

Institution: University of Lincoln		
Unit of Assessment: 32 – Art and Design: History, Practice and Theory		
Title of case study: Climate Change and Cultural Heritage		
Period when the underpinning research was undertaken: 2015 - 2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): DALY Cathy	Role(s) (e.g. job title): Senior Lecturer	Period(s) employed by submitting HEI: 1 Sep 15 to date
Period when the claimed impact occurred: 2017 - 2019		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact <p>Daly's research on heritage and climate change had a direct effect on the formation of Irish government policy and contributed to the development of international progress on this issue. The Department of Culture Heritage and the Gaeltacht (DCHG) in Ireland used Daly's research to understand vulnerabilities and to design appropriate adaptation actions. Daly was the first researcher to create a matrix of the impacts of climate change and to develop monitoring tools for heritage resources in Ireland. As such her work provides an important knowledge base, and her background study on adaptation to climate change for the heritage sector informed the development of national heritage policy.</p>		
2. Underpinning research <p>Many heritage sites are currently facing major risks due to climate change. These can range from catastrophic losses (e.g. coastal erosion, storms or flooding) to gradual but widespread changes in decay processes (e.g. new pest species, increased mould growth or altered burial conditions). These risks are already affecting historic buildings, collections, cultural landscapes and archaeological remains in many different and complex ways. Daly's research examines the impact that current and future climate change will have upon the preservation of cultural heritage. In particular she studies the nature and rate of deterioration, the assessment of vulnerabilities, and how to monitor and respond to these problems. Daly's research provided the first study of the key potential impacts of climate change on Ireland's World Heritage sites but also has wider application benefitting policy and understanding internationally.</p> <p>Daly researched, designed and piloted an innovative Legacy Indicator Tool (the LegIT) to record long-term impacts of climate change on five National Monuments in Ireland, including the two World Heritage sites [3.1, 3.4]. The installation of the LegIT at sites across Ireland has revealed for the first time the potential for regional and local variations in climate change impacts and vulnerabilities. The LegIT is pioneering in its design as a prolonged effort to record scientific evidence of climate change effects on weathering. The research also identified significant gaps in knowledge and current heritage management processes - such as the lack of monitoring regimes suitable for measuring long-term climate change – which contributed to poor understanding and planning.</p> <p>To identify key issues in the management of climate change, Daly examined the cultural heritage sector's approach to the issue. She juxtaposed internationally established barriers, conducted primary research (interviews with experts and practitioners in the field) and curated evidence of the political and economic situation in Ireland to characterize country specific issues in relation to this topic [3.3, 3.6]. Daly demonstrated that the barriers identified by researchers in other countries (USA and UK) were mirrored in Ireland.</p>		

Based on Daly's research and resulting expertise on the impacts of climate change for Irish heritage, the Irish Government Department responsible for heritage (at the time Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs of Ireland, subsequently changed to Department of Culture Heritage and the Gaeltacht (DCHG)), approached Daly in 2016 to write a background research report that would inform the preparation of the national adaptation strategy for built and archaeological heritage. This desktop study [3.2] was based on a survey of both academic and grey literature together with interviews of key experts. The report presented a review of the current understanding of climate change impacts for Ireland's heritage. It also outlined the development of adaptation policy for the sector internationally, which was minimal, with only a few countries in the drafting stages of national plans. Daly subsequently was lead author of the 'Adaptation' and 'Tools & Methodologies' chapters of a major international report on the intersections of cultural heritage and climate change [3.5]

3. References to the research

- 3.1 Daly, C. (2016) 'The design of a legacy indicator tool for measuring climate change related impacts on built heritage', *Journal of Heritage Science* [online] Springer.
<http://doi.org/10.1186/s40494-016-0088-z>
- 3.2 Daly, C. (2017a) 'Archaeological and Built Heritage Climate Adaption Sectoral Plan Background Study'. Unpublished report prepared for the Department of Arts Heritage, Regional, Rural, Gaeltacht Affairs of Ireland (July 2017).
Available on request.
- 3.3 Daly, C. (2017b) 'Informing heritage policy in an uncertain climate: reflections from Ireland', paper presented to Cultural Heritage Facing Climate Change: Experiences and Ideas for Resilience and Adaptation. 18 -19 May, Villa Rufolo, Ravello, Italy.
Available on request.
- 3.4 Daly, C. (2019a) 'Preliminary results from a legacy indicator tool for measuring climate change related impacts on built heritage', *Journal of Heritage Science* [online] Springer
<https://doi.org/10.1186/s40494-019-0274-x>
http://eprints.lincoln.ac.uk/35875/3/Daly2019_Article_PreliminaryResultsFromALegacy1.pdf
- 3.5 ICOMOS Climate Change and Cultural Heritage Working Group (2019) 'The Future of Our Pasts: Engaging Cultural Heritage in Climate Action', Paris: ICOMOS.
<https://indd.adobe.com/view/a9a551e3-3b23-4127-99fd-a7a80d91a29e>
- 3.6 Daly, C. (2019b) 'Adapting Heritage Policy for a Changing Climate: Reflections from Ireland', in M. Dawson, ed., *Heritage Under Pressure Threats and Solutions*. [Ebook] Oxbow Books. ISBN 978-1-78925-246-0, 978-1-78925-247-7
Available on request.

4. Details of the impact

Impacts have been achieved in the following areas:

- a. Affecting & Informing Irish national heritage policy.
- b. Directly shaping the Irish national Climate Change Adaptation Plan for Built and Archaeological Heritage.
- c. Influencing developments in policy at international level.

Affecting & Informing Irish National Heritage Policy.

Daly's research provides an evidence-based assessment of the specific challenges facing Irish heritage sites from climate change and the wider context. Together with the commissioned background research report this has informed the writing of the adaptation strategy for Ireland's heritage [5.1]. In 2018 the background research report was presented to the Expert Advisory Group convened to oversee the development of the strategy to inform their discussions [5.2].

The report was also named in section 4 of the tender documentation for the writing of the DCHG's Climate Change Sectoral Adaptation Plan for Built and Archaeological Heritage [5.3]:

"The scope of services related to this tender will be to assist with the production of a Climate Change Sectoral Adaptation Plan for Built and Archaeological Heritage in line with the April 2018 government decision... The approach will be risk/impact based and will build on a Background Study commissioned by the DCHG in 2016 and undertaken by Dr Cathy Daly (University of Lincoln) in 2017 which is attached for information (Appendix C)".

Directly shaping the Irish national Climate Change Adaptation Plan for Built and Archaeological Heritage.

The European Union's strategy on adapting to climate change encourages all member states to develop a National Climate Change Adaptation Framework (European Commission 2013). In its 2015 Climate Act the Irish government specified 12 sectors that were required to prepare adaptation strategies, one of these was 'Built and Archaeological Heritage'. Although considered in some national adaptation plans Ireland was the first national government to adopt a climate change adaptation plan specifically for cultural heritage (October 2019).

In 2018 the DCHG awarded the tender for this work to the application submitted by Carrig Conservation and the University of Lincoln, which named Daly as lead researcher and author. The draft adaptation plan was developed in consultation with stakeholders and those working on parallel sectoral plans and was informed by Daly's research [3.2]. The draft plan was also published online for public consultation and a summary report of this process was prepared for the Department [5.4]. The strategy document was adopted formally by the Dáil (Irish parliament) in September 2019 [5.5]. The Department is now in the implementation phase of the plan, a meeting of stakeholders planned for March 26th 2020 to form working groups and devise 'next steps' was cancelled by the Covid 19 restrictions. Research by Daly has been utilized to develop actions within the strategy e.g. long-term monitoring regimes at sites under actions 1.g & 1.i [5.5].

Influencing Developments in Policy at International Level.

Daly was one of 20 international experts in the fields of natural and cultural heritage invited to the island of Vilm to advise UNESCO on the revision of the World Heritage strategy for climate change in October 2017 [5.6] and also part of an expert panel advising on the World Heritage Leadership Programme [5.7].

Daly was invited to become a Bureau member of the International Council on Monuments and Sites (ICOMOS) International Working Group on Climate Change and Cultural Heritage in 2017, and is one of the lead authors of *The Future of Our Pasts: Engaging Cultural Heritage in Climate Action* [3.5], responsible for the Tools and Methodologies and Adaptation section. This document was prepared under the scientific leadership of ICOMOS's Climate Change and Heritage Working Group. Over 50 invited expert reviewers and reviewers from ICOMOS International Scientific Committees, Working Groups and National Committees reviewed it. ICOMOS used the report to organize its inputs into an update of the UNESCO World Heritage Committee's 2007 Policy Document on the Impacts of Climate Change on World Heritage Sites, to develop a roadmap for heritage organizations to engage on climate change issues (Climate Heritage Network launched in October 2019 [5.8], and to organize outreach to the scientific community on research gaps and opportunities. The World Heritage policy panel of this group (including Daly) was asked to provide comments on the first and second drafts of the UNESCO policy during 2020.

The Future of our Pasts was released at the 2019 World Heritage Committee meeting in Baku Azerbaijan. Its recommendations were referred to by the Committee urging all State Parties to step up action to better understand the climate vulnerability of World Heritage properties and put in place adaptation strategies (item 15 of Decision 43COM 7.2) [5.9]. These are specific actions highlighted in the Adaptation section authored by Daly.

The State of California in the USA used the Future of Our Pasts to benchmark its own work in developing a new action plan to engage the California arts, culture and heritage sectors for climate action. The State Historic Preservation Officer, Office of Historic Preservation, California State Parks writes *“We have provided Future of our Pasts to the state government task force members [of the California Cultural Resources Climate Change Task Force], asking that they read the document to frame the topic...the ICOMOS document was so timely and important to helping frame the conversation. Without it, I am afraid we would be at least a year behind in our timeline”* [5.10].

5. Sources to corroborate the impact

- 5.1 Letter of support from Chief Archaeologist, Department of Culture Heritage and the Gaeltacht
- 5.2 Letter of invitation to presentation of findings of background report to stakeholders February 2017 Custom's House
- 5.3 Tender documentation for the writing of the DCHG's Climate Change Sectoral Adaptation Plan for Built and Archaeological Heritage.
- 5.4 Department of Culture, Heritage and the Gaeltacht (2019) Built & Archaeological Heritage Climate Change Sectoral Adaptation Plan Consultation Report.
- 5.5 Daly, C. (2019) Climate Change Adaptation Sectoral Plan for Built and Archaeological Heritage. Dublin: Department of Culture Heritage and the Gaeltacht. Available at [\(20\) \(PDF\) Climate Change Sectoral Adaptation Plan for Built & Archaeological Heritage 2019 \(researchgate.net\)](#)
- 5.6 International Expert Workshop 'World Heritage and Climate Change'. Vilnius, October 2017. Workshop Report.
- 5.7 Letter of invitation to participate in World Heritage Leadership Programme Resilience Workshop hosted by ICCROM and IUCN in Rome 5 - 7 June.
- 5.8 Programme for launch of Climate Heritage Network, Edinburgh October 24th, 2019. <http://climateheritage.org/launch-2019/>
- 5.9 Screen grab from UNESCO World Heritage Committee Decision 43COM 7.2 Pressing Conservation Issues issued by the 43rd World Heritage Committee meeting, Baku, Azerbaijan 2019. Item 15 relates to the work of ICOMOS (and its WG on climate change) as one of 3 Advisory Bodies to the committee.
- 5.10 Email from The State Historic Preservation Officer, Office of Historic Preservation, California State Parks, USA.