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

'CHeRISH'

FINAL REPORT FOR HISTORIC ENGLAND

Professor Robin McInnes, OBE, FICE, FGS, FRSA
Coastal & Geotechnical Services
Honeysuckle Cottage, St Lawrence
Isle of Wight
PO38 1UZ

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Author(s) and contact details	Professor Robin McInnes rgmcinnes@btinternet.com (01983) 854865
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Title Page Images:

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.

References

1. Fulford, M. (Ed.), 1997. *'England's Coastal Heritage – A Survey for English Heritage and RCHME'*. Contributions by Champion, T., Long, E., *et al.* London.
2. Murphy, P., 2014. '*England's Coastal Heritage'.* English Heritage. ISBN: 978 1 84802 107 5
3. English Heritage, 2015. *'Historic Environment Records – Brief Guide'.* English Heritage Website.
4. CLG, 2012. *'National Planning Policy Framework'.* Crown Copyright. London.
5. McInnes, R. & Stubbings, H., 2010. '*Art as a Tool to Support Understanding of Coastal Change in East Anglia'.* The Crown Estate. London. ISBN: 978-1-906410-10-05.
6. McInnes, R. & Stubbings, H., 2011. *'A Coastal Historical Resources Guide for England*'. The Crown Estate. ISBN: 978 1 906410 19 3.
7. McInnes, R. & Benstead, S., 2013. '*Art as a Tool to Support Understanding of Coastal Change in Wales'*. The Crown Estate. London. ISBN: 978-1-906410-42-1.
8. McInnes, R. & Benstead, S., 2013. *'Art as a Tool to Support Understanding of Coastal Change in Scotland'.* The Crown Estate. London. ISBN: 978-1-906410-49-0.
9. McInnes, R. & Benstead, S., 2015 *'Art and Coastal Change in Northern Ireland'.* The Crown Estate. London. ISBN: 978-1-906410-54-4.
10. Historic Environment Forum, 2015. '*Heritage 2020 Framework'.* www.theheritagealliance.org.uk.

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.

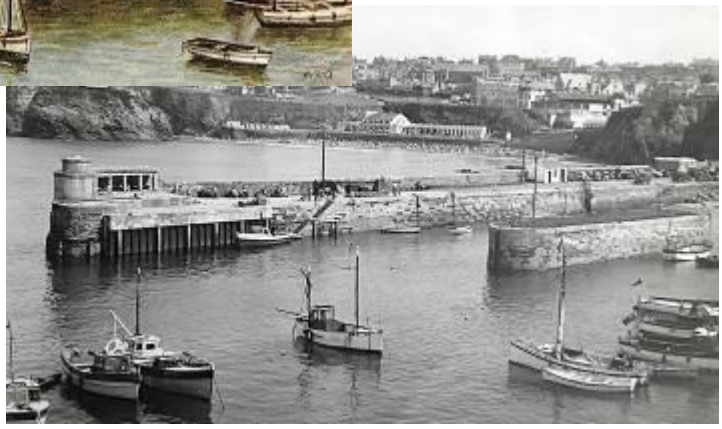


Figure 2.4 (above): This view of the harbour and beach at Newquay by A. R. Quinton illustrates his eye for detail. Painted in about 1920 it offers an almost exact colour comparison to the photograph of the same era in **Figure 2.5 (right)**. Images Courtesy: J. Salmon Ltd of Sevenoaks, and Private Collection.

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.

References

1. Defra, 2006. '*Shoreline Management Plans Guidance'.* Crown Copyright.
2. Fulford, M. (Ed.), 1997. *'England's Coastal Heritage – A Survey for English Heritage and RCHME'*. Contributions by Champion, T., Long, E., *et al.* London.
3. English Heritage, 2003. '*Coastal Defence and the Historic Environment'.* 15pps. English Heritage. London.
4. English Heritage, 2006. '*Shoreline Management Plan Review and the Historic Environment: English Heritage Guidance'.* English Heritage. London.
5. English Heritage, 2015. *'Historic Environment Records – Brief Guide'.* English Heritage Website.
6. Murphy, P., 2014. *England's Coastal Heritage'.* English Heritage. ISBN: 978 1 84802 107 5.
7. Historic England, 2015. '*Heritage Information Access Strategy'.* Historic England website.
8. Historic Environment Forum, 2015. '*Heritage 2020 Framework'. www.theheritagealliance.org.uk*
9. National Planning Policy Framework, 2012. Crown Copyright. London.
10. McInnes, R. G. & Moore, R., 2011. '*Cliff Instability and Erosion Management in Great Britain – A Good Practice Guide'.* Halcrow. 90pps.
11. McInnes, R. G. & Moore, R., 2015. '*Living with Ground Instability and Landslides – An International Good Practice Guide'.* CH2MHILL/Halcrow. 80pps.

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.

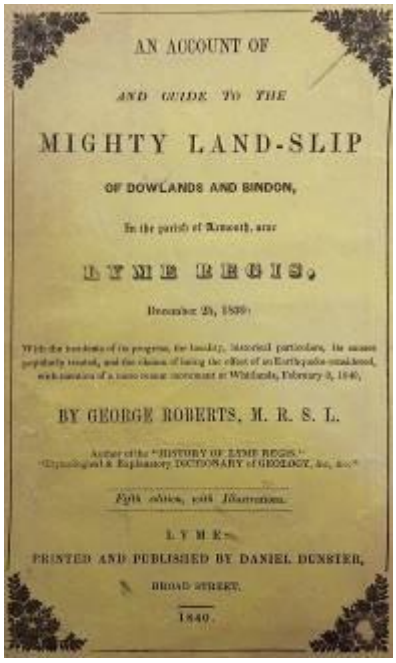
3.2.1. Coastal erosion risk

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 established, 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," "Topographical & 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.

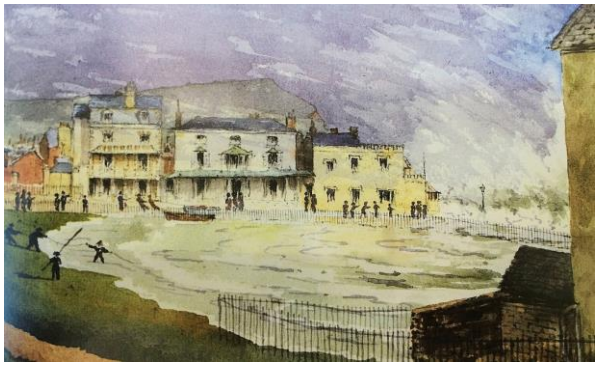


Figure 3.10 (left): Flooding at Sidmouth on 4th December 1876. A watercolour by J. O. Hutchinson showing the fine buildings at risk from flood waters. Image Courtesy: Devon Archives and Local Studies Service.

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.

References

1. McInnes, R. G. & Stubbings, H., 2011. *'A Coastal Historical Resources Guide for England'.* The Crown Estate. ISBN: 978 1 906410-19-3. 91pps.
2. McInnes, R. G. & Moore, R., 2011. *'Cliff Instability and Erosion Management in Great Britain – A Good Practice Guide'.* Halcrow. 88pps.
3. McInnes, R. G.; Cope, S. N.; Moore, R.; Bradbury, A. P. & Millerchip, C. J., 2011. *'Adapting to Coastal Change Along England's Southern Shorelines'* (ACCESS). SCOPAC. 64pps.
4. Moore, R.; Rogers, J.; Woodget, A. & Baptiste, A., 2010. '*Climate Change Impact on Cliff instability and Erosion in the United Kingdom'.* Proc. 45th EA Conf. of Rivers and Coastal Engineers.
5. CLG, 2012. '*National Planning Policy Framework'.* Crown Copyright.
6. Halcrow, 2011a. *Durlston Head to Rame Head SMP2'.*
7. Halcrow, 2011b. '*Hartland Point to Anchor Head SMP2'.*
8. Royal Haskoning, 2011a. *'Cornwall and the Isles of Scilly SMP2'*
9. Royal Haskoning, 2011b. '*Poole and Christchurch Bays SMP2'.*
10. Environment Agency and Partners. *'LICCO – Living with a Changing Coast'.* Interreg IVA Project for the European Commission. www.licco.eu.
11. Environment Agency and Partners. '*CC2150 – Coastal Communities 2150 and Beyond*'. Interreg IVA Project for the European Commission. www.cc2150.co.uk.
12. Bradbury, A. P., 2007. *'The Benefits of a Large-Scale, Long-term Regional Coastal Strategic Monitoring Programme for Southern England'.* In McInnes (Ed.) Proc. Int. Coastal Mgt. Conf. Cardiff. Thomas Telford.
13. Daniell, W. & Ayton, R., 1814-1825. *'A Voyage Round Great Britain'.* Longman & Co. London.
14. Conybeare, Rev. W. & Dawson, W., 1843. *Memoir and Views of Landslips on the Coast of Devon'.* John Murray. London.

15. Hutchinson, P. O., 1871-1894. '*Diaries'.* Devon Archives & Local Studies Service.
16. 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.
17. English Heritage, 2008. *'Climate Change and the Historic Environment'*. Swindon. English Heritage.
18. Fluck, H., 2016. *'Climate Change Adaptation Plan'.* Research Report Series 28/2016 for Historic England. ISBN: 2059-4453 (online).
19. English Heritage, 2011. *'English Heritage Coastal Estate Risk Assessment'*.
20. English Heritage, 2015. *'Heritage At Risk – South-West Summary'*. 41pps.
21. Atkins, 2014. '*Assessment of Heritage At Risk From Environmental Threat'.* Report for English Heritage.
22. The National Trust, 2014. '*Shifting Shores – Adapting to Change'.* www.nationaltrust.org.uk/shiftingshores.

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.

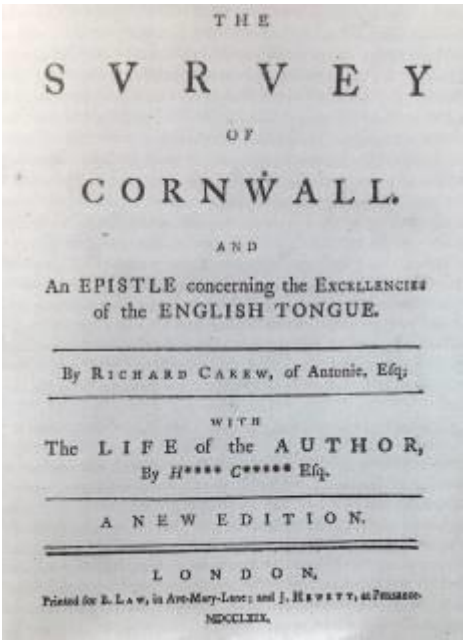
4. The portrayal of the South-West coast of England through art and photography 1770-1950 and the potential to inform coastal heritage planning and management

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
SVRVEY
OF
CORNWALL.
AND
An EPISTLE concerning the Excellencies of the ENGLISH TONGUE.
By Richard Carew, of Antonie, Esq;
WITH
The LIFE of the AUTHOR,
By H**** C***** Esq.
A NEW EDITION.
LONDON,
Printed for B. Law, in Ave-Mary-Lane; and J. Hewett, at Fleet-
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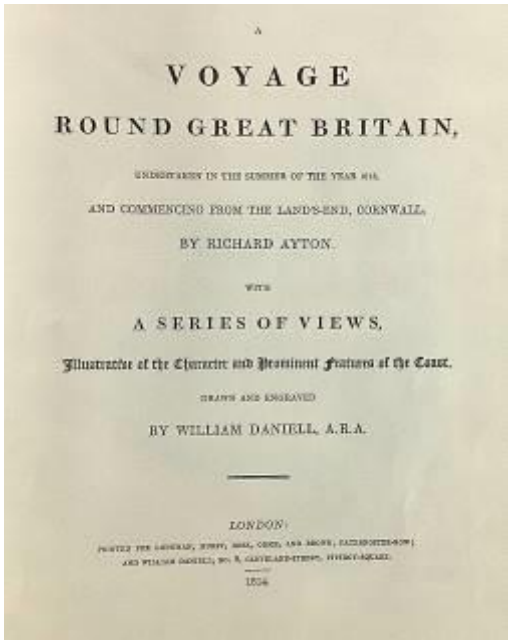

A
VOYAGE
ROUND GREAT BRITAIN,
UNDERTAKEN IN THE SUMMER OF THE YEAR 1813,
AND COMMENCING FROM THE LAND'S-END, CORNWALL,
BY RICHARD AYTON.
WITH
A SERIES OF VIEWS,
Illustrative of the Characteristic and Prominent Features of the Coast.
DRAWN AND ENGRAVED
BY WILLIAM DANIELL, A.R.A.
LONDON:
1814

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"*.

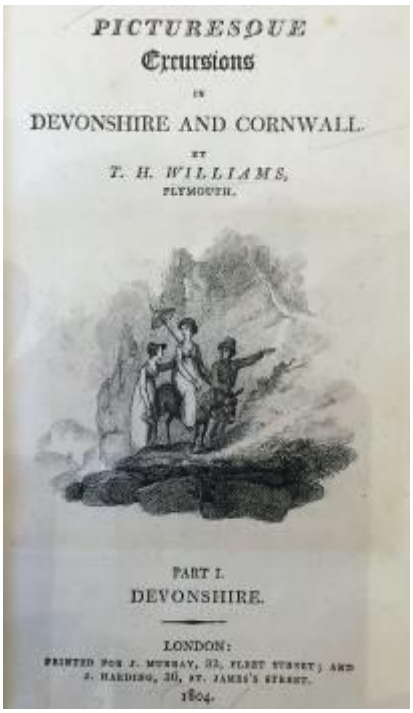
By the early nineteenth century many of our greatest artists were making tours either at the request of wealthy patrons, or for their own commercial interest. Thomas Rowlandson, J. M. W. Turner and many others produced series of watercolour drawings, some of which formed elaborate publications (Cooke,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

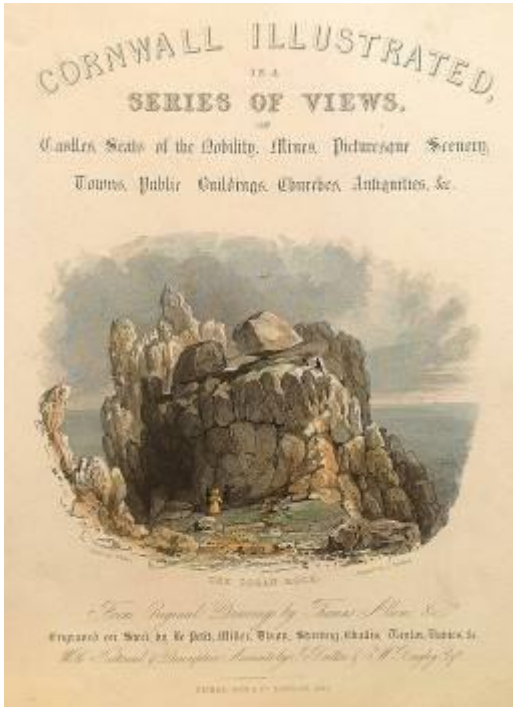
and, later, steel engravings such as those by W.H. Bartlett, T. Allom and others in *'Devon and Cornwall illustrated'* (Britton & Brayley, 1832[17]). Steel plate books with the ability to allow longer print runs could cater for the increasing numbers of visitors to the dramatic scenery of the south-west;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



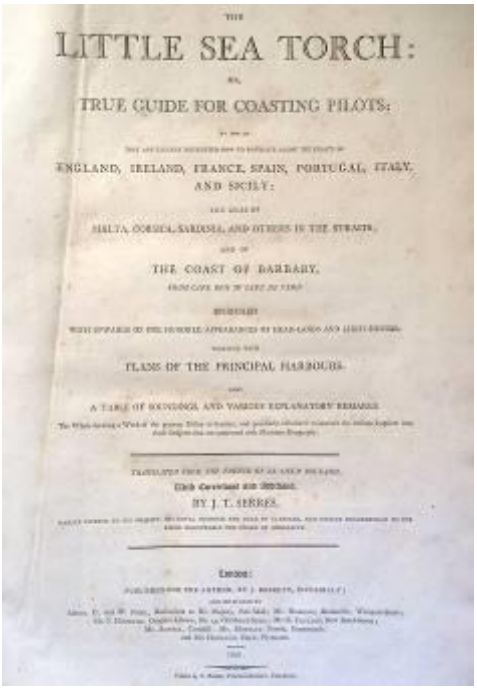


Figures 4.4 and 4.5 (above): Title pages of examples from a wealth of travel books that started to be published from the early nineteenth century.

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:
OF THE
ENGLAND, IRELAND, FRANCE, SPAIN, PORTUGAL, ITALY, AND SICILY:
AS ALSO OF
MALTA, CORSICA, SARDINIA, AND OTHERS IN THE STRAITS.
AND OF
THE COAST OF BARBARY,
WITH
PLANS OF THE PRINCIPAL HARBOURS.
AND
A TABLE OF SOUNDINGS, AND VARIOUS EXPLANATORY REMARKS.
BY J. T. SERRES.


GREAT-BRITAINS
COASTING PILOT.
In Two PARTS.
Survey of the Sea-Coast
OF
ENGLAND and SCOTLAND
Thames to the Westward and Northward,
WITH THE
ISLANDS of SCILLY,
CARLISLE.
Likewise the Islands of ORKNEY and SHETLAND.
By Captain GREENVILLE COLLINS, Hydrographer to Ordnary to the KING's most excellent MAJESTY.
LONDON:
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.

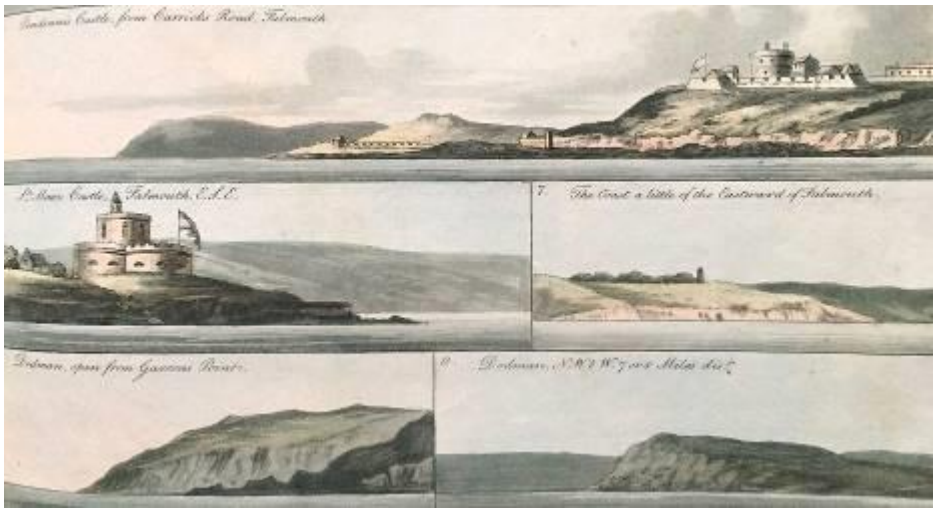


Figure 4.8: *'Views of Falmouth from the sea'* by John Thomas Serres, 1801. Image Courtesy: John Mitchell Fine Paintings, London.

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.

References

1. Norden, J., 1576. *'A Topographical and Historical Description of Cornwall'.* W Pearson (Printer).
2. Carew, R., 1602. '*Survey of Cornwall'.* S. Stafford (Printer). Reprinted in 1769.
3. Hooker, J., 1599. *'Synopsis Corographical of the County of Devon'.*
4. Gerard, T., c.1633. '*Particular Description of the County of Somerset'.*
5. Gerard, T., c.1622. '*General Description of Dorset'.*
6. Borlase, W., 1758. *'Observations on the Antiquities of the County of Cornwall'.* W. Jackson (Printer).
7. Borlase, W., 1756. '*Observations on the Ancient and Present State of the Islands of Scilly'.* W. Jackson (Printer).
8. Collinson, J., 1792. *History and Antiquities of Somerset'. 3 Vols. R. Cruttwell (Printer).*
9. Cox, T., 1730*. 'Compleat History of Dorsetshire'* (in Magna Britannia).
10. Hutchins, J., 1733. '*History and Antiquities of the County of Dorset'.* 2 Vols. L Bowyer & J. Nichols (Printers).
11. Aubrey, J., undated. '*History of Devonshire'.* See *'Topographical Writers in SW England'* by Brayshay, M., 1996. Univ. of Exeter Press.
12. Polwhele, R., 1797. '*History of Devonshire'* in '*Magna Britannia'.* 3 Vols. Truman & Son.
13. Lysons, D. & S., 1814. '*Cornwall'* in '*Magnum Britannia'.* Vol. 3. T. Cadell, London.
14. Lysons, D. & S., 1822. '*Devon'* in '*Magnum Britannia'.* Vol. 6. T. Cadell, London.
15. Brayshay, M. (Ed.), 1996. '*Topographical Writers in South-West England'.* Univ. of Exeter Press. ISBN: 0 85989 424 X.
16. Cooke, G., 1826. '*Turner's Picturesque Views of the Southern Coast of England'.*
17. Britton, J, & Brayley, E. W., 1832. '*Devon and Cornwall Illustrated'.* P. Jackson. London.
18. Collins, G., 1753. '*Great Britain's Coasting Pilot – Survey of the Sea Coast of England & Scotland from the River Thames Westward and Northward with the Islands of Scilly'.* J. Mount & T. Page. London.
19. National Archives, 2016. '*Coastal and Riverine Views commissioned by The Admiralty'.* Series Ref: ADM 344. Covering Period from 1743 (49 Albums).
20. Marjoram, A. & Jones, H., 2014. *'Artists in Exmouth before 1910'.* Paper for the Interreg IVA 'LICCO' Project. D

21. Daniell, W. & Ayton, R., 1814-1825. '*A Voyage Round Great Britain'. Private Press.*
22. Finden, E. & Finden, W., 1838. '*Views of the Ports, Harbours and Watering Places of Great Britain*'. Virtue and Co. London.
23. Englefield, Sir H., 1816. '*A Description of the Picturesque Antiquities, Beauties and Geological Phenomena of the Isle of Wight and the Adjacent Coast of Dorsetshire*'. Private Press. London.
24. Dorset County Museum, 2013. '*Information on the Artist Edmund Francis Drew Pritchard*'. Dorset County Council.
25. Ruskin, J., 1853. '*Lectures on Architecture and Painting'.* The Philosophical Institute, Edinburgh.
26. Conybeare, Rev. W. & Dawson, W., 1840. '*Memoir and Views of Landslips on the Coast of East Devon &c.* John Murray. London.
27. Butler, J., 2010. *Peter Orlando Hutchinson's Diary of a Devon Antiquary 1871-1894'.* Halsgrove. ISBN: 978 0 85704 075 6.
28. Creeke, J., 2013. '*Sidmouth's Long print – A Picture in Time'.* Sidmouth Museum. ISBN: 978-0-9512704-7-9.
29. Hardie, M. (Ed), 2009. '*Artists in Newlyn and West Cornwall 1880-1940'.* Art Dictionaries Ltd ISBN: 978 0 953260 96 6.
30. Brett, C., Hickox, M. & Payne, C., 2006. *'John Brett – A Pre-Raphaelite in Cornwall'*. Sansom & Co. And Penlee House Gallery and Museum. ISBN: 1 904537 51 0.
31. Munday, J., 1996. *E. W. Cooke RA FRS FSA, FLS, FZS FGS, A Man of his Time,* Antique Collectors' Club ISBN: 1 85149 222 4.
32. Newton, L. (Editor), 2005. *Painting at the Edge British Art Colonies 1880-1930,* Sansom and Company Limited ISBN: 978 1 904537 26 7.
33. Johns, C. & Fleming, F., 2016. *'Cornish Ports and Harbours: Assessing Heritage Significance, Threats, Protection and Opportunities'*. Truro. (Cornwall Archaeological Unit). Report for Historic England.
34. Hemming, C., 1988. '*British Paintings of the Coast and Sea'.* Victor Gollancz Ltd. London.
35. Clinton-Baddeley, V. C., 1925. *'Devon'.* Illust. H. Sutton Palmer. A. & C. Black Ltd. London.
36. Thomas, E.; Heath, S. & Danks, C., c.1910. '*Our Beautiful Homeland'.* The Gresham publishing Company Ltd.
37. Heath, S., 1935. '*The Cornish Riviera'.* Blackie & Co. London & Glasgow.
38. Marshall, S. & Davies, P., 2015. *'An English Idyll – Leslie Moffat Ward Paintings and Prints'*. Sansom & Co. ISBN: 978-1-908326-74-4.
39. Turley, R. V., 2001. *'Isle of Wight Photographers 1840-1940'*. Univ. of Southampton Libraries. ISBN: 0-854-32744-4.
40. Barber, M., 2011. *'A History of Aerial Photography and Archaeology'*. English Heritage. ISBN: 978-1-848720-368.
41. Momber, G., Satchell, J., Tidbury, L., 2014. Final Report of the Interreg IVA 2 Seas Project *'Arch-Manche'*. Maritime Archaeology Trust. Southampton. www.archmanche.maritimearchaeologytrust.org/.

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]).

References

1. Koff, S. R., 1999. *'The Role of Arts in Undergraduate Education'*. Journal of General Education. 48: 9-16.
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. Camuffo, D., Pagain, E. & Sturaro, G., 2005. *'The Extraction of Venetian Sea-level Change from Paintings by Canaletto and Bellotto'*. In Fletcher, C. & Spencer, T. (Eds.). Flooding and Environmental challenges for Venice and its Lagoon. Cambridge University Press. Cambridge. Pps 129-140.
4. Drahos, A., 2009. *'Brett's Boulders'*. Geoscientist. Vol. 19.3.
5. Drahos, A., 2012. '*The Art of the Sublime - Geology and 19th century Landscape Paintings'*. The Geoscientist. Volume 22. No 6. July 2012.

6. Minor, H-E. & Hager, W. H. (Eds.), 2004. *'River Engineering in Switzerland'*. Society for the art of civil engineering. Zurich.
7. McInnes, R. G. & Tomalin, D., 2000. '*Coastal Change, Climate and Instability'.* Final Report of the EU LIFE Environment Project 1997-2000. DG Environment. 2,300pps.
8. McInnes, R., 2008. *'Art as a Tool to Assist Understanding of Coastal Change'*. The Crown Estate. ISBN: 978-1-906410-08-7.
9. McInnes, R. & Stubbings, H., 2010. *'Art as a Tool in Support of the Understanding of Coastal Change in East Anglia'*. The Crown Estate. 92 pps. ISBN: 978-1-906410-10-0.
10. McInnes, R. & Stubbings, H., 2011. *'A Coastal Historical Resources Guide for England'*. The Crown Estate. 91 pps. ISBN: 978-1-906410-19-3.
11. McInnes, R. & Benstead, S., 2013a. '*Art and Coastal Change in Wales'*. The Crown Estate. London. ISBN: 978-1-906410-42-1.
12. McInnes, R. & Benstead, S., 2013b. *'Art and Coastal Change in Scotland'.* The Crown Estate. London. ISBN:978-1-906410-49-0.
13. McInnes, R. & Benstead, S., 2013c. *'Art and Coastal Change in Northern Ireland'.* The Crown Estate. London. ISBN:978-1-906410-54-4.
14. Momber, G.; Satchell, J.; Tidbury, L. & McInnes, R. G., 2013. '*Arch-Manche: Archaeology, Art and Coastal Heritage'.* Final report of the Interreg IVA Project. www.archmanche.hwtma.org.uk.
15. Ellis, A. (Ed), from 2005. '*Catalogues of the Oil Paintings in Public Collections'.* Public Catalogues Foundation. London.
16. ARTUK, 2016. *'Oil Paintings in Public Collections'. Database at www.artuk.org.*
17. Barber, M., 2011. '*A History of Serial Photography and Archaeology*. English Heritage. ISBN: 978-1-848020-36-8.
18. Hegarty, C.; Knight, S. & Sims, R., 2014. '*Rapid Coastal Zone Survey: National Mapping Programme for South-West England – South Devon'.* August 2014. Report for English Heritage No. 6046.
19. Royall, C., 2014. *'Rapid coastal Zone Assessment Survey For South-West England – South Coast Dorset.* Report by Cornwall County Council. EH Project No. 6673.

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.

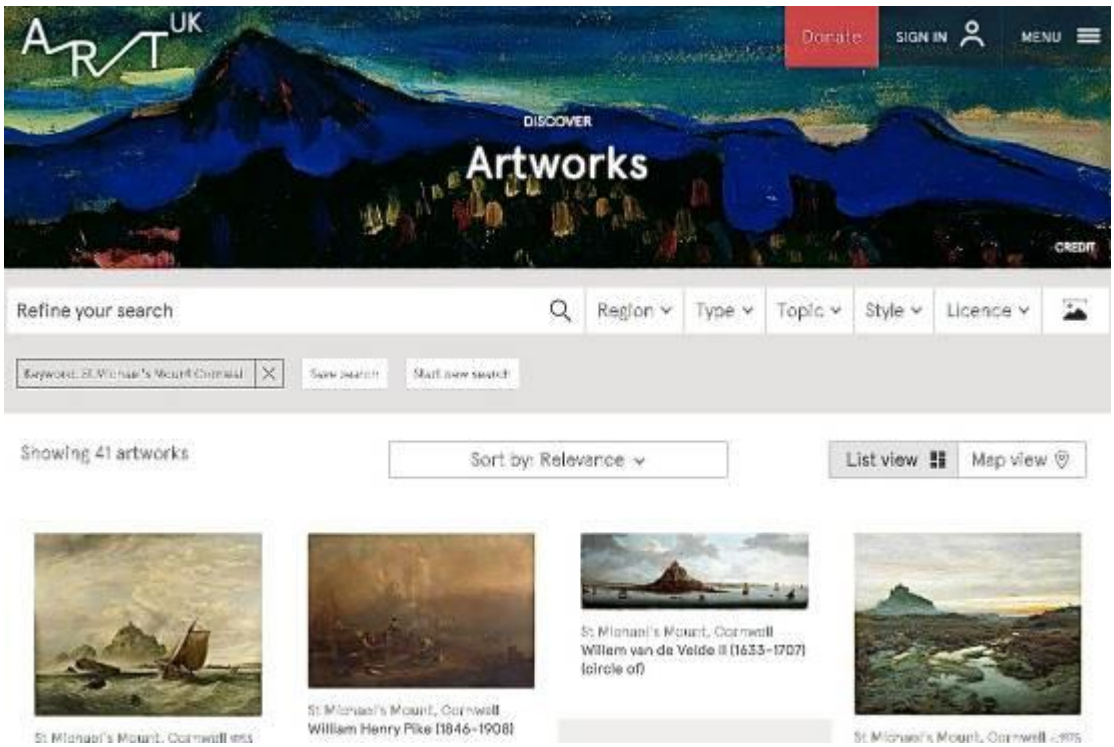


Figure 4.24: A page from the Art UK website showing a selection of the forty-one oil paintings in public collections of St Michael's Mount in Cornwall.

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.

References

1. Hardie, M., 1966. '*Watercolour Painting in Great Britain'.* 3 Vols. B.T Batsford Ltd. London.
2. Mallalieu, H., 1976. '*A Dictionary of British Watercolour Artists up to 1920*'. Antique Collectors' Club. Woodbridge. ISBN: 0902028 48 0.
3. Lambourne, L. & Hamilton, K., 1980. *'British Watercolours in the Victoria and Albert Museum'*. Crown Copyright. ISBN: 0 85667 111 8.
4. Graves, A., 1984 (reprinted). *'A Dictionary of Artists 1760-1893'*. Kingsmead Press.
5. Mackenzie, I., 1987. *'British Prints'*. Antique Collectors' Club. Woodbridge. ISBN: 0 902028 96 0.
6. Wood, C., 1995. *'A Dictionary of Victorian Painters'*. Antique Collectors' Club. Woodbridge. ISBN: 1 85149171 6.
7. McInnes, R. G. 2014. '*British Coastal Art 1770-1930'.* Cross Publishing. Isle of Wight. ISBN: 978-1-872395-46-5.
8. Huish, M., 1904. *'British Watercolour Art'*. The Fine Art Society, London. A. & C. Black.
9. Tooley, R. V., 1954. *'English Books with Colour Plates'*. B. T. Batsford Ltd. London.
10. Wilton, A. & Lyles, A., 1993. *'The Great Age of British Watercolours 1750-1990'*. Royal Academy of Arts, London/National Gallery of Art, Washington. Prestel. ISBN: 3 3913 1254 5.

11. Payne, C., 2007. *'Where the Land Meets the Sea'*. Sansom & Co. Ltd. Bristol. ISBN: 13 978 1 904537 64 9.
12. McInnes, R. & Stubbings, H., 2011. *'A Coastal Historical Resources Guide for England'*. The Crown Estate. ISBN: 978 1 906410 19 3.
13. Staley, A., 2001. *'The Pre-Raphaelite Landscape'*. Paul Mellon Centre. Yale University Press. New Haven and London. ISBN: 0-300-084808-0.
14. Newton, L (Ed), 2005. '*Painting at the Edge – British Coastal Art Colonies 1880 – 1930*'. Sansom & Co. Bristol. ISBN: 1 904537 26 X.
15. Wallace, C., 2007. *'Under an Open Sky – Paintings of the Newlyn and Lamorna Artists 1880-1940*'. Truran Books Ltd. ISBN: 978 185022 168 5.
16. Hardie, M. (Ed), 2009. *'Artists in Newlyn and West Cornwall 1880 – 1940'*. Art Dictionaries Ltd. Bath. ISBN: 978-0-953260-96-6.
17. Ellis, A. (Ed), from 2004. '*Catalogues of the Oil Paintings in Public Collections'.* Public Catalogues Foundation. London.
18. Munday, J., 1996. *'Edward William Cooke, RA – A Man of his Time'*. Antique Collectors' Club. Woodbridge. ISBN: 1-85149-222-4.
19. Brett, C; Hickox, M. and Payne, C. 2006. '*John Brett – A Pre-Raphaelite in Cornwall'.* Sansom & Company with Penlee House Gallery & Museum. ISBN: 1 904537 510.
20. Payne, C., 2010. '*John Brett – Pre-Raphaelite Painter'.* Yale University. ISBN: 9780 300 16575 3.

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.

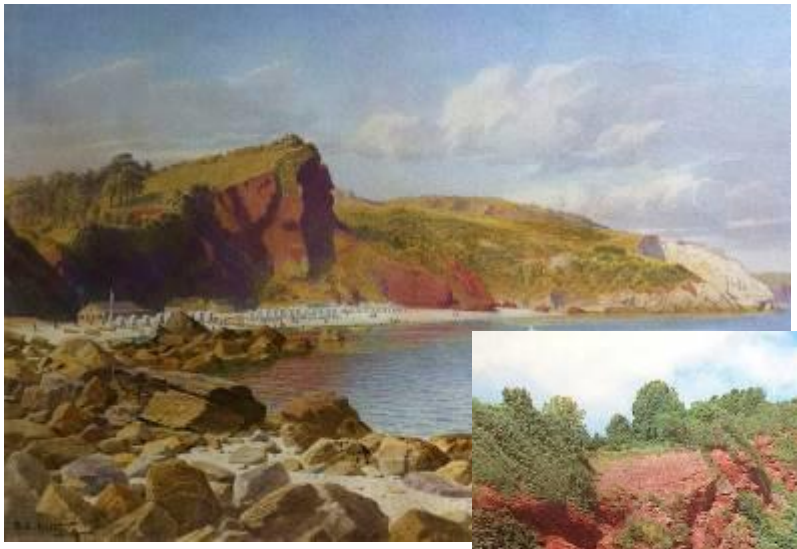
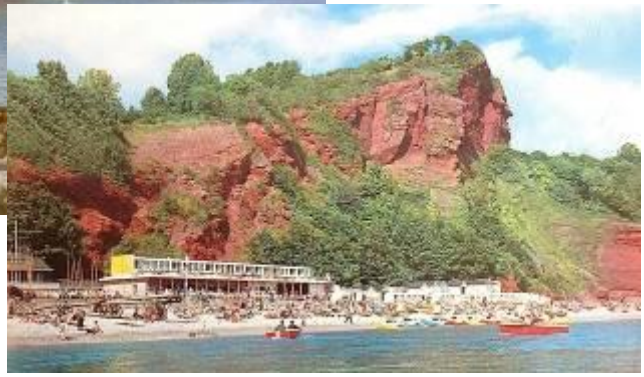


Figure 5.1: *'Babbacombe'* by Samuel Edward Kelly, c.1910. Kelly has painted the crumbling coastline in Pre-Raphaelite detail. It compares closely with the postcard photograph (**Figure 5.2 below**) taken in the 1970s. Private Collection.



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.

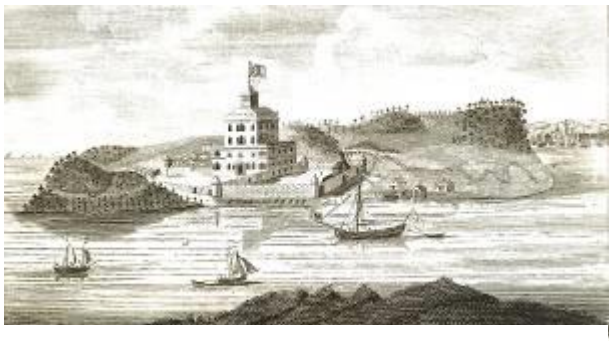


Figure 5.8: An example of an eighteenth century copper plate engraving of *'Brownsea Castle and Island'*. The view is inaccurate in terms of scale, and detail is restricted by the medium employed.

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.

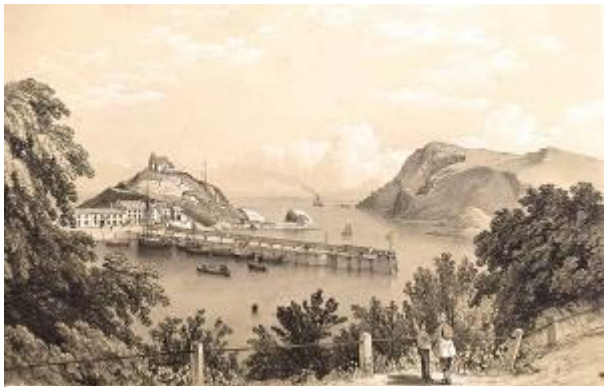


Figure 5.11: *'Ilfracombe, North Devon'* a mid-nineteenth century lithograph, which shows the harbour scene in fine detail. Together with watercolour drawings, this category offers some of the best visual images of the coastal environments and heritage of the time.

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.*