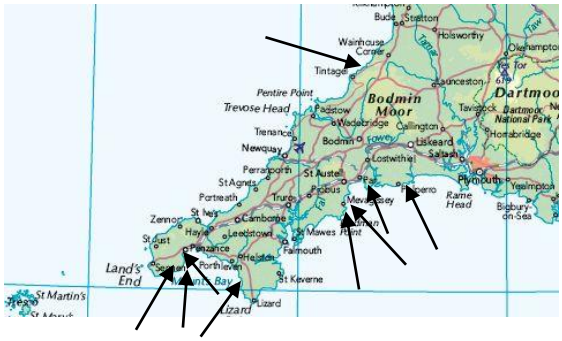
Case Study Site 15 – Cornish Harbours

1. Location

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



2. Why were the Case Study Sites selected?

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

3. Summary of the Geology, Geomorphology & Coastal Processes

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

4. Risks to Heritage Assets along the Case Study Frontage

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

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

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

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

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

5. How can historical Imagery inform heritage risk management?

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

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

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

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

7. References

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

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

Image Courtesy of David Addey.

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

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

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

Image Courtesy of J. Salmon Limited of Sevenoaks.

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

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

All images courtesy of J. Salmon Limited of Sevenoaks.

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

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

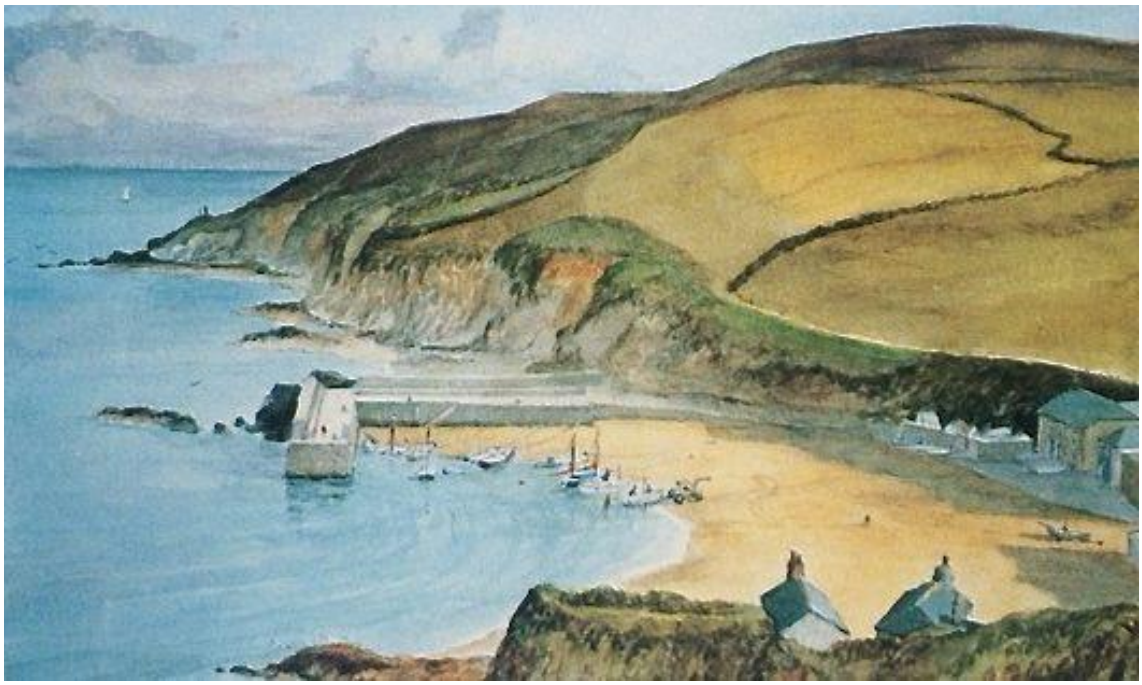
Figures 15.12 and 15.13 show two views of Mevagissey Harbour by William Daniell, engraved in 1825. The nature of the harbour construction is clearly depicted in **Figure 15.12 (top)** and the conditions of the water appear rough outside and more tranquil inside the harbour. In David Addey's 1988 view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

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

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

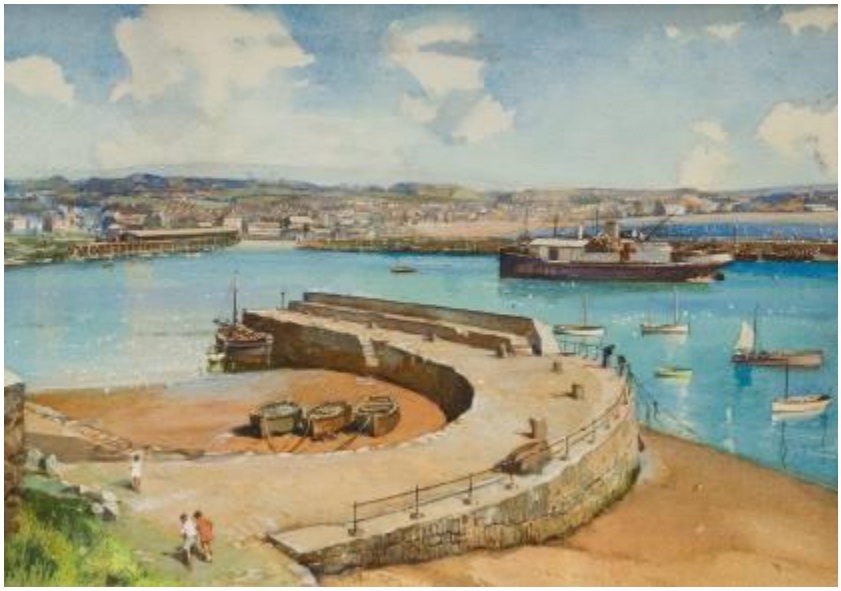
Figure 15.15 (above) shows Daniell's view of Gorran Haven, a quay which has existed since Medieval times. Daniell's 1825 engraving of the harbour arm appears very similar in design to that depicted by David Addey in 1988. Daniell noted *"at Gorran Haven there is a little pier for the shelter of the pilchard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

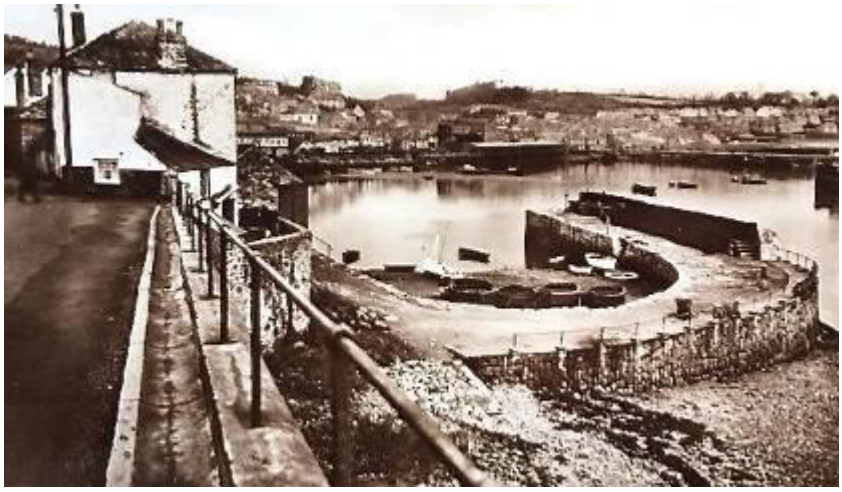
Image Courtesy of David Addey.



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

Image Courtesy: J. Salmon Limited of Sevenoaks.





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

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

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

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

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

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

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

Images Courtesy of J. Salmon Limited of Sevenoaks.

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

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

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

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

1. Location

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

2. Why was the Case Study Site selected?

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

3. Summary of the Geology, Geomorphology & Coastal Processes

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

4. Risks to Heritage Assets along the Case Study Frontage

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

5. How can historical Imagery inform heritage risk management?

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

(Cornwall Conservation Group, 2014[4]).

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

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

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

7. References

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

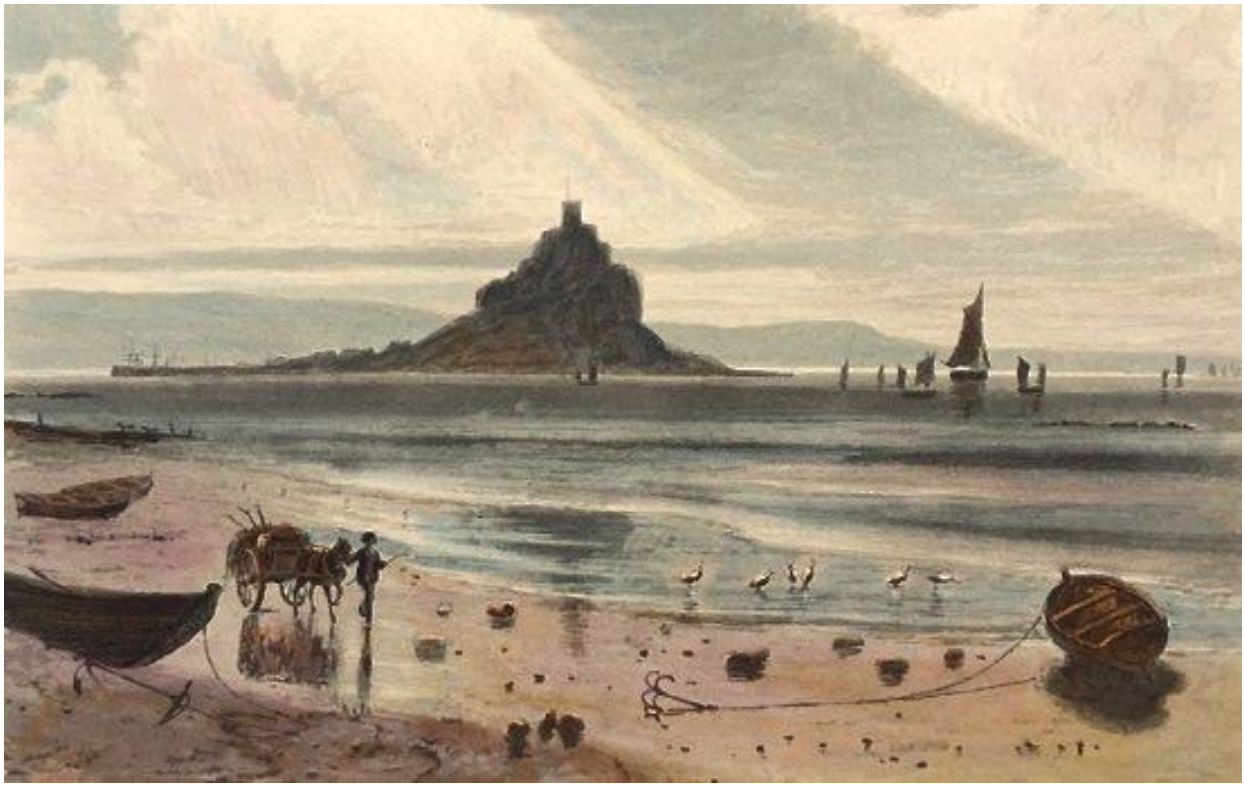


Figure 16A: *'Distant View of St Michael's Mount, Cornwall'* by William Daniell RA. 1825. See also his close view – Figure 16.2 on the next page.

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

Private Collection.

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

Private Collection.

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

Private Collection.

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

Image courtesy of Elford Fine Art of Tavistock.

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

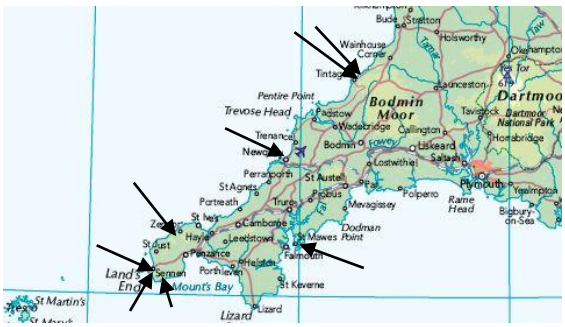
Image courtesy of J. Salmon Limited of Sevenoaks.

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

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

1. Location

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



2. Why were these Case Study Site selected?

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

3. Summary of the Geology, Geomorphology & Coastal Processes

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

4. Risks to Heritage Assets along the Case Study Frontage

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

5. How can historical Imagery inform heritage risk management?

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

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

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

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

7. References

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

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

Image Courtesy of Bridgeman Images.

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

Image Courtesy of Commons Wikimedia.

Figure 17.3 (above): St Mawes Castle.

Image Courtesy of Commons Licence.

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

Image Courtesy of Elford Fine Art, Tavistock, Devon

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

Image Courtesy: Private Collection.

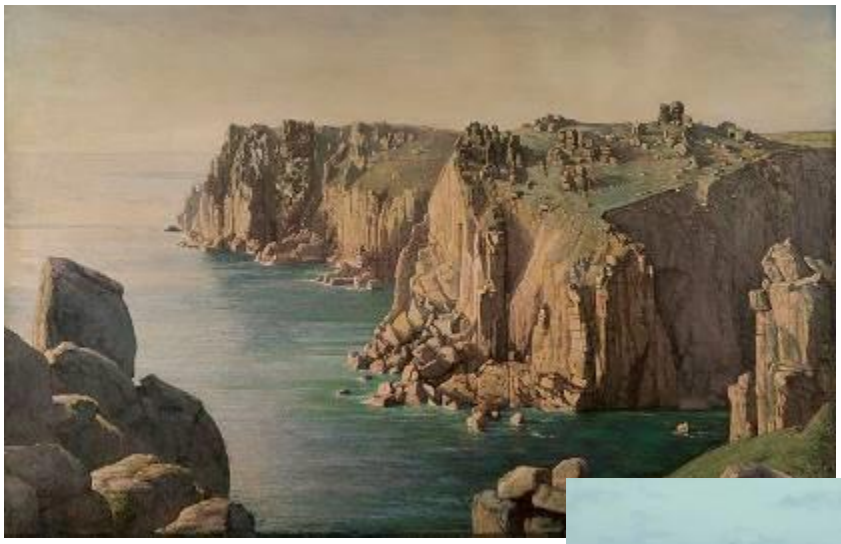


Figure 17.7 (left): *'Towards Land's End'* by Charles Naper. Oil on Board. c.1940. This view includes the site of Carn Les Boel.

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

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

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

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

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

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

Image © Graham Horn/Creative Commons Licence.

Figure 17.11 (left): Gurnard's Head. Photograph. c.1920.

Image Courtesy: Private Collection.

Figure 17.12 (right): Gurnard's Head**.**

Photograph Courtesy of Tony Atkin/Creative Commons Licence.

Figure 17.14 (above): Trevelgue Head near Newquay showing the hill fort site.

Figure 17.13 (right): Trevelgue Head, Cornwall. Photograph. c.1900.

Figure 17.15 (left): *'Tintagel Castle, Cornwall'* by William Trost Richards. c.1890. Watercolour.

Image Courtesy of Bridgeman Images.

Figure 17.16 (right): *'Tintagel Castle'*.

Image Courtesy: Creative Commons Licence.

Case Study Site 18 – Isles of Scilly

1. Location

The Isles of Scilly are an archipelago located off the south-western tip of the Cornish Peninsula, 45km south-west of Cornwall. They comprise five inhabited islands and numerous small rocky islands (approximately 140 in total).

2. Why was the Case Study Site selected?

The Isle of Scilly have a rich heritage, having been inhabited since the Mesolithic period. The importance of the Isles, from a strategic point of view, was recognised as early as the middle of the sixteenth century when the first fortifications were constructed. However, during the sixteenth and seventeenth centuries, further major defences were provided in order to provide protection for the islands from possible French or Spanish attack. A further phase of construction took place throughout the eighteenth century, with the addition of substantial batteries, and a mile of interconnecting walls was built around the east and south side of The Garrison. After the end of the Napoleonic Wars many of these defences fell into disrepair, although the islands fulfilled a strategic role during both World Wars.

Despite its solid geology, the gradual post-glacial submergence of the archipelago's land mass as well as the exposed nature of the coastline in many places has resulted in damage and actual loss to heritage assets.

3. Summary of the Geology, Geomorphology & Coastal Processes

The Isle of Scilly are wholly composed of granite of the Permian Period. Elevations at the coast reach 30-40m in the north-western part of the island. The coastline of St Mary's consist largely of rocky foreshore with fronting cliffs and slopes, together with numerous sandy pocket beaches. The shores, with granite cliffs behind and sandy beaches, are characteristic of many of the islands.

4. Risks to Heritage Assets along the Case Study Frontage

On St Mary's there are over ninety Scheduled Monuments, including numerous Bronze Age barrows, cairns and other signs of prehistoric settlement. Some of these are submerged and many are under threat from coastal erosion (Royal Haskoning, 2011[1]). The other islands also contain a rich heritage, with many sites in the intertidal zone or submerged (Charman *et al.*, 2014[2]). Some of the impacts of coastal erosion have been described previously (Bowden & Brodie, 2011[3]) and sea level rise and the further impacts of climate change mean that this is likely to be a worsening situation.

5. How can historical Imagery inform heritage risk management?

In terms of artworks, relatively few artists ventured across the sea from Cornwall to the Isles of Scilly, although the celebrated marine and coastal artist, Edward William Cooke RA, did paint a fine watercolour of *'St Agnes Point, Scilly Isles'* in 1848 (see Figure 18.6). A comprehensive illustrated description of the Islands was provided by William Borlase in 1756 (Borlase, 1756[4]). His book contains maps, topographical views from the sea and some fine copperplate illustrations, which show the patterns of development in the Islands at that time. During the mid-to-late nineteenth century the artists, Fanny le Marchant and Sophia Tower, produced delicate watercolour views of *'Old Grimsby on Tresco'*, *'St Mary's from Carn Morval'*, and *'Off St Mary's Pier'* (Llewellyn, 2005[5]).

Although the Isles of Scilly may be somewhat lacking in terms of artistic images, the Isles do have a very rich photographic heritage (Martin, 2014[6]). The topographical photographer, Francis Frith, played an important role in bringing the photographic medium to Scilly, as did the Gibson family who worked both in Scilly and on the Cornish mainland. Two further photographers, Charles King and Francis Mortimer, continued the photographic tradition, highlighting the quality of the light and the benefits this brought to their subject matter. A fine collection of photographs of the islands are held by the Isles of Scilly Museum (www.iosmuseum.org).

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

The Isles of Scilly have a very rich heritage extending back to the Mesolithic at Old Quay, St Martin's. The low-lying nature of the Islands, their exposure and the long trend of sea level rise, together with climate change impacts, will

continue to pose an increasing level of risk for those assets located close to the coast or in the coastal waters.

A limited number of artists travelled to the Isles of Scilly in the nineteenth and early twentieth centuries, despite the size of the art colonies that existed in Cornwall. However, the early to mid-nineteenth century paintings and drawings of artists visiting Augustus Smith do contribute to the art record of Scilly. A lack of artistic images is, however, supplemented by a wealth of photographic evidence that provides a unique record of the history of the islands and their changing physical and social conditions since the middle of the nineteenth century. For this case study, therefore, photography, both terrestrial and aerial, provides the best medium for the assessment of coastal heritage risk.

7. References

1. Royal Haskoning, 2011. *'Cornwall and Isles of Scilly Islands Shoreline Management Plan 2'*.
2. Charman, D., Johns, C., Camidge, C., Marshall, K., Mills, P., Mulville, J. & Roberts, H. M., 2014. *'The Lyonesse Project; A Study of the Coastal and Marine Environments of the Isles of Scilly'* (OASIS ID Cornwall 2-58903).
3. Bowden, M. & Brodie, A., 2011. *'Defending Scilly'*. English Heritage publication. ISBN: 978-1-84802-043-6.
4. Borlase, W., 1756. *'Observations on the Ancient and Present State of the Islands of Scilly'*. W. Jackson (Printer).
5. Llewellyn, S., 2005. *'Emperor Smith – The Man Who Built Scilly'*. The Dovecote Press. ISBN: 1-904349-18-8.
6. Martin, A., 2014. *'Viewing the Past: The Photographic Heritage of the Isles of Scilly'*. Copyright, Isles of Scilly Museum. ISBN: 978-0-9562903-3-5.

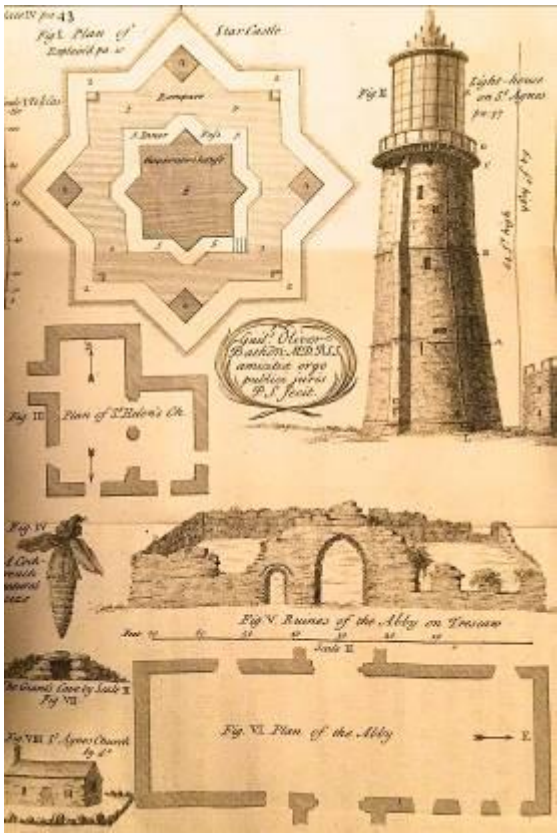
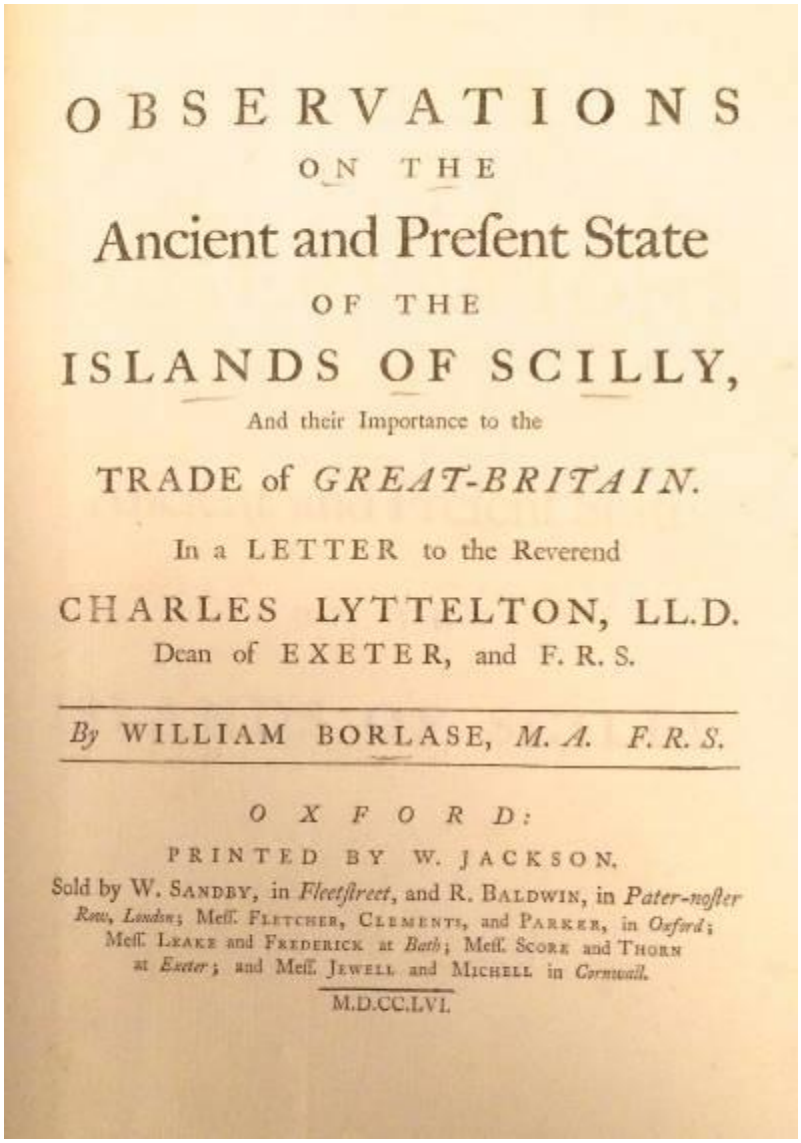


Figure 18A: A page of copper plate engravings from W. Borlase's 1756 book on the Isles of Scilly.



OBSERVATIONS
ON THE
Ancient and Present State
OF THE
ISLANDS OF SCILLY,
And their Importance to the
TRADE of *GREAT-BRITAIN.*
In a LETTER to the Reverend
CHARLES LYTTELTON, LL.D.
Dean of EXETER, and F. R. S.

By WILLIAM BORLASE, *M. A. F. R. S.*

OXFORD:
PRINTED BY W. JACKSON.
Sold by W. SANDBY, in *Fleetstreet*, and R. BALDWIN, in *Pater-noster Row, London*; Messf. FLETCHER, CLEMENTS, and PARKER, in *Oxford*; Messf. LEAKE and FREDERICK at *Bath*; Messf. SCORE and THORN at *Exeter*; and Messf. JEWELL and MICHELL in *Cornwall*.
M.DCC.LVI.

Figure 18.1: Title page from William Borlase's 1756 publication on 'The Islands of Scilly', which includes views of the Islands from the sea and annotated copperplate engravings such as 'New Grynsey Harbour' **(Figure 18.2 below)**.

Images courtesy of the Royal Yacht Squadron.

Figures 18.3 (above) and 18.4 (below) provide details from a further Borlase engraving of the town pier and harbour of St. Mary's and the Northern Island's taken from Bosou Hill in June 1752.

Images courtesy of the Royal Yacht Squadron.

Figure 18.5 (below) provides views of the Islands from the sea. Such perspectives formed an essential aid for navigation in the Islands' rock strewn coastal waters.

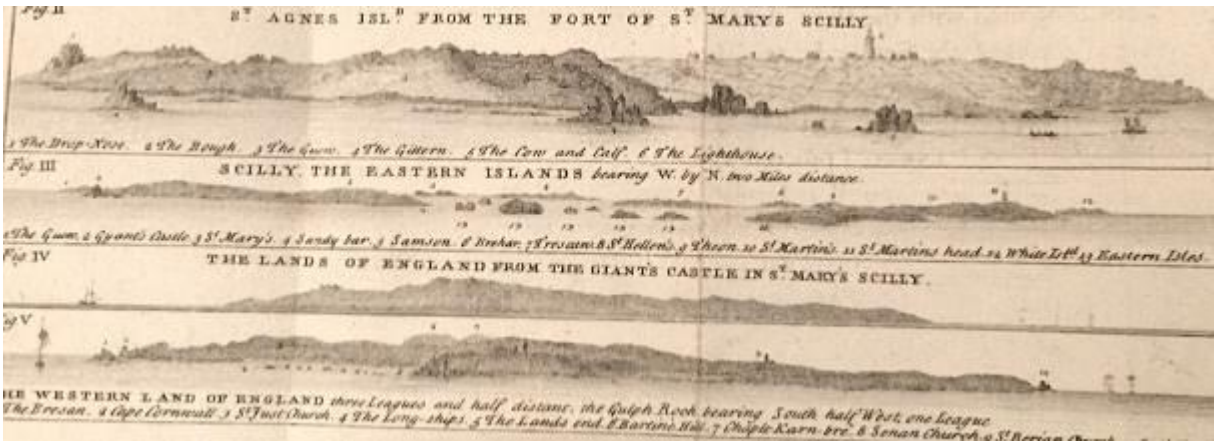


Figure 18.6: ‘St Agnes’ Point, Isles of Scilly’ by Edward William Cooke RA. A fine watercolour by the leading marine and coastal artist. Cooke was one of relatively few artists to visit Scilly. 1848.

Figure 18.7: 'Cromwell's Castle' on Tresco. The rich heritage on the Isles of Scilly is represented through a wealth of photographic images held in the collection of the Isles of Scilly Museum.

Case Study Site 19 – Mining and Engineering Heritage

1. Location

This generic case study assesses a range of mining and other civil engineering sites across Devon and Cornwall.

2. Why were the Case Study Examples selected?

As part of the wider CHeRISH project, an evaluation is being made of how historical images can support understanding of the management of coastal heritage risks. In addition, the potential of art being used for other heritage-related applications is also being assessed. In this particular case study, artworks depict various coastal infrastructure projects including bridges, piers and breakwaters, railway routes and coastal architecture, as well as the depiction of mining heritage. These examples provide a broad range of images that provide additional information in support of written citations and texts regarding the particular sites, many of which are of historic interest.

3. Summary of the Geology, Geomorphology & Coastal Processes

Within this case study examples are provided of a railway line running directly adjacent to the coast in south Devon, the construction of Plymouth Breakwater, pier construction and mining operations. Many of these major projects had to take place in highly exposed locations, which faced the full force of Atlantic storm waves. This often led to substantial delays and additional costs during the construction process. In terms of mining heritage, since the early Medieval period, and almost certainly the Bronze Age, the mining of tin and later copper and other minerals, as well as China Clay, has been a key component of the Cornish economy. Cornwall was Britain's most important non-ferrous mining region and was the world's largest producer of tin in the late eighteenth and early nineteenth centuries. Furthermore, Cornwall produced some two thirds of the world's copper during the first three decades of the nineteenth century (Gamble, 2011[1]). Because of the dramatic changes to the landscape, artists depicted the mining and quarrying activities in nineteenth century guidebooks or as individual artworks.

4. Risks to Heritage Assets along the Case Study Frontage

This case study illustrates a number of examples of structures located adjacent to the coast, including the Plymouth Breakwater, which was commenced in 1812 at a cost of £1.5 million and funded by the Navy for the purpose of protecting Plymouth, Plymouth Sound and the anchorages contained within it. This major feat of civil engineering, which involved the use of approximately three million tons of rock, was affected by the coastal weather conditions during the period of its construction and the design was modified as a result. On the south Devon coast the section of railway line constructed by Brunel between Dawlish and Teignmouth was constructed immediately adjacent to the sea coast and included tunnels through the red sandstone headlands. From time to time this railway line has been damaged by coastal storms, the most severe of these being the event in spring 2014 when a section of the main line was washed away, closing the route to Cornwall for several months.

5. How can historical Imagery inform heritage management?

The very detailed images provided in this case study illustrate methods of civil engineering construction, for example at Plymouth breakwater and Brunel's Royal Albert Bridge, at Saltash, together with the construction of the pier at Bournemouth. The images also show us the condition of these various structures at the time the views were painted. A watercolour by Alfred Robert Quinton shows the original condition of the elaborate Plymouth pier which was destroyed by enemy action in World War Two, and also the ornate Listed Burgh Island Hotel at Bigbury-on-Sea in about 1920. In compiling a Historic Environment Record for such sites, the addition of images of the structures over time could form a useful addition. Alternatively, a link can be provided to the source of the individual images alongside photographic records.

In terms of mining, three examples are provided showing open cast and deep mining locations. Because of the scale of activity in Cornwall, these subjects were of great interest to tourists, and were, therefore, included in nineteenth century guidebooks. It has been noted that in a number of guides to the Cornish mining industry, artwork illustrations have not been included alongside many black and white photographs.

6. Key Issues – What can be learnt from the sites?

This case study illustrates some of the great civil engineering projects undertaken in the south-west during the nineteenth century. They show how bridges, breakwaters, piers, railway routes and hotels were constructed during the great period of Victorian (and Edwardian) development. It appears that few Historic Environment Records include or refer to images such as artworks in their citations, and it would be beneficial to include these for some of the more important sites.

7. References

1. Gamble, B., 2011. *'Cornish Mines St Just to Redruth'*. Alison Hodge. ISBN: 13 978-0-906720-81-3.

Figure 19A: *'The Lizard, Housel Bay and Lighthouse'* b y A. R. Quinton. Watercolour. 1919. Lighthouses were popular civil engineering subjects for artists on account of their striking architecture set against the rocky coastlines, the sky and the sea.

Image Courtesy of J. Salmon Limited of Sevenoaks.

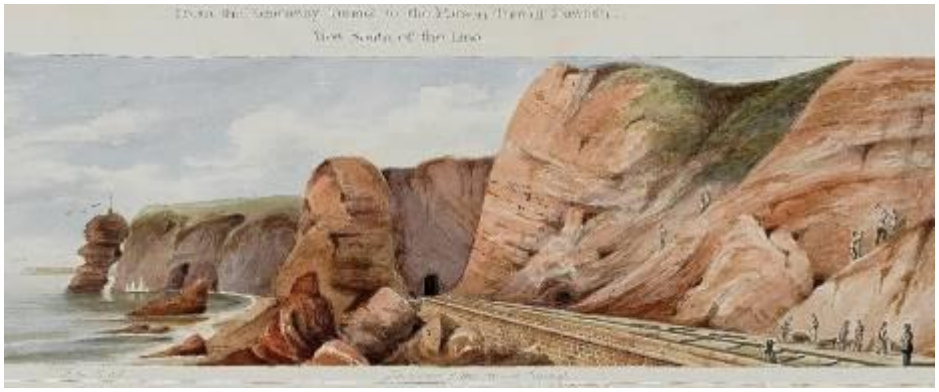


Figure 19.1: One of a series of fine lithographs by W. Dawson showing a section of the South Devon 'Atmospheric Railway' constructed by Brunel from 1844. This remarkable route following the coast between Dawlish and Teignmouth was severely damaged in the 2013/14 storms. (See also Case Study 11 for further artworks).

Image courtesy of the Institution of Civil Engineers.

Figure 19.2: 'The Floating of the last spar of the Royal Albert Bridge, Saltash'. English School Watercolour. 1859. Another oil painting by T. V Robins depicts the opening of the bridge by Prince Albert on 2nd May 1859.

Image courtesy of Bridgeman Images.

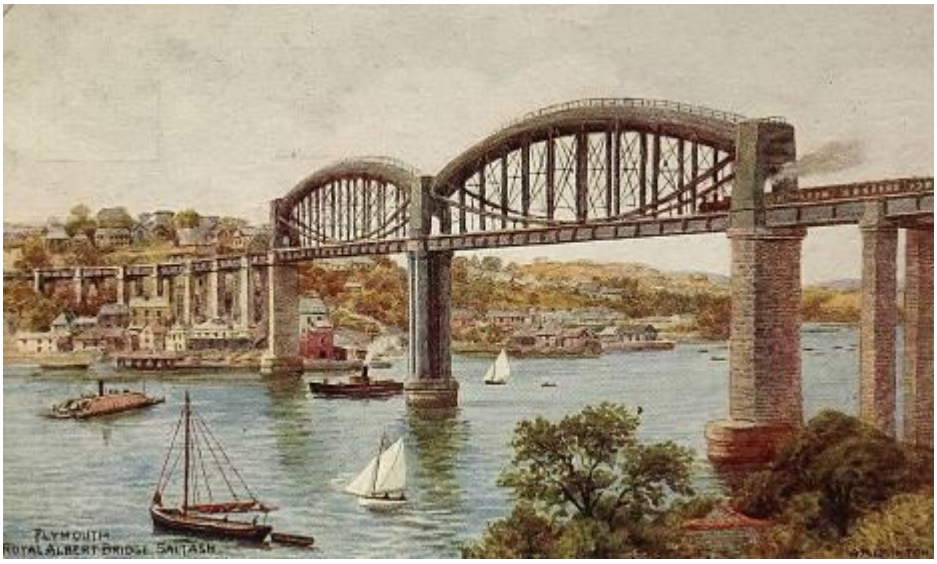


Figure 19.3: 'The Royal Albert Bridge, Saltash', c.1920 by Alfred Robert Quinton. His detailed watercolours produced between 1904-1934 provide a wealth of coastal heritage (including architectural) information. Over this time period he produced over two hundred watercolours of South-West England.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 19.4: During the mid-to-late nineteenth century nearly every seaside town saw the construction of a pier or jetty. This oil painting by John Wilson Carmichael painted in 1861 showing construction work in progress on Bournemouth Pier. The 1,000 foot new pier replaced an earlier 100 foot jetty that was built in 1856. The T-shaped pierhead was swept away in a gale in 1867. A further iron pier replaced this structure in 1880.

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

Figure 19.5: A watercolour by A. R. Quinton, c.1925 showing the ornate Plymouth Pier, which was destroyed in a bombing raid in the Second World War. Such architectural watercolours provide a valuate record of lost heritage.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 19.6: 'The Burgh Island Hotel' at Bigbury-on-Sea' by Alfred Robert Quinton, c.1930. This Grade II Listed Building was built in 1929 of reinforced concrete in the Art Deco style. It is one of numerous iconic seaside hotels that were built in outstanding natural locations around the coastline of South-West England between c.1890-1930.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figures 19.7 and 19.8: The distinguished artist Philip Mitchell RI produced a series of views of the Plymouth coast, which were lithographed by W. Speat c.1850. The view (left) shows the construction of the breakwater in progress.

Private Collection.

Figure 19.8: This view by Mitchell shows the Plymouth Breakwater Lighthouse looking towards Mount Edgcumbe in about 1850. Fine detail could be achieved through the lithographic printing process giving the prints a softer texture, more like that of an original watercolour.

Private Collection.

The Plymouth Breakwater was built by John Rennie and Joseph Waidbeye from 1812 at a cost of £1.5 million, which was funded by the Navy. The Breakwater protects Plymouth, Plymouth Sound and their anchorages. The Breakwater is 40 feet wide at the top and 200 feet at its base, 3,000,000 tons of rock were used for its construction. The structure was completed in 1841.

A wealth of information on the Breakwater is provided by Steve Johnson at www.cyber-heritage.co.uk/breakwater_in_plymouth_sound/

Figure 19.9: 'St Just United Mines' by Thomas Hart. The widespread surface remains of the mine are located on the cliffs north of St Just. The first references to the mine date back to the 1670s although the mine didn't appear on maps until 1748. The mine has been championed as one of Cornwall's top ten mines due to its rich copper yields until the mines' closure in 1930.

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

Figure 19.10: 'The Dolcoath Mine' by Thomas Allom (1832) is the most notable of the Camborne Copper mine series, containing the most complex arrangement of machinery in the country. Passages were up to one mile long with multiple shafts in each; it maintained the accolade of being the deepest mine in Cornwall with a shaft 3,000ft deep. It is first included in historic records in 1738 and was a prolific copper producer during the eighteenth century before switching to tin production in the late nineteenth, and finally closing in 1921. It was the fifth largest copper producer, and highest producer of Black Tin in Cornwall. After several failed re-openings, it was bought by South Crofty Mine in 1936 and became an integral part of Cornwall's last tin mine of the twentieth century.

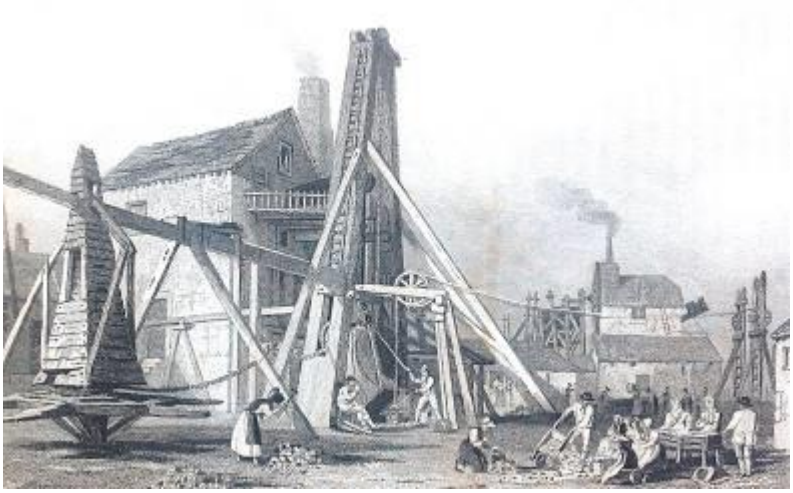


Figure 19.11: 'The Carclase Mine' by Thomas Allom (1832). The name translates to 'Grey Rock', in reference to the decomposed granite that contains the deep, rich veins of tin. The site is situated two miles north of St Austell, Cornwall and historic records suggest it has operated for 400 years. Operations changed through time. Tin used to be taken out of the mine on boats via a tunnel in the side of the cliff, but this practice was abandoned after the tunnel collapsed with boats inside it. After this, waste was drained down-slope whilst the ore was pulverised and refined on site.

Figure 19.12: 'The Chine Clay Pit' by Laura Knight. 1914. St Austell deposits of 'China Clay' were the first discovered in 1755. It rapidly became popular in British pottery and for other uses in manufacturing processes including cosmetic products and medicine. The Kaolin found in St Austell is of the highest quality and purity, giving its bright white colouring. The clay is extracted by spraying with high pressure water jets; the waste is separated from the clay and then dried to remove surplus water and impurities. Trains then took the clay to Fowey and Charlestown ports where it was exported abroad (75%) or elsewhere in the UK. In 1910 Cornwall was producing 50% of the world's China Clay, and St Austell's pits alone, operating for over 300 years, contributed 120 million tonnes.

Case Study Site 20 – Hartland to Clovelly

1. Location

The case study extends from Embury Beacon, 10km south of Hartland Point, then eastwards to the village of Bucks Mills, 6km to the east of Clovelly.

2. Why was the Case Study Site selected?

This exposed, high cliff coastal frontage contains numerous heritage sites of interest including cliff castles at Embury to the south of Hartland, and at Windbury to the west of Clovelly. Further north at Hartland Quay, the ancient harbour flourished in the eighteen and nineteenth centuries; most of the structure was destroyed after a storm in 1896. Images of the old harbour bear comparison with those of the present day. Past Hartland Point to the east is the picturesque village of Clovelly, which was one of the most painted and photographed locations in the nineteenth and early twentieth centuries. At Gallantry Bower at Clovelly, a circular 'bowl barrow' on the cliff edge is a Scheduled Monument. At the eastern end of the case study site at Bucks Mills there is a nineteenth century lime kiln on the east side of the beach.

3. Summary of the Geology, Geomorphology & Coastal Processes

This case study site has both a north-south and east-west orientation, with a foreshore dominated by rocky ledges and outcrops of resistant sandstone, which are exposed to the full force of Atlantic storm waves (Royal Haskoning, 2011[1]). This part of the coast is renowned for its sheer cliffs, reefs and dramatic geology. The coastline is largely composed of sandstones, mudstones and siltstones of the Holsworthy Group of the Carboniferous Period. The coastline is characterised by low erosion rates; however, the clifflines are prone to massive rockfalls and landslides periodically.

4. Risks to Heritage Assets along the Case Study Frontage

The west facing coastline between Embury Beacon in the south and Hartland Point is very exposed to the westerly dominated wave climate and weather systems from the Atlantic. Facing this coastline, the Embury Beacon fort is an Iron Age hill fort on the western side of the Hartland Peninsula. It is located at the top of a heavily eroding cliffline. Aerial photographs show that the inner rampart comprised a bank of simple construction and it has been estimated that three quarters of the original area of the site has been lost, including virtually all the actual occupation area within the inner rampart (Devon and Dartmoor HER, 2015[2]). A detailed study of this location was completed in 2012 (Sims *et al.,* 2014[3]). No paintings or engravings were found of this section of coast through the CHeRISH study and, therefore, the best evidence is provided through aerial photography.

Historically, Hartland Quay was known to have a lime kiln, labourers' cottages, a Malthouse, stores and warehouses. Although the exact date is not known, it is believed the pier was built in the late sixteenth century by William Abbott, inheritor of Hartland Abbey and its estate, along with similar constructions at Bucks Mills and Clovelly. William Daniell RA, on the early part of his voyage round Great Britain in 1814, visited Hartland Quay and described it in the following way, *"Hartland Quay was the first village that we encountered on Devonshire ground, and consisted of a cluster of mean cottages, which had no evident comfort about them but that of being protected by a high mountain from the east wind, and the value of this immunity is counterbalanced by their full exposure to the west, which blows from the sea, and has left marks of its fury on the roof of every cottage. The situation in the village is more than commonly rude and romantic – in front is a little harbour, marked out and secured by semi-circular pier, which might have formed one gentle feature in the sea had it not been for the reef of rocks beyond it. The cottages are so uncouth and weather beaten they seem to have undergone as many changes since their*

formation as the strata of the adjacent rocks" (Daniell & Ayton, 1814-1825[4]).

Hartland Quay was probably at its most prosperous during the eighteenth and nineteenth centuries. In 1841, after the damage to its pier head during gales, its owner, Louis William Buck, was confident enough of the quay's future to raise funds for its repair. The second half of the nineteenth century saw the fortunes of the quay decline, and this was augmented by the arrival of the railway at Bideford in 1855 and the climate of agricultural depression. The end of the pier was washed away in 1887 and was not rebuilt. Already business at the quay had ceased, with the last ship departing in 1893. The stump of the pier was merely refaced and most of the structure's remains were destroyed in a storm in October 1896, bringing the demise of the trade in corn, coal and limestone by sailing sloops that had carried on for nearly 300 years.

The Hartland Pier example illustrates how coastal artworks can describe socio-economic change, not just physical change, over a period of time. Around the coastline of south-west England there are many coastal structures including harbour arms, which may not necessarily achieve the necessary economic criteria to ensure funding for their future protection and maintenance. This may present difficult choices for owners, as well as for local stakeholders and residents. In the face of climate change, including the likelihood of more severe weather events, the safeguarding of such structures is likely to prove increasingly difficult and costly.

To the west of Clovelly, Windbury Head Camp is an Iron Age hill fort, much of which has been lost to coastal erosion. The southern ramparts still exist at a height of approximately 100m above sea level. Whilst no artworks were found that specifically identified the hill fort, the artist Henry Moore (1831-1895), painted a fine view of this part of the coast, looking across Shipload Bay towards Lundy, in the summer of 1857 (see Figure 20.2). The detailed portrayal of the foreground in Moore's painting points to his Pre-Raphaelite training and eye for detail. Many artists painted the dramatic coastal cliffs of North Devon, but they were scenic views rather than specifically highlighting any particular heritage assets. Henry Moore also crossed to the Isle of Lundy, where he painted a fine watercolour of the coastal cliffs and wildlife in 1857. No artworks were found depicting the historic buildings located on the Island.

Unlike the quays at Hartland and Bucks Mills, that at Clovelly has survived the ravages of storms, and the quay is depicted by numerous artists (see figures 20.5-20.11). Within this Case Study frontage there are three Conservation Areas at Hartland, Clovelly and Bucks Mills, as well as cliff top Scheduled Monuments and numerous Listed Buildings and archaeological sites which are at risk of erosion. Clovelly and Bucks Mills may also be at risk of flooding in the future (Halcrow, 2009[5]).

The steep cobbled main street of Clovelly, flanked by whitewashed cottages, leads down to the small harbour, which was the base of a fishing fleet, which prospered in the eighteenth and nineteenth centuries on huge catches of herring. The beach consists of shingle and cobbles from the slowly eroding cliffs. The images of Clovelly illustrate the changing face of this picturesque village from the early nineteenth century up until about 1930.

At the eastern end of the case study area is Bucks Mills, where the village street leads down to the beach and the ruins of a large lime kiln. Adjacent to the village in Bucks Woods is a site of an Iron Age hill fort at Peppercombe Castle.

In the reign of Queen Elizabeth I, a break in the rocks on the foreshore was created with gunpowder to allow access to the small quay, which has since disappeared, creating a small harbour for fishing vessels. It was used in the eighteenth century for the import of all the necessary raw materials, which were burnt in kilns to produce fertiliser. The remains of two of the lime kilns can be seen on either side of the beach access.

5. How can historical Imagery inform heritage risk management?

This Case Study illustrates the strengths and limitations of artworks, which depict coastal villages and harbours but not archaeological sites specifically. They also describe the social history of the locations that they depict.

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

The case studies demonstrate how sites of topographical and touristic interest were favoured as subjects by artists (e.g. Hartland Quay, the wider north Devon coastline and clifflines, and the picturesque village of Clovelly), whilst specific archaeological sites, such as the hill forts at Embury Beacon and Windbury, rarely feature in artworks. For

these sites, clearly historical drawings by antiquarians or past researchers, together with aerial photography, represent the best available medium.

7. References

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2. Devon County Council, 2015. *'Devon and Dartmoor Historic Environment Record'*.
3. Sims, R., Allen, M. J. & Rainbird, P., 2014. *'Iron Age and Medieval Activity and Land Use at Embury Beacon Fort, Hartland, Devon'*. Proc. Devon Archaeol. Soc. 72 (2014, 71-102.
4. Daniell, W. & Ayton, R., 1814-1825. *'A Voyage Round Great Britain'*. Longman & Co.
5. Halcrow, 2009. *'Hartland Point to Anchor Head SMP2'*.

Figure 20A: One of numerous watercolour drawings of *'Clovelly'* by Alfred Robert Quinton. C.1925.

Image Courtesy of J. Salmon Limited of Sevenoaks.

Figure 20.1: 'Hartland Pier' by William Daniell RA. Aquatint Engraving. 1814. This view was produced by Daniell at the start of his eleven year *'Voyage Round Great Britain'* (1814-25) and shows the stone arm/pier in sound condition. The rocky, hazardous coastline and exposure of the location to Atlantic storm waves are obvious in Daniell's view.

Figure 20.2: 'Across Shipload Bay to Lundy Island'. An oil on canvas by Henry Moore RA. 1859. The view looks along the coast towards Windbury Head, the site of an early hill fort. Moore conformed to the Pre-Raphaelite ethos of capturing the natural environment in a precise and accurate way. Views of the coast of South-West England of this quality are numerous. Whilst they show us the nature of the coastline at a point in time they rarely show detail of early heritage sites.

Image courtesy of the Maas Gallery, London.

Figure 20.3: This early aquatint of 'Clovelly' by William Daniell RA, 1814, provides us with an accurate record of the village before its discovery by tourism. **Figure 20.4 (below)** shows the Red Lion Hotel (depicted also in Daniell's view) by the artist, David Addey, on his coastal tour in the footsteps on Daniell, in 1991.

Image courtesy of David Addey.

Figure 20.5: 'Figures on the Beach at Clovelly' by William Turner of Oxford. Watercolour. c.1840. The massive harbour wall is well illustrated in this view. The cottages in Daniell's view (above) are on the left of the harbour.

Image courtesy of John Spink.

Figure 20.6: 'Clovelly from the Pier', a mid-nineteenth century steel engraving taken from the end of the harbour arm. The steep street leads down to the quay from above with cottages clustered round the waterfront.

Figure 20.7: 'A view of Clovelly' by Charles Robertson RWS. C.1880. Like Moore **(Figure 20.2)** he worked in Pre-Raphaelite detail and with a high degree of accuracy.

Image courtesy of Sotheby's.

Figure 20.8: 'Clovelly' by Edward Wilkins Waite. Oil on canvas. 1881. Waite's view is taken looking eastwards past the harbour and along the North Devon coastline.

Image courtesy of Burlington Paintings, London.

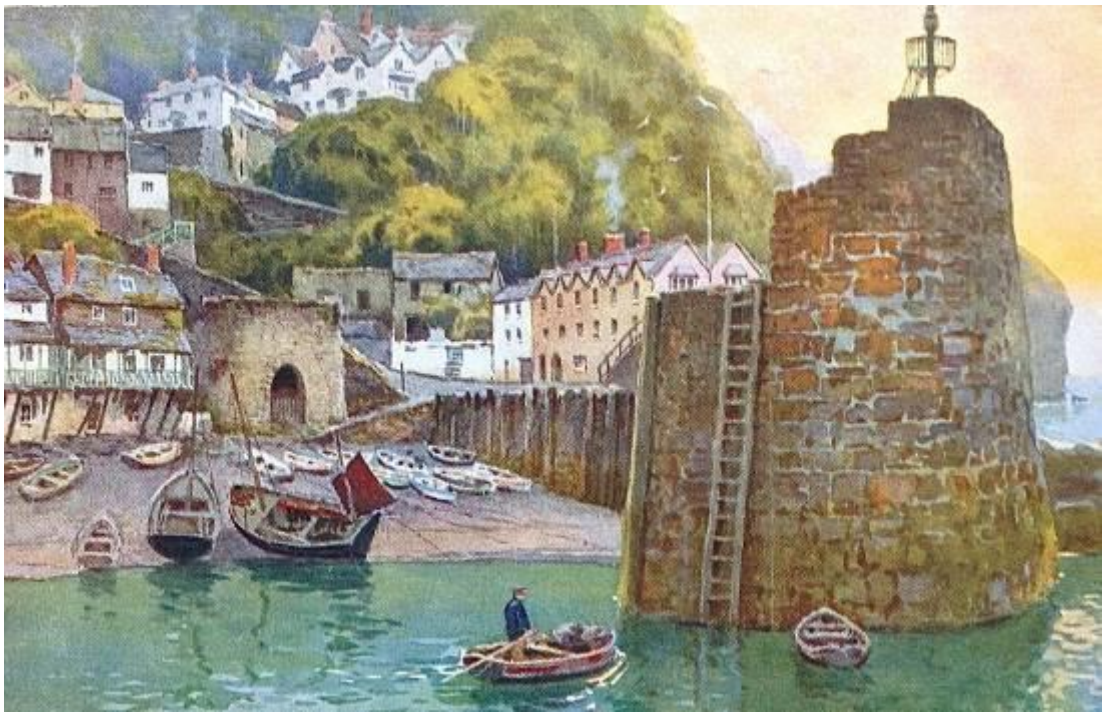
Figure 20.9: This watercolour entitled 'Among the Shingles, Clovelly' is by Charles Napier Henry (1864). Painted in Pre-Raphaelite photographic detail every stone on the beach can be seen together with its height and profile as well as the nature and condition of the harbour wall. Artworks of this kind equal a colour photograph of today in their detail.

Image courtesy of the Laing Art Gallery, Newcastle Upon Tyne.

Figure 20.10 (above): *'Clovelly'* by Alfred Robert Quinton painted c.1920 provides a more detailed view of the interior of the harbour. The buildings on the left and behind can be seen in William Daniell's view in **Figure 20.3**.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 20.11 (below): Henry B. Wimbush, a watercolourist, shows the massive harbour well from water level in c.1895. Both Wimbush and Quinton produced watercolours for use on colour picture postcards with Wimbush working for Raphael Tuck and Quinton employed by Salmon's of Sevenoaks.



Case Study Site 21 – Ilfracombe

1. Location

This case study covers the Ilfracombe town frontage, a distance of approximately 3km from Torrs Park eastwards to Beacon Point.

2. Why was the Case Study Site selected?

Ilfracombe is an example of an important seaside town with a range of interesting architecture set within a dramatic coastal location. There is additional heritage interest with a promontory fort at Hillsborough, together with other recorded sites of note.

3. Summary of the Geology, Geomorphology & Coastal Processes

The geology of the Ilfracombe area comprises mudstones, slates, limestones and sandstones of the Torbay and Tamar Groups of the late Devonian Period. The town is built on steep slopes that rise from a shore of rocks and coarse grey sand. The high cliff line is generally resilient and contributes little to sediment for beach material. However, Jurassic rockfalls can occur from the cliff faces, often on a large scale, and the frequency of such events is likely to increase as a result of sea level rise and coastal change. There are no current proposals to extend the coastal defences along this frontage.

4. Risks to Heritage Assets along the Case Study Frontage

The risks to heritage assets along this frontage are low, although likely to increase slowly. The Case Study was selected to illustrate the merit of artworks in terms of depicting developmental changes.

5. How can historical Imagery inform heritage risk management?

Heritage sites located on or buried close to the north Devon clifflines are likely to be affected eventually by cliff retreat, although it is recognised that this process is slow. The severe storms of 2013/14 saw wave heights of up to nine metres at Ilfracombe, resulting in structural and flood damage. St Nicholas Chapel and lighthouse on Lantern Hill, overlooking Ilfracombe Harbour and the open sea, is a Grade I Listed Building, whilst Ilfracombe's promenade pier (MDV69991) is recorded in the Devon and Dartmoor HER. These structures and the patterns of development at Ilfracombe over time are illustrated through numerous artworks, many of which are shown below. Apart from indicating the proximity of heritage sites to the sea coast, they provide a continuous record of the changing patterns of development that have taken place in this important seaside resort over the last two centuries.

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

The images contained in the Ilfracombe case study provide a comprehensive depiction of the changes that have taken place along the town's frontage since the early nineteenth century. They provide detailed depictions of the coastal geology and landscape, as well as showing the gradual development of the town and the changes that have taken place at the harbour and along the seafront over that time. The case study also contains highly detailed watercolour drawings of the coastal landscapes and these offer direct comparisons with photographic images. Examples are provided (as was the case with the previous case study at Clovelly) of the meticulous work of Victorian artists, who provided images that, in some cases, matched the quality of present day colour photography. Bearing in mind that colour photography did not become widely used until the 1920s and 1930s, such representations provide the only colour images of the south-west coast of England right through the Victorian and Edwardian periods.

Figure 21.1 (above): The rugged and beautiful North Devon coastline is captured in this detailed watercolour by Frederick Jones, c.1860. The developing town with St Nicholas Chapel (Grade I) overlooking the harbour entrance was also a lighthouse and important landmark.

Figure 21.2 (below): *'Beacon Point, Ilfracombe looking eastwards from Capstone'*.

Both images courtesy of © Bristol Culture (Bristol Museum & Art Gallery).

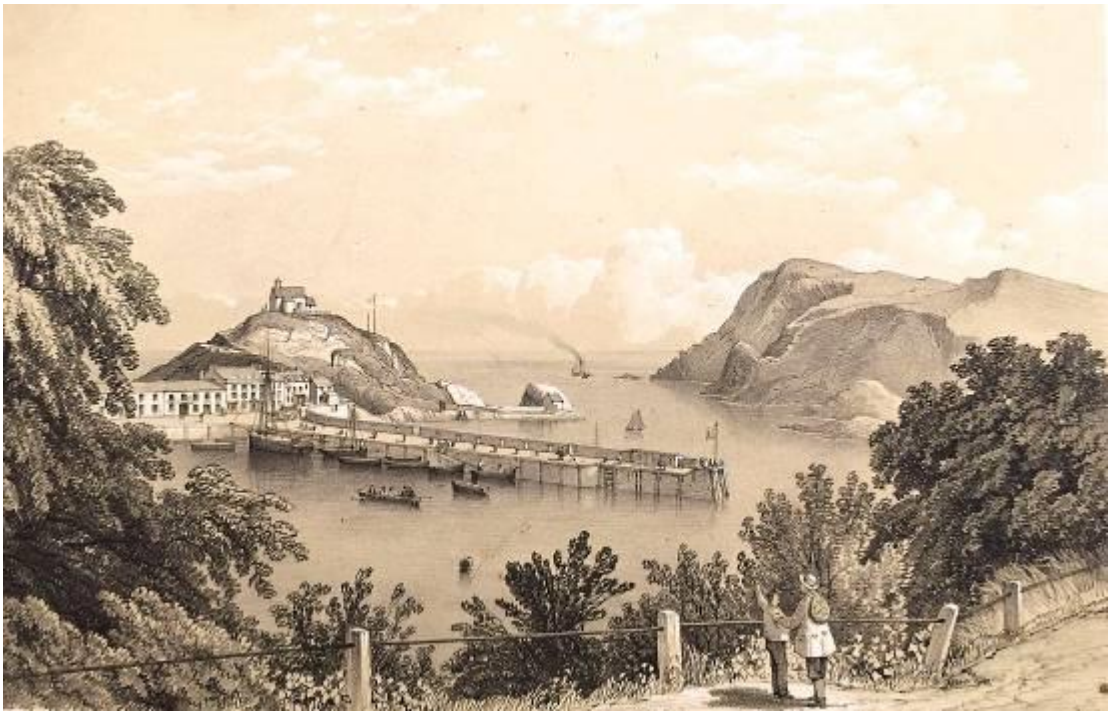


Figure 21.3 (above): A fine mid-nineteenth century lithograph by W. Spreat showing Ilfracombe's natural harbour, which is sheltered further by the jetty. St Nicholas Chapel dominates the skyline with Hillsborough (the hill on the right) being the site of a Promontory Fort. c. 700BC-42AD (MDV 2210).

Figure 21.4: 'Lantern Hill and Harbour' by Alfred Robert Quinton, watercolour c.1920 shows the harbour before it was extended with a concrete structure in 1958.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 21.5 (below): shows the same view today.

Figures 21.6 (left) and 21.7 (middle) provide two further highly detailed 'geological views' of the entrance to Ilfracombe Harbour in the 1860s (a further fine watercolour of this subject is held by Ilfracombe Museum). Frederick Jones' views date from the mid-1860s and show exactly the nature and condition of the harbour arm and the Chapel (see also **Figures 21.1 and 21.2**). **Figure 21.8 (bottom)** shows the view today from the end of the harbour. The chapel on Lantern Hill has been a lighthouse since at least 1852 and was later used as a Summer Reading Room. **Figures 21.6 and 21.7** © British Culture (Bristol Museum & Art Gallery).

Figures 21.9-21.11 show three views of Capstone Hill at Ilfracombe, a local landmark, viewed from the west. **Figure 21.9 (left)** is a lithograph c.1840 and shows a signal station on the summit of the hill.

Figure 21.10 (left) was engraved in about 1850 and shows the developing resort also looking eastwards.

Figure 11 (left): An early 20th century photograph showing Capstone Hill with the path cut across its cliff face allowing access round the headland.

Image: Wikimedia Commons Licence.

Figure 21.12 (left) shows the Ilfracombe Hotel and Wildersmouth Cove in the late 1860s; the hotel was the largest in the town and opened in 1867. The hotel had its own Esplanade and seawater baths.

Figure 21.13 (middle): In this view by Alfred Robert Quinton the Ilfracombe Hotel occupies a grand position overlooking the dramatically portrayed rocky beach at Low Water. This watercolour was painted c.1920 and also shows the Granville Hotel, which opened in 1891.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 21.14 (bottom): The present day view showing the site of the former Ilfracombe Hotel, which is now occupied by the Landmark Theatre.

Figure 21.15 (above): This pair of views illustrate the photographic accuracy that could be achieved by some of the best nineteenth century artists such as Frederick Jones (Fl.1860s). Such detailed portrayals of cliff faces allow not just qualitative but also quantitative assessments to be made of cliff and coastline change. These views show Hillsborough, which includes a promontory fort on its summit (MDV2210).

Image **(top)** courtesy of © British Culture (Bristol Museum & Art Gallery); image **(bottom)** courtesy of Steve Daniells/Wikimedia Commons Licence.

Case Study Site 22 – Exmoor

1. Location

The case study frontage extends along the north Devon coast from Combe Martin eastwards to the western side of Minehead in Somerset; a coastal frontage of approximately 40km.

2. Why was the Case Study Site selected?

The case study covers the coastal extent of the Exmoor National Park. The aim of the National Park is to conserve and enhance the natural beauty, wildlife and cultural heritage of the park and to promote opportunities for the understanding and enjoyment of the park by the public. Along this largely natural and very beautiful coastline there are Conservation Areas at Lynton, Lynmouth and Porlock. Heritage assets include the lime kiln at Heddon's Mouth, Martinhoe Castle (Roman signal station), Duty Point Tower at Lee Abbey, the village of Lynmouth, and the coastguard station at Hurlstone Point near Bossington, Somerset.

3. Summary of the Geology, Geomorphology & Coastal Processes

The coastal geology comprises almost entirely sandstones and limestones of the Torbay and Tamar Groups of the mid to late Devonian Period. Much of this coastline is undefended and the natural processes of weathering, coastal erosion and cliff instability are allowed to continue. Between Combe Martin and Lynmouth erosion over the next 100 years is likely to have an impact on Scheduled Monuments, Listed Buildings and other non-designated archaeological features; however, the Lynmouth frontage will continue to be protected. Extending eastwards to Porlock, again there are no proposals for further coastal defences along this frontage.

At Porlock Weir, the defences here are privately owned and the owner has indicated an intent to maintain them. However, the long term sustainability of defences at this location is under further consideration. Eastwards from Porlock Weir to Hurlstone Point the coastline would be allowed to retreat naturally, with the loss of a number of Scheduled Monuments located in the low-lying floodplain as the shoreline moves landwards. This is in line with established policy in the area, implemented by the National Trust and the Environment Agency, who are currently investigating how to mitigate future flood risk through land use change as part of a separate study (Halcrow, 2009[1]). A further section of the coast from Hurlstone Point to Minehead will also allow the natural evolution of this frontage without any active intervention.

4. Risks to Heritage Assets along the Case Study Frontage

The North Devon and Somerset SMP (Halcrow, 2009[1]) has identified the potential impacts of coastal change on a number of heritage sites as through ongoing natural processes or through possible changes in coastal defence policy from 'hold the line' to 'managed realignment, or 'no active intervention'. Heritage sites along this frontage are located close to the top of, or along the foot of high cliffs and slopes. Some of these sites are not at immediate risk, for example, the Roman signal station of Martinhoe Castle. However, the two storey castellated Duty Point Tower stands on the very edge of the cliff at Lynton, and is at risk in the foreseeable future.

5. How can historical Imagery inform heritage risk management?

The picturesque setting of Lynmouth, with its steep, wooded cliffs and fast rivers flowing down to the Bristol Channel, has been the site of devastating floods in the past. Historical images show the gradual development of the village over the last 200 years along the narrow confines of the valley, and at the point where it meets the river meets the sea. Images of this kind can form an additional tool to inform flood risk management. Sites of heritage significance were not always identified as a suitable subject for artists unless perhaps they had a particular

picturesque value. As a result, some of the sites along the Exmoor coast do not feature as artistic images. In these cases, oblique or vertical aerial photography are most informative in support of site management. These issues are explored through the series of images and captions provided below.

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

The case study site provides a range of illustrations of heritage sites of interest located close to or on the Exmoor coastline. Artistic images of some heritage features do not exist and, therefore, aerial or oblique photographs represent the best opportunity for study. The strength of the artistic images is in the depictions of the coastal villages such as Lynmouth, where its history and changing patterns of development since the early nineteenth century can be clearly understood.

7. References

1. Halcrow, 2009. *'Hartland Point to Anchor Head SMP2'*.

Figure 22A: A panoramic view along the Exmoor coastline showing *'Castle Rock, Lynton'*. A watercolour by Alfred Robert Quinton. 1925.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 22.1: This lithograph produced in the 1840s shows Heddon's Mouth to the North-West of Martinhoe. The Post-Medieval lime kiln (MDE1026) is located on a ledge above the River Heddon and close to the shore. The structure was restored by the National Trust in 1982. Access steps lead to the kiln working area from the shore. In the past the kiln has suffered severe storm damage in this exposed location.

Figure 22.2 (right) and Figure 22.3 (below) show the location of Duty Point Tower at Lee Abbey near Lynton. This mid-nineteenth century romantic lookout tower is an important local landmark (Grade II Listed). The tower is located on the edge of high cliffs and is at risk from coastal erosion and rockfalls beneath. No artworks of the tower itself have been found although the engraving **(right)** shows the Abbey and its grounds. The aerial photograph **(below)** (c.1930) shows the Duty Point headland and Lee Bay beyond.

Image courtesy: HES Britain from Above.

Figures 22.4-22.6 show three views of the village of Lynmouth spanning the time period from 1814-1990.

Figure 22.4 (left) is an aquatint engraving by William Daniell RA produced at the start of his eleven year *'Voyage Round Great Britain'*. Generally, Daniell's scenes, and especially the architecture, are topographically accurate.

Figure 22.5 (middle) shows the same view in about 1920 depicted by the watercolour artist Alfred Robert Quinton. A new wall provides protection for the additional row of houses that were built after Daniell's visit.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 22.6 (bottom): The former architect and artist, David Addey, retraced Daniell's tour painting over 400 watercolour drawings in the late 1980s-early 1990s. The row of properties remain almost unchanged since Daniell's visit.

Image courtesy of David Addey.

Figure 22.7 (left): A highly detailed lithograph of the Lynmouth coastal frontage by George Rowe c.1835. The developing village can be seen together with the harbour and its distinctive Rhenish Tower (see also **Figures 22.10** and **22.11 below**). Elegant properties have been built on the steep, cultivated hillside beyond.

Figure 22.8 (middle) shows a similar view by A. R. Quinton, c.1925. The village was struck by a devastating flood in August 1952 following torrential rainfall with the combined flows of the East and West Lyn Rivers discharging through the village on the way to the sea.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 22.9 (bottom) shows the river valley as a scene of tranquillity. This finely engraved lithograph by W. Spreat, c.1840 provides exact details both architectural and topographical.

Figure 22.10: This detailed architectural watercolour by A. R. Quinton, c.1920 shows the view looking down Mars Hill towards the distinctive Rhenish-style tower. It was built in c.1860 to store sea water for bathing (MDE 21018). The tower was destroyed in the 1952 floods but rebuilt.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 22.11 (middle) shows a further detailed view of the tower by Myles Birket Foster RWS, the leading and perhaps finest watercolourist of the mid-to-late nineteenth century.

Photograph courtesy of Marshall Spink, London UK/Bridgeman Art Library.

Figure 22.12 (below): A fine watercolour by Albert Goodwin RWS, 1877, showing Lynmouth and Countisbury Hill from the shore at Low Water. Goodwin produced numerous Devon coastal views.

Image courtesy of Chris Beetles Gallery, London.

Figure 22.13: 'Porlock Weir' by Edward William Cooke RA. 1862. Cooke was a remarkably accurate painter, a Fellow of the Royal Society with a fascination for coastal geology. His views of the coast are of photographic quality (see also Case Study 8: Beer). Encouraged by the art critic John Ruskin, Cooke sought to capture nature exactly following the ethos of the Pre-Raphaelite Brotherhood.

Image courtesy of Martyn Gregory Gallery, London.

Figure 22.14: 'A photograph of Porlock Weir in the 1950s.' The defences here are privately owned (by the National Trust) and there is a coastal defence policy of 'No Active Intervention' in place for sustainability reasons. **Figure 22.15 (below left):** Porlock Weir was also painted by A. R Quinton in watercolour (c.1920); these properties still line the waterfront.

Figure 22.16 (below right) shows the old Coastguard Lookout Station' at Hurlstone Point near Bossington, Somerset to the east of Porlock. The two-storey building was erected c.1900 and was manned up to World War II (MSO 8110).

Image courtesy of Graham Horn. Creative Commons Licence.

Case Study Site 23 – Minehead to Clevedon

1. Location

2. Why was the Case Study Site selected?

This extensive section of the north Somerset coast contains eroding, natural clifflines, small harbours, estuaries and flourishing seaside resorts. The study site provides the opportunity to illustrate the potential uses for historical artworks in support of coastal heritage management at a wide range of sites. The coastal maritime heritage of north Somerset is very rich and has been described comprehensively (Webb, 2010[1]).

3. Summary of the Geology, Geomorphology & Coastal Processes

The coastline is dominated by mudstones and siltstones of the Mercia and Penarth Groups of Triassic age, from Minehead to Watchet in the west and south of Weston-Super-Mare to Clevedon in the north. The section of coast between Watchet in the west to Brean Down comprises mudstones and limestones of the early Jurassic Lias Group. Despite the more sheltered waters of the Bristol Channel, the undefended sections of the coastline are prone to coastal erosion, with flooding being another significant risk. Coastal defences and harbour walls provide protection for the main settlements along this frontage.

4. Risks to Heritage Assets along the Case Study Frontage

The towns of Minehead and Watchet both contain Conservation Areas and these may be at risk from flooding. Scheduled monument sites between Minehead and Hinkley Point are also likely to be affected increasingly by flooding in the future. The Conservation Area at Burnham-on-Sea is also susceptible to flooding, including several Grade II Listed buildings. Weston-Super-Mare is also a designated Conservation Area which is susceptible to flooding; there are also seven Scheduled Monuments located on low-lying ground that are at risk from erosion. There are numerous Grade II Listed buildings and sites of archaeological importance that may be susceptible to flooding increasingly in the future (Halcrow, 2009[2]).

Some sites along this coast have been affected by erosion for a considerable period of time. For example, Daw's Castle is located on the edge of the cliffs approximately 2km to the west of Watchet. A large part of this site has been eroded in the past and with the policy of 'no active intervention', further losses here can be expected. Along much of this coastline, the shoreline management plan (Halcrow, 2009[2]) has identified a potential loss of a number of non-designated archaeological sites where coastal erosion is likely to continue.

5. How can historical Imagery inform heritage risk management?

Through this case study the opportunities and limitations provided by artworks in terms of supporting heritage risk management are illustrated. For some heritage sites, including those at risk, few images have been found. These mainly relate to archaeological sites on the open coast. More images are available for the settlements and developing coastal towns and resorts, which were visited by many artists during the late nineteenth and early twentieth centuries. Certain artists, such as Edward William Cooke RA, produced detailed oil paintings of the coastal scenery which are so precise that they could support not just qualitative but quantitative assessments of coastal change along specific frontages (Munday, 1996[3]). A further aspect illustrated by this case study is the detailed depiction of developing seaside resorts during the Victorian period in particular, and this is particularly well

illustrated through images of Weston-Super-Mare and Clevedon.

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

The elegant Victorian architecture of these important seaside towns is particularly well described through the artworks in this case study and shows the progressive development of these resorts and the buildings now included in their Conservation Areas. Artistic works along this coastline include some highly detailed images, which are supported by literature accounts (e.g. Munday 1996[3]), which can allow analysis of the rate of coastal change since the 1860s. For specific heritage sites photography remains the best choice of medium for research.

7. References

1. Webb, A. J. (Ed.), 2010. *'A Maritime History of Somerset'*. Vols. 1 & 2, Somerset Archaeological & Natural History Society. ISBN: 978-0-902152-21-2.
2. Halcrow, 2009. *'Hartland Point to Anchor Head SMP2'*.
3. Munday, J. 1996. *'E. W. Cooke – A Man of His Time'*. Antique Collector's Club. ISBN: 1-85149-222-4.

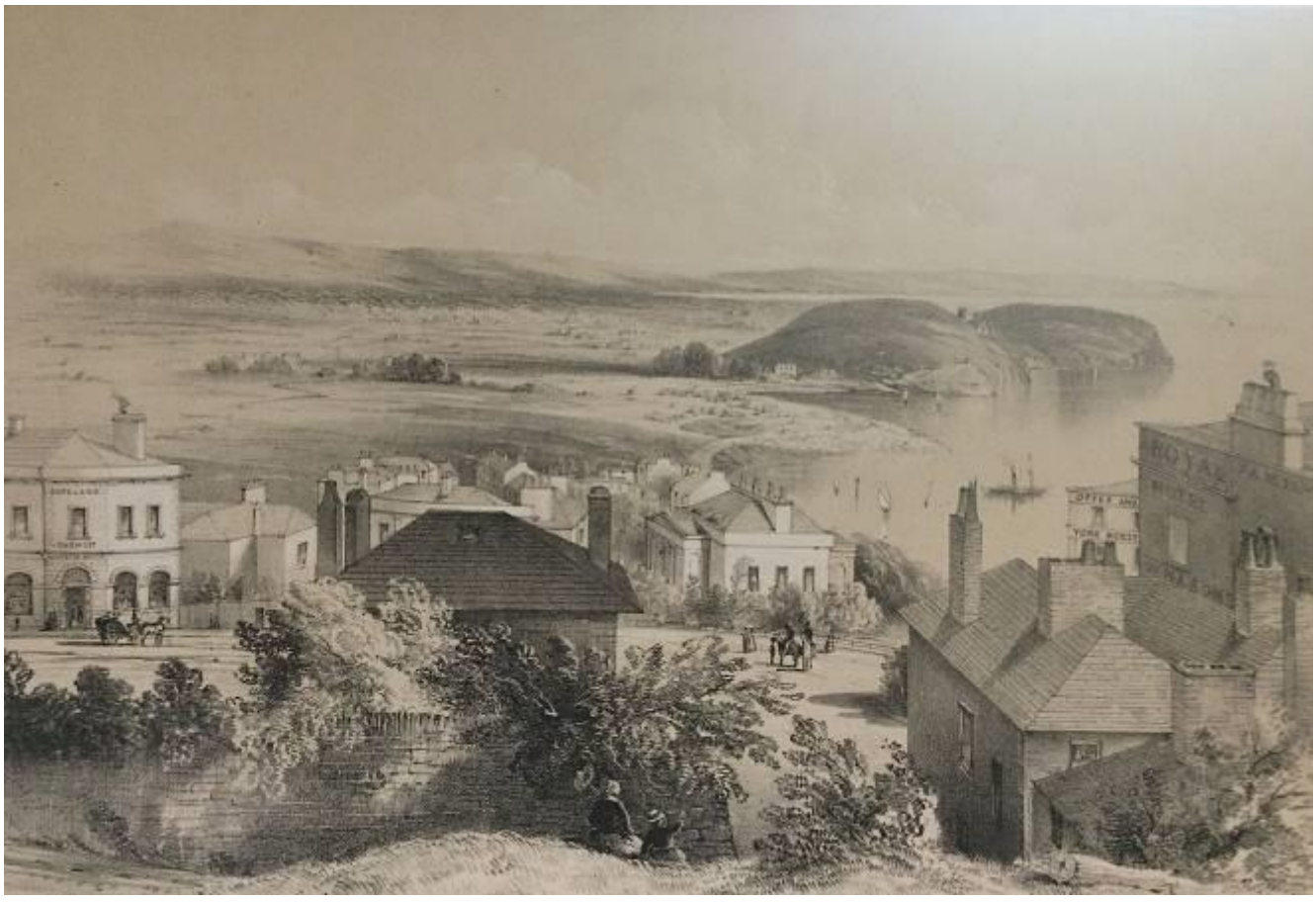


Figure 23A: Elegant Clevedon – a view of the town accurately lithographed in about 1860.

Private Collection.

Figure 23.1: East Myne Camp (MS07577) near Minehead is located on North Hill between Minehead and Selworthy Beacon. Drawing by J. Burrow 1924.

Figure 23.2: A highly detailed geological painting of 'Blue Anchor Bay' by Edward William Cooke RA. Oil on canvas. Cooke painted a series of views along the Somerset coast in 1862 painting also Minehead and Dunster from Blue Anchor, and Porlock.

Image courtesy of the Guildhall Art Gallery, London.

Figure 23.3: The view by A. R. Quinton painted in watercolour, c.1920 shows the Esplanade and North Hill at Minehead.

Image courtesy of J. Salmon Limited of Sevenoaks.

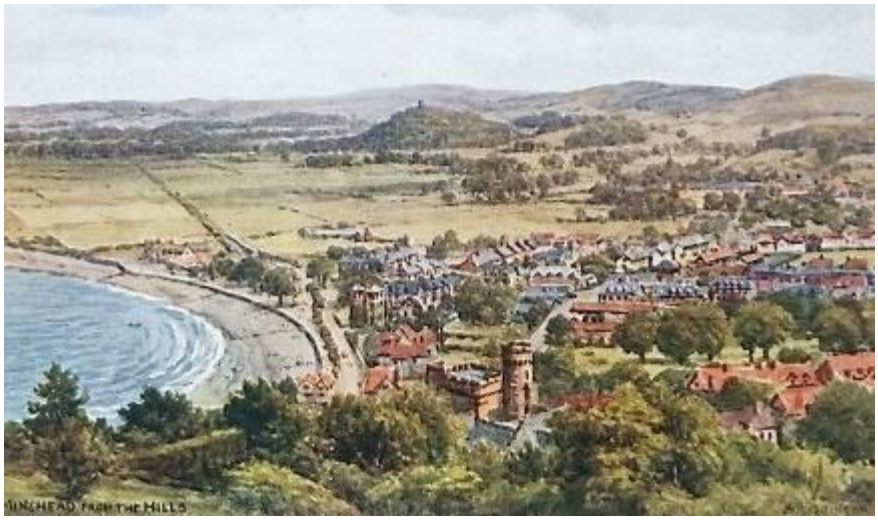


Figure 23.4: A further fine watercolour by A. R. Quinton, c.1920, this time looking south-eastwards over Minehead towards Dunster.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 23.5: 'Daw's Castle near Watchet' drawn by J. Burrow, c.1924. Lying 2km west of Watchet the originally extensive camp has been dramatically reduced in size by coastal erosion.

Figure 23.6: (below): This fine oil painting by William Henry Hopkins painted in 1856 looks north along the coastal frontage of Burnham-on-Sea. One of the three lighthouses built here can be seen on the right.

Image courtesy of North Somerset Council/Somerset Heritage Service.

Figure 23.7 (left): An early view of Weston-Super-Mare in 1815 showing the Inn and Brean Down well before the development of the resort.

Image courtesy © Bristol Culture (Bristol Museum & Art Gallery).

Figure 23.8 (left) and 23.9 (below) show the developing resort of Weston-Super-Mare in the 1840s-1850s. The medium, lithography, allowed fine detail to be achieved with this technique. The view **(left)** was by the prolific illustrator George Rowe who depicted many of Devon's and Somerset's coastal towns and villages.

The view below is taken from the Knightstone Baths.

Figure 23.10: This fine lithograph shows the elegant properties lining the seafront of Weston-Super-Mare in about 1855. Such images, of which there are many for most coastal towns, allow us to trace changes to Listed Buildings and Conservation Areas through the rapid development in the Victorian and Edwardian eras.

Figure 23.11: The Birnbeck Pier, a Listed (Grade II*) structure, was built in 1867 and is the only pier in Britain that links the shore to an island. The pier would have been built about forty years before A. R. Quinton painted this watercolour.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 23.12 (left): A view over Weston-Super-Mare by A. R. Quinton painted in about 1920. This view shows the Grand Pier.

Image courtesy of J. Salmon Limited of Sevenoaks.

Figure 23.13 (left): This oil painting by William Henry Hopkins, c.1860, shows the nature of the beach, seawall and Esplanade at Weston-Super-Mare at that time. Taken at Low Water the extensive sandy shore is visible.

Image courtesy of North Somerset Council/Somerset Heritage Service.

Figures 23.14 (left) and 23.15 (below) are two views of the elegant resort of Clevedon, which marks the northern end of this Case Study. Lithographed from drawings by Lady Elton they show the developing town in 1838. Like the views of Weston-Super-Mare such accurate drawings plot the history of the principal buildings through the nineteenth century and beyond.

6.3. Analysis of results from the case studies

6.3.1. Introduction

This analysis considers, through the case studies, how successfully historical images can inform heritage risk management in south-west England. The wider assessment was greatly assisted by the input and interest of a wide range of stakeholders, including, particularly, the Heritage Officers within local authorities and staff involved in coastal management. The analysis has raised a number of key questions relating to the role of artworks and photographs in this context and these are considered below.

1. What is the availability of images for the south-west coast?

The rich art history of the south-west of England has been described in detail in Chapter Four of this report, and the art and photographic image resources held in local, regional and national collections has been set out in section 4.3. For this project a total of 3,600 copperplate engravings, steelplate engravings, lithographs, aquatints, oil paintings and watercolour drawings were located and examined in detail. Most of these artworks relate to the nineteenth century and the twentieth century up to 1930. Some images date from the mid to late eighteenth century (1770-1800), but there were fewer suitable images for the period 1930-1950. This was partly a reflection of changing tastes away from the detailed traditional paintings and watercolours exhibited at the Royal Academy during the Victorian and Edwardian eras, and also because of the interruption caused by the Second World War.

Of this large number of artworks, the majority can be described as 'topographical views'. The French Revolution and the Napoleonic Wars had prevented continental travel up until 1815 and, as a result, there was a much greater focus on the English landscape by artists and their patrons. Many artists chose to paint more remote and picturesque regions such as the coastlines of the south-west of England. Prior to the Napoleonic Wars, the landscapes of England were regarded as rather uninteresting and not worthy subjects for artists compared with the dramatic landscapes of the Alps and Italy. In order to find favour with their wealthy patrons, some artists chose to exaggerate the English landscape artworks so that they were more in tune with tastes at that time. Through a ranking system for the various types of artworks, as set out in Chapter Five of this report, a screening has identified those artists which captured the south-west coastal scenery in the most accurate way, and with the greatest relevance to heritage.

The most painted locations tended to be the developing coastal towns and villages and their ports and harbours. A repetition of the same views of these towns and villages over a two hundred year period provides an interesting chronology of development and change as a result of both natural and human factors over time. Other artists painted views looking out to sea from the cliff tops or looking along the cliffs, and some of these capture the sites of existing and past heritage. Whilst a particular strength of the artworks examined are the detailed portrayals of the most attractive and most visited locations, views of some heritage sites such as the promontory forts and cliff castles that are found around the south-west Peninsula were rarely depicted in sufficient detail to show the actual sites of heritage interest (often ruins) themselves. It may be interesting to see how, from some of these paintings, the coastline has changed over time through the processes of coastal erosion and landsliding, but for archaeological detail we have to rely on the watercolour drawings and prints of antiquarians such as Peter Orlando Hutchinson and Sir Henry Englefield in Dorset (Butler, 2010[1]; Englefield, 1816[2]) and the works of J. Burrow on the Somerset coast (Burrow, 1934[3]).

2. What style of artworks have proved most informative in the CHeRISH Study?

Section 5.2 of this report considered the ranking of artworks and photographs in terms of their accuracy and usefulness in support of coastal heritage risk management. As far as our project is concerned, two categories are particularly important. First, 'topographical art' which comprises coastal landscape paintings, watercolours and prints. This is a rich resource for the south-west and there was a great deal of interest by artists in the coastal towns and fishing villages located on the open coast, as well as the tidal creeks, estuaries and harbours. There are, therefore, many works that can inform us of what coastal landscapes and environments were like at the time they were painted and, so, such works make a major contribution to this study. Accurate topographical art was most readily available from the second decade of the nineteenth century when illustrated books started to appear for wealthy tourists. Some artists made particular efforts to ensure that when engravings were produced from their original paintings they were faithful in terms of detail. In fact, in most cases books containing topographical views, particularly steel engravings, were of a high degree of accuracy. A detailed study of steel engravings in nineteenth century topographical books was made by J. M'Kenzie-Hall (M'Kenzie-Hall, 2011[4]). Later, as more visitors came to the coast, there was a demand for accurate depictions in colour for customers to take home to remind them of their visits to the coast.

By the late 1840s, with the formation of the Pre-Raphaelite Brotherhood in 1848, and with the encouragement of the leading art critic, John Ruskin, landscapes started to appear which were often of extraordinary accuracy. Ruskin had described the aims and objectives of Pre-Raphaelite art as follows: *"Pre-Raphaelitism has but one principle, that is absolute, uncompromising truth in all that it does, obtained by working everything down to the most minute details from nature and from nature alone"* (Ruskin, 1853[3]). The Pre-Raphaelite mission of truth to nature, an objective which entailed the accurate study of natural phenomena such as rocks and coastlines, was an objective pursued not just by Pre-Raphaelite artists themselves, such as John Brett (1831-1902), but also importantly Edward William Cooke RA (1811-1880), who took a keen interest in the geology of the south-west coastline, painting it with great accuracy and precision. A succession of Pre-Raphaelite 'Followers' continued this philosophy up until the 1880s and this has resulted in a significant number of highly accurate portrayals of the south-west coast.

3. Who were the key artists working in south-west England that can inform the CHeRISH Study?

From a long list of artists who worked around the coastlines of south-west England there are three that deserve specific mention on account of both the extent of their travels and their topographical accuracy at different points in time. The first of these is William Daniell RA, who, with his author colleague, Richard Ayton, commenced his *'Voyage Round Great Britain'* at Land's End in 1814 (Daniell & Ayton, 1814-1825[6]). Daniell spent the next eleven years on an artistic journey, recording the coastal scenery of England, Wales and Scotland, eventually returning back along the south-west coast of England to complete his voyage in 1825. Daniell's voyage and the resulting 308 aquatint engravings and accompanying text by Richard Ayton, is recognised as the most remarkable and accomplished of all the nineteenth century illustrated books published about the British Isles. Daniell produced fifty-two aquatint engravings of the CHeRISH study area and, of these, forty-two relate to the south coast of England between Christchurch in Dorset and Land's End, whilst a further ten illustrate the northern coasts of Cornwall and Devon. Many examples of Daniell's work are included in the body of this report and within the case studies, as they represent a

benchmark for *'the state of the coast of south-west England'* for the second decade of the nineteenth century.

Perhaps the greatest coastal painter of the mid-to-late nineteenth century was Edward William Cooke RA (1811-1880). Cooke was a Fellow of the Royal Society, a Fellow of the Geological Society, a Fellow of the Society of Antiquaries, and a Fellow of the Geological Society. He is best known for his highly detailed geological coastal views (see case studies 8, 17 and 23). Praised by Ruskin for the Pre-Raphaelite detail of his works, Cooke's photographic paintings and watercolours, such as those of Beer Head in Devon, would allow quantitative assessments to be made of coastal change, through comparison with present day photographs. He is, therefore, a key artist emerging from this study (Munday, 1996[7]).

The third artist of particular note is Alfred Robert Quinton (1853-1934), who was an English watercolour artist known for his paintings of British villages and landscapes, many of which were published as colour picture postcards for J. Salmon Limited of Sevenoaks. Quinton produced over 2,000 views of the English and Welsh coastlines, including over 200 of south-west England; numerous examples are illustrated in the case studies. Quinton's work plots the expansion of our seaside towns and villages through the Edwardian period and up to the 1930s. He was one of the last of the artists of that period to paint traditional landscape watercolours in a highly accurate and detailed manner. In view of the detail and accuracy, Quinton's works provide an improved understanding of the expansion and alteration of our coastal towns and villages and record changes to historic buildings and their surroundings over that time period. Together with Daniell's views, painted a hundred years before, the works of these two artists allow us to make direct comparisons of both the physical and the built environments, noting the changes that have taken place over that time.

The timeline for the CHeRISH project study extended from 1770-1950. In May 2016, a further fascinating collection of detailed watercolours came to light that were painted between 1988 and 2002 by the former architect and distinguished watercolour artist, David Addey. Addey chose to follow in the footsteps of William Daniell, retracing Daniell's voyage round Great Britain and painting, as closely as possible, from the locations that Daniell had chosen on his voyage. The result was over 400 watercolour drawings, which include forty-eight of south-west England. Addey's collection provides a further benchmark which allows us to assess changes to the south-west coastline 175 years after Daniell's voyage was completed, and sixty years after A. R. Quinton's death. In many of the case studies the works by Addey have been shown alongside those of Daniell, and changes or lack of change have been noted (Addey, 1995-2002[8]). Further details of the works of these three artists are provided in Appendix 3.

The names of some key artists have been mentioned, and many others can contribute to our understanding of the changing south-west coast. Some of these worthy of note include Myles Birket Foster RWS, who was the leading watercolourist of the mid and late Victorian period, painting watercolours in a highly detailed and precise manner. Charles Robertson, who was also influenced by Pre-Raphaelite thinking, produced detailed views of Lyme Regis and Clovelly, whilst Samuel Edward Kelly, who worked in the Edwardian period, painted fine watercolours such as Babbacombe Bay, Devon (see case study 12). Other artists depicted coastal heritage sites from the sea, and foremost amongst these was Charles Napier Hemy RA RWS (1841-1917). As well as being a master of sea painting, he was a fine architectural draughtsman, as demonstrated in his oil painting *'Lining for Mackerel off St Mawes Castle'* (see figure 17.4). William Trost Richards painted a fine watercolour of Tintagel Castle, Cornwall, viewed from the sea (see figure 17.15).

4. To what extent can we understand coastal change and risk from art?

The physical impacts of coastal change are cliff retreat as a result of coastal erosion at the toe of cliffs or unstable slopes resulting in rockfalls or landslides, whilst on low-lying areas flooding by the sea is a common problem. The impacts of coastal change are clearly demonstrated through artworks. For example, along the Dorset and south Devon coasts, the impacts of erosion and largescale landsliding are admirably depicted and are illustrated in case studies 1, 7 and 9. Clifflines, such as those found extensively in the south-west, are often considered to be static features with very slow rates of change observed. However, an examination of a number of key sites, including Prehistoric promontory forts and other cliff top heritage sites, show the steady retreat of even these cliff lines over time.

Paintings and watercolours, as well as literature accounts, show heavily jointed or fractured cliffs and evidence of massive rock falls along the shorelines below. Rockfalls and other landslide events over the last three years alone have resulted in dramatic land losses, which have affected both amenities and heritage sites. The rate of change along hard rock frontages is likely to increase as a result of sea level rise, and a greater frequency of unsettled weather patterns. Most coastal artworks are of cliffed frontages rather than low-lying coasts, although there are some examples of paintings of coastal lowlands and particularly of beach scenes. However, there are very few artworks which depict flooding events as opposed to coastal erosion or instability. In order to illustrate the topographical accuracy of some of the higher ranking artists that painted in south-west England two examples are provided below, which show an oil painting by Edward William Cooke RA and a watercolour by Samuel Edward Kelly. The clarity and detail that these artists have achieved in the two media demonstrates the truthfulness and reliability of their works.

Edward William Cooke (1811-1880) was more that just a distinguished landscape painter. He was elected a Fellow of the Linnaean Society in 1857, a Fellow of the Geological Society in 1862 and his election as a Fellow of the Royal Society, an uncommon distinction for a painter, came in 1863 shortly before he was made an RA. Cooke's father, George Cooke, had engraved copper plates for Sir Henry Englefield Bt. that appeared in his '*A Description of the Principal Picturesque Beauties, Antiquities and Geological Phenomena of the Isle of Wight and adjacent Coast of Dorsetshire* (Englefield, 1816[2]). Englefield had stated that '*in no instance has accuracy been sacrificed to the effect of the engraving'.* This ethos underpinned E. W. Cooke's work throughout his life with him receiving highly favourable comment from John Ruskin the great Victorian art critic (Ruskin, 1853[5]). On Cooke's election to the Royal Academy in 1863 the Illustrated London News said of him '*The prime characteristic of Mr Cooke's art is literal fidelity to nature. He is probably the most scientifically accurate painter we possess. His pictures provide exact reproduction of the outward aspects of the natural world satisfying the geologist, botanist, meteorologist, architects and shipbuilder*' (Illustrated London News, 1863[9]). Cooke's views of the south-west coast were originally intended to form a volume entitled '*The British Coast'***,** however, the work was never completed for publication. Figure 6.4.1 shows Cooke's view of '*Fishing Cove of Beer'* one of several views of the location. His artwork compares almost exactly with the photographs below.

The watercolourist Samuel Edward Kelly (1862-1935) produced highly detailed watercolours of the south-west coast. His view of '*Oddicombe Beach'* near Torquay painted in 1910 is a fine example of his work. Kelly followed the Pre-Raphaelite ideal of capturing nature faithfully and this is evident in this scene, which shows the precarious cliffline above the beach as well as the debris from previous falls. Comparison with recent photographs confirms the level of accuracy that artists could achieve with the brush alongside photography.

Figure 6.4.1: *'The Fishing Cove of Beer'* by E. W. Cooke 1858. The Upper Chalk exposure of Annis Knob also shown in **Figure 6.4.2. (right)** is clearly visible as is the extensive Middle Chalk exposure in the main cliff below. Cooke's painting also shows the nature of the landscape before the extensive tree and vegetation growth that masks the cliff top today. Photograph (right) © Ian West.

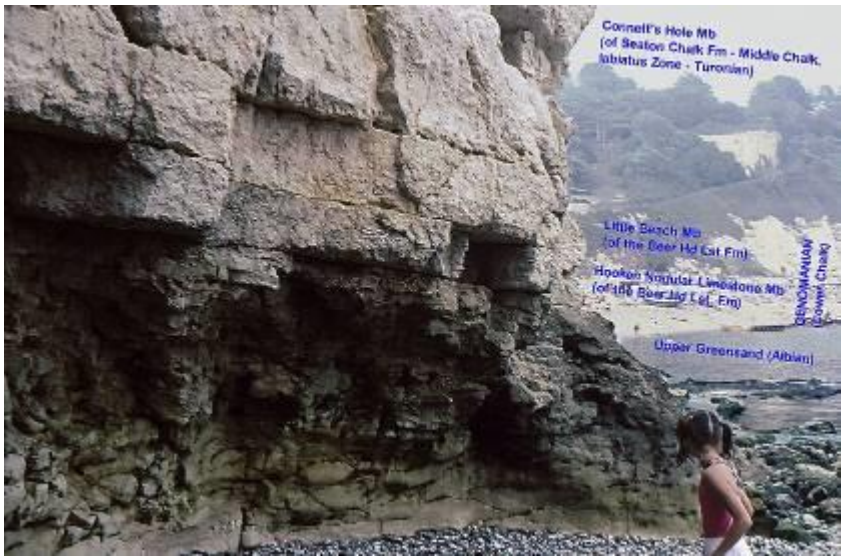


Figure 6.4.3. (left) shows the Upper Greensand-Lower Chalk junction on the south side of Small Point, Beer. Cooke has captured this exactly in the bottom left corner of his painting.

Photograph (left) © Ian West.

Figure 6.4.4: *'Oddicombe Beach'* near Torquay by Samuel Edward Kelly c.1910. Views such as this remind us of the changing coastal environment both in terms of physical change, and the landscape through development and management practices. Kelly's watercolour provides evidence of coastal processes at work and risks from the unstable cliff face. It is important to bear in mind that coastal change may pose risks to buried, undiscovered heritage as well as to known heritage assets.

Figure 6.4.5 (below) shows the scene on 7th April 2011 with a cliff fall and opening joint lines. A major fall here in April 2013 saw the loss of Ridgemont House on the cliff top.

Photograph © Ian West.

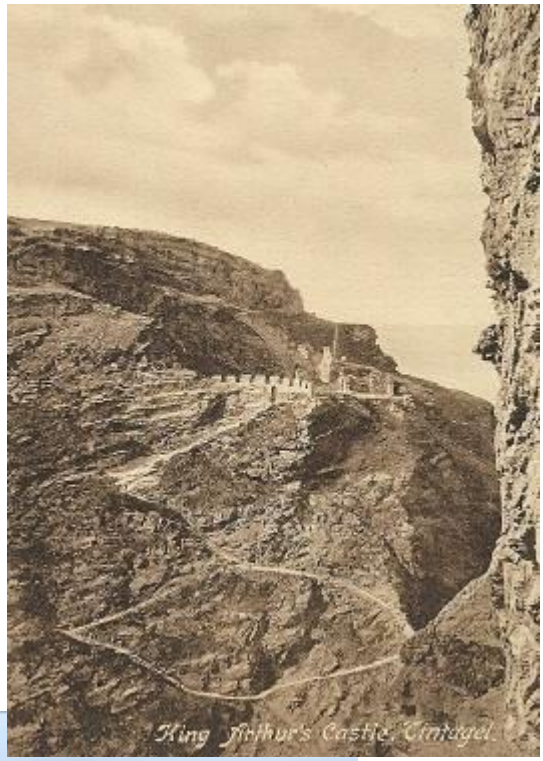
Figure 6.4.6. (left): 'Tintagel Castle, Cornwall'. This postcard, which was produced from a photograph taken in about 1900 shows the battlements extending towards the cliff edge. Such structures and the changes observed to them through artworks and photographs over time can provide both qualitative and quantitative evidence of the rate of coastal change.

Image courtesy of Dave Hooley.

Figure 6.4.7 (right) shows a view of Tintagel Castle (pre-1914), which looks directly at the cliff face surmounted by the battlemented wall. This postcard shows a substantial bluff beneath that end of the wall that is now absent in the present day photograph in **Figure 6.4.8 (below)**.

The extent of loss can be seen by comparing the number of battlements to the right of the entrance arch (four) in the postcard, whilst the photograph only shows one battlement remaining.

Images courtesy of Dave Hooley.



5. What is the value of colour images versus black and white?

The use of colour washes, together with pen and ink, started to become available from the mid seventeenth century, emerging from the Netherlands in particular. During the last quarter of the eighteenth century, watercolour art became much more popular and provided the only means of depicting landscapes in colour available at that time. Art has continued to be an effective colour illustration medium right through to the present day.

It has been explained that photography emerged in the 1840s and 1850s but the use of this medium for portraying the landscape only became popular from the 1860s onwards as portraiture was the prime interest before that time. Paintings of the landscape and coastal scenery in colour were very much favoured by Victorian and Edwardian customers over black and white photography, because art provided a more complete record of the coastal scenery that they had visited and experienced on their holidays. In fact, when photography first emerged as a potential competitor to art, many writers were very dismissive of the concept that photography could be an art in its own right. This was because artworks in colour were able to display the splendour of real life as the viewer could actually see it, and thereby provide a permanent record and visual reminder of the landscapes and scenery enjoyed by visitors to the coast when they returned to their homes inland or in the large cities (Jacobi *et al.*, 2016[10]).

Colour photography started to emerge in the early twentieth century, but it is recognised that initially the quality was very poor and, in fact, it could be argued that it was only in the early 1990s when the quality of colour photographs was sufficient to make a real difference in terms of usage for scientific purposes such as coastal monitoring and archaeological studies and investigations.

Artworks do, therefore, provide a permanent, enduring colour record extending back to the 1770s and in particular the period from 1793, at the start of the French Revolution, until after the Napoleonic Wars. The addition of watercolour paint to aquatints and other engravings practiced by leading art galleries and distributors such as Ackermann's of London, has provided us with a unique and often accurate record of past conditions. Tours to various parts of the country, including, significantly, the south-west of England, by artists such as William Daniell RA, J. M. W. Turner RA and others, allow us to inspect these coastlines with the benefit of full colour some 70 years before the evolution of black and white photography, and over 150 years before colour photography became more widely available.

As part of the research project, evidence has been sought as to the perceived added benefits of colour photography over black and white, for example for the interpretation of aerial photographs, but no written research has been found on the subject to date; this topic could form an interesting thesis. Coastal monitoring using aerial photography by the Environment Agency and, later, the Channel Coast Observatory, moved from black and white to colour in the early 1990s and there is no doubt that the added dimension of colour enhances the interpretation of coastal and heritage assets from the air. Colour artworks, therefore, extending back to the late eighteenth century, provide us with the opportunity to examine the changing coast over a very long time period in as realistic a medium as possible, and the applications of this have been illustrated in the various case studies.

This report has sought to highlight the potential of historical artworks to inform heritage risk management particularly as those studying heritage topics are often more familiar with the use of old photographs and new technologies such as high resolution aerial photography and Lidar rather than art. The report findings recognise the significance of the art resource and consultees have also highlighted a wide range of potential uses for art images although the limitations of the medium are also recognised.

The enormous value of old photographs and photographic postcards has also been stressed in this report and these images, alongside art, help to provide a more complete illustrated record of coastal change and its impacts on heritage sites in the south-west of England. Sites such as Tintagel Castle in Cornwall (Figures 6.4.6-6.4.8, and Figures 17.15 and 17.16) might appear to be resilient but photographic evidence clearly shows the loss of cliff material over time as a result of weathering and coastal erosion and demonstrates the value of this medium.

6. Transferability of approaches to other situations and environments

Through this project and the numerous case studies described above, the potential opportunities provided through the use of artistic and photographic images, extending back to the 1770s, has been described. In the opinion of the author, there is no doubt that similar benefits could be gained through following this approach for other environments such as the landscapes of the interior of this country away from the coast, as well as for river environments. The wealth of images of the English landscape, together with numerous paintings of rivers and the heritage that borders them from source to sea, could provide valuable additional benefits to heritage, land and river management, again taking advantage of the wisdom of hindsight by allowing us to look at these environments before development took place.

In the opinion of the author there are multiple benefits to be derived from using historical artworks and early photographs to support understanding and sustainable management of England's rivers, particularly in view of the severe consequences of flooding that have become all the more frequent in recent years.

Landscape paintings of rivers not only provide a complete record of social and development change along river banks over the last 200 years, but they can provide valuable additional tools that may assist river managers and town and city planners in delivering key environmental and sustainability objectives, as well as of changes and losses incurred to the historic environment over that time. Such artworks form valuable records as they illustrate the river environments in their more natural, largely unconstrained form before early extensive nineteenth and twentieth century river bank and in-channel developments, encroachments and modifications took place. Such images, together with written accounts, can provide a chronology of river change, providing evidence of river use over time. This material could inform consideration of more established:

- Land use development within floodplains;
- flood risk management;
- riparian habitats and morphology;
- the storage capacity of river floodplains before developments took place historically;
- opportunities for rivers restoration;
- an understanding of the heritage, history of development and social change along the course of rivers from source to sea, from the 1770s to the present day.

The results of such studies for both river and other inland environments would support heritage planning and risk management through illustrating, with striking images, the changing social history, natural and built environments in a way that has not been considered by previous authors or researchers.

7. Opportunities and constraints of the CHeRISH study area

The commissioning of the CHeRISH study alongside work before undertaken on the completion of the North Cornwall and North Devon RCZAS and the Exmoor Park RCZAS provided the opportunity for exchange and sharing of information, which has proved valuable to all parties. The south-west of England includes coastlines and soft cliffs, which are prone to rapid rates of erosion and widespread instability, particularly in Dorset and South Devon, with lower cliff lines along the Somerset coastline prone to erosion and instability as well.

The numerous creeks, harbours and estuaries around this coast are also susceptible to flooding at many locations. A considerable length of the cliffed frontages is composed of extremely hard rocks of considerable age. Although the initial perception might be that such hard rock frontages experience very little change over time, evidence has shown that, on account of their often highly fractured or well-jointed nature, catastrophic falls do occur with increasing frequency and involved the loss of substantial sections of coastal land, often at one event.

The CHeRISH case study has, therefore, encompassed a number of changing geological and geomorphological environments, which the author hopes have been illustrated in an effective way through the case studies. However, there are other coastal environments such as those of south-east England from the North Kent coast to the Hampshire and Dorset County boundary, which include further numerous and differing examples that can further highlight the role of historical imagery in heritage risk management. These frontages include those affected by coastal erosion, landsliding and flooding, with many heritage sites located immediately on the coast, such as at Reculver on the North Kent coast, the various fortifications along the low-lying Kent coastal frontage, for example at Deal and Walmer Castle, along the Hastings frontage in East Sussex, and along the Solent shorelines including the Isle of Wight coast. Such additional examples could greatly enhance any formal guidance that may be prepared on the use of art and photographic images within a future publication.

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