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MRV *Scotia*

Survey 0917S

PROGRAMME

23 - 31 July 2017

Ports

Loading: Aberdeen, 20 July 2017

Unloading: Scrabster, 31 July 2017

In setting the survey programme and specific objectives, etc the Scientist-in-Charge needs to be aware of the restrictions on working hours and the need to build in adequate rest days and rest breaks as set out in Marine Scotland's Working Time Policy (Lab Notice 34/03). In addition, the Scientist-in-Charge must formally review the risk assessments for the survey with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Survey Report, to I Gibb and the Survey Summary Report (old ROSCOP form) to M Geldart, within four weeks of a survey ending. In the case of the Survey Summary Report a nil return is required, if appropriate

Personnel

I. Gibb	MSS
N. Collie	MSS
E. Armstrong	MSS
S. Henry	UHI
E. Malcom	Seatronics
A. Foxton	Seatronics
M. Copland	Seatronics
P. Hill	MOD
M. Skelhorn	MOD
K. Heath	SULA Diving (via small boat transfer)
K. Westley	Ulster University – (22/07-26/07, via small boat transfer)
J. Porter	Heriot-Watt University- (29/07-31/07, via small boat transfer))
A. Fulton	Historic Environment Scotland, Day visitor – (25/07, via small boat transfer)

Estimated days by project: 8.5 days – 20361, SO09B1

Sampling Gear

Swathe multibeam echosounder system
TV drop frame with armoured cable
Scout System
RoxAnn system
Seatronics ROV

Project Summary

This project is a multidisciplinary collaborative project to undertake remote sensing and diver surveys of the High Seas Fleet and the War Graves HMS Hampshire, HMS Vanguard and HMS Royal Oak. Where possible, data will be also be collected of other submerged cultural heritage assets in Orkney waters.

The centenary of the High Seas Fleet will take place in 2019. This project, led by ORCA (Orkney Research Centre for Archaeology) Marine, University of the Highlands and Islands Archaeology Institute, will include universities, commercial companies and government bodies. This project will conduct archival research, marine geophysical survey, remote archaeological evaluation, and diver survey. This will establish the extent, survival and character of the remains of the wrecks in Scapa Flow, Orkney. It is planned that this will coincide with the centenary commemorations of World War One.

This survey will employ a number of methods to image the wreck sites. The scope of work will include side scan sonar, multibeam echosounder survey and Remotely Operated Vehicle (ROV). The inspection class ROV will collect video/stills and photogrammetric data. The remains of the wreck sites will not be physically disturbed by any aspect of the proposed survey.

The archival research and archaeological remote evaluation surveys that comprise this project will lead to the provision of condition monitoring data, enhanced heritage displays, data for academic research, and activities and material for public engagement.

The project lead is ORCA Marine, University of the Highlands and Islands Archaeology Institute.

- Marine Scotland vessel MRV Scotia will be the work platform for data collection. Data collection will involve Marine Scotland undertaking MBES survey, providing calibrated unprocessed raw data and camera equipment for the acquisition of data.
- Seatronics. An Acteon Company will provide ROV, positioning and photogrammetric equipment for acquisition of data.
- Historic Environment Scotland will provide guidance on marine historic assets, survey targets and specialist knowledge on the wreck sites.
- Ulster University will provide input into the specifications for data acquisition for the geophysical and ROV surveys and provide input into maritime archaeological assessment and analysis.□
- Heriot-Watt University will provide input into the specifications for data acquisition for the ROV survey and undertake marine biological studies on the submerged cultural heritage assets.
- SULA Diving will provide vessel transfers, organization of diving operations and dive team, along with providing input into the specifications for data acquisition for the geophysical and ROV surveys and provide input into site assessment and analysis.
- Ministry of Defence will provide input into the specifications for data acquisition for the geophysical and ROV surveys, and specialist knowledge on the wreck sites being investigated and environmental studies of the wreck sites.
- The University of Dundee will process MBES and ROV survey data and work to produce visualisations based on the collected data. This will involve the production of 3D models of the wreck sites from the multibeam echosounder and photogrammetric data.

The various members of the partnership will work together to promote and disseminate the materials through commercial, public and academic platforms and sectors. All parties involved are to be credited for their role in the collection of data throughout dissemination of the results and subsequent projects. UHI Archaeology Institute have overall data ownership, and will work with all the partners involved to ensure access, promotion and dissemination of the acquired data. The data is for condition monitoring, enhanced heritage displays, academic research and public engagement and enjoyment.

The project will be conducted in liaison with the Ministry of Defence, Orkney Marine Services, Orkney Marine Skippers, and relevant authorities/ marine users, ensuring appropriate permissions are obtained before the work begins. The data and project archive will be deposited with Historic Environment Scotland in accordance with the standards established by the Marine Environmental Data Information Network (MEDIN).

Procedure

All scientific equipment will be loaded onto the vessel on 20 July in Aberdeen. The vessel will depart from Aberdeen on 23 July and, after required vessel drills, make passage to Scapa Flow, Orkney Islands.

On arrival to the survey site the vessel will undertake a multibeam survey of the wrecks in order of priority. Multibeam survey work will be conducted between 18:00 – 06:00 hrs with ROV operations undertaken between 06:00 – 18:00 hrs each day.

Information gathered during multibeam data collection will provide target locations for specific ROV investigation along with general mapping of each wreck site. Specific data line positions will be provided to the vessel prior to undertaking multibeam survey work.

All ROV survey work will be conducted off the vessels starboard side in conjunction with a Scout USBL system. Visual information from the ROV and USBL will be provided to the bridge during operations.

The drop frame camera work will be used where appropriate, and as a backup for ROV operations.

The RoxAnn system will be run throughout the survey.

A. Fulton will visit the vessel on 25/07 (TBC) via small boat transfer during day operations.

Normal contact will be maintained with the Marine Laboratory.

Wrecksites

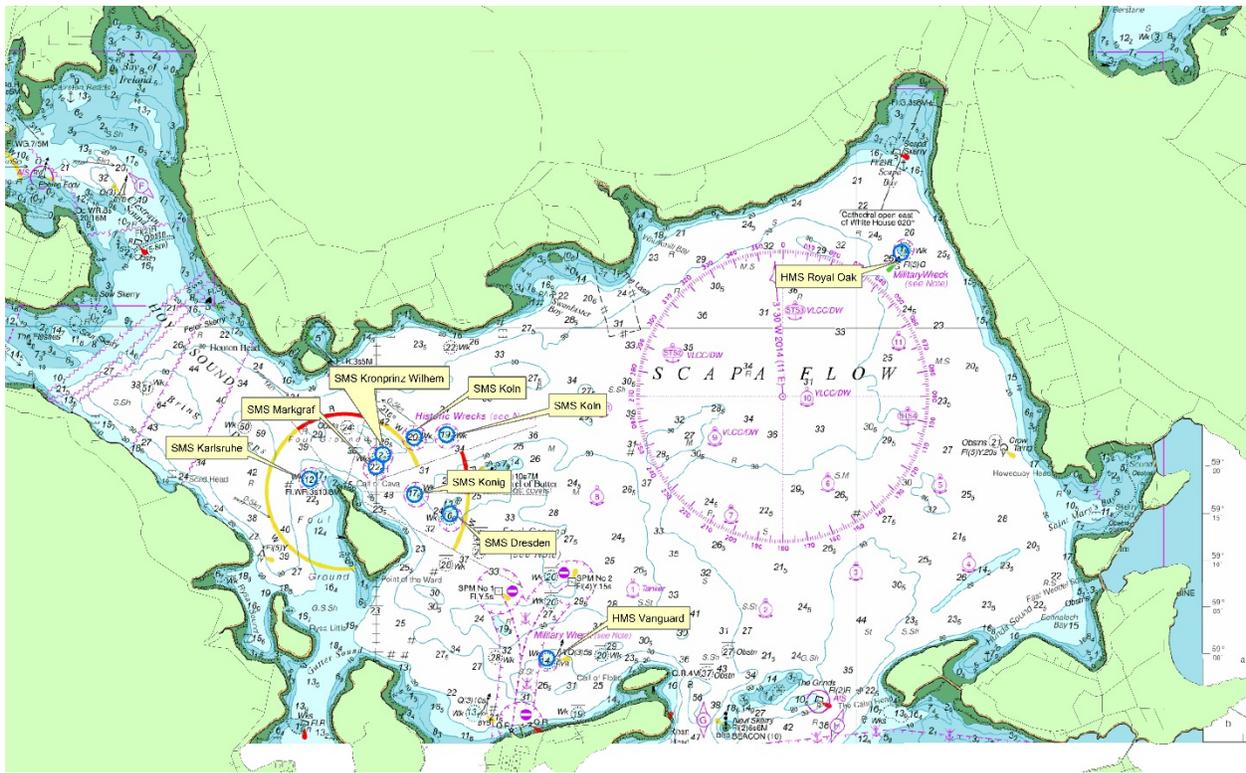


Figure 1 Locational map Scapa Flow wrecksites

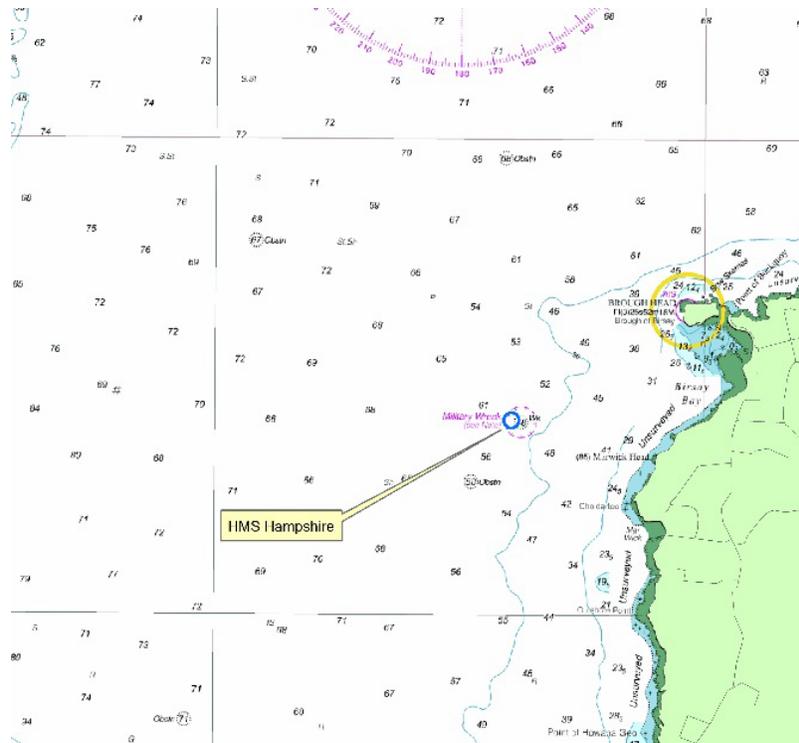


Figure 2 Locational map HMS Hampshire

The table below lists the **priority wrecksites** to be investigated and provides a timetable of work. This timeline is tentative and open to change which will be undertaken in conjunction with Orkney Harbours to facilitate other marine users.

Date	Shipwreck		
23 July	Vanguard		
24 July	Vanguard	Royal Oak	
25 July	Karlsruhe	Seydlitz	Bayern
26 July	Dresden	Konig	
27 July	Markgraf	Kronprinz Wilhelm	
28 July	Hampshire		
29 July	Coln	Brummer	
30 July	HSF Salvage Sites	Blockships	
31 July	Completion of operations		

Submitted:
09 July 2017

Approved:
I. Gibb
17 July 2017