

<b>Institution:</b> University College London		
<b>Unit of Assessment:</b> 15 – Archaeology		
<b>Title of case study:</b> CITiZAN: empowering citizens to record threatened foreshore archaeology		
<b>Period when the underpinning research was undertaken:</b> 2000-2017		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b> Gustav Milne	<b>Role(s) (e.g. job title):</b> Honorary Senior Lecturer (2018-present) UCL Teaching Fellow October 2008-September 2017 UCL Senior Lecturer 2000-2008	<b>Period(s) employed by submitting HEI:</b> 2000-2017
<b>Period when the claimed impact occurred:</b> 2014-2020		
<b>Is this case study continued from a case study submitted in 2014?</b> N		
<b>1. Summary of the impact</b> (indicative maximum 100 words)		
<p>CITiZAN is a nationwide programme of coastal erosion monitoring and recording in England, focused on endangered archaeological sites and artefacts. The project uses a citizen science model to train and empower members of the public to recognise, research and record vanishing coastal heritage, from prehistoric trackways to WWII pillboxes. Climate change and rising sea levels make this an urgent priority globally, and CITiZAN's partners, such as Council for British Archaeology and Historic England (HE), use the data collected to mitigate erosion damage. The programme has received awards and recognition for community archaeology, and, through the popular Channel 4 series 'Britain at Low Tide', has further raised public awareness of threats to coastal heritage.</p>		
<b>2. Underpinning research</b> (indicative maximum 500 words)		
<p>Coastal erosion is a major threat from climate change that necessitates the large-scale recording of archaeological sites before they are destroyed. UCL's research into coastal and foreshore archaeology has been led by Gustav Milne (formerly Senior Lecturer in <i>London Archaeology</i> and Maritime Archaeology). Milne is a leading authority on the archaeology of London and the Thames foreshore [R1-R5]. In his 45-year research career he has repeatedly confronted the effects of changing sea levels on waterfront archaeology (for example, the consequences of the fact that relative sea level was significantly lower in the Thames estuary in Roman times), and also the need to recruit all available sources of assistance to identify, record, and conserve threatened coastal heritage [R3-R5]. His book on <i>The Port of Medieval London</i> [R1] synthesised work done in the preceding 30 years of excavation and research on the mediaeval London waterfront. Milne's work has also analysed, for example, the remains of a medieval ship from Sandwich [R3] and an Elizabethan merchantman lost in the Thames [R4]. These projects illustrated the wealth of archaeological information available in the highly dynamic environments of England's foreshore.</p> <p>Initiated by Milne at UCL's Institute of Archaeology, in partnership with the Museum of London and English Heritage, the Thames Archaeological Survey was the first systematic survey of the open foreshore in central London. Milne and collaborators developed innovative methodologies for recording visible remains of historic watercraft on the foreshore and demonstrated their application in salvage recording. Their recording pro forma was designed to be useable by professional and amateur archaeologists elsewhere, to record such endangered evidence of often poorly-understood boatbuilding traditions, and it continues to be used today by community-based archaeologists. Milne then established the 'Thames Discovery Programme' (TDP) in 2008 as a citizen science initiative to enable continued monitoring and recording of archaeology along the Thames foreshore [R5], and he is project leader for CITiZAN (the Coastal and Intertidal Zone Archaeological Network), the national community-based coastal archaeology project he established in 2015. Both TDP and CITiZAN are primarily scientific initiatives, set up on an economically viable basis to mitigate erosional damage to the coastal archaeological resource and to expand the documented research base of foreshore sites and artefacts.</p>		

**3. References to the research** (indicative maximum of six references)

- R1. Milne, G.** (2003) *The Port of Medieval London*. Stroud: Tempus. Can be supplied by the HEI on request. Review: “a well-illustrated and much needed synthesis of some thirty years of archaeological excavations along the waterfront of the city of London” – N. Brooks (2007) *English Historical Review* 122: 1072–1073. Cited 50 times on Google Scholar [31/8/20].
- R2. Bellamy, P. S., & Milne, G.** (2003). An archaeological evaluation of the medieval shipyard facilities at Small Hythe. *Archaeologia Cantiana*, 113, 353-382. Available at: <https://bit.ly/3bQH1ny>
- R3. Milne, G.** (2004) The 14th-century merchant ship from Sandwich. *Archaeologia Cantiana* 124: 227-263. Available at: <https://bit.ly/2Q1INd7>
- R4. Sully, D. & Milne, G.** (2014). *The Gresham Ship Project, A 16th-Century Merchantman Wrecked in the Princes Channel, Thames Estuary, Volume II: Contents and Context*. Oxford: Archaeopress. Can be supplied by the HEI on request. Review: “demonstrates the importance of integrating the widest cross-section of parties with an interest in underwater cultural heritage, be they developers, commercial units or university researchers. [...] -the Gresham Ship serves to highlight the benefits and advancement of knowledge, practice and future insight that can be achieved” – J. Whitewright (2016). *Int. J. Nautical Archaeology* 45: 222-224.
- R5. Cohen, N., Milne, G., & Wragg, E.** (2012). The Thames Discovery Programme: public engagement and research on London's foreshore. *Archaeology International*, 15. <http://doi.org/10.5334/ai.1506>

**4. Details of the impact** (indicative maximum 750 words)

The coast of England is under constant threat from wind, waves and storms. These threats wreak havoc on England's varied coastal and intertidal heritage, not only exposing sites but often destroying them before they are identified or recorded. To date there has been no systematic standardised system in place in England to record these vulnerable sites in detail or to regularly monitor their fate over the longer term. In 2015, the 'Thames Discovery Programme' (TDP) model (set up and led by Milne in 2008) was rolled out into a national programme again led by Milne, CITiZAN (the Coastal and Intertidal Zone Archaeological Network), hosted by Museum of London Archaeology (MOLA), which monitors coastal erosion and records archaeological sites in the coastal zone and along the foreshore. CITiZAN has been awarded over GBP3,000,000 by the National Heritage Lottery Fund (HLF) (GBP1,400,000 in 2015 and GBP1,760,000 in 2019), which has enabled the development of innovative interactive digital data collection methods, notably an app allowing members of the public to access the existing database of coastal archaeology and to update/edit sites and add monitoring photos [A]. CITiZAN extended the new model of community-engaged foreshore archaeology developed by the TDP, where volunteer members of the community whose own heritage is the subject of investigation were trained to use researcher-developed tools specifically adapted to the fieldwork conditions of the intertidal zone [B]. While CITiZAN cannot record all the threatened sites currently exposed on the 6,500+ miles of English coastline, it promotes a standardised survey and monitoring methodology that is applicable to all of them, enabling preservation by record of this resource. It has established an infrastructure and network of volunteers with the skills, commitment and support to record, monitor and promote fragile and threatened archaeological intertidal sites, adding over 2,000 new entries [C] to the existing record of archaeological features spanning prehistory to the present. CITiZAN has worked with over 40 community groups across over 30 local authorities to develop skills and knowledge, empowering individuals to recognise, research and record vanishing local heritage. The project's broader impacts include extending archaeological knowledge and mitigating erosion damage through the data collected and raising wider public awareness of threats to coastal heritage through the popular Channel 4 series 'Britain at Low Tide' which attracted a total audience of [Text Redacted for Publication] viewers over the series' first three weeks.

**Training members of the public to recognise threats to, and preserve, coastal heritage**

CITiZAN has raised public awareness of threats to coastal heritage, training members of the public to recognise those threats and empowering them to preserve local heritage. Citizen scientists can participate in CITiZAN in person at training and fieldwork sessions, or digitally via the website and CITiZAN Coastal Archaeology smartphone app (free to download on Android and Apple iOS devices) which enables users to record intertidal archaeology exposed or threatened by erosion. There were c.120,000 visitors to, and 497,174 page views of, the project website up to December 2020 [D]. The final project report for the first HLF grant period (2015-18) found that between 2015 and 2018, staff carried out 120 training events across the country with 1,337 people attending, many of these having returned for multiple fieldwork sessions [B]. During the ongoing second phase of the project 253 people attended a training session up to December 2020 [E] (a figure greatly reduced by the impact of COVID-19). These sessions provided training in fieldwork techniques to groups already armed with local knowledge to help them identify, monitor and record threatened heritage.

The smartphone app is especially important for engagement and participation by people living in remote areas, and for the creation of an extensive photographic record of our changing coastline. As of 16 December 2020, there were 3,640 registered CITiZAN online surveyors (app users). Of those users who have supplied demographic information (n=563), 32% are retired, 24% describe themselves as amateur archaeologists, 15% have no previous archaeological experience, and 15% are professional archaeologists (excluding CITiZAN and TDP staff) [B]. During Phase One, 470 app users were trained as full site surveyors (meaning they could update/edit sites and add monitoring photos), a status acquired having taken part in a CITiZAN training event. In Phase Two, updates to the app made surveying more accessible for a wider audience and the tiering system was revised, allowing all users to provide data for moderation. By December 2020 there were 204 active users (those who have submitted new features, edited existing features, or provided a condition survey update). The data gathered via the website and the app are moderated, archived with the Archaeology Data Service (ADS), and fed back to local Historic Environment Records (HER).

Phase One saw a focus on key sites in each of three regions (North, South East, South West) to highlight the varied nature of the threatened archaeological resource. Phase Two (from 2018) saw the creation of six new Discovery Programme areas within those regions as the focus for continuing local work: East Kent, Mersea Island, Liverpool Bay, Solent Harbours, Devon Rivers and Humberside. The areas were selected due to the increased risk of coastal erosion to local archaeology and to build on the local successes of the first phase. In 2019, a series of Low Tide Trails (LTT) were developed to facilitate self-guided walks in each Discovery Programme area. By December 2020, 12 trails had been established inviting users to explore the rich history of their local foreshore [F]. Visualised via online platform Storymapper, the trails use mixed media to highlight foreshore archaeology and local history and are designed to be used on a mobile device, providing images and maps to explore en route. The trails are designed to work in conjunction with the CITiZAN app, providing context for new entries or updates to existing records and to encourage users to record features during their walks. The LTT hub on the CITiZAN website has had over 2,500 page views between April and December 2020 [D]. In one example in the South East region where there are four active LTT's, 634 page views were via a mobile device during the same period (suggesting use of the information during walks). 11 features were updated with images along the Pegwell Bay LTT, early indications that the routes are successfully raising awareness of intertidal archaeology. People have also used the app as a tool for contextualising their self-guided visits to the coast, exploring the find-spots and sites themselves. The project's social media channels have meanwhile drawn significant audiences, with 2,541 people following the project on Facebook, 3,492 on Twitter and 1,229 on Instagram [D]. Blogs, video content, interviews and site overviews have been delivered via these channels, with key posts on Facebook reaching over 15,000 people, showing that it is successful in reaching new audiences. During the 2020 national lockdown due to COVID-19, over 30 online seminars, interviews and panel discussions have been viewed by over 24,000 people around the world [E].

Volunteer citizen scientists have developed new skills and knowledge and become engaged with research for the first time: one volunteer described the project team as having “invaded our Island with their vibrant, bubbling enthusiasm and an incredible depth of knowledge and skills coupled

with such zest for their work that we have been swept along on what has become for many a new pathway of interest, understanding and research hitherto totally alien to many of us” [B]. The project was key to two volunteers gaining employment as archaeologists, a result of their voluntary work with CITIZAN. One was employed by CITIZAN in a community archaeologist capacity, the second by MOLA as a field archaeologist. CITIZAN has informed volunteers’ awareness and values and empowered communities to take action [B]: “CITIZAN have galvanised the local community into what I can only describe as an awakening”; “We all find it a real pleasure to be able to be part of the process in trying to reveal a lost landscape of a small local society that had been swallowed by the tides”.

### **Collecting data to enhance knowledge of England’s coastal heritage and mitigate erosion damage**

Since 2015 CITIZAN volunteers have added a total of 2,445 new archaeological features to its interactive coastal map and 3,486 monitoring updates have been submitted and published, supplying 5,901 new photos of at-risk heritage assets along England’s coastline and estuaries [C]. CITIZAN surveyors also created 61 3D-models of foreshore features using photogrammetric processing software, publishing 51 of these models on CITIZAN’s public Sketchfab account [G]. CITIZAN staff have written 23 grey literature reports based upon the data collected by volunteer surveys along the English coast, which has helped project partners to manage the archaeological resource. An example of CITIZAN’s influence is the Mersea Island Discovery Programme, Essex, where a prehistoric landscape to the south and east of the island is subject to rapid and extensive erosion. Fragile prehistoric remains on Mersea include a well-preserved Bronze Age trackway dated c.952BC (the form of which is thus far unique to the outer Thames estuary), a well-preserved circular timber structure and associated trackway [H], a submerged woodland dated to c.4,000BP, Iron Age human remains, evidence of Roman settlement, and three fish trap structures of likely Anglo-Saxon date. These features recorded by CITIZAN volunteers illustrate the story of a fluctuating sea level and changing island topography. The Mersea project has captured the minds of the local community and provided a vehicle for them to engage with their local heritage through the means that best suits them. To date over 650 residents (of an island population of c.10,000) have attended outreach events (talks, guided walks, etc.) with 78 volunteers attending fieldwork sessions on the foreshore. Over 30 high precision aerial surveys have been conducted and donated in kind (total commercial cost c.GBP3,000) and 60+ hours of oral histories recorded with members of the community. A new permanent exhibit, Bronze Age Mersea, is slated to open in August 2021 at the Mersea Island Museum, for which the local community raised more than GBP6,000 to house the Bronze Age trackway recovered in collaboration with Historic England. 87 new archaeological features have been added to the known record by volunteers on Mersea Island since 2016, along with detailed rapid surveys of eight defined archaeological sites along the Blackwater estuary [C].

The data collected are provided to, and used by, CITIZAN’s partners to mitigate erosion damage. In June 2019 the Mersea Island Discovery Programme and CITIZAN were awarded a GBP10,000 grant by the National Environment Research Council (NERC) to examine the impact of 100 years of coastal change, using personal photo archives (over 400 images) and oral histories (over 12 hours recorded) of island residents [A]. The resulting data set augmented historic maps of the island detailing crucial changes in estuarine morphology, with both data types providing a route for new audiences to participate in CITIZAN [I]. CITIZAN is sponsored financially by the Crown Estate (which owns the intertidal zone) and the National Trust [A], and works with professional partners, the Council for British Archaeology and the Society for Nautical Archaeology, to provide data, assisting them with the management of coastal and foreshore archaeology and the mitigation of erosion damage. CITIZAN’s work on Mersea Island to record and recover the Bronze Age trackway in partnership with Historic England raised the issue of how to protect heritage assets in relative proximity to coastal defence planning, dredging etc., particularly in estuaries; shortly after the recovery of the trackway, Historic England (HE) refused to grant permission to a large shingle recharge project on the Blackwater estuary until further archaeological survey had been undertaken [I]. In 2019 Historic England pledged GBP90,000 to fund collaborative fieldwork programmes across the six Discovery Programme areas. The funding is earmarked for sites submitted by CITIZAN and deemed by HE to be at highest risk and/or are actively eroding, for programmes of targeted excavation, high precision survey and extensive sampling for scientific

dating and environmental analysis. Project work will be conducted with the support of local communities and volunteers.

### **Raising awareness of threats to Britain's' coastal heritage through a TV programme**

CITiZAN has raised awareness of threats to Britain's coastal heritage for a public audience through the co-creation of *Britain at Low Tide*, a TV mini-series commissioned by Channel 4, with producer TernTV. Series 1 was filmed over the summer events season of 2016 and aired in November–December 2016 and was re-run in August 2017. Each episode looked at CITiZAN's work in a particular region and included scenes of CITiZAN archaeologists working with local volunteers. It retained its audience of over 1,300,000 viewers for each of the three programmes, well exceeding the expected 800,000 viewer target, and was the most-watched programme on Channel 4 those Saturday evenings [B: p.19-20]. [Text Redacted for Publication]. Channel 4 commissioned a second series, which aired in February–March 2017. It focussed on new areas of the British coast (with two episodes in Scotland highlighting work by SCAPE). [Text Redacted for Publication] [J] which was, according to producers Tern TV, '30% above the slot average' [B: p. 20]. CITiZAN was joint winner of the 2018 British Archaeological Awards for Best Community Engagement Archaeology Project with SCAPE: "the judges liked the strong collaborative networks for research that CITiZAN and the SCAPE Trust have established in England and Scotland and collaboration with the TV programme *Britain at Low Tide* has made their discoveries even more accessible to the public" [K]. A third series was commissioned and aired in 2019. As a result of targeted social media campaigns connected to the broadcasts, CITiZAN saw a pronounced spike in related social media traffic, in visits to the website, and, particularly valuable, in new registered CITiZAN smartphone app users. In December of 2016, during broadcast of Series 1, the total number of registrations for the CITiZAN app almost doubled from the previous quarter up from 712 to 1,238. Similar spikes occur during the transmission of Series 2 and 3, demonstrating the programme's success in inspiring viewers to seek out further information about the project and empowering them to preserve local heritage through active engagement with CITiZAN.

### **5. Sources to corroborate the impact** (indicative maximum of 10 references)

- A. 2008-2011, 'Thames Discovery Programme', Gustav Milne (PI), GBP519,234, (GBP421,500 from the Heritage Lottery Fund (Grant Ref. HG-07-00672) and the balance of GBP97,934 from a wide mix of help in kind); 2015-18: 'CITiZAN – Coastal and Intertidal Zone Archaeological Network', Gustav Milne (PI), GBP1,400,000, National Heritage Lottery Fund and match funding from the Crown Estate and National Trust (GBP75,000) and Historic England (GBP75,000); 2019: 'CITiZAN Discovery Programmes', Gustav Milne (PI), GBP1,760,000 million, National Heritage Lottery Fund; CITiZAN and MOLA 2019 NERC Covid-19 Public Engagement Grant, GBP10,000.
- B. Ostrich, S., et al. (2018) *CITiZAN: the Coastal and Intertidal Zone Archaeological Network. Final HLF project report HLF Project Ref: HG-13-08845, September 2018*. Available from HEI.
- C. CITiZAN database download via [www.citizan.org.uk](http://www.citizan.org.uk) (correct as of 31/12/2020). Available from HEI
- D. Website traffic data obtained via CITiZAN Google Analytics account between 01/07/2015 and 31/12/2020. Social media metrics obtained via CITiZAN accounts (Facebook Insights, Twitter and Instagram) between 01/07/2015-31/12/2020. Available from HEI
- E. CITiZAN National Heritage Lottery Fund progress report January 2021. Available from HEI.
- F. <https://citizan.org.uk/low-tide-trails/>
- G. <https://sketchfab.com/citizan>
- H. Hutchinson, O. Newman, D A multi-period intertidal site at Point Clear, River Colne, Essex. Application for Funding CITiZAN.
- I. Hutchinson, O. (2020) Mersea Harbour Protection Trust Walkover Survey Report.
- J. <https://www.barb.co.uk/viewing-data> (Broadcasters Audience Research Board) [Redacted for Publication]
- K. ClfA British Archaeological Awards Winners 2018 <https://bit.ly/38HAqCB>