



UNITED STATES COAST GUARD

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING

THE GROUNDING OF THE FENNICA

ON 07/02/2015



MISLE ACTIVITY NUMBER: 5177142

U.S. Department of
Homeland Security

United States
Coast Guard



Supervisor
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Marine Safety Detachment

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16732
14 Aug 2015

MEMORANDUM

From: [REDACTED] LT
CG MSD Dutch Har [REDACTED] 20 Aug 2015

To: P. Albertson, CAPT [REDACTED]
CG SECTOR Anchorage (s)

Thru: (1) CG SECTOR Anchorage [REDACTED] LT 14 Aug 2015
(2) CG SECTOR Anchorage [REDACTED] 8/14/15

Subj: REPORT OF INVESTIGATION INTO THE JULY 2ND, 2015 GROUNDING OF
THE FENNICA (IMO #9043615) IN UNALASKA BAY, DUTCH HARBOR /
UNALASKA, AK

Ref: (a) Marine Safety Manual, Volume V, Investigations and Enforcement, COMDTINST
M1600.10A
(b) CG-545 Policy Letter 1-11: Marine Casualty Report of Investigation (ROI) Policy.

Preliminary Statement:

While not required by Coast Guard policy, a Report of Investigation (ROI) was considered appropriate because of the high profile nature of the FENNICA's involvement in Shell Oil Co's drilling operations in the arctic. The primary Coast Guard investigator of this incident was LT [REDACTED]. Also, involved were marine investigators from the Investigations National Center of Expertise (NCOE), Mr. [REDACTED] and Mr. [REDACTED] who provided invaluable assistance with interviews, casualty analysis, and review of the voyage data recorder (VDR). All times contained in this ROI are given in Alaska Daylight Time. This marine casualty is documented in the Coast Guard's Marine Information for Safety and Law Enforcement (MISLE) database as activity #5177142.

Executive Summary:

On July 2, 2015 at 2035 the polar ice class vessel FENNICA (IMO # 9043615) was underway in Unalaska Bay, with a marine Pilot onboard, maneuvering with the dynamic positioning (DP) thrusters then proceeded outbound at approximately 2246 under main propulsion. At approximately 2251 the Master, Mate, and Pilot heard a loud noise and felt a slight movement of the vessel, but, assumed it was the anchor being secured. Previously the anchor was lowered slightly to facilitate cargo operations with another vessel. (The anchor when hauled up creates a noise as it hits the anchor pocket.) The Pilot disembarked at 2255. Between 2300 and 0100 the crew noticed the #4 port ballast tank level was rising. At 0145 on July 3, 2015 after further investigation the master determined the ballast tank was taking on water and returned to Dutch Harbor mooring at Delta Western Dock in Summers Bay. On July 3, 2015 divers found a 3.5 foot long by less than 1 inch wide fracture on the bottom plate of #4 ballast tank. The initial estimate of damage was \$100,000 or less; nevertheless drug testing was requested of, and agreed to, by the Master, Mate and Pilot. A NOAA hydrographic survey was conducted after the casualty and found several previous uncharted shallow areas and rocks including at position 53-53-43.9N 166-33-48.3W which corresponds with the vessel's route and the timing of the noise; this rock is at a depth of 22.5 feet at mean low-low water (MLLW). At the time of the casualty the ebbing tide was approximately 3 feet above MLLW and the vessel was drafting 26.25 feet, meaning the vessel was approximately 9 inches too deep to transit over this rock. However, the vessel's route using the current charts at the time of the casualty was sound in regards to the known depth of water.

Incident Summary

Incident Involved: Marine Casualty, Reportable

Level of Investigation: Informal

USCG Classification: Routine

Was this a Serious Marine Incident? No

Was a Marine Board Convened? No

Location

The incident occurred between Hog Island and Amaknak Island (AKA Dutch Harbor).

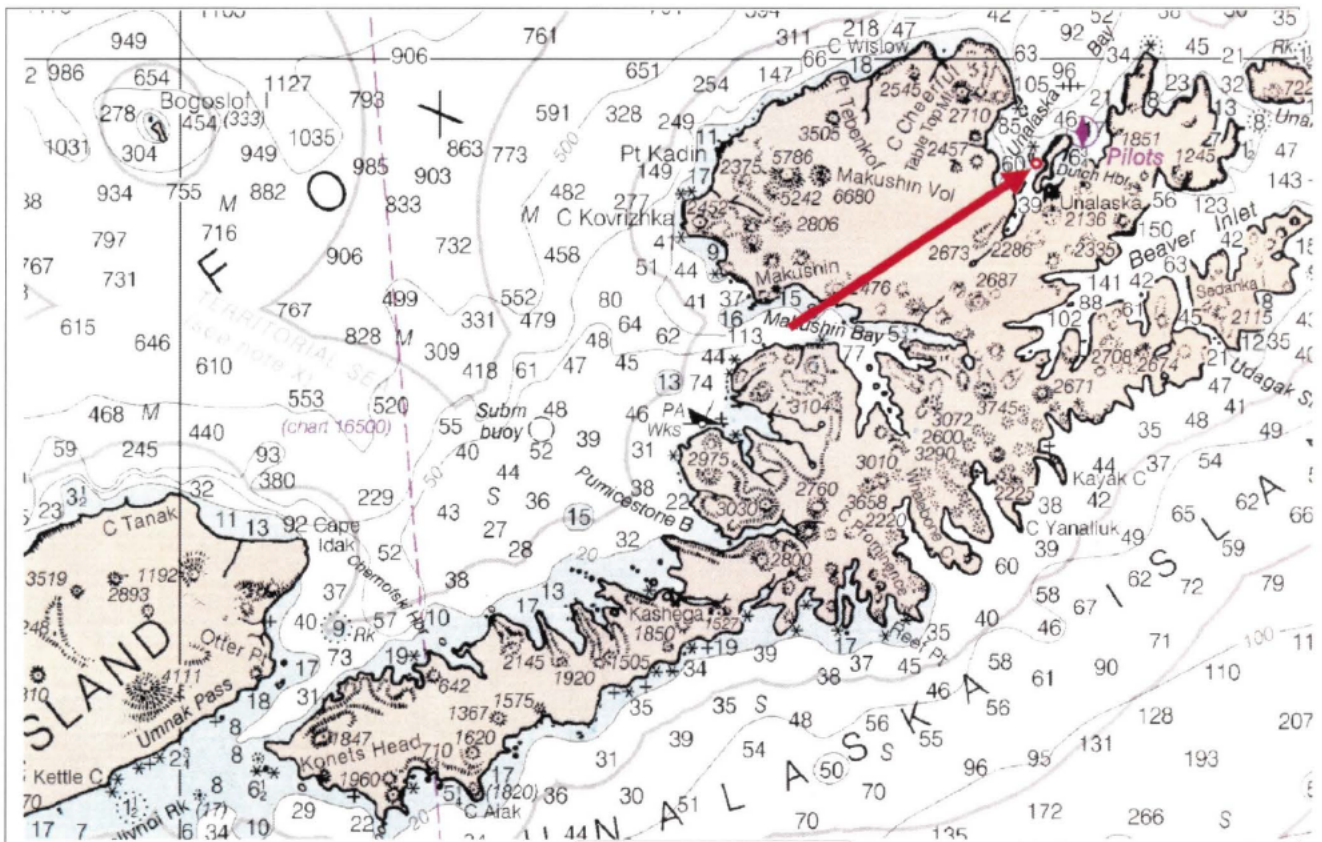
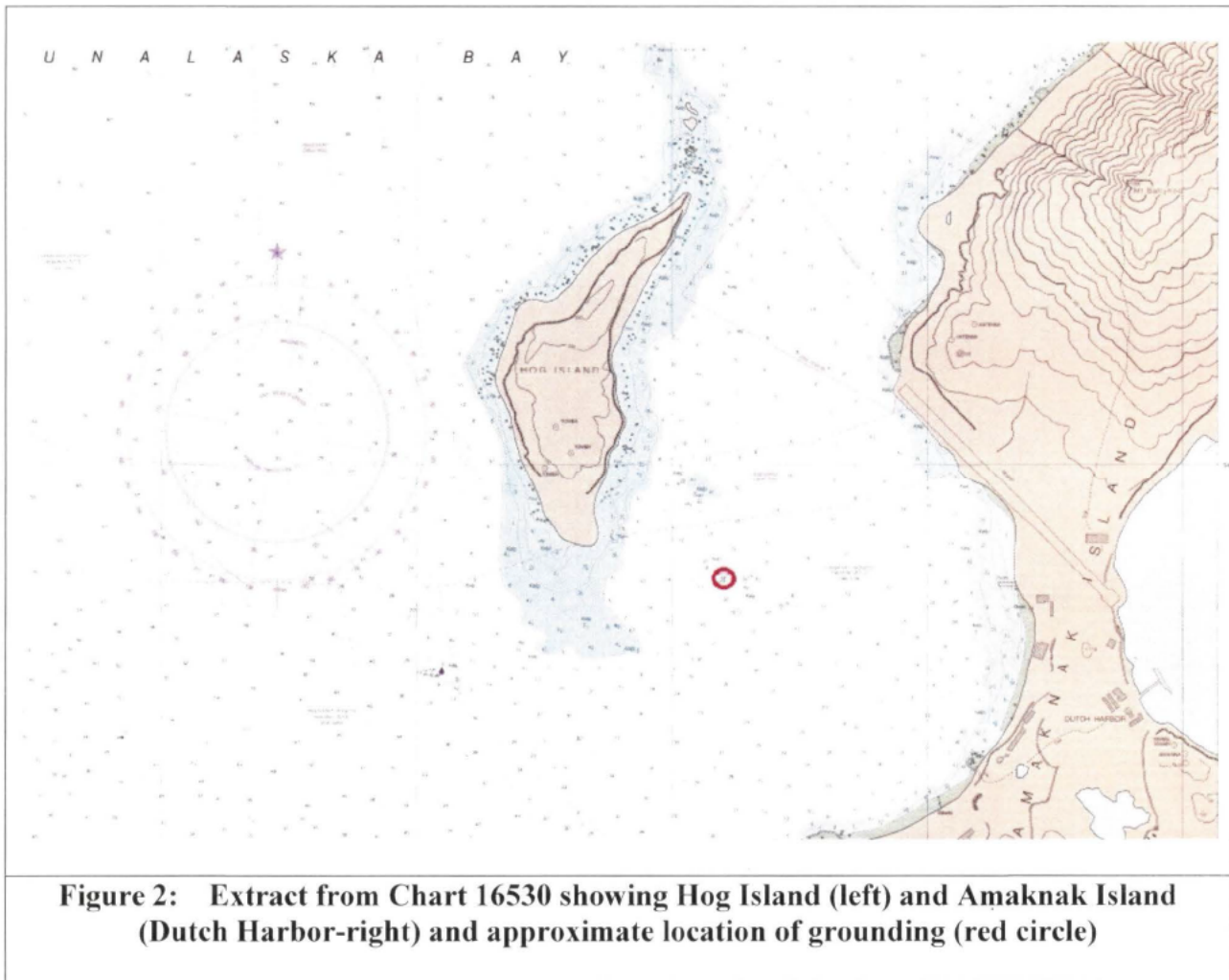


Figure 1: Extract from Chart 16011 showing Unalaska Island and approximate location of grounding (red arrow and circle)



Vessel Data:



Figure 3: Picture of FENNICA in Dutch Harbor at Resolve-Magone Marine

Vessel Name	FENNICA
Vessel Identification Number	9043615
Year Build	1993
Inspection Subchapter	N/A
Service	Ice Breaker
Length (in feet)	380.6
Max Draft (in feet)	27.6
Beam (moulded-in feet)	85.3
Gross Tons (ITC)	9396
Propulsion	Diesel Electric
Homeport	Helsinki, Finland
Hull Material	Steel
Owner	Arctia Offshore Oy

Personnel Data:

NAME	AGE	ROLE	USCG MMC	DEATH/INJURY
██████████	██	Master	No	No
██████████	██	Marine Pilot	Yes	No
██████████	██	Mate on Watch	No	No

Environmental Data:

The high tide occurred prior to the casualty at 2100 on July 2, 2015 at 3.159 feet above MLLW, the low tide occurred after the casualty at 0000 on July 2, 2015 at 2.986 feet above MLLW. At 2248 on July 2, 2015, two minutes prior to the casualty (closest data point), the tide was ebbing at 3.038 feet above MLLW; the predicted tide for that time was 3.03 feet above MLLW. At the time of the casualty the wind was approximately 20 knots at 130 degrees true; the location of the where the casualty occurred was sheltered between Hog Island and Amaknak Island producing no significant wave heights.

Findings of Fact:

(NOTE: All times are in Alaska Daylight Saving (UTC-8))

1. The FENNICA is a Finland flag icebreaker contracted by Shell Oil, to support its drilling operations in the Chukchi Sea including transportation and deployment of the capping stack required for drilling permits.
2. In the evening of July 2, 2015 at 2010 the pilot boarded the vessel. The vessel was underway at 2035 and started maneuvering with the dynamic positioning system. At approximately 2246 the vessel commenced its outbound transit under main propulsion en route to the Chukchi Sea. The planned voyage route would take the vessel in-between Hog Island and Amaknak Island (aka Dutch Harbor). The vessel had a draft of 26.25 feet.
3. At approximately 2250 the Master, Mate, and Pilot heard a bang and felt a slight movement of the vessel. At the time the Master and Pilot agreed the noise was the anchor being pulled into the hawse pipe. The anchor was slightly lowered previously in the evening to facilitate another vessel coming along side to deliver supplies. At the time of the noise the vessel was proceeding at approximately 3.5 nautical miles per hour (knots).
4. At 2255 the Pilot disembarked. The vessel continued on its transit.
5. Between 2300 on July 2, 2015 and 0100 on July 3, 2015 the Chief Mate noticed the #4 port ballast tank water level was rising. The ballast tanks are monitored remotely via computer screen. After further investigation the Chief Mate determined the tank was taking on water at an approximate rate of 4 to 8 cubic meters per hour. The vessel's ballast pumps could discharge at a rate of 100 cubic meters per hour. At 0145 on July 3, 2015 the Master decided to return back to Dutch Harbor. The vessel arrived to the Delta Western Dock at approximately 0720 on July 3, 2015.

6. Shortly after arrival back in Dutch Harbor, divers began searching for the source of the leak into #4 port ballast tank and found an approximate 3 foot by 1 inch longitudinal fracture between frames #70 and 71, approximately 180 feet aft of the bow and 24 feet outboard of centerline. The bottom plate was also inset approximately 2 inches over 3 foot span.

7. After the casualty, a crew from the FAIRWEATHER, a National Oceanographic and Atmospheric Administration (NOAA) research vessel, conducted a hydrographic survey. The results revealed several locations shallower than reported on the relevant charts (NOAA charts 16528 and 16530). In particular a rock at position 53-53-43.9 N 166-33-48.3W which is 22.5 feet MLLW from the surface was found under where the FENNICA transited based on the vessel's trackline¹. Prior to the survey, the charts indicated the shallowest location in that vicinity to be 31.5 feet. At the time of the casualty the tide reported in the vicinity of the casualty was 3.04 feet above MLLW. This area was last surveyed in 1935.

Post Drug and Alcohol Testing:

The initial estimate to repair the damage was no more than \$100,000. Nevertheless, the Master, Pilot, and Mate agreed to conduct a drug test; all results were [REDACTED].

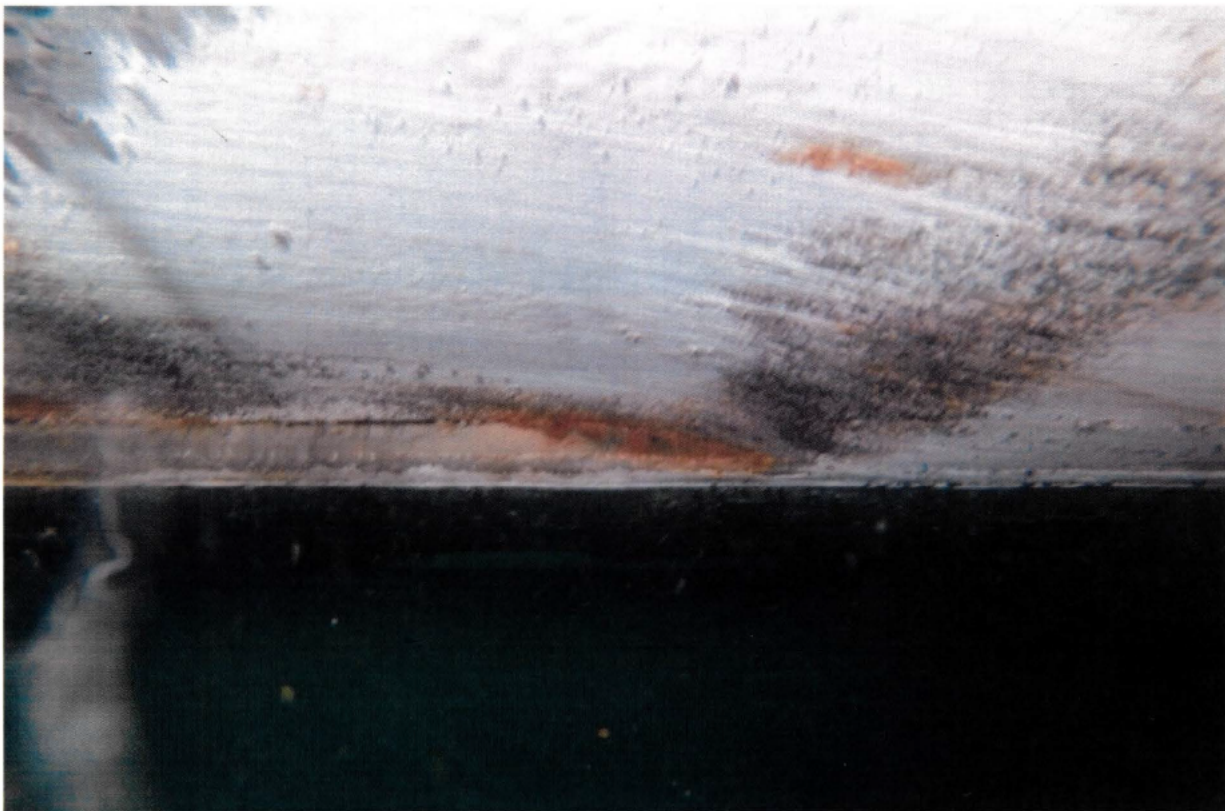


Figure 4: Picture of damage to the bottom plate of the FENNICA showing fracture and inset in way of #4 port ballast tank; taken underwater by divers

¹ Track line determined by vessel's Automatic Identification System (AIS) data, Electronic Chart Display and Information System (ECDIS) data, and Voyage Data Recorder (VDR) data.

Analysis:

1. The nature and location of the damage along with the Master, Mate, and Pilot's statements strongly suggested the vessel had grounded or struck an object. The NOAA survey post casualty confirmed that a shallow area where the FENNICA had transited was, with the 3 foot tide, approximately 25.5 feet below the surface. The FENNICA was drafting 26.25 feet at the time of the casualty which was 9 inches too deep to transit over the uncharted rock. The vessel's impact with the rock's pinnacle, or similar formation, scraped the bottom of the hull creating an inset of the hull's bottom plate allowing separation from the welded seam along an approximate 3 foot section creating the fracture. However, this impact did not halt the vessel's progress.

2. Given the inaccuracies of the charts at the time of the casualty, the only other means to have prevented the casualty was the depth sounder. The master was monitoring the depth sounder during the transit but was not fixed on it. Furthermore, the depth sounder may not have picked up the rock pinnacle. It would have been extremely difficult for the Master and Pilot to have maneuvered away, and avoid grounding, in time. The vessel's ECDIS was capable of alarming when the vessel was over shallow water, but, the alarm was not used; however, for the reasons previously stated an alarm would likely have made little difference.

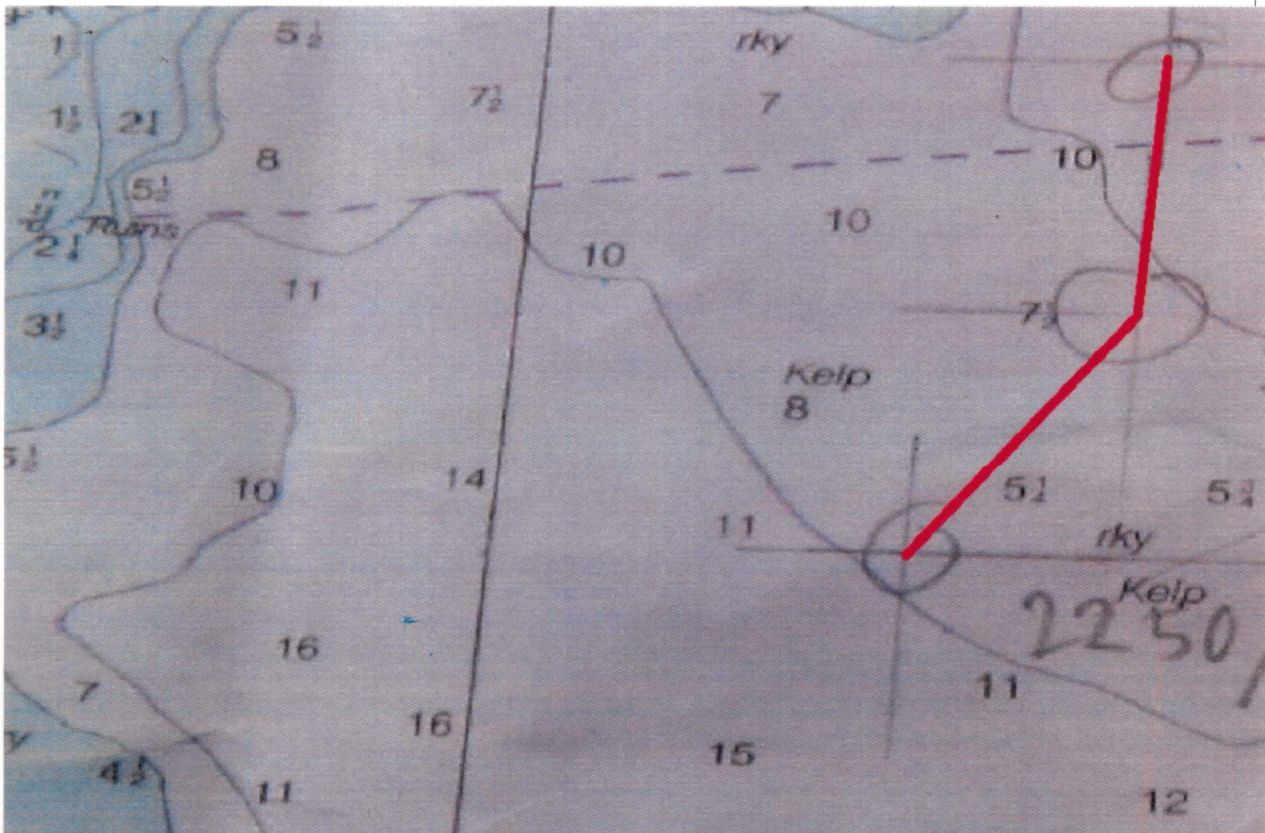
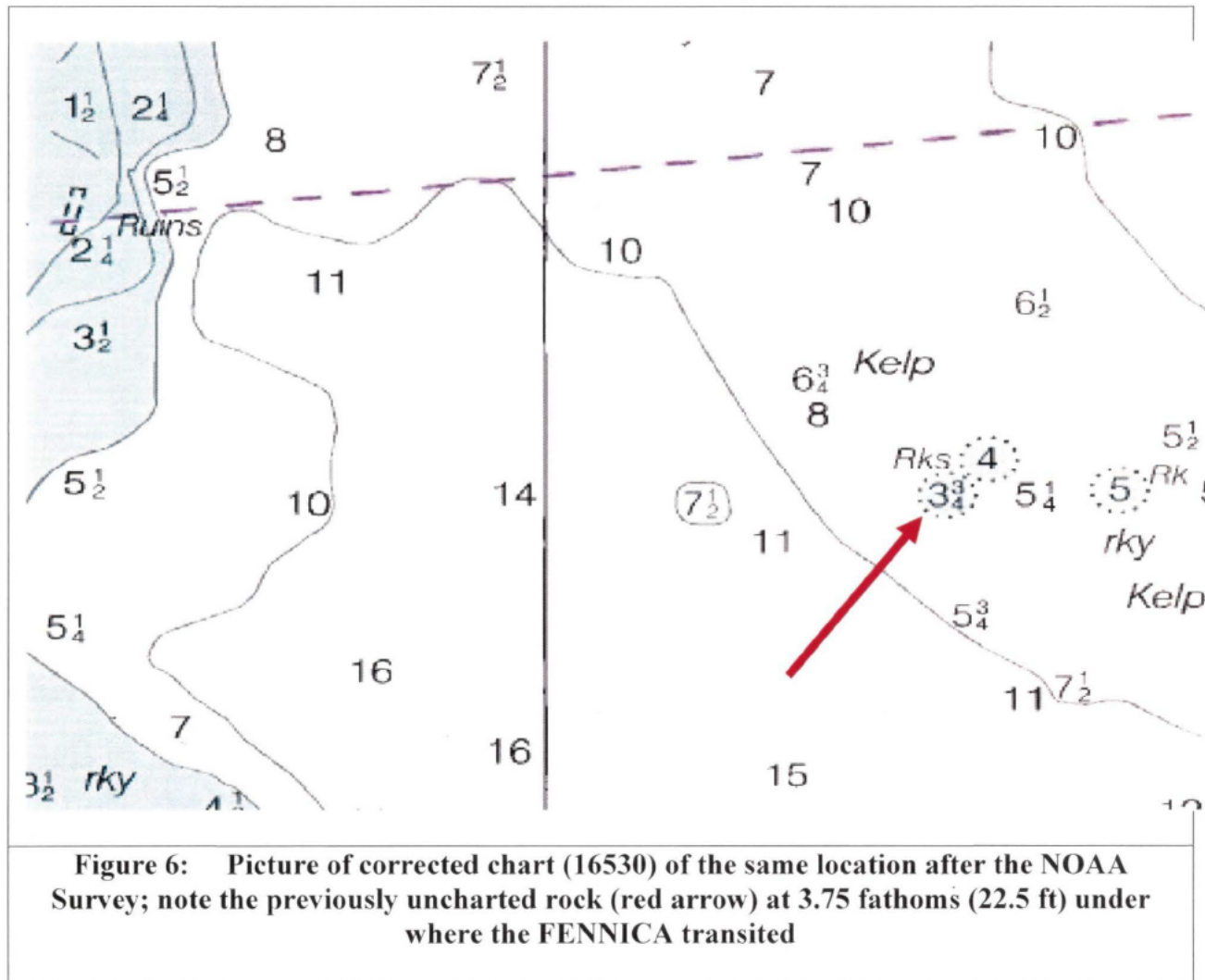


Figure 5: Picture of up to date FENNICA's chart (16530) used on July 2-3, 2015 with markings indicating vessel's positions; red line added showing approximate track line (zoomed-in to grounding location)



Conclusions:

1. In accordance with Marine Safety Manual, Volume V, the Initiating Event for this casualty was the grounding that occurred when the FENNICA hit a rock pinnacle, or similar, uncharted formation, at position 53-53-43.9 N 166-33-48.3W.
2. The primary causal factor that led to the casualty is the uncharted rock pinnacle not reflected on current charts as of the date of the casualty.
3. There is no other evidence of actionable misconduct, inattention to duty, or negligent or willful violation of law or regulation on the part of Coast Guard certificated personnel.
4. There is no evidence of failure to properly respond to this situation by the Master or crew of the FENNICA.
5. With the above exceptions, there is no evidence that any personnel of the Coast Guard, any other agency, or any other person contributed to this casualty.

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Safety Recommendations:

Request NOAA to conduct a hydrographic survey in area B4 of chart 16530 (Unalaska Bay and vicinity).

Administrative Recommendations:

Close this investigation.

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