THE MARITIME ARCHAEOLOGICAL POTENTIAL IN THE AREA OF THE KILMINNING OUTFALL

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Front Cover: A marine steeple engine of the type installed in ps WINDSOR CASTLE (from A.E. Seaton A Manual of Marine Engineering, London, 1895)

Figure 1: Contemporary drawing from the *Illustrated London News* of 12 October 1844, depicting the sinking of the *ps WINDSOR CASTLE*.

Figure 2: Sketch map of the area showing approximate positions of sites mentioned in the text

SUMMARY

A small number of wrecks are known to have sunk in the vicinity of the subject area, one of which contained an engine of particularly important type.

No evidence of other types of archaeological site was discovered. It must be stressed that this does not mean that further sites do not exist, nor that they are unimportant.

These results are consistent with the relative lack of knowledge about the archaeological potential of any area of the seabed and intertidal zone.

Recommendations are included for responses to the unexpected discovery of archaeological remains during the progress of the outfall construction.

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"The Firth of Forth is, and perhaps always has been, one of the busiest sea-lanes in Scotland. Consequently, the potential for shipwrecks, and therefore maritime archaeology, is considerable." (Torrie & Coleman 1995)

INTRODUCTION

This report represents the result of a five day desk-based survey carried out over a period of three weeks in June 1995. The survey was commissioned by Fife Regional Council Engineering Department to assess the impact of the construction of the proposed sewer outfall at Kilminning on the archaelogy of the marine and inter-tidal zone. A principal aim of the study was to identify known archaeological sites and features in the vicinity of the line of the proposed outfall and to comment on the potential for further archaeological remains of importance. In addition, the report should provide recommendations for any further archaeological work which may be required and any contingency plans which may be appropriate to respond to the unexpected discovery of archaeological remains during the course of the development.

The lack of an established national database of submerged archaeological resources and, more specifically, the absence of a maritime section to Fife Regional Council's Sites and Monuments Register has necessitated the gathering of information from a range of sources. It is encouraging to note that the Royal Commission on the Ancient and Historical Monuments of Scotland has begun a Maritime Record to be incorporated in the National Monuments Record for Scotland and discussions are underway to establish a similar inventory for Fife's waters.

Bearing the above in mind this report represents an overview of the readily available information and identifies both known and potential sites in the study area. It must be emphasised that only field evaluation by suitably qualified archaeologists can determine a fuller picture of the archaeological resources in the study area.

BACKGROUND INFORMATION

Although there are relatively few pieces of legislation with direct relevance to archaeology underwater, their interrelationships are often complex, misunderstood, and subject to variations in interpretation. Separate legislation is currently applied to shipwreck sites.

Merchant Shipping Act 1894 (MSA 1894)

"Wreck" recovered from the sea from UK Territorial waters (including material of archaeological and historic value) is subject to the provisions of Part IX of Merchant Shipping Acts 1894 (Receiver of Wreck 1994). Wreck includes a ship, aircraft, or hovercraft, parts of these, their cargo and equipment. The Receiver of Wreck, located within The Coastguard Agency, is responsible for the administration of the Acts on the behalf of the Department of Transport. All material must be reported to the Receiver who will then determine if it can be considered as wreck or not. The Receiver of Wreck will investigate ownership of the wreck items and the owner has one year to come forward and prove title to the property. During this statutory period the finder may be allowed to hold the material on behalf of the Receiver of Wreck. The Receiver must be satisfied that the finder has sufficient expertise and resources to provide adequate conservation treatments to ensure that the material does not deteriorate.

Wreck recovered from within UK waters which remains unclaimed at the end of the one year statutory period, becomes the property of the Crown and the Receiver of Wreck is required to dispose of it. This may be through sale or auction, although in many instances the finder will be allowed to keep items of unclaimed wreck in place of a salvage award. For the purposes of the MSA historic wreck is defined as items over 100 years old.

Protection of Wrecks Act 1973 (PWA 1973)

The PWA 1973 is administered in Scotland by Historic Scotland and under this Act wreck sites of archaeological, historical or artistic interest are designated as Historic Wreck Sites. A restricted area around the remains is established where activities such as diving, excavation, deposition of materials, and salvage are prohibited, except where a licence is issued (with appropriate restrictions) by Historic Scotland. Advice on designation is provided by the Advisory Committee on Historic Wreck Sites, a non-governmental organisation composed of individuals with interests and expertise in the marine zone.

The Archaeological Diving Unit, based in the University of St Andrews, provides Historic Scotland (and all the other UK home country heritage bodies and the Department of National Heritage) with technical support, under contract, for the implementation of the PWA 1973. There is no specific age limit for designating a wreck nor any reference in the PWA 1973 to "national" importance but the sites must be located within the 12 mile territorial limit and in tidal waters.

The discovery of any new wreck sites in Scotland should be reported to Historic Scotland so that the appropriate action can be taken to assess whether the site is of archaeological, historic or artistic significance.

Ancient Monuments and Archaeological Areas Act 1979 (AMAA 1979)

AMAA 1979 can be applied within UK territorial waters as it contains a general provision for the scheduling of monuments in the territorial sea and it also refers specifically to vessels. However, to date it has never been applied to wholly submerged sites.

The Protection of Military Remains Act 1986

This Act provides for the protection of remains of military aircraft and vessels that have crashed, sunk or been stranded, including any associated human remains. Wreckage of ships have to be designated as a "protected place" by the relevant Secretary of State. Once designated it is an offence to tamper with, damage, move, remove or unearth it or enter the interior. Divers are allowed to visit such sites provided that no damage results. The remains of aircraft from *HMS JACKDAW* (which operated out of the airfield at Crail for many years) which ditched in the sea may fall under the provisions of this Act.

THE NATURE OF THE MARITIME ARCHAEOLOGICAL RESOURCE

Much archaeological evidence of the human past can be obtained from underwater environments as submerged environments often provide much better preservation conditions than terrestrial environments. This evidence takes a wide variety of forms including: paleo-environments and paleo-river valleys and channels; shipwrecks and their cargoes; submerged settlement sites and earthworks; non-artefactual evidence (ecofacts); and sedimentation regimes resulting from earlier human modification of the environment (e.g. the building of harbours or foreshore structures). In the past this potential has been underestimated and under exploited.

ARCHAEOLOGICAL BACKGROUND

The Kilminning area contains several features of archaeological importance e.g. the linear earthwork known as Dane's Dyke, and a long cist burial site. There are also traces of what might be the chapel of St. Minin, which may account for the position of the burial complex. The early inhabitants of the Kilminning coast, those who now lie in their long cists, and the later society that constructed Dane's Dyke, probably had a close connection with the sea, exploiting the inter-tidal zone as a food source, to gather molluscs or erecting fish traps.

Evidence from these activities may now lie beyond the present inter-tidal zone along with material remains indicating the type of vessels they used. Information contained in such sites could give pointers to the use they made of the sea, whether for fishing, trading or as sea-raiders as well as providing clues to their origin.

IDENTIFYING NEW SITES

Chance finds provide the most common means of locating vessels from the early historical period. This method can be enhanced by identifying likely areas such as marine hazards (ship traps) or the sites of early harbours. Local historical sources can often provide useful informationein were two men and two boys lost..." (Kinloch 1830)

Newspapers could be expected to provide detail and information. However even comparatively modern reports can be surprisingly vague:

"Some serious disasters to shipping occurred at the same time at Crail, where a schooner, in attempting to get into the harbour, was driven up against the parapet wall, and ultimately drifted ashore at the Castle Rocks. A brig was also driven ashore at Kilminning, and is likely to become a wreck. Another schooner, the Commodore of Montrose, shared the same fate at Fifeness." (Aberdeen Journal 14/09/1859)

It will be readily appreciated that there is a considerable problem not only with identifying potential sites, but also with locating sites which are known. Positions given for vessels going down at sea are derived from their last messages, in between then and the vessel sinking she could have travelled a considerable distance, this can be illustrated by the case of the PLADDA which now lies some distance from its given position. Material held in local museums, such as archaeological finds made in the inter-tidal zone, can give valuable clues to the erosion of land sites and to the possibility that further material lies offshore. The observations of divers and fishermen can provide evidence of the seabed although this information requires cross-referencing with other source material.

LIST OF SITES LOCATED IN, OR NEAR, THE SUBJECT AREA

WINDSOR CASTLE

Passenger steamer, sunk at Kilminning, 1 October 1844 (Lat. 56° 17'.5 N, Long. 02° 35'.0 W) position approximate.

The WINDSOR CASTLE had been on a passage from Grantham to Dundee to view the departure of the Royal Yacht ALBERT AND VICTORIA. She left Dundee for the return voyage about 4 o'clock in the afternoon with 250 passengers, making several passes round the ALBERT AND VICTORIA before resuming her journey to Grantham. At about 7.30pm she struck the North Carr rocks off Fifeness. The vessel managed to get off the rocks and made for the shore coming to rest:

"....between two large rocks, a little to the east of Kilminning, and about two miles from Crail."(Illustrated London News 12 October 1844)

This incident attracted particular attention because it was so nearly a major disaster and it was recorded by one of the passengers, a Mr. Landells, who was an artist for the Illustrated London News which carried his sketch of the incident (see Figure 1). The incident triggered a call for more adequate safety provisions on steamvessels as the Windsor Castle did not have any means of signalling (e.g. gun or rockets) and she carried only one boat.

SAVANT

Schooner Savant, en route from Middlesborough to Swansea, with a cargo of pi	g-iron, was blown off course by
a Force 10 storm coming ashore on the Kilminning coast, 7 February 1883.	NOFONM 8004
[Lat. 56 # 15'.5 N, Long. 02 # 36'.0 W position approximate).	a construction
	C. 628.074
PLADDA	
Dundee steam ship went ashore on rocks East of Crail, 14 December 1890.	NORW
[Lat. 56 + 15'.75 N, Long. 02 + 36'.0 W]	NOOS
This wreck is reported by local divers to be very close to that of the Windsor	Castle which is some distance which
from the position given above derived from sport diver guides.	NOC 628 079 001-
CHINGFORD	
Dundee steam ship driven ashore on Kilminning sands, 23 December 1924.	1 11 8013
[Lat. 56 # 15'.96 N, Long. 02 # 33'.76 W]	NO60 NW C. 651 083
JANE ROSS	ab
Steam trawler ran aground at Kilminning point, 14 September 1934.	N 8005 122 000
[Lat. 56 + 16'.13 N, Long. 02 + 35'.6 W]	N060 M C 6 3

JANE ROSS

RIVER AVON

Steam trawler, ran onto Kilminning rock, 7 February 1937. [Lat. 56 + 15'.53 N, Long. 02 + 35'.5 W]

NO 60 MW 8002

NO615W 8010

NO C 6398 115

N060MW 8047

CANNON FIND

A local charter boat skipper has reported the recovery, in the 1980's, of an iron cannon estimated at three feet in length from the vicinity of the study area.

SIGNIFICANCE OF THE SITES

No formal guidelines exist for assessing archaeological potential therefore the appraisal of known material and/or known sites in the marine zone.

There is a tendency to see the Fife coast as a collection of picturesque fishing villages and assume, not unreasonably, that they have always been such. However this would be mistaken, for much of their history trading (to the Baltic, Holland, France and Spain) was their principal activity. It is the casualties of this and other marine traffic, particularly that of the early historic period, which forms probably the largest, and least known, part of the archaeological heritage of Fife. The steeple engine reported as being on the *Windsor Castle* is an example of the potential importance of the sites in the subject area. Such engines, in their marine configuration, no longer exist in museums or *in situ* in preserved vessels. The *Windsor Castle* also represents considerable maritime historical significance in the importance of the wrecking incident to the local people at the time and its role in the development of marine safety.

In addition the cannon reported to have been raised from the vicinity of the study area is unlikely to have come from any of the vessels referred to above. Therefore it represents evidence for the presence of an earlier shipwreck.

Marine sediments themselves, because they remain relatively undisturbed for long periods, are a rich depository of data about the environment of the past which is often underestimated and unexploited.

While it is likely that the wrecks listed above will have been dispersed by forces of nature and, to an unspecified extent by the activities of sport divers and contemporary salvors, in academic terms such sites still have considerable archaeological value in the study of the formation of sites.

POTENTIAL IMPACT OF THE OUTFALL CONSTRUCTION

No details were provided for the method of construction of this particular outfall so the following comments are of a general nature.

Marine environments comprise many chemical, physical and biological processes which combine to produce unique characteristics in particular areas. The preservation of archaeological remains depends on the equilibrium of these processes being maintained. Clearly activities such as the installation of an outfall may disturb this equilibrium and cause an adverse effect on archaeological material.

In the assessment of the extent of possible impact it is important that details of the location of activities, including areas likely to be affected by processes *associated* with the activity (e.g. anchoring, trenching, spoil dumping, plant bases and storage areas), and areas likely to be affected by changes in hydrography etc., should also be considered.

It is also important to recognise that, in marine environments, impact can take place some distance away from the site of proposed development because of the dispersal effects of tides and currents.

POTENTIAL IMPACT OF THE OUTFALL OPERATION

It should be recognised that the effect of the introduction of sewage into the marine environment on the archaeological resource is presently unquantified. However, the aim of doctoral research at the Robens Institute (University of Surrey) is to observe and quantify the direct and indirect effects of nutrient rich and microbiologically contaminated water, and sediments, upon the integrity and fabric of marine archaeological sites. In addition it is intended to define the factors that are of consequence to the preservation of marine archaeological sites and to begin to develop models to assess the potential effects of altered sewage discharges on such sites.

PROPOSALS FOR MITIGATION OF IMPACT

General proposals for the mitigation of potential impact of development on the marine archaeological resource can include avoidance, site stabilisation, watching briefs, field evaluation, rescue excavation and the consequent preservation by record.

Avoidance and site stabilisation strategies would not be justified on the basis of the evidence presented in this report, considering the lack of available information. Therefore the most appropriate strategy in the case of the Kilminning outfall may be to recommend some kind of watching brief. Watching briefs are the standard response to a general, non-specific archaeological potential recognised in the development area and they are effected by the provision of an experienced archaeologist who is present during the development to detect and record surprise discoveries, notify the relevant authorities and advise on further action.

The practical implications of suggesting watching briefs for marine operations are considerable and they will seldom be an effective or satisfactory *sole* response to the estimated archaeological potential of an area. Despite these problems, an archaeological watching brief will often be built into the programme with a contingency for diving inspection and the recording of any archaeological material that is detected. This work should be carried out by a suitably qualified archaeological organisation with experience of watching briefs. Health and safety must be a primary consideration and in all cases the responsibilities and powers of the archaeologist should be clearly defined and communicated to all those involved.

FURTHER ARCHAEOLOGICAL WORK

Further survey work may be deemed necessary for archaeological purposes. Such work would have additional benefits in the form of notifying in advance of any possible upstanding obstructions in the subject area which may cause damage to construction equipment. For example side scan sonar coverage would identify structures which project above sea bed level. Magnetometer survey has the potential for identifying buried masses of ferrous material which again may form a hazard to the development.

Although such geophysical archaeological evaluations are not yet widely practised in Britain, these techniques offer a more economic and time efficient survey option than diver-based searches.

PROCEDURES FOR THE UNEXPECTED DISCOVERY OF ARCHAEOLOGICAL REMAINS

It is important that the implications of accidentally discovering archaeological material are fully realised. Proposals for development must also include procedures that will adequately signal that something has been discovered, contain contingency plans for the reporting of the find to a relevant competent agency, and adequately cover all the procedures for recording the exposed archaeological remains.

It is also in the interests of developers to make themselves aware of the potential costs of the investigation of archaeological remains in marine environments and any conservation, excavation or mitigation strategies which may subsequently be necessary.

As outlined above there is a legal responsibility to report to the Receiver of Wreck any objects recovered from the seabed. It is important to ensure as far as possible that the declared objects are treated in an appropriate archaeological manner and the efforts that the Receiver has made recently to treat historic wreck sympathetically should be noted. Contractors carrying out work on behalf of the Regional Council should be obliged to report all finds to the Regional Archaeologist, in order that the information can be incorporated into regional and national inventories, as well as being reported to the Receiver of Wreck and Historic Scotland.

RECOMMENDATIONS

We recommend that, in respect to the construction of the Kilminning outfall, Fife Regional Council takes the following steps:

- 1. ensure that the contractors are instructed to report all finds (whether they perceive them to be important or not) to the Regional Archaeologist, and report the discovery of any new wreck sites located in Scotland should be reported to Historic Scotland,
- 2. contractors should be made aware of the *Code of Practice for Seabed Developers* (JNAPC 1995) which sets out recommended procedures for consultation and co-operation between seabed developers and archaeologists,
- 3. the specification for the contract work should include provision for the implementation of contingency plans to enable an adequate response to the unexpected discovery of archaeological remains.

CONCLUSIONS

Although few well documented sites are known to be present in the vicinity of the study area it would be appropriate to take a precautionary approach to the possible impacts of the construction of the outfall at Kilminning. The sources retrieved by this study have been generally restricted to the later historic period (18th Century onwards) and the biases of original recording, archive survival and accessibility means that this evidence cannot be considered as complete. The inevitable conclusion is that more ship losses would have occurred than have been documented.

Due to the limited time available for the study only secondary sources have been used and no site visits have been made. The paucity of information and current knowledge on the prehistoric, Roman and Medieval maritime history of Fife in general and the study area in particular; on the preservation of material remains underwater; and on the effects of commercial development of the seabed on the submerged cultural

resource; dictate that this report presents merely an overview of the archaeological potential of the area. Only by devising field survey by suitably qualified archaeologists can the actual, as opposed to the potential, archaeological resource of the area be assessed.

Finally, it is felt appropriate to suggest that Fife Regional Council works towards the development of a policy regarding the treatment of archaeological remains in the marine zone off Fife with respect to development proposals. It seems inevitable that such proposals will increase in scale and number in the future. Therefore the risk to what is essentially a completely unquantified resource can only increase at the same time.

INDIVIDUALS AND INSTITUTIONS CONSULTED

Colin Bain - Scottish Institute of Maritime Studies, University of St. Andrews Sue Bradman, Crail Museum and Heritage Centre Neil Dobson, local diver Cmdr. Denis Fairfax, Scottish Fisheries Museum, Anstruther Deanna Groom, Royal Commission on the Ancient and Historical Monuments of Scotland Dallas Mechan, Kirkcaldy Museum & Art Gallery Michaela Merrett-Jones, Robens Institute, University of Surrey Marion Wood, St. Andrews Museum Peter Yeoman, Regional Archaeologist, Fife Regional Council Various local fishermen in the area

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Wreck of the Windsor Castle Steamer



