

## **PALAEO-ENVIRONMENTAL STUDY AREA P7**

### **BEAULIEU RIVER, SOLENT REGION, SOUTH COAST, UK**

#### **AN ASSESSMENT OF THE ARCHAEOLOGICAL AND PALAEO-ENVIRONMENTAL EVIDENCE FOR COASTAL CHANGE IN THE RIA INLET OF BEAULIEU RIVER, WESTERN SOLENT, UK**



**Plate P7** *Bucklers Hard viewed from the Beaulieu River. This site conceals extensive archaeological remains encapsulated below sediments, south coast, UK*

#### **1. LOCATION AND THE GEOGRAPHICAL CHARACTER OF THE COAST**

Beaulieu River is one of the drowned tributaries which feeds the drowned valley and seaway of the Western Solent (Stagg, 1980), Plate P7. During the Flandrian transgression the sea-level rose and flooded much of the coastal landscape. The sea encroached upon the rivers and streams, flooding them and allowing maritime conditions to replace freshwater habitats. Beaulieu River is just such a ria inlet. It empties from the New Forest on to the northern shore of the Western Solent. Its mouth lies 6km west of Calshot and the mouth of Southampton Water.

The tidal portion of Beaulieu river comprises 9 km of meandering creek reaching to a head of navigation which is set next to a mill and the medieval abbey at the village of Beaulieu (Figure P7.1). Before the advent of motorised transport, such waterways served as the most convenient passage for goods around the region. The Beaulieu River basin is an integral part of this maritime system and it was extensively used by waterborne craft. Several ancient

havens or landing places can be found along the river, the most notable being Bucklers Hard. This is a rural post-medieval shipyard which has since become a popular beauty spot.

## 2. MODERN HUMAN GEOGRAPHY

The Beaulieu Estate is privately owned by the Montague family. The land of this estate borders the west side of the river. The east side of the river falls primarily under the ownership of the Rothschild family who possess the Exbury Estate. The region adjacent to the river is principally rural. The minor centres of population in the region include the villages of Exbury, Bucklers Hard and Beaulieu. In addition, there are a number of private houses and tied cottages near the river. The responsible local authorities are Hampshire County Council and the New Forest District Council. The Beaulieu Estate owns and manages the waterway.

## 3. THE CONTEMPORARY COASTAL PROBLEM

A long wedge shaped intertidal mud-flat, known as Needs Ore Point, runs across the mouth of the river. The Point is under threat and is diminishing in size (Plate P7a). The loss of the mud flat would remove protection from wave action west of Lepe and Inchmery House (Plate P7b). These changes may be partly attributable to the die back of *Spartina* grass although changes within tidal regime of the Solent cannot be discounted. The general die-back of *Spartina* grass is a problem which is common throughout the region (Tubbs, 1999).

The Solent, offshore of the Beaulieu River, has been subject to extensive dredging in recent years. The possibility of draw-down from the margins of the Solent into the dredged areas may have a part to play as may the increase in wave energy as the sea-level has risen. Despite problems posed by off-shore mineral dredging, the river itself is an un-dredged tributary of the Western Solent. Consequently, the bed of the river offers sediment archives and submerged archaeological evidence undisturbed by recent human interference.

Archaeological information has already been uncovered within these deposits (see Bucklers Hard below) while palaeo-environmental evidence remains to be fully assessed. The value of this information in the interpretation of past periods of environmental change has been highlighted in this report. At Lepe, at the mouth of the river, bait digging poses a threat to potential archaeological and palaeo-environmental within the silts (Plate P7c).

The Shoreline Management Plan of 1998 advocates a *do nothing* policy

## 4. KNOWN HISTORY, ARCHAEOLOGY AND PALAEO-ENVIRONMENTAL SETTING OF THE COASTAL COMMUNITY

### 4.1 Historical setting

The Solent and the surrounding area has revealed evidence of human activity dating back to the end of the last Ice Age over 10,000 years ago. As the ice caps melted and sea-level rose, the old Solent river system and its tributaries were flooded. This created tidal waterways running several kilometres inland. The changes in the coastal geomorphology forced changes in human occupation patterns, this included habitation along the shores of the Beaulieu River. One of the earliest known sites is at Lower Exbury where can be seen the remains of a promontory fort which is perceived to be of Iron Age date.

The earliest recorded use was by the Cistercian Monks in the thirteenth century. They took advantage of the shelter offered by the inlet at Gins Farm, using it as a port to transport goods from their nearby monastery. It was these monks who founded the Abbey at the head of the tidal reach at Beaulieu in AD.1204. During the English Reformation the monastery was dissolved and confiscated by Henry VIII and sold in AD. 1538. The new owner, Thomas Wriothesley, stripped the building of its best masonry which was resold to the king to aid construction of the new coastal fortifications on Hurst Spit, Calshot Spit and at the entrance of Yarmouth Harbour.

In the early seventeenth century, a local shipwright named Edward Shish ran a small boat building business in Beaulieu, but it appears to have died with him in AD.1640. The river, however, is perhaps best known for its ship building activities in response to times of war.

The relationship between Mary and the Dutchman William of Orange gave rise to the French wars at the end of the 17th century. After the battle of Beachy Head in AD.1690 it was realised that a larger navy was needed. An extensive ship building programme then began. The magnitude of the programme was beyond the capacity of the royal yards and reluctantly the navy had to put much of the work out to contract. The Beaulieu River was surrounded by extensive privately owned woodland, near numerous iron foundries and close to Portsmouth.

It fulfilled all the necessary requirements for a prime shipbuilding site (Albion, 1926). The first ship built on the river was HMS *Salisbury*, a 48 gunner. This was constructed by Richard Herring at Bailey's Hard in 1698. The main thrust of shipbuilding, however, began in the AD.1740's at Bucklers Hard (Plate P7).

The village of Bucklers Hard was founded by the 2nd Duke of Montagu in AD.1720 when a prospectus map was published for the building of *Montagu Town* (Holland, 1985). The town was to be developed as a major port for sugar from the West Indies. These ambitions were never realised and only a fraction of the town was complete. By the early 1740's however, the fortunes of the renamed Buckler's Hard were being turned around as it gained shipbuilding contracts from the Navy. The first contracts were carried out by James Wyatt and later by his brother Joseph Wyatt. The vessels produced by the Wyatts were followed by an energetic period of shipbuilding under the direction of Henry Adams when over fifty naval ships and an assortment of merchant vessels were built. Of the ships built at Bucklers Hard, the most famous was the *Agamemnon*, a 64- gun warship launched in AD.1781. Captained by Lord Nelson in the Napoleonic wars and she became known as his 'favorite ship'. The latter part of the 18th century saw a decline in shipbuilding and the slips at Bucklers Hard were eventually abandoned about AD.1838. The redundant slipways with their great layers of oak timbers became engulfed in silt, an environment which was to secure their waterlogging and natural preservation.

Following the closure of the shipyard, activities at Bucklers Hard declined until the end of the 19th century when entrepreneurial Victorians ran sightseeing boat trips up the river. It was not until the advent of the World War 2 that the river and the hard experienced the same scale of activity as in the Adams' era. At the beginning of the war Buckler's Hard was used as a repair depot for motor torpedo boats and towards the end of the war became part of the massive preparations for D-Day landings. This involved the whole of the Beaulieu River. At this time landing craft were repaired on the slips and crews were billeted in Nissen huts in the village.

## 4.2 Archaeological Setting

Two Palaeolithic handaxes attest early human activity in the region of the Beaulieu River. One tool was found at Bucklers Hard (Hampshire SMR ref: 14157) and a fragment of another was found at the mouth of the river, at Inchmerry Beach (Hampshire SMR ref: 5976). A number of Mesolithic tools found near the river are now in Southampton City Museum (Hampshire SMR ref: 4457). Palaeolithic and Mesolithic tools have also been found in the off-shore of the zone by fishermen trawling in the Western Solent. These provide a further indication that the floor of the river is likely to prove to be an important undisturbed archaeological resource.

Burial mounds of the Early Bronze Age indicated that the catchment of the Beaulieu River was well populated in the 2<sup>nd</sup> millennium BC but nothing is currently known of activities on the margins of the tidal estuary. A low-lying promontory enclosure or 'fort' has been identified on a loop in the river at Lower Exbury and this has been presumed to be of Iron Age date. The position of this univallate enclosure on the east bank of the river suggests specific maritime interests and it seems possible that this may be associated with the finding of pottery of Late Iron Age/Early Roman date on the bed of the river nearby (Isle of Wight SMR, fisherman's report). The possibility that archaeological structures survive on the intertidal shoreline of the promontory enclosure deserves attention for this could provide well-stratified evidence of earlier

sea-levels.

Roman sites have not yet been identified in the Beaulieu River, but Stone Point, directly to the east of the river mouth is believed by some to be a former crossing point to the Isle of Wight from the mainland (Sanders, 1961). It is possible that some Roman salt-working may have preceded the present salterns which can be seen on this coast but new fieldwork would be required to pursue this issue. One set of ruined salterns lies to the east of the rivermouth (Hampshire SMR ref: 5981) and others survive below the promontory enclosure at Exbury (Hampshire SMR ref: 5977). All of these sites offer potential information on local sea-level change (Plate P7d).

Jutish communities controlled the New Forest from the 5<sup>th</sup> century AD but it is not until the medieval period that the archaeological evidence for human activity in the valley of the Beaulieu River begins to grow (Lloyd, 1965). The Cistercian Monks settled at Beaulieu and built their abbey next to the site occupied by the current manor house. The monks traded with the French coast using their own sailing vessels and Gins Hard was built to accommodate this trade (HWTMA ref: 93). The hard was constructed on the west side of the river opposite Lower Exbury and next to the monastic grange at St Leonards (Hampshire SMR ref: 5979). This location offers the potential of rich archaeological and palaeo-environmental information in an environment which may be related to sea-level and shoreline changes over the past 700 years.

Following the dissolution of the monasteries, settlement centred on the Manor of Beaulieu and later, in the following century, along the banks of the river where opportunities for shipbuilding could be pursued. The main shipbuilding yard was Bucklers Hard which has been subject to research and excavation during the LIFE project (Plate P7e). The sediments and timbers in the slips of Bucklers Hard can be accurately dated, providing a rich source of environmental and dendrochronological material.

#### **4.3 Palaeo-environmental setting**

Little is currently known of the palaeo-environmental setting of the Beaulieu River although the high preservational potential identified within the silts of the river suggest that it can conceal a great deal of information. The undeveloped nature of this creek suggests that palaeo-environmental resource should remain undisturbed and cohesive. Future interrogation of such an archive may prove critical to an understanding of the process history of the larger coastal cell (Dyer, 1980). At present the only measure of the sediment archive contained within the river comes from a core sunk to a depth of 9m on the shoreline at Exbury. This showed a Holocene sediment sequence which was un-bottomed at this depth (Scaife, pers com). No analysis has so far been carried out.

### **5. ARCHAEOLOGICAL AND PALAEOENVIRONMENTAL STUDIES AND POTENTIAL: BUCKLERS HARD**

The Beaulieu River Project was formulated to research geomorphological, historical and archaeological aspects of the Beaulieu river basin. The project was centred at Bucklers Hard and coordinated by the Archaeological Department from the University of Southampton in conjunction with the Hampshire and Wight Trust for Maritime Archaeology, the Nautical Archaeological Society and the Beaulieu Estate (Adams, 1994). The work at the Hard aimed to identify any remaining buried structure associated with the 18<sup>th</sup> century shipyard. The methods employed were topographical survey, resistivity survey, diver survey, structural recording and excavation.

During World War II Bucklers Hard was used as a repair depot for Motor Torpedo Boats and towards the end of the war it became part of the massive preparations for D-Day. The result of this 20<sup>th</sup> century activity was extensive reworking of the terrestrial part of historic shipbuilding yard. A resistivity survey has shown a number of anomalies which suggested the presence of modern structures or WW II service areas and these have been confirmed by recent excavations. A total of five archaeological trenches demonstrated that nothing was of the 18-century shipbuilding structures had been left in areas since used for WWII activities. Most of the

evidence in these areas comprised building materials and recent artifacts including an Atlantic Star War medal.

In the intertidal sector of the Hard the archaeological evidence was far more rewarding. Beneath a silt covering, the 18<sup>th</sup> century wooden slipways were found to be in exceptionally well preserved condition. Here, excavation demonstrated that the northern jetty and its associated slipways were almost intact below the waterline. This jetty was predominantly underwater so at high tide work was performed by divers, while terrestrial archaeological methods were employed on the exposed slipways at low water. The sub-marine excavation was accomplished using a water suction dredge, a trowel and a brush. A large number of finds were recovered and the different stages of the jetty construction and structural variations were identified.

In the anaerobic conditions beneath the silts, the structural components of the jetty and slipway 1 were very well preserved. Oak blocks were recorded lying six deep and measuring up to 0.5m wide and 0.3m thick. These defined the base of the slip. Over the last few years large areas of the slip have been uncovered and backfilled. It has become clear that an extensive area of timber survives below the silt, dating from the heyday of 17<sup>th</sup> and 18<sup>th</sup> century shipbuilding.

A number of similar docks and shipyards of this type can claim an older history yet development and reworking of these sites has usually destroyed most of their structural integrity. It appears that Bucklers Hard is unique in having so much of its original shipbuilding timbers intact, *in-situ* and well preserved. These discoveries can only hint at the potential survival of other archaeological structures in the un-surveyed portions of the river.

## 6. DESK TOP ASSESSMENT SCORES

Relatively few sites are identified on the Hampshire Sites and Monuments Record (SMR). The majority of sites are monuments associated with the manor house or the abbey of Beaulieu. These sites are important in their own right but have little to tell about coastal, climatic or environmental change. Consequently they have not scored highly. However, many of the sites associated with the intertidal marins and the sub-tidal zone of the river offer a high palaeo-environmental potential although this has not yet been a topic which has been specifically pursued in the project at Bucklers Hard. Areas of particular interest are the old salt working sites. Some of these have been operational for over 1,000 years and may hold a rich environmental archive (Lloyd, 1967, Ravenscroft, 1914). These sites are potentially very rich and should all be subject to further investigation.

A total of 43 sites are contained in the *Sites and Monuments Record* for this study area. Of these, 11 offered potential for the interests of this project. The scored 8 or more points (Appendix P7.1).

## 7. CURRENT APPROACH TO THE IDENTIFICATION AND PROTECTION OF THE ARCHAEOLOGICAL RESOURCE

Outside the *Beaulieu River Project*, little active work is conducted on the Beaulieu Estate. If items of archaeological importance are found, the onus is on the finder to report them to the County *Sites and Monuments Record*.

## 8. CURRENT APPROACH TO THE IDENTIFICATION AND PROTECTION OF THE PALAEOENVIRONMENTAL RESOURCE

The palaeo-environmental resource has so far received little attention when investigating archaeological sites in the river and, currently, it has no statutory protection. Consequently, developers and harbour authorities cannot be pressed to ensure that this valuable resource investigated, recorded and interpreted ahead of development or human disturbance. Luckily, development pressures are limited along the Beaulieu River yet although the palaeo-environmental archive may remain undisturbed for the immediate foreseeable future its long-term sustainability cannot be assured.

## 9. SUCCESSES AND PROBLEMS IDENTIFIED BY LIFE PROGRAMME

Beaulieu River is a site with high archaeological potential and a relatively low level of threat. It contains an extensive palaeoenvironmental resource which has not been fully assessed. A dilemma arises between interventive archaeological investigations and the preservation of undisturbed heritage resources *in-situ*. While current human activity in the river is largely benign, the long-term sustainability of the archaeological and palaeo-environmental resource cannot be assured.

## 10. SOCIAL INCLUSION AND COMMUNITY INVOLVEMENT ISSUES

Due to its role as beauty spot the archaeology of Bucklers Hard is well known and the site has been well attended on archaeological open days. Approximately 30 students per year have gained experience from work on the Beaulieu River Project where they have been tasked with public relations as well as excavation and survey. The public are well informed of the project activities by a display in the museum and personal communication when they visit Bucklers Hard. The University of Southampton and the Hampshire and Wight Trust for Maritime Archaeology promote the project by presenting lectures and via web pages on the internet.

A consultation leaflet on the Western Solent and Southampton Shoreline Management plan encouraged public participation in policy-making in 1998.

## 11. CONCLUSIONS AND KEY ISSUES

- There is a need to conserve the undisturbed nature of this resource.
- Non-invasive high resolution sub-bottom profiling offers the most hopeful method of establishing the sedimentary history of the river and its relationship with the adjacent Western Solent seaway.
- This case study identifies a dilemma between preservation *in-situ* and invasive archaeological investigation. It also demonstrates that while some coastal inlets may be marginal to a principal area of shoreline management interest, their sediment archives may be pertinent to larger coastal area. The fact that the creek has not been dredged for navigation may be of considerable importance.
- Erosion of Needs Ore Point may be a consequence of human impacts of the Solent. The site is a haven for wildlife and forms a protective spit at the mouth of the river. This area will not be able to be sustained if current conditions persist.
- The loss of Needs Ore Point will expose further expanses of river to increased wave attack and would result in erosion of archaeologically and environmentally sensitive areas.
- Thorough assessment should be made of the palaeoenvironmental context from which archaeological artifacts are found or recovered.

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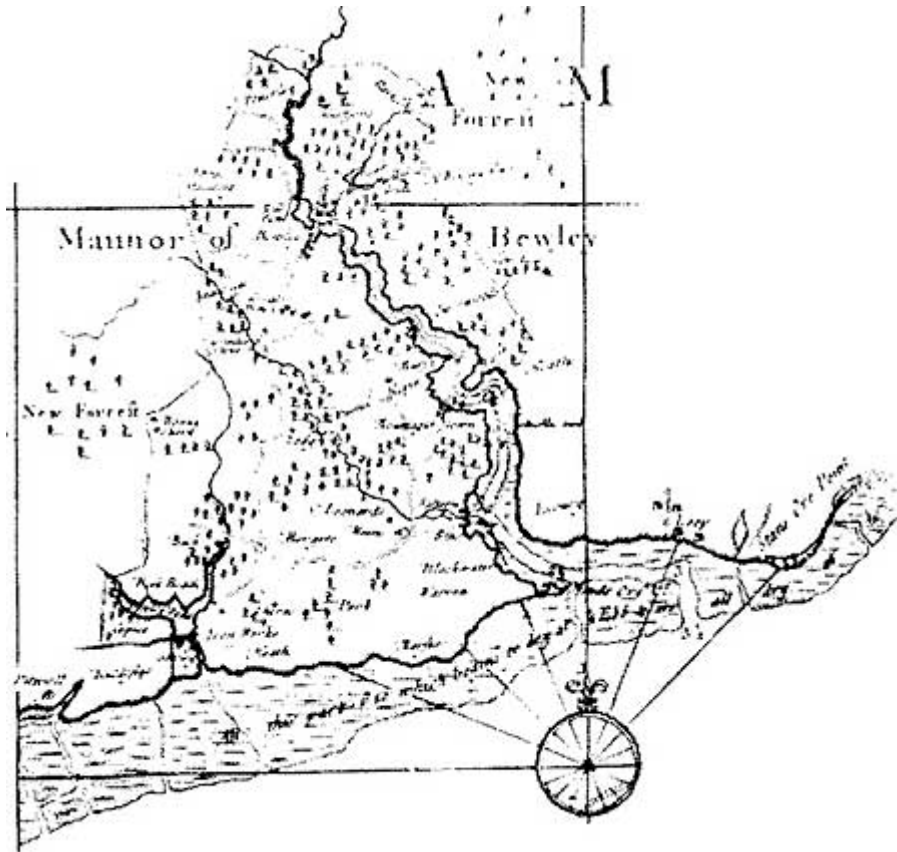


Figure P7.1 *Beaulieu River, Prospectus map of 1724*



**Plate P7a** Needs Ore Point, a diminishing coastal bar which has formally protected the mouth of the Beaulieu River.



**Plate P7b** Heavy machinery engaged in coastal defence works west of Lepe proffers an opportunity to examine the stratigraphy of this ancient shoreline at the mouth of the Beaulieu River



**Plate P7c** Bait diggers penetrating the accrued sediments on Lepe Beach





**Plate 7d Site of a salt working rich in environmental evidence beyond the Iron Age fort at Exbury**



**Plate P7e Excavation at Bucklers Hard showing the well preserved timber below the silt**