

US Coast Guard Cutter Alexander Hamilton found by Icelandic Coast Guard with the aid of a Gavia Autonomous Underwater Vehicle

Reykjavik, October 2009

67 years after being torpedoed by a German U boat in January 1942 while escorting a convoy to Iceland and within sight of land, the final resting place of the Treasury Class US Coast Guard Cutter Alexander Hamilton WPG-34, was finally identified during an Icelandic Coast Guard operation utilizing a Gavia AUV early September 2009. This was the first US loss in the Atlantic after the Pearl Harbor attacks on December 7th, 1941.



Figure 1 Gavia operation with Icelandic Coast Guard, ICG Cutter Ægir in background

Shortly after receiving a new aircraft with specialized pollution detection equipment in July 2009, the Icelandic Coast Guard detected traces of oil on the surface invisible to the naked eye in an area not known to contain any wrecks. Soon thereafter a survey vessel was dispatched to the area which did a multibeam sonar survey using a relatively low frequency system which while surveying large swathes of the ocean bottom, does not provide much resolution on contacts. However this survey did reveal an uncharted wreck.

As a result of these findings a subsequent operation was planned with the Icelandic Coast Guard Cutter *Ægir* in order to identify the wreck and to try and obtain higher resolution side scan sonar and bathymetric data from a Gavia AUV and video footage from an accompanying Remotely Operated Vehicle (ROV).

On 31 August, 2009, In spite of windy conditions and sea state 4 -5 it was decided to press on with the operation due to Icelandic Coast Guard vessel availability. The Gavia AUV was operated from a RIB from the ICG Cutter *Ægir*. Small boat ops in these conditions were quite challenging to the AUV operators, presenting both challenges for launch and recovery and to a greater extent the visual relocation of the vehicle even with a known GPS position of the vehicle due to the high swells and limited visibility.



Figure 2 Recovery of Gavia AUV to Icelandic Coast Guard RIB

The Gavia AUV that was utilized during the operation was equipped with a 600 kHzs Side Scan Sonar and a 500 kHz GeoSwath module was employed as well. As the Gavia AUV is a modular system it was possible to insert the GeoSwath module when required. Navigation of the system was from a DVL aided Inertial Navigation System.

From the data gathered it was possible to ascertain that the vessel is lying on its Starboard side roughly at a 45 degree angle in around 95 meters depth. It was also possible to see the evidence of the massive damage from the torpedo which left roughly an 11m long hole in the bottom of the ship. Further video

data from the ROV of the ships' running gear determined without a doubt that this was the Alexander Hamilton.

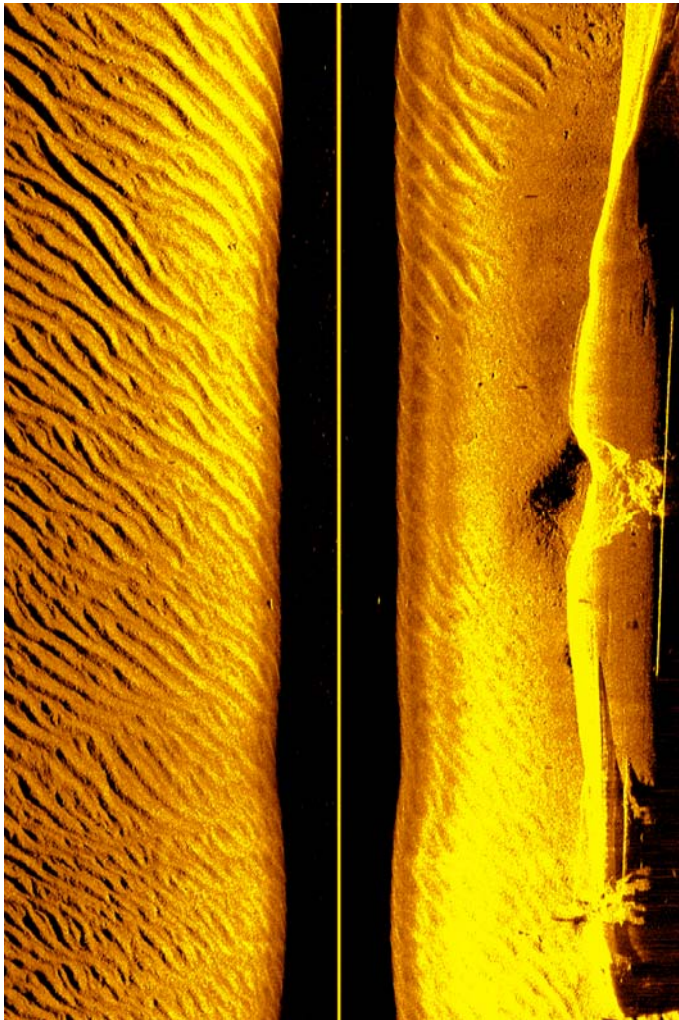


Figure 3 Side Scan Sonar record of the Alexander Hamilton showing gaping hole from torpedo strike and running gear (600 kHz Marine Sonics with 30m range settings)

According to Capt. Halldór Nellet, Chief of Operations, Icelandic Coast Guard, “The Gavia AUV proved to be a powerful tool in the Icelandic Coast Guards’ identification of the Alexander Hamilton providing us with a clearer picture of the vessel in its entirety including the damage sustained and how the wreck lies on the sea bottom through high quality side scan and bathymetric data from a man portable platform and was a valuable asset in this operation.”



Figure 4 Dr Richard Yeo of Hafmynd going over freshly retrieved data with Icelandic Coast Guard prior to planning the next mission

The finding of the Alexander Hamilton is historically significant as it is the first ship lost by the US in the Atlantic, just one month after the US became embroiled in the Second World War after the attacks on Pearl Harbor, and for the fact that 20 men that were killed during this torpedo attack went down with the ship. The Hamilton was originally presumed to have gone down considerably to the south of the position where she was found.

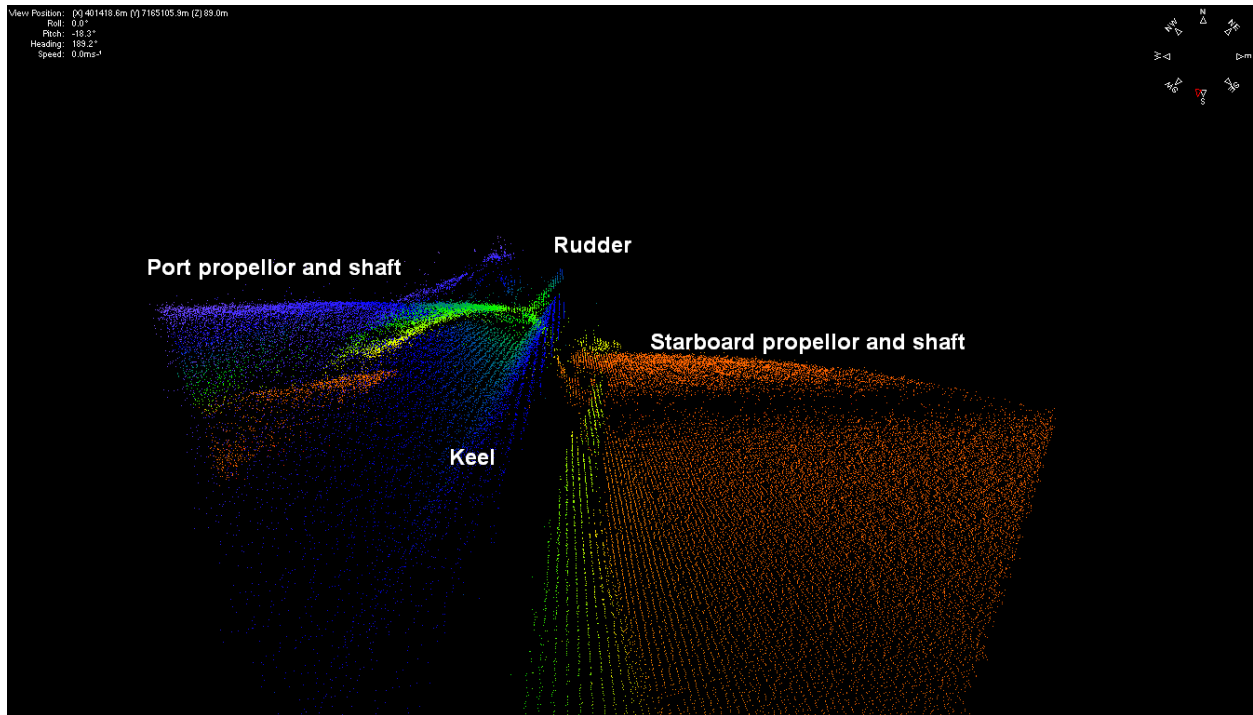


Figure 5 500 kHz GeoSwath image showing clearly how the Hamilton is lying

According to Arnar Steingrímsson, Marketing Manager at Hafmynd, “Hafmynd Ehf is pleased to have been able to play a role in this discovery of the Alexander Hamilton in conjunction with the Icelandic Coast Guard and to properly mark the final resting place of these twenty US Coast Guard sailors. We thank the men of the Hamilton and countless others for their service and the sacrifices made by them and their families during this dark time; you are not forgotten.”

Hafmynd also wishes to thank the US Coast Guard for the valuable assistance with historical drawings and images of the Alexander Hamilton.

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