Coastal Heritage Risk – Imagery in Support of Heritage Planning and Management in South-West England

'CHeRISH'

FINAL REPORT FOR HISTORIC ENGLAND

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Top Left: *'Axmouth Harbour, Devon'* by Edward William Cooke RA, 1858. Image Courtesy: Christie's.
Top Right: *'Mousehole, Cornwall'* by Harold Harvey, 1939. Image Courtesy: Sotheby's.
Bottom: *'Lyme Regis, Dorset'* by G. Hawkins, c.1830. Image Courtesy: Woolley & Wallis.

The views expressed in this report are those of the author and not of any other individual or organisation.

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List of Abbreviations

AG	Agnew's
AONB	Area of Outstanding Natural Beauty
AOWS	Associate of the Old Watercolour Society
BGS	British Geological Survey
BI	British Institute
CCO	Channel Coast Observatory
Defra	Department for the Environment, Food and Rural Affairs
EA	Environment Agency
EH	English Heritage
FAS	The Fine Art Society, London
FCERM	Flood and Coastal Erosion Risk Management
Fl.	Flourished (the period during which the artist was active)
HE	Historic England
HER	Historic Environment Record
LIDAR	Light Detection And Radar
NE	Natural England
NEAC	New English Art Club
NT	The National Trust
NMR	National Monument Record (now English Heritage Archive)
NSA	New Society of Artists
NWS	The New Watercolour Society (founded in 1832)
OWS	The Old Watercolour Society (founded in 1804, became RWS in 1881)
PC	Private Collection
POWS	President of the Old Watercolour Society
RCHME	Royal Commission on the Historic Monuments of England
RA	The Royal Academy
RBA	The Royal Society of British Artists, Suffolk Street
RBC	Royal British Colonial School of Artists
RCZAS	Rapid Coastal Zone Assessment Survey
RE	Royal Society of Etchers and Engravers
RI	The Royal Institution of Painters in Watercolours
ROI	Royal Institute of Oil Painters
RP	Royal Society of Portrait Painters
RPE	Royal Society of Painters and Etchers (later becoming RE)
RWS	The Royal Society of Painters in Watercolours
SMP	Shoreline Management Plan
Soth.Bel	Sotheby's Belgravia
Soth.L	Sotheby's London
SS	Society of British Artists, Suffolk Street (founded in 1824)
V&A	The Victoria and Albert Museum, London

1. Executive Summary

The distinctive character of the coastline of South-West England has been influenced strongly by patterns of human activity and development over the last 10,000 years. Over this time period coastal settlers have left a rich legacy in the form of dwellings and a range of other structures including military and coastal defences, harbour walls, monuments, lighthouses and piers; many of these are sites of historical interest and importance. Collectively these features form part of the coastal historical environment, which, particularly along soft rock or unstable coastlines, has been increasingly affected by marine erosion, landslides, inundation and, in addition, the impacts of climate change including rising sea levels and more unpredictable weather events.

Over the last twenty years English Heritage has produced advice and guidance to support the management of heritage assets as part of the shoreline management planning (SMP) and flood and coastal erosion risk management processes (FCERM). The input of English Heritage has supported the principles of technical feasibility, sustainability and cost-effectiveness in terms of developing approaches to protect the coastal historical environment or to try and mitigate unavoidable damage. Research dating back to the 1990s (Fulford *et al.*, 1997[1]) led to the development of a programme of '*Rapid Coastal Zone Assessment Surveys*' (RCZAS) (Murphy, 2014[2]) has been undertaken to provide better information to inform the coastal risk management and development control processes and to provide a database to support future research. This information and the '*Historic Environment Records*' or 'HERS' (English Heritage, 2015[3]) can, in turn, support the objectives of the new *National Planning Policy Framework* (CLG, 2012[4]).

In April 2015 English Heritage separated into two organisations; the English Heritage charity, which cares for the National Heritage Collection of more than 400 historic places and their collections, and Historic England, the public body that looks after England's Historic Environment and helps people understand, value and care for historic places. This particular study has been commissioned by Historic England.

Figure 1.1: *'Among the Shingles, Clovelly'* by Charles Napier Hemy, 1884. Courtesy: Laing Art Gallery, Newcastle. In this watercolour Hemy reflects Pre-Raphaelite detail in the way he has painted the Grade II Listed harbour wall, the fractured cliff and the pebbles on the beach.

There are a range of tools available to scientists and practitioners to assist them in improving understanding of the rate and scale of coastal change and its impacts on coastal zones more widely. These include sophisticated monitoring systems for both land and sea. However, there are few locations round the English coastline where accurate records of coastal change exist before the middle of the twentieth century; indeed, aerial photography

for much of the coastline only dates from the early 1940s. However, it is possible to draw upon other readily available yet presently under-used resources that can improve our understanding of long-term coastal change and the resulting risks to some heritage assets. For example, landscape paintings, watercolour drawings, prints, postcards and photographs, which allow assessments to be made of the changes in morphology and land-use patterns over the last 250 years.

Previous studies of art and coastal change sponsored by The Crown Estate (McInnes & Stubbings 2010[5], 2011[6]; McInnes & Benstead, 2013[7], 2013[8], 2015[9]) focused on the impacts of coastal erosion on life and commercial assets rather than the historical and natural environments. However, the study reports noted that there are numerous historical images, which depict heritage assets within coastal zones, from which valuable information may be drawn, that can inform sustainable planning and management for the future; the Crown Estate study reports recommended that this area should be the subject of a separate study. Improving our understanding through this study supports delivery of the *Heritage 2020 Framework* (Historic Environment Forum, 2015[10]) and its five key themes, including, in particular, *'Discovery, Identification and Understanding', 'Constructive Conservation and Sustainable Management'* as well as *'Public Engagement'.*

This study also provides data and information, which can help protect the historic environment looking ahead over the next century by identifying those parts of the south-

Figure 1.2: *'Widemouth Beach, Ilfracombe'*, a watercolour by the prolific Alfred Robert Quinton, c.1915. The view shows the grand former Ilfracombe Hotel, which opened in 1880; the site is now occupied by the Landmark Theatre. On the clifftop is the Granville Hotel, which opened in 1891. The foreshore, geology, coastal defences and heritage are all clearly illustrated in Quinton's view. Image Courtesy: J. Salmon Ltd of Sevenoaks.

west coast, and the heritage assets they contain, that have proved to be most sensitive to the impacts of coastal change, and indeed more likely to become increasingly susceptible in the future. Through both quantitative and qualitative assessments the study proposes a methodology for the most effective use of such historical images in terms of supporting coastal heritage risk management.

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Figure 1.3: A highly detailed watercolour drawing of *'Plymouth's Devonport Dockyard from Mount Edgcumbe'* by Edward Duncan RWS, painted in 1855. The Grade II Scrieve Board, the Covered Slip, the Grade I Rope Walk, the Devonport Column and the Royal Military Hospital can all be seen. Image Courtesy: Michael Newman Fine Art.

2. Project Background and Aims and Objectives

The construction of a diverse range of buildings and other structures (seawalls, harbours, piers, lighthouses, fortifications) along the south-west of England's coastline over the centuries has made a very significant contribution to the character of its landscape and the historic environment of these coastal zones. Since the early 1990s considerable efforts have been made to improve coastal management, and this has led to the development of national policies and guidance for the management of the coast in support of the principle of sustainable development. As part of this process, thorough consideration must be given to the impacts of natural hazards and the resulting risks, not just to people, residential and commercial property and the natural environment, but also to England's coastal heritage.

Flood and coastal erosion risk management strategies have been developed and implemented through the *Shoreline Management Plan* and *Coastal Defence Strategy Study* processes (Defra, 2006[1]), providing a framework for addressing risks arising from erosion, flooding and coastal instability. Climate change is exerting an increasing influence on the rate and scale of long-term coastal change, and climatic impacts, particularly the most damaging ones, are associated with an increased frequency or intensity of extreme weather events.

English Heritage and, more recently, Historic England have been active participants in the coastal risk management process, contributing through guidance publications including *'England's Coastal Heritage'* (Fulford *et al.*, 1997[2]), '*Coastal Defence and the Historic Environment*' (English Heritage, 2003[3]) and '*Shoreline Management Plan Review and the Historic Environment: English Heritage Guidance*' (English Heritage, 2006[4]). Alongside the development of *Historical Environment Records* (English Heritage, 2015[5]) and its *National Monuments Record* English Heritage promoted a programme of '*Rapid Coastal Zone Assessment Surveys*' (Murphy, 2014[6], English Heritage, 2015[7]), which are currently being progressed. The emerging results of these various studies and investigations are helping to provide a more informed input to the wider coastal risk management process.

Figure 2.1: '*Bournemouth'* by John Wilson Carmichael, an oil painted in 1861. The view shows the construction of the pier in progress, as well as villa development taking place on the coastal slopes. Image with kind permission of the Russell Cotes Art Gallery and Museum, Bournemouth.

Following on from its *National Heritage Protection Plan* the new *'Heritage 2020'* (Historic Environment Forum, 2015[8]) has established key themes, which aim to deliver a range of outcomes '*through partnership working, with the objective of improving understanding, protection and enjoyment of the historic environment in England'*. These activities will further inform the '*National Planning Policy Framework'* (CLG, 2012[9]) and the delivery of sustainable management of heritage assets around England's coastline, looking ahead over the next century and beyond.

Many of those involved in coastal risk management believe that meeting the challenges of coastal climate change is the most important issue to be faced by scientists and decision-makers and the communities they represent. Steadily improved forecasting, now being achieved at a sub-regional scale, is proving to be of particular value alongside the expanding programme of strategic coastal monitoring.

It is now well established that, in coastal zones, sustainable management will only be achieved through a thorough understanding of coastal evolution and natural processes; this is all the more important on account of the predicted impacts of climate change and sea level rise. Mistakes in the past, in terms of coastal planning and management, have been made through a lack of baseline information, and through failure to take a long-term perspective on coastal change (McInnes & Moore, 2011[10]; McInnes & Moore, 2015[11]). Alongside the technical tools that are available to inform us about the rate of coastal change, historical evidence, including paintings, watercolour drawings, photographs and old postcards, combined with literature accounts, allow recognition of the nature, scale and rate of coastal change over a much longer time frame than is normally considered by coastal scientists and engineers.

Views of coastal scenery and heritage assets, portrayed through artworks of suitable quality and detail, offer an immediate advantage by providing a visual comparison between historical and present day coastal conditions. These tools not only allow comparison of physical change through an assessment of coastal erosion, landsliding, beach and shoreline alteration, but also variations in the coastal environment reflecting changes in land use management practice and the story of progressive coastal development. Furthermore, an examination of historical images can assist in completing coastal landscape assessments, as well as informing local authority officers responsible for both forward planning and development control.

Figure 2.2 (left): *'St Mawes Castle'* by John C. Buckler, painted in watercolour with great attention to architectural detail in 1821. **Figure 2.3 (right)** shows the Castle today.

Images Courtesy: Mallett Gallery/Bridgeman Images.

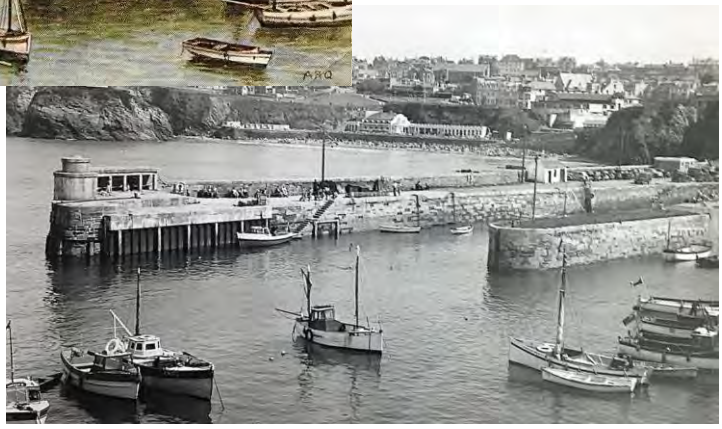

Figure 2.4 (above): This view of the harbour and beach at Newquay by A. R. Quinton illustrates his eye for detail. Painted in about 1920 it offers an almost exact colour comparison to the photograph of the same era in **Figure 2.5 (right)**. Images Courtesy: J. Salmon Ltd of Sevenoaks, and Private Collection.

As part of studies commissioned by The Crown Estate (cited above) a methodology was developed for ranking artists and their works in terms of the contribution they could make to support our understanding of coastal change, the resulting risks and management needs. For this study, however, the importance of those artworks in terms of informing heritage management has also been ranked. The ranking system for this study has also been developed in order to create, for the first time, a list of those artists that painted with accuracy the coastal heritage of south-west England between 1770 and 1950.

The overall objective of the 'CHeRISH' study has been to provide improved data and information to support the protection and management of historical sites located around the south-west coast. The study has taken advantage of a wealth of relatively under-used images, dating back to the late eighteenth century, to illustrate how they may be utilised to better inform a wide range of stakeholders on approaches to coastal heritage management. The study has reviewed historical images contained in national, regional and local collections, of heritage sites at risk or potentially at risk as identified from SMPs, HERs and the RCZAs. Along the extensive and highly varied south-west coastline of England selected case study sites illustrate how such historical imagery can support management of heritage sites. The artistic and photographic record allows us to recall how such culturally important locations have been artistically represented over time, and the various approaches that have been taken to try and manage risks to some of the more vulnerable sites over the last two centuries. Such artworks allow us to take full advantage of the wisdom of hindsight when considering risks to heritage in the long term.

The 'CHeRISH' study provides a list of artists and their works, which have been ranked in terms of the value of contribution they make to coastal heritage management. A web-based map has been created with drop-down boxes containing illustrations and key data for the case study locations providing details of the subject, the artist, and where the image is held. By providing a permanent but updateable new database this will facilitate effective usage as

well as avoiding the need for time-consuming research by others in the future. In summary, the 'CHeRISH' study has addressed the following objectives:

- Improving understanding the impacts of coastal change caused by erosion, instability and inundation on heritage features;
- Through examination of artworks and photographs, identification of those heritage sites along the south-west coast most sensitive to coastal change over the last 250 years;
- Demonstration of how such images can provide quantitative and qualitative data on changes affecting heritage;
- Through case study examples, demonstration of how historical images can offer an added dimension to Rapid Coastal Zone Assessments, the Heritage at Risk Register, the shoreline management planning process, policies, and planning policy more widely;
- The creation of a ranking, and listing and illustrating key artists and their works relevant to coastal heritage risk management;
- Provision of a comprehensive illustrated record of how coastal heritage assets have been portrayed accurately since the late eighteenth century.

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3. Coastal Change in South-West England and its implications for Heritage Sites

3.1. Introduction

The coastline of the south-west is subjected continuously to the ongoing natural processes of weathering, marine erosion and flooding. The impacts of these processes vary along the coast and depend upon the geology, structure and strength of the rocks, which outcrop on each particular frontage, as well as their relative exposure to the impacts of waves and tides. Soil and rock debris, which accumulates at the base of cliffs and slopes, or on the foreshore, is transported from one part of the coast to another by the process of longshore drift. Sedimentary materials may be deposited around the coastline where sediment transport pathways are interrupted by major headlands or estuaries. Over thousands of years human activity has interacted with our environmental/landscape understanding along this evolving and changing coastline, whilst, more recently, the construction and maintenance of coastal defence structures has sought to fix the position of the coastline in order to protect coastal cities, towns, villages and strategic infrastructure (McInnes & Stubbings, 2011[1]).

Settlers have been attracted to the coast for strategic, economic or recreational reasons and the resulting developments have often been protected against coastal erosion or flooding by the sea. Parts of this coastline were subjected to intensive development for trading and defensive reasons, whilst elsewhere, particularly in the nineteenth and early twentieth centuries, taking the sea air, bathing and sailing became fashionable and led to the development of seaside resorts. However, increased erosion, instability and flooding problems together with the siting of some developments in vulnerable locations, necessitated the construction of considerable lengths of coastal defences, as well as cliff and slope stabilisation measures in order to try to protect these assets.

The varied geological conditions prevailing around the coastline of south-west England have resulted in the formation of a wide range of geomorphological features, and created a coast of enormous variety, scenic beauty and interest. The coastline has evolved over geological time with the diverse rock formations being created, deposited and subsequently uplifted during mountain-building phases.

Figure 3.1: Severe storm waves at Porthlevan, Cornwall in early 2014. Image Courtesy: Carla Regner, carlaregner.com

The recognition of coastal change, and practical experiences of its impacts over the last three centuries, has clearly demonstrated that the coastal zone is an area that is naturally dynamic and prone to significant changes over time and geographical extent. All this emphasises the need for particular care to be taken when examining coastal processes and the need to draw evidence from longer-term experiences and records such as artworks and old photographs rather than making decisions based upon data derived from a short time frame. An understanding of the processes at work around the coast is, therefore, fundamental to effective heritage risk management (McInnes & Moore, 2011[2]).

3.2. Quantifying hazards and risks along the South-West Coastline

The natural hazards of erosion, landsliding, breaching and flooding have significant impacts along the coastline of south-west England, the impacts of each depending on the highly variable coastal geology and exposure to the elements. The costs of emergency action, remediation, prevention and monitoring can often represent a significant burden to the affected communities and land-owners as well as to the local authorities with increasingly diminishing resources. It is now accepted that the impacts of climate change on the coast are real and that sea level rise, in particular, poses risks to coastal heritage assets in terms of increased rates of coastal erosion, and an increased frequency of landsliding as a result of a wetter winters, accelerated toe erosion and increased flooding.

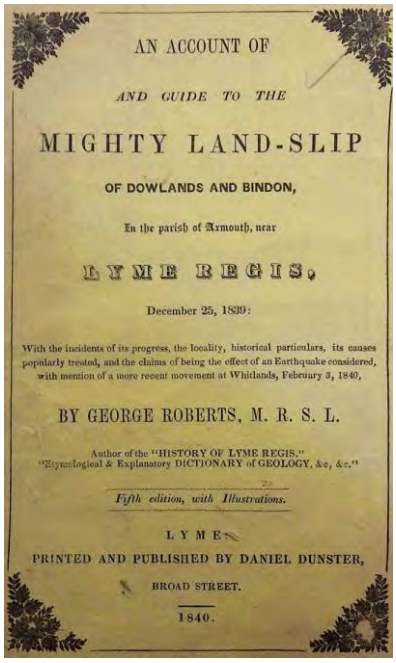
3.2.1. Coastal erosion risk

Coastal erosion at the 'coastal cell' scale is a natural process, which has helped to create the different landforms we see along the south-west coast. The erosion process leads to change over long periods of time but may also promote more major cliff failures or instability through wave-induced undercutting and beach lowering, as may human intervention including the construction of defences and other structures. Sea level rise, as well as a predicted increase in frequency of extreme weather events, will have a significant impact on cliffs, slopes and beaches, and, in turn, on historical assets located along cliff tops or within the hinterland. An increasingly important issue will be the maintenance of beaches. Here historical images can provide an insight into past beach conditions and subsequent changes over time, which in some locations now mean that the *status-quo* can only be maintained through beach management schemes. The maintenance of beaches relies on the balance between the supply and removal of sediment. A rise in sea level, pushing the high water mark further up the beach, more aggressive stronger waves and unpredictable weather events will increase the risks to coastal heritage arising from beach change.

Figure 3.2: Storm waves attacking the Promenade at Lyme Regis, Dorset. Coastal defences here fulfil a vital role by protecting listed seafront properties and reducing the impact of landsliding in the town.

3.2.2. Landslide risk

In recent decades there has been a significant increase in landslide activity along the south-west coast of England, comprising both first-time failures as well as the re-activation of dormant landslides. These events have been promoted as a result of increased landslide toe erosion coinciding with increasing amounts of winter rainfall. Over the last forty years major landslide events have caused substantial damage and loss of property and assets, particularly along the Dorset and South Devon coastlines. Problems have often arisen in the past because of the lack of co-ordination between land use planning and decisions over coastal defence and other strategies; these issues are now being addressed more effectively but often rely heavily on the limited government funding that is available. Parts of the eroding or unstable south-west coast suffer from an inheritance of unplanned communities and developments built on eroding clifftops and in other unsustainable locations – often, but not always, a result of nineteenth century development, or mass speculative development in the early twentieth century. This again accentuates the importance of integrating natural hazard management into land-use development and planning policies, particularly as there are few mitigation measures that can be implemented to combat more major ground movement events that occur with little or no warning.



AN ACCOUNT OF

AND GUIDE TO THE

MIGHTY LAND-SLIP

OF DOWLANDS AND BINDON,

In the parish of Axmouth, near

LYME REGIS,

December 25, 1839:

With the incidents of its progress, the locality, historical particulars, its causes popularly treated, and the claims of being the effect of an Earthquake considered, with mention of a more recent movement at Whitlands, February 3, 1840,

BY GEORGE ROBERTS, M. R. S. L.

Author of the "HISTORY OF LYME REGIS."
"Etymological & Explanatory DICTIONARY of GEOLOGY, &c, &c."

Fifth edition, with Illustrations.

LYME:

PRINTED AND PUBLISHED BY DANIEL DUNSTER,

BROAD STREET.

1840.

Figure 3.3 (top left): The coastline from Lyme Regis looking eastwards by G. Hawkins (1840). Private Collection.

Figure 3.4 (top right): One of several publications relating to the landslide on the coast west of Lyme Regis on Christmas Day 1839.

Figure 3.5 (above): *'Fall of the cliff near Peak Cottage, Peak Hill, Sidmouth'* on 31st August 1847. One of many detailed watercolours contained in the journals of antiquarian, Peter Orlando Hutchinson. Image Courtesy: Devon Archives and Local Studies Service.

Figure 3.6 (left): *'Landslip near the Parson and Clerk Rock on the South Devon Railway on 29th December 1852'*. Coloured lithograph. Image Courtesy: Bridgeman Images/Private Collection

Figure 3.7 (right): *'Repairing storm damage on Sidmouth Esplanade in January 1873'*. A watercolour by P. O. Hutchinson. Image Courtesy: Devon Archives and Local Study Service.

Figures 3.8 and 3.9 (below): *'Simpson's Folly'* at Canford Cliffs, Dorset was built in 1878 too close to the cliff edge. Within six weeks it became unsafe and had to be demolished. The debris was incorporated within later coastal defences.

3.2.3. Low-lying coastal features at risk

Coastal saltmarshes form the upper vegetated parts of inter-tidal mudflats, creating a "living" buffer between land and sea and providing a valuable habitat for birds and invertebrate species. Saltmarshes are located in sheltered areas, regularly inundated by the sea between high water neap and high water spring tides. The systems have, however, been declining in area since the 1930s as a result of human activity and development pressures, whilst sea level change is also increasingly inundating some frontages; this is a cause for concern for coastal risk management reasons. Sand dunes form in areas where dry inter-tidal sand is blown onshore with frequent, strong winds under a process known as saltation. Their survival is very much dependent on a steady supply of sand and the ability of the vegetation to maintain ground cover whilst migrating inland with sea level rise. The rate and extent of frontal dune erosion is likely to increase over the next century as a result of increased storminess and sea level rise, and this will have negative impacts on the extent of some dune systems and their effectiveness as flood defences.

Barrier beaches are linear shingle features, attached to the coastline and backed by lowland or lagoon. Conversely, spit features are comprised of either shingle or sand, are attached to the coastline at their proximal end and are free standing at their distal end. Barrier beaches and spits are dynamic features undergoing landward rollover through processes such as overtopping, overwashing, breaching and re-sealing. Where sediment input keeps pace with sea level rise the barriers will migrate onshore through landward rollover and spits will continue accumulating sediment at their distal ends. Many features have been highly engineered with sea defences to provide flood protection to assets at risk in the hinterland or have rolled onshore to meet rising ground (McInnes *et al.,* 2011[3]).

3.2.4. Flood risk

Coastal flooding, affecting towns and villages along the south-west coastline, can result from a combination of tide and surge levels that exceed the levels of sea walls but are more usually due to wave action in combination with high water levels. Coastal defence infrastructure including sea walls, tidal barriers and related measures influence pathways and aim to control the impact that water flowing over defences or through breaches can have on the coastal floodplain. Sea walls often operate in combination with beach and foreshore management techniques such as beach recharge, groynes and breakwaters to control wave energy and improve the resilience of the coastal structures and limit wave overtopping. Without suitable action the latest round of Shoreline Management Plans (SMPs) predict that flood risk will increase to unacceptable levels affecting numerous heritage sites along the North Devon and Somerset coasts in particular (Halcrow, 2011[7]). The integration of flood risk into the planning and development process is the way of helping to reduce future damage to heritage sites at high risk locations.

Figure 3.10 (left): Flooding at Sidmouth on 4th December 1876. A watercolour by J. O. Hutchinson showing the fine buildings at risk from flood waters. Image Courtesy: Devon Archives and Local Studies Service.

3.3. The Impacts of Coastal Climate Change

The management of cliff erosion and instability risk will be an increasingly significant issue due to the effects of climate change. These effects include rising sea levels, increased frequency of storms leading to greater wave attack on coastal cliffs, and changes in the frequency, intensity and duration of rainfall and excess groundwater levels, impacting, for example, on pre-existing coastal landslide complexes along Dorset's and Devon's south coasts. Research commissioned by the Environment Agency is aimed at improving understanding of the impacts of climate change on coastal cliffs (Moore *et al.*, 2010[4]). It is recognized that certain types of cliffs are subject to complex episodic processes of change, that need to be understood to consistently inform projections of future behaviour and cliff retreat.

An indication of the likely position of the coastline at various time epochs over the next hundred years is needed to inform land-use policies and to avoid locating new development in areas at risk, as highlighted by the publication of guidance on development and coastal change (CLG 2010[5]). Such projections should also be used by coastal local authorities to adopt a more proactive approach when evaluating the risks to existing development including heritage sites in order to provide warnings of the risks, and to mitigate potential impacts of erosion, flooding and instability through various adaptation measures.

The South-West Shoreline Management Plans foresee increased levels of risk to many coastal heritage assets; the challenge facing the responsible organisations will be to develop and implement policies which address the increasing risks, whilst balancing other environmental and stakeholder interests, and meeting the inevitable financial constraints (Halcrow 2011a[6], 2011b[7]; Royal Haskoning, 2011a[8], 2011b[9]).

3.4. Adapting to Coastal Change

Climate change, with less predictable weather patterns and the risks from sea level rise, brings new challenges for coastal management in south-west England. If nothing is done to adapt, then many assets, including heritage features, could see the level of risk increase each year. The second round of SMPs are being used, therefore, as high level strategic planning documents, providing a framework for effective coastal risk management (Halcrow, 2011a[6], 2011b[7]; Royal Haskoning, 2011a[8], 2011b[9]).

The second round of SMPs reflects future risk and set out protection options, where possible, and where necessary. There must be flexibility in the design and location of new coastal developments and some existing settlements may have to be moved to safer locations over time. On-going partnerships working between the Environment Agency, local authorities, Coastal Groups and key statutory and non-statutory stakeholders will be essential to tackle increasing risks and to meet the challenge of creating a sustainable coast. Studies undertaken with the support of the European Union through the Interreg IV Programme including *'LICCO'* (Environment Agency *et al., 2014*[10]) and *'Coastal Communities 2150 and Beyond'* (Environment Agency *et al.*, 2014[11]) are helping to address these issues in practice.

Coastal communities and local partners in coastal change hotspots will need to continue to work together and to plan how to adapt to the effects of coastal change based on the sound science provided in the Shoreline Management Plans and Strategic Coastal Monitoring Programmes (Bradbury[12]).

3.5. The Impacts of coastal erosion, instability and flooding on the South-West coast

The long and relatively complex coastline being investigated by the CHERISH project, which comprises both soft sedimentary rocks as well as long coastal frontages of more resilient igneous and metamorphic rocks, is being affected by erosional, instability and flooding impacts to a lesser or greater degree. The history of these events and their impacts has been recorded by numerous authors and artists over the centuries. Some of the earliest accounts of the evidence of erosion and cliff instability are those provided by William Daniell and Richard Ayton in their great work *'A Voyage Round Great Britain'* (Daniell & Ayton, 1814-1825[13]). For example, on their journey up the north Cornwall coast they described '*The coast to the north and south of Pendeen Cove The cliffs are composed of huge and overhanging masses of rock, loosely piled on each other, whilst enormous fragments, which have the appearance of having been torn down by some violent convulsion, lie in strange disorder beneath, is grand beyond description'.* Two decades later, the great landslide at Downlands, between Axminster and Lyme Regis on the Dorset coast, was described and illustrated in exceptional detail (Conybeare & Dawson, 1843[14]).

Between 1860 and 1890 the Sidmouth-based diarist and watercolour artist, John Orlando Hutchinson, recorded events along the south Devon coast in great detail through both written descriptions and finely detailed watercolour drawings (Hutchinson, 1871-1894[15]; Butler, 2010[16]). These descriptions include flooding and erosion events that affected the flourishing resort of Sidmouth and the adjacent coastal towns and villages. In fact, many storm events including landslips and floods are recorded in journals, diaries and newspaper articles. The storm event of the 22-24 December 1910 caused serious flooding at Ilfracombe on the North Devon coast, as well as at Braunton, Combe Martin and Mortehoe and Lynmouth whilst on the south Devon coast at Dawlish, this exposed location had seen the storm surges and floods wash away properties on the Warren and necessitated extensive defence measures to help protect the railway line. Between 1911 and 1940, winter storms frequently resulted in flooding of the Warren and property loss. On the Dorset coast old High Cliff House had to be demolished because of coastal erosion in the 1830s, whilst in south Devon it was human activity in the form of near-shore dredging that promoted the destruction of the village of Hallsands.

The last twenty years have clearly demonstrated the scale of problems arising from coastal processes along the coastlines of Dorset, Devon, Cornwall and Somerset. On the south Devon coast in particular, combinations of high winter rainfall together with erosion of the toes of soft cliff lines have impacted on cliff top properties. In July 2012 Old Beer Road between Seaton and Beer had to be closed after part of the carriageway collapsed over a twenty-four hour period (Figure 3.13), whilst a coastal landslide near Torbay saw the loss of residential property in April 2013 (Figure 3.14). On the Dorset coast, at St Oswald's Bay, to the east of Durdle Door, a massive failure of the cliff occurred, with a large section of the coastal path falling into the sea. Earlier in the same month landslips occurred at White Nothe, as well as at Swanage. In August 2013, residents and holidaymakers in the resort of Sidmouth witnessed a massive failure of the red sandstone cliff line to the east of the seafront near Pennington Point, cliff falls along this section of the Devon and Dorset Jurassic Coast being common events. In this location, a number of properties are potentially at risk from retreating cliff lines, with rates of loss of up to three metres a year taking place.

Figure 3.11 (above left): A view of *'St Michael's Mount, Cornwall'* by Alfred Robert Quinton (c.1920) showing the causeway, which was badly damaged in the 2013/14 storms (see **Figure 3.12 (above right)**). It was subsequently repaired. Image Courtesy: Emma Little.

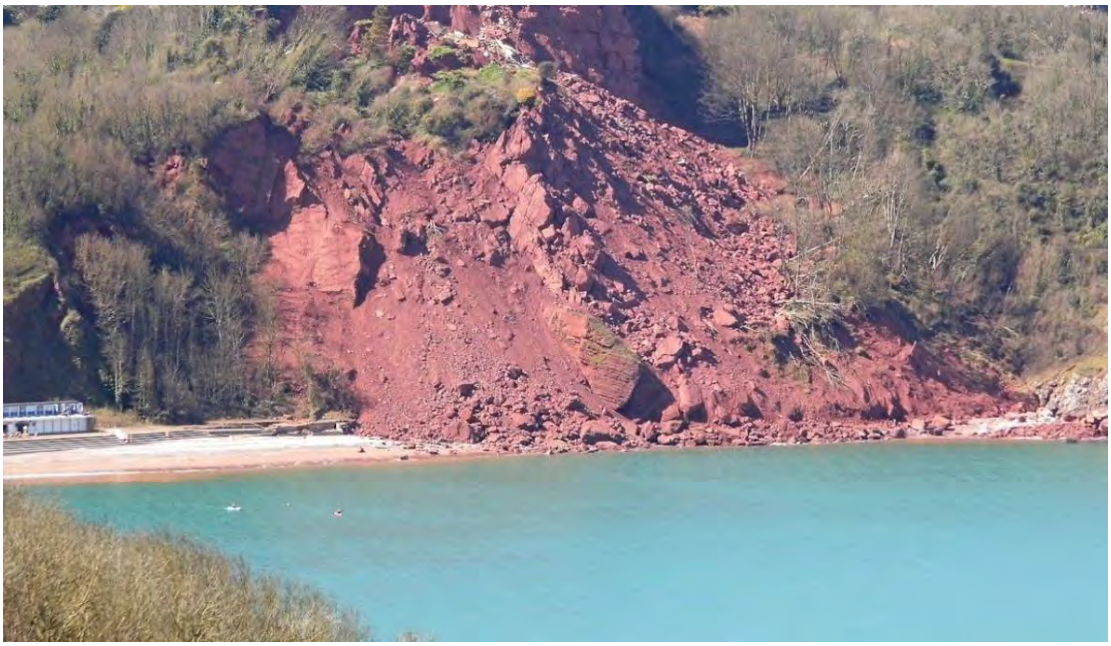


Figure 3.13 (above): A massive cliff failure below Ridgemont House near Torquay in 2013. Image Courtesy: Nikolett Csarvasi ©2013.

Figure 3.14 (right): Coastal instability at Old Beer Road between Seaton and Beer in South Devon, June 2016.

The most significant storm event in recent years was the winter storms that occurred in January and February 2014. The six major storms hit the south-west coast over a period of three days within a wider sequence of storms that extended from mid-December 2013 to early January 2014. Strong winds and huge waves made conditions extremely dangerous around exposed coastlines and caused widespread disruption. This included severe damage to the south-west main railway line at Dawlish, Devon during the storm of the 4-5 February, whilst many coastal communities in Dorset, Devon and Cornwall experienced coastal flooding and damage to infrastructure, buildings and sea defences. The storms also resulted in major coastal erosion affecting defence structures, beach profiles and coastal access. This was exacerbated through a cumulative effect of the sequence of storms in rapid succession. For example, the storms severely damaged the National Trust site at South Milton Sands, Devon, the coast at Rockham near Martinhoe in North Devon, part of the seawall at Penzance, the causeway leading to St Michael's Mount, Cornwall (Figure 3.12) and the harbour wall at Port Wrinkle.

There is a tendency to assume that the extensive hard rock cliff frontages in south-west England are susceptible to only minor changes over time. However, over the decades and centuries the cumulative effects of attack by Atlantic storm waves at the foot of the cliffs, freeze-thaw action in joint lines, the percolation of groundwater, and weathering can result in sudden catastrophic failures of cliffs, with a loss of substantial areas of coastal land. In September 2011, a dramatic collapse of a large section of cliff on the north Cornwall coast between Godrevy and Portreath took place.

The winter period 2014/15 continued to have a severe impact on the coastline in south-west England. In December 2014, the Blue Anchor Hotel at Minehead in north Somerset was threatened by the rapid erosion of the coastal cliff abutting the site; whilst in the autumn/winter period of 2015/16, a major cliff fall necessitated the diversion of part of the south-west coastal path between Hartland Quay and Morwenstow on the north Devon coast. In Dorset, the vertical cliffs along the Burton Bradstock frontage of the Jurassic coast are prone to collapse, and a substantial failure occurred at this location in December 2015. An earlier cliff failure along this frontage in 2012 had resulted in the death of a holidaymaker when some 400 tons of cliff collapsed onto Hive beach. The Isle of Portland in Dorset is also prone to cliff falls, and rock falls were reported at West Weares, which followed failures at West Cliff where again the coastal path had to be diverted.

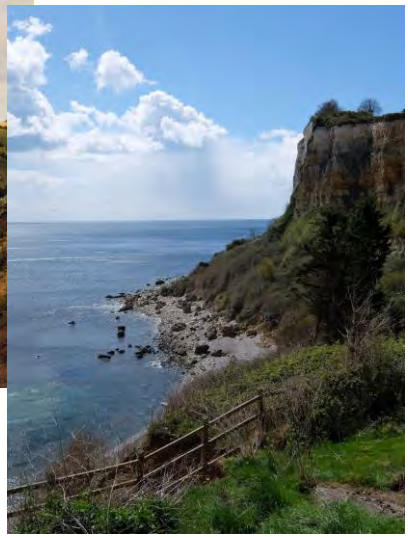


Figure 3.15 (above): *'Beer Head, Coast of Devon'* by Edward William Cooke RA. The cliff continues to weather and erode as evidenced in the present day view (**Figure 3.16 (right)**).
Image Courtesy: Richard Green Gallery, London. Private Collection.

In February 2016, massive rock falls created hazards between Blue Anchor and Watchet on the north Somerset coast, where torrential rain seeping out through the cliff meant that further failures were an inevitable result. In April 2016, huge segments of the cliff collapsed near Preyarnon on the north coast of Cornwall, sending hundreds of tons of slate tumbling onto the beach below; whilst, in May 2016, along the main Bournemouth coastal frontage at East Cliff, part of the 30 metre high cliff collapsed, engulfing the Edwardian funicular railway and cliff base tourism infrastructure. At Bowleaze Cove near Weymouth in Dorset, a tension crack three hundred metres in length developed parallel with the cliff face, and a landslide of thousands of tons of soil and rock gave way after a period of particularly heavy rainfall.

It can be seen from these brief observations that the coastline of south-west England is a highly dynamic one with soft rock coasts experiencing rapid rates of coastal erosion, as well as extensive landsliding. Equally the hard rock coasts, although obviously more resilient, are prone to massive rock falls which can occur with very little warning. Along the north coast of Somerset, despite a relatively more tranquil environment, the coastline has also experienced extensive instability problems, marine erosion, and dramatic flooding events in recent years. The impacts of these events has necessitated careful reappraisal of risks as part of the shoreline management planning and coastal defence strategy study processes in order to protect people and property including heritage assets looking ahead over the next century. Details of many affected sites, some of which are being investigated in more detail through the case studies (see chapter six below), are set out in the shoreline management plans for south-west England.

3.6. Coastal change – implications for heritage

The management of change arising from potential impacts from coastal and climate change, and mitigation measures, have been key priorities for English Heritage, and now for Historic England. A policy setting out English Heritage's thinking regarding the implications of climate change was published in 2008 (English Heritage, 2008[17]). This document recognised the potential impacts from climate change such as sea level rise, more extreme weather conditions and hydrological change on the historic landscape, as well as the possible effects of mitigation measures in response to climate change, such as the improvement of coastal defences. Published in 2016 Historic England's *'Climate Change Adaptation* Plan' (Fluck, 2016[18]) is a key initiative in terms of highlighting and addressing heritage impacts and requirements looking ahead over the next century.

In 2011 English Heritage published a research report *'English Heritage Coastal Estate – Risk Assessment'* (English Heritage, 2011[19]). The report highlighted the necessity of defence in coastal locations and the abundance of natural resources in these areas, that resulted in many millennia of human activity and occupation around the coast of England, and the fact that many sites and monuments have survived in this now increasingly threatened environment. The English Heritage Trust still has more than over 400 historic properties in its care nationwide; of these, eighty were classified at the time as being in the coastal zone. Across England at that time, of the fifty-four English Heritage coastal estate historic properties included in the assessment, forty-eight were recognised at being at risk from flooding, whilst thirty-eight were deemed to be potentially at risk from coastal erosion. These included important sites in the south-west of England, notably Daw's Castle in Somerset and Garrison Walls and Inisdgen burial chambers on the Isles of Scilly. In terms of risk to sites at that time, in fact, the south-west of England contained the largest number of properties identified, including four locations affected by coastal erosion, two that were susceptible to flooding, and twelve locations at risk from a combination of coastal erosion

and flooding of which three of these were identified as being of high risk (English Heritage, 2011[19]).

A further detailed assessment of risk to coastal heritage was set out in Historic England's *'Heritage at Risk – South-West Summary'* (Historic England, 2015[20]). This report recognised that the south-west contains some of England's most important prehistoric sites and landscapes. This is reflected in the fact that there are 1,163 scheduled monuments on the *'At Risk Register'*, which represented 43% of the national total. Whilst the south-west has well over half the national total of hill forts and cairns at risk, by far the most numerous types of scheduled monuments on the risk register are barrows. There are 454 of these ancient burial mounds at risk in the south-west, 53% of the national total of the register (Historic England, 2015[20]).

The identification of sites at risk was assisted by research undertaken for the preparation of a further report *'Assessment of Heritage at Risk from Environmental Threat'* (Atkins, 2014[21]). Within this document major environmental threads, including flooding events and erosion, were highlighted, including the need to identify types of sudden and catastrophic threat that might affect the historic environment.

Some of the significant impacts of natural processes on the coast of the south-west have been described above; these impacts are expected to increase over the next century as a result of predicted sea level rise of up to 1.2 metres by 2100, an increase in winter rainfall of between 26-30%, and as a result of more unsettled weather patterns, increased erosion, beach steepening and undermining of defences, as well as promotion of increased coastal slope instability. Apart from Historic England, in some locations policy-makers and landowners are already planning for long-term coastal change in line with current national policy, SMP guidance and their own internal policies (National Trust, 2014[22]). The National Trust in particular has also been promoting its long-term policies for sites such as Studland and Brownsea Island in Dorset and Mullion Harbour in Cornwall following the publication of its report *'Shifting Shores'* (National Trust, 2014[22]).

Over the last two centuries heritage assets have been affected by coastal change at many sites along the coasts of Dorset and South Devon, including Hengistbury Head, Sidmouth and Dawlish Warren, whilst the increased ferocity of coastal storms, such as those experienced in recent winters, are likely to have increasing impacts on many of the Cornish harbours including Mullion, Charlestown and Mevagissey. Other historic sites including, for example, the gun battery on the shoreline below Pendennis Castle, parts of Tintagel Castle on the north Cornwall coast, future access to St Michael's Mount in Cornwall and the Garrison on St Mary's, Isles of Scilly, are all likely to become increasingly vulnerable. Many of the exposed Cornish headlands, which are often the sites of Prehistoric promontory forts, will also be under increased attack over the next century Halcrow, 2011a[6]; Royal Haskoning, 2011a[8]).

Work on the shoreline management plans for the south-west of England (Halcrow, 2011a[7], 2011b[8]; Royal Haskoning, 2011a[9], 2011b[10]) has also highlighted potential erosion, instability and flood risk events looking ahead to 2100. Along the north Devon and Somerset coasts there are numerous sites of heritage importance that may potentially be affected. In the case of the island of Lundy, the heritage assets aren't immediately affected, however, access to this important site from the landing beach is at risk as a result of coastal erosion. Between Hartland Point and Westward Ho! there is the ongoing potential for major cliff falls, which could see losses arising from cliff top retreat of up to 50 metres in one event. Along this coastline there are numerous Grade II listed buildings and archaeological sites at risk from both erosion and flooding, for example at Hartland, Clovelly and Buck's Mills. From

Westward Ho! to Saunton Down sea level rise and resulting increases in the rate of coastal erosion, and the frequency of flooding events will reduce the effectiveness of coastal defences. There are fourteen conservation areas and six Scheduled Monuments along this frontage, which may be at increased risk from flooding. Between Morte Point and Minehead again flooding is the key issue; many of the twelve Conservation Areas which include communities such as Ilfracombe, Combe Martin, Lynmouth and Porlock, as well as seventeen Scheduled Monuments, and numerous Listed buildings are all potentially at risk from flooding.

Between Minehead and Brean Down there are seven Conservation Areas including those of Watchet and Minehead as well as twenty-two Scheduled Monuments, many of which are susceptible to flooding. From Brean Down to Anchor Head there are a further seven Scheduled Monuments situated in low-lying locations, as well as numerous Grade II Listed buildings and other sites of archaeological importance, again threatened by rising sea levels. The coastal resort of Weston-Super-Mare, which also has a Conservation Area, is susceptible to flooding.

It can be seen, therefore, that there are a considerable number of sites of heritage significance that may be affected by coastal change, looking ahead over the next 100 years. In the following chapter detailed consideration is given on the role that historical imagery, including paintings, watercolour drawings, prints and photographs can play in supporting the management of risks and better understanding change affecting such sites.

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Figure 3.17: *'Triassic Rocks near Blue Anchor, North Somerset looking towards Watchet'*. Oil on canvas, 1862. Edward William Cooke RA. Cooke followed the Pre-Raphaelite ethos of capturing nature in precise detail; combined with his keen interest in geology this ensured that his coastal depictions were very reliable. This part of the coast has been affected by extensive erosion and instability in recent years. Image Courtesy: Guildhall Art Gallery, London.

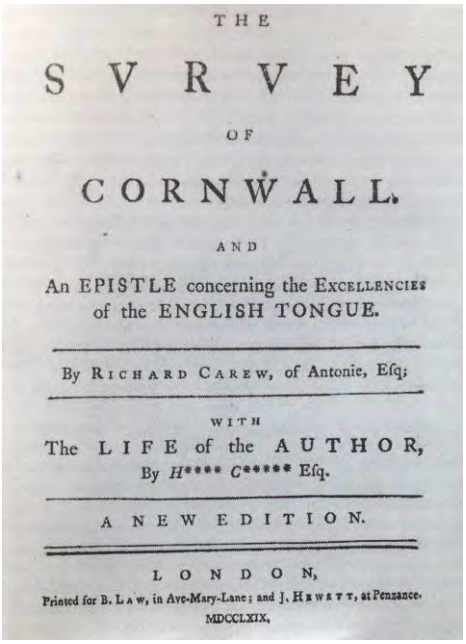
4. The portrayal of the South-West coast of England through art and photography 1770-1950 and the potential to inform coastal heritage planning and management

4.1. Introduction

Before the early eighteenth century there was little interest in Britain in depiction of the landscape. An increasing interest in landscape art only developed when some of the great art collectors returned from the Grand Tour, bringing Italian landscape artworks and, indeed, artists to work for them in London and elsewhere. However, descriptions of the landscape, including the south-west of England, started to appear in the sixteenth century and these were often accompanied by woodcuts or copper plate engravings. One of the first of these was a *'Topographical and Historical Description of Cornwall'* (Norden, 1576[1]). A further particularly significant work was *'Survey of Cornwall'* by Richard Carew (Carew, 1602[2]), which is regarded as one of the finest early topographical books of the British Isles. A volume of similar quality, but which was only published in manuscript form, was entitled *'Synopsis Corographical of the County of Devon'* by John Hooker (Hooker, 1525-1601[3]). The manuscript contained a wealth of interesting topographical information. Thomas Gerard's *'Particular Description of the County of Somerset'* (Gerard, 1633[4]) and his *'General Description of Dorset'* (Gerard, 1622[5]) provide further information on the nature of the landscapes of the counties at that time.

Certainly one of the most well-known publications relating to the west of England was William Borlase's (1696-1722) *'Natural History of Cornwall'* (Borlase, 1758[6]). The author clearly had an interest in geology, as well as coastal geography and natural history more widely. Two years earlier he had produced a well-illustrated volume relating to the Isles of Scilly *'Observations on the Ancient and Present State of the Islands of Scilly,'* which was based on the survey he made of the Islands (Borlase, 1756[7]). John Collinson wrote *'History and Antiquities of Somerset'* in 1791-2. Published in three volumes, works of this kind provide supplementary information relating to the landscapes and coastlines of the counties of south-west England at that time and in advance of the more detailed and illustrated books that were to follow (Collinson, 1792[8]).

With regard to Dorset, a '*Compleat History of Dorsetshire'* was written by Thomas Cox in 1730. This formed part of a substantial work entitled *'Magna Britannia'* (Cox, 1720-1731[9]). Together with the *'History and Antiquities of the County of Dorset'* by John Hutchins (Hutchins, 1698-1773[10]) these represent the two substantial early works relating to the county of Dorset. Towards the end of the eighteenth century more books were starting to appear with topographical accounts. An example is *'History of Devonshire'* by John Aubrey, penned in three volumes (Aubrey, undated[11]), and the '*History of Devonshire'* by the Reverend Richard Polwhele which was published in 1797 (Polwhele, 1797[12]). In the early nineteenth century *'Magna Britannia'* Volume 3 *'Cornwall'* (Lysons, D. & S., 1814[13]) and Volume 6 *'Devon'* (Lysons, D. & S., 1822[14]) were published. These were very comprehensive county studies, which also contained *"sumptuous illustrations provided by a variety of artists, including Samuel Lysons himself"* (Brayshay, 1996[15]).



THE

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AND

An EPISTLE concerning the Excellencies of the ENGLISH TONGUE.

By Richard Carew, of Antonie, Esq;

WITH

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A NEW EDITION.

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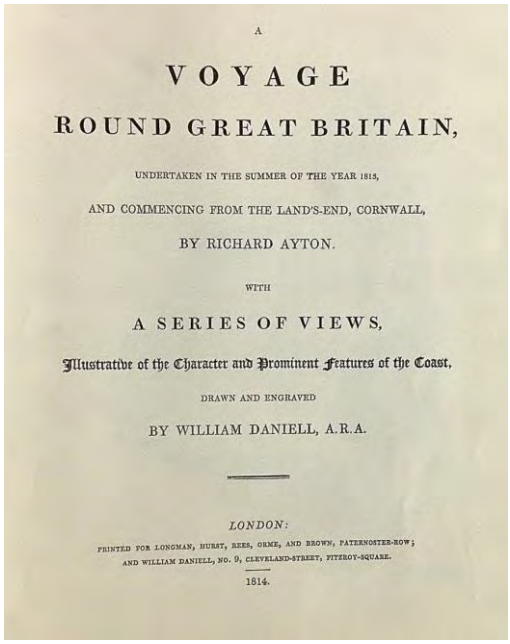


A

VOYAGE

ROUND GREAT BRITAIN,

UNDERTAKEN IN THE SUMMER OF THE YEAR 1813,

AND COMMENCING FROM THE LAND'S-END, CORNWALL,

BY RICHARD AYTON.

WITH

A SERIES OF VIEWS,

Illustrative of the Character and Prominent Features of the Coast,

DRAWN AND ENGRAVED

BY WILLIAM DANIELL, A.R.A.

LONDON:

PRINTED FOR LONGMAN, HURST, REES, ORME, AND BROWN, PATERNOSTER-ROW;
AND WILLIAM DANIELL, NO. 9, CLEVELAND-STREET, FITZROY-SQUARE.

1814.

Figure 4.1 (above left): Title page of Richard Carew's famous *'Survey of Cornwall'* published in 1769. **Figure 4.2 (above right):** William Daniell RA and his author colleague, Richard Ayton, commenced their *'Voyage Round Great Britain'* in 1814. It took eleven years to circumnavigate the coastline of the British Isles, returning to Cornwall in 1825. Of Daniell's 308 aquatint engravings, fifty-eight relate to the coast of south-west England.

Figure 4.3: *'Torbay, Devon'* by William Daniell. Aquatint engraving, May 1825. S. Prideaux, writing in his book *'Aquatint Engraving'* (1909) said *"such a succession of beautiful coloured plates is scarcely to be found anywhere, and they remain unsurpassed both in delicacy of drawing and tinting"*.

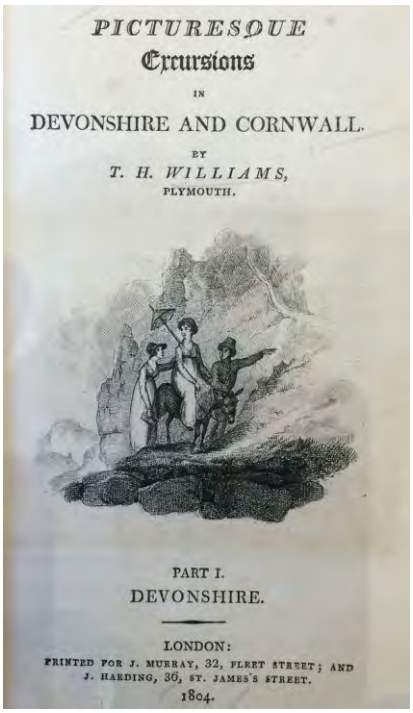
By the early nineteenth century many of our greatest artists were making tours either at the request of wealthy patrons, or for their own commercial interest. Thomas Rowlandson, J. M. W. Turner and many others produced series of watercolour drawings, some of which formed elaborate publications (Cooke, 1826[16]). Through the nineteenth century increasing numbers of books appeared, first, often illustrated with copper plate or aquatint engravings

and, later, steel engravings such as those by W.H. Bartlett, T. Allom and others in *'Devon and Cornwall illustrated'* (Britton & Brayley, 1832[17]). Steel plate books with the ability to allow longer print runs could cater for the increasing numbers of visitors to the dramatic scenery of the south-west; there are many fine portrayals of coastal scenery contained within such volumes.

It should be noted that early maps also provide a wealth of information on coastal change and heritage. However, this study is examining art and photographic depictions. A detailed assessment of the importance of maps, their reliability and the information they can impart was undertaken as part of the Interreg IVA 2 Seas Arch-Manche project www.archmanche.maritimearchaeologytrust.org/ (Momber *et al*., 2014[41]).

4.1.1. Artworks including book illustrations

This review of artists, their artworks and photography of the extensive coastline of south-west England commences on the Dorset/Hampshire county boundary at Highcliff and runs westwards past Christchurch Bay, the Isle of Purbeck, along the Jurassic Coast World Heritage Site of Dorset and East Devon, and on to the Lizard and Land's End. The study continues along the northern coastlines of Cornwall, Devon, and Somerset, and up the Bristol Channel as far as Clevedon. This dramatic coastline, exposed to the full force of Atlantic storm waves, with its high sea cliffs and fishing coves, provided inspiration for numerous artists and photographers with the earliest artworks dating from the mid-eighteenth century. The popularity of the West Country as a whole has, therefore, ensured that there is a rich resource of landscape paintings, drawings and prints and photographs, as well as illustrated literature accounts, which are available for study. In turn these allow comparisons to be made of change over time against which the impacts on coastal heritage can be observed. The appearance of the earliest artworks coincided with the emergence of the Romantic Movement and particularly the seeking out of the 'picturesque' – a shift in cultural perceptions, which has also influenced the range of heritage features depicted by artists.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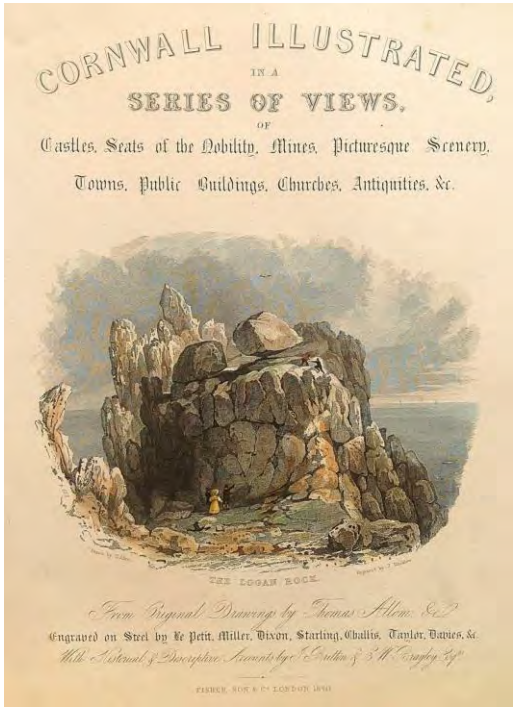
Excursions
IN
DEVONSHIRE AND CORNWALL.
BY
T. H. WILLIAMS,
PLYMOUTH.
PART I.
DEVONSHIRE.
LONDON:
PRINTED FOR J. MURRAY, 32, FLEET STREET; AND
J. HARDING, 36, ST. JAMES'S STREET.
1804.

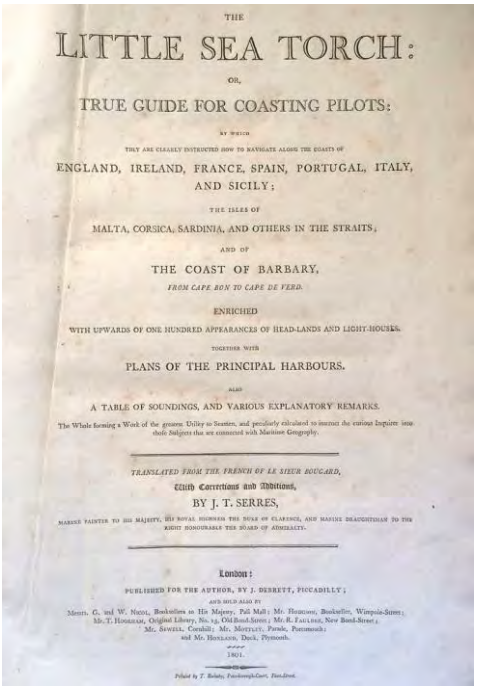

CORNWALL ILLUSTRATED,
IN A
SERIES OF VIEWS,
OF
Castles, Seats of the Nobility, Mines, Picturesque Scenery,
Towns, Public Buildings, Churches, Antiquities, &c.
THE LOGAN ROCK.
From Original Drawings by Thomas Allom, &c.
Engraved on Steel by Le Petit, Miller, Dixon, Starling, Challis, Taylor, Davies, &c.
With Historical & Descriptive Accounts by J. Britton & E. W. Brayley, Esqrs.

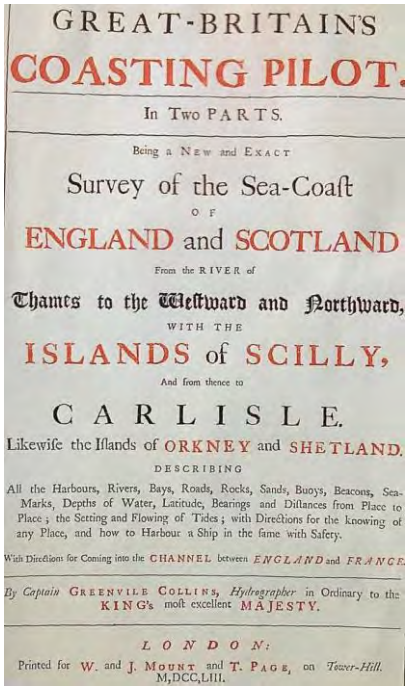
Figures 4.4 and 4.5 (above): Title pages of examples from a wealth of travel books that started to be published from the early nineteenth century.

From early written accounts from the sixteenth and seventeenth centuries, information on the changing coast and heritage lost can be noted, but the accompanying book illustrations were often quite coarse copper plate engravings, which were not topographically accurate. Some artists were very prolific, such as Nathanial and Samuel Buck, who produced numerous views of castles and stately homes in the early eighteenth century (Figure 16.1). There was a steady improvement in the quality and hence the usefulness of book illustrations from the late eighteenth century with the wider use of aquatint engravings, lithographs and with the replacement of copper by steel plates for engraving.

Apart from the topographical accounts of the four counties of the south-west described above further illustrations of the coastline in particular were provided from surveys of the sea coast. One of the first of these was '*Great Britain's Coastal Pilot – A Survey of the Sea coast from the River Thames Westward and Northward Including the Islands of Scilly'* by Captain Greenville Collins, Hydrographer to the King in 1753 (Collins, 1753[18]). Such surveys were formalised from 1759 onwards following Admiralty instructions regarding the making of accurate observations of all parts of the British coastline. Many fine examples of these records are contained in the National Archives and comprise beautifully drawn coastline sections observed from the sea (National Archives, 2010[19]).

Some of Britain's leading topographical artists resided in or visited the region. Francis Danby (1793-1861) lived in Exmouth, Devon from 1842-1861 (Marjoram and Jones, 2014[20]) whilst the prolific Plymouth watercolourist William Payne produced a series of over eighty views of the coastal scenery of north and south Devon between 1790-1800. Payne worked for the Board of Ordnance at Plymouth as a draughtsman before moving to London to teach art; he is known for 'Payne's Grey', the colour that is a distinctive feature of his watercolours (Hunt, 1986[22]). The Exeter-based watercolourist Francis Towne painted carefully observed views of the Exe valley and coast whilst later John Mogford RI (1809-1868), the Bristol artist Samuel Phillips Jackson RWS (1830-1904) and George Wolfe (1834-1890) produced very detailed views of the river and coastal scenery.


THE
LITTLE SEA TORCH:
OR,
TRUE GUIDE FOR COASTING PILOTS:
BY WHICH
THEY ARE CLEARLY INSTRUCTED HOW TO NAVIGATE ALONG THE COASTS OF
ENGLAND, IRELAND, FRANCE, SPAIN, PORTUGAL, ITALY,
AND SICILY;
THE ISLES OF
MALTA, CORSICA, SARDINIA, AND OTHERS IN THE STRAITS;
AND OF
THE COAST OF BARBARY,
FROM CAPE BON TO CAPE DE VERD.
ENRICHED
WITH UPWARDS OF ONE HUNDRED APPEARANCES OF HEAD-LANDS AND LIGHT-HOUSES,
TOGETHER WITH
PLANS OF THE PRINCIPAL HARBOURS.
ALSO
A TABLE OF SOUNDINGS, AND VARIOUS EXPLANATORY REMARKS.
The Whole forming a Work of the greatest Utility to Seamen, and peculiarly calculated to instruct the curious Inquirer into those Subjects that are connected with Maritime Geography.
TRANSLATED FROM THE FRENCH OF LE SIEUR BOUGARD,
With Corrections and Additions,
BY J. T. SERRES,
MARINE PAINTER TO HIS MAJESTY, HIS ROYAL HIGHNESS THE DUKE OF CLARENCE, AND MARINE DRAUGHTSMAN TO THE RIGHT HONOURABLE THE BOARD OF ADMIRALTY.
London:
PUBLISHED FOR THE AUTHOR, BY J. DEBRETT, PICCADILLY;
AND SOLD ALSO BY
Messrs. G. and W. Nicol, Booksellers to His Majesty, Pall Mall; Mr. Hookham, Bookseller, Wimpole-Street;
Mr. T. Hookham, Original Library, No. 15, Old Bond-Street; Mr. R. Faulder, New Bond-Street;
Mr. Sewell, Cornhill; Mr. Mottley, Portsea, Portsmouth;
and Mr. Hoxland, Dock, Plymouth.
1801.
Printed by T. Bensley, Fetter-lane, Fleet-street.


GREAT-BRITAIN'S
COASTING PILOT.
In Two PARTS.
Being a New and Exact
Survey of the Sea-Coaſt
OF
ENGLAND and SCOTLAND
From the RIVER of
Thames to the Weſtward and Northward,
WITH THE
ISLANDS of SCILLY,
And from thence to
CARLISLE.
Likewiſe the Iſlands of ORKNEY and SHETLAND.
DESCRIBING
All the Harbours, Rivers, Bays, Roads, Rocks, Sands, Buoys, Beacons, Sea-Marks, Depths of Water, Latitude, Bearings and Diſtances from Place to Place; the Setting and Flowing of Tides; with Directions for the knowing of any Place, and how to Harbour a Ship in the ſame with Safety.
With Directions for Coming into the CHANNEL between ENGLAND and FRANCE.
By Captain GREENVILE COLLINS, Hydrographer in Ordinary to the KING's moſt excellent MAJESTY.
LONDON:
Printed for W. and J. MOUNT and T. PAGE, on Tower-Hill.
M,DCC,LIII.

Figures 4.6 and 4.7 (above): Coastal navigational guides, often finely depicting views from the sea, were commissioned from some of the best topographical artists. Other guidance was published by the Navy and was illustrated by Naval officers, for whom drawing formed part of their training.

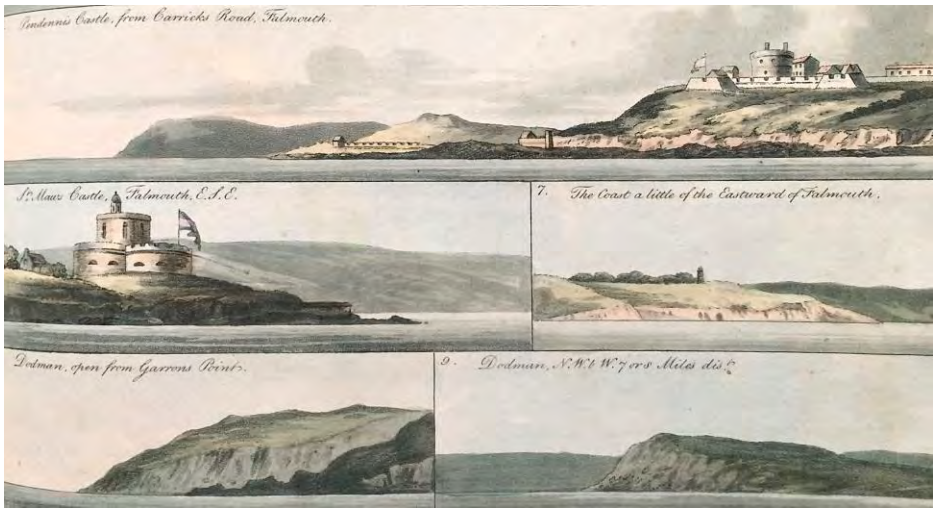


Figure 4.8: *'Views of Falmouth from the sea'* by John Thomas Serres, 1801. Image Courtesy: John Mitchell Fine Paintings, London.

During the early years of the nineteenth century, J. M. W. Turner painted numerous views in the west of England. For example, in c.1811 he painted 'Poole and the Distant View of Corfe Castle', 'Weymouth', 'Lulworth Cove', 'Bridport' 'and 'Lyme Regis', which was taken from Charmouth to the east, looking along the coastline towards the town of Lyme. Between 1811 and 1814 Turner also painted scenes along the Devon and Cornish coastlines including 'Teignmouth', 'Pendennis Castle', 'Falmouth Harbour', 'St Mawes', 'Boscastle', 'Clovelly' and 'Minehead'.

William Daniell RA produced aquatint engravings of many of these locations. His outstanding views are contained in his *'Voyage Round Great Britain'* (Daniell & Ayton, 1814-1825[21]). In Dorset his aquatints include 'Bridport Harbour' and 'Lyme Regis from Charmouth'. At Bridport Harbour (now called West Bay) Daniell wrote *"it appeared in a deplorable state with the entrance being choked with sand"* (Daniell & Ayton, 1814-1825[21]). He continued along the south Devon coast and into Cornwall where some of his finest plates were produced such as '*Mevagissy*' and two views of '*St Michael's Mount'*. He had travelled along the north Cornwall, north Devon and Somerset coasts at the start of his voyage in 1814 when he engraved the *'Longships Lighthouse at Land's End*', '*Boscastle*', '*Clovelly*', '*Ilfracombe*' and '*Lynmouth*' before travelling along the coast of South Wales. Later, in the 1830s, the Finden Brothers' publication *'Ports, Harbours, Watering Places and Picturesque Scenery of Great Britain'* (Finden, 1838[22]) portrayed *'Budleigh Salterton'* and a *'View from Beach, Sidmouth'* and numerous other engraved coastal scenes.

An artistic tour of the West Country coast can commence conveniently in the east of the region. John William Inchbold (1830-1888), a follower of the Pre-Raphaelite Brotherhood of Artists, painted '*A View from the East Cliff, Bournemouth Towards the Isle of Wight*' in about 1870 whilst Alfred Clint (1807-1883), painted '*A View of Poole from the Cliffs*'. The developing fashionable resort of Bournemouth was painted in oil by John Wilson Carmichael from just offshore in 1861. Poole was also the subject of a very detailed, large painting by John W. Ayres (fl.1887-1889) entitled '*Sandbanks, Poole*'. The fine detail of the grasses and Sea Holly growing on the dunes in the foreground and the sea and coastline beyond depicts clearly the coastal conditions prevailing at the time; nearby '*Studland Bay',* with sheep grazing, provided a familiar subject for another Pre-Raphaelite follower, Frederick Williamson RWS (fl.1856-1900).

The coast to the west from the Isle of Purbeck to the Isle of Portland with rugged cliffs, caves and arches was illustrated by George Webster and others in Sir Henry Englefield's

'*Picturesque Scenery, Antiquities and Geological Phenomena of the Isle of Wight and the Coast of Dorsetshire*' published in 1816 (Englefield, 1816[23]). Durlstone Head was painted in watercolour in 1865 by Henry George Hine VPRI (1811-1895) and Lulworth Cove was depicted by J.M.W Turner during his south-west tour in 1811, George Arthur Fripp RWS (1813-1896), Arthur Gilbert (1819-1895), in moonlight, and twice by Sir David Murray RA HRSA PRI RSW (1849-1933) in 1910 and 1912. The dramatic limestone cliffs of the Isle of Portland were painted in 1884 by William Pye (fl.1880s-1890s); he also painted a scene at Ringstead Bay. The nearby town of Weymouth, overlooked from Portland Heights, was painted in watercolour by Thomas Girtin (1775-1802); this was one of a number of views he painted in the town in about 1797. The waterfront at low tide was drawn also by William Wyld (1806-1889) in 1830.

Edward Francis Drew Pritchard (1809-1905) painted along the Dorset coastline, for example, 'East Cliff, with Portland, Dorset in the Distance' and 'View towards Portland, Dorset', whilst Henry Joseph Moule (1825-1904) was a prolific local artist who *"constantly painted the landscape"* and his collection of works provides us with a *"unique record of the Victorian countryside"* (Dorset County Museum[24]). A fellow Victorian artist, Frederick Whitehead (1853-1938), was a naturalist painter who captured the Dorset landscape and coastline with remarkable detail. Other artists who accurately painted the coastal scenery in this area included William Callow (1812-1908), William Collins (1788-1847), Myles Birket Foster RWS (1825-1899) and Thomas Girtin (1775-1802), who painted a watercolour of Lyme Regis. One of Great Britain's leading sea painters, Charles Napier Hemy RA RWS (1841-1917), also painted the harbour of Lyme Regis, while the Pre-Raphaelite painter, Sir John E. Millais Bt. PRA, painted *'The Boyhood of Raleigh'* (1870) in the nearby seaside town of Budleigh Salterton.

The coastline of south-west England could be justifiably named '*The Pre-Raphaelite Coast'* on account of the many artworks by the Pre-Raphaelites and particularly their followers who were drawn there by the scenery from the mid-nineteenth century. Strongly influenced by the leading Victorian art critic John Ruskin the Pre-Raphaelites were encouraged to paint with '*uncompromising truth, obtained by working everything down to minute details from nature and nature only'* (Ruskin, 1853[25]). As a result, their works and those of their followers often provide us with some of the most precise and almost photographic images of the south-west coast. These artists included William Holman Hunt who painted '*Asparagus Island*' at Kynance Cove in Cornwall whilst on a walking tour with Tennyson and others in 1860. John Brett ARA (1831-1902) painted numerous highly detailed coastal views in oils. Brett explored the Dorset coast during the summer of 1870, painting watercolours of locations including Swanage, Lulworth Cove, Lyme Bay, Charmouth and Lyme Regis. John William Inchbold (1830-1888) and exceptional coastal and marine artist Edward William Cooke RA (1811-1880) produced fine paintings and drawings of the Devon and Somerset coastlines (Figures 4.9, 8.1, 8.3, 23.2).

The Lyme Regis and Charmouth coastlines were frequently painted and illustrated in books on account of the dramatic cliff scenery along the frontage and the history of instability. A set of twelve fine lithographs were produced by Conybeare and Dawson (Conybeare & Dawson, 1840[26]) including a view of the great landslide at Bindon on Christmas Day in 1839. Later the Pre-Raphaelite follower, Charles Robertson RWS (1844-1891), painted a vignette view of the town looking south-westwards towards the Cobb. The coast west to the mouth of the River Exe includes a number of historic towns, villages and fishing communities. Cooke painted a view of Axmouth Harbour at low water with shipping and the harbour set below the red Devon sandstone cliffs. He also painted two striking geological views of '*Beer Beach*' and '*Distant View of Beer Head and White Cliff at Low Water*' in 1858. Moving

westwards, Francis Towne (1740-1816) produced a pen and ink and grey wash watercolour of '*Peakhill, Sidmouth*' and John Joseph Cotman (1814-1878) painted two scenes at '*Sidmouth*' and the lost village of '*Hallsands, near Start Point*' in 1872.

The celebrated author, diarist and watercolour artist, Peter Orlando Hutchinson (Fl.1871-1894) spent the whole of his adult life in Sidmouth, south Devon. He was fascinated by all aspects of life on the Devon coast including geology, archaeology and coastal processes and his extensive illustrated six volumes of diaries, which contain over 500 highly detailed watercolour drawings (e.g. Figures 9.8-9.11) are in the collection of the Devon Record Office (Butler, 2010[27]). The fashionable resort of Sidmouth was also the location of a new library in 1803. Ten years later its owner, John Wallis, commissioned Hubert Cornish to produce a series of watercolours of the elegant seafront buildings (including his library) that could form a panorama (Figures 4.11, 9.4-9.7). The view was published as a pair of fine aquatint prints, which represent a masterful depiction of the developing British seaside in the early nineteenth century (Creeke, 2013[28]).

Figure 4.9 (above): *'Axmouth Ferry, Axmouth Harbour'* by Edward William Cooke RA. Oil on canvas, 1858. Image Courtesy: Christie's, London. **Figure 4.10 (above right)** shows the harbour today with a high bank of shingle offering improved protection from south-westerly storm waves.

Figure 4.11: *'Sidmouth, Devon'* (detail) from Hubert Cornish's *'Long Print'*. This aquatint is finely printed and contains a wealth of heritage information (see case study no. 9). Image Courtesy: Woolley & Wallis, Salisbury.

Across the mouth of the River Exe Warren Williams (1863-1941) painted an oil of '*On the Warren, Dawlish*' Nearly all his views were of Devon and Cornwall and he exhibited frequently at the Royal Academy and other leading London exhibitions. Just south of Dawlish, at Teignmouth, Thomas Luny (1759-1837) painted '*A Busy Day at the Harbour*' in 1818 and Frederick George Cotman painted in watercolour the foreshore and town in 1890. Edward William Cooke produced a further fine oil of the coastal scenery showing '*Fisherman's Bay and Babbacombe Rocks*' just to the north of Torquay, a location also painted in 1827. John William Inchbold (1830-1888) painted a detailed view of '*Anstey's Cove'* on the south Devon coast between Babbacombe and Torquay in 1853/54.

William Turner of Oxford OWS (1789-1862) painted one of his elevated, panoramic watercolours of the view from Mount Edgecombe looking out across Plymouth Sound and the Mew Stone. Frederick Richard Lee RA (1798-1879) painted Plymouth breakwater, showing masons repairing the structure in 1862. The rugged coastline of the Lizard peninsula was painted by John Mogford often as a backdrop for detailed paintings of fishermen at work such as '*Sea-faring Business, Cadgwith, Cornwall*', a large work in oils; John Brett, and the master of paintings of breaking waves on the shore, David James (fl.1881-1892) also painted there. Frederick John Widgery (fl.1861-1942) produced delicate views of sandy beaches set against dark rocky coastlines in gouache such as '*Near the Lizard*' and '*Mullion Cove*'.

In Mount's Bay the island of St Michael's Mount was painted by many of our leading coastal artists including Charles Thorneley RBA (fl.1858-1898), James Webb (1825-1895), John Mulcaster Carrick (1833-1896), Myles Birket Foster RWS (1825-1899), and in vibrant colours by Samuel John Lamorna Birch (1869-1955).

The quality of the reflected light from the sea, the rugged coastal scenery and the coastal fishing communities led to the establishment of large colonies of artists at Newlyn, St Ives and Lamorna in Cornwall. The artist Charles Napier Hemy was a *"constant and almost lifelong illustrator of Cornish scenery"* (Hardie, 2009[29]) and he owned a house in Falmouth. The port of Penzance Harbour was described by Stanhope Alexander Forbes RA (1857-1947) as *"active and picturesque…from the first time I was fascinated by those wet sands"* (Hardie, 2009[29]). The Pre-Raphaelite painter of coastal scenery, John Brett, is particularly renowned for his very detailed depictions of the Cornish coast, which he first visited Cornwall in 1870. Cornwall provided a *"lasting source of inspiration, drawing him back time and time again over the course of three decades"* (Brett *et al.*, 2006[30]). The frequency of his visits have left a lasting legacy, capturing an astonishing number of views of the coastline.

The Cornish peninsula *"appealed to the geologist in Brett"* and he produced a significant number of sketches, watercolours and oils of the rocky coastline. In the summer of 1873 Brett and his large family travelled around Cornwall, visiting Penzance, Perranporth, St Agnes, Tintagel and Bude. It has been argued that this particular summer was *"one of the most extended and ambitious [years] of Brett's career"* (Brett *et al.*, 2006[30]). A further visit, in 1876, saw Brett painting his beautiful view of the Lizard from the Rill above Kynance Cove. Brett was high up on the cliffs overlooking the Lizard Point, and has captured the rocks in the foreground with precision. This particular view is one that has not changed since Brett painted it in 1876.

Kynance Cove was also painted by the celebrated artist Edward William Cooke RA, whose coastal views have an accuracy sometimes of photographic quality. Cooke was drawn to paint the coastline of the south-west of England, in part due to a keen interest in geology. Cooke began his *"series of highly-finished pictures in oil to illustrate the chief geological*

features of the British coast" (Munday, 1996[31]). Cooke was fascinated with the geology of the coastline and he sought to depict the rocks, shingle and cliffs in the most accurate way possible, a technique advanced by the famous Victorian art critic and writer, John Ruskin (1819-1900.)

The nineteenth century Cornish artist Richard Thomas Pentreath (1806-1869) painted at Mount's Bay, Penzance, Mousehole, Land's End and St Ives before moving to Exmouth in the 1850s. Stanhope Alexander Forbes RA (1857-1947), along with Walter Langley (1852-1922), was a founder of the Newlyn School of Artists, located in the important fishing village next to Penzance. Forbes has been referred to as the '*Father of the Newlyn Schoo*l' and was instrumental in the development of the area as an established artists' School. Forbes moved to Newlyn in 1884 after a period of time studying in Cancale, Brittany with Henry Herbert La Thangue (1859-1929).

Walter Langley has been credited with being the '*earliest pioneer of the Newlyn colony of artists*" and he settled there in 1882 (Hardie, 2009[29]). The term '*Newlyn School*' was applied to those artists who shared a "*degree of unity of vision and a broadly similar approach to painting*" (Newton, 2005[32]). The artists were eager to capture the realities of life for the local inhabitants, but also to "*capture the effect of natural light…inspired by the French plein-air* painters" (Newton, 2005[32]).

The artists who gathered in the town of Newlyn were drawn to it by its '*other-worldliness*', being as it was so far away geographically and culturally from the large industrial towns that were developing across England. The simple life of the fishermen and women of Cornwall proved inspirational to the visiting artists of Newlyn. It was arguably an antidote to the rapid spread of industrialization in Great Britain. Indeed, views of such subjects were often excluded from their works. Despite their being contemporary with the major changed taking place at Newlyn Harbour, their romanticised view of Newlyn and its fishing industry generally excludes any images relating to this, or any other aspects of 'modern' change from that time (Johns & Fleming, 2016[33]). However, the artists were inspired by the unflinching realism of the French and sought to capture nature in its truest form and avoid sentimentalising the lives of the inhabitants. The realism that they sought to depict in their work involved a "*plein-air ideal when it came to painting the fisher-folk upon the quays and in the boats of the Cornish fishing village*" (Hardie, 2009[29]).

The artists painted their subjects against the backdrop of authentic locations and frequently within the models' homes. There was a fascination amongst the artists with the fishermen's working lives and the inevitable tragedy that accompanied such work. On a practical note, many artists chose to stay and work in Newlyn due to the inexpensive living costs and readily available models willing to sit for their work. Wives waiting for their husbands to return safely to the village from fishing excursions was a recurrent theme. For example, Langley's watercolour '*Among the Missing – Scene in a Cornish Fishing Village'* dating 1884 (Newton, 2005[32]) illustrates the anguish experienced by the women left in the wake of the loss of their husband at sea. However, Langley also painted scenes of fishermen going about their daily work, such as '*Fishermen drying their Nets on Newlyn Beach*' in 1882.

Forbes' Art School continued to thrive during the early years of the twentieth century and attracted new artists to the area because of the sense of "*artistic camaraderie…the light and the landscap*e" (Newton, 2005[32]). For example, Samuel John 'Lamorna' Birch RA RWS (1869-1955) settled near to Newlyn in Lamorna valley and was so enamoured with the location, he

Figure 4.12 (left): *'Mousehole, Newlyn'* by Stanhope A. Forbes, 1919. Forbes and other Newlyn School artists painted genre subjects and occasionally landscapes, which illustrate the general character of the area, including the historic harbours and harbourside buildings. Image Courtesy: Richard Green Gallery, London. Private Collection.

styled himself '*Lamorna*' Birch; Harold Knight RA (1874-1961) and Laura Knight DBE RA RWS (1877-1970) also settled in Newlyn (and later Lamorna Cove) from 1907 onwards after having previously been instrumental in the development of the artists' colony in Staithes, on the north-east coast of England. Dame Laura Knight continued the *plein-air* tradition right up until the 1920s and captured a number of bright coastal scenes during her time on the Cornish coast, for example, '*Lamorna Cove*' painted from the quayside beneath Tregurnow Cliff with dazzling reflections in the water in shades of green and purple, painted in about 1915/16. A significant number of other artists were also connected with the Newlyn School: Albert Chevalier Taylor (1862-1925); Henry Scott Tuke RA RWS (1858-1929); Thomas Cooper Gotch (1854-1931); Elizabeth Forbes (1859-1912); Alfred Munnings KVCO PRA (1878-1959) and Frank Bramley RA (1857-1915).

Land's End was also frequently painted with detailed portrayals of the cliff formations being made by Thomas Creswick RA (1811-1869), John Brett, in 1880, and by Charles Napier Hemy. J. M. W. Turner painted a view of the Longships Lighthouse, which Ruskin considered '*distinguished nature and Turner from all their imitators*' (Hemming, 1988[34]).

The art colony of St Ives also flourished during the latter part of the nineteenth century. This may be in part due to it featuring in many London art and literary journals at that time. It may also be due to the fact that the sheer volume of artists attracted to Cornwall led, inevitably, to further suitable locations being 'discovered' by artists. In 1889 the *Daily Telegraph* noted that '*Louis Grier and Julius Olsson were building up what, one day, might be recognised as the St Ives School of painting*" (Newton, 2005[32]). By the 1890s the local art club boasted over 100 members. Grier and Olsson began to take on students from 1895 and Olsson has been described as the driving force in the school. Olsson was described by Folliott Stokes as, *"a big man with a big heart, who paints big pictures with big brushes in a big studio*" (Newton, 2005[32]). It has been said that Olsson "*did more than any other painter to stamp St Ives as a British outpost of Impressionism*". Olsson lived in St Ives until 1912 and it has been argued that his influence as a teacher "*spread over a generation or more of young painters from Britain and overseas*" (Hardie, 2009[29]).

Figure 4.13: *'The Coast near Land's End'* by George Wolfe. Watercolour, 1861. Wolfe's exceptionally fine watercolours offer a detailed insight into the coastal landscapes in the mid-to-late nineteenth century. Image Courtesy: Christie's, London.

The town of St Ives continued to grow and thrive as a creative community, attracting painters and also sculptors, potters and writers throughout the twentieth century. There were many friendships and working relationships that developed between the artists living and working in the towns of St Ives, Newlyn and Falmouth during this time. Ideas and techniques were disseminated between the art colonies and schools. For over one hundred and twenty years "*there [was] a succession of influential role models living in and around St Ives*" (Newton, 2005[32]). The topographical artist George Wolfe (1834-1896) painted watercolours of St Ives beach in Pre-Raphaelite detail. Along the north Cornish coast Benjamin Williams Leader RA (1831-1923) painted the cliff scenery at Tintagel in 1870, as did John William Inchbold in 1862. George Arthur Fripp RWS (1813-1896) produced a fine watercolour showing '*A Figure on the Cliff overlooking the Sea Below the Ruins of Tintagel Castle*' in 1873.

The well-known marine artist and Pre-Raphaelite, Charles Napier Hemy (1841-1917) also painted '*Among the Shingles at Clovelly, North Devon'* in 1864 and captured, in precise detail, the geological features of the beach and cliffs; he also painted a view looking over the village to the sea in 1866/67. Hemy was originally from Newcastle, but moved to Falmouth, Cornwall in 1881 and lived there until his death in 1917. In fact, Clovelly was a mecca for coastal artists with the Pre-Raphaelite follower, Charles Robertson RWS painted numerous watercolours there, and Henry John Sylvester Stannard RBA RSA (1870-1951) painting the view from Hobby Drive.

The village of Boscastle was painted in oils by John Holland Snr. (fl.1830s-1870s) and by Albert Goodwin RWS (1845-1932). On the coast seaward of Exmoor the small harbours and villages of Porlock and Lynmouth were also painted by numerous artists including John White Abbott who visited Porlock in 1785 and Lynmouth in October 1811. Fine paintings were produced by George Hillyard Swinstead RBA RI (1860-1926), James Holland RWS (1799-1870), Samuel Phillips Jackson RWS (1830-1904), David Cox (1783-1859), John Mogford RI (1800-1868), Albert Goodwin RWS (1845-1932), Paul Jacob Naftel RWS (1817-1891) and Cecil Aldin in 1921. Off the north Devon coast the Isle of Lundy, famous for its colonies of puffins and other sea birds was painted by John George Naish (1824-1905); his works there included '*The Puffins' Paradise, West Coast of Lundy Island*' and '*The Birds at Lundy Island'.* The popular coastal resort of Ilfracombe was painted also by many artists including George Robert Lewis (1782-1871), as well as by many mid-nineteenth century printmakers and, later, by the prolific postcard artist Alfred Robert Quinton.

Figure 4.14 (above): *'Lining for Mackerel off St Mawes Castle'* by Charles Napier Hemy. Oil on canvas. Hemy was equally confident in watercolour (see Figure 1.1) and oils. The Castle is painted here in fine detail. Image Courtesy: Elford Fine Art, Tavistock.

Figure 4.15 (below): Edward William Cooke RA produced some remarkably detailed paintings on the north Somerset coast including '*Triassic rocks, near Blue Anchor, North Somerset looking towards Watchet*' (Figure 3.17) and, here, '*The Breakwater, Porlock Weir, coast of Somerset*' in the 1860s. Cooke was fascinated with the geology of the coastline. He sought to depict the rocks, shingle and cliffs in the most accurate way possible, a technique advanced by the famous Victorian art critic and writer, John Ruskin (1819-1900). Image Courtesy: Martyn Gregory Gallery, London.

The late nineteenth and early twentieth centuries saw steadily increasing numbers of tourists travelling to the south-west. This led to a greater demand for illustrated books and colour picture postcards depicting local scenes. Two artists, Henry Wimbush (1858-1943) and Alfred Robert Quinton (1853-1934), were particularly prolific in their production of attractive watercolours for postcard publishers J. & F. Salmon of Sevenoaks and book publishers A. & C. Black; together they produced over two hundred watercolours of the region as book or postcard illustrations. Other artists including Harold Sutton Palmer (1854-1933) and Ernest William Haslehust (1866-1949) provided illustrations for numerous colour plate regional guidebooks Clinton-Baddeley, 1925[35]; Thomas *et al.*, c.1910[36]; Heath, 1935[37]).

Although such artists continued to flourish through selling their works for colour plate book illustrations the First World War had signalled an end to the public interest in detailed oil paintings and watercolours that were favoured by their Victorian predecessors. They were replaced by modern art, which saw less interest in topography as a subject. There were a few exceptions, for example, the railway poster artists such as the prolific Harry Riley (1895-1966) and later Eric Ravilious (1903-1942) and John Nash (1893-1977). Leslie Moffat Ward (1888-1978) produced exceptional paintings and prints throughout his life particularly of Dorset such as '*Near Warbarrow Bay, Dorset'* in 1930, '*Chalk Cliffs near Swanage*' (1931) and '*Ruined Lighthouse, Portland'* (1964). Many of his fine works are illustrated in the publication *'An English Idyll'* (Marshall and Davies, 2015[38]).

Figures 4.16-4.18: Views of the North Somerset Coast c.1920 by the watercolourist Alfred Robert Quinton. *'Porlock Weir'* (above), *'Mar's Hill, Lynmouth'* (top right) and *'Birnbeck Pier, Weston-Super-Mare'* (bottom right). Quinton's numerous and very precise views provide an accurate record of coastal conditions and heritage in the early twentieth century. Images Courtesy: J. Salmon Limited, Sevenoaks.

4.1.2. Photographs and Photographic Postcards

Following the introduction of the first postcard in Austria in 1869, postcards were introduced in Britain the following year. Despite this, it took several years before pictures started to appear on postcards initially sharing the space with a written message, but then eventually images were allowed to occupy the whole of one side of the card. In 1899 the prolific postcard publishers Raphael Tuck & Sons launched their first designs for colour picture postcards and, not only did these prove popular with the public who were able to send views to their family and friends from their holiday destination, but also they started an extremely popular fashion for collecting sets of postcards.

The well-designed and well-printed colour postcards produced by Tuck such as their *'Oilette'* range proved particularly popular and collectible. Landscape artists, including Professor Van Hiear, Henry Wimbush and others, were commissioned to paint attractive views, including many of south-west England. The other leading postcard manufacturer, J. Salmon of Sevenoaks in Kent, proved equally successful with its leading professional artist, Alfred Robert Quinton, producing thousands of views up to his death in 1934. Of all the postcard artists whose works were printed from watercolours, Quinton was the most enduring and the most topographically accurate.

The story of black and white photography commenced in 1839, when W. H. Fox Talbot developed a negative-positive process for producing photographs that were of a sufficient standard to be reproduced for sale. At about the same time Monsieur L. J. M. Daguerre, a Frenchman, developed what became known as a '*Daguerreotype'*, which was a positive image on a metal plate; however, it could only be reproduced by photographing it again (Turley, 2001[39]). These two processes continued, although further improvements to the Daguerreotype approach were made by J. F. Goddard in London by 1840. Soon after that photographs were being taken commercially but almost entirely for portraiture; this proved extremely popular with the Victorian public, although there was very little interest in photographing landscapes at that time. This may have been partly because the photographic images of the landscapes were not of sufficient quality, but also because Victorians preferred the landscape colour images being produced, often very accurately, by painters in oils and watercolours.

Around the coast, as the seaside resorts started to develop, many photographers moved to the esplanades and beaches to take individual or group photographs and, by the mid-1850s, sets of photographic views of the coast were starting to appear. However, it was not until the late 1860s and 1870s that coastal scenery became more widely photographed, reaching its zenith in the photographic medium of black and white by the end of the nineteenth century.

The early history of the postcard has been described above and at about the same time as publishers Raphael Tuck and J. & F. Salmon were producing their colour images, black and white photographs on postcards were also being published, and these proved to be extremely popular. Photographers such as LL (unidentified initials) produced extremely clear images of the coast with a vast range of subjects being photographed and available for an eager audience of postcard buyers as well as collectors. In terms of aerial photography, the idea of taking photographs of the land from the sky was initiated first from balloons and, later, from aircraft. This was particularly stimulated during the First World War when aerial photographic surveys of enemy territory led to an increased understanding of the wider potential offered by such images, particularly by archaeologists who, subsequently, between

Figure 4.19 (above): *'Lulworth Cove from the North-West'* in 1900. Private Collection.

Figure 4.20 (below): *'Teignmouth, South Devon'*, c.1900. Private Collection.

Figure 4.21: *'Cromwell's Castle, Tresco, Isle of Scilly'*. Replacing an earlier Tudor structure in the 1650s, this castle forms part of the very extensive defences constructed on the Isles of Scilly. Image: Private Collection.

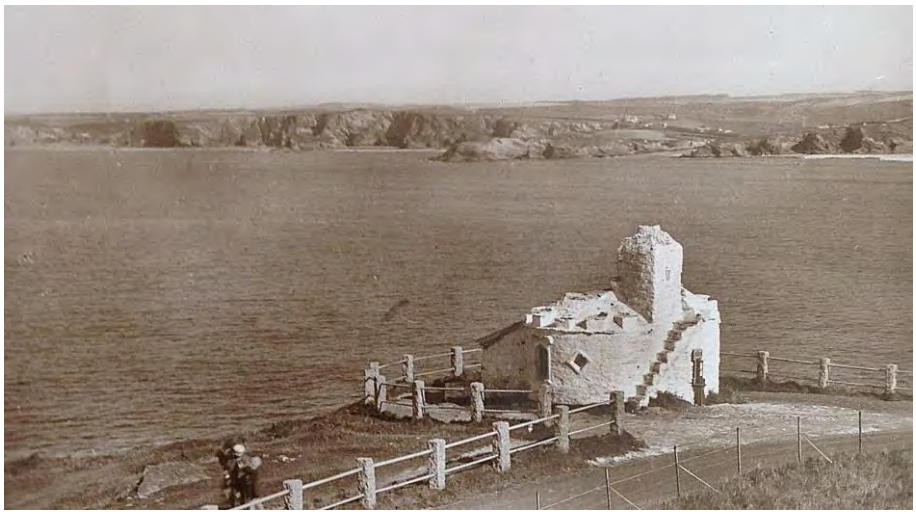


Figure 4.22: The Huer's Hut on Towan Head near Newquay. From here a fisherman could watch for shoals of fish and alert his colleagues, who would launch Seine boats to catch the pilchards and other species. Photograph, c.1930.Private Collection.

Figure 4.23: Collapse of part of Sidmouth Esplanade following severe storms. Image by kind permission of Sidmouth Museum.

the wars, advanced science and understanding of the potential of this new approach to the investigation of heritage sites. Indeed, a number of archaeologists played a key role during the Second World War in terms of interpretation of aerial photographs. During the War, photography over the British Isles was undertaken by both the RAF and the US Air Force, particularly to assess the effectiveness of various defensive and camouflage schemes and assistance in future military planning (Barber, 2011[40]).

In terms of assessing the rate and scale of coastal change, monitoring of the coast and the impacts on coastal development using this medium is a relatively recent innovation. Certainly up until the 1980s only a handful of coast protection authorities were undertaking any form of systematic monitoring and, although for particular research tasks reference was made sometimes to wartime aerial photographs, it was the systematic photography commissioned by the Environment Agency annually through its '*Annual Beach Monitoring Surveys'* and more recently, by the Channel Coast Observatory, which established the regular use of this format. For the timeline of this project, however, up to 1950, aerial photography was used to a much greater extent by archaeologists than coastal engineers. Indeed, historical photographic imagery, both aerial and land-based views, remains an important source for archaeological research to the present day.

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4.2. Past applications of historical imagery in support of management

4.2.1. A summary of previous research – art, photography, coastal science and education

The diverse geological exposures around the south-west coast, and the physical processes acting upon them, have resulted in the evolution of a coastline of enormous variety and scenic importance. Particularly since the late eighteenth century a wealth of artistic images,

both original artworks and book illustrations, and later photographs of this region have provided collectively a substantial resource that is available for interrogation to support many aspects of coastal management.

Despite their widespread availability the use of such historical images, which are held in national, regional and local collections, by both professionals and researchers involved in many aspects of coastal management has been minimal. In the past the potential offered by the use of art, in its broadest sense, to inform science has been largely unrecognised. "*The arts have sometimes been perceived as having little practical application but, in fact, they can form valuable components of the wider study and comprehension of the complexities of the coast if they are brought together rather than being considered as separate entities"* (Koff, 1999[1]). For example, in geography the visual arts can aid environmental problem solving because they integrate physical and human aspects of the discipline by offering interpretation of the human-landscape interaction. "*Art can be used to reinvigorate interpretation of landscapes because art has been generally under-used by scientists compared with other art forms such as photography and cartography*" (Koff, 1999[1]).

However, over the last century links between the disciplines of art and science have been increasingly appreciated and today they are seen as complementary rather than competing. The visual arts can aid environmental problem-solving because they allow us to integrate physical and human aspects of the disciplines, supporting understanding of the many physical, landscape and human inter-actions, which are particularly significant on the coast (Nordstrom and Jackson, 2007[2]). In terms of the visual arts photography and cartography have been utilised by some professionals, particularly archaeologists and historians, but much less so by engineers and planners. Paintings and landscape art generally have not been made use of as a source of information, or as a basis for improved understanding of topics such as coastal change and risk management.

At the international level there has been some art-related research. This has included an assessment of the value of artworks by the Italian painters Canaletto and Belloto in terms of gaining improved understanding of changing water levels in the city of Venice (Camuffo *et al.*, 2005[3]), whilst the detailed geological paintings of the Pre-Raphaelite artist, John Brett, have allowed studies and comparisons to be made of Alpine glaciers and landscapes including the scale of glacial retreat (Drahos, 2009[4]). A more recent study by the same author examined nineteenth century depictions by the leading nineteenth century artists Thomas Moran (1837-1926) and Frederick Edwin Church (1826-1900) of important geological sites in the USA (Drahos, 2012[5]). In a related science extensive use of paintings and engravings was made to plot the history of river engineering works in Switzerland (Minor *et al.*, 2004[6]).

Utilisation of works of art to support understanding of coastal change can be broken down into two distinct categories - technical usage and educational usage (in its broadest context). Although limited, there are some examples where art has proved a valuable tool alongside other techniques for providing more informed decision-making to assist successful coastal risk management, as well as having wider benefits in terms of achieving successful integrated coastal zone management. For example, engravings and landscape paintings were used as a resource to assist in explaining long-term coastal change within a project, which received financial support from the European Union LIFE Environment Programme entitled '*Coastal change, climate and instability'* (McInnes & Tomalin, 2000[7]). In this LIFE project a theme of the work assessed how archaeological or palaeo-environmental evidence could assist understanding of long-term coastal change and a range of illustrations from

study areas in Dorset, UK as well as in France and Italy provided an insight into the changing coastal environments.

Sponsorship by The Crown Estate allowed the concept of art as a tool to support understanding of coastal processes and change to be developed through a series of publications. First, a pilot study of the Hampshire and Isle of Wight coastlines (McInnes, 2008[8]), and a regional study of East Anglia (McInnes & Stubbings, 2010[9]). Then national studies entitled '*A Coastal Historical Resources Guide for England*' (McInnes & Stubbings, 2011[10]) and '*Art in Support of the Understanding of Coastal Change'* for Wales, Scotland and Northern Ireland' were completed (McInnes & Benstead, 2012[11], 2013a[12], 2013b[13]). The aims of these studies were to highlight the role of art in support of coastal management with a focus on the impacts on people and property. However, the reports identified the need for a more comprehensive assessment of art informing heritage risk management, hence the undertaking of this study.

Through the European Union Interreg IVA 2Seas Programme the '*Arch-Manche'* project provided guidance on the use of archaeological, paleo-environmental and historical resources to support coastal management. Led by the Hampshire & Wight Trust for Maritime Archaeology (now the Maritime Archaeological Trust), the study had a particular focus on coastal change evidence for the littoral and inter-tidal environments but also included assessments of selected artworks and cartography from the south coast of England, Brittany, Belgium and Holland (www.archmanche.hwtma.org.uk[14]).

The Public Catalogues Foundation (www.thepcg.org.uk), a registered charity, enabled the nation's entire collection of paintings to be made accessible, first through ninety illustrated catalogues (Ellis (Ed.), from 2004[15]) and later through free internet access. In 2009 a partnership with the BBC led to the launch of '*Your Paintings'* and three years later the task of placing all 212,000 oil paintings by 37,000 artists was completed. This national resource includes a wealth of images relating to the British coast. Now called '*Art UK'* this resource is perhaps the most comprehensive visual index of its kind in the world in terms of national collections of paintings and forms an invaluable research tool (Art UK, 2016[16]).

In terms of the use and applications for photographic images these have been outlined in section 4.1.2 (above). The history of the use of such images, for example through aerial photography over time to support archaeological investigations is also described in detail in an excellent English Heritage publication (Barber, 2011[17]). Further applications for photography are also demonstrated very effectively in the final RCZAS reports commissioned by English Heritage in south-west England (e.g. Hegarty *et al.*, 2014[18]; Royall, 2014[19]).

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4.3. The art and photographic image resources of South-West England

4.3.1. Art Reference publications

The records of coastal artists and their works relating to south-west England from the mid-eighteenth century are contained in a hierarchy of publications ranging from comprehensive descriptions of the art history of the region to dictionaries of artists and their exhibited works, or national collection catalogues and overviews (Hardie, 1966[1]; Mallalieu, 1976[2]; Lambourne & Hamilton, 1980[3]; Graves, 1984[4]; Mackenzie, 1987[5]; Wood, 1995[6]; McInnes, 2014[7]). Art overviews have also been written, which set out theories on the landscapes, aesthetics and the development of art over time through both the written word and illustrations (e.g. Huish, 1904[8]; Tooley, 1954[9]; Wilton & Lyles, 1993[10]; Payne, 2007[11]; McInnes & Stubbings, 2011[12]).

Other publications describe artistic colonies or schools of artists such as those that flourished at Newlyn and St Ives in Cornwall (Staley, 2001[13]; Newton (Ed.), 2005[14]; Wallace, 2007[15]; Hardie (Ed.), 2009[16]). A further group of publications are devoted to specific art collections such as the Public Catalogue Foundation's volumes on '*Art in Public Collections in 'Dorset', 'Devon', 'Cornwall'* and *'Somerset'* (Ellis (Ed.) from 2004[17]), and finally, monographs on the works of individual artists including Edward William Cooke RA and John Brett (Munday, 1996[18]; Brett *et al.,* 2006[19]; S. Payne, 2010[20]).

Apart from the numerous images contained in topographical publications describing south-west England produced over the last three centuries (see 4.1 above) there are a wealth of artistic and photographic images held in national, regional and local collections relevant to these counties.

4.3.2. National Collections Containing Artworks of South-West England

In terms of artworks at the national level, views of the south-west coast are held by all the leading collections, including the National Maritime Museum (www.rmg.co.uk/national-maritime-museum), the Victoria and Albert Museum (www.vam.ac.uk), Tate Britain (www.tate.org.uk/tatebritain), the British Museum (www.britishmuseum.org) and the National Gallery (www.nationalgallery.org.uk). Many of these collections, and indeed regional and local collections, have worked with the Public Catalogues Foundation and the BBC to photograph and make available on-line every oil painting contained in public collections across the region. Formerly '*BBC Your Paintings'* and, now, '*Art UK';* this national website (www.artuk.org) includes over 212,000 artworks from over 3,000 venues, including oil paintings by over 38,000 artists. It is recognised that the *Art UK* resource does only include oil paintings and not watercolour drawings or prints of which there are millions of works; nevertheless this very substantial resource provides a wealth of opportunities for research and easy access to all participating collections for the first time.

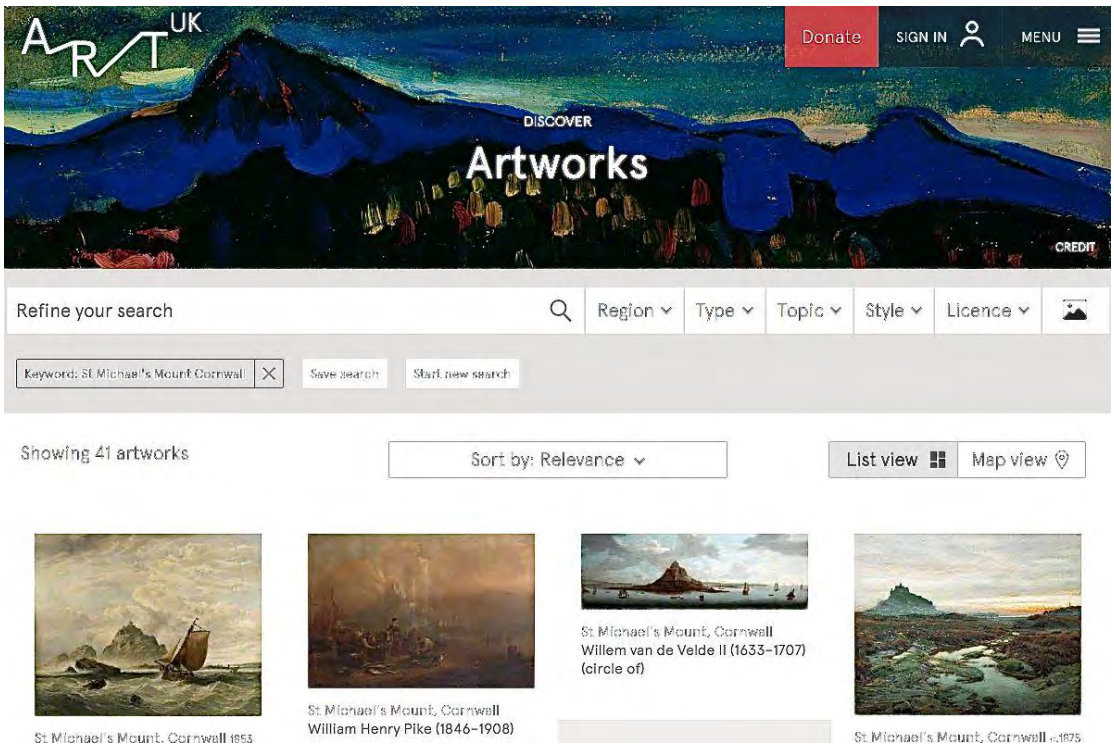

Figure 4.24: A page from the Art UK website showing a selection of the forty-one oil paintings in public collections of St Michael's Mount in Cornwall.

Another very valuable national resource is the Witt Library at the Courtauld Institute in London. At the Witt Library files have been compiled by artists' name, and include images of artworks that have been cut out from auction catalogues to form an easy searchable art resource. The images are not available on-line but can be easily viewed through a visit to the Witt Library (www.courtauld.ac.uk/study/resources). The National Archives at Kew

(www.nationalarchives.gov.uk) also contains a large number of coastal and riverine views, including many commissioned by the Admiralty since the middle of the eighteenth century.

4.3.3 South-West Regional Art Resources

Within the region major art galleries contain fine examples of topographical views of the coast, and these include the Russell Cotes Art Gallery and Museum at Bournemouth (www.russellcotes.com/), the Royal Albert Museum and Art Gallery at Exeter (www.rammuseum.org.uk/), Plymouth City Museum and Art Gallery (www.plymouth.gov.uk/museums), Falmouth Art Gallery (www.falmouthartgallery.co/), the Penlee Art Gallery at Penzance (www.penleehouse.org.uk/), the Royal Cornwall Museum (www.royalcornwallmuseum.org.uk), and Bristol City Art Gallery (www.bristolmuseums.org.uk/bristol-museum-and-art-gallery/). Other important museums and galleries owning coastal artworks include Dorset County Museum at Dorchester (www.dorsetcountymuseum.org), Bridport Museum (www.bridportmuseum.co.uk), the Red House Museum at Christchurch (www.hampshireculturaltrust.org.uk/red-house-museum-and-gardens), Swanage Museum & Heritage Centre www.swanagemuseum.co.uk/), Poole Art Gallery and History Centre (www.poolemuseum.co.uk), Weymouth Museum (www.weymouthmuseum.org.uk), Lyme Regis Museum (www.lymeregismuseum.co.uk/), Ilfracombe Museum, (www.ilfracombemuseum.co.uk) Sidmouth Museum (www.devonmuseums.net/sidmouth-museum/devon-museums/), Exmouth Museum (www.devonmuseums.net/exmouth), the Isles of Scilly Museum (www.iosmuseum.org/) and the North Somerset Museum (www.n-somerset.gov.uk/my-services/leisure/local-history-archives/museum/).

Local Authorities in the South-West also have major collections of images held in record centres and archives including the Devon Archives and Local Studies Centre in Exeter (www.devon.gov.uk/record.office.htm), and the website *'Etched on Devon's Memory'* (http://www.devon.gov.uk/print/index/cultureheritage/libraries/localstudies/lsdatabase.htm?url=etched/etched/100141/1.html). Cornwall Council's Record Office (https://www.cornwall.gov.uk/community-and-living/records-archives-and-cornish-studies/cornish-studies-library/), the Somerset County Museum Service (www.museumofsomerset.org.uk/) and the Dorset County Archives at the County Museum in Dorchester (www.dorsetcountymuseum.org). Further important collections are held in public libraries such as those at Torbay and the Cornish Studies Library (www.cornwall.gov.uk/community-and-living/records-archives-and-cornish-studies/cornish-studies-library/). Further artistic images of the south-west coast are contained in the collections of the National Trust within important coastal properties such as Mount Edgcumbe House at Plymouth (www.mountedgecumbehouse.gov.uk), and Dunster Castle on the Somerset coast (www.nationaltrust.org.uk/dunster-castle) as well as at other private stately homes. This list is not exhaustive and there are other small museums and heritage centre, which contain very small numbers of coastal or maritime heritage-related artworks. Many of the resource centres and museums described above have kindly provided assistance in terms of images to illustrate this report. Further extensive collections of art images can be found on the websites of commercial art galleries and print dealers as well as through online resources such as Ebay.

4.3.4. Photographic Resources

In terms of photography, once again the libraries and resource centres already referred to hold a wealth of historical photographs with important local collections for example, the Morrab Library at Penzance (www.morrablibrary.org.uk), which has a rich resource of local

historical photographs, the Cornish Studies Library in Redruth (website address above), the Penlee House Gallery and Museum at Penzance (website address above), the Royal Cornwall Museum (www.royalcornwallmuseum.org.uk) and the Isles of Scilly Museum (www.iosmuseum.org). In terms of aerial rather than terrestrial photographs, significant national collections include the Cambridge University collection of aerial photography, which was established in 1947 and which contains over half a million images (accessible via their on-line catalogue), the Harold Wingham collection of aerial photographs taken from the 1940s to the early 1960s and including the Devon and Cornwall coast, and English Heritage's extensive archives of military/aerial photographs taken between 1939 and 1960.

Historic England's own resources include the Historic England archive (https://archive.historicengland.org.uk) which can be examined through its public online catalogue, and which contains over a million catalogue entries and 180,000 digital images; whilst Historic England's '*England's Places*' (www.historicengland.org.uk/englands-places) includes over 600,000 images with particular emphasis on buildings and architecture from the earliest days of photography up to the mid-1990s. A further excellent resource is Historic England's '*Pastscape*' collection *(www.pastscape.org.uk). 'Britain from above'* (www.britainfromabove.org.uk) includes over 95,000 aerial images of the UK, mainly from the earliest part of the Aerofilms collection (1919-1953). Historic England holds high resolution versions of all the photographs covering English sites.

One of the largest private collections is the *Francis Frith Collection* (www.francisfrith.com), which contains about 125,000 images of Britain's towns, villages and landscapes dating from the mid-nineteenth century.

It can be seen, therefore, that there is a rich resource of both artistic and photographic images that are publicly available alongside those images contained in illustrated topographical books or that were published separately as individual prints. Full use has been made of these resources with the cooperation and consents of the owners for the purposes of this study.

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5. Validating the accuracy of artworks and photographs 1770-1950

5.1. Introduction

The perception by some scientists that art may have little practical application as a tool in support of our understanding of the changing coastline and the resulting risks over time has been a commonly held view, whilst others have not considered the context at all. This was partly an understandable result of the lack of knowledge of the art resources available in the absence of adequate databases and other records, but also because of concerns about the accuracy of such depictions (McInnes & Stubbings, 2011[1]). Acceptance of art as a visual aid to support scientific principles in coastal research can also be difficult to support if artistic goals are perceived as rendering the depictions unreliable as sources of information. Paintings do not necessarily depict the landscape the way photographs do, although even photographs do not always provide objective depictions. Painters may be selective in what they portray or they may simplify detail to enhance a visual impact that they considered important (Nordstrom & Jackson, 2007[2]). Particular fashions and styles over the last 200 years, led some artists to exaggerate natural features whilst in other cases wealthy patrons required their properties or estates to appear grander than was actually the case. By contrast certain artistic schools such as the Pre-Raphaelite Brotherhood sought '*absolute, uncompromising truth in all it does, obtained by working everything down to the most minute detail from nature* (Ruskin, 1853[3]).

In view of the fact that the coastline of south-west England has been a significant source of inspiration for artists since the late eighteenth century, the opportunity to bridge art and science and maximise the potential of previously under-used art resources to support management of coastal heritage risks should be realised. In fact, works of art extending back to the late eighteenth century, long before the days of photography, may provide the only record of our changing coast over time, depending on the accuracy of the work concerned. Art can, therefore, form a useful benchmark when assessing the nature, scale and rate of coastal evolution and its impacts on heritage sites. However, concerns about accuracy must be satisfactorily addressed, and previous research (McInnes & Stubbings, 2010[1]; Momber *et al*., 2014[4]) has provided a methodology for ranking both artworks and photographs; these approaches have been modified to suit the requirements of this study in terms of informing heritage risk management.

5.2. Ranking artworks and photographs in terms of their accuracy and usefulness

5.2.1. Ranking Artworks

The purpose of a ranking system is to assess and evaluate coastal artworks and photographs, and to provide a list of those artists and their works that can be relied upon in terms of providing truly accurate depictions of the changing south-west coast and the resulting or potential impacts on heritage over time. If this can be achieved, users can easily turn to this list and find the names of artists who have painted their particular site of interest without having to undertake their own time-consuming studies. The result of the ranking task is to provide a readily available resource for use by all those professionals involved in heritage risk management, and planning and conservation management more widely. The ranking system described below considers first art then photography. In terms of art there are over 212,000 oil paintings and six million watercolours in public collections. It is, therefore, most practical to rank artists based on the accuracy of their output. Artists' names such as those

listed as the highest ranked in Table 5.2 (page 61) are easily searchable on national and art gallery databases rather than searching for individual artworks.

The relevant artworks fall under the general heading of '*Coastal Landscape Artworks,'* which can be suitably evaluated and ranked against four criteria:-

1. ***Accuracy of the Artistic style of painting*** - for example genre (human or social) subjects, romantic scenery, marine subjects and finally, topographical paintings, drawings and prints.

2. ***Choice of medium*** used in achieving the most detailed depictions of the coast and coastal heritage. Varying levels of detail were achieved through copper plate engravings, steel engravings, aquatint engravings, lithographs, oil paintings and watercolour drawings.

3. **Content of the *artwork***, which may comprise general coastal views, more detailed views of the beach, the cliff and coastal settlements, or highly detailed views showing heritage assets and their relationship to the changing coast, and the potential risks that may affect them.

4. **The time period of the artwork** in terms of its usefulness in informing us of the patterns of change merits consideration. For example, the '*Pre-Victorian'* (and pre-photographic period broadly extending from 1770-1840 when art represented the only medium available and the only colour representation of a location), the *'Victorian coastal development'* period from 1840-1880 when photography ran in parallel with art although only in black and white, and the '*Late Victorian and Edwardian coastal development period'*, which, in practice, extended up to 1930 and by which time colour photography had started to appear. Finally, *Modern images* from 1930 up to 1950 (up to the end of the study time line).

After a coarse screening, works of art were considered against these ranking criteria, and a short-list has been prepared listing a representative sample of those artists deemed to be most valuable in supporting understanding the impacts of change on heritage over time.

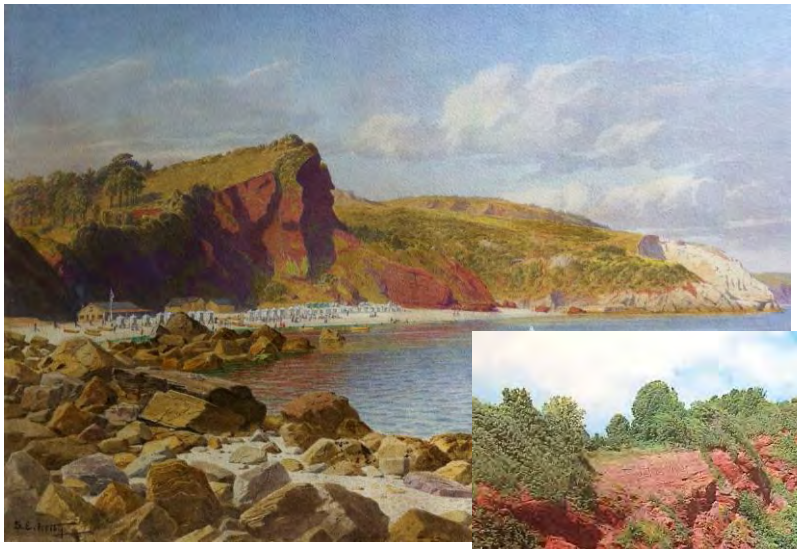
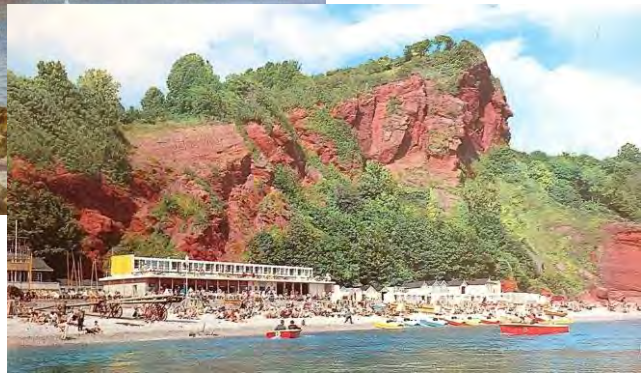


Figure 5.1: *'Babbacombe'* by Samuel Edward Kelly, c.1910. Kelly has painted the crumbling coastline in Pre-Raphaelite detail. It compares closely with the postcard photograph (**Figure 5.2 below**) taken in the 1970s. Private Collection.



5.2.1. Accuracy of Artistic Style

The fashions of the time often influenced by art in continental Europe were a determining factor in the styles of landscape painting over the last three centuries. Each of the emerging styles varied in terms of their realism and topographical accuracy. Studies for The Crown Estate (McInnes & Stubbings, 2011[1]) identified five style sub-categories, namely: *Genre works, Romantic Scenery, Marine and Yachting Subjects, Topographical Paintings*, and, finally, *Topographical Works with a Pre-Raphaelite influence.*

For the *Genre* category, for example some of the works by the Newlyn School artists, their interest usually lay more in human and social subjects rather than physical or heritage aspects. Often these works do not contain enough detail to make a significant contribution to our understanding of the coastal conditions at that time, although they sometimes illustrate coastal or heritage features as a backdrop to the main subject; in view of this, such works were allocated one point out of a total of five in this category.

Figure 5.3: Although Birket Foster is known for his highly accurate landscapes, here the focus is a genre subject. Although it is finely painted it provides limited information on heritage. Courtesy: Sotheby's.

The second category comprises views of *Romantic Scenery*, which were favoured by those artists and illustrators who were producing works in the manner of the Italian landscapes popularised by those returning from the Grand Tour. Often the romantic views comprised aesthetically pleasing, but exaggerated or adjusted landscapes, with hillsides and cliffs appearing more *'Alpine'* and precipitous; in some cases it was the desire of the artist to depict the local scenery in the manner of a classical landscape to satisfy the tastes of their patrons. Whilst the *Romantic* style is less concerned with topographical accuracy, it can provide at least some indicators of the nature of the landscape and the coastal heritage at the time. For example, the proximity of development to the coast, the nature of the coastal topography, and the presence of watercourses and other physical features can inform coastal change studies in a broad sense. For this reason, the *Romantic* works scored two out of the maximum of five points.

Figure 5.4: This view by H. M. Whichelo (c.1850s) shows Mount Edgcumbe from Plymouth. Although painted in detail the topography has been exaggerated significantly, whilst other features in the foreground and along the coast are more accurately depicted.

Marine and Yachting subjects depicting coastal shipping and craft form a significant component in terms of coastal art. Many yachting, fishing and other shipping scenes include the coastal scenery as a backdrop. Whilst those paintings that are set further away from the coast are less interesting in this context, some works do actually provide a detailed topographical background. Often works produced by naval officers or others who had served on board ship prove to be particularly accurate. Taking account of the contribution of these paintings a ranking of three points is allocated for this category.

Figure 5.5: This coastal watercolour of *'Cadgwith Cove'* on the Lizard Peninsula was painted in about 1850 by William Roxby Beverley. It provides a general view of the nature of the coastline and coastal development at the time. Private Collection.

The fourth, and by far the largest category, *Topographical Art,* comprises coastal landscape paintings, watercolour drawings and prints. This is a rich resource and the south-west coast is very well illustrated in this respect. In fact, there is great interest in the coastal towns and fishing villages located both on the open coast as well as on the tidal creeks, estuaries and harbours. There are, therefore, many works in this category that can inform us of changing coastal environments over time and any heritage implications; such works were awarded four points out of a maximum score of five points.

Figure 5.6: This very detailed lithograph shows the village of Lynmouth, North Devon, from the shore, by W. Spreat, in about 1850. Views of this kind were popular on account of the detail they provided of both the physical and built environments. Image Courtesy: Private Collection.

The highest ranking category comprises *Topographical Paintings, Drawings and Prints, which exhibit Pre-Raphaelite detail.* Artists such as John Brett ARA (1830-1902), and Edward William Cooke RA (1811-1880), and followers such as Charles Robertson ARWS RPE (1844-1891) have provided us with precise, although sometimes selective, images of coastal scenery in the mid-to-late nineteenth century. On account of the detail and accuracy of the subjects, with artists seeking to depict nature in a very exact manner, these works form a particularly valuable resource, and were, therefore, awarded the maximum score of five points.

Figure 5.7: This very detailed oil painting is typical of the later works of the Pre-Raphaelite artist, John Brett. Painted in 1876 the view shows *'The Lizard, Cornwall'*. Brett's many Cornish views include headlands, which were the sites of hill forts, common features on this coastline. Image Courtesy: Maas Gallery, London.

5.2.2. Most Advantageous Medium

A further factor in ranking the accuracy of artworks relates to the most advantageous medium used for illustrating coastal scenery. Four categories were identified – first, *'Copper Plate Engravings'*; second, *'Oil Paintings'*; third, *'Oil Paintings exhibiting a Pre-Raphaelite Influence'* together with *'Aquatints and Steel Engravings'*, *'Lithographs, Pencil and Watercolour Drawings'* and, finally, watercolours by Pre-Raphaelites and the Followers.

The various methods of producing artworks by engraving have been described in detail by others (Russell, 1979[5]). Although some publishers and artists achieved remarkable success with copper plate engravings, for example John Boydell (1719-1804), who produced nearly four and a half thousand engraved copper plates, generally the softness of the copper plates meant that the engraved lines were coarser and less suitable for recording fine detail. As a result, copper plate engravings were awarded a score of one point.

Figure 5.8: An example of an eighteenth century copper plate engraving of *'Brownsea Castle and Island'*. The view is inaccurate in terms of scale, and detail is restricted by the medium employed.

Oil paintings were considered to be rather more valuable as they could provide a greater level of detail and were ranked with a score of two points. Oil paintings by Pre-Raphaelite artists and their followers scored more highly on account of their precision and the level of detail captured, and such works achieve a score of four points.

Figure 5.9: An oil painting of *'Durlstone Castle, Dorset'* by J. Hardy, c.1900. Image Courtesy: Swanage Museum & Heritage Centre.

Steel engravings and aquatints were often published individually or as sets; others were contained in topographical books in the pre-Victorian period and through the early-to-mid nineteenth century. The British coast benefits from a wealth of such works, for example the views by W. H. Bartlett and T. Allom in '*Devon and Cornwall Illustrated*' (Britton & Brayley, 1832[6]), and the Finden Brothers' '*Ports, Harbours, Watering Places and Picturesque Scenery of Great Britain'* (Finden, 1838[7]). In view of the richness of this resource and the fine detail that could be achieved, combined with the benefits of colouring of some of the views, three points were awarded for this category.

Figure 5.10: *'St Mawes Castle'* by Thomas Allom illustrates the much greater detail that could be obtained from the steel engraving process compared with copper plates as in Figure 5.8 above).

Lithographs were capable of achieving extremely fine detail. There are excellent examples by artists in the south-west including Philip Mitchell, W. Spreat and George Rowe. To this category must be added the exceptionally fine aquatint views by William Daniell RA, which are contained in his *'Voyage Round Great Britain'* (Daniell & Ayton, 1814-1825[8]). The quality of some of the hand-coloured lithographs equates almost to that of watercolour drawings; as a result, lithographs are given a score of five points, the same score as for *watercolour drawings*. Not only is there an extensive resource of fine watercolour drawings covering most parts of the South-West coast, but the detail achieved using this technique is extremely helpful by providing information on cliff and slope geology and the nature of beach and cliff conditions as well as the extent of coastal development at the time. Those *watercolours by Pre-Raphaelite artists and their Followers* score a maximum of six points on account of their even more detailed appreciation.

Figure 5.11: *'Ilfracombe, North Devon'* a mid-nineteenth century lithograph, which shows the harbour scene in fine detail. Together with watercolour drawings, this category offers some of the best visual images of the coastal environments and heritage of the time.

5.2.3. The Value of the Subject Matter

This third ranking category is of great importance to those interested in coastal heritage risk management. As a result, a weighting factor of x2 has been applied over three levels. First, *General coastal views,* which contribute to an overall appreciation of the coastal geomorphology and potential impacts of change scores one point. Second, *More detailed works* providing information on the nature of heritage development on the beach, the coast line and hinterland would score two points. Finally, the highest scoring category is for those *works providing a detailed appreciation* of many aspects of the coast, including the geology, beach and cliff change, coastal hazards and risks to heritage assets, which score three points. As a result of the weighting in this category, a maximum of six points can be achieved.

Figures 5.12 (above) *'Swanage'* in Dorset (c.1910) by E. W. Haslehust, and **5.13 (right)** of *'Lulworth Cove, Dorset'* (1803) by S. Alken are *'General Coastal Views'* and score one point.

Figure 5.14: *'Bournemouth'* by Alfred Robert Quinton, c.120. Watercolour.

'More detailed view' scoring two points.

Figure 5.15: *'Teignmouth from the Walk, South Devon'*. An aquatint by W. Reed, c.1830.

A *'More detailed view'* scoring two points.

Figure 5.16: *'Clevedon'*, North Somerset coast sketched by Lady Elton, c.1860s.

A *'More detailed view'* scoring two points.

Figure 5.17: *'Ilfracombe from Hillsborough'* by Alfred Robert Quinton. Watercolour, c.1920. Image Courtesy: J. Salmon Limited of Sevenoaks.

A *'Highly detailed view'* scoring three points.

Figure 5.18: *'Babbacombe'* by T. Fidlor, c.1840.

A *'Highly detailed view'* showing heritage sites scores three points.

Figure 5.19: *'A Mount's Bay Fishing Village (Mousehole)'* by George Wolfe. Watercolour, 1860. Image Courtesy: Penlee House Art Gallery and Museum, Penzance.

A *'Highly detailed watercolour'* scores three points.

5.2.4. Time Period of the Artwork

The final ranking category represented the value of the time period in which the artist was working. Three time periods were identified, *1770-1850* (scoring three points); *1850-1930* (scoring two points), and*, 1930-1950 (*scoring one point). The rationale behind these scores is that the early works are generally of the greatest interest as they pre-date the age of photography and offer images often in colour. The second time period runs in parallel with the development of photography but again offering the added value of colour images for most of the timeframe. Finally, the period from 1930-1950 sees the more widespread use of aerial photography and colour photography and thus artworks are rather less significant and score one point.

The overall ranking rationale is set out in Table 5.1 below.

Figure 5.20 (left): *'Sidmouth, Devon'* (Detail) by Hubert Cornish. Early nineteenth century. Image Courtesy: Woolley & Wallis.

Early Period 1770-1850, scores three points.

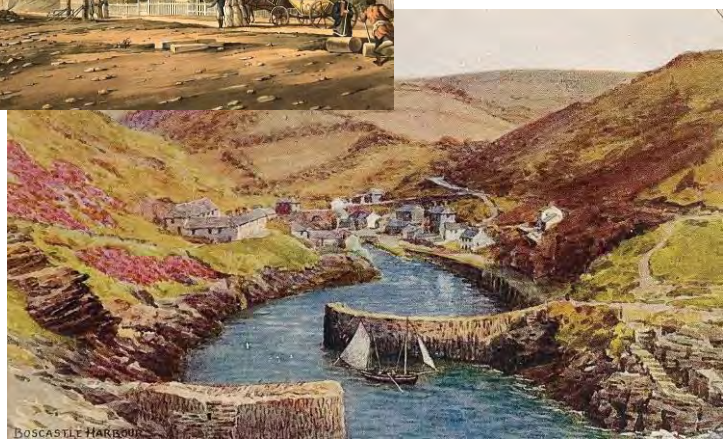


Figure 5.21 (right): *'Boscastle Harbour'* by Alfred Robert Quinton, c.1920. Watercolour. Image Courtesy: J. Salmon Limited of Sevenoaks.

Middle Time Period 1850-1930, scores two points.

Figure 5.22 (left): *'Ruined Lighthouse, Portland'* by Leslie Moffat Ward. Watercolour. Image Courtesy: Russell Cotes Museum and Art Gallery, Bournemouth.

Late time period 1930-1950, scores one point.

1.	Accuracy of Artistic Style (Maximum 5 Points)	
1.1	Genre subjects	1 point
1.2	Romantic Scenery	2 points
1.3	Marine/Shipping subjects	3 points
1.4	Topographical Subjects	4 points
1.5	Topographical Subjects with Pre-Raphaelite influence	5 points
2.	Most advantageous medium for illustrating coastal change (Maximum 6 points)	
2.1	Copper plate engravings	1 point
2.2	Oil paintings	2 points
2.3	Steel Plate engravings and aquatints	3 points
2.4	Oil paintings by Pre-Raphaelites, and their Followers	4 points
2.5	Daniell Aquatints, Lithographs, Fine pencil and watercolour drawings	5 points
2.6	Watercolour drawings exhibiting Pre-Raphaelite influences	6 points
3.	Value of the subject matter in supporting understanding of coastal change & heritage risk **(weighting x2 and Maximum score of 6 points)**	
3.1	General coastal views	1 point
3.2	More detailed views including some appreciation of processes and impacts on development	2 points
3.3	Detailed coastal views informing of hazard and risk potential to heritage on the shoreline, cliff tops and hinterland	3 points
4.	Value of the time period (Maximum of 3 points)	
4.1	1770-1850 (early)	3 points
4.2	1850-1930 (Victorian/Edwardian and post WW1 period)	2 points
4.3	1930-1950 (Post-WW2/Recent period)	1 point
Compiling the scores for ranking artists and their works		
1.	Accuracy of artistic style	Maximum 5 points
2.	Most advantageous medium	Maximum 6 points
3.	Value of subject matter	Maximum 6 points
4.	Value of the time period	Maximum 3 points
5.	Total maximum score	20 points

Table 5.1: Summary of the ranking system for establishing the usefulness of coastal artworks to support our understanding of the changing coast.

Artist	Accuracy of Style	Most Advantageous Medium	Value of Subject	Time Period	Total Score
Charles Robertson	5	6	6	2	19
John C. Buckler	4	5	6	3	18
Hubert Cornish	4	5	6	3	18
William Daniell	4	5	6	3	18
William Dawson	4	5	6	3	18
Myles Birket Foster	5	5	6	3	18
Samuel Edward Kelly	5	5	6	2	18
Philip Mitchell	4	5	6	2	18
George Rowe	4	5	6	3	18
George Wolfe	5	5	6	2	18
John Brett	5	4	6	2	17
Edward William Cooke	5	4	6	2	17
Edward Duncan	4	5	6	2	17
Lady Elton	5	5	4	3	17
Charles Napier Hemy	5	4	6	2	17
Peter O. Hutchinson	4	5	6	2	17
Samuel Phillips Jackson	4	5	6	2	17
Alfred Robert Quinton	4	5	4	2	17
Thomas Girtin	4	5	4	3	16
Charles W. S. Naper	4	4	6	2	16
William Payne	4	5	4	3	16
William Turner of Oxford	5	5	4	2	16
Thomas Allom	4	4	4	3	15
James D. Harding	4	4	4	3	15
John W. Inchbold	4	5	4	2	15
John Mogford	4	5	4	2	15
Henry Moore	4	5	4	2	15
Harold S. Palmer	4	5	4	2	15
Edward F. D. Pritchard	4	5	4	2	15
Henry B. Wimbush	4	5	4	2	15
Capt. J. Vine-Hall	4	5	4	2	15
John W. Carmichael	4	2	6	2	14
John G. Naish	4	4	4	2	14
Francis Towne	4	5	2	3	14
Joseph M. W. Turner	4	5	2	3	14
George Webster	4	1	6	3	14
William L. Wyllie	3	5	4	2	14
Ernest W. Haslehust	4	5	2	2	13
Albert Goodwin	4	5	2	2	13
William R. Beverley	3	5	2	2	12
John T. Serres	3	2	4	3	12
W. Williams	4	2	2	2	10
Samuel J. L. Birch	4	2	2	2	10
John M. Carrick	4	2	2	2	10
Stanhope Forbes	4	2	2	2	10
Thomas Luny	3	2	2	2	9

Table 5.2: Examples of more prolific Artists' Ranking for South-West England Study Area

Notes:

1. Where an artist painted in more than one medium the score is based on the most commonly used medium for coastal art.
2. Where an artist spans two time periods the score relates to the period in which the artist was more prolific.
3. J. M. W. Turner – ranking refers to his early topographical watercolours.

5.3. Ranking photographs and photographic postcards

Photographs are an invaluable resource to support heritage studies because they represent true depictions of the landscape; there is not the need to rank them in the same way as artworks (where views may be susceptible to interpretation and variation). For photographs to be used effectively to support heritage risk management the two key issues are first, the *content* (in terms of what the image tells us) and, second, the *quality of the image*. A further key factor that may influence the potential value of the image is the *time period* of the photograph as early views can provide the only record of lost or altered heritage assets.

5.3.1. Content of the Photograph:

This ranking category is of great importance to those interested in coastal heritage risk management. As a result, a weighting factor of x2 has been applied over three categories. First, *General coastal views,* which contribute to an overall appreciation of the coastal environment and potential impacts of change scores one point. Second, *More detailed works* providing information on the nature of heritage development on the beach, the cliff line and hinterland would score two points. Finally, the highest scoring category is for those *works providing a detailed appreciation* of many aspects of the coast, including the geology, beach and cliff change, coastal hazards and risks to heritage assets, which score three points. As a result of the weighting in this category, a maximum of six points can be achieved.

Figure 5.23: This photographic postcard of Minehead (1956) provides a general view of the coast and scores one point.

Private Collection.

Figure 5.24: An extensive view of *'Sidmouth from Salcombe Hill'* (1957). This frontage includes many sites of heritage significance both in cliff top fields and in the town itself. Such photographs score two points.

Private Collection.

Figure 5.25: This very detailed photograph shows the former Marconi Radio Station at Poldhu, Cornwall, in 1910. It is an example of a *'very detailed'* photograph scoring three points.

Private Collection.

5.3.2. Quality of the Image:

This relates to the condition of the image. If a photograph is *poorly exposed* or the original has deteriorated, and yet still allows an element of interpretation a ranking score of one point is appropriate. An *image of satisfactory but not exceptional clarity* merits two points whilst a *sharp, well-defined photograph* that allows significant scope for interpretation would score three points.

Figure 5.26: *'Salcombe Castle, Devon',* 1910. Private Collection.

Whilst the subject is of interest, its quality is poor and does not allow detailed inspection. As a result, photographs of this quality score one point.

Figure 5.27: This view of *'Mevagissy Harbour'*, c.1920, provides rather sharper detail and, hence, merits two points.

Private Collection.

Figure 5.28: This photograph of *'Sennen Cove, Cornwall'* (1910) is very clear and it is easy to assess its heritage content. As a result, it scores three points.

Private Collection.

5.3.3. Value of the Time Period:

The third photographic ranking category represented the value of the time period in which it was taken. Four time periods were identified, *1840-1860* (scoring four points); *1860-1900* (scoring three points), *1900-1950* (scoring two points) and*, 1930-1950 (*scoring one point). The rationale behind these scores is that in the earliest photographs, although sometimes of lesser clarity, may offer very rare and reasonably accurate depictions of their subjects with the greatest time-depth possible for such a photograph. They often depict heritage features long removed or masked as visible features (by development or vegetation) yet may still present archaeological survivals. They may also provide evidence of long-vanished land-uses affecting what are now surviving heritage features. By 1860-1900 coastal photography was well developed and becoming increasingly popular. The third time period from 1900-1930

saw the emergence and popularity of photographic picture postcards, which resulted in a huge increase in the availability of images for potential study, including, increasingly, the use of colour; this category scores two points. Finally, the period from 1930-1950 saw the more widespread use of aerial photography and colour photography of rapidly increasing quality; this formed an ideal resource in support of the interpretation of heritage sites including particularly buried features, hence a score of one point.

The overall ranking rationale is set out in Table 5.3 below.

Figure 5.29: An early general view of *'Lyme Regis'*, c.1860. Such images often depict structures and features that have been lost or adapted, as well as illustrating past management practices. This photograph scores four points.

Private Collection.

Figure 5.30: A typical Victorian coastal view of *'Anstey's Cove, South Devon'* showing a recent major rockfall in about 1900. This photograph scores three points.

Private Collection.

Figure 5.31: *'Old Newlyn* Harbour', c.1928. The popularity of photographic postcards from 1900 provides a rich resource of additional heritage information. This photograph scores two points.

Figure 5.32: *'Jacob's Ladder'* at Sidmouth, c.1970. The increasing use and quality of colour photography for postcards increased their popularity and usefulness for archaeological/heritage studies still further. Such images score one point.

Image Courtesy of J. Salmon Ltd of Sevenoaks.

1. Content of the Photograph **(weighting x2 and Maximum score of 6 points)**		
1.1.	General coastal views	1 Point
1.2.	More detailed views including some appreciation of processes and impacts on development	2 Points
1.3.	Detailed coastal views informing of hazard and risk potential to heritage on the shoreline, cliff tops and hinterland	3 Points
2. Quality of the Image (Maximum of Three Points)		
2.1.	Poorly exposed or deteriorated images	1 Point
2.2.	Photographs of satisfactory clarity	2 Points
2.3.	Sharp and well defined photograph	3 Points
3. Value of the Time Period		
3.1.	1840-1860	4 Points
3.2.	1860-1900	3 Points
3.3.	1900-1930	2 Points
3.4.	1930-1950	1 Point

Compiling the Scores for Ranking Photographs and Photographic Postcards		
1.	Quality of the Image	Maximum of Three Points
2.	Content of the Photograph	Maximum Score Six Points
3.	Value of the Time Period	Maximum score Four Points
Total Maximum Score (with Weighting)		**Thirteen Points**

Table 5.3: Summary of Ranking for Photographic Images

References

1. McInnes, R. & Stubbings, H., 2011. *'A Coastal Historical Resources Guide for England'*. The Crown Estate. ISBN: 978 1 906410 19 3.
2. Nordstrom, K. F. & Jackson, N. L., 2007. '*Using Paintings for Problem-Solving and Teaching Physical Geography'.* Journal of Geography. 100:5, 141-151.
3. Ruskin, J., 1853. '*Lectures on Architecture and Painting'.* The Phylosophical Institute, Edinburgh.
4. Momber, G., Satchell, J., Tidbury, L. & McInnes, R. G., 2014. '*Arch-Manche: Archaeology, Art and Coastal Heritage'.* Final report of the Interreg IVA Project. www.archmanche.hwtma.org.uk.
5. Russell, R., 1979. '*Guide to British Topographical Prints'.* David & Charles. Newton Abbot. ISBN: 0-7153-7810-4.
6. Britton, J. & Brayley, E.W., 1832. '*Devon and Cornwall Illustrated'.* P. Jackson. London.
7. Finden, E. & Finden, W., 1838. '*The Ports, Harbours, Watering Places and Picturesque Scenery of Great Britain'.* Virtue & Co. London.
8. Daniell, W. & Ayton, R., 1814-1825. '*A Voyage Round Great Britain'. Private Press.*

6. South-West Heritage Sites - Case Studies

6.1. Identification of heritage sites currently or potentially at risk

The task of identifying potential coastal heritage sites in Dorset, Devon, Cornwall and Somerset involved three stages. The first of these was the development of a long list of possible sites of interest; these were gathered from a range of sources. First, from studies and investigations by English Heritage and Historic England, such as the *'South West Heritage At Risk'* report (Historic England, 2015[1]), the Rapid Coastal Zone Assessments (RCZAS) that have been undertaken to date or are being progressed across the study area, the second round of Shoreline Management Plans, and discussions with heritage officers and coastal engineers within the local authorities and coastal groups, together with many other consultees. It is important also to note that much of the south-west coast may have undiscovered archaeological/heritage potential and, therefore, future changes to the coast are likely to expose further sites of great interest.

In parallel, a further review was made of reports relating to coastal erosion, cliff falls, landslides and flooding in the south-west through internet searches and newspaper and scientific article reviews. As a result of this wide-ranging research, a list of one hundred and seventy-six potential locations, comprising either coastal frontages or individual sites, was compiled. The second stage involved a review of these sites in order to establish those locations, which were not only affected by coastal risks, but also offered the best range of examples of heritage assets that might be affected by coastal change. This review was achieved through a second round of meetings with local authority Historic Environment officers. After this review, taking account, in particular, of the useful advice from heritage officers, the list was reduced to one hundred and four sites.

Bearing in mind that the purpose of the 'CHeRISH' study is to illustrate how historical images (oil paintings, watercolour drawings, prints, old photographs and postcards) can inform heritage management; it was then necessary to ascertain whether there were sufficient suitable images to illustrate the point of this study at those locations identified as having heritage assets at risk.

The south-west of England has a very rich artistic heritage and was the venue for many of our leading artists in the late eighteenth, nineteenth and early twentieth centuries in particular. As a result, most of the locations identified as being at risk did have artworks of some kind to draw upon. Some locations were much better served than others, and the successes and limitations of the use of art to inform heritage risk management is drawn out both within the individual case study examples and also in the analysis of the results (see Section 6.4 below). Following the artistic appraisal of the various heritage sites, a final list of eighty-four locations was confirmed; this list is provided in Appendix two of this report. These sites were then grouped logically to form the project case studies.

For each of the twenty-three case studies, a concise summary page is provided at the beginning, which sets out the following key information:

1. Location
2. Why was the Case Study site selected?
3. Summary of the Geology, Geomorphology and Coastal Processes
4. Risks to Heritage Assets along the Case Study frontage
5. How can historical imagery inform Heritage Risk management?
6. Key issues – What can be learned from the site?
7. References.

The case studies commence at the Hampshire/Dorset County Boundary near Christchurch, and continue westwards along the Dorset and south Devon coasts to Cornwall and the Isles of Scilly. They continue up Cornwall's northern coast and those of Devon and Somerset, to the north-eastern project boundary at Clevedon. Of the twenty-three case studies, twenty are site specific, whilst three are generic in nature. The site specific case studies generally cover a short frontage and examine issues such as erosion, cliff instability, flooding and coastal change policy and its impacts on cliff base and cliff top heritage. By contrast, the generic case studies, which cover 'Cornish Harbours', 'Cornish Cliff Castles' and 'Mining and Civil Engineering Heritage in South-West England', provide and describe, through numerous examples, approaches to risk management and planning, as well as illustrating the potential for images to support our understanding of these topics.

In discussions with local authority staff in particular, the value of the range of images, particularly of the coastal towns and villages, which plot the patterns of development and change over time, proved to be of great interest. For example, at Torquay, Plymouth and many of the smaller coastal towns and villages which saw rapid change in the Victorian and Edwardian periods in particular, artworks provide a wealth of information on the development, alteration and, in some cases, loss of heritage features. As a result, examples of the way that such images can be interpreted successfully and used to support Conservation Area policy and planning policies, are provided. The full list of case studies is provided below:

CHeRISH PROJECT CASE STUDIES – COASTAL CHANGE ISSUES AND HERITAGE INTERESTS

A. <u>Dorset</u>

1. Highcliffe – Hengistbury Head
Historical erosion and flooding issues; coastal change policies. Highcliffe Castle frontage, Christchurch Priory and Hengistbury Head.

2. Poole Harbour
Flooding and coastal change issues and policies. Brownsea Island and Studland.

3. The Isle of Purbeck
Erosion & cliff falls; Swanage Bay, Durlston, Windspit Quarries, St Aldheim's Head.

4. Clavell Tower and Kimmeridge Bay
Erosion; coastal change policy. Clavell Tower case study, Kimmeridge Quay.

5. Lulworth Frontage
Coastal erosion; earthworks, field systems.

6. Weymouth & the Isle of Portland
Erosion, cliff falls; castles, lighthouses, harbour breakwater.

7. West Bay to Lyme Regis
Coastal erosion and landsliding. West Bay Harbour and The Cobb.

B. <u>South Devon Coast</u>

8. Beer
Erosion and instability. Cliff top heritage sites.

9. Sidmouth
Erosion and cliff instability. Shoreline and cliff top heritage; numerous listed buildings and Conservation Area.

10. Exmouth & Exe Estuary
Erosion and flooding impacts on heritage.

11. Dawlish to Teignmouth
Erosion risk. Dawlish Warren. Cliff top heritage and coastal settlements.

12. Babbacombe and Torquay
Coastal erosion and cliff instability. Changing development patterns and heritage losses. Images interpretation. Conservation Areas.

13. Start Point to Salcombe
Coastal erosion. Cliff top heritage sites.

14. Plymouth
Development patterns; images interpretation; military history; Conservation Areas.

C. <u>Cornwall and the Isles of Scilly</u>

15. Cornish Harbours Studies
Generic study of issues surrounding the illustration and the conservation of Cornish harbours.

16. St Michael's Mount
Flooding and sea level rise. The Mount, The Causeway and shoreline heritage.

17. **Prehistoric Promontory Forts and Later Cliff Castles**
Generic case study of the illustration of castles and the cliff instability and erosion impacts on heritage.

18. The Isles of Scilly
Coastal erosion. Military heritage.

19. SW England Mining and Civil Engineering Heritage Study
Generic case study illustrating the depiction of mining and other infrastructure sites and how they have been illustrated through art.

D. <u>North Devon Coast</u>

20. Hartland Point to Clovelly
Cliff instability and erosion. Cliff top fortifications. Embury; Clovelly.

21. Ilfracombe
Coastal management. Patterns of development change.

22. Exmoor Coast
Coastal erosion and cliff instability. Cliff top heritage sites; Lynmouth and Porlock.

23. Minehead to Clevedon
Coastal erosion and flood risk. Coastal development patterns. Conservation Areas.

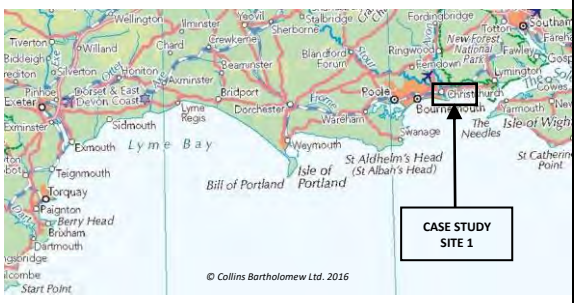
References

1. Historic England, 2015. *'Heritage at Risk – South-West Summary'*.

Case Study Site 1 – Highcliffe to Hengistbury Head, Dorset

1. Location

The study site extends from the Dorset - Hampshire border close to Highcliffe Castle westwards to include the Christchurch harbour frontage and Hengistbury Head; a total distance of 8km.



2. Why was the Case Study Site selected?

This site was chosen because it includes the soft cliff frontages at Highcliffe and Hengistbury Head that have been susceptible to coastal erosion, together with potential flooding issues within Christchurch Harbour. Over the last two centuries the study site has illustrated the impacts of coastal change on heritage assets, including the former Old High Cliff House, and Hengistbury Head, which was a defended site during the Iron Age.

3. Summary of the Geology, Geomorphology & Coastal Processes

The geology of this frontage comprises silts, sands and shelly clays of the Solent Group, Bracklesham and Barton Groups of the Eocene and Oligocene epochs. Historical accounts suggest maximum erosion rates of up to six metres a year after severe storms, although the average rate of cliff retreat over the last century prior to the construction of coastal defences averaged one metre per annum.

The direction of sediment transport in Christchurch Bay is from west to east with cliff and coastal slope erosion contributing to the sediment inputs. Sediments are also driven onshore by waves from Christchurch Bay both to the south of Hengistbury Head and to the east of Christchurch Harbour (New Forest DC & Halcrow, 2013[2]).

4. Risks to Heritage Assets along the Case Study Frontage

Working from east to west, coastal erosion has proved to be a significant risk to heritage in the past. The former Old High Cliff House was constructed by the third Earl of Bute from 1775; Lancelot 'Capability' Brown landscaped the grounds (Stevenson, 2016[1]).

Figures 1.1 and 1.2 overleaf show views of the old house from the sea and from the east, whilst Figure 1.3 shows the grand north façade. A pair of elegant circular temples and a gazebo adorned the cliff edge. (See Figures 1.4 and 1.5). The unstable nature of the cliff can be observed in Figure 1.5 and rapid coastal erosion led to the loss of the temples and necessitated the demolition of the property from 1813.

The new Highcliffe Castle (Figure 1.6), a Grade I Listed Building, was constructed by Baron Stuart de Rothsay from 1830, and was set back much further from the cliff edge. The relative positions of Old High Cliff House and Highcliffe Castle are plotted on the 1980 Ordnance Survey map and indicate the extent of erosion at that time (Figure 1.7).

The frontage is now protected through cliff drainage works, together with rock groynes and beach replenishment (Figure 1.8).

Figure 1.1: *'High Cliff from the Sea'* by Adam Callader. Oil on Canvas. 1783. This view shows the proximity of the mansion to the unstable cliffline. By 1813 the property had to be demolished.

Image Courtesy of V. & A. Images.

Figure 1.2: *'High Cliff from the East'* by Charles Stewart. Oil on Canvas. 1783. The view shows the relationship between the house and the cliff. Christchurch Priory and Hengistbury Head can be seen in the distance.

Image Courtesy: Private Collection.

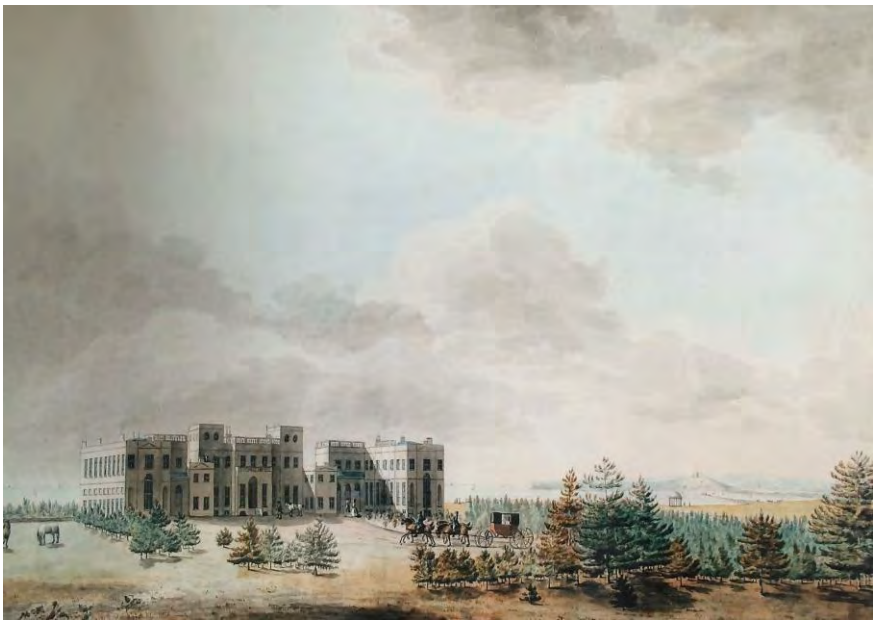


Figure 1.3: *'High Cliff'* showing the north façade by Charles Stewart. Oil on Canvas. 1783.

Image Courtesy: Private Collection.

Figure 1.4: *'High Cliff Mansion'* after its wings had been removed to make the residence a more manageable size. Brown wash watercolour by Elizabeth Fanshawe. 1811. The pair of temples or gazebos may have been lost as a result of coastal erosion and instability.

Image Courtesy: Ian Stevenson Collection.

Figure 1.5: 'Capability' Brown's early *Beach Hut'* on the cliffs below High Cliff Mansion. Workers can be seen repairing the slope and path down the obviously unstable cliff.

Image Courtesy: Ian Stevenson Collection.

Figure 1.6: *'Highcliffe Castle'* today. The Grade I Listed Building is set well back from the cliff. The Castle represents an early example of adaptation to a rapidly changing coastline.

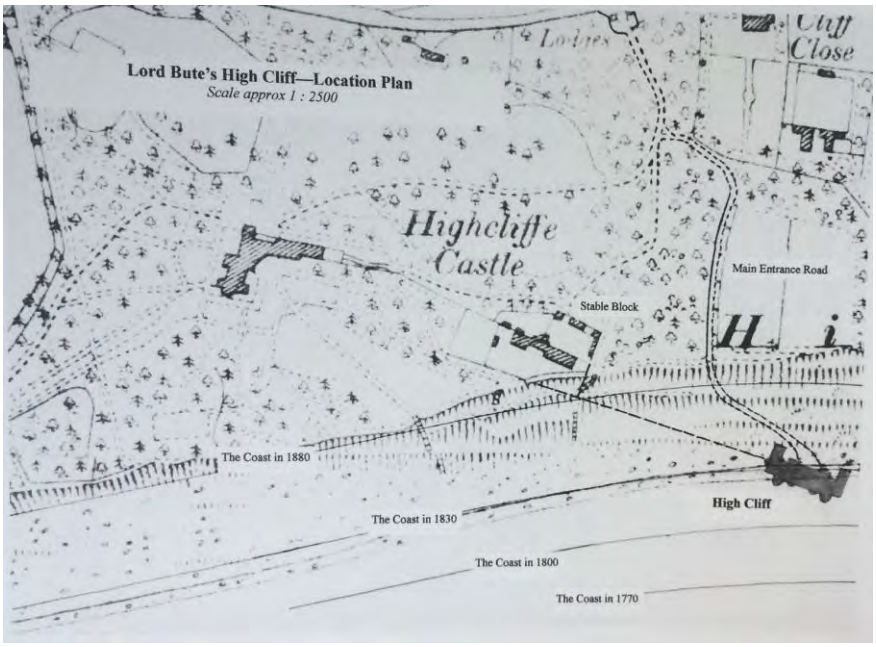


Figure 1.7: A map showing the relative positions of old High Cliff House and Highcliffe Castle plotted on the 1908 Ordnance Survey Map. The extent of land loss up to 1908 is clearly visible bearing in mind the old house was constructed perhaps 100-150 metres back from the cliff.

Map OS Crown Copyright.

Image Courtesy: Frank Tyhurst

Figure 1.8: Highcliffe beach today. The rock breakwaters, beach replenishment and cliff works help to protect the frontage. The frontage has a 'Hold the Line' coastal protection policy for the next Century.

Image courtesy of J. Salmon Ltd of Sevenoaks.

On the northern side of Christchurch Harbour lies the medieval town of Christchurch, which contains a designated Conservation Area with numerous Listed buildings (including five Grade I), and ancient monuments. One of these, Christchurch Priory, is located between the northern bank of the River Stour and the western bank of the River Avon. The area is partially defended by floodwalls, which offer some protection to the Priory Quay frontage. However, the walls have been classified by the Environment Agency as non-flood defence structures and consideration is being given to improving the flood defences in the area (New Forest District Council, 2013[2]). The picturesque Priory was a subject chosen by many artists from William Daniell RA (Daniell & Ayton, 1814-1825[3]) who painted it in 1825 (Figure 1.9) to the painter in oils, Sidney Pike in 1896 (see Figure 1.10). Later the prolific watercolourists and colour postcard artists Alfred Robert Quinton and Henry Wimbush painted the Priory in its waterside setting (Figures 1.11 and 1.12; Figure 1.13). The artist David Addey (Addey, 2002[4]), whilst retracing William Daniell's journey round the British coast, painted a watercolour of the same view in 2002 (Figure 1.14).

Figure 1.9: '*Christchurch'* by William Daniell RA. A hand-coloured aquatint engraving from his *'Voyage Round Great Britain'* (1825). Daniell was a fine, accurate draughtsman as well as a topographical artist. See also David Addey's view from the same location in 2002 (Figure 1.14 below).

Image Courtesy: Private Collection.

Figure 1.10: *'Christchurch Priory'*. An evening scene in oils by Sidney Pike painted in 1896.

Image reproduced with kind permission of the Russell Cotes Museum and Art Gallery, Bournemouth.

Figure 1.11: *'Christchurch Priory'* by the prolific watercolourist and colour picture postcard artist, Alfred Robert Quinton (c.1920). Quinton's work is generally very accurate and his output of over 4,000 British coastal views, like Daniell a century before, provide a virtual 'state of the coast' report for the time.

Image Courtesy: J. Salmon Limited of Sevenoaks.

Figure 1.12: A further fine watercolour of *'Christchurch Priory'* by A. R. Quinton (c.1920). Water levels in these two views can be noted for comparison over time.

Image Courtesy: J. Salmon Limited of Sevenoaks.

Figure 1.13: *'Christchurch Priory'* by Henry B. Wimbush (c.1910) who was a postcard and book illustrator who worked for Raphael Tuck (postcards) and A. & C. Black (publishers). The condition of the Priory buildings and their proximity to the water's edge is shown very clearly.

Figure 1.14: *'Christchurch Priory'* by David Addey; a watercolour painted in 2002 replicating Daniell's view. The Priory and adjacent buildings are now largely obscured by trees although the eleventh century Place Mill, on the right, is still visible.

Image Courtesy of David Addey.

Hengistbury Head runs eastwards from Bournemouth for a distance of approximately 3km, and protects Christchurch Harbour from the prevailing south-westerly storm waves. The location is particularly well-known for the '*Double Dykes'* which are at the seaward end of the Head. During the Iron Age the headland was defended by this parallel pair of dykes that ran from the sea to the south across Hengistbury Head to Christchurch Harbour to the north. The site is a Scheduled Ancient Monument and the frontage is defended by a substantial beach along the south side, which is controlled by rock groynes. The Long Groyne, and the seventeen associated groynes sited due north of it at Hengistbury Head, fulfil a key coast protection function. Because of the nature of this landscape it was not chosen by many artists as a subject in the past and there are very few historical artworks. A view from Hengistbury Head towards High Cliff was painted in watercolour by Nicholas Pocock in the nineteenth century (Figure 1.15), and, later, in the mid-nineteenth century an oil was painted by A. L. Baldry looking along Hengistbury Head towards Mudeford, which shows the 'Double Dykes' in 1890 (see Figure 1.16).

Figure 1.15: *'Christchurch and Old High Cliff House'* viewed from Hengistbury Head. A watercolour by Nicholas Pocock (1740-1821). This general view was probably a sketch for a future studio work – possibly for High Cliff House.

Image Courtesy: The Red House Museum, Christchurch.

Figure 1.16: *'Mudeford from Hengistbury Head'*. An oil on Canvas painted in 1890 by A. L. Baldry. The 'Double Dykes' are visible in the middle of the painting. There are few artworks of Hengistbury Head perhaps because the location was not seen as sufficiently 'Picturesque' by visiting artists.

Image by kind permission of the Russell Cotes Museum and Art Gallery, Bournemouth.

5. How can historical Imagery inform heritage risk management?

In the case of the Highcliffe frontage, the impacts of erosion led to the loss of High Cliff House and an apparent lack of awareness of the rate of coastal retreat at that time. The images, however, provide a wealth of information on the property, architectural detail and the nature of coastal change. Historic evidence suggests that erosion rates of in excess of 1m per annum are likely to be experienced if defences are not maintained, and this rate would be likely to increase as a result of more changeable weather patterns and rising sea levels brought about by climate change.

In the case of Christchurch Priory, the watercolour drawings by Alfred Robert Quinton and others of the Priory adjacent to the river and water meadows suggest a vulnerability to flooding at this location, although it is understood that the Priory site has not flooded in the past. Flood risk is likely to be addressed further in the face of climate change and sea level rise over the next century.

The number of engravings or artworks of Hengistbury Head appears to be very limited. Perhaps the landscape was not deemed to be sufficiently '*Picturesque'* to merit attention. Of those artworks that exist, the main focus is of general topography and the heritage interest in terms of the '*Double Dykes*' is illustrated perhaps as part of the topography rather than a heritage feature.

6. Key Issues – What can be learnt from this site?

This study site clearly illustrates risks to heritage from erosional processes as witnessed by the cliff retreat at Highcliffe, and highlights an apparent vulnerability to flooding at Christchurch Priory (see Figure 1.17). It emphasises the vital role played by coast protection structures and flood defence measures in terms of protecting such coastal heritage assets. Likewise, at Hengistbury Head, the site is protected by significant coastal defences supported by a substantial beach accretion. Whilst artworks can support understanding of past conditions at Highcliffe and Christchurch Quay the heritage interest at Hengistbury Head will be illustrated most effectively through aerial photography.

Figure 1.17: A view of Christchurch Priory showing the waterside location. Consideration is being given to upgrading flood defences in the vicinity.

Image Courtesy of Jinny Goodman/Alarmy.

7. References

1. Stevenson, I., 2016. '*Highcliffe Castle Guide Book'.* Christchurch Borough Council. 32pps.
2. New Forest District Council and Halcrow Group, 2013. '*Christchurch Bay and Harbour Flood and Coastal Erosion Risk Management Strategy*'. Report for Christchurch Bay and Harbour Strategy Group.
3. Daniell, W. & Ayton, R., 1814-1825. '*A Voyage Round Great Britain'.* Longman & Co.
4. Addey, D., 1995. '*A Voyage Round* Great *Britain in the Footsteps of William Daniell RA (1769-1837)'.* Spellmount Limited. ISBN: 9 781873 376348.

Case Study Site 2 – Poole Harbour and Studland, Dorset

1. Location

The case study site extends from Canford Cliffs to the west of Bournemouth southwards to the southern end of Studland Bay; it also includes Poole Harbour and Brownsea Island within it.

2. Why was the Case Study Site selected?

This case study site is of interest because it illustrates the impacts of coastal erosion and cliff instability on heritage assets at Canford Cliffs, together with new approaches to coastal management affecting environment and heritage sites owned by the National Trust at Brownsea Island and Studland beach.

3. Summary of the Geology, Geomorphology & Coastal Processes

The whole of this case study site lies within sand, silt and clay formations of the Bracklesham and Barton Groups of the Eocene epoch. In terms of sediment transport the prevailing direction is from west to east between Poole Harbour and Bournemouth, although there is some movement in the opposite (anti-clockwise) direction; beach sediments are also accreted from material being driving onshore. Within Poole Harbour, again the general trend is from west to east, with inputs from the Wareham Channel and Lytchett Bay in the west. Sediment circulates general from west to east along the south coast of Brownsea Island whilst erosion around the shores of the harbour contributes sediment to the overall system (Royal Haskoning,2011[1]).

4. Risks to Heritage Assets along the Case Study Frontage

Between Canford Cliffs and Poole Head retreating cliffs, as a result of coastal erosion of the soft sands and clays, have led to the loss of both Simpson's Folly at the foot of the cliff and a 'Martello Tower' on the eastern side of Canford Cliffs Chine (Figure 2.3). In Poole Harbour, Brownsea Island contains Brownsea Castle, originally a fort constructed by Henry VIII between 1545 and 1547 to protect Poole Harbour from French attack (Figures 2.6-2.8). In 1726 the castle was converted into a private residence and, together with adjacent historic properties, occupies a waterfront location on the Island's southern shore (National Trust, 1993[2]).

Seventeen properties on Brownsea Island are currently at risk of flooding in the vicinity and this number is likely to increase by the end of the century although existing defences limit the annual risk of flooding to less than 5%. The approach to coastal management at Brownsea Island represents an example of the National Trust's national planning policy for coastal change and a locally focused adaptation strategy for the future management of the Island based on the Shoreline Management Plan recommendations (Royal Haskoning, 2011[1]).

Within Poole itself there are numerous Listed Buildings particularly in the Old Town, Quay and High Street Conservation Areas. Poole Quay has been subject to overtopping and since the 1950s it has been raised several times. Replacement with a new wall is now under consideration (Environment Agency, 2014[3A]). The old quayside is depicted in numerous paintings with fine examples in the Poole Museum collection.

The Studland Bay frontage (Figures 2.11-2.14) has been included in this case study because, although there are no heritage assets in the immediate vicinity, the principles being established through the National Trust's approach at Swanage are likely to become more widely applied, in line with current government guidance, which is aimed at managing coastal change through taking a long-term perspective and working with natural processes (National Trust, 2014[4]; Environment Agency, 2014[3B]). This policy has heritage implications elsewhere across the CHeRISH case study sites such as Mullion Harbour in Cornwall.

5. How can historical Imagery inform heritage risk management?

Along the Canford Cliffs frontage two examples of the impacts of coastal erosion and cliff instability on heritage are illustrated. In 1874, a landowner, Captain John Hawkins Simpson, decided to build a row of seaside villas on the shore at Canford Cliffs between Flaghead Chine and Shore Road. Having obtained the permission of the landowner, and of the local authority the first of these houses was built (see Figure 2.1). The square flat-roof structure took four years to build and was completed in 1878 with a large seawall protecting it. However, the house had been built on a foundation of clay and sand and the sea quickly washed under the defences, making it unstable. The foundations were undermined and Captain Simpson was forced by the local authorities to abandon the property within weeks of its occupation. The property stood empty and the sea continued to undermine the property (Figure 2.2). By 1889 the whole property was collapsing. Poole Corporation ordered the demolition of the building for safety reasons and in 1890 the local authority blew up the remains of the property with gun powder. A high pile of concrete blocks and rubble was left in this location for many years until, in 1957, Poole Corporation was given the foreshore, and between 1960 and 1961 they constructed a promenade between the Shore Road promenade and the one at St Anne's, incorporating much of the rubble in the foundations of the new promenade, which was completed in 1962.

A structure known as a 'Martello tower' was situated on the eastern side of Canford Cliffs Chine; the stone for its construction is reputed to have been imported from Beaulieu Abbey. In fact, this structure was not a defensive Martello tower but was actually a gazebo/folly built in 1857 for Sir Charles Packe of Branksome Park. It was used as a smoking room for the owners of the Canford Cliffs Hotel in the 1930s, before serving as staff quarters for a time. It gave its name to a magnificent Edwardian house, Martello Towers, which was subsequently demolished to make way for the present block of flats. Although the old tower had been moved back previously from the retreating cliffs, eventually it succumbed following a cliff fall. These case study sites illustrate the vulnerability of properties constructed too close to eroding or unstable cliff lines. Although the tower had been relocated, this was insufficient to save it from further retreat of the sea cliff (Figure 2.3).

Brownsea Castle and the other historic buildings located along the southern waterfront of the Island are defended by modest seawalls and other structures, which are largely suitable for the more sheltered environment within Poole Harbour (see Figures 2.6-2.8). However, studies undertaken by the National Trust and others have indicated that there is a residual flood risk, which is likely to be exacerbated as a result of sea level rise over the next century. The Trust has implemented a policy of 'hold the line' for the historic frontage, whilst allowing around the remainder of the Island's coast natural coastal processes take their course. The need for effective maintenance and possible future improvement of flood defences is highlighted at this location.

Within Poole Harbour itself Poole Quay has a great maritime history, which has been illustrated by many artists. Their works often show the many historic building, which line the waterfront. Fine examples of detailed oil paintings exist showing gradual changes through the twentieth century as trading and development patterns have resulted in adaptation of many of the buildings (see Figures 2.9 and 2.10).

At Studland Bay the beautiful beach has been particularly popular with tourists for decades. As sea levels rise and weather patterns become increasingly unpredictable, it is unlikely that sufficient funds will be available to maintain locations such as Studland. Therefore, the National Trust has developed a national plan for coastal change, and a more locally focused adaptation strategy for the future management of the coast at Studland, which involves 'no active intervention'. Comparison of the watercolour drawings dating from the late nineteenth and early twentieth centuries with the present day photographs show how Studland's beach has continued to grow at its northern end near the entrance to Poole Harbour, whilst at the southern end coastal erosion is particularly active (Figure 2.11-2.14). This erosion process will continue and may increase, and inevitably result in the loss of space currently occupied by tourism facilities, such as the National Trust's current visitor at Studland. It has been recognised that the maintenance of such assets is not always practical in the longer term, hence the adoption of the 'no active intervention' strategy.

6. Key Issues – What can be learnt from this site?

In terms of the cliffed frontages a thorough understanding of coastal processes and the rate of change is essential for the safe and sustainable management of cliff top heritage assets. For locations prone to flooding, suitable

strategies for protection of assets such as those on Brownsea Island involves not only an understanding of the likely rate of change in sea levels and the impacts of storm surges and storm events, but also a necessity for funding to carry out necessary flood defence improvements in the future.

Policies for adaptation to coastal change, such as those being implemented by the National Trust at Brownsea Island and Studland Beach, are likely to be adopted more widely by necessity around the English coast. Long-term adaptation strategies are, therefore, likely to be required with implications for other heritage sites in the south-west particularly where maintenance of defences is no longer practical or economically justifiable.

7. References

1. Royal Haskoning & Bournemouth Borough Council, 2011. '*Poole and Christchurch Bays SMP Review'.*

2. The National Trust, 1993. '*An Illustrated Souvenir of Brownsea Island'.* 30pps.

3A. Environment Agency, 2014. '*Poole Bay, Poole Harbour & Wareham Flood and Coastal Erosion Risk Management - Final Strategy'.*

3B. Environment Agency and Partners, 2014. '*LICCO – Living with a Changing Coast'.* Final Report of the Interreg IV Project for the European Commission.

4. The National Trust, 2014. *The Residents' Guide to Coastal Change in Studland'.* Case study report from the European Union 'LICCO' Project.47pps.

Figure 2.1 (left): *'Simpson's Folly'* was built at the foot of Canford Cliffs near Bournemouth in 1878. Insufficient consideration was given to coastal erosion and the property had to be demolished soon after its occupation.

Image Courtesy: Private Collection.

Figure 2.2 (left): The remains of *'Simpson's Folly'* remained on the shore for many years until it was incorporated within a new promenade.

Image Courtesy: Private Collection.

Figure 2.3 (below): The tower on the cliffs, which succumbed to coastal erosion despite having been located further from the coast.

Image Courtesy: Private Collection.

Figure 2.4: *'Poole Harbour'* by William Daniell RA, an aquatint engraving produced in 1825. Although Daniell said that Poole's buildings 'did not bear much beauty' many still exist such as the Grade I Woolhouse or Town Cellars, which is incorporated in the Watersfoot Museum complex.

Image Courtesy: Private Collection.

Figure 2.5: The artist David Addey retraced Daniell's tour of the south-west coast of England and painted this watercolour from the same spot at Constitution Hill in 1990. This view shows the extensive harbourside development that has taken place.

Image Courtesy of David Addey.

Figure 2.6: *'Brownsea Castle'* – a nineteenth century engraving of this much illustrated building. Brownsea Island is in the ownership of the National Trust.

Image Courtesy: Private Collection.

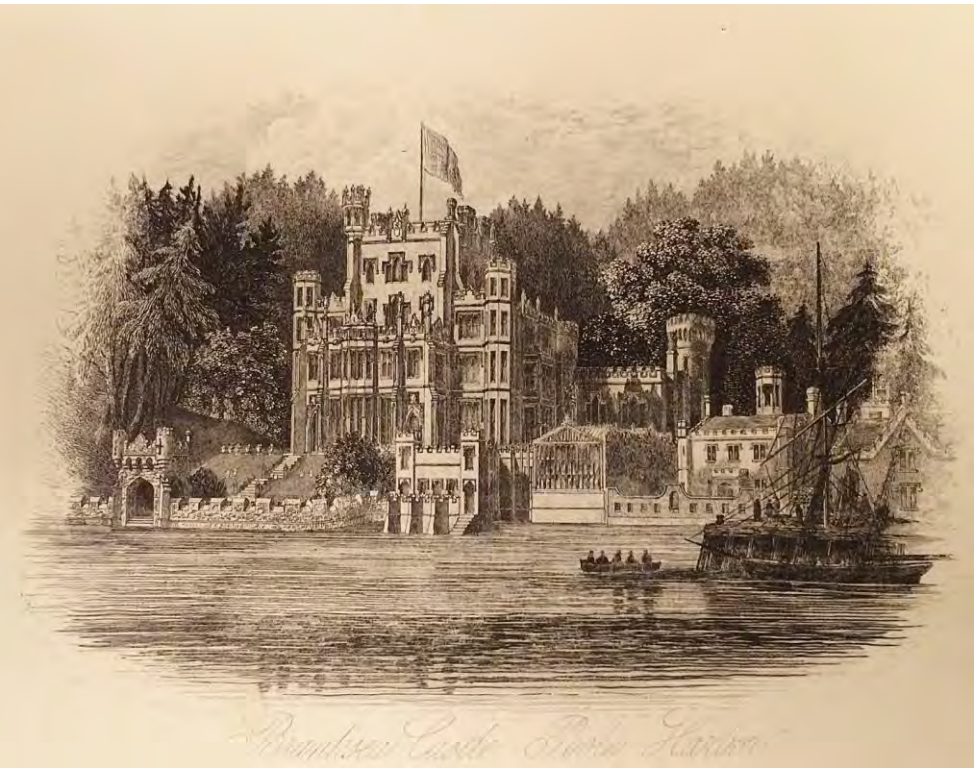


Figure 2.7: A close view of Brownsea Castle, which dates back to 1548. The Castle had been extensively remodelled during the nineteenth century.

Image Courtesy: Private Collection

Figure 2.8: A detailed watercolour of *'Brownsea Island'* by the Pre-Raphaelite follower, William Buck, c.1870s. Buck was renowned for his detailed and accurate observations of the coastlines of the Isle of Wight, Hampshire and Dorset.

Image by kind permission of the Russell Cotes Museum and Art Gallery, Bournemouth.

Figure 2.9 (left): *'Shipping in Poole Harbour'* by Herbert Kerr Rooke. Oil on Canvas. 1900.

Image Courtesy of Torre Abbey, Torquay, Devon/Bridgeman Images.

Figure 2.10 (below): *'Poole Quay on a Busy Day with Ships and Figures'* by Bernard Finnigan Gribble. Oil. C.1935.

Image Courtesy of Borough of Poole Museum Service.

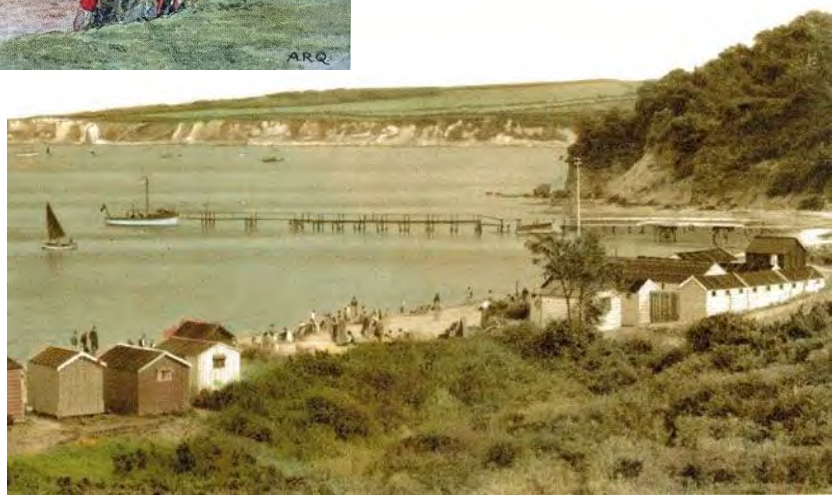
Works of this kind provide a detailed visual record, in colour, of the changing Poole Harbour waterfront through the twentieth century providing physical, heritage and social detail. The Quay has flooded occasionally and proposals to reduce flood risk are currently under consideration.

Figures 2.11 and 2.12: The watercolour by Alfred Robert Quinton (left) was painted c.1920 and looks north along Studland Beach. Here the beach has been accreting towards Poole Harbour entrance. The present day view is shown below.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figures 2.13 (left): In this view looking south along Studland Beach by Quinton Handfast Point can be seen in the distance. The beach here has been subject to significant coastal erosion and has necessitated changes in future management by its owner, the National Trust. **Figure 2.14 (below)** shows the view in the 1950s.

Image Courtesy of J. Salmon Limited of Sevenoaks.



Case Study Site 3 – The Isle of Purbeck, Dorset

1. Location

The case study covers the coastline of the Isle of Purbeck, extending from Handfast Point, southwards through Swanage Bay to Anvil Point, and westwards as far as St Aldhelm's Head.

2. Why was the Case Study Site selected?

The site was selected because of its diverse range of coastal management and heritage issues, which are well illustrated by artworks from the nineteenth and early twentieth centuries. They offer the opportunity to evaluate accuracy through comparison with present day photographs. The images show the effects of time on heritage structures such as Swanage Pier as well as illustrating the quarrying heritage sites along the coast of the Isle of Purbeck.

3. Summary of the Geology, Geomorphology & Coastal Processes

The geology is characterised by strata running east to west across the Isle of Purbeck, with the Chalk to the north and the underlying sands and clays of the Lower Greensand and Wealden Groups outcropping in Swanage Bay. The headlands of Pebble Point and south to Durlston are formed in the Purbeck Group of limestones and mudstones, which were quarried extensively in the past for their high quality building stone.

The eroding cliffs in Durlston Bay and the northern part of Swanage Bay contribute sediments to the overall system (Figures 3.1 and 3.2). The general trend is for sediment to move from south to north along the coastline, although there is a north/south movement further out to sea, extending from Handfast Point southwards. Historical rates of erosion along this frontage range from 0.3 to 0.7m per annum, and there are several locations where there have been coastal landslides and rock falls, the narrow foreshore being strewn with boulders and smaller debris along the toes of the clifflines (Royal Haskoning, 2011[1]).

4. Risks to Heritage Assets along the Case Study Frontage

The town of Swanage and its Conservation Area will continue to be defended in the future, although the coastlines to the north, up to Handfast Point, and Durlston Bay to the south, and the coastline westwards to St Aldhelm's Head have a policy of '*no active intervention'* (Royal Haskoning, 2011[1]).

In Swanage, the present pier, which replaced an earlier structure, required significant investment to maintain its integrity and this was completed recently as an award-winning scheme. Along the coastline to the south of Swanage, between Durlston Head and Anvil Point, two pairs of towers mark the extent of a '*nautical measured mile'.* These towers enabled various ships to be timed over that distance.

The south coast of the Isle of Purbeck is particularly important for its quarrying heritage (Stanier, 1996[2]). The Jurassic limestones of the Purbeck Beds have been quarried since Roman times, whilst the Portland Series which underlie them were formerly worked along the coastal cliffs from St Aldhelm's Head to Durlston Head. A range of heritage features including rutways, sites of cranes and tramways, and other evidence of the quarrying industry are widespread.

At Emmet's Hill near Worth Maltravers the bowl barrow is a Scheduled Monument (List Entry Number: 1017268) and the site is at risk from coastal erosion. At St Aldhelm's Head the ancient Chapel is close to the sea cliff and could be lost eventually unless, at some time in the future, the structure is re-located further inland. Continued rates of erosion over the next 100 years, estimated at between 0.5 and 0.7m per annum, are likely to see the loss of some of these features as a result of episodic cliff failure events.

5. How can historical Imagery inform heritage risk management?

Early twentieth century postcards illustrated by the watercolour artists Henry Wimbush and Alfred Robert Quinton depict the coastal resort of Swanage in some detail; Swanage Pier is also featured (Figures 3.3 and 3.4). The quarrying industry and the major headlands including Handfast Point, Peverill Point, Tilly Whim Caves at Durlston Head and St Aldhelm's Head were engraved with views being published in important works such as Sir Henry Englefield's *'Geology and Antiquities of the Isle of Wight and the adjacent coast of Dorsetshire'* (Englefield, 1816[3]) – see Figures 3.5 to 3.8. Comparison of coastal artworks by artists such as Alfred Robert Quinton, a prolific Edwardian painter of coastal views, with recent photographs allow evaluation to be made of change of the reliability of art to inform us of the rate of change to coastal cliff lines over the last 200 years.

6. Key Issues – What can be learnt from this site?

The images describe the changing face of the popular seaside town of Swanage and its pier, as well as illustrating the cliff top heritage features including St Aldhelm's Chapel and the measure mile posts. The whole of this coastline has been engraved by numerous artists including W. B. Cooke and Sir Henry Englefield.

7. References

1. Royal Haskoning and Bournemouth Borough Council, 2011. '*Poole and Christchurch Bays SMP2'.*
2. Stanier, P., 1996. *'The Quarried Face: Evidence from Dorset's Cliffstone Quarries'.* Historical Metallurgy Society Special Publication: The Archaeology of Mining and Metallurgy in South-West Britain.
3. Englefield, Sir H., 1816. *'Geology and Antiquities of the Isle of Wight and the adjacent coast of Dorsetshire'*.

Figure 3.1: *'The Fine Sweep of Swanage Bay'*, a watercolour, c.1915 by Ernest William Haslehust. The view looks south towards the headland of Ballard Point. The growing resort of Swanage can be seen in the centre of the Bay.

Image Courtesy: Private Collection

Figure 3.2: A close view of *'The Sands, Swanage'* showing the seafront and cliff top architecture. This watercolour was painted by Alfred Robert Quinton in about 1912.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 3.3: *'Swanage Pier'* painted by Henry B. Wimbush in c.1895 showing the stone structure at the landward end.

Image Courtesy: Private Collection.

Figure 3.4: *'Swanage Pier'* painted in watercolour by David Addey in 1990. Now the award-winning, restored pier (Listed Grade II) forms a focus for water-based recreation.

Image Courtesy of David Addey.

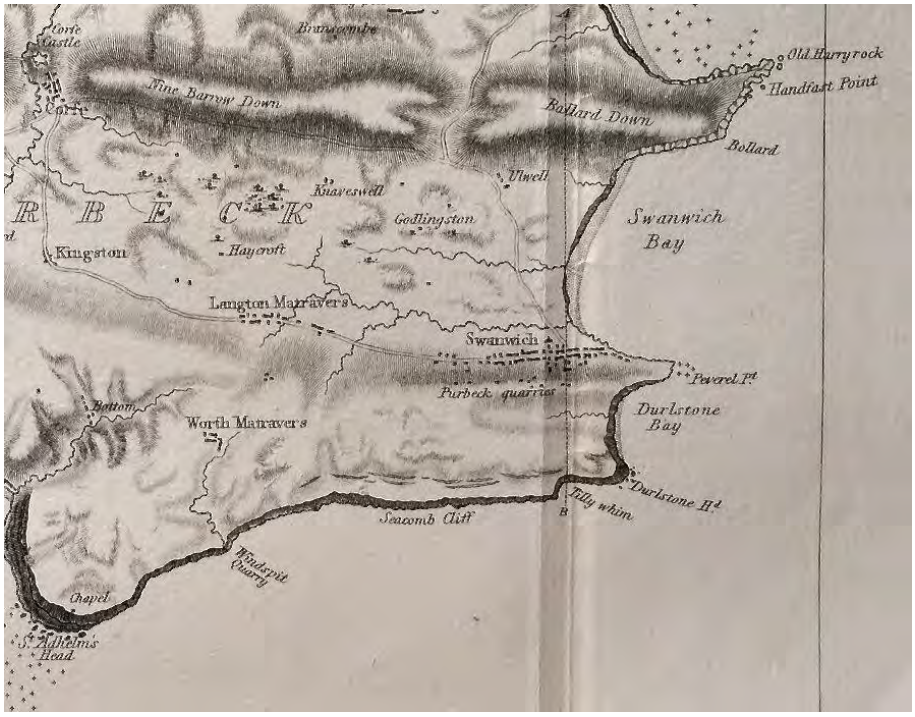


Figure 3.5: *'Map of the Isle of Purbeck'* from Sir H. Englefield's *'Geology and Antiquities of the IW & Dorsetshire'* (1816). St Aldhelm's Chapel is marked (bottom left).

Figure 3.6: *'St Aldhelm's Chapel'* by Thomas Webster (1816) is located close to the cliff edge at St Aldhelm's Head. Englefield (1816) said *"Not many yards from the edge of the precipice stands the Chapel. The upper cliff is composed of immense fissures many of which are ready to fall. The whole of the base (of the cliff) is covered with vast blocks that have tumbled down and show how much of the headland has been destroyed by the furious sea to which it is exposed."*

Figure 3.7: The distorted limestone formations at *'Durlston Head'* are illustrated in this drawing by T. Webster, which was engraved by George Cooke in 1816.

Figure 3.8: *'Tilly Whim Quarry'* drawn by Thomas Webster in 1816 illustrates work in progress at this site. Webster's detailed geological depictions of the Dorset coast, which he produced for Sir H. Englefield, provide a complete record of conditions here in the early nineteenth century. Because Englefield was a scientist and antiquarian with a fascination for geology, he was only interested in topographical accuracy rather than creating a 'picturesque landscape'.

Figure 3.9: *'The Quarries'* were also painted by A. R. Quinton, c.1920 and show little change from Webster's drawing a century before. One of the 'Measured Mile' posts can be seen on the hillside to the left with Durlston Castle beyond.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 3.10: This present day view of Tilly Whim Caves compares very closely with Quinton's watercolour (above), including details of the jointing in the limestone.

Image Courtesy of Andy Jamieson under Creative Commons Licence.

Figures 3.11 (right) and 3.12 (below) offer comparisons between artworks and photography and illustrate the topographical accuracy of artists such as A. R. Quinton. This view of Peveril Point near Swanage was painted c.1920.

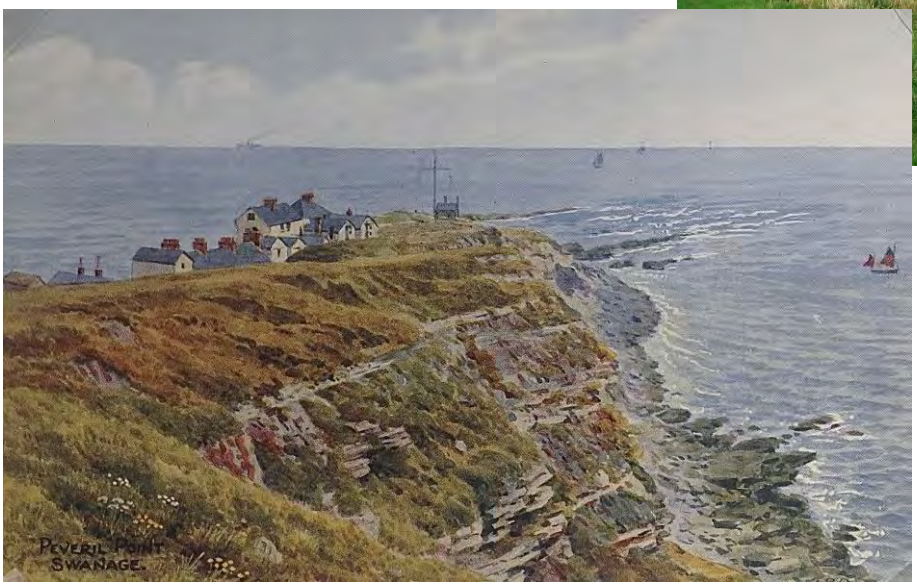
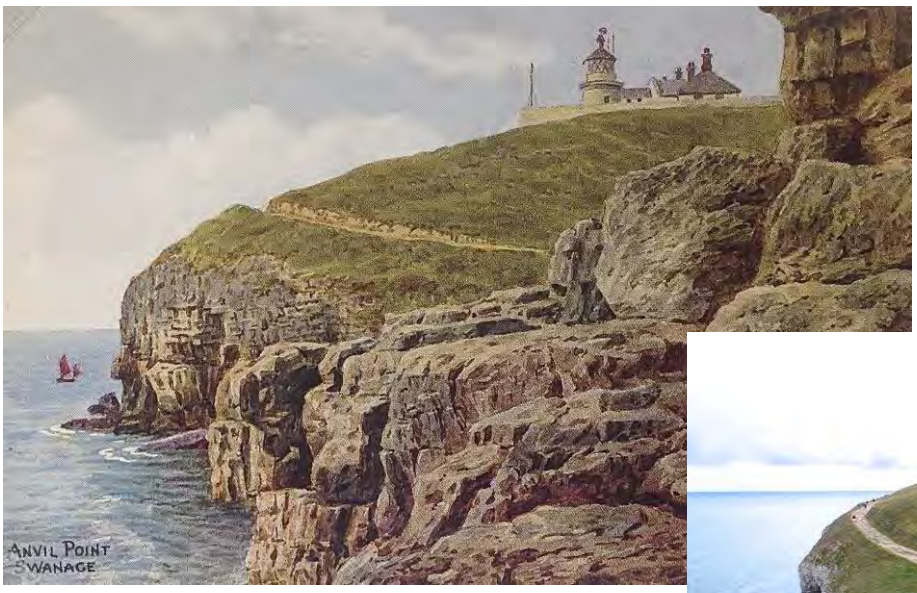


Image Courtesy of J. Salmon Limited of Sevenoaks.

Photograph (above) Courtesy of Jim Champion, Creative Commons Licence.



Figures 3.13 (left) and 3.14 (below) again compare A. R. Quinton's coastal artworks with photography. Although Quinton's view is closer to Anvil Point and the Lighthouse, the detail he has achieved in his scene is very striking.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Photograph Courtesy of Chris Downer, Creative Commons Licence.

Case Study Site 4 – Clavell Tower and Kimmeridge Bay, Dorset

1. Location

The study site is located at Kimmeridge Bay, to the south of the village of Kimmeridge, within the East Devon-Dorset Jurassic Coast World Heritage Site.

2. Why was the Case Study Site selected?

The site includes two features of heritage interest. First, the seventeenth century Clavell tower (MWX646), which was constructed in 1830/31 by the Reverend John Richards, and which is a listed building (National Heritage List for England 1120474). The structure was at risk from coastal erosion and was relocated approximately 25m further inland in 2006. Clavell Tower provides an interesting example of the impact of coastal erosion on heritage assets and illustrates the implementation of successful adaptation to coastal change (Stanford, 2008[3]).

The second feature is the remains of (the Scheduled) Kimmeridge Quay, together with jetties and breakwaters, which were associated with Sir William Clavell's alum works on the shore (Cornwall County Council, 2014[1]; Parkins, 2013[2]). The works operated between 1605 and 1618, after which the site was converted to salt extraction.

3. Summary of the Geology, Geomorphology & Coastal Processes

The Kimmeridge frontage is situated exclusively within the West Walton, Ampthill Clay and Kimmeridge Clay formations of the late Jurassic epoch; these comprise mudstones and muddy limestones. The cliffs behind the Bay range in height between five and twenty metres but rising to sixty metres below Clavell Tower. Erosion rates in Kimmeridge Bay average less than 0.5m per annum, although erosion has been at a lower rate below Clavell Tower (0.13mpa) on account of the durability of the strata of that particular location. Sedimentary processes consist of a west to east transport system along the coast with inputs of material from the eroding cliffs at the back of the Bay (Figures 4.1 and 4.2).

4. Risks to Heritage Assets along the Case Study Frontage

Clavell Tower (listed Grade II) was constructed as an observatory and coastal landmark by the Reverend J. Richards in 1830/31 (Figure 4.3). The frontage formed part of the Smedmore estate, which had been owned by the Clavell family since the 1420s. At the end of the nineteenth century, until about 1914, the Tower served as a lookout post for coastguards and was vacated as the structure started to deteriorate (Figure 4.4). Coastal erosion posed an increasing risk to the Tower and, in 2002, with the support and advice from the owner, the Landmark Trust commenced investigations into the possibility of relocating the tower further back from the coastline (Stanford, 2008[3]).

The coastal defence policy for the frontage was *'no active intervention'* and, therefore, if the structure was to be preserved, an alternative solution was its relocation. This represents a good example of practical management on an eroding coast in order to preserve the integrity of heritage assets such as the Clavell Tower. Similar approaches to set-back of heritage features had been implemented successfully at Belle Toute Lighthouse at Beach Head in East Sussex in 1999 and at Compass Point at Bude in Cornwall. Set-back was preferred to cliff stabilisation such as that undertaken at the Mussenden Temple near Castlerock, Northern Ireland, on aesthetic and environmental grounds as well as the cost involved. The dismantling of the tower and its reconstruction approximately 25m landward of the cliff edge commenced in 2006, and the preservation of this landmark was concluded successfully, safeguarding the structure for the future (Figures 4.5-4.7).

A quay and associated jetties and breakwaters for the alum works and, later, the salt works, were located at Kimmeridge because of the readily available supply of fuel for the furnaces in the form of oil rich bituminous shales

which were exposed in the cliff. These industries flourished in the seventeenth century. However, the venture did not prove successful financially, and the location did not lend itself to easy transportation of materials from the site, and these industries ceased (Cornwall County Council, 2014[1]). A small pier was constructed in 1858 to support extraction of bituminous shale for various uses, including fertilisers and oil production, but, again, this did not prove particularly successful. The remains of the quay can be seen in the aerial photograph (Figure 4.8). These features will be gradually lost as a result of sea level rise, erosion and undermining.

5. How can historical Imagery inform heritage risk management?

In this location artworks of the relatively undeveloped coast are limited, and it has not proved possible to find any detailed artworks showing the cliffline with Clavell Tower. However, Clavell Tower appears in numerous photographs and so in this case study photography is the most helpful medium available.

6. Key Issues – What can be learnt from this site?

The site illustrates the impacts of coastal erosion on a heritage site located at the top of an eroding cliff and how the 'set-back' solution can be adopted successfully. Here, the limitation on artworks means that photographic evidence is the only suitable medium to support understanding of long-term coastal change.

7. References

1. Cornwall County Council, 2014. *'Rapid Coastal Zone Assessment Survey for South-West England'*. Report by Carolyn Royall. Report Number: 6673.
2. Parkins, J., 2013. *'The Kimmeridge Shale Industry, Dorset'*. http://people.bath.ac.uk/exxbgs/journal_articles/01_Dorset.pdf.
3. Stanford, C., 2008. *'Clavell Tower History Album'.* Report for the Landmark Trust. Written and Researched by Caroline Stanford.

Figure 4.1 (right): A view of Kimmeridge Bay in about 1920.

Image Courtesy: Private Collection.

Figure 4.2 (left): A view of Kimmeridge Bay today looking westwards along the coast.

Image Courtesy: isleofpurbeck.com

Figure 4.3: Clavell Tower stands on the cliff edge above Kimmeridge Bay.

'Among the many interesting objects which present themselves to our notice on the North side of our beautiful bay, not one of the least is the OBSERVATORY, lately erected by the Rev. J. Clavell, of Smedmore, in the Isle of Purbeck; and, although at a greater distance than some, offers a most conspicuous coup d'oeil from our Esplanade. Its prominent situation and architectural construction display most prominently Mr. Clavell's taste in selecting such a spot, and reflect the highest credit on Mr. Vining, the architect, in the erection of it. This beautiful specimen of modern workmanship is built on the summit of the cliff, about half a mile from Smedmore House, and forms therefrom a very picturesque and pleasing object, it is placed upon the cliff two hundred feet above the level of the sea, at a proper distance from its precipitous termination' (Dorset County Chronicle 21/7/1831).

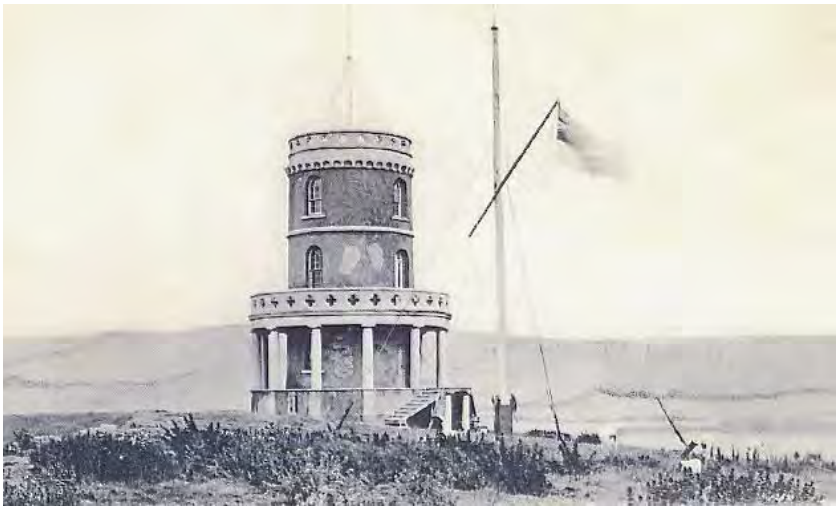


Figure 4.4: A view of the Tower with flagpoles from c.1920s.

Figure 5: Clavell Tower prior to the commencement of its relocation twenty-five metres inland.

Image Courtesy of The Landmark Trust.

Figure 4.6: Clavell Tower following its set-back. The former site can be seen on the sea cliff.

Image Courtesy of the Channel Coast Observatory, Southampton.

Figure 4.7: Clavell Tower following completion of the scheme by The Landmark Trust.

Image Courtesy of isleofpurbeck.com.

Figure 4.8: The remains of the former Quay at Kimmeridge Bay can be seen in this aerial photograph.

Image Courtesy of the Channel Coast Observatory, Southampton.

Case Study Site 5 – Lulworth, Dorset

1. Location

The study site is on the Dorset coast between the village of west Lulworth in the west and Warbarrow to the east; a frontage of approximately 3.5km; it lies within the East Devon-Dorset Jurassic Coast World Heritage Site.

2. Why was the Case Study Site selected?

The downland along this frontage forms one of the most extensive field systems of the Iron Age or Roman periods to be found along the Dorset coast. The most extensive of these is at the Warren, West Lulworth (MDO8266) whilst Flower's Barrow hillfort (MNO7654) is sited on the edge of the cliff at Ring's Hill, East Lulworth. At the western end of Bindon Hill, Lulworth there is an Iron Age defensive dyke and a structure that may be an uncompleted hillfort (Cornwall County Council, 2014[1]). On the headland above Stair Hole at Lulworth Cove the Coastguard station was sited at this dramatic outpost; it features in numerous early engravings of the Cove. The site was closed following a major cliff collapse in the 1970s.

3. Summary of the Geology, Geomorphology & Coastal Processes

Lulworth frontage lies within rocks of the Jurassic and Cretaceous Periods. On the sea coast limestones outcrop, whilst behind, the softer formations of the Cretaceous Period have been eroded away to create remarkable bay formations, extending back as far as the outcropping chalk behind. The chalk, therefore, forms a steep back wall to Lulworth Cove, whilst the narrow entrance is flanked by overhanging cliffs of Portland Limestone.

Cliff falls and topples are characteristic of both the Chalk and Portlandian Limestones, whilst differential weathering creates the ribbed and recessed formations of the Purbeck Limestone outcrops. Stair Hole, to the immediate west of Lulworth Cove, was created as a result of wave energy breaching the Portland Limestone barrier, and causing the lateral expansion of a small inlet along the comparatively brittle and fractured Purbeck rocks. The coastal cliffline reaches a maximum height of 170m at Ring's Hill to the east, with an average general recession rate of about 0.15m per annum. The prevailing direction for sediment transport is west to east along the whole of this frontage, with significant contributions from cliff or coastal slope erosion processes; the whole of the frontage is undefended. This part of the Dorset coast is prone to occasional major landslides such as the failure nearby at Durdle Door, where a massive collapse over a 350m frontage occurred in April 2013 (Halcrow, 2011[2]).

4. Risks to Heritage Assets along the Case Study Frontage

The whole of this frontage is a naturally eroding coastline. As a result, any heritage assets located above or below ground in the hinterland will gradually be lost as the cliffs retreat. Whilst the average annual rate of the cliff retreat appears to be quite low, sudden catastrophic failures can result in the loss of substantial sections of the cliff top in one event. The rate of loss can be expected to increase as a result of climate change and sea level rise over the next century.

Coastal erosion also saw the loss of the Coastguard Station on the headland on the west side of Lulworth Cove above Stair Hole. This part of the Dorset coast was illustrated by numerous artists and depicted by photographers on account of the outstanding natural beauty.

5. How can historical Imagery inform heritage risk management?

There are many fine images (both artistic and photographic) of this case study site dating from the late eighteenth century (Figures 5.1 and 5.2). Lulworth was included in order to assess whether artworks have illustrated any of the surface or buried heritage features that have been identified, for example, in the Dorset RCZA, (Cornwall County

Council, 2014[1]). A selection of images, including those by William Daniell RA from 1823 (Figure 5.3) and Alfred Robert Quinton, c.1925 (Figures 5.4 and 5.5), are illustrated below. These examples allow us to assess the extent and the limitations of data and information offered by such artworks.

6. Key Issues – What can be learnt from this site?

The artistic images illustrated in this case study provide accurate reflections of the physical nature of the coastline. They show the geology and geomorphology particularly well and, for example, the Coastguard Station on the headland. It is difficult to interpret whether any of the faint depictions on the hillsides relate to buried heritage sites or whether they are sheep tracks or footpaths but, bearing in mind the main focus was on the coastal scenery, buried heritage was not perhaps regarded as a priority, and as such more detailed illustrations were left to antiquarians such as Sir Henry Englefield (Figures 5.6 and 5.7), who had identified Flower's Barrow, for example, on the fine map contained in his 1816 publication (Englefield, 2016[2]). Taking account of the excellent aerial photographs that are available for this location aerial photography offers the clearest images of heritage sites whilst artworks illustrate changes to the coastal topography over time.

7. References

1. Cornwall County Council. 2014. *'Rapid Coastal Zone Assessment for South-West England'.* Report for English Heritage. Project Number 6673.
2. Halcrow, 2011. *'Durlston Head to Rame Head SMP2'*.
3. Englefield, Sir H. 1816. '*A Description of the Principal Picturesque Beauties, Antiquities and Geological Phenomena of the Isle of Wight and the Adjacent Parts of Dorsetshire'.* Payne & Foss. London.

Figure 5.1 (left): A late eighteenth century copperplate engraving of Lulworth Cove shows a stone harbour arm on the western side.

Image Courtesy: Private Collection.

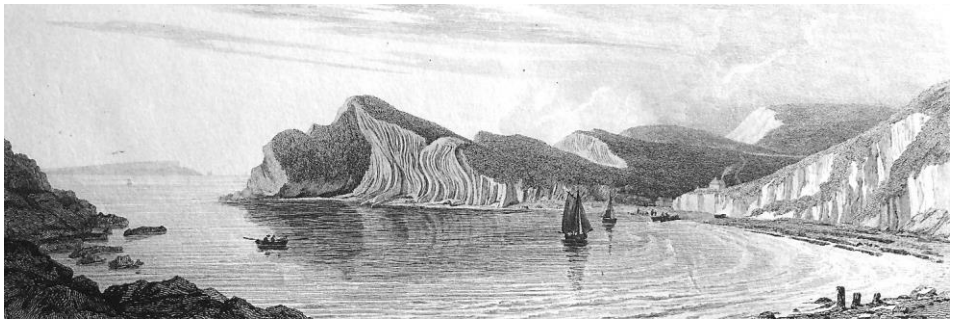
Figure 5.2 (right): A fine aquatint engraving of the Cove by Samuel Alken from the 1790s looking across its mouth.

Image Courtesy: Private Collection.

Figure 5.3: William Daniell RA produced this view of Lulworth Cove on his *'Voyage Round Great Britain'* in 1823. It shows signalling masts on the western headland for the first time.

Figures 5.4 (left) & 5.5 (below) show the two watercolour drawings by the prolific Alfred Robert Quinton, who painted the English coast during the first three decades of the twentieth century. They show the construction of a *'Coastguard Station'* overlooking the mouth of Lulworth Cove. Although the downland behind, which contains significant buried heritage, is finely painted, heritage evidence is not immediately obvious.

Images Courtesy of J. Salmon Limited of Sevenoaks.



Figures 5.6 (left) and 5.7 (below left): Sir Henry Englefield appointed the geologist and artist Thomas Webster to produce images of the Dorset coast, which he published in 1816. The view (top left) shows the strata finely depicted, whilst figure 5.7 offers extensive views looking east along the Dorset coast. Although Englefield identified the site of Flower's Barrow on his 1816 map, there are no obvious heritage features highlighted in this image, perhaps confirming that absence of evidence is not evidence of absence.

This view does illustrate other features of heritage interest. For example, the use of the cove as a sheltered anchorage, the unenclosed grazing on the foreground hills and the pronounced lynchetting on the more distant ground to the left. These aspects all contribute to our understanding of the historical character of the area at this time.

Figure 5.8 (left): A view from Stair Hole, c.1960s showing the Coastguard Station, which closed soon after.

Figure 5.9 (below): A view of Stair Hole and Lulworth Cove today.

Image Courtesy of dorsettours.com.

Case Study Site 6 – Weymouth and Portland, Dorset

1. Location

The case study site extends from Redcliff Point at the eastern end of Weymouth Bay, westwards to the town of Weymouth and the Isle of Portland.

2. Why was the Case Study Site selected?

The study site was chosen on account of the rich and varied heritage, in the vicinity of Weymouth, Portland Harbour and on the Isle of Portland. Heritage sites include those relating to military activity, ranging from the Tudor coastal artillery fort of Sandsfoot Castle, Weymouth (MDO6598) to substantial nineteenth century coastal batteries and forts that formed defences for Weymouth, and Portland Harbour. These include the nineteenth century Verne Citadel (MDO6577), which was built to protect Portland Roads and Weymouth Harbour, and which is now a prison, the Breakwater Fort (MWX1380), the High Angle Battery (MDO6569), Nothe Fort (MDO6676) and East Weare (MWX1365). On the west side of Portland the Blacknor Battery was one of two coastal batteries planned to defend the West Bay area from attack. Portland is also well known for the extraction of its celebrated Portland Limestone, with quarries dating back to medieval times. On account of its exposed position, Portland Bill has played a significant role as a navigational aid warning shipping of the hazardous rocky coastline, three lighthouses of different ages exist on the Isle.

Some of the best preserved medieval open fields lie on Portland (MDO6521 and MDO6526) that date back to the eleventh century when the site was a Royal Manor. Parts of this coast, for example to the east of Weymouth, are affected by significant cliff erosion and instability, although, in contrast, the Isle of Portland is composed of highly durable limestones. However, even here substantial rockfalls occur periodically. There is a wealth of illustrations of this study site and these are assessed in terms of their contribution to heritage risk management.

3. Summary of the Geology, Geomorphology & Coastal Processes

The study site is comprised mainly of rocks of the mid and late Jurassic period, together with Purbeck Limestones; these form the bulk of the Isle of Portland.

The southern tip of Portland forms a major headland that protrudes some 10km into the English Channel. It forms a key regional sediment transport boundary along this part of the Dorset coast. Within Portland Harbour and Weymouth Bay the general direction of sediment transport is northern and easterly, whilst offshore sediments leave Weymouth Bay and are transported southwards to a sediment sink located to the south-east of Portland Bill. Dramatic instability has occurred at Bowleaze to the east where the cliffs can reach 30m in height although the whole of the Weymouth frontage is defended. On Portland, most of the clifflines comprise highly durable limestones, however, on the north and north-east coasts of the Isle of Portland the cliffs rest upon soft Kimmeridge Clay in a sequence that has resulted in deep-seated landslides. Around the coast of the Isle of Portland in the past the long history of quarrying resulted in much quarry waste being tipped around its coast, forming protective boulder aprons at the cliff toes.

4. Risks to Heritage Assets along the Case Study Frontage

Ongoing erosion and coastal instability has affected the Bowleaze Cove Roman site, with Romano-British pottery being visible in the cliff face over many years. At Sandsfoot Castle at Weymouth, a fort built in 1539 by Henry VIII which formed part of his defences along the Channel coast, has been affected by coastal erosion and instability with a greater part of the south front falling into the sea in 1837; at that time the masonry facing on the north front was removed. The construction of the Portland Breakwater in 1849 reduced the effects of coastal erosion on the cliff face at this location. The unstable remains of the castle were, subsequently, protected by the Council and the

grounds are now landscaped as a public amenity. As a result of the resilience of the strata on the Isle of Portland, most of the major heritage sites are unaffected in the short to medium term.

5. How can historical Imagery inform heritage risk management?

There is a rich resource of images relating to this area, and a number of these are illustrated below. These include Sandsfoot Castle (Figures 6.1-6.3), Weymouth Bay (Figure 4), the popular resort of Weymouth (Figures 6.5-6.8) and the lighthouses on the Isle of Portland itself (Figures 6.9-6.12). A further popular vantage point for artists was the view from Portland Heights looking north-west along Chesil Beach towards West Bay and Lyme Regis, Chesil Beach providing protection for the road on its lee side, which links the Isle of Portland to the mainland (Figures 6.13-6.15). Chesil Beach was severely affected by the coastal storms of winter 2013/14. The selected images depict heritage assets over time, and the changes that have affected Weymouth and Portland to a greater or lesser degree as a result of both natural processes and development.

6. Key Issues – What can be learnt from this site?

The Bowleaze Cove site, which is of considerable heritage significance, has been affected over time by coastal erosion and instability, however, because of the undeveloped nature of this section of coast it was not chosen as a subject by artists. By contrast there are many views of Sandsfoot Castle, which shows the chronology of coastal erosion over time. The town of Weymouth, together with the harbour and breakwater, were also illustrated by many artists dating back to the late eighteenth century and show the pattern of alterations and improvements that took place at this location over the last 200 years and particularly in the late nineteenth century. On the Isle of Portland, many views are taken from the sea showing shipping set against the impressive backdrop of the cliff line; Portland Bill lighthouse was also depicted by artists. Because of the durable nature of the coastal cliffs on Portland, the images demonstrate that the rate of coastal change, and risks to heritage is low. In terms of the early history of the Isle of Portland including the field systems and the quarrying history aerial photography forms the most valuable medium for study.

Figure 6.1 (right): A view of Sandsfoot Castle, Weymouth, in the 1840s. Lithograph. The seaward face of the Castle can be seen collapsing into the sea as a result of coastal erosion.

Image Courtesy: Private Collection.

Figure 6.2 (left): Sandsfoot Castle today. The site has been safeguarded following works by the Council and acquisition of the grounds as an amenity.

Image Courtesy: Eugene Birchall, Creative Commons Licence.

Figure 6.3: This watercolour by Alfred Robert Quinton, c.1925, shows the remains of Sandsfoot Castle on the cliff top and the commanding position it occupied looking towards the Isle of Portland.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 6.4: An aquatint of Weymouth Bay from the late eighteenth century.

Image Courtesy: Private Collection.

Figure 6.5: This view of the seafront at Weymouth painted in watercolour by A. R. Quinton, c.1920, shows the fine architecture at this flourishing resort. Quinton's eye for detail provides us with a wealth of information on the state of coastal towns and villages between 1900 and the early 1930.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 6.6: *'Weymouth'* by William Daniell RA showing the view at the mouth of the Little Wey. The elegant seaside resort became fashionable after a visit by King George III in 1789.

Figure 6.7: This watercolour by David Addey painted in 1989/90 shows the fine seafront buildings that Daniell depicted (above). The Georgian character of the town remains largely unchanged.

Image Courtesy of David Addey.

Figure 6.8: A. R. Quinton also painted Weymouth from Daniell's vantage point. The three images on this page show little change over the 170 year timespan.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 6.9: This view by W. Daniell RA is believed to depict the old High Lighthouse, which was replaced in 1869.

Image Courtesy: Private Collection.

Figure 6.10: David Addey's 1989 watercolour shows the same lighthouse as in Daniell's view. A new lighthouse was erected at Portland Bill in 1906.

Image Courtesy of David Addey.

Figures 6.11 (above left) and 6.12 (above right): *'Ruined Lighthouse on the Isle of Portland'*. Watercolour. 1964 by Leslie Moffat Ward. Image Courtesy of the Russell Cotes Art Gallery and Museum, Bournemouth. The restored lighthouse is shown above right.

Figure 6.13: *'View from Portland over Chesil Beach'*. Lithograph, c.1850s by Day & Sons.

Image Courtesy of Dorset County Museum and Heritage Service.

Figure 6.14: The same vantage point was chosen by Alfred Robert Quinton for his view of Chesil Beach, which he painted in about 1920. Quinton's views often show beaches (as well as architecture) depicted with considerable accuracy. This allows both quantitative and qualitative comparisons to be made with the present day situation.

Image Courtesy of J. Salmon Limited of Sevenoaks.

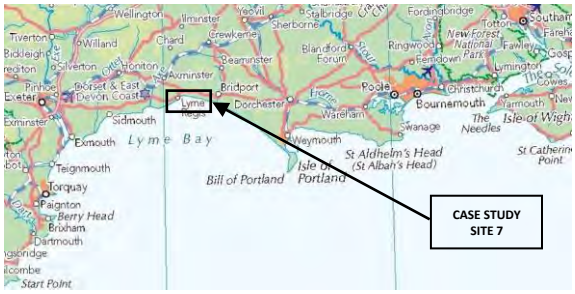
Figure 6.15: William Daniell RA produced an aquatint in 1823 from St Catherine's Chapel near Abbotsbury looking south-east over Chesil Beach to Portland. This image, one of 308 aquatints that he prepared for his publication *'A Voyage Round Great Britain'* (1814-25), shows his skill as both an architectural draughtsman as well as a topographical artist.

Image Courtesy: Private Collection.

Case Study Site 7 – West Bay to Lyme Regis, Dorset

1. Location

The case study extends along the south Dorset coast from West Bay in the east (to the south of Bridport), westwards for a distance of approximately 10km to Lyme Regis. The location lies within the East Devon-Dorset Jurassic Coast World Heritage Site.



2. Why was the Case Study Site selected?

This is a dynamic coastline affected by a range of erosional, instability and sediment transportation issues. This coastline contains a rich heritage in terms of both built and buried features. These include the historic harbour at West Bay (Bridport Harbour) and its Conservation Area, cliff top sites extending along the frontage past Seatown to Charmouth, and at Lyme Regis the historic waterfront and the harbour arm known as The Cobb. The picturesque nature of this coastline and the dramatic landslide processes attracted artists and geologists in the late eighteenth and nineteenth centuries and, as a result, there are numerous images of this frontage, which illustrate this changing coast over time.

3. Summary of the Geology, Geomorphology & Coastal Processes

The coastal geology is dominated by the famous Lias Group of mudstones and limestones of the early Jurassic epoch, which are overlain by the Chalk. The Lias forms the dramatic cliffs to the west of the town of Lyme Regis, with parts of the exposures being obscured by the extensive landslide systems at Bindon and Downlands (Conybeare & Dawson, 1840[1]).

The landslides along the coastal cliffs are composed of Jurassic clays and limestones with the tops of the cliffs at Black Ven, Stonebarrow and Golden Cap being capped by Upper Greensand. The combination of rapid coastal erosion and ground instability as a result of rainfall percolation and loss of support at the toe of the cliff has resulted in the dramatic coastal landscape.

The general direction of sediment transport is from west to east, as far as the harbour arms at West Bay. Here there is interruption to the sediment pathway and some transport movements both offshore and east to west before resuming an easterly direction on towards East Dorset. The eroding cliffs contribute substantial amounts of sediment to the overall system.

4. Risks to Heritage Assets along the Case Study Frontage

Atlantic storm waves attack the Lyme Bay frontage, causing rapid rates of erosion and promoting instability. Whilst heritage sites at West Bay and Lyme Regis have been protected and upgraded in recent years, much of the open coast remains undefended. Here, heritage assets located along the top of the soft cliffs and in the immediate coastal hinterland are vulnerable to the rapid rates of coastal retreat, which are likely to accelerate in the future.

5. How can historical Imagery inform heritage risk management?

The views illustrated below depict this highly varied coastal frontage at various points in time. They depict the nature of the coastal structures such as the harbour at West Bay (Figures 7.1 and 7.2) and The Cobb at Lyme Regis (Figures 7.14-7.16) in the early nineteenth and early twentieth centuries. Further views show the character of the foreshore at Charmouth (Figures 7.3 and 7.4) and the cliff top landscapes over the same time period (Figures 7.5-7.7 and 10). The images also illustrate the changing patterns of development since the 1840s (Figures 7.11-7.13).

6. Key Issues – What can be learnt from this site?

The images show that key structures such as West Bay Harbour and The Cobb at Lyme Regis appear to have changed little over the last 250 years. The structures have been upgraded and strengthened to meet the coast protection needs, for example at West Bay between 2002 and 2004, and, progressively, works have been undertaken along the Lyme Regis frontage over the last fifteen years.

The case study site shows how heritage, such as coastal Conservation Areas including listed buildings, can be protected if the measures required are economically justifiable and environmentally sustainable. However, long sections of this coast are likely to see the continuing erosion of the cliffline and increased exposure and loss of cliff top heritage.

7. References

1. Conybeare, Rev. W. & Dawson, W., 1840. M*emoir and Views of the Landslips on the East Devon & c.*

Figure 7A: *'View of Lyme Regis from the East'*. Mid-nineteenth century lithograph.

Figure 7.1 (left): *'Bridport Harbour'* or West Bay by William Daniell RA. 1825. The aquatint engraving shows how the historic harbour arms cross the wide beach interrupting the west to east sediment transport along the coast.

Figure 7.2 (right): This view of the same scene (but from a lower vantage point) was painted in watercolour by David Addey in 1990. The harbour and flood defences were improved ten years ago.

Image Courtesy of David Addey.

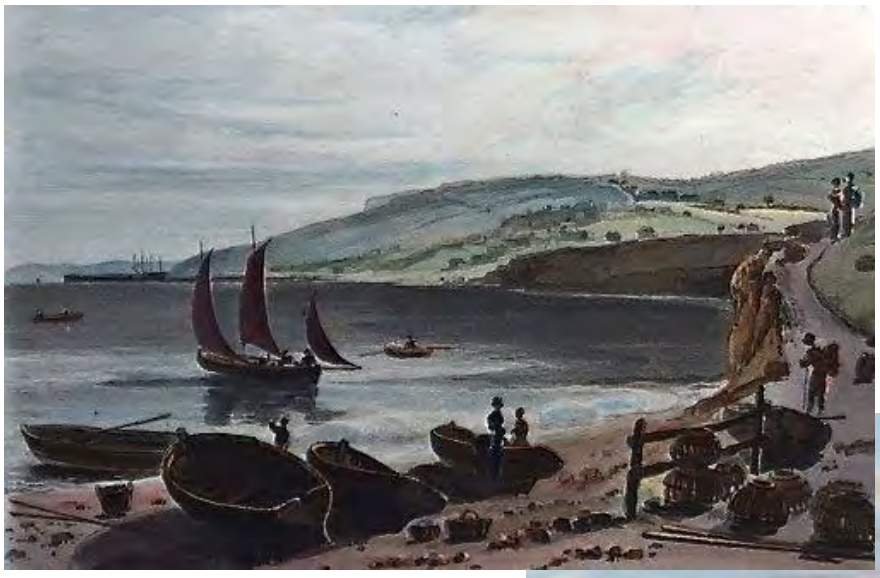
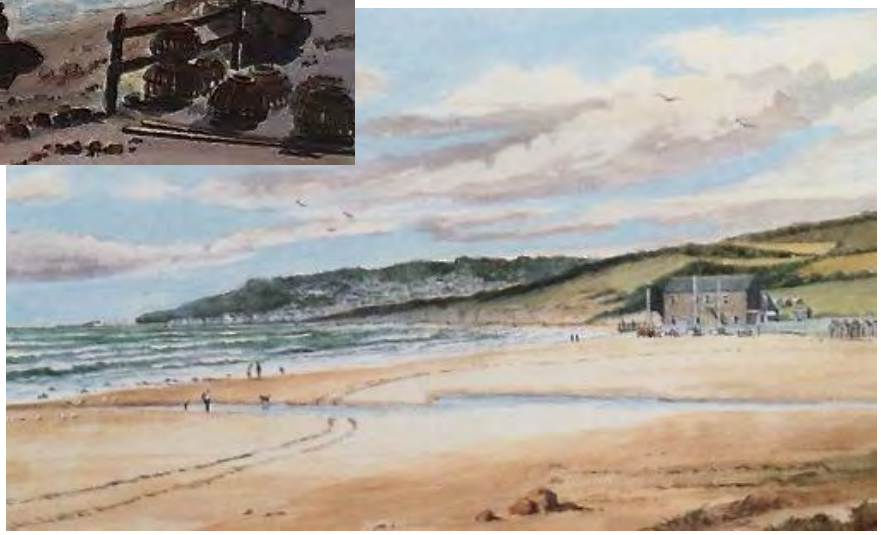


Figure 7.3 (left): *'Lyme Regis from Charmouth'* by William Daniell RA. 1825. Lyme Regis was a small resort at this time. The view in **Figure 7.4 (below**) by David Addey (1990) shows the extensive beach at Charmouth at Low Tide. Daniell's view was taken from the stone building on the right of the picture.

Image Courtesy of David Addey.



Figures 7.5 (left) and 7.6 (below): An extensive view along the cliff top from Charmouth looking eastwards by Alfred Robert Quinton, c.1920. The cliff tops contain numerous buried heritage sites, which are exposed through rapid coastal erosion and landsliding (e.g. Dog House Hill, Chideock MDO7655).

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 7.7 (above): A panoramic view of the coast from above Lyme Regis past The Spittles, Stonebarrow Hill, Charmouth and Golden Cap by G. Hawkins, c.1830.

Figure 7.8: The coastal geology and geomorphology was mapped and described by the Rev. W. Conybeare and William Dawson in 1840. They provided detailed maps of the landslips, as well as finely lithographed views of the major landslide events.

Image Courtesy of Dorset County Museum and Heritage Service.

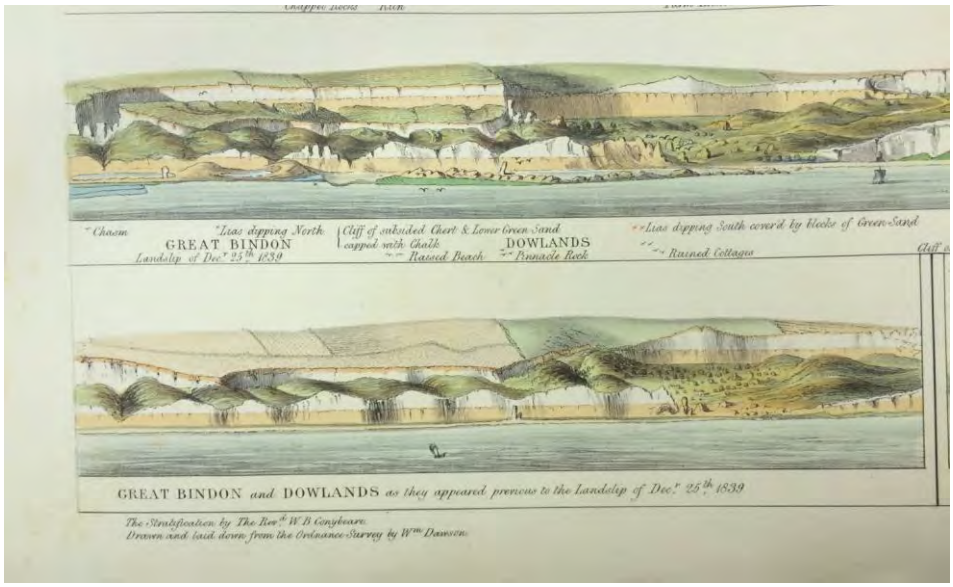


Figure 7.9: In addition to their maps and plates, Conybeare and Dawson produced detailed views of the coastline from the sea, which provide an accurate record of coastal conditions and developments along this part of the East Devon/West Dorset coast.

Image Courtesy of Dorset County Museum and Heritage Service.

Figure 7.10: *'Above Lyme Regis Looking Across Marshwood Vale, Dorset'* by Thomas Girtin. Watercolour, c.1797. Girtin's view illustrates, in colour, the nature of the cliff top landscape of West Dorset two hundred and twenty years ago.

Image Courtesy of Christie's.

Figure 7.11: A fine lithograph of the beach at Lyme Regis by Daniel Dunster. Lithograph. C.1840.

Image Courtesy of Lyme Regis Museum.

Figure 7.12: A mid-nineteenth century view looking over the developing town of Lyme Regis from the east side close to Black Ven. The unstable nature of the coastal cliffs can be seen in the foreground.

Image Courtesy: Private Collection.

Figure 7.13: Lyme Regis has been protected progressively over the last twenty-five years with several phases of major coast protection and landslide stabilisation works. These have included the addition of rock armour at the end of The Cobb and, more recently, further works at the eastern end of the seafront below The Spittles.

Image Courtesy of the Wight Light Gallery.

Figure 7.14: *'The Cobb, Lyme Regis'*, c.1890 by Charles Robertson RWS. This was one of at least two watercolours that he painted of Lyme. Robertson was a follower of the Pre-Raphaelites and, as a result, his watercolour drawings are both detailed and accurate.

Image reproduced by kind permission of Sidmouth Museum.

Figure 7.15: *'The Cobb, Lyme Regis'* by Alfred Robert Quinton, who painted numerous watercolours of the town and seafront in the 1920s. The quality and detail of Quinton's work is obvious and compares favourably with the black and white photographic postcard published at about the same time (**Figure 7.16 below**).

The advantages of images in colour in terms of describing the coastal architecture and the construction of The Cobb can be readily appreciated.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Case Study Site 8 – Beer, Devon

1. Location

The study site extends from east of the village of Beer southwards to Beer Head, and then westwards to the village of Branscombe, a coastal frontage of 4km.

2. Why was the Case Study Site selected?

Beer was a location chosen by many artists on account of its picturesque scenery. In particular, the cliff line was painted by the artist, Edward William Cooke RA (Munday, 1996[1]). Cooke's portrayals of coastal cliff geology are some of the most detailed produced by any artist during the Victorian period. Along the top of the cliff line at Beer there are prehistoric field systems abutting the cliff edge at South Down Common (MDV19842), whilst, at Branscombe to the west, Bury Camp (MDV10899) is located on the cliff top between High Peak, Sidmouth, and Beer Head. This comprised a large defensible hilltop enclosure, which is believed to date from the first millennium BC and part of this important site has been lost through coastal erosion.

3. Summary of the Geology, Geomorphology & Coastal Processes

Beer is located in a valley within Cretaceous rocks comprising the Upper Greensand overlain by Chalk. The top of the cliffline is capped with more recent plateau Gravel deposits. The Chalk cliffs are well jointed and include horizontal bands of Flint, indicating the deposits within the Upper Chalk. The sediment transport direction along this part of the coast is from west to east; there are no significant coastal defences along the Beer frontage.

4. Risks to Heritage Assets along the Case Study Frontage

The Beer frontage is an eroding coastline, and is subject to cliff instability and rock falls particularly during and after severe storms or prolonged periods of heavy rainfall. Erosion of the near vertical Chalk cliffs at Beer Head, and instability to the west at Hooken Cliff towards Branscombe Mouth, present ongoing risks for heritage sites.

5. How can historical Imagery inform heritage risk management?

West of Beer the Hooken Cliff landslip took place in 1790 and ongoing failures are evidenced by Chalk debris that can be seen at the base of the cliff. Views such as *'The Fishing Cove of Beer'* by Edward William Cooke RA, painted in 1858, are remarkable for their clarity, as well as the attention to geological detail. This oil painting by Cooke (Figure 8.1) provides the most extensive view of the coastline looking eastwards. Cooke also painted a view from the opposite direction showing Beer Head in the distance in 1858 (Figure 8.3). The watercolour by Arthur W. Perry, painted c.1900, provides a closer view of the headland (Figure 8.6). The most recent view, a watercolour by Alfred Robert Quinton, was painted in the early twentieth century (Figure 8.7). What these artworks show is the remarkable similarity in terms of the form of the cliff line, the jointing in the cliff face, and the form, profile and nature of the beach. These paintings were all produced by artists who were renowned for their topographical accuracy, and visual comparisons of this kind help to provide confidence in artworks amongst professionals interested in coastal management, in support of their understanding of coastal change along their particular frontage.

These artworks indicate, first, that the cliffs at Beer are subjected to extremely slow change as a result of coastal erosion, cliff face weathering and instability. Second, the beach has remained relatively static over a period of some seventy years, even though there may have been fluctuations over the intervening period. Finally, they describe a slow but continuing risk to cliff top heritage sites, such as those at South Down Common and Branscombe, with increasing risks for the future as a result of an increased rate of erosion resulting from sea level rise and possible

changes in the severity and frequency of storms.

6. Key Issues – What can be learnt from this site?

The artworks that are available of the Beer frontage by artists such as Cooke, demonstrate how, alongside photographic evidence, art can provide detailed depictions of the state of the coastal frontage at various points in time with a high degree of accuracy. This information can help inform both coastal risk management and understanding by heritage managers of the potential risk to cliff top sites, looking ahead over the next century. What these images do not show are the heritage sites themselves. Generally such sites are best portrayed by aerial photography or Lidar. Where interested antiquarians lived in the vicinity (see Case study 9) the actual heritage sites may also be depicted.

7. References

1. Munday, J. 1996. '*E.W. Cooke RA FRS FSA LS FZS FGS – A Man of His Time'.* Antiques Collectors' Club. ISBN: 1-85149-222-4

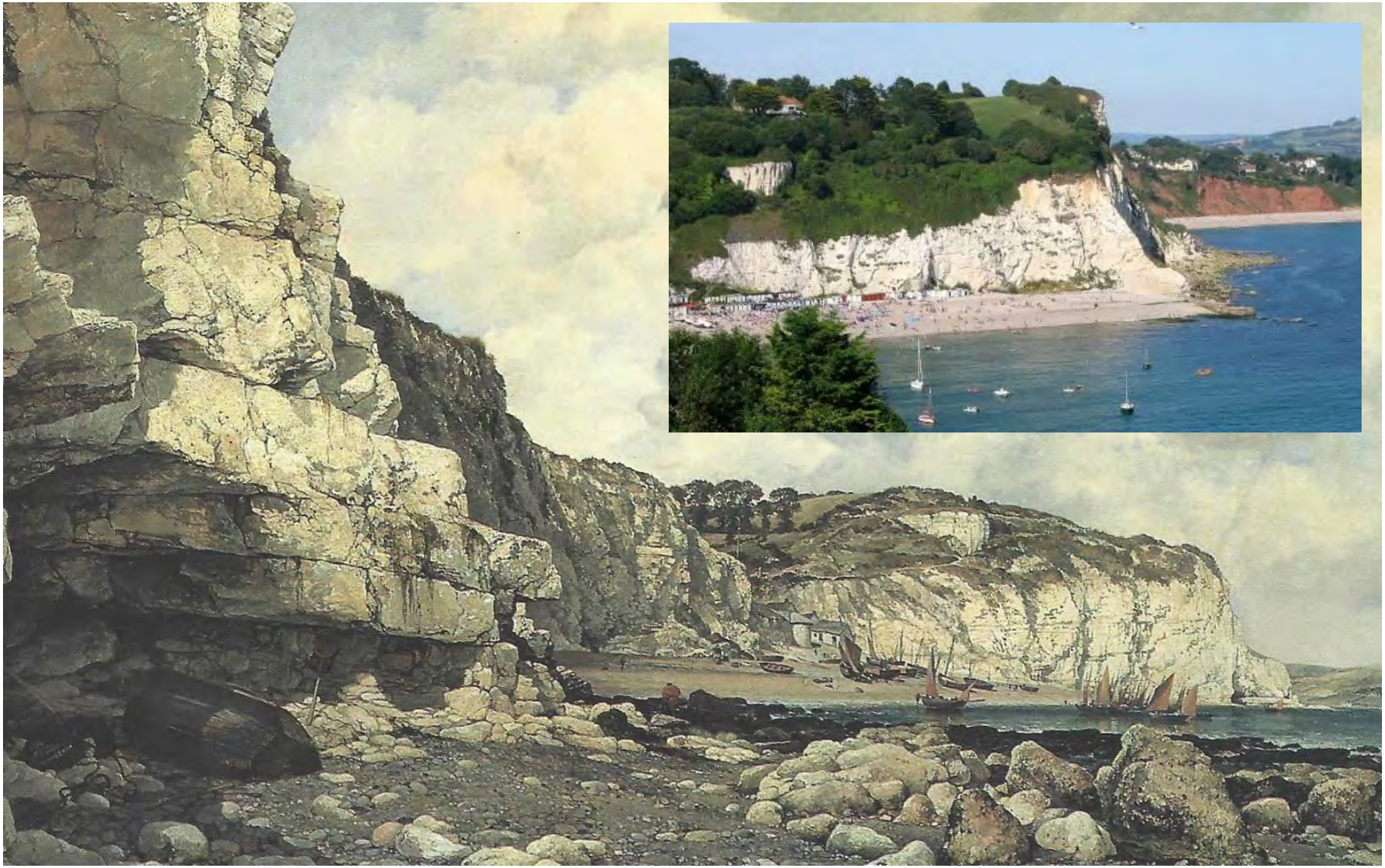


Figure 8.1: *'The Fishing Cove of Beer' (*1858) by Edward William Cooke RA shows the coastline in Pre-Raphaelite detail. The eastern part of Cooke's oil painting can be seen in the photograph as **Figure 8.2 (inset)**.

Image Courtesy of the late John Munday/Private Collection and © Ian West.

Figure 8.3: *'Distant View of Beer Head and White Cliff at Low Water'* by E. W. Cooke RA, 1858. This dramatic headland is captured well by Cooke and shows the end of the red sandstone cliffs, which extend eastwards towards Seaton on the right.

Figure 8.4: This photograph shows the headland on the left of Cooke's painting. The cliff tops contain heritage sites which are being lost progressively as a result of coastal erosion.

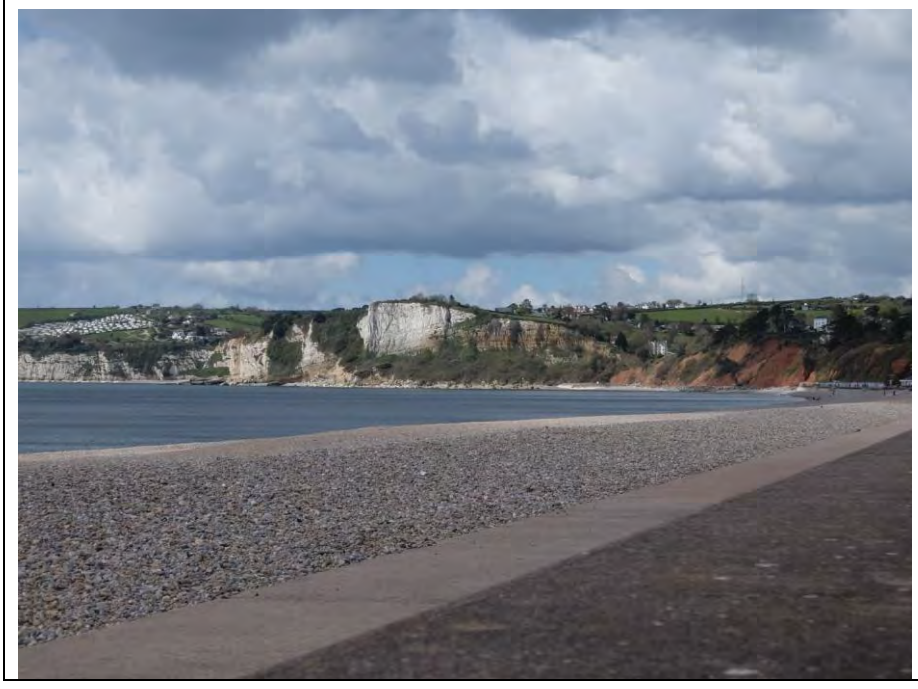


Figure 8.5: In this photograph the striking red and white strata, obvious in Cooke's oil painting, can be seen in the centre.

Figure 8.6: *'Beer, Devon'* by A. W. Perry, c.1900 showing the headland looking eastwards.

Image courtesy: Private Collection.

Figure 8.7: A similar vantage point was chosen by Alfred Robert Quinton for his watercolour painted ten years later. The depictions of the cliff geology are almost identical.

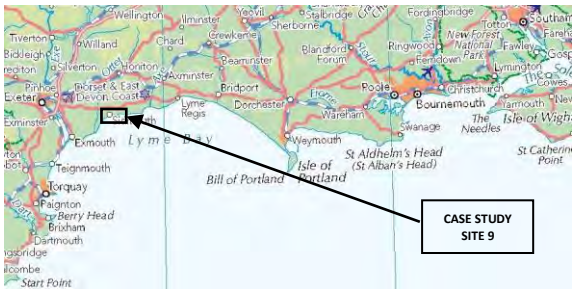
Figure 8.8: This photograph from about 1900 confirms the accuracy of these artists' works.

Image © Ian West.

Case Study Site 9 – Sidmouth, Devon

1. Location

The study site extends from the mouth of the River Sid at the eastern end of the Esplanade at Sidmouth, westwards, along the town frontage, to High Peak and beyond to the village of Otterton, a coastal length of approximately 3km.



2. Why was the Case Study Site selected?

The development of the town of Sidmouth typifies that of many small seaside towns in south-west England. There are numerous artistic views of Sidmouth and its adjacent coastlines as artists were attracted on account of its scenic location with the dramatic red sandstone cliffs rising steeply on both sides of the town (Figures 9.1-9.3). Apart from the main town frontage, the coastline is unprotected and is susceptible to coastal erosion and landsliding processes. However, even the town itself has experienced a long history of coastal erosion and flood events. Apart from the numerous listed buildings in close proximity to the seafront at Sidmouth, there are heritage assets at Connaught Gardens and Jacob's Ladder immediately to the west of the town, and at High Peak and on the cliffs beyond Otterton, a site which was identified in the late eighteenth century. The multi-period site at High Peak includes remains of an Early Neolithic enclosure and the buried remains of an early fortified settlement dating back to the 5th – 6th centuries. The High Peak site is affected by coastal erosion and a significant proportion of the site has been lost over the centuries (Figures 9.15-9.19).

Apart from the many engraved views and paintings of the town of Sidmouth, the contributions of the antiquarian and watercolour artist, Peter Orlando Hutchinson (Figures 9.8-9.11; 9.15-9.17; 9.20-9.23), which are recorded in his illustrated journals and sketch books (1871-1894), form a detailed and fascinating record of both coastal processes and heritage discoveries over that time (Devon History Society, 2012[1]; Butler, 2010[2]).

3. Summary of the Geology, Geomorphology & Coastal Processes

The Sidmouth frontage is composed largely of mudstones, siltstones and sandstones of the Triassic Period, with intermittent outcrops of the Gault Clay and Upper Greensand of the Cretaceous Period. Although the town frontage is defended with a seawall, rock groynes and breakwaters, the undefended cliffs on either side are subjected to aggressive coastal erosion and weathering and resulting in cliff instability. Although coastal defences were upgraded in the late 1990s with the provision of offshore rock breakwaters and groynes, further proposals aimed at reducing the risks along the Sidmouth frontage for the future are currently being developed.

4. Risks to Heritage Assets along the Case Study Frontage

The whole of the Sidmouth Esplanade frontage and a large part of the town centre behind lies within the Conservation Area, which is protected by a substantial seawall. However, concerns about coastal erosion and flooding, particularly in the context of sea level rise and climate change, have resulted in the development of new proposals to protect property and assets located in the town and on the adjacent cliffs. Regency hotels and villas and later nineteenth century properties, as well as ornate cottages, are located close to the seafront, whilst to the south-west at High Peak the Dark Age defended settlement (MDV15124) is affected by cliff erosion. Connaught Gardens at the western end of the Sidmouth frontage, which comprises a castellated clock tower with belfry built over old underground lime kilns, is another important asset located immediately adjacent to the coast. It occupies the site of the former 'Cliff Cottage' (later re-named 'Seaview'). At Otterton Point there is evidence of a possible site of a Roman Villa (MDV36156) and investigations suggest that part of the building may have been lost as a result of coastal erosion.

5. How can historical Imagery inform heritage risk management?

Illustrated guidebooks (e.g. Butcher, 1820[3]) and a wealth of artworks, particularly engravings of the town of Sidmouth, including the famous '*Long Print*' (after 1814[4]) by Hubert Cornish (Figures 4-7), and the numerous detailed watercolours by Hutchinson, provide a comprehensive record of the frontage. Cornish's '*Long Print*' has been studied in detail (Creeke, 2014[4]) and is interesting because, combined with Hutchinson's watercolours, it shows the development of Sidmouth seafront prior to the existence of any coastal defences and later. In addition, many of the significant Regency and later buildings that exist today are finely drawn in Cornish's print, set within the wider setting of the Sidmouth coastal frontage.

Numerous other steel engravings and lithographs assist in providing a chronology of the development of the town and the changing coastline on either side. More detailed specific sites are described and illustrated by Hutchinson in his very comprehensive diaries, which are in the collection of Devon Archives and Local Studies Service (Devon History Society, 2012[1]). The Sidmouth frontage, therefore, provides us with comprehensive written and illustrated accounts of the development of a prosperous, heritage rich, small coastal town through the nineteenth century in particular. This includes the records of erosion and flood events and archaeological discoveries through the Hutchinson diaries. These artworks together with numerous photographs held by Sidmouth Museum collectively provide information on the rate and scale of coastal change and the impacts of past flood and erosion events on development and heritage.

6. Key Issues – What can be learnt from this site?

Views such as those available for Sidmouth show how many coastal towns were often developed on the back of the beach and also the extensive nature of such beaches prior to the construction of seawalls and esplanades, which often occupied much of the former beach area. The views also show that, even after the construction of the seawall along the town frontage, severe storms have caused damage through both erosion and flood events. Historical information of this kind can inform the planning of new coastal defences, taking account of the need to improve the standards of defence as a result of coastal and climatic change. Along the undefended or less defended coastlines information on cliff retreat can be gained through making comparisons, for example, of cliff change since the late nineteenth century when compared with the present day.

The town benefits from the wealth of information in both written and illustrated form in Hutchinson's diaries. The diaries provide an excellent example of how archaeological knowledge can be enhanced through such detailed accounts by local antiquarians. Sidmouth is, therefore, one of relatively few locations where heritage sites themselves are actually illustrated rather than just views showing the locality of buried heritage.

7. References

1. Devon History Society, 2012. *The Diaries of P.O Hutchinson'.* www.devonhistorysociety.org.uk/2012/08/peter-orlando-hutchinson-online.html
2. Butler, J. '*Peter Orlando Hutchinson - Diary of a Devon Antiquary – Illustrated Journals and Sketchbooks'.* Halsgrove. ISBN: 978-0-9512704-9.
3. Butcher, Rev. E., 1820. *'The Beauties of Sidmouth'.*
4. Creeke, J., 2014. *'Sidmouth's Long Print – A Picture in Time'.* Publ. for Sidmouth Museum by The Sid Vale Association. ISBN: 978-0-9512704-7-9.

Figure 9.1: An aquatint engraving of the *'Views from Salcombe Hill'* by Havell, 1814, provides an early prospect over the developing town from the west.

Image Courtesy: Private Collection.

Figure 9.2: *'High Peak Hill from Sidmouth'* drawn on the spot by Peter Orlando Hutchinson on 16th June 1849. Hutchinson's fine watercolours, which are contained in his extensive diaries, are nearly always dated.

Image reproduced with kind permission of Devon Archives and Local Studies Service.

Figure 9.3: A fine mid-nineteenth century lithograph shows Sidmouth and the rugged coastline extending westwards. High Peak and the cliff tops beyond contain a rich buried archaeological heritage, which is being continuously eroded along this undefended coastline.

Details from Hubert Cornish's *'Long Print of Sidmouth'*. Aquatint engraving after 1815 (Images Courtesy of Woolley and Wallis Auctions).

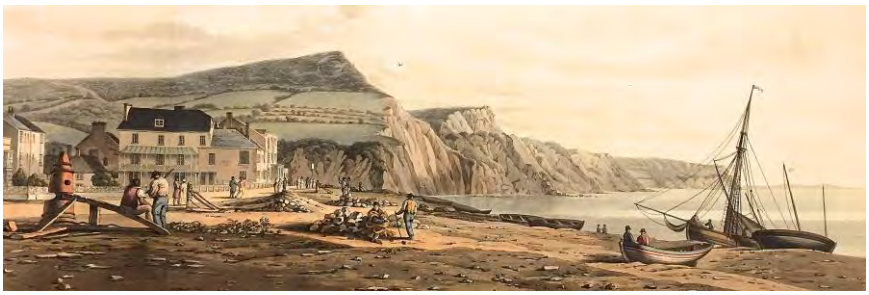


Figure 9.4: This view looks east along the coast from the shore. The seawall and Esplanade were yet to be constructed. The building on the left is Prospect Place with the York Hotel beyond.

Figure 9.5: A second eastward view shows Marine Place and Portland Place. The entrances to the properties appear level with the back of the beach, which appears to be very extensive at the time.

Figure 9.6: This detail from the 'Long Print' looks to the west and shows the thatched 'Fort Cottage' with the signalling mast on Peak Hill. The fishermen's cottages on the shore to the left were destroyed in the Great Storm of 1824.

Figure 9.7: The westernmost section of the 'Long Print' looks along the coast towards Brandy Head and Otterton. The unusual rock formed in the Day was known as 'Chit Rock'.

The 'Long Print' provides a fascinating, highly detailed, panorama of Sidmouth's historic seafront. The original watercolours from which the print was taken can be seen at Sidmouth Museum.

Figure 9.8: A failure of the cliff near Peak Cottage, Peak Hill, Sidmouth, on 31st August 1847. A watercolour painted on the spot by P. O. Hutchinson.

Image reproduced with kind permission of Devon Archives and Local Studies Centre.

Figure 9.9: Serious sea flooding affected Sidmouth on 3rd/4th December 1876. The scene was captured in watercolour by P. O. Hutchinson and described in his diary.

Image reproduced with kind permission of Devon Archives and Local Studies Service.

Figure 9.10: Sketch by P. O. Hutchinson showing repairing storm damage to the Esplanade near the bottom of Peak Hill, Sidmouth, in January 1873.

Image reproduced with kind permission of Devon Archives and Local Studies Service.

Coastal Erosion, Instability and Flooding at Sidmouth

Figure 9.11: The west end of Sidmouth beach from an old print dated 1816. Painted in watercolour by P. O. Hutchinson, the view shows the row of fishermen's cottages that were washed away in the Great Storm of 23rd November 1824.

Figure 9.12: The exposed position of Sidmouth, facing the Atlantic's south-westerly storm waves, has led to frequent flooding events. Coastal defences have been improved since the 1990s and further upgrading is under consideration.

Image reproduced with the kind permission of Sidmouth Museum.

Figures 9.13 and 9.14 (below): show the devastation to the Esplanade after a severe storm.

Images reproduced with the kind permission of Sidmouth Museum.

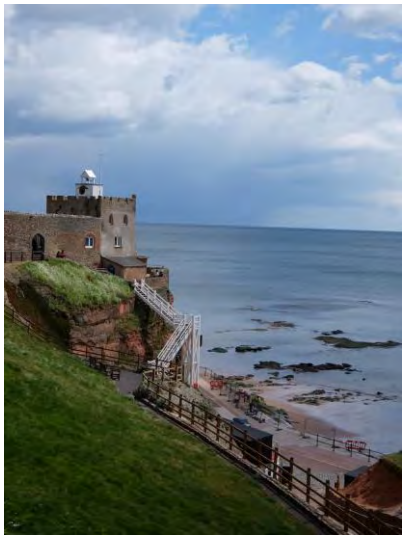
Depictions of Sidmouth's Coastal Heritage by P. O. Hutchinson

Figures 9.15, 9.16 and 9.17: These three views by Hutchinson depict the remains of the old lime kilns near the Chit Rocks at Sidmouth. The earliest view (top left) was painted on 4th December 1871 with a ladder providing access to the shore (top right). The view (left) was painted in May 1888 and, by now, the base of the cliff has been protected.

Figure 9.18 (below left): Jacob's Ladder can be seen in this watercolour by Alfred Robert Quinton, c.1920.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 9.19 (below right): The view today of Jacob's Ladder.



Depictions of Sidmouth's Coastal Heritage by P. O. Hutchinson

Figure 9.20 (top left): '*High Peak from Peak Hill'* painted on the spot on 7th September 1849.

Figure 9.21 (top right): *'View from the summit of High Peak Hill looking south-west towards Otterton Point and Bury Head'*. The Signal Staff was erected in 1850 and was shattered by lightning. The conical mount was made by Ordnance Surveyors in 1857.

Figure 9.22 (left): The earthworks on High Peak Hill looking towards Sidmouth. Painted on 9th July 1851.

Figure 9.23 (left): Opening a stone heap on Littlecombe Hill, Bury Camp on 8th September 1858.

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Case Study Site 10 – Exmouth and Exe Estuary

1. Location

The study site comprises that section of the Exe Estuary from Topsham in the north to Exmouth in the south (the succeeding case study covers the Dawlish Warren to Teignmouth frontage).

2. Why was the Case Study Site selected?

The study site, an estuary on the South Devon coast, provides a contrasting physical environment to the predominantly cliffed frontages that have been selected as case studies along most of the Dorset and South Devon coasts. The estuary contains a range of sites of heritage and archaeological interest, and has also been a very popular subject for artists particularly since the late eighteenth centuries (Marjoram & Jones, 2014[1]).

3. Summary of the Geology, Geomorphology & Coastal Processes

The Exe Estuary lies within sandstone, limestone, mudstone and shale formations of the Permian Period. The evolution of the estuary resulted from both an erosional period during the Quaternary (from approximately ten million years ago) and sea level rise after the last Ice Age, which resulted in the drowning of the river valley and the formation of the estuary into which it has evolved today.

4. Risks to Heritage Assets along the Case Study Frontage

The principal risk along the Exe estuary is from flooding, despite extensive coastal defences including seawalls, groynes, rock revetments and beach management measures. The pressure on coastal defences is likely to increase as a result of sea level rise and more unsettled weather patterns over the next century. The '*Exe Estuary Flood and Coastal Erosion Risk Management Strategy*' (Environment Agency, 2013[2]) has recommended a number of proposals to include improvement of tidal flood defences over the next decades, in particular with the aims of reducing overtopping of seawalls during storm events (Figures 6-8).

The Exe estuary and the settlements bordering it contain a rich heritage ranging from the Grade I Listed Powderham Castle on the western side of the estuary, to the numerous elegant buildings located within the Conservation Area of Exmouth. Other heritage interest includes the possible site of Exmouth Castle (MDV10649), the Artillery Fort between Star Cross and Exmouth (MDV9801) and relics of a limekiln on the Maer at Exmouth (MDV18738).

5. How can historical Imagery inform heritage risk management?

There are numerous artworks depicting the Exe estuary, which allow changes in conditions along its length to be compared over the last two and a half centuries (Figures 10.1-10.4). As part of the *'Living with Coastal Change'* (LICCO) project (www.licco.eu.) a component of the project entitled *'Painting a picture of change around the Exe Estuary coast'* involved gathering together those artworks from the late eighteenth century onwards that portrayed the estuary and activities along its banks through history – see Figure 10.5 (Marjoram and Jones, 2014[1]). This component represents a good example of the practical use of such historical images in support of estuary planning and management.

6. Key Issues – What can be learnt from this site?

The artworks show that there is a rich history of images painted along the banks of estuaries, and that these can inform us of changing conditions brought about as a result of both natural and anthropogenic influences since the late eighteenth century. Such images can support the development of flood risk management strategies by allowing an understanding of past conditions, including during periods of flooding. They can give an indication of the past

and potential vulnerabilities of heritage sites to flood risk and support the planning of sustainable solutions for their future preservation.

7. References

1. Marjoram, J. & Jones, H., 2014. '*Artists in Exmouth before 1910'.* Report for the EU Interreg IVA 'LICCO' project. www.licco.eu.
2. Environment Agency, 2013. '*Exe Estuary Flood and Coastal Erosion Risk Management Strategy'.* www.gov.uk/…exe-estuary-flood-and-coastal-erosion-risk-management-strategy…risk-management-strategy.
3. Warner, R., 1800. *'A Walk Through Some of the Western Counties of England*'. Page 197.
4. Daniell, W. & Ayton, R., 1814-1825. *'A Voyage Round Great Britain'*. Longman & Co.

Figure 10.1: *'A View of the Exe from Exwell Looking Towards Topsham'* by Francis Towne, 1779. Watercolour. The writer Richard Warner in his *'A Walk Through Some of the Western Counties of England'* in 1800 said *"this estuary, sprinkled with shipping, enclosed between hills, which are ornamented with groves and mansions, castles and cities, present at full tide, and under a calm sky, the picture of an Italian Lake"* (Warner, 1800[3]).

Image Courtesy of John Spink.

Figure 10.2: This aquatint engraving by William Daniell RA was completed in 1825 near the end of his eleven year *'Voyage Round Great Britain'* (Daniell & Ayton, 1814-1825[4]). Some lodging houses were being built on the high ground known as The Beacon.

Figure 10.3: David Addey retraced Daniell's voyage and, in 1988, travelled to Exmouth where he painted this watercolour. This view, like Daniell's, is taken from Orcombe Point and shows Holy Trinity Church and the row of houses on The Beacon.

Image Courtesy of David Addey.

Figure 10.4: The prolific watercolourist Alfred Robert Quinton painted this view of the red sandstone cliffline and coastal path looking across the mouth of the Exe Estuary in 1915.

Image Courtesy of J. Salmon Limited of Sevenoaks.

A Changing Coast through time in the Exe Estuary

280 million years ago (Permian period)

Exe Estuary

Devon was part of a land mass just North of the Equator, with a dry, hot climate similar to that of the southern Sahara Desert today. The red sandstone rocks we can still see at Dawlish were eroded by storms and flash floods.

7000 years ago

Dawlish Warren

As sea levels continued to rise, longshore drift from the west transported sediment along the coast to form Dawlish Warren. This originally consisted of two sand spits (the Outer Warren and the Inner Warren) separated by a lake (Greenland Lake).

1100-1300

Powderham

"Much of the land in the Exe Estuary was reclaimed from the sea in the 12th and 13th centuries. Before this tides would have run inland to the rising ground on which Powderham Castle now stands. The red sandstone cliffs through which the main road is now cut were part of the coastline. To this day iron rings can be seen in the outer walls of Powderham Castle where, as late as the C18th, fishermen used to tie up their boats"

1300s

Dawlish Warren

Dawlish Warren was used as a hunting ground for small game.

1600s

Topsham /Dawlish Warren

Lord Courtenay constructed Topsham Quay in 1613. During the English Civil War (1642-1646) a Royalist fort was built at the eastern end of Dawlish Warren spit, on the site of an earlier Saxon fort.

1715-1805

Dawlish Warren

Anne Lytton (or Litten), talked of walking across stepping stones from Examouth to the Warren to "milk the cows grazing". She claimed that the main channel out of the estuary flowed next to Langstone Rock at the western end of Dawlish Warren rather than the eastern end as it does today.

1811

Exmouth

Boats used to sail from Mona Island in Exmouth, just around the corner from Exeter Road.
An embankment built here in 1811 allowed the reclamation of 40 acres of marshland and foreshore.
On 18th October, "The tide on the Devonshire coast rose higher than has been witnessed in the memory of any person living; the wind was fortunately very moderate.

1824 22nd November

Dawlish Warren

The Great Gale :
At Dawlish Warren the sea burst through the embankment and flooded some seventy acres. Considerable damage to property was reported.
At Starcross, "The water has made several breaches in the wall which protects the village, and had risen in the street to the height of many feet; several houses are much damaged"

1838 February

Dawlish Warren

A storm washed away up to one quarter of the Warren with exceptionally high tides.

1841

Exmouth

Work started on constructing the sea wall along the Esplanade. This allowed the reclamation of a large strip of coastal land and the construction of docks in 1865-9 which boosted Exmouth's success as a port. Before this, lighters transferred cargoes from ships anchored offshore.

1861

Exmouth

The railway line was built to Exmouth in 1861, bringing with it mass tourism.

1862

Dawlish Warren

The Earl of Devon built an embankment from the south-west corner of the Exe Estuary to Warren Point in order to reclaim an area from the sea to breed oysters. Some 30,000 oysters were harvested from the beds in Greenland Lake in one year.

1863

Exe Estuary

The Pilot's Handbook of 1863 advised of the estuary of the Exe:
"As the entrance is not lighted it cannot be run for with safety at night. It is at all times difficult to access, unapproachable in heavy sea, and must on no account be depended on for refuge. From the entrance, which has a long, shallow bar, te channel is narrow and winding and ought not to be attempted without a pilot.

240 million years ago (Triassic period)

Exe Estuary

The continent began to move northwards and the Atlantic Ocean was formed, making Devon's climate more humid. Sea levels rose and the Exe Estuary was periodically submerged.

100AD

Exe Estuary

The Romans used the Exe Estuary as an anchorage, with evidence of military and civilian sites in Exeter and at Topsham.

1270s

Exe Estuary

The Countess of Devon, Isabella de Forribus, built a weir across the River Exe to power her mills (near to present day Countess Wear). This cut off Exeter's port from the sea and damaged its salmon fisheries. Before this the River Exe was tidal and navigable up to the city walls enabling Exeter to be a busy port.

1567

Exeter/Topsham

Exeter canal was completed from just below the Countess Wear to the centre of Exeter. In 1677 the canal was extended to Topsham. In 1701 the canal was deepened and widened to allow the passage of ocean-going ships and the number of locks reduced to one. The canal was successful until the decline of the wool trade in the early nineteenth century and the later coming of the railways.

1700-1850s

Exe Estuary and Lower Clyst Valley

Large areas of tidal salt marsh were lost as land was drained for farming along the west bank of the Exe Estuary between the River Kenn and Exminster, in the lower Clyst Estuary and along the east bank of the estuary from Exton to south of Lympstone.

1720-1820

Exmouth

Exmouth became renowned as a destination for the wealthy to recover their health, attracted by the views and medicinal salt waters which were then fashionable. Exmouth's Georgian buildings eg The Beacon Terrace can be seen in paintings from this time.

1817

Dawlish Warren

Saltworks existed where Shutterton Brook joined the estuary behind Dawlish Warren, until they were demolished in 1900. A violent storm washed 5 acres of the Warren away in one day, killing many rabbits.

1836

Dawlish

"In 1836 a sea wall was built for the protection of the Parade. The sea wall was quite a small affair , and was superseded by the Railway wall ten years later"

1840s

Clyst St George, Topsham (west)

Six hectares of intertidal habitat at Goosemoor, at the mouth of the River Clyst were drained and reclaimed to be used as pasture land.

1859

Exe Estuary

A severe hurricane hit the River Exe in 1859, changing the appearance of Dawlish Warren, which previously ended in a steep bluff of sand on its seaward side. This bluff, at least 25ft high, was washed away by a great storm. The tide level was at the top of the railway embankment and breaking over the parapet on to the line also running through the archways of the sea wall into the village, laying the ground floors and cellars of most houses underwater. Part of the embankment of the South Devon Railway line near Exminster was to a considerable extent, washed away, the water having inundated the meadows.

At the upper part of Starcross, a serious breach has been made in the embankment. . .On proceeding along the beach at the back of the Warren, I found that there were now six breaches through it. On proceeding to Exmouth. . .all the garden walls facing the west were thrown down, the gardens destroyed and the sea entering houses. . .many houses in the town had 3 feet of water in them. The entrance of this harbour is almost blocked up with sand"

1869 31 January & 1 February

Exmouth, Dawlish, Dawlish Warren

Gales and high tides coincided to devastate the coast. On the South Devon line a quarter of a mile east of Dawlish upto 300 yards of rail track were washed away and a part of the Exmouth docks suffered similarly. More disastrously the Warren was seriously breached. Sand filled the oyster beds and chocked the breeding stock, leading to their abandonment.

Living with a Changing Coast
Littoraux et Changements Côtiers

Environment Agency

Painting a Picture of Change...

Using art to tell the story of our changing coastline

The paintings shown here provide us with a fascinating insight into how the Exe Estuary would have looked to our great, great, great grandparents. Long before cameras were commonplace a considerable number of artists lived in and travelled to Exmouth to capture its beauty on canvas.

Some 60 artists producing works in Exmouth between 1700 and 1910 have been identified by the Exmouth Historical and Archaeological Society for the Living with a Changing Coast (LiCCo) project. This rich artistic legacy helps to tell the story of coastal change around the shores of the Exe Estuary – a story of an ever changing, dynamic interface between land and sea. It shows that over time our coastline has never stayed the same and it never will.

'The visual delights of Exmouth'

During the nineteenth century painters were entranced by the broad estuarine views from the town, with a backdrop of hills, and by the quality of light over the sea and river, especially at sunset. Some artists chose to settle in the town, whilst others visited regularly or included Exmouth in their tour of the picturesque sites of Devon.

Apart from the visual delights of Exmouth, an advantage for visitors and residents alike was the mildness of the climate and the health-giving properties of the air and seawater. For artists who wanted to work outside in the open landscape this fine weather was a very particular advantage.

In 1791 Dr Jebb, the King's doctor, declared that the "pureness and salubrity of the air" was "equal to that of the south of France", and bathing machines (for access to the beneficial effects of seawater) were installed on Exmouth beach as early as 1759. Exmouth was the earliest seaside resort to develop in Devon and the fact that it was becoming the "handsomest and most fashionable of watering places" meant that there was likely to be a ready market for artists' work.

Artists resident in Exmouth before 1910

The artist whom many people associate with the town is Francis Danby who lived in Exmouth from about 1842 until his death in 1861. Danby lived first at Rill Cottage overlooking the river Exe and later at Shell House on the Maer, where he devoted time to boatbuilding.

Another notable inhabitant was Conrad Martens (1801-78), the official artist with Charles Darwin on HMS Beagle in 1833, who painted in Exmouth from 1822 until 1832.

Other local artists include Henry Bielfeld (1802-1892), James Bridger Goodrich (1826-1905) Richard Thomas Pentreath (1806-1869), William Henry Hallett (1810-1858), Richard Beavis (1824-1896) and Charles Edward Strong (1815-1899).

Artists portraying Exmouth before 1910

The landscape and marine painter William Daniell RA (1769–1837) was one of the artists who put Exmouth on the map when he travelled around the coastline of Britain

Sale of Wreckage on Exmouth Beach,
George Townsend (1813-1894),
watercolour, c.1850-60.
© Royal Albert Memorial Museum
and Art Gallery, Exeter

Francis Danby ARA (1793-1861)
Exmouth
1826
© courtesy Exmouth Library

Exmouth,
James Fidlor (1790-1846),
watercolour, c.1820-25.
© Royal Albert Memorial Museum
and Art Gallery, Exeter

View of Exmouth from the Beacon Walls,
William H Hallett (1810-1858),
oil on canvas, c.1850.
© Royal Albert Memorial Museum
and Art Gallery, Exeter

www.licco.eu/exe-estuary/

Living with a Changing Coast
Littoraux et Changements Côtiers

Environment Agency

Figure 9.5: Application of art to inform estuary management – the Interreg IVA *'LICCO'* Project.

...Around the Exe Estuary Coast

The coastline depicted of yesterday looks very different in parts to the one we see now. For example, the steep bluff visible in paintings at the end of Dawlish Warren was washed away by a hurricane which hit the local area in 1859 and the wrecks shown here may tell of devastating storms and exceptional high tides – known to have occurred in 1869, resulting in abandonment of local oyster beds.

Whilst we cannot be absolutely certain of the future challenges posed to our coasts by climate change and sea level rise we do know that the forces of nature - of tide and wind and wave will continue to shape our shores for many years to come.

to paint watercolours for his book "A Voyage Round Great Britain". Many more notable artists painted landscapes nad coastal scenes in Exmouth around the time, often exhibiting their works at the Royal Academy.

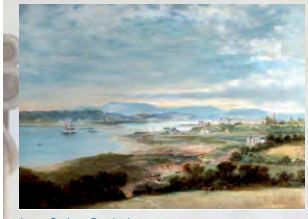
Of particular note were William Widgery (1826-1893) who is best known for his Dartmoor scenes but also painted the Exe Estuary coastline and James Bruce Birkmyer (1834-1899) who was head of both the Exeter School of Art and Exmouth art school. He was involved with the preliminary discussions, in 1862, for the proposed museum and public library building in Exeter (now the Royal Albert Memorial Museum) and was a member of the Devon & Exeter Graphic Society. At the end of his career a diploma from the Royal College of Art was conferred on him.

As the 20th century progressed artists were drawn to Exmouth just as they had been previously: they were part of a continuum. The exceptional advantages which Exmouth had to offer still held (and hold) good: it is still true that "The situation of Exmouth is a fine one. It stands on the slope of a somewhat steep hill at the mouth of the Exe, and commands not only a fine coast view, but an extensive range inland over the cultivated country in front of it, and the barren moors in the distant background. The Haldon ridge, at an elevation of 800 feet, is about eight miles off, and forms a great feature in the landscape." The quality of the light bouncing off both the sea and the estuary and the mildness of the climate - where "the sun seems to shine brighter and longer than in most parts of England especially towards evening when the sky frequently assumes an Italian lustre" - are elements which continue to entrance both visitors and residents.

With special thanks to April Marjoram and Howard Jones of the Exmouth Historical and Archeological Society for their time, expertise and painstaking research.

The Living with a Changing Coast (LiCCo) project ran in the Exe Estuary between 2011 and 2014 to raise awareness of coastal change amongst coastal communities.

For more information on the Living with a Changing Coast project and the artists covered by this research see www.licco.eu/exe-estuary/



James Bridger Goodrich
(1826-1905)
View of the Estuary and Beacon from a field
courtesy Exmouth Library

Frederick Christian Lewis
(1779-1856)
Entrance of the river Exe from Beacon
1818
© Devon Heritage Centre

Richard Beavis
(1824-1896)
The story of the wreck
1872
© courtesy Sunderland Museum & Winter Gardens

John White Abbott
(1763-1851)
View of the port of Exmouth
1811
© Plymouth City Council (Arts & Heritage)

A Changing Coast through time in the Exe Estuary

1894 - November
Lympstone
"At Lympstone and Exeter whole streets were underwater.

1900
Dawlish Warren
Storms caused Dawlish Warren to breach once again. The saltworks were demolished, having been out of operation for some time.

1914 - 1915
Exmouth
The Maer at Exmouth was reclaimed through construction of the promenade and seawall behind Maer Rocks.

1920s
Dawlish Warren
"In the 1920s The Warren was connected by a footbridge to the Exmouth Warren, an island of huge sand-dunes on which eccentric people built their unusual homes. ..... Then, suddenly, with little warning, the sea demolished in two days that which had taken decades to build and the little bridge, 'the Bridge of Sighs' led only to the empty sea." Basil Macer-Wright

1937-39
Dawlish Warren
A series of storms and high tides removed the bungalows on Dawlish Warren - "The whole of the warren was in danger."

1949-1959
Dawlish Warren
The end of Dawlish Warren spit reattached itself after 7 months, but the storms showed that Dawlish Warren was prone to changing shape. British Rail installed brushwood fences and railway sleeper barriers at the foot of the dunes and planted trees to help stabilise them, but the dunes continued to retreat inland. The first wooden groynes were installed on the beach in 1959.

1960
Lympstone
Large-scale floods in September and October 1960 caused problems in Lympstone – so severe that people had to use boats to move around the village." A beer barrel which had floated to the Methodist chapel from the Globe Inn was returned "

27th October was described as Black Thursday – a catastrophic flood caused over 1000 properties to flood.

Early 1970s
Dawlish Warren
Storms caused severe erosion of the dunes and a number of breaches occurred. It was clear that more sea defences were needed to protect the Warren's habitat, its tourism industry and its function as a breakwater for the rest of the estuary. New coastal defences were installed - a 300 metre long concrete sea wall next to the existing rock armour revetment, a promenade on the top of the wall; along with a backbone of 300 metres of rock filled wire baskets (gabions) beneath the sand dunes and 18 groynes along the spit to try to stabilise beach levels.

2000 8th December
Dawlish Warren
Torrential rain across Britain has triggered further flooding and nearly 100 new flood warnings. A caravan park at Dawlish Warren had to be evacuated.

2000
Dawlish Warren
Dawlish Warren was designated a National Nature Reserve. Along with the rest of the Exe Estuary, the site is internationally important for wading birds and wildfowl. It is also home to at least 600 species of flowering plant, including the Sand Crocus (Romulea columnae).

2008 10th March
Exmouth
In Exmouth, the heavy winds and powerful waves meant water spilled on to some roads, making driving difficult.

2012
Dawlish Warren
In October high spring tides and stormy seas washed away several metres of sand from the central part of the spit, exposing the gabions that hold dunes in place.

2015-2016
Dawlish Warren
As part of the Exe Estuary Strategy, the sea wall and groynes at Dawlish Warren will be maintained and the ground level raised in places to reduce the risk of tidal flooding to property. Gabions will be removed gradually, and fresh sand brought in to recharge the beach. This will help the dunes to recover and improve the quality of the beach for visitors. It should also lengthen the life of the sand spit as a shelter for the rest of the estuary.

1880
Dawlish Warren
Thousands of tons of gravel were removed from a bank off the village of Starcross for the building of Princess theatre in Torquay.

1899
Dawlish Warren
The first bungalows were built on the eastern end of Dawlish Warren. The community of 70 dwellings was continuously threatened by the sea. Houses often had to be abandoned or disassembled and moved to safer locations as they became flooded or as storms washed away the dunes that they were built on.

1911
Dawlish Warren
'The Gale' washes away several homes at Dawlish Warren. The heavy rain and high tide resulted in a portion of the lower parts of Lympstone being flooded.

1917
Dawlish Warren
The first sea defence (granite boulders) was built on the western end of Dawlish Warren to protect the railway line.

1932
Dawlish Warren
By this time the inward movement of the Outer Warren had caused it to join with the Inner Warren, enclosing Greenland Lake and creating a single spit.

1944-1946
Dawlish Warren
A series of storms between 1944-1946 washed away the curved hook end of Dawlish Warren. .."The 21st December 1945 was the worst storm for 50 years", with mines washed up on the beach.

1962 11th March
Dawlish Warren
Sightseers swamped Dawlish Warren to see the extensive damage to chalets and beach huts. The lower Exe was awash with railway sleepers.

1978
Dawlish Warren
The Warren was designated as a Local Nature Reserve.

1992
Dawlish Warren
After yet more storms in December 1989 and January/February 1990, the rock armoured revetment at the western end of the spit was in great need of repair: 35,000 tonnes of granite were imported from Norway and deposited at the foot of the concrete wall and the promenade was built behind it.

2004 October 26th and 27th
Exmouth
Sea defences at Exmouth experienced a lot of damage. A section of the seawall failed, resulting in subsidence, cracks and damage to the footpath behind. Severe south easterly storms coincided with high spring tides which caused the beach to be lowered.

2004 17th December
Topsham (West)
Goosemoor officially opened as an RSPB reserve, after allowing the tide back in and returning the pasture land to its original intertidal state.

2005
Lympstone
In 2006 the Environment Agency spent £900,000 raising Lympstone's sea defences. This scheme involved raising and strengthening walls along the estuary, raising two slipways and installing 7 manually operated electronically monitored metal flood gates in passageways down to the foreshore.

Late 2013 – early February 2014
Dawlish Warren & Exmouth
From October 2103 to February 2014 a series of ferocious winter storms battered the Exe Estuary damaging beaches and coastal defences. Waves overtopped the sea wall at Exmouth, flooding many roads and decimating the sand dunes here. At Dawlish Warren groynes were knocked over and as much as 5m of sand was lost from the ocean face of the sand dunes, exposing the defences underneath.

2030-2060
Dawlish Warren
As sea levels rise and storms are predicted to become more frequent and more ferocious it will become more difficult to preserve Dawlish Warren spit from the forces of nature. Erosion of Dawlish Warren could mean that waves in the estuary are upto 30cm higher and coastal defences will need to be improved to protect waterside communities.

The assistance of Stephanie Clark, Exe Estuary Officer, is gratefully acknowledged (www.exe-estuary.org). Exe Estuary Press (Issue 36). Exe Estuary Management Partnership.

Figure 10.6: This photograph, taken in 1915, shows the view of Exmouth and the estuary from Beacon Hill. The elegant villas and Esplanade remain as a prominent architectural feature of the town today.

Coastal and flood defences help to protect the town frontage from erosion and flooding **(Figure 10.7 left)**. However, the requirements are being reassessed through an erosion and flood risk management strategy. Damage caused during the severe storms of December 2013/January 2014 have highlighted the need for possible further improvements.

Figure 10.8: A view across the estuary mouth showing the extensive beach and Dawlish Warren beyond.

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Case Study Site 11 – Dawlish to Teignmouth

1. Location

The case study continues from the previous Exe Estuary case study, and covers the frontage from Dawlish Warren southwards to the town of Teignmouth.

2. Why was the Case Study Site selected?

The case study illustrates the development of the popular seaside resorts of Dawlish and Teignmouth, which were developed on the open shore, and shows progressive development of the towns and construction of coastal defences. The site includes the Dawlish Warren Spit at the mouth of the Exe, and the famous railway line, which runs directly along this coastal frontage as part of the main line to Cornwall.

3. Summary of the Geology, Geomorphology & Coastal Processes

The whole of this coastal frontage lies within the Exeter Group, Appleby Group, and Kinnerton and Bridgenorth Sandstone Formations of the Permian Period. Dawlish Warren, at the northern end of the site, provides an element of protection at the mouth of the Exe Estuary, whilst to the south the open coast is exposed to attack from waves generated within the English Channel. The storms of winter 2013/14 demonstrated the vulnerability of the frontage in the face of exceptional storm events, which may become more frequent in the future as a result of climate change.

4. Risks to Heritage Assets along the Case Study Frontage

Substantial areas of the historic towns of Dawlish and Teignmouth are designated as Conservation Areas, and these are protected by coastal defences. Brunel's *'Atmospheric Railway'* was constructed along the seafront at Dawlish and was opened in 1846. A section of seawall was destroyed in the storms of January/February 2014 and raised questions about the vulnerability of the South Devon railway seawall to storm damage in the future. The exposure of Dawlish seafront to Channel-generated storms in this context is illustrated through a series of lithographs produced by William Dawson in 1848.

An early twentieth century scattered settlement at Dawlish Warren was recorded on the Second Edition Ordnance Survey map (1904-06) but this was largely destroyed as a result of flooding in 1948, with the last two remaining buildings being lost in 1965 (MDV42070). At Holcombe near Dawlish an octagonal 'Customs Lookout' was constructed alongside the coastal footpath (MDV105334).

5. How can historical Imagery inform heritage risk management?

The detailed images contained within this case study comprising engravings, lithographs and watercolours demonstrate the high degree of detail that was achieved by the best draughtsman/artists working in the mid-nineteenth century, and show, in particular, the extraordinary detail that could be achieved through the lithographic printing process. The views for the '*Atmospheric Railway*' at Dawlish provide some of the most detailed depictions of coastal frontages to be found along the south-west coast (Figures 11.10-11.13). The earliest view is that of Teignmouth by William Daniell RA (Figure 11.3), which he engraved in 1825. Sidmouth antiquarian Peter Orlando Hutchinson produced numerous watercolours to illustrate his extensive diaries including views on Dawlish Warren in the 1850s. Later the prolific painter of coastal towns, Alfred Robert Quinton, visited and painted at both Dawlish and Teignmouth in the 1920s (Figures 11.5, 11.6 and 11.9).

6. Key Issues – What can be learnt from this site?

The artworks from this frontage show the detailed record left by artists that can be interrogated to inform us of past conditions, often before the construction of coastal defences (as can be seen in the engraving of Dawlish beach). It also illustrates how artworks produced for construction projects such as the 'Atmospheric Railway' also provide a detailed record of past coastal environments and architecture.

Figure 11.1 (above): *'The Baths on the Beach at Dawlish'* by Thomas Allom; a steel engraving from 1832. As in the Sidmouth case study valuable properties at the back of the beach appear particularly vulnerable.

Figure 11.2 (below): This fine aquatint of *'Teignmouth from the Walk'* by W. Read, c.1825, shows the handsome eighteenth and early nineteenth century buildings at what was to become one of Devon's leading coastal resorts.

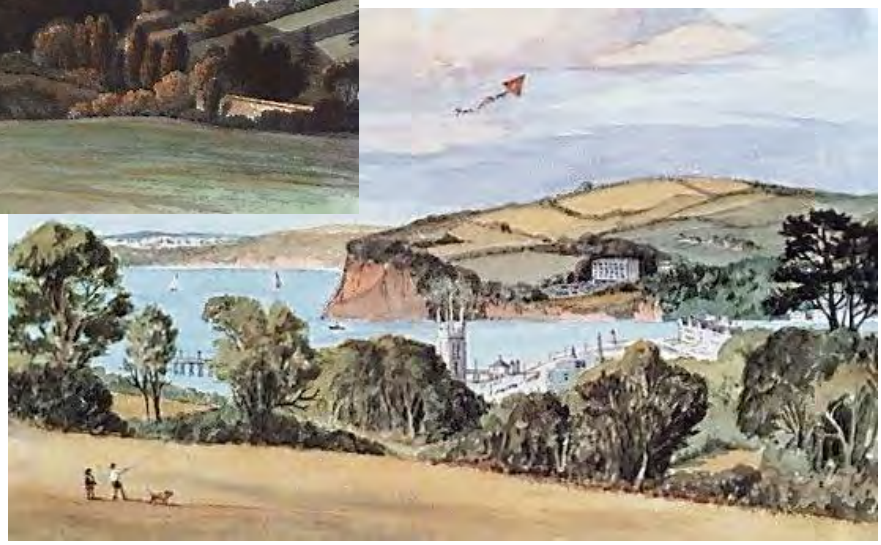


Figure 11.3 (above): William Daniell RA visited Teignmouth in 1825 and produced this view over the town looking westwards. In David Addey's 1988 watercolour in **Figure 11.4 (right)** the church is more prominent and the building across the river changes the character of the view.

Image Courtesy of David Addey.

Figures 11.5 and 11.6: Two views of Teignmouth by the prolific early twentieth century watercolourist, A. R. Quinton, show the general setting of the town (above) and the church, the pier and other prominent buildings view from the East Cliff (right).

Images Courtesy of J. Salmon Limited of Sevenoaks.

Figure 11.7: *'The Battery on the Warren opposite Exmouth'* sketched on the spot by Peter Orlando Hutchinson, 20th July 1858.

Image reproduced with kind permission of Devon Archives and Local Studies Service.

Figure 11.8: *'Mount Pleasant and the Coast near Dawlish from the Warren'* by P. O. Hutchinson, 15th April 1854. Hutchinson's numerous watercolours and pen and ink vignettes contained within his extensive diaries include a wealth of drawings of heritage features including artefacts.

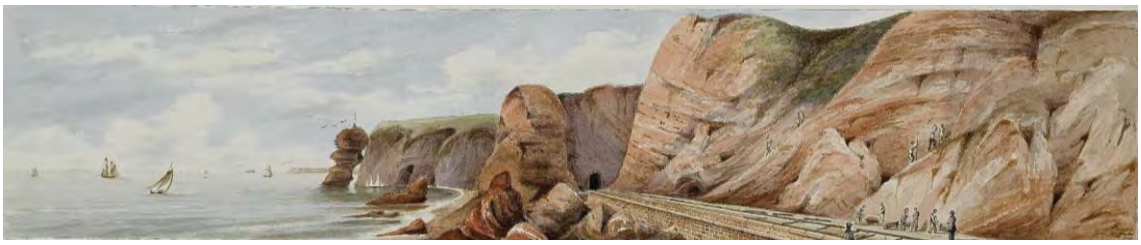
Figure 11.9: The seafront at Dawlish by A. R. Quinton painted in about 1920. By this time the railway line and the coastal properties are protected by a stone-faced seawall.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Views of Brunel's 'Atmospheric Railway' at Dawlish

Across the Warren to Langstone Sands; View south of the Line.

From the Parson Tunnel to the Teignmouth Tunnel; View South of the Line.



From the Kennaway Tunnel to the Parson Tunnel Dawlish; View South of the Line.

From the Kennaway Tunnel Dawlish to Langstone Sands; View North of the Line.

From the Kennaway Tunnel towards Langstone Sands.

Figure 11.10: This series of views of Brunel's *'Atmospheric Railway'* cover the Dawlish frontage. They were published as lithographs by William Dawson in 1848 and provide a detailed description of the coastal scenery and heritage at that time.

Images Courtesy of the Institution of Civil Engineers.

Case Study Site 12 – Babbacombe to Torquay

1. Location

The case study extends from Oddicombe Beach to the north of Torquay, southwards along the Torquay frontage to Hope's Nose, a distance of approximately 4km.

2. Why was the Case Study Site selected?

This particular site was chosen as a case study on account of Torquay's importance as a seaside resort with a rich architectural heritage and, adjacent to it, a number of popular bathing beaches, including Anstey's Cove and Oddicombe Beach, which have contained an interesting array of seaside properties of architectural quality. On account of the numerous images of this coastal frontage, the approach to this case study has been to examine changes to the built environment since the late eighteenth century (both physical and human influences) and to illustrate how, over this time period, artworks can improve our understanding of changes to the built environment.

3. Summary of the Geology, Geomorphology & Coastal Processes

Much of the coastline and hinterland along this part of the South Devon coast consists of sandstones of the Permian Period. However, at Torquay itself, the headland is composed of the Old Red Sandstone Group of the earlier lower Devonian epoch; in addition, there are outcrops of limestones, mudstones and slates of the Torbay and Tamar Groups. The Devonian limestones are resistant to erosion, whilst the softer mudstones and other outcrops form the recessed coastline of Torbay itself and extend southwards. The rates of cliff recession have been slow over the last 100 years although some eroded materials do contribute to beach-forming sediment, which is contained within the bays. The general direction of sediment transport is south to north around Torbay, with inputs from eroding or unstable cliffs, which give the beaches the typical reddish pink sand colour.

Although cliff erosion is slow, there is a wide distribution of relic or inactive coastal landslides along this part of the South Devon coast. Some of these ancient landslides are susceptible to reactivation following increased toe erosion or changes in groundwater; these might be anticipated to a greater extent as a result of climate change and sea level rise.

4. Risks to Heritage Assets along the Case Study Frontage

Because of the resilient nature of the coastal cliffs around Torquay, risks to heritage assets are relatively low. In some of the adjacent bays historical properties have been affected over time by cliff instability, and this has led to the redevelopment of some sites. For this particular case study, therefore, the attention is focused on historical and primarily anthropogenic change, which is illustrated in detail through the following case study examples.

5. How can historical Imagery inform heritage risk management?

The town of Torquay is almost entirely of the nineteenth century, the original hamlet having expanded rapidly at the time of the Napoleonic Wars and soon after. Calling itself *'the Queen of Watering Places'*, Torquay expanded rapidly with grand terraces and ornate villas extending along the coastal frontage of the Bay. The coming of the railway in 1848 led to even more rapid development and the establishment of the town as a grand Victorian seaside resort. At Babbacombe to the north, cottages ornés were built above the bay and on the coastal slopes, and many of these cottages feature in early engravings (e.g. Figures 12.12 and 12.14). A large number of images provide a chronology of the development of locations such as Babbacombe, and show how historic buildings have been adapted or lost over time. The case study is intended to provide assistance on how historical artworks, such as watercolours and

engravings, can be utilised to provide a more complete historical environment record.

6. Key Issues – What can be learnt from this site?

Torquay is the largest seaside resort to be considered within a case study for the CHeRISH project. Because of its significance and popularity, together with the adjacent villages and bays, there is a rich art record which can be interrogated to describe patterns of development over the last 200 years. The best images could be usefully added to the Historical Environment Records in order to provide illustrations of heritage sites extending back long before the days of photography.

7. References

1. Cockrem, E., 1851. *'Plan of the Town of Torquay, from the Ordnance Survey, Being a Companion to the Torquay Directory'*.

Interpreting Historical Artworks

Figure 12.1: *'Torquay'* by William Daniell RA. Aquatint. Engraving. 1825.

This attractive house was Marine Villa, which is present on John Wood's Plan of *'Torquay and Environs'* of 1841, and was then occupied by a Dr Parkin. In 1853 it appears on the *'Plan of the Town of Torquay, from the Ordnance Survey, Being a Companion to the Torquay Directory'*. Edward Cockrem's directory records the house was occupied by Sir Henry Bold Hoghton, Bart (Cockrem,1851[1]).

On the First Edition Ordnance Survey Country Series, surveyed in 1861, (see Figure 12.2) it appears as Marina, which survived with extensions independently for a time, for it appears on the Second Edition County Series surveyed in 1904. It was finally subsumed into the ever-growing Imperial Hotel (which had opened in 1866 after the Marine Villa's neighbour *'The Cove'* was demolished in 1863 to make way for it) and as shown on the Third Edition County Series surveyed 1933. Elements of the ornate façade survived at least until the Second World War.

This view demonstrates Daniell's skill and accuracy as both a topographical and architectural artist and shows a scene that has changed dramatically over the last 200 years.

Figure 12.2 (above): The Ordnance Survey Map (1860-61) shows the expansion of the Imperial Hotel adjacent to *'The Marine Villa'* or *'Marina'* which is shown in Daniell's view (Figure 12.1).

Figure 12.3 (below): An aerial photograph showing how development has changed the environment today.

Image Courtesy of Torbay Council.

Figure 12.4 (above): A view of *'Vane Hill Torquay'* by Alfred Robert Quinton in watercolour (c.1920). In the foreground is the Pavilion, which was first designed by E. Richards in 1897, adapted by the Borough Surveyor, H. A. Garrett, and opened in 1912. Quinton produced numerous detailed views for the postcard publishers, J. & F. Salmon, in the early twentieth century.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 12.5 (below): *'Waldon Hill, Torquay'* also by A. R. Quinton. The line of Rock Walk can be seen on the hillside; all the villas on the hill pre-date the Pavilion. Alongside the North Quay are the Coal Bunkers.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 12.6: This photograph of *'Vane Hill'*, c.1910 is a similar view to that painted by Quinton in Figure 12.4 and illustrates his eye for detail.

Private Collection.

Figure 12.7: In this hand-tinted colour postcard, c.1920, many of the details shown of the buildings in Quinton's postcard (Figure 12.4) are visible here but in this view are in colour. (It should be noted that hand-tinted cards such as this do not have the reliability of original colour photographs)

Private Collection.

Figure 12.8: A present day view of the harbour and Vane Hill showing the developments that have replaced the Victorian villas.

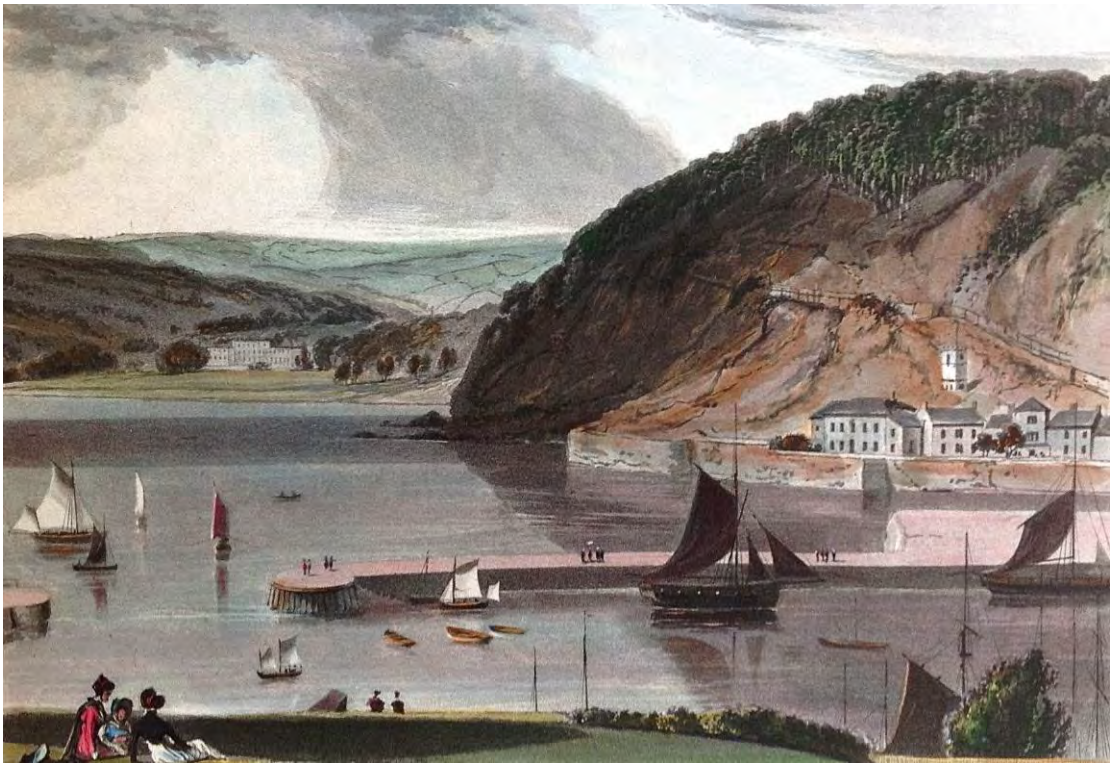


Figure 12.9 (above): *'Torre Abbey, Devon'* by William Daniell, 1825. This aquatint engraving shows Torre Abbey, which is the Georgian-looking building to the left of the picture, showing the two side wings built 1741-42; trees obscure the medieval gatehouse, and the large medieval 'Spanish Barn', which should lie to the left (west) has been omitted. The New Inner Harbour in the foreground, built to Rennie's design, was completed c.1815, but Torbay Road was not cut at the bottom of the cliff face until 1840. The pedestrian Rock Walk rising from the harbour to cut across Waldron Hill is the diagonal visible up the cliff. The 'watchtower' lies to the south above Cary Parade. This appears on the OS 1:500 Town map and the 1:1250 County Series surveyed 1860-61. Remnants may have survived in the wooded area behind the Torbay Hotel.

Figure 12.10 (above) shows David Addey's watercolour of Daniell's view painted in 1990. Torre Abbey appears to be obscured by foliage. A multi-storey car park now partially obscures the Pavilion. The present day view is shown in **Figure 12.11 (right)**.

Image Courtesy: Alamy Stock Photo

Figure 12.12 (above): *'Babbacombe'* by George Rowe, c.1826. Sadly, most houses have gone, certainly along the beach. The high flagstaff, up on the downs, is certainly on the 1887 OS Map, though the lower one (on Half-Tide Rock) is not. Of the up-slope houses the lower one is probably 'The Vine', present in some form as 'Glen Sannox/Babbacombe Court' until late twentieth century demolition. The upper one could, therefore, be 'The Babbacombe Cliff House Hotel' (Babbacombe Cliff on the 1933 OS) which may have been built by William Nesfield in 1878.

Figure 12.13 (below): *'Babbacombe'* by T. Fidlor, c.1830s. The leftmost building on the shore was a public house in 1887 and has been subsumed into the Cary Arms Hotel; the building above it is 'Beach Cottage'. The middle building on the shore present in 1887, had gone by 1904. The one above with a smoking chimney is recognisably the listed Rose Cottage; it now has a slate verandah but it has been artistically 'moved' down slope. The cottages orné cannot be identified in this location. The flagstaff on Half-Tide Rock may have been a fishing aid at this location, having none of the visibility of the one on the downs, signalling shoals and tides by hoisting various buoys – it only appears to have stays, and no halyards/running rigging to the mast top.

Figures 12.14-12.17: This series of views plot the changes at Babbacombe in the nineteenth century. The two engravings (top and middle) show the gradual alteration or replacement of the marine villas on the shore. The tranquil view of *'Fisherman's Bay and Babbacombe Rocks'* by Edward William Cooke RA, painted in 1875 portrays this coastline in Pre-Raphaelite geological detail.

Image Courtesy of Martyn Gregory Gallery, London.

Full details of the *'Babbacombe Downs Conservation Area – Character Appraisal'* (2005) can be found at: http://www.torbay.gov.uk/index/yourservices/planning/archaeologyandconservation/babbacombe_downs_conservation_area_appraisal.pdf

Figure 12.18: This detailed watercolour of 'Oddicombe Beach' by Samuel Edward Kelly, c.1910, shows development beneath the precarious red sandstone cliffs. Debris from previous cliff falls litters the shore in the foreground.

Image Courtesy: Private Collection.

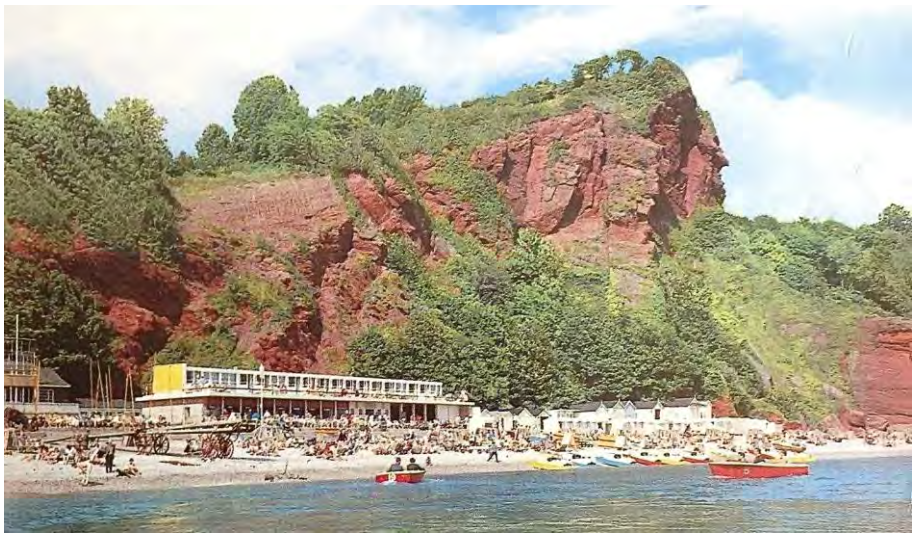


Figure 12.19: This postcard shows the beach and the cliff in about 1970. The jointing in the sandstone cliffs is clearly visible and suggests the potential for further cliff falls.

Image Courtesy: Private Collection.

Figure 12.20: The watercolour by artist David Addey (1990) shows development on the cliff top and coastal defences in the bay below.

Image Courtesy of David Addey.

Figure 12.21: A photograph of Oddicombe Beach c.1900 looking eastwards. A cliff fall has occurred from the face of the bluff in the centre of the view.

Image Courtesy of Torquay Library.

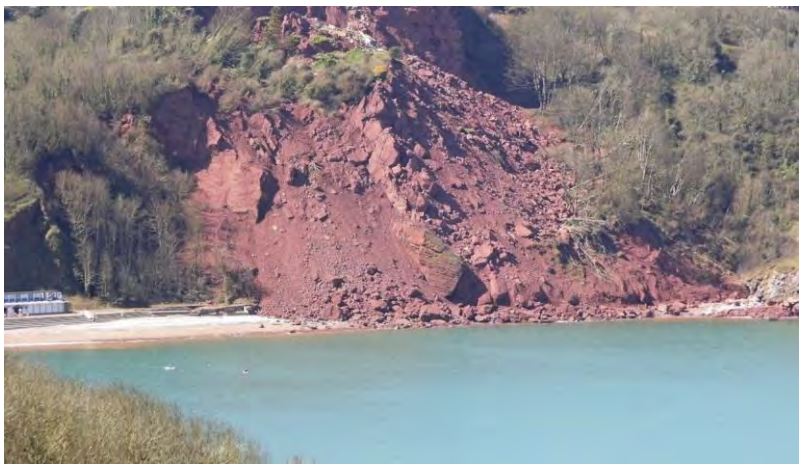


Figure 12.22: The massive cliff fall onto Oddicombe Beach on 3rd April 2013 at Ridgemont House.

Image © Dr N. Csorvasi 2013.

Figure 12.23: Another massive rockfall at nearby Anstey's Cove is recorded in this photograph c.1900.

The assistance of Hal Bishop and John Tucker of Torbay Council in the preparation of this case study is gratefully acknowledged.

Case Study Site 13 – Start Point to Salcombe, South Devon

1. Location

The case study site extends from Hallsands to the north of Start Point and continues westwards, past Prawle Point, to Salcombe at the entrance to the Kingsbridge Estuary; the coastal frontage is a distance of approximately 13km.

2. Why was the Case Study Site selected?

This part of the South Devon coast includes the abandoned community of Hallsands to the north of Start Point, field systems and associated later remains at Deckler's Cliff to Gammon Head, between Prawle Point and Salcombe, together with Salcombe Castle and marine villas along the estuary.

3. Summary of the Geology, Geomorphology & Coastal Processes

This section of the coastline is composed of metamorphic schists of the Devonian Period. These rocks create the rugged headlands of Start Point, Prawle Point and Bolt Head to the west. This coastline is comprised of long sections of cliffed shorelines that are indented with numerous small coves and pocket beaches, together with estuaries that intersect the cliffs, which were formed as a result of rising sea levels c.10,000 years ago. The rates of erosion of the clifflines are very slow and there is minimal sediment contributed to the overall system. Most of the beach deposits are contained within their own bays and sheltered by adjacent headlands (Halcrow, 2011[1]).

4. Risks to Heritage Assets along the Case Study Frontage

The village of Hallsands to the north of Start Point comprised a small fishing community, which was protected by a sand and shingle beach. In 1897 a major dredging operation took place offshore, leading to a significant reduction in beach levels which allowed the exposed village to be impacted upon directly by high tides and easterly winds. This led to the loss of some properties and, despite the construction of a seawall later, a major storm in 1917 caused further serious damage and the village was abandoned (MDV45491). The coastline to the west near East Prawle is rich in prehistoric archaeological sites and finds, particularly from the Bronze Age. Further evidence of occupation extends through the Roman, Medieval and post-Medieval periods. A signalling station (HER7053), one of a chain along the south coast, was built at Signal House Point in the late eighteenth century and a civilian signal station (HER43349) was established at Prawle Point later. The location had a strategic importance in both World Wars and on into the Cold War period when an RAF airfield and a radar station were established, together with gun emplacements.

At Deckler's Cliff to the north-west of Prawle Point, there is a coaxial field system and associated remains that form a Scheduled Ancient Monument (List Entry Number 1021253). There is also evidence of nineteenth century iron mines at this location. The Deckler's Cliff site is affected slowly by coastal erosion.

Salcombe is situated at the mouth of the Kingsbridge estuary. On its west side the entrance was guarded by Salcombe Castle (MDV7025), which is also known as Fort Charles. This ruin attracted the attention of some early engravers looking for picturesque views along the south Devon coast, but many artists passed it by. Within this estuary and, indeed, in others along the south Devon coast, attractive marine residences and cottages ornés were built in beautiful locations on terraces bordering the waterway. William Daniell, who travelled along the south-west coast in 1825, captured some of these in his fine aquatint engravings. Between 1910 and 1930 the prolific watercolourist, Alfred Robert Quinton, who worked for the colour picture postcard manufacturers, J. & F. Salmon of Sevenoaks, painted numerous views including several of Salcombe from Portlemouth, which show the gradual development of Salcombe and the villas in the vicinity.

5. How can historical Imagery inform heritage risk management?

It has been explained that this part of the coastline is predominantly one of hard rock and, therefore, there is very limited coastal erosion or cliff instability. This case study highlights the effects of intervention at Hallsands for the extraction of material for expansion of the Naval Dockyard at Keyham near Plymouth. It illustrates the impact of such nearshore activity on development. Only one art image was found of Hallsands, which was subsequently engraved and is illustrated as figure 13.1. A number of photographs exist of the Hallsands community and a picture of life there can be gained from the photograph shown as figure 13.2.

With regard to Deckler's Cliff, despite extensive searches, no paintings, watercolours or prints were found of this specific coastline, and certainly none which showed the field systems. A photograph by Francis Frith (see figure 13.3) does show the field system, which is better illustrated in the recent photograph shown as figure 13.4.

No accurate artworks could be found of Salcombe Castle, perhaps because of its ruinous state. Its present day condition is illustrated in figure 13.5.

William Daniell's view of Salcombe (figure 13.6) shows a marine villa *'Woodville'* perched on the side of the estuary. In David Addey's watercolour taken from the same spot in 1988, the castellated steps on the left hand side form part of those shown in Daniell's view, but the present house called *'Woodcot of Woodville'* bears no resemblance to the property depicted by Daniell. The view by Alfred Robert Quinton (figure 14.8) shows Salcombe from Sunny Cove in about 1915. The scattered villa development bordering the estuary is now more intensive.

6. Key Issues – What can be learnt from this site?

This site indicates the variable quantity and quality of images available for different heritage subjects. At some of the smaller villages, such as Hallsands, artists did not tend to stop to paint, particularly if conditions at the time such as accommodation were not suitable for them. As a result, it is necessary to rely on photographic evidence. Similarly, the field systems at Deckler's Cliff were not a subject for artists and, again, the photographic record provides the best evidence. Salcombe Castle was engraved but in a picturesque and exaggerated manner and, therefore, cannot offer a worthwhile comparison in terms of the nature of the building and changes that may have taken place over time. By contrast, William Daniell's views, which were executed finely both from archaeological and topographical perspectives, do illustrate examples of marine villas and settlements along the South Devon estuaries and coasts. Similarly, works by the prolific Alfred Robert Quinton also help us to understand patterns of development into the twentieth century.

7. References

1. Halcrow, 2011. *'Durlston Head to Rame Head SMP2'*.

Figure 13.1: Lying just to the north of Start Point the fishing community of Hallsands occupied an exposed coastal location. Following dredging for aggregates too close to shore the beach lowered significantly. After a severe storm in 1917 the village was abandoned. This engraving of Hallsands is from an oil painting by William Collins (1846). No other paintings of the village have been found although there are a number of old photographs such as **Figure 13.2 (middle left)**. Where no artworks exist early photographs describe the nature of such relatively unvisited locations although the views are not in colour.

Image – Private Collection.

Figure 13.3: A view of the coast near East Portlemouth looking towards the Deckler's Cliff heritage site taken in 1924; no paintings were found for this section of the South Devon coast.

Figure 13.4: This recent photograph shows Deckler's Cliff with the ancient field system clearly visible. Although undefended the coastline has changed only slightly since the earlier Frith photograph.

Image courtesy of © Derek Harper/Creative Commons License.

Figure 13.5: A few romantic style engravings exist of the ruins of Salcombe Castle (Fort Charles) but they are of insufficient detail and clarity to inform this study.

Image courtesy of © Anthony Parkes/Creative Commons License.

Figure 13.6: This view of 'Salcombe' by William Daniell RA (1825) shows one of the many decorative marine villas that are situated overlooking the estuary. As well as being a fine topographical artist, Daniell was an accurate architectural draughtsman, therefore the buildings in his engravings offer true images of their state at that time.

Figure 13.7: The architect and watercolour artist, David Addey, retraced Daniell's journey around the British coast in the late 1980s; he reached Salcombe in 1988. Whilst the villa depicted by Daniell had gone, part of the crenelated steps up to it still existed.

Image courtesy of David Addey.

Figure 13.8: This view of Salcombe from Sunny Cove by A.R. Quinton shows the typical villa development found on many South Devon estuaries in the early 20th century.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 13.9 (Right): shows the location today. Image courtesy of © Chris Hart/Creative Commons License.

Case Study Site 14 – Plymouth

1. Location

The case study extends from the eastern side of Plymouth Sound to include City frontage, Devonport, Mount Edgcumbe and west to Rame Head. The total coastal frontage is approximately 15km.

2. Why was the Case Study Site selected?

Plymouth was selected on account of its rich maritime heritage, which dates back to the reign of King Henry VIIIth when the earliest fortifications were constructed as defences against French attack. Concerns about invasion after the Spanish Armada led to further improvements with the Royal Citadel being constructed for King Charles II in 1665, incorporating the remains of the sixteenth century fort. Further improvements to the fortifications continued through into the late eighteenth century. On account of Plymouth's rich maritime heritage, there are numerous illustrations of the Citadel, as well as views of shipping and Naval activity within Plymouth Sand, Cattewater and Hamoaze. A further attraction for artists was Mount Edgcumbe, located on a headland to the south-west of the city. Plymouth experienced perhaps the most intensive bombing of any English cities in the Second World War, and many historic buildings were lost, leading to a major programme of reconstruction. However, the Citadel and a number of other historic locations around the waterfront remain today. On account of the numerous images of the Plymouth area, and the importance of the Royal Citadel and Mount Edgcumbe, the rich resource of images available allow us to understand more about changes to historic sites since the 1770s.

3. Summary of the Geology, Geomorphology & Coastal Processes

The coastal frontage at Plymouth is composed of rocks of the lower old red sandstone group of early Devonian age. North of the coastline there are outcrops of limestones, mudstones and slates of the Torbay and Tamar Groups. These occupy most of the area of the inner harbour.

Plymouth developed on an estuary, the largest along the south Devon coast, and is located at the point of discharge of three major rivers, the Tamar, the Tavy, and the Plym. Several smaller streams and creeks also discharge into the estuary. These waters combine to form Plymouth Sound, which is flanked by steep rocky cliffs, and is partially protected by the Plymouth Sand breakwater, which limits the wave exposure of the shoreline on its landward side. The presence of Drake's Island within the sand also provides an element of shelter for the shoreline.

The adjacent cliff lines and rocky coasts are resistant to erosion, with very slow rates of retreat.

4. Risks to Heritage Assets along the Case Study Frontage

On account of the nature of the solid geology and the relatively sheltered position of Plymouth within its Sound, the impacts on heritage assets can be expected to be slight. However, severe storm events, such as those experienced in the winter of 2013/14, demonstrate that, even in such locations, damage to exposed historical structures, such as at the Citadel, can be experienced. This may be expected to increase as a result of an increased frequency of storm events and rising sea levels.

5. How can historical Imagery inform heritage risk management?

On account of the wealth of images produced of Plymouth, often relating to its maritime and Naval heritage, it is possible to illustrate the chronology of development and change in the case study site. A series of annotated images have been provided as part of this case study to show how they may be interpreted to better inform us of development patterns within the city and its environs over time.

6. Key Issues – What can be learnt from this site?

Like the case study for Torquay (Case Study 12) this review of Plymouth focuses on changes resulting from human activity rather than natural change. Interpreting historical images in this way provide more information on the addition, alteration or loss of heritage sites over the decades and centuries, thereby providing a more complete record of the city's heritage.

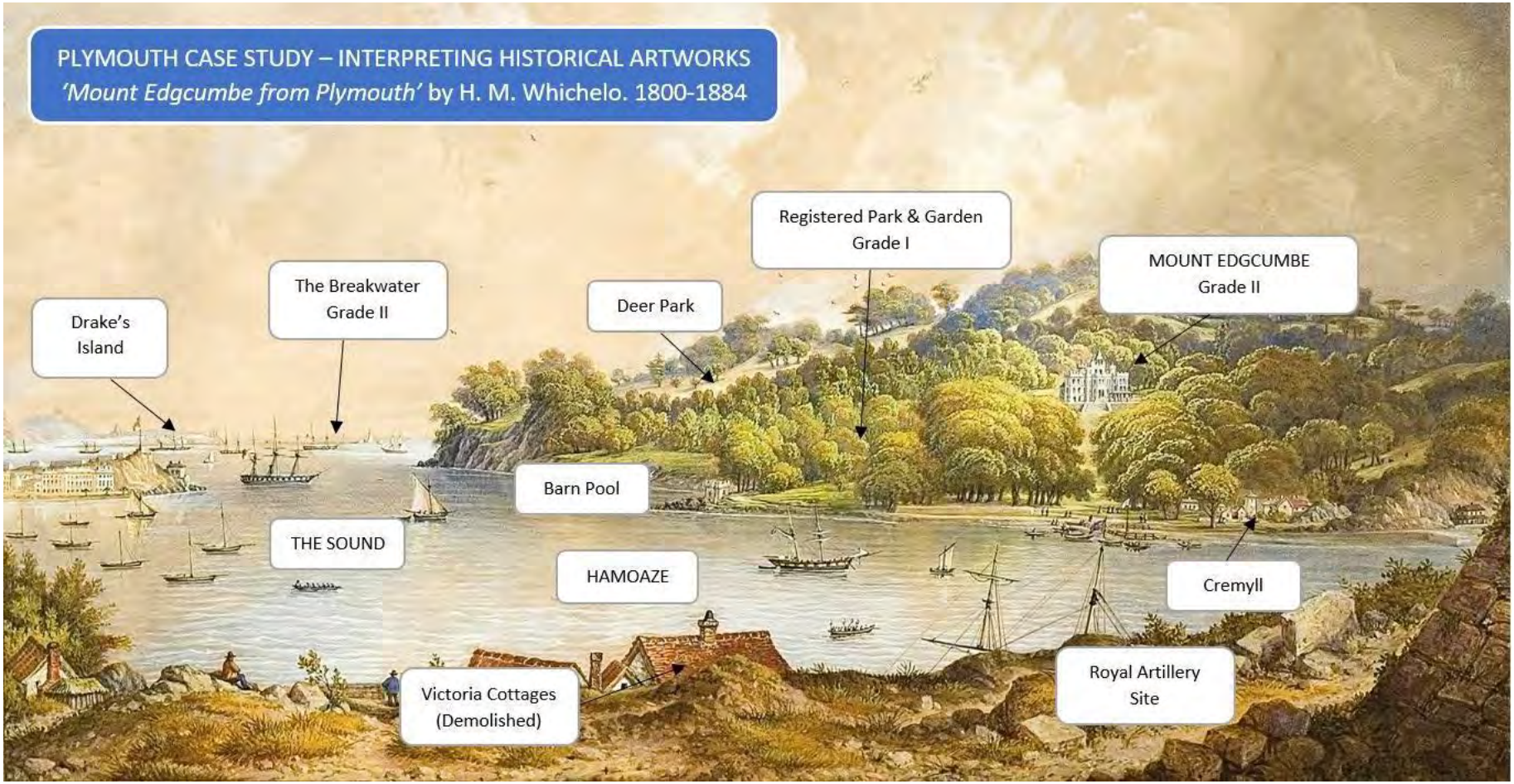

PLYMOUTH CASE STUDY – INTERPRETING HISTORICAL ARTWORKS
'Mount Edgcumbe from Plymouth' by H. M. Whichelo. 1800-1884
Drake's Island
The Breakwater Grade II
Deer Park
Registered Park & Garden Grade I
MOUNT EDGCUMBE Grade II
Barn Pool
THE SOUND
HAMOAZE
Cremyll
Victoria Cottages (Demolished)
Royal Artillery Site

Figure 14.1

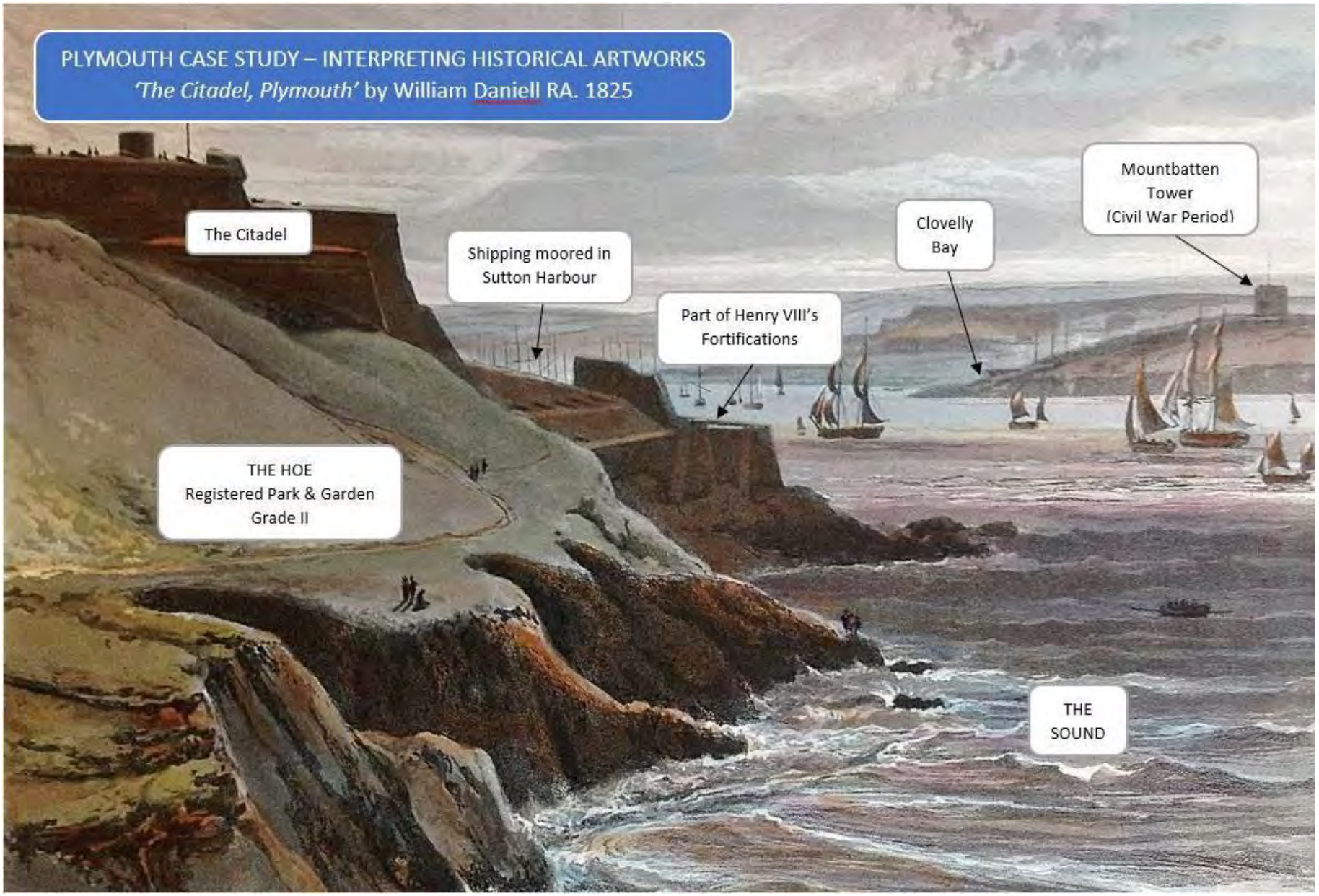

PLYMOUTH CASE STUDY – INTERPRETING HISTORICAL ARTWORKS
'The Citadel, Plymouth' by William Daniell RA. 1825
The Citadel
Shipping moored in Sutton Harbour
Part of Henry VIII's Fortifications
Clovelly Bay
Mountbatten Tower (Civil War Period)
THE HOE Registered Park & Garden Grade II
THE SOUND

Figure 14.2

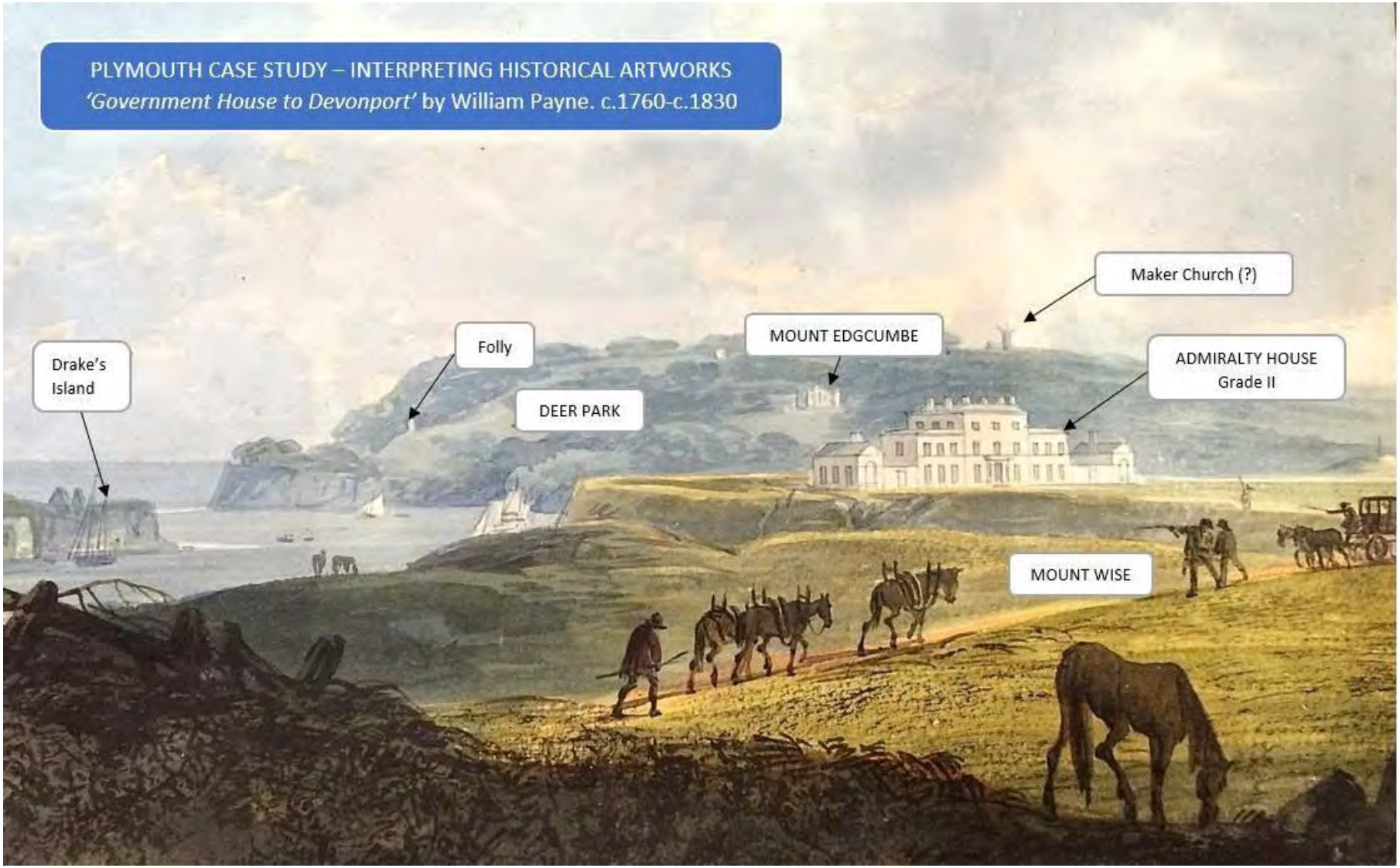

PLYMOUTH CASE STUDY – INTERPRETING HISTORICAL ARTWORKS
'Government House to Devonport' by William Payne. c.1760-c.1830
Maker Church (?)
MOUNT EDGCUMBE
Folly
Drake's Island
ADMIRALTY HOUSE Grade II
DEER PARK
MOUNT WISE

Figure 14.3

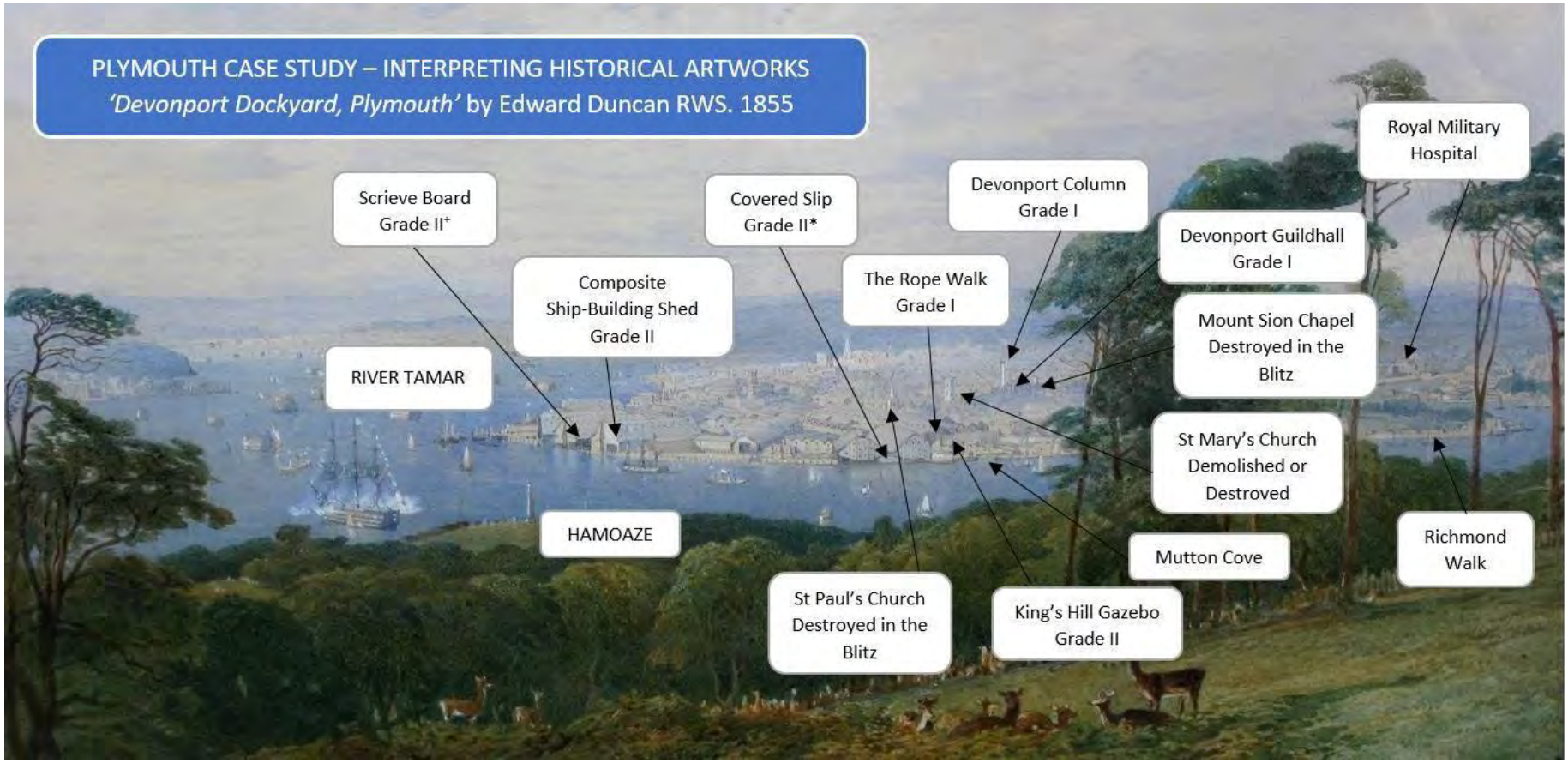

PLYMOUTH CASE STUDY – INTERPRETING HISTORICAL ARTWORKS
'Devonport Dockyard, Plymouth' by Edward Duncan RWS. 1855
Scrieve Board Grade II+
Covered Slip Grade II*
Devonport Column Grade I
Royal Military Hospital
Devonport Guildhall Grade I
Composite Ship-Building Shed Grade II
The Rope Walk Grade I
Mount Sion Chapel Destroyed in the Blitz
RIVER TAMAR
St Mary's Church Demolished or Destroyed
HAMOAZE
Mutton Cove
Richmond Walk
St Paul's Church Destroyed in the Blitz
King's Hill Gazebo Grade II

Figure 14.4

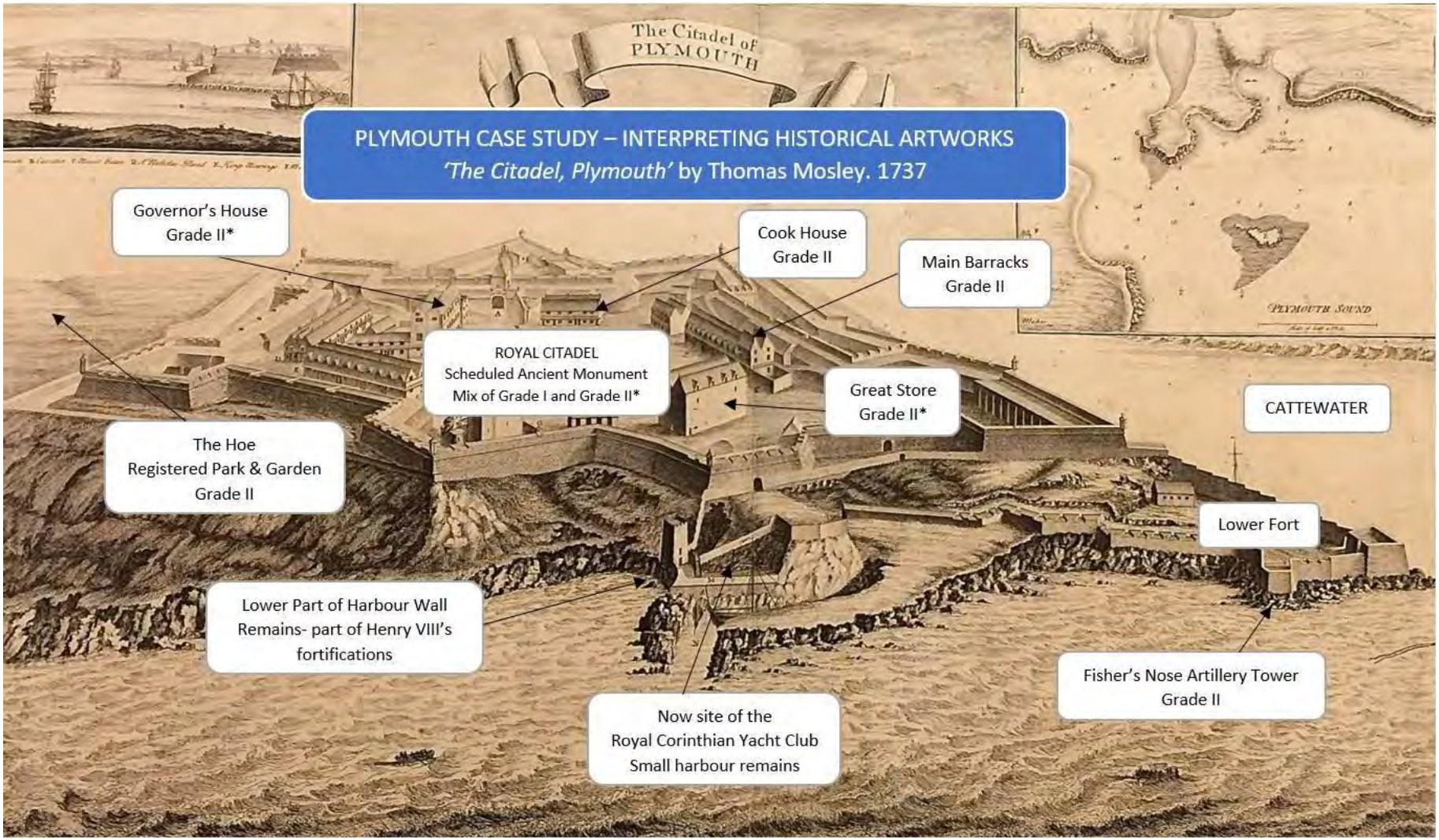

PLYMOUTH CASE STUDY – INTERPRETING HISTORICAL ARTWORKS
'The Citadel, Plymouth' by Thomas Mosley. 1737
The Citadel of PLYMOUTH
PLYMOUTH SOUND
Governor's House
Grade II*
Cook House
Grade II
Main Barracks
Grade II
ROYAL CITADEL
Scheduled Ancient Monument
Mix of Grade I and Grade II*
Great Store
Grade II*
CATTEWATER
The Hoe
Registered Park & Garden
Grade II
Lower Fort
Lower Part of Harbour Wall
Remains- part of Henry VIII's
fortifications
Fisher's Nose Artillery Tower
Grade II
Now site of the
Royal Corinthian Yacht Club
Small harbour remains

Figure 14.5

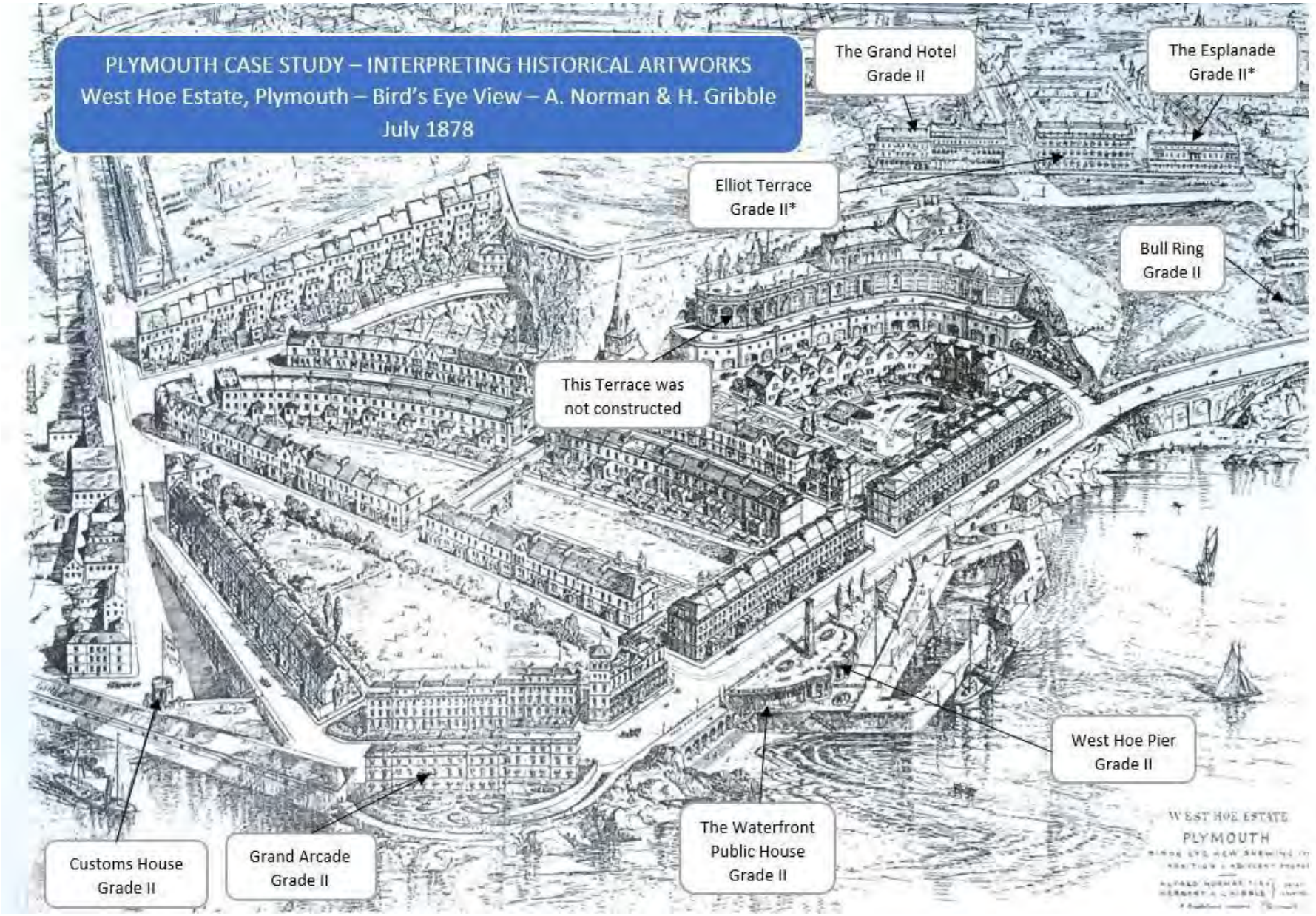

PLYMOUTH CASE STUDY – INTERPRETING HISTORICAL ARTWORKS
West Hoe Estate, Plymouth – Bird's Eye View – A. Norman & H. Gribble
July 1878
The Grand Hotel
Grade II
The Esplanade
Grade II*
Elliot Terrace
Grade II*
Bull Ring
Grade II
This Terrace was
not constructed
West Hoe Pier
Grade II
The Waterfront
Public House
Grade II
Customs House
Grade II
Grand Arcade
Grade II
WEST HOE ESTATE
PLYMOUTH

Figure 14.6

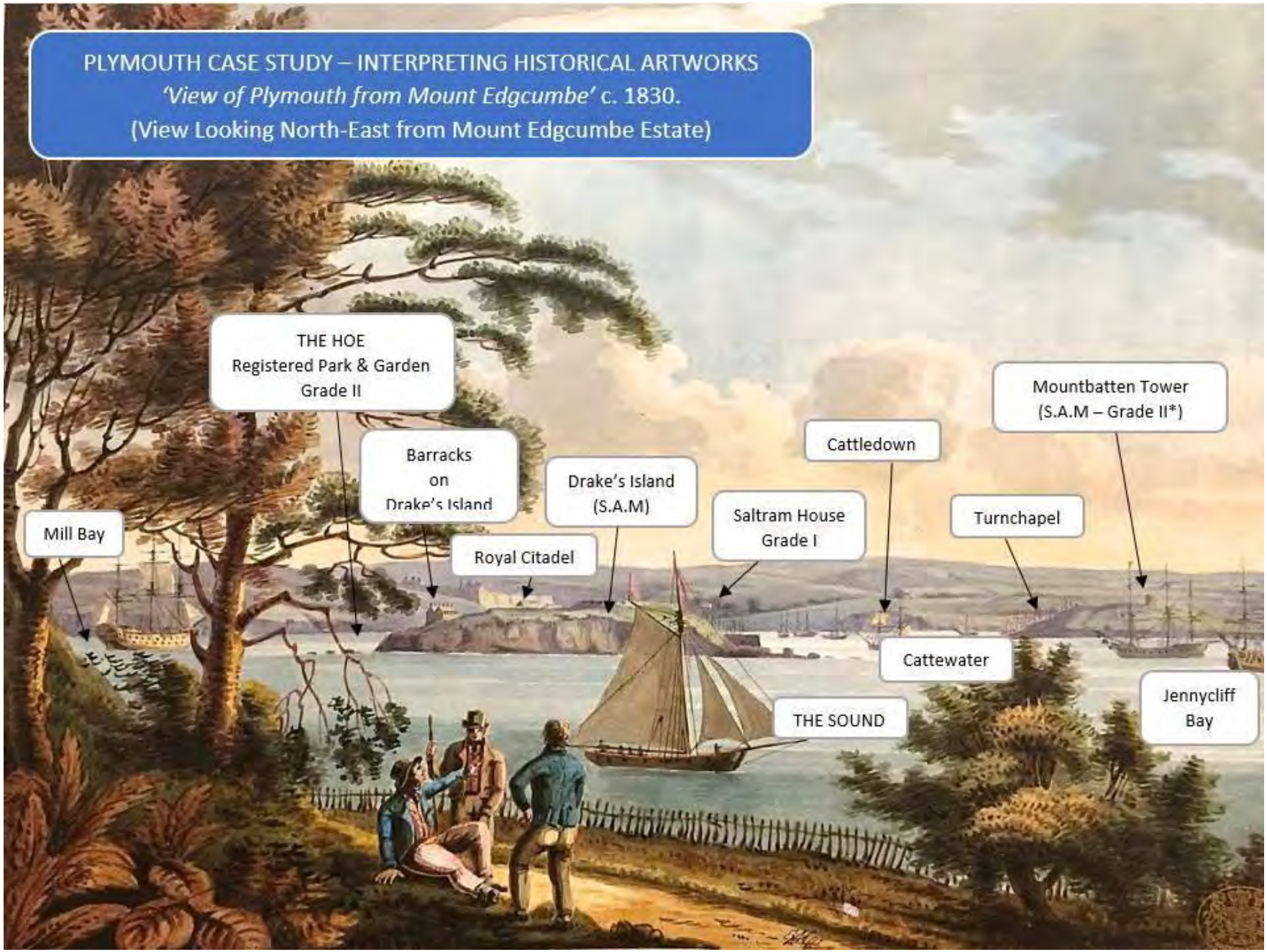

PLYMOUTH CASE STUDY – INTERPRETING HISTORICAL ARTWORKS
'View of Plymouth from Mount Edgcumbe' c. 1830.
(View Looking North-East from Mount Edgcumbe Estate)
THE HOE
Registered Park & Garden
Grade II
Barracks
on
Drake's Island
Drake's Island
(S.A.M)
Mill Bay
Royal Citadel
Saltram House
Grade I
Cattledown
Mountbatten Tower
(S.A.M – Grade II*)
Turnchapel
Cattewater
THE SOUND
Jennycliff
Bay

Figure 14.7

Case Study Site 15 – Cornish Harbours

1. Location

This generic case study examines the role that art and photographic images can fulfil in supporting understanding of coastal change affecting nine of Cornwall's harbours. Eight of these are located on the south coast of Cornwall and, one, Boscastle, is situated on the north coast.

2. Why were the Case Study Sites selected?

Cornwall's historic ports and harbours have fulfilled a vital role for centuries in support of the local economy through the fishing and mining industries in particular and, more recently, tourism. Their physical location in the narrow and steep coastal zone give the Cornish harbours a unique character, which is recognised as a key component of Cornwall's historic environment and heritage. Many of the harbours and their protective walls have been in existence for hundreds of years and this illustrates their resilience but also their vulnerability in the face of potentially increasing storminess and unsettled weather patterns. The case studies examine, over time, how artists have depicted the harbour structures and the changes that can be observed through the artworks over the last 200 years.

3. Summary of the Geology, Geomorphology & Coastal Processes

Most of the harbour case studies are located along the south coast of Cornwall. Those to the east of the Lizard are situated within the Devonian sandstones and limestones (Polperro, Polkerris, Mevagissey, Gorran Haven) whilst Newlyn Harbour, Mousehole and Lamorna lie just to the east of the igneous massif that forms the Land's End peninsula; Mullion is situated to the east of Mount's Bay. On the north coast, Boscastle is situated within the Carboniferous Limestones and sandstones which form a narrow outcrop in the central part of Bude Bay. Although many of the harbours are protected by a combination of their natural situations and substantial harbour walls, they are all prone to severe attack at times by Atlantic generated storm waves, as witnessed by the storm events of winter 2013/14.

4. Risks to Heritage Assets along the Case Study Frontage

Along the southern Cornish coast between Rame Head and Gribbin Head, a frontage which includes Polperro and Polkerris, the coast generally faces south or south-west, and is composed of hard rocky cliffs and natural inlets within which harbours are constructed. Rates of erosion are extremely slow but flooding has also been noted as an issue (Royal Haskoning, 2011[1]). Between Gribbin Head and Dodman Point the coastline faces south and east, and the alignment of the coast presents a degree of protection for these frontages. Despite this, erosion issues arise at Charlestown and the harbour there, as well as at Mevagissey and Gorran Haven, is vulnerable to flooding. A deterioration of the harbour at Mevagissey has been observed (Royal Haskoning, 2011[1]).

The coastal section down to The Lizard is predominantly east facing, with hard rocky headlands and exposed open cliffs; the Gorran Haven frontage is exposed to both cliff erosion and flood risks.

On the western side of The Lizard peninsula the coastline faces the open Atlantic Ocean and is exposed to extreme attack by storm waves. The harbour at Mullion is owned by the National Trust and, as part of its coastal policy for its landholdings (National Trust, 2014[2]), a policy of 'no maintenance or repair' has been agreed. The objective, in the long term, will be to allow the harbour to return to a natural cove. Within Mount's Bay the harbours of Newlyn and Mousehole face to the east, and are, therefore, offered a degree of protection from the prevailing storm waves. However, just to the west, Lamorna Cove, which is slightly more exposed, is vulnerable to wave attack as well as flood risk, and the privately owned key structures are in the need of repair (Royal Haskoning, 2011[1]).

The harbour at Boscastle lies on the north coast of Cornwall and faces north-westwards. Although the harbour itself is protected by a long and winding entrance the outer breakwater has suffered from damage as a result of wave attack (Royal Haskoning, 2011[1]).

It can be seen, therefore, that although some Cornish Harbours such as Porthleven are affected by their exposed locations most (such as Falmouth) are well protected from the Atlantic storms.

5. How can historical Imagery inform heritage risk management?

The nine harbours that are highlighted through this case study are illustrated in particular through the works of the three particularly active artists between 1825 and 1990. The first of these, William Daniell RA, visited the south coast of Cornwall towards the end of his eleven year *'Voyage Round Great Britain'* (Daniell & Ayton, 1814-1825[3]). Daniell is regarded as perhaps the finest British topographical draughtsmen of the nineteenth century, and his aquatint engravings provide a *'State of the British Coast'* for the second decade of the nineteenth century. In the late 1980s the architect and distinguished watercolour artist, David Addey, was commissioned to retrace Daniell's footsteps and paint present day views from as close as possible to Daniell's earlier vantage points. Both Daniell's and Addey's works have a particular strength in terms of their architectural draughtsmanship (there was some exaggeration in a few of Daniell's views in relation to the topography). However, comparison of changes over the 150 year period between the works of these two artists allow interesting comparisons to be made. These comparisons are further enhanced through the watercolour artworks of another prolific artist of the early twentieth century, Alfred Robert Quinton. Quinton painted over 2,000 views around the coastline of England and Wales between about 1904 and 1934, including nearly 100 views of the coastline of south-west England. These tended to be views of the more popular coastal resorts and villages, but also the Cornish harbours where a favourite subject. For example, in the case of Polperro, he painted at least six watercolour views of the harbour from different vantage points. Because of the accuracy of Quinton's work and its timeframe between those of Daniell and Addey, we have a chronology of views of Cornish harbours covering this extensive time period. To confirm or supplement the artworks in this case study a number of photographic postcards are included, which help to allow us to verify the artistic works; they also allow us to consider the relative advantages or disadvantages of the artworks being in colour as opposed to the black and white photography.

Through the artworks, we can examine the nature, extent and condition of the harbour walls and we can see how they fulfilled their role in protecting the fishing communities over this long time period. Apart from the natural risks (coastal erosion and flooding) the works of these artists depict the progressive changes that have taken place to these historic villages over time, showing when particular parts of the coastline were developed, altered or otherwise substantially changed. The artworks do, therefore, provide a unique record in colour to support existing information contained in the often comprehensive Historic Environment Records and other resources held by Cornwall County Council.

6. Key Issues – What can be learnt from this case study?

The artworks from this frontage show the detailed record left by artists that can be used to inform us of changing conditions affecting Cornish harbours since 1825. They illustrate the detail that was achievable by artists, particularly those with an architectural background, in terms of providing a detailed record of the changing built environment since the early nineteenth century.

7. References

1. Royal Haskoning, 2011. *'Cornwall and Isle of Scilly SMP2'*.
2. The National Trust, 2014. *'Shifting Shores – Adapting to Change'*.
3. Daniell W. & Ayton, R., 1814-1825. *'A Voyage Round Great Britain'*. Longman & Co.

Figure 15.1 (above): *'Polperro'* by William Daniell RA was engraved in 1825, near the end of his eleven year *'Voyage Round Great Britain'*. It compares with the view by David Addey painted in 1988 (**Figure 15.2 below**). Daniell has foreshortened the western side of the entrance to the harbour, and has slightly exaggerated the height of the scenery. Daniell said of Polperro *"the town is very irregularly built; the inhabitants are mostly fishermen, and in the pilchard season, whatever inclination they may have for cleanliness, they cannot be otherwise than dirty. Of course little can be said of the beauty, and nothing of the elegance of Polperro; but the environs abound in picturesque features, though of a humble kind, such as uncouth cottages, so strangely planted amongst the rocks, that they seem to have been dropped there and left to take their chance of a settlement"*. The harbour piers at Polperro were damaged in the late eighteenth and early nineteenth centuries, and nearly destroyed in 1824. A new pier was constructed in 1824 and improved in 1897, due to the growth of the fishing industry. It is possible that Daniell's aquatint engraving was produced as the new pier was being completed. The harbour and pier is listed Grade II. Today the village has become a major tourist attraction and its development is well illustrated in the series of views by Alfred Robert Quinton (below).

Image Courtesy of David Addey.

Figures 15.3 (above) and 15.4 (middle) show two views of the entrance to the harbour at Polperro taken from the same spot. Figure 3 is a watercolour by Alfred Robert Quinton, painted in about 1920, and, for comparison, a photographic postcard (c.1930) shows an almost identical scene to that painted by Quinton, who was quite meticulous in his detail.

Image Courtesy (Figure 15.3): J. Salmon Limited of Sevenoaks.

Figure 15.5 (bottom) shows the overall situation of Polperro and the adjacent open coast painted in 1920.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figures 15.6-15.8 (left) are a series of views, again, by Alfred Robert Quinton, which show the interior of the harbour, together with the harbour arm, painted in about 1915.

Figure 15.8 (bottom) shows the overall setting of Polperro, looking from behind the village, out towards the sea. Quinton's work allows us to examine the nature of the harbourside buildings and the structure of the harbour wall itself. This can be compared with the works of other artists who often painted from the same location.

All images courtesy of J. Salmon Limited of Sevenoaks.

Figures 15.9-15.11 (left) show views of the picturesque harbour of Polkerris. The quay here was built in about 1740 to support the pilchard industry at this location. The quay was built of slate and was described by Daniell in the following way: *"the village of Polkerris, with its pier, presented an inviting subject for the pencil. The inhabitants were employed in the pilchard industry. The precipitous bank seen in the view is much worn by the sea and the pier is much exposed to the violence of the westerly winds. In tempestuous weather the waves beat over it so complete as to form an arch, and on these occasions it often happens that the portion of the structure is washed away"*.

Figure 15.10 (centre) shows a view of Polkerris harbour in about 1920. The buildings on the right appear quite similar to those associated with the pilchard industry that are shown in Daniell's view on the edge of the shore. However, the harbour arm has deteriorated perhaps through coastal erosion at its landward end. **Figure 15.11 (bottom)** shows David Addey's view (1988) with further retreat of the cliff on the right leaving the remains of the harbour arm separated from the shore.

Figures 15.12 and 15.13 show two views of Mevagissey Harbour by William Daniell, engraved in 1825. The nature of the harbour construction is clearly depicted in **Figure 15.12 (top)** and the conditions of the water appear rough outside and more tranquil inside the harbour. In David Addey's 1988 view **(bottom)** he observed that the two main piers are basically unchanged, although a building of pleasing architectural design, had been added to the nearer pier on the left. The rounded end of the main harbour arm, as depicted by Daniell, has been squared off in Addey's view.

It is believed that Mevagissey Harbour dates from as early as the fifteenth century, although, in 1775, a new pier was built enclosing the present day inner harbour, and additional wharfs and jetties were constructed in the late eighteenth century.

The harbour was enlarged in the 1880s with two outer enclosing breakwaters. These were destroyed in the Great Blizzard of 1891, necessitating the harbour to be rebuilt in 1897 (HER, Cornwall County Council, 2012).

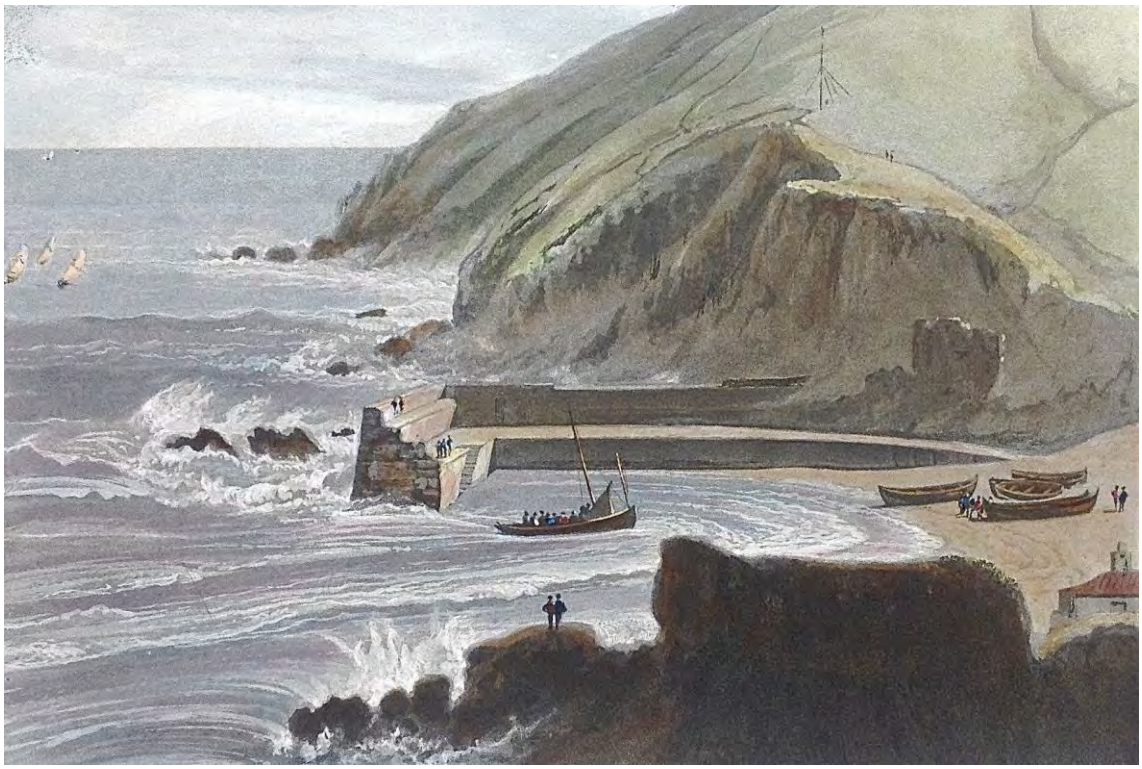
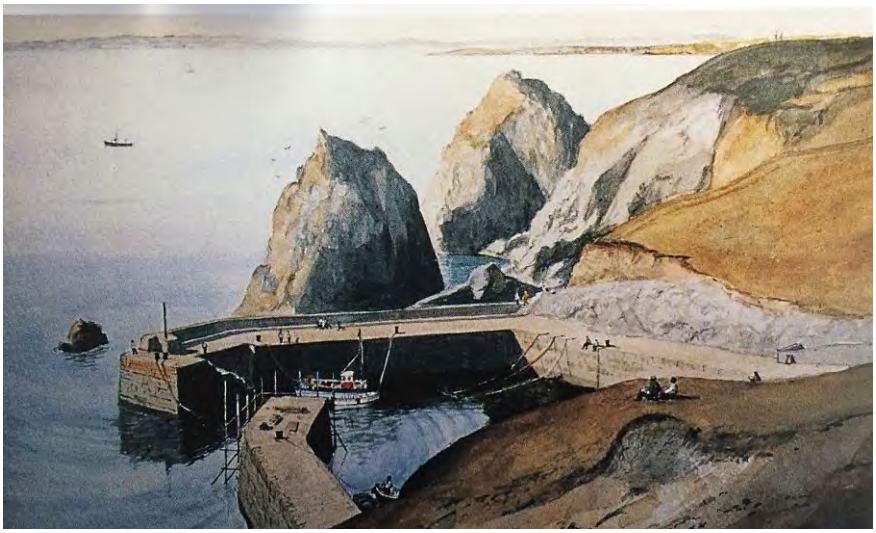


Figure 15.15 (above) shows Daniell's view of Gorran Haven, a quay which has existed since Medieval times. Daniell's 1825 engraving of the harbour arm appears very similar in design to that depicted by David Addey in 1988. Daniell noted *"at Gorran Haven there is a little pier for the shelter of the pilchard boats. The rocks here and in the neighbourhood are of a bold and picturesque aspect. On the high ground there is a signal post for the preventive service"*. David Addey noted that, for his watercolour, *"the view has remained almost unchanged since Daniell's visit on the same day 167 years earlier"*.

Image Courtesy of David Addey.



Figures 15.17-15.19 show the dramatic physical location of Mullion Harbour. At the time Daniell visited the location a harbour did not exist, and he says *"the scenery around Mullion Harbour is rocky and as wild as possible. In heavy gales from the south-west the cave affords safe shelter for small vessels, whilst the Gull Rock protects them from the sudden and dangerous influence of the ground swell"*. **Figure 15.18 (middle)** shows a fine depiction of Mullion Harbour in 1988 by David Addey. The harbour appears to be in good condition at this time. **Figure 15.19 (bottom)** shows the harbour depicted from further uphill by Alfred Robert Quinton in about 1920. Quinton's view provides a panorama along this part of the south-west coast; in the distance the masts of Poldhu can be seen on the headland.

Image Courtesy: J. Salmon Limited of Sevenoaks.

Figures 15.20 (above) and 15.21 (middle) show two views of the old harbour at Newlyn. The old harbour is believed to date from 1435, and is of massive granite block construction. It is evident from examination that the stonework has undergone various episodes of repair and alteration over time. The Grade II* structure has survived in fair condition in its sheltered location within the wider Newlyn harbour. The postcard **(Figure 15.21 middle)** was taken in about 1947 and is viewed from the road leading above the harbour toward Mousehole. **Figure 15.22 (bottom)**, a watercolour by George Wolfe, painted in 1860, shows a view looking down on the historic harbour of Mousehole. This ancient fishing harbour, which supported the pilchard and mackerel fishing industries, is believed to be the first harbour in Cornwall to have a pier, which was built in the late fourteenth century. At this time the location was perhaps the most important fishing harbour in Cornwall. The pier was extended in 1840 and again in 1861 when a new pier was built (the year after Wolfe's painting). Wolfe's view shows the disposition of vessels inside the south pier at that time and shows how art can help understanding of development and historical character. At the harbour entrance, as protection in heavy weather, baulks of timber can be placed between the piers to stop the sea breaking into the harbour.

Images Courtesy of Penlee House Art Gallery and Museum, Penzance.

Figures 15.23-15.25 show three further views of Mousehole. **Figure 15.23 (top)** shows a view of the interior of the harbour by Stanhope Forbes, an oil painting that he completed in 1919. He shows the nature of the cottages clustered around the edge of the harbour, and the apparent state of the interior harbour walls at that time.

Image Courtesy: Private Collection/ Richard Green Gallery, London.

Figure 15.24 (middle) and 15.25 (bottom) show two views taken from almost the same spot; the first by the artist, Alfred Robert Quinton, in about 1920 and, below, a photograph also looking down into the harbour. There is a remarkable similarity between all aspects of the artwork and the photograph confirming Quinton's eye for detail.

A. R. Quinton Image Courtesy of J. Salmon Limited of Sevenoaks.

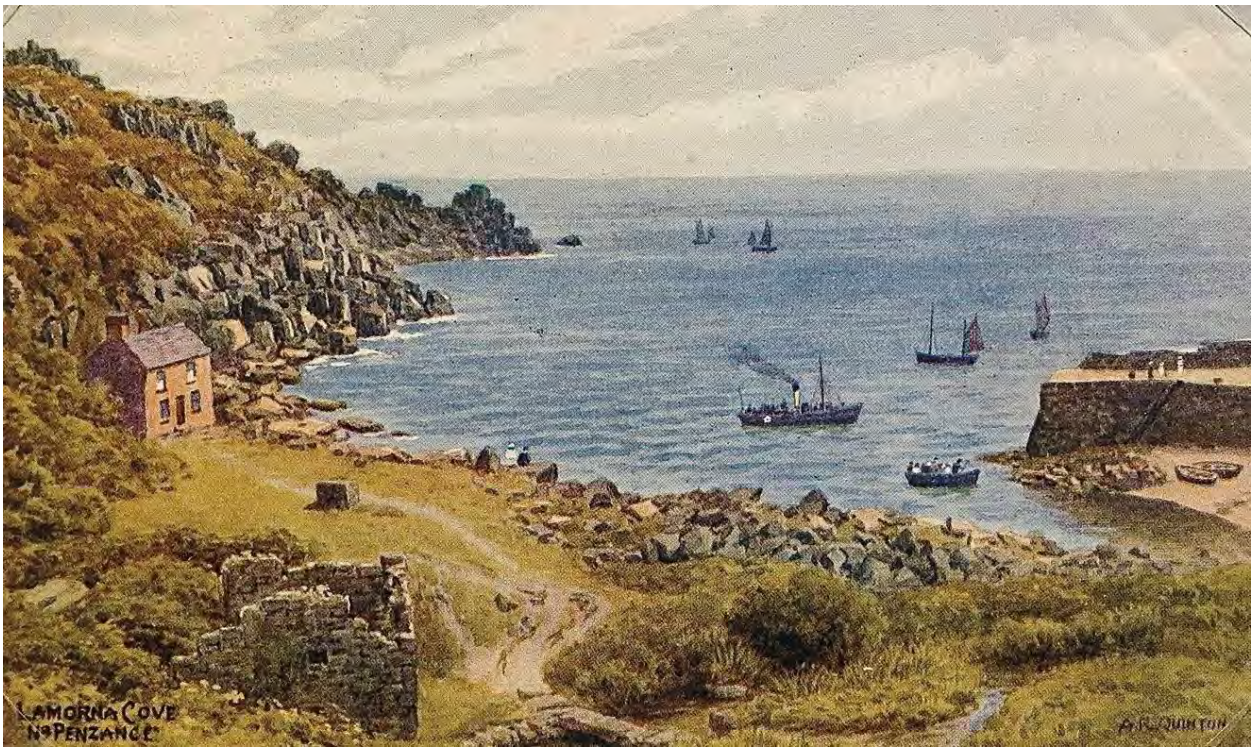


Figure 15.26 (above) and 15.27 (below) show two views of Lamorna Cove, which is located in the parish of St. Buryan. The old quay dates from about 1540 and was used for the shipment of granite. In the severe storms of January and February 2014, Lamorna Quay suffered severe damage and has partly collapsed into the sea. **Figure 15.27 (below)**, a postcard dating from about 1920, shows the view from the east and condition of the harbour at that time, together with the cottages in the Cove.

Images Courtesy of J. Salmon Limited of Sevenoaks.

Figure 15.28 (left) shows the harbour and quay at Boscastle on the north Cornish coast. The harbour is of Medieval age, whilst the quay was constructed later. This busy port exported corn, slate, bark for leather tanning, as well as Manganese ore from the mines near Launceston and, after 1865, China Clay from Bodmin Moor. The view by Daniell (figure 15.26 top) shows the extraordinary natural location of the harbour of which Daniell said *"the harbour is very frightful; the crookedness of the channel at Boscastle is the cause of many difficulties; the most serious is the contrarity of the wind, which may be fair in one reach and foul in another, and thus occasionally, in so narrow a passage, extreme confusion in the steerage of the vessel and the management of her sails. The pier is very small but forms a pretty line, which is very picturesque in itself and harmonises with the form of the objects above it"*.

Figures 15.29 and 15.30 (middle and below) show two further views of Boscastle harbour by Alfred Robert Quinton. Figure 15.29 (middle) is taken from a similar angle to that of the view by Daniell looking out to sea, whilst Figure 15.30 (bottom) looks inland up through the harbour towards the village. The harbour is now in the care of the National Trust although it and appears to have changed little since Daniell's visit the flood damage in 2004 necessitated rebuilding of many properties flanking the inner end of the harbour as well as the widening and strengthening of the river's channel leading into the harbour.

Images Courtesy of J. &. F. Salmon Limited of Sevenoaks.

Case Study Site 16 – St Michael's Mount, Cornwall

1. Location

St Michael's Mount comprises a castle and other buildings on a small island located a short distance off the south Cornwall coast at Marazion in Mount's Bay. It is a fortified post-Medieval house built on the site of a former priory on a tidal inlet.

2. Why was the Case Study Site selected?

St Michael's Mount is one of Cornwall's most famous landmarks. During the severe winter storms of 2013/14, the causeway leading from Marazion out to the Island was seriously damaged. Risk are posed to the causeway in the future as a result of sea level rise and changes in weather patterns. Between Long Rock and Wherry Town a well preserved fossil forest was uncovered during the storms in January and February 2014. The increased scour and beach lowering with potential exposure and loss of heritage is a further issue at this location.

3. Summary of the Geology, Geomorphology & Coastal Processes

Most of this coastline lies within the Torbay and Tamar Groups of limestones, sandstones and slates of the late Devonian Period. However, St Michael's Mount is an outcrop of granite of which there are some outcrops also on the adjacent shoreline. The almost continuously defended coastline in the vicinity of Marazion places some pressure on the shoreline and the hard defences mean that the Bay at this location is sensitive to sea level rise and the impacts of increased stormy weather. The coastline is relatively sheltered from the dominant western Atlantic wave climate due to the sheltering effect of the Penwith Peninsula. Although it receives less wave energy than the coastline to the east of Marazion, the Long Rock to Penzance harbour frontage still displays a sandy intertidal area in common with much of the high energy Cornish coast, and it does periodically receive large amounts of wave energy during storm events which originate from due south and the south-east (Royal Haskoning, 2011[1]). Mount's Bay does have significant sediment accumulations compared with adjacent sections of the coast, but there has been a trend towards beach lowering observed. This can lead to exposure of heritage sites on the sea bed and render the frontage more vulnerable to the impacts of coastal storms.

4. Risks to Heritage Assets along the Case Study Frontage

The storms of 2013/14 highlight the potential future risks to the causeway leading from the shore at Marazion out to St Michael's Mount. The instability of the western harbour arm at St Michael's Mount has also been highlighted (Royal Haskoning, 2011[1]). The same winter storms also re-exposed evidence of the most extensive submerged forest in Cornwall on the coastline between Long Rock and Wherry Town; the site having been first photographed by Alexander Gibson in 1883. This well-preserved 4,000 year old site includes sub-fossil tree trunks, rooted stumps and branches, as well as other material that have washed out of the early soil horizon. Early accounts (Borlase, 1758[2]) referred to local legends and tales concerning a forest extending out across Mount's Bay.

5. How can historical Imagery inform heritage risk management?

St Michael's Mount is one of the most painted subjects around the Cornish coast and artworks illustrate that, in physical terms, the Mount has remained relatively unchanged over time, although they do show us how the buildings were extended and altered over the last 200 years. Most of the artworks also show the causeway extending out from the shore and visible at low water. No illustrations have been found relating to the fossil forest, although it was referred to and illustrated in a geological cross section in 1827 (Boase, 1827[3]). The photographers, Gibson & Sons, produced photographs of part of the submerged forest which was exposed after storms in 1883

(Cornwall Conservation Group, 2014[4]).

Artworks and photographs can, therefore, highlight change in the vicinity of Mount's Bay and St Michael's Mount. The impact of the recent storms and the exposure of the fossil forests over time, which have been illustrated through photographs, highlight the potential and increasing risks that this frontage is likely to face over the next century.

6. Key Issues – What can be learnt from this site?

In this location, although there are numerous artworks they do not provide any significant information about changing coastal risks. Photographs of storm damage and exposure of the fossil forest highlight a potentially worsening situation for the frontage over the next decades.

7. References

1. Royal Haskoning, 2011. *'Cornwall and Isle of Scilly SMP2'*.
2. Borlase, W., 1758. *'The Natural History of Cornwall'*. W. Jackson (Printer).
3. Boase, H. S., 1827. *'On the Sand-Banks of the Northern Shores of Mount's Bay'*. Trans. Royal Geological Soc. of Cornwall. Vol. 3.
4. Cornwall Conservation Group, 2014. *'Penzance's 4,000 Year Old Fossil Forest'*. Press release.

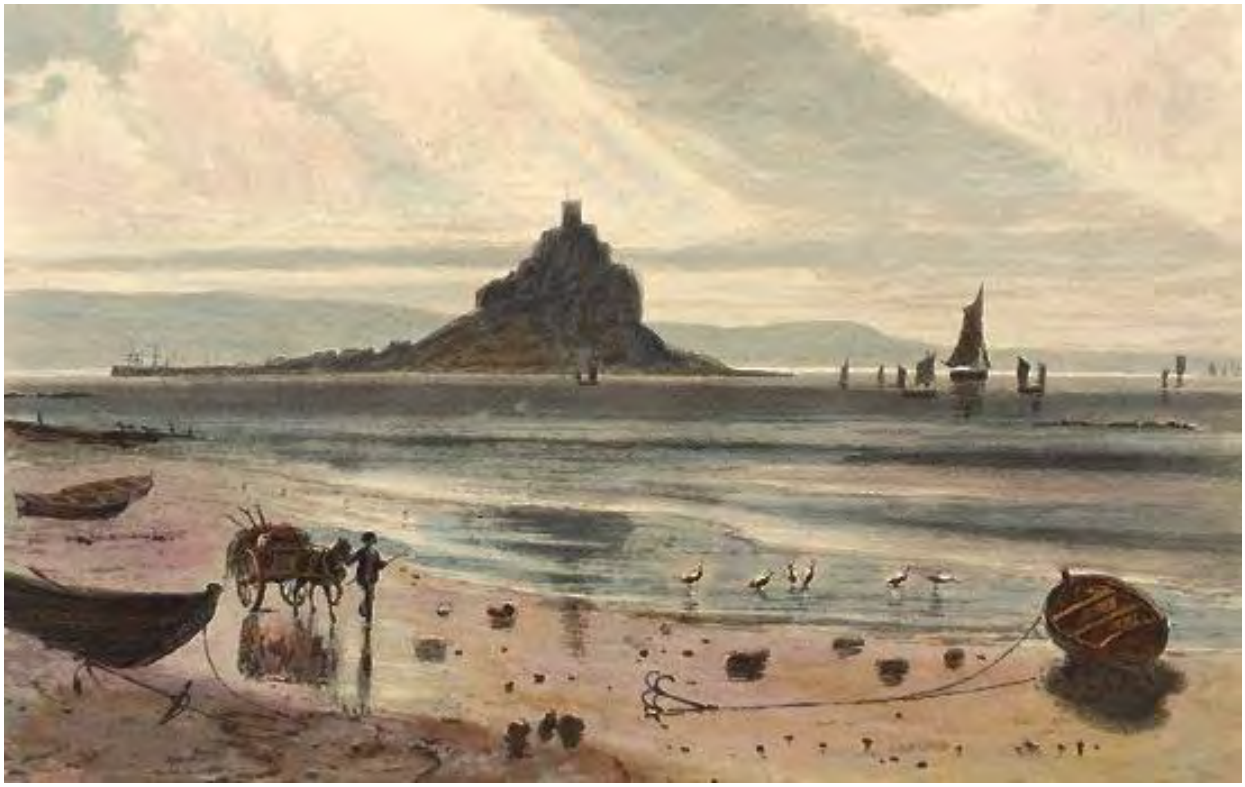


Figure 16A: *'Distant View of St Michael's Mount, Cornwall'* by William Daniell RA. 1825. See also his close view – Figure 16.2 on the next page.

Figure 16.1: This copperplate engraving by S. & N. Buck (1734) shows the view of St. Michael's Mount from the shore at High Water. Later artists (**Figures 16.2-16.5 below**) tended to depict the Mount from this vantage point.

Private Collection.

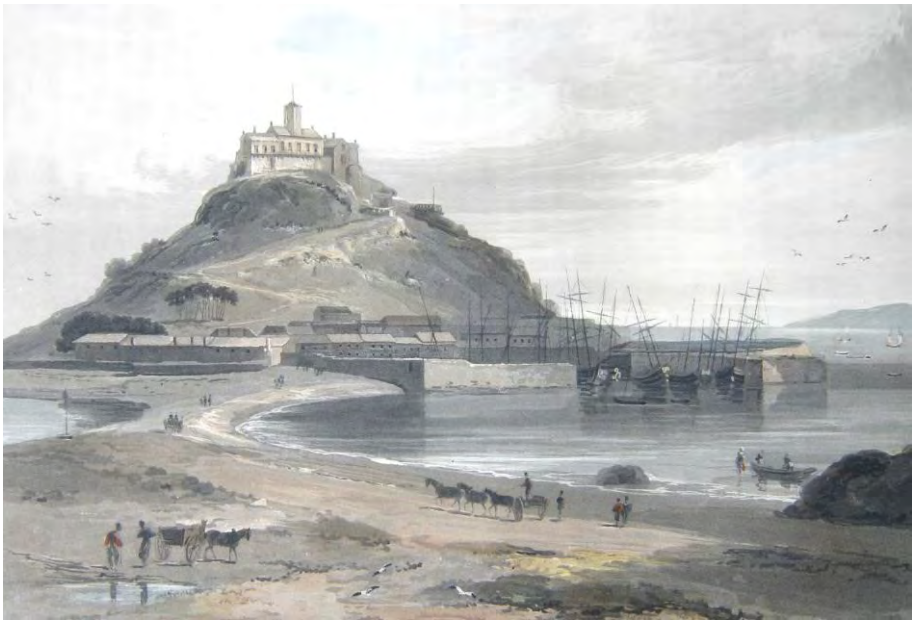


Figure 16.2: William Daniell RA produced this detailed aquatint in 1825 and shows the scene at Low Water. The causeway, which provides the only access, is clearly visible.

Private Collection.

Figure 16.3: This fine lithograph was produced to mark the occasion of the visit of Queen Victoria and Prince Albert to the Mount in 1846. The landward end of the causeway can be seen on the left of the picture.

Private Collection.

Figure 16.4 'St. Michael's Mount' by Henry B. Wimbush. This watercolour (c.1895) shows the scene towards Low Water as the tide recedes to expose the causeway.

Image courtesy of Elford Fine Art of Tavistock.

Figure 16.5: 'St. Michael's Mount' by Alfred Robert Quinton. Watercolour. C.1915. Quinton's view provides a detailed, almost photographic, image of the Mount showing the full extent of the causeway.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 16.6 (Above) and Figure 16.7 (Right) show the granite setts of the causeway before and after the severe storms of 2013/14.

Case Study Site 17 – Prehistoric Promontory Forts and Later Cliff Castles

1. Location

This case study reviews seven Prehistoric promontory forts and later cliff castles in coastal locations, of which the furthest east is St Mawes Castle, with five further sites on the Land's End Peninsula, together with Tintagel Castle on the north Cornish coast.

2. Why were these Case Study Site selected?

Apart from St Mawes Castle and Tintagel Castle, the other sites are largely prehistoric, often with limited visible evidence of their past occupation and use. The purpose of this case study was to assess the level to which artistic and photographic images can assist in understanding and managing coastal change issues at these particular sites.

3. Summary of the Geology, Geomorphology & Coastal Processes

St Mawes Castle and Tintagel Castle are located on sandstones and limestones of mid-Devonian age, whilst the westernmost sites on the Land's End Peninsula are founded on largely igneous granites of the Permian and Carboniferous Periods. Despite the perceived resilience of these clifflines, there are numerous examples of significant failures comprising both rock falls and landslide toppling failures that have occurred over the last 10-15 years. These events have usually been preceded by prolonged rainfall, which is the preparatory factor prior to activation during or soon after severe winter storms, such as those that took place in the winter of 2013/14. With rising sea levels and predictions of a possible increase in more unsettled weather patterns the rate and frequency of such events can only be expected to increase. Evidence of this long-term trend can be found by examining some of the early cliff castle sites which have seen the gradual loss of heritage through erosion over many years.

4. Risks to Heritage Assets along the Case Study Frontage

The Cornwall and Isles of Scilly Shoreline Management Plan (Royal Haskoning, 2011[1]) highlighted the risks to Iron Age cliff castle sites such as Trevelgue Head and others on the north-west coast between Godrevy Point and Trevose Head. Winter storm damage after the 2013/14 event necessitated repairs at Trevelgue headland following severe coastal erosion, which exposed fragile archaeological layers and features. Elsewhere, the Shoreline Management Plan identified ongoing and potentially increasing coastal erosion risk such as at Tintagel, where the historic castle is perched on the edge of high cliffs. By their very nature, many 'promontory forts' are located in exposed and vulnerable locations and are thus all the more susceptible to erosion and weathering.

5. How can historical Imagery inform heritage risk management?

In this particular case study two areas were considered. First, the accuracy with which features such as castles were depicted by artists. The fine detail achieved by some artists is clearly illustrated in figures 17.1 and 17.3 in the case of St Mawes Castle. Both John Chessel Buckler (figure 17.1) and Charles Napier Hemy (figure 17.4) were masters in terms of artistic accuracy. Buckler was an architectural draughtsman by training, whilst Hemy was a follower of the Pre-Raphaelite ideal of capturing the landscape in very precise detail. These two examples (a watercolour and an oil painting) show the quality and detail that was achieved by some artists in the nineteenth century. Equally, exceptional detail has been provided by artists such as John Brett (figure 17.6) in his painting of the headland of Treryn Dinas, which was painted from a point high up on Treen Cliff overlooking Porthcurno Bay. Brett again was a significant figure in the Pre-Raphaelite movement and his coastal scenes are perhaps some of the most accurate to be found. In Figure 17.7 a view of Penwith Cliffs (also entitled *'Towards Land End'*) by Charles Naper (c.1940) is a masterful depiction of the Cornish coast. A further magnificent view of the headland on which Maen Castle is situated, is provided by Brett in figure 17.9.

Whilst there are superb examples of coastal artworks illustrated in this study, generally artists were less interested or, indeed, unaware of the historic sites that might be situated within these particular landscapes. Perhaps, there were insufficient remains to merit their painting and the views of these landscapes were best left to antiquarians (such as Peter Orlando Hutchinson – see Case Study 9, and Sir Henry Englefield – see Case Study 3). Many of the artworks in this case study do, therefore, show us, in detail, the state of the coastline at a particular point in time, and may illustrate change to a lesser or greater degree. However, for the precise sites on which cliff castles are located, and the remains themselves, no artistic images could be found, and, therefore, photographs present the most useful alternative for study. For surface or buried remains, their investigation and analysis is best served through examination of the extensive collections such as those to be found within the Historic England archive (Archive.HistoricEngland.org.uk), Britain from Above (www.britainfromabove.org.uk) and England's Places (historicengland.org.uk/englands-places).

6. Key Issues – What can be learnt from this site?

An examination of past and present day images contained in this case study demonstrate the exceptional skills of artists both in terms of architectural illustration, but also paintings of the open coastline. However, views of ruined cliff castles or their remains and, indeed, the sites of buried features rarely feature in the paintings of the leading topographical artists, although some antiquarians did provide excellent detailed images, often contained in antiquarian books or local publications. The case study emphasises the importance of the photographic resource alongside the artistic resource, in support of our understanding and management of the risks to sites such as the Cornish cliff castles.

7. References

1. Royal Haskoning, 2011. *'Cornwall and Isles of Scilly SMP2'*.

Figure 17.1 (above): *'St Mawes Castle, Cornwall'* by John Chessel Buckler. Watercolour. 1821.

Image Courtesy of Bridgeman Images.

Figure 17.2 (right): *'St Mawes Castle'*.

Image Courtesy of Commons Wikimedia.

Figure 17.3 (above): St Mawes Castle.

Image Courtesy of Commons Licence.

Figure 17.4 (left): *'St Mawes Castle'* by Charles Napier Hemy RA (1841-1917). Oil on Canvas.

Image Courtesy of Elford Fine Art, Tavistock, Devon

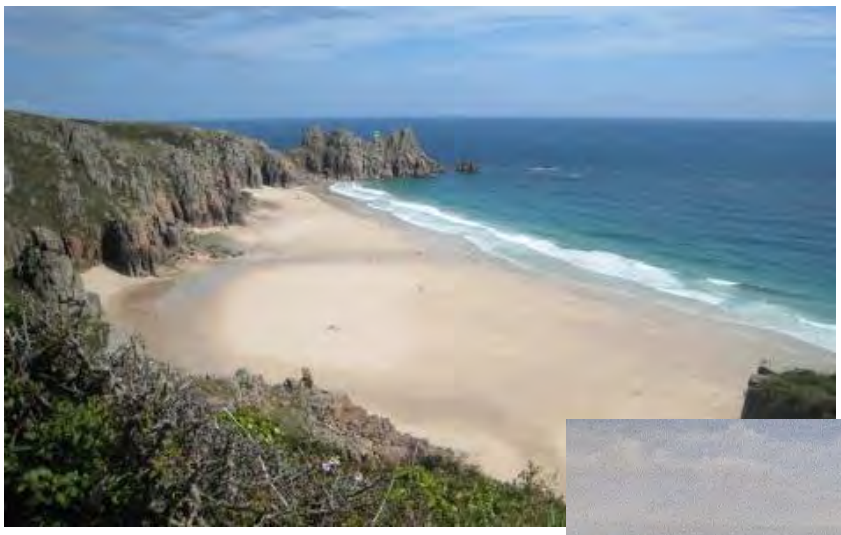


Figure 17.5 (below): *'Porth Curnow'* by John Brett. 1880. Oil on Canvas. This view shows Treryn Dinas painted from Treen Cliff overlooking Porth Curnow Bay. The famous Cliff Castle, with its jagged outline, is seen across an expanse of wet sand, with a vista of sea and sky beyond. The present day view can be seen in **Figure 17.6 (left)**.

Image Courtesy: Private Collection.

Figure 17.7 (left): *'Towards Land's End'* by Charles Naper. Oil on Board. c.1940. This view includes the site of Carn Les Boel.

Image Courtesy of Penlee House Art Gallery and Museum, Penzance.

17.8 (below): Site of Carn Les Boel near Land's End.

Photograph courtesy of Palden Jenkins (www.palden.co.uk).

Figure 17.9: *'Golden Prospects, St Catherine's Well, Land's End'* by John Brett. 1881. Oil on Canvas.

Image Courtesy Nottingham City Museums and Galleries (Nottingham Castle).

Figure 17.10 (below): *'View from Maen Castle'* near Sennen.

Image © Graham Horn/Creative Commons Licence.

Figure 17.11 (left): Gurnard's Head. Photograph. c.1920.

Image Courtesy: Private Collection.

Figure 17.12 (right): Gurnard's Head.

Photograph Courtesy of Tony Atkin/Creative Commons Licence.

Figure 17.14 (above): Trevelgue Head near Newquay showing the hill fort site.

Figure 17.13 (right): Trevelgue Head, Cornwall. Photograph. c.1900.

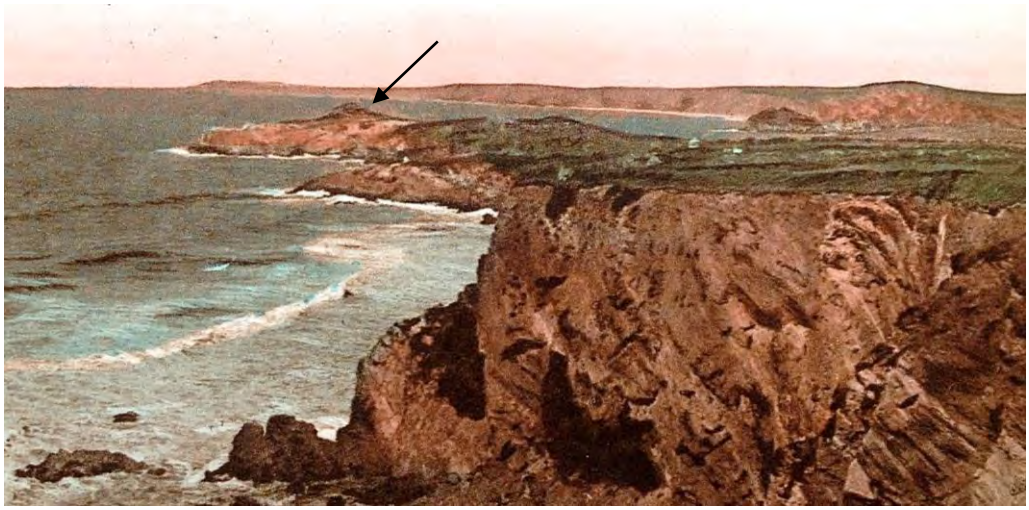


Figure 17.15 (left): *'Tintagel Castle, Cornwall'* by William Trost Richards. c.1890. Watercolour.

Image Courtesy of Bridgeman Images.

Figure 17.16 (right): *'Tintagel Castle'*.

Image Courtesy: Creative Commons Licence.

Case Study Site 18 – Isles of Scilly

1. Location

The Isles of Scilly are an archipelago located off the south-western tip of the Cornish Peninsula, 45km south-west of Cornwall. They comprise five inhabited islands and numerous small rocky islands (approximately 140 in total).

2. Why was the Case Study Site selected?

The Isle of Scilly have a rich heritage, having been inhabited since the Mesolithic period. The importance of the Isles, from a strategic point of view, was recognised as early as the middle of the sixteenth century when the first fortifications were constructed. However, during the sixteenth and seventeenth centuries, further major defences were provided in order to provide protection for the islands from possible French or Spanish attack. A further phase of construction took place throughout the eighteenth century, with the addition of substantial batteries, and a mile of interconnecting walls was built around the east and south side of The Garrison. After the end of the Napoleonic Wars many of these defences fell into disrepair, although the islands fulfilled a strategic role during both World Wars.

Despite its solid geology, the gradual post-glacial submergence of the archipelago's land mass as well as the exposed nature of the coastline in many places has resulted in damage and actual loss to heritage assets.

3. Summary of the Geology, Geomorphology & Coastal Processes

The Isle of Scilly are wholly composed of granite of the Permian Period. Elevations at the coast reach 30-40m in the north-western part of the island. The coastline of St Mary's consist largely of rocky foreshore with fronting cliffs and slopes, together with numerous sandy pocket beaches. The shores, with granite cliffs behind and sandy beaches, are characteristic of many of the islands.

4. Risks to Heritage Assets along the Case Study Frontage

On St Mary's there are over ninety Scheduled Monuments, including numerous Bronze Age barrows, cairns and other signs of prehistoric settlement. Some of these are submerged and many are under threat from coastal erosion (Royal Haskoning, 2011[1]). The other islands also contain a rich heritage, with many sites in the intertidal zone or submerged (Charman *et al.*, 2014[2]). Some of the impacts of coastal erosion have been described previously (Bowden & Brodie, 2011[3]) and sea level rise and the further impacts of climate change mean that this is likely to be a worsening situation.

5. How can historical Imagery inform heritage risk management?

In terms of artworks, relatively few artists ventured across the sea from Cornwall to the Isles of Scilly, although the celebrated marine and coastal artist, Edward William Cooke RA, did paint a fine watercolour of *'St Agnes Point, Scilly Isles'* in 1848 (see Figure 18.6). A comprehensive illustrated description of the Islands was provided by William Borlase in 1756 (Borlase, 1756[4]). His book contains maps, topographical views from the sea and some fine copperplate illustrations, which show the patterns of development in the Islands at that time. During the mid-to-late nineteenth century the artists, Fanny le Marchant and Sophia Tower, produced delicate watercolour views of *'Old Grimsby on Tresco'*, *'St Mary's from Carn Morval'*, and *'Off St Mary's Pier'* (Llewellyn, 2005[5]).

Although the Isles of Scilly may be somewhat lacking in terms of artistic images, the Isles do have a very rich photographic heritage (Martin, 2014[6]). The topographical photographer, Francis Frith, played an important role in bringing the photographic medium to Scilly, as did the Gibson family who worked both in Scilly and on the Cornish mainland. Two further photographers, Charles King and Francis Mortimer, continued the photographic tradition, highlighting the quality of the light and the benefits this brought to their subject matter. A fine collection of photographs of the islands are held by the Isles of Scilly Museum (www.iosmuseum.org).

6. Key Issues – What can be learnt from this site?

The Isles of Scilly have a very rich heritage extending back to the Mesolithic at Old Quay, St Martin's. The low-lying nature of the Islands, their exposure and the long trend of sea level rise, together with climate change impacts, will

continue to pose an increasing level of risk for those assets located close to the coast or in the coastal waters.

A limited number of artists travelled to the Isles of Scilly in the nineteenth and early twentieth centuries, despite the size of the art colonies that existed in Cornwall. However, the early to mid-nineteenth century paintings and drawings of artists visiting Augustus Smith do contribute to the art record of Scilly. A lack of artistic images is, however, supplemented by a wealth of photographic evidence that provides a unique record of the history of the islands and their changing physical and social conditions since the middle of the nineteenth century. For this case study, therefore, photography, both terrestrial and aerial, provides the best medium for the assessment of coastal heritage risk.

7. References

1. Royal Haskoning, 2011. *'Cornwall and Isles of Scilly Islands Shoreline Management Plan 2'*.
2. Charman, D., Johns, C., Camidge, C., Marshall, K., Mills, P., Mulville, J. & Roberts, H. M., 2014. *'The Lyonesse Project; A Study of the Coastal and Marine Environments of the Isles of Scilly'* (OASIS ID Cornwall 2-58903).
3. Bowden, M. & Brodie, A., 2011. *'Defending Scilly'*. English Heritage publication. ISBN: 978-1-84802-043-6.
4. Borlase, W., 1756. *'Observations on the Ancient and Present State of the Islands of Scilly'*. W. Jackson (Printer).
5. Llewellyn, S., 2005. *'Emperor Smith – The Man Who Built Scilly'*. The Dovecote Press. ISBN: 1-904349-18-8.
6. Martin, A., 2014. *'Viewing the Past: The Photographic Heritage of the Isles of Scilly'*. Copyright, Isles of Scilly Museum. ISBN: 978-0-9562903-3-5.

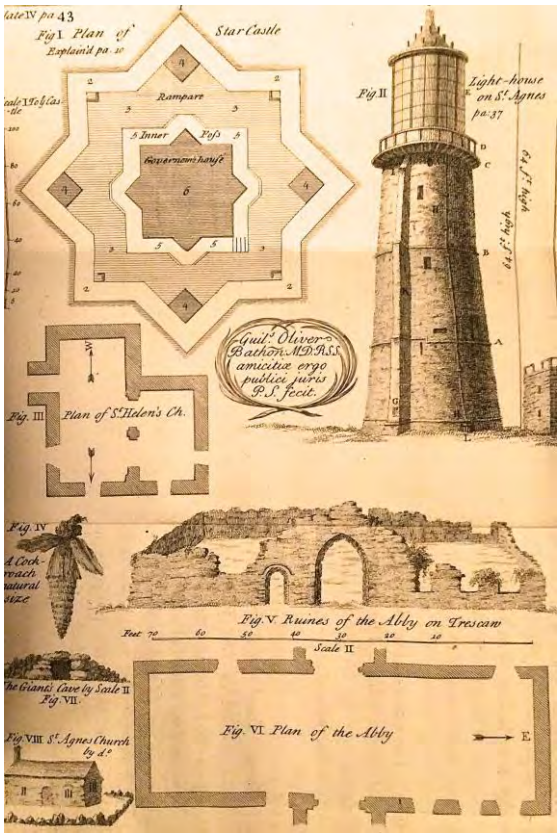
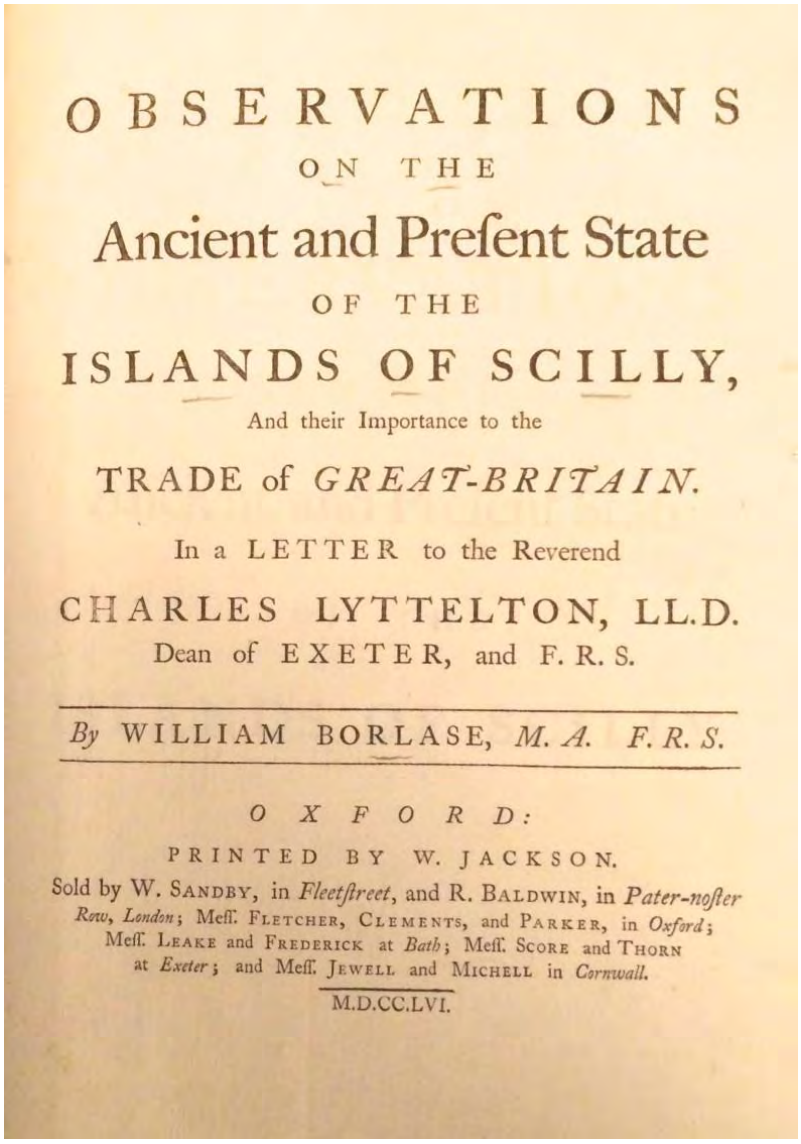


Figure 18A: A page of copper plate engravings from W. Borlase's 1756 book on the Isles of Scilly.



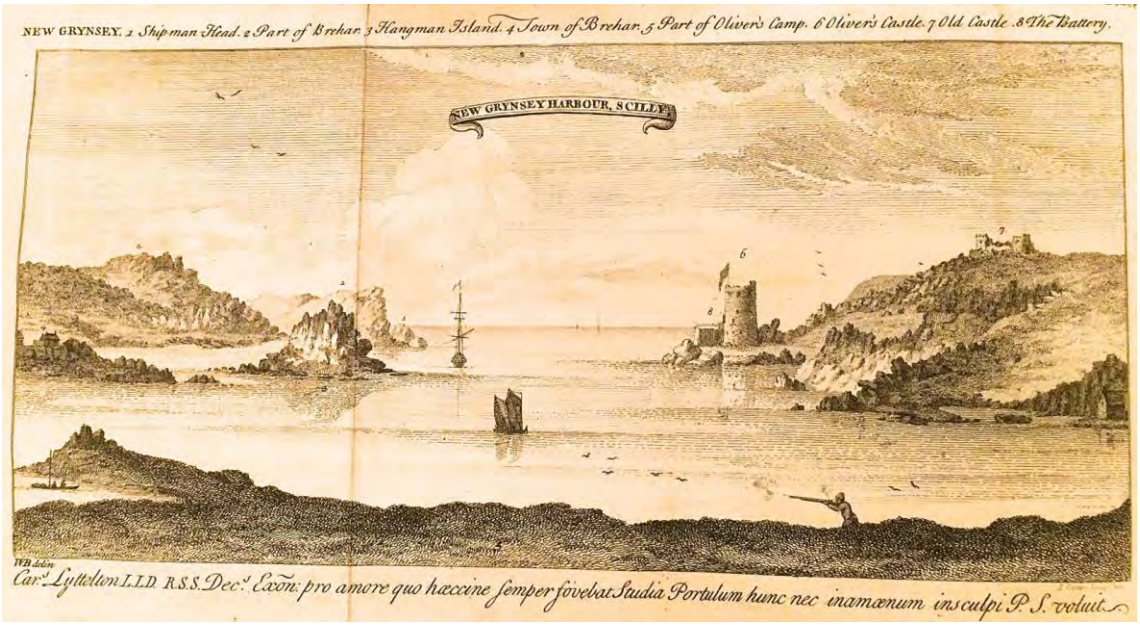
OBSERVATIONS
ON THE
Ancient and Present State
OF THE
ISLANDS OF SCILLY,
And their Importance to the
TRADE of *GREAT-BRITAIN.*
In a LETTER to the Reverend
CHARLES LYTTELTON, LL.D.
Dean of EXETER, and F. R. S.

By WILLIAM BORLASE, *M. A. F. R. S.*

O X F O R D:
PRINTED BY W. JACKSON.
Sold by W. SANDBY, in *Fleetstreet*, and R. BALDWIN, in *Pater-noster Row, London*; Messr. FLETCHER, CLEMENTS, and PARKER, in *Oxford*; Messr. LEAKE and FREDERICK at *Bath*; Messr. SCORE and THORN at *Exeter*; and Messr. JEWELL and MICHELL in *Cornwall*.
M.DCC.LVI.

Figure 18.1: Title page from William Borlase's 1756 publication on 'The Islands of Scilly', which includes views of the Islands from the sea and annotated copperplate engravings such as 'New Grynsey Harbour' **(Figure 18.2 below)**.

Images courtesy of the Royal Yacht Squadron.



Figures 18.3 (above) and 18.4 (below) provide details from a further Borlase engraving of the town pier and harbour of St. Mary's and the Northern Island's taken from Bosou Hill in June 1752.

Images courtesy of the Royal Yacht Squadron.

Figure 18.5 (below) provides views of the Islands from the sea. Such perspectives formed an essential aid for navigation in the Islands' rock strewn coastal waters.

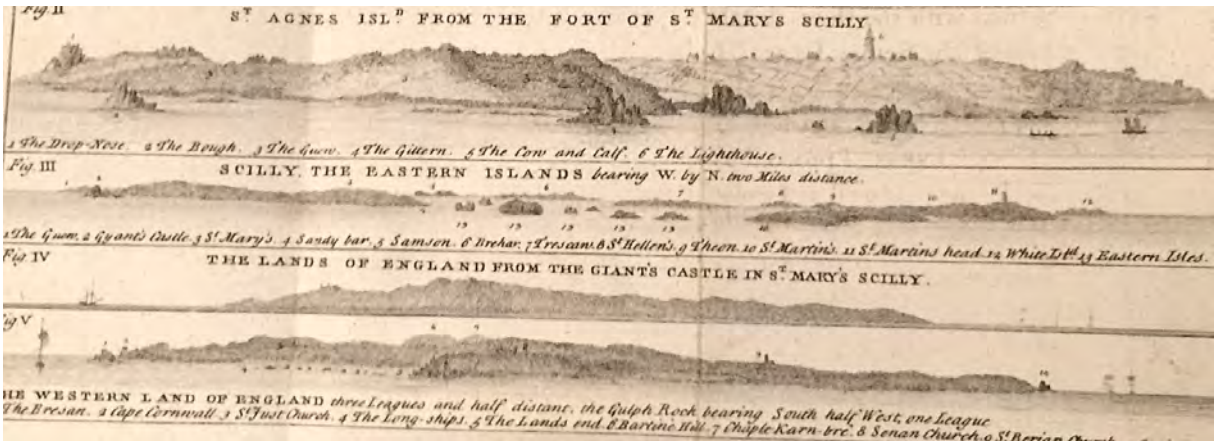


Figure 18.6: 'St Agnes' Point, Isles of Scilly' by Edward William Cooke RA. A fine watercolour by the leading marine and coastal artist. Cooke was one of relatively few artists to visit Scilly. 1848.

Figure 18.7: 'Cromwell's Castle' on Tresco. The rich heritage on the Isles of Scilly is represented through a wealth of photographic images held in the collection of the Isles of Scilly Museum.

Case Study Site 19 – Mining and Engineering Heritage

1. Location

This generic case study assesses a range of mining and other civil engineering sites across Devon and Cornwall.

2. Why were the Case Study Examples selected?

As part of the wider CHeRISH project, an evaluation is being made of how historical images can support understanding of the management of coastal heritage risks. In addition, the potential of art being used for other heritage-related applications is also being assessed. In this particular case study, artworks depict various coastal infrastructure projects including bridges, piers and breakwaters, railway routes and coastal architecture, as well as the depiction of mining heritage. These examples provide a broad range of images that provide additional information in support of written citations and texts regarding the particular sites, many of which are of historic interest.

3. Summary of the Geology, Geomorphology & Coastal Processes

Within this case study examples are provided of a railway line running directly adjacent to the coast in south Devon, the construction of Plymouth Breakwater, pier construction and mining operations. Many of these major projects had to take place in highly exposed locations, which faced the full force of Atlantic storm waves. This often led to substantial delays and additional costs during the construction process. In terms of mining heritage, since the early Medieval period, and almost certainly the Bronze Age, the mining of tin and later copper and other minerals, as well as China Clay, has been a key component of the Cornish economy. Cornwall was Britain's most important non-ferrous mining region and was the world's largest producer of tin in the late eighteenth and early nineteenth centuries. Furthermore, Cornwall produced some two thirds of the world's copper during the first three decades of the nineteenth century (Gamble, 2011[1]). Because of the dramatic changes to the landscape, artists depicted the mining and quarrying activities in nineteenth century guidebooks or as individual artworks.

4. Risks to Heritage Assets along the Case Study Frontage

This case study illustrates a number of examples of structures located adjacent to the coast, including the Plymouth Breakwater, which was commenced in 1812 at a cost of £1.5 million and funded by the Navy for the purpose of protecting Plymouth, Plymouth Sound and the anchorages contained within it. This major feat of civil engineering, which involved the use of approximately three million tons of rock, was affected by the coastal weather conditions during the period of its construction and the design was modified as a result. On the south Devon coast the section of railway line constructed by Brunel between Dawlish and Teignmouth was constructed immediately adjacent to the sea coast and included tunnels through the red sandstone headlands. From time to time this railway line has been damaged by coastal storms, the most severe of these being the event in spring 2014 when a section of the main line was washed away, closing the route to Cornwall for several months.

5. How can historical Imagery inform heritage management?

The very detailed images provided in this case study illustrate methods of civil engineering construction, for example at Plymouth breakwater and Brunel's Royal Albert Bridge, at Saltash, together with the construction of the pier at Bournemouth. The images also show us the condition of these various structures at the time the views were painted. A watercolour by Alfred Robert Quinton shows the original condition of the elaborate Plymouth pier which was destroyed by enemy action in World War Two, and also the ornate Listed Burgh Island Hotel at Bigbury-on-Sea in about 1920. In compiling a Historic Environment Record for such sites, the addition of images of the structures over time could form a useful addition. Alternatively, a link can be provided to the source of the individual images alongside photographic records.

In terms of mining, three examples are provided showing open cast and deep mining locations. Because of the scale of activity in Cornwall, these subjects were of great interest to tourists, and were, therefore, included in nineteenth century guidebooks. It has been noted that in a number of guides to the Cornish mining industry, artwork illustrations have not been included alongside many black and white photographs.

6. Key Issues – What can be learnt from the sites?

This case study illustrates some of the great civil engineering projects undertaken in the south-west during the nineteenth century. They show how bridges, breakwaters, piers, railway routes and hotels were constructed during the great period of Victorian (and Edwardian) development. It appears that few Historic Environment Records include or refer to images such as artworks in their citations, and it would be beneficial to include these for some of the more important sites.

7. References

1. Gamble, B., 2011. *'Cornish Mines St Just to Redruth'*. Alison Hodge. ISBN: 13 978-0-906720-81-3.

Figure 19A: *'The Lizard, Housel Bay and Lighthouse'* b y A. R. Quinton. Watercolour. 1919. Lighthouses were popular civil engineering subjects for artists on account of their striking architecture set against the rocky coastlines, the sky and the sea.

Image Courtesy of J. Salmon Limited of Sevenoaks.

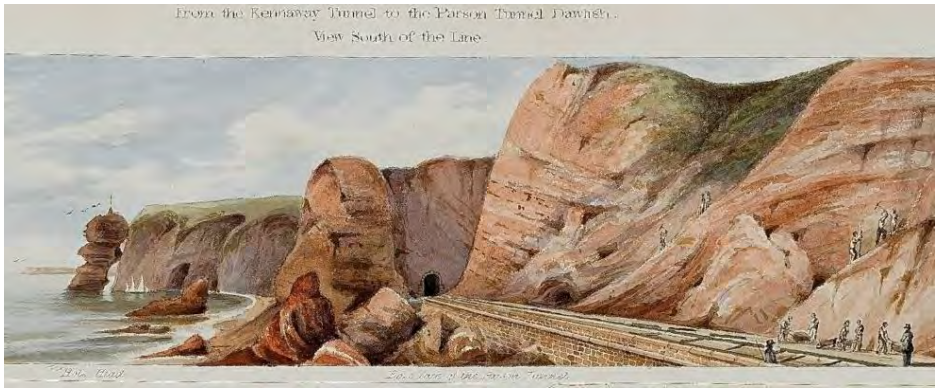


Figure 19.1: One of a series of fine lithographs by W. Dawson showing a section of the South Devon 'Atmospheric Railway' constructed by Brunel from 1844. This remarkable route following the coast between Dawlish and Teignmouth was severely damaged in the 2013/14 storms. (See also Case Study 11 for further artworks).

Image courtesy of the Institution of Civil Engineers.

Figure 19.2: 'The Floating of the last spar of the Royal Albert Bridge, Saltash'. English School Watercolour. 1859. Another oil painting by T. V Robins depicts the opening of the bridge by Prince Albert on 2nd May 1859.

Image courtesy of Bridgeman Images.

Figure 19.3: 'The Royal Albert Bridge, Saltash', c.1920 by Alfred Robert Quinton. His detailed watercolours produced between 1904-1934 provide a wealth of coastal heritage (including architectural) information. Over this time period he produced over two hundred watercolours of South-West England.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 19.4: During the mid-to-late nineteenth century nearly every seaside town saw the construction of a pier or jetty. This oil painting by John Wilson Carmichael painted in 1861 showing construction work in progress on Bournemouth Pier. The 1,000 foot new pier replaced an earlier 100 foot jetty that was built in 1856. The T-shaped pierhead was swept away in a gale in 1867. A further iron pier replaced this structure in 1880.

Image reproduced with kind permission of the Russell-Cotes Museum & Art Gallery, Bournemouth.

Figure 19.5: A watercolour by A. R. Quinton, c.1925 showing the ornate Plymouth Pier, which was destroyed in a bombing raid in the Second World War. Such architectural watercolours provide a valuate record of lost heritage.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 19.6: 'The Burgh Island Hotel' at Bigbury-on-Sea' by Alfred Robert Quinton, c.1930. This Grade II Listed Building was built in 1929 of reinforced concrete in the Art Deco style. It is one of numerous iconic seaside hotels that were built in outstanding natural locations around the coastline of South-West England between c.1890-1930.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figures 19.7 and 19.8: The distinguished artist Philip Mitchell RI produced a series of views of the Plymouth coast, which were lithographed by W. Speat c.1850. The view (left) shows the construction of the breakwater in progress.

Private Collection.

Figure 19.8: This view by Mitchell shows the Plymouth Breakwater Lighthouse looking towards Mount Edgcumbe in about 1850. Fine detail could be achieved through the lithographic printing process giving the prints a softer texture, more like that of an original watercolour.

Private Collection.

The Plymouth Breakwater was built by John Rennie and Joseph Waidbeye from 1812 at a cost of £1.5 million, which was funded by the Navy. The Breakwater protects Plymouth, Plymouth Sound and their anchorages. The Breakwater is 40 feet wide at the top and 200 feet at its base, 3,000,000 tons of rock were used for its construction. The structure was completed in 1841.

A wealth of information on the Breakwater is provided by Steve Johnson at www.cyber-heritage.co.uk/breakwater_in_plymouth_sound/

Figure 19.9: 'St Just United Mines' by Thomas Hart. The widespread surface remains of the mine are located on the cliffs north of St Just. The first references to the mine date back to the 1670s although the mine didn't appear on maps until 1748. The mine has been championed as one of Cornwall's top ten mines due to its rich copper yields until the mines' closure in 1930.

Image Courtesy of Penlee House Art Gallery and Museum, Penzance.

Figure 19.10: 'The Dolcoath Mine' by Thomas Allom (1832) is the most notable of the Camborne Copper mine series, containing the most complex arrangement of machinery in the country. Passages were up to one mile long with multiple shafts in each; it maintained the accolade of being the deepest mine in Cornwall with a shaft 3,000ft deep. It is first included in historic records in 1738 and was a prolific copper producer during the eighteenth century before switching to tin production in the late nineteenth, and finally closing in 1921. It was the fifth largest copper producer, and highest producer of Black Tin in Cornwall. After several failed re-openings, it was bought by South Crofty Mine in 1936 and became an integral part of Cornwall's last tin mine of the twentieth century.

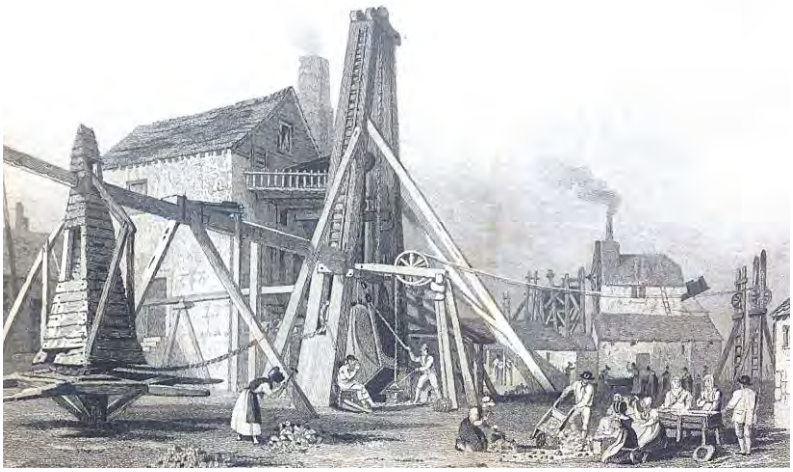


Figure 19.11: 'The Carclase Mine' by Thomas Allom (1832). The name translates to 'Grey Rock', in reference to the decomposed granite that contains the deep, rich veins of tin. The site is situated two miles north of St Austell, Cornwall and historic records suggest it has operated for 400 years. Operations changed through time. Tin used to be taken out of the mine on boats via a tunnel in the side of the cliff, but this practice was abandoned after the tunnel collapsed with boats inside it. After this, waste was drained down-slope whilst the ore was pulverised and refined on site.

Figure 19.12: 'The Chine Clay Pit' by Laura Knight. 1914. St Austell deposits of 'China Clay' were the first discovered in 1755. It rapidly became popular in British pottery and for other uses in manufacturing processes including cosmetic products and medicine. The Kaolin found in St Austell is of the highest quality and purity, giving its bright white colouring. The clay is extracted by spraying with high pressure water jets; the waste is separated from the clay and then dried to remove surplus water and impurities. Trains then took the clay to Fowey and Charlestown ports where it was exported abroad (75%) or elsewhere in the UK. In 1910 Cornwall was producing 50% of the world's China Clay, and St Austell's pits alone, operating for over 300 years, contributed 120 million tonnes.

Case Study Site 20 – Hartland to Clovelly

1. Location

The case study extends from Embury Beacon, 10km south of Hartland Point, then eastwards to the village of Bucks Mills, 6km to the east of Clovelly.

2. Why was the Case Study Site selected?

This exposed, high cliff coastal frontage contains numerous heritage sites of interest including cliff castles at Embury to the south of Hartland, and at Windbury to the west of Clovelly. Further north at Hartland Quay, the ancient harbour flourished in the eighteen and nineteenth centuries; most of the structure was destroyed after a storm in 1896. Images of the old harbour bear comparison with those of the present day. Past Hartland Point to the east is the picturesque village of Clovelly, which was one of the most painted and photographed locations in the nineteenth and early twentieth centuries. At Gallantry Bower at Clovelly, a circular 'bowl barrow' on the cliff edge is a Scheduled Monument. At the eastern end of the case study site at Bucks Mills there is a nineteenth century lime kiln on the east side of the beach.

3. Summary of the Geology, Geomorphology & Coastal Processes

This case study site has both a north-south and east-west orientation, with a foreshore dominated by rocky ledges and outcrops of resistant sandstone, which are exposed to the full force of Atlantic storm waves (Royal Haskoning, 2011[1]). This part of the coast is renowned for its sheer cliffs, reefs and dramatic geology. The coastline is largely composed of sandstones, mudstones and siltstones of the Holsworthy Group of the Carboniferous Period. The coastline is characterised by low erosion rates; however, the clifflines are prone to massive rockfalls and landslides periodically.

4. Risks to Heritage Assets along the Case Study Frontage

The west facing coastline between Embury Beacon in the south and Hartland Point is very exposed to the westerly dominated wave climate and weather systems from the Atlantic. Facing this coastline, the Embury Beacon fort is an Iron Age hill fort on the western side of the Hartland Peninsula. It is located at the top of a heavily eroding cliffline. Aerial photographs show that the inner rampart comprised a bank of simple construction and it has been estimated that three quarters of the original area of the site has been lost, including virtually all the actual occupation area within the inner rampart (Devon and Dartmoor HER, 2015[2]). A detailed study of this location was completed in 2012 (Sims *et al.,* 2014[3]). No paintings or engravings were found of this section of coast through the CHeRISH study and, therefore, the best evidence is provided through aerial photography.

Historically, Hartland Quay was known to have a lime kiln, labourers' cottages, a Malthouse, stores and warehouses. Although the exact date is not known, it is believed the pier was built in the late sixteenth century by William Abbott, inheritor of Hartland Abbey and its estate, along with similar constructions at Bucks Mills and Clovelly. William Daniell RA, on the early part of his voyage round Great Britain in 1814, visited Hartland Quay and described it in the following way, *"Hartland Quay was the first village that we encountered on Devonshire ground, and consisted of a cluster of mean cottages, which had no evident comfort about them but that of being protected by a high mountain from the east wind, and the value of this immunity is counterbalanced by their full exposure to the west, which blows from the sea, and has left marks of its fury on the roof of every cottage. The situation in the village is more than commonly rude and romantic – in front is a little harbour, marked out and secured by semi-circular pier, which might have formed one gentle feature in the sea had it not been for the reef of rocks beyond it. The cottages are so uncouth and weather beaten they seem to have undergone as many changes since their*

formation as the strata of the adjacent rocks" (Daniell & Ayton, 1814-1825[4]).

Hartland Quay was probably at its most prosperous during the eighteenth and nineteenth centuries. In 1841, after the damage to its pier head during gales, its owner, Louis William Buck, was confident enough of the quay's future to raise funds for its repair. The second half of the nineteenth century saw the fortunes of the quay decline, and this was augmented by the arrival of the railway at Bideford in 1855 and the climate of agricultural depression. The end of the pier was washed away in 1887 and was not rebuilt. Already business at the quay had ceased, with the last ship departing in 1893. The stump of the pier was merely refaced and most of the structure's remains were destroyed in a storm in October 1896, bringing the demise of the trade in corn, coal and limestone by sailing sloops that had carried on for nearly 300 years.

The Hartland Pier example illustrates how coastal artworks can describe socio-economic change, not just physical change, over a period of time. Around the coastline of south-west England there are many coastal structures including harbour arms, which may not necessarily achieve the necessary economic criteria to ensure funding for their future protection and maintenance. This may present difficult choices for owners, as well as for local stakeholders and residents. In the face of climate change, including the likelihood of more severe weather events, the safeguarding of such structures is likely to prove increasingly difficult and costly.

To the west of Clovelly, Windbury Head Camp is an Iron Age hill fort, much of which has been lost to coastal erosion. The southern ramparts still exist at a height of approximately 100m above sea level. Whilst no artworks were found that specifically identified the hill fort, the artist Henry Moore (1831-1895), painted a fine view of this part of the coast, looking across Shipload Bay towards Lundy, in the summer of 1857 (see Figure 20.2). The detailed portrayal of the foreground in Moore's painting points to his Pre-Raphaelite training and eye for detail. Many artists painted the dramatic coastal cliffs of North Devon, but they were scenic views rather than specifically highlighting any particular heritage assets. Henry Moore also crossed to the Isle of Lundy, where he painted a fine watercolour of the coastal cliffs and wildlife in 1857. No artworks were found depicting the historic buildings located on the Island.

Unlike the quays at Hartland and Bucks Mills, that at Clovelly has survived the ravages of storms, and the quay is depicted by numerous artists (see figures 20.5-20.11). Within this Case Study frontage there are three Conservation Areas at Hartland, Clovelly and Bucks Mills, as well as cliff top Scheduled Monuments and numerous Listed Buildings and archaeological sites which are at risk of erosion. Clovelly and Bucks Mills may also be at risk of flooding in the future (Halcrow, 2009[5]).

The steep cobbled main street of Clovelly, flanked by whitewashed cottages, leads down to the small harbour, which was the base of a fishing fleet, which prospered in the eighteenth and nineteenth centuries on huge catches of herring. The beach consists of shingle and cobbles from the slowly eroding cliffs. The images of Clovelly illustrate the changing face of this picturesque village from the early nineteenth century up until about 1930.

At the eastern end of the case study area is Bucks Mills, where the village street leads down to the beach and the ruins of a large lime kiln. Adjacent to the village in Bucks Woods is a site of an Iron Age hill fort at Peppercombe Castle.

In the reign of Queen Elizabeth I, a break in the rocks on the foreshore was created with gunpowder to allow access to the small quay, which has since disappeared, creating a small harbour for fishing vessels. It was used in the eighteenth century for the import of all the necessary raw materials, which were burnt in kilns to produce fertiliser. The remains of two of the lime kilns can be seen on either side of the beach access.

5. How can historical Imagery inform heritage risk management?

This Case Study illustrates the strengths and limitations of artworks, which depict coastal villages and harbours but not archaeological sites specifically. They also describe the social history of the locations that they depict.

6. Key Issues – What can be learnt from this site?

The case studies demonstrate how sites of topographical and touristic interest were favoured as subjects by artists (e.g. Hartland Quay, the wider north Devon coastline and clifflines, and the picturesque village of Clovelly), whilst specific archaeological sites, such as the hill forts at Embury Beacon and Windbury, rarely feature in artworks. For

these sites, clearly historical drawings by antiquarians or past researchers, together with aerial photography, represent the best available medium.

7. References

1. Royal Haskoning, 2011. *'Cornwall and Isles of Scilly SMP2'*.
2. Devon County Council, 2015. *'Devon and Dartmoor Historic Environment Record'*.
3. Sims, R., Allen, M. J. & Rainbird, P., 2014. *'Iron Age and Medieval Activity and Land Use at Embury Beacon Fort, Hartland, Devon'*. Proc. Devon Archaeol. Soc. 72 (2014, 71-102.
4. Daniell, W. & Ayton, R., 1814-1825. *'A Voyage Round Great Britain'*. Longman & Co.
5. Halcrow, 2009. *'Hartland Point to Anchor Head SMP2'*.

Figure 20A: One of numerous watercolour drawings of *'Clovelly'* by Alfred Robert Quinton. C.1925.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 20.1: 'Hartland Pier' by William Daniell RA. Aquatint Engraving. 1814. This view was produced by Daniell at the start of his eleven year *'Voyage Round Great Britain'* (1814-25) and shows the stone arm/pier in sound condition. The rocky, hazardous coastline and exposure of the location to Atlantic storm waves are obvious in Daniell's view.

Figure 20.2: 'Across Shipload Bay to Lundy Island'. An oil on canvas by Henry Moore RA. 1859. The view looks along the coast towards Windbury Head, the site of an early hill fort. Moore conformed to the Pre-Raphaelite ethos of capturing the natural environment in a precise and accurate way. Views of the coast of South-West England of this quality are numerous. Whilst they show us the nature of the coastline at a point in time they rarely show detail of early heritage sites.

Image courtesy of the Maas Gallery, London.

Figure 20.3: This early aquatint of 'Clovelly' by William Daniell RA, 1814, provides us with an accurate record of the village before its discovery by tourism. **Figure 20.4 (below)** shows the Red Lion Hotel (depicted also in Daniell's view) by the artist, David Addey, on his coastal tour in the footsteps on Daniell, in 1991.

Image courtesy of David Addey.

Figure 20.5: 'Figures on the Beach at Clovelly' by William Turner of Oxford. Watercolour. c.1840. The massive harbour wall is well illustrated in this view. The cottages in Daniell's view (above) are on the left of the harbour.

Image courtesy of John Spink.

Figure 20.6: 'Clovelly from the Pier', a mid-nineteenth century steel engraving taken from the end of the harbour arm. The steep street leads down to the quay from above with cottages clustered round the waterfront.

Figure 20.7: 'A view of Clovelly' by Charles Robertson RWS. C.1880. Like Moore **(Figure 20.2)** he worked in Pre-Raphaelite detail and with a high degree of accuracy.

Image courtesy of Sotheby's.

Figure 20.8: 'Clovelly' by Edward Wilkins Waite. Oil on canvas. 1881. Waite's view is taken looking eastwards past the harbour and along the North Devon coastline.

Image courtesy of Burlington Paintings, London.

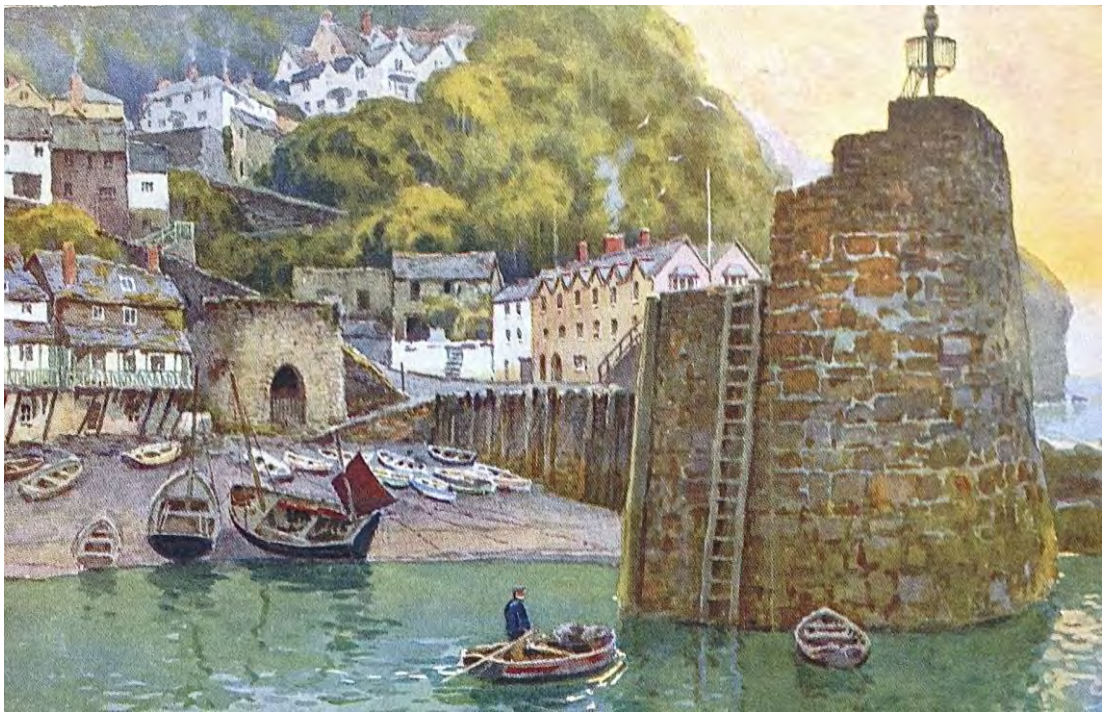
Figure 20.9: This watercolour entitled 'Among the Shingles, Clovelly' is by Charles Napier Henry (1864). Painted in Pre-Raphaelite photographic detail every stone on the beach can be seen together with its height and profile as well as the nature and condition of the harbour wall. Artworks of this kind equal a colour photograph of today in their detail.

Image courtesy of the Laing Art Gallery, Newcastle Upon Tyne.

Figure 20.10 (above): *'Clovelly'* by Alfred Robert Quinton painted c.1920 provides a more detailed view of the interior of the harbour. The buildings on the left and behind can be seen in William Daniell's view in **Figure 20.3**.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 20.11 (below): Henry B. Wimbush, a watercolourist, shows the massive harbour well from water level in c.1895. Both Wimbush and Quinton produced watercolours for use on colour picture postcards with Wimbush working for Raphael Tuck and Quinton employed by Salmon's of Sevenoaks.



Case Study Site 21 – Ilfracombe

1. Location

This case study covers the Ilfracombe town frontage, a distance of approximately 3km from Torrs Park eastwards to Beacon Point.

2. Why was the Case Study Site selected?

Ilfracombe is an example of an important seaside town with a range of interesting architecture set within a dramatic coastal location. There is additional heritage interest with a promontory fort at Hillsborough, together with other recorded sites of note.

3. Summary of the Geology, Geomorphology & Coastal Processes

The geology of the Ilfracombe area comprises mudstones, slates, limestones and sandstones of the Torbay and Tamar Groups of the late Devonian Period. The town is built on steep slopes that rise from a shore of rocks and coarse grey sand. The high cliff line is generally resilient and contributes little to sediment for beach material. However, Jurassic rockfalls can occur from the cliff faces, often on a large scale, and the frequency of such events is likely to increase as a result of sea level rise and coastal change. There are no current proposals to extend the coastal defences along this frontage.

4. Risks to Heritage Assets along the Case Study Frontage

The risks to heritage assets along this frontage are low, although likely to increase slowly. The Case Study was selected to illustrate the merit of artworks in terms of depicting developmental changes.

5. How can historical Imagery inform heritage risk management?

Heritage sites located on or buried close to the north Devon clifflines are likely to be affected eventually by cliff retreat, although it is recognised that this process is slow. The severe storms of 2013/14 saw wave heights of up to nine metres at Ilfracombe, resulting in structural and flood damage. St Nicholas Chapel and lighthouse on Lantern Hill, overlooking Ilfracombe Harbour and the open sea, is a Grade I Listed Building, whilst Ilfracombe's promenade pier (MDV69991) is recorded in the Devon and Dartmoor HER. These structures and the patterns of development at Ilfracombe over time are illustrated through numerous artworks, many of which are shown below. Apart from indicating the proximity of heritage sites to the sea coast, they provide a continuous record of the changing patterns of development that have taken place in this important seaside resort over the last two centuries.

6. Key Issues – What can be learnt from this site?

The images contained in the Ilfracombe case study provide a comprehensive depiction of the changes that have taken place along the town's frontage since the early nineteenth century. They provide detailed depictions of the coastal geology and landscape, as well as showing the gradual development of the town and the changes that have taken place at the harbour and along the seafront over that time. The case study also contains highly detailed watercolour drawings of the coastal landscapes and these offer direct comparisons with photographic images. Examples are provided (as was the case with the previous case study at Clovelly) of the meticulous work of Victorian artists, who provided images that, in some cases, matched the quality of present day colour photography. Bearing in mind that colour photography did not become widely used until the 1920s and 1930s, such representations provide the only colour images of the south-west coast of England right through the Victorian and Edwardian periods.

Figure 21.1 (above): The rugged and beautiful North Devon coastline is captured in this detailed watercolour by Frederick Jones, c.1860. The developing town with St Nicholas Chapel (Grade I) overlooking the harbour entrance was also a lighthouse and important landmark.

Figure 21.2 (below): *'Beacon Point, Ilfracombe looking eastwards from Capstone'*.

Both images courtesy of © Bristol Culture (Bristol Museum & Art Gallery).

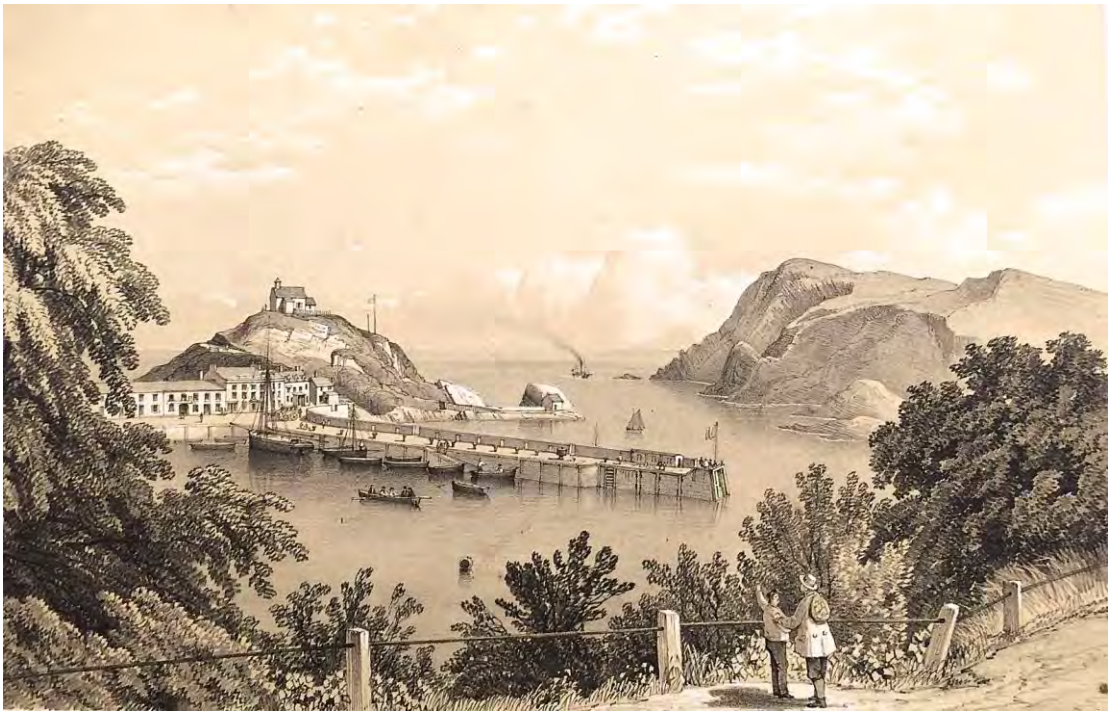
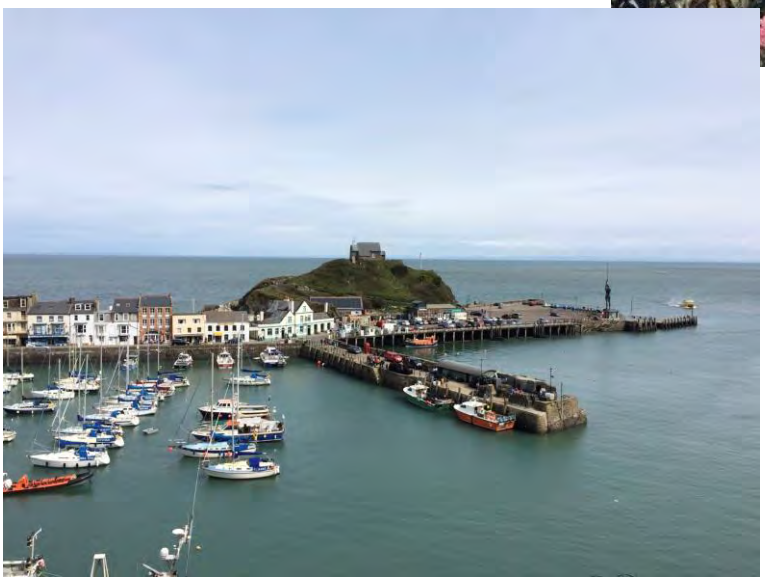


Figure 21.3 (above): A fine mid-nineteenth century lithograph by W. Spreat showing Ilfracombe's natural harbour, which is sheltered further by the jetty. St Nicholas Chapel dominates the skyline with Hillsborough (the hill on the right) being the site of a Promontory Fort. c. 700BC-42AD (MDV 2210).

Figure 21.4: 'Lantern Hill and Harbour' by Alfred Robert Quinton, watercolour c.1920 shows the harbour before it was extended with a concrete structure in 1958.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 21.5 (below): shows the same view today.



Figures 21.6 (left) and 21.7 (middle) provide two further highly detailed 'geological views' of the entrance to Ilfracombe Harbour in the 1860s (a further fine watercolour of this subject is held by Ilfracombe Museum). Frederick Jones' views date from the mid-1860s and show exactly the nature and condition of the harbour arm and the Chapel (see also **Figures 21.1 and 21.2**). **Figure 21.8 (bottom)** shows the view today from the end of the harbour. The chapel on Lantern Hill has been a lighthouse since at least 1852 and was later used as a Summer Reading Room. **Figures 21.6 and 21.7** © British Culture (Bristol Museum & Art Gallery).

Figures 21.9-21.11 show three views of Capstone Hill at Ilfracombe, a local landmark, viewed from the west. **Figure 21.9 (left)** is a lithograph c.1840 and shows a signal station on the summit of the hill.

Figure 21.10 (left) was engraved in about 1850 and shows the developing resort also looking eastwards.

Figure 11 (left): An early 20th century photograph showing Capstone Hill with the path cut across its cliff face allowing access round the headland.

Image: Wikimedia Commons Licence.

Figure 21.12 (left) shows the Ilfracombe Hotel and Wildersmouth Cove in the late 1860s; the hotel was the largest in the town and opened in 1867. The hotel had its own Esplanade and seawater baths.

Figure 21.13 (middle): In this view by Alfred Robert Quinton the Ilfracombe Hotel occupies a grand position overlooking the dramatically portrayed rocky beach at Low Water. This watercolour was painted c.1920 and also shows the Granville Hotel, which opened in 1891.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 21.14 (bottom): The present day view showing the site of the former Ilfracombe Hotel, which is now occupied by the Landmark Theatre.

Figure 21.15 (above): This pair of views illustrate the photographic accuracy that could be achieved by some of the best nineteenth century artists such as Frederick Jones (Fl.1860s). Such detailed portrayals of cliff faces allow not just qualitative but also quantitative assessments to be made of cliff and coastline change. These views show Hillsborough, which includes a promontory fort on its summit (MDV2210).

Image **(top)** courtesy of © British Culture (Bristol Museum & Art Gallery); image **(bottom)** courtesy of Steve Daniells/Wikimedia Commons Licence.

Case Study Site 22 – Exmoor

1. Location

The case study frontage extends along the north Devon coast from Combe Martin eastwards to the western side of Minehead in Somerset; a coastal frontage of approximately 40km.

2. Why was the Case Study Site selected?

The case study covers the coastal extent of the Exmoor National Park. The aim of the National Park is to conserve and enhance the natural beauty, wildlife and cultural heritage of the park and to promote opportunities for the understanding and enjoyment of the park by the public. Along this largely natural and very beautiful coastline there are Conservation Areas at Lynton, Lynmouth and Porlock. Heritage assets include the lime kiln at Heddon's Mouth, Martinhoe Castle (Roman signal station), Duty Point Tower at Lee Abbey, the village of Lynmouth, and the coastguard station at Hurlstone Point near Bossington, Somerset.

3. Summary of the Geology, Geomorphology & Coastal Processes

The coastal geology comprises almost entirely sandstones and limestones of the Torbay and Tamar Groups of the mid to late Devonian Period. Much of this coastline is undefended and the natural processes of weathering, coastal erosion and cliff instability are allowed to continue. Between Combe Martin and Lynmouth erosion over the next 100 years is likely to have an impact on Scheduled Monuments, Listed Buildings and other non-designated archaeological features; however, the Lynmouth frontage will continue to be protected. Extending eastwards to Porlock, again there are no proposals for further coastal defences along this frontage.

At Porlock Weir, the defences here are privately owned and the owner has indicated an intent to maintain them. However, the long term sustainability of defences at this location is under further consideration. Eastwards from Porlock Weir to Hurlstone Point the coastline would be allowed to retreat naturally, with the loss of a number of Scheduled Monuments located in the low-lying floodplain as the shoreline moves landwards. This is in line with established policy in the area, implemented by the National Trust and the Environment Agency, who are currently investigating how to mitigate future flood risk through land use change as part of a separate study (Halcrow, 2009[1]). A further section of the coast from Hurlstone Point to Minehead will also allow the natural evolution of this frontage without any active intervention.

4. Risks to Heritage Assets along the Case Study Frontage

The North Devon and Somerset SMP (Halcrow, 2009[1]) has identified the potential impacts of coastal change on a number of heritage sites as through ongoing natural processes or through possible changes in coastal defence policy from 'hold the line' to 'managed realignment, or 'no active intervention'. Heritage sites along this frontage are located close to the top of, or along the foot of high cliffs and slopes. Some of these sites are not at immediate risk, for example, the Roman signal station of Martinhoe Castle. However, the two storey castellated Duty Point Tower stands on the very edge of the cliff at Lynton, and is at risk in the foreseeable future.

5. How can historical Imagery inform heritage risk management?

The picturesque setting of Lynmouth, with its steep, wooded cliffs and fast rivers flowing down to the Bristol Channel, has been the site of devastating floods in the past. Historical images show the gradual development of the village over the last 200 years along the narrow confines of the valley, and at the point where it meets the river meets the sea. Images of this kind can form an additional tool to inform flood risk management. Sites of heritage significance were not always identified as a suitable subject for artists unless perhaps they had a particular

picturesque value. As a result, some of the sites along the Exmoor coast do not feature as artistic images. In these cases, oblique or vertical aerial photography are most informative in support of site management. These issues are explored through the series of images and captions provided below.

6. Key Issues – What can be learnt from this site?

The case study site provides a range of illustrations of heritage sites of interest located close to or on the Exmoor coastline. Artistic images of some heritage features do not exist and, therefore, aerial or oblique photographs represent the best opportunity for study. The strength of the artistic images is in the depictions of the coastal villages such as Lynmouth, where its history and changing patterns of development since the early nineteenth century can be clearly understood.

7. References

1. Halcrow, 2009. *'Hartland Point to Anchor Head SMP2'*.

Figure 22A: A panoramic view along the Exmoor coastline showing *'Castle Rock, Lynton'*. A watercolour by Alfred Robert Quinton. 1925.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 22.1: This lithograph produced in the 1840s shows Heddon's Mouth to the North-West of Martinhoe. The Post-Medieval lime kiln (MDE1026) is located on a ledge above the River Heddon and close to the shore. The structure was restored by the National Trust in 1982. Access steps lead to the kiln working area from the shore. In the past the kiln has suffered severe storm damage in this exposed location.

Figure 22.2 (right) and Figure 22.3 (below) show the location of Duty Point Tower at Lee Abbey near Lynton. This mid-nineteenth century romantic lookout tower is an important local landmark (Grade II Listed). The tower is located on the edge of high cliffs and is at risk from coastal erosion and rockfalls beneath. No artworks of the tower itself have been found although the engraving **(right)** shows the Abbey and its grounds. The aerial photograph **(below)** (c.1930) shows the Duty Point headland and Lee Bay beyond.

Image courtesy: HES Britain from Above.

Figures 22.4-22.6 show three views of the village of Lynmouth spanning the time period from 1814-1990.

Figure 22.4 (left) is an aquatint engraving by William Daniell RA produced at the start of his eleven year *'Voyage Round Great Britain'*. Generally, Daniell's scenes, and especially the architecture, are topographically accurate.

Figure 22.5 (middle) shows the same view in about 1920 depicted by the watercolour artist Alfred Robert Quinton. A new wall provides protection for the additional row of houses that were built after Daniell's visit.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 22.6 (bottom): The former architect and artist, David Addey, retraced Daniell's tour painting over 400 watercolour drawings in the late 1980s-early 1990s. The row of properties remain almost unchanged since Daniell's visit.

Image courtesy of David Addey.

Figure 22.7 (left): A highly detailed lithograph of the Lynmouth coastal frontage by George Rowe c.1835. The developing village can be seen together with the harbour and its distinctive Rhenish Tower (see also **Figures 22.10** and **22.11 below**). Elegant properties have been built on the steep, cultivated hillside beyond.

Figure 22.8 (middle) shows a similar view by A. R. Quinton, c.1925. The village was struck by a devastating flood in August 1952 following torrential rainfall with the combined flows of the East and West Lyn Rivers discharging through the village on the way to the sea.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 22.9 (bottom) shows the river valley as a scene of tranquillity. This finely engraved lithograph by W. Spreat, c.1840 provides exact details both architectural and topographical.

Figure 22.10: This detailed architectural watercolour by A. R. Quinton, c.1920 shows the view looking down Mars Hill towards the distinctive Rhenish-style tower. It was built in c.1860 to store sea water for bathing (MDE 21018). The tower was destroyed in the 1952 floods but rebuilt.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 22.11 (middle) shows a further detailed view of the tower by Myles Birket Foster RWS, the leading and perhaps finest watercolourist of the mid-to-late nineteenth century.

Photograph courtesy of Marshall Spink, London UK/Bridgeman Art Library.

Figure 22.12 (below): A fine watercolour by Albert Goodwin RWS, 1877, showing Lynmouth and Countisbury Hill from the shore at Low Water. Goodwin produced numerous Devon coastal views.

Image courtesy of Chris Beetles Gallery, London.

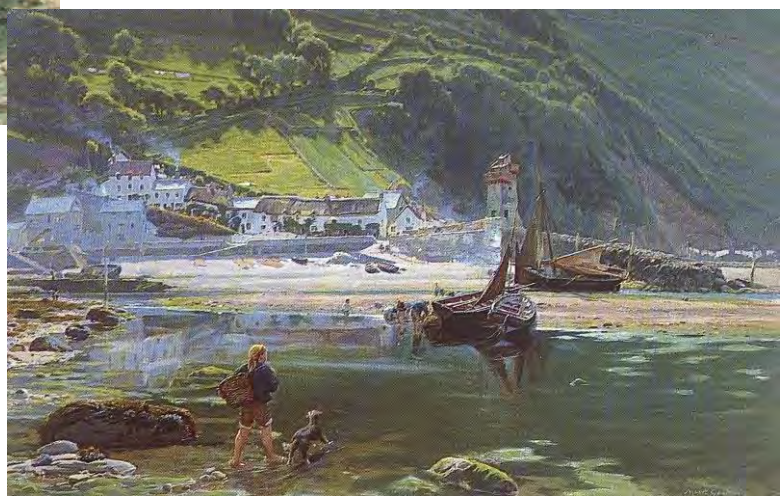


Figure 22.13: 'Porlock Weir' by Edward William Cooke RA. 1862. Cooke was a remarkably accurate painter, a Fellow of the Royal Society with a fascination for coastal geology. His views of the coast are of photographic quality (see also Case Study 8: Beer). Encouraged by the art critic John Ruskin, Cooke sought to capture nature exactly following the ethos of the Pre-Raphaelite Brotherhood.

Image courtesy of Martyn Gregory Gallery, London.

Figure 22.14: 'A photograph of Porlock Weir in the 1950s.' The defences here are privately owned (by the National Trust) and there is a coastal defence policy of 'No Active Intervention' in place for sustainability reasons. **Figure 22.15 (below left):** Porlock Weir was also painted by A. R Quinton in watercolour (c.1920); these properties still line the waterfront.

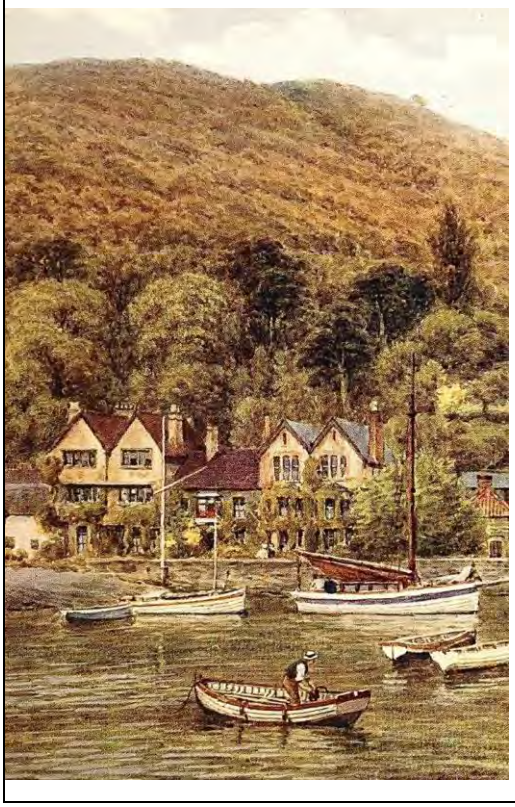


Figure 22.16 (below right) shows the old Coastguard Lookout Station' at Hurlstone Point near Bossington, Somerset to the east of Porlock. The two-storey building was erected c.1900 and was manned up to World War II (MSO 8110).

Image courtesy of Graham Horn. Creative Commons Licence.

Case Study Site 23 – Minehead to Clevedon

1. Location

2. Why was the Case Study Site selected?

This extensive section of the north Somerset coast contains eroding, natural clifflines, small harbours, estuaries and flourishing seaside resorts. The study site provides the opportunity to illustrate the potential uses for historical artworks in support of coastal heritage management at a wide range of sites. The coastal maritime heritage of north Somerset is very rich and has been described comprehensively (Webb, 2010[1]).

3. Summary of the Geology, Geomorphology & Coastal Processes

The coastline is dominated by mudstones and siltstones of the Mercia and Penarth Groups of Triassic age, from Minehead to Watchet in the west and south of Weston-Super-Mare to Clevedon in the north. The section of coast between Watchet in the west to Brean Down comprises mudstones and limestones of the early Jurassic Lias Group. Despite the more sheltered waters of the Bristol Channel, the undefended sections of the coastline are prone to coastal erosion, with flooding being another significant risk. Coastal defences and harbour walls provide protection for the main settlements along this frontage.

4. Risks to Heritage Assets along the Case Study Frontage

The towns of Minehead and Watchet both contain Conservation Areas and these may be at risk from flooding. Scheduled monument sites between Minehead and Hinkley Point are also likely to be affected increasingly by flooding in the future. The Conservation Area at Burnham-on-Sea is also susceptible to flooding, including several Grade II Listed buildings. Weston-Super-Mare is also a designated Conservation Area which is susceptible to flooding; there are also seven Scheduled Monuments located on low-lying ground that are at risk from erosion. There are numerous Grade II Listed buildings and sites of archaeological importance that may be susceptible to flooding increasingly in the future (Halcrow, 2009[2]).

Some sites along this coast have been affected by erosion for a considerable period of time. For example, Daw's Castle is located on the edge of the cliffs approximately 2km to the west of Watchet. A large part of this site has been eroded in the past and with the policy of 'no active intervention', further losses here can be expected. Along much of this coastline, the shoreline management plan (Halcrow, 2009[2]) has identified a potential loss of a number of non-designated archaeological sites where coastal erosion is likely to continue.

5. How can historical Imagery inform heritage risk management?

Through this case study the opportunities and limitations provided by artworks in terms of supporting heritage risk management are illustrated. For some heritage sites, including those at risk, few images have been found. These mainly relate to archaeological sites on the open coast. More images are available for the settlements and developing coastal towns and resorts, which were visited by many artists during the late nineteenth and early twentieth centuries. Certain artists, such as Edward William Cooke RA, produced detailed oil paintings of the coastal scenery which are so precise that they could support not just qualitative but quantitative assessments of coastal change along specific frontages (Munday, 1996[3]). A further aspect illustrated by this case study is the detailed depiction of developing seaside resorts during the Victorian period in particular, and this is particularly well

illustrated through images of Weston-Super-Mare and Clevedon.

6. Key Issues – What can be learnt from this site?

The elegant Victorian architecture of these important seaside towns is particularly well described through the artworks in this case study and shows the progressive development of these resorts and the buildings now included in their Conservation Areas. Artistic works along this coastline include some highly detailed images, which are supported by literature accounts (e.g. Munday 1996[3]), which can allow analysis of the rate of coastal change since the 1860s. For specific heritage sites photography remains the best choice of medium for research.

7. References

1. Webb, A. J. (Ed.), 2010. *'A Maritime History of Somerset'*. Vols. 1 & 2, Somerset Archaeological & Natural History Society. ISBN: 978-0-902152-21-2.
2. Halcrow, 2009. *'Hartland Point to Anchor Head SMP2'*.
3. Munday, J. 1996. *'E. W. Cooke – A Man of His Time'*. Antique Collector's Club. ISBN: 1-85149-222-4.

Figure 23A: Elegant Clevedon – a view of the town accurately lithographed in about 1860.

Private Collection.

Figure 23.1: East Myne Camp (MS07577) near Minehead is located on North Hill between Minehead and Selworthy Beacon. Drawing by J. Burrow 1924.

Figure 23.2: A highly detailed geological painting of 'Blue Anchor Bay' by Edward William Cooke RA. Oil on canvas. Cooke painted a series of views along the Somerset coast in 1862 painting also Minehead and Dunster from Blue Anchor, and Porlock.

Image courtesy of the Guildhall Art Gallery, London.

Figure 23.3: The view by A. R. Quinton painted in watercolour, c.1920 shows the Esplanade and North Hill at Minehead.

Image courtesy of J. Salmon Limited of Sevenoaks.

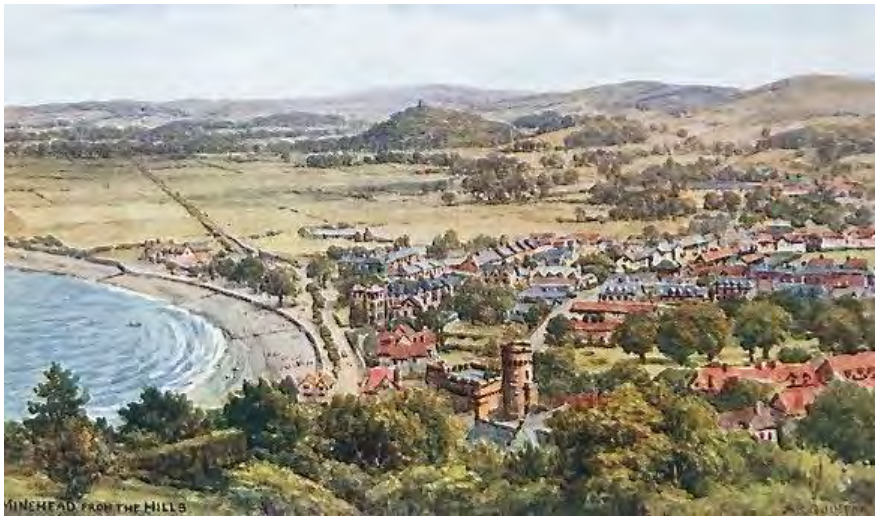


Figure 23.4: A further fine watercolour by A. R. Quinton, c.1920, this time looking south-eastwards over Minehead towards Dunster.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 23.5: 'Daw's Castle near Watchet' drawn by J. Burrow, c.1924. Lying 2km west of Watchet the originally extensive camp has been dramatically reduced in size by coastal erosion.

Figure 23.6: (below): This fine oil painting by William Henry Hopkins painted in 1856 looks north along the coastal frontage of Burnham-on-Sea. One of the three lighthouses built here can be seen on the right.

Image courtesy of North Somerset Council/Somerset Heritage Service.

Figure 23.7 (left): An early view of Weston-Super-Mare in 1815 showing the Inn and Brean Down well before the development of the resort.

Image courtesy © Bristol Culture (Bristol Museum & Art Gallery).

Figure 23.8 (left) and 23.9 (below) show the developing resort of Weston-Super-Mare in the 1840s-1850s. The medium, lithography, allowed fine detail to be achieved with this technique. The view **(left)** was by the prolific illustrator George Rowe who depicted many of Devon's and Somerset's coastal towns and villages.

The view below is taken from the Knightstone Baths.

Figure 23.10: This fine lithograph shows the elegant properties lining the seafront of Weston-Super-Mare in about 1855. Such images, of which there are many for most coastal towns, allow us to trace changes to Listed Buildings and Conservation Areas through the rapid development in the Victorian and Edwardian eras.

Figure 23.11: The Birnbeck Pier, a Listed (Grade II*) structure, was built in 1867 and is the only pier in Britain that links the shore to an island. The pier would have been built about forty years before A. R. Quinton painted this watercolour.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 23.12 (left): A view over Weston-Super-Mare by A. R. Quinton painted in about 1920. This view shows the Grand Pier.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 23.13 (left): This oil painting by William Henry Hopkins, c.1860, shows the nature of the beach, seawall and Esplanade at Weston-Super-Mare at that time. Taken at Low Water the extensive sandy shore is visible.

Image courtesy of North Somerset Council/Somerset Heritage Service.

Figures 23.14 (left) and 23.15 (below) are two views of the elegant resort of Clevedon, which marks the northern end of this Case Study. Lithographed from drawings by Lady Elton they show the developing town in 1838. Like the views of Weston-Super-Mare such accurate drawings plot the history of the principal buildings through the nineteenth century and beyond.

6.3. Analysis of results from the case studies

6.3.1. Introduction

This analysis considers, through the case studies, how successfully historical images can inform heritage risk management in south-west England. The wider assessment was greatly assisted by the input and interest of a wide range of stakeholders, including, particularly, the Heritage Officers within local authorities and staff involved in coastal management. The analysis has raised a number of key questions relating to the role of artworks and photographs in this context and these are considered below.

1. What is the availability of images for the south-west coast?

The rich art history of the south-west of England has been described in detail in Chapter Four of this report, and the art and photographic image resources held in local, regional and national collections has been set out in section 4.3. For this project a total of 3,600 copperplate engravings, steelplate engravings, lithographs, aquatints, oil paintings and watercolour drawings were located and examined in detail. Most of these artworks relate to the nineteenth century and the twentieth century up to 1930. Some images date from the mid to late eighteenth century (1770-1800), but there were fewer suitable images for the period 1930-1950. This was partly a reflection of changing tastes away from the detailed traditional paintings and watercolours exhibited at the Royal Academy during the Victorian and Edwardian eras, and also because of the interruption caused by the Second World War.

Of this large number of artworks, the majority can be described as 'topographical views'. The French Revolution and the Napoleonic Wars had prevented continental travel up until 1815 and, as a result, there was a much greater focus on the English landscape by artists and their patrons. Many artists chose to paint more remote and picturesque regions such as the coastlines of the south-west of England. Prior to the Napoleonic Wars, the landscapes of England were regarded as rather uninteresting and not worthy subjects for artists compared with the dramatic landscapes of the Alps and Italy. In order to find favour with their wealthy patrons, some artists chose to exaggerate the English landscape artworks so that they were more in tune with tastes at that time. Through a ranking system for the various types of artworks, as set out in Chapter Five of this report, a screening has identified those artists which captured the south-west coastal scenery in the most accurate way, and with the greatest relevance to heritage.

The most painted locations tended to be the developing coastal towns and villages and their ports and harbours. A repetition of the same views of these towns and villages over a two hundred year period provides an interesting chronology of development and change as a result of both natural and human factors over time. Other artists painted views looking out to sea from the cliff tops or looking along the cliffs, and some of these capture the sites of existing and past heritage. Whilst a particular strength of the artworks examined are the detailed portrayals of the most attractive and most visited locations, views of some heritage sites such as the promontory forts and cliff castles that are found around the south-west Peninsula were rarely depicted in sufficient detail to show the actual sites of heritage interest (often ruins) themselves. It may be interesting to see how, from some of these paintings, the coastline has changed over time through the processes of coastal erosion and landsliding, but for archaeological detail we have to rely on the watercolour drawings and prints of antiquarians such as Peter Orlando Hutchinson and Sir Henry Englefield in Dorset (Butler, 2010[1]; Englefield, 1816[2]) and the works of J. Burrow on the Somerset coast (Burrow, 1934[3]).

2. What style of artworks have proved most informative in the CHeRISH Study?

Section 5.2 of this report considered the ranking of artworks and photographs in terms of their accuracy and usefulness in support of coastal heritage risk management. As far as our project is concerned, two categories are particularly important. First, 'topographical art' which comprises coastal landscape paintings, watercolours and prints. This is a rich resource for the south-west and there was a great deal of interest by artists in the coastal towns and fishing villages located on the open coast, as well as the tidal creeks, estuaries and harbours. There are, therefore, many works that can inform us of what coastal landscapes and environments were like at the time they were painted and, so, such works make a major contribution to this study. Accurate topographical art was most readily available from the second decade of the nineteenth century when illustrated books started to appear for wealthy tourists. Some artists made particular efforts to ensure that when engravings were produced from their original paintings they were faithful in terms of detail. In fact, in most cases books containing topographical views, particularly steel engravings, were of a high degree of accuracy. A detailed study of steel engravings in nineteenth century topographical books was made by J. M'Kenzie-Hall (M'Kenzie-Hall, 2011[4]). Later, as more visitors came to the coast, there was a demand for accurate depictions in colour for customers to take home to remind them of their visits to the coast.

By the late 1840s, with the formation of the Pre-Raphaelite Brotherhood in 1848, and with the encouragement of the leading art critic, John Ruskin, landscapes started to appear which were often of extraordinary accuracy. Ruskin had described the aims and objectives of Pre-Raphaelite art as follows: *"Pre-Raphaelitism has but one principle, that is absolute, uncompromising truth in all that it does, obtained by working everything down to the most minute details from nature and from nature alone"* (Ruskin, 1853[3]). The Pre-Raphaelite mission of truth to nature, an objective which entailed the accurate study of natural phenomena such as rocks and coastlines, was an objective pursued not just by Pre-Raphaelite artists themselves, such as John Brett (1831-1902), but also importantly Edward William Cooke RA (1811-1880), who took a keen interest in the geology of the south-west coastline, painting it with great accuracy and precision. A succession of Pre-Raphaelite 'Followers' continued this philosophy up until the 1880s and this has resulted in a significant number of highly accurate portrayals of the south-west coast.

3. Who were the key artists working in south-west England that can inform the CHeRISH Study?

From a long list of artists who worked around the coastlines of south-west England there are three that deserve specific mention on account of both the extent of their travels and their topographical accuracy at different points in time. The first of these is William Daniell RA, who, with his author colleague, Richard Ayton, commenced his *'Voyage Round Great Britain'* at Land's End in 1814 (Daniell & Ayton, 1814-1825[6]). Daniell spent the next eleven years on an artistic journey, recording the coastal scenery of England, Wales and Scotland, eventually returning back along the south-west coast of England to complete his voyage in 1825. Daniell's voyage and the resulting 308 aquatint engravings and accompanying text by Richard Ayton, is recognised as the most remarkable and accomplished of all the nineteenth century illustrated books published about the British Isles. Daniell produced fifty-two aquatint engravings of the CHeRISH study area and, of these, forty-two relate to the south coast of England between Christchurch in Dorset and Land's End, whilst a further ten illustrate the northern coasts of Cornwall and Devon. Many examples of Daniell's work are included in the body of this report and within the case studies, as they represent a

benchmark for *'the state of the coast of south-west England'* for the second decade of the nineteenth century.

Perhaps the greatest coastal painter of the mid-to-late nineteenth century was Edward William Cooke RA (1811-1880). Cooke was a Fellow of the Royal Society, a Fellow of the Geological Society, a Fellow of the Society of Antiquaries, and a Fellow of the Geological Society. He is best known for his highly detailed geological coastal views (see case studies 8, 17 and 23). Praised by Ruskin for the Pre-Raphaelite detail of his works, Cooke's photographic paintings and watercolours, such as those of Beer Head in Devon, would allow quantitative assessments to be made of coastal change, through comparison with present day photographs. He is, therefore, a key artist emerging from this study (Munday, 1996[7]).

The third artist of particular note is Alfred Robert Quinton (1853-1934), who was an English watercolour artist known for his paintings of British villages and landscapes, many of which were published as colour picture postcards for J. Salmon Limited of Sevenoaks. Quinton produced over 2,000 views of the English and Welsh coastlines, including over 200 of south-west England; numerous examples are illustrated in the case studies. Quinton's work plots the expansion of our seaside towns and villages through the Edwardian period and up to the 1930s. He was one of the last of the artists of that period to paint traditional landscape watercolours in a highly accurate and detailed manner. In view of the detail and accuracy, Quinton's works provide an improved understanding of the expansion and alteration of our coastal towns and villages and record changes to historic buildings and their surroundings over that time period. Together with Daniell's views, painted a hundred years before, the works of these two artists allow us to make direct comparisons of both the physical and the built environments, noting the changes that have taken place over that time.

The timeline for the CHeRISH project study extended from 1770-1950. In May 2016, a further fascinating collection of detailed watercolours came to light that were painted between 1988 and 2002 by the former architect and distinguished watercolour artist, David Addey. Addey chose to follow in the footsteps of William Daniell, retracing Daniell's voyage round Great Britain and painting, as closely as possible, from the locations that Daniell had chosen on his voyage. The result was over 400 watercolour drawings, which include forty-eight of south-west England. Addey's collection provides a further benchmark which allows us to assess changes to the south-west coastline 175 years after Daniell's voyage was completed, and sixty years after A. R. Quinton's death. In many of the case studies the works by Addey have been shown alongside those of Daniell, and changes or lack of change have been noted (Addey, 1995-2002[8]). Further details of the works of these three artists are provided in Appendix 3.

The names of some key artists have been mentioned, and many others can contribute to our understanding of the changing south-west coast. Some of these worthy of note include Myles Birket Foster RWS, who was the leading watercolourist of the mid and late Victorian period, painting watercolours in a highly detailed and precise manner. Charles Robertson, who was also influenced by Pre-Raphaelite thinking, produced detailed views of Lyme Regis and Clovelly, whilst Samuel Edward Kelly, who worked in the Edwardian period, painted fine watercolours such as Babbacombe Bay, Devon (see case study 12). Other artists depicted coastal heritage sites from the sea, and foremost amongst these was Charles Napier Hemy RA RWS (1841-1917). As well as being a master of sea painting, he was a fine architectural draughtsman, as demonstrated in his oil painting *'Lining for Mackerel off St Mawes Castle'* (see figure 17.4). William Trost Richards painted a fine watercolour of Tintagel Castle, Cornwall, viewed from the sea (see figure 17.15).

4. To what extent can we understand coastal change and risk from art?

The physical impacts of coastal change are cliff retreat as a result of coastal erosion at the toe of cliffs or unstable slopes resulting in rockfalls or landslides, whilst on low-lying areas flooding by the sea is a common problem. The impacts of coastal change are clearly demonstrated through artworks. For example, along the Dorset and south Devon coasts, the impacts of erosion and largescale landsliding are admirably depicted and are illustrated in case studies 1, 7 and 9. Clifflines, such as those found extensively in the south-west, are often considered to be static features with very slow rates of change observed. However, an examination of a number of key sites, including Prehistoric promontory forts and other cliff top heritage sites, show the steady retreat of even these cliff lines over time.

Paintings and watercolours, as well as literature accounts, show heavily jointed or fractured cliffs and evidence of massive rock falls along the shorelines below. Rockfalls and other landslide events over the last three years alone have resulted in dramatic land losses, which have affected both amenities and heritage sites. The rate of change along hard rock frontages is likely to increase as a result of sea level rise, and a greater frequency of unsettled weather patterns. Most coastal artworks are of cliffed frontages rather than low-lying coasts, although there are some examples of paintings of coastal lowlands and particularly of beach scenes. However, there are very few artworks which depict flooding events as opposed to coastal erosion or instability. In order to illustrate the topographical accuracy of some of the higher ranking artists that painted in south-west England two examples are provided below, which show an oil painting by Edward William Cooke RA and a watercolour by Samuel Edward Kelly. The clarity and detail that these artists have achieved in the two media demonstrates the truthfulness and reliability of their works.

Edward William Cooke (1811-1880) was more that just a distinguished landscape painter. He was elected a Fellow of the Linnaean Society in 1857, a Fellow of the Geological Society in 1862 and his election as a Fellow of the Royal Society, an uncommon distinction for a painter, came in 1863 shortly before he was made an RA. Cooke's father, George Cooke, had engraved copper plates for Sir Henry Englefield Bt. that appeared in his '*A Description of the Principal Picturesque Beauties, Antiquities and Geological Phenomena of the Isle of Wight and adjacent Coast of Dorsetshire* (Englefield, 1816[2]). Englefield had stated that '*in no instance has accuracy been sacrificed to the effect of the engraving'.* This ethos underpinned E. W. Cooke's work throughout his life with him receiving highly favourable comment from John Ruskin the great Victorian art critic (Ruskin, 1853[5]). On Cooke's election to the Royal Academy in 1863 the Illustrated London News said of him '*The prime characteristic of Mr Cooke's art is literal fidelity to nature. He is probably the most scientifically accurate painter we possess. His pictures provide exact reproduction of the outward aspects of the natural world satisfying the geologist, botanist, meteorologist, architects and shipbuilder*' (Illustrated London News, 1863[9]). Cooke's views of the south-west coast were originally intended to form a volume entitled '*The British Coast'***,** however, the work was never completed for publication. Figure 6.4.1 shows Cooke's view of '*Fishing Cove of Beer*' one of several views of the location. His artwork compares almost exactly with the photographs below.

The watercolourist Samuel Edward Kelly (1862-1935) produced highly detailed watercolours of the south-west coast. His view of '*Oddicombe Beach*' near Torquay painted in 1910 is a fine example of his work. Kelly followed the Pre-Raphaelite ideal of capturing nature faithfully and this is evident in this scene, which shows the precarious cliffline above the beach as well as the debris from previous falls. Comparison with recent photographs confirms the level of accuracy that artists could achieve with the brush alongside photography.

Figure 6.4.1: *'The Fishing Cove of Beer'* by E. W. Cooke 1858. The Upper Chalk exposure of Annis Knob also shown in **Figure 6.4.2. (right)** is clearly visible as is the extensive Middle Chalk exposure in the main cliff below. Cooke's painting also shows the nature of the landscape before the extensive tree and vegetation growth that masks the cliff top today. Photograph (right) © Ian West.

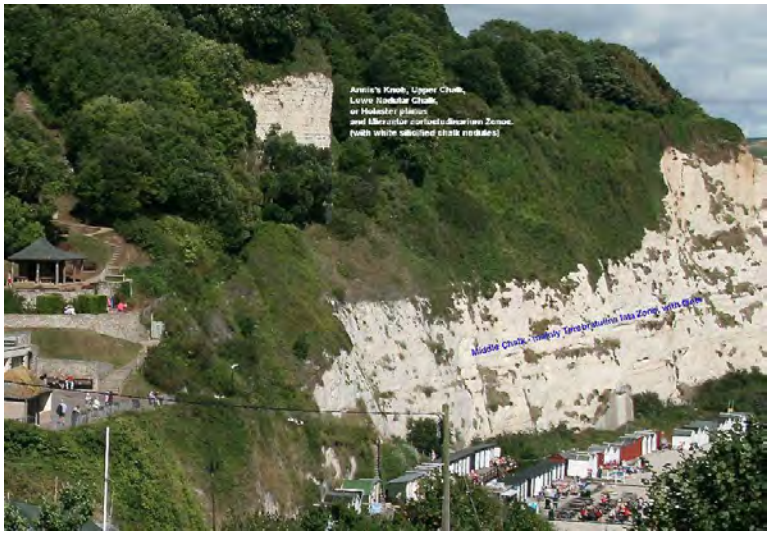


Figure 6.4.3. (left) shows the Upper Greensand-Lower Chalk junction on the south side of Small Point, Beer. Cooke has captured this exactly in the bottom left corner of his painting.

Photograph (left) © Ian West.

Figure 6.4.4: *'Oddicombe Beach'* near Torquay by Samuel Edward Kelly c.1910. Views such as this remind us of the changing coastal environment both in terms of physical change, and the landscape through development and management practices. Kelly's watercolour provides evidence of coastal processes at work and risks from the unstable cliff face. It is important to bear in mind that coastal change may pose risks to buried, undiscovered heritage as well as to known heritage assets.

Figure 6.4.5 (below) shows the scene on 7th April 2011 with a cliff fall and opening joint lines. A major fall here in April 2013 saw the loss of Ridgemont House on the cliff top.

Photograph © Ian West.

Figure 6.4.6. (left): 'Tintagel Castle, Cornwall'. This postcard, which was produced from a photograph taken in about 1900 shows the battlements extending towards the cliff edge. Such structures and the changes observed to them through artworks and photographs over time can provide both qualitative and quantitative evidence of the rate of coastal change.

Image courtesy of Dave Hooley.

Figure 6.4.7 (right) shows a view of Tintagel Castle (pre-1914), which looks directly at the cliff face surmounted by the battlemented wall. This postcard shows a substantial bluff beneath that end of the wall that is now absent in the present day photograph in **Figure 6.4.8 (below)**.

The extent of loss can be seen by comparing the number of battlements to the right of the entrance arch (four) in the postcard, whilst the photograph only shows one battlement remaining.

Images courtesy of Dave Hooley.

5. What is the value of colour images versus black and white?

The use of colour washes, together with pen and ink, started to become available from the mid seventeenth century, emerging from the Netherlands in particular. During the last quarter of the eighteenth century, watercolour art became much more popular and provided the only means of depicting landscapes in colour available at that time. Art has continued to be an effective colour illustration medium right through to the present day.

It has been explained that photography emerged in the 1840s and 1850s but the use of this medium for portraying the landscape only became popular from the 1860s onwards as portraiture was the prime interest before that time. Paintings of the landscape and coastal scenery in colour were very much favoured by Victorian and Edwardian customers over black and white photography, because art provided a more complete record of the coastal scenery that they had visited and experienced on their holidays. In fact, when photography first emerged as a potential competitor to art, many writers were very dismissive of the concept that photography could be an art in its own right. This was because artworks in colour were able to display the splendour of real life as the viewer could actually see it, and thereby provide a permanent record and visual reminder of the landscapes and scenery enjoyed by visitors to the coast when they returned to their homes inland or in the large cities (Jacobi *et al.*, 2016[10]).

Colour photography started to emerge in the early twentieth century, but it is recognised that initially the quality was very poor and, in fact, it could be argued that it was only in the early 1990s when the quality of colour photographs was sufficient to make a real difference in terms of usage for scientific purposes such as coastal monitoring and archaeological studies and investigations.

Artworks do, therefore, provide a permanent, enduring colour record extending back to the 1770s and in particular the period from 1793, at the start of the French Revolution, until after the Napoleonic Wars. The addition of watercolour paint to aquatints and other engravings practiced by leading art galleries and distributors such as Ackermann's of London, has provided us with a unique and often accurate record of past conditions. Tours to various parts of the country, including, significantly, the south-west of England, by artists such as William Daniell RA, J. M. W. Turner RA and others, allow us to inspect these coastlines with the benefit of full colour some 70 years before the evolution of black and white photography, and over 150 years before colour photography became more widely available.

As part of the research project, evidence has been sought as to the perceived added benefits of colour photography over black and white, for example for the interpretation of aerial photographs, but no written research has been found on the subject to date; this topic could form an interesting thesis. Coastal monitoring using aerial photography by the Environment Agency and, later, the Channel Coast Observatory, moved from black and white to colour in the early 1990s and there is no doubt that the added dimension of colour enhances the interpretation of coastal and heritage assets from the air. Colour artworks, therefore, extending back to the late eighteenth century, provide us with the opportunity to examine the changing coast over a very long time period in as realistic a medium as possible, and the applications of this have been illustrated in the various case studies.

This report has sought to highlight the potential of historical artworks to inform heritage risk management particularly as those studying heritage topics are often more familiar with the use of old photographs and new technologies such as high resolution aerial photography and Lidar rather than art. The report findings recognise the significance of the art resource and consultees have also highlighted a wide range of potential uses for art images although the limitations of the medium are also recognised.

The enormous value of old photographs and photographic postcards has also been stressed in this report and these images, alongside art, help to provide a more complete illustrated record of coastal change and its impacts on heritage sites in the south-west of England. Sites such as Tintagel Castle in Cornwall (Figures 6.4.6-6.4.8, and Figures 17.15 and 17.16) might appear to be resilient but photographic evidence clearly shows the loss of cliff material over time as a result of weathering and coastal erosion and demonstrates the value of this medium.

6. Transferability of approaches to other situations and environments

Through this project and the numerous case studies described above, the potential opportunities provided through the use of artistic and photographic images, extending back to the 1770s, has been described. In the opinion of the author, there is no doubt that similar benefits could be gained through following this approach for other environments such as the landscapes of the interior of this country away from the coast, as well as for river environments. The wealth of images of the English landscape, together with numerous paintings of rivers and the heritage that borders them from source to sea, could provide valuable additional benefits to heritage, land and river management, again taking advantage of the wisdom of hindsight by allowing us to look at these environments before development took place.

In the opinion of the author there are multiple benefits to be derived from using historical artworks and early photographs to support understanding and sustainable management of England's rivers, particularly in view of the severe consequences of flooding that have become all the more frequent in recent years.

Landscape paintings of rivers not only provide a complete record of social and development change along river banks over the last 200 years, but they can provide valuable additional tools that may assist river managers and town and city planners in delivering key environmental and sustainability objectives, as well as of changes and losses incurred to the historic environment over that time. Such artworks form valuable records as they illustrate the river environments in their more natural, largely unconstrained form before early extensive nineteenth and twentieth century river bank and in-channel developments, encroachments and modifications took place. Such images, together with written accounts, can provide a chronology of river change, providing evidence of river use over time. This material could inform consideration of more established:

- Land use development within floodplains;
- flood risk management;
- riparian habitats and morphology;
- the storage capacity of river floodplains before developments took place historically;
- opportunities for rivers restoration;
- an understanding of the heritage, history of development and social change along the course of rivers from source to sea, from the 1770s to the present day.

The results of such studies for both river and other inland environments would support heritage planning and risk management through illustrating, with striking images, the changing social history, natural and built environments in a way that has not been considered by previous authors or researchers.

7. Opportunities and constraints of the CHeRISH study area

The commissioning of the CHeRISH study alongside work before undertaken on the completion of the North Cornwall and North Devon RCZAS and the Exmoor Park RCZAS provided the opportunity for exchange and sharing of information, which has proved valuable to all parties. The south-west of England includes coastlines and soft cliffs, which are prone to rapid rates of erosion and widespread instability, particularly in Dorset and South Devon, with lower cliff lines along the Somerset coastline prone to erosion and instability as well.

The numerous creeks, harbours and estuaries around this coast are also susceptible to flooding at many locations. A considerable length of the cliffed frontages is composed of extremely hard rocks of considerable age. Although the initial perception might be that such hard rock frontages experience very little change over time, evidence has shown that, on account of their often highly fractured or well-jointed nature, catastrophic falls do occur with increasing frequency and involved the loss of substantial sections of coastal land, often at one event.

The CHeRISH case study has, therefore, encompassed a number of changing geological and geomorphological environments, which the author hopes have been illustrated in an effective way through the case studies. However, there are other coastal environments such as those of south-east England from the North Kent coast to the Hampshire and Dorset County boundary, which include further numerous and differing examples that can further highlight the role of historical imagery in heritage risk management. These frontages include those affected by coastal erosion, landsliding and flooding, with many heritage sites located immediately on the coast, such as at Reculver on the North Kent coast, the various fortifications along the low-lying Kent coastal frontage, for example at Deal and Walmer Castle, along the Hastings frontage in East Sussex, and along the Solent shorelines including the Isle of Wight coast. Such additional examples could greatly enhance any formal guidance that may be prepared on the use of art and photographic images within a future publication.

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7. Guidance notes on accessing 'CHeRISH' historical images to support heritage planning and management

The potential for use of historical images to support heritage risk planning and management is set out in the CHeRISH project 'Technical Report'. The report can be read online at http://cherish.maritimearchaeologytrust.org/. It is possible also to download the full Technical Report or each of the twenty-three case studies which are listed on pages 67 and 68. The CHeRISH project report on the website also provides access to an interactive topographical map of south-west England, on which are marked and colour-coded eighty-four sites of interest, drawn from the twenty-three case studies. By clicking on the icon in the reader's geographical area of interest, a drop-down box will appear, which provides an image of the location painted by an artist deemed to be accurate, together with the title of the image, the name of the artist, the date, the Ordnance Survey grid reference and the name of the owner of the image. All the images provided on the interactive map are also available within the case studies themselves.

Further information on those artists who painted in south-west England and who are ranked as being the most reliable in terms of their depictions, is provided in section 5.2 of this report and, in particular, the table on page 61. Details of eight artists who painted in an accurate manner, and who were most prolific, are provided in Appendix 3.

An excellent source of images of coastal art in south-west England is on the ArtUK website (www.artuk.org). On this website it is possible to search the 212,443 oil paintings in public collections in the UK, which are displayed at 3,255 venues. Information on 38,342 artists is also provided. For those artists that have been ranked most highly and who painted in the south-west, it is possible through this website, for example, to search the artist, Edward William Cooke RA, and see all sixty-six of his works displayed, or to search by venues (e.g. art galleries), for example in Devon, of which one hundred and nineteen are listed. A new initiative *'The Watercolour World'* (Art UK) is starting the task of adding watercolour drawings to its website.

In addition to the Technical Report and the web-based map facility, further information has been provided to stakeholders through the publication of two CHeRISH project 'Newsletters', which are included in Appendix 4 of this report. An article on the project is also to be published in *'Historic England Research'* in the Winter Edition 2016. It is proposed to make a Powerpoint presentation within each of the four counties covered by CHeRISH and potential presentations in Dorset and Devon have already been discussed. A technical paper on the wider CHeRISH project will be presented to a suitable international conference in 2017, in consultation with Historic England.

Across the south-west of England there is a wealth of expertise within the local authorities, museums and art galleries, most of whom hold large collections of artworks and photographs. Many of these have online databases where large numbers of images can be viewed. Alongside art, the rich photographic resource covering the south-west is also becoming increasingly accessible, and further details of some of the key collections are provided in section 4.3.4 of this report.

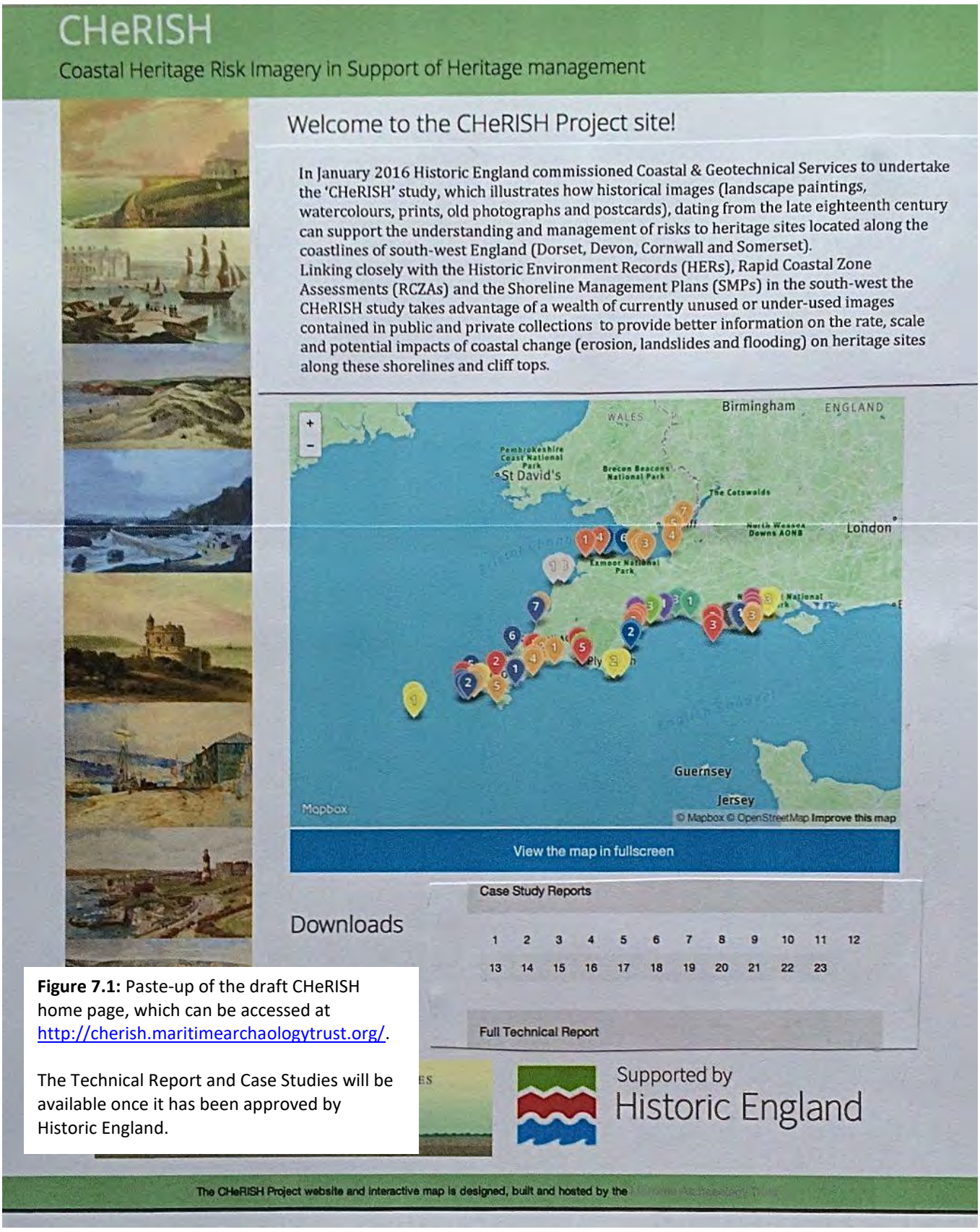


Figure 7.1: Paste-up of the draft CHeRISH home page, which can be accessed at http://cherish.maritimearchaologytrust.org/.

The Technical Report and Case Studies will be available once it has been approved by Historic England.

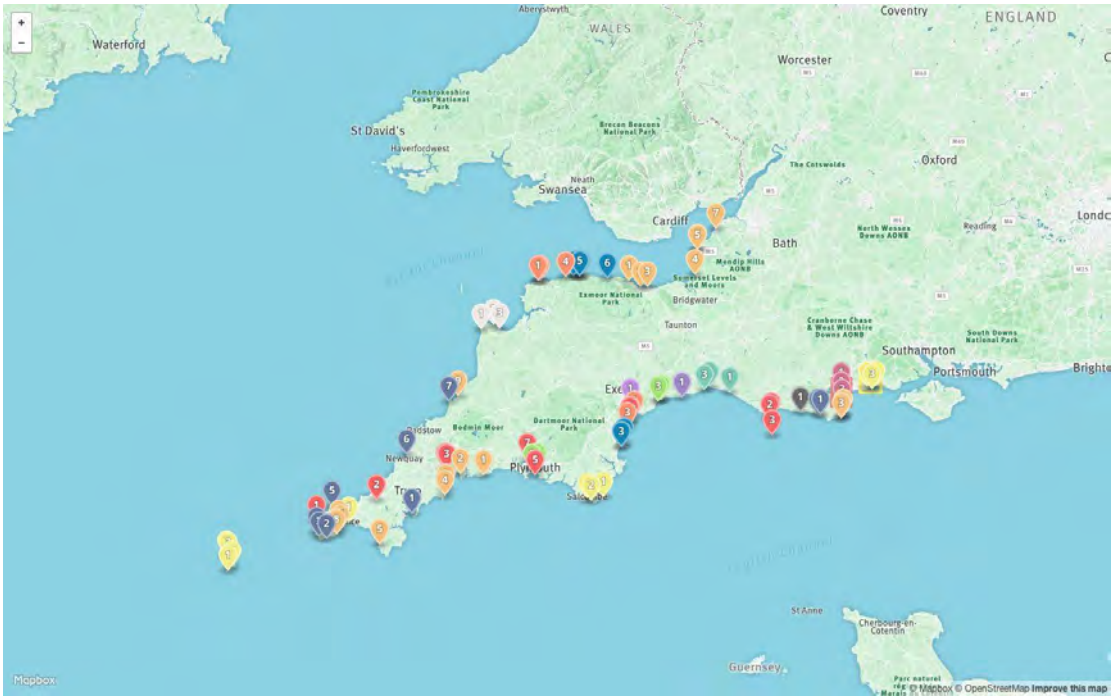
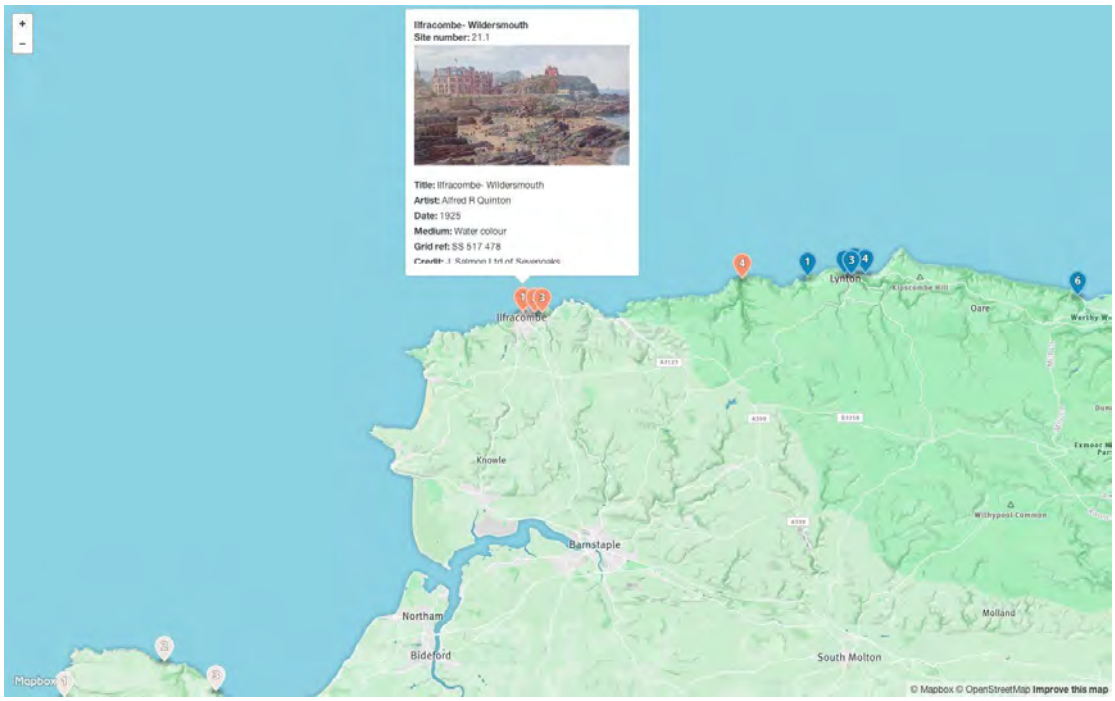


Figure 7.2 (above): On entering the zoom in/out topographical map the twenty-three colour-coded case studies can be seen, and the eighty-four individual locations.

Figure 7.3 (below): Clicking on an icon will reveal a drop-down box, which shows an image of the location together with key information.



8. Conclusions

8.1. The coastal heritage of south-west England is subject to significant risks arising from the hazards of coastal erosion, weathering, landsliding and flooding. These processes and their impacts are likely to become increasingly severe over the next decades as a result of climate change including an increased frequency of unsettled weather patterns.

8.2. Reductions in the availability of both capital and revenue funding for flood and coastal erosion risk management is reducing the ability of the Operating Authorities to maintain and improve defences; this will have an increasing impact on heritage sites at risks from erosion and flooding, many of which have been highlighted in the second round of shoreline management plans.

8.3. The south-west coast of England has a very rich heritage in terms of historical images dating back to the late eighteenth century and earlier. Many of the images are displayed or stored in an excellent range of public and private art galleries, museums, heritage centres, archives and image libraries. Collections of such images are also becoming increasingly available online.

8.4. Whilst photographic images, both terrestrial and aerial, are familiar aids used by researchers and practitioners, for example in the preparation of Rapid Coastal Zone Assessments and Shoreline Management Plans, the rich art resource is much less well used. This is partly because of a lack of awareness of the images available but also due to uncertainty about their accuracy.

8.5. The study has confirmed the rich art resource of south-west England and the wealth of knowledge and expertise of museum and gallery professionals as well as that of the many volunteers.

8.6. An artworks ranking system has been refined for this study, which is suitably tailored to the subject of heritage. This has led to the preparation of a list of those artists and their works that have depicted coastal heritage most accurately.

8.7. The art record provides a continuity of full colour images for most frontages around the coast of south-west England dating back to the 1770s-1790s, some 90 years before the wider introduction of landscape photography and 150 years before the use of colour photography. Use of such images allows coastal researchers to view the coast in colour before development took place in many locations and to take advantage of the wisdom of hindsight when setting new coastal policies. This approach accords with government advice on the need to assess coastal issues through a long-term perspective rather through shorter-term decision-making.

8.8. The most accurate artistic depictions in support of heritage management on the coast are those completed by artists with architectural, topographical or geological backgrounds. Artists of the Pre-Raphaelite Brotherhood and particularly their Followers have produced numerous finely detailed coastal views, although their subject matter can be selective.

8.9. Few artists included the detail of surface or buried heritage sites in their artworks although they often painted coastlines and headlands on which such remains were located. Equally low-lying and often flood-prone coasts were painted much less regularly than cliffed coastlines.

8.10. Artworks form an additional, very valuable and currently under-used resource available for use by a wide range of scientists, practitioners and other stakeholders. However, their limitations relate to the detail of heritage/archaeological sites either buried or showing as surface features, and in terms of some low-lying coastal zones. Therefore, aerial photography and Lidar are likely to form the most suitable tools for these locations.

8.11. In certain regions in the south-west a small number of local antiquarians have recorded heritage of their coastal frontage in detailed diaries often accompanied by numerous watercolour drawings or prints (such as Peter Orlando Hutchinson on the South Devon coast, and Sir Henry Englefield and George Webster on the Dorset coast).

8.12. Numerous artworks depicting the towns and villages of the south-west coast are available and together they allow the progression of coastal development to be plotted and understood. Such images, which record the detail of changes to individual buildings as well as street layouts can inform the planning process and can be used to illustrate Conservation Area plans.

8.13. Some of the artworks produced over the last 200 years are so topographically accurate that they can support both qualitative and quantitative studies of cliff and beach change over time.

8.14. Compared to the nineteenth century and the twentieth century up to 1930 there are very few artworks for the study timeline between 1930-1950. This was a result of changing public tastes away from the traditional landscapes of the Victorian and Edwardian eras, the effect of the Second Word War and the advent of new styles of art. Since the 1960s there has been a strong revival of traditional landscape painting.

8.15. The CHeRISH project has raised interest and awareness of the potential of art in terms of supporting understanding of coastal change and its impacts on heritage. Through this study and the deliverables (Technical Report, Website, Newsletters, Articles and Lectures) a large number of images will become more accessible with helpful advice being provided on those artists that painted this coastline most accurately.

8.16. Four artists have produced numerous and often highly accurate views of the south-west coast. They are William Daniell RA (Fl. 1814-1825), Edward William Cooke RA (Fl.1850s-1870s), Alfred Robert Quinton (Fl.1910-1934) and David Addey (1990s-2002). The works of these artists form, effectively, illustrated '*State of the Coast*' reports over a 185 year period. Together with past and present day photographs and the rich heritage of Victorian and Edwardian art a continuous record of the south-west coast is available through imagery.

8.17. The CHeRISH project has raised the profile for artworks' contributions and has provided a clearer understanding of the extent of the art resource available for interrogation, and where it can be found.

8.18. The interest, support and assistance of a wide range of consultees is very gratefully acknowledged.

9. Recommendations

9.1. Historical artworks provide a detailed record over time of changes affecting the historical environment and the historic landscape ranging from individual sites to villages and towns. It is recommended that greater use of such images is made to support HERs citations, Conservation Areas policy documents and heritage risk studies and registers.

9.2. The results of the CHeRISH study will be disseminated through illustrated lectures in Dorset, Devon, Cornwall and Somerset. Sets of key artwork images should be provided to the HER officers by the author for their practical use.

9.3. Artworks and old photographs are images that coastal residents and other stakeholders are familiar with, and which they trust. They form excellent visual aids to support presentations on coastal policy changes such as those affecting heritage sites, where difficult choices over future management may require careful explanation.

9.4. The CHeRISH study has benefitted from the wealth of oil painting images collated from all UK public art collections by the Public Catalogues Foundation and placed online through the BBC YourPaintings website – now Art UK. However, it is recognized that the collation of watercolours in the same way is essential to support a wide range of uses including both heritage and coastal risk management. The commissioning of this substantial task is highly recommended in order to complete the historical online art resource for the UK.

9.5. The CHeRISH study of the south-west coast of England includes a range of case study sites that illustrate the role of images (1770-1950) in support of coastal heritage risk management. It would be beneficial to undertake a further study of the soft cliff coasts of south-east England from the north Kent coast to the Isle of Wight drawing in further excellent examples, which could illustrate the CHeRISH methodology more widely.

9.6. It is recommended that the 258 pages of data and information contained in the CHeRISH Technical Report should be condensed as a thirty page *'Users Guide'* for heritage staff, coastal groups, planning and countryside officers and to support further coastal risk management policy initiatives. This would also be of value to museum and gallery curators who can take note of and record interest in coastal artworks showing heritage features.

9.7. The approach adopted by the CHeRISH project on the coast could be very valuable for other heritage environments including the interior of England and particularly along river systems from source to sea. There are numerous heritage assets located close to rivers or in flood plains many of which are at risk from flooding. In view of the increased frequency of flood events and the significant damage incurred a *'Rivers Heritage Risk Study'* drawing on art and photographic images is recommended as a priority. In fact the approach to the use of artworks is relevant in all environments and locations.

9.8. Consideration should be given to the publication of a book on the subject of the use and applications of historical imagery extending the timeline from 1770 up to the present day. This would provide a definitive record of the image resources available for the whole of England.

Appendix 1. Case Study Locations in South-West England

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
1. HIGHCLIFFE TO HENGISTBURY HEAD							
1.1	**Highcliffe Castle**	Christchurch	**Dorset**	SZ 202 932	1110077	**SH / RP**	**Y**
1.2	**Christchurch Priory**	Christchurch	**Dorset**	SZ 160 925	1110141	**CH**	**Y**
1.3	**Hengistbury Head**	Bournemouth	**Dorset**	SZ 172 907	1002367	**LV**	**Y**
2. POOLE HARBOUR							
2.1	**Poole Harbour**	Poole	**Dorset**	SZ017 871		**H**	**Y**
2.2	**Brownsea Castle**	Studland	**Dorset**	SZ 030 876	1120277	**C**	**Y**
2.3	**Studland Bay**	Studland	**Dorset**	SZ 038 850		**CD**	**Y**
3. THE ISLE OF PURBECK							
3.1	**Swanage Pier**	Swanage/Purbeck	**Dorset**	SZ 036 788	1304816	**P**	**Y**
3.2	**Peveril Point, Swanage**	Swanage/Purbeck	**Dorset**	SZ 041 787		**CD**	**Y**
3.3	**Anvil Point, Swanage**	Swanage/Purbeck	**Dorset**	SZ 029 769		**LH**	**Y**

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
3.4	**Purbeck Quarries**	Worth Maltravers/Purbeck	**Dorset**	SY 976 760	MN: SY 97 NE 163	**Q/M**	**Y**
4. CLAVELL & KIMMERIDGE							
4.1	**Clavell Tower**	Kimmeridge/Purbeck	**Dorset**	SY 908 786	108623	**T**	**Y**
4.2	**Kimmeridge Quay**	Kimmeridge/Purbeck	**Dorset**	SY 956 770		**H**	**Y**
5. LULWORTH TO WARBARROW							
5.1	**Lulworth Cove**	Lulworth	**Dorset**	SY 826 800	1018435	**EF, FS**	**Y**
6. WEYMOUTH & PORTLAND							
6.1	**Sandsfoot Castle, Weymouth**	Weymouth & Portland	**Dorset**	SY 674 773	1096763	**C**	**Y**
6.2	**Portland Harbour breakwater**	Portland	**Dorset**	SY 707 762	1280475	**CD**	**Y**
6.3	**Lighthouses at Portland**	Portland/Dorset	**Dorset**	SY 677 683	1280498	**LH**	**Y**
7. WEST BAY – LYME REGIS							

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
7.1	**West Bay Harbour** (Bridport)	Bridport/ West Dorset	**Dorset**	SY 461 903	MN: SY 49 SE 82	**H**	**Y**
7.2	**Golden Cap to Charmouth**	Charmouth/ West Dorset	**Dorset**	SY 405 921	1016373 NT:113051	**B**	**Y**
7.3	**The Cobb and seawall, Lyme Regis**	Lyme Regis/West Dorset	**Dorset**	SY 338 915	1279078	**P/H**	**Y**
8. BEER FRONTAGE							
8.1	**Beer Cliffs**	Seaton/East Devon	**Devon**	SY 226 879	MDV11095	**FS/ E/EF**	**Y**
9. SIDMOUTH							
9.1	**Sidmouth Esplanade**	Sidmouth/East Devon	**Devon**	SY 126 872		**CA**	**Y**
9.2	**Connaught Gardens & Jacobs Ladder, Sidmouth**	Sidmouth/East Devon	**Devon**	SY 120 869	MDV63493 & MDV83291	**CD/LK**	**Y**
9.3	**High Peak, Sidmouth**	Otterton/East Devon	**Devon**	SY 103 859	MDV15124	**EF/E**	**Y**
10. EXMOUTH & EXE ESTUARY							
10.1	**Exe Estuary, Exmouth**	Exmouth/East Devon	**Devon**	SX 994 803	MDV62605	**WR/LK/CD/C**	**Y**

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
11. DAWLISH - TEIGNMOUTH							
11.1	**Dawlish Warren**	Dawlish/Teignbridge	**Devon**	SX 992 799	MDV42070	**Wa**	**Y**
11.2	**Dawlish**	Dawlish/Teignbridge	**Devon**	SX 964 766		**CA**	**Y**
11.3	**Teignmouth**	Teignmouth/Teignbridge	**Devon**	SX 936 724	MDV108706	**CA**	**Y**
12. BABBACOMBE - TORQUAY							
12.1	**Babbacombe**	Babbacombe/Torbay	**Devon**	SX929 654	MDV75152	**FS/CA**	**Y**
12.2	**Torquay- Waldon Hill**	Torquay/Torbay	**Devon**	SX 918 631		**H**	**Y**
12.3	**Torquay- Vane Hill**	Torquay/Torbay	**Devon**	SX 925 673		**CD**	**Y**
13. START POINT - SALCOMBE							
13.1	**Hallsands**	Stokenham/South Hams	**Devon**	SX 818384	MDV45491	**LV**	**Y**
13.2	**Deckler's Cliff, Devon**	Chivelstone & East Portlemouth/South Hams	**Devon**	SX 760 363	MDV15083	**FS/M**	**Y**
13.3	**Salcombe**	Salcombe/South Hams	**Devon**	SX 739 382		**H**	**Y**
14. PLYMOUTH							

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
14.1	**The Royal Citadel**	Plymouth	**Devon**	SX 482 375		**C/CD**	**Y**
14.2	**Plymouth Hoe**	Plymouth	**Devon**	SX 477 537		**LH**	**Y**
14.3	**Mount Edgecumbe House, Plymouth**	Maker-with-Rame/Cornwall	**Cornwall**	SX 453 527	6233	**SH**	**Y**
15. CORNISH HARBOURS STUDY							
15.1	**Polperro Harbour**	Lansallos/Cornwall	**Cornwall**	SX 210 509	10142	**H**	**Y**
15.2	**Polkerris**	Fowey/Cornwall	**Cornwall**	SX092 520	20512/20513	**H/FC**	**Y**
15.3	**Mevagissey**	Mevagissey/Cornwall	**Cornwall**	SX 016 448	42598/24091	**H/CH**	**Y**
15.4	**Gorran Haven**	Mevagissey/Cornwall	**Cornwall**	SX 013 415		**H**	**Y**
15.5	**Mullion Harbour**	Mullion/Cornwall	**Cornwall**	SW 666 178		**H**	**Y**
15.6	**Newlyn Harbour**	Penzance/Cornwall	**Cornwall**	SW 266 285	41283	**H & RP**	**Y**
15.7	**Mousehole Harbour**	Penzance/Cornwall	**Cornwall**	SW 468 264	41285/18753	**H/CH**	**Y**
15.8	**Lamorna Cove**	St Buryan/Cornwall	**Cornwall**	SW 450 240	41304	**H/Q/LK**	**Y**
15.9	**Boscastle Harbour**	Forrabury & Minster/North Cornwall	**Cornwall**	SX 095 914	712	**H**	**Y**

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
16. ST MICHAEL'S MOUNT							
16.1	**St. Michael's Mount**	Marazion/Cornwall	**Cornwall**	SW 514 298	29222	**CH/C**	**Y**
17. CORNISH CLIFF CASTLE STUDY							
17.1	**St Mawes Castle**	St Just in Roseland/Cornwall	**Cornwall**	SW 841 327	18708	**C/CD**	**Y**
17.2	**Treryn Dinas**	Newlyn/Cornwall	**Cornwall**	SW 397 219	421380	**C**	**Y**
17.3	**Carn Les Boel, St Levan**	St Levan/Cornwall	**Cornwall**	SW 357 232	28278	**C**	**Y**
17.4	**Maen Castle, near Sennen**	Sennen/Cornwall	**Cornwall**	SW 347 257	16009	**C**	**Y**
17.5	**Gurnard's Head**	Zennor/Cornwall	**Cornwall**	SW 432 385	423548	**C**	**Y**
17.6	**Trevelgue Head**	Newquay/Cornwall	**Cornwall**	SW 826 630	429322	**C**	**Y**
17.7	**Tintagel Castle**	Tintagel/North Cornwall	**Cornwall**	SX 050 890	23165.33	**C**	**Y**
18. THE SCILLY ISLES							
18.1	**The Garrison**	St Mary's/Isles of Scilly	**Isles of Scilly**	SV 898 103	7905	**CD**	**Y**
18.2	**King Charles' Battery**	St Mary's/Isles of Scilly	**Isles of Scilly**	SV 897 107	7906.02	**CD/ST**	**Y**

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
19. MINING & CIVIL ENGINEERING HERITAGE STUDY							
19.1	**Botallack & Levant Mines, St Just**	St. Just/Cornwall	**Cornwall**	SW 363 332	42723	**M**	**Y**
19.2	**Dolcoath Copper Mine, Cambourne**	Cambourne/Cornwall	**Cornwall**	SW 661 399	66569	**M**	**Y**
19.3	**Carclase Tin Mine, St Austell**	St Austell/Cornwall	**Cornwall**	SX 025 549	Part of UNESCO World Heritage Site	**M**	**Y**
19.4	**China Clay Pits, St Austell**	St Austell/Cornwall	**Cornwall**	SX 018 551	Part of UNESCO World Heritage Site	**M**	**Y**
19.5	**Plymouth Breakwater**	Plymouth	**Devon**	SX 472 503	437589	**CD/H**	**Y**
19.6	**Brunel's Atmospheric Railway**	Dawlish/South Devon	**Devon**	SX 964 767		**R**	**Y**
19.7	**Royal Albert Bridge, Saltash**	Saltash/ South Devon	**Devon**	SX 435 587	60461	**R/Br**	**Y**
20. HARTLAND - CLOVELLY							

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
20.1	**Hartland nr Clovelly**	Hartland/Torridge	**North Devon**	SS 226 251	MDV43119/MDV58365/MDV37676	**H**	**Y**
20.2	**Windbury Head Fort**	Hartland/Torridge	**North Devon**	SS 286 265	MDV71	**EF/E**	**Y**
20.3	**Clovelly**	Clovelly/Torridge	**North Devon**	SS 318 248	MDV 75300	**H**	**Y**
21. ILFRACOMBE							
21.1	**Heddon's Mouth**	Trentishoe/Torridge	**North Devon**	SS 654 495	MDE1026	**LK**	**Y**
21.2	**Ilfracombe - Wildersmouth**	Ilfracombe/North Devon	**North Devon**	SS 517 478		**CA**	**Y**
21.3	**Ilfracombe - Harbour**	Ilfracombe/ North Devon	**North Devon**	SS 524 477		**H**	**Y**
21.4	**Ilfracombe - Hillsborough**	Ilfracombe/ North Devon	**North Devon**	SS 529 477		**EF**	**Y**
22. EXMOOR COAST							
22.1	**Duty Point, Lee Abbey**	Lynton & Lynmouth/North Devon	**North Devon**	SS 695 495	MDE20953	**T**	**Y**
22.2	**Porlock Weir and Berry Castle**	Porlock/West Somerset	**Somerset**	SS 886 467	MSO 7896	**W/EF**	**Y**
22.3	**Lynton**	Lynton/ North Devon	**North Devon**	SS 718 496		**CA**	**Y**

Site Number	Site Name	Parish/ District	County	OS Grid Ref.	HER Ref, NT HB SMR or Monument Number	Feature(s) Type	Selected for case study (Y/N)
22.4	**Lynmouth**	Lynmouth/North Devon	**North Devon**	SS 731 496	MDE1255/MEM22381	**H**	**Y**
22.5	**Lynmouth – Mars Hill**	Lynmouth/North Devon	**North Devon**	SS 722 495	MDE 20997	**CA**	**Y**
22.6	**Lynmouth Shore**	Lynmouth/North Devon	**North Devon**	SS 724 497	MMO349/MDE11716	**CA**	**Y**
23. MINEHEAD - CLEVEDON							
23.1	**Minehead**	Minehead/Somerset	**Somerset**	SS 971 468		**CA**	**Y**
23.2	**Blue Anchor Bay**	Minehead/Somerset	**Somerset**	ST 026 435		**CD**	**Y**
23.3	**Daws Castle, Watchet**	Watchet/West Somerset	**Somerset**	ST 062 433	34164	**C**	**Y**
23.4	**Burnham-on-Sea**	Sedgemore/Somerset	**Somerset**	ST 300 494		**LH**	**Y**
23.5	**Weston-Super-Mare**	Weston-Super-Mare/North Somerset	**Somerset**	ST 307 624	1129718 MN: ST36 SW30	**CA**	**Y**
23.6	**Birnbeck Pier, Weston-Super-Mare**	Weston-Super-Mare/North Somerset	**Somerset**	ST 314 614	33180	**P**	**Y**
23.7	**Clevedon**	Clevedon/North Somerset	**Somerset**	ST 400 719	MN: ST37 SE1/ ST47 SW60	**P/CA**	**Y**

Appendix 2. List of Images and Locations on Web-Based Map

Site Number	Title of Work	Artist	Date	Medium	Grid Reference	Credit
1.1	'High Cliff from the Sea'	Adam Callander	1783	WC	SZ 202 932	V. & A. Images
1.2	'Christchurch'	William Daniell RA	1823	AQ	SZ 160 925	Priv. Coll.
1.3	'Mudeford from Hengisbury Head'	A. L. Baldry	1890	O	SZ 172 907	Russell Cotes Art Gallery and Museum
2.1	'Poole, Dorsetshire'	William Daniell RA	1823	AQ	SZ 017 871	Priv. Coll.
2.2	'Brownsea Island'	William Buck	c.1870s	WC	SZ 030 876	Russell Cotes Art Gallery and Museum
2.3	'Studland Bay'	Alfred R. Quinton	c.1920	WC	SZ 038 850	J. Salmon Ltd of Sevenoaks
3.1	'Swanage Pier'	Henry B. Wimbush	c.1895	WC	SZ 036 788	Priv. Coll.
3.2	'Peveril Point, Swanage'	Alfred R. Quinton	c.1920	WC	SZ 041 787	J. Salmon of Sevenoaks
3.3	'Anvil Point, Swanage'	Alfred R. Quinton	c.1920	WC	SZ 029 769	Priv. Coll.
3.4	'Purbeck Quarries'	Alfred R. Quinton	c. 1920	WC	SZ 976 760	Priv. Coll.
4.1	'Clavell Tower'	Anon.	c.1900	P	SY 908 786	Priv. Coll.
4.2	'Kimmeridge Quay'	Anon.	c.1915	P	SY 956 770	Priv. Coll.
5.1	'Lulworth'	William Daniell RA	1823	AQ	SY 826 800	Priv. Coll.
6.1	'Sandsfoot Castle, Weymouth'	J. W. Upham	1821	AQ	SY 674 733	Priv. Coll.
6.2	'Portland Harbour'	William Daniell RA	1823	AQ	SY 707 762	Priv. Coll.
6.3	'Lighthouse at Portland'	Leslie M. Ward	c.1960	WC	SY 677 683	Russell Cotes Art Gallery and Museum
7.1	'Bridport Harbour'	William Daniell RA	1823	AQ	SY 461 903	Priv. Coll.
7.2	'Charmouth'	Alfred R. Quinton	c.1915	WC	SY 405 921	J. Salmon Ltd of Sevenoaks
7.3	'The Cobb, Lyme Regis'	Charles Robertson RWS	c.1880	WC	SY 338 915	Sidmouth Museum

Site Number	Title of Work	Artist	Date	Medium	Grid Reference	Credit
8.1	'Beer'	Edward W. Cooke RA	1858	O	SY 226 879	Priv. Coll.
9.1	'Sidmouth Esplanade'	Hubert Cornish	C. 1833	AQ	SY 126 872	Sidmouth Museum
9.2	'Jacob's Ladder, Sidmouth'	Peter O. Hutchinson	C. 1871	WC	SY 120 868	Devon Archives and Local Studies Service
9.3	'High Peak, Sidmouth'	Peter O. Hutchinson	1847	WC	SY 103 859	Devon Archives and Local Studies Service
10.1	'Exe Estuary to Topsham'	Francis Towne	1779	WC	SX 994 803	John Spinck
11.1	'Dawlish Warren'	Peter O. Hutchinson	1854	WC	SX 992 799	Devon Archives and Local Study Service
11.2	'Dawlish'	William Dawson	1848	L	SX 964 766	Institution of Civil Engineers
11.3	'Teignmouth'	W. Reed	C. 1830	AQ	SX 936 724	Priv. Coll.
12.1	'Babbacombe'	T. Fidlor	C. 1821	AQ	SX 929 654	Priv. Coll.
12.2	'Torquay- Waldon Hill'	Alfred R. Quinton	C. 1920	WC	SX 918 631	J. Salmon Ltd of Sevenoaks
12.3	'Torquay- Vane Hill'	Alfred R. Quinton	C. 1920	WC	SX 925 673	J. Salmon Ltd of Sevenoaks
13.1	'Hallsands'	Unknown	C. 1900	P	SX 818 384	Priv. Coll.
13.2	'Deckler's Cliff'	F. Frith	1924	P	SX 760 363	Francis Frith Collection
13.3	'Salcombe'	Alfred R. Quinton	C. 1920	WC	SX 739 382	J. Salmon Ltd of Sevenoaks
14.1	'Plymouth Citadel'	Thomas Allom	1832	SE	SX 482 375	Priv. Coll.
14.2	'Plymouth Hoe'	Alfred R. Quinton	1925	WC	SX 477 537	J. Salmon Ltd of Sevenoaks
14.3	'Mount Edgecumbe'	G. Townsend	C. 1840	SE	SX 453 527	Priv. Coll.
15.1	'Polperro Harbour'	William Daniell RA	1825	AQ	SX 210 509	Priv. Coll.
15.2	'Polkerris'	William R. Beverley	C. 1870	WC	SX 092 520	Priv. Coll.
15.3	'Mevagissey'	William Daniell RA	1825	AQ	SX 016 448	Priv. Coll.
15.4	'Gorran Haven'	William Daniell RA	1825	AQ	SX 013 415	Priv. Coll.

Site Number	Title of Work	Artist	Date	Medium	Grid Reference	Credit
15.5	'Mullion'	Alfred R. Quinton	1925	WC	SX 666 178	J. Salmon Ltd of Sevenoaks
15.6	'Newlyn Old Harbour'	Anon	C. 1920	WC	SX 266 285	Penlee House Gallery & Museum
15.7	'Mousehole Harbour'	George Wolfe	1860	WC	SX 468 264	Penlee House Gallery & Museum
15.8	'Lamorna Cove'	Anon	C. 1900	P	SW 450 240	Priv. Coll.
15.9	'Boscastle Harbour'	William Daniell RA	1825	AQ	SW 095 914	Priv. Coll.
16.1	'St Michael's Mount'	William Daniell RA	1825	AQ	SW 514 298	Priv. Coll.
17.1	'St Mawes Castle'	John C Buckler	1821	SE	SW 841 327	Bridgeman Images
17.2	'Treryn Dinas'	John Brett	1880	O	SW 397 219	Priv. Coll.
17.3	'Carn Les Boel'	Charles Naper	C. 1930	O	SW 357 232	Penlee House Gallery & Museum/Priv. Coll.
17.4	'Maen Castle'	John Brett	1881	O	SW 347 257	Nottingham City Museum & Gallery
17.5	'Gurnard's Head'	Anon	C. 1900	PC	SW 432 385	Priv. Coll.
17.6	'Trevelgue Head'	Anon	C. 1900	PC	SW 826 630	Priv. Coll.
17.7	'Tintagel'	William Frost Richards	C. 1870	WC	SX 050 890	Bridgeman Images
18.1	'St Agnes Point, Scilly'	Edward W. Cooke RA	C. 1848	WC	SV 898 103	Martyn Gregory Gallery
18.2	'King Charles Castle, Scilly'	Anon	C. 1900	P	SV 897 107	Priv. Coll.
18.3	'New Grynsey Harbour, Tresco'	W. Borlase	1756	CE	SV 887 152	Priv. Coll.
18.4	'St Mary's, Scilly'	W. Borlase	1756	CE	SV 901 108	Priv. Coll.
19.1	'St Just United Mines'	Thomas Hart	C. 1870	WC	SW 363 332	Penlee House Gallery & Museum

Site Number	Title of Work	Artist	Date	Medium	Grid Reference	Credit
19.2	'Dolcoath Copper Mine, Cambourne'	Thomas Allom	1832	SE	SW 662 405	Priv. Coll.
19.3	'Carclase Tin Mine, St Austell'	Thomas Allom	1832	SE	SX 025 549	Priv. Coll.
19.4	China Clay Pit, St Austell	Deme Laura Knight	C. 1914	WC	SX 018 551	Bridgeman Images
19.5	'Plymouth Breakwater Construction'	Philip Mitchell	1848	L	SX 472 503	Priv. Coll.
19.6	'Brunel's Railway, Dawlish'	William Dawson	1848	L	SX 964 767	Institute of Civil Engineering
19.7	'Royal Albert Bridge, Saltash'	English School	1859	WC	SX 435 587	Bridgeman Images
20.1	'Hartland Pier'	William Daniell RA	1814	AQ	SS 226 251	Priv. Coll.
20.2	'Winbury Head'	Henry Moore	1859	O	SS 286 265	Maas Gallery
20.3	'Clovelly'	Charles N. Hemy	1864	WC	SS 318 248	Laing Art Gallery, Newcastle
21.1	'Heddon's Mouth'	English School	C. 1824	L	SS 654 495	Priv. Coll.
21.2	'Ilfracombe-Wildersmouth'	Alfred R. Quinton	1925	WC	SS 517 478	J. Salmon Ltd of Sevenoaks
21.3	'Ilfracombe Harbour'	Alfred R. Quinton	1925	WC	SS 524 477	
21.4	'Ilfracombe – Hillsborough'	Frederick Jones	C. 1860s	WC	SS 529 477	Bristol Culture (Bristol Museum & Art Gallery)
22.1	'Duty Point, Lee Abbey'	Unknown	1930	SE	SS 695 495	Britain from Above
22.2	'Porlock Weir'	Cecil Aldin	1921	L	SS 886 467	Priv. Coll.
22.3	'Lynton'	W. Spreat	C.1850	L	SS 718 496	Priv. Coll.
22.4	'Lynmouth'	George Rowe	C.1840	L	SS 731 496	Priv. Coll.

Site Number	Title of Work	Artist	Date	Medium	Grid Reference	Credit
22.5	'Lynmouth- Mars Hill'	Alfred R. Quinton	C. 1925	WC	SS 722 495	J. Salmon Ltd of Sevenoaks
22.6	'Lynmouth shore'	Albert Goodwin	1877	WC	SS 724 497	Chris Beetles Gallery, London
23.1	'Minehead'	Albert R. Quinton	C. 1925	WC	SS 971 468	J. Salmon Ltd of Sevenoaks
23.2	'Blue Anchor Bay'	Edward W. Cooke RA	1862	O	ST 026 435	Guildhall Art Gallery
23.3	'Daws Castle, Watchet'	E. I Burrow	1924	P	ST 062 433	Priv. Coll.
23.4	Burnham-on-Sea	William H. Hopkins	1856	O	ST 300 494	North Somerset Council
23.5	Weston-Super-Mare	S. Weston (Publ.)	C. 1850	L	ST 307 624	Priv. Coll.
23.6	Weston-Super-Mare Birnbeck Pier	Alfred R. Quinton	C. 1920	WC	ST 314 614	J. Salmon Ltd of Sevenoaks
23.7	'Clevedon'	Lady Elton	1838	L	ST 400 719	Priv. Coll.

Key to medium types:-

Aquatint (AQ), Copper Engraving (CE), Lithograph (L), Oil Painting (O), Photograph (P), Steel Engraving (SE), Water Colour (WC).

Appendix 3. Biographical information on key artists who depicted the coastline accurately 1770-1950

JOHN BRETT ARA. 1830-1902.

A Pre-Raphaelite landscape artist, Brett initially worked in watercolours but like many artist colleagues he changed to oils and his south-west coast views are nearly all in this medium. Brett was fascinated by both coastal geology and depicting the sea and sky and he executed meticulous views both on large and small scales. A number of his views are of headlands around the Cornish coast and show sites, which were the location of Promontory Forts and other archaeological remains. Brett is certainly one of the most accurate painters of Cornish coastal scenery.

Key Reference Works:-

- Brett, C.; Hickox, M. and Payne, C., 2006. '*A Pre-Raphaelite In Cornwall'.* Sansom & Co with Penlee House Gallery & Museum. ISBN:1 904537 51 0.

- Payne, C., 2010. '*John Brett – Pre-Raphaelite Landscape Painter'.* Yale University Press. ISBN: 978-0-300-16575-3.

- McInnes, R. G., 2014. '*British Coastal Art 1770-1930'.* Cross Publishing. Chale, Isle of Wight. ISBN: 978-1-873295-46-5.

Figure AP3.1: '*The Lizard, Cornwall'* by John Brett ARA. Oil on Canvas. 1876. Image courtesy of the Maas Gallery, London.

EDWARD WILLIAM COOKE RA FRS FSA FZS FGS. 1811-1880

Cooke was the son of George Cooke (1781-1834) who had engraved the plates for J.M.W. Turner's '*Views of the South Coast of England*' (1826) and for Sir Henry Englefield's *'Geology and Antiquities of the Isle of Wight and Coast of Dorsetshire'* (1816). Cooke has made an outstanding contribution to British coastal art through his highly detailed 'geological' views of the coast several of which are illustrated in this report. He exhibited at the Royal Academy regularly from the 1830s-1870s and his diaries provide detailed descriptions of his artistic tours along the coasts of Devon, Cornwall and Somerset.

Key Reference Works:-

- Munday, J., 1996. '*E. W. Cooke – A Man Of His Time'.* Antique Collectors' Club. ISBN:1-85149-222-4.

- McInnes, R. G., 2014. '*British Coastal Art 1770-1930'.* Cross Publishing, Chale, Isle of Wight. ISBN:978-1-873295-46-5.

Figure AP3.2: '*Axmouth Harbour, Devon'* By Edward William Cooke RA. Oil on Canvas. 1858. Image courtesy of Christie's, London

WILLIAM DANIELL RA 1769-1837

A coastal and marine artist who studied under his father who was also a Royal Academician. He produced eight volumes containing 308 fine aquatint engravings for his publication '*A Voyage Round Great Britain'* which took eleven years to complete; he was elected RA in 1822.

Daniell's South-West of England views are:-

- **Dorset**: *Christchurch; Poole; Corfe Castle; Swanage; Lulworth Cove; Weymouth; Lighthouse on Isle of Portland; St Catherine's Chapel; Bridport Harbour; Lyme Regis.*
- **South Devon**: *Sidmouth; Exmouth; Teignmouth; Babicombe (sic); Torbay; Torre Abbey; Torquay; Brixham; Entrance to Dartmouth; Junction of the Dart with the sea; Near Kingswear; Kingswear; Salcombe; Bovisand near Plymouth; Quay at Straddon Point near Plymouth; The Citadel, Plymouth; Catwater, Plymouth; Mount Edgcumbe (three Views).*
- **Cornwall:** *Portwrinkle; East Loo; Polperro; Fowey (Two Views); Mevagissey (Two Views); Gorran Haven; Portlooe; Falmouth; The Lizard Lighthouses; Mullyan (sic) Cove; St Michael's Mount (Two Views); The Land's End (Two Views); The Longships Lighthouse; Entrance to Portreath; Boscastle Pier.*
- **North Devon:** *Hartland Pier; Clovelly; Ilfracombe (Two Views); Combmartin (sic); Lynmouth.*

Key Reference Works:

- Daniell, W. & Ayton, R., 1814-1825. '*A Voyage Round Great Britain'.* Longman & Co.
- McInnes, R. G., 2014. '*British Coastal Art 1770-1930'.* Cross Publishing, Chale, Isle of Wight. ISBN: 978-1-873-295-46-5.

Figure A3.3: '*Catwater (sic), Plymouth from the Citadel'* by William Daniell RA. Aquatint. 1825.

PETER ORLANDO HUTCHINSON Fl. 1871-1894

Hutchinson was a polymath - an antiquarian, prolific diarist, observer of life along the south Devon coast from his home at Sidmouth, and a fine watercolourist. His five volume diaries are held by the Devon Archives and Local Studies Service. Numerous examples of his watercolours are illustrated in the Sidmouth case study in this report.

Key Reference Work:-

- Butler, J., 2010. *'Peter Orlando Hutchinson's Diary of a Devon Antiquary – illustrated Journals and Sketchbooks 1871-1894'.* Halsgrove. ISBN: 978-0-85704-075-6.

WILLIAM PAYNE 1760-1830

William Payne was a prolific watercolourist who painted views of Devon's countryside and coast in the late eighteenth century. He was one of the leading watercolour artists and drawing masters of the period of discovery of the British coast following the closure of the continent to travel as a result of the Napoleonic Wars. Hi views are romantic and picturesque in nature providing mainly vistas rather than closer views that lend themselves to more detailed study. Collections of his works are held by the Devon Archives and local Studies Service, the Royal Albert Museum, Exeter and Plymouth City Art Gallery.

Key Reference Work;-

- Hunt, P., 1986. '*Payne's Devon'.* Devon Books. ISBN: 0-86114-790-1

Figure AP3.4: '*Between Sidmouth and Exmouth'* by William Payne. c.1890s. Watercolour. Image courtesy of Devon archives and Local Studies Service.

CHARLES ROBERTSON RWS 1844-1891

Charles Robertson was a prolific watercolourist and follower of the Pre-Raphaelites. He painted extremely fine watercolour views of southern and south-west England including two of Lyme Regis and Clovelly. He depicted these scenes with a high degree of accuracy.

Figure AP3.5: '*Clovelly'* by Charles Robertson RWS. C.1880. Image courtesy of Bonham's.

JOHN SWETE 1752-1821

John Swete was a prolific early watercolourist, antiquary, historian and author of the '*Picturesque Sketches of Devon'* consisting of twenty illustrated journals of Devon Scenery. These were lavishly illustrated with 674 watercolour sketches of scenery and particularly architecture. The journals document the landscape of Devon and apart from four, which were destroyed during the Second World War, the remainder are in the collection of the Devon Archives and Local Studies Service.

Key Reference Works:-

- Hunt, P., 1984. '*Devon's Age of Elegance'.* Devon Books. ISBN: 0-86114-750-2.

- Gray, T. & Rowe, M. (EDs), 1997. '*Travels in Georgian Devon: The Illustrated Journals of Reverend John Swete'.* 4 vols. Halsgrove.

- Yeates, J., 1995. '*An Endless View- The artist and Dartmoor'.* Exmoor Books. ISBN: 0-86183-282-5.

ALFRED ROBERT QUINTON 1853-1934

A. R. Quinton was an English watercolour artist best known for his landscape views of the English and Welsh countryside, towns and villages and coastlines. Over two thousand of his watercolours were published as colour picture postcards or for book illustrations by J. & F. Salmon Limited of Sevenoaks in Kent between 1903 and his death in 1934. Quinton painted with a high degree of accuracy and his watercolours plot the changing coastline and the towns and villages of south-west England over a thirty year period. Numerous examples of his works can be viewed on the Internet as there are a large number of collectors of his attractive postcards. Many of Quinton's views are illustrated in this report.

Figure AP3.6: '*Fowey from Castle Hill'* by Alfred Robert Quinton c. 1920. Watercolour. Image courtesy of J. Salmon Limited of Sevenoaks.

Appendix 4. CHeRISH Project Newsletters

CHERISH *Newsletter May 2016*

'Coastal Heritage Risk – Imagery in Support of Heritage Risk Management'

In January 2016 Historic England commissioned a new study, which will illustrate how historical images (paintings, watercolours, prints, old photographs and postcards), dating back to the late eighteenth century, can support the planning and management of heritage sites located on the coastlines of south-west of England (Dorset, Devon, Cornwall and Somerset).

The 'CHeRISH' project (Coastal Heritage Risk - Imagery in Support of Heritage management in South-West England) will be undertaken by Coastal & Geotechnical Services, which has a particular experience in both the interpretation of historical images as well as of coastal risk planning and management.

This ten month study aims provide improved data and information that will support the management of historical sites located around the coastline of south-west England. Linking closely with the Historic Environment Records (HERs) and the Shoreline Management Plans (SMPs) in the south-west the study will take advantage of a wealth of currently unused or under-used images contained in both public and private collections, to provide better information on the rate, scale and potential impacts of long-term coastal change on both surface and buried heritage sites along shorelines and cliff tops.

'St Michael's Mount, Cornwall' **by Alfred Robert Quinton. c.1915, watercolour. Image Courtesy: J. & F. Salmon Ltd of Sevenoaks.**

Project Manager from Coastal & Geotechnical Services, Robin McInnes OBE said *'For each part of this coastline case study examples will illustrate how this approach can provide additional information to support management and good practice for coastal heritage sites.*

Such images will allow us to recall how such culturally important sites have been artistically represented in the past, and they can illustrate the various approaches that have been taken to try and manage vulnerable sites over the last two centuries or where the approach has been unmanaged'.

'St Agnes Point, Scilly Isles' **by Edward William Cooke RA, c.1848. The Scilly Isles have a particularly rich heritage, which is impacted upon by marine erosion. Image Courtesy: Martyn Gregory Gallery.**

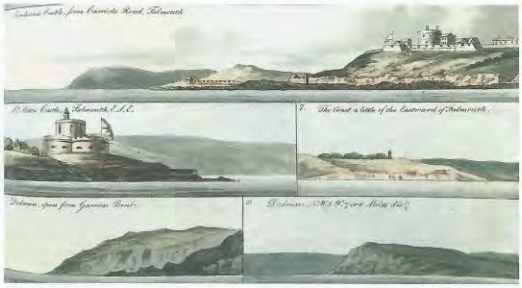
'Sidmouth, Devon' (below) **showing early development on the Shore by Hubert Cornish. Aquatint, 1815. Image: Woolley & Wallis.**

'The study results will include a list of those artists and their works, which have been ranked in terms of accuracy, and the value of the contribution they make towards informing coastal heritage management. A web-based map will be created allowing easy access to the study locations and artworks thereby avoiding time-consuming research by others in the future. A series of case studies will illustrate how historical artistic and photographic images may be applied most effectively by a wide range of users including coastal engineers, planning officers, countryside and heritage managers and researchers. The Maritime Archaeology Trust (www.maritimearchaeologytrust.org) based in Southampton will be assisting Coastal & Geotechnical Services with the web-based mapping work and will host the final project results on its website.

Over the last three months meetings have been held with Historic Environment Officers in local authorities, the Exmoor National Park Authority, coastal engineers, consultants and other interest groups to discuss key sites of interest. In parallel with this, searches for artworks, old photographs and postcards have been undertaken with the assistance of the region's art galleries, museums, heritage centres, image libraries and auction houses.

'Mousehole, Cornwall' **by Harold Harvey, 1939. Image Courtesy: Sotheby's.**

Can you assist the CHeRISH project? If you have not been approached and would like further information please contact us by email or telephone. We are searching for more highly detailed coastal oil paintings and watercolours (1770-1950), which show heritage structures (eg: piers, lighthouses, old limekilns, harbour walls, industrial buildings, military defences and other archaeological features) or which illustrate the progressive development of the coastal towns and villages since the late eighteenth century. If you think you have such an image that may be of interest please contact Robin McInnes (rgmcinnes@btinternet.com).



Detailed views of the coast from the sea were drawn by Naval officers and other artists. Often heritage sites are clearly depicted as in *'The Little Sea Torch'* or *'True Guide for Coasting Pilots'* by J.T Serres, 1801. Image Courtesy: John Mitchell Fine Paintings.

'Lyme Regis, Dorset' **by G. Hawkins, c.1830. Image Courtesy: Grosvenor Prints.**

Devonport Dockyard, Plymouth from Mount Edgecombe'. **A very detailed watercolour drawing by Edward Duncan RWS, 1855. Image Courtesy: Derek Newman Fine Art.**

'The Pavilion and Vane Hill, Torquay' **by Alfred Robert Quinton. c.1920, watercolour. Image Courtesy: J. & F. Salmon Ltd of Sevenoaks.**

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Supported by Historic England

CHERISH Newsletter No. 2 – August 2016

'Coastal Heritage Risk – Imagery in Support of Heritage Risk Management'

In January 2016 Historic England commissioned a new study, which will illustrate how historical images (paintings, watercolours, prints, old photographs and postcards), dating back to the late eighteenth century, can support the planning and management of heritage sites located on the coastlines of the south-west of England (Dorset, Devon, Cornwall and Somerset).

The **'CHeRISH'** project (**C**oastal **He**ritage **R**isk - **I**magery in **S**upport of **H**eritage management) in South-West England is being undertaken by Coastal & Geotechnical Services, which has a particular experience of both the interpretation of such historical images as well as of coastal risk planning and management.

The ten month study will demonstrate how the use of such images can support the management of historical sites located around the coastline of south-west England. Linking closely with the Historic Environment Records (HERs) and the Shoreline Management Plans (SMPs) in the south-west the study will take advantage of a wealth of currently unused or under-used images contained in both public and private collections. These can provide further information on the rate, scale and potential impacts of long-term coastal change on heritage sites along shorelines and cliff tops.

Project Manager from Coastal & Geotechnical Services, Robin McInnes OBE said *'For each part of this coastline case study examples will illustrate how this approach can provide additional information to support management and good practice for coastal heritage sites'.*

'Such images will allow us to recall how such culturally important sites have been artistically represented in the past. They can also illustrate the various approaches that have been taken to try and manage vulnerable sites over the last two centuries or where the approach has been unmanaged'. The case study sites also show how natural change as well as development, over time, has altered the character of many of our historic coastal towns and villages.

'Wildersmouth, Ilfracombe, North Devon' by Alfred Robert Quinton. Watercolour, c.1925. Image courtesy of J. Salmon Ltd of Sevenoaks.

'Tintagel Castle, Cornwall' by William Frost Richards. Watercolour. c.1870. Image courtesy of Bridgeman Images.

After reviewing the current and potential risks to coastal heritage sites, and following consultations with stakeholders, an assessment has been made of over 3,000 images. Artists and their works have been ranked in terms of their accuracy and the twenty-three case studies from across the south-west are being written up. The study will be completed in October 2016.

Below: *'Dawlish, South Devon from the Kennaway Tunnel to Langstone Sands'* by William Dawson. 1848. Lithograph. Image courtesy of the Institution of Civil Engineers.

The study results will include a list of those artists and their works that have been ranked in terms of accuracy, and the value of the contribution they make towards informing coastal heritage management. A web-based map is being created allowing easy access to the study locations and artworks thereby avoiding time-consuming research by others in the future. The series of case studies will illustrate how historical artistic and photographic images may be applied most effectively by a wide range of users including coastal engineers, planning officers, countryside and heritage managers and researchers. The Maritime Archaeology Trust (www.maritimearchaeologytrust.org) based in Southampton will be assisting Coastal & Geotechnical Services with the web-based mapping work and will host the final project results on its website.

Over the last three months meetings have been held with Historic Environment Officers in local authorities, the Exmoor National Park Authority, Coastal Engineers and other interest groups to discuss key sites of interest. In parallel with this, searches for artworks, old photographs and postcards have been undertaken with the assistance of the region's art galleries, museums, heritage centres, image libraries, auction houses and private collectors.

'Towards Land's End' by Charles Naper. c.1930. Oil. Private Collection.

Can you assist the **CHeRISH** project? If you have not been approached and would like further information please contact us by email or telephone. We are searching for more highly detailed coastal oil paintings and watercolours (1770-1950), which show heritage structures (e.g. piers, lighthouses, old limekilns, harbour walls, industrial buildings, military defences and other archaeological features) or which illustrate the progressive development of the coastal towns and villages since the late eighteenth century. If you think you have such an image that may be of interest, please contact Robin McInnes (rgmcinnes@btinternet.com).

Phone: 01983 854865; Email: rgmcinnes@btinternet.com

'Lynmouth, North Devon' by Albert Goodwin. 1877. Watercolour. Image courtesy of the Chris Beetles Gallery, London.

'Christchurch Priory, Dorset' by William Daniell RA. 1823. Aquatint. Private Collection.

'Weston Sands, Somerset' by William H. Hopkins. c.1860. Image courtesy of North Somerset Council & SW Heritage Trust 2016.

Mousehole Harbour, Cornwall' by George Wolfe. 1860. Watercolour. Image courtesy of Penlee House Gallery & Museum, Penzance.

Supported by Historic England