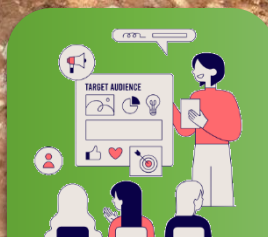


Life Histories of Lindisfarne:

Isotopic Narratives from Holy Island

Publication And Dissemination Strategy



Life Histories of Lindisfarne: Isotopic Narratives from Holy Island Publication and Dissemination Strategy (2027)

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N.B. This assignment is based on the MoRPHE project design submitted for assignment 3 of module HPAR7003: Archaeological Project Design and Delivery (Parker, 2024). To align with the original project design's timeline, the dissemination strategy presented here is set as though it has been written in 2027, and the results discussed are a hypothesis of what could come from the proposed analytical programme.

Executive Summary:

This document presents a strategy for the publication and dissemination of results arising from the specialist scientific analysis programme undertaken by Durham University's Archaeological Isotope and Peptide Laboratory (AIPRL), in partnership with DigVentures, as part of the Life Histories of Lindisfarne (LHL) project. The strategy outlines the planned outputs and products of LHL to be completed and disseminated in the project's final stage before closure, which are deemed suitable to achieve the project's updated aims, reach a broad and diverse audience, and effectively convey the significance of the findings from the isotope and trace element analyses of Lindisfarne's early medieval burial population. The proposed dissemination products include a specialist report, project website and associated online exhibition, public presentations, and journal article publication.

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1. Introduction

1.1. Project Overview

- 1.1.1. Life Histories of Lindisfarne (LHL) is a multi-staged project aiming to utilise isotope and trace element analyses to maximise data and information recovered from the early medieval burial population excavated on the island of Lindisfarne, Northumberland during DigVentures' Holy Island Archaeology (HIA) project, between 2016 and 2025 (Wilkins and Petts, 2016; Jackson *et al.*, 2023b). This analysis-focused post-excavation project was first set out in a MoRPHE (Management of Research Projects in the Historic Environment: Historic England, 2015) compliant Project Design (Parker, 2024), commencing in 2026 following completion of the fieldwork phase of the wider HIA project.
- 1.1.2. In partnership with DigVentures, Durham University and its commercial Archaeological Isotope and Peptide Research Laboratory (AIPRL) lead the execution of LHL, involving: selection of a representative sub-sample of individuals from the burial population for analysis; sample preparation for carbon, nitrogen, strontium, oxygen, and lead isotope analysis and trace element analysis; reconstruction of individuals' dietary behaviour, geographical origin and mobility, and exposure to pollution through data analysis; and production of a comprehensive specialist report alongside other dissemination products. In addition to conducting this large-scale analysis, LHL principally focuses on wide-reaching public engagement through accessible and effective scientific knowledge dissemination, following the strategy proposed here.

1.2. Current Position

- 1.2.1. LHL comprises five execution stages (Table 1), including two analysis stages, one for preparing and analysing chosen samples, and the second for analysing and interpreting raw data generated from multi-isotope and trace element analyses. At present, LHL is at the end of Stage 4 (the second analysis phase and the project's penultimate stage) with all raw data returned from analytical laboratories, and interpretation and contextualisation carried out by the Project Manager and Expert Team (Parker, 2024, p. 28). Findings from this analysis are summarised in Section 3. Although not specified in the

Project Design, production of this publication and dissemination strategy was agreed upon at Review Stage 6 and deemed necessary to clarify the nature, intended reach, and proposed timescale for desired dissemination products in advance of their creation during the project's final stage. Providing a clear and comprehensive plan for publication and dissemination at this later stage not only ensures the agreed products are feasible in light of findings arising from the last analysis stage, but that they are justified in their ability to appropriately convey the results' significance to different audiences.

Table 1: Descriptions for project stages of LHL alongside associated review points and completion dates. Green rows indicate the project's current position, and orange rows represent stages not yet initiated (adapted from Table 6 in Parker, 2024, p. 24).

Stage	Description	Review Point	Completion Date
Start-up	Development and examination of Project Proposal	R1: Project Proposal approved and preliminary Project Team assembled	Completed – January 2024
Initiation	Project Design and Risk Log finalised, and project scope defined	R2: MoRPHE-compliant Project Design signed off and resources committed	Completed – April 2024
Stage 1	Review of HIA project results following project closure and sample selection for scientific analysis	R3: Final sample selection approved	Completed – July 2026
Stage 2	Scientific analysis programme (dietary reconstruction, geographical origin assessment, trace element analysis) and preliminary analysis of raw data	R4: Review research potential of assembled dataset from preliminary analysis	Completed – February 2027
Stage 3	Interim Assessment Report and Updated Project Design	R5: Critical review of data and preliminary interpretations. Recommendations made for further work or project closure	Completed – June 2027
Stage 4	Data analysis, interpretation, and contextualisation	R6: Review of interpretations and findings, and preparation for dissemination product creation	Currently in extension in light of recommendations made at R6
Stage 4 Extension	Production of publication and dissemination strategy to finalise planned dissemination products	R6 Continuation: Sign-off of publication and dissemination strategy ahead of product creation in Stage 5.	Late 2027
Stage 5	Specialist report production, publication of report and dissemination outputs, and preparation of project archive	R7: Sign-off of final report and dissemination products. Project archive deposited.	Mid- 2028
Closure			Late-2028

2. Research Aims and Objectives

2.1. Original Project Aims

2.1.1. LHL not only represents the first application of multi-isotope and trace element analyses to the skeletal remains recovered from Lindisfarne, but is one of the few large-scale scientific studies of an early medieval burial population from what once was the Kingdom of Northumbria (Research Frameworks Network, 2019). The novel and ambitious nature of LHL is highlighted in its five aims and seventeen research questions (RQs), first outlined within the Project Design (Parker, 2024, p. 11-15). The first three aims are exclusive to LHL, focusing on aspirations of its scientific analysis programme, which initially hoped to: reconstruct life histories of the studied individuals (Aim 1); facilitate interpretations of geographical origins of buried individuals and impacts on the cemetery's use over time (Aim 2); and to better our understanding of life and death within early medieval Northumbria through integration with previous work (Aim 3). Adapted from DigVentures' wider project (Wilkins and Petts, 2016; Casswell *et al.*, 2018) with new RQs directly related to LHL, Aims 4 and 5 focus on collation of results with the HIA project during analysis, publication and dissemination, and prioritising public engagement opportunities, respectively. These aims were carefully chosen to recognise LHL's nature as a specialist research project requiring focused and comprehensive objectives, whilst also acknowledging the essentiality of the work and its results remaining directly linked to HIA to contribute to DigVentures' ongoing research and create new avenues for enhancing communities' archaeological involvement. The original aims are listed alongside their associated RQs in Table 2.

Table 2: LHL's original aims as defined in the initial Project Design (Parker, 2024, p. 11-15)

Aims	Research Questions
1. To use specialist scientific analyses to uncover new data and evidence that can contribute towards the reconstruction of the life histories of individuals buried within Lindisfarne's early medieval cemetery.	• Q1. What can carbon and nitrogen isotope analysis of excavated remains reveal about the dietary behaviour of individuals buried in Lindisfarne's cemetery? • Q2. What can strontium, oxygen, and lead isotope analysis of excavated remains reveal about the residential origins and lifetime mobility of individuals buried in Lindisfarne's cemetery? • Q3. What can trace element analysis reveal about the level of pollution individuals buried in Lindisfarne's cemetery were exposed to during life? • Q4. Can the effective combination of isotopic data and results of other planned post-excavation analysis techniques improve our understanding of the burial population of Lindisfarne's cemetery? • Q5. How can specialist scientific analysis of a representative sub-sample of Lindisfarne's excavated remains facilitate interpretations of both individual life histories and trends within the burial population?
2. To investigate the extent to which the use of scientific techniques such as isotope analysis can aid interpretations of the people living on/coming to Lindisfarne over time, and how this may be reflected in the use of the cemetery.	• Q6. Can evidence of mobility and lifetime movement interpreted from strontium, oxygen, and lead isotope analysis be used in combination with stratigraphic records and scientific dating to identify change in the residential origins of individuals being buried in Lindisfarne's cemetery (and by extension coming to the island) over time? • Q7. Can evidence of mobility and lifetime movement interpreted from strontium, oxygen, and lead isotope analysis be used in combination with stratigraphic records, scientific dating, and osteological assessment to identify change in the use of Lindisfarne's cemetery over time?
3. To contribute new knowledge and develop a more holistic understanding of the lives and deaths of people living across the Kingdom of Northumbria during the early medieval period through the use of isotope analysis.	• Q8. How can the current understanding of the early medieval population of Northumbria be enhanced by integrating the results of the proposed isotope analysis of Lindisfarne's burial population with previous work? • Q9. Can the combination of isotope analysis results from other early medieval Northumbrian sites with those from Lindisfarne identify any patterns or anomalies in mobility, diet, or level of exposure to pollution?
4. "Making recommendations, analysis and publication" (Wilkins and Petts 2016)	• Q10. In light of the evidence recovered from isotope analysis and previous work, can a link be articulated between the multi-phased use of the site and its different areas? (Caswell <i>et al.</i> 2018) • Q11. Can results from the specialist scientific analysis programme be integrated with previous work undertaken by DigVentures to refine interpretations of various aspects of the

	overall site narrative, such as subsistence practices, industrial activity, and health and disease? • Q12. Can the results of the specialist scientific analysis programme be integrated with DigVentures' plans for publication and dissemination of the site's data? • Q13. In light of the evidence recovered from isotope analysis, can recommendations be made for further analysis to combat remaining research and knowledge gaps?
5. "Creating opportunities for people and communities" (Casswell et al. 2018)	• Q14. How can the prioritisation of high levels of public involvement within the fieldwork project be maintained during the proposed specialist scientific analysis programme? • Q15. How can DigVentures' established community of volunteers and followers be included within the specialist scientific analysis programme? • Q16. How can the local community's involvement be maintained during the proposed specialist scientific analysis programme? • Q17. How can this proposed programme of scientific analysis be used as an educational tool to engage students from primary years through to university?

2.2. Updated Project Aims

2.2.1. Whilst the original aims encapsulate LHL's ambitions well, like with many projects, what was initially hoped to be achieved at the beginning of the project may not always be attainable or even desirable towards completion. For instance, due to the high cost, long lead times, and ethical desire to limit destructive sampling (Mays *et al.*, 2023), radiocarbon dates could not be obtained for many individuals within the selected sub-sample. As scientific dating lies outside LHL's scope, the project relies solely on dates obtained through the HIA project, and has no funding allocated for additional sample preparation and financing analysis at radiocarbon dating laboratories. The cemetery's chronology is thankfully well understood through stratigraphic relationships and relative dating methods, with the limited radiocarbon dates generated largely agreeing it was in use between the 8th and 10th centuries AD (Jackson *et al.*, 2023a). Consequently, Aim 2 and RQs 6 and 7 have been reframed (Table 3) to further explore evidence and extent of mobility within the skeletal population as a whole, rather than attempting to identify change in mobility levels over time. Choosing not to divide studied individuals into date-based groups and instead treating them as a collective population ultimately makes the produced analytical dataset easier to examine and manipulate, ensuring interpretations are less complex and easier to translate into effective public-facing dissemination products.

2.2.2. Additionally, due to complicating factors including logistics, staff capacity, and conflict between necessary competence requirements and wanting to offer opportunities to all interested parties, it was decided not to train volunteers for data analysis during Stage 4 as initially proposed (Parker, 2024, p. 27-28). As such, RQs 14-17 for Aim 5 have been revised (Table 3), clarifying community involvement within LHL will take place exclusively within Stage 5, through circulation of publication and dissemination products. All other aims remain unaltered as they are well suited to LHL's current progress and future direction.

Table 3: Updated aims and research questions for the LHL project

Updated Aims	Updated Research Questions
2. To investigate how the use of scientific techniques such as isotope analysis can aid interpretations of people living on/coming to Lindisfarne during the early medieval period, and the extent to which residential origins vary across the burial population.	• Q6. Can patterns and groupings be identified across Lindisfarne's burial population relating to variation in residential origins and lifetime movements interpreted from strontium, oxygen, and lead isotope analysis? • Q7. Can evidence of mobility and lifetime movement interpreted from strontium, oxygen, and lead isotope analysis be used in combination with osteological assessments, dietary behaviour interpretations, and palaeopathological evidence to examine potential differences between individuals with different residential origins within Lindisfarne's cemetery?
5. "Creating opportunities for people and communities" (Casswell et al. 2018)	• Q14. How can the prioritisation of high levels of public engagement within HIA's fieldwork project be maintained during LHL's publication and dissemination process? • Q15. How can DigVentures' established community of followers be included within LHL's publication and dissemination process? • Q16. How can the local community's involvement be maintained during LHL's publication and dissemination process? • Q17. How can LHL's publication and dissemination outputs be used as an educational tool to engage students from primary years through to university?

3. Summary of Results

3.1. Initial Results of Scientific Analysis

- 3.1.1. Although this document's scope does not allow thorough examination of interpretations that have emerged from analysis of the isotope and trace element data, essential preliminary findings are discussed and contextualised below to justify the proposed publication and dissemination strategy by highlighting the significance of LHL and its results. Data for the 42 individuals (32 adults – 18 males and 16 females – and 8 non-adults) within the skeletal sub-sample has undergone interpretation to reconstruct dietary behaviour, geographical origins, and potential exposure to pollution.
- 3.1.2. Interesting trends within the burial population have been exposed, with a large proportion of individuals (approximately 75%) identified as being non-local to Lindisfarne and the surrounding region of Northumberland. With strontium and oxygen values outside the local range (estimated between 0.7090 and 0.7100 for $^{87}\text{Sr}/^{86}\text{Sr}$ values from Evans *et al.*, 2010, and -7‰ to -8‰ for $^{18}\text{O}_{\text{dw}}$ values based on Darling and Talbot, 2003), these non-locals appear to have come to the island from a diverse range of places. Potential origins suggested by strontium, oxygen, and lead isotope data include parts of south, west, and east England, western Scotland, and 7 individuals' values are consistent with childhoods spent in the Hebrides as identified by the distinctive isotopic signatures produced by the islands' geology (BGS, 2024). Three individuals have oxygen values outside the expected British range. Two individuals' $^{18}\text{O}_{\text{phos}}$ values are below 15.9‰ (the minimum expected value for Britain at 2δ: Evans *et al.*, 2012), indicative of residential origins in regions with colder climate and/or higher altitude such as Scandinavia or the Alps, whilst the third individuals' high $^{18}\text{O}_{\text{phos}}$ value implies they grew up in warmer areas of western or southern Europe (Lightfoot and O'Connell, 2016).
- 3.1.3. Carbon and nitrogen isotope values suggest a relatively uniform diet across most of the skeletal population, predominantly consisting of terrestrial C_3 resources such as barley, wheat, and protein from animals consuming C_3 plants. Surprisingly for a coastal, insular population, the 11 individuals assessed to have local origins show little to no evidence of marine resource

consumption with their low $\delta^{13}\text{C}$ values (Ambrose and Noor, 1993; Froehle *et al.*, 2010). The two individuals with potential origins in Scandinavia display slightly higher carbon and nitrogen values in earlier forming dentine and femur samples compared to their rib samples, implying greater consumption of animal protein (i.e. meat and dairy) and marine resources in early life than in later adulthood (Schoeninger and DeNiro, 1984). This difference not only highlights a dietary change, but also builds upon interpretations of mobility by proposing these individuals likely came to Lindisfarne as adults, and were feasibly settled in the local area consuming the local terrestrial diet at least 5 years before death (Cox and Sealy, 1997; Fahy *et al.*, 2017).

3.1.4. Results from trace element analysis are less revelatory than those for isotope analysis, with most samples yielding very low or non-detectable concentrations of arsenic and mercury. However, lead concentrations are variable across the dataset; many are below 0.9ppm which is consistent with individuals only being exposed to natural geogenic lead sources (Millard *et al.*, 2014), potentially representing those residing in less urbanised areas away from industry and metalworking (Montgomery *et al.*, 2010). Some individuals have concentrations above this value, indicating exposure to anthropogenic sources of lead, which may signify childhood residency in more polluted environments, proximity to/involvement in metallurgical activity, or frequent handling of lead-bearing objects perhaps available through trade or higher social status (Longman *et al.*, 2018).

3.2. Significance of Results in the Wider Research Context

3.2.1. Local Significance

Locally, these results are significant not only as the first scientific dataset to come from analysis of Lindisfarne's burials (Caswell *et al.*, 2020), but also as one of the first studies of a burial population found in Northumberland to reveal evidence of lifetime activity and behaviour during the early medieval period directly from individuals' skeletal remains. Research at the nearby contemporaneous Bowl Hole cemetery at Bamburgh Castle revealed similar results for mobility; strontium and oxygen analysis suggested over 50% of

individuals were non-local and similarly identified potential origins in Scandinavia and western Scotland, but also the southern Mediterranean or northern Africa (Groves *et al.*, 2013). Considered together, these sites argue for high levels of mobility at important religious and royal sites in Northumberland, highlighting LHL's potential to contribute significant direct evidence to discourse relating to migration and movement in early medieval Northumberland and England in general (Leggett *et al.*, 2022), and become effectively integrated into future work as a comparative dataset.

3.2.2. *National Significance*

Lindisfarne's national importance is undoubted. As the site of one of the earliest Viking raids in England, a major centre of early Christianity, and the birthplace of the Lindisfarne Gospels (English Heritage, 2025a), the well-known depth and breadth of the island's history lends itself to generating significant research findings beyond solely local interest. LHL supports Lindisfarne's longstanding national importance in emphasising how this small tidal island attracted many in the early medieval period not only as a pilgrimage destination but as an important place for burial, as shown by the diverse origins of the studied individuals. At Whithorn (another notable early Christian centre) in south-west Scotland, the only non-locals identified were predominantly males of high religious standing, along with one female of assumed lower status (Müldner *et al.*, 2009). The contrast observed in the high number of non-locals (male, female, and non-adult) at Lindisfarne suggests LHL's findings could build a more holistic understanding of the demography of people buried at early medieval religious sites, and could be compared to existing and future datasets to explore regional variation. Even the more mundane interpretation of a primarily consistent diet across LHL's individuals benefits national knowledge of early medieval lifestyles. Terrestrial C₃ diets are similarly dominant across many contemporaneous sites in England (Mays and Beavan, 2012; Hannah *et al.*, 2018) despite factors like social status, geography, and religion typically expected to cause variation within dietary behaviour, signifying that Lindisfarne's burial population further supports a pattern visible on a national-scale.

3.2.3. *International Significance*

3.2.4. Identification of probable first-generation migrants to Lindisfarne from abroad has international significance as a demonstration of long-distance early medieval networks, especially considering how difficult identifying such movements is on an individual-scale using other skeletal analysis techniques (Leggett *et al.*, 2022). Trace element analysis findings also serve to provide potential direct evidence of what may have brought some of these people to England, as one individual consistent with Scandinavian origins and inferred through dietary change to have possibly come to England in adulthood also has a high lead concentration, suggesting possible involvement in metalworking or regular lead object handling. As lead is known to have been traded to both Scandinavia and Northumberland through York, it is possible this individual's motive for migrating was tied to trade rather than religious pilgrimage (Kershaw and Merkel, 2023). In demonstrating the presence of foreign migrants and their potential connection to Lindisfarne's far-reaching networks across the North Sea (Petts, 2023), LHL not only highlights the island's varied role in early medieval England beyond Christianisation, but its findings can also be incorporated into international discussions of maritime expansion and trade during this period.

4. Publication and Dissemination

Planned publication and dissemination products are presented below as “packages” outlining key features. The number of outputs has been refined since the initial Project Design to focus resources and better align with the significance of LHL’s findings, prioritising community-inclusion and extensive circulation. Although the planned Archaeology Data Service (ADS) archive is mentioned, as its prominent use will be data storage rather than dissemination, it is excluded from detailed discussion.

4.1. Specialist Report

4.1.1. Description

A specialist report will be compiled by the Project Manager and Expert Team in AIPRL’s house style. This briefly introduces the project and its aims, summarises the theoretical background of techniques used, and outlines methods and materials specific to LHL. Results of isotope and trace element analyses will be presented, with interpretations from raw data analysis and contextualisation with relevant comparative data discussed in detail. Appropriate HIA findings (e.g., radiocarbon dates, palaeopathological evidence, and site narrative interpretations) will also be combined with LHL’s dataset to consolidate results of these two closely linked projects. Data visualisation products including isoplots and graphs (Figure 1) are planned to be incorporated at suitable points.

4.1.2. Purpose

The report is intended to provide a complete account and justification of LHL’s findings, situating them within the wider research context through comparison with existing work, including DigVentures’ HIA project. In doing so, the significance of LHL’s results and their contributions to research on early medieval life histories will be elucidated, and Aims 1-4 will hopefully be achieved, with RQs 1-13 answered through interpretations presented and the creation of the report itself. Fundamentally, this report acts as the primary

document for all stakeholders and potential audiences, presenting LHL's process and results.

4.1.3. Intended Audience

Although, as with all LHL outputs, the report is intended to be public-facing, its nature as a specialist text with complex jargon makes it naturally more suited to professional archaeological audiences in research and commercial fields. However, it is imperative to ensure interested people outside expert spheres are not restricted from accessing and understanding the report's information. Whilst it is not possible to avoid using technical terms, definitions of key words will be listed, and the executive summary and bullet-pointed conclusion are designed to allow a wide-ranging general audience to clearly identify and understand LHL's main findings.

4.1.4. Dissemination Method

Ensuring wide circulation to a diverse audience, the report will be made available on the project's webpage (see Section 4.2), the ADS archive, and Durham University's repository website Durham Research Online (2025). All deposition locations are open-access, and to increase accessibility and readership, links will be shared publicly on social media and via newsletter emails by DigVentures and Durham University.

4.1.5. Impact Assessment

Impact can be estimated using metrics such as file downloads available through ADS (2025), link clicks quantified using tools like Google Analytics (Google, 2025a) for the website, and performance insights provided on social media pages. As grey literature, future citations may be difficult to track effectively to measure LHL's incorporation into research discourse, although Google Scholar may be useful as it has previously recorded references for HIA project documentation uploaded to DigVentures' website (Google, 2025b).

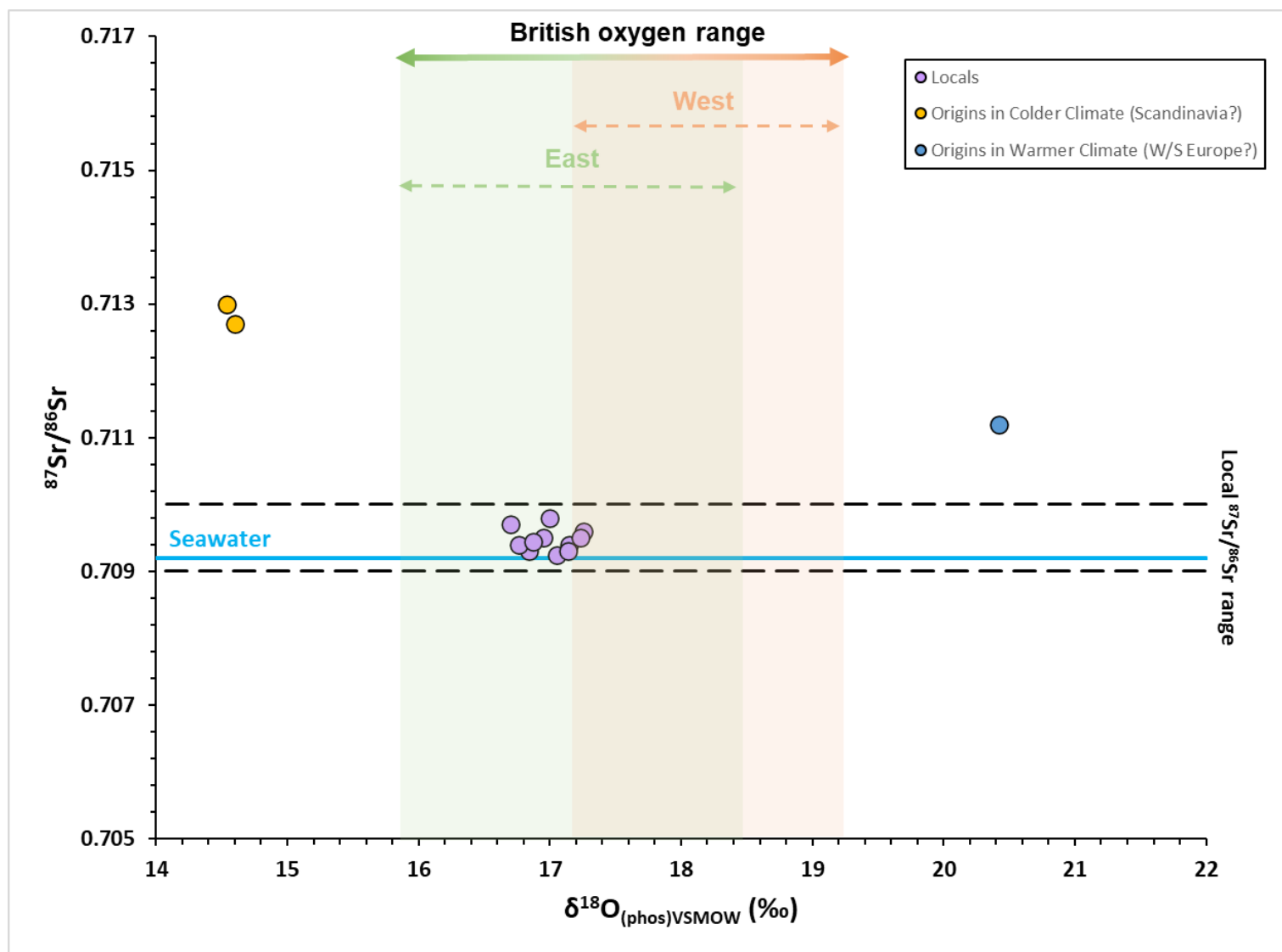


Figure 1: This mock-up graph demonstrates the types of data visualisation products that will be created and incorporated into LHL’s planned dissemination outputs, including the specialist report and journal article(s). Data for the 11 local individuals (purple) is shown alongside the two individuals inferred to originate from areas of colder climate (yellow) and the individual from a warmer climate (blue) in Europe. The black dashed lines show the estimated local range of strontium values for Lindisfarne (Evans *et al.*, 2010), and the expected oxygen value range for Britain is indicated by the green and orange boxes (Evans *et al.*, 2012).

4.2. Project Website

4.2.1. Description

LHL's website will have two main sections (project information pages, and a virtual interactive exhibition) and will be accessible through DigVentures' (2025b) Lindisfarne project website (Figure 2). Information pages provide an overview of LHL, a project progress timeline, and an events calendar, signposting to updates via integrated social media feeds. Project documentation, the report, and publications will be freely available to download as they are for the HIA project (DigVentures, 2025a). The virtual exhibition is planned to present LHL's results in an interactive manner similar to the digital ossuary (Figure 3) for the Bowl Hole cemetery study (Bamburgh Bones, 2025), with each individual presented alongside an explanation of how their life history narrative was constructed using LHL and HIA findings, how this new evidence is significant to archaeological knowledge, and a summary quiz to test audience understanding.

4.2.2. Purpose

The website functions as a hub for everything related to LHL, providing an essential online resource to engage viewers that can be accessed by international audiences. By providing up-to-date information and spreading knowledge of LHL's findings in a fun yet educational format, the website ensures the public can learn about and engage in the project regardless of whether they can visit Lindisfarne or attend in-person events. As an accessibility-focused product, the exhibition will also be used "on-site" within Lindisfarne's Priory Museum (English Heritage, 2025b) using digital touchscreens, to increase the museum's provision of interaction opportunities and allow those who may struggle to read traditional museum labels to adapt displays to their needs.

4.2.3. *Intended Audience*

LHL's website is intended to reach the widest possible audience, prioritising public engagement and learning. Employing non-specialist language and engaging content, it is well-suited as an educational resource for school groups from key stage 2 and above, whether accessed online in the classroom or using the museum's digital displays. This intended educational use addresses RQ 17, especially as the exhibition's content links to early medieval themes across history curriculums (English Heritage, 2025c) and can be used in Durham University's (2025) public-dissemination-focused "Isotope Magic" module.

4.2.4. *Dissemination Method*

Direct links can be shared across social media, via newsletter emails, in-person using QR codes, and within the ADS archive. The exhibition will be accessible in-person using the digital displays, although it should be noted that the museum charges an entry fee.

4.2.5. *Impact Assessment*

Online analytical tools could be used to quantify website visits as a proxy for impact and engagement. For more direct evidence, user experience questionnaires will be available on the information webpages and shared to schools using the resource, to gather feedback for assessing the website's efficacy at disseminating information. The exhibition's quiz will also measure impact, with anonymised results analysed to investigate users' performance and identify changes needed to improve audience understanding.

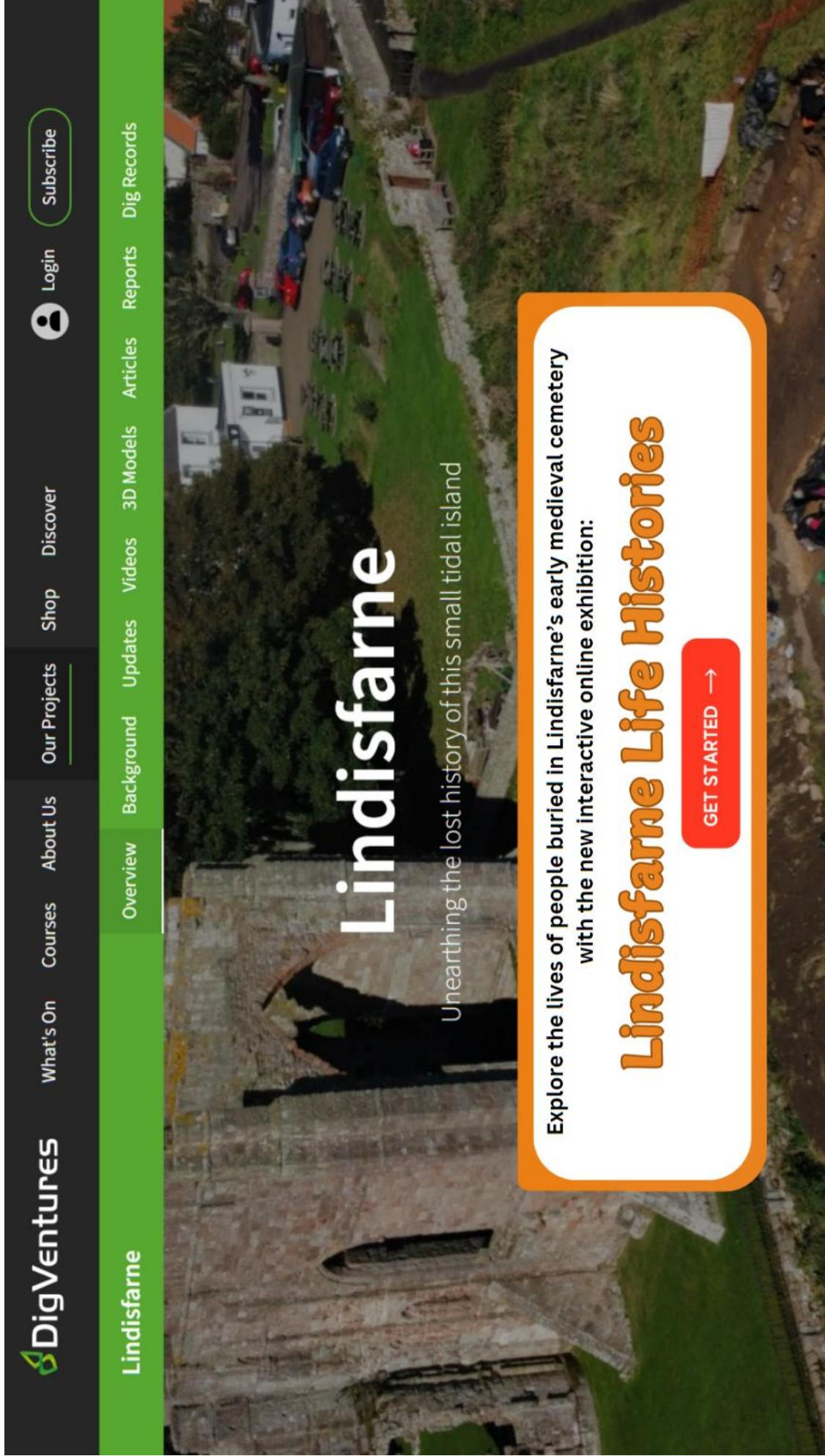


Figure 2: The interactive online exhibition is planned to be integrated into DigVentures' existing website for the HIA project, and will be advertised on the website's main page as shown in the figure (DigVentures, 2025b).

COOEWORD: **Drēam** #150
DIG-2003

WHAT IS THE MEANING OF THIS?

What this skeleton told us: Evidence

An older woman and 156 cm tall (5 feet 1 inch). Osteoarthritis is present in the spine. Many of the teeth have been lost in life and in most cases the sockets have closed over suggesting the loss happened some considerable time before death. Dental plaque, infected tooth roots and thinning of the dental enamel (enamel defects, or hypoplasia) are also seen. Some squatting facets are present, seen at the ends of both shin bones (tibiae) and identified by the presence of small extensions to the joint surface.

Interpretation of the evidence

In Anglo-Saxon Britain, if a woman survived childhood, she could be expected to live into her middle forties or beyond, provided she maintained good health and did not die during pregnancy or childbirth. This female was significantly below average height for this period, and died at a relatively good age, indicating that she was well-nourished and in good general health. However, we should remember that humans are very good at adapting to challenging times! Her enamel hypoplasia illustrates that in childhood she had a deficient diet or disease. The squatting facets suggest squatting for long periods of time and this might have been related to specific activities she was involved in, such as in farming.

The Seven: The local woman

This tall and well-fed woman was about 45, and had spent her whole life in Bamburgh. Perhaps she helped run the kitchens or manage the servants at the royal palace.

① **Origin:** Northumberland, possible Bamburgh local. How do we know this?

② **Burial position:** Crouched burial on her left side with her head to the West and her knees flexed (bent). What does this tell us?





Drēam as found, select for full photo The archaeologist's drawing of Drēam Where Drēam was found in the graveyard

COOEWORD: **Bord** #84
DIG-2002

WHAT IS THE MEANING OF THIS?

What this skeleton told us: Evidence

An 8 to 9 year old child with adult and milk teeth present. Some plaque is present on the permanent teeth.

Interpretation of the evidence

Child mortality was likely high in Anglo-Saxon Britain. This child probably died from a communicable disease (infection).

The Seven: The French Child

Our analysis of the chemical elements trapped in this 9-year old's teeth reveal that he or she spent their early years in France, before arriving in Bamburgh with their Mediterranean-born mother.

① **Origin:** Outside Britain and far to the South from the milk teeth, but the adult teeth suggest Ireland or the West coast of Scotland, there is, therefore, evidence for a clear move in childhood. How do we know this?

② **Burial position:** Crouched burial on his/her left side and their head to the West. The knees are flexed (bent). What does this tell us?





Bord as found, select for full photo The archaeologist's drawing of Bord Where Bord was found in the graveyard

COOEWORD: **Cwalu** #416
DIG-2006

WHAT IS THE MEANING OF THIS?

What this skeleton told us: Evidence

An older man and 177 cm tall (5 feet 10 inches). Tooth decay and plaque are present and there is clear evidence for tooth loss during his lifetime. He possibly has a break (fracture) to his left 11th rib that appears well healed, and there is fusion of some joints between the 12th thoracic and 2nd to 4th lumbar vertebrae.

Interpretation of the evidence

In Anglo-Saxon Britain, it is likely that if a man survived childhood, he could expect to live a fairly long life, at least into middle-age, provided he maintained good health and was not killed in battle. This man was above average height for the period and died at a relatively advanced age, indicating that he was well-nourished and in good general health. However, we should remember that humans are very good at adapting to challenging times! In common with many of the people buried at the Bowl Hole, dental hygiene appears to have been poor for this elderly man, and tooth decay indicates sugar in his diet. He had gum disease and he had lost teeth, he may have had bad breath.

The Seven: The Scandinavian Man

This 60-year old man may have been drawn from Norway or Sweden by the artistic and intellectual reputation of Bamburgh's Golden Age community.

① **Origin:** Scandinavia. How do we know this?

② **Burial position:** Crouched burial on his right side with his head to the West. His left elbow and both knees were flexed (bent) and his legs crossed. What does this tell us?

③ **Burial dated:** AD 559 to 677





Cwalu as found, select for full photo The archaeologist's drawing of Cwalu Where Cwalu was found in the graveyard

COOEWORD: **Oferbrædan** #130
DIG-1999

WHAT IS THE MEANING OF THIS?

What this skeleton told us: Evidence

An older man, but his age is uncertain due to poor skeletal preservation, and particularly the skull and upper spine. Osteoarthritis was present in the spine and also the left big toe bones. A fracture to the right forearm (radius bone) may be present but poor preservation makes this uncertain. The teeth are also in poor condition with tooth decay and infected tooth roots.

Interpretation of the evidence

The poor preservation of this skeleton prevented estimation of a more precise age for this man at the time of his death. However, his osteoarthritis suggests he was older. Like many of the Bowl Hole skeletons he had poor dental hygiene resulting in tooth decay and infected roots, both of which could have been painful, and could have resulted in bad breath. Tooth decay indicates sugar in his diet. His osteoarthritis might have been painful with loss of full movement and swelling of the joints.

The Seven: The Hebridean Man

St Aidan travelled to Bamburgh from Iona off the west coast of Scotland. This middle-aged man, who came from the Hebrides may have accompanied him.

① **Origin:** Hebrides. How do we know this?

② **Burial position:** Crouched on his right side with his head to the West. What does this tell us?

③ **Burial artefact:** Knife and buckle present at the waist region.

④ **Burial dated:** AD 574 to 660





Oferbrædan as found, select for full photo The archaeologist's drawing of Oferbrædan Where Oferbrædan was found in the graveyard

Figure 3: Examples of individuals recovered from Bamburgh's Bowl Hole cemetery and their case study pages within the digital ossuary, where evidence from their study has been compiled to reconstruct their potential life histories (Bamburgh Bones, 2025). LHL's interactive exhibition will create life history "profiles" in a similar way to this.

4.3. Presentations

4.3.1. *Description*

Incorporating the virtual exhibition, presentations of LHL's findings will be given to local interest groups by the Project Manager and/or Expert Team, alongside HIA representatives. Potential event hosts include Border Archaeological Society (based nearby in Berwick with previous HIA-related talks: BAS, 2025) and Great North Nights at the Great North Museum in Newcastle (after-hours events for adults providing informal heritage-related interactive activities: GNM, 2025).

4.3.2. *Purpose*

Creating opportunities for local community and public involvement is entrenched within LHL's ambitions (Aim 5, RQ 16). Presentations enable achievement of this by providing new insights into local heritage and encouraging discourse between non-specialist audiences and researchers. This dissemination format also ensures knowledge is shared orally rather than solely in written form, increasing LHL's accessibility and potential to be shared further.

4.3.3. *Intended Audience*

Restricting focus of presentations to local adult audiences ensures pre-existing and new interest groups are captured and given opportunities to engage with findings significant to improving understanding of their region's past. The BAS talk specifically targets an established archaeological group, whilst the GNM event invites those with adjacent interests in history and science to discover the project, ensuring a broad audience with varied interests is reached overall. There is scope for presentations to school groups, Young Archaeologists' Clubs, academic conferences, and online to DigVentures' followers, however the initial focus is fostering accessible community engagement in local heritage.

4.3.4. *Dissemination Method*

Presentations will be advertised via social media and email by the organisers and hosts, on LHL's website, and in-person through posters around Lindisfarne, Berwick, and the surrounding areas. Recordings of presentations can be uploaded on LHL's website to promote wider engagement at the time of dissemination and in future.

4.3.5. *Impact Assessment*

Questions and feedback will be welcomed at presentations, and experience questionnaires will be circulated physically and via QR codes to maximise responses. Anonymised answers will be compiled to evaluate: how impactful attendees found the event; their knowledge before and after; their understanding of the local, national, and international significance of LHL's findings; and if they plan to explore LHL and its wider research context further following the presentation.

4.4. Journal Articles

4.4.1. *Description*

The specialist report's content will be reframed for journal publication. Findings will be examined in-depth and firmly situated within appropriate geographic, thematic, and chronological contexts through comparison with existing research. Relevant data visualisation products will be integrated within the article(s), with LHL's dataset published as supporting documentation. Technical vocabulary will be used to accurately convey the significance of the results and avoid over-simplification possible within more public-focused outputs.

4.4.2. *Purpose*

Article publication is best-suited to integrate LHL's generated knowledge into current discourse as one of the primary interfaces between experts in related research fields. Journals enable effective communication of new results within

established academic networks, with peer-review processes bringing further validity to results' significance through the approval granted by other specialists (Steer and Ernst, 2021). Article publication would additionally enable LHL's results to retain future relevance in use as a comparative dataset for similar studies.

4.4.3. *Intended Audience*

Targeting specialist audiences in research and academia, LHL's article(s) will permit dissemination to archaeological peers and experts in related fields of study. However, to ensure knowledge sharing is not restricted, only journals offering open-access publication will be used, allowing any interested parties to explore LHL's results.

4.4.4. *Dissemination Method*

Different journals have been identified as potential places for publication, including *Journal of Archaeological Science: Reports* and *Medieval Archaeology*. Both have well-established international audiences: the former focusing on disseminating projects integrating archaeological objectives effectively with scientific research (ScienceDirect, 2025), and the latter prioritising interdisciplinary research enhancing understanding of medieval Britain and beyond (Taylor and Francis, 2025). Although publication within these journals is ambitious, they represent LHL's intended reach to international academic audiences and are well-aligned with results' significance regarding long-distance connections at a site which retains its international importance today.

4.4.5. *Impact Assessment*

Article-specific citation metrics like those available through Google Scholar (2025b) and Scopus (2025) will be used to evaluate long-term impact of the LHL article(s) within future research, rather than metrics measuring journal-level impact like CiteScore and Impact Factor (Elsevier, 2025).

4.5. Timescale

Dissemination timescales are presented in Table 4.

Table 4: Planned production and dissemination dates for each LHL product are presented alongside the requirements for dissemination.

Dissemination Product	Planned Production Dates	Requirements for Dissemination	Planned Dissemination Date
Specialist Report	November 2027 to February 2028	• Interpretations of raw data • Contextualisation of interpretations with comparative data (including HIA results) • Data visualisation products • Report creation • Approval of report by Project Executive and Project Board • Dissemination to project website, ADS archive, DRO, social media feeds, and email networks	March 2028
Project Website	December 2027 to March 2028	• Interpretations of raw data • Contextualisation of interpretations with comparative data (including HIA results) • Data visualisation products • Creation of information webpages • Creation of interactive exhibition • Creation of user experience questionnaires • Dissemination to Lindisfarne museum, LHL website, ADS archive, social media, and email networks	April 2028
Presentations	March to April 2028	• Specialist report (findings adapted for public audience) • Interactive exhibition • Creation of presentation slides and experience questionnaire • Liaison with BAS and GNN • Advertisement via social media, email, and in-person posters • Dissemination to BAS and GNN attendees, and online to the LHL website	April and May 2028
Journal Article(s)	February to May 2028	• Specialist report (adapted into appropriate formats for different journals) • Data visualisation products • Contextualisation of interpretations with comparative data (including HIA results) • Submission to journals such as Journal of Archaeological Science: Reports and Medieval Archaeology • Peer-review process and potential re-submission with edits • Dissemination through journal publication, and possible uploads to LHL website and ADS archive	June 2028

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