishap, D14 Command Center monitored KOLINA's position using a self-locating datum marking buoy dropped by a Coast Guard aircraft (Exhibits 1, 19).

5. The mishap victim stated he had an inflatable Avon dinghy trailing KOLINA (Exhibits 11 (14:47), 70). Throughout the case, the dinghy was secured along the port side (Exhibits 21, 23, 31).

6. KOLINA was not outfitted with lifelines at the time of the mishap. The lifeline stanchions were located at Kawaihae Boat Park (Exhibit 93).

(5) Towing System

(a) KISKA: The standard towing configuration for a 110-foot patrol boat was not used during this case. The starboard horn of the tow bitt sheared during heavy surging while moored in homeport on 27 October 2015. While underway enroute KOLINA, it was also noted that the aft starboard bitt, typically used for mooring lines, had a small surface crack. Though KISKA EPO and 1LT did not believe the crack to be structural, only the aft port bitt was used to mitigate risk. The aft port bitt on the fantail is typically used for mooring. An Amsteel bridle was shackled to the towline and passed by heaving line to the mishap victim (Exhibits 27, 29). KISKA faked out approximately 400 feet of towline on deck in advance of the tow and established tow with 325 feet made to the bitt (Exhibit 29, 37).

(b) KOLINA: CG-6547 relayed that the mishap victim would make the towline off to the mast, it was keel-stepped, and there were no secondary connection points (Exhibits 13 (02:10:39), 21, 25). When KOLINA was previously towed from Kawaihae Commercial Harbor,

it was noted that the vessel did not have any deck fittings sufficient for towing, other than the mast (Exhibits 65-66, 80, 85, 89). The mishap victim told KISKA CO that he would make the towline off to the mast but there was no discussion on how it would be secured (Exhibit 25). KISKA 1LT and EPO, directing the tow evolution on deck, were unaware of where and how the mishap victim intended to secure the towline (Exhibits 27, 29-30).

f. ***Weather:*** The Alenuihāhā Channel, between the islands of Hawai'i and Maui, is 26 miles wide in its narrowest part and is regarded as one of the most treacherous channels because of strong winds and high seas. Bordered on the Maui side by the 10,000 foot tall Haleakālā and on Hawai'i by the nearly 14,000 foot tall Mauna Kea, northeastern trade winds get funneled through the channel creating gusts of wind with up to five times more velocity than the surrounding waters. Local mariners state that forecasted conditions frequently under represent the actual seas and winds in the Alenuihāhā Channel. The mishap victim was aware of the channel's reputation and hoped to depart during a forecasted lull around the end of October. He delayed his departure from anchor while waiting for a document, likely vessel registration from DLNR and/or a new cellular phone, and missed his planned weather window. He then decided to proceed north along the coast of Hawai'i to Nishimura Bay and await a weather window to cross (Exhibits 67, 72). As wind and sea conditions built around Hawai'i on 3 November 2015, KOLINA dragged from the exposed anchorage outside the Kawaihae commercial harbor.

A Small Craft Advisory issued by the National Weather Service for the Alenuihāhā Channel and waters surrounding Maui and Hawai'i was in effect at the time of the mishap. The National Weather Service issued Coastal Water Forecasts at six-hour intervals in the hours leading up to the mishap, all of which indicated that the winds and seas would continue to build throughout the night on 5 November and on 6 November 2015. The following forecast was issued at 9:29 p.m. on 5 November 2015 for the Alenuihāhā Channel:

PHZ121-062030-
ALENUIHAHA CHANNEL-
929 PM HST THU NOV 5 2015

...SMALL CRAFT ADVISORY IN EFFECT THROUGH SUNDAY AFTERNOON...

.REST OF TONIGHT...EAST WINDS TO 25 KT. WIND WAVES 11 FT.
SCATTERED SHOWERS LATE IN THE EVENING. ISOLATED SHOWERS AFTER
MIDNIGHT.
.FRIDAY...EAST WINDS TO 30 KT. WIND WAVES 13 FT. ISOLATED
SHOWERS.
.FRIDAY NIGHT...EAST WINDS TO 30 KT. WIND WAVES 13 FT. SWELL
SOUTH 3 FT INCREASING TO NORTHWEST 3 FT AND SOUTH 3 TO 4 FT AFTER
MIDNIGHT. SCATTERED SHOWERS.

At 10:00 p.m. on 5 November 2015, KISKA recorded the following weather observations in the unit's Weather Log (Exhibits 37-38):

Weather Conditions:
Skies: Scattered
Barometer: 30.02
Dry Bulb: 74
Wet Bulb: 78
Winds: 090°T at 23 knots
Sea Waves: 090°T at 2 feet*
Swell Waves: 070°T at 8 feet*

* Based on forecasted weather, aircraft observations, and the mishap victim's report, the MII Board assessed that KISKA either transposed the sea and swell wave observations or under represented the sea waves. The reciprocal direction of the recorded sea and swell waves should have also been used.

g. *Training and Qualifications*:

(1) The MII members reviewed the overall training and readiness of the KISKA crew. In September 2014, KISKA completed a Ready for Operations (RFO) inspection (Exhibit 44). KISKA was not required to and did not perform a tow during this RFO inspection. In November 2014, KISKA completed Special and Emergency Operations Procedures (SEOPS) training but the required towing evolution was waived because no platform was available to be towed due to the cutter's remote location (Exhibit 45). In December 2014, KISKA conducted a tow of a disabled sailing vessel during a search and rescue case (Exhibits 25-26, 47). It occurred in calm weather which enabled the ship to use the cutter small boat to attach the towline. This case allowed KISKA to meet the required periodicity and maintain currency with mandated training requirements through 31 December 2015 (Exhibits 25, 28, 43). KISKA's crew effectively spent the past five months in a maintenance posture with no appreciable operational time. KISKA also completed a dockside training exercise to refresh crew members on proper tow rigging techniques (Exhibits 26, 43). Following KISKA's dry dock completion, the crew satisfactorily completed a Ready for Sea Assessment and was declared safe-to-sail by the Sector Honolulu RFO team in September 2015 (Exhibit 48). There was a considerable rotation of crew over the summer and nearly half the crew was making their first operational deployment.

(2) The MII Board examined the individual qualifications for personnel directly involved in the mishap.

(a) SCC: The Sector Command Center (SCC) watch section, consisting of the SAR Mission Coordinator (SMC), Command Duty Officer (CDO), Operations Unit Watchstander (OU), Situation Unit Watchstander (SU), and Communications Unit Watchstander (CU), were all fully qualified and current in their positions. Their experience levels follow (Note: the SU qualifications were omitted because they had no decision making role or communication with the mishap victim):

Position	Previous Experience	Time at Unit	Time Qualified in Position at Current Unit
SMC	1 SMC tour	18 months	17 months
CDO	1 command center tour	41 months	16 months
OU-1	1 command center tour	28 months	25 months
OU-2	0 command center tours	28 months	8.5 months
CU-1	0 command center tours	10 months	7.5 months
CU-2	1 command center tour	3.5 months	2 months

(b) CG-6547: The Air Station Barbers Point aircrew, consisting of the Aircraft Commander (A/C), Co-Pilot (CP), Flight Mechanic (FM), and Rescue Swimmer (RS), were all fully qualified and current in their positions. Their experience levels follow:

Position	Previous Experience	Time at Unit	Time Qualified in Position at Current Unit
A/C	3 flight tours	40 months	36 months
CP	0 flight tours	17 months	11 months
FM	1 flight tour	41 months	41 months
RS	1 flight tour	17 months	17 months

(c) KISKA: Coast Guard ships assign their personnel a variety of situationally dependent billets, not all of which require a specific qualification. The Commanding Officer (CO), Operations Petty Officer (OPS), Engineer Petty Officer (EPO), and First Lieutenant (1LT) held supervisory positions during the mishap. Their experience levels in the applicable positions follow (Note: the positions held by EPO and 1LT did not require a specific qualification):

Billet	Position	Previous Experience	Time at Unit	Time Qualified in Position at Current Unit
CO	Officer of the Deck	3 afloat tours	16 months	16 months
OPS	Conning Officer	0 afloat tours	29 months	16 months
EPO	Fantail Safety	1 afloat tour	5 months	N/A
1LT	Fantail in Charge	1 afloat tour	4 months	N/A

(d) KOLINA: The mishap victim was a seasoned mariner who had sailed from British Columbia to Hawai'i. Once in Hawai'i, the mishap victim sailed extensively, including voyages across the Alenuihāhā Channel. Despite having no record of formalized seamanship training, the mishap victim was recognized as a capable sailor with extensive knowledge of sailing vessels, having owned three different sailing vessels, and conducted extensive refurbishment of KOLINA over the past seven years (Exhibits 70-71).

h. ***Medical:***

(1) KISKA: A review of 72-hour work/rest histories uncovered no relevant evidence in the mishap (Exhibits 98-108). Post-mishap drug and alcohol testing was conducted within 24 hours of the mishap and all KISKA crew members tested negative (Exhibit 41). Due to the sea state, several crewmembers were seasick; however, neither KISKA CO nor any crew members in supervisory positions reported seasickness (Exhibits 25, 27-29). No KISKA crew members reported any injuries as a result of the mishap.

(2) Other Coast Guard Units: A review of 72-hour work/rest histories for the CDO, OU-1, OU-2, and CU-2 uncovered no relevant evidence in the mishap (Exhibits 95-97). Post-mishap drug and alcohol testing was negative for the Sector Honolulu Commander, SMC, CDO, OU-2, and CU-2 (Exhibit 41). Neither 72-hour work/rest histories nor post-mishap drug and alcohol testing was conducted on the aircrew. There were no reported injuries as a result of this mishap.

(3) KOLINA: The mishap victim was a 71 year old male with no known medical conditions. An autopsy was conducted at Kona Community Hospital on Hawai'i and the cause of death was assessed to be traumatic head injuries (Exhibits 50-54). The medical examiner ruled out drowning as a possible cause of death. Toxicology results showed consumption of alcohol in the hours preceding the mishap but the mishap victim's blood alcohol content was not assessed to be at a level of intoxication at the time of the mishap. Additionally, the autopsy report indicated that the mishap victim had consumed marijuana, but the consumption was likely not within the 12 hours preceding the mishap (Exhibits 50-54).

i. ***Operations and Supervision:***

(1) KISKA completed a routine, scheduled dry dock in September 2015. The dry dock coincided with the Coast Guard's assignment season, from which KISKA experienced a 40% crew turnover (Exhibit 39). Upon returning to homeport on 25 September 2015, KISKA entered a two-week routine maintenance period. On 10 October 2015, KISKA resumed normal underway operations but suffered a casualty to one of the ship's main diesel engines which forced the ship to return to homeport on 11 October 2015. KISKA crew exhausted all available, local resources to repair the casualty before receiving support from the Naval Engineering Detachment on 2 November 2015. On 5 November 2015, the cutter was ready for a full power trial and proceeded underway from Hilo to test the main diesel engine. Following a satisfactory test, the Naval Engineering Detachment disembarked in Hilo and KISKA began transiting to support a security boarding at Kawaihae Harbor scheduled for the morning of 6 November 2015 (Exhibit 49).

(2) KISKA is targeted to conduct 1,800 operational hours per fiscal year (1 October – 30 September). In Fiscal Year 2015, KISKA completed 1,136.8 underway hours. Since returning to homeport on 25 September 2015, KISKA had conducted 53.4 underway hours (Exhibit 46).

(3) KISKA sailed from homeport on 5 November 2015 with 17 of 19 permanent crew members embarked; it was the first operational patrol for eight of the permanent crew. The Executive Officer and a Second Class Boatswains Mate were not aboard. Additionally, the crew was augmented with a First Class Boatswains Mate, temporarily assigned from another unit, who was a qualified Deck Watch Officer (Exhibits 25-26, 30).

(4) Upon being diverted to respond to KOLINA, KISKA CO and Department Heads conducted a tow brief to discuss the tow evolution and determine crew assignments based on level of experience in an effort to mitigate risk. KISKA CO had overall responsibility for the safety and conduct of the evolution and was the Officer of the Deck on the flying bridge. The Operations Petty Officer (OPS) was assigned as the Conning Officer, responsible for all ship movements, and maneuvering the cutter from the conning station on the flying bridge (Exhibits 25, 28). The EPO and 1LT assumed responsibilities as the fantail safety supervisor and deck petty officer in charge, respectively. The EPO and 1LT were positioned on the fantail and provided direct oversight of the tow rigging and evolution on deck. The towing evolution was the first operational case that either conducted since reporting aboard during KISKA's dry dock but both had extensive towing experience from previous shipboard assignments or small boat stations (Exhibits 25, 27-28).

(5) Once KOLINA successfully floated and was anchored outside the Kawaihae Harbor entrance buoys, the mishap victim had communicated his intention to remain at anchor while awaiting receipt of a package in Kawaihae. He then intended to travel approximately 10 miles up the coast to Nishimura Bay and await a weather window to cross the Alenuihāhā Channel (Exhibit 72). At some point on Tuesday, 3 November 2015, KOLINA dragged anchor outside Kawaihae Harbor and the vessel and mishap victim inadvertently took to sea (Exhibit 8). When the mishap victim initially contacted the Coast Guard at 3:51 p.m. on Thursday, 5 November 2015, he had drifted 28 NM at an average speed of less than 0.5 knots. The mishap victim reported that he was unable to recover his trailing anchor, uncomfortable working the foredeck, and requested a tow across the channel from the Coast Guard (Exhibits 10 (05:52, 07:37, 09:20), 11 (16:16)).

(6) CG-6547 was directed to respond to KOLINA prior to departing Air Station Barbers Point. The helicopter and crew were scheduled to conduct a nighttime training mission with Station Maui. The Aircraft Commander, Co-Pilot, and Rescue Swimmer were all assigned as ready aircrew on 5 November 2015; the Flight Mechanic was assigned to the training mission to satisfy currency requirements. The Co-Pilot, though qualified, was on her first nighttime SAR case. The Aircraft Commander restructured the normal distribution of flight responsibilities to take over the majority of communications while allowing the Co-Pilot to focus on flying (Exhibits 21-22, 24).

(7) Due to weather conditions in the Alenuihāhā Channel, KISKA had limited response actions once on scene with KOLINA. The seas and swells were assessed to be beyond the launch and recovery parameters for KISKA's embarked cutter boat (Exhibits 25, 37, 112).[7]

j. ***Additional Areas of Concern:***

(1) DOBOR officials engaged with the mishap victim several times over a period of four weeks. DOBOR agents initiated contact with the mishap victim on 1 October 2015 upon discovering KOLINA ashore at Kawaihae South Harbor without authorization. DOBOR agents advised the mishap victim that the vessel would be impounded if not removed immediately per Hawai'i regulation §13-231-10. Additionally, officials required the vessel's registration to be renewed and informed the mishap victim that fees would be assessed during the vessel's time on state property. Per Hawai'i regulation §13-231-10, impoundment can proceed without action in 72 hours. The impoundment was stayed and a second attempt to launch the vessel occurred on 7 October 2015. Following this second failed attempt to float KOLINA, DOBOR and DOCARE officials continued to discuss pending impoundment of the vessel with the mishap victim. On 14 October 2015, DOBOR postponed impoundment proceedings upon receiving confirmation from the second crane company that they would float KOLINA the following week. Upon successfully floating on 19 October 2015, KOLINA moored at the loading zone berth at Kawaihae South Harbor. Again, DOBOR officials informed the mishap victim that his vessel was unauthorized, stressed

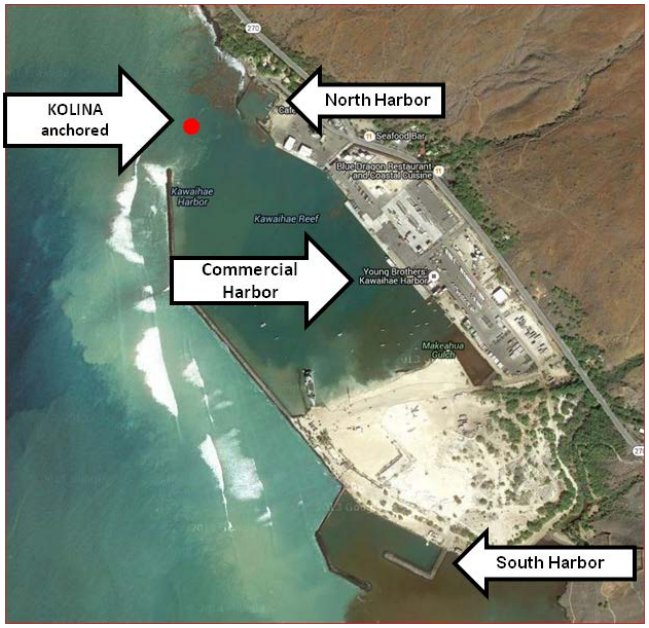

Figure 11: Map of Kawaihae Harbor (Exhibit 88)

[7] Launch and recovery of the Cutter Boat on the 110' Patrol Boats should not normally be done in seas greater than six feet, however cutters may perform boat operations in combined up to eight feet. Risk versus gain must be considered. Ideally, the cutter boat is launched while the cutter is headed down-swell/sea at a speed between 5-9 knots. 110' Patrol Boats have a pitch and roll limit of 7° for launching the cutter boat. These limits shall only be exceeded during urgent SAR or other missions that in the judgment of the Commanding Officer are significant enough to warrant the increased risk associated with the launch and recovery evolution.

the need to renew vessel registration, and advised him to apply for a temporary mooring permit (Exhibits 59-62, 72).

(2) KOLINA's most recent registration (HA-2184-D) was on file with the state of Hawai'i in the next of kin's name (Exhibits 70, 77). This registration expired in August 2014 and the renewal was being processed in the mishap victim's name following the 26 October 2015 bill of sale which formally transferred ownership from the next of kin to the mishap victim (Exhibit 78). Per Hawai'i vessel registration regulations, KOLINA did not require a registration until it actually transitioned from a manually propelled vessel to a sailing vessel (Exhibit 60). This fact had not been communicated to the mishap victim (Exhibits 59-60, 118). Temporary mooring and dry storage use permits were filed by the mishap victim on 23 October 2015 (Exhibit 55). DOBOR officials assessed fees for the period of 1 October to 25 October 2015 for KOLINA's dry storage and mooring (Hawai'i §13-231-17) and received confirmation of payment from the next of kin on 28 October 2015 (Exhibits 55, 59-60).

(3) The mishap victim was also cited for living aboard his vessel without permission (Hawai'i §13-231-21). The mishap victim stated that he had too many valuables aboard KOLINA to leave it unattended and continued to live aboard the vessel while ashore and at the loading dock berth (Exhibits 58-59, 61).

Figure 12: KOLINA (center) at Kawaihae South Harbor loading dock berth (Exhibit 89)

(4) On 23 October 2015, the mishap victim received notification to vacate the loading dock berth no later than 26 October 2015. The mishap victim vacated the loading dock berth on 26 October and proceeded to row his vessel to Kawaihae commercial harbor. While attempting to anchor in the commercial harbor, the harbor security officer, citing security regulations, informed the mishap victim his vessel was not authorized to remain in the commercial harbor (Exhibits 63, 72). The harbor security officer noted the mishap victim was having difficulty maneuvering his vessel and asked a local commercial company to assist. The company agreed, directed their boat to the commercial harbor, and towed the KOLINA by the mast to anchorage outside the Kawaihae Harbor entrance buoys (Exhibits 63, 65-66).

(5) On 29 October 2015, DOCARE agents responded to a complaint about KOLINA anchored outside the Kawaihae Harbor entrance buoys and notified the complainant that, per Hawai'i regulation §13-235-3, the vessel was within legal rights to anchor for 72 hours in a particular location. DOCARE officials alerted the mishap victim of the complaint and he agreed to relocate when it was safe to do so and within the 72 hour legal limit of anchoring (Exhibit 59).

k. ***Human Factors Analysis:*** The Department of Defense Human Factors Analysis and Classification System (DOD HFACS) lists potential human factors that can play a role in mishaps (Exhibit 117). There are several human factors which played a role in this mishap:

(1) Inadequate Real-Time Risk Assessment (AE-201): a factor when an individual fails to adequately evaluate the risks associated with a particular course of action and this faulty evaluation leads to inappropriate decision-making and subsequent unsafe situations.

(a) SCC: The SMC agreed to a course of action based upon scanty and misinterpreted information presented by the CDO that did not accurately communicate the full extent of KOLINA's condition, environmental conditions, and potential limitations of the mishap victim. Additionally, despite being aware of a casualty to KISKA's primary tow bitt, the SMC assumed the risk of conducting the tow without full knowledge of how the patrol boat would manipulate the deck configuration to take KOLINA in tow. The discussion between the SMC, CDO, and KISKA did not incorporate any discussion of risk assessment, risk mitigation techniques, or alternative plans for rendering assistance if KISKA arrived on scene and determined that towing was not an option (Exhibits 1-2, 18, 25). KISKA CO also did not articulate that the on scene conditions encountered while enroute KOLINA placed the patrol boat outside parameters to launch the cutter small boat if necessary. The Aircraft Commander twice initiated communications with SCC concerning an alternate plan should KISKA not be able to establish tow but the SCC stated that a plan would be formulated if and when the decision was made that the tow was not feasible (Exhibits 17 (17:45, 19:54), 21). SCC's actions, while attempting to satisfy the desires of the mishap victim, did not adequately address the risk associated with the case in various stages, including pre-mission assessment, reassessing risk based upon amplifying reports from the mishap victim, CG-6547, and KISKA. From the case's inception, the decision to tow was the only option pursued and the SCC, CDO, and SMC failed to continuously consider alternate plans.

(b) KISKA: Upon being diverted to render assistance, KISKA CO immediately developed a plan that would enable KISKA to tow KOLINA despite the obvious limitations imposed by the tow bitt casualty (Exhibits 25, 27, 29). KISKA CO communicated his ability to conduct the tow to SMC without clearly articulating how the tow configuration would be modified or potential risks associated with this alternative method (Exhibits 1-2, 18 (03:35), 25). After identifying degradation to the aft starboard bitt there was no reassessment of the tow configuration or consideration of an alternative course of action by the EPO, 1LT, or KISKA CO. Additionally, the SMC was never notified of the secondary casualty to the aft starboard bitt. Though KISKA did satisfy Coast Guard requirements for formal operational risk assessment prior to arriving on scene with KOLINA, they did not continue to formally evaluate risk once on scene nor did they appear to assess the viability of alternative courses of action (Exhibits 26-29).

(2) Critical Information Not Communicated (PP-106): a team work factor when known critical information was not provided to appropriate individuals in an accurate or timely fashion.

(a) SCC: During the initial communication with the mishap victim and following dispatch of response units, critical information was passed to the SCC concerning the condition of the mishap victim and vessel. The mishap victim reported his age, that he was uncomfortable working the foredeck to recover his ground tackle, and that the vessel was jury-rigged with the mainmast unusable (Exhibits 10 (09:20), 11 (16:16), 12 (02:39)). None of this information was communicated to KISKA. Additionally, the snapped tiller was miscategorized as a rigging casualty by the watch. SCC told the SMC that KOLINA had a rigging casualty yet passed to KISKA that KOLINA had a snapped tiller. There were no indications that SMC ever knew about the snapped tiller.

(b) CG-6547: Once on scene with KOLINA, CG-6547 had the most direct, reliable communication with the mishap victim until KISKA passed the handheld UHF radio. CG-6547 asked questions and relayed tow establishment information between KISKA and the mishap victim, including the point to which the tow would be established. The mishap victim passed

that his mizzen mast was jury-rigged to take the place of his mainmast to CG-6547 (Exhibit 13 (02:18:37)). CG-6547 relayed the information concerning the jury-rigged mast to KISKA; however, the relay occurred during a critical point as KISKA approached KOLINA and there is no indication that KISKA understood and processed the information (Exhibit 13 (02:36:25)). Additionally, on two occasions, the mishap victim passed to CG-6547 that his vessel was taking on water and his desire was to stay aboard to monitor the pump and change out the battery as necessary (Exhibit 13 (02:06:20, 02:08:57)). There is no evidence to support that KISKA ever overheard or received information that the vessel was taking on water.

(c) KISKA: KISKA faced a number of challenges when arriving on scene with KOLINA, including communications, lighting, and environment. KISKA appropriately relied on CG-6547 to relay a significant portion of information relevant to vessel construction and tow establishment with the mishap victim. Once KISKA established communications with the mishap victim via UHF radio, KISKA CO did not adequately address the tow establishment and safety procedures, including wear of a flotation device, with the mishap victim prior to passing the towline. Additionally, there was an internal misunderstanding aboard KISKA concerning how the tow would be established. While enroute KOLINA, KISKA crew briefed and rigged a towline equipped with a bridle to pass to the mishap victim. Upon arriving on scene and learning that KOLINA would secure the towline to the mast, KISKA CO did not relay that information to the crew on the fantail (Exhibits 25, 29-30). There was no discussion on whether the bridle, instead of a single pendant, was still the most suitable towing arrangement or the optimal method to secure the towline to KOLINA.

(d) Mishap Victim: There is no evidence of any distress calls or EPIRB activation from the mishap victim until 5 November 2015. While not prompted by Coast Guard units, the mishap victim did not elaborate on how the mizzen mast was jury-rigged, the location of flooding, or the nature of the tiller casualty.

(3) Task/Mission Planning/Briefing Inadequate (PP-109): a factor when an individual, crew or team failed to complete all preparatory tasks associated with planning/briefing the task/mission.

KISKA arrived on scene having a pre-determined plan on how the tow would be established and an incomplete knowledge of the vessel's construction and nature of distress. SCC did not complete the entire SAR checklist; all of this information is typically passed to responding units, such as KISKA (Exhibit 20). In light of communication challenges prior to arriving on scene with KOLINA, KISKA relied on a communications relay from the orbiting CG-6547. Relaying communications for other units is not uncommon; however, it does not relieve the towing unit of their responsibility to conduct complete pre-towing procedures if the situation permits. Once KISKA established communications with the mishap victim via UHF radio, KISKA CO provided a brief overview of the sequence of events while performing an on scene assessment. However, there is no evidence that a full tow brief was conducted between KISKA and the mishap victim. The tow brief was conducted in a piecemeal fashion by both CG-6547 and KISKA. KISKA CO did not reaffirm the information passed by CG-6547, obtain any new information, or ensure the plan was fully understood by both vessels.

(4) Failed to Provide Appropriate Policy/Guidance (SI-004): a factor when policy/guidance or lack of policy/guidance leads to an unsafe situation.

The mishap victim's resolve to sail to Moloka'i was magnified by the interactions with DOBOR, DOCARE, and the Kawaihae commercial harbor security officer. All of these officials recognized that KOLINA was not seaworthy but did not have alternative solutions to provide long-term berths to enable the mishap victim to fully prepare for the voyage.

DOBOR and DOCARE officials slowly advanced their impoundment actions, effectively affording the mishap victim more time to complete repairs both ashore and while moored at the loading zone berth. There are no indications that the mishap victim would have qualified for any potential extensions available under Hawai'i regulations, including §13-231-19, or Safety of Life at Sea/Safe Haven provisions. Regardless, the Kawaihae commercial harbor security officer directed the mishap victim to anchor outside of the harbor on 26 October 2015 (Exhibits 63, 72). Possible alternatives to this order may have included temporarily anchoring in the Kawaihae North Harbor or inside the commercial harbor. Although security regulations did prohibit recreational vessels in the commercial harbor, there were a number of recreational vessels anchored there because their drafts were too deep to moor in Kawaihae South Harbor. Any of these alternatives would have provided a more sheltered temporary option while the mishap victim prepared for the voyage.

As a consequence of this collective enforcement of different policies, the mishap victim could not legally moor or anchor within the jurisdiction of the respective agencies. The mishap victim, therefore, moved from a relatively safe haven and anchored in an unprotected area outside the commercial harbor. Although the mishap victim could have removed the vessel from the water or sought other commercial options, he chose this unsafe option - likely due to financial considerations. Consequently, the enforcement of state policies and regulations played a role, albeit minor, in this fateful voyage.

Note: none of the officials contacted the Coast Guard Marine Safety Team, located in Kailua-Kona, to alert them of this developing situation or request assistance.

The officials also did not discuss any longer-term options including anchorage at Kawaihae North Harbor. This harbor was damaged during a recent storm and because of its vulnerability to swells had been temporarily discontinued as a recreational vessel harbor. It would have provided a sheltered anchorage (Exhibits 59-60).

(5) Pressing (PC-207): a state of mind factor when the individual knowingly commits to a course of action that excessively pressures the individual and/or their equipment beyond reasonable limits.

The mishap victim was resolute in sailing KOLINA to Moloka'i. This determination, coupled with a deadline to vacate his dry storage facility, prompted the mishap victim to commit to a course of action beyond the reasonable limits of KOLINA. Upon receiving notice in July 2015 that his dry storage lease would not be renewed, the mishap victim committed to sailing KOLINA to Moloka'i rather than exploring alternate dry storage locations on Hawai'i or investigating options such as commercially shipping KOLINA (Exhibits 57, 67, 69-70).

Throughout his dealings with DOBOR and DOCARE, the mishap victim continued to express his intent to transit to Moloka'i. Despite the efforts of friends, acquaintances, and local mariners to offer alternatives, the mishap victim never relented. He expressed frustration with the rigid timelines imposed by the DOBOR and DOCARE officials and made unconventional repairs in an attempt to restore the seaworthiness of KOLINA. The mishap victim was fully

aware of the inherent dangers of the Alenuihāhā Channel and planned to make the trip during a favorable weather window (Exhibits 67-68, 72). He jury-rigged the mast, rigging and sail, mounted the yuloh as a means of propulsion, and borrowed nearly all of the safety equipment from friends and acquaintances within Kawaihae (Exhibits 13 (02:11:04), 67, 70, 72).

Once the mishap victim relayed his situation to the Coast Guard, he remained intent on crossing the Alenuihāhā Channel and avoiding a return to Hawai'i. The mishap victim stressed his desire to remain aboard KOLINA to SCC and CG-6547 on three occasions and requested a tow across the channel in order to complete repairs in Maui (Exhibits 12 (03:38), 13 (02:06:20, 02:06:58)). When told that the decision of the tow destination rested with KISKA, the mishap victim again expressed his desire to end up across the Alenuihāhā Channel and disappointment at potentially having to return to Hawai'i (Exhibit 13 (2:15:19, 2:17:06)).

5. Statement of Opinion: Because KOLINA was ultimately lost at sea the day after the mishap, I lacked the opportunity to fully examine the physical evidence of the mishap. The findings of fact, and ultimately this opinion, were derived from an array of interviews, photos and other evidence.

a. Causes of the Mishap: I found by clear and convincing evidence that the cause of the mishap was two-fold.

(1) Establishing tow with KOLINA resulted in a civilian loss of life. The Coast Guard's performance of Search and Rescue is permissive in nature however, once a mission is assumed, it is the Coast Guard's responsibility not to worsen a situation by its actions. Despite the efforts of Coast Guard units ashore and on scene to coordinate and conduct this rescue mission, the Coast Guard's towing of KOLINA was ultimately a causative factor in this tragedy.

(2) The mast and standing rigging were incapable of withstanding the forces inherent to towing. The only available location to secure KISKA's towline was KOLINA's jury-rigged mast. In the Herreshoff H-28 design, along with most other like-sized ketch rig sailing vessels, the mizzen mast is substantially smaller than the mainmast in both height and diameter. KOLINA's mizzen mast was eight feet shorter and appeared to be smaller in diameter than the mainmast. Unless properly wedged, a smaller diameter jury-rigged mast would have introduced destabilizing gaps in the through-deck opening and the keel socket used to seat the base of the mast. Even more importantly, the polypropylene line used in each shroud, the forestay and a portion of the backstay provided insufficient compression load to support the mast when applying the external force of a towline under tension. The shrouds and stays were also only rigged partially up the mast when they would typically run to the top of the mast to maximize stability and support. I am convinced that any attempt to tow KOLINA in the on scene conditions would have resulted in de-masting.

b. Substantially Contributory Factors: I also found by a preponderance of the evidence that the following factors substantially contributed to the mishap and tragic death of the mishap victim:

(1) Seaworthiness: KOLINA was unseaworthy and should have never been on the water. In addition to the aforementioned jury-rigged mast and standing rigging, the vessel had continuous flooding, lacked propulsion, lacked key navigational and seamanship equipment and was in generally poor condition. While the temporary sealant applied to the hull significantly reduced the flooding, KOLINA still had leaks requiring regular pumping. Because the jury-

rigged mast lacked a boom, there was no effective way to sail the vessel, and the yuloh sculling oar mounted by the mishap victim for propulsion was not apparent in post-mishap pictures (I believe the yuloh was the "snapped tiller" referenced in the initial distress call). The vessel's general materiel condition was poor with deteriorated decks, no apparent deck fittings, likely topside water intrusion necessitating a cabin tarp, unstowed gear in the cockpit, and unknown internal condition. State officials, other local mariners, and the mishap victim's friends assessed the vessel as unseaworthy.

(2) Vessel Interaction: During towing evolutions, vessels strive to be "in step" (e.g., on the crest of a wave at the same time). There will always be moments when they are not "in step" which inevitably shock loads the attachment points and towline and necessitate adjustments to restore the proper relationship. Determining whether the vessels are "in step" is complicated when tows occur in restricted visibility or the dark, as in this case. KISKA was still evaluating their "in step" relationship with KOLINA when the mishap occurred. Almost assuredly, the two vessels were not perfectly "in step" this early in the evolution which would have caused the towline and mast to be subjected to additional shock loading from the sea state.

(3) Failure to Continuously Reassess Alternative Options: From the time that SAR response was activated, the involved Coast Guard units pursued towing as the most viable and appropriate course of action to render assistance to KOLINA. Despite the master's clearly communicated intent to remain with the vessel, the responding Coast Guard units were obligated to continuously assess risk and ultimately select a course of action that best permitted the rescue of the mishap victim regardless of what happened to the vessel. Apart from the Aircraft Commander asking for alternate options, there was no other apparent examination of the decision to tow once units arrived on scene or exploration of whether it would be better to hoist the mishap victim from KOLINA. Because KISKA CO assessed KOLINA was at risk of being swamped by the heavy seas, delaying action until daylight was not assessed to be a viable option. Ultimately, this concern appeared to compel KISKA to rapidly establish a tow before completing full tow preparations and communication of the evolution details with the mishap victim. Additionally, the pre-approved absence of the Executive Officer reduced the already limited experience base aboard KISKA as he had been aboard for the previous towing mission in December 2014. The Executive Officer's presence would have enabled the KISKA CO to spread responsibilities, maintain a broader perspective, and be better situated to assess alternative options.

(4) Communications: Unfortunately, there was not clear recognition of the totality of the circumstances by the SMC, CDO, or KISKA. KISKA did not receive important information from SCC and CG-6547 that may have impacted the decision of how, when, or if the tow could be established. Upon arriving on scene, KISKA also did not reaffirm the information relayed earlier in the case by SCC and CG-6547 nor verify that critical information had been relayed to and understood by the mishap victim, including how to connect the towline. The towing brief with KOLINA was conducted in a piecemeal fashion by both CG-6547 and KISKA. A full safety brief by KISKA, as outlined in KISKA's internal towing policy, would have facilitated a discussion of the towing equipment and procedures to be used, fittings to be used as attachment points, and method of connecting the towline to KOLINA. Had KISKA CO known all of the relevant information, most importantly, KOLINA's construction and condition, he likely would have reassessed the viability of establishing a tow. Similarly, had KISKA CO communicated his concerns about quickly establishing the tow before KOLINA was swamped by the heavy seas with the SMC, a discussion of hoisting the mishap victim instead of towing may have ensued. Finally, there were several seasoned petty officers with extensive towing experience on the

KISKA fantail but their potential contributions were underutilized because they were on a different UHF frequency than KISKA CO and the mishap victim.

(5) Fixation: The mishap victim was an extremely knowledgeable and accomplished seaman whose judgment was clouded by a dogged determination to sail from Hawai'i to Moloka'i. Recognizing the overall state of KOLINA's disrepair, friends and local mariners advised against pursuing the voyage, and offered alternative options, ranging from divestiture to commercial shipping. The mishap victim dismissed any option other than sailing.

(6) External Pressure: DOBOR and DOCARE's enforcement of state regulations and the Kawaihae commercial harbor security officer's enforcement of security measures created significant pressure on the mishap victim. The state and commercial harbor officials operated within their authorities and whether by design or happenstance, provided more time to the mishap victim than their regulations required. That being said, they missed opportunities to permit the mishap victim to remain in more sheltered areas while preparing for a safer voyage.

(7) Darkness: The towing evolution was complicated by darkness and almost no moon illumination.

c. Additional Opinions:

(1) Though KISKA used a non-standard towing configuration from the aft port bitt, this arrangement functioned effectively in this case and its non-standard nature was not a factor to the mishap. Similarly, use of a single pendant instead of a bridle to connect the towline to KOLINA would have been preferable but the bridle configuration was not a factor to the mishap. The mishap victim used KISKA's heaving line to secure the towline to KOLINA's mast; an unacceptable method due to the reduced breaking strength of the heaving line compared to the bridle/towline. Ultimately though, the weakest point proved to be the mast which broke about a foot below the point where the heaving line was tied.

(2) By design, KISKA's minimum speed when engaging a single engine is nine knots. Based on Coast Guard guidance, the maximum tow speed was 7.34 knots and safe tow speed calculation for towing KOLINA was 6.6 knots. To remain within this range, KISKA had to regulate speed by clutching in and out with one engine. KISKA slightly exceeded the calculated safe towing speed between 10:57 and 10:58 p.m. (logging speeds of 7.6 and 6.7 knots). Since KISKA CO and the mishap victim communicated at 10:58 p.m., I did not deem this speed fluctuation to be contributory.

(3) The cause of death was ruled a traumatic head injury. The coroner ruled out drowning, leading me to conclude the mishap victim succumbed to his injuries while still aboard KOLINA. The post-mishap photos of KOLINA indicate a substantial force, consistent with the mast breaking, applied in a diagonal direction toward the port bow of KOLINA (toward 10 o'clock on a watch). In particular, the wooden trim above the cabin opening was broken along the same trajectory and the tarp over the cabin was also dragged in this direction. The mishap victim had to be cut from the safety harness line and a portion of the black polypropylene rigging line to free him from the mast and rig debris the following day. This indicates that the mishap victim secured himself to the mast or rigging with his safety harness and had likely been standing in a bight of line when the sudden snapping of the mast propelled him into the cabin opening; ultimately causing the fatal head and rib injuries.

(4) The mishap victim's lack of a life jacket was not a contributory factor. Ultimately, the only conceivable contribution would have been shielding the ribs during impact and the life jacket would not have prevented the traumatic head injury.

6. **Attestation:** The Findings of Fact and Opinions are those of the Board President and do not constitute an official determination by the U.S. Coast Guard concerning this mishap.

[redacted]

MATTHEW T. MEILSTRUP
CAPTAIN, U.S. COAST GUARD
MII BOARD PRESIDENT

7. Enclosures

1. Acronyms Table
2. Exhibits List

8. Exhibits

Coast Guard Sector Honolulu

1. Statement of Sector Honolulu SAR Mission Coordinator (SMC)
2. Statement of Sector Honolulu Command Duty Officer (CDO-1)
3. Statement of Sector Honolulu Command Duty Officer (CDO-2)
4. Statement of Sector Honolulu Operations Unit Watchstander (OU-1)
5. Statement of Sector Honolulu Operations Unit Watchstander (OU-2)
6. Statement of Sector Honolulu Communications Unit Watchstander (CU-1)
7. Statement of Sector Honolulu Communications Unit Watchstander (CU-1)
8. Initial Distress Transmission VHF Ch16
9. SCC Honolulu VHF Ch 22A Transmission 1
10. SCC Honolulu VHF Ch 22A Transmission 2
11. SCC Honolulu VHF Ch 22A Transmission 3
12. SCC Honolulu VHF Ch 22A Transmission 4
13. SCC Honolulu VHF Ch 22A Transmission 5
14. SCC Honolulu VHF Ch 21A Transmission 5
15. SCC Honolulu VHF Ch 21A Transmission 6
16. SCC Honolulu VHF Ch CG113 Transmission 1
17. JWF-075 OU DVL recording 0
18. JWF-078_SMC DVL recording 2
19. MISLE Incident Management Timeline
20. Sector Honolulu Quick Response Card

Coast Guard Air Station Barbers Point

21. Statement of Aircraft Commander (A/C)
22. Statement of Co-pilot (CP)
23. Statement of Rescue Swimmer (RS)
24. Statement of Flight Mechanic (FM)

Coast Guard Cutter KISKA

25. Statement of Commanding Officer (CO)
26. Statement of Executive Officer (XO)
27. Statement of Engineer Petty Officer, Fantail Safety (EPO)
28. Statement of Operations Petty Officer, Conning Officer (OPS)
29. Statement of First Lieutenant, Fantail Petty Officer in Charge (1LT)
30. Statement of TDY Deck Watch Officer, Bitt Operator
31. Statement of Quartermaster of the Watch (QMOW)
32. Statement of Bridge Lookout, Boat Crew
33. Statement of Deck Seaman
34. Statement of Fantail Spotlight Operator
35. Statement of Fantail Line Handler
36. Statement of Fantail as directed
37. Smooth Log 05Nov 15
38. Smooth Log 06Nov15

39. Unit Roster
40. Tow checklist
41. Urinalysis Results (includes Sector Command Center)
42. ALMIS
43. TMT Drills and Exercises
44. RFO 26SEP14
45. SEOPS 07NOV14
46. CGBI Cubes
47. December 2014 case SITREPS
48. RFO team safe-to-sail email September 2015.
49. Sector Honolulu Engineer Officer email

KOLINA

50. Statement of Autopsy Physician Kona Community Hospital was obtained for the purposes of completing this investigation. The document is withheld from public release pursuant to the provisions of the Privacy Act of 1974 and the Health Insurance Portability and Accountability Act (HIPAA) of 1996.
51. Autopsy final Report 04DEC15 was obtained for the purposes of completing this investigation. The document is withheld from public release pursuant to the provisions of the Privacy Act of 1974 and the Health Insurance Portability and Accountability Act (HIPAA) of 1996.
52. Email to NTSB from Medical Examiner was obtained for the purposes of completing this investigation. The document is withheld from public release pursuant to the provisions of the Privacy Act of 1974 and the Health Insurance Portability and Accountability Act (HIPAA) of 1996.
53. Email Toxicology report from Tripler was obtained for the purposes of completing this investigation. The document is withheld from public release pursuant to the provisions of the Privacy Act of 1974 and the Health Insurance Portability and Accountability Act (HIPAA) of 1996.
54. Summarization of Relevant Medical Information (new)
55. Email between next of kin and DLNR DOBOR Harbor Agent (was 54)
56. Kawaihae Boat Park Rental Agreement (was 55)
57. Email between next of kin and Kawaihae Boat Park property manager (was 56)
58. Citation (was 57)
59. Statement of DLNR DOBOR Harbor Regional Manager
60. Statement of DLNR DOBOR Harbor Agent
61. Statement of DOCARE Enforcement Officer (CREO I)
62. Statement of DOCARE Enforcement Officer (CREO II)
63. Statement of Kawaihae Harbor Security Officer
64. Statement of Hawaii County Police Officer
65. Statement of Liquid Robotics Support Operations Manager
66. Statement of Liquid Robotics Senior Field Support Engineer
67. Statement of MV Local Friend 1
68. Statement of MV Local Friend 2
69. Statement of MV Local Friend 3
70. Statement of MV Local Friend 4
71. Statement of MV Seattle Friend
72. Text messages between MV and MV Seattle Friend
73. Wood Boat Subject Matter Expert emails
74. Line manufacturer specifications

75. Concerned Citizen Emails
76. Next of Kin
77. Registration
78. Notice of Sale

Photos
79. Sailing Vessel KOLINA and MV
80. KOLINA Post mishap
81. KOLINA mast in water
82. Cutter boat and RB-M with KOLINA post mishap
83. KISKA fantail
84. Herreshoff H-28
85. KOLINA on the rocks
86. KOLINA moored at Kawaihae South Harbor
87. Line
88. Map of Kawaihae Harbor
89. KOLINA at loading dock berth
90. SCCS photo (08:18-09:01 Zulu)
91. Boat Removal
92. Mast photos
93. Stanchion Photos
94. KOLINA tow out of harbor

72 Hour Work-Rest Pre Mishap Reports
95. Command Center CDO
96. Command Center OU-2
97. Command Center SU-2
98. KISKA Commanding Officer (CO)
99. KISKA Engineer Petty Officer, Fantail Safety (EPO)
100. KISKA Operations Petty Officer, Conning Officer (OPS)
101. KISKA First Lieutenant, Fantail Petty Officer in Charge (1LT)
102. KISKA TDY Deck Watch Officer, Bitt Operator
103. KISKA Quartermaster of the Watch (QMOW)
104. KISKA Bridge Lookout, Boat Crew
105. KISKA Deck Seaman
106. KISKA Fantail Spotlight Operator
107. KISKA Fantail Line Handler
108. KISKA Fantail as directed

Policies and Reference Materials
109. U.S. Coast Guard Operational Risk Management, COMDTINST M3500.3 (series)
110. U.S. Coast Guard Addendum to the U.S. National Search and Rescue Supplement, COMDTINST M16130.2 (series)
111. U.S. Coast Guard Air Operations Manual, COMDTINST M3710.1 (series)
112. U.S. Coast Guard Shipboard Launch and Recovery Procedures Manual, COMDTINST M3120.6 (series)
113. U.S. Coast Guard Rules of the Road Handbook, COMDTINST M16472.2 (series)
114. U.S. Coast Guard Boat Crew Seamanship Manual, COMDTINST M16114.5 (series)
115. Wooden Boat Issue 100, How to Scull a Boat, June 1991. http://www.jesterinfo.org/howtoscull.html

116. The Rigger's Apprentice, Brion Toss, 1984, Chapter 4
117. The Human Factors Analysis and Classification System
118. DLNR Operations of Small Boats, Small Boat Harbors, and Use Permits Title 13-231-1

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