



Yn Coffáu'r Rhyfel ar y Môr
Commemorating the War at Sea

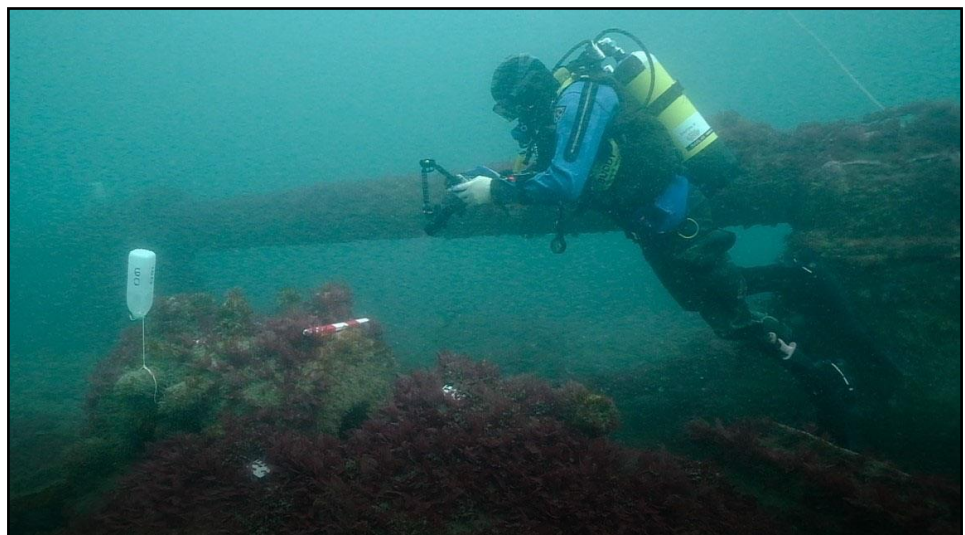


Running a Maritime Field School at Abercastle, Pembrokeshire, South Wales as part of the U-boat Project: Commemorating the forgotten U-boat war around the Welsh coast (1914-18)



Recovering one of the
dive club ribs at the
end of a day diving the
wreck of the SS
Leysian.

Diver
photographing the
spare propeller
boss next to the
prop shaft on the
wreck of the
SS *Leysian*.



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Report Title:

**Running a Maritime Field School at
Abercastle, Pembrokeshire, South Wales
as part of the U-boat Project:
Commemorating the forgotten U-boat war
around the Welsh coast (1914-18)**

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1.0 Introduction

In November 2017 the Royal Commission on the Ancient and Historical Monuments of Wales were awarded a grant of £409,700 from the Heritage Lottery Fund to run a 2-year, community-based project to tell some of the stories associated with the Great War at Sea (1914-18) around the Welsh coast (see Fig. 1).



Fig. 1 Flyers produced by the RCAHMW to publicise the U-boat Project.

The project (which is known as the U-boat Project), would commence in 2018 and coincide with commemorations associated with the centenary of the end of World War 1, and Wales' "Year of the Sea".

As part of the project the Nautical Archaeology Society were commissioned to provide two Maritime Archaeology Field Schools, one in North Wales to be run during 2018 (Malvern Archaeological Diving Unit 2018) and the other in South Wales during 2019. Both field schools would be based around the wrecks of vessels that had been associated with the Great War.

This report refers to the planning and running of the second year's field school in South Wales, based around the wreck of the SS *Leysian* which wrecked in Abercastle Bay on 20th February 1917.

This report has been prepared on behalf of the Nautical Archaeology Society (NAS) and has been project managed by Mark Beattie-Edwards, NAS CEO.

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Note: The photographs in this report are a selection of those taken by people who engaged with the field school, and the author wishes to thank all these people for their contributions.

2.4 Contributors

NAS
 Mark Beattie Edwards (CEO)
 Peta Knott (Education Officer)
 Ian Cundy (Regional Co-ordinator for Wales)



RCAHMW
 Deanna Groom
 Helen Rowe
 Rita Singer



Field School Crew (see Fig. 2)	Jonathan Bristow Henry Carter Matt Cass Ellen Cundy Jon Gomez John Hemingway Anne Hirst Ceri Jones Jen Jones Lynn Jones Peter May Chris Ohlsson Graeme Perks Rhys Pocket Lowri Roberts Duncan Ross Richard Rowley Mel Taylor Bill Turner Andy Walker	(ROV operations) (Photography & videography) (Photography & videography) (Terrestrial surveying) (Terrestrial surveying) (Terrestrial surveying) (Accommodations) (Dive support & bottle filling) (Ecology advisor) (Administration) (NASAC rib skipper) (Drone pilot / ROV operations) (Big Anchor Project recorder) (Dive supervisor) (Welsh media representative) (Research / Musician) (Underwater data processing) (First Aid / NASAC rib skipper) (Health & Safety / Coastguard co-ordinator) (Hard boat skipper / ROV operations)
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Fig 2. Some of crew (taken when their t-shirts were still relatively clean!)

Clubs Represented: Bar Zero Sub Aqua Club
(see Table 3) Chester Sub Aqua Club
Ecodiving
Flintshire Sub Aqua Club
Hartford Sub Aqua Club
Llantrisant Sub Aqua Club
Manchester Diving Group
Merseyside Sub Aqua Club
Nautical Archaeology Sub Aqua Club
North Dorset Sub Aqua Club
Red Dragon Divers
Tewkesbury Underwater Group
Thrapston & District Sub Aqua Club
Trafford Sub Aqua Club
Trident Divers
Whiston & Prescot Sub Aqua Club

Organisations: Abercastle Boat Owners Community Interest Company
Gerald Williams - Chairman
Hugh Williams - Secretary
Kevin Morgan - Treasurer
Nev George - Harbourmaster
Viv Davies - Assistant Harbourmaster

Acuity Forensics
Matt Cass



British Sub Aqua Club
Dai Atkins – National Diving Officer



Garn Isaf
Anne Hirst & Ibi (plus team Lisa, Darren & Alex)



Haven Diving Services
Ceri Jones



Maritime Archaeology Trust
Julie Satchell & Roger Burns



Nautical Archaeology Society - Member's Research Group
Sheilah Openshaw & her team



Sub Aqua Association
Ceri Jones – South Wales Representative



Wessex Archaeology
Lowri Roberts



Local Residents:

Abercastle:

Val Davies
David Miles
Susan Jenkins

Mathry:

Huw Williams
Bruce Jones
John Peck

2.5 Abbreviations

ABOCIC	Abercastle Boat Owners Community Interest Company
BSAC	British Sub Aqua Club
DAT	Dyfed Archaeology Trust
DSM	Direct Survey Method
FoNS	Friends of the Newport Ship
HLF	Heritage Lottery Fund
MADU	Malvern Archaeological Diving Unit
MAT	Maritime Archaeology Trust
MCA	Maritime and Coastguard Agency
NAS	Nautical Archaeology Society
NEET	Not in Education, Employment or Training
NPRN	National Primary Resource Number (Coflein's Historical Site Index Identification Code)
RCAHMW	Royal Commission on the Ancient & Historical Monuments of Wales
RNLI	Royal National Lifeboat Institution
RIB	Rigid Inflatable Boat
ROV	Remotely Operated Vehicle
SAA	Sub Aqua Association
SAC	Sub Aqua Club
SCUBA	Self Contained Underwater Breathing Apparatus
SMB	Submersible Marker Buoy

3.0 Selecting the Wreck

Around the Welsh coast there are thousands of shipwrecks of which hundreds have a connection with World War 1. Of these, most are not the illustrious and prestigious Royal Naval vessels that were well documented at the time and whose stories have been investigated, minutely scrutinised, and reported on in great detail. It was therefore in the spirit of the U-boat project (i.e. telling previously untold stories), that the vessels selected, and upon which the two field schools would be based, were chosen. They are the day-to-day craft, the un-sung, behind-the-scenes heroes that so ably supported the war effort in the background.

During 2018, the North Wales field school was based around the wreck of the SS *Cartagena* which lies around 6 miles off the North East coast of Anglesey in around 37m of water (Malvern Archaeological Diving Unit 2018).

When looking for a possible wreck on which to base the 2019 South Wales field school, 4 sites were initially investigated (see Table 1, Fig. 3, & Malvern Archaeological Diving Unit 2016).

Wreck	Location	NPRN	Grid Ref.	Co-ordinates
HMSM <i>E38</i>	Watwick Bay. Milford Haven, Pembrokeshire	273405	SM 81959 03792	51.690428 N / 5.1560627 W 51° 41' 25.54" N / 05° 09' 21.83" W
<i>Ionian</i>	Crow Rock. W. St. Govan's Head, Pembrokeshire	273151	SR 95266 93429	51.602388 N / 4.9577532 W 51° 36' 08.60" N / 04° 57' 27.91" W
<i>Leysian</i>	Abercastle Bay. Abercastle, N.W. Pembrokeshire	273146	SM 84759 34022	51.962901 N / 5.1344172 W 51° 57' 46.44" N / 05° 08' 03.90" W
<i>St. Jacques</i>	Freshwater West, Pembrokeshire	273164	SR 84700 97866	51.638283 N / 5.1128170 W 51° 41' 25.54" N / 05° 08' 03.90" W

Table 1. Potential wrecks on which the 2019 field school could be based.

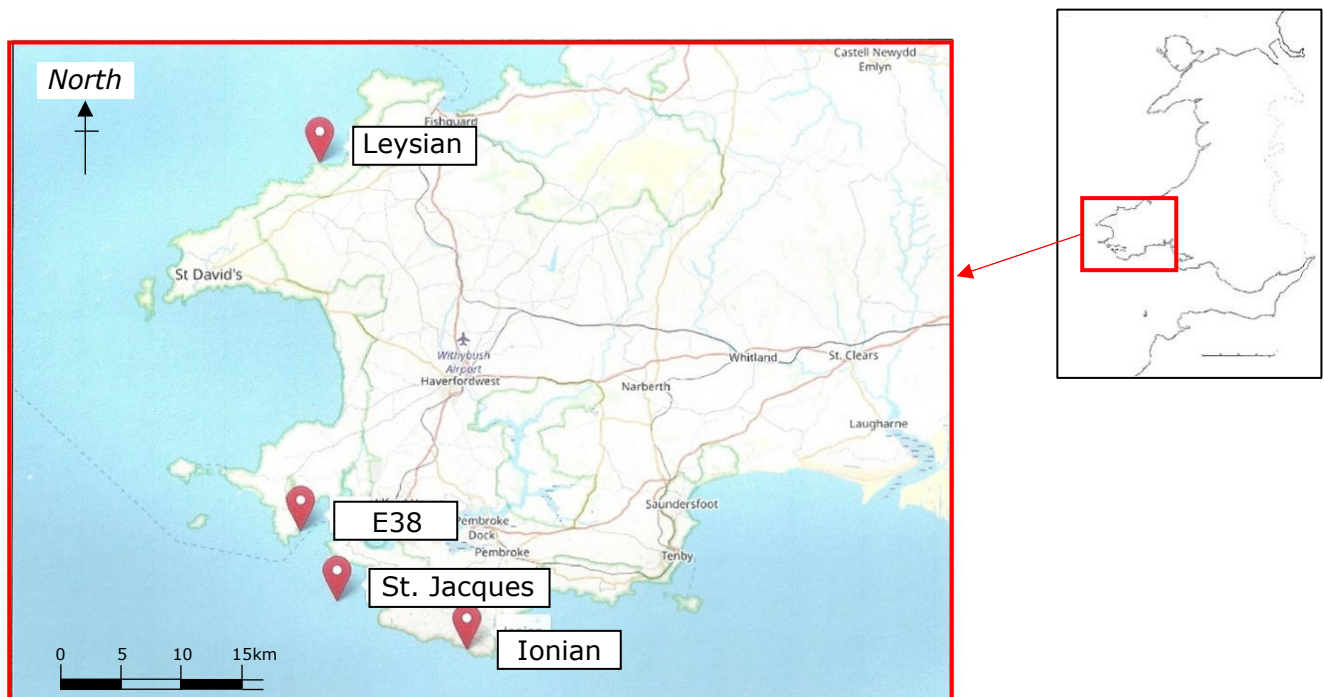


Fig. 3 Location of possible wreck sites for the 2019 field school.

The 2018 field school was held over a single weekend and the diving proved to be successful, with 7 dive clubs taking part and 39 divers making a total of 44 dives over the course of the 2 days. This was despite the site being 6-miles off-shore at a depth of 37m and with only a 90-minute, slack water, dive window on each day. This success was primarily due to the perfect weather conditions and benign sea state, had it been even slightly different, there may well have been no diving achieved at all!

Due to the location and conditions of the site chosen for the 2018 field school, this was also not a suitable wreck for the novice diver! With this, and the potential risk of poor weather conditions in mind, it was considered that a more accessible, shallow site, suitable for all levels of diving ability, with long diving windows, would be more appropriate for the 2019 field school. In addition, by extending the duration of the field school from a long weekend to a 10-day event, not only would more people have the opportunity of attending, but more than simple familiarisation dives would hopefully be possible.

The analysis of the 4 sites shown in Table 1 above was carried out (Malvern Archaeological Diving Unit 2017), and the SS *Leysian* (see Fig. 4) was the only site that met with all our wish-list criteria.

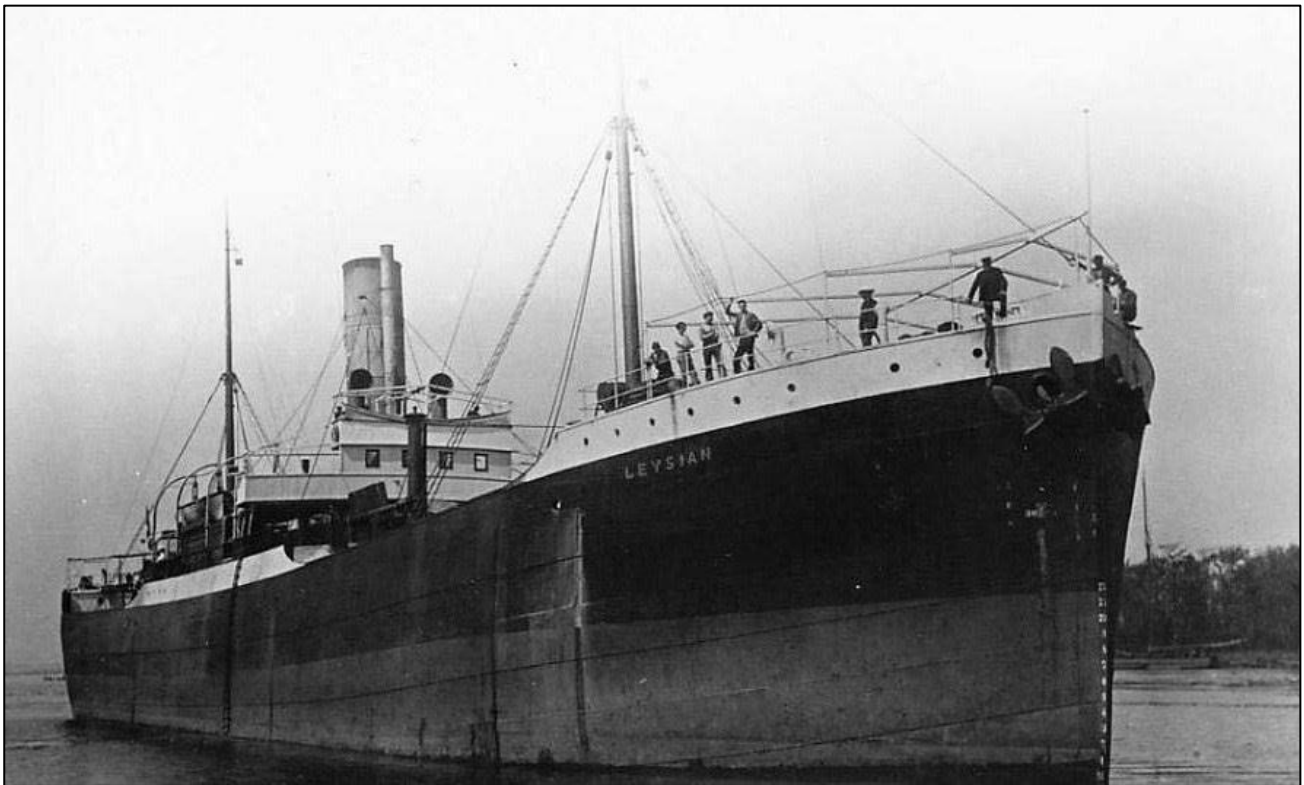


Fig. 4 The SS Leysian.

This wreck is situated at a location, sheltered from the normally prevailing south westerly winds, lying around 600m from a launching slipway (in Abercastle bay), it rests in 8-16m of water, it can be dived at most states of the tide, it is a large wreck so many divers can dive the site at the same time without getting in each other's way, and there remained historical research about the vessel's past and the reason for the wrecking to be investigated.

4.0 Selecting the Field School Location & Dates

With the wreck selected, the next thing was to find a suitable location where the field school could be based, and some possible dates during 2019 for running the event, ideally during the early part of Summer, for a 10-day period.

Unlike for the wreck of the *Cartagena* which can only be dived during low water neaps, the *Leysian* can be dived at all states of the tide, so dates for the 2019 field school was not going to be critical. However, with hopefully around 100 possible participants, accommodation close to the site was potentially going to be an issue.

A search on-line for somewhere suitable revealed only one possibility within walking distance of Abercastle Bay, and that was Garn Isaf which hosts a camp site (Garn Gwely), a bed & breakfast guesthouse (Garn Mawr), and a self-catering farmhouse (Y Garn), all on the one site (see Fig. 5, 6, 7 & Appendix B).



Fig. 5 Garn Isaf - Campsite (Garn Gwely)



Fig. 6 Garn Isaf – B&B guesthouse (Garn Mawr)



Fig. 7 Garn Isaf – Farmhouse (Y Garn)

In March 2017, while attending the DAT Archaeology Day in Llanelli, we booked to stay at Garn Isaf, both to inspect the facilities first hand, and to have a chat with Anne Hirst (the owner) about the possibility of basing an underwater field school on her premises. While in Abercastle, Anne introduced us to Bruce Jones, who with his partner Jen, ran West Wales Diving School for many years. Bruce and Jen have dived the *Leysian* site hundreds of times, and over a pint, Bruce provided us with useful background information about the wreck and the diving conditions.

Abercastle is a delightful unspoilt village, set in beautiful surroundings (see Fig. 8), and the outcome from our discussion with Anne could not have been more successful. The facilities at Garn Isaf are superb, Anne is a diver herself, has dived the wreck of the *Leysian*, understands divers and what we were looking to achieve and was both willing and enthusiastic about having us run the field school from her site. Anne also very kindly offered to provide us with introductions to people in the area who could help make the field school a success, and subsequently acted as our local spokesperson and representative when we were not in the area ourselves.



Fig. 8 The 15 minute walk from Garn Isaf to Abercastle Beach.

With regard to possible dates for the field school, following subsequent communications during 2017 & 2018, Anne agreed to place a block booking for the entire site (the campsite, B&B guesthouse and self-catering farmhouse) from 7th – 17th June 2019, and was prepared to hold this provisionally until the end of 2018, pending the success of our publicity inviting people to attend.

5.0 Field School Planning

With the wreck, location and dates in place, if we were going to aim at encouraging around 100 people to participate, the first job was to make sure that there would be a strong reliable crew to help run the event. As can be seen from Page 11, contacts were made with people we knew and who had the personal skill to take on the responsibility for overseeing individual aspects of the field school. Nobody we asked to assist said no, and for that we are grateful to every member of the crew who gave of their time and experience to make the field school a success.

It was decided that out of the funding available to run the field school, we would be able to cover the cost of camping, and for the divers, their air fills, and for their dive boats, all the launching, mooring and slipway charges. During the Autumn of 2018 we put together a bi-lingual flyer (see Appendix A) inviting dive clubs to join the field school. These were circulated in the first instance via the BSAC & SAA Welsh representatives to all the dive clubs in Wales, together with all the clubs that participated in the 2018 field school. The response was encouraging, and following additional publicity via the NAS "Weekly Discoveries" e-mails to their members, it wasn't long before other dive clubs made enquiries. By the end of 2018, we were confident that we were going to be able to hit our target on numbers, and we were able to confirm the booking at Garn Isaf and provide a deposit to block book the camping site and the self-catering farmhouse from 7th – 17th June 2019. For people that didn't want to camp, they were encouraged to book a place in the B&B guesthouse directly with Anne.

To help publicise the event, over the weekend of 3rd – 4th November 2018, we presented a paper *The Wrecks of the Cartagena and the Leysian* at the joint MOROL / U-Boat Project "Commemorating the Welsh Experience of the Great War at Sea" conference in Pembroke Dock, and over the weekend of 17th – 18th November 2018, we presented a paper *NAS in Wales, Past, Present & Future* at the joint NAS / FoNS conference in Newport (see Fig. 9 & 10). At both conferences we had a display table to help promote the field school (see Section 10.0 Publicity).



Fig. 9 The author presenting a paper at the 2018 NAS / FoNS Conference in Newport.



Fig. 10 The NAS Wales stand at the 2018 NAS / FoNS Conference in Newport.

While attending the MOROL / U-Boat Project conference, we took the opportunity to again stay at Garn Isaf and to spend time planning the field school with Anne. During this weekend, Anne again introduced us to more local people that would be able to help make the event a success, including her immediate neighbour Gerald Williams, Chairman of the Abercastle Boat Owners Community Interest Company. The author subsequently became a member for the 2019 season, and in exchange for a donation to the company's funds we were able to secure the use of the slipway and moorings for all the dive club boats that were brought to the field school.

On 7th March 2019, a talk about the Field school was provided for the Llantrisant Sub-Aqua Club & Trident Divers at the Earl Haig Memorial Club, Whitchurch in Cardiff, and on 27th April a similar talk was provided for the Friends of the Newport Ship to coincide with their hosting of the U-boat Project's travelling display.

Administration forms a huge part of running & recording a field school, and having pre-prepared forms is essential (see Fig. 11). For the 2019 field school, we required documentation and forms for the following:

Type	Title	Bi-lingual	Paper	Perma-trace	Laminated
Health & Safety	Code of Practice		*		
	Risk Assessments - Open Water		*		
	Risk Assessments - Intertidal		*		
	Incident Reports		*		
Legal	MCA - Finds Recording Droits		*		
Posters & Flyers	Invitation to attend the field school	*	*		
	Research - Plea for assistance (flyer)	*	*		
	Evening talks (posters)		*		*
	Press Releases		*		
Attendance	Campsite - Booking Forms		*		
	Campsite - Map with Terms &		*		
	Field School - Registration Forms		*		
	Field School - Register of Volunteer		*		
	Field School - Feed-back Forms		*		
Recording	NAS - Big Anchor Project Recording		*		
	RCAHMW - Coflein Heritage Sites		*		
	RCAHMW - Coflein Heritage Sites Local		*		
	RCAHMW - Coflein Heritage Sites New		*		
	Planning Frame Sheets (1.0m & 0.5m)		*	*	
	Litter Recording		*		
	Bottle Filling		*		
	Merchandising Sales		*		
Surveying	Blank Recording Sheets		*	*	
	Offset		*	*	
	Trilateration		*	*	
	Ties		*	*	
Diving	Direct Survey Methods (DSM)		*	*	
	Dive Plans		*		
	Dive Marshall Sheets - Open Circuit			*	
	Dive Marshall Sheets - Closed Circuit			*	
Misc.	Dive Logs		*		
	List of the Crew & their Responsibilities		*		*
	Daily Shipping & Weather Forecasts		*		*
	Contact Details - Crew, Dive Clubs,		*		

Table 2. List of administration forms & documentation required for the field school.



Fig. 11 Some of the forms prepared for the field school.

By the middle of April 2019, including the crew, we were over our target of 100 people registered to attend the field school, including divers from 16 different dive clubs (see Table 3). A comprehensive set of joining instructions (see Appendix B) was put together, and circulated to everyone who had registered, including a provisional field school timetable (see Table 11, Appendix C).

Dive Clubs	Boats	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon
		7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th	15 th	16 th	17 th
Bar Zero Sub Aqua Club				yes	yes	yes	yes	yes	yes			
Chester Sub Aqua Club	1		yes	yes	yes	yes	yes	yes	yes			
Ecodiving		yes	Yes	yes	yes	yes						
Flintshire Sub Aqua Club									cancelled			
Hartford Sub Aqua Club	1							yes	yes	yes	yes	
Llantrisant Sub Aqua Club	1	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	
Manchester Diving Group		yes	yes	yes	yes	yes						
Merseyside Sub Aqua Club	2								yes	yes	yes	
Nautical Archaeology Sub Aqua Club	1	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	Yes
North Dorset Sub Aqua Club	1				yes	yes	yes	yes	yes	yes	yes	
Red Dragon Divers	1 / 2						yes	yes	yes	yes	yes	
Tewkesbury Underwater Group	1	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	Yes
Thrapston & District Sub Aqua Club				Yes	yes	yes						
Trafford Sub Aqua Club		yes	yes	yes	yes	yes	yes					
Trident Divers	2	yes	yes	yes								
Whiston & Prescott Sub Aqua Club		cancelled										
Total Clubs (booked / arrived)		8 / 7	9 / 8	11/10	11/10	10/10	8 / 8	8 / 8	10 / 9	8 / 7	8 / 7	2 / 2
Total Boats (on site / on the water)	12	5 / 1	6 / 6	6 / 6	5 / 4	5 / 0	6 / 0	7 / 0	10 / 8	9 / 6	9 / 7	1 / 0

Table 3. List of the dive clubs represented at the field school.

6.0 Research

While all the field school preparations were progressing, research into the history of the *Leysian* was also taking place. The NAS in-house Research Group headed by Sheilah Openshaw provided invaluable assistance with general historical background and information mostly gathered from the National Archives in Kew, and contributions were also gratefully received from Julie Satchell and Roger Burns at the Maritime Archaeology Trust based at the University of Southampton. However, the bulk of the research and the majority of the details (included in italics in this section of the report), together with Appendices D & E has been the work of Duncan Ross.

Although the wreck of the *Leysian* in Abercastle bay had been a well-known site for divers to use as a shallow second dive, or when blown out elsewhere on the north Pembrokeshire coast, at the outset of the project, only a few basic facts were known about the vessel history as follows:

... the Leysian (originally named the Serak) was built in Newcastle by Armstrong & Whitworth for the German Deutsche Dampfschiffahrts-Gesellschaft DDG Kosmos shipping line in 1906. The Serak enjoyed a near eight-year career transporting goods between Europe and the Americas, before being seized by the British government at the outbreak of World War One. She was then renamed the Leysian and put into service as a horse and mule transport until she ran aground in February 1917 at Abercastle, Pembrokeshire.

In addition, there were some readily accessible details relating to the vessels specification as outlined on Page 94 (Appendix B), but only one photograph (see Fig. 4).

With Duncan being based in Liverpool, he was ideally situated not only close to the Liverpool Central Library, and the Merseyside Maritime Museum, where maritime archival information was readily available, but Liverpool was also the home of the Leyland Line, who were the final owners of the *Leysian* when she wrecked. Over the course of his research Duncan also visited the North Canada Docks in Liverpool where the Frederick Leyland & Co. Line ships docked (and where the RMS *Lusitania* was re-fitted during WW1), the White Star Building (30 St. James Street, Liverpool), headquarters for F. Leyland & Co., the Munich Central Library, and the German Museum of Science & Technology in Munich, Germany, but predictably he was able to amass a vast amount of information by spending hours ploughing through the internet.

6.1 SS *Serak* (1906 - 1914)

A good starting point for research into any specific ship is to look through the annual Lloyd's Registers. For the *Serak / Leysian* the volumes from 1906 (when the *Serak* was launched) to 1917 (when the *Leysian* wrecked) were inspected and a copy of all the single line notations can be seen in Appendix D.

Another important area of enquiry was to try and track down a copy of the original ship's plans of the vessel. As the *Leysian* (ex *Serak*) was built in Newcastle-upon-Tyne, contact was made with the Tyne & Wear Archives & Museum who were able to confirm that they had the original general arrangement deck plans and profile drawing for the 3 vessels built by W.G. Armstrong & Whitworth & Co Ltd., for the original German owners, the *Sakkarah* (SS No. 779), the *Serak* (SS No. 780), and the *Sisak* (SS No. 786). A digital copy of the plans was purchased on CD, and NAS member and surveyor John Hemingway very kindly printed a few full-size copies for general use during the field school (see Fig. 12).

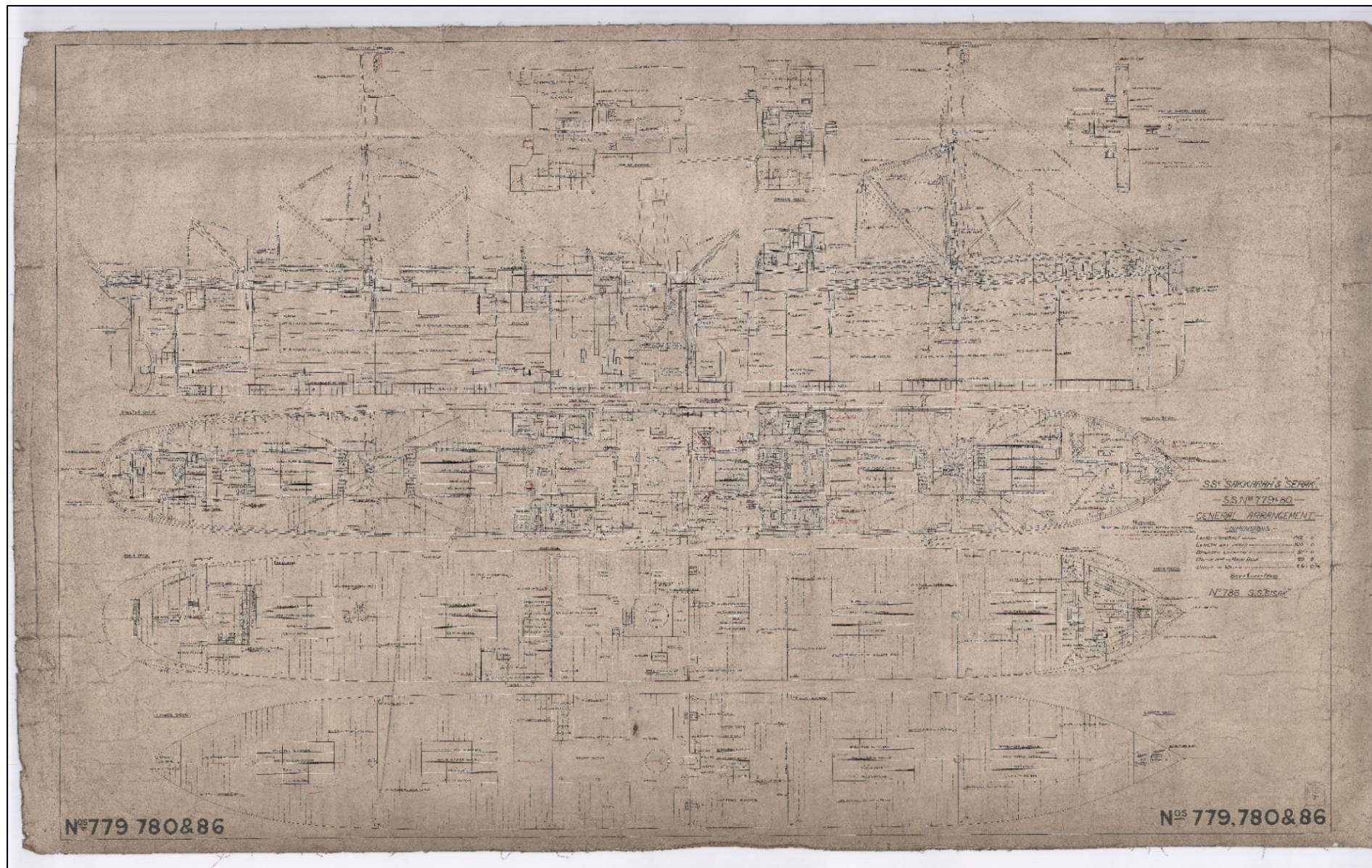


Fig. 12 Plans of the SS Sakkarah, Serak & Sisak.

As for the *Leysian*, images of the *Sakkarah*, *Serak* & *Sisak* are scarce and difficult to track down to the extent that we have only managed to find 1 photograph of each vessel (see Fig. 13, 14 & 15).

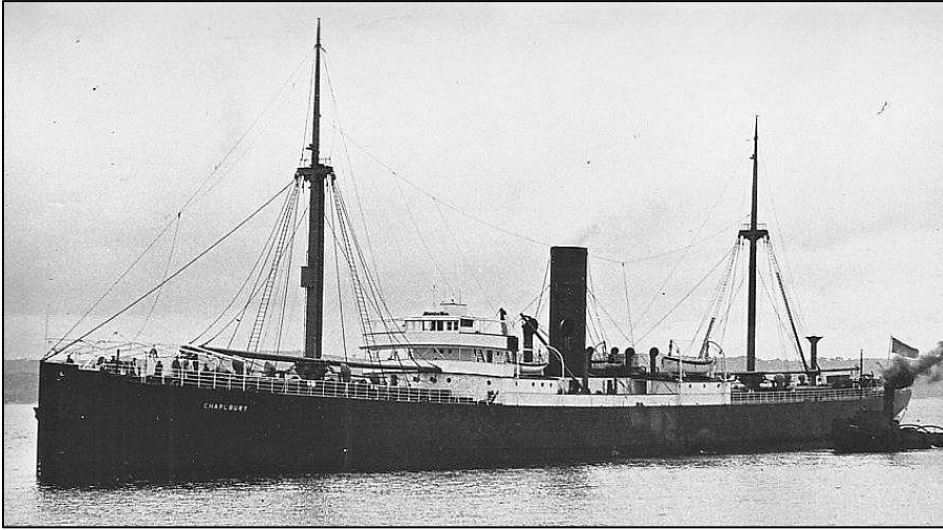


Fig. 13 The SS Charlbury (ex Sakkarah) taken in 1921.

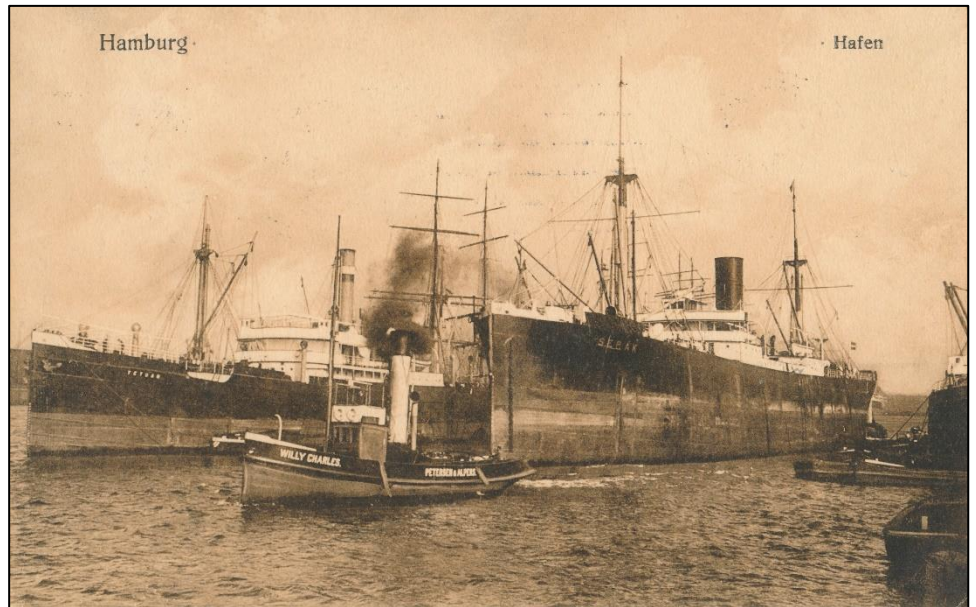


Fig. 14 The SS Serak in Hamburg, prior to being renamed the Leysian.



Fig. 15 The SS Sisak in a graving dock at Balboa, Panama (circa 1920).

6.2 SS *Leysian* (1914 – 1917)

Following the seizure of the *Serak*, the initial intention appears to have been to put her into service along with 33 other captured German merchant vessels (13 of which had been detained in Welsh ports), working in the East Coast coal trade (see Fig. 16) (Cumbrian Daily Leader, 1915).

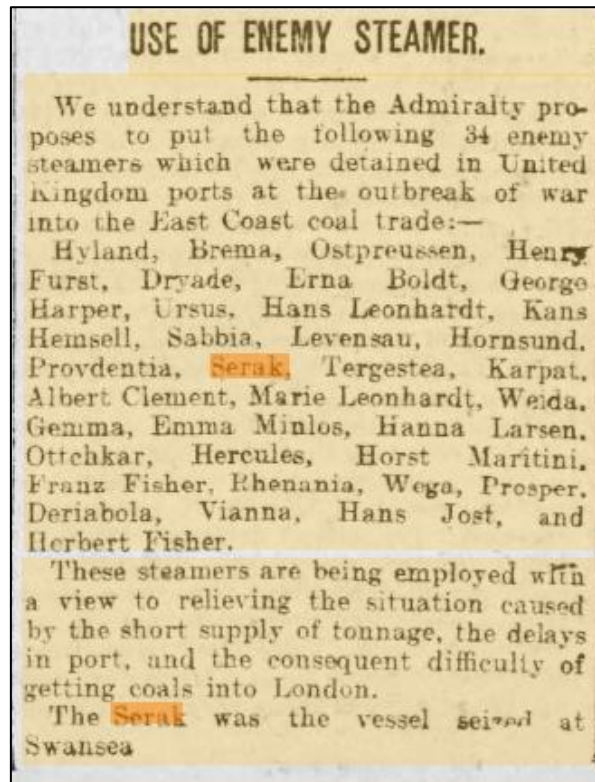


Fig. 16 Report from the Cumbrian Daily Leader (22nd January 1915) relating to plans for interned German vessels at the outbreak of WW1.

Instead, under the Naval Prize Act 1864 (Crown, 1864), in January 1915, the *Serak* was given as a "Prize of War" to the Leyland line. She was subsequently re-named the *Leysian*, and spent the rest of WW1 until her wrecking in 1917, transporting horses and mules, predominantly from Newport News, Virginia, USA, to Alexandria, Egypt, in support the front-line allied forces in North Africa.

... it became clear that the city of Newport News, Virginia, USA, played a big part in the WW1 operations of the Leysian. Newport News was one of the USA's two primary embarkation points for men, horses and mules being sent to the front. Today, Newport News Shipbuilding is 'the largest industrial employer in Virginia, and sole designer, builder and refueler of United States Navy aircraft carriers and one of two providers of U.S. Navy submarines.

An email from Bill Barker, archivist at the Mariner's Museum and Park, Newport News explains Newport News' relevance in more concise terms.

Newport News, Virginia, was the home of a British Remount Station from 1915 until the American entry into the war in 1917. During that period nearly 500,000 horses and mules were shipped from Newport News through the remount station. From 1917 to 1919, Newport News served as the home of the US Army Animal Embarkation Depot No. 301. Another 58,000 horses and mules were shipped during that time.

Piecing this information together with the scribbled longhand of Leysian's crew lists and newspaper archives, a clearer picture of the range of her war movements began to form. Although the Leysian was given to the British Leyland Line as a prize of war, much of her complement of muleteers were American or living in America. Indeed, following the wrecking, the final paperwork seems to have been sent to the British Consulate General in New York rather than to Liverpool or London.

An example of the shipping of livestock from Newport News is captured in the headline "American Horses Poured Into Europe's Death-Hopper" which featured in The Sunday Oregonian, dated 9th May 1915 (see Fig. 17).



Fig. 17 Report from The Sunday Oregonian (9th May 1915), relating to the export of horses in support of the front-line troops during WW1.

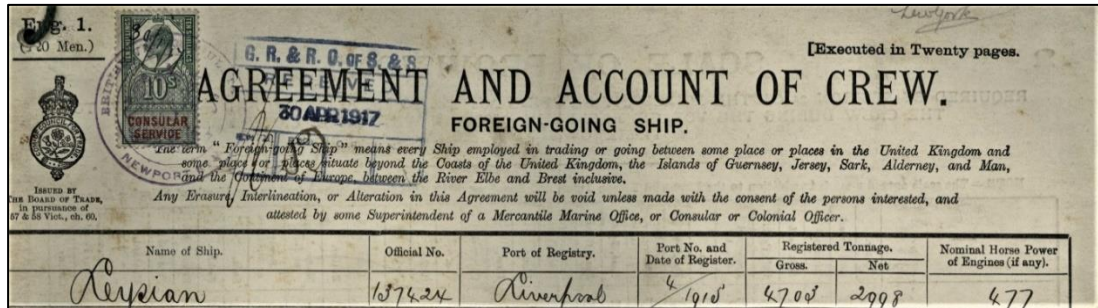
The above article makes grim reading, particularly with respect to the inevitable fate for the horses, and it was partially due to this that Duncan later wrote the words to the song he composed "Ferrying Hooves to the Front" which he first performed at the Mathry Community Hall during the field school (see Section 7.5). The words to the song can be seen in Appendix J.

It goes without saying, but crossing the Atlantic during WW1 was a very dangerous activity. In addition to the *Leysian*,

Other mule ships had been sunk in the war including the former Leyland Line ship SS Armenian on 28/06/1915. On 19/08/1915, the Leyland Line ship SS Nicosian also came very close to being sunk. On 02/06/1917, a few months after the Leysian's grounding, the Leyland Line ship SS Cameronian was torpedoed and sunk off the coast of Alexandria, Egypt, with several losses including mules.

As can be seen in Table 5, in just over 2 years from January 1915 to February 1917, the *Leysian* made 5 return passages between America and the UK, and 7 between America and Egypt (see also Appendix E).

Research at the National Archives in Kew provided a rich source of information, including log books from the *Leysian*, many pages of which Sheila painstakingly photocopied. Probably the most enlightening records, were those contained in the *Leysian's* final log book, which together with the muleteer's contract of employment, containing their terms & conditions for the return passage (see Fig. 19), were the most revealing.



On 1st February 1917, America severed diplomatic relations with Germany when Germany declared unrestricted warfare at sea. U-Boats could now sink any allied vessel. Despite this announcement, on the same day, the *Leysian* set off from Newport News, business as usual, on her last voyage. The situation is however thought to be a possible contributor for the apparent discontent (even mutiny) on board twenty days later in the hours before her grounding. Along with the terrible wages of fifty-cents per day and the contractual agreement that muleteers were not allowed to leave the ship when in port (see Fig. 19), perhaps the muleteers, some of who were not normally employed in this role, or even sailors accustomed to being at sea, particularly when crossing the Atlantic in mid-Winter, had simply had enough. It is very likely that the (subsequent Ed) 'strike' was brought on by a culmination of reasons.

Executed in Twenty pages.

AGREEMENT AND ACCOUNT OF CREW FOREIGN-GOING SHIP.

The term "Foreign-going Ship" means every Ship employed in trading or going between some place or places in the United Kingdom and some place or places situate beyond the Coasts of the United Kingdom, the Islands of Guernsey, Jersey, Sark, Alderney, and Man, and the Government of Europe, between the River Elbe and Brest inclusive.

Any Erasure, Interlineation, or Alteration in this Agreement will be void unless made with the consent of the persons interested, and attested by some Superintendent of a Mercantile Marine Office, or Consular or Colonial Officer.

Attendants must feed, water and groom the animals and keep the stalls in good condition as directed by the Foremen and Officers in charge. All stalls to be dunged out once a day on the outward passage, including underneath foot boards.

Attendants must at all times keep their quarters clean and sanitary to the satisfaction of the Master.

No firearms, or dangerous weapons to be carried, or spirits allowed. No smoking allowed on any animal deck, or in holds under a penalty of \$1.00 fine for each offence.

Attendants to clean the steamer when required by the Master. Any man refusing to do so when ordered to be fined \$1.00 for each offence.

All animals to be fed and watered until final discharge. Foremen and men to assist in discharge of animals.

Any man refusing or neglecting to do a full days work, to the satisfaction of the Master, will not be paid for that day. For refusing to obey the orders of any superior officer a fine of \$1.00 will be imposed for each offence.

Only livestock attendants in possession of a permit from the proper authorities will be allowed to land at the vessel's port of destination.

After disembarkation of animals all stalls to be thoroughly cleaned and whitewashed, for which work attendants will be paid at the rate of \$1.00 per day for any work done,

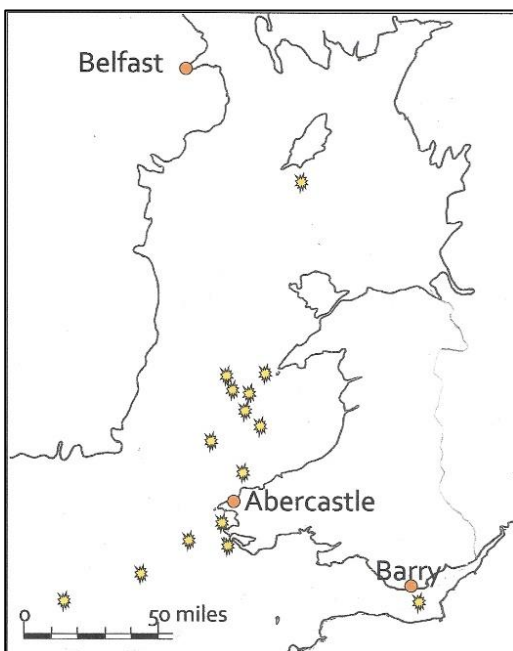


Fig. 19 The muleteer's contract on the *Leysian's* final voyage.

The *Leysian* arrived in Belfast on 17th February, but in the intervening 16 days, 15 vessels had been sunk off the Welsh coast by German U-boats (see Fig. 20). Late on 19th February, having unloaded the horses, the *Leysian* departed Belfast for Barry to re-fuel with coal before returning to America. Before carrying out any research, the perceived reason for the wrecking was that the crew had mistaken Strumble Head for St David's Head in fog, and that the *Leysian* subsequently ran straight into the cliffs at Abercastle.

Fig. 20 Ships sunk by German U-boats during the first two weeks of February 1917.

However, in the short period between leaving Belfast late on 19th, and the wrecking less than 24 hours later, in the early hours of 20th February, 54 of the muleteers were each fined \$1.00 for "refusing to obey the order of the Chief Officer", and all their individual names and their fines were carefully entered into the ships log book. These fines however appeared to have had little effect, as a few hours later at 8.00am, 33 of the muleteers were again each fined \$1.00, this time for "refusing to work", and a further 16 were each fined \$1.00, for "refusing to muster before the master" as well as \$1.00 for "refusing to work". Again, all their individual names and their fines were carefully entered into the ship's log book.

At 9.30am the log book also reveals that:

It has been bought to my notice that the following Britishers (? Ed) are the ring leaders in the strike among the mule attendants against obeying orders & working & carrying out the terms of their Agreement and as their action may endanger the safety of the ship and delay her entry into port they are logged and punishment reserved for the decision of the Naval Authorities on arrival at port.
J.H. Morgan L. Molloy P. McCoville O. O'Donohoe

Signed: *R.H. Roberts (Master) G.M. Johnstone (Mate)*

The insubordination by the muleteers was obviously an unwelcome distraction in the hours leading up to the wrecking, and the prophetic words written in the log book that "their action may endanger the safety of the ship" may well have come to pass by contributing to the eventual outcome.

Having uncovered this information, other possible reasons for the wrecking emerged. Several American newspaper articles reported that the Leysian was chased onto the rocks by a German U-boat. One of these articles is attributed to a muleteer foreman / insurance salesman George Bland (see Fig. 21), and another to the ship's surgeon Dr James R. Mclean (see Fig. 22).

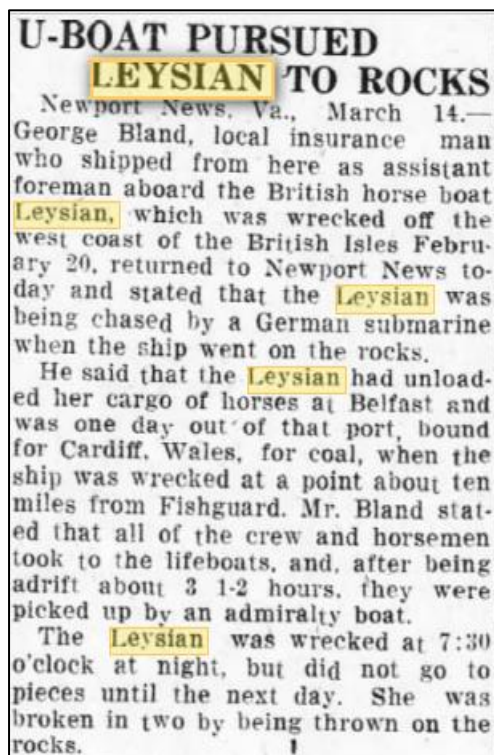


Fig. 21 Report from the North Carolina, Charlotte News (14th March 1917).



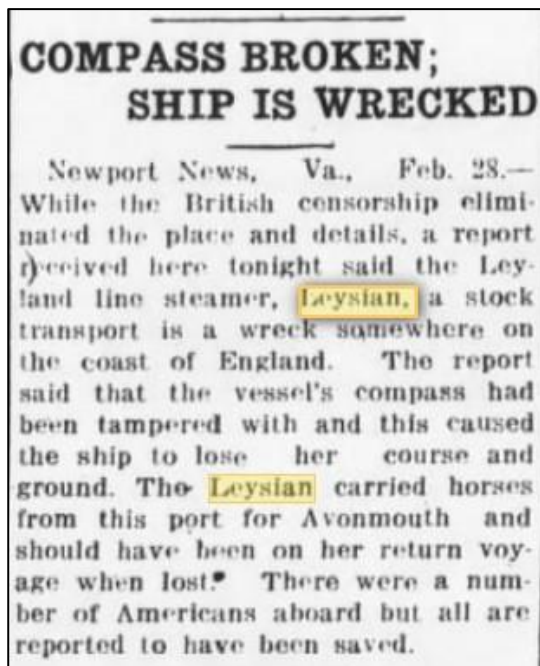
Fig. 22 Report from the North Carolina, Daily Advance (16th March 1917).

These are interesting reports, although we have been unable to prove their veracity, or uncover any accounts indicating that German submarines were in the vicinity on 19th - 20th February.

However, another intriguing article from the North Carolina, Durham Morning Herald dated 1st March 1917 reports from an anonymous source that the *Leysian's* compass had been tampered with (see Fig. 23).

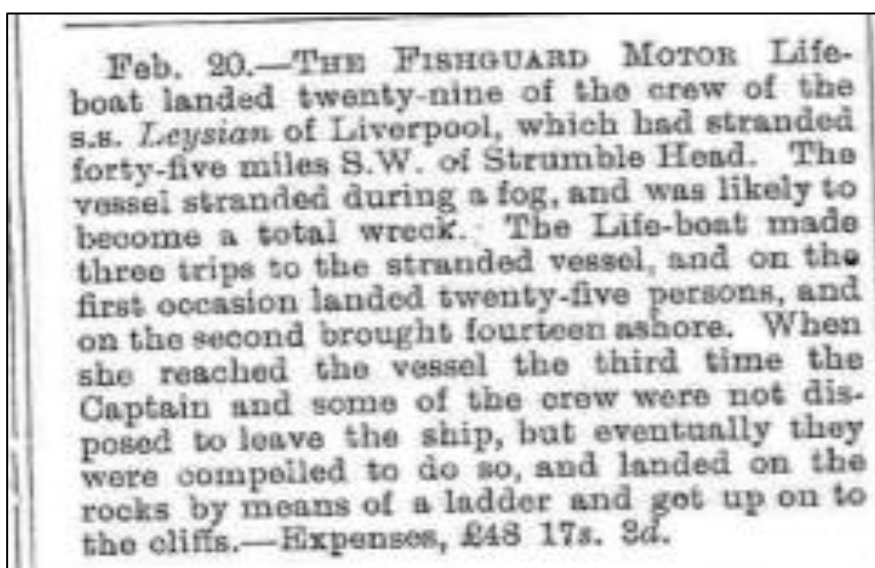
Whatever the cause for the wrecking, be it a navigating error due to fog, a tampered compass, distraction due to a disturbance on-board, being chased by a submarine, or a combination of some / all of these, the result was that the *Leysian* came to an abrupt stop just after 8:00pm on 20th February 2017 when she ran into the cliffs at Abercastle.

Fig. 23 Report from the North Carolina, Durham Morning Herald (1st March 1917), relating to the Leysian's compass having been tampered with.



The following is a transcript from the RNLi report relating to the rescue of personnel from the *Leysian* by the *Charterhouse* life boat (see Fig.24).

Fig. 24 The RNLi report of the rescue of personnel from the Leysian.



The *Charterhouse* was the first RNLi life boat in Wales to be motorised, but as can be seen from her picture (see Fig. 45), it must have been a monumental effort to have made 3 return trips, motoring, sailing and rowing between Fishguard and Abercastle to affect the rescue.

At the time of the wrecking, the master was Robert Henry Roberts. He was born on 30th April 1870 which would have made him 46 when the *Leysian* went aground. He was an experienced captain, and no disciplinary or court martial evidence has been found regarding the loss, giving weight to the argument that he was not held accountable in any way. Following the war, he received both the Mercantile Marine Medal and the British Medal for his services.

During WW1, the Leyland Line lost 25 ships, half of them, including the *Leysian*, in 1917 alone. Following the wrecking, many of the crew and muleteers who were American returned home on the White Star Line's RMS *Adriatic*, which by coincidence, was also the ship that had ferried *Titanic* survivors back to the UK 5 years previously (Haws 1979, pp. 109-137).

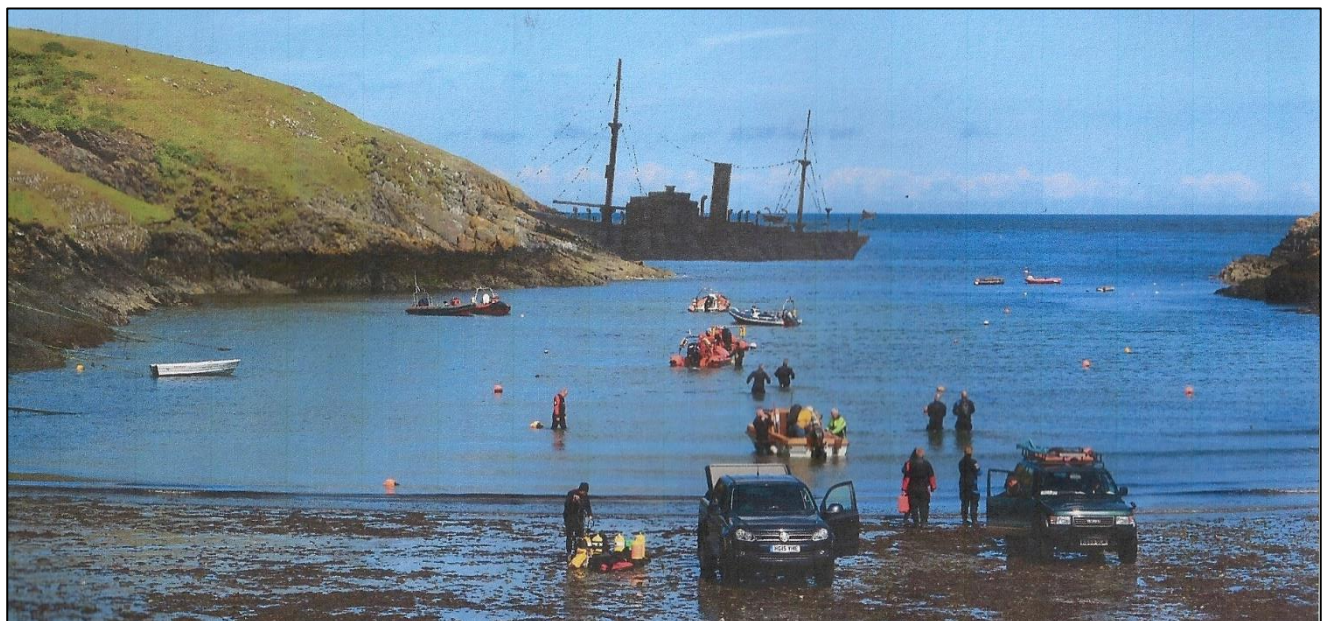
6.3 Post-wrecking (1917 -)

Following the *Leysian's* wrecking the historical record is very thin on the ground which is surprising as this is within the lifetime of parents and grandparents of people alive today. It was probably the single most prominent event ever to have happened in Abercastle, and if nothing else, oral history relating to the event must have passed down through subsequent generations.

In addition, when the *Leysian* wrecked in February 1917, anecdotal accounts say that she remained upright, stranded across Abercastle bay for around 8-months until she eventually slipped beneath the waves following an Autumn storm. A pictorial representation of the wreck during this period can be seen in Fig 25, however we have failed to uncover a single photograph of her taken that Spring, Summer or Autumn while she remained visible.



Fig. 25 Silhouette impressions of what the Leysian may have looked like for around 8 months following the wrecking.



Even after 1917, we have heard stories that at extreme low tides, occasionally the masts and other areas of the wreck were sometimes visible even as recently as the 1960s? but again we have not come across any photographs or facts to corroborate these sightings.

There is however one short article in the North Pembrokeshire County Echo dated 5th April 1917 which reported just over 6-weeks after the *Leysian* went aground (see Fig. 26).

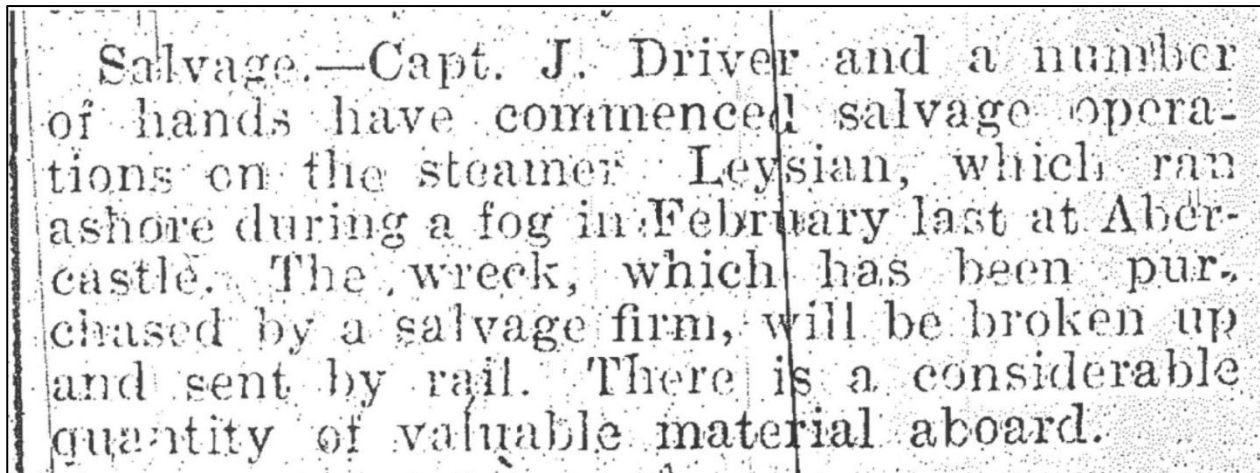


Fig. 26 Report from the North Pembrokeshire County Echo (5th April 1917), relating to salvage work carried out on the *Leysian*.

Also, anecdotally, there is a general belief (although we have not come across any historical reference to back this up!) that a steam winch was set up on the cliffs above the wreck site, and that salvaged material from the wreck was hauled up the cliff face for disposal. Marks and grooves running down the cliff could be attributed to this activity, and from the sea, a distinct furrow / gully can be seen leading up to the top of the cliffs that may have been created by months of work physically dragging heavy items up the



Fig. 27 A possible furrow where salvaged material may have been hauled from the wreck to the cliff top.

During the field school a terrestrial survey of the area on the cliff top above the wreck site was carried out where salvage operations may have been based, the results of which can be seen in Section 8.1 (The Terrestrial Cliff Top Surveys).

From diving the site, it is apparent that a large amount of salvage work has been carried out, as the remains show no evidence of any items that might have been of value, including the engines, boilers, propeller, etc.

In an attempt to try and elicit additional information following the wrecking, a bi-lingual flyer was produced (see Appendix F), and a video clip posted on-line that can be viewed at:

<https://vimeo.com/371193024>

The flyer and video invite people to help us fill in our research blanks since the *Leysian* ran into the cliffs on 20th February 1917, and to possibly turn up some photographs of the vessel stranded across the bay and while she was being salvaged.

Surprisingly very little additional information has come to light following our appeal, however one piece of information that did emerge, was the copy of a letter dated 1986 from a Peggie Thomas of Abercastle, sent to Tom Bennett, the author of *Shipwrecks Around Wales: Volume 1 & 2*. In volume 2 (Bennett 1992, pp. 53-54) there is information about the *Leysian*, and having read the entry, Mrs. Thomas noted that:

My late father worked on the wreck of the Leysian for 2 years at Abercastle.

So, it would appear that work (presumably salvage work) carried on well after the vessel sank in the Autumn of 1917. We also have confirmation of this from another Abercastle resident who advised us that his father had assisted with salvage diving activities on the wreck (Val Davies, 2018, pers. Comm., 5 November).

The research carried out has provided a wealth of information from which a timeline for the *Serak / Leysian* has been produced. Inevitably there are some gaps where detail is missing, but the bulk of the back story is complete and can be seen in Appendix E.

As can be seen in Section 13 (References), a considerable number of reference sources are available but for further information regarding the research carried out as part of the U-boat Project, and for the full back story, including a host of fascinating odd accounts relating to both the *Serak* and the *Leysian* uncovered by Duncan Ross, see his report that has been submitted as part of his NAS Award in Maritime Archaeology entitled *My Life & Times Researching the SS Leysian: Research, findings and involvement* (Ross 2019).

7.0 Delivering the Field School

7.1 Thursday 6th June

(Weather: warm & sunny with light winds & calm seas)

Bill Turner & Ian Cundy arrived at Garn Isaf, and booked into the B&B Guesthouse for the night. The rest of the day and over an enjoyable evening meal with Anne and her team, the plans for the following 10 days were discussed and last-minute arrangements talked through.

7.2 Friday 7th June

(Weather: strong winds & torrential rain)

We woke on Friday morning to completely contrasting weather from Thursday. Overnight, BBC Wales News bulletins had issued a yellow warning from the Met Office, regarding thunder with prolonged downpours for South Wales that could seriously disrupt travel (see Fig. 28).

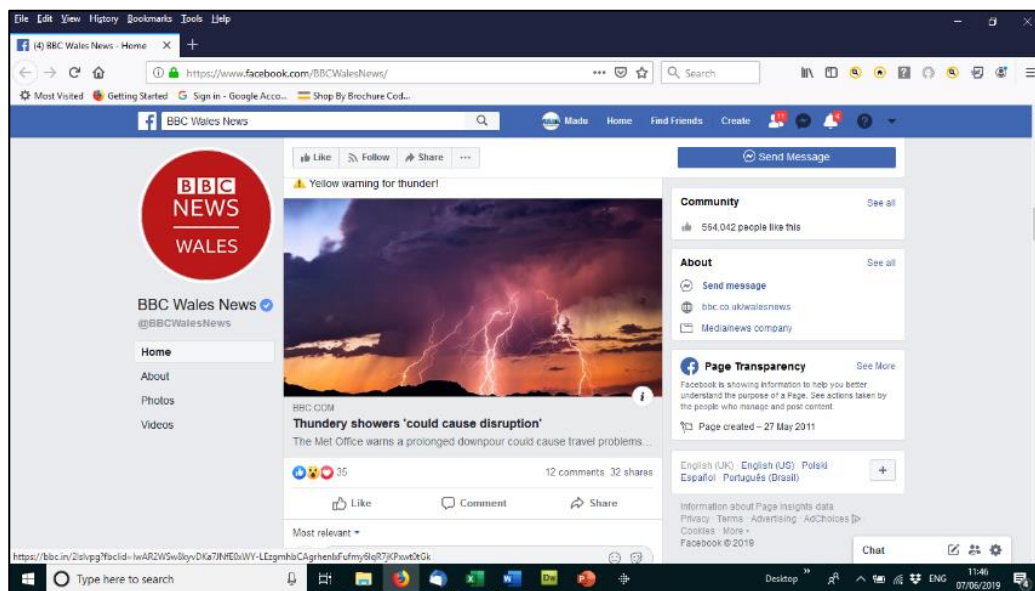


Fig. 28 BBC Wales weather warnings & travel disruptions for South Wales.

These predictions unfortunately turned out to be correct (see Tables 14 & 15, Appendix G), flooding occurred in the Cardiff area causing several people heading for Abercastle to experience delays and extended travelling time, which was exacerbated by the Friday commuting traffic. On the BBC Wales web site for Friday 7th June there was a video with the attached notes:

Footage shows level of Cardiff flash flooding

Shocking footage shows the level of flash flooding in a Cardiff suburb.

A thunderstorm brought intense rain and hail downpours across the capital, particularly in Pentwyn, Llanrumney and Rumney.

The video shows cars left submerged as a torrent of rainwater flows down a main road near Pentwyn leisure centre.

This was not an ideal start for the first day of the field school as we were expecting around 60 people to arrive for the weekend, a most of them, upon arrival, would be faced with the unenviable task of attempting to put up tents in high winds and driving rain. We were therefore not surprised when the 9 strong team from the Whiston & Prescott Sub Aqua Club contacted us to say that, due to the weather conditions, and as the prospect of diving over the weekend did not look promising, they had regrettably made the decision to pull out (see Table 3 & Appendix G).

During the day however, Ceri Jones and Richie Grice managed to launch the Llantrisant Sub-Aqua Club rib and very kindly buoyed the wreck ready for hopefully diving the following day.

Despite the atrocious weather, by Friday evening, most people who had planned to attend had made it, and for a hardy few, the early evening planned walk to familiarise people with Abercastle and to gain an overview of the wreck site from the cliff top, took place, all be it in the pouring rain (see Fig. 29).

Fig. 29 A wet early evening walk along the coast path to view the wreck site from the cliffs above.



The walk was followed by a meeting of the crew in the warmth of the self-catering farmhouse. This was the first time that everyone who had agreed to help run the event had been together, so it was an ideal social occasion for the team to get to know each other, for the organisers to hand out the bright yellow crew t-shirts (see Fig. 2), answer any questions (like how to pronounce the word leysian!), and be able to run through the plans for the next 10 days so that at least all the crew were hopefully on the same page!

7.3 Saturday 8th June (Weather: showers & strong winds decreasing later & becoming brighter)

The day started early for some of the crew staying in the self-catering farmhouse. A phone call from BBC Wales asked if someone could be interviewed about the field school for around 5-minutes, live on the BBC Radio 4 Breakfast Show with Oliver Hides. The author rose to the challenge (see Fig. 30), and the interview commenced around 7:55. However, the interviewer had been poorly briefed, as people attending the field school were introduced as a group of divers who were planning to dive a 400ft World War One submarine. It was obviously necessary to get that straight before the interview went any further.



Fig. 30 The author talking live on the BBC Radio 4 Breakfast Radio show.

Each morning at 9am throughout the Field school we held a daily briefing for everyone that was on site (see Fig. 31), and this formed the basis of what we hoped to achieve during the day. The briefings followed the same format each day, but on the first Saturday, as it was the first day of the field school, the briefing was particularly comprehensive and set the general pattern for future days as follows:

- Introductions & Welcome to New Arrivals (see Table 3)
- Weather & Shipping Forecast (see Appendix G)
- Aims & Objectives for the day (see Appendix C)
- Safety issues
- Security
- Medical matters
- Launching / Recovery / Moorings / Boat Storage
- Coastguard contact information
- Air filling
- Administration requirements
- Diving activities (familiarisation / drawing / sketching / surveying / photography / etc.)
- Non-diving activities (intertidal & terrestrial surveying / local heritage site visits / metal detecting / beach clean-up / etc.)
- Courses being run during the day (recording & surveying skills days / ROV design, construction & piloting / introduction to DSM and the use of Site Recorder, etc.)
- Photography & videography
- Research
- Publicity & the Media
- Merchandising
- Questions & Answers
- Dealing with any other matters



Fig. 31 Morning Briefings & Evening De-briefings.

Following the morning briefing on Saturday, several people who had been working through the NAS on-line theory courses, elected to undertake the practical Skills Day element towards their NAS Foundation Certificate. The theory sessions were run by Peta Knott in the dining room of the B&B guesthouse, followed by practical sessions outside (see Fig. 32).



Fig. 32 The large group of students taking the Skills Day Recorder class.

While this was happening, all the boats that had arrived were launched close to high tide (see Fig. 33), and despite strong winds blowing straight into the bay and a choppy sea, by the end of the day almost 30 divers had completed a familiarisation dive on the site accompanied by some surprisingly good visibility of around 6-7m, and a selection of photographs and videos of the wreck had been collected.



Fig. 33 Boats being launched and moorings provided by the ABOCIC being sorted out, prior to the first dives taking place (the wreck site lies just beyond the headland on the left).

During the course of the day, the underwater VideoRay ROV together with its sonar head was assembled, tested and hands-on practice in the use of the controls checked out (see Fig. 34).

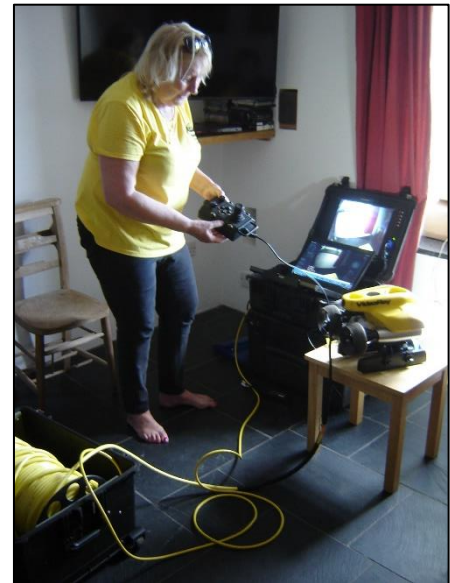


Fig. 34 The VideoRay and sonar head being assembled & tested.

Over the course of the weekend Deanna Groom and Helen Rowe from the RCAHMW manned a table next to the slipway onto the beach, to act as a focal point for publicity about the U-boat Project, and an information desk for anyone passing who expressed an interest in finding out what all the diving and activity with the boats was about (see Fig. 35).



Fig. 35 The RCAHMW information table next to the slipway in Abercastle Bay.

7.4 Sunday 9th June

(Weather: warm & sunny with light winds & calm seas)

The morning briefing commenced with a de-brief from the previous day which had been held over due to the time people had needed to complete their dives on Saturday.

Following the briefing some people continued with their Skills Day course, this time working through surveying theory in the B&B guesthouse dining room with Peta, before practicing the techniques learnt, either in the farmhouse garden, or for divers, on the site of the *Leysian*, and realising that it's not as easy underwater! (see Fig. 36).



Fig. 36 Skills Day 2D surveying practice above & below water.

Divers not involved with the Skills Day course were invited to attend an introduction to Direct Survey Measurement talk, before setting out to deploy a series of prepared plastic milk bottle markers on the site and to start recording the distances between them, and their depths (see Section 8.2.1 & Fig. 37).

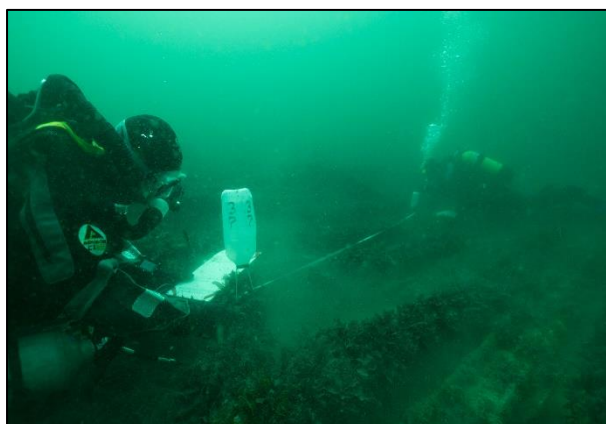
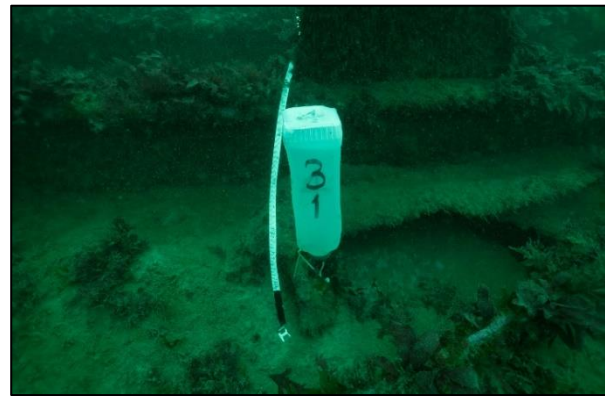


Fig. 37 Survey briefing prior to deploying the control points on the site & starting the underwater survey.

While the above was taking place, John Hemmingway set up the total station and anyone interested in intertidal surveying was invited to join John, Ellie & Jon on the beach (see Fig. 38).



Fig. 38 Intertidal survey using the total station.

7.5 Monday 10th June

(Weather: warm & sunny with light winds & calm seas)

Overnight Richard Rowley had analysed the underwater 3D survey data that had so far been obtained from the site, and following the morning briefing he was able to advise divers which measurements were outstanding or needed to be re-checked, and handed round pre-prepared boards to the various diving teams (see Fig. 39).



Fig. 39 Pre-dive survey briefings.

While this was going on, the total station was set up on the cliffs above the wreck site (see Fig. 40), and members of the Llantrisant SAC swam around the perimeter of the site from around mid-ships to the stern with the prism attached to an SMB, while the positions were shot from above. The results of this exercise can be seen in Section 8.1 (The Terrestrial Cliff Top Surveys).



Fig. 40 Using the total station to record the wreck site.

After the morning briefing, the small hard boat *NovaT* was loaded with the generator and VideoRay ROV and the day was spent recording the site using the video camera and sonar imaging around the forward end of the wreck (see Fig. 41).

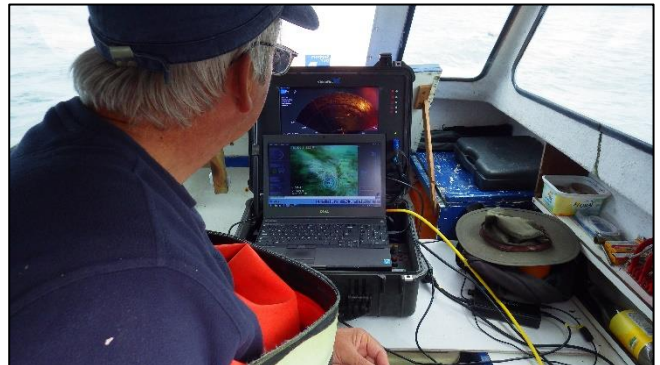


Fig. 41 The ROV being used on the site.

Diving activities progressed well throughout the day, with several separate dive teams carrying out the underwater 3D DSM exercise (see Fig 42 & 43).

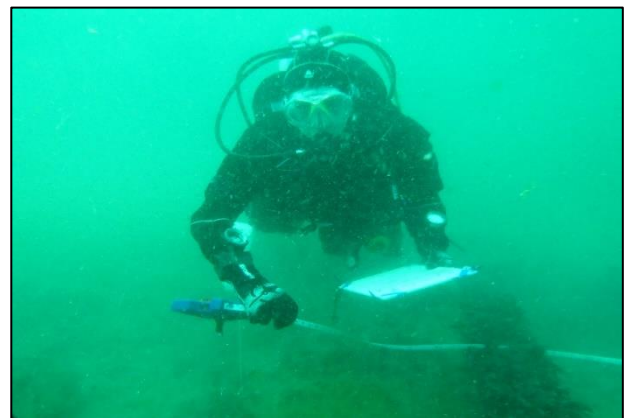


Fig. 42 The underwater DSM exercise



Fig. 43 A typical field school diving day with Rhys supervising operations on the beach.

During the day a familiarisation dive was carried out by father and son, Simon & Jake Spencer, and for Jake this was his first open water dive, and we hope that this will have just been the first of many.

Since launching the boats over the weekend, they had all been left overnight on permanent moorings kindly provided by the ABOCIC. These moorings dry out at low water and although it was a perfect day for diving, around mid-afternoon on Monday, all activities on the water were concluded for the day. At the recommendation of the harbourmasters all the boats needed to be recovered onto their trailers and removed from the water, as overnight a north-westerly storm was forecast, potentially gusting up to force 7, straight into the bay, and this could potentially be damaging to any boats left on moorings. As we were on neaps, some boats were stored at the top of the beach, while others were returned to Garn Isaf (see Fig. 44).



Fig. 44 Boats being recovered prior to the predicted storm.

During the evening, most of those present at the field school, attended a talk by the author in the Mathry Community Hall about the U-boat Project, the story of the *Leysian*, its history and the wrecking, together with what the NAS field school was attempting to achieve. The talk was complemented by an up-date on the work being carried out by the Charterhouse Trust on the restoration of the ex-RNLI lifeboat *Charterhouse* (see Fig 45) that went to the rescue of the *Leysian*, and the evening concluded with Duncan Ross performing the song that he had composed about the *Leysian* entitled "Ferrying Hooves to the Front" (see Fig 46 and Appendix J).



Fig. 45 The ex-RNLI lifeboat Charterhouse.
(© Charterhouse Trust)

The evening was well supported by local residents from Abercastle, Mathry and from further afield (see Fig. 46), and it was an ideal forum at which to make a plea for further information relating to events following the wrecking (see Appendix F), and possibly for any picture of the vessel while she was aground, across Abercastle Bay for 8 months before being claimed by the sea.

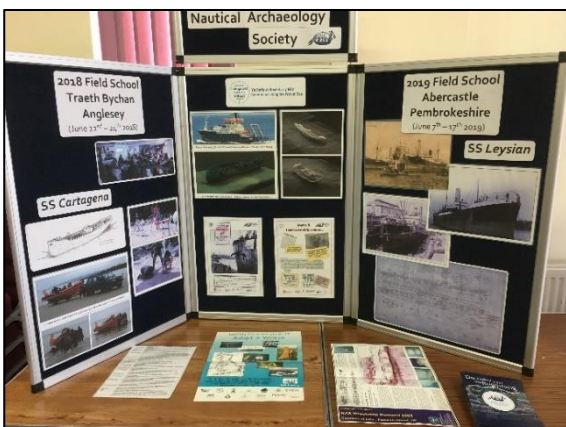


Fig. 46 The evening talk at the
Mathry Community Hall.

7.6 Tuesday 11th June (Weather: cold & wet, rough seas & northerly winds, gusting 7)

Wednesday 12th June (Weather: cold wet start, drying, rough seas & north winds)

Thursday 13th June (Weather: cold & wet, northerly winds veering south west later)

Unfortunately, the predicted storm became a reality, and regrettably no diving was possible for the next three days. A gazebo was erected in the rear garden of the farmhouse so that the area could still be used in the rain. During the morning briefings various options were presented that had been prepared for the eventuality that on some days diving might be blown-out, and people were invited to put their names against various choices (see Fig. 47). These options included:

- Introduction to ROV Design, Construction & Piloting.
- Using Site Recorder 4 to process DSM data.
- NAS Tutor & Volunteer Training.
- Introduction to using a Total Station & Plane Table.
- Metal Detecting.
- Beach Clean-up.
- Anchor Recording.
- Drone Piloting.
- 2D Surveying & using a Planning Frame.
- Visits to inspect and record local sites of historic interest.
- Visit to record a previously un-recorded derelict Granary.

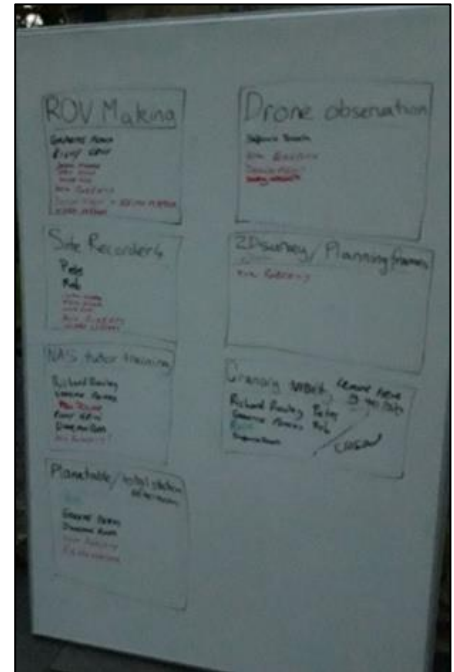


Fig. 47 The blown-out days options board.

7.6.1 Using Site Recorder 4 to process DSM data.

The Site Recorder theory and DSM data processing was held in the dining room of the B&B guesthouse with the practical element being held in the rear garden of the farmhouse when dry and in the barn when wet (see Fig. 48).



Fig. 48 DSM data being recorded and then processed using Site Recorder software.

7.6.2 Introduction to ROV Design, Construction & Piloting.

This course commenced in the dining room of the B&B guesthouse, with an introductory talk about the history of ROVs followed by information about the hands-on design, construction and trials in a test tank that the practical element of the exercise would comprise.



Fig. 49 Introduction to ROV Design, Construction & Piloting.

Following several re-designs, and re-building attempts by the teams to perfect their ROVs (see Fig. 49), the VideoRay was set up and people were able to try their hand at piloting the commercial ROV in the test tank (see Fig. 50).

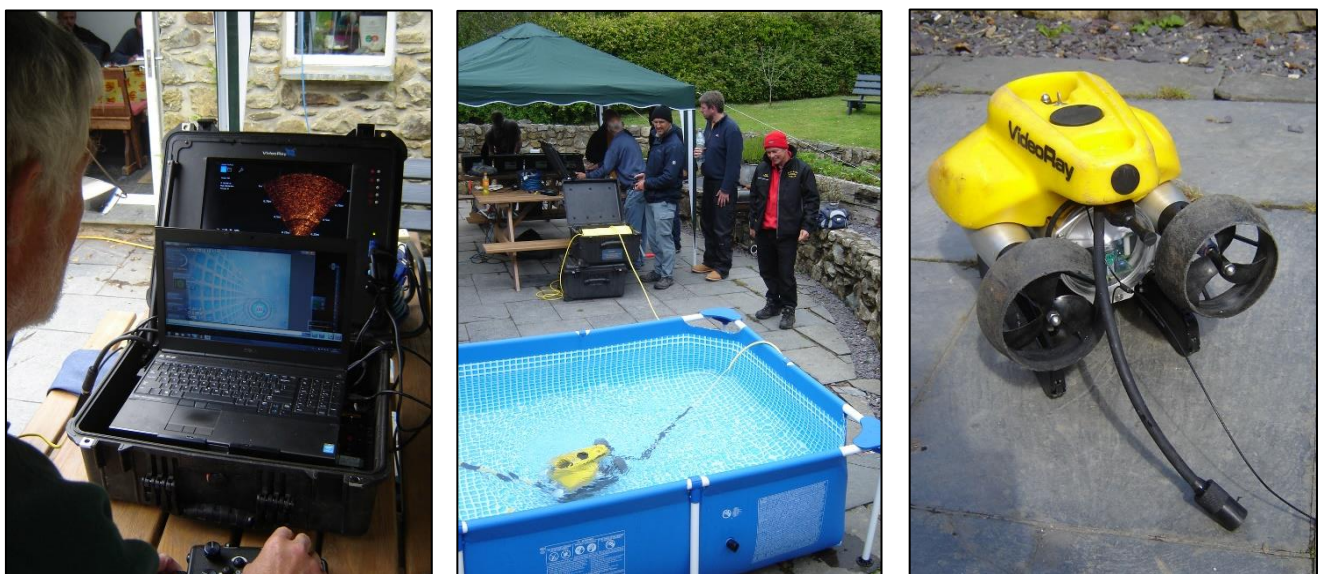


Fig. 50 Piloting practice from under the Gazebo with the VideoRay in the test tank.

7.6.3 NAS Tutor & Volunteer Training.

As Peta Knott, the NAS Education Officer was on site, it was an ideal opportunity to run a course for members who were interested in volunteering or training to teach on NAS courses, and several people took the opportunity to find out more about what was involved.

7.6.4 Introduction to using a Total Station & Plane Table.

John Hemingway set up a Plane Table in the Farmhouse to demonstrate the theory of Plane Table Surveying and the use of an Alidade, before taking the Total Station up onto the cliff top above the wreck site, to record the position where a steam winch (reported to have been set-up to recover salvaged material from the wreck) may have been located (see Fig. 51).



Fig. 51 Instruction into the use of a Plane Table and Total Station.

7.6.5 Metal Detecting.

With the tide out, and no diving possible, the beach was an ideal place to investigate using metal detectors (kindly lent by Wessex Archaeology) in the intertidal zone, and any items of interest detected recorded using the Total Station (see Fig. 52). Abercastle Bay is particularly suited for carrying out this exercise as the tide goes out around 300m, and it is possible that over time, small items may have washed off the wreck site and become absorbed into the beach.



Fig. 52 Metal Detecting and recording the location of any finds using the Total Station.

7.6.6 Beach Clean-up.

A beach clean-up was considered to be a good public service exercise for both the local residents and visitors to Abercastle. However, after 3-days of strong winds blowing detritus into the bay, the beach looked worse than when we had started! (see Fig. 53).

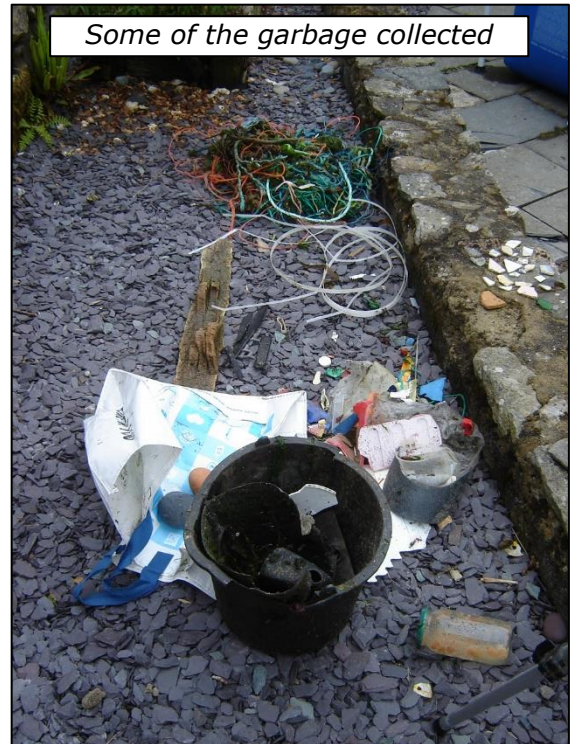


Fig. 53 The Beach Clean-up.

7.6.7 Anchor Recording.

The NAS Big Anchor Project is a fun way to record and learn about anchors, and by adding information to the sites data base (<https://biganchorproject.com>), it also serves as a useful academic resource. During the field school a couple of anchors were observed and recorded (see Fig. 54).

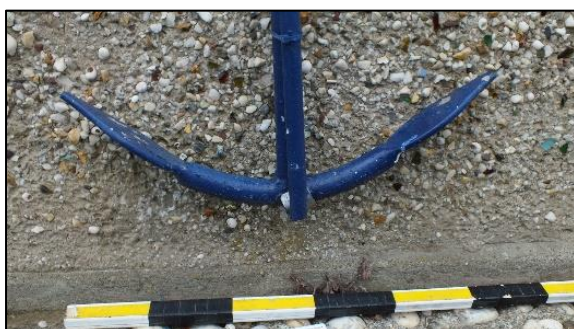


Fig. 54 Anchors recorded during the field school for the NAS Big Anchor Project.

7.6.8 Drone Piloting.

Unfortunately, due to strong winds throughout the course of the field school it was not possible to fly any drones. So, regrettably, it was not possible to undertake this exercise.

7.6.9 2D Surveying & using a Planning Frame.

People interested in practicing their 2D surveying techniques and trying their hand at sketching using a Planning Frame were encouraged to have a go and improve their skills (



Fig. 55 2D Surveying & Planning Frame Sketching On Land.



Fig. 56 2D Surveying Underwater (after the storm had abated).

7.6.10 Visits to inspect & record local sites of historic interest.

There was an enthusiastic up-take in interest to the suggestions that people might like to visit some of the existing locally known heritage sites to record them by way of sketching, taking photographs and videos, and making a few notes with the intention of adding to the existing heritage record (see Tables 16 & 17, Appendix H). Of the 34 local terrestrial sites identified, over the course of the field school, 28 were visited and for each, some degree of recording was carried out. A couple of examples of the recordings carried out can be seen in Fig. 57 & 58.

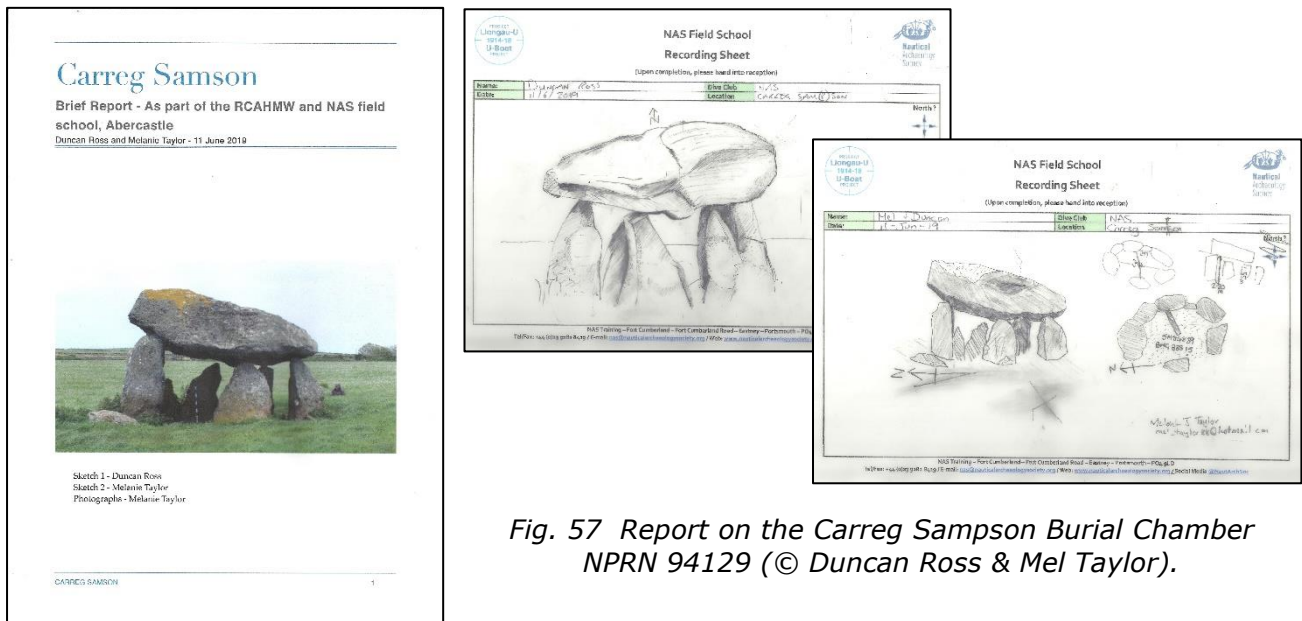


Fig. 57 Report on the Carreg Sampson Burial Chamber NPRN 94129 (© Duncan Ross & Mel Taylor).



Fig. 58 Sketch of the Cwm Badau Landing Place NPRN 525086, and the adjacent Remains of a House NPRN 419228.

The results from these visits have been compiled into a separate report for submitting to the RCAHMW for their evaluation, and as appropriate, for information to be added to the current Welsh heritage record and Coflein Catalogue (Malvern Archaeological Diving Unit 2019).

7.6.11 Visit to record a derelict local Granary.

In addition to the above existing heritage sites, several additional sites that deserved recognition for possible inclusion into the national record were observed in Abercastle Bay (see Table 18, Appendix H). These include several cannons on the coast path, and a Tap House (Inn) on the edge of the bay, however the most prominent site in the bay is a Derelict Granary, and during the field school, permission was obtained to enter private land to record the site (see Fig. 59).



Fig. 59 The Derelict Granary being recorded.



The results from these additional sites have also been included in the separate report for submitting to the RCAHMW for their evaluation, and again, if thought appropriate, for the information to be added to the current Welsh heritage record and Coflein Catalogue.

7.6.12 Evening Talk.

On Thursday evening Richard Hughes, the Diving Officer from the local dive club (Red Dragon Divers) in Haverfordwest, very kindly gave a talk in the dining room of the B&B guesthouse about a couple of wrecks their club have been diving and researching.

7.7 Friday 14th June (Weather: cool with light southwest winds, & occasional showers)

The 3-day storm had been the result of a deep low over the North Sea bringing strong anti-clockwise winds down the Irish Sea into Abercastle bay (see Fig. 60, & Tables 14 & 15, Appendix G).



Fig. 60 View of the wreck site during the storm.

The wind was initially from the northeast, but steadily veered through north to northwest as the low tracked slowly west across Scotland. By Friday the low had moved into the Atlantic, and the wind moderated from the southwest, leaving Abercastle Bay fairly sheltered (see Fig. 61).

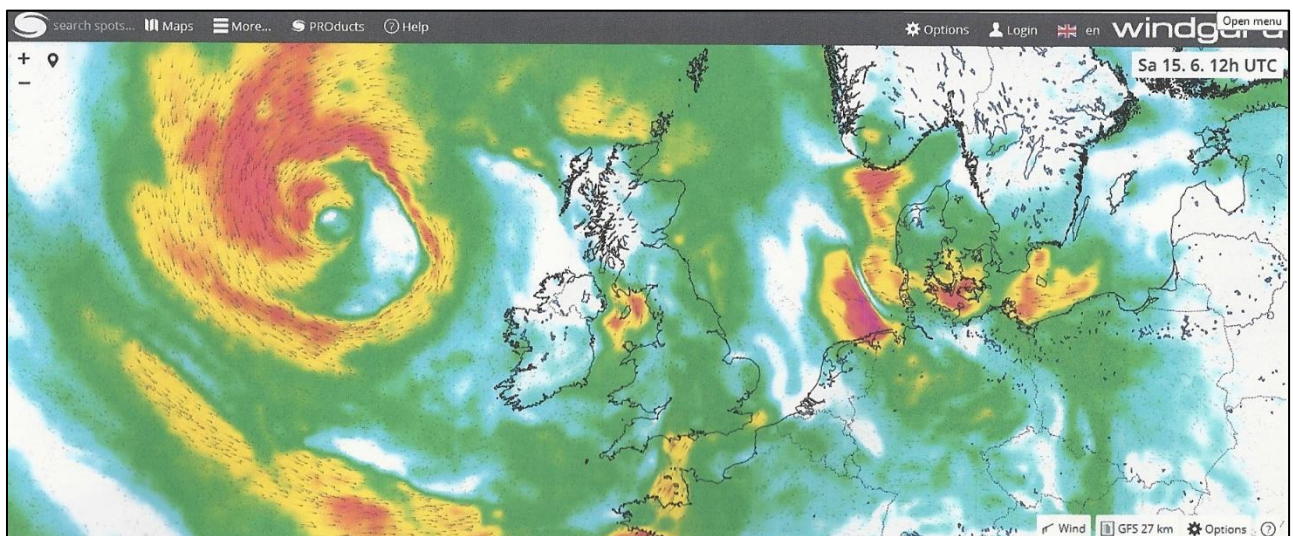


Fig. 61 By Saturday the low that had caused the storm had moved west into the Atlantic.

With diving again possible, the clubs were on the beach just after 07:00 in time to catch high tide, and by 09:00, 6 ribs and the hard boat *NovaT* had been launched, were safely back on their moorings and everyone was back at Garn Isaf in time for the morning briefing.

Two additional dive clubs had arrived since the last dive on Monday, so the morning briefing was again more comprehensive. However, due to the preceding 3-days of storms, the 8 strong team from the Flintshire Sub Aqua Club contacted us to say that, due to the weather conditions, and as the prospect of diving over the weekend did not look promising, like the Whiston & Prescott Sub Aqua Club the previous weekend, they had also regrettably made the decision to pull out.

Despite this, the plan for the day was for *Nova7* to continue working with the ROV to capture video and sonar images of the site, the new clubs would have a familiarisation dive, and then, along with all the other clubs, continue surveying the wreck (see Fig. 62), sketching the site and taking as many underwater photographs and video clips as possible, including examples of the fauna and flora present for post-field school identification (see Fig. 63).



Fig. 62 Divers surveying the site.

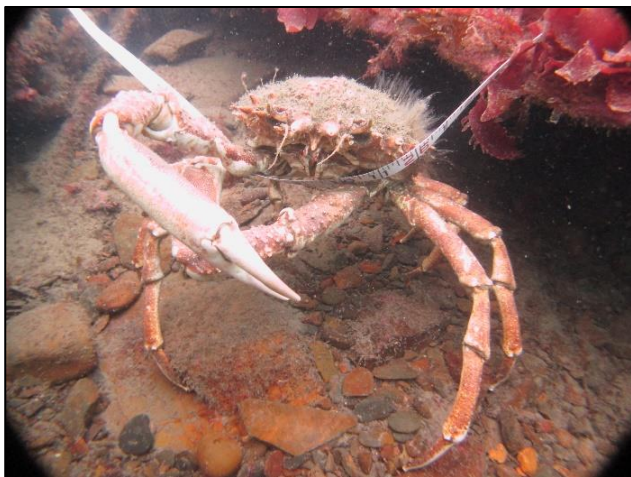


Fig. 63 Some of the Fauna encountered on the site.

While divers were changing bottles, and taking a surface interval to decompress between dives, Red Dragon Divers carried out a sonar imaging sweep of the site from the surface in an attempt to capture a complete overview of the underwater topography of the seabed and wreck using the multibeam and side scan sonar on their dive boat (see Section 8.3).

Towards the end of the day one addition dive club arrived with two ribs, ready to be launched on the high tide first thing on Saturday morning. This bought the total number of boats available over the course of the second weekend to 9.

7.8 Saturday 15th June

(Weather: sunshine, light SW winds, slight to moderate sea)

Overnight strong winds and driving rain caused some re-pitching of tents in the early hours, but we awoke to a bright sunny day. Before the morning briefing the two additional boats were launched, and the strategy for the day was to continue with the previous day's plan.

In addition to the underwater surveying being carried out, Henry Carter undertook a series of photography exercises with the hope of being able to process the results using photogrammetry software to create a set of 3D images of the items recorded. The items selected included:

- The spare propeller boss
- A triple mooring bollard
- A double mooring bollard
- A double mooring bollard with a wire attached

Over the course of the weekend the RCAHMW again set up a table, next to the slipway, this time with Deanna Groom and Rita Singer in attendance. To provide Rita with a better understanding of the what was going on at the site, she was fitted with a dry suit, and spent some time out on the water, taking photographs, observing the ROV in operation and the activities of the various dive clubs deploying and recovering their divers (see Fig. 64).



Fig. 64 Rita Singer taking the opportunity to spend time at sea.

Throughout the field school, on days when diving was possible, most teams chose to undertake two dives per day, returning to the beach between dives to change bottles and plan their second dive. Over the second weekend, we were on spring tides, with low water just after midday, which entailed a long walk if it was necessary to collect anything for the afternoon's dive (see Fig. 65).



Fig. 65 Club Ribs moored together between dives at low water.

In Abercastle, on the harbour wall next to the slipway, is an engraved plaque commemorating the the first single handed Atlantic sailing from west to east in a fishing dory by Alfred "Centennial" Johnson. The voyage set out from Gloucester, Massachusetts in the USA on 15th June 1876, and made landfall at Abercastle on 10th August after 56 days at sea.

By coincidence, today (15th June), was the 143rd year to the actual day that he set sail, and although this is not a particularly significant anniversary to celebrate, we took it on ourselves to give the slate plaque a good clean and make it more presentable (see Fig. 66).



Fig. 66 The plaque commemorating the achievement of Alfred "Centennial" Johnson.

7.9 Sunday 16th June (Weather: overcast, cold, showers, wind light southwest increasing)

Before the morning briefing, Aled Scourfield from BBC Wales arrived. He had arranged to spend some time filming and interviewing people during the day in order to put together a couple of pieces to be aired the following day on two different BBC Wales TV programmes (see Fig 67).



*Fig. 67
Aled Scourfield
filming &
interviewing for
BBC Wales TV.*



One of the crew (Lowri Roberts), in addition to being a diver and an archaeologist, is also a fluent Welsh speaker, and she was available to talk on camera about the project, and the field school in Welsh for transmission on the BBC Welsh language TV station the following afternoon.

As this was to be the last diving day of the field school, following the morning briefing, during their first dive of the day, the individual dive teams continued with their underwater recording and surveying tasks, before clearing the wreck and surrounding area of everything that had been introduced onto the site over the preceding days.

Following diving operations, all the boats were removed from the water, tents were taken down and most people left to make their way home.

7.10 Monday 17th June

All that remained for the skeleton crew on the Monday morning was to clear up the self-catering Farmhouse, have a final check over the campsite, and hand Garn Isaf back to Anne and her team for them to prepare for their next guests.

8.0 Results

8.1 The Terrestrial Cliff Top Surveys

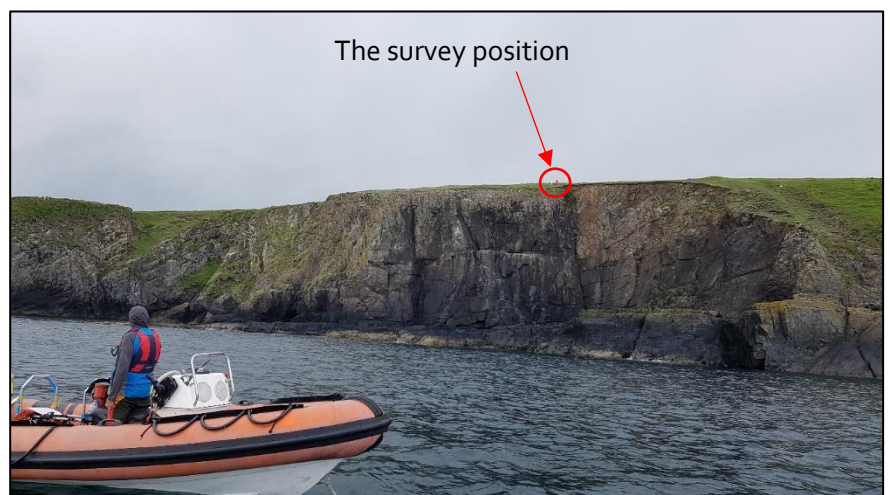
In addition to introducing people in the use of the total station and running exercises on intertidal surveying (see Section 7.6.4), on Monday 10th June the total station was taken onto the cliff top overlooking the site. Divers from Llantrisant SAC then swam around the wreck from around mid-ships to the stern, towing the prism around the site while its positions were recorded using the total station (see Fig. 68, 69 & 70).

Fig. 68 The total station being set up on top of the cliffs overlooking the wreck site.



Fig. 69 The wreck site as viewed from the coastal path.

Fig. 70 View of the survey position on the cliff top from the wreck site.



Close to where the total station was set up to record the wreck site location on the cliff top, there can be observed a single concrete post hole (see Fig. 71). The concrete around this hole measures approximately 500mm x 500mm with the post hole measuring 130mm x 130mm, and during the field school its location was also recorded (see Table 6). There is also the suspicion of a further post hole slightly closer to the cliff edge, but this is very indistinct.



Fig. 71 A single concrete post hole directly above the wreck site



To the south east of this single post hole are the remains of two pairs of concrete bases (see Fig. 72 & 73). The dimensions and locations of these bases was also recorded (see Table 6



Fig. 72 The pair of concrete bases 1 on the cliff top.



Fig. 73 The pair of Concrete Bases 2 on the cliff top.

Along with the single post hole, these bases may be the remains of where salvage operations are reported to have been located, (see Fig. 26), however this has not been confirmed. While on the cliff top, the locations of two modern National Trust sign posts were also recorded (see Fig. 74).



Fig. 74 The National Trust sign posts on the cliff top above the wreck site.

A plan of the terrestrial cliff top surveys can be seen in Fig. 75, and the details and co-ordinates of all these features recorded in Table 6.



Fig. 75 Plan of the sites features recorded during the cliff top survey.

Features	Detail	Dimensions	Co-ordinates	
		mm	North	West
Mid Wreck Buoy			51.96301	5.13342
Single Post Hole	Concrete	~ 500 x 500		
	Post Hole	130 x 130	51.962	5.1339
Concrete Bases 1	Concrete	~ 500 x 460		
	Post Holes	150 x 95	51.9614	5.1329
Concrete Bases 2	Concrete (large)	~ 700 x 450		
	Post Hole (large)	160 x 130	51.9613	5.1327
	Concrete (small)	~ 410 x 350		
	Post Hole (small)	130 x 120		
NT Small Fence Post			51.96118	5.13233
NT Sign Post			51.96092	5.13142

Table 6. Table of details and co-ordinates for the sites recorded during the cliff top survey.

8.2 The Underwater Site Survey

8.2.1 An Experimental Methodology

The widely accepted, and NAS taught, method of surveying an underwater 3D site by divers is using a technique known as the Direct Survey Method (DSM). This involves installing a set of dummy control points around the perimeter of the site, measuring all the distances between them to produce a lattice of measurements and recording the depths of each point. All the distances and depths are then entered into a software programme known as Site Recorder, and a 3D site plan and elevation of the control point positions is produced, which can then be fixed.

Having completed this exercise for the control points, any significant feature on the underwater site can be individually recorded by taking measurements directly from the feature to a minimum of 4 of the nearest control points, and recording the features depth. After entering the distances and depth into the software, the feature's 3D co-ordinates can be derived and its location with respect to the control points viewed on the site plan & elevation, and then can also be fixed.

The *Leysian* was 400ft (121.92m) long x 52ft (15.85m) wide before collapsing, and this has resulted in the remains now being scattered over an area in excess of 21,000 ft² (2,000 m²) of the seabed. It would be completely unrealistic to attempt to apply the above Direct Survey Method to record a site of this size, so an alternative solution was required.

Without an obvious methodology to follow, an experimental plan was proposed. Instead of working from a set of dummy control points outside the site, and then working in to the existing wreck features, the plan was to work from a single master control point at the heart of the site, and then to work out to the significant features. The following is an example of the methodology proposed.

Fig. A The plan was to select a significant location on the site to act as the master control point. The point selected was on the prop. shaft where the main buoy and the divers shot line was to be attached. At this point a plastic milk bottle float marked with the number 1 would be attached.

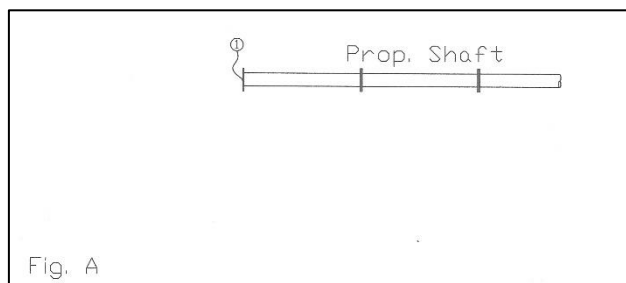


Fig. B The next step would be to fix a series of additional numbered bottle floats to various site features radiating out from the central master control point No. 1.

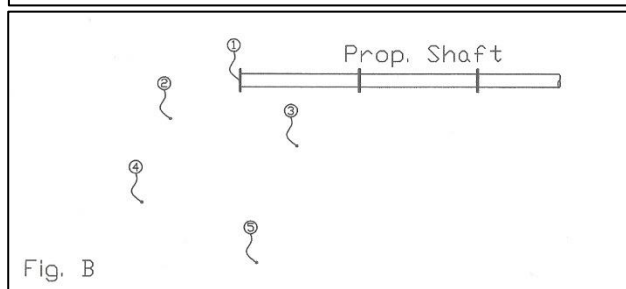


Fig. C For the 1st Survey, measurements would be taken directly between 5 (or more) adjacent numbered features, including the central master control point No. 1.

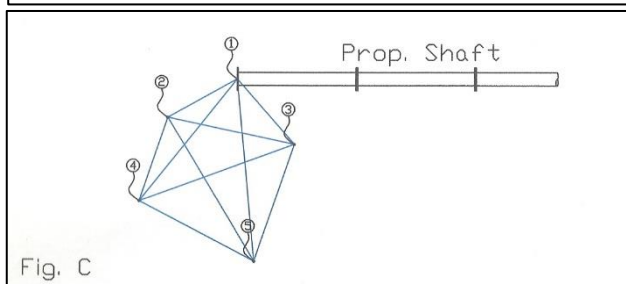


Fig. D The depth of each of the 5 (or more) features would be recorded. Then along with the direct measurements, the data would be entered into Site Recorder, and the relative positions for all these features established, and then fixed.

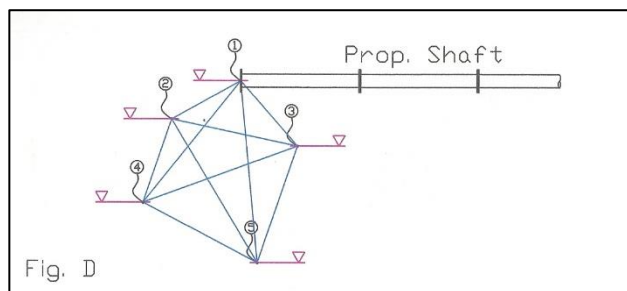


Fig. E For the 2nd Survey, a selection of 3 (or more) additional numbered features, adjacent to those recorded in the 1st Survey would be selected for extending the site plan.

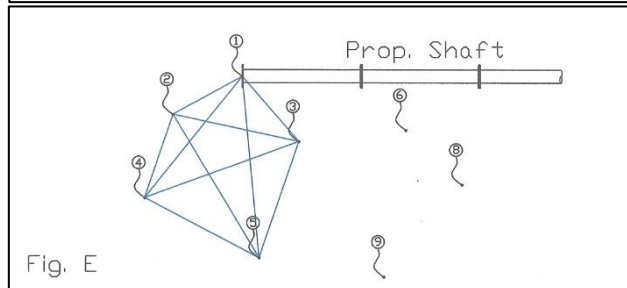


Fig. F These 3 (or more) new features would then all be measured directly into each other including to a minimum of 2 of the features previous recorded in the 1st Survey (in this example features 3 & 5).

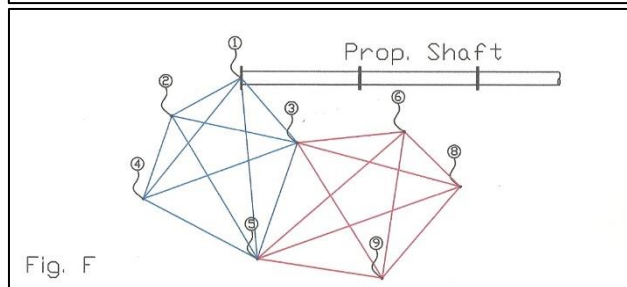
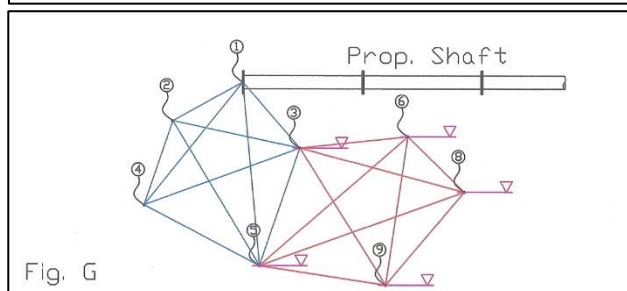


Fig. G The depth of each of the 3 (or more) new features would be recorded. The depth of the master control point No. 1 would also be re-recorded, and the difference between the 1st & 2nd Survey depths added to, or subtracted from, all the other 2nd Survey depths.



Finally, all the 2nd Survey measurements and the adjusted depths would be entered into Site Recorder, the relative positions for all the new features established, their positions inspected in plan and elevation and then fixed.

This process for a 3rd & subsequent survey can then be repeated (from Fig. E) until as much of the site has been recorded as possible.

During the course of the field school, the position of the main buoy and shot line, leading down to the master control point No. 1 was surveyed using the total station (see Section 8.1 above). This then established the co-ordinates of the central location of the wreck (i.e. the master control point No. 1). By taking a bearing underwater from the master control point No. 1 to any of the adjacent features that had been surveyed would allow the entire site plan to be rotated about the co-ordinates of bottle No. 1 to correctly orientate the site.

8.2.2 The Underwater Survey Results

During the field school the above method of surveying the underwater remains of the *Leysian* was attempted, and below is an analysis of the results that have subsequently been processed by Richard Rowley.

Prior to the field school, around 70 - 1lt plastic milk bottles, complete with large indelible numbers on all 4 faces and with string attached to the handles were prepared, and following a familiarisation dive on the first diving day, 48 of these bottles were attached to features on the site. The positions selected were determined by the divers, with locations generally selected where it was easy to tie in the bottles. A small amount of air was then purged into each bottle from the diver's demand valve so that the bottles floated upright and were readily visible above the surrounding debris field. This meant that the bottles were randomly distributed, but radiated out from bottle number 1 which was attached to the prop. shaft at the bottom of the main shot line in the centre of the site. The bottles were however required to be within line of sight with adjacent bottles, and this was generally successfully achieved.

Having deployed the bottles, the next exercise was for a pair of divers to provide an overall sketch of the site recording the approximate position of each bottle along with their respective identification number. The result of this and the distribution of the bottles can be seen in Fig. 76, and covered an area of approximately 30m x 35m (i.e. ~1,050m²).

Subsequent dives involved buddy pairs taking a group of 5 or more adjacent bottles and surveying them into each other using direct measurements and recording the depth of each bottle together with the depth of the master control point (bottle number 1).

Richard kept the divers in order, by providing short instruction sessions after the morning briefings, before handing out pre-prepared proformas on boards indicating which areas of the site remained to be surveyed or where missing data was still required (see Fig. 39).

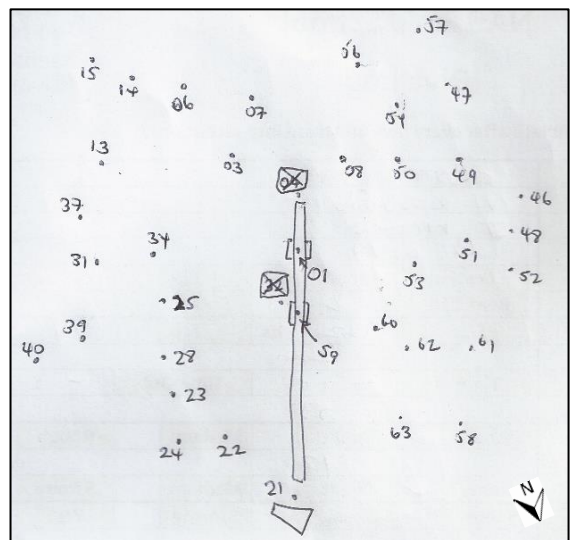


Fig. 76 The initial sketch showing the distribution of bottles around the wreck

As the information from the surveys came in, Richard was able to co-ordinate the activities and start to analyse and process the data. The individual sets of measurements and depths were then run through the Site Recorder software example of which can be seen in Fig. 77).

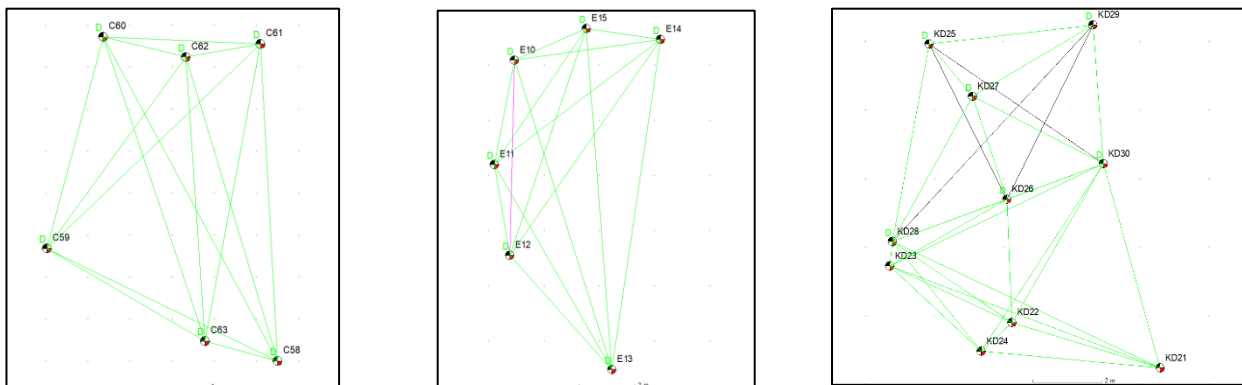


Fig. 77 Examples of some of the individual sets of surveyed results.

A degree of difficulty arose when attempting to bring together some of the individual sets of results to produce a single overall site plan, however Richard battled with the issues with results as can be seen in Fig 78.

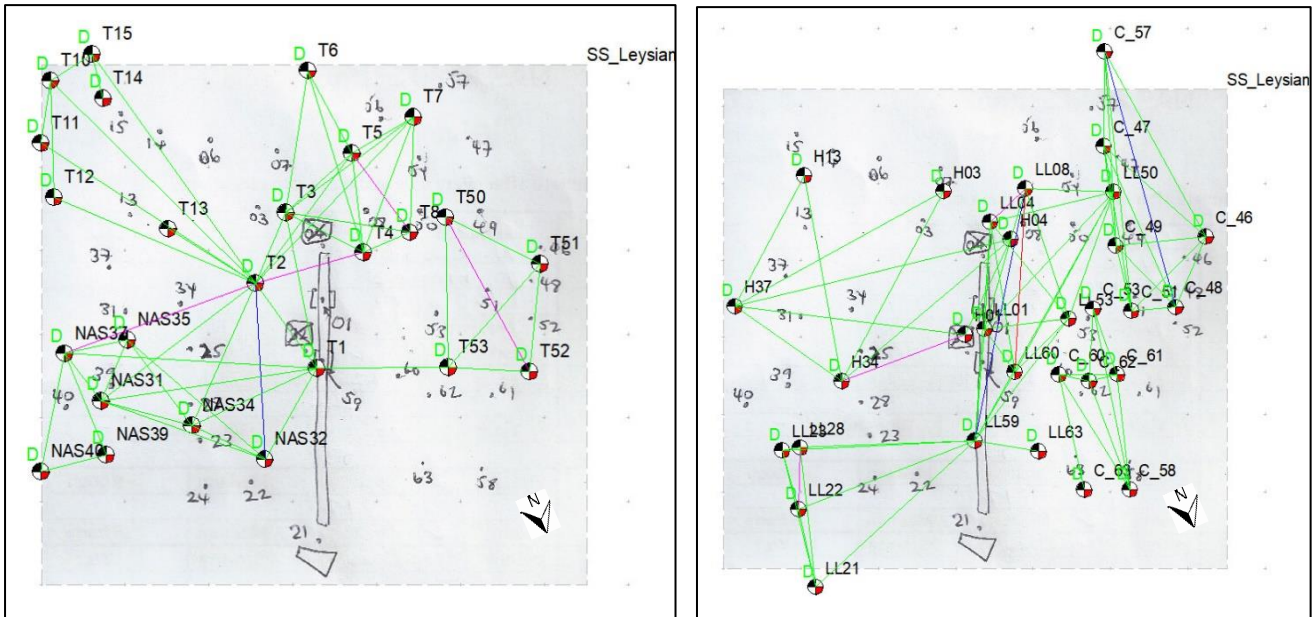


Fig. 78 Examples of some of the combined individual sets of surveyed results.

Of the 48 bottles originally deployed, 43 were surveyed and recorded, and the resulting site plan as can be seen in Fig 79 from dimensional measurements can be assessed.

However, while the points and lines created from carrying out a survey may produce a proportionally accurate site plan, they do not provide a pictorial overview of a site. Neither do they offer any clue as to what the bottles are attached to, or tell us anything about the topography of the landscape and terrain over the area of the site.

Fortunately, funding for the field school allowed for the hire of a commercial ROV fitted with a sonar head, the results from which provided both visual and sonar underwater video images of the site. This means that as the ROV tracked its way around the wreck moving from bottle to bottle, the route taken and the associated video recordings of that part of the site can be followed on the site plan and the images observed.

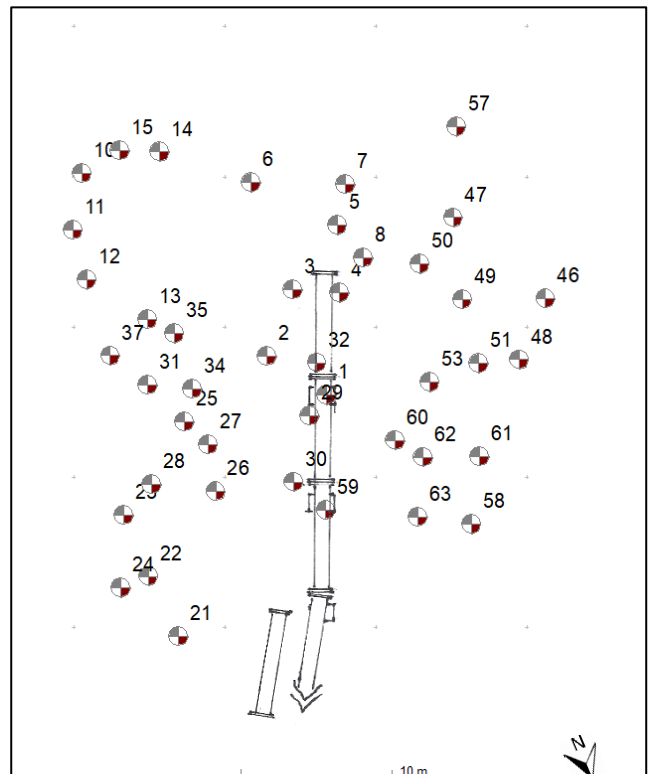


Fig. 79 The site plan derived from the processed data obtained by divers.

For more information and examples of this see Section 8.3.

8.3 The ROV Sonar Imaging and Video Recording:

The ROV hired for the field school was a VideoRay Pro 4 fitted with a Blueprint Oculus 750D Multibeam Sonar head and was supplied complete with 152m of neutral tether and a rugged twin screen controller (see Fig. 34). The ROV requires a 240volt AC supply and the controls need to be kept dry and ideally located in a cabin so that the screens can be shaded from direct sunlight (sic). It is therefore not recommended to attempt to operate the ROV from a typical dive club RIB, so the hard boat *NovaT* was kindly bought to the field school by Andy Walker from the Tewkesbury Underwater Group.

The ROV unit was collected from Atlantas Marine, Yeovil, Somerset on Friday 7th June and returned on Monday 17th providing 9-days of potential use on site. Day one was spent ashore assembling, setting-up and testing the unit (see Fig. 34), while day two was spent at sea allowing the operators to get to grips with piloting the ROV around the site and operating the sonar & camera controls. The final day of the field school was spent dismantling, cleaning and packing up the unit for return the following day, which left six days for effectively running the ROV and obtaining as much data as possible.

Unfortunately, storms raged for three of these days (see Section 7.6) when not only was there no possibility of diving, but it was unsafe to even have boats on the water. We were therefore restricted to only three operational days, Monday 10th (see Fig. 41), Friday 14th and Saturday 15th June. On these days, there was an open invitation for anyone who was interested to come aboard *NovaT* to observe the recordings taking place and to try their hand at piloting the ROV (see Fig. 64 & Appendix I, 16th June 2019). Although three days were lost midweek when data could not be obtained, the ROV was still used over this period, but in the test tank ashore where piloting practice by anyone could easily take place (see Section 7.6.2, Fig. 50).

Despite there only being three operational days when the ROV could be used on the site, a total of 60 sonar scans, amounting to 3hr 42min 20sec of footage was obtained together with 31 video clips, amounting to 4hr 42min 23sec of footage. Below are a sample selection of some screen captures from the sonar and video footage obtained.

The sonar unit was tested through a variety of scanning ranges varying from 0–3m through to 0–40m. With a site measuring at least 60m x 40m, even with the sonar set to its highest usable range, it was never going to be possible to scan the entire site in a single view, and at the 0–40m setting the definition was always going to be poor. By traversing the site, a continual image can be produced, however as can be seen in Fig. 80 (captured ~2min 10sec into sonar image No. 20190615_180702 taken on Day 9), at the 0–40m setting, the image is very small and the definition difficult to analyse, although the prop shaft can be seen as highlighted.

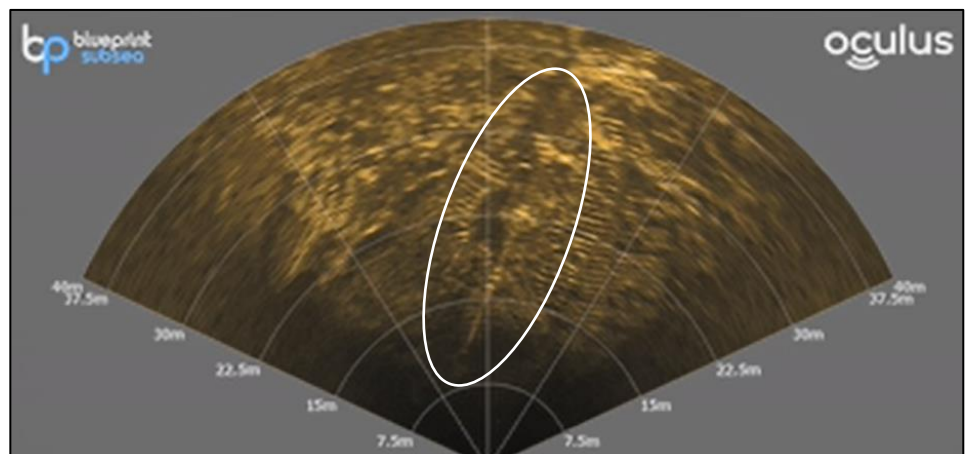


Fig. 80 A screen capture example of a sonar scan of the prop. shaft taken at the 0-40m range.

By comparison at the 0-10m range, definition was greatly enhanced. As can be seen in Fig. 81 (captured ~1min 20sec into sonar image No. 20190615_171006 taken on Day 9), at the 0-10m setting, the image is better defined and the propeller shaft and its flanged connections can be clearly seen.

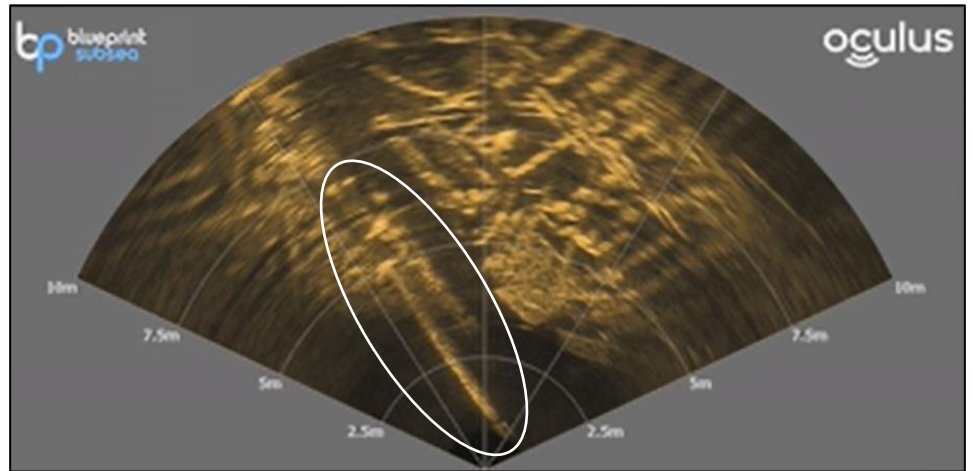


Fig. 81 A screen capture example of a sonar scan of the prop. shaft taken at the 0-10m range.

The ROV houses a video camera and lights which, like changing the sonar range, can be controlled from the surface. The ROV pilots were requested to home in on the survey bottles until the bottles number could be read and then to traverse the site to any other bottle that could be observed, recording video footage on route. That way it was hoped that as mentioned in Section 8.2.2 above a video record could be made of the site by piloting the ROV from bottle to bottle, and the route tracked using the site plan derived from the underwater survey (see Fig. 79).

An example of this can be illustrated by looking at the site plan (see Fig. 79) for the position of bottle 59. It is attached to the prop. shaft, close to one of the bearing blocks. Its corresponding image can be found ~1min 29sec into the ROV video No. 2019-06-14_T12-35-46-838Z taken on Day 8 (see Fig. 82).



Fig. 82 A screen capture example from an ROV video showing bottle 59 above one of the prop. shaft bearing blocks.

Of the 48 bottles deployed, 31 were definitively captured by the ROV camera, from which the subsequent areas around each of can be viewed and inspected in detail.

In the images produced using the sonar, the only additional information provided on the screen are details of the range being used. This lack of positional detail can often make it difficult to relate where on the site the image is located, particularly as the bottles are too small to be identified by the sonar. By comparison as can be seen from Fig. 82, the ROV video screen also includes the date, time, direction the ROV is facing, the depth and the water temperature. From this screen capture, we can see that the image was taken on 14th June 2019 at 13:37:18 in 11.13m of water that was 15.6°C (i.e. warmer than the air temperature at any time during the field school!), and that the view was taken on a bearing of 73.7°, so we can tell that for this image, the ROV was on the starboard side of the *Leysian's prop. shaft*, facing towards the stern.

Despite the storms, the underwater visibility throughout the field school remained excellent at 6-10m, and as can be seen from Fig 83, the ROV pilots had no difficulty in spotting the bottles, although homing in to read the number did take some practice and dexterity!

Fig. 83 A screen capture example from an ROV video showing bottle 23, with two more bottles in the distance and the terrain and debris field in between.



ROV videos were also able to capture close up images of the fauna & flora on the site, as well as divers surveying the wreck (see Fig. 84).



Fig. 84 Examples of other screen captures from the ROV videos.

With 60 sonar scans, and 31 ROV video clips amounting to 8hr 24min 43sec of viewing, there is a considerable amount that could be reported and commented on, however below is just one example from the results obtained providing a comparison between sonar and video screen capture images taken of similar locations towards the edge of the sites (see Fig. 85 & 86).

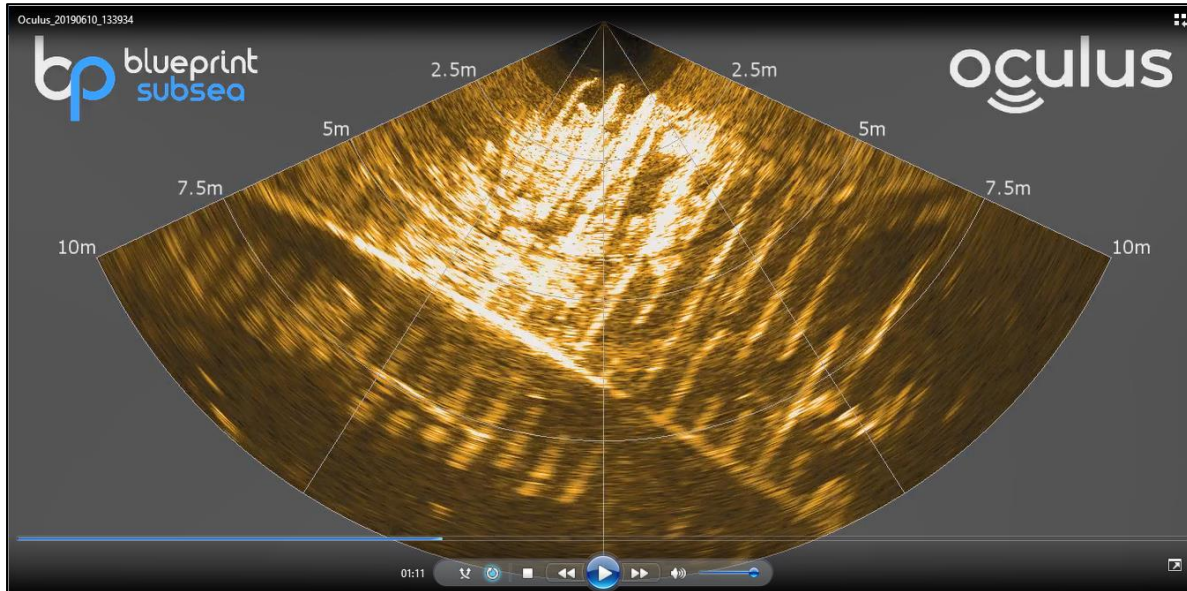


Fig. 85 A screen capture of frames taken from a sonar image at the edge of the site.



Fig. 86 A screen capture of frames taken from a ROV video at the edge of the site.

In addition to the sonar images captured using the ROV, as mentioned in Section 7.7, during the field school the local Red Dragon Divers from Haverfordwest ran their club RIB over the site and recorded both a set of multibeam and side scan images which can be viewed at:

<https://drive.google.com/file/d/1oXlzBhaPUUmigKc5pJzTRqBT1OmTaODm/view?usp=sharing>

8.4 Site Features – The Propeller Boss:

Through observation, recording, surveying and research, the following as an example of how a single site feature found on the site has been traced back to its origin, and can help us better understand not just what the feature is, but its function and how it would have been used.

When first diving a well broken up site, it is helpful if there is something readily visible and identifiable that can assist divers to orientate themselves and better understand the layout of a site. As an example of this, in the case of the *Leysian* there is a very recognisable long prop shaft standing around 1.5m above the seabed on raised bearing mounts. The shaft would have run from the engine amidships to the stern, and about half way along the shaft, almost on the centre line of the vessel can be observed a large boss of a propeller (see the front cover & Fig. 87).



Fig. 87 The propeller boss being recorded.

The location of the boss with bottle number 60 attached, was surveyed into the site plan (see Fig. 79), and drawings of the boss produced (see Fig. 88).

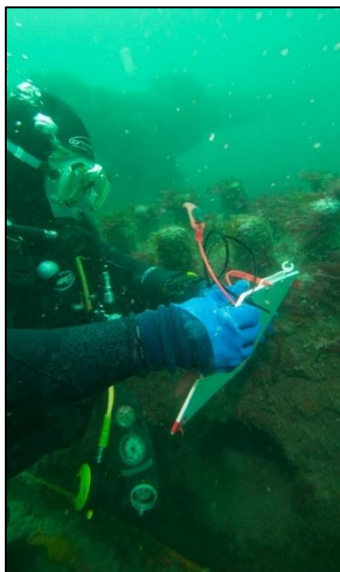


Fig. 88 The Propeller Boss being recorded and one of the final drawings.

Following close inspection of the original plans for the *Leysian* (ex-*Serak*) (see Fig. 12) there is a spare propeller boss & blade shown stored next to the rear mast on the main deck (see Fig, 89).

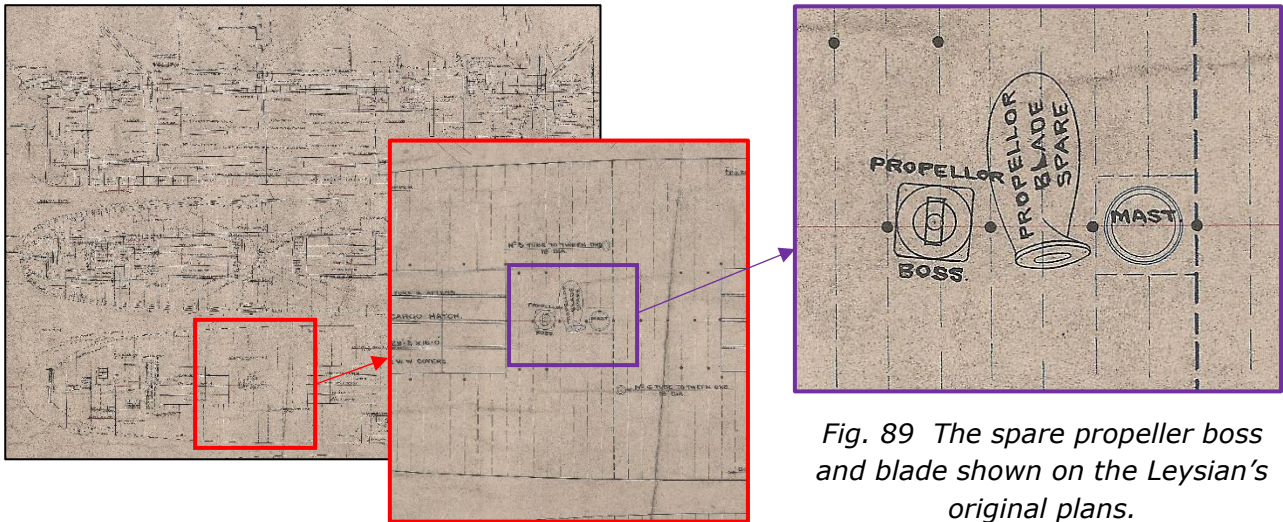


Fig. 89 The spare propeller boss and blade shown on the *Leysian's* original plans.

Members of Chester BSAC researched Engineering books of the period (MacGibbon 1931), and uncovered typical drawings and the specification for this style of propeller and boss (see Fig 90).

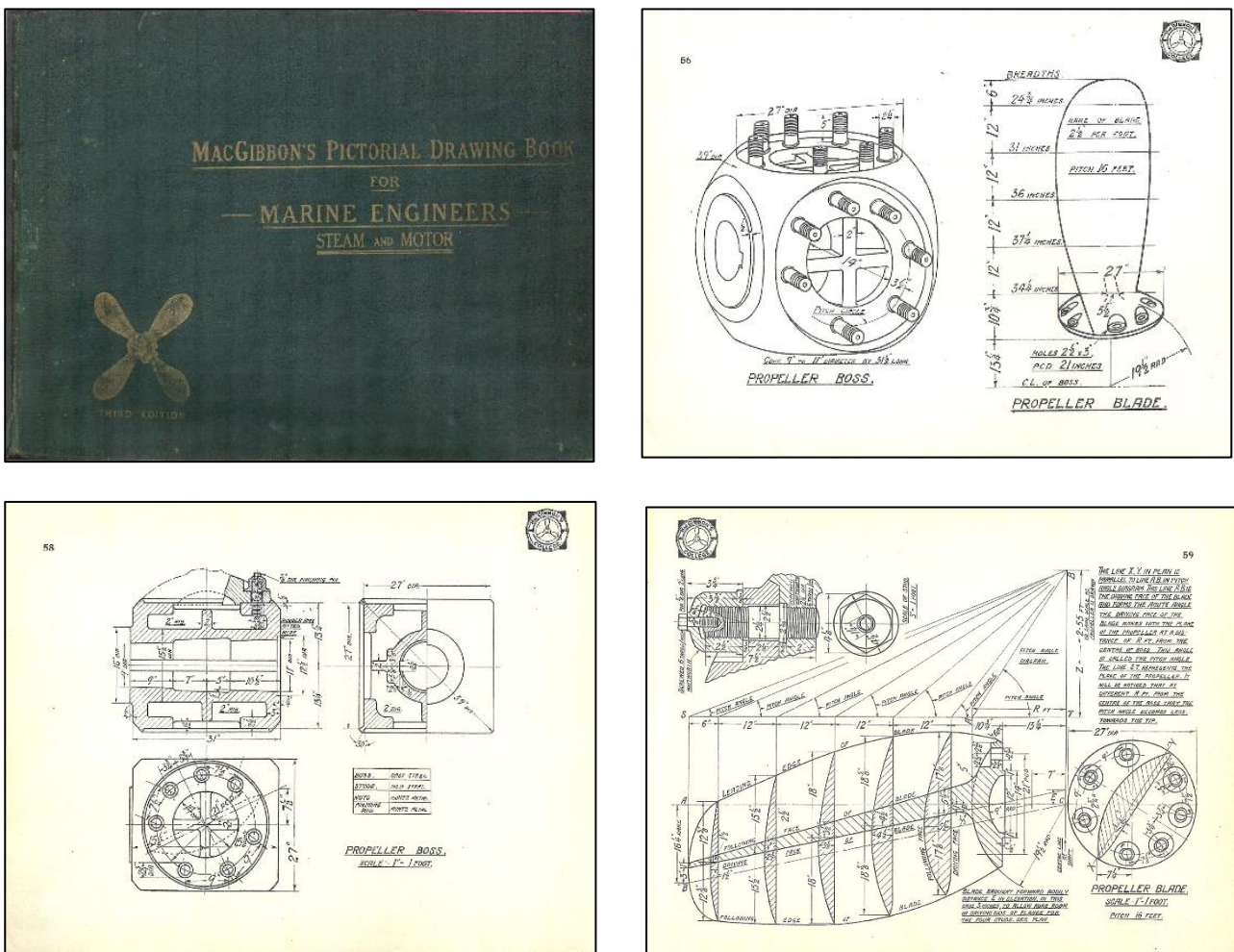


Fig. 90 Details of a propeller boss and blade shown in marine engineering books.

8.5 Local Heritage Sites:

As mentioned above (see Section 7.6.10), for anyone who attended the field school as a non-diver, and for divers between dives or when blown-out, there was the opportunity to visit some of the 34 terrestrial heritage sites identified local to Abercastle (see Tables 16 & 17 in Appendix H). During the course of the field school, 28 of these sites were visited and a considerable amount of additional information including photographs, videos, sketches and a report were obtained to add to the existing heritage record.

In addition to these existing sites, 4 new sites were also visited and recorded (see Section 7.6.11 and Table 18 in Appendix H). These included an Inn, an assemblage of cannons and a disused granary.

A report containing information obtained during visits to all these sites is included in:

Report on sites of Historical Interest visited during the 2019 Nautical Archaeology Society Abercastle Field School (Malvern Archaeological Diving Unit 1919).

8.6 Statistics from the Field School:

The field school was not just about recording the underwater wreck of the *Leysian*, and when the weather was too inclement to dive, the participants were encouraged to take part in other activities above water. The overall aim of the field school was to engage as many people as possible by providing education, training, information, inspiration and fun. The following Table 7 presents an “at a glance view” of some of the more significant statistics from the field school.

Details (people & dive clubs)	Numbers		Notes
	Booked	Attended	
People	117	90	17 people who failed to attend were from the 2 dive clubs that cancelled.
Number of dive clubs represented	16	14	2 dive clubs cancelled due to the atrocious weather conditions.
Dive clubs from Wales	4	3	1 dive club from Flintshire cancelled due to the weather.
Dive clubs from England	11	10	1 dive club from Liverpool cancelled due to the weather.
Dive clubs from Holland	1	1	
Dive boats	15	12	The 3 boats that didn't arrive were from the 2 dive clubs that cancelled.
Details (diving)	Numbers		Notes
Days when diving was possible	6		There were 4 days with storms when diving was not possible.
Club Dive Plans submitted	26		
Dive Marshall Sheets submitted	35		
Individual Dives Recorded	208		
Dive Logs submitted	120		
Time spent underwater	>100 hours (>4 days)		
NAS Feedback Forms submitted	37		See Appendix L
Photographic Images	>9,000		
Videos (ROV)	31		
Videos (Sonar)	60		
Videos (Interviews)	26		
Videos (others)	463		Mostly taken underwater by divers
Details (heritage sites)	Numbers		Notes
Terrestrial Sites visited	28		Out of 34 identified
Photographic Images	377		
Videos	4		
Sketches	7		

Table 7. Field school statistics.

9.0 Site Ecology

The following section has been compiled by Jennifer Jones. Jennifer is a self-employed scientific diver & field biologist specialising in marine biological surveys, the identification of marine invertebrates and the collation and management of data from such surveys.

9.1 Overview – The wreck site and its associated Flora and Fauna

The wreck of the *Leysian* lies in relatively shallow water at a moderately exposed site, with scattered pieces lying amongst a rocky substrate and sediment at the shallower depths, leading to extensive expanses of wreckage on a mixed substrate of rock and sediment as the depth gradually increases, eventually giving way to a muddy mixed sediment seabed around the deepest part of the wreckage.

Due to the shallow depth (maximum depth recorded over the survey period was 18 metres below sea level), the wreck site provides the ideal environment for a rich plant community to thrive, and with the exception of occasional flat, smooth surfaces with little or no attached marine life, most of the upward facing, exposed areas of the wreckage and surrounding rock have been colonised by a dense growth of rich red algal turf interspersed with clumps of brown seaweeds. Encrusting coralline algae also appears frequently as flat pink patches on the wreckage. A covering of sessile animal turf is present to a lesser extent on upper surfaces; however, on the undersides, overhanging surfaces and enclosed portions of the wreckage the algal growth filters out due to reduced light, and the animal turf becomes dominant.

9.2 Habitats and species

The variation in depth, substrata (seabed type/wreck) and aspects of wreckage over the site results in three distinct marine communities or habitats being present. These habitats are described in detail below.

9.2.1 Habitat 1 - Kelp and brown algae with barnacles

Close to the cliff at the shallowest part of the wreck site, scattered pieces of wreckage lie among rock, boulders and areas of coarse sediment. The rock and larger boulders are covered with brown kelps, the dominant species being *Laminaria hyperborea* (Cuvie) interspersed with *Saccharina latissima* (Sugar kelp). The brown seaweed *Dictyota dichotoma* (Brown fan weed) is frequent on smaller boulders and on some pieces of wreckage, and the brown seaweed *Desmarestia aculeata* (Landlady's wig) is occasional.

Many of the wreck pieces lying on the sediment in this area are heavily encrusted with barnacles rather than seaweeds, with the hydroid *Sertularia argentea* (Squirrel's tail) appearing frequently (see Fig 91). A notable species present is *Metridium senile* (Plumose anemone), although rare in occurrence.



Fig. 91 Wreckage encrusted with barnacles and hydroids (Habitat 1).

9.2.2 Habitat 2 - Mixed red and brown algae with faunal turf

As the site gradually slopes away from the cliff, large expanses of wreckage lie over bedrock and kelp is sparse. Tall, bushy growths of the brown seaweed *Halidrys siliquosa* (Sea oak) are seen amongst a rich algal turf of red and brown seaweeds on the shallower horizontal structures, and these isolated plants are covered with an epiphytic fauna of bryozoans and the hydroid *Aglaeophenia pluma*. They become less frequent as the depth increases between midships and the stern, with red algal turf remaining the dominant community on all upper surfaces, and brown seaweeds and animal turf also present. The floral and faunal turfs found in this habitat are *Halidrys siliquosa* with red algal turf (upper Habitat 2) described individually below (see Fig 92).



Fig. 92 *Halidrys siliquosa* with red algal turf (upper Habitat 2).

Floral turf

The red algal turf is dominated by the species *Calliblepharis ciliata* (Red fringed weed) with *Cryptopleura ramosa* (Fine-veined crinkle weed), *Chondrus crispus* (Irish moss) and *Acrosorium ciliolatum* (Red hook weed) also common. Many other red seaweeds are present, of which *Dilsea carnosa* (Red rags) and *Heterosiphonia plumosa* (Siphoned feather weed) are frequently seen. The brown seaweeds occurring in this turf are predominantly *Dictyota dichotoma* (Brown fan weed) and *Dictyopteris polypodioides* (Netted wing weed). Patches of encrusting pink algae occur frequently all over the wreckage.

Faunal turf

The main animal turf is a mixture of mainly short hydroid/bryozoan turf (see Fig 93). The bryozoan *Crisularia plumosa* (Spiral bryozoan) is common, particularly in shaded sections of the wreck, whilst the hydroid *Sertularia argentea* (Squirrel's tail hydroid) is relatively frequent amongst the weeds in the upper depths of this habitat. Small solitary cup corals *Caryophyllia smithii* (Devonshire cup corals) are scattered over much of the wreckage, particularly the prop shaft, and the sea squirt *Clavellina lepadiformis* (Lightbulb squirt) is frequently present in small colonies on the undersides of the wreckage and in enclosed or overhanging areas. Chalky worm tubes formed by *Spirobranchus* spp. (Keel worms) often encrust pieces of wreckage with sparse turf coverage.



Fig. 93 Mixed seaweeds with short animal turf (Habitat 2).

The colonial seasquirt *Aplidium punctum* (Club sea squirt) occurs occasionally, and the soft coral *Alcyonium digitatum* (Dead man's fingers) is rare.

9.2.3 Habitat 3 - Sediment with life

The deeper portions of the wreck are lying on a slightly muddy, mixed sediment seabed with some life present. There are also patches of coarser sediment between outlying rocky outcrops and pieces of wreckage. The occasional scallop *Pecten maximus* (King scallop) (see Fig 94), *Ophiura* spp. (Sand brittlestars), *Arenicola marina* (Lugworm) casts, the burrowing anemone *Peachia cylindrica* and Bivalve siphons are all present within this habitat, along with rare *Buccinum undatum* (common whelk).



Fig. 94 King scallop on coarse sediment (Habitat 3).

9.3 Mobile fauna

Large numbers of fish inhabit the whole wreck site, and *Pollachius pollachius* (Pollack), *Trisopterus luscus* (Bib or Pouting) and *Pollachius virens* (Saithe) were observed in and around the wreckage along with several species of Wrasse including *Labrus bergylta* (Ballan Wrasse), *Labrus mixtus* (Cuckoo Wrasse) and *Centrolabrus exoletus* (Rock Cook). Bottom dwelling species in evidence were *Scyliorhinus canicula* (Dogfish or Lesser Spotted Catshark) and *Thorogobius ephippiatus* (Leopard Spotted Goby). Schools of juvenile fish were always present in specific sections of the wreck, and a juvenile flatfish was seen on sediment.

The large crab *Maja brachydactyla* (Spiny spider crab) was common and by far the most frequently seen crustacean, (see Fig 95) while *Cancer pagurus* (Brown or edible crab) and *Homarus gammarus* (lobster) were occasional or rare. *Necora puber* (velvet swimming crab) occurred frequently.

Asterias rubens (Common starfish) were occasionally seen, and a single cluster of squid eggs were attached to the underside of a piece of wreckage. Numerous egg masses laid by nudibranchs (sea slugs) were seen on wreckage in Habitat 1.



Fig. 95 Spider crabs and juvenile fish amongst wreckage.

In the water column above the wreck site, many jellyfish were seen, including *Rhizostoma pulmo* (Barrel jellyfish) and *Chrysaora hysocella* (compass jellyfish). Ctenophores (comb jellies or sea gooseberries) were also frequent.

9.4 Marine Species

Tables 8 & 9 below provide a comprehensive list of all the marine species found on the site.

Animals	Scientific name	Common name	Abundance
Anemones	<i>Metridium senile</i>	Plumose anemone	Rare
	<i>Actinothoe sphyrodeta</i>	White-striped anemone	Rare
	<i>Peachia cylindrica</i>	-	Occasional
Bryozoans	Bryozoa (turf) indet.	-	Common
	<i>Crisularia plumosa</i>	Spiral bryozoan	Common
	<i>Crisia</i> spp.	White clawed sea-moss	Frequent
Comb jellies	<i>Pleurobrachia pileus</i>	Sea gooseberry	Occasional
Crustaceans	<i>Maja brachydactyla</i>	Spiny spider crab	Common
	Cirripedia	Barnacles	Common
	<i>Necora puber</i>	Velvet swimming crab	Frequent
	<i>Cancer pagurus</i>	Brown/edible crab	Occasional
	<i>Homarus gammarus</i>	Common lobster	Occasional
Echinoderms	<i>Asterias rubens</i>	Common starfish	Occasional
	<i>Ophiura</i> spp.	Sand brittlestars	Occasional
Fishes	<i>Trisopterus luscus</i>	Bib/pouting	Frequent
	Gadidae (juveniles)	-	Frequent
	<i>Pollachius pollachius</i>	Pollack	Frequent
	<i>Pollachius virens</i>	Saithe	Occasional
	<i>Labrus bergylta</i>	Ballan Wrasse	Occasional
	<i>Labrus mixtus</i>	Cuckoo Wrasse	Occasional
	<i>Centrolabrus exoletus</i>	Rock Cook	Occasional
	<i>Scyliorhinus canicula</i>	Dogfish/Lesser Spotted Catshark	Rare
	<i>Thorogobius ephippiatus</i>	Leopard Spotted Goby	Rare
	Pleuronectiformes (juvenile)	Flatfish	Rare
Hard corals	<i>Caryophyllia smithii</i>	Devonshire cup coral	Frequent
Hydroids	Hydrozoa (turf) indet.	-	Common
	<i>Sertularia argentea</i>	Squirrel's tail hydroid	Frequent
	<i>Aglaophenia pluma</i>	-	Occasional
	<i>Nemertesia antennina</i>	Antenna hydroid	Occasional
	<i>Halecium halecinum</i>	Herring bone hydroid	Rare
	<i>Tubularia indivisa</i>	Oaten pipe hydroid	Rare
Jellyfish	<i>Rhizostoma pulmo</i>	Barrel jellyfish	Present
	<i>Chrysaora hysoscella</i>	Compass jellyfish	Present
	Stauromedusae	Stalked jellyfish	Present
Molluscs	<i>Pecten maximus</i>	King scallop	Occasional
	Bivalvia (siphons)	-	Occasional
	<i>Buccinum undatum</i>	Common whelk	Occasional
Sea squirts	<i>Clavellina lepadiformis</i>	Light bulb sea squirt	Frequent
	<i>Aplidium punctum</i>	Club sea squirt	Occasional
	<i>Ascidia mentula</i>	Red sea squirt	Rare
Soft corals	<i>Alcyonium digitatum</i>	Dead man's fingers	Rare
Worms	<i>Spirobranchus</i>	Keel worms	Frequent
	<i>Sabella pavonina</i>	Peacock worm	Occasional
	<i>Arenicola marina</i> (casts)	Lugworm	Occasional
	<i>Bispira volutacornis</i>	Double spiral worm	Rare
	Terebellidae	-	Present

Table 8. Table of marine animal species found on the Leysian wreck site.

Plants	Scientific name	Common name	Abundance
Brown algae	<i>Dictyota dichotoma</i>	Brown fan weed	Common
	<i>Dictyopteris polypodioides</i>	Netted wing weed	Common
	<i>Halidrys siliquosa</i>	Sea Oak	Frequent
	<i>Laminaria hyperborea</i>	Cuvie	Frequent
	<i>Saccharina latissima</i>	Sugar kelp	Frequent
	<i>Desmarestia aculeata</i>	Landlady's wig	Occasional
Green algae	<i>Ulva</i> sp.	Sea lettuce	Rare
Red algae	Rhodophyta indet.	Red seaweeds	Common
	<i>Calliblepharis ciliata</i>	Red fringed weed	Abundant
	<i>Cryptopleura ramosa</i>	Fine-veined crinkle weed	Common
	<i>Chondrus crispus</i>	Irish moss	Common
	<i>Acrosorium ciliolatum</i>	Red hook weed	Common
	<i>Dilsea carnosa</i>	Red rags	Frequent
	<i>Heterosiphonia plumosa</i>	Siphoned feather weed	Frequent
	<i>Delesseria sanguinea</i>	Sea beech	Frequent
	<i>Vertebrata byssoides</i>	Thread weed	Frequent
	<i>Palmaria palmata</i>	Dulse	Frequent
	<i>Drachiella spectabilis</i>	Rainbow weed	Occasional
	<i>Gracilaria</i> sp.	-	Rare
	Corallinaceae (enc.)	Encrusting pink algae	Frequent

Table 9. Table of marine plant species found on the Leysian wreck site.

10.0 Publicity

The following Table 10 lists areas where publicity in support of the field school was achieved.

Type	Details	Date	Notes
Articles	Council for British Archaeology	Spring 2019	Half Yearly Newsletter. (Appendix K – Article 2)
	Llais Rhian	May 2019	Half Yearly Publication. (Appendix K – Article 3)
	Sub Aqua Association	July 2019	Monthly Newsletter. (Appendix K – Article 6)
	Council for British Archaeology	Autumn 2019	Half Yearly Newsletter. (see Fig 72) (Appendix K – Article 7)
Conferences	MOROL	November 2018	Stand to promote the field school.
	NAS / FoNS	November 2018	Stand to promote the field school.
Flyers	Dive Club Invitations (circulated via BSAC & SAA)	Autumn 2018	Bi-lingual invitation. (Appendix A)
	Research plea for information	February 2019	Bi-lingual request for help with research. (Appendix F)
	Field school Joining Instructions	April 2019	10-page Information Pack. (Appendix B)
Information Desk	Run by Deanna Groom & Helen Rowe (RCAHMW).	8 th – 9 th June 2019	Table set up next to the slipway in Abercastle Bay (see Fig. 22).
	Run by Deanna Groom & Rita Singer (RCAHMW)	15 th & 16 th June 2019	
Internet	NAS - Weekly Discoveries	November 2018 – June 2019	Circular weekly e-mails to all NAS members.
	U-boat Project – web pages	12 th March 2019	https://uboatproject.wales/tag/leysian/
	NAS - Blogs	8 th – 17 th June 2019	https://uboatwarunderwaterarchaeology.home.blog/ (Appendix I)
	BBC Wales – News on-line	8 th June 2019	https://www.bbc.co.uk/news/uk-wales-48491939
	NAS – Social Media	7 th – 17 th June 2019	Various throughout the field school. (facebook, twitter, etc.)
Merchandising	Crew field school t-shirts	7 th – 17 th June 2019	See Fig 2
Newspapers	County Echo	26 th April 2019	Newspaper Article. (Appendix K – Article 1)
	Western Telegraph	17 th June 2019	Newspaper Article. (Appendix K – Article 5)
Plaque	Slate plaque commemorating the sinking of the SS <i>Leysian</i>	13 th June 2020 (TBC)	See Section 11 – Conclusions & Legacy
Posters	Friends of the Newport Ship Talk	27 th April 2019	(Appendix K - Poster 1)
	Mathry Community Hall Talk	10 th June 2019	(Appendix K - Poster 2)
	Mathry Community Hall Talk	10 th June 2019	(Appendix K - Poster 3)
Radio	BBC Wales (Radio 4 Breakfast Show)	8 th June 2019	Live interview with Oliver Hides.
Song	Ferrying Hooves to the Front	10 th June 2019	https://www.youtube.com/watch?v=z18lcS-Ao0c (Performed during Mathry talk – Appendix J)
Talks	MOROL, Pembroke Dock	November 2018	Conference paper presentation.
	NAS / FoNS, Cardiff	November 2018	Conference paper presentation.
	Whitchurch, Cardiff	7 th March 2019	Talk for 2 Welsh field school dive clubs. (Llantrisant SAC & Trident Divers)
	FoNS, Newport	27 th April 2019	Launch of the FoNS hosting of the U-boat Project's travelling display.

	Malvern, Worcestershire	29 th April 2019	Talk for the residents of Clarence House, Malvern.
	Mathry, Pembrokeshire	10 th June 2019	Talk for the Abercastle area community.
	U-boat Project, Legacy Workshop, Menai Bridge.	7 th Sept. 2019	Workshop as part of the U-boat Project Legacy.
Television	BBC 1 (Breakfast programme) (Local News for Wales)	17 th June 2019	BBC 1 (Breakfast programme with Aled Scourfield).
	BBC Newyddion (Welsh Language Station)	17 th June 2019	BBC Newyddion with Aled Scourfield.
Try-dives	Boys & Girls from the 1st Caerphilly Scouts.	21 st Oct. 4 th & 18 th Nov. 2019	Hosted by Llantrisant SAC at the Llantrisant Leisure Centre (see Fig. 73).
	Holyhead Sea Cadets.	12 th Dec. 2019	Hosted by the Gwynedd SAC at the Holyhead Leisure Centre.
Videos	Publicity video produced following the field school.	June 2019	https://vimeo.com/371619220
	Plea for information about & pictures of the <i>Leysian</i> .	June 2019	https://vimeo.com/371193024

Table 10. Lit of Publicity in support of the field school.

Prior to the field school we made the round of conferences and took every opportunity to provide talks, present papers, run information stands and hand out flyers at various events to help publicise the project. It was rewarding that within 3 months of first announcing the field school, we were well on the way to meeting our target numbers, with most of the people booked to attend having done so having seen invitations circulated to their dive clubs via the BSAC and SAA, or from the NAS Discoveries e-mail sent out weekly to all its members.

The media in particular were very receptive to being approached about the field school, and the coverage we managed to achieve was very gratifying. This was particularly so with BBC Wales, when we were approached to talk live with Oliver Hides on his early morning radio show (see Fig. 30), and to have BBC television presenter Aled Scourfield spend several hours on site interviewing and filming activities (see Fig. 67). Aled's features were broadcast the following day on the BBC Breakfast TV local news reports and in the afternoon, in Welsh, on BBC Newyddion (the Welsh language station).

During the field school, to help raise the profile of the project with the general public, all the crew who helped run the event were provided with bright yellow t-shirts the the "NAS logo" on the front and "2019 NAS Abercastle Field School" on the back (see Fig. 2).

Also over both weekends, members of the RCAHMW ran an information table which was set up next to the slipway in Abercastle Bay (see Fig. 35). From there, they were able to hand out literature and answer questions about the project and what the field school was all about!

We were also pleased to find that not only were our press release articles being picked up and published, before and during the field school, but that after the event was over, in addition to an article inside, pictures also featured on the front cover of the Autumn edition of the Council for British Archaeology (Wales) Newsletter (see Fig. 96).

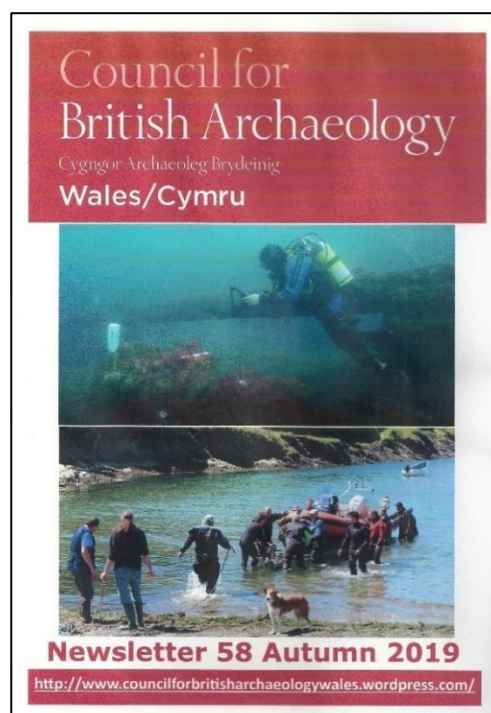


Fig. 96 Front cover of the CBA Autumn 2019 Newsletter.

During the field school, social media inevitably played a part, but probably the most insightful contributions came from people who offered to put together one of the daily field school blogs that were written each evening and up-loaded onto:

<https://uboatwarunderwaterarchaeology.home.blog/>

A full transcript of these blogs, together with pictures has been included in Appendix I.

As part of the U-boat Project, in addition to the field school, the NAS had also been requested to organise a couple of SCUBA "Try-Dive" evenings for young people, one in North Wales and one in South Wales. Initially it was suggested that we contact the Groundwork organisations who are an environmental charity whose aims are to help people out of poverty, to create jobs, responsible businesses, stronger and healthier communities with greater prospects and general well-being for local people. Although Groundwork North and South Wales both work with young people, particularly those who are Not in Education, Employment or Training (NEET), after lengthy discussions, both organisations came to the conclusion that a free SCUBA session was not something that they could make work with their clients.

Having run two field schools in Wales as part of the U-boat Project, we have a close working relationship with several Welsh dive clubs that were prepared to run "Try-Dive" events on our behalf. After contacting several other organisations, we settled on SCUBA sessions for the following youth groups:

- Boys and girls from the 1st Caerphilly Scouts – hosted by the Llantrisant Sub-Aqua Club. Three sessions were held on 21st October and the 4th & 18th November 2019 at the Llantrisant Leisure Centre (see Fig. 97).
- The Holyhead Sea Cadets – hosted by the Gwynedd Sub-Aqua Club. This session is to take place on 12th December 2019 at the Holyhead Leisure Centre.



Fig. 97 Boys and girls from the 1st Caerphilly Scouts on one of the "Try-Dive" evenings.



11.0 Conclusions & Recommendations

General:

In the report on last year's weekend NAS U-boat Project field school on Anglesey (Malvern Archaeological Diving Unit 2018), the success of the event was put down to 4 major factors: The weather / The dive clubs / The volunteer crew / The venue.

This year was a much more ambitious 10-day field school, but it was the same 4 factors that made the event work so well,

The weather – which unlike last year's perfect conditions can only be described as challenging – it was absolutely atrocious, cold, with high winds and torrential rain, despite it being June and close to the longest days of the year! camping was certainly character building! – unlike running a fete, in a force 7 gale, you can't move an underwater offshore field school into a village hall - we did however make use of the barn on site for running practical training exercises, and it was as well that we had planned for being blown-out, with a host of alternative activities up our sleeves.

The dive clubs – the interest from clubs exceeded our expectations, although 2 of the 16 clubs who engaged with the event were reluctantly forced to cancel due to the appalling weather.

The volunteer crew – who are an amazing talented team (see Section 2.4), and who did everything (& more) than was required of them.

The venue – of everyone involved with this year event, Anne Hirst & her fantastic team at Garn Isaf stand out as the real stars - both in the run up to the field school, and over the 10 days we were on site, Anne couldn't have been more helpful and accommodating - to be invaded by around 90 divers would have daunted most people, but nothing was too much trouble, allowing us to run lectures and provide talks in the B&B guesthouse dining room and for providing tea and coffee for everyone all day, along with breakfast rolls, afternoon cakes and gateaux, and Saturdays evening meals for those who were interested - without their backing and assistance the event would not have been anywhere near as successful as it was.

The Site, Location & Dates:

With the exception of choosing dates that coincided with some of the worst weather of the Summer, spending time in Abercastle Bay and using Garn Isaf as our base would have been difficult to beat. The wreck site also lived up to expectations, with research to be undertaken, and a site that was easy to access being only a few hundred metres from the slipway, in shallow 8-12m of water, assessable at all states of the tide and with 6-10m visibility and 15°C water temperature, UK diving doesn't get much better. In addition, having a very accommodating boat owners association that allowed the dive clubs to use their moorings and harbour masters who couldn't have done more for us, it was a great place to run the field school.

Planning:

A considerable amount of planning went into the field school preparation, not just dealing with the expected day-to-day logistics, but also planning for the unexpected. As can be seen from Section 7.6, when diving came to an abrupt stop for 3-days due to the weather, we were well prepared with a host of alternative activities for the participants and crew to engage with. In particular the underwater surveying hours lost were more than compensated by people who visited, recorded and provide up-to-date feed-back on many of the local terrestrial heritage sites. The results from which will hopefully add to the existing heritage record of the area.

Research:

Access to archives to assist with research in the UK is generally excellent, particularly as year-on-year more data is being digitised and made available on-line. This is particularly important as the location of libraries and research centres and their opening times often make it difficult to inspect records first hand. Some on-line sites however are pay to view, and the fear is that this trend is likely to accelerate. One of the most expensive and unhelpful resources is offered by the Maritime History Archive at the Memorial University of Newfoundland, St. John's, Canada, who charge \$40 for the retrieval of Documents and \$2.50 per page to copy. However, they are unable to advise how many pages there might be to copy until you have paid to have the document retrieved, and until you see the document, you have no idea if it is relevant or what you are looking for. This is a double Catch 22, and if a reciprocal arrangement could be made between the RCAHMS and Canadian maritime archives when carrying out research on behalf of the Royal Commission that would be extremely helpful.

Reading the handwriting in ships logs is always challenging, particularly when shorthand and little understood terms may be used.

The lack of photographs of the *Leysian*, particularly from when it was aground for 8 months across Abercastle Bay and being salvaged remains a mystery. We were certain that at least one picture would surface, and one still might as we have certainly publicised our search plea widely and particularly around Pembrokeshire.

The definitive reason for the *Leysian* being so far "off course" that she ran headlong into the cliffs at Abercastle remains a mystery. In fact, the perceived understanding that she was simply lost in the fog, has, if anything, been further clouded by our research. There was obviously a degree of unrest on board at the time caused by the muleteers, but was this enough to distract the senior officers from their navigational duties? Are newspaper reports about the *Leysian* being chased onto the rocks by a German U-boat, or that the compass had been tampered with, true? or are they embellished stories told by people who were on board to ingratiate themselves within their society? We may never know.

Results:

Having a land survey team was invaluable to not only be able to provide good co-ordinates for where we were operating, but it also provided the equipment and expertise on-hand to be able to introduce people to the use of survey kit like the plane table and total station and to allow hands on practice.

The enormous area over which this wreck site is spread, means that it can be dived by a lot of divers simultaneously without getting in each others way. The down side of this however, was that, as can be seen in Section 8.2.1, an experimental underwater methodology was required to be able to survey such a large area. The logistics took some planning, and the co-ordinating and instructing of divers was essential, but the survey results started to come in, and after 5 days when diving was possible, sufficient measurements had been obtained to demonstrate that the method could be made to work, and a site plan covering around half the wreck site was produced. Of the 5-days diving, the first 1½ days were with familiarisation dives and deploying the bottles and ½ of the last day was spent recovering them. If the weather had been in our favour and 3 days diving hadn't been lost, most of the site could possibly have been covered.

Taking plastic milk bottles underwater may appear counterintuitive with the amount of discarded plastic already in the sea, but as all the bottles are clearly numbered, it is possible to account for them all at the end of the field school. They work incredibly well, they are cheap (i.e. free!), once they have a little air added, they stand up and are clearly visible on the site, particularly with the 6-10m visibility experienced (but the caps must be re-fitted to ensure the air doesn't escape), the large numbers are clear to read (providing they are marked on all 4 faces), and as the bottles are ~250mm (10ins) tall, act as a scale for pictures and videos.

The diver survey however, only provided part of the underwater picture. The decision by the U-boat Project board to also fund the hire of a commercial ROV fitted with a camera and sonar head meant that the site plan produced from the diver survey, together with videos from the ROVs on-board camera as it travelled around the site and the sonar images together produce a complete package of available information from the site.

Ecology:

We were also extremely pleased that the U-boat Project board also agreed to fund an environmental study of the site. Following the field school, a huge number of underwater photographs and videos obtained both by divers and recorded using the ROV were sent to Jen Jones, who was able to prepare Section 9 on the ecology of the site. Information on the fauna and flora found on and around the wreck, combined with the research, survey results, photographs, videos and sonar images now provided an excellent holistic overview of the *Leysian* today.

Publicity:

As can be seen from Table 10 a good cross section of publicity possibilities were embraced. All areas of the media were receptive, and once the ball was rolling, the trend was for them to approach us for information and interviews, instead of the other way round. The trick appeared to be to provide them with a headline that made them stop & think. Our angle was to ask the question, "why was it that a ship, half the length of the *Titanic*, could be stranded across a small bay for 8 months in a few feet of water, while it was being salvaged, and nobody appears to have taken a single photograph?" Once they picked up on this, it wasn't difficult to bring the conversation round onto areas that we were keen for them to focus on.

Legacy:

During the field school we had planned to hide another pair of geocache bottles containing bilingual messages regarding the U-boat Project, the field school and the wreck of the *Leysian*.

This had worked well for 2018 field school with people continuing to learn about the project over a year later. However, this year we had failed to foresee that there would be a need to apply for permission to hide the caches on land adjoining the bay.



Fig. 98 The planned pair of Geocaches.

This land all appears to be owned and administered by a variety of organisations from the Crown Estate and the National Trust, to the Countryside Council for Wales, as well as there being a host of designated heritage areas where caches can't apparently be left.

Trying to resolve this permission issue unfortunately exceeds our enthusiasm, so, reluctantly we made the decision not to waste our time attempting to follow through with this idea this year.

During the field school almost 10,000 photographs and videos clips were obtained from both above and below water together with interviews with many people who took part, and sonar images obtained using the ROV. Many of the photographs and some video screen captures appear in this report, but they will all be made available to the RCAHMW to be add to the Welsh heritage archive for the area.

Following the field school Mel Taylor ran a session during the RCAHMW Legacy Workshop over the weekend of 7th – 9th September 2019 at the Marine Centre Wales, Bangor University, North Wales.

On the quay wall next to the slipway on Abercastle Beach, there is a slate plaque dedicated to Alfred "Centennial" Johnson, who set out from Gloucester, Massachusetts in the USA on 15th June 1876, and made landfall at Abrecastle on 10th August having made the first single handed atlantic crossing west to east in a fishing dory (see Fig 66). We are pleased that the U-boat Project board has agreed for there to be a legacy weekend to be held in June 2020, when it is hoped that a similar slate plaque dedicated to the wrecking of the *Leysian* on 20th February 1917 will be unveiled.

Finally:

The value of the field school is probably best summed up by those who attended, and the recommendation is to go to Appendix L and read what those people who participated have to say, and to also view the following on-line footage produced by Henry Carter about the event:

<https://vimeo.com/371619220>

12.0 Epilogue

The protocol associated with report writing does not usually extend to providing an epilogue to sum up an archaeological exercise, but the U-boat Project, and the Abercastle field school in particular has been a complete team effort, and in this respect, these concluding remarks are not from the editor, but come from one of the crew.

Of course, being a keen scuba diver, the pinnacle of any project is going underwater. Being up close and personal with a piece of history, half-frozen and half-ravaged by time, is a thrill that only seems to grow more fascinating as I forge ahead with my maritime archaeology journey. And after dedicating so much effort into the research of the Serak / Leysian, to finally lay eyes on her remains, in quite stunning visibility, was a humbling treat and tinged with emotion. I whispered a fond hello as I approached the remnants of a ship, whose mysteries I had spent many, many hours endeavouring to unpick.

Marking the central bow-to-stern line of the site, the enormous prop shaft lay exposed, flanked either side by the flattened plates of the Leysian's hull; the pock-marking of rusted windowless portholes a ghostly indicator of her former life. Time has not been kind to her but she still possesses that ethereal beauty that sunken ships only can. To think that this jumble of jagged metal had once made those enormous journeys, and carried all the names that had become so common in my day-to-day research, to the point where I felt I knew the characters a little and wondered about their lives, was quite special. It was good to see that the Leysian is still serving some purpose; now as a marine habitat. Sea life was healthy and abundant.

My underwater archaeological task was to sketch anything that could add details to the as-then blank picture we had of the wreck site. Drifting back and forth over a section of the Leysian with my drawing board, permatrace and pencil, I took in as much as I could but the size of the site was so vast that it was only possible to sketch a small portion of detail. It was quite baffling and it became obvious that many more visits would be required to complete such a gargantuan task.

Around me, other divers worked – some measuring distances between air-filled plastic milk bottles which were tied to detail points. The upended bottles waved gently in the current – a black reference number written on each one for identification purposes. Each accurate measurement, in conjunction with others, goes towards refining the site plan bit by bit. Above, ROV pilots navigated their expensive drone through the water, collecting video footage and sonar scan data. A professional videographer captured the dives and the surrounding field school events in magnificent quality. I was part of a large team, one of a crew made up of amateurs, enthusiasts and professionals brought together by their shared passion for archaeology.

Britain being Britain, the weather changed dramatically and I was only able to take part in that one dive – but what a dive!

I'm still an enthusiastic amateur but I have a little experience under my weight belt now.

To be continued...

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My Life & Times Researching the SS Leysian: Research, findings and involvement
by Duncan Ross (Ross 2019).

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<https://coflein.gov.uk/en/site/419226/details/longhouse-stone>
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<https://coflein.gov.uk/en/site/419227/details/cwm-badau-remains-of-house>
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<https://coflein.gov.uk/en/site/419626/details/longhouse-south-ring-ditch-or-circular-enclosure>
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<https://coflein.gov.uk/en/site/525076/details/quarry-pwll-strodyr>
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<https://coflein.gov.uk/en/site/525077/details/sound-dwyrain-abercastle>
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<https://coflein.gov.uk/en/site/525078/details/anchorage-abercastle>

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Appendix A – Bi-lingual Field School Invitation & Booking Form



Nautical Archaeology Society
Archaeological Field School
7th – 17th June 2019



The Nautical Archaeology Society (NAS), the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) and Bangor University are currently collaborating on a project to commemorate the centenary of the end of the First World War and the shipping losses which occurred around the Welsh coast.

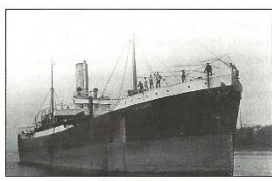
The project is funded by the Heritage Lottery Fund and, as part of the project, the Nautical Archaeology Society will be running a **FREE** field school at Abercastle in Pembrokeshire from 7th – 17th June 2019. The field school will be based around the wreck of the *SS Leysian*. If members of your dive club are interested in participating in the field school and bringing along your club boat to dive the site over the course of the field school, please contact us for a booking form at: MADUdiving@gmail.com

The field school will be based and run from Garn Isaf in Abercastle where there will be **FREE** air fills. For the duration of the field school, camping will also be **FREE** at a 15-pitch camping site. * However, pre-booking is required. To check availability and to reserve a pitch, please contact: Ian Cundy on: 01684 574774

For anyone who doesn't want to camp, there are also B&B facilities on site, but these are not free and would need to be booked and paid for directly, see: <https://www.garnisaf.com>















FREE training will be provided during both weekends of the field school for people who have not previously attended a NAS recording and surveying course, and **FREE** additional specialist courses will also be run during the field school upon demand and should weather condition preclude diving activities.

The *Leysian* was a 4,703 ton steamship taken into service as a prize of war by the British - 400ft x 52ft x 27ft (121.92m x 15.85m x 8.23m). She ran straight into the cliffs in poor visibility on 20th February 1917. The site today is suitable for all diving abilities lying in 8-16m of water, close to the cliffs and only around 600m from the beach and slipway. The site is in the shelter of Abercastle bay, protected from all but winds from the NW through to E, and diving is possible at most states of the tide.



The SS Leysian

* There will be a £10 per head / night deposit required when booking the camp site which will be refunded following the field school (providing you turn up for the period booked).



Y Gymdeithas Archaeoleg Forwrol
Ysgol Faes Archaeoleg
7 – 17 Mehefin 2019



Mae'r Gymdeithas Archaeoleg Forwrol (NAS), Comisiwn Brenhinol Henebion Cymru (CBHC) a Phrifysgol Bangor yn cydweithio ar brosiect i goffáu canmlwyddiant diwedd y Rhyfel Byd Cyntaf a'r Llongau a gollwyd ar hyd arfordir Cymru.

Mae'r prosiect yn cael ei ariannu gan Gronfa Dreftadaeth y Loteri ac, fel rhan o'r prosiect, bydd y Gymdeithas Archaeoleg Forwrol yn cynnal ysgol faes **AM DDIM** yn Abercastle yn Sir Benfro o 7 i 17 Mehefin 2019. Bydd yr ysgol faes wedi'i seilio ar longdrysiliad yr *SS Leysian*. Os hoffai aelodau'ch cwbl deifio gymryd rhan yn yr ysgol faes a dod â chwch er mwyn deifio i lawr at y safle yn ystod cyfnod yr ysgol faes, cysylltwch â ni i gael ffurflen ag lan Cundy yn: MADUdiving@gmail.com

Lleoliad yr ysgol faes fydd Garn Isaf, Abercastle, lle byddwch chi'n gallu cael aer **AM DDIM**. Am gyfnod yr ysgol faes, cewch wersylla **AM DDIM** hefyd, ar safle gweryslla gyda lle i 15 pabell. * Ond rhaid bwcio ymlaen llaw. I gadarnhau bod lle ar gael, cysylltwch ag Ian Cundy ar: 01684 574774

Os nad ydych eisiau gweryslla, mae cyfleusterau gwely a safle hefyd, ond nid yw'r rhain am ddim a byddai'n rhaid i chi eu bwcio a thalu amdanynt yn uniongyrchol yn: <https://www.garnisaf.com>

Bydd hyfforddiant **AM DDIM** yn cael ei ddarparu ar ddau benwythnos yr ysgol faes ar gyfer pobl nad ydynt wedi bod ar gwrs cofnod ac arolygu NAS o'r blaen, a bydd cysiau arbenigol ychwanegol **AM DDIM** yn ystod yr ysgol faes os oes galw ac os bydd i tywydd yn ein rhwystru rhag deifio.

Agerlong 4,703 tonn oedd y *Leysian* a oedd wedi cael ei chipio yn wobwr rhyfel gan Brydain - 400tr x 52tr x 27tr (121.92m x 15.85m x 8.23m). Fe hwyliodd i mewn i'r clogwyni mewn tywydd gwael ar 20 Chwefror 1917. Mae'r safle heddiw yn addas i ddeifwyr o bob gallu. Mae'r llong yn gorwedd mewn 8-16m o ddŵr, yn agos at y clogwyni a rhyw 600m yn unig o'r traeth a'r llythra. Mae'r safle yng nghysgod bae Abercastle, wedi'i amddiffyn rhag pob gwynt ac eithrio gwyntoedd o'r Gogledd-orllewin i'r Dwyrain, ac mae deifio'n bosibl ar bob llanw bron.



Yr SS Leysian

* Bydd angen talu blaendal o £10 y pen / noson i gadw lle yn y safle gweryslla; caiff hwn ei ad-dalu ar ôl i'r ysgol faes ddod i ben (os trochwch i fyny ar gyfer y cyfnod a drefnwyd).














Nautical Archaeology Society
2019 Field School - Abercastle, Pembrokeshire (7th - 17th June)



Field School Booking Form & Camping Reservation

Please complete the form below and return to Ian Cundy at: MADUdiving@gmail.com

Section A	
Club Name:	
Affiliation:	BSAC SAA PADI Other
Contact Name:	
E-mail:	
Tel Nos (Home / Mobile):	/
Position in the club:	
Section B	
Field School Attendance	June 2019
	Fri 7th Sat 8th Sun 9th Mon 10th Tues 11th Wed 12th Thurs 13th Fri 14th Sat 15th Sun 16th Mon 17th
Days wishing to attend	
No. of boats / day	
No. of divers / day	
No. of non-divers / day	
Section C	
Camping Reservation *	June 2019
	Fri 7th Sat 8th Sun 9th Mon 10th Tues 11th Wed 12th Thurs 13th Fri 14th Sat 15th Sun 16th Mon 17th
No. of people / night	
No. of tents / night	
No. of caravans / night	
No. of motorhomes / night	

* Staying on the campsite will be **FREE**, but there is a £10 / head / night deposit required when booking which will be refunded following the field school (providing you turn up for the period booked).

There is a maximum capacity for 50 people / night on the site including a maximum of 5 caravans / motorhomes, and allocation will be on a first come / first booked basis.

See over for full Garn Gwely Campsite Terms and Conditions.

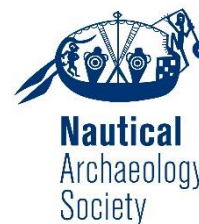
For further information, please contact Ian Cundy on: **01684 574 774**
or e-mail: MADUdiving@gmail.com

Signed	
Date	
Deposit enclosed / transferred	£

Appendix B – Field School Joining Instructions



Commemorating the Forgotten U-boat War around the Welsh Coast 1914-18



2019 NAS Abercastle Field School

Welcome to the 2019 NAS Abercastle Field School, the following joining instructions are intended to help you make the most of the field school, so please read them through before you set off.

Location: Field School Base: Garn Isaf,
Abercastle,
Pembrokeshire. SA62 5HJ

Ordnance Survey: Landranger Map 157
Explorer Map OL35

Co-ordinates: SM 85593 33412

Dates: Friday 7th – Monday 17th June 2019

Accommodation: Garn Gwely – Campsite:
The campsite has been reserved for the sole use of people attending the field school, and for people who have pre-booked to stay on the campsite, please see the Campsite Terms & Conditions attached.



Garn Mawr – B&B Guesthouse:
For people not wanting to camp, there is limited B&B accommodation on site. For information regarding availability and prices please contact Anne Hirst (Tel: 01348 831 838 / E-mail info@garnisaf.com)

Y Garn – Self-catering Farmhouse:
The farmhouse has also been booked for the duration of the field school, and will be used as the field school’s reception and from where the event will be run.

For further information see: <https://www.garnisaf.com>

Garn Gwely - Campsite

Garn Mawr - B&B Guesthouse

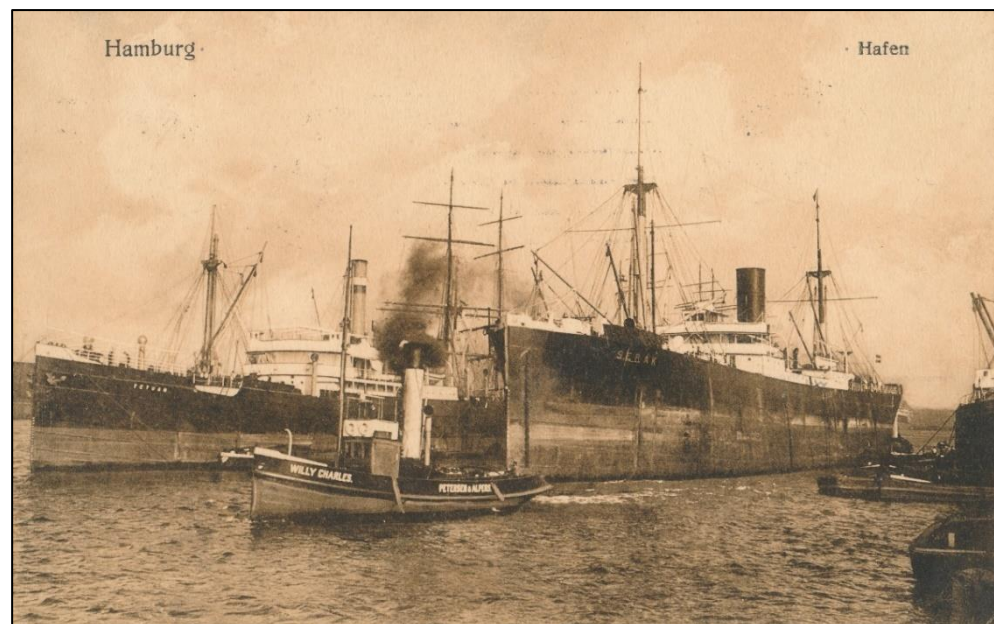
Y Garn – Farmhouse



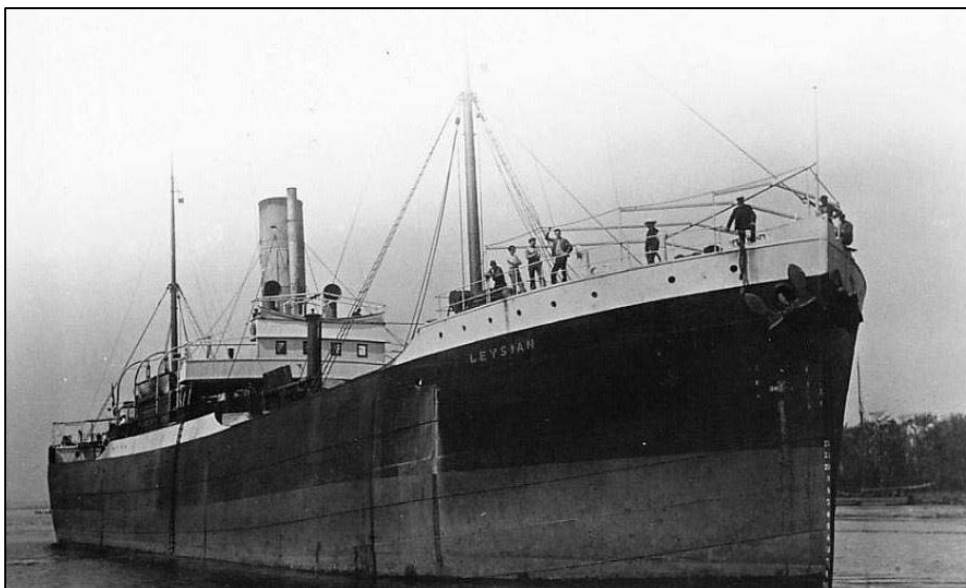
Aerial view of Garn Isaf

Aims & Objectives: The primary aim of the field school will be to record the wreck of the *SS Leysian* which was wrecked in Abercastle Bay on 20th February 1917.

Background: The *Leysian* was built as the *SS Serak* at Newcastle-upon-Tyne in 1906 for a German merchant shipping line. At the outbreak of WW1, she was berthed in Swansea, promptly interned, given as a "prize of war" to the Leyland Line of Liverpool and re-named the *SS Leysian*. For the next two years her primary function was the transportation of pack animals from America to Alexandria in support of the front-line troops in North Africa. In February 1917, following a delivery of animals to Belfast, on her return passage to America, she ran directly into the cliffs at Abercastle. All the crew and attendant muleteers were saved, and after remaining upright but aground for around 8-months, during which time some salvage was carried out, the *Leysian* eventually succumbed and sank.

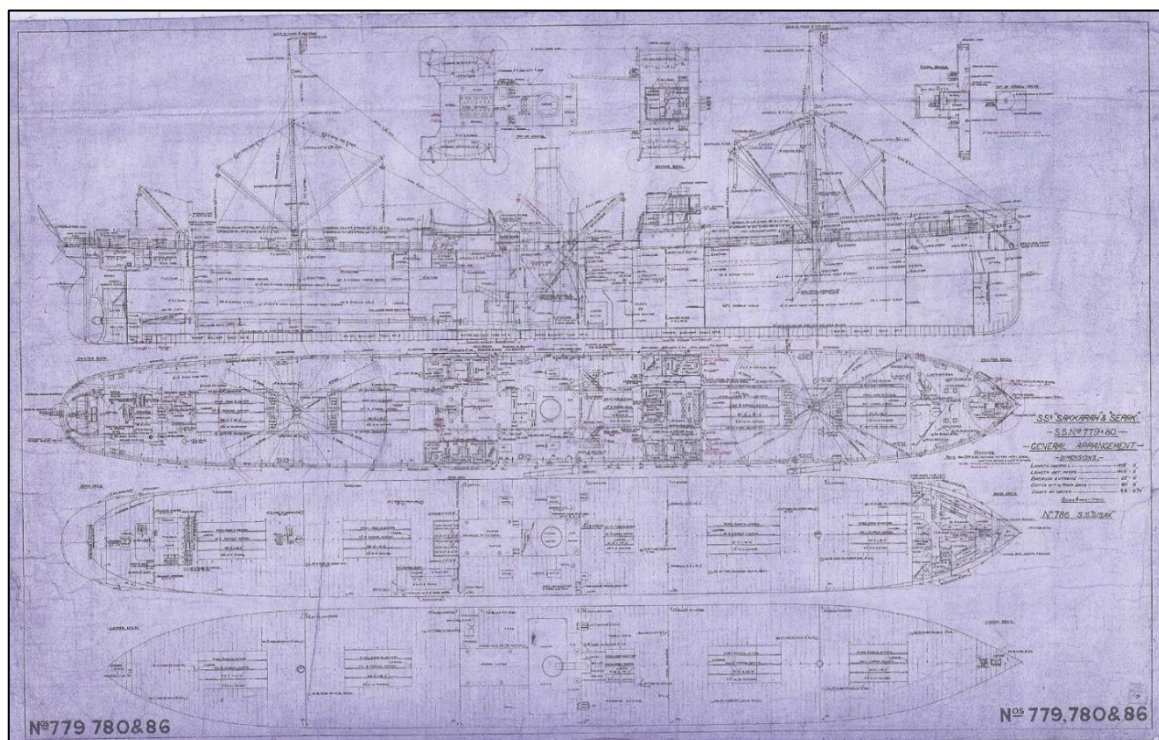


The only known picture of the SS Serak



The only known picture of the SS Leysian

Specification:	Built:	1906 (as SS <i>Serak</i>)
	Builder:	W.G. Armstrong & Whitworth & Co Ltd.,
	Yard:	Low Walker Yard No.780 (Newcastle-upon-Tyne)
	Construction:	Steel, 2-decks, 6-bulkheads
	Tonnage:	4,680 gross tonnage / 2,999 nett tonnage
	Dimensions:	400ft x 52ft x 26ft (121.92m x 15.85m x 7.94m)
	Engine:	478 hp, 3-boiler, 3-cylinder, triple expansion engine
	Manufacturer:	N.E. Marine Engineering Co Ltd., (Newcastle)
	Propulsion:	Single prop-shaft & screw
	1st Owner:	D.D.G. Kosmos (Hamburg, Germany)
	Last Owner:	Frederick Leyland & Co Ltd. (Liverpool)
	Port of Registry:	Liverpool
	Flag:	United Kingdom
	IMO / Official No.	137424
	Final Voyage:	Belfast to America via Barry Roads (to load with coal)
	Captain:	R.H. Roberts
	Cargo:	In ballast (having unloaded pack animals in Belfast)
	Wrecked:	20 th February 1917
	Crew / Passengers:	~30 crew / 76 muleteers
	Loss of Life:	none
	Rescue:	3-trips by the Fishguard RNLi lifeboat <i>Charterhouse</i>
	Salvage:	Some superstructure winched up the cliffs
	Sank:	During Autumn storms in October 1917



Plans of the SS Sakkarah, Serak & Sisak

The Site:

The remains of the wreck lies scattered on the seabed with her axis on a SW / NE orientation around 600m from the slipway at Abercastle. The bow lies in around 8m of water approximately 50m out from the cliffs. The seabed is generally flat, sloping gently away from the cliffs with the stern in around 16m of water approximately 120m further out into the bay.

The prop shaft remains in-situ from around amid-ships to the stern, supported on a series of bearings raised around 2m from the seabed at around 10m intervals. The prop has however been salvaged.

This large vessel provides a huge debris field. The port side of the hull has collapsed and been covered by the starboard side, but items such as the winch, spare anchor, bollards, pump box, etc. can still be seen.



The approximate location of the bow looking NW away from Abercastle



The approximate location of the bow looking SE back towards Abercastle

Location:

WSG 84

51.96288 deg. North / 05.1344 deg. West

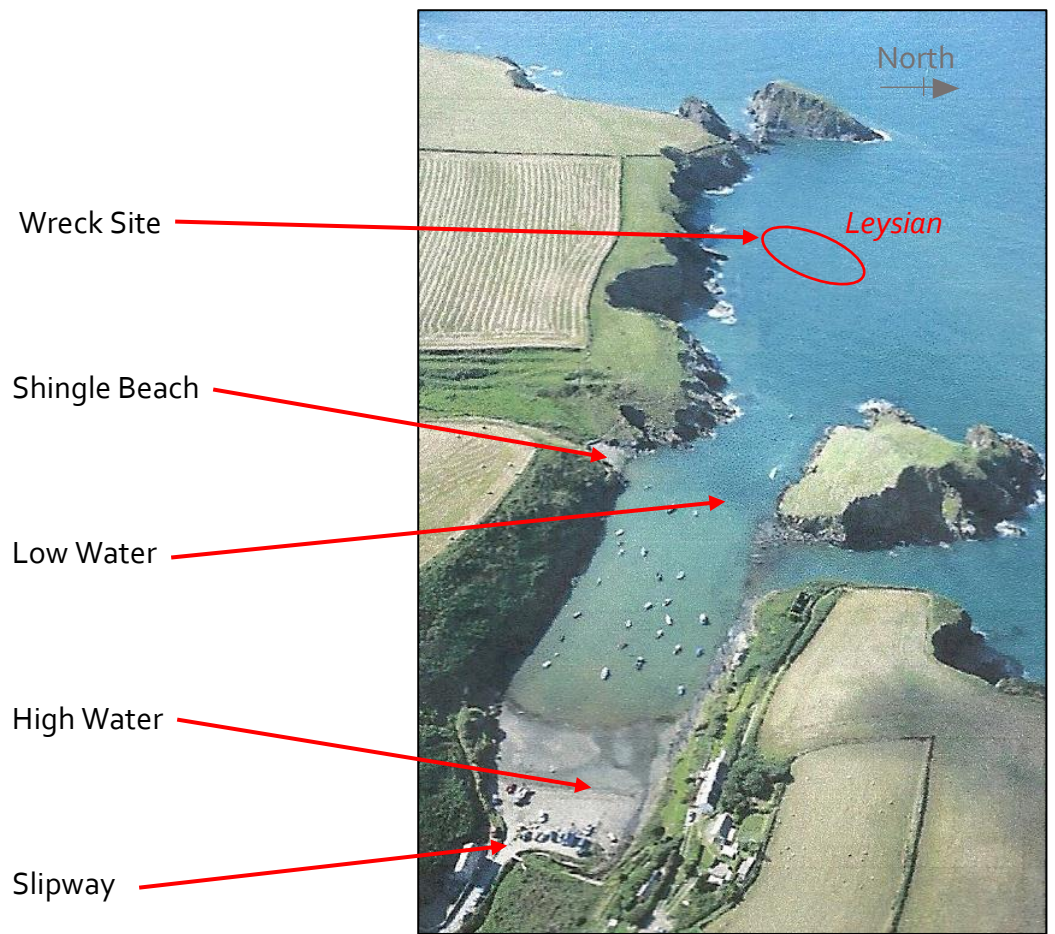
51° 57.773' North / 05° 08.064' West

51° 57' 46.38" North / 05° 08' 3.84" West

Co-ordinates:

SM 84759 34022

Diving Conditions: Depth: 8 – 16m
Seabed (bow - stern): Rocks / shingle / gravel / sand / mud
Winds: Sheltered and protected from all but NW – E winds
Currents: Slight (so any silt kicked up can take time to re-settle)
Tides: Can be dived at most states of the tide
Visibility: Often poor on springs & affected by swells being shallow
Diving: Suitable for divers of all abilities
Recovered: Copper hose nozzle (declared to the Receiver of Wreck)
Meat dish (stamped Leyland Line)
Brass porthole



Abercastle Bay from the air



Abercastle from seaward looking SE towards the slipway & quay

Dive Clubs:

Clubs bringing boats will be required to produce current insurance certificates for their boat/s at reception upon arrival before being allowed to launch and use their boats as part of the field school. In addition, it is expected that as a minimum each dive boat will be equipped with the following items:

VHF radio / A-flag / first aid kit / O₂ set / anchor / warps / GPS / fire extinguisher

Boats can be launched and recovered each day and stored overnight at Garn Isaf. Alternatively, a limited number of permanent mooring (that dry out) are kindly being made available by the Abercastle Boat Owners Community Interest Company. If this is of interest please contact Ian (Tel: 01684 574774) before the field school to check on availability.

It will be advisable to only trail dive boats and trailers across the beach using a suitable 4x4 vehicle. Vehicles must also only use the designated route across the beach between the slipway and the water's edge.

Once launched, trailers can be left on the beach in a designated area but ALL vehicles MUST be returned to Garn Isaf. Permission to use the slipway has been on the understanding that no vehicles are to be left on the small quay or anywhere else in the village at any time, so please respect this.

See below for additional information relating to the use of boats in Abercastle Bay. In return for your understanding, the use of the slipway by dive boats, together with their launching, recovery and any mooring fees, for the duration of the field school will be covered by the field school.



As can be seen in the timetable, each day will commence with a morning briefing, and further more detailed requirements, particularly regarding safety and the movements of dive boats to, from, and around the wreck site will be provided during these briefings. The safety of all diving activities will however be the overall responsibility of the individual dive clubs, and clubs will also be responsible for all aspects associated with their boats.

The NAS cannot be held liable for any loss or damage however sustained.

Before each dive, a Dive Marshall must be designated for every dive boat, and for every dive, it will be their responsibility to prepare a "Dive Plan", complete a "Dive Marshall Sheet", and to return the forms to reception. Blank "Dive Plan" forms & "Dive Marshall Sheets" will be available from reception.

Divers:

Please ensure that you are fit to dive, and that any dive undertaken, and any task to be performed, is within your capabilities. The personal safety of each diving activity will be the responsibility of the individual diver. In addition, please ensure that all your kit is serviced and in good working order. **The NAS cannot be held liable for any loss or damage to your personal belongings.**

The site of the *Leysian* is to be recognised as a no-take zone, and to complement the recording and survey work associated with the wreck, following the field school, all photographs and video footage captured from the site will be studied, and an ecological / biological fauna & flora report compiled. So, to help with this survey, following your dive, please look in at reception and transfer copies of all your underwater photos & videos onto the field school's master hard drive.

After EVERY dive, a "Dive Log" must be completed by every diver and handed into reception. Blank "Dive Log" forms will be available from reception.

Divers / Non-divers:

Nobody will be able to take part in the field school unless they have read, completed, signed, dated and handed in, a copy of the attached "Registration Form" at reception. So, please complete a copy and bring it with you to the field school.

As mentioned above, every morning will commence with a daily briefing, but it is imperative that you don't undertake any activity, diving or otherwise that you are uncomfortable with. If in any doubt please feel free to talk to the field school organisers at any time.

One of the non-diving activities planned is a beach metal detecting recording exercise. However, we are short of suitable metal detectors, so, if you have one (or could borrow one) please let us know, and if possible, bring it with you.

At the end of your time on the field school, but before you depart, please look in at reception and complete a "NAS Feedback Form" and a "RCAHMW Comments Card". Your thoughts, feedback and comments will help us to improve what we are able to offer during forthcoming field schools.

Air Fills:

Bottles will be collected each evening between 17:00 & 18:00 for re-filling overnight by Haven Diving Services, and returned the following morning between 09:00 & 10:00. Some limited air filling on-site may be possible at other times, but cannot be guaranteed and should not be relied upon. In this respect, divers will need to bring with them FULL bottles (for their first day's diving), and sufficient numbers of bottles to cover the maximum number of dives they may wish to undertake each day.

As there will be a considerable number of bottles being filled each evening, it is essential that every diver clearly marks, and is able to readily identify, their own bottles. And it goes without saying, any bottles not clearly marked as being in test, will not be filled.

The cost of air fills will be covered by the field school; however, Nitrox and any other gas requirements will need to be negotiated with, and paid for directly to, Haven Diving Services (Tel: 07581 811 240).

Timetable:

A proposed timetable for the field school is attached. However, at present, this is very much a working document and will certainly evolve between now and the field school. It will also be subject to revisions to suit events and conditions that transpire during the field school. The morning and evening briefings will therefore be the up-to-date daily guide to events, so please attend to get the most from the field school.

Courses & Credits:

The field school will be an ideal time to complete the practical Skills Days that run alongside the NAS eLearning courses. As can be seen from the timetable, on both weekends of the field school, we will be running as follows:

Saturday 8 th & 15 th June		Recorder Skills Day
morning		Theory (e-learning refresher session)
afternoon		Underwater or Intertidal Recording practical exercises (photography / sketching)
Sunday 9 th & 16 th June		Surveyor Skills Day
morning		Theory (e-learning refresher session)
afternoon		Underwater or Intertidal Surveying practical exercises (Offset / Trilateration / Ties / Planning Frames)

If you are interested in these weekend courses and haven't already worked through the on-line courses it would be a good opportunity to take these courses prior to the field school and then to put the theory into practice while in Abercastle. For further information see:

<https://www.nauticalarchaeologysociety.org/elearning>

The normal cost would be £45 to take the combined eLearning courses:

Introduction to Maritime Archaeology course
and either the
Underwater Archaeology course
or the
Intertidal and Terrestrial Archaeology course

For people who have signed up to attend the field school, and who sign up for either the 'Underwater Combined' or 'Intertidal Combined' on-line courses and pay the £45 as normal, providing they have completed the on-line courses and the skills days before or during the field school, they will receive a £40 refund following the field school (£5 being retained to cover administration costs).

On completion of the course, students will receive a "NAS Foundation Certificate", a logbook to keep their certificates in (worth £5), and free first year's NAS membership (worth £28). There will be no additional charge for the skills day courses which would normally cost around £250 to attend.

For everyone attending the field school for 2 or more days and who are not already a NAS member, they will be entitled to a free first year's NAS membership (worth £28). For existing NAS members, they will qualify for 2½ credits towards their next qualification, for every day they attend the field school.

For further information regarding courses and credits, please contact:

Peta Knott NAS Education Officer

E-mail: education@nauticalarchaeologysociety.org

Tel: 07725 656 999

Camping:

For those that have reserved places on the camp site, do please take the time to read through the attached Campsite Terms & Conditions. In particular we would like to draw your attention to the conditions highlighted in red, and ask you to please respect Garn Isaf's environmentally friendly policies.

Free wi-fi will be available throughout the Garn Isaf site but this will not provide the ability for streaming videos, films, etc. The password for connecting will be available from reception upon arrival.

Electric hook ups are available throughout the campsite. They are restricted to provide a 10amp supply so will only be suitable for low energy usage, however, the cost of any electricity used will be covered by the field school.

For individuals who have paid a deposit to reserve a place on the campsite, and for dive clubs that have transferred deposits on behalf of their members, we will endeavour to refund, by bank transfer, all deposits due, by the end of June.

Photography:

During the field school, NAS staff and crew will be taking photos and videos, and these may be used in future NAS publications and/or on social media. Please inform field school staff if you do not wish to appear in photos/video on social media. We will also be delighted to receive copies of any photographs and videos you would like to share. So, before you leave, please visit reception and transfer copies of your photos & videos onto the field school's master hard drive.

Local Facilities:

Other than a post box and a public phone box, Abercastle has no other obvious public facilities. If people are self-catering, they will therefore need to bring all their food and drink with them. There is a Spar Supermarket attached to a garage on the A487 about 2.4 miles from Abercastle (at SA62 5JJ) and the nearest pubs are the Farmers Arms at Mathry (~ 2.1 miles at SA62 5HB) and the Ship Inn at Trefin (~ 1.2 miles at SA62 5AX). Both pubs serve good meals.



Abercastle High Street

Merchandising: During the field school there will be some NAS merchandising available, so look in at reception and have a browse through what is on offer. If demand, out-strips availability, orders will be taken and purchased items dispatched following the field school.

T-shirts marking the field school will also be available in a variety of colours and in sizes from S to 3XL. So, place your orders and they will similarly be dispatched to you following the field school.

Field School Crew: We have an experienced 20+ strong crew that will be helping to run the field school. Each crew member has their own speciality and a list of their names and areas of specialisation will be on hand throughout the field school for you to consult as required. Feel free to engage with them at any time to learn more about their area of expertise.

Media We anticipate that there will be interest in the field school from the media, and we would prefer any communications with them to be directed through the field school co-ordinators. So, if approached, please point them at a member of the field school crew. Many Thanks.

As you would expect, the NAS has a presence on most social media platforms, and throughout the field school, we will be posting about the day-to-day events. We would therefore encourage all participants who are on social media to follow us, and tag us with @NautArchSoc and #LlongauUBoat.



Contacts: If you would like and further information on any of the above before arriving for the field school, please contact:

Ian Cundy
Nautical Archaeology Society
(Regional co-ordinator for Wales)

Office: 01684 574774
Mobile: 07707 423089
E-mail: MADUdiving@gmail.com
Web Site: www.nauticalarchaeologysociety.org

and we look forward to seeing you at Abercastle in June.

Attachments: The above joining instructions are to be read in conjunction with the following documents:

- Garn Isaf map
- Campsite Terms & Conditions
- Provisional Timetable
- Registration Form (to be completed and handed in at reception upon arrival)

Appendix C – Field School Provisional Timetable

The following is a copy of the provisional timetable produced prior to the field school.

Friday	7th	Afternoon		Registration Pitch Tents / Settle in	
		Evening	18:30	Walk	Inspection to provide an overview of the site
Saturday	8th	Morning	09:00	Daily Briefing	Introductions / Plans for the day
			10:00	Skills Recorder Day	Theory (eLearning Refresher Session)
				Divers	Launching / Familiarisation Dive
				Divers & non-divers	Beach Survey / see alternative non-diving activities
		Afternoon		Skills Recorder Day	Underwater or Intertidal Recording exercises (photography etc.)
				Divers	Recording Dive (photography)
				Divers & non-divers	Beach Recording / see alternative non-diving activities
	15:00	Skills Recorder Day	Analysis of recorded results		
	17:00	Daily De-briefing Bottle collection	Round up of the day Empty bottles taken for overnight re-filling		
Evening		Club Dive	Evening Dive *		
Sunday	9th	Morning	09:00	Daily Briefing	Plans for the day
			10:00	Bottle collection	Full bottles returned / Empty bottles taken for re-filling
				Skills Surveyor Day	Theory (eLearning Refresher Session)
				Divers & non-divers	Introduction to Direct Survey Methods (DSM)
				Divers	DSM Dive 1
			Divers & non-divers	Beach Survey / see alternative non-diving activities	
		Afternoon		Skills Recorder Day	Underwater or Intertidal Surveying exercises (offset / trilat. / ties)
	Divers		DSM Dive 2		
		Divers & non-divers	Beach Survey / see alternative non-diving activities		
	15:00	Skills Recorder Day	Drawing up surveyed results		
	17:00	Daily De-briefing Bottle collection	Round up of the day Full bottles returned / Empty bottles taken for overnight re-filling		
Evening		Club Dive	Evening Dive *		
Monday	10th	Morning	09:00	Daily Briefing	Plans for the day
			10:00	Bottle collection	Full bottles returned / Empty bottles taken for re-filling
				Divers & non-divers	Introduction to Direct Survey Methods (DSM)
				Divers	DSM Dive 3
			Divers & non-divers	Beach Survey / see alternative non-diving activities	
		Afternoon		Divers	DSM Dive 4
				Divers & non-divers	Beach Survey / see alternative non-diving activities
	17:00	Daily De-briefing Bottle collection	Round up of the day Full bottles returned / Empty bottles taken for overnight re-filling		
Evening		19:30	Evening talk	In the Mathry Community Hall <i>The U-boat Project, the field school & the Story of the Leysian</i> <i>The history of the RNLi lifeboat "Charterhouse"</i>	
Tuesday	11th	Morning	09:00	Daily Briefing	Plans for the day
			10:00	Bottle collection	Full bottles returned / Empty bottles taken for re-filling
				Divers	DSM Dive 5
				Divers & non-divers	Beach Survey / see alternative non-diving activities
			ROV piloting	Hands on experience	
		Afternoon		Divers	DSM Dive 6
				Divers & non-divers	Beach Survey / see alternative non-diving activities
		ROV piloting	Hands on experience		
	17:00	Daily De-briefing Bottle collection	Round up of the day Full bottles returned / Empty bottles taken for overnight re-filling		
Evening		Club Dive	Evening Dive *		
Wednesday	12th	Morning	09:00	Daily Briefing	Plans for the day
			10:00	Bottle collection	Full bottles returned / Empty bottles taken for re-filling
				Divers	DSM Dive 7
				Divers & non-divers	Beach Survey / see alternative non-diving activities
			ROV piloting	Hands on experience	
		Afternoon		Divers	DSM Dive 8
	Divers & non-divers		Beach Survey / see alternative non-diving activities		
		ROV piloting	Hands on experience		
	17:00	Daily De-briefing Bottle collection	Round up of the day Full bottles returned / Empty bottles taken for overnight re-filling		

		Evening		Club Dive	Evening Dive *
Thursday	13th	Morning	09:00 10:00	Daily Briefing	Plans for the day
				Bottle collection	Full bottles returned / Empty bottles taken for re-filling
				Divers	DSM Dive 9
				Divers & non-divers	Beach Survey / see alternative non-diving activities
		ROV piloting	Hands on experience		
		Afternoon	17:00	Divers	DSM Dive 10
				Divers & non-divers	Beach Survey / see alternative non-diving activities
ROV piloting	Hands on experience				
Daily De-briefing	Round up of the day				
Bottle collection	Full bottles returned / Empty bottles taken for overnight re-filling				
Evening		Club Dive	Evening Dive *		
Friday	14th	Morning	09:00 10:00	Daily Briefing	Plans for the day
				Bottle collection	Full bottles returned / Empty bottles taken for re-filling
				Divers	DSM Dive 11
				Divers & non-divers	Beach Survey / see alternative non-diving activities
		Afternoon	17:00	Divers	DSM Dive 12
				Divers & non-divers	Beach Survey / see alternative non-diving activities
				Daily De-briefing	Round up of the day
Bottle collection	Full bottles returned / Empty bottles taken for overnight re-filling				
Evening	19:00	Walk	Inspection to provide an overview of the site		
Club Dive	Evening Dive *				
Saturday	15th	Morning	09:00 10:00	Daily Briefing	Introductions / Plans for the day
				Skills Recorder Day	Theory (eLearning Refresher Session)
				Divers	Launching / Familiarisation Dive
				Divers & non-divers	Beach Survey / see alternative non-diving activities
		Afternoon	15:00 17:00	Skills Recorder Day	Underwater or Intertidal Recording exercises (photography /
				Divers	Recording Dive (photography)
				Divers & non-divers	Beach Recording / see alternative non-diving activities
Skills Recorder Day	Analysis of recorded results				
Daily De-briefing	Round up of the day				
Bottle collection	Empty bottles taken for overnight re-filling				
Evening		Club Dive	Evening Dive *		
Sunday BBC Wales on-site	16th	Morning	09:00 10:00	Daily Briefing	Plans for the day
				Bottle collection	Full bottles returned / Empty bottles taken for re-filling
				Skills Surveyor Day	Theory (eLearning Refresher Session)
				Divers & non-divers	Introduction to Direct Survey Methods (DSM)
		Afternoon	15:00 17:00	Divers	DSM Dive 13
				Divers & non-divers	Beach Survey / see alternative non-diving activities
				Skills Recorder Day	Underwater or Intertidal Surveying exercises (offset / trilat. / ties)
Divers	DSM Dive 14 / clear site & leave as found (less litter)				
Divers & non-divers	Beach Survey / see alternative non-diving activities				
Skills Recorder Day	Drawing up surveyed results				
Daily De-briefing	Round up of the day				
Bottle collection	Full bottles returned / Empty bottles taken for overnight re-filling				
Evening		Dive clubs	Recover boats		
Monday	17th	Morning	09:00	Daily Briefing	Plans for the day
			09:30	Divers & non-divers	Clear & tidy the site
			12:00	Divers & non-divers	Vacate the site

Notes:

Events & activities for divers	Evening dives do not form part of the field school
Events & activities for divers & non-divers	Intertidal surveying using a Total Station & Plane Table
NAS Courses	
Other activities suitable for all	

Table 11. NAS Field School Provisional Timetable.

Appendix D – Research (Lloyds Registers)

Below is the information provided in Lloyds Registers for the *Serak* from 1906 when she was built until 1917 when the *Leysian* was lost.

Year	1			2			3	
	No. in Book.	Official No.	Code Letters.	Steamer's Name.	Master	Special Surveys.	Material, Rig, etc.	No. of Decks, etc.
1906 - 07	765			Serak			Steel Screw Schooner	
1907 - 08	799		RPJH	"	W. Bremer - 06		"	2 Decks (Steel)
1908 - 09	839		"	"	"		"	"
1909 - 10	863		"	"	"		"	2 Decks (Steel) & deep framing
1910 - 11	864		"	"	W. Kagelmacher		"	"
1911 - 12	874		"	"	Th. Breckwoldt		"	"
1912 - 13	901		"	"	N.von Ehren	No. 1-10 at Hamburg		"
1913 - 14	940		"	"	"	"	"	"
1914 - 15	960		"	"	"	"	"	2 Decks (Steel) & deep framing Wireless
1915 - 16	506	137424	JHRW	Leysian (ex Serak)	J. H. Kay - 15	No2-14 at Hamburg	"	"
1916 - 17	488	"	"	"	R.H. Roberts - 15	"	"	"
1917 - 18	482	"	"	"	"	"	"	"
1918 - 19	531	"	"	"	"	"	"	"

Year	4			5			6	7	7*	
	Registered Tonnage			Particulars of Classification						Date tail shaft
	Gross.	Under deck.	Net.	Character.	+ Special Survey	Date of last Survey	Port of Survey	Equipment Letter	Last seen	
1906 - 07					100A1 Shelter deck with freeboard (class contemplated)					
1907 - 08	4680	4460	3015		+100A1 Shelter deck with freeboard + LMC	12 / 1906 12 / 1906	Newcastle	Classification z		
1908 - 09	"	"	"		"	"	"	"		
1909 - 10	"	"	"		"	08 / 1908 12 / 1906	Hamburg	"		
1910 - 11	"	"	"		"	"	"	"		
1911 - 12	"	"	"		"	07 / 1910 12 / 1906	"	"		
1912 - 13					"	06 / 1911				
1913 - 14	"	"	"		+100A1 Shelter deck with freeboard + LMC BS	02 / 1913 06 / 1911 07 / 1912	"	"	06 / 1911	
1914 - 15	"	"	"		"	02 / 1914 06 / 1911 08 / 1913	"	"	08 / 1913	
1915 - 16	4703	4460	2999		+ 100 A1 Shelter deck with freeboard + LMC	03 / 1915 07 / 1914	Liverpool	"	New in 03 / 1915	
1916 - 17	4703	4460	2999	(Class Contemplated)	"	02 / 1916 07 / 1914	Newport News	"	"	
1917 - 18	4703	4460	2999		+ 100 A1 Shelter deck with freeboard + LMC BS	11 / 1916 07 / 1914 04 / 1916	"	"	11 / 1916	
1918 - 19	4703	4460	2999		"	"	"	"	"	

Year	8		9		10	11	12			13	14
	Built			Where	Owners	Construction	Registered Dimensions in feet			Port of Registry.	Flag
	When	By Whom					Length. ft	Breadth. ft	Depth. ft		
1906 - 07	1906 <i>Lloyd's AC&P</i>	Armstrong Whitworth & Co. Ltd.	Newcastle		Deutsche-Dmpfsfahrts. Ges. Kosmos		400.0	51.0	27.3	Hamburg German	
1907 - 08	1906 12mo <i>Lloyd's AC&P</i>	"	"		"	Water Ballast, cellular construction double bottom, aft = 129ft, under engine = 67ft, forward = 154ft, capacity = 1047tons after peak tank = 30 tons	"	52.0	27.0	"	
1908 - 09	"	"	"		"	"	"	"	"	"	
1909 - 10	"	"	"		"	"	"	"	"	"	
1910 - 11	"	"	"		"	"	"	"	"	"	
1911 - 12	"	"	"		"	"	"	"	"	"	
1912 - 13	"	"	"		"	"	"	"	"	"	
1913 - 14	"	"	"		"	"	"	"	"	"	
1914 - 15	"	"	"		"	"	"	"	"	"	
1915 - 16	"	"	"		F. Levland & Co. Ltd.	"	"	"	"	Liverpool	British
1916 - 17	"	"	"		"	"	"	"	"	"	"
1917 - 18	"	"	"		"	"	"	"	"	"	"
1918 - 19	"	"	"		"	"	"	"	"	"	"

Year	15							16		17	18	
	Engines.							Moulded depth.	Freeboard amidships ft. ins.	Registered Class	Date of BOT Certificate	
	Cylinders.		Stroke	Main <i>Donkey</i>	HP		Boiler Details					Maker's Name
	No.	Dia.			NHP	GHP						
1906 - 07	Triple expansion 3-cylinder	27". 45" & 74"	48"					Wllsnd Slpwy.Co. Ld.Nwc				
1907 - 08	"	"	"	180 psi 180 psi	477		3 single-ended boilers 9 corrugated furnaces 175 ft ² grate surface 6492 ft ² heat surface	N.E. Marine Eng. Co. Nwc	(steel) S Forced Draught	29' 9" 4' 1"		
1908 - 09	"	"	"	"	"		"	"	"	"	09 / 1907	
1909 - 10	"	"	"	"	"		"	"	"	"	"	
1910 - 11	"	"	"	"	"		"	"	"	"	08 / 1909	
1911 - 12	"	"	"	"	"		"	"	"	"	"	
1912 - 13	"	"	"	"	"		"	"	"	"		
1913 - 14	"	"	"	"	"		"	"	"	"		
1914 - 15	"	"	"	"	"		"	"	"	"		
1915 - 16	"	"	"	"	"		"	"	(steel) S Forced Draught	29' 9" 4' 1" 26' 1"		
1916 - 17	"	"	"	"	"		"	"	"	"		
1917 - 18	"	"	"	"	"		"	"	"	"		
1918 - 19	"	"	"	"	"		"	"	"	"		

Table 12. Information taken from Lloyds Registers for the Serak / Leysian from 1906 to 1918.

Appendix E – Research (Timeline for the *Serak* / *Leysian*)

Below is information uncovered through desk-top research, displayed as a “Timeline” for the *Serak* / *Leysian* from 1906 until 1917.

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
<i>Serak</i>									
1906	October	19 th	Launched in Newcastle-upon-Tyne at the yard of W.G. Armstrong & Whitworth & Co. Ltd., Launched by Mrs. Hennigsen – wife of the owner’s resident engineer.						Plans for the <i>Sakkarah</i> , <i>Serak</i> & <i>Sisak</i> Lloyd's List (25/10/06)
	December		Commissioned, trials & completed.						1906-12-?? DDG Kosmos (The Ships List) Lloyd's List (06, 11, & 17/12/06)
				Departed Arrived	Newcastle-upon-Tyne	Bremer (Germany)			Lloyd's List (31/12/06)
		18 th	Departed Arrived	Hamburg (Bremer?)	Genoa (Italy) Genoa (Italy)			Lloyd's List (31/12/06)	
		28 th						06-12-21 cutting (San Francisco Call)	
1907	January	4 th	Departed Arrived	Genoa (Italy)	Tenerife (Canary Isles)			1907-1-6 cutting (Baltimore Sun)	
		12 th	Departed Arrived	Tenerife (Canary Isles)	Punta Arenas (Chile)			1907-1-12 cutting (San Francisco Call) 1907-2-8 cutting (San Fran Call)	
	February		Departed Arrived	Punta Arenas (Chile)	Corral (Chile)			1907-2-10 cutting (San Francisco Call) Lloyd's List (15/02/07)	
		10 th							
		20 th	Departed Arrived	Corral (Chile)	Valparaiso (Chile)			1907-2-20 cutting (San Francisco Call)	
	March	5 th	Departed Arrived	Valparaiso (Chile)	Guayaquil (Ecuador)			Lloyd's List (16/03/07)	
		26 th	Departed Arrived	Guayaquil (Ecuador)	Corinto (Nicaragua)			1907-3-28 cutting (San Francisco Call) Lloyd's List (12/04/07)	
	April	1 st	Departed Arrived	Corinto (Nicaragua)	Acajutla (El Salvador)			Lloyd's List (25/05/07)	
		5 th	Departed Arrived	Corinto (Nicaragua)	Acajutla (El Salvador)			Lloyd's List (13/06/07)	
	May	7 th	Departed Arrived	Acajutla (El Salvador)	San Francisco (USA)				
			Departed Arrived	San Francisco (USA)	Guatemala				

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.
Year	Month	Day		From	To			
	June	13 th	Departed	Guatemala				Lloyd's List (18/06/07)
			Arrived		Callao (Peru)			
	July		Departed	Callao (Peru)				
			Arrived		Valparaiso (Chile)			
	July		Departed	Valparaiso (Chile)				
			Arrived		Punta Arenas (Chile)			
	July	27 th	Departed	Punta Arenas (Chile)				Lloyd's List (31/07/07)
			Arrived		Montevideo (Uruguay)			
	August	6 th	Departed	Montevideo (Uruguay)				Lloyd's List (09/08/07)
			Arrived		St. Vincent (W. Indies)			
	August	25 th	Departed	St. Vincent (W. Indies)				Lloyd's List (28/08/07)
		30 th	Arrived		Tenerife (Canary Isles)			Lloyd's List (31/08/07 & 10/09/07)
	September		Departed	Tenerife (Canary Isles)				
		14 th	Arrived		Hamburg (Germany)			Lloyd's List (18/09/07)
	October	4 th	Departed	Hamburg (Germany)		B. L. Jansen		1908-2-28 passenger list (Ancestry.com)
			Arrived		Gravesend (UK)			
		18 th	Departed	Gravesend (UK)				Lloyd's List (19/10/07)
			Arrived		Tenerife (Canary Isles)			1907-10-21 cutting (The Guardian)
November	26 th	Departed	Tenerife (Canary Isles)				Lloyd's List (31/10/07 & 09/11/07)	
	17 th	Arrived		Punta Arenas (Chile)			Lloyd's List (22/11/07)	
November		Departed	Punta Arenas (Chile)					
	24 th	Arrived		Corral (Chile)			Lloyd's List (29/11/07)	
December		Departed	Corral (Chile)					
	8 th	Arrived		Valparaiso (Chile)			1907-12-13 cutting/1907-12-13 cutting (2)	
	14 th	Departed	Valparaiso (Chile)				Lloyd's List (18/12/07)	
1908	January		Arrived		Mollendo (Peru)			1907-12-17 cutting (San Francisco Call)
		9 th	Departed	Mollendo (Peru)				Lloyd's List (18/01/08)
			Arrived		Callao (Peru)			
		17 th	Departed	Callao (Peru)				1908-1-21 cutting (San Francisco Examiner)
	20 th	Arrived		Guayaquil (Ecuador)			1908-1-21 cutting (San Francisco Examiner)	
	24 th	Departed	Guayaquil (Ecuador)				Lloyd's List (28/01/08)	
		Arrived		Corinto (Nicaragua)			1908-1-30 cutting (San Francisco Call)	

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
1908	February	29 th	Departed	Corinto (Nicaragua)			cargo from another vessel	Lloyd's List (13/02/08)	
			Arrived		La Union (El Salvador)			1908-2-29 cutting (L.A. Times)	
			Departed	La Union (El Salvador)		Salina Cruz (Mexico)			
			Arrived						
			Departed	Salina Cruz (Mexico)				250 tons of bridge material	1908-2-29 cutting (3) (San Francisco Examiner)
			Arrived			Manzanillo (Mexico)			
			Departed	Manzanillo (Mexico)					
			Arrived		Maztalan (Mexico)				
			Departed	Maztalan (Mexico)			people cement iron pipe	1908-2-29 cutting (2) (San Francisco Call) 1908-2-29 cutting (L.A. Times) 1908-2-29 cutting (L.A. Times) 1908-2-28 passenger list (Ancestry.com)	
		28 th	Arrived		San Francisco (USA)				
March		7 th	Departed	San Francisco (USA)				Lloyd's List (20/03/08) 08/03/1908 cutting (San Francisco Chronicle)	
		10 th	Passed Tatoosh Island, Washington						1908--3-11 cutting (San Francisco Call)
		11 th	Arrived		Tacoma (USA)			1908-3-11 alien crewlist (Ancestry.com)	
		17 th	Small fire extinguished while at Tacoma Wash						1908-3-18 cutting (San Francisco Chronicle)
		22 nd	Departed	Tacoma (USA)				1908-3-23 cutting (San Francisco Call)	
		22 nd	Arrived		Seattle (USA)			1908-3-18 cutting (San Francisco Chronicle)	
		25 th	Departed	Seattle (USA)				1908-3-11 alien crewlist (Ancestry.com) 1908-3-26 cutting (San Francisco Call)	
	28 th	Passed Point Lobos California						1908-3-29 cutting (San Francisco Chronicle)	
April			Arrived		Mollendo (Peru)				
May		4 th	Departed	Mollendo (Peru)				Lloyd's List (12/05/08) 1908-5-8 cutting (San Francisco Call)	
		27 th	Arrived		Valparaiso (Chile)			1908-5-29 cutting (Baltimore Sun)	
June			Departed	Valparaiso (Chile)				1908-6-7 cutting (San Francisco Call)	
		1 st	Arrived		Punta Arenas (Chile)				
		4 th	Departed	Punta Arenas (Chile)				Lloyd's List (23/06/08) 1908-6-7 cutting (San Francisco Call)	
July		1 st	Arrived		Tenerife (Canary Isles)			Lloyd's List (02/07/08) 1908-7-2 cutting (Baltimore Sun)	

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
1909	October		Departed	Tenerife (Canary Isles)				Lloyd's List (15/07/08) 1908-7-9 cutting (San Francisco Call) 1908-7-14 cutting (San Francisco Call)	
		7 th	Sighted	Spoke to <i>Potosi</i> off France in Bay of Biscay at 47N / 06W					
			Passed Ushant, Finistere, France						
			10 th	Arrived		Hamburg (Germany)			1908-7-14 cutting (San Francisco Call)
			1 st	Departed	Hamburg (Germany)				Lloyd's List (05/10/08)
			11 th	Arrived		Antwerp (Belgium)			1908-10-14 cutting (San Francisco Call)
			11 th	Departed	Antwerp (Belgium)				1908-10-14 cutting (2) (San Francisco Call)
				Arrived		London (Tilbury)			
			13 th / 16 th	Departed	London (Tilbury Docks)				Lloyd's List (16/10/08) 1908-10-17 cutting (Baltimore Sun)
			Arrived		Tenerife (Canary Isles)	B. L. Jansen		Tansley family travel doc (Ancestry.com)	
		23 rd	Departed	Tenerife (Canary Isles)				Lloyd's List (03/11/08) 1908-10-27 cutting (Baltimore Sun)	
	November	15 th	Arrived		Punta Arenas (Chile)			1908-11-20 cutting (Baltimore Sun)	
	December	3 rd	Departed	Punta Arenas (Chile)				Lloyd's List (08/12/08) 1908-12-9 cutting (San Francisco Call)	
			Arrived		Valparaiso (Chile)				
		10 th	Departed	Valparaiso (Chile)				1908-12-11 cutting (San Francisco Call)	
		Arrived		Iquique (Chile)					
	18 th	Departed	Iquique (Chile)				Lloyd's List (09/01/08) 1908-12-31 cutting (San Francisco Call)		
		Arrived		Callao (Peru)					
	29 th	Departed	Callao (Peru)				1908-12-31 cutting (San Francisco Call)		
January	1 st	Arrived		Guayaquil (Ecuador)			1908-12-31 cutting (San Francisco Call)		
	5 th	Departed	Guayaquil (Ecuador)				1909-1-7 cutting (San Francisco Call)		
		Arrived		San Jose (Guatemala)					
		Departed	San Jose (Guatemala)		Salina Cruz (Mexico)			1909-1-29 cutting (San Francisco Examiner)	
		Arrived							
	29 th	Departed	Salina Cruz (Mexico)				1909-1-29 cutting (San Francisco Examiner)		
		Arrived		Maztalan (Mexico)			1909-2-3 cutting (San Francisco Call)		
February	1 st	Departed	Maztalan (Mexico)			B. L. Jansen	1909-2-3 cutting (San Francisco Call)		
	7 th	Arrived		San Francisco (USA)			1909-2-7 alien crewlist (Ancestry.com) 1909-2-8 cutting (San Francisco Call)		
						treasure, mail, gin, coffee, nitrates.	1909-2-8 cutting (San Francisco Examiner)		

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.
Year	Month	Day		From	To			
1909		12 th	Departed	San Fransisco (USA)				1909-2-8 cutting (San Francisco Call)
		15 th	Passed Tatoosh island, Washington					1909-2-16 cutting (San Francisco Call)
		16 th	Arrived		Seattle (USA)			1909-2-8 cutting (San Francisco Call) 1909-2-16 alien crewlist (Ancestry.com)
		16 th	Departed	Seattle (USA)				
		17 th	Arrived		Tacoma (USA)			1909-2-18 cutting (San Francisco Call)
		20 th	Departed	Tacoma (USA)				1909-2-21 cutting (San Francisco Call)
			Arrived		Seattle (USA)			
		22 nd	Departed	Seattle (USA)				
	22 nd	Arrived		Port Ludlow (USA)			lumber flour & wheat	
							Lloyd's List (05/03/09) 1909-2-23 cutting (San Francisco Call) 1909-2-23 cutting (San Francisco Examiner)	
	23 rd	Departed	Port Ludlow (USA)				Lloyd's List (27/02/09)	
	27 th	Arrived		San Francisco (USA)			1909-2-24 cutting (San Francisco Call) 1909-2-28 cutting (San Francisco Call)	
	March	1 st	Departed	San Francisco (USA)				Lloyd's List (27/03/09)
			Arrived		Maztalan (Mexico)			1909-2-27 cutting (San Francisco Examiner) 1909-2-26 cutting (Oakland Tribune)
			Departed	Maztalan (Mexico)				
			Arrived		Guayaquil (Ecuador)			
	April	21 st	Departed	Guayaquil (Ecuador)				Lloyd's List (29/04/09)
			Arrived		Valparaiso (Chile)			
	May	17 th	Departed	Valparaiso (Chile)				Lloyd's List (27/05/09)
			Arrived		Punta Arenas (Chile)			
June	1 st	Departed	Punta Arenas (Chile)				Lloyd's List (10/06/09)	
		Arrived		Montevideo (Uruguay)				
	8 th / 9 th	Departed	Montevideo (Uruguay)				Lloyd's List (11/06/09)	
		Arrived		Las Palmas (Canaries)			1909-6-12 cutting (Baltimore Sun)	
July	1 st	Departed	Las Palmas (Canaries)				Lloyd's List (06/07/09)	
	9 th	Passed Ushant, Finistere, France					1909-7-9 cutting (Pittsburgh Daily Post)	
	9 th	Arrived		Le Havre (France)			1909-7-11 cutting (San Francisco Call)	
		Departed	Le Havre (France)					
	12 th	Arrived		London (UK)			1909-7-13 cutting (Baltimore Sun)	

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.
Year	Month	Day		From	To			
1909		16 th	Departed Arrived	London (UK)	Hamburg (Germany)			Lloyd's List (12/07/09) 1909-7-20 cutting (Baltimore Sun)
	September	2 nd	Departed	Hamburg (Germany)		W. Kagelmacher		1909-9-3 cutting (San Francisco Call) 1909-9-2 Alien Crewlist (Ancestry.com)
			Arrived		Nordenham (Germany)			1910-1-13 cutting (2) (Victoria Daily Colonist)
			Departed	Nordenham (Germany)			1910-1-13 cutting (2) (Victoria Daily Colonist)	
		5 th	Arrived		Antwerp (Belgium)		Lloyd's List (07/09/09)	
		12 th 13 th	Departed Arrived	Antwerp (Belgium)			Lloyd's List (14/09/09) at T.D. Browne. G & Co. / London Customs	
		17 th	Departed	London (Tilbury Docks)			1909-9-18 cutting (Baltimore Sun)	
			Arrived		Tenerife (Canary Isles)			
		24 th	Departed	Tenerife (Canary Isles)			Lloyd's List (23/10/09)	
			Arrived		Punta Arenas (Chile)		1909-10-23 cutting (Pittsburgh Daily Post)	
	October			Departed	Punta Arenas (Chile)			
		22 nd	Arrived			Corral (Chile)		Lloyd's List (28/10/09)
			Departed	Corral (Chile)				
		28 th	Arrived			Valparaiso (Chile)		Lloyd's List (04/11/09)
	November	3 rd	Departed	Valparaiso (Chile)				1909-11-5 cutting (San Francisco Call)
		15 th	Arrived			Caleta Bueana (Chile)		1910-1-13 cutting (2) (Victoria Daily Colonist)
		19 th	Departed	Caleta Bueana (Chile)				1910-1-13 cutting (2) (Victoria Daily Colonist)
			Arrived		Junin (Peru)			
			Departed	Junin (Peru)			electric cars	1910-1-5 cutting (3) (San Francisco Call)
			Arrived		Guayaquil (Ecuador)			
	December	4 th	Departed	Guayaquil (Ecuador)				Lloyd's List (14/12/09)
		10 th	Arrived			Corinto (Nicaragua)		Lloyd's List (16/12/09 & 23/12/09)
			Departed	Corinto (Nicaragua)				
17 th		Arrived			Salina Cruz (Mexico)		1909-12-19 cutting (San Francisco Examiner)	
23 rd		Departed	Salina Cruz (Mexico)				Lloyd's List (04/01/10) 1909-12-24 cutting (San Francisco Call)	
		Arrived			Maztalan (Mexico)			
	27 th 31 st	Departed Arrived	Maztalan (Mexico)		San Pedro (USA)		1909-12-29 cutting (San Francisco Call) 1910-1-1 cutting (San Francisco Call) 1909-12-31 cutting (L.A. Herald) 1910-1-3 cutting (L.A. Times)	

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
1910	January	4 th	Departed Arrived	San Pedro (USA)	San Francisco (USA)		12 yr old boy, nitrate, coffee	1910-1-5 cutting (San Francisco Examiner) 1910-1-5 cutting (2) (San Francisco Examiner) 1910-1-5 cutting (3) (San Francisco Call) 1910-1-5 alien crewlist (Ancestry.com) 1910-1-5 alien crewlist (2) (Ancestry.com) 1910-1-6 cutting (San Francisco Chronicle)	
		8 th 12 th	Departed Arrived	San Francisco (USA)	Victoria (Canada)			1910-1-8 cutting (San Francisco Examiner) 1910-1-13 cutting (San Francisco Call)	
		13 th	Departed Arrived	Victoria (Canada)	Vancouver (Canada)		chains, whisky anchors	1910-1-14 cutting (Vancouver Daily World) Lloyd's List (25/01/10)	
		14 th 14 th	Departed Arrived	Vancouver (Canada)	Nainamo (Canada)			1910-1-14 cutting (Vancouver Daily World) 1910-1-15 cutting (San Francisco Examiner)	
		16 th	Departed Arrived	Nainamo (Canada)	Seattle (USA)			1910-1-17 cutting (San Francisco Call) 1910-1-16 alien crewlist (Ancestry.com)	
		17 th 18 th	Departed Arrived	Seattle (USA)	Tacoma (USA)		flour lumber tallow	1910-1-18 cutting (San Francisco Chronicle) 1910-1-18 cutting (2) (San Francisco Call) 1910-1-19 cutting (San Francisco Call) 1910-1-19 cutting (2) (Tacoma Times) 1910-1-22 cutting (San Francisco Chronicle)	
		21 st	Departed Arrived	Tacoma (USA)	Everett (USA)			1910-1-22 cutting (San Francisco Call)	
		23 rd	Departed	Everett (USA)				1910-1-25 cutting (San Francisco Examiner)	
		24 th	Passed Tatoosh island, Washington					1910-1-25 cutting (San Francisco Examiner)	
		28 th	Arrived		San Francisco (USA)			1910-1-28 cutting (San Francisco Call)	
		30 th	Departed Arrived	San Francisco (USA)	Salina Cruz (Mexico)			Lloyd's List (12/02/10)	
		February	15 th	Departed Arrived	Salina Cruz (Mexico)	Corinto (Nicaragua)			Lloyd's List (08/03/10) 1910-3-5 cutting (San Francisco Chronicle)
		March		Departed Arrived	Corinto (Nicaragua)	Guayaquil (Ecuador)			
			19 th	Departed Arrived	Guayaquil (Ecuador)	Callao (Peru)			Lloyd's List (07/04/10)

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
1910	April	26 th	Departed	Callao (Peru)				Lloyd's List (20/04/10)	
			Arrived		Valparaiso (Chile)				
		22 nd	Departed	Valparaiso (Chile)				1910-4-28 cutting (San Francisco Call)	
			Arrived		Punta Arenas (Chile)				
	May	3 rd	Departed	Punta Arenas (Chile)				Lloyd's List (10/05/10)	
			Arrived		Montevideo (Uruguay)				
		10 th	Departed	Montevideo (Uruguay)				Lloyd's List (24/05/10)	
		19 th	Sighted	Spoke to <i>Cap Horn</i> off Brazil at 10S / 34W					Lloyd's List (11/06/10)
	June	21 st	Passed Fernando De Noronha (Brazil)						1910-5-24 cutting (San Francisco Call)
		2 nd	Arrived		Las Palmas (Canaries)			!910-6-2 cutting (Pittsburgh Daily Post)	
			Departed	Las Palmas (Canaries)					
		9 th	Arrived		Le Havre (France)			Lloyd's List (11/06/10)	
		14 th	Departed	Le Havre (France)				Lloyd's List (15/06/10)	
		16 th	Arrived		Hamburg (Germany)			1910-6-19 cutting (San Francisco Call)	
	August	4 th	Departed	Hamburg (Germany)			Theodor Breckwoltd	Lloyd's List (08/08/10)	
		7 th	Arrived		Antwerp (Belgium)			1910-11-30 alien crewlist (Ancestry.com)	
								Lloyd's List (13/08/10)	
		15 th	Departed	Antwerp (Belgium)				Lloyd's List (15/08/10)	
			Arrived		London (Tilbury Docks)			Lloyd's List (18/08/10)	
		18 th	Departed	London (Tilbury Docks)				Lloyd's List (23/08/10)	
			Arrived		Las Palmas (Canaries)				
		25 th	Departed	Las Palmas (Canaries)				Lloyd's List (20/09/10)	
		20 th	Arrived		Punta Arenas (Chile)			Lloyd's List (24/09/10)	
September		Departed	Punta Arenas (Chile)						
	26 th	Arrived		Corral (Chile)			Lloyd's List (04/10/10)		
October		Departed	Corral (Chile)						
	3 rd	Arrived		Valparaiso (Chile)			Lloyd's List (22/10/10)		
	8 th	Departed	Valparaiso (Chile)				Lloyd's List (05/11/10)		
		Arrived		Callao (Peru)					
	29 th	Departed	Callao (Peru)				1910-11-1 cutting (San Francisco Chronicle)		
		Arrived		Guayaquil (Ecuador)					
	7 th	Departed	Guayaquil (Ecuador)				1910-11-8 cutting (San Francisco Chronicle)		
November	16 th	Arrived		Corinto (Nicaragua)			1910-12-8 cutting (San Francisco Examiner)		
		Departed	Corinto (Nicaragua)				1910-12-8 cutting (San Francisco Examiner)		
		Arrived		Amapala (Honduras)			1910-12-8 cutting (San Francisco Examiner)		

The U-boat Project (Appendix E)

Malvern Archaeological Diving Unit

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.		
Year	Month	Day		From	To					
	December		Departed Arrived	Amapala (Honduras)	Ocos (Mexico)		2000 bags of coffee	1910-11-27 cutting (San Francisco Call)		
		26 th	Departed Arrived	Ocos (Mexico)	Maztalan (Mexico)			1910-11-27 cutting (2) (San Francisco Call)		
		30 th	Departed	Maztalan (Mexico)				1910-11-30 alien crewlist (Ancestry.com) 1910-12-2 cutting (San Francisco Call)		
		7 th	Arrived		San Francisco (USA)			1910-11-30 alien crewlist (Ancestry.com)		
		9 th	Departed	San Francisco (USA)				1910-12-10 cutting (San Francisco Call)		
		12 th	Passed	Port Crescent,					1910-12-13 cutting (2) (San Francisco Call)	
		12 th	Arrived		Vancouver or Victoria (Canada)			1910-12-13 cutting (San Francisco Call)		
		12 th	At Departed Arrived	Vancouver (Canada) Vancouver (Canada)	Nainamo (Canada)			Lloyd's List (27/12/10) 1910-12-10 cutting (San Francisco Call)		
		14 th 15 th	Departed Arrived	Nainamo (Canada)	Seattle (USA)			1910-12-14 alien crewlist (Ancestry.com) 1910-12-14 alien crewlist (Ancestry.com)		
		17 th 18 th	Departed Arrived	Seattle (USA)	Tacoma (USA)			1910-12-18 cutting (San Francisco Call) 1910-12-19 cutting (San Francisco Chronicle)		
		week	Pending	Negotiations with Balfour, Guthrie					1910-12-30 cutting (San Francisco Examiner)	
		29 th 31 st	Departed Arrived	Tacoma (USA)	Portland (USA)			1910-12-30 cutting (San Francisco Chronicle) 1911-1-1 cutting (San Francisco Call)		
		31 st 31 st	Departed Arrived	Portland (USA)	Astoria (USA)			1910-12-31 alien crewlist (Ancestry.com)		
		1911	January	8 th	Departed	Astoria (USA)			186,666 bushels of wheat	1910-12-31 alien crewlist (Ancestry.com)
					Arrived		Portland (USA)			1910-12-31 alien crewlist (Ancestry.com)
9 th	Departed Arrived			Portland (USA)	Astoria (USA)			1911-1-9 cutting (San Francisco Chronicle)		
11 th	Departed Arrived			Astoria (USA)	Seattle (USA)			1911-1-12 cutting (2) (San Francisco Call)		
12 th	Departed Arrived			Seattle (USA)	Tacoma (USA)		wheat	???-01-?? Bulk Cargo Trade (Tacoma Library) 1911-1-12 cutting (Tacoma Times)		
15 th	Departed			Tacoma (USA)			wheat & scrap tin	1910-12-14 alien crewlist (Ancestry.com) 1911-1-16 cutting (San Francisco Examiner)		
February	Arrived				Valparaiso (Chile)			1911-2-18 cutting (Oregon Daily Journal)		

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
1911		14 th	Departed	Valparaiso (Chile)					
			Arrived		Punta Arenas (Chile)				
	March	26 th	Departed	Punta Arenas (Chile)				1911-3-2 cutting (San Francisco Chronicle)	
		26 th	Arrived		Las Palmas (Canaries)			1911-3-29 cutting (San Francisco Call)	
	April		Departed	Las Palmas (Canaries)					
		2 nd	Arrived		St Nazaire (France)			1911-4-6 cutting (San Francisco Examiner)	
	May		Departed	St Nazaire (France)					
		20 th	Arrived		Hamburg (Germany)			1911-5-23 cutting (San Francisco Examiner)	
	June		8 th	Departed	Hamburg (Germany)		Nicolas Von Ehren		1911-6-11 cutting (Victoria Daily Colonist)
				Arrived		Antwerp (Belgium)			1911-9-5 alien crewlist (Ancestry.com)
	July		17 th	Departed	Antwerp (Belgium)				1911-6-20 cutting (Baltimore Sun)
			19 th	Passed	Punta Arenas (Chile)				1911-7-22 cutting (San Francisco Call)
			30 th	Arrived		Valparaiso (Chile)			1911-8-3 cutting (Baltimore Sun)
			30 th	Departed	Valparaiso (Chile)				1911-8-1 cutting (San Francisco Chronicle)
	August			Arrived		Guatemala			
			22 nd	Departed	Guatemala				1911-8-23 cutting (San Francisco Call)
	September			Arrived		Maztalan (Mexico)			
			29 th	Departed	Maztalan (Mexico)				1911-9-3 cutting (San Francisco Call)
									1911-9-5 alien crewlist (Ancestry.com)
			5 th	Arrived		San Francisco (USA)			1911-9-6 cutting (San Francisco Examiner)
			6 th	Departed	San Francisco (USA)				1911-9-8 cutting (San Francisco Call)
			8 th	Arrived		Eureka (USA)			1911-9-9 cutting (San Francisco Chronicle)
			10 th	Departed	Eureka (USA)				1911-9-11 cutting (San Francisco Call)
									1911-9-12 alien crewlist (Ancestry.com)
			12 th	Arrived		Seattle (USA)			1911-9-13 cutting (Vancouver Daily World)
			14 th	Departed	Seattle (USA)				1911-9-15 cutting (San Francisco Chronicle)
			15 th	Arrived		Tacoma (USA)			1911-9-16 cutting (San Francisco Call)
	18 th	Departed	Tacoma (USA)				1911-9-19 cutting (San Francisco Call)		
		Arrived		Everett (USA)					
		Departed	Everett (USA)						
		Arrived		Rupert (USA)			1911-9-21 cutting (San Francisco Chronicle)		
		Departed	Rupert (USA)						
		Arrived		Seattle (USA)					
	21 st	Departed	Seattle (USA)				1911-9-21 cutting (2) (Daily Colonist)		
		Arrived		Tacoma (USA)					

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
	October		Departed	Tacoma (USA)				1911-9-25 cutting (San Francisco Call) 1911-10-17 cutting (San Francisco Chronicle)	
		24 th	Passed Tatoosh island, Washington						
		15 th	Arrived		Huacho (Peru)				
	November			Departed	Huacho (Peru)				1911-11-17 cutting (San Francisco Chronicle) 1911-11-23 cutting (Detroit Free Press) 1911-11-23 cutting (Detroit Free Press)
		21 st	Arrived		Mollendo (Peru)				
			Departed	Mollendo (Peru)		Punta Arenas (Chile)			
			Arrived			Montevideo (Uruguay)			
			Departed	Punta Arenas (Chile)					
			Arrived						
	December	25 th	Departed	Montevideo (Uruguay)					1911-11-30 cutting (Courier-Journal) 1911-12-8 cutting (San Francisco Call) 1911-12-18 cutting (Courier-Journal) 1911-12-25 cutting (Pittsburgh Daily Post)
		6 th	Passed Fernando De Noronha (Brazil)						
		17 th	Arrived		Las Palmas (Canaries)				
			Departed	Las Palmas (Canaries)		Dover (UK)			
			Arrived						
	1912	January	1 st	Arrived		Hamburg (Germany)			1912 -1-3 cutting (Courier-Journal)
			Departed	Hamburg (Germany)		Las Palmas (Canaries)			
June		26 th	At	Las Palmas (Canaries)					1912-06-27 cutting (Shields Daily News)
			Departed	Las Palmas (Canaries)		Hamburg (Germany)			
			Arrived						
December			Departed	Hamburg (Germany)		Guayaquil (Ecuador)			1912-06-27 cutting (Scotsman)
		11 th	Arrived		Montevideo (Uruguay)				
			Departed	Montevideo (Uruguay)		Hamburg (Germany)			
1913		February	4 th	Departed	Hamburg (Germany)				1913-5-6 cutting (L.A. Times) 1913-3-2 cutting (Observer)
			28 th	Passed Dover (UK)					
			Arrived		Guayaquil (Ecuador)				
		Departed	Guayaquil (Ecuador)		Hamburg (Germany)				
		Arrived							

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
1914	July	26 th	Departed	Hamburg (Germany)		Albert	lead pipe	1914-8-27 cutting (Courier-News)	
		28 th	Start of WW1					Dinklage	
		29 th	Arrived		Swansea (S. Wales)		electronics coke		
		29 th	Departed						1914-8-27 cutting (Courier-News)
	August			Returned		Detained at sea			
		5 th	Detained						1915-08-15 article (S. Wales Weekly Post)
		9 th	Interned						1914-08-09 Naval Prize Act 1864
	27 th	Detained						Using Prize Ships 1914-8-27 cutting (Philadelphia Inquirer)	
1915	January	Given to Leyland Line as a "Prize of War"						1915-01-15 article (Cumbrian Daily Leader)	
Leysian									
		22 nd	Re-registered					Certificate of British Registry Appropriation Books	
		22 nd	Plans to put the Serak into the UK east coast coal trade.					1915-01-23 Article (Cumbrian Daily Leader)	
February		24 th	Departed	Cardiff (South Wales)		J.H. Kay		Official Log Book (24/01/15 - 08/03/15)	
		11 th	Arrived		Newport News (USA)				
March		18 th	Departed	Newport News (USA)		J.H. Kay		Official Log Books (24/01/15 - 08/03/15) & (18/02/15 - 08/03/15)	
		5 th	Arrived		Queenstown (USA)				
		7 th 8 th	Departed Arrived	Queenstown (USA)		Liverpool (UK)	J.H. Kay	1915-3-8 Immigration doc (Ancestry.com) Official Log Books (24/01/15 - 08/03/15) & (18/02/15 - 08/03/15)	
April		14 th	Departed	Liverpool (UK)		J.H. Kay		Official Log Book (14/03/15 - 28/04/15)	
		2 nd	Passed Sand Key Straits, Key West					1915-4-3 cutting (Tampa Tribune)	
		4 th	Arrived		New Orleans (USA)				
		9 th	Departed	New Orleans (USA)		J.H. Kay		1915-4-28 Vet Immigration form	
		28 th	Arrived		Avonmouth (UK)			Official Log Book (14/03/15 - 28/04/15)	
May		28 th	Departed	Avonmouth (UK)		J.H. Kay		Official Log Book (14/03/15 - 28/04/15)	
		28 th	Arrived		Barry (S. Wales)			1915-10-21 Crewlist 1 - 6. (Ancestry.com)	
		3 rd	Departed	Barry (S. Wales)		J.H. Kay		Official Log Book (14/03/15 - 28/04/15)	
		20 th	Passed Sand Key Straits, Key West					1915-5-21 cutting (Tampa Tribune)	
		22 nd	Arrived		New Orleans (USA)				

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.
Year	Month	Day		From	To			
	June	8 th	Departed	New Orleans (USA)	Alexandria (Egypt)	J.H. Kay		Official Log Books (03/05/15 - 05/11/15) & (08/06/15 - 15/08/15)
	July	3 rd	Arrived					
	August	25 th	Departed	Alexandria (Egypt)	Newport News (USA)	J.H. Kay		Official Log Books (03/05/15 - 05/11/15) & (08/06/15 - 15/08/15)
		15 th	Arrived					
	September	26 th	Departed	Newport News (USA)	Alexandria (Egypt)	J.H. Kay		Official Log Book (14/03/15 - 28/04/15)
		16 th	Arrived					
	October	24 th	Departed	Alexandria (Egypt)	Gibraltar	J.H. Kay		Official Log Book (14/03/15 - 28/04/15)
		2 nd	Arrived					
		3 rd	Departed	Gibraltar				
	November	16 th	Arrived		Portland, Maine (USA)	J.H. Kay		Official Log Book (14/03/15 - 28/04/15)
		21 st	Departed	Portland, Maine (USA)				
		3 rd	Arrived		Avonmouth (UK)			
		4 th	Departed	Avonmouth (UK)				
	December	5 th	Arrived		Newport (S. Wales)	J.H. Kay		Official Log Books (14/03/15 - 28/04/15) & (21/10/15 - 04/02/16)
16 th		Departed	Newport (S. Wales)					
30 th		Arrived		Newport News (USA)				
7 th		Departed	Newport News (USA)					
21 st		Arrived		Gibraltar				
1916	January	22 nd	Departed	Gibraltar	Alexandria (Egypt)	Robert Henry Roberts		Official Log Book (14/03/15 - 28/04/15) & (16/11/15 - 30/06/16)
		30 th	Arrived					
	February	7 th	Departed	Newport News (USA)	Gibraltar	Robert Henry Roberts		Official Log Book (14/03/15 - 28/04/15) & (16/11/15 - 30/06/16)
		18 th	Arrived					
		21 st	Departed	Gibraltar				
	March	4 th	Arrived		Newport News (USA)	Robert Henry Roberts		Official Log Book (16/11/15 - 30/06/16)
		12 th	Departed	Newport News (USA)				
		26 th	Arrived		Gibraltar			
		27 th	Departed	Gibraltar				
	April	5 th	Arrived		Alexandria (Egypt)	Robert Henry Roberts		Official Log Books (16/11/15 - 30/06/16) & (12/02/16 - 07/04/16)
		12 th	Departed	Alexandria (Egypt)				
		19 th	Arrived		Gibraltar			
	April	25 th	Departed	Gibraltar		Robert Henry Roberts		Official Log Books (16/11/15 - 30/06/16) & (12/02/16 - 07/04/16)
		7 th	Arrived		Newport News (USA)			
	15 th	Departed	Newport News (USA)		Robert Henry Roberts	1,000 mules	Official Log Books (16/11/15 - 30/06/16) & (15/04/16 - 06/06/16)	
	28 th	Arrived		Gibraltar				

Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
	May	1 st 8 th	Departed Arrived	Gibraltar	Alexandria (Egypt)	Robert Henry Roberts		Official Log Books (16/11/15 - 30/06/16) & (15/04/16 - 06/06/16)	
		15 th 22 nd	Departed Arrived	Alexandria (Egypt)	Gibraltar	Robert Henry Roberts		Official Log Books (16/11/15 - 30/06/16) & (15/04/16 - 06/06/16)	
		23 rd 6 th	Departed Arrived	Gibraltar	Newport News (USA)	Robert Henry Roberts		Official Log Books (16/11/15 - 30/06/16) & (15/04/16 - 06/06/16)	
	June	16 th 29 th	Departed Arrived	Newport News (USA)	Avonmouth (UK)	Robert Henry Roberts		Official Log Books (16/11/15 - 30/06/16) & (16/06/16 - 05/08/16)	
			Departed	Avonmouth (UK)		Robert Henry Roberts		Official Log Books (16/11/15 - 30/06/16) & (16/06/16 - 05/08/16)	
		30 th	Arrived		Cardiff (S. Wales)			1916-01-07 (Western Mail)	
	July	23 rd	Departed	Cardiff (S. Wales)		Robert Henry Roberts		Official Log Book (16/06/16 - 05/08/16)	
	August	5 th	Arrived		Newport News (USA)				
		10 th 23 rd	Departed Arrived	Newport News (USA)	Avonmouth (UK)	Robert Henry Roberts		Official Log Book (10/08/16 - 12/09/16)	
		28 th	Departed	Avonmouth (UK)		Robert Henry Roberts		Official Log Book (10/08/16 - 12/09/16)	
	September	12 th	Arrived		Newport News (USA)				
		20 th	Departed	Newport News (USA)		Robert Henry		Official Log Book (20/09/16 - 16/11/16)	
	October	3 rd	Picked up 3-Germans, 75-miles off Gibraltar				Roberts		Article (Newport News Daily Press)
		3 rd	Arrived		Gibraltar				
		4 th	Departed	Gibraltar		Robert Henry Roberts		Official Log Book (20/09/16 - 16/11/16)	
		12 th	Arrived		Alexandria (Egypt)				
		19 th 25 th	Departed Arrived	Alexandria (Egypt)	Algiers (Algeria)	Robert Henry Roberts		Official Log Book (20/09/16 - 16/11/16)	
		27 th 29 th	Departed Arrived	Algiers (Algeria)	Gibraltar	Robert Henry Roberts		Official Log Book (20/09/16 - 16/11/16)	
30 th		Departed	Gibraltar		Robert Henry Roberts		Official Log Book (20/09/16 - 16/11/16)		
November	16 th	Arrived		Newport News (USA)					
December	1 st	Departed	Newport News (USA)		Robert Henry		1916-12-1 Lloyds Confidential Shipping		
	12 th	Sighted	Spoke to HMS <i>Sutlej</i> off Gibraltar at 35.8N / 15.9W			Roberts		Naval History Homepage	
		Arrived		Alexandria (Egypt)			1916-12-1 Lloyds Confidential Shipping		
1917	January		Departed	Alexandria (Egypt)					
		5 th	Arrived		Algiers (Algeria)				
		8 th 29 th	Departed Arrived	Algiers (Algeria)	Newport News (USA)	Robert Henry Roberts		1917-1-8 Lloyds Confidential Shipping 1917-1-29 Lloyds Confidential Shipping	


Date			Details	Voyages		Master	Cargo	Source / References / Links / etc.	
Year	Month	Day		From	To				
1917	February	1 st	Germany reinstated its policy of unrestricted submarine warfare					German Declaration (N. Carolina Twin City S)	
		1 st	Departed	Newport News (USA)		Robert Henry Roberts	pack animals	Official Log Book (01/02/17 - 12/03/17)	
			Arrived		Belfast (N. Ireland)				
		19 th	Departed	Belfast (N. Ireland)		Robert Henry Roberts	in ballast	Official Log Book (01/02/17 - 12/03/17)	
		20 th	Mutiny?					Roberts	Official Log Book (01/02/17 - 12/03/17)
		20 th	Wrecked in Abercastle Bay (S. Wales)						1917-02-20 Surgeon's tale (Daily Advance) 1917-02-20 Insurance tale account 1 (N. Carolina Charlotte News) 1917-02-20 Insurance tale account 2 (Tampa Times) 1917-02-20 Horse Ship is Ashore (Morning Origionian) 1917-02-20 Wrecked off Welsh Coast (Cambria Daily Leader) 1917-02-20 Rewards (RNLI Records) 1917-02-20 Pembrokeshire Shipwrecks 1917-02-20 Shipwreck Index 1917-02-20 Wrecksite 1917-02-20 Shipwrecks Around Wales 1917-02-20 Leysian (Coflein)
		21 st	Ashore off Strumble Head						1917-02-21 Lloyds Confidential Shipping
March -		Commercial salvage operations carried out by Capt. J. Driver						1917-05-04 Salvage (County Echo)	

Notes:


	Information still to be determined.
	Specific details of events.

Table 13. Timeline for the Serak / Leysian from 1906 to 1917.

Appendix F – Research (Bi-lingual Flyer)



U-Boat Project 1914-18 (Commemorating the War at Sea)



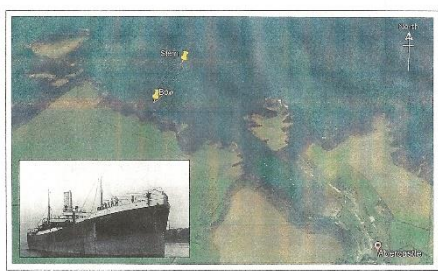
**Nautical Archaeology Society Field School
(Abercastle 7th - 17th June 2019)**

The U-Boat Project 1914-18 is a two-year exercise commemorating the centenary of the end of World War I. The project is being coordinated by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) with funding from the Heritage Lottery Fund (HLF).


As part of this project the Nautical Archaeology Society (NAS) is running an underwater field school at Abercastle from 7th - 17th June 2019 based around the wreck of the SS *Leysian* which was wrecked in the bay on 20th February 1917.

As a precursor to the field school, research is being carried out into the history of the vessel. Her brief timeline is as follows:


- 1906 – built as the SS *Sarek* in Newcastle-upon-Tyne for a German shipping line.
- 1906 to 1914 – trading as a general cargo vessel between Europe and the west coast of north & south America.
- 1914 – interned in Swansea at the outbreak of World War I and given to a British shipping line as a "prize of war" and re-named the SS *Leysian*.
- 1915 to 1917 – used to transport pack animals from America to assist with the front-line war effort in Europe and north Africa.
- 20th February 1917 – having unloaded a cargo of pack animals in Belfast, she was returning to America in ballast when she ran into the cliffs in Abercastle Bay and was wrecked.



The SS Leysian and her approximate location in Abercastle Bay



Y Prosiect Llongau-U 1914-18 (Yn Coffáu'r Rhyfel ar y Môr)



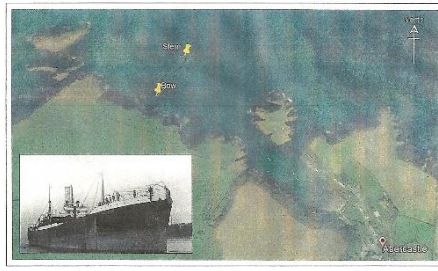
**Ysgol Faes y Gymdeithas Archaeoleg Forwrol
(Abercastell, o'r 7fed i'r 17eg o Fehefin 2019)**

Prosiect dwy flynedd sy'n coffáu canmlwyddiant diwedd y Rhyfel Byd Cyntaf yw'r Prosiect Llongau-U 1914-1918. Mae'n cael ei gyflwynu gan Gomiwn Brenhinol Henebion Cymru a'i ariannu gan Gronfa Dreftadaeth y Loteri.

Fel rhan o'r prosiect hwn bydd y Gymdeithas Archaeoleg Forwrol (NAS) yn cynnal ysgol faes danddwyr yn Abercastell o'r 7fed i'r 17eg o Fehefin 2019 i astudio llongdriylliad yr SS *Leysian* a longdriylliwyd yn y bae ar 20 Chwefror 1917.

Cyn cynnal yr ysgol faes, mae ymchwili yn cael ei wneud i hanes y llong. Dyma grynodeb:

- 1906 – ei henw gwreiddiol oedd yr SS *Sarek* a chafodd ei hadeiladu yn Newcastle-upon-Tyne i gwmni llongau o'r Almaen;
- 1906 hyd 1914 – bu'n masnachu fel llong gargo gyffredinol rhwng Ewrop ac arfordir gorllewinol gogledd a de America.
- 1914 – cafodd ei chipio yn Abertawe pan dorrodd y Rhyfel Byd Cyntaf allan a'i rhoi i gwmni llongau Prydeinig fel "gwobr rhyfel". Cafodd ei hailenw'n SS *Leysian*.
- 1915 hyd 1917 – cafodd ei defnyddio i gludo anifeiliaid pwn o America i helpu gyda'r ymdrech ryfel yn Ewrop a gogledd Affrica.
- 20 Chwefror 1917 – ar ôl dadlwytho cargo o anifeiliaid pwn yn Belfast, roedd hi'n dychwelyd i America mewn balast pan drawodd yn erbyn y clogwyni ym Mae Abercastell.



Yr SS Leysian a'i lleoliad yn fras ym Mae Abercastell

There are conflicting accounts associated with the wrecking, the most common being that she mistook Strumble Head for St. David's Head in fog, but other accounts refer to her being chased onto the rocks by a German U-boat, the compass having been tampered with, and a mutiny on board by around 50 mutineers. Fortunately, no lives were lost, but from the date of the disaster (20 February 1917) until she eventually succumbed (around eight months later) and sank during an Autumn storm we are struggling to uncover any details.

We believe that throughout the Spring and Summer of 1917 some salvage work was carried out on the wreck by a Captain J. Driver, possibly using a steam winch erected on the cliffs above the wreck to haul material from the vessel up the cliff face. However, considering that this 400ft vessel (which is almost half the length of the Titanic) sat upright in shallow water spanning Abercastle bay for around eight months, and was very visible from both the beach and cliff tops, we have been surprisingly unsuccessful in finding any records, articles, artefacts, stories or pictures from this period.

Can You Help Us?

If you have any information about this wreck, we would be delighted to hear from you, and if you are in Abercastle between 7 & 17 June, do please come along and introduce yourselves.

Ian Cundy B.Sc., M.A.
Nautical Archaeology Society
(Regional co-ordinator for Wales)

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E-mail: MADUdiving@gmail.com
Web Site: www.nauticalarchaeology.com








Cynigiwyd gwahanol ddamcaniaethau am dynged y llong. Yr un fwyaf cyffredin yw i'r criw gamgymryd Pen Strwmblwl am Benmaendewi mewn niwl, ond mae adroddiadau eraill yn awgrymu iddi gael ei hail ar y creigiau gan long-U, i rywun ymyrryd â'i cwmpanï, ac i ryw hanner cant o yrrwr mutud a oedd ar ei bwrdd wrthyfela. Yn ffodus, ni chollodd neb ei fywyd, ond rydym yn cael traffferth dod o hyd i unrhyw wybodaeth am hanes y llong o'r dyddiad yr aeth yn sownd (20 Chwefror 1917) hyd at yr adeg y suddodd yn ystod storm hydrofel tua wyth mis yn ddiweddarach.


Credwn i beth gwaith achub gael ei wneud ar y llongdriylliad drwy gydol Gwarynyn A Haf 1917 gan rywun o'r enw Capten J. Driver. Mae'n bosibl iddo ddefnyddio winsh, wedi'i chodi ar y clogwyn uchben y llong i hailio defnyddiau o'r llong i fyny wrneb y clogwyn. Sut bynnag, o ystyried bod y llong 400 troedfedd hon (bron hanner hyd y Titanic) yn gorwedd yn unionysyth mewn dŵr bas ym Mae Abercastell am rym wyth mis, a'i bod yn amlyg iawn o'r traeth a phen y clogwyni, mae'n syndod cyn lleied o gofnodion, erthyglau, arteffactau, storïau neu luniau o'r cyfnod hwn y daethpwyd o hyd iddynt.


Allwch Chi Ein Helpu?


Os oes gennych unrhyw wybodaeth am y llongdriylliad hwn, byddem yn falch iawn o glywed gennych, ac os byddwch yn Abercastell rhwng y 7fed a'r 17eg o Fehefin, dewch draw a chylfynwch eich hunain.

Ian Cundy B.Sc., M.A.
Y Gymdeithas Archaeoleg Forwrol
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Appendix G – Weather Conditions & Inshore Shipping Forecasts

Table 14 below shows the states of the tide, together with the sea state and weather conditions that prevailed during the field school.

Day		Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	
Date	June 20019	7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th	15 th	16 th	17 th	
Tides	High Water						03:10	04:15	05:15	06:05	06:55	07:30	
		10:45	11:30	12:25	13:35	14:25	15:55	16:55	17:55	19:50	19:30	20:05	
	Low Water	04:35	05:25	06:20	07:20	08:15	09:50	10:50	11:50	12:30	13:20	14:00	
		17:05	18:00	19:00	20:05	21:00	22:25						
	Notes			Neaps	Neaps	Neaps						Springs	Springs
Weather	Temp	Max °C	15	15	15	12	14	12	13	15	15		
		Min °C		11	13	12	11	10	12	10	12	12	
	Wind	Force	Early	5-6	3-4	~3	5-6 (7)	5-6 (7)	5-6	3-4	5-6	3-4	
			Later	3-4	~3	4-5 (6)	4	3-4	3-4	5-7	3-4	5-7	
		Direction		NW-SW	W-SW	N	N-NE	N-NE	N-SW	SW-SE	S-W	S-SW	
Rain	%		< 10	20-30	< 18	70-80	70-80	70-80	20-40	< 10	20-50		
Sea	State			choppy	calm	calm	rough	rough	rough	calm	swell		
	Visibility	m	5-6	6-7	10	10	-	-	-	6-8	8		

Table 14 Overview of the tides, sea state and weather conditions that prevailed during the field school.

The following Tables 15 show the daily shipping forecasts for the Abercastle area that were issued by the Met Office during the field school.

Inshore Shipping Forecasts to 12 miles offshore		
St David's Head to Great Orme Head, including St Georges Channel		
Issued by the Met Office at 07:00 (UTC+1)		
Saturday 8th June	General Situation:	Strong wind warning.
General Synopsis:	Today:	A windy, cloudy start with blustery showers. Later this morning, brighter skies will push in from the west, leading into a mainly sunny afternoon with just the odd passing shower. Winds easing later.
	Tonight:	Any late showers soon fading, leaving plenty of evening sunshine. Then a mainly dry and clear night to follow with light winds.
	24-hour forecast:	Northwest, backing southwest, 5 or 6, decreasing 3 or 4 later. Moderate, becoming slight later. Rain then showers. Moderate or good, occasionally poor at first.
	Outlook for the following 24 hours:	West or southwest, becoming variable later, 3 or 4. Smooth or slight. Mainly fair. Good.
Sunday 9th June	General Situation:	Strong wind warning - Low pressure over the North Sea will continue to fill and move away northwards through Sunday. It will however remain unsettled in the coming few days with further showers at times, which could be thundery - particularly in the south and east.
General Synopsis:	Today:	Showers will spread from the south west during the day, some sharp and heavy, but there will also be plenty of drier and brighter spells between showers.
	Tonight:	Showers will clear early in the night to leave it drier with some clear spells, but turning cloudier later with a few spots of rain possible towards dawn.
	24-hour forecast:	West or southwest 3 or 4, becoming variable 3 or less later. Smooth or slight. Thundery showers for a time near shore. Good, occasionally poor near shore.
	Outlook for the following 24 hours:	Variable 3 or less, becoming north or northeast 4 or 5, occasionally 6 later. Smooth or slight. Showers. Good.

Monday 10 th June	General Situation:	Low pressure is expected to develop towards the southeast of the United Kingdom bringing further rain or heavy thundery showers to many southern and eastern areas. This, coupled with high pressure centred close to Iceland will result in increasing northerly or north-easterly winds across many parts.
General Synopsis:	Today:	A bright start, but cloud building as scattered showers spread north across the area. Cloud breaking to allow more in the way of sunshine during the afternoon, but still frequent showers.
	Tonight:	A rather wet night, with bands of persistent and heavy rain spreading from the east through the night. Turning drier towards dawn as rain clears to the east.
	24-hour forecast:	Variable 3 or less, becoming north 4 or 5, occasionally 6 later. Smooth or slight, becoming mainly moderate later. Showers. Good, occasionally moderate.
	Outlook for the following 24 hours:	North 5 to 7, veering north-easterly 4 or 5 later. Slight or moderate, becoming rough for a time in south. Rain at times. Moderate or good, occasionally poor.
Tuesday 11 th June	General Situation:	Low pressure will continue to dominate the weather across much of the United Kingdom. This, coupled with high pressure centred close to Iceland, will bring fresh to strong north-easterly winds to many western and northern areas.
General Synopsis:	Today:	A very wet and breezy day today, with prolonged spells of frontal rain spreading from the east throughout, these often heavy and persistent. High rainfall totals possible, but some uncertainty still.
	Tonight:	Remaining rather wet initially overnight, with further heavy spells of rain. Through the early hours, rain will start to clear to the west to leave it largely dry and cloudy by dawn for many.
	24-hour forecast:	Northerly or north-easterly, 5 or 6, occasionally 7 in south, decreasing 4 at times elsewhere. Slight or moderate, occasionally rough in far south. Rain at times. Moderate or good, occasionally poor.
	Outlook for the following 24 hours:	Northerly 5 or 6, becoming variable 3 or 4 in Cardigan Bay. Slight or moderate. Rain at times. Moderate or good, occasionally poor.

Wednesday 12 th June	General Situation:	Low pressure will continue to dominate the weather across much of the British Isles. This, coupled with high pressure centred close to Iceland, will bring strong to gale force north to north-easterly winds to many northern areas.
General Synopsis:	Today:	It will be a mainly cloudy day with only occasional bright intervals. Much of the day should be dry, but there will be a chance of some showers or longer spells of rain at times. A cool day.
	Tonight:	It will remain cloudy overnight. There will be showery outbreaks of rain at first, with the rain likely to become heavier and more persistent later in the night.
	24-hour forecast:	Northerly or north-easterly 5 or 6, occasionally 7 in west, becoming variable 3 or 4 for a time in Cardigan Bay. Slight or moderate. Rain or drizzle. Moderate or good, occasionally poor.
	Outlook for the following 24 hours:	North 5 or 6, backing northwest 4 or 5, then southwest 3 or 4 later. Slight or moderate. Rain or drizzle, then showers. Moderate or poor, becoming good.
Thursday 13 th June	General Situation:	Low pressure over the North Sea brings rain and showers to most areas during the next couple of days, as it drifts north-westwards over Scotland on Thursday, then west into the Atlantic on Friday and Saturday.
General Synopsis:	Today:	It will be cloudy this morning with widespread rain, the rain persistent and heavy in some areas. The afternoon should see the rain easing and becoming more intermittent. A cool day.
	Tonight:	Rain will continue to ease and it will become largely dry for a time tonight. However, another area of rain is expected to spread in later in the night with a cloudy, wet end to the night
	24-hour forecast:	North 5 or 6, backing southwest 3 or 4. Slight or moderate becoming smooth or slight. Occasional rain or showers. Moderate or good.
	Outlook for the following 24 hours:	Southwest 3 or 4, backing south 5 or 6, then southeast 5 to 7. Smooth or slight, becoming slight or moderate later. Showers, perhaps thundery later in west. Good, occasionally moderate.

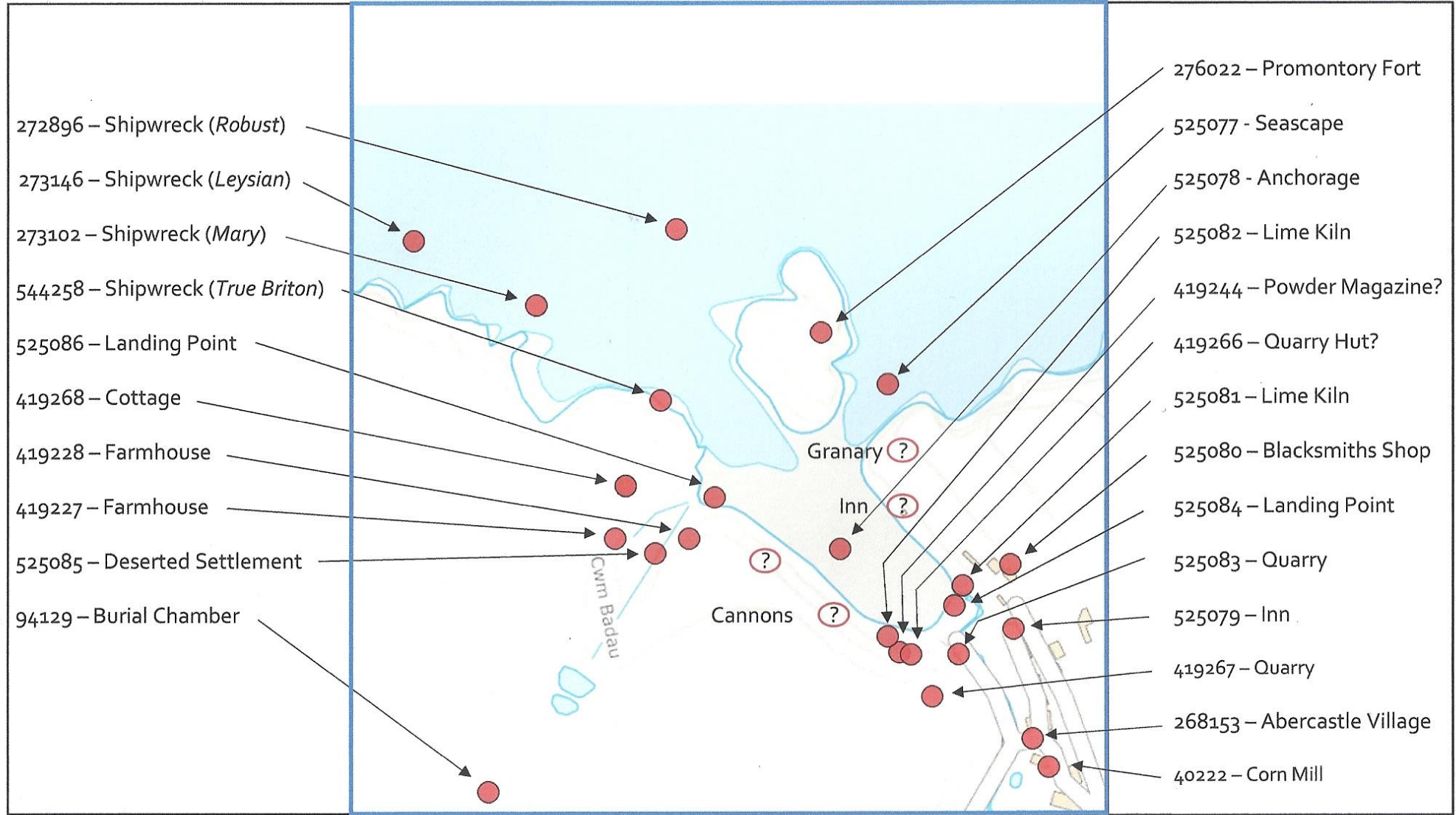
Friday 14 th June	General Situation:	Low centre to the northwest of Scotland will bring rain and showers to most areas, as it drifts away west or southwest during the next couple of days.
General Synopsis:	Today:	The morning will be fairly cloudy with occasional rain and drizzle. It should be brighter this afternoon with the chance of some sunny spells, but a few showers are possible at times.
	Tonight:	Mainly dry at first but showery outbreaks of rain are expected overnight, especially after midnight. There may be the occasional spell of heavy rain.
	24-hour forecast:	Southwest 3 or 4, backing southeast 5 to 7, veering south or southwest 4 or 5 later. Smooth or slight becoming slight or moderate. Occasional rain or showers. Moderate or good.
	Outlook for the following 24 hours:	South or southwest 4 or 5. Slight, occasionally moderate at first. Occasional rain or showers. Good, occasionally poor.
Saturday 15 th June	General Situation:	Pressure will remain low to the west of the British Isles, with showers or longer intervals of rain affecting many areas.
General Synopsis:	Today:	A cloudy start with showers that may merge into longer spells of rain at times. Thereafter, skies will brighten from the west. This afternoon will bring a mix of sunny spells and the odd shower.
	Tonight:	Some late evening sunshine is expected, leading into a mainly dry and largely clear night. The odd overnight shower may drift in from the west at times though.
	24-hour forecast:	South 5 or 6 veering west 3 or 4, then backing south or southwest 4 or 5. Slight or moderate. Rain then showers. Good, occasionally moderate at first.
	Outlook for the following 24 hours:	South or southwest 4 or 5, increasing 6 for a time. Slight or moderate becoming moderate or rough. Rain or showers. Good, occasionally moderate.

Sunday 16 th June	General Situation:	Low pressure will remain centred to the north and west of the British Isles. This will continue to give predominantly cool, showery and breezy weather.
General Synopsis:	Today:	A partly cloudy with bright spells but also the odd shower. A mix of sunshine and heavy showers will then follow with perhaps the odd flash of lightning. Longer spells of rain expected later. Breezy.
	Tonight:	Rather cloudy this evening and through much of tonight with rain at times that will likely be prolonged in places. A moderate south-westerly breeze.
	24-hour forecast:	South 3 or 4 increasing 5 to 7, then veering southwest 4 or 5 later. Slight or moderate, becoming moderate or rough later. Rain or showers. Good, occasionally moderate.
	Outlook for the following 24 hours:	Southerly or south-westerly 4 or 5, occasionally 6 in north, decreasing 3 at times in south. Moderate, becoming slight later. Rain or showers. Good, occasionally moderate.

Table 15. Record of the Inshore Shipping Forecasts for the Abercastle area issued by the Met Office during the field school.

Appendix H – Sites of Historic Interest near Abercastle

Part 1: Local Sites of Historical Interest near Abercastle listed in the Coflein on-line Catalogue



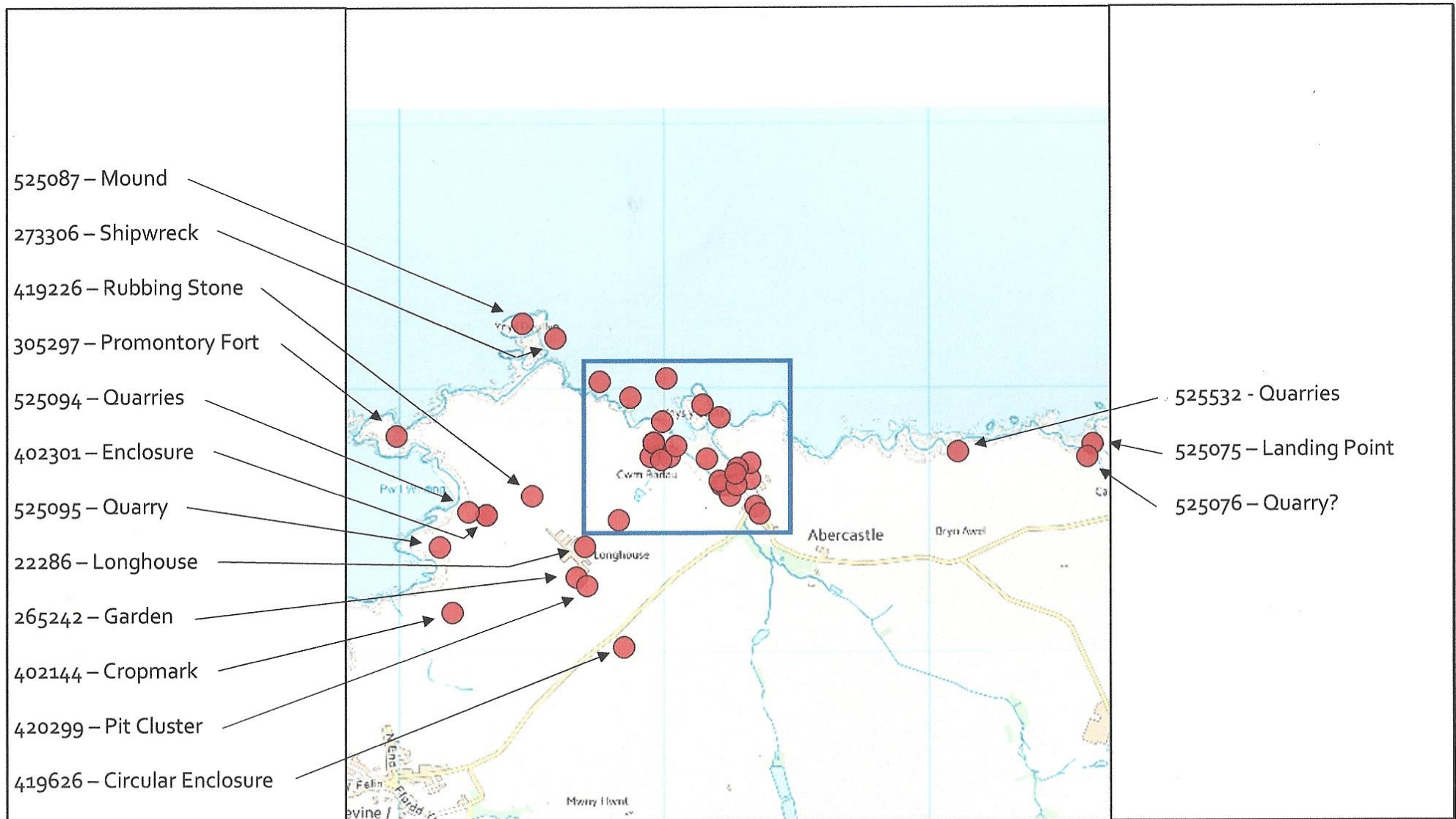
NPRN	Name	Type	Visited	Photographs		Notes:
				Existing	New	
272896	Robust	Shipwreck				
273146	Leysian	Shipwreck	Yes		> 9,000	
273102	Mary	Shipwreck				
544258	True Briton	Shipwreck				
525086	Landing Place, Cwm Badau	Landing Place	Yes		31	+ 1 sketch
419268	Cwm Badau, Site of Roofed Structure	Cottage	Yes		0	
419228	Cwm Badau, Remains of House II	Farmhouse	Yes		23	+ 2 sketches 3 videos
419227	Cwm Badau, Remains of House	Farmhouse	Yes		14	+ 1 sketch
525085	Deserted Settlement, Cwm Badau	Deserted Settlement	Yes		0	
94129	Carreg Sampson Burial Chamber	Chambered Tomb	Yes	14 (10 aerial)	41	+ 2 sketches, 1 video, 1 report
276022	Ynys-Y-Castell, Abercastle	Promontory Fort	Yes	9 (all aerial)	13	
525077	Sound Dwyrain, Abercastle	Seascape	Yes		10	
525078	Anchorage, Abercastle	Anchorage	Yes	2 (1 aerial)	30	
525082	Lime Kiln, Abercastle	Lime Kiln, Quay	Yes	1	53	+ 1 sketch
419244	Abercastle: Quarry Hut	Powder Magazine	Yes		2	Identity not confirmed
419266	Abercastle: Quarry Hut	Powder Magazine	Yes		2	Identity not confirmed
525081	Lime Kiln, Abercastle	Lime Kiln	Yes		10	
525080	Smithy, Abercastle	Blacksmith's Workshop	Yes		2	
525084	Landing Place, Abercastle	Landing Point	Yes		31	
525083	Quarries, Abercastle	Quarry	Yes		5	
525079	Blacksmith's Arms, Abercastle	Inn	Yes		4	
419267	Abercastle: Quarries	Quarry	Yes		9	
268153	Abercastle	Village	Yes	3 (all aerial)	9	
40222	Abercastle Corn Mill	Corn Mill	Yes		14	

Table 16. Local Sites of Historical Interest near Abercastle listed in the Coflein on-line Catalogue.

Shipwreck Sites

Terrestrial Sites Visited

Part 2: Outlying Sites of Historical Interest near Abercastle listed in the Coflein on-line Catalogue.



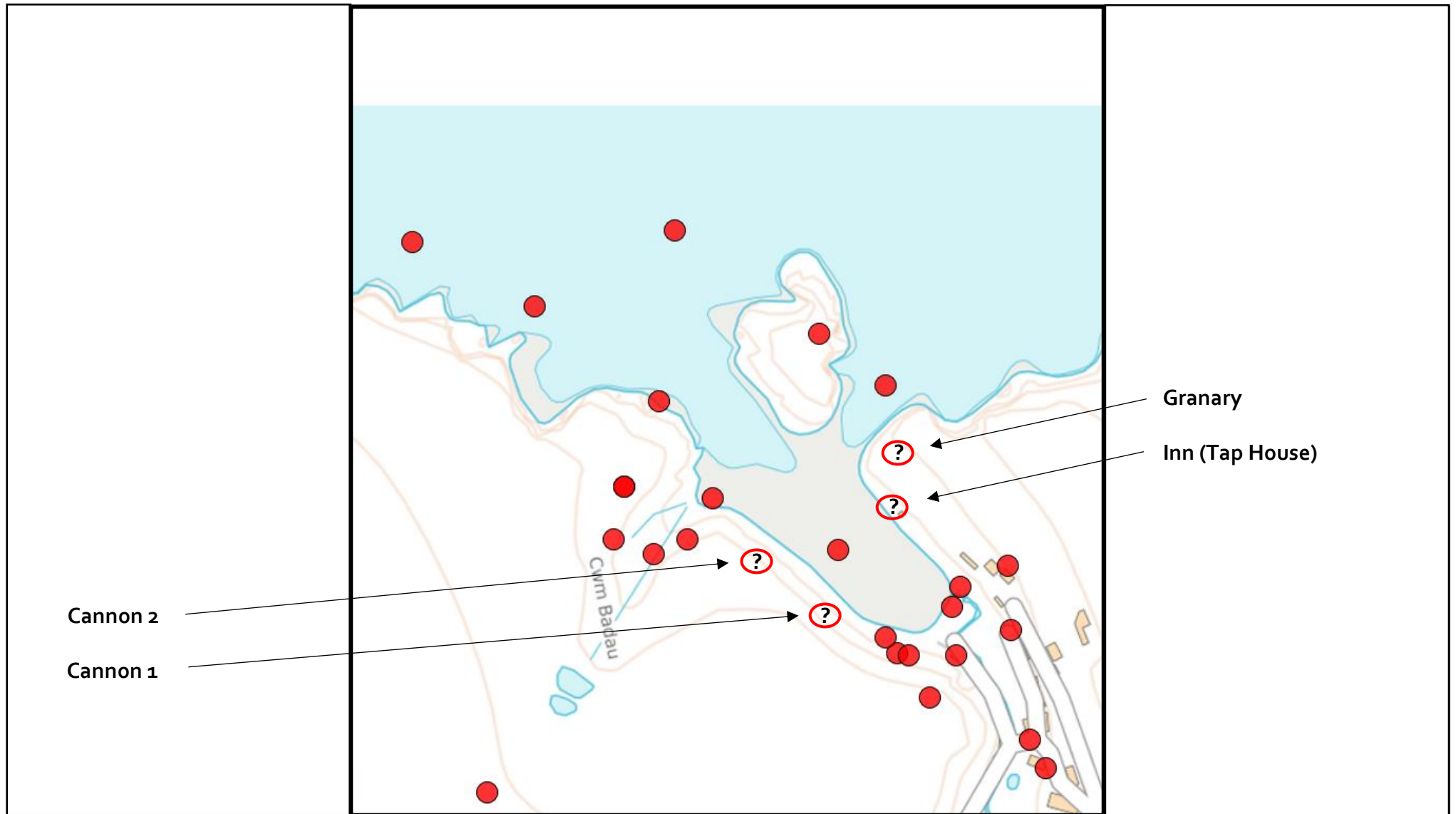
NPRN	Name	Type	Visited	Photographs		Notes:
				Existing	New	
525087	Mound, Ynys Duallyn	Mound, Navigation Aid				
273306	Mary & William	Shipwreck				
419226	Longhouse: Stone	Rubbing Stone				
305297	Castell Coch, Trefin	Promontory Fort	Yes	13 (all aerial)	9	
525094	Quarry, Pwll Whitting	Quarry				
402301	Pwll Whiting, Enclosure	Enclosure	Yes		0	Site visited but not accessible
525095	Quarry, Pwll Long	Quarry		1 (aerial)		
22286	Longhouse, Abercastle	Longhouse				
265242	Longhouse, Garden	Country House Garden	Yes		0	Site visited but not accessible
402144	Longhouse, Cropmark	Cropmark				
420299	Longhouse, Pit Cluster	Pit Cluster	Yes		0	Site visited but not accessible
419626	Longhouse, Ring Ditch	Circular Enclosure	Yes		0	Site visited but not accessible
525532	Quarries, Porth Gwymon	Quarry	Yes		3	
525075	Landing Place, Pwll Strodyr	Landing Point	Yes		49	+ 5 pictures of a standing stone
525076	Quarry, Pwll Strodyr	Quarry (possible)	Yes		8	

Table 17. Outlying Sites of Historical Interest near Abercastle listed in the Coflein on-line Catalogue.

Shipwreck Sites

Terrestrial Sites Visited

Part 3: Additional Sites of Historical Interest near Abercastle recorded during the field school



NPRN	Name	Type	Visited	Photographs		Notes:
				Existing	New	
	Cannon 1	Cannon	Yes		19	These two cannons are thought to be part of a group of 7. The location of the other five and their provenance remain to be determined.
	Cannon 2	Cannon	Yes		21	
	Granary	Granary	Yes		121	This building was once used as a granary.
	Inn (Tap House)	Inn	Yes		9	This building, now known as Doves Cottage was once an Inn known as the Tap House, which was frequented by fishermen, while the Blacksmith's Arms (NPRN 525079) was frequented by farmers. See: http://www.dovescottage.co.uk/

Table 18. Additional Sites of Historical Interest near Abercastle recorded during the field school.



Cannon 1.

Cannon 2.





Granary.



Doves Cottage / ex. Tap House Inn (with the Granary above).

Appendix I – NAS Field School Blogs

Each day a blog was written by an individual taking part & below are their contributions.

8th Jun 2019

Caching, Coflein and Chilli

Ellie from the [Malvern Archaeological Diving Unit](#) reports on the varied activities on our first full day on the U-boat Project NAS Fieldschool.



Alarming and true weather report for the first day of the fieldschool

After a wet and windy night, and against the odds, a large team of divers and archaeological enthusiasts woke up to a glorious day for some [caching](#) and maybe even some diving too.



Fieldschool organiser Ian Cundy briefs the large fieldschool team

Initial confusion was caused by the [BBC Radio Wales Breakfast with Oliver Hides](#) (listen to the interview at 7:55am) declaring we were here to survey and record a 400 foot long submarine! Fieldschool organiser Ian Cundy quickly clarified on the radio and at the detailed briefing that we are here in Abercastle to work on the wreck site of the WWI era merchant vessel SS *Leysian*.

Besides geocaching and all the fun that brings with it, my task for the day was to attempt to enhance the information already available via the [Coflein website](#) and add as much detail about the monuments that surround Abercastle Bay that my historically uneducated mind would allow. This proved to be quite the step-count friendly activity and added a lovely “I’m helping” feel to what was already a wonderful day. Of the three monuments we were asked to describe and photograph, alas only two were discovered -the lime kiln at the eastern end of the bay will have to remain a mystery.



View of Abercastle Bay from the north-west promontory

With two caches to hide, we took full advantage of rummaging around monuments we seemed already permitted to do, to find suitable hiding spots for the *treasures*. We nestled one amongst (undisturbed) stones from a small old roofless farmhouse, accessible at all states of the tide, at any season and during all weather conditions. Whereas, the second one is slightly more for the adventure cacher – it’s again nestled between rocks, but is on the island located just north of the bay, and only accessible at the lowest of low tides across the causeway shown below. A small amount of armature rock climbing is required so it’s not suitable for the very young, extremely old or any tired divers.



Location of the second cache on the island of Abercastle Bay

Day two finished with newly hidden treasures, several wreck familiarisation dives completed, bellies full of chilli and smiling faces all round. Here’s to more days like this over the next week and a half.

9th Jun 2019

NAS Skills Days: same but different

NAS Education Officer Peta Knott recounts the activities of this weekend's Skills Days that were incorporated into our fieldschool

A record number of divers attended our NAS Skills Days at the U-boat War Fieldschool this weekend.



One of the largest group of Skills Days participants NAS has trained!

While every one of our Skills Days is a little different, to tailor the training to the abilities and requirements of our participants, this has been by far the most unique.

The course started off as usual with our well-travelled fake wreck taking centre stage as the venue for the dry run practical training sessions. Some divers took the initiative in simulating the dry 'dive' by estimating its dimensions in body lengths!





How many divers does it take to survey a fake wreck?!

But when it came to the underwater skills training, it was a whole different matter than usual. We had a real wreck to work on! Part of the added benefit of doing the Skills Days on this NAS Fieldschool is that the participants are actively contributing to the investigation of the SS *Leysian* wreck, rather than just repeatedly measuring a well-known site. But with that comes challenges, like trying to establish a suitable location to lay the baseline after only visiting the 100m long site once before.



Baseline/Offset survey method in action on the SS Leysian wreck

This is when the participants really learnt how to investigate a wreck from the very beginning because while the site is dived regularly, no one has ever created a site plan – until now! And diving on a real wreck certainly put the course participants survey skills to the test. Luckily with a lot of planning and a large wreck to spread out and work on, they all got lots of underwater practice of their newly-learned survey skills.



Diver measuring some of the large metal fragments on the seabed

But as with all NAS Skills Days, after the diving comes the drawing up of the underwater measurements and seeing how accurate they were!



Divers deep in thought as they draw up their underwater measurements

We need a few more measurements before the site plan starts to take shape. So stay tuned to our daily blog and find out how we progress with investigating and recording this amazing example of our WWI underwater heritage.

10th Jun 2019

My experiences after four days at the NAS field school Abercastle

Graeme Perks has been a NAS member for a number of years completing the Foundation course and accumulating sufficient credits recently to receive a NAS Certificate. He started diving when he retired and is now a rebreather diver as well as a Padi master scuba diver

I had completed the NAS archaeology courses on 2D and 3D surveying and persuaded my wife to delay our sailing holiday so I could put my theory into practise at the NAS Fieldschool in Abercastle. In preparation, I looked at B&B prices but as I was a single occupant the surcharges made it expensive – so I bought a tent from the internet.

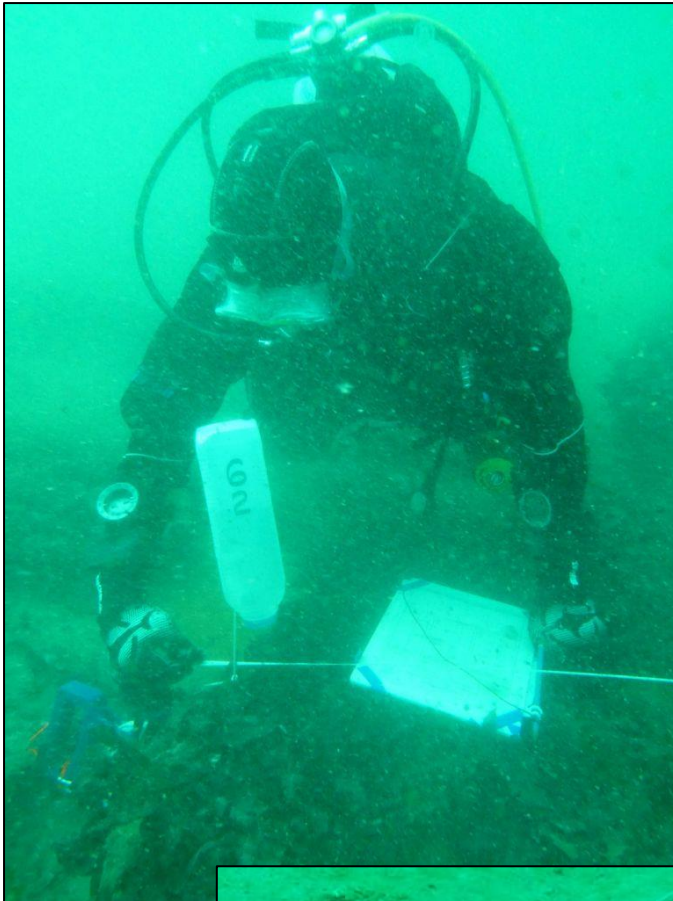
I arrived in picturesque Abercastle last Friday and managed to erect my new small tent for the first time, just before the rain started. I put my pillow and portable fridge inside to keep them out of the way and went to the main site to register. When I returned later I found puddles under all the items inside and the tent pegs had pulled out, but thankfully the fridge had prevented the tent from blowing away. I managed to sort myself out and make an improvised pillow out of my clothes. I went to sleep but woke in the middle of the night when I realised my feet were very wet. I turned over but was woken at 5.30 am by a cold shower of condensation being flicked onto me by the wind hitting the tent. I gave up and got up to an ironically beautiful sunny day. Everything was sweetness and light.



My internet folly!

I soon dried the wet kit and went on an orientation dive of the wreck of the SS *Leysian*. That night things improved but I was still too long for the tent & woke with pain in my hip from sleeping on my side.

I spent another beautiful sunny diving on the wreck placing and surveying monitor points. The weather forecast turned very unfriendly and after receiving advice from my wife and daughter-in-law I moved into a recently vacated room at the nearby B&B.



I spent another sunny day surveying the wreck, holding the end of a tape measure on control points marked by floating milk bottles. On a rebreather I do not make loud noisy bubbles so my first curious visitor was a small brown fish with a black spot on his tail fin. I was watching my buddy at the other end of the tape and when I looked back I found a large spider crab examining my gloved fingers. I was undecided as to the best course of action, I could not move my fingers without ruining the measurement but my fingers are precious to me! I solved the problem by gently directing the crab the other way with my pressure gauge. The things we do for archaeology! We completed our survey tasks without further challenges and after returning to harbour, joined everybody in recovering their boats before the forecast bad weather arrived.

Diver measuring the location of points on a wreck marked by milk bottles



My unexpected visitor

After an eventful four days at the fieldschool, I'm looking forward to a good night's sleep and giving a tent to my young grandchildren.

11th Jun 2019

A new experience in a regular holiday spot

The Spencer family have been holidaying at [Garn Isaf](#), Abercastle for years. But this visit they came for a new experience. Longtime diver Simon, former diver Sally and newly trained Jake Spencer came to be part of the NAS fieldschool.



We arrived at [Garn Isaf](#), Abercastle on Sunday afternoon in lovely weather. What could be better? This was a venue we had visited many times before. Staying previously in the B&B, the self-catering house and also on the campsite. Today we were pitching our caravan, with the help of some other campers and their 4X4. This visit was combining our love for the area with our passion for diving.

At 5.55pm a bell was rung and we all trooped to the house and specifically the garden. There we were met with some tired but happy divers who had been out diving on the wreck of the SS *Leysian*. We heard about their experiences and also received a warning about the incoming weather. A lovely evening spent around our campsite followed and much sorting of 'gear' in preparation for Jake's first sea dive.

The next morning, we attended the briefing and it was looking OK for the day. This was an understatement! The day turned out to be fantastic, beautiful weather, awesome underwater visibility and the other divers were so friendly and supportive.

Simon by the campfire

Special thanks to the [Chester Sub-Aqua Club](#) who gave Simon and Jake a lift on their RIB out to the dive site. The tide was still running but the dive boat towed one us right to the wreck site shot line, from there we descended, saw all the floating marker milk bottles and the wreck standing out very clearly. We also saw the prop shaft standing up from the seabed.



Dive boats in Abercastle Bay



Divers heading out to site

At the end of the dive we also helped to get all the boats out of the water. It seemed mad as it was such a glorious day but the forecast was not at all good for the next few days.



Jake after his first ever sea dive!

An excellent first sea dive with a cheer from the team back at evening briefing. Next time we need to add weights to achieve better buoyancy but it was awesome to see the wreck.

Simon and Jake return to shore



In the evening, complete with sunburnt heads and faces, we attended a talk at the local village hall in Mathry. Ian Cundy, who leads the team of NAS members running the fieldschool, gave a presentation about their work and why they were in Abercastle. New leads and thoughtful questions meant that the research team and the locals might be able to add more detail to the story of the SS *Leysian*.

We also heard from the team who are helping to restore the *Charterhouse*, the lifeboat from Fishguard, which helped to rescue all the crew from the SS *Leysian* when it crashed into the rocks in February 1917. Lots of discussion followed about the heroic sailors and lifeboatmen. It was a very interesting addition to the more practical parts of the Field Study.

Weather stopped the diving on Tuesday, exactly as had been predicted by the team and by the harbour master Nev. So we went for a walk along a part of the Pembrokeshire coastal path looking for sites of historical interest. Fieldschool Admin Officer Lynn produced a file of local [Coflein](#) records which was an excellent source of inspiration. We found evidence of quarrying which tied in with local history about chutes coming down the side of Abercastle Bay which got the stone and slate to waiting boats for transportation to other places, which another group of divers who were temporarily shore-bound investigated further.

There has been lots for all of us to be involved in. The NAS team had a series of shore activities organised for days when diving couldn't take place or for non-diving family members like Sally to be involved with. Slick, efficient bottle filling has been carried out by [Haven Diving Services](#) and the whole event with Plan A diving and Plan B shore-based activities has been well organised, informative and fun to be part of.

We are looking forward to more diving in the days to come and we know that the clubs who have attended and will be attending in the next few days will have an excellent time, hopefully under water but if not then learning all about the work of the [Nautical Archaeology Society](#).

12th Jun 2019

Archaeological Dry Dive!

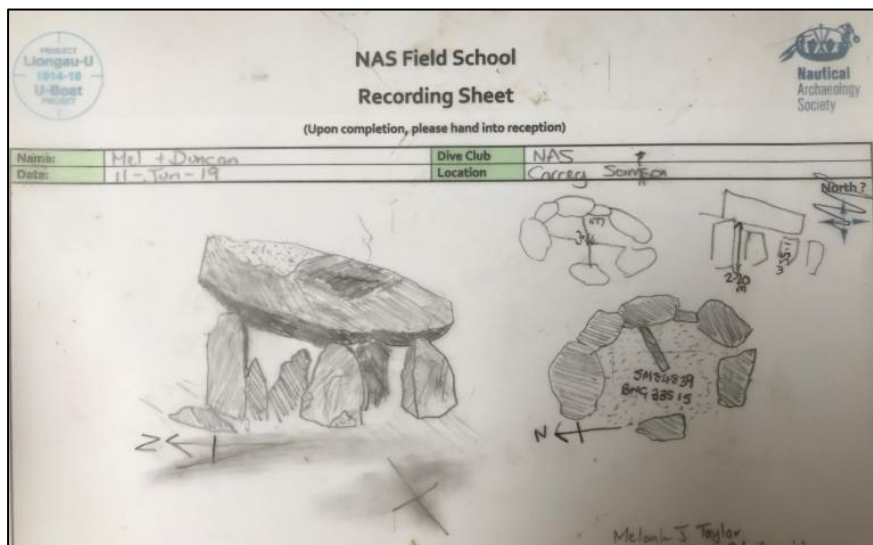
Long-term NAS member Mel Taylor explains how frustrated divers make the most of terrible weather and find a way to contribute to the historical record.

The British weather, being as it is – predictably iffy – non-diving archaeological activities have been planned and carried out during this fieldschool. One of these was adding to [Coflein](#) historic records of significant monuments in the Abercastle area. Fellow NAS member Duncan Ross and I recently completed one of these Coflein records for the [Carreg Sampson](#) (sometimes spelt Samson) burial chamber which is thought to be 5,000 years old!



The Carreg Sampson burial mound at Abercastle

After our soggy hike along the coastal path, across the fields to the historic monument, we set about recording it. Our first activity was to draw the site (sketch below) because drawings often highlight the details that photographs fail to pick up.



Archaeological drawings of Carreg Sampson

Duncan and I also ventured inside the monument to record the internal features of the site.



Our archaeological tasks done in the wind and the rain, we headed back to our base of operations at Garn Isaf for a well-deserved brew and to write up our findings. Our report on this monument will be submitted to the national records of Wales and will be available for everyone to learn more about Carreg Sampson.

And despite the horrendous weather conditions our archaeological investigations were a fascinating alternative to our planned wreck dives and we got a lot out of it!

13th Jun 2019

Plumbing the depths with NAS

Giles Adams is a member of NAS and the North Dorset Sub Aqua Club and he explains the shenanigans that occurred during an impromptu ROV making course at this fieldschool.

After six and a half hours of driving from a wet Dorset we arrived at the fieldschool to find a glorious evening complete with sunset in the far reaches of Wales. However the wet weather followed us and led to all diving being cancelled. Hey Ho.

One of the diving replacement activities was designing, making and testing our own underwater ROVs (Remotely Operated Vehicle). With the combined knowledge of a catering manager (fellow North Dorset SAC member Kathryn) and a wanna-be retired DIYer (Giles) we quickly assembled the LEGO-type components into a rough-a-ready contraption with motors approximating the £150,000 commercial-grade monster we had seen once on a video.



Giles and Kathryn with their DIY ROV mark 1

As there was a competitive atmosphere between the ROV building teams, there was a bit of friendly sabotage with bits and pieces stolen from rival ROVs and then other bits stolen back! This, and our inexperience, contributed to the need for ROV mark 2 and 3.

After a frenetic half-an-hour we had a fantastic looking contraption with three motors sort-of attached. We anticipated great success for our paddling pool test dive the following day, and then Marianas trench here we come!

Next day started ominously, it looked as if Noah had come to haunt us and brought his apocalyptic rain with him. We waited patiently in line, as one-by-one, the other teams put their sleek underwater vehicles through their paces. Then suddenly the skies opened and that rare yellow orb peaked out and sent a ray of light down upon us. It was almost biblical.



DIY ROVs under paddling pool test conditions

So it came to pass that Kathryn gingerly launched our ROV named ‘Starbucks Enterprise’. All went well until it decided to roll over and sink upside down. This was clearly a sign from ‘above’ so we re-trimmed our wicks and re-designed our vessel to operate upside down and confidently announced that this was our plan all along!



Fellow NAS members re-calibrate their ROVs in the pool test tank

With trepidation Kathryn pushed the go switch and ‘voila’ the beast roared around the tank like a cross between a washing up bowl, a wedding cake and a plastic zimmer frame... it was a rare moment that

we both savoured. We had been there, done it, got the T-shirt and created a monster baby that fitted the NAS course specifications!

After several joyful laps round the pool, we decided to quit while we were winning so hung up our bilge pumps and adjourned to the local pub for a celebrated noggin.

For those of you who wish to join to illustrious NAS make-your-own ROV club, I strongly advise you to book up quickly as these sorts of courses are great fun and fill up fast. NAS courses can be found on the website under [Events](#).



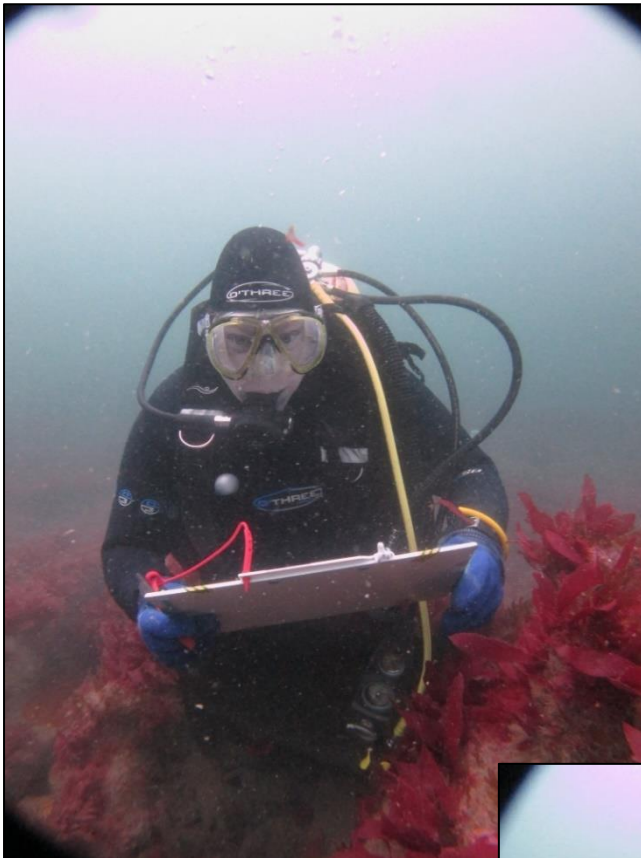
Fieldschool attendees and their ROVs

14th Jun 2019

Don't be shy, give it a go

Kathryn Osborne is a member of NAS and the North Dorset Sub Aqua Club, here she tells about her first adventure on a NAS field school.

Being a relatively inexperienced diver, this has been my first experience with NAS.

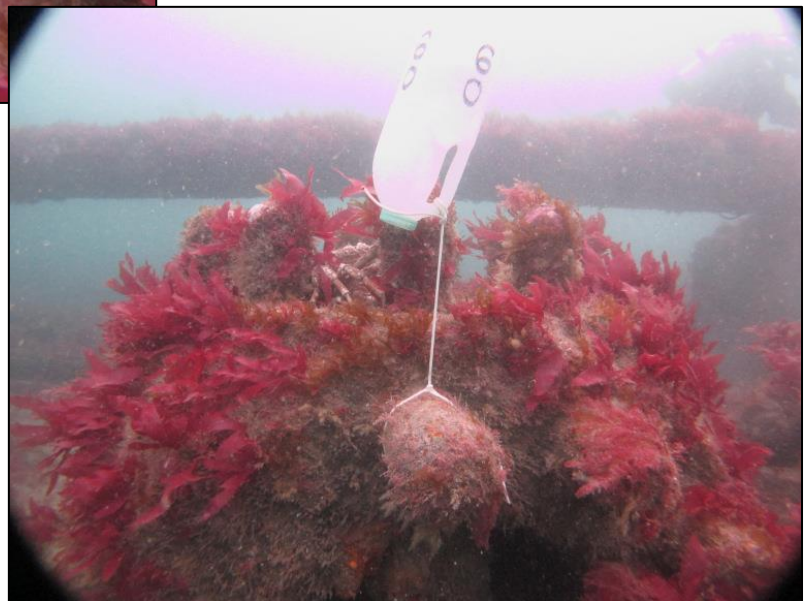


Everything has been extremely well organised (except the weather!!) and people have been very friendly and supportive. On the wet days I have undertaken the NAS [eLearning](#) courses, and learned to sketch and measure a site in preparation for the real thing.

Having been here since Monday, today (Friday) has been the first diveable day, so with much anticipation, I entered the water with my buddy Giles, appropriately armed with slate and pencil. The instructions were simple, sketch part of the site with direction and scale clearly marked.

Something caught my eye, but I had absolutely no idea what it was, other than it was an interesting shape. I decided that this would be my masterpiece, and started to happily draw away, adding artistic shading and highlights.

Kathryn recording an interesting feature on the wreck of the SS Leysian

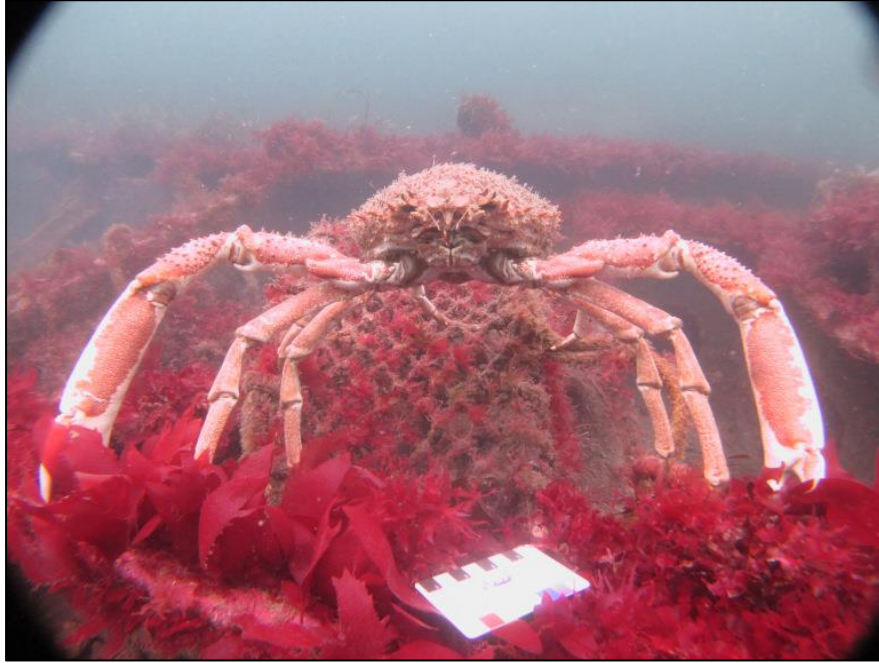


The interesting feature that attracted Kathryn's attention

I was very pleased with my efforts, so, feeling quite chuffed with my underwater attempt, I duly presented it to NAS Education Officer Peta Knott. Well, whilst she said it was a better picture than

many she had seen, it was of little use without a scale and direction. Whoops! better luck tomorrow then.

I do offer the excuse that I was being menaced by a very large and feisty spider crab who was obviously put out by the interruption to his peace & quiet!!



At least the spider crabs size was captured, if not its direction!

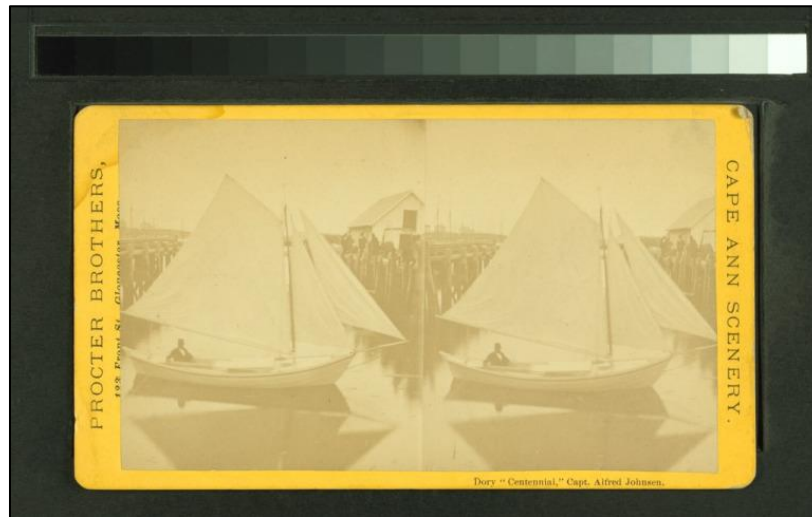
Seriously, if you have ever thought about joining a NAS course but have been worried you are not good enough, don't be put off. Like me, you will be looked after and taught the basic skills you need. It does make things more interesting and opened up a whole new interest for me.

So dive in, you won't regret it.

15th Jun 2019

How we discovered a 3,000 mile bet at our fieldschool venue

In 1776 the face of global politics changed forever when the great British Empire lost its great territory of America in the Revolutionary War. Just as we are commemorating the centenary of the end of World War One today, one Danish American decided to commemorate the centenary of the signing of the Declaration of Independence, by undertaking what was the equivalent of a drunken bet with mates. The wager was to sail single handed across the Atlantic in an open fishing boat!



Stereographic photo of Alfred Johnson's 'Centennial' fishing dory

Today is the 143rd anniversary of Alfred Johnson leaving Gloucester Massachusetts in the United States on a 3,000 mile trip to Liverpool, UK, single-handedly sailing a 20-foot (6.1 m) fishing dory. On his wild trip upon the boat, suitably renamed "Centennial", he suffered a number of setbacks, including being capsized. But after 58 days Johnson made land at Abercastle, Wales, before reaching his intended destination of Liverpool a few days later.



Alfred Johnson's "Centennial" at [Cape Ann Museum](#) Gloucester, Massachusetts

The participants of the NAS field school, diving and working from Abercastle this week, have walked past a slate plaque mounted on the wall of the slipway every day not realising its significance commemorating Alfred “Centennial” Johnson’s achievement. When the anniversary date was noticed, it was decided that it would be appropriate to remember him by cleaning the salt and grime encrusted plaque.



We came to investigate the SS *Leysian* wreck, but it turns out that there is much more history to be found in the beautiful coastal village of Abercastle.

16th Jun 2019

Hanging out with divers can convert you!

Lisa-Helen Jones tells the story of how a holiday, turned into a volunteering job, and then an unexpected encounter with a bunch of divers who like wrecks!

My husband and I came to [Garn Isaf](#) for a holiday 5 years ago and became good friends with its wonderful owner Annie Hirst. Since then we have regularly volunteered here in return for bed and board – happy days!



From left to right: Lisa's husband Darren, Annie Hirst and Lisa-Helen Jones

Recently, we had the pleasure of meeting the members of the NAS along with all the divers and non-divers who stayed on site.

I was invited onto one of the boats and was given an opportunity of working the underwater ROV (Remotely Operated Vehicle). I thoroughly enjoyed the experience and soon picked up the skill of driving the ROV underwater – with a little guidance from the skipper Andy who is a great guy!



Lisa piloting the ROV over the wreck site

The wreck of the SS *Leysian* was in better condition than I imagined it to be, and was much clearer on the screen than in the photos I'd previously seen.

Whilst manoeuvring my way around the wreck and logging the numbers of the floating marker milk bottles, a much-debated shark swam by in full view of the ROV – which fortunately was recording this remarkable event!

Darren and I are now planning to take our PADI open water diving course as a direct result of our contact with the fantastic team at the NAS fieldschool.

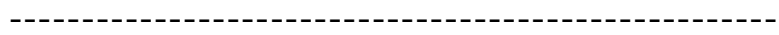
[Garn Isaf](#) is a beautiful site in Abercastle, Pembrokeshire and has a self-catering in the *Y Garn* farm house, B&B in the Grade 2 listed old barn and a lovely quiet camp site *Garn Gwely* which has electric and wifi. It is a short walk away from the harbour where you can launch your boat or kayak – which we do whenever we get the opportunity.

We thoroughly enjoyed looking after all of the visitors for this fascinating survey of the SS *Leysian* wreck and hope to see everyone again.

A comment from the NAS fieldschool participants – Lisa made the most amazing cakes for us almost every day and was a constantly cheery face around the campsite!



Darren and Lisa serving fieldschool participants a very tasty curry!



17th Jun 2019

What an experience that was!

Anne Hirst (Annie) is the owner and operator of [Garn Isaf](#). When two [NAS/MADU](#) members came to visit her in 2017, little did she know what she was in for!

I first met Lynn Jones and Ian Cundy (MADU/NAS members) about two and a half years ago when they came down to Pembrokeshire and stayed in Garn Isaf Guesthouse. They talked about running a diving field study in the area and I thought that would be fantastic, even though when I had dived the SS *Leysian* I never thought there was much really to see. This is probably because the visibility was never that good when I dived it many years ago.

Some time passed, and then out of the blue, Ian contacted me again to look at the possibility of running the NAS Diving Fieldschool from here at Garn Isaf!

After several visits by Ian and fellow MADU member Bill Turner, the logistics of running the diving fieldschool at Garn Isaf was discussed and dates agreed. There was some concern from some of the Abercastle Boat Association. But over a couple of meetings, Ian and Bill listened to the concerns of two men in particular and reassured them that the fieldschool would not cause them any trouble. What lovely people they are- Ian and Bill.



Bill Turner on the left and Ian Cundy on the right

So the time of the fieldschool approached and Ian and Bill arrived on the Thursday, staying in our Guesthouse, so that all would be ready. On the Friday they were here to start welcoming people attending the Nautical Archaeology Society (NAS) U-Boat Project 1914-18 (Commemorating the War at Sea) fieldschool at Abercastle from 7th -17th June 2019. I loved seeing all the dive boats arrive on site.



Line up of dive boats at Garn Isaf ready for launching the next day

It was great to see Lynn again, who came up with the main fieldschool idea, and to meet the many lovely people that helped run the fieldschool. There were also members of NAS and the ladies Deanna, Helen and Rita from the [Royal Commission on the Ancient Historical Monuments of Wales](#) who ran the information table at the weekends down by Abercastle bay for any locals and visitors to the area. Also attending were divers from many different dive clubs both from Wales and as far away as the Netherlands. One of my oldest friends from nursery and her family came on one of their regular visits to Garn Isaf and they ended up involved with the fieldschool!



Childhood friends! Sally Spencer on the left and Anne Hirst on the right.

The daily dive briefings and debriefing were overseen by Ian and were informative and interesting. It was so great to see the whole of Garn Isaf being used by divers again.



Every morning starts off with a dive briefing



I came to Garn Isaf, Abercastle through diving and due to various circumstances have become a lapsed diver (not an ex diver!). Ian had said he would get me back in the water after a dry spell of 14 years! Despite trying on two drysuits (thank you NAS Education Officer Peta and local dive shop owner Ceri for offering me your suits but neither fitted properly). Although I would have loved to get a dive in, I decided that it wasn't the time and I would want a bubble rather than being helpful to the dive fieldschool.

Peta Knott assisting Anne with her drysuit

I did paddle out to the site on my sit-on kayak and could not believe how great the visibility it was. I could see the marker milk bottles that had been positioned on and around the wreck of the *SS Leysian* and I could still see them when I later walked along the cliffs above the wreck.



Beautiful Abercastle Bay

Each day, divers came back with the data, drawings and photographic images that the NAS crew then logged and collated. The whole running of the dive fieldschool was so well organised within a very relaxed and friendly atmosphere.

Diving was stopped for three and a half days due to northerly winds that come straight into Abercastle bay. All boats, including the local fishing boats, came out of the water. But that didn't stop archaeological activities back at Garn Isaf base camp. Peta and Ian, as well as other tutors, supervised eLearning courses and ran practical courses – turning lawns and the barn into practical surveying areas.



Ian teaching ROV theory during non-diving time

In the back of our self-catering cottage Y Garn, or what was known as the Headquarters of the Fieldschool, a large paddling pool was set up so that the newly assembled ROVs could make their test dives. The dining room of the Garn Isaf Guesthouse was often used as a classroom and we even had a really interesting talk and presentation by Richard Hughes from [Red Dragon Divers](#) on the Pocket Watch he had found on a dive many years previously when diving with Peter Davies, both of whom were involved in the fieldschool.

On the Monday night Ian talked at a packed Mathry community hall, it was great to see so many locals take the time to come and hear about their local history. The comments and feedback that I heard about what NAS was doing out of Abercastle were fabulous. Although, unfortunately we still did not achieve our aim of finding a photo of *SS Leysian* during the eight months before she was salvaged. We were hoping a local might have had one, inherited from an ancestor.

At Ian's talk, I loved hearing about all the findings that had been unearthed, the history of the boat and of mutiny aboard, the previous failing of the captain on his navigation certificate. It was also interesting to realise that the *SS Leysian* was almost half the size of the *Titanic*! As a horse owner, I found it sad that this ship had been used to take horses and mules, mainly to the front line, and most of them would die there. Although the last cargo of horses and mules was transported from the States to replenish the horses needed to work on farms in Ireland. I like to think they were the lucky horses of the *SS Leysian*, and hopefully they had long happy lives in Ireland.

I also understood why a wreck half the size of the *Titanic* didn't have more wreckage under the water. There were teams of men salvaging it whilst it stood upright for the eight months, and even when it had sunk there were teams of divers salvaging the wreck. The eldest resident in Abercastle, although not alive anymore, relayed how his father had been involved when the wreck finally sunk and had helped pump air to the hard hat divers below. How fantastic is that?!

Back to the present and diving again resumed. The boats were back in the water and the divers still had great visibility – they were unbelievably lucky! So many people were helping each other, it was truly great to see. The bottles were picked up, filled and returned by Ceri of [Haven Diving Services](#) who also buoyed the wreck and on occasion coxed a dive boat – helping anyway he could.

And then the day came when everyone left and Garn Isaf was made ready for holiday makers in the self catering, Guesthouse and Campsite.

Like the NAS group, I also had a great team who helped make this run smoothly, thank you Darren, Lisa, Alex and Ibi.



I don't believe this is the end, just a beginning. There is already talk of a reunion next May / June where the findings will be fed back at another meeting in Mathry so all the locals can see the results. And several dive clubs have expressed a desire to come back with more club members. I feel truly honoured that NAS used Garn Isaf as their base to run this – their biggest fieldschool in decades! I have thoroughly enjoyed it all and hope to see divers and dive clubs here as a regular thing. Anything we can do to help further dive trips – please just say.

It has also made me see an activity I loved to do up close and personal, so by the time of the reunion next year I will be back diving! And I will also have made a mosaic out of the bits of crockery that have been found in the bay and left here.

Thank you again to Lynn for your fieldschool idea, Ian and Bill for running it here and all the NAS members and divers. Thanks also to Nev our harbour master and Viv for providing his tractor to launch and recover many of the dive boats.



Abercastle boat launching facilities!

Massive thanks to my team. And finally – let’s not forget the skipper than ran the SS *Leysian* into the rocks of Abercastle!!

Appendix J – Ferrying Hooves to the Front

Words & music by Duncan Ross © 2019

(<https://www.youtube.com/watch?v=z18IcS-Ao0c>)

The ship it belonged to the Hun
We seized her and made her own
Serak was gone and *Leysian* born
And our Great War adventure began

At the front it was soon realised
More than weapons and endless supplies
If hooves were not there, we were going nowhere
The horse and the mule soon arrived

Sail, Sail on, our fair Leysian
Doing our duty for god and king
Ferrying hooves to the front

I dreamt of going to war
Gallant sailors, young ladies adore
There were no giddy belles, only Atlantic swells
And me up to my knees in manure

Fifty cents a day was my pay
"Count yourself lucky" they'd say
Such a miserly fee for the graft I put in
Sure the beasts had it better than me

Sail, Sail on, our fair Leysian
Doing our duty for god and king
Ferrying hooves to the front

For two years we rode the high seas
In our trusty ship driven by steam
She was our home, kept us safe in a storm
The finest girl you've ever seen

But we came to a curious end
Abercastle we did run aground
But no fuss was made, and every life saved
No glory but luck was our friend

***Sail, Sail on, our fair Leysian
Doing our duty for god and king
Ferrying hooves to the front***

Accounts of her end are conflicting
Did a U-boat leave *Leysian* stricken?
Was she lost in the fog, or to a mutinous mob?
We'll probably always be guessing

One thing's for sure she is there
Steel plates piled up in the bay
Leysian sleeps, and her secrets she keeps
And maybe it should be that way

***Sail, Sail on, our fair Leysian
Doing our duty for god and king
Ferrying hooves to the front***

***Brave, brave souls, a thousand miles from home
Into the waves or into the grave
Ferrying hooves to the front
Ferrying hooves to the front***

Appendix K – Field School Publicity Reports

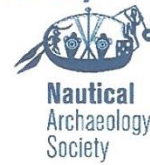
Articles

Article 1 - County Echo – Newspaper Article - 26th April 2019



Article 2 – Council for British Archaeology – Newsletter – Spring 2019

**U-Boat Project 1914–18 (Commemorating the War at Sea)
Nautical Archaeology Society Field School
(Abercastle 7th - 17th June 2019)**



The U-Boat Project 1914-18 is a two-year exercise commemorating the centenary of the end of World War I. The project is being coordinated by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) with funding from the Heritage Lottery Fund (HLF).

As part of this project the Nautical Archaeology Society (NAS) is running an underwater field school at Abercastle from 7th – 17th June 2019 based around the wreck of the SS Leysian which was wrecked in the bay on 20th February 1917. As a precursor to the field school, research is being carried out into the history of the vessel. Her brief timeline is as follows:

1906 – built as the SS Sarek in Newcastle-upon-Tyne for a German shipping line.

1906 to 1914 – trading as a general cargo vessel between Europe and the west coast of north & south America.

1914 – interned in Swansea at the outbreak of World War I and given to a British shipping line as a “prize of war” and re-named the SS Leysian.

1915 to 1917 – used to transport pack animals from America to assist with the front-line war effort in Europe and north Africa.



The SS Leysian and her approximate location in Abercastle Bay

There are conflicting accounts associated with the wrecking, the most common being that she mistook Strumble Head for St. David's Head in fog, but other accounts refer to her being chased onto the rocks by a German U-boat, the compass having been tampered with, and a mutiny on board by around 50-muleteers. Fortunately, no lives were lost, but from the date of the disaster (20 February 1917) until she eventually succumbed (around eight months later) and sank during an Autumn storm we are struggling to uncover any details.

We believe that throughout the Spring and Summer of 1917 some salvage work was carried out on the wreck by a Captain J. Driver, possibly using a steam winch erected on the cliffs above the wreck to haul material from the vessel up the cliff face. However, considering that this 400ft vessel (which is almost half the length of the Titanic) sat upright in shallow water spanning Abercastle bay for around eight months, and was very visible from both the beach and cliff tops, we have been surprisingly unsuccessful in finding any records, articles, artefacts, stories or pictures from this period.

Can You Help Us?

If you have any information about this wreck, we would be delighted to hear from you, and if you are in Abercastle between 7 & 17 June, do please come along and introduce yourselves.

Ian Cundy B.Sc. M.A.

Nautical Archaeology Society (Regional co-ordinator for Wales)


Tel: 01684 574774 Mobile: 07707 423089

E-mail: MADUdiving@gmail.com Website: www.nauticalarchaeologysociety.org

Article 3 – Llais Rhian – Publication – May 2019

Our nautical past.....

The Wreck of SS Leysian – John Peck tells us about a fascinating free public talk coming up in Mathry Community Hall at 7.30pm on Monday 10th June.



SS Leysian

SS Leysian was a 400ft steamship (almost half the length of the *Titanic*), utilised in the First World War as a transport vessel, shipping pack animals from North America to Alexandria in support of troops on the front line in North Africa. On her final voyage, having discharged a cargo of animals in Belfast, the *Leysian* came to an untimely end on her return journey to America when she ran into the cliffs at Abercastle on 20th February 1917. There are conflicting accounts associated with the wrecking, the most common being that she mistook Strumble Head for St. David's Head in fog, but other accounts refer to her being chased onto the rocks by a German U-boat, and there is also a suggestion that there might have been a mutiny on board.

In June 2019, the Nautical Archaeology Society (NAS) will be collaborating in an underwater recording and surveying field school based around the wreck, which lies about 600m off Abercastle. The NAS are keen to encourage local involvement, and if you have any information about this wreck, particularly photographs from 1917, they would be delighted to hear from you (MADUdiving@gmail.com). If you are in Abercastle between 7th & 17th June, do please come along, introduce yourself and find out how they are getting along.

During the course of the field school, Ian Cundy, regional co-ordinator for the Nautical Archaeology Society, will be giving a free talk in Mathry Community Hall to explain what the project is all about, what the field school is hoping to accomplish and the results of their research so far into what is, without a doubt, one of the most memorable events ever to have occurred in Abercastle.

4

NEWS AND VIEWS FROM THE LLANRHIAN COMMUNITY


Llais Rhian
a'r fro

FOR THE RING LLANRHIAN, PORTHGAIN AND SURROUNDING AREAS

Issue 25 May 2019

25th
ANNIVERSARY

Our 25th issue – a silver anniversary....
how did we manage to come this far?



- with a lot of help along the way!

Take a look over the page at all the people who have been involved.....

1

Article 4 – BBC Wales – News on-line – 8th June 2019

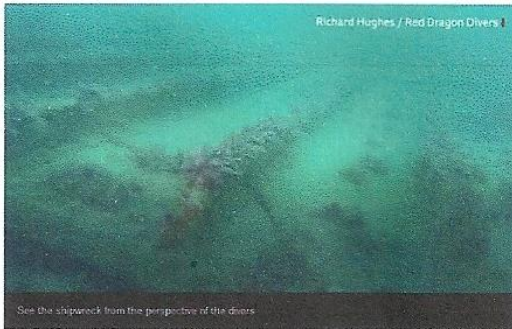


Abercastle Bay shipwreck: divers begin SS Leysian study

8 June 2019

Share

World War One



About 100 divers are taking part in a marine archaeological study of a World War One shipwreck off Pembrokeshire.

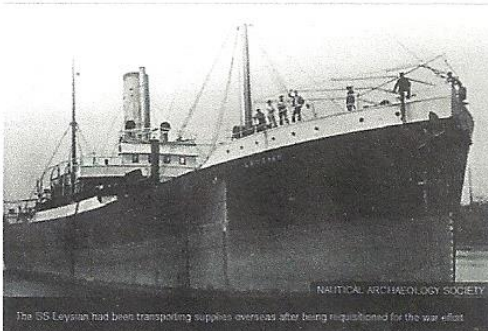
No lives were lost when the SS Leysian ran into cliffs in February 1917 in Abercastle Bay and sank months later.

A dozen dive clubs are involved in the study, part of The U-Boat Project, to mark the centenary of the end of WWI, and to learn more about the vessel.

The project has also looked at other wrecks around the Welsh coast, and identified German U-boats.

Ian Cundy from The Nautical Archaeology Society said the aim will be to record details of the SS Leysian wreck and provide an opportunity for divers and others to gain experience in a maritime archaeological study.

He said there have been mixed reports about how the ship came to strike the rocks, including being pursued by a German submarine, but another account blamed human error.



The SS Leysian had been transporting supplies overseas after being requisitioned for the war effort.

SS Leysian facts

- 1906 - Built as the SS Serak in Newcastle-upon-Tyne for a German shipping line
- 1906/14 - Trading as a general cargo vessel between Europe and the west coast of America
- 1914 - Given to a British shipping line as a "prize of war" and re-named the SS Leysian
- 1915/17 - Used to transport pack animals from America to assist with the war effort in Europe and north Africa
- 20 February 1917 - Wrecked at Abercastle Bay while en route to the US from Belfast
- Source: The Nautical Archaeology Society

Mr Cundy is hoping local people will come forward with old photographs of the vessel in the months before it sank because none have been found in public records.

Some salvage work was carried out before the 440ft (121m) vessel eventually sank so there was a lot of activity nearby.

"The wreck must have drawn people in to see the spectacle, and was probably the biggest event ever to have happened in Abercastle, so where are all the photographs?" he said.

Dive clubs from England and Wales are taking part in the project which runs until 17 June, including members of members of Pembrokeshire-based Red Dragon Divers.



The wreck lies about 300m (980ft) from the carway.

A field base will be set up at a nearby campsite to manage the day-to-day logistics due to the number of people involved.

Divers will be using underwater remotely operated vehicles (ROVs) to take pictures and video of the wreck which is about 300m (980ft).

Finance for the project has come from Heritage Lottery Fund (HLF) with support from Bangor University's Centre for Applied Marine Sciences and the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW).

Article 5 – Western Telegraph – Newspaper Article – 17th June 2019

17th June

100 divers work to gather data on SS Leysian at Abercastle during Nautical Archaeology Society and the Royal Commission on the Ancient and Historical Monuments of Wales project

By [Becky Hotchin](#) Reporter

MORE than a hundred divers from all over the UK, and as far afield as the Netherlands, converged on Abercastle last week for a ten-day dive focussed on the wreck of the SS Leysian.

The Leysian was a 4,703-ton steamship taken into service as a prize of war by the British. From 1915 to 1917 she was used to transport pack animals from America to assist with the front-line war effort in Europe and north Africa.

But on February 20 1917, having unloaded a cargo of pack animals in Belfast, she was returning to America when she ran into the cliffs in Abercastle Bay and was wrecked.



There are conflicting accounts associated with the wrecking, the most common being that she mistook Strumble Head for St. David's Head in fog.

However, other accounts refer to her being chased onto the rocks by a German U-boat, the compass having been tampered with, and a mutiny on board.

No lives were lost and the 400ft vessel, half the size of the Titanic, sat upright in shallow water spanning Abercastle bay for around eight months until she eventually sank during an Autumn storm, around eight months later.

Groups of divers from 14 different dive centres went to the depths of the bay to record parts of the enormous wreck during the dive which was organised by the Nautical Archaeology Society and the Royal Commission on the Ancient and Historical Monuments of Wales as part of the U Boat project.

A talk by Ian Cundy, the Nautical Archaeology Society's regional co-ordinator for Wales, packed Mathry village hall with locals turning up to find out more and to exchange stories and display artefacts salvaged from the wreck and passed down by their relatives.

"The dive went really well, apart from the unseasonal weather," said Ian. "All the data will now be collected and a site plan created."

Ian is still appealing for any historical photos connected with the wreck.

"She sat across the bay for eight months," he said. "We haven't got a single photo from that time. This is one of the things we are appealing to local people for."

Anyone with any local information on the wreck, or photos of the SS Leysian in the bay, can e-mail Ian on MADUdiving@gmail.com or ring 01684 574774.

Article 6 – Sub Aqua Association - Newsletter – July 2019

CLUBNEWS

Diving with a difference & purpose!

The weekend of 14/17th June saw a group of SAA divers along with others from across Britain venture down to the beautiful and picturesque harbour village of Abercastle, some 6 miles south of Fishguard, to participate in the Nautical Archaeology Society (NAS) underwater field school, based at the welcomingly situated camping, Caravanning and b&b setting of Garn Isaf.

The field school survey focused on the wreck of Leysian, which sank close to the cliffs, some 600 metres outside the harbour in 1917. Due to recent surgery, I personally could not dive but instead, I offered to coxswain for a group of trained surveying divers on their RIB, The Kraken.

Despite the fact that on both nights the South Westerly wind blew-up a real hoolie with thunder & lightning and rain like stair-rods, and that my tent leaked like a sieve, our club members who attended took part in two wonderful days of surveying the wreck as well as enjoying a good laugh with buddies both old and new.

Ian Cundy's Pre-dive and post-dive briefings were informative, and useful in knowing the task-in-hand as well as helping re-focus minds on the outstanding objectives of the field school.

Our club members who attended all enjoyed the whole field school, sharing all their personal video and photography with the NAS, and all have committed to seeking to participate in further training to more fully take part in future NAS Field School events.

The whole NAS field school experience was made by Ian Cundy & the team's tireless efforts to plan, prepare and present a comprehensive package of activities for non-divers and divers alike, as well as the work put in by Richie Grice & Ceri Jones (SAA Regional Instructors). Thank you on behalf of all the SAA members who participated, and we look forward to the next such event.

Thanks also to and Anne and her gang at Garn Isaf, for their welcoming hosting of the NAS field school.

For more information on the NAS and their projects visit:

<https://www.nauticalarchaeologysociety.org/>



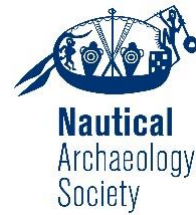
John Rice
Mersey SupaScuba Club

JULY 2019 SAA NEWSLETTER 10

Article 7 – Council for British Archaeology – Newsletter – Autumn 2019



**U-Boat Project 1914–18
(Commemorating the War at Sea)**



**Nautical Archaeology Society Field School
(Abercastle 7th - 17th June 2019)**

In the Spring Newsletter we outlined plans for a 10-day field school being organised by the Nautical Archaeology Society (NAS) to be held in Abercastle during June. The event forms part of a 2-year U-Boat Project to commemorate the centenary of the end of World War I that is being coordinated by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), with funding from the Heritage Lottery Fund (HLF).

The main aim of the field school was to record the wreck of the *SS Leysian* which wrecked in Abercastle Bay on 20th February 1917. However, despite some very cold and unseasonably inclement weather! resulting in diving activities being severely disrupted for 4-days with torrential driving rain, and winds gusted between Force 7-8, straight into Abercastle bay, the field school did still manage to achieve most of its objectives.

Diver photographing the spare propeller boss next to the prop shaft on the wreck of the SS Leysian.



The weather did deter a few people who had planned to attend, but despite the conditions, 90 people turned up representing 14 dive clubs (3 from Wales, 10 from England and 1 from Holland). They brought with them 12 boats, and over the course of the 6-days, when diving was possible, 208 dives were recorded with over 100 man-hours spent underwater, and over the course of the field school almost 10,000 photographs and videos were captured.



Launching & recovering dive boats in Abercastle Bay

The field school based itself in the delightful surroundings of Garn Isaf at Abercastle, where the camp site, B&B and self-catering farmhouse were taken over for the duration, and proved to be the perfect location for the event. The farmhouse was set up as the event's head-quarters, and the morning briefings & evening de-briefings took place in the informal surroundings of the farmhouse's back garden.



Morning field school briefings in the grounds of Garn Isaf Farmhouse

For non-divers, and for divers when diving was blown-out, alternative tasks and activities were offered including:

- Visiting local existing known terrestrial heritage sites to record and enhance the existing Welsh Historical Monuments Records.
- Inspecting three previously un-recorded sites for possible inclusion into the records, including a local derelict granary, collection of cannons and an old sailors Tap House.
- Using metal detectors on the beach to search the intertidal zone and to record the location of any finds using a total station.
- Recording the remains of possible foundations on the cliff top above the wreck site that may have been the location of a steam winch used in some of the *Leysian's* salvage operations.

and a variety of alternative training activities including:

- NAS Recorder & Surveyor Skills courses.
- An Introduction to Underwater ROV Design, and the practical construction & testing of home built ROVs.
- Hands-on piloting of a commercial VideoRay ROV.
- An Introduction to Direct Survey Methods (DSM) & using Site Recorder software to process data.
- An Introduction to Intertidal Surveying using a Total Station and Plane Table.
- A NAS Tutor / Volunteer training course.

A full report on the field school is currently in the process of being compiled which will include an outline of the historical research leading up to the *Leysian's* wrecking and an ecological analysis of the flora & fauna found on and around the wreck site.

Ian Cundy (Malvern Archaeological Diving Unit)

Posters

Poster 1 – Friends of the Newport Ship Talk – 27th April 2019



**Friends of the
Newport Ship**

Talk: The 1914-18 U-boat War around Wales & the wrecks of the Cartagena & Leysian.



To commemorate the centenary of the end of WW1 the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) have been running a 2-year project relating to the U-boat War around the Welsh coast. As part of this project the Nautical Archaeology Society (NAS) are involved with running two underwater field schools, based around the wrecks of vessels that formed part of the unsung supply ships that helped with the war effort.

The Newport Medieval Ship project is hosting the associated exhibition from 19 April until the end of May 2019 and hosting a number of talks.

This talk by **Ian Cundy BSc. MA**, Nautical Archaeology Society, Regional co-ordinator for Wales covers **The 1914-18 U-boat War around Wales and the wrecks of the *Cartagena* and *Leysian*.**

The attached image shows divers preparing to dive wreck of the *SS Cartagena*.

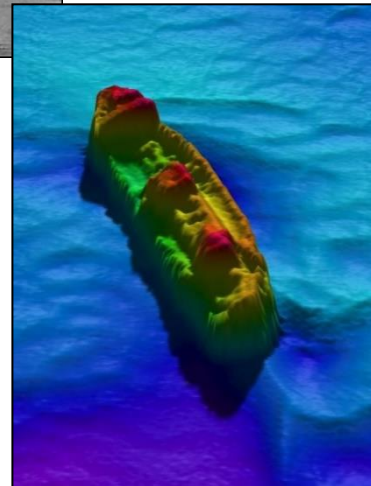
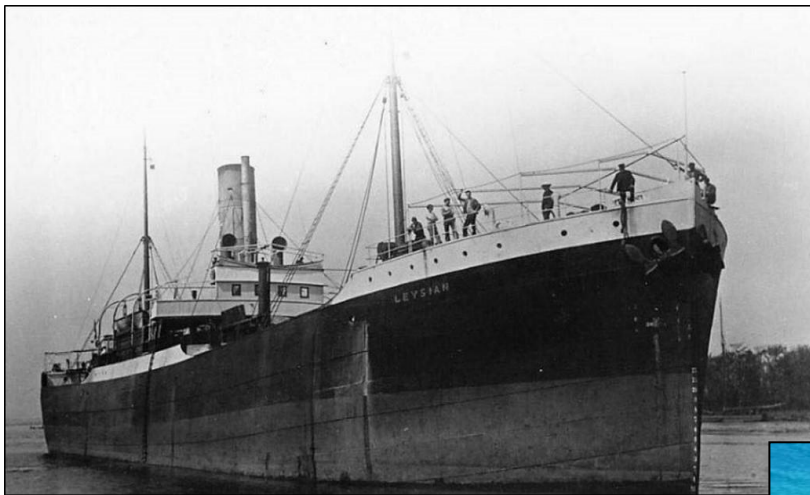
Poster 2 – Talk in Mathry Community Hall – 10th June 2019



Yn Coffáu'r Rhyfel ar y Môr
Commemorating the War at Sea



The 1914-18 U-boat War around Wales & the Wreck of the *Leysian* in Abercastle Bay



An evening talk to commemorate the centenary of the end of WW1, and the underwater field school being run in Abercastle to record the remains of the SS *Leysian* that ran aground on 20th February 1917.

Venue: Mathry Community Hall

Date: Monday 10th June 2019

Time: 7:30 pm



Poster 3 – Talk in Mathry Community Hall – 10th June 2019

The Wreck of SS Leysian



SS Leysian, almost half the length of the *Titanic*, came to an untimely end when she ran into the cliffs at Abercastle on 20th February 1917. In June 2019, the Nautical Archaeology Society (NAS) will be collaborating in an underwater field school based around the wreck, which lies about 600m off Abercastle. [If you are in Abercastle between 7th & 17th June, do please come along, introduce yourself and find out how they are getting along.](#)

During the course of the field school, **Ian Cundy**, regional co-ordinator for the Nautical Archaeology Society, will be giving a free talk – **Maritime and Nautical Archaeology** -in Mathry Community Hall to explain what the project is all about, what the field school is hoping to accomplish and the results of their research so far into what is, without a doubt, one of the most memorable events ever to have occurred in Abercastle.

The talk will take place in Mathry Community Hall at 7.30 on Monday 10th June. Free admission.

Appendix L – Field School Feedback Comments

The following are some of the comments from the NAS feedback forms:

Very enjoyable.

Great learning experience.

A great event, more should be organised.

Well organised and managed efficiently.

A Golden Opportunity to dive into the local history and contribute to enhancing the historical monument records.

Well organised event that brought together multiple dive clubs in recording important heritage information.

An excellent week, meeting a great team of divers and working together on this project.

It was a fun field school with lots on new connections made. Great diving!

Enjoyable hard work.

Very interesting and educational.

I had a very good time even though the weather was bad. Did a lot of theory. All the staff were very helpful and nothing was to much trouble. Diving was good and time went quickly.

An enjoyable joint experience, hard work and rewarding.

An excellent introduction to Nautical Archaeology.

An intense introduction to Nautical Archaeology.

Fantastic learning opportunity that's empowered our club to undertake this ourselves.

A very enlightening time. Both the dry classes and the diving.

Stayed for the whole period and learnt so much, which developed a very keen interest in marine archaeology.

A very in depth and informative set up.

Excellent communication and very informative.

It gave purpose to my diving.

Interesting and worthwhile, pleased to have assisted in this project.

Well planned, with lots of activities and very friendly environment at a great location.

Fantastic, intensive experience, superbly organised.

Brilliant, well run and learned a lot.

Abercastle Bay at the end of the day:



With the sun setting in the west on a still night, it looks idyllic, but it's easy to see how weather from the north west can make working in Abercastle bay a challenge!

