Coastal Assessment Survey
For Historic Scotland

Fife -
Fife Ness to Newburgh

Maritime Fife

JANUARY 1997
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By
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Maritime
Fife

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A field survey of the North Fife coastline was undertaken over a period of 11 days in October 1996. The coastline under examination extends from Fife Ness to the Fife boundary just west of Newburgh, a survey section approximately 70 km in length. The coastline encompasses part of the major estuary of the River Tay and the smaller estuary of the River Eden. The survey was carried out to the specification *A Procedure For Coastal Assessment Surveys Funded By Historic Scotland* (version 1.6), hereafter referred to as "the Procedures". Notifications of any variations from the Procedures are made clear in the relevant section of this report.

The aim of the survey was to carry out a rapid assessment of the impact of coastal erosion on the archaeological sites in the coastal zone and to identify any unrecorded archaeological sites. A period of research into documentary sources and aerial photographs was followed by an 11 day field survey carried out by one team of three fieldworkers comprising an archaeologist, geologist, and photographer. The survey was carried out to coincide with low water periods and all records were plotted onto Ordnance Survey (hereafter ‘O.S.’) 1:25,000 Pathfinder maps which have also been used as the base maps for this report. All field positions were derived by a handheld G.P.S. unit to an estimated accuracy of between 30-100 metres depending on signal strength. The survey team achieved almost complete coverage of the foreshore, coast edge and hinterland (up to 100 metres from the coast edge). However, recording of the coast edge adjacent to Leuchars R.A.F. base was limited due to M.O.D. restrictions.

For the purposes of description, the survey area can be split into the following physically distinct sections.

From Fife Ness to St Andrews, a rock platform composed of Carboniferous rocks dominates the foreshore, with fringing sand and shingle beaches existing most notably at Balcomie and Cambo Sands and at other points where breaks in the rock platform have allowed sand to accumulate. Those monuments which have survived on this hard rock foreshore tend to be fairly recent and substantial, such as Fife Ness harbour (NG60NW33.0: site description 1), the lighthouse construction site (NG60NW33.1: site description 1) and Kinkellness harbour (NG61SW11: site description 2). The exposed location of these sites means that even these substantial features are experiencing substantial erosion and they will not survive in the long term. Behind the isolated sandy beaches, dune ridges can be seen at the coast edge and the hinterland consists of blown sand deposits accumulating in structural lows which intersperse resistant rock headlands. At these points, a raised beach rises as a gentle escarpment some distance behind the coast edge. The presence of sand deposits provides a more favourable burial environment for archaeological remains but few monuments were identified. Elsewhere, the former shoreline is close to the coast edge and where the coast edge consists of raised beach

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deposits, undercutting by the sea appears to be occurring at high water along several sections. Constantines Cave (NO61SW6), Randerston Castle Cave (NO61SW7), and Kinkell Cave (NO511NW42) have been identified in these raised beach deposits, each bearing inscribed evidence for human settlement since at least Roman times. However, erosion does not appear to be active near any of these cave systems. The existence of coastal defence walls at points along the coast confirms that erosion has been active along this coastal sector in the past. Protective measures vary from 19th Century stone walls (e.g. NO58191433-98091430), to more modern techniques such as gabion baskets. Several pillboxes on the coast edge near Fife Ness at Balcomie Links which were recorded fairly recently appear to have been demolished. That one of these (e.g. NO61SW17) had been recently scheduled as a Protected Ancient Monument is a particular cause for concern.

From St Andrews to Tentsmuir Point-St. Andrews is flanked by two beaches, East and West Sands. East Sands is contained between cliffs of the raised shorelines to the south and the harbour walls of St. Andrews harbour (NO511NW63) to the north. Formed at the mouth of the Kinness Burn, the inner harbour is protected by sea walls and a dune ridge behind East Sands. However, some of the harbour walls have deteriorated due to a lack of maintenance in the past (Moore 1992) and faulty land drainage causing scour erosion behind the harbour walls. Many of the important monuments which make the medieval town of St. Andrews such an integral part of Fife’s built and archaeological heritage lie behind the coast edge and are therefore not susceptible to coastal erosion. However, several notable Protected Ancient Monuments and Listed Buildings are located on the coast edge. St. Andrews Castle (NO511NW3.0) is protected by a concrete sea-wall which appears to have halted erosion. A rock platform with fringing beaches at Castle Sands, Witchie Lake and Sten Rock separates East and West Sands where localized cliff-top erosion has occurred in the recent past exposing drainage outflows and old walls. West Sands is a wide sand beach with a low gradient and surplus blown sands nourish the active dune zone which can be seen along the coast edge. In the hinterland there is an extensive raised beach and links area with blown sand deposits. Relief dunes can be seen within the grounds of the golf courses and this illustrates that West Sands has accreted seawards over time. Monuments identified along the sands include wooden remains of a wreck, maybe the Jean or the Wilhelmina (NO50461734), and a line of tack traps (NO50071821 - NO499018700) which follows the dune system. Outhead, the northern point of West Sands, is a dynamic sand formation which is migrating north-eastwards towards the Eden estuary. This migration is associated with the longshore drift of sand along West Sands and the changing position of the Eden. Since the early 1960s the natural balance between accretion and erosion has been upset by the interference of man. A tip was initiated at the northern margin of Outhead to gain land. Ongoing erosion of this tipped waste means that the sea is now re-establishing a state of equilibrium. West of Outhead the blown sands at the golf course edge have been eroded and coastal defence measures such as groynes and gabion baskets have been deployed in the past to combat this problem.
The Eden estuary, the inner estuary foreshore is composed of thick alluvial muds stabilised by marsh. Although the mud will provide a favourable burial environment for archaeological remains, few monuments were identified on the foreshore or coast edge. Sites which were identified relate either to the industrial past of Guardbridge and Leuchars, such as the paper mill and former distillery buildings at Guardbridge (NO45301950), and on the foreshore, a mussel tank (NO46051940) originating from the harvesting of shellfish which took place in the 19th Century, as is evident from the O.S. 1st Edition map series (1854). The outer estuary experiences the redistribution of silts and sands by coastal processes and dramatic changes in the position of the main channel have been recorded throughout history. Before the late 19th Century, the coastline south of Reres Wood experienced noticeable accretion, however a rapid migration of the Eden between 1895 to 1919 resulted in erosion of this accreted land. This erosion is balanced by accretion of sand at Sanctuary spit, which is migrating southwards into the estuary. Sites identified on the north shore of the Eden estuary are mostly connected with the existing RAF airbase at Leuchars and therefore date no later than the early years of the 20th Century. The coast edge adjacent to the base is heavily protected by coastal defences.

Tentsmuir beach, Tentsmuir has one of the largest dune systems in Scotland. The extensive duné area is the result of considerable Postglacial sea-level fall which left a wide beach zone upon which dunés developed. Blown sand and dunés eroded westwards over low raised beach sands. Accretion of sands towards the southern end of the beach has resulted in a net seaward movement of the high water mark. Within the forested area relic dunés ridges run parallel to the coastline. The position of the Second World War observation posts, command posts, pillboxes, and antitank blocks, set back as they now are in the forest, suggests that the coast edge has altered substantially. These monuments dominate the archaeological record along the Tentsmuir coasts and reflect the threats posed by military invasion of this low-lying area from the sea. Many of the monuments have been recently recorded by John Guy in his survey of wartime archaeology (Guy 1992-4), however, some other features were noted. Although there is no known evidence within the survey area of much earlier settlement on the Tentsmuir peninsula, the identification of Mesolithic remains at Morton Farm nearby does illustrate that the Fife coastal landscape was settled at an early date (Wickham-Jones 1994, 68-68). In contrast to the accretion experienced along the southern sector of Tentsmuir beach, the northern part has undergone a net landward movement of the high water mark. There has been severe erosion in the last year and at certain sections this has caused erosion to tank-traps (intermittent between NO56412617 and NO50432700) and uncovered foreshore features (NO507267). A complex interplay of waves and tidal currents occurring at the mouth of the Tay Estuary has developed the spit/bar of Aberay Sands, sheltering Tentsmuir Point and altering the position of the main estuary channel, and has dictated the cycles of accretion and erosion along Tentsmuir Sands. In addition to several coast edge sites relating to the Second World War, the wide expanse of sandy foreshore visible around Tentsmuir Point at low water preserves extensive evidence of glider traps used to deter an airborne invasion (NO502282).

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The Tay Estuary, the coastline of the outer Tay is generally experiencing erosion. Blown sand deposits at the coast edge are being undercut by the sea and where there are no manmade defences the forest reaches the coast edge. However, the coast edge is more stable to the west of Tayport where cliffs composed of resistant basaltic and andesitic Devonian rocks reach down to the coast edge and curved beaches develop between the igneous rock promontories. Generally speaking, shingle and cobble deposits compose the upper foreshore of these curved beaches often with the development of shingle ridges at the coast edge. The wide sandy foreshore to the east of Tayport Harbour has the greatest concentration of archaeological remains seen along the entire survey area, with evidence of glider traps, and possible older fish traps visible, as well as a collapsing breakwater (NO461288-NO461291: site description 4), the wreck of a small boat (NO46152902: site description 4), and the Listed Building known as 'the Pile' Lighthouse (NO46302930: site description 4). These last three monuments are all part of an extensive complex of maritime remains in the vicinity of Tayport Harbour (NO42NW58 and NO42NW75: site description 4) which are of significant regional importance. The stone walls of Tayport Harbour are in a poor state as a result of a lack of maintenance in the past, and in particular because of poor land drainage causing scour erosion behind the walls. A similar picture is evident at Newburgh Harbour (NO23741877 to 23321858: site description 6).

As the estuary progresses westwards, the foreshore narrows where deep tidal channels flow close to the coast edge and becomes increasingly silty until, west of Balmerino, marsh stabilises the thick alluvial muds which have accumulated on the upper foreshore. The mud flats on the lower foreshore are particularly favourable for the preservation of archaeological remains as is evident from the discovery of a Postglacial peat flat of partially decomposed plant fragments, tree remains, and other environmental evidence on the foreshore between Birkhill Lodge and Fisk Point (NO326231). Localised undercutting of the land surface was visible by the flow of the estuary along the coast edge and the reason for the uncovering of this feature, possibly in recent times, could usefully be investigated further along with a more detailed survey of the feature itself. The industrial remains of the Tay Salmon Fisheries dominate the coastal landscape between Wormit and Newburgh. Collapsed boathouses (e.g. NO33082340: site description 6), fish flume platforms (e.g. NO32302297: site description 6), decaying harbours (NO35602482: site description 9), salmon coles (NO35662481: site description 6), and other associated remains are all visible along the coast edge. Most of the features are at risk due to coastal erosion as such, but many are decaying nonetheless due to neglect, and in some cases, vandalism. Although these monuments relate to an industry that has only recently fallen into decline, these important features remain unrecorded in the archaeological record and more attention is required.

The survey identified 317 sites within the target area. Of the total, 203 are not listed by the NMRS and the
The majority of these were identified on the coast edge and foreshore. A further 114 sites have already been recorded on the NMRS.

Maritime Fife recommends that no action is needed on 259 sites but suggests that further survey work be undertaken on 44 sites, with monitoring required on 10 sites and a combined programme of survey and monitoring studies on 4 sites.
Fig 1. Location map of survey area - Fife - Fife Ness to Newburgh

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Fig 2: Sample record form
Description:
Fife Ness Harbour (NO60NW33.0) consists of an enhanced natural rockcut inlet with rough coursed stone quay facing north-south. The quay consists of local sandstone rock and blast holes are visible in the worked stone. The existence of a harbour at Fife Ness was first mentioned in 1537 and at this time, probably consisted simply of the natural rock inlet. However, the quay dates probably to the early 19th Century and was used for shipping stone from Craighead quarry. The corroded remains of a tramway rail line can be seen to the west of the quay, marked by holes in the sandstone bedrock, some of which still contain some metal fittings.

Lighthouse Construction Site (NO60NW33.1) Nearby, a twin circular groove of indentations 0.3m wide by 0.15m deep can be seen with an overall diameter of 7.0m cut in the flat natural rock. A pivot-hole, 0.7m in diameter, is cut in the centre of the stone. There are other indefinite traces of castings in the rocks nearby. This feature marks the base for construction work carried out in the early 19th Century on Robert Stevenson’s lighthouse for the North Carr Rocks.

Threat:
Fife Ness Harbour (NO60NW33.0)
The early 19th Century sandstone quay which can be seen at Fife Ness Harbour is almost completely collapsed, with the height of the quay now some way below the level of Mean High Water and with an extensive debris field of scattered boulders from the quay. Collapse has been caused by wave damage caused by easterly gales and high tides, and through lack of maintenance since the harbour fell into disuse. The existence of the tramway fittings nearby is also of interest, but the iron fittings will not last much longer due to corrosion in sea water, and the holes for these fittings are being gradually eroded by shingle scour.

Lighthouse Construction Site (NO60NW33.1) The indentations marking the base of the lighthouse construction site are heavily eroded at the edges and in some places are not visible. This has been caused by shingle scouring and other marine action.

Recommendation:
Given the state of collapse of the stone quay, and the ongoing erosion to the tramway fittings and lighthouse construction site, it is recommended that the existing monuments be compared with the baseline surveys carried out by RCAHMS in 1990 to establish whether any changes have occurred in the recent past and to assess what can be done to mitigate any decline.
**Site Description:**

Kingsbarns harbour consists of vertically coursed sandstone seawalls to north and south, first stone bollard fittings, and metal mooring fittings. The harbour was constructed in 1810 and was used as a harbour to ship grain and potatoes to Newcastle and London, and to import drainage tiles. The original harbour consisted simply of the north wall which was extended in 1861-3 when a second seawall was added on the south side of the harbour. At its heyday, the harbour had capacity for ships of up to 100 tons. Unfortunately, its exposed location meant that the harbour walls suffered from erosion and the harbour was eventually abandoned only 20 years after repair work. Nearby, are the remains of an early 19th Century limekiln, used for agricultural purposes.

**Threat:**

The principal threat to Kingsbarns harbour is from erosion. Throughout history, the harbour has suffered from sea damage which brought about its downfall at the end of the 19th Century. Since then, only a small part of the northern sea-wall remains intact, while the foundation courses are also intact along the length of the southern sea-wall where it appears to be protected by accreting sand deposits, and at the foundation layers of the outer wall. Sand can be seen to be reaching the northern quay at the landward side where the quay line is no longer visible. The survey team testified to substantial deterioration since a measured survey was carried out by the Scottish Institute of Maritime Studies in the 1990's. This indicates that the rate of erosion may be rapid.

The nearby limekilns appear to be fairly stable and lie behind the coast edge. The only evidence of erosion was from footpath damage caused by access to the beach from the car-park behind.

**Recommendations:**

A further survey of this site would be desirable to confirm whether the harbour has deteriorated since the 1990's survey carried out by S.I.M.S. If there has been deterioration, then the site should be frequently monitored with additional recording work carried out in the event of imminent collapse of the harbour and its associated features, and, if required an assessment made of what can be done to mitigate the effects of erosion. In addition, monitoring of sand movement along the coastline as well as dune stabilisation work to trap sand in the vicinity of the monuments might help to protect the harbour wall structure and limekilns in the longer term.
Fig. 5: Kingsbarns Harbour and Limekiln (NO61SW11)
Sheet NO61SW Scale 1:10,000

Fig. 6: Kingsbarns harbour wall looking east
Photograph - Rudi\ger Bahr
Description: The NMRS (NO51NW118) identified a possible pier for St Andrews Castle consisting of a ridge of tidal rocks flattened at its top indicating that this once formed the foundation of a pier or jetty serving the castle as a landing. This feature was not clearly identifiable to the survey team but it was clear that a sequence of 3-5 inlets cut into the rock platform do lie between St Andrews Castle and the existing harbour complex. Although these are natural features, consisting of ridges and hollows running in a west east direction, they have clearly been enhanced by the placing of iron mooring pons, steps and cart tracks cut into the litoral rocks. Photographs in the St Andrews University library show ships beached in these inlets so we may presume that the area was used in the 19th Century as an additional holding ground for boats in good weather. The proximity to St. Andrews Castle does make it likely that these features would have been used much earlier than the 19th Century and probably since medieval times. However, the visible features are almost certainly of 19th Century date.

Threat: These features have been inadequately recorded to date. Although the geology of the foreshore at this point will insure that the natural rock inlets remain stable for the foreseeable future, the enhanced features will soon disappear. Only a few iron fittings remain due to the corrosion of iron in sea-water and the other post footings, visible as cuws and drill holes into the litoral rocks are gradually eroding as a result of shingle scour.

Recommendations: A thorough survey of these features is required, including an E.D.M measured survey of the entire area including St. Andrews Castle, all identifiable inlets, post footings, steps, cart ways, and other features as far as the west sea wall of St. Andrews harbour.
Fig. 7: St Andrews Castle piers (NO51NW118)
Sheet NO51NW, Scale 1:10,000

Fig. 8: Looking north west from St. Andrews harbour towards St. Andrews Castle with enhanced piers in the foreground.
Photograph - Rodiger Bahr

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Description:

- **Tayport Harbour (NO42NW58)** - Twin harbour system. Main harbour comprises outer stone harbour wall enclosing harbour basin with quays on three sides, and two slipways on west and south west corners of the basin. Smaller harbour to northwest comprises cross quay and main quay, footings of a building, foundations for a crane, fine two storey restored building with door opening on to small quay. This may be the harbourmasters house. A third quay and slipway can be seen at the northern end of this complex.

- **Old Harbour breakwater (NO461288-461291)** - Visible as a curving mound of collapsing stones on otherwise mud/sand beach. Breakwater extends from coast edge in a northerly direction and is approximately 250-300 metres in length. Quay has almost entirely collapsed except for a section at the northern end of the breakwater where rough stone walling remains intact at a maximum elevation of 1.5 metres above the level of the beach. Possibly formed from offloading ballast from ships and used to gain access to gravel islands at low water for the purposes of salmon fishing. (Pers. Comm. J. Macmanus)

- **The Pile lighthouse (NO46302930)** - square timber frame construction lighthouse mounted on wooden stilts, light mounted on top of square box shelter. Light approached originally by ladder from a rowing boat tied up at the base of the stilts. Now disused. Used to mark the entrance channel for Tayport harbour and to warn shipping away from treacherous sand banks to the South of the light.

- **Wreck of small boat (NO46152902)** - The remains of a small wooden carvel planked boat lie adjacent to the old harbour breakwater. The wreck is 8.70 metres in length and is lying on her starboard side with the stern pointing south and bow pointing towards the breakwater. Stone ballast, iron fittings, and remains of a marine diesel engine were visible and this suggests that the wreck dates to the 20th Century.

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Fig. 9: Tayport harbour (NO42NW58) - Sheet NO42NE; Scale 1:10,000

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Threat: There is evidence of serious erosion to the harbour walls at Tayport Harbour (NO42NW58). The sloping cobble wall at the southern end of the main basin is collapsing probably because of faulty drainage causing water run-off to undermine the ground behind the wall. There has been a recent housing development in the land adjacent to this section but it was unclear whether pavement works could be connected to the deterioration of the wall. Further damage of a similar nature was evident on the topstones of the main quay of the northern harbour complex. Again drainage is probably the cause of this collapse. However, erosion to the northernmost harbour feature has probably been caused by marine action. Land-fill has been dumped at this point in an effort to mitigate the effects of erosion. Since the Pile lighthouse (NO46302930) fell into disuse, its condition has deteriorated but its structure appears to be fairly sound. However, given its exposed location, this attractive feature will quickly deteriorate. The old harbour breakwater (NO461288-461291) has almost entirely collapsed and the wide scatter of debris building material indicate the erosive effects of the sea on this feature. Although the small wreck (NO46152902) is buried in mud, it will deteriorate fairly quickly once its iron fittings have corroded and rusted away.

Recommendations:
Tayport Harbour (NO42NW58)
- Survey and monitor

Old Harbour breakwater
(NO461288-461291) - Survey

The Pile lighthouse (NO46302930)
- Survey and monitor

Wreck of small boat (NO46152902)
- Survey

Fig 19: Severe erosion to Tayport Harbour wall. Photograph - Rudiger Bahr

Maritime File

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Historic Scotland
Site Name: Wharf remains and wreck.
NMRs code: Wharf remain (NO397263); Wreck (NO32NE8147)
Site Status: Other known monument

Description:
- Wharf and building remains (NO397263)
A substantial area of wharfs, hulls, and building foundations was located just to the east of the Tay Railway Bridge at NO397623. This site is located on a rock and shingle foreshore backed by high cliffs. It consists of a line of square stones running parallel to the cliff face and probably marking an old stone quay. At the western end of this quay, three parallel lines of substantial timber piles mark the remains of a second quay or landing stage. Substantial brick foundations and collapsed walls are visible towards the back of the foreshore at the western end of the site, adjacent to a timber-frame wharf which has been built onto a natural rock spur and the working lifeboat slip and shed. Aerial photographs (1946 1:10,000) show the quays and associated buildings fairly clearly although most of the site area is obscured by shadow. The site was initially thought to be that of Woodhaven Seaplane base (NO41NW85) but Guy has identified an alternative site 1 mile SW of Newport Harbour at the existing Woodhaven Seaplane site (NO40752700) where he points out a slipway which was used for launching sea-planes (Guy, 1992-4, 127). The base was used during World War II for anti-submarine patrols.
- Wreck (NO32NE8147)
The NMRs lists a wreck visible on the aerial photographs which is situated just to the east of the main wharf area at NO39822645 (NO32NE8147). The remains of this substantial vessel are 25 metres in length, and the ship appears to be listing to starboard and facing inshore. Her ribs and outer planking are exposed. The planks appear to be lashed to the ribs mostly by trenails though iron bolts were visible at the bow timbers. Fragments of red roofing tiles found between the frames of the ship may indicate the nature of the vessel’s function and trade. The existence of this wreck nearby to the wharfing area may suggest that the site was not only used as a seaplane base but for offloading cargos for transport inland.

Threat: Heavy growth of seaweed over the wreck and wharf remains suggest that the site is stable and will if anything, be protected by the accretion of mud evident along this part of the Tay estuary. However, this interesting collection of industrial remains has been inadequately recorded to date and deserves further attention.

Recommendations:
- Unknown wharf and harbour remains (NO397263): Survey
- Wreck (NO32NE8147): Survey.

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Fig. 11: Wharf remains and wreck
(NG397263, NO32NE8147).
Sheet NO32NE, Scale: 1:10,000

Fig. 12: Wharf remains in foreground, more wharfing and wreck hidden by shadow. Photograph - Rodger Balth

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Site Name: Newburgh harbour, Tay Salmon fishery bothies and salmon coble boatyard complex
NMRS code: Various
Site Status: Other known monument and Listed Buildings.

Description and condition:
NO39272602: Wooden shed, salmon coble on metal wheeled trailer, single storey, corrugated roof bothy (Fair)
NO35542584: Twin storey store building, gable end faces river. 150 metres west of wooden jetty piles (Poor)
NO35842515: Twin single storey semi-detached bothies, red roof tiles, collapsing. (Poor)
NO35972533: Nether Kirkton, converted stone building and slipway may have had fishing function (Good)
NO35782479: The Nook - Bridgend; Listed Building; single storey bothies recently restored (Good)
NO35772479: Tay Cottages; Listed Building; single storey, recently restored (Good)
NO356620482: Balmerino harbour quay, and iron coble-like working boat on beach NO356620481 (Poor)
NO33082340: Birkinthil lodge, stone 2 storey bothy fronts onto shingle beach protected by manmade spit with rudimentary breakwater. Collapsed iron cart and trackway to shore are visible. (Poor)
NO32302297: Walls of twin cell stone bothy. Roof collapsed, concrete platform in front. (Poor)
NO31262271: Flick Lodge: twin single storey semi-detached bothies. NE cottage has collapsing roof. SW cottage is completely derelict. Modern navigation marker placed in front (Poor)
NO30052200: Lower Ties Lodge: single storey slate roof, overgrown by trees almost inaccessible due to thick reed growth on foreshore. (Poor)
NO29402177: Collapsing building near Durward’s Scalp is probably a fishing lodge (Poor)
NO29322166: Scaply Lodge, single storey bothy, slate roof, windows covered up, situated in farmers field (Fair)
NO28082490: Building near ‘Camecor’, Single storey cottage, large doorway faces Tay. Two wings are rear face SW. and NE. Situated in farmer’s field (Fair)
NO28572214: Deil Me Can Lodge: single storey stone cottage with later brick shed buttied onto NE gable. Felt tile roof. Stone wall in front of building at river edge. Heavily overgrown (Poor)
NO27862091: Lowershot Lodge: earlier stone cottage fronts later brick and harled extension to rear. Stone cottage has collapsing tile roof (poor), rear building has felt tile roof (poor but intact).
NO27522083: Doocot Lodge: single storey cottage and later lean to shed at SW gable. Felt tile roof. Very overgrown (Poor)
NO25721960: Jockalohe Lodge: single storey stone cottages in two cells, Roof collapsed but iron ties strengthen gable ends. Fluorescent navigation marker and light nearby. (End)
NO25261936: California Lodge: Single storey cottage with twin cells, slate roof with later brick shed to SW gable end. Partition wall between cells removed. Steel ties to strengthen walls (Fair)
NO23741897: Newburgh harbour, Wharfs, quays, slipways, bollards, wreck of fishing boat NO23501863, salmon coble on quay. Harbour walls collapsing due to drainage problems and lack of maintenance (Poor).
NO23311863: Salmon coble boatyard complex, sheds, slipway and net winches (Fair).

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Salmon fishing on the Tay has probably taken place since at least Roman times and certainly since the 12th-13th Centuries but an industry has been in existence for almost 250 years (Atkinson, 1996, 4-5).

Newburgh's strategic position conveniently positioned between Perth and Dundee, meant that it became an important centre for the Tay salmon industry and stage for the transfer of goods onto shallow draft vessels on the journey to Perth. Piers and buildings were built in the 18th Century to promote the town as a staging post for the transfer of goods to shallower or deeper drafted vessels depending on whether the cargo was destined up, or down stream (Atkinson, 1996, 7-8). Below Newburgh, salmon fishing was practised on the southern shore of the estuary where the fish favoured the deeper channel during their migration upstream. Fishing techniques included trot and haul nets, stake nets, and more latterly sweep netting using a salmon coble and a shore based winch.

Little is known about the nature of the salmon bothies before the mid. 19th Century, but it is likely that the only means of shelter were 'excavations by the side of the river' (Melville, 1939, 42). Bothies probably date to the late 19th century and by 1921, O.S. maps for Newburgh show the presence of permanent lodgings. Many were modified during the 1920's with the addition of a lean to storage area extended off one of the gable ends of the building (Atkinson 1996, p.42). Other industrial monuments related to the salmon industry include ice houses (e.g. at Newburgh and Tentsmuir Forest NO500267), which were used to keep salmon fresh throughout the 19th Century (Atkinson 1996,28).

Fig. 13: Newburgh harbour (NO23741877 – 23321858) and salmon coble boatyard complex.
NO23161863.
Sheet NO21NW; Scale: 1: 10,000

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Threat: The decline of the resource as a result of fish farming, mechanisation and over exploitation have spelled the death of this industry, with only 4 stations operating in 1996 employing 40 people, as opposed to its heyday when 45 stations were in operation employing approx 300 people (Atkinson 1996, p.66). The majority of the salmon bothies have collapsed, been vandalised, or now lie empty and overgrown due to the dense growth of reed beds on the banks of the Tay. These monuments remain mostly unrecorded in the NMR8 and further attention is needed.

Recommendations: Maritime Fife suggest that Historic Scotland consider a thorough appraisal of all the buildings connected with the Tay salmon fishing industry, encompassing the conditions of buildings, the historical and architectural value of each and public access to the bothies. Historic Scotland should consider listing good examples of these buildings as Historic Buildings in order that the best are saved for the future.
SUMMARY AND RECOMMENDATIONS

The survey achieved its main objectives, a rapid assessment of the coast edge, intertidal zone and 10m land strip. The team located a number of new sites which will be included in the Maritime Fife database. Where sites have been recorded before, some evidence for changes in the condition of features was identified and in most cases this was due to coastal erosion, although other factors such as vandalism, and development were also thought to be contributory causes. The following pages represent a summary of the findings of the survey including observations made on the coastal heritage resource, estimates of coastal erosion and its effects on individual monuments, and general recommendations for the future management of this resource. Detailed recommendations have been submitted separately to Historic Scotland.

Built heritage and archaeology

The survey identified 317 monuments within the target area. Of these 205 sites are located on the coast edge or foreshore and therefore prone to coastal erosion. The remainder are situated behind the erosion zone.

The table below illustrates how these sites breakdown by status:

<table>
<thead>
<tr>
<th>MONUMENT STATUS</th>
<th>TOTAL NUMBER OF SITES</th>
<th>NUMBER AFFECTED BY EROSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROTECTED ANCIENT MONUMENTS</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>OTHER KNOWN MONUMENTS</td>
<td>209</td>
<td>45</td>
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<tr>
<td>WRECKS</td>
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<tr>
<td>DESIGNED LANDSCAPES</td>
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<td>0</td>
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<tr>
<td>TOTAL</td>
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<td>49</td>
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</table>

Fig. 15 - Breakdown by site status of total numbers of recorded sites and the effects of erosion on each site.

Previously unrecorded sites.

The survey identified 203 sites which are not listed on the National Monuments Record. Many of these appear to be Listed Buildings which have obviously been recorded before but are not registered on the NMRS.

Maritime Fife

Historic Scotland
However, the survey also identified a number of sites, mostly along the foreshore or coast edge, which previous surveys have not addressed.

Of particular regional interest are the series of salmon bothies, and other structures associated with the Tay Salmon Fisheries Industry (various; see site description 6), very few of which have been recorded by RCAHMS. The ongoing decline of this industry makes it all the more regret to record what remains at present before remaining structures decay further. A collection of wharfs (NO397263) and a nearby wreck (NO3283147) that were located on the eastern side of the Tay Rail Bridge are also of interest and one of these, the wharf features do not appear on the NMRS. Although the foreshore appears fairly stable at along this sector, this area deserves more detailed attention. There were few newly identified sites along the sand beaches of Tentsmuir and St Andrews. Those that were identified related either to the World War II activity associated with the Totesmore area, and in particular an air bombing range which existed offshore. The survey identified several other features which have not been mentioned in the detailed site descriptions and therefore deserve mention here. These include a prehistoric land surface which has been exposed on the banks of the Tay to the west of Balmerino (NO326231-NO312227; see fig. 16 below), a weathered sandstone standing stone (NO3321572) near Kinkell Cave on the rocky foreshore south east of St Andrews, and several enhanced natural harbours (e.g. NO61061141).

Fig. 16: Prehistoric land surface exposed on the muddy foreshore of the Tay estuary west of Balmerino (NO322231-NO312227); Photograph - Rüdiger Bähr
A further 114 sites have been recorded on the NMRS. This number includes 11 Protected Ancient Monuments, of which two have been adversely affected by erosion: two pillboxes situated on the coast edge near Balconie Golf Course at Fife Ness (NO61SW16, NO61SW18; see fig. 17). Other recorded sites vary from burials (e.g. Old Haiks NO61SW2) and harbours (e.g. St Andrews NO51NW63) to castles (e.g. Randerston NO61SW4), and from caves (e.g. Constantine’s NO61SW6) to shipwrecks (NO32NE8147). The character of this archaeological record broadly reflects the settlement, industrial activities and land-use of this coastline since antiquity.

Fig. 17: Coastline near Balconie Links showing possible collapse of one of the recently scheduled pillboxes (NO61SW18). Photograph – Rudiger Bahr.

Coastal erosion

Estimates on coastal erosion have been restricted to the subjective observations of the survey’s geomorphologist and her discussions with locals en route. There is clearly a need to corroborate this evidence by baseline recording at a number of fixed locations.

By calculation of the lengths of erosion units, observed during the survey, it appears that approximately 9.55 km (11%) of the coastal survey area is definitely experiencing erosion and that there may be erosion occurring along approximately a further 17.5 km (20%) of the coast (see fig. 19). Although erosion rates were seen to vary substantially, even between adjacent sections of coastline, it was possible to identify the following trends in coastal erosion along the survey section.
Along the exposed coastline between Fife Ness and Kingsbarns, the sea is exploiting breaks in the rock cut platform resulting in localised undercutting of the coast edge (See fig. 18).

Fig. 18: Erosion of a loosely consolidated raised beach terrace near Buddo Rock. Photograph - Rudiger Bahr

- East Sands is generally stable despite experiencing changes of up to 1 metre in beach height. This results from the complex interplay of tides and currents which transports sediment between the beach zone and offshore sinks and bars.
- West Sands experiences cycles of erosion and accretion with dune rehabilitation maintaining the stability of this beach zone. In contrast human interference at Outhead has induced erosion at the northern part.
- The southern sector of Tentsmuir sands is experiencing accretion while the northern sector is being eroded. This is the result of natural change due to the complex interplay of tidal currents and waves which occurs at the mouth of the Tay Estuary. The erosion of this northern sector of Tentsmuir has been a matter of recent concern because the water mark is retreating inland at a substantial rate. The position should be monitored, and work might have to be undertaken to stabilise dune vegetation in this area.
- The Tay Estuary is generally experiencing accretion of sediments resulting from agricultural run-off from farming and land-use upstream. However localised erosion is occurring where estuarine currents at high waters flow close to the coast edge, and in built up areas, erosion is caused by drainage run-off from the land.
Factors which were perceived to play a major part in controlling the erosion rates along the coastal edge include the deployment of coastal defence measures, the geology of the coastal edge, and the degree of shoreline exposure. Coastal defences were seen to be effective in limiting erosion along protected stretches such as at St. Andrews Castle, but the resulting effects to unprotected sections of coastline, while difficult to quantify, need to be considered by Historic Scotland. The defences at St Andrews Castle were blended into the natural rock structure which is important for the aesthetic qualities of the archaeologica site. Erosion rates varied between a coast edge comprising of resistant bedrock geology in contrast to loosely consolidated raised beach and marine deposits of blown sand. While the coastline between Fifescott is fully exposed to the open sea with the effects of erosion by the sea particularly destructive during prolonged periods of eastern gales and spring tides, the sheltered estuarine area of the Tay, displays an altogether different picture with sediment accretion along the foreshore, comprising mostly mud originating from the upper reaches of the Tay.

Erosion may be having a detrimental effect on 50 sites within the survey area—see fig. 15. Apart from the pillboxes mentioned above, none of these sites is under any imminent danger; more that the effects of erosion are more gradually detrimental to the condition and structure of the monument and its surrounding environment. The important small harbour at Kingsbarns experienced erosion to its harbour walls throughout the short history of its occupation and this erosion has now resulted in the collapse of much of the wall structure. Gradual deterioration is also evident to the harbour (NO60NW33.0) and lighthouse construction site (NO60NW33.1) at Fife Ness, and at the harbours of St. Andrews (NO51NW63), Tayport (NO42NW58), and Newburgh (NO23471877-NO2321858). However, the cause of deterioration to the latter three sites is not predominantly erosion by the sea, but lack of maintenance (Moore, 1992) and drainage from the land causing scour erosion behind the wall structure. In the case of St. Andrews harbour, recent remedial work has been carried out on the outer harbour wall. However, similar work is needed urgently to the walls at Tayport and Newburgh if the decline is to be controlled and the harbour walls retained as a structure.
General recommendations

The following recommendations concern previously unrecorded sites where there is further need for investigatory fieldwork, or recorded sites where the survey team identified a need to carry out further work because the site appeared to be in poor condition or because erosion represented a threat to its fabric. Recommendations have been categorised as suggested in the Procedures (“Nil”; “Survey”; “Monitor”; “Survey and Monitor”). Detailed recommendations including suggestions related to many of the sites singled out above have been submitted separately to Historic Scotland.

Maritime Fife suggests that the following management programme be considered:

- Survey 44 Sites
- Monitor 10 Sites
- Survey and monitor 4 Sites
- Nil - no action required 259 Sites
ACKNOWLEDGEMENTS

The following individuals deserve acknowledgement. Photographer Rudiger Bahr; Denis Fairfax who compiled information on Listed Buildings; Ian Oxley, Patrick Ashmore, Peter Yeoman, Mike King, Les, Neil Dobson, Dan Akinos, Martin Dean, Annabel Wood, Mark Lawrence, Deanna Groom, Dendra Cameron, John MacNauns and others for their assistance, advice, information, drawings, or photographs.
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Unpublished


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Ordinance Survey 1985 Pathfinder 363 (NO 41/51) St Andrews 1:25,000

Ordinance Survey 1984 Pathfinder 352 (NO 42/52) Newport-on-Tay & Lourars

Ordinance Survey 1979 Pathfinder (un numbered) (NO 22/53) Carse of Gowrie and Balmerino 1:25,000

Ordinance Survey 1979 Pathfinder 362 (NO 21/51) Auchtermuchty & Cupar 1:25,000

Ordinance Survey 1973 NO61SW 1:10,000 Series

Ordinance Survey 1972 NO60NW 1:10,000 Series

Ordinance Survey 1982 NO42NE 1:10,000 Series

Ordinance Survey 1991 NO32NE 1:10,000 Series

Ordinance Survey 1974 NO21NW 1:10,000 Series

Ordinance Survey 1973 NO51NW 1:10,000 Series

Maritime Fife

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Historic Scotland
Built heritage and archaeology - The rocky foreland of File Ness has long provided a hazard to shipping and monuments existing at the coast edge mostly relate to man's attempts to combat this hazard. The lighthouse construction site (NG06NW33.1 site description 1) consisting of the circular indented base for work on Robert Stevenson's lighthouse for the North Carr rocks is visible cut into the hilistoral rocks, and the nearby 16th Century Fifeness harbour with early 19th Century harbour wharf (NG06NW33.0 site description 1) and the nearby Tidesmill (NG06NW9) are the most important features. The effects of wave action on this exposed headland have been detrimental to these monuments, in reducing the height of the existing stone wharf to below High Water level. The important small harbour of Kingsbarns (NG061SW11) has shown visible deterioration in the last five years (site description 2). However, the important site of the recently scheduled Constantine's Cave (NG061SW6) and the non-scheduled Randerston's Cave (NG061SW7), set back as they are from the coast edge appear to be fairly stable; a golf course track fronts Constantine's Cave in which the incised crosses are visible although the 2 crude animal figures mentioned by RCAHMS were not decipherable. The front of Randerston's cave is overgrown by shrubs making it almost imp conglomerable. Two of the three pillboxes previously recorded on the coast edge by Balanocic Links (NG061SW16 and NG061SW17) were not identified and the presence of concrete debris dumped on the coast edge nearby to each recorded position suggests that these pillboxes may have been knocked down to make way for golf course works and to protect the coast edge. NG061SW16 has been recently scheduled and its disappearance may therefore be give cause for concern. Previously unrecorded sites include enhanced natural harbours (NG062071035 and NG061061141), and a rough stone wall in the intertidal zone known locally as 'Fluked Dubh' but marked on the Pathfinder maps as 'Fluked dubb' (NG062771037) which was created by clearing an area of beach of stones for the creation of a landing place for catches of herring during the summer months (Dobson 1997.23). Catches would have been carried inland via a track through the break in the boundary wall behind. Earthwork mounds at a sandstone face nearby to the site of Randerston Castle (NG061SW4) probably probably represent spoil mounds from the 'old quarry' that is marked at this point in the OS. 1st Edition maps (1854).

Hinterland geology and coastal geomorphology; Erosion class-Carboniferous Calcareous Sandstone Measures, consisting of resistant sandstone and limestone, compose the rock peninsular of File Ness and Cambo Ness and the rock platform which dominates the foreshore. There are two main beaches, Balanocic and Cambo Sands. The curved sand beaches have developed between resistant rock peninsulas, where abraded mudstones compose the rock platform. Blown sands create a dune zone at the coast edge, which is stabilised with marram grasses and other dune species. Localised dune undercutting is the result of human disturbance and erosion during high wave activity (Erosion Unit 5), particularly where breaks in the rock platform intensify wave attack on sandy raised beach deposits at the coast edge (Erosion Unit 10). Fence posts along the edge of Balanocic golf course have been moved inland indicating ongoing erosion, and the dumping of debris concrete, possibly originating from pillboxes, confirms this. Blown sands create a links area in the structural lows between the higher rock peninsulas while a low raised beach terrace rises slowly to an escarpment behind which is a coastal plateau of glacial deposition. The remaining coastline is associated with fringing sand and shingle beaches situated at the top of the rock platform. The raised shoreline is situated at the coast edge, Constantines Cave was excavated in the former shoreline by the sea. The coast edge is stable where resistant hard rock comprises the edge. There is localised scour erosion by shingle where breaks in the rock platform intensify wave attack on sandy raised beach deposits at the coast edge.
back from the present coastal edge, suggesting long term accretion. The dunes are stabilized by marram grasses and sea sponges, species where bricks are heavily used over the dunes and at the stream outlet.

4. NO63871067 1 km Eroding or stable: The foreshore is stable consisting of resistant rock platform with a fringing course beach where vegetation is sparse there is localized undermining of the low coastal edge during high wave activity. Tipping of bricks and concrete debris, in addition to large glazed boulders protect the coastal edge.

5. NO62111072 0.7 km Eroding or stable: Localised undermining of the coastal edge is evident from stranded fence posts. A new fence has been positioned, inland. The blown sand deposits which compose the coastal edge are easily eroded. Erosion is most serious where breaks in the rock platform incite wave attack. Tipping of the end of the golf course provides some protection.

6. NO61621108 0.5 km Stable: The stable stabilizes cliffs in addition to the protective rock platform provide resistance to wave attack.

7. NO1341132 0.6 km Eroding or stable: In the vicinity of Old Harbour the foreshore is unstable during high wave activity exposes bare blown sand deposits at the coastal edge. To the north, a groynes cemented to the rock platform traps sand which is stabilised by marram grasses at the back of the beach.

8. NO60981152 0.2 km Stable: Resistant hard rock creates a stable coastal edge and foreshore.

9. NO6821185 0.4 km Eroding or stable: At the Cambo stream outlet a deep shingle storm bank protects the coastal edge under most forms of wave attacks. The Cambo beach possesses an actively undercut lateral on the north side. A seawall was constructed in 1984 to combat the erosion.

10. NO5051232 0.9 km Both accreting and eroding: The south of Cambo sands has advancing marram and dune species at the coastal edge. A double fence at the crest of the dunes suggests the dune bank is stable, south of the stream, marram dunes extend inland however there are signs of undermining and bank collapse along short lengths of the coastal edge. The most damaged area is at the stream outlet. A restricted dune rehabilitation zone is undergoing grooming damage, however, dunes with have sand fences are still evident.

11. NO60341157 0.5 km Eroding or stable: South of Kingsbarns Harbour the coastal edge has high stable dunes. Where visitor pressure is greatest the dunes display undercut bare sand faces. Sand is accreting on the foreshore as there is a gap in the rock platform and the collapse of the south harbour pier wall prevents sand from moving northwards. On the other side of the collapsed pier the foreshore is 8.5m lower and the coastal edge has retreated inland. At the north harbour pier, sand is beginning to break through the wall. The restriction of sand has lowered the foreshore once more and the coastal edge has cut further inland.

12. NO60141271 0.3 km Stable: Large rock boulders are situated at the base of the cliff and the coastal edge which are composed of resistant sandstone.

Maritime Fife.
### MAP 1 FIFE NESS TO KINGSBARNS HARBOUR

#### GEOLOGY UNITS

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<tr>
<th>Number</th>
<th>Description</th>
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Historic Scotland
MAP 1: FIFE NESS TO
KINGBARNS HARBOUR
BUILT HERITAGE AND
ARCHAEOLOGY UNITS

Sites behind the coast edge

NO60NW52
FIFE NESS,
COASTGUARD STATION
COASTGUARD Quay
20th Century
Good
Nil

NO60NW5
DANES LYKE
EARTHWORK
PROTECTED ANCIENT
MONUMENT
Uncertain
Fair
Nil

NO61SW4
RANDESTER CASTLE
FORT; CASTLE
MONUMENT FORMALLY
PROPOSED FOR
PROTECTION BY
HISTORIC SCOTLAND
15th-16th Century
Fair
Nil

NO61SW101
Sandstone quarry and spoil
pits
Uncertain
Fair
Nil

NO60871164
Cambo House
House
Uncertain
Fair
Nil

Sites on the coast edge and
foreshore

NO63820971
Fife Ness Lighthouse
20th Century
Good

Maritime Fife

NO60NW33.0
FIFE NESS, HARBOUR
HARBOUR QUAY
16th - 20th Centuries
Poor
Monitor
*See site description 1

NO60NW33.1
FIFE NESS, LIGHTHOUSE
CONSTRUCTION SITE
LIGHTHOUSE
CONSTRUCTION SITE
19th Century
Fair
Monitor
*See site description 1

NO60NW9
FIFE NESS, TIDE MILL;
KILN
TIDE MILL; KILN
19th Century
Fair
Nil

NO61SW16
CRAIL AIRFIELD,
BALCOMIE GOLF LINKS,
FIFE NESS
TWO MAN DOMED
SHEET IRON PILLBOX
PROTECTED ANCIENT
MONUMENT
20th Century (Possibly
knocked down during golf
course works)
Not seen
Monitor

NO61SW6
CONSTANTINE'S CAVE,
FIFE NESS
ROCK CARVINGS;
CAVE; ROMAN GLASS;
POTTERY
PROTECTED ANCIENT
MONUMENT
2nd to 10th Centuries A.D.
Fair
Nil

NO61SW9
BALCOMIE GOLF LINKS
BUILDING

LIFEBOAT SHED
19th Century
Good
Nil

NO63231030
Metal witch posts and
shackle maybe associated
with lifeboat shed.
Uncertain
Fair
Nil

NO61SW17
CRAIL AIRFIELD,
BALCOMIE GOLF LINKS,
FIFE NESS
TWO MAN DOMED
SHEET IRON PILLBOX
20th Century
Not seen
Nil

NO62771057
Linear stone wall, 1
Result of stone clearance to
create boat landing place on
beach
20th Century
Poor
Survey

NO61SW18
CRAIL AIRFIELD,
BALCOMIE GOLF LINKS,
FIFE NESS
TWO MAN DOMED
SHEET IRON PILLBOX
PROTECTED ANCIENT
MONUMENT
20th Century
Poor (Dome roof seen but
concrete base was not seen
and this may have been
destroyed or covered over by
beach development)
Monitor

NO62771085
Harbour
Natural rock cut harbour
with gap in boundary fence
behind
Uncertain
Fair
Nil

NO61861103
Stone boundary; wall
continues onto foreshore
Uncertain
Good
Nil

NO61SW7
RANDESTER CASTLE
CAVE; CROSSES
CAVE; CROSSES
Uncertain
Not seen
Nil

NO61141128
Linear wall onto foreshore
Uncertain
Fair
Nil

NO61SW2
OLD HAISKS LONG
CIST CEMETERY
CISTS
Uncertain
Not seen
Nil

NO61061141
Metal mooring hoop
Suggesting an enhanced
natural harbour at 'Old
Haiks'
19th-20th Centuries
Fair
Nil

NO6144125
Wreck
Scattered remains of
Torpedo destructor HMS
Success low down on
foreshore
20th Century
Poor
Nil

NO61SW11
KINGBARNS,
HARBOUR
HARBOUR AND
LIMBERKILN
19th Century
Poor
Monitor
*See site description 2

Historic Scotland
Buit heritage and archaeology: The rocky foreshore which dominates this section provides an unfavourable burial location for intertidal remains and this is reflected in the small number of intertidal sites seen by the survey team. A possible natural harbour was identified at NOSL661430 with substantial earthworks at the coast edge consistent with a track way leading back to the track marked on OS 1:25,000 and leading down to store from Burnside farm. Good use has been made of the past of a natural harbour at NOSL691430 with the construction of a 19th Century lifeboat shed. Abandoned in 1895, this station was set up following the wreck of the Napoleon in 1864 because it provided a better launching site in easier gales for rowing to the treacherous rocks off between Boddin Ness and Babbett Ness which claimed many lives. This re-entrant sandstone head was constructed from the dismantled old St Andrews lifeboat shed which was brought home by steam to Boddin Ness for reconstruction. The shed has been re-used as a castle barn with recent repairs to the shed including modern brickwork and a slung corrugated iron roof. A recently deserted salmon bothy and cobble slipway at NOSL801430 are worthy of interest and these features show up on the 1st edition OS maps (1834). Access to this bothy was by means of a track from the Kenly Burn and the track has been maintained by a fine 19th Century vertically coursed sandstone wall (NOSL8191434 - 58091430) which has survived in a far better state than most recent attempts at coastal defence. There was no evidence of any of the cists found in the fields (NOSL582, NOSL163, NOSL513) and the farms who located these has not discovered anything more recently (Pers. comm.) The earthworks identified by O.S. during a visit in 1968 at the site known as Kingsbarns Castle (NOSL0821) were not visible but any remains that do exist will be well set back from the existing coast edge and should not be at threat from coastal erosion. Other previously unrecorded sites included two triangular pillboxes built into a sandstone promontory (NOSL5821519 and NOSL5791518) and a collapsing circular cornered, coursed sandstone cairn (NOSL381491) which may have been used as a navigation marker for fishing boats or for the lifeboat at the nearby Boddin Ness station (NOSL691430).

Hinterland geology and coastal geomorphology: Erosion class: The hinterland consists of a low coastal terrace at the edge there is an irregular dune ridge. A less conspicuous escarpment of the former coastline slopes to a coastal plateau. Boddin Rock in the north, is an old sea arch carved into the former Calkelofine Sandstone cliffs. The foreshore geomorphology is controlled by the structural and lithological variations with in the rock platform. At Arbroath and Salt Lake, abraded modern sheet pebbles of resistant sandstone and limestone give rise to fringing beaches of sand and shingle. The coast edge is stable where it is composed of resistant sandstone and limestone rock. The promontory at Salt Lake has a jumbled mass of irregular basaltic boulders. There is localised erosion where loosely consolidated sand raised beach deposits compose the edge (Erosion Units 3-5). Undercutting at high waters has caused fence posts to come adrift at the coast edge (Erosion Unit 3). Elsewhere, large glacial boulders and vegetation protect the edge or tipping of concrete has helped to stabilise the edge.
1. NOS5611303 0.8 km
   Eroding or stable
   The low coast edge composed of loosely consolidated sandy raised
   beach deposits is susceptible to undermining erosion at high waters.
   Fences posts are extremely close to the edge and several posts have
   come adrift. Tipping of bricks and concrete along the coast edge
   provides localised stability. To the north vegetation stabilises the coast
   edge.

2. NOS5411370 0.75 km
   Both accreting and eroding.
   Airhow Point experiences localised
   undermining of the dunes at the
   coast edge during high wave
   activity. Where there are no storm
   debris to protect the edge of the
   dunes display bare vertical cliffed
   faces. North of the access point
   there are signs of sand accretion, a
   steep sand beach has built up which
   supplies the dunes with blown sands.
   The blown sands are stabilised by
   marram grasses and other dune
   species.

3. NOS59031421 0.9 km
   Stable
   The resistant rock platform protects the foreshore, with stable
   fringing breaches at the coast edge. There is
   localised undermining where breaks
   in the rock platform occur and
   where vegetation at the edge is
   sparse.

4. NOS56991431 0.35 km
   Eroding or stable
   To the south of Salt Lake there is
   localised erosion. Abandoned
   marram dunes within the rock platform
   locally-waves attack. The coast edge
   is reinforced with a stonewall,
   however it is in disrepair. Salt Lake
   beach is stable, with a marram wall
   protecting the coast edge, and
   signs of localised undermining where
   the wall ends.

5. NOS58211437 0.4 km
   Definitely eroding.
   At the entrance to Kenly Burn a
   farmer commented on the severity of
   the erosion after bad winter storms,
   which have led to a general decline in
   the stability of this coastal section.
   An old 18-19th century stone wall
   provides some protection to the coast
   edge.

6. NOS57971483 1.2 km
   Stable
   Resistant sandstone comprises the
   promontory and platform. Lithological and structural
   variations create gaps in the
   protective platform allowing the sea
   to undercut the coast edge. To the
   north a dome structure on the
   platform creates a flat lying area
   which is stabilised with marram and
   reed beds.

7. NOS57231503 0.5 km
   Eroding or stable
   The field boundary stone wall and a
   courtyard wall protect part of the
   coast edge. The irregular undercut
   terrace is the result of localised
   erosion, at high waters. A local
   farmer is unaware of any significant
   changes along this section of the
   coast. Tipped farm waste provide
   some protection to the coast edge.

8. NOS56791498 0.6 km
   Stable
   Accretion of shelly sands has
   occurred as a result of a gap in the
   rock platform. The blown sands at the
   coast edge are stabilised with marram
   grasses.

9. NOS56281511 1 km
   Eroding or stable
   The low irregular coast edge in front of
   Fluddo Rock is locally undercut where the
   rock platform breaks. High wave activity
   causes jumble scour erosion of the
   loosely consolidated raised beach
   terrace. In addition, there is trampling
   damage by cattle. Coarse shingle ridges
   along the coast edge provide localised
   stability.
MAP 2 KINGSBARNS TO BUDDO NESS

GEOLOGY UNITS

1
N059611308
0.8 km
Mainly rock platform
Low edge (<5 metres)
Blown sand with raised beach and marine deposits
The foreshore consists of rock platform composed of Carboniferous sandstones interspersed with mudstones and limestones. Fringe sand and shingle beaches occur on the upper foreshore, with storm cobbles and boulders at the top of the beach. The coast edge is composed of blown sands with raised beach deposits consisting of sand and gravel. The former shoreline is very close to the edge.

2
N059391379
0.7 km
Mainly sand
Low edge (<5 metres)
Blown sand
The east facing shelty sand beach is the result of a gap in the rock platform. The low coast edge consists of blown sands which crest dunes 2-4 metres in height. The dune bank with sea lyme passes into a low raised beach terrace which slopes inland to reach the escarpment of the former coastline. Above is the main coastal plateau, with rich agricultural land.

3
N059001421
1 km
Mainly rock platform
Low edge (<5 metres)
Raised beach and marine deposits
Rock platform comprises Babbet Ness with fringing beaches of sand on the upper foreshore. The low edge outwears sandstone with overlying raised beach deposits.

4
N058531431
0.4 km
Mainly sand
Maritime Fife

5
N058111417
0.5 km
Mainly rock platform
Cliff (>5 metres)
Raised beach and marine deposits
The raised sandstone cliffs of the former coastline are situated at the coast edge and either side of Kentsy Burn. The cliffs lower to the north and south. Sandstone outcrops as rock platform on the foreshore and there is a shingle beach at the burn entrance.

6
N057981469
0.6 km
Mainly rock platform
Low edge (<5 metres)
Raised beach and marine deposits
Rock platform dominates the foreshore, local structural and compositional variations in the platform give rise to fringing beaches composed of sand and shingle. The hard rock at the coast edge has overlying raised beach deposits.

7
N057721498
0.8 km
Mainly rock platform
Low edge (<5 metres)
Raised beach and marine deposits
The sandstone and limestone has been folded into a dome, which creates a low flat platform. The overlying raised beach deposits in addition to poor drainage have encouraged marsh development.

8
N057131504
0.6 km
Mainly rock platform
Manned barrier
A stone wall of the field boundary is situated at the coast edge. On the upper foreshore there is a fringing shingle beach with cobble storm deposits.

9
N05695498
0.5 km
Mainly sand
Low edge (<5 metres)
Raised beach and marine deposits
A small sand beach is associated with outcropped mudstones in the rock platform. Blown sands on the upper foreshore are stabilised by marram grasses. The coast edge of the sand beach is low and raised beach deposits overlie the hard-rock.

10
N056451513
1.3 km
Mainly rock platform
Low edge (<5 metres)
Raised beach and marine deposits
The low irregular coast edge has fringing beaches of sand and shingle associated with breaks in the platform. The former cliffed shoreline is situated just behind a low terraced edge. Buddo Rock is a sea arch cut into the former cliffs.

Historic Scotland
<table>
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<tr>
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<th>Site Name</th>
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<th>Description</th>
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<tbody>
<tr>
<td>NO5515E21</td>
<td>KINGSBARNES CASTLE</td>
<td>Castle</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
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<tr>
<td>NO57921410</td>
<td>Hilleshall House</td>
<td>House</td>
<td>Uncertain</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO55821519</td>
<td>Triangular pillbox</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
<td>Nil</td>
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<tr>
<td>NO55791518</td>
<td>Triangular pillbox</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>NO57861471</td>
<td>Natural harbour</td>
<td>Fair</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>NO5515E30</td>
<td>CHESTERHILL CIST</td>
<td>BURIAL</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NO5515E3</td>
<td>CHESTERHILL CIST</td>
<td>BURIAL</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NO5515E3</td>
<td>CHESTERHILL CIST</td>
<td>BURIAL</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NO55701295</td>
<td>Cylindrical concrete</td>
<td>Cistern</td>
<td>19th - 20th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NO50821425-NO55801439</td>
<td>Salineus fishing</td>
<td>Post slipway, track, and coastal wall</td>
<td>19th Century</td>
<td>Poor</td>
<td>Survey</td>
</tr>
<tr>
<td>NO58919434-NO58909430</td>
<td>Stone coastal</td>
<td>Defence wall</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO56931499</td>
<td>Lifeboat storage building</td>
<td>Reused as a barn and natural harbour</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO5515E46</td>
<td>BOAT HAVEN POTTERY</td>
<td>Pottery finds</td>
<td>Roman</td>
<td>Not seen</td>
<td>Nil</td>
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<tr>
<td>NO56611494</td>
<td>Stone cairn as possible navigation marker</td>
<td>Uncertain</td>
<td>Fair</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>NO56381491</td>
<td>Cement slip and track</td>
<td>Inland</td>
<td>20th Century</td>
<td>Good</td>
<td>Nil</td>
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</tbody>
</table>

Maritime Life, Historic Scotland
Built heritage and archaeology - From Boddie Ness to East Sands the rocky foreshore displays few monuments. Of note are the supposed harbour at Kinkell (NO51NW117) which, along with Kinkell Castle and dovecot, are shown on the O.S. 1st Edition Map of 1854. There are no structural remains of any of these features, although a bay at this point would certainly have provided natural shelter for small boats visiting the castle inland, which may have been approached from the creek by a track leading down from the cliff that is visible today. Several deeply rutted channels were also visible leading down onto the littoral rocks which were probably man-made and used in part of collecting kelp from the foreshore. The find of an old mine casing nearby (NO53981543) cannot be attributed to the harbour and was probably debris washed up on the foreshore. The stable but high cliffs behind the foreshore along this section do have some important monuments. The medieval fort at Kittock’s Den (NO51NE1), visible as an earthwork formed by a massive bank and ditch which isolates the promontory between the ravine known as Kittock’s Den and a sea-cliff approximately 30 metres high. A cart track climbing the steep cliff towards the fort is now heavily overgrown by shrubs and impassable except with difficulty by foot. Much attention in the past has been given to Kinkell Cave (NO51NW42), a 25 metres deep cave cut into the sandstone cliff, with excavations showing use of the cave since at least 2nd Century AD. The mouth of the cave is now heavily grown and almost inaccessible. The survey identified an unrecorded standing stone approximately 200 metres to the east of this point and situated five metres behind the foreshore (NO53321572). No inscriptions were visible on the stone which was heavily pitted by honeycomb calcareous weathering. It is possible that this stone was connected with the nearby Kinkell Cave The main St. Andrews complex boasts some very important monuments. Coast edge sites of particular note are the harbour system (NO51NW6) on which recent work has been undertaken to strengthen the wall structure, the remains of the 12th Century site of St Mary’s Church and burial ground (NO51NW7), and the precinct wall of St. Andrews Cathedral (NO51NW2) both of which are well protected by a sea-wall at the coast edge. Although the town complex has been well documented, the survey did identify some foreshore sites which deserve further attention. Between the outer wall of the harbour and St. Andrews Castle, a cart track (NO5168166 site description 3) leads to a series of three to five natural harbour inlets which were used to beach ships for repair and unloading (NO51351685 site description 3). Further enhancement of this natural feature is visible in the form of metal mooring hoops, and eroding steps (NO51611649) onto the shore.

Hinterland geology and coastal geomorphology; Erosion class-At East Sands three raised beach levels can be identified when looking towards Kinkell Braes representing three stages of glacial retreat which were interrupted by periods of readvance. The track is at 8m, the top of the cliffs are at the 23m slope and above the first line of caravans represents the 38m slope. From Boddie Rock to East Sands the high cliffs at the coast edge are composed of Carboniferous sandstone intercalated with mudstones and marine limestone bands. The Rock and Spindle is a volcanic vent intruded into the Carboniferous sediments. North of Maiden Rock the cliffs are composed of grey mudstones overlain with raised beach deposits which are unstable and prone to slide (Erosion Unit 4). The foreshore is dominated by rock platform, with fringing beaches where the rock platform breaks. East Sands is the main beach, sheltered by cliffs to the south and the harbour walls to the north. The stability of the sand beach is controlled by a transfer of sand between the beach and offshore banks and bars. The coast edge of the East Sands consists of a low manmade wall, to the north a dune ridge of blown sand is exposed. From the harbour to the Castle a cliff at the coast edge is reinforced with concrete seawalls and the overlying raised beach deposits are stabilised with netting to encourage vegetation.
1
NO55381599
0.3 km
Stable

In addition to the resistant rock platform there is a protective shingle and cobble fringe at the base of the cliff edge. The dense vegetation cover highlights the stability of the cliffs.

2
NO54691528
0.5 km
Enduring or stable

The resistant rock cliffs that reach the coast edge are stable. However, where a low terrace edge occurs in front of the cliffs there is localized undercutting of the shelly consolidated raised beach deposits.

3
NO53581571
2.5 km
Stable

The high cliffs and rock platform are composed of resistant sandstone and sandstone. Local structural variations in the hard geology allow the sea to encroach further inland.

4
NO52521588
0.3 km
Definitely eroding

The cliff edge is susceptible to erosion, the carrown ice fence posts have been moved inland and part of the coastal track has been lost. The sandstones and raised beach deposits which comprise the cliffs are susceptible to landslips.

5
NO5171512
0.8 km
Eroding or stable

East Sands bay is sheltered from the dominant southeast waves by the Buddo Ness promontory. The beach is stable, but experiences cycles of erosion. There is a complex transfer of sand between offshore banks, sand bars and the beach. Changes of up to a metre in the height of the beach have been recorded. Despite the cyclic lowering of the beach which exposes shingle and pebbles on the beach, there is little to the erosion as the sands are underlain by stable glacial clays. The coast edge is manmade, however localised cliff top erosion occurs in the far north.

6
NO5167669
0.2 km
Accreting or stable

At the harbour entrance there is the accretion of muds and silts. The two smaller piers which restrict the longshore drift of sand along Buddo Ness have sand accumulating between. The recent repairs to the harbour walls are due to poor drainage off the land and from the Knavies burn. The main pier experiences pressure during storm activity as it is exposed to the full force of North east waves.

7
NO51551670
0.4 km
Stable

The sandstone cliffs towards the Castle are exposed to powerful sea waves. The cliffs are reinforced with armco. Rubble is placed in front and behind the walls to prevent scour. The netting over the raised beach deposits is to encourage vegetation growth to stabilise the deposits.
MAP 3 HUDDONESS TO EAST SANDS

GEOLOGY UNITS

1

NOS5771522

0.4 km

Mainly rock platform

Drift, boulder clay over visible rock

High cliffs are composed of Carboniferous Calciferous sandstones which are interspersed with mudstones and limestones. There is a dense vegetation cover on the overlying drift. The drift deposits consist of local and far travelled clasts in a sand clay matrix. On the foreshore fringing beaches occur at the top of the rock platform.

2

NOS5531269

0.3 km

Mainly rock platform

Shingle

Raised beach with drift, boulder clay over visible rock.

North of the stream outlet a tone wall is situated at the coast edge. Sandstone cliffs of the old raised shoreline are overlain by drift.

3

NOS55091504

0.5 km

Mainly rock platform

Cliff (>5 metres)

Fringing sand and shingle beaches are associated with abraded mudstones within the platform. At the coast edge the high cliffs represent the raised shoreline.

4

NOS4551529

0.85 km

Mainly rock platform

Cliff (>5 metres)

Drift, boulder clay over visible rock

A low terraced edge of glacial deposits occurs in front of the main cliff. The hard rock cliffs are overlain by boulder clays. The foreshore is composed of a domed platform of resistant sandstone with marine limestones bands.

5

NOS52801573

0.5 km

Mainly rock platform

Cliff (>5 metres)

Raised beach and marine deposits with drift, boulder clay

The Rock and Spindle is a volcanic vent intruded into the Carboniferous sedimentary rocks. Volcanic deposits compose the rock platform and coast edge. Fringing sand and shingle beaches occur on the upper foreshore. Raised beach deposits overlie the hard rock, with drift deposits on the coastal plateau above.

6

NOS5111582

1.5 km

Mainly rock platform

Cliff (>5 metres)

Drift, boulder clay over visible rock

Fringing sand and shingle beaches are associated with abraded mudstones within the platform. At the coast edge the high cliffs represent the raised shoreline.

7

NOS2351589

0.5 km

Mainly rock platform

Cliff (>5 metres)

Raised beach and marine deposits

The high cliff are composed of sandstone and mudstones raised by raised beach and marine deposits. Rock platform dominates the foreshore.

8

NOS1781645

0.8 km

Mainly sand

Glamorgan sands, raised beach and marine deposits

East Sands is 500 metres long and faces east. The foreshore has a steep upper profile and a flat lower beach. The offshore gradient is slight and wave energy is absorbed by the shoaling effects of offshore sand bars. Sand dominates the foreshore with a shingle intimation in the south. At the coast edge there is a vertical seawall 1.5 metres high, with a steel sheet pile construction in the central area. To the north a stone wall forms the coast edge, with a short section of stone ridge. In the hinterland a low level raised beach surface slopes down to the river, the intervening strip of sand is a gently sloping blow sand ridge.

9

NOS1551667

0.4 km

Mainly alluvial/marine sands

Marine barrier raised beach and marine deposits

Historic Scotland
MAP 3: HUDDO NESS TO ST. ANDREWS CATHEDRAL AND CASTLE
BUILT HERITAGE AND ARCHAEOLOGY UNITS

Sites behind the coast edge at St. Andrews (STA)

NOS1571633
ABBEY COTTAGE, ABBEY WALK
LISTED BUILDING
19th Century
Not seen
Nil

NOS1511632
BALKFOWL HOUSE, 1 BALKFOWL PLACE, THE SHORE
LISTED BUILDING
19th Century
Not seen
Nil

NOS1631635
3 BALKFOWL PLACE, THE SHORE
LISTED BUILDING
18th Century
Not seen
Nil

NOS1515.5
ST ANDREWS CATHEDRAL, ST RULE'S CHURCH
CHURCH, TOWER
LISTED BUILDING
12th Century
Not seen
Nil

NOS15119
ST ANDREWS, ST MAGDALENE'S CHAPEL
CHAPEL
Medieval
Not seen
Nil

NOS1514
ST ANDREWS FORT
FORT
17th Century
Not seen
Nil

NOS15114.5
ST ANDREWS, ST LEONARDS
Maritime Fife

SCHOOL, SIXTH FORM HOUSE
URBAN EXCAVATION
SMITHY WORKS, DRAINS, AND
SANDSTONE WALLS
16th-19th Centuries
Not seen
Nil

NOS1511633
ST ANDREWS CATHEDRAL, CATHEDRAL GRAVEYARD; AND PRECINCT WALL
PROTECTED ANCIENT MONUMENT AND LISTED BUILDING
Scheduled areas: schedule no 2593 'St Andrews Cathedral, part of precinct walls NOS12164-NOS13166; no 90258 'St Andrews Cathedral, precinct walls & the Pends' NOS111466 - 513166
12th - 16th Centuries
Fair
Nil

NOS1511633
ST ANDREWS CATHEDRAL, OUEST HALL
Uncertain
Not seen
Nil

NOS1515.5
ST ANDREWS CATHEDRAL, ST ANDREWS PRIORY GRANARY
GRANARY
Uncertain
Not seen
Nil

NOS15115.6
ST ANDREWS CATHEDRAL, PRIORY HOUSE
HOUSE
LISTED BUILDING
Uncertain
Not seen
Nil

NOS15115.5
ST ANDREWS CATHEDRAL, ST ANDREWS PRIORY, ABBEY MILL, MILL, DAM, SLUICE
Uncertain
Not seen
Nil

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HISTORIC SCOTLAND

NOS1511633
ST ANDREWS CATHEDRAL,
ST ANDREWS PRIORY
WELL
HOLY WELL
Uncertain
Not seen
Nil

NOS1511633
ST ANDREWS CATHEDRAL,
CHURCH, TOWER
CHURCH, TOWER
Not seen
Nil

NOS1511633
ST ANDREWS CATHEDRAL,
MUSEUM
Uncertain
Not seen
Nil

NOS1511633
ST ANDREWS CATHEDRAL,
ABBREY WALL CROMARK
CROMARK
Uncertain
Not seen
Nil

NOS1511633
ST ANDREWS WAR MEMORIAL, NORTH ST
LISTED BUILDING
20th Century
Good
Nil

NOS1511633
ST ANDREWS CATHEDRAL,
1&2 GREGORY PLACE
Historic Scotland
<table>
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<tr>
<th>Reference</th>
<th>Description</th>
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<tr>
<td>NO51NW17</td>
<td>KINNEIL HARBOUR - NATURAL HARBOUR&lt;br&gt;Uncertain&lt;br&gt;Fair&lt;br&gt;Nil</td>
<td>Medieval</td>
<td>Not seen</td>
<td>Nil</td>
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<td>NO537154</td>
<td>Kinneil Castle and Donness Structures shown on OS 1st Edition (1854)&lt;br&gt;Uncertain&lt;br&gt;Not seen&lt;br&gt;Nil</td>
<td>20th Century</td>
<td>Good</td>
<td>Nil</td>
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<td>NO51NW76</td>
<td>KINNEIL NESS FLINT SCRAPER&lt;br&gt;THUMB NAIL FLINT SCRAPER&lt;br&gt;Uncertain&lt;br&gt;Not seen&lt;br&gt;Nil</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO5321572</td>
<td>Weathered sandstone standing stone just behind foreshore; no inscriptions&lt;br&gt;Uncertain&lt;br&gt;Poor&lt;br&gt;Sandy</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
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<td>NO51NW42</td>
<td>KINNEIL CAVE&lt;br&gt;CAVE, SCULPTURED STONE&lt;br&gt;Roman&lt;br&gt;Fair&lt;br&gt;Nil</td>
<td>17th Century</td>
<td>Not seen</td>
<td>Nil</td>
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<tr>
<td>NO51NW49</td>
<td>KINNEIL BRAES COIN&lt;br&gt;SILVER SHILLING&lt;br&gt;17th Century&lt;br&gt;Not seen&lt;br&gt;Nil</td>
<td>17th Century</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO51NW29</td>
<td>ST ANDREWS, ST NICHOLAS FARM&lt;br&gt;LEPER COLONY&lt;br&gt;12th Century&lt;br&gt;Not seen&lt;br&gt;Nil</td>
<td>13th Century</td>
<td>Not seen</td>
<td>Nil</td>
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<td>NO51NW96</td>
<td>ST NICHOLAS FARM&lt;br&gt;POTTERY&lt;br&gt;POTTERY FRAGMENTS</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
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Sites on the coast edge and foreshore

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<tr>
<td>NO5541512</td>
<td>Boundary wall&lt;br&gt;Good&lt;br&gt;Nil</td>
<td>Medieval</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO51NE1</td>
<td>KITTOCKS DEN FORT&lt;br&gt; FORT AND EARTHWORKS&lt;br&gt;Military</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NO54931516</td>
<td>Thin tree trunk as navigation pole (possibly temporary)&lt;br&gt;20th Century&lt;br&gt;Fair&lt;br&gt;Nil</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NO51NW90</td>
<td>THE ROCK AND SPINDLE STONE FLAKE&lt;br&gt;WORKED CARNELIAN BLADE&lt;br&gt;Uncertain&lt;br&gt;Not seen&lt;br&gt;Nil</td>
<td>17th Century</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NO51NW100</td>
<td>THE ROCK AND SPINDLE ENCLOSENCE&lt;br&gt;ENCLOSURE&lt;br&gt;Uncertain&lt;br&gt;Not seen&lt;br&gt;Nil</td>
<td>17th Century</td>
<td>Not seen</td>
<td>Nil</td>
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<td>NO53981543</td>
<td>Outer casing of a disused ship mine&lt;br&gt;20th Century&lt;br&gt;Poor&lt;br&gt;Nil</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
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<th>Description</th>
<th>Date</th>
<th>Condition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO51NW102</td>
<td>ST ANDREWS COASTGUARD STATION&lt;br&gt;20th Century&lt;br&gt;Good</td>
<td>20th Century</td>
<td>Not seen</td>
<td>Nil</td>
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<tr>
<td>NO51NW254</td>
<td>ST. ANDREWS, UNIVERSITY OF ST. ANDREWS, GATTY MARINE LABORATORY&lt;br&gt;MARINE LABORATORY&lt;br&gt;MARINE LABORATORY&lt;br&gt;19th Century&lt;br&gt;Good</td>
<td>19th Century</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NO5171127</td>
<td>Lifeboat shed (disused) and slipway onto beach&lt;br&gt;19th Century&lt;br&gt;Fair&lt;br&gt;Nil</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NO51NW103</td>
<td>ST ANDREWS BAY, EAST SANDS&lt;br&gt;FELSI THE STONE IMPLEMENT&lt;br&gt;Uncertain&lt;br&gt;Not seen&lt;br&gt;Nil</td>
<td>19th Century</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NO51NW75</td>
<td>ST ANDREWS, EAST SANDS&lt;br&gt;FLINT SCRAPER&lt;br&gt;FLINT SCRAPER&lt;br&gt;Uncertain&lt;br&gt;Not seen&lt;br&gt;Nil</td>
<td>20th Century</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NO51591565</td>
<td>FISHERMAN'S STORE, 1 SHOREHEAD&lt;br&gt;LISTED BUILDING&lt;br&gt;17th Century&lt;br&gt;Fair</td>
<td>17th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NO51601644</td>
<td>KIRKHEUGH COTTAGE, SHOREHEAD&lt;br&gt;LISTED BUILDING&lt;br&gt;19th Century&lt;br&gt;Fair</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
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</tbody>
</table>
Sites on the coast edge and foreshore (cont.)

NOS1631664
BELROCK HOUSE, SHOREHEAD
LISTED BUILDING
18th Century
Fair
Nil

NOS1NW63
ST ANDREWS HARBOUR
HARBOUR
LISTED BUILDING
12th -20th Centuries
Fair
Monitor

NOS1634673
Coastguard watchtower/lighthouse
19th Century
Fair
Nil

NOS1NW7
ST ANDREWS, KIRK HILL, ST MARY'S CHURCH
CHURCH RUIN; BURIAL GROUND
PROTECTED ANCIENT MONUMENT and LISTED BUILDING
12th Century
Fair
Nil

NOS1NW28
ST ANDREWS, KIRK HILL, 'ST MARY OF THE ROCK' BURIALS
LONG CIST BURIALS
Uncertain
Not seen
Nil

NOS1631676
Cobbled slipway and trackway cut into littoral rocks giving access to foreshore and boat inlets.
Uncertain
Fair
Survey
*See site description 3

NOS1611679
Stairway cut into sandstone clif; railings; metal hoop
Giving access onto the shore
Poor
Survey
*See site description 3

Fife Historic 20 Historic Scotland
Built heritage and archaeology - The most important site in the St. Andrews sector is St. Andrews Castle (NG511030), situated on a high rock promontory. On the castle's south eastern quarter, a sand beach is accreting up against what appear to be old storage cellars, that were once open to the beach but were then blocked up by later masonry work. These may have been used for storage of materials offloaded from ships. The castle walls are stable at this point although localised damage has been caused by vandals lighting fires up against the wall. The remainder of the coast line adjacent to the castle structure has been protected by a sea wall which has stabilised any erosion to the castle foundations. The gardens of several listed buildings back onto the coast edge as the high cliff runs north west from the castle complex. Erosion to this coast edge has exposed several 19th Century drains (NG51111701, NG50100172, NG51001702, NG51101190, and a sandstone wall (NG59151589) which will all disappear if the erosion along this short sector continues unchecked. Although not threatened by erosion as such, mention should be made of several Fife wooden fishing boats which were buried under concrete during the construction of the Bruce Embankment car park (NG5906173) during the early 20th Century. The wide expanse of sands which stretch out towards the sandy spit of Out Head and the mouth of the Eden estuary, is fairly short on monuments. Of note, are intermittently exposed lines of square, and occasionally pyramidal tank traps just behind the existing sand dune system (NG5071821 etc.), a pillbox situated on the beach wall overlooking the sands (NG50421723) and the timber remains of a ship, possibly the 'Jeune' or 'Wihlemine' (NG54611734), wrecked on the sands, heavily salvaged by the locals, and now almost entirely buried. A magnetometer survey carried out by the Archaeological Diving Unit (Port compr.) has indicated that the wreckage of the ship covers a wide area of the foreshore at this point and if any beach lowering occurs, these remains may become exposed. The wide mud-flats of the Eden estuary area and the coast edge behind provide an ideal burial environment for archaeological remains and must therefore be considered to have substantial archaeological potential. O.S. 1st Edition maps (1854) point out 'muscle bed' suggesting widespread harvest of shellfish for bait and human consumption. The existence of a mussel holding tank visible near Coble Shore (NG46051940) provides material evidence of this activity which is no longer practiced since the mussels were declared unfit for human consumption (Dobson 1997, 111). However, the thickness of the mud makes access and investigation of features difficult and this limited the survey team's coverage of the foreshore zone. Although the foreshore was not widely covered on foot, aerial photographs do show the system of channels and mudflats but do not show any obvious man-made features. Other monuments that were visible include the old groynes systems at Out Head (NG491932) and lines of wooden stakes (NG4751862 and NG7941826) near the coast edge and on the coast edge itself, the embankment of the old St. Andrews railway line running parallel to the coast edge to the west of NO4331813 and a cobbled slipway (NG4701868).

Hinterland geology and coastal geomorphology; Erosion class—Looking south from West Sands it is possible to identify the raised shorelines in the hinterland. The slope behind the Guardbridge road represents the former shoreline 23 m above the present sealevel and next to the main road itself there is a raised beach which reappears at North Haugh and Kincaple firm. The lower beach consists of blown sands which extend as a spit at Outhend. From St Andrews Castle to the car park at NG51103172, Calcareous Sandstone Measures can be followed along the shoreline with evidence of coal seams. The foreshore is dominated by a rock platform although small sand and shingle beaches accreting at the base of the rock platform can be seen at Castle Sands, Witches Lake and Skip Road. West Sands/Pilmuir Links is an extensive area of blown sands with relic dunes set in from the present dune zone. Human pressure degraded the dunes to a very vulnerable state in the 1980s. However, since then a rehabilitation zone has stabilised the dune zone. Outhend is a dynamic spit formation which is migrating north-eastwards into the Eden, as a result a complex interplay of natural and human forces. The outer Eden estuary is susceptible to erosion as a result of the changing position of the river and groynes and gabion baskets have been deployed to protect the eroding dune edge of the golf course (Erosion Unit 10).
CASTLE BEACH

Stable

The car park is situated on reclaimed land protected by a seawall at the coast edge. At the south end of West Sands the Swallow Park outflows, a stone embankment stabilizes the coast edge.

1
N0551211691
0.4 km
Accessing or stable

No beach experiences sand accretion at the top of a rock platform according to the wave and tidal climate. A steep beach has built up osmotic to the Castle walls. Coastal protection works reinforces the eroding cliffs behind.

0.3 km
Eroding or stable

The Castle promontory has reinforced cliffs and the overhangs of sandstone are supported with pillars. To the north the Caledonian sandstones are interspersed with carbonates, mudstones and coal which are more susceptible to wave attack. Weaknesses along faults and joints are vulnerable to rockfall. Although rockfall is infrequent, the flat of the cliffs display evidence of fallen rock and pipes are left stranded from the cliff face.

N055661704
0.2 km
Stable

West Lake is a small stable sand bank floating debris situated at the top of a rock platform. Buildings rest on the coast edge.

0.3 km
Eroding or stable

No barrier beach sand accretion is widening up the level of the upper shore. To the north a seawall services the longshore drift of sand.

N055151719
1 km
Vernamie Fife

Stable

The coast edge is protected by a seawall at the coast edge. At the south end of West Sands the Swallow Park outflows, a stone embankment stabilizes the coast edge.

N055091702
3.5 km
Accessing or stable

At the south end of West Sands the dunes at the coast edge have experienced accretion over the last ten years. In the past human exploitation degraded the dunes to point where they were extremely vulnerable to erosion. The dune area is now a restricted rehabilitation zone with raised wooden access points to the beach. Vegetation is now stabilizing the dunes, eroding blown sands and resisting wind erosion.

N055019179
0.8 km
Accessing or stable

Definitely accreting

To the north antikline blocks replaced at the coast edge in 1941 are now buried by blown sands. A 70 metre wide active dune zone is situated in front of the blocks. The dunes are low and marram grasses stabilise the accreting sands. There is localised trampling damage over the dunes.

N055021855
1.5 km
Stable

Definitely eroding

Towards Outhhead reclaimed land composed of loosely compacted waste creates an unstable edge. At high waters the edge is undercut.

N0495691930
0.5 km
Eroding or stable

Toward Outhhead reclaimed land composed of loosely compacted waste creates an unstable edge. At high waters the edge is undercut.

N049511972
0.7 km
Vernamie Fife

Stable

The railway embankment no longer protects the coast edge. The loosely consolidated coast edge is unstable at high waters erosion has incised the edge. In addition, there is trampling damage from horses. Tipping of concrete rubble and bricks on the foreshore provides only limited protection.

Historic Scotland
GEOLoGY UNITS

1. NO521211691 0.4 km
   Mainly sand
   Raised beach and marine deposits
   Castle Sands is a small southeast facing beach at the top of a rock platform. The beach is composed of sand, although under certain wave and tidal conditions the sand is replaced with shingle. Coastal protection has been necessary to reinforce the eroding cliffs behind. The hinterland consists of Carboniferous Calcaferous Sandstone cliffs overlain with raised beach deposits of the former shoreline.

2. NO50091702 0.5 km
   Mainly rock platform
   Raised beach and marine deposits
   The high cliffs are composed of Carboniferous Calcaferous Sandstone Measures with coal seams. The cliffs are overlain with raised beach deposits.

3. NO50651704 0.5 km
   Mainly rock platform
   Raised beach and marine deposits
   West Sands is a wide sandy beach with a low gradient. A 30-metre wide dune zone with dunes up to 3 metres in height is situated at the coast edge. The highest dunes are to the north stabilized with marram grasses and other dune species which trap the blown sands. The hinterland consists of links/blowsand depression with marram and natural advance dune ridges of gorse and shrub within the groyne area. Beyond the links, the escarpment of the former shoreline runs continuously northwestwards.

4. NO50581718 0.3 km
   Mainly sand
   Raised beach and marine deposits
   Step Rock is a sandy beach that has accumulated at the top of a rock platform. The coast edge is a wall at the town side and a groyne at the seaward side which traps sand.

5. NO50351719 0.3 km
   Mainly rock platform
   Raised beach and marine deposits
   The carpark is situated on reclaimed land of the Brec Embankment. At the south end of West Sands, the Swilken Burn runs parallel to a slaging stone embankment. Raised shorelines can be identified to the south.

6. NO50101835 2.5 km
   Low edge (<5 metres)
   Blown sands
   West Sands is a wide sandy beach with a low gradient. A 30-metre wide dune zone with dunes up to 3 metres in height is situated at the coast edge. The highest dunes are to the north stabilized with marram grasses and other dune species which trap the blown sands. The hinterland consists of links/blowsand depression with marram and natural advance dune ridges of gorse and shrub within the groyne area. Beyond the links, the escarpment of the former shoreline runs continuously northwestwards.

7. NO49651950 0.7 km
   Sand
   Human disturbance
   The dunes come to an end and the coast edge is reconstituted by waves and surf. Blown sand links occur to the west.

8. NO49541969 0.4 km
   Low edge (<5 metres)
   Blown sands
   Outcrops are a dynamic sand formation with a history of movement associated with the outlet of the Eden and the longshore drift of sand along West Sands. Blown sands compose the hinterland, with evidence of relic dune ridges.

9. NO49041888 1.8 km
   Blown sands
   To the east the upper sandy fore-shore passes into silty sand and muds on the middle and lower fore-shore. A mammoth coastal edge protects the blown sands. Defences include groynes, gabion baskets and rubble mounds.

10. NO48448127 0.7 km
    Low edge (<5 metres)
    Blown sands
    The estuary is composed of muds with silty sands on the upper fore-shore. The low edge is composed of blown sands. There is localized human disturbance associated with tipping. To the west, the blown sands pass into raised beach and marine deposits, which consist of sands and shingle.

11. NO47671869 1.2 km
    Mainly alluvial/marine muds
    Raised beach and marine deposits
    Blown sands with raised beach and marine deposits
    The foreshore is predominantly mud. On the upper foreshore there are mud flats with marsh and reed beds. The coastal edge is the old stone railway embankment. The raised shoreline can be seen in the hinterland in the vicinity of Kincaple farm.

12. NO46911895 0.3 km
    Mainly alluvial/marine muds
    Raised beach and marine deposits
    Silty sands with a shingle fringe compose the upper foreshore, with muds on the lower foreshore. A low blown sand ridge is situated at the coast edge, with human disturbance as a result of tipping.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
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<tbody>
<tr>
<td>NOS18161701</td>
<td>6 GILLESPIE TERRACE, THE SCORES</td>
</tr>
<tr>
<td>NOS56611701</td>
<td>6 GILLESPIE TERRACE, THE SCORES</td>
</tr>
<tr>
<td>NOS56611702</td>
<td>5 &amp; 3A GILLESPIE TERRACE, THE SCORES</td>
</tr>
<tr>
<td>NOS56611703</td>
<td>4 GILLESPIE TERRACE, THE SCORES</td>
</tr>
<tr>
<td>NOS56611704</td>
<td>3 GILLESPIE TERRACE, THE SCORES</td>
</tr>
<tr>
<td>NOS56611705</td>
<td>2 GILLESPIE TERRACE, THE SCORES</td>
</tr>
<tr>
<td>NOS56611706</td>
<td>1 GILLESPIE TERRACE, THE SCORES</td>
</tr>
<tr>
<td>NOS56611707</td>
<td>MARTYRS MONUMENT, THE SCORES</td>
</tr>
</tbody>
</table>

**Sites behind the coast edge of St Andrews (S.A)**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>NOS1NW16</td>
<td>ST ANDREWS, NORTH STREET, DEAN'S COURT, HOUSE, 'WELL', CUP-MARKINGS, 16th Century</td>
</tr>
<tr>
<td>NOS5121680</td>
<td>35-39 NORTH CASTLE STREET, LISTED BUILDING, 17th-18th Century</td>
</tr>
<tr>
<td>NOS51241682</td>
<td>41 NORTH CASTLE STREET, LISTED BUILDING, 18th Century</td>
</tr>
<tr>
<td>NOS51241683</td>
<td>43 NORTH CASTLE STREET, LISTED BUILDING, 18th Century</td>
</tr>
<tr>
<td>NOS51241685</td>
<td>45-49 NORTH CASTLE STREET, LISTED BUILDING, 19th Century</td>
</tr>
<tr>
<td>NOS51241686</td>
<td>51 NORTH CASTLE STREET, LISTED BUILDING, 19th Century</td>
</tr>
<tr>
<td>NOS1NW20</td>
<td>ST ANDREWS, CASTLE STREET, CORN EXCHANGE, MEDIEVAL</td>
</tr>
</tbody>
</table>

**Maritime Fife**

24
CASTLECLIFFE HOUSE & WALL,
THE SCORES
LISTED BUILDING
19th Century
Nil

NOS0851709
BAND STAND, THE SCORES
LISTED BUILDING
19th Century
Not seen
Nil

NOS0911709
ROYAL & ANCIENT GOLF CLUB
HOUSE, THE SCORES
LISTED BUILDING
19th Century
Not seen
Nil

NOS1NW3.1
ST ANDREWS CASTLE BEAKER
BEAKER
Early Bronze Age
Not seen
Nil

NOS1NW3.2
ST ANDREWS CASTLE MINE
MINE AND COUNTERMINE
Uncertain
Not seen
Nil

NOS1111701
Vertical stone and brick drainage
section cut into cliff
19th Century
Poor
Nil

NOS1001702
Square drainage exit at top of cliff
exposed by cliff fall
19th Century
Poor
Nil

NOS0951609
Sandstone boundary wall eroding at
top of cliff edge
19th Century
Poor
Nil

NOS1NW0.9
ST ANDREWS, WITCH LAKE
DRAIN
DRAIN
19th Century
Not seen
Nil

NOS1NW6.2
ST ANDREWS, STEP ROCK
BURIALS
Uncertain
Not seen
Nil

Maritime Fife

PROTECTED ANCIENT
MONUMENT: LISTED
BUILDING
14th Century
Fair
Monitor

NOS0691702
Old coastal defence wall protecting cliff
from sea earth
19th Century
Fair
Nil

NOS0701705
Square wooden post
19th-20th Century
Fair
Nil

NOS0751715
Sea Life Centre and tidal swimming pool
19th Century
Fair
Nil

NOS06173
Fillies buried under carpark
19th-20th Century
Not seen
Nil

NOS0421723
Pillbox
Facing west up West Sands. Built into
cavey sea defence - one slit and interior
infillted with stone and concrete to
stabilise area under modern car-park.
20th Century
Fair
Nil

NOS0461734
*See site description 3

NOS1331687
Tidal swimming pool
19th Century
Fair
Nil

NOS1NW3.0
ST ANDREWS CASTLE
CASTLE

Silts on the coast edge and foreshore

NOS1NW118
Sequence of 3-5 breaks in rock-cut
platform provided access for ships to
unload, enhanced by metal mooring
points and steps. Uncertain - 19th Century
Poor
Survey

NOS0491870
Tank traps
Line of square traps lying parallel to
beach NOS071821 - NOS021831,
Partially buried between NOS031831
and NOS4951865 reappearing as two
lines that disappear at NOS091870.
20th Century
Fair
Nil
Sites on the coast edge and foreshore (Cont.)

NO49351969
2 wooden posts embedded in sand at mouth of foreshore to Eden Estuary
Uncertain
Poor
Nil

NO493196
Linear feature visible on 1946 1:10,000 aerial photographs
Uncertain
Not seen
Nil

NO493192
Old grove system comprising moored tankstraps and lines of wooden posts with planking imbetween
20th Century
Poor
Nil

NO40331813
Railway embankment meets coast edge
19th Century
Fair
Nil

NO47941826
Drainage stakes lying perpendicular to railway embankment
Uncertain
Fair
Nil

NO47531862
Drainage stakes lying perpendicular to railway embankment
Uncertain
Fair
Nil

NO47401868
Cobbled slipway
19th Century
Fair - poor (eroding at edges)
Monitor

Maritime Fife 26 Historic Scotland
Build heritage and archaeology - The muddy foreshore which dominates the intertidal zone provides a favourable burial environment for archaeological remains. This, combined with the considerable trade carried on up the Eden Estuary from 1104 when David I granted it a charter conferring port status, until the mid 19th Century when coastal schooners and sloops operated from two quays at Guardbridge (Dobson 1997, 11) illustrates the archaeological potential of the area. However, the thick mud which covers the banks and foreshore of the Eden makes field investigation very difficult and those features identified were almost all viewed at a distance. Foreshore features of interest included four stakes in a square formation (NO45301950) perhaps marking a fish trap site, and two substantial stone piles on a shingle spit below R.A.F. Leuchars (NO46501990). Probably the most important monuments in this section are the series of bridges crossing the River Eden, the 15th Century Old Eden Bridge (NO4531890), the circular stone foundations pillars of the Old Railway Bridge (NO45151890), and the smaller 18th Century Old Motray Bridge (NO45021975) which cross Motray Water nearby the industrial monument of Guardbridge Paper Mills (NO45051950). All of these appear to be in fair condition. The history of R.A.F. Leuchars dates back to 1911 when the Royal Engineers used the area for balloon experiments before establishing a proper airfield there in 1918. Due to M.O.D. restrictions, the team’s survey of the coastline adjacent to R.A.F. Leuchars was limited to coverage of the foreshore with a strict prohibition of photography of buildings on the coast edge belonging to the M.O.D. The positions of pillboxes, aircraft buildings, and radio masts were noted in two main groupings (NO46081990, NO46431980).

Hinterland geology and coastal geomorphology: Erosion class - The hinterland geology of the outer Eden Estuary consists of blown sands with raised beach deposits while the inner estuary is composed of alluvium with raised beach deposits. Along the foreshore, the outer estuary has sand and shingle promontories at Coble Shore and Coble House Point, which extend into the silty muds of the lower foreshore. The inner estuary is dominated by muds which are stabilised with marsh as far as Guardbridge where fluvial influences dominate with the deposition of alluvium on the estuary banks. In the outer estuary the coast edge at Coble Shore and Coble Point is backed by low dunes. Along the south side of the inner estuary, a flat lying area of marsh extends inland. Along the north coast edge of the estuary a manmade wall extends to the weir. East of the weir, tipped wastes compose the coast edge. The outer estuary experiences both erosion and accretion, associated with the changing position and variable flow of the Eden. Human disturbance helps to protect the edge with the placing of concrete slabs and rubble preventing erosion (Erosion Units 2, 4). The inner estuary is mostly stable being dominated by thick muds and marsh development. However, where the estuary narrows, the coast edge is being undercut during periods of high water flow.
MAP 5 GUARDBRIDGE TO EDEN ESTUARY

EROSION UNITS

1
NO46891935
0.6 km
Both accreting and eroding
Coble Shore is a sand and shingle
formation which projects into the
Eden. Coble Shore experiences both
erosion and accretion relating to
tides and wind. The west side of the
bridge is the seaward side of the
ridge. The sand and shingle
formation extends out to sea.

2
NO46881938
0.3 km
Definitely eroding
West of Coble Shore the coast edge
is susceptible to erosion at high
waters. The west side of the
bridge is the seaward side of the
ridge. The sand and shingle
formation extends out to sea.

3
NO45951911
1.5 km
Accreting or stable
The upper foreshore is stabilised by
mud flats with seaweed and reed beds
which extend inland over a wide flat,
lying tidal area. The lower foreshore is
associated with accreting muds and
shingle where the estuary widens.

4
NO45231925
0.4 km
Definitely eroding
The Estuary narrows as it curves
towards Guardbridge and the variable
waterflow of the Eden erodes the low
lying land at high water. Erosion has
created an irregular terrace edge,
along which fence posts have come
deflect. The tipping of bricks and
concrete slabs provides some
protection at the coast edge.

5
NO45231892
0.3 km
Accreting or stable
Sand bars accrete across the
mouth of the Eden. The bars have
developed parallel to the water flow.

6
NO45221865
0.5 km
Eroding or stable
The dynamic river system of the Eden
changes position over time. The east
bank is a concave river meander
and it is subject to undercutting
erosion at high waters.

7
NO45091879
0.3 km
Definitely accreting
The west side of River Eden is
associated with the deposition of silts
and sands in the low energy zone of
the river bend.

8
NO45191049
0.9 km
Stable
Along the frontage of the papermill
the estuary widens and mud are
deposited on the foreshore. An old
stone wall, although in disrepair,
protects the edge under the bridge.
The upper part of a concrete wall in
front of the papermill is in very bad
condition.

9
NO45211979
0.2 km
Definitely accreting
Mud accretion on the foreshore is
increased at the west entrance and
where the Eden Estuary changes
direction.

10
NO45311971
0.5 km
Eroding or stable
Boulders, tipped bricks and concrete
provide some stability along the coast
edge of the reclaimed land. However,
there are signs of undercutting at high
waters.

11
NO45891990
0.8 km
Stable
Wire mesh reinforcement and
vegetation protect the coast edge. The
mud flats on the upper foreshore are
stabilised with reeds and marsh species.
At high waters there is possible
undercutting of the coast edge.

12
NO46571985
0.6 km
Both eroding and accreting
Accretion of silty sands and shingle
occurs on the upper foreshore at Coble
House Point, the sand and shingle
formation projects into the
estuary. Boulders are placed at the coast
edge for protection as there is variable
water flow through this narrower section of
the Estuary.

Maritime Fife

Historic Scotland
MAP 5 GUARDBRIDGE TO EDEN ESTATUARY

GEOLOGY UNITS

1. NO46681395
   0.6 km
   Sand
   Low edge (<5 metres)
   Blown sands with raised beach and marine deposits
   The upper foreshore is composed of sand, with a variable proportion of shingle. Towards the lower foreshore, silty sands change to mud. The historical progress from blown sands which crown a dune ridge at the coast edge to raised beach deposits.

2. NO46681935
   0.3 km
   Alluvial/marine muds
   Human disturbance
   Blown sands with raised beach and marine deposits
   Silty sands and muds compose the foreshore with shingle on the upper foreshore. Human disturbance along the coast edge involves tipping and the placing of concrete slabs.

3. NO45951911
   1.3 km
   Marsh
   Low edge (<5 metres)
   Alluvium with raised beach and marine deposits
   The mud of the wide foreshore creates flats with marsh and reed development. The marsh extends inland to form the wide low-lying area of sanctuary zone. The old raised shoreline rises from the flattening zone towards Kinpcape farm in the south.

4. NO45231000
   0.6 km
   Alluvial/marine muds
   Human disturbance
   Alluvium with raised beach and marine deposits
   As the River Eden narrows the foreshore is dominated by alluvial muds. Tipping and emplacement of rubble have occurred along the low coast edge.

5. NO45251875
   0.3 km
   Alluvial/marine muds
   Low edge (<5 metres)
   Alluvium with raised beach and marine deposits
   The river bend is associated with the deposition of alluvial muds. The hinterland consists of alluvial deposits associated with the changing positions of the river.

6. NO45131042
   0.3 km
   Alluvial/marine muds
   Manmade barrier
   Alluvium with raised beach and marine deposits
   Along the frontage of the papermill towards the west the edge of the estuary is bordered by stone or concrete walls. The embankment behind is vegetated with trees and shrub. The hinterland is a built-up area however the drift consists of raised beach deposits.

7. NO45251975
   0.6 km
   Alluvial/marine muds
   Human disturbance
   Alluvium with raised beach and marine deposits
   The north coast of the Eden is composed of muds. Human disturbance results in an edge composed of tipped wastes.

8. NO45891990
   0.8 km
   Marsh
   Human disturbance
   Raised beach and marine deposits
   The mud composing the foreshore has a covering of algae. Marsh and reeds develop on the upper foreshore. Human disturbance along the low coast edge consists of the deposition of rubble and wire mesh reinforcement.
<table>
<thead>
<tr>
<th>Site Reference</th>
<th>Description</th>
<th>Age</th>
<th>Status</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>NO45501990</td>
<td>Old Motray Bridge, Guardbridge</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO45501995</td>
<td>Guardbridge Paper Mill</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NO44515190</td>
<td>Circular ston pillars of old railway bridge</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NO44515192</td>
<td>Mud stakes on foreshore</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO445301936</td>
<td>4 stakes in square formation - possible cell trap or else.</td>
<td>Uncertain</td>
<td>Fair - seen from afar, mud too deep to examine closely</td>
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<td>Uncertain</td>
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<tr>
<td>NO44515195</td>
<td>Remains of wooden jetty</td>
<td>19th - 20th Centuries</td>
<td>Poor</td>
<td>Nil</td>
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<tr>
<td>NO44451900</td>
<td>Guardbridge Hotel &amp; Cottages, St Andrews Rd</td>
<td>Listed Building</td>
<td>18th Century</td>
<td>Fair</td>
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<tr>
<td>NO445151900</td>
<td>Pillbox at Leuchars boundary</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO445301980</td>
<td>Pillbox and radio mast for Leuchars airfield</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
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<tr>
<td>NO44501975</td>
<td>Two stone piles on shingle beach</td>
<td>Uncertain</td>
<td>Poor</td>
<td>Survey</td>
</tr>
</tbody>
</table>

Maritime Fife
GUARDBRIDGE TO TIDAL ESTUARY OF RIVER EDEN

KEY

Site Location

Map section: Central

Map units: Land Historic Building

Significance:

- Provincial Ancient Monument
- Other Known Mountain
- Designated by Historic Scotland
- Designated as a Site of Special Scientific Interest
- Probably archaeological site

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Built heritage and archaeology - The soft muds and sands which form a wide tidal zone at the mouth of the Eden estuary provide a favourable burial environment for archaeological remains. Taking this into account it may be surprising that more sites were not found suggesting pre 20th Century usage of the area. Intertidal sites which were recorded all date to the 20th Century and represent features relating to wartime defence of the Leuchars airforce base complex. None of these sites have been previously recorded and follow up work is needed in most cases. The southern boundary of Leuchars airfield (NO42SE39) extends right up to the coast edge and hangars, storage huts, and a radar tower are all located within the survey zone. These were not recorded by photograph due to MOD restrictions. Offshore, apart from scattered debris from the airfield there is not much to be seen on the west side of Shelly Point. However, on the east side of the point a network of wooden stakes extends east along the foreshore NO48452047 to an area centred NO504210. These are probably glider trap defences from World War II. A large timber frame platform visible low down on the foreshore (NO49452119) was built during the 1970's by St. Andrews University as a tide recording platform which is no longer used. From NO49020287 to NO49452305, a line of tank traps continues along the back of the dune system, covered over in places by blown sand. The dunes obscure this line of tracks completely at NO49402215 before they reappear briefly at NO00442424, exposed by the dune erosion caused by the pathway leading from Kinshady beach car park down to the beach. An interesting group of World War II buildings can be seen in the vicinity of Earlshall Bird Sanctuary (NO49252). These unrecorded monuments consist of a probable generator storage hut (NO499732279), two pillboxes (NO49892286 and NO49862302), and two collapsed brick buildings (NO49772256 and NO49892286).

Hinterland geology and coastal geomorphology; Erosion class - South facing beaches occur on the south side of the Eden Estuary and east facing beaches south of Kinshady. The foreshore of the north Eden estuary consists of broad wet mud beaches of the tidal estuarine flats, with fringing dry sands on the upper foreshore. At Shelly Point there is a sand beach which gives way seawards to a silty embayment with marsh and substantial areas colonised by algae. East of Shelly Point mobile beaches of sand create Sanctuary spit, which experiences both erosion and accretion as it migrates to the south. East of the spit the coastline is strongly influenced by the open North Sea and the position of the outlet channel of the estuary. In the hinterland the RAF base is situated on a low raised beach and links surface. Leuchars is sited on slightly higher ground of the former glacial coastline.

From the entrance of the Eden northwards to Reres Wood the coastline is eroding. The high water mark is advancing landwards. Defences protect the runway to the airfield however anti-tank blocks are exposed several metres from the coast edge (Erosion Unit 8) and the dunes at the coast edge display vertical sand cliffed faces so the dunes indicative of undercutting by the sea. The erosion of this area of coastline is associated with the accretion at the spit. The open undulation links of Earlshall occur between Tentsmuir to the north and Reres Wood to the south, with a low lying area stretching far inland and displaying well developed marsh. In the hinterland, there are relic dune ridges composed of blown sands with intervening marsh slacks, and behind that, there is a transition between the blown sands of the links and mixed beach surfaces. To the north the dune zone widens at Kinshady where Marram and prograding dune species lead to a stable backshore area with accreting dunes nourished by blown sands supplied by and extensive foreshore zone.
MAP 6 SHELLY POINT LEUCHARS TO TENTSMUIR SANDS

EROSION UNITS

1 NO46542005 0.2 km Stable
Marram and reed beds stabilise the upper foreshore and protect the coast edge.

2 NO4676201 0.4 km Eroding or stable
Human disturbance has resulted in a 0.4 km high coast edge of tipped waste. In the east the tipped wastes at the edge are protected by a vegetation cover. Reeds stabilise the upper foreshore. To the west, high waters undercut the tipped waste.

3 NO47022031 0.2 km Definitely eroding
The coast edge is composed of sandy raised beach deposits and tipped wastes, both of which are susceptible to erosion. There is some human disturbance in this area.

4 NO47252028 0.2 km Stable
The low edge is protected by mud flats, with marsh and reed bed development.

5 NO47462000 0.4 km Both accreting and eroding
Shelly Point is a dynamic sand peninsula that experiences both accretion and erosion. Accretion of blown sand has built up the level of the foreshore and marram grasses trap blown sand at the coast edge. To the east, the dunes are undercut and display bare dune edges with deflation hollows.

6 NO47792045 0.8 km Stable
Gabion basket defences and dolerite boulders stabilise the coast edge.

7 NO48352035 0.6 km Both accreting and eroding
Sanctuary Spit is dynamic, experiencing both erosion and accretion, as it responds to the changing position of the Eden. There is erosion in the spit which is balanced with accretion on the spit. Accretion of shellfish sands is causing the spit to migrate to the southwest. To the east, an old eroded soil horizon on the foreshore reflects the changing position of the spit. The 1941 anti-tank blocks on the foreshore are several metres from their original position at the coast edge which is undercut and protected with gabion baskets.

8 NO48882079 0.7 km Definitely eroding
The coast edge of the airfield runway is protected with concrete slabs and rubble. To the northeast erosion is severe, the anti-tank blocks are up to 40 metres from the undercut coast edge.

9 NO49812155 1.3 km Accreting or stable
Anti-tank blocks cross the present coast edge and are 30-40 metres inland, suggesting that there has been the long-term accretion of sand. Sand is accreting on the wide flat beach and wind blown sand is stabilised at the low dune edge by prograding marram grasses. In the mature dune area there are old erosion areas forming, however, with the exception of rabbit infestation there is little present erosion. EarlsHall Mair has an extensive area stabilised with reed beds and marsh.

10 NO49982333 2 km Definitely accreting
The dunes are accreting and there is evidence of prograding vegetation. Mature dunes are present 150 metres inland and are stabilised with tall marram grasses. The wide upper beach provides a large nourishment zone of dry sand for the dunes.
MAP 6 SHELLY POINT LEUCHARS
TO TENTSMUIR SANDS

GEOLOGY UNITS

1
NO46482015
0.3 km
Mainly alluvial/marine muds
Low edge (<5 metres)
Raised beach and marine deposits
A silty clay embayment has fringing sands on the upper foreshore. The mud
flats at the coast edge are dominated by marsh and reed beds.

2
NO464852025
0.3 km
Mainly alluvial/marine muds
Human Disturbance
Alluvium with blown sand
In the west, the silty sands on the upper
foreshore are stabilised with reed beds.
The marsh disturbance along the
coast edge, with an artificial bank 3-
smetres high of toped waste. To the east
the reed beds are absent on the upper
foreshore.

3
NO47712045
0.3 km
Mainly alluvial/marine muds
Low edge (<5 metres)
Blown sand
Silty sands as opposed to muds compose the
foreshore. The low edge is stabilised
by marlum grasses and reed beds.

4
NO47462000
0.4 km
Mainly sand
Low edge (<5 metres)
Blown sand
Shelly Point is a natural shelly sand
bank, with 3-4 metre high dunes at the
cost edge.

5
NO47792041
0.8 km
Mainly sand
Mammal-barrier
Blown sand
Oatton baskets and dolerite boulders

6
NO48552055
0.6 km
Mainly sand
Mammal-barrier
Blown sand
A shelly sand spit on the foreshore
encloses a tidal depression with salt
marsh. Dune development has
occurred on the landward side of
the spit. The coast edge is manmade
with gabion baskets.

7
NO488882085
0.7 km
Sand
Human disturbance
Blown sand
A wide sand beach forms the
foreshore. Human disturbance
protects the undercut dune edge
with concrete slabs and rubble.

8
NO49252155
0.7 km
Sand
Low edge (<5 metres)
Blown sand
The foreshore has a wide shelly sand
beach with a low gradient. At the
low coast edge there are blown sand
deposits.

9
NO49452200
0.5 km
Mainly sand (marsh upper
foreshore)
Low edge (<5 metres)
Blown sand
The upper foreshore has a wide tidal
flat area with marsh and reeds
which extends inland over a very
low coast edge. Earleshall Mire
consists of open undulating links
between Tentsmuir and Fores wood,
there are dune ridges with
intervening slacks. A transition from
links to raised beach occurs in the
hinterland.

Maritime Life

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MAP 6 - SHELLEY POINT LEUCHARS TO TENTSMUIR SANDS

BUILT HERITAGE AND ARCHAEOLOGY UNITS

Sites behind the coast edge

NO41SE59
LEUCHARS AIRFIELD
AIRFIELD; BUILDINGS; RADAR
TOWERS; BOUNDARY FENCES; LANDING LIGHTS
20th Century
Good
Nil

NO49732279
Wartime shelter used as generator building
20th Century
Fair
Survey

NO49772263
Foundations and one partially remaining wall of a brick building
20th Century
Poor
Survey

Sites on the coast edge and foreshore

NO47841997 - area NO5921
Wooden stakes in foreshore arranged in grid formation - probably glider traps
20th Century
Fair
Survey

NO49022087 - NO49202135
Pyramidal and square tank traps in front of approach to Leuchars runway
20th Century
Fair
Nil

NO49452120
Large timber frame platform (8m. by 6m. by 2m.)
Tidal research platform
20th Century
Fair
Nil

NO49192117
Concrete pillbox
20th Century
Poor
Survey

NO49282148 - NO49402205
Line of square tank traps along dune system
20th Century
Fair
Nil

Maritime File

Historic Scotland
MAP 7 TENTSMUIR SANDS TO TENTSMUIR POINT

Built heritage and archaeology: The majority of the monuments which were visible along the sandy foreshore and coast edge which dominate this section are of fairly recent date and relate to wartime defence measures adopted to protect the sensitive Tentsmuir area including Leuchars base and the entrance to the Tay estuary. Monuments of interest include small two storey observation towers (NO53NW2, NO52NW1), a larger complex of buildings (NO52SW28); encompassing a two storey brick building, corrugated iron shed, and corrugated iron dome roofed bunker all in poor condition. Behind the coast edge, thick forestry almost obscures pillboxes (NO52NW3, NO52NW5, NO52NW6) and may also have been the reason that the Commin Post (NO52NW4) was not seen. A line of square tank traps can be traced intermittently, covered by sand along some stretches, and exposed at others (NO50412617 - 50412659; NO50462657-50472677; NO50442675 - 50432700; NO50392706 - 50352716). Other features of interest on the foreshore include an area of scattered metal wreckage including piping, flanges, stop cocks, and small steel cases (NO507267) exposed by a lowering of the beach sand, and a cork brick structure with adjoining wooden post and shackle fittings (NO5042722), which may be an air bombing target associated with the wartime bombing range shown on Admiralty Charts (Hydrographic Office 149-35, 1941). As the sand beach turns west at the mouth of the Tay, lines of timber piles can be seen embedded in the sand over the wide expanse of the foreshore (NO502282). These features are probably glider traps but further work would be needed to confirm this suggestion.

Winterland geology and coastal geomorphology: Erosion class: The dune system at Tentsmuir is one of the largest in Scotland. The extensive dune area is the result of considerable Postglacial sea-level fall left a wide beach zone upon which dunes developed and encroached westwards over low raised beach sands. Within the forested acacia relic dune ridge run parallel to the coastline. At Kinshaldy hummocky, broken dunes occur either side of the stream. The dunes are subject to public pressure, as it is the main access point to the beach and there is trampling damage by horses. The foredune has an expansive sand beach with a low gradient. The wide upper beach has a surplus of sand which nourishes the dunes at the coast edge. The mobile sands on the dunes are stabilised with marram grasses and advancing vegetation. To the north, zones of dune accretion alternate with zones of erosion. North of the field boundary erosion is severe and the low, poorly developed dunes display a sand duned coast edge (Erosion unit 3). The erosion is due to the changing positions of offshore sand bars at Tentsmuir Point. The foredune is steep with a narrow upper shore which restricts the transfer of sand to the dunes. At Tentsmuir Point the Tay estuary has a strong influence on the coastline. A complex wave and tidal regime dominates and the spit/bar complex of Abertty sands controls the development and migration of the point. Accretion at the Point is associated with erosion of the north Tentsmuir beach and the tidal indentation area to the west.

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MAP 7 TENTSMUIR SANDS TO TENTSMUIR POINT

Erosion Units

1
NG050152450
0.9 km
Both accreting and eroding
Flamboyantly, broken dunes with bare sand surfaces occur as the stream outlets and at the beach access point where public pressure is greatest. To the north the sloping dune edge indicates there are mobile sands and the dunes are experiencing both erosion and accretion. The wide beach provides an adequate supply of blown sand for dune development.

2
NG050352558
1.2 km
Accreting or stable
Aristocratic blocks are set back from the break suggestive of long term accretion. The dunes have mobile blown sands stabilised by tufts of grass. Sand accretion is encouraged as the pine trees reduce wind erosion and there is a wide beach with a surplus of sand on the upper beach level.

3
NG050362673
1.3 km
Definitely eroding
North of the field boundary erosion is severe, the low dune edge is undercut with a vertical sand cliff. The protective vegetation mat is broken up down the front of the dunes. Elsewhere, wind deflation hollows are advancing inland. The foreshore is steep, with a narrow upper foreshore which supplies blown sands to the dunes. The changing position of the offshore sand bars also affects the stability of this section. The high water mark is retreating landward at a rapid rate exposing east tank blocks and new fence posts are close to the undercut edge.

4
NG05092750
0.4 km
Eroding or stable
The dunes are low and fence posts are near the edge, however the bare sand face of the dunes slopes towards the foreshore as opposed to a cliffed edge.

5
NG0503528819
1.2 km
Both accreting and eroding
Tentsmuir Point experiences accretion and erosion associated with the development of the Aberdour sands, which is a complex of spits, bars and tidal channels. The Aberdour sands shelters the Point encouraging accretion. Accretion of the Point is intimately linked with the erosion of the northern part of Tentsmuir Sands and the tidal indentation of the low lying areas to the west.

Maritime Fife

Historic Scotland
MAP 7 TENTS MUIR SANDS TO TENTS MUIR POINT

GEOLOGY UNITS

1. ND50482613
4.5 km
Sand
Low edge (<5 metres)
Blown sand

Tentsmuir Sands is an extensive shell sand beach with a low gradient. At the coast edge there is a wide well-developed dune system. The accreting sands are sheltered by the forest in the hinterland and the mobile sands are stabilised with narrow grasses and other dune species to create high dunes.

To the north, the hummocky dune zone is less well developed, alternating between zones of accretion and erosion. North of the field boundary the upper foreshore is narrow and slopes steeply to the lower foreshore. Offshore there are a series of sand bars. At the coast edges the dunes are low with vertical cliffed faces.

Tentsmuir Point is a sand formation intimately linked with the formation and the changing positions of the Aberdour sands. The Aberdour sands are a complex system of intertidal spits and bars which are dynamic as a result of the interplay of wave, tidal and wave forces. West of the point there is a low lying tidal indentation area.

The hinterland of Kintail forest consists of extensive blown sand deposits which have encroached westwards over the low raised beach deposits. Old dune ridges run parallel to the coast. The dunes and links are the result of massive Post-glacial coastal advance and falling sea level which left a wide beach zone upon which dune systems developed.
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<td>Poor</td>
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<td>Fair</td>
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<td>Poor</td>
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<td>NO52NW4</td>
<td>12 Wooden posts</td>
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TENTSMUIR SANDS TO TENTSMUIR POINT

KEY

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Built heritage and archaeology - The discovery of a possible monument at Morton, which between 8000-6000 years ago was a small peninsula jutting out into the shallow waters at the mouth of the Tay but now lies some two kilometres inland (NO465280), is indicative of the potential of the mouth of the Tay Estuary (Wickham Jones 1994, 67-68). Although much altered since the end of the last ice age, today’s coastline, where sand and mud dominate the intertidal zone, provides a favourable burial environment for archaeological remains, and the foreshore is covered with wooden stakes and piles. These can be broadly categorised into large diameter (30cm) circular piles arranged in linear fashion, and smaller, pointed stakes, also apparently laid in line (centre of area NO380285). These features are thought to be glider traps or, in some cases, possibly fish traps, but more work would be needed to confirm this identification.

Other foreshore features of interest are the collapsed remains of an old breakwater or quay at the east of the existing Tayport Harbour (NO461288-461291: Site description 4), the collapsing hulk of a carved planked boat nearby at this breakwater (NO46152920: Site description 4), and the Listed Building, and timber frame lighthouse which is marked on the O.S. 1:25,000 as ‘the Pile’ (NO46302510 Site description 4). The existing harbour at Tayport is of significance and, like many of the small harbours in Fife, is in poor condition (NO42NW98: Site description 4) and should be surveyed and monitored periodically. Wartime defences feature widely along this coastal sector. Behind the foreshore, a line of tank traps can be seen (NO42NE779) although in places the stones remain covered by sand, and two pillboxes protect the coast edge near Tayport meteorological station (NO47272775; NO47152779). There is documentary evidence that a cottage stood at Ferry Port on Craig (NO42NE71) since the 16th Century although 19th Century accounts and the O.S. 6 inch map (1854) give conflicting locations for the position of this castle, as virtually ‘said to be nearly opposite the gas-works, is now below high water mark’ or well within the 19th Century town boundaries (RAJHS 1933). However, no traces were found of Tayport Castle and the position given in the NMRS is in a private garden which stands some way back from the coast edge (NO45672007).

Hinterland geology and coastal geomorphology: Erosion class - The north coastline of the outer Tay estuary has a foreshore composed of sand which narrows as the coastline progresses westwards. The hinterland consists of a small area of dunes and dune platform. The coast edge of the outer estuary is undercut and sand cliffs form on the dunes (Erosion Unit 1.3). Topped trees occur where the forest reaches the coast edge and some sections are partially stabilised with defences and vegetation. The dune and links surface extends far inland near Tayport Bay, a wide mud and silt estuarine flat which is experiencing accretion encouraged by marsh and reed both on the coast edge. The intertidal area has sand bars and tidal banks of simple. West of the bay muds dominate the foreshore, however, in the vicinity of the caravan park there is erosion of the loosely consolidated sand deposits at the coast edge. West of the caravan park, the coast edge is stabilised by manmade piles and defences associated with Tayport Harbour which is generally stable with mud accretion inside the main basin. However, the rear harbour wall is in bad repair as drains are concentrated at the back of the wall causing scour erosion which has dislodged the same blocks of the wall (Erosion Unit 8.9).

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Historic Scotland
The edge of the caravan site is composed of loosely consolidated sandy glacial deposits which are easily undercut by wave action. The erosion is most noticeable at the stream outlet. To combat erosion dolerite blocks and rubble are placed along the edge.

6
NO46452855
1.1 km
Stable
The coast edge is imperative consisting of pier walls and in front of the houses, seawalls, gabion baskets and boulders protect the edge.

7
NO45952918
0.5 km
Accreting or stable
The pier walls at the entrance to the harbour are stable under typical wave conditions. Mud is accreting in the harbour due to increased wash of fines into the bay from agricultural practices.

8
NO45892902
0.2 km
Definitely eroding
The rear harbour stone wall is undergoing serious erosion. Stone blocks have been dislodged causing parts of the wall to collapse. Drainage from the farm pathways of the housing close to the harbour have increased the volume, speed and pressure of the water at the back of the wall. The concentration of water behind the wall has caused scour erosion.

9
NO45732921
0.3 km
Eroding or stable
The west harbour wall has localized scour erosion associated with runoff from the landscape.

10
0.4 km
NO45642925
Definitely eroding
The low irregular coast edge is undercut. In the coast there is a collapsed wall at the coast edge. Adjacent to this wall tipped wastes and dolerite boulders have been put in place to protect the edge.

11
NO45332931
0.5 km
Stable
Resistant igneous rock stabilizes the coast edge and the foreshore.
MAP 8: HEADWELL TO ROFFERT ROCK

GEOLOGY UNITS

1
NG49622828
0.2 km
Mainly alluvial/marine muds
Low edge (<5 metres)
Blown sand
Tod estuarine muds and silts have
fringing sand and shingle beaches on
the upper foreshore. Low dunes are
situated along the edge.

2
NG49192839
0.6 km
Mainly alluvial/marine muds
Human disturbance
Blown sand
Large dolerite blocks and rubble are
positioned along the coast edge. The
coast edge consists of high dunes. The
internal zone is associated with shingle
bars and islands.

3
NG45582819
0.1 km
Mainly alluvial/marine muds
Low edge (<5 metres)
Blown sand
There is a low undercut forest edge
adjacent to a narrow upper foreshore of
silty sands. The hinterland consists of
blown sand deposits, old dune ridges
can be identified within the forested
area.

4
NG48932795
0.6 km
Mainly alluvial/marine muds
Low edge (<5 metres)
Blown sand
Mudflats dominate the foreshore, with
fringing silty sands on the upper
foreshore. Shingle bars occur in the
internal zone. Dunes with marram
grasses are situated along the coast
edge.

5
NG73282785
1 km
Maritime Life

6
NG46882791
0.5 km
Marsh
Low edge (<5 metres)
Alluvium with raised beach and
maritime deposits
Thick alluvium muds and marsh
composes the foreshore. Tidal
indentation of the low lying
hinterland has created an area of
alluvial deposits. Raised beach
deposits occur beyond.

7
NG46692835
0.6 km
Mainly alluvial/marine muds
Human disturbance
Alluvium with blown sand
The low coast edge of the
caravan site is composed of
blown sands. Human disturbance,
involving the tipping of concrete and
rubble help to protect the edge.

8
NG44122882
1.4 km
Mainly alluvial/marine muds
Mammal barrier
Raised beach and marine deposits
A concrete promenade forms the
frontage of the common. The
housing is protected by gabion
breakers and seawalls. A fringing
shingle and rubble beach occurs on
the upper foreshore. The stone
piers rise to 6 metres at the
harbour entrance.

9
NG5632931
0.3 km
Alluvial /marine muds

Human disturbance
Raised beach and marine deposits
Tipped concrete slabs and bricks are
placed at the coast edge. The
foreshore is composed of alluvial
muds with a fringe of coarser
deposits.

10
NG3563932
0.1 km
Alluvial /marine muds
Mammal barrier
Drift, boulder clay over visible rock
A stone wall is situated at the coast
edge. The foreshore is composed of
muds with coarse angular igneous
cobbles and boulders on the upper
foreshore. The hinterland geology
consists of Lower Devonian basaltics
overlain with boulder clay.

11
NG45362933
6.5 km
Mainly rock platform
Cliff (>5 metres)
Drift, boulder clay over visible rock
The reactive rock promontories and
the irregular rock platform on the
foreshore consist of Lower
Devonian basaltics. There are
intermittent shingle beaches on the
upper foreshore.

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MAU 8 - HEADWELL TO ROFFERT ROCK
BUILT HERITAGE AND ARCHAEOLOGY UNITS

Sites behind the coast edge (TAYF.)

NO 45992873
8 ORENISEND PLACE
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO 45792816
INN COTTAGE & ICE
HOUSE, 9 & 11 INN ST
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO 45662821
17 & 21 INN ST
HOUSE
18th Century
Not seen
Nil

NO 45552817
23 ALBERT ST
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO 42282835
TAYPORT, TAY STREET, STATION
RAILWAY STATION
Uncertain
Not seen
Nil

NO 42282827
TAYPORT, DALGELISH
STREET, SELL ROCK
TAVERN AND HOUSE
PUBLIC HOUSE, HOUSE
Uncertain
Not seen
Nil

NO 42282828
TAYPORT, ALBERT
STREET, 7-21 (1-16) EILA
PLACE

House
LISTED BUILDINGS
Uncertain
Not seen
Nil

NO 42282830
TAYPORT, ALBERT STREET,
STATION STREET
HOUSE, ABBOT HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO 42282839
TAYPORT, GROUSE, ROMALIE,
GAS BOARD
HOUSE
Uncertain
Not seen
Nil

NO 42282855
TAYPORT, DALGELISH
STREET
SCULPTURED STONE
Uncertain
Not seen
Nil

Site on the coast edge and foreshore

NO 42282873
LUNNISH BRIDGE ANTI-
TANK BLOCKS
(Untarmitted)
20th Century
Fair
Nil

NO 42282854
Navigation marker for gas pipeline
20th Century
Fair
Nil

NO 42182823
Navigation marker for gas pipeline
20th Century
Fair
Nil

NO 40802853; NO 4070285
Area of wooden posts, grid
lines of large dia. posts set in
concrete (guilder traps). Thin
rope slits in line (fish-trap posts.)

Unretain
Poor
Survey

NO 42282854
LUCKY SCALP
FOLLIES
19th Century
Not seen (destroyed in 1979)
Nil

NO 47272775
Hexagonal concrete pillbox
20th Century
Fair
Nil

NO 47152775
Hexagonal concrete pillbox
20th Century
Fair
Nil

NO 47302798
Metal box frame on shore
19th - 20th Century
Fair
Nil

NO 47172777
Corroding metal frame
19th-20th Century
Poor
Nil

NO 47152780
Conical metal frame
19th-20th Century
Poor
Nil

NO 46328258
Lines of wooden piles
adjacent to coast edge
Uncertain
Poor
Nil

NO 46302930
THE PILE LIGHTHOUSE,
LIGHTHOUSE
LISTED BUILDING
19th Century
Poor
Survey and monitor
*See site description 4

NO 4641288-46291
Collapsing stone breakwater
Uncertain
Poor
Survey
*See site description 4

NO 46412902
Wreck of small barque
20th Century
Poor
Survey
*See site description 4

NO 464323158
Lines of wooden piles on
foreshore
Uncertain
Poor
Survey

NO 42282855
TAYPORT, HARBOUR
HARBOUR
LISTED BUILDING
Poor
Survey and monitor
*See site description 4

NO 42282875
TAYPORT, OLD HARBOUR,
HARBOUR AND CRANE
19th Century
Poor
Survey and monitor
*See site description 4

NO 42282815
TAYPORT CASTLE
CASTLE
18th Century
Not seen
Nil

Maritime File
42

Historic Scotland
Built heritage and archaeology - This section has relatively few foreshore monuments as the exposed intertidal zone narrows as it heads westwards. However, there are a number of interesting buildings at the coast edge which have been designated as Listed Buildings. For the most part these appear to be stable. There are two lighthouses both of which were constructed in 1823 by Trinity House. East Lighthouse (NO42N874) consists of a stone built tower approached by a walled walkway to the rear and protected from the sea by a stone boundary wall. The structure of this lighthouse and the boundary wall appear to be in fair condition although the glazing of the light structure has been vandalised. West Lighthouse (NO42N857) is larger but also of stone construction with windows facing the Tay and approached from the rear by a walkway directly from the lighthouse keepers' cottages (NO44583932). This group of cottages, and other lighthouse keepers' accommodation (NO45102930; NO42N444) all appear to be in fair condition. The only unrecorded monuments which were identified were a rough stone walled rectangular enclosure or platform indicating building foundation near the coast edge (NO44412923). Several viewing platforms and slipways (NO41592877; NO41602744; NO41672730). These reflect the affluent status of some of the buildings built on the cliffs overlooking the Tay Estuary, houses which are also of architectural importance as is reflected in the large number of Listed Buildings in the Newport area. At present, these properties are not under threat from coastal erosion and no further attention is needed. The 2.25m long Tay Road Bridge, opened in 1962, dominates this coastal section being the longest river-crossing road bridge in Britain. The bridge comprises steel plate box girders 12 ft (3.7m) wide by 10 ft (3m) deep with a composite top flange of concrete forming the roadway, supported by 42 spans of reinforced concrete columns on a base of concrete foundations (RCAHMS). At the time of the survey, maintenance work was being carried out on the bridge.

Hinterland geology and coastal geomorphology: Erosion class - Resistant Lower Devonian sandstone and basaltic rocks form stable cliffs along the coast edge and the platform on the foreshore. The resistant rock promontories have intervening steep shingle and cobble beaches, often with large glacial boulders at the coast edge. The lower foreshore is dominated by flat lying muds. From the West Lighthouse to Greenside scalp localised undercutting occurs, as the coast edge is composed of loosely consolidated sandy raised beach deposits (Erosion Unit 3). At Newport on Tay the coast edge is manmade and this sector appears to be experiencing accretion, for instance, at Newport jetty (Erosion Unit 7). West of the jetty the basaltic and andesitic cliffs are stable, with the exception of a localised section of the coast edge where drift deposits are exposed. (Erosion Unit 9).
soils which is responsible for the tipped trees.

5
NO42492586
Eroding or stable
Below the bridge a locally undercut bare face of sandy drift soils overlie the hard rock. Erosion is mainly the result of surface processes, as opposed to wave action, however the edge has become less stable.

6
NO42122843
1.1 km
Stable
The resistant igneous rock with an overlying dense vegetation cover, highlights the stability of the coast edge. Resistant rock platform on the foreshore has intervening stable shingle beaches. To the west stone walls form the frontage of the housing and a small stone pier encloses a stable beach.

7
NO41902773
0.1 km
Eroding or stable
Stone walls and a jetty protect the edge. Accreting mud is building up the level of the foreshore adjacent to the jetty walls.

8
NO41553748
1 km
Stable
The stable resistant cliffs have a dense vegetation cover which prevents rockfall. Mud and seaweed restrict the movement of the coarse shingle and cobbles on the upper foreshore.

9
NO41032711
0.1 km
Eroding or stable
Loosely consolidated drift deposits compose the low edge, the deposits are easily undercut by wave action. Gabion baskets and concrete slabs provide localized protection.

Historic Scotland
**MAP 9 EAST LIGHTHOUSE TO NEWPORT HARBOUR**

**GEOLOGY UNITS**

1. **NO45129931**
   - 0.3 km
   - Mostly rock platform
   - Cliff (>5 metres)
   - Drift, boulder clay over visible rock
   - On the upper foreshore there is an irregular rock platform composed of Lower Devonian basalt. Small shingle beaches and resistant basaltic boulders intervene the platform. The coastline is composed of basaltic rock.

2. **NO44872296**
   - 0.3 km
   - Mainly rock platform
   - Cliff (>5 metres)
   - Drift, boulder clay over visible rock
   - Resistant basaltic promontories underlie a steep shingle beach on the upper foreshore, which contrasts to the flat silty muds on the lower foreshore. The coastal edge consists of high rock cliffs overlain with drift deposits.

3. **NO44862935**
   - 0.4 km
   - Mainly rock platform
   - Mammade stony walls are situated along the coastal edge in front of the lighthouse. Resistant Devonian rocks dunefield above. Shingle fringes the upper foreshore with muds on the lower foreshore.

4. **NO44412932**
   - 0.3 km
   - Rock platform
   - Cliff (>5 metres)
   - Raised beach and marine deposits with drift, boulder clay over visible rock
   - At the coastal edge resistant sandstone cliffs have a dense cover of vegetation on the overlying drift soils. On the upper foreshore shingle covers the rock platform. The heavily weathered muds form a wavy cliff face part of an edge in front of the beach. The beach consists of muds with fringe shingle and boulders with localised outcrops of hard rock.

5. **NO43092933**
   - 0.2 km
   - Mainly rock platform
   - Low edge (<5 metres)
   - Raised beach and marine deposits with drift, boulder clay over a visible rock
   - At Greenhead Point there is a resistant basaltic rock promontory. Shingle deposits and basaltic cobbles intervene the outcrops of rock platform on the upper foreshore. The low coastal edge consists of loosely consolidated sand and shingle of recent beach origin.

6. **NO4272285**
   - 0.5 km
   - Mainly rock platform
   - Cliff (>5 metres)
   - Drift, boulder clay over visible rock
   - Irregular rocky outcrops and cobbles occur on the foreshore. Resistant cliffs of basaltic composition form the edge. In the hinterland drift overlies the hard rock.

7. **NO42412887**
   - 0.15 km
   - Alluvial marine muds
   - Human disturbance
   - Drift, boulder clay over visible rock
   - At the coastal edge there are high rock cliffs composed of Devonian basalt and sandstone. Where drift overlies the hard rock localised human disturbance protects the edge. To the west a stone wall forms part of an edge in front of the beach. The beach consists of muds with fringe shingle and boulders with localised outcrops of hard rock.

8. **NO42121847**
   - 0.9 km
   - Mainly rock platform
   - Cliff (>5 metres)
   - Drift, boulder clay over visible rock
   - The high cliffs composed of resistant basaltic rocks have overlying drift deposits in the west. Raised beach deposits occur locally on Sea Craig. The rock platform on the foreshore has intervening basalt and sandstones.

9. **NO41882785**
   - 0.4 km
   - Alluvial marine muds
   - Mainland barrier
   - Raised beach and marine deposits
   - Stones and concrete slabs associated with the housing estate create the coastal edge. Localised shingle patches and boulders occur on the upper foreshore whilst muds dominate the lower foreshore.

10. **NO41632759**
    - 0.6 km
    - Alluvial marine muds
    - Cliffs (>5 metres)
    - Raised beach and marine deposits
    - Alluvial muds of the lower foreshore contrast to the steep shingle beach on the upper foreshore. To the west, the beach narrows and the deposits on the upper foreshore become coarser. Steep high cliffs of resistant basalt and sandstone form the coastal edge. Localised coastal sections occur at various points.

11. **NO4162748**
    - 0.4 km
    - Mainly rock platform
    - Mammade stony walls
    - Raised beach and marine deposits
    - Stones and concrete slabs associated with the housing estate create the coastal edge. Localised shingle patches and boulders occur on the upper foreshore whilst muds dominate the lower foreshore.

12. **NO4102708**
    - 0.5 km
    - Alluvial marine muds
    - Human disturbance
    - Drift, boulder clay
    - To the west gullion humps and concrete slabs protect the low undercut coast edge which is composed of drift as opposed to hard rock. The foreshore is dominated by alluvial silty muds with a steep upper foreshore of shingle with localised outcrops of resistant basalt.

13. **NO40882732**
    - 0.3 km
    - Mainly rock platform
    - Cliff (>5 metres)
    - Drift, boulder clay
    - Rock platform on the upper foreshore has intervening basalt and sandstone deposits of shingle. Silty muds compose the lower foreshore.
<table>
<thead>
<tr>
<th>Site ID</th>
<th>Address</th>
<th>Type</th>
<th>Date</th>
<th>Site Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO42NW9</td>
<td>NEWPORT, 8 - 10 TAY STREET HOUSES</td>
<td>LISTED BUILDING</td>
<td>19th Century</td>
<td>Not seen</td>
</tr>
<tr>
<td>NO42NW17</td>
<td>NEWPORT, 56 TAY STREET, HOUSE</td>
<td>LISTED BUILDING</td>
<td>19th Century</td>
<td>Fair</td>
</tr>
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<td>NO42NW22</td>
<td>NEWPORT, 58 TAY ST. HOUSE</td>
<td>LISTED BUILDING</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NO42NW26</td>
<td>NEWPORT, 60-64 TAY STREET HOUSE</td>
<td>LISTED BUILDING</td>
<td>19th Century</td>
<td>Not seen</td>
</tr>
<tr>
<td>NO42NW29</td>
<td>NEWPORT, 66 TAY ST HOUSE</td>
<td>LISTED BUILDING</td>
<td>19th Century</td>
<td>Not seen</td>
</tr>
<tr>
<td>NO42NW78</td>
<td>NEWPORT, KILBURN CONGREGATIONAL CHURCH</td>
<td>LISTED BUILDING</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NO42NW41</td>
<td>NEWPORT, HIGH STREET, ST MARY'S</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
NO41722750
NEWPORT, 2 WEST RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO42NW30
WEST ROAD, BALMORE HOUSE
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO42NW29
NEWPORT-ON-TAY, WEST ROAD, BALMORE
LODGES
LISTED BUILDING
19th Century
Not seen
Nil

NO42NW32
NEWPORT, 4 WEST ROAD, WOODMOOR
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO4127
NEWPORT, 2,4 SHEPHERDS RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO42NW31
NEWPORT, 9 - 11 WEST ROAD, LINGARTH
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO4271
NEWPORT, 28-34&36-42 WEST RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO4271
NEWPORT, 44,46 WEST RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO4271
NEWPORT, 48-50 WEST RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO4271
NEWPORT, 52 WEST RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO4271
NEWPORT, 54-58 WEST RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO4271
NEWPORT, 53-59 WEST RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

NO42NW50
NEWPORT, WEST ROAD, WELL
WELL
LISTED BUILDING
19th Century
Not seen
Nil

NO4271
NEWPORT, 70 WEST RD
HOUSE
LISTED BUILDING
19th Century
Not seen
Nil

Maritime Fife

47 historic Scotland
Sites on the coast edge and foreshore

NO425102930
1 WEST LIGHT, WEST COMMON
LISTED BUILDING
1823
Good
Nil

NO42652884
WOODEN STACKS IN LINE ON FORESHORE
AND BELOW LOW WATER.
Uncertain
Past
Survey

NO42512678
TAY ROAD BRIDGE
ROAD BRIDGE
1960s
Fair
Nil

NO425292677
PRIVATE PIER, SLIP
20TH CENTURY
Good
Nil

NO425292676
CRAIGHEAD FARM
SOCKETED, BRONZE AXE
Bronze Age
Not seen
Nil

NO425292816
SQUARE BRICK FOUNDATIONS AND METAL
HOOPS
19TH-20TH CENTURIES
Poor
Nil

NO425292835
NEWPORT, BOAT ROAD,
NEWPORT HOTEL
LISTED BUILDING
19TH CENTURY
Not seen
Nil

NO425292836
NEWPORT, BOAT BRAE, FERRY
PIER, CRANE
LISTED BUILDING
1823
Fair
Nil

NO41673759
PRIVATE MOORING AND SMALL HARBOUR
FOR ONE BOAT
19TH - 20TH CENTURY
Fair
Nil

NO41602744
Private viewing platform, seawall
and steps
20TH CENTURY
Good
Nil

NO41542753
PRIVATE STEVEDORE ON BEACH
20TH CENTURY
Good
Nil

NO41282739
PRIVATE STEVEDORE ON BEACH
20TH CENTURY
Good
Nil

NO41052710
3 WORKED STONES ON FORESHORE
Uncertain
Fair
Nil

NO40942763
Trackway onto beach and iron ring
belt
Uncertain
Fair
Nil

NO42119059
WOODHAVEN HARBOUR
Uncertain
Fair
Nil

NO42529285
WOODHAVEN SEAPLANE BASE
20TH CENTURY
Fair
Nil

NO42119012
WOODHAVEN FERRY
19TH CENTURY
Not seen
Nil

NO42119047
NEWPORT, WOODHAVEN PIER,
JOINER'S WORKSHOP
LISTED BUILDING
18TH CENTURY
Fair
Nil

Austrian Field 48

Historic Scotland
Built heritage and archaeology - Woodhaven harbour (NO42NW59) marks the start of this section, and consists of a stone built harbour wall, slipway, moorings, the nearby Wornvit Boating Club buildings, and adjacent to the quay, the fine Jones's Workshop building (NO42NW47). The existing Woodhaven harbour may have been constructed on an earlier harbour site with records suggesting that a ferry existed at Woodhaven in the 12th and 13th centuries which subsequently came under the control of the Burgh of Dundee in 1641 (RCAHMS). According to the NMRS, a World War II seaplane base was located on the banks of the Tay 1 mile south of Newport harbour at NO40755700, and the slipway associated with this feature remains visible. Substantial wharf structures, collapsed buildings, and a wreck were found between NO39822645 and NO40755700. This site, which has not been adequately recorded, appears to be fairly stable but further survey work is required (site description 5). Just to the west of this site the imposing pillars of the collapsed Tay Rail bridge and its intact replacement (NO39602685) can be seen. To the west of the bridge, the intertidal zone gradually widens out once again and a salmon station (NO39272607) at the east end of Wornvit Bay, with sand and gravel foreshore and rocky promontory. The site of a salmon bothy which can be found along the south coast of the Bay consists of a timber jetty (NO386662575) and a jetty that is adjacent to the coast. The site are white cliffs that are located on the lower shore and within Newport harbour masts are accreting (Erosion Unit 1). Stable shingle and cobble beaches are situated on the upper foreshore while resistant volcanic conglomerates and basaltic form the cliffs and rock platform at this point. Wornvit Bay has a steep shingle beach with a low wall situated at the coast edge. The sea has dislodged part of the wall and created the low coast edge which consists of of sandy raised beach deposits (Erosion Unit 4). West of Wornvit Bay, stable basaltic cliffs form the coast edge with a resistant promontory at Peacehill.

Hinterland geology and coastal geomorphology: Erosion class - Towards Wornvit Bay the coastline is stable where thick muds dominate the lower foreshore and within Newport harbour masts are accreting (Erosion Unit 1). Stable shingle and cobble beaches are situated on the upper foreshore while resistant volcanic conglomerates and basaltic form the cliffs and rock platform at this point. Wornvit Bay has a steep shingle beach with a low wall situated at the coast edge. The sea has dislodged part of the wall and created the low coast edge which consists of of sandy raised beach deposits (Erosion Unit 4). West of Wornvit Bay, stable basaltic cliffs form the coast edge with a resistant promontory at Peacehill.
1
NO40552700
0.2 km
Accreting or stable
Within Newport harbour there are accreting muds. The rear of the harbour is stabilised by stone walls and gabion baskets. The stone piers of the harbour show no signs of erosion.

2
NO40653702
0.2 km
Eroding or stable
West of the pier a stable shingle beach comprises the upper foreshore. At the coast edge the raised beach deposits overlying the hard rock are vulnerable to slip.

3
NO39913651
2 km
Stable
Persistant Devonian igneous and volcanic rocks comprise the cliffs and rock platform. The lower foreshore has thick stable muds.

4
NO38892579
0.8 km
Stable to eroding
The loosely consolidated drift deposits which comprise the low coast edge are only protected by a 0.5 metre wall. High wave activity has dislodged parts of the wall and scour has eroded the coast edge behind.

5
NO38452582
0.8 km
Stable
Stable muds comprise the lower foreshore. Cables with attached seaweed on the upper foreshore illustrate the limited movement of the coarse sediments. Resistant basaltic and andesitic cliffs create a stable edge.
1  NO40952600  0.2 km  Alluvial/marine muds  Mannmade barrier  Raised beach and marine deposits  
At Newport harbour thick muds reproduce the foreshore with former deposits of shingle. Mannmade stone walls surround the harbour in addition to galvanised basket defences.

2  NO40652701  0.2 km  Alluvial/marine muds  Shingle  Raised beach and marine deposits with drift  
A steep shingle beach is situated on the upper foreshore with a storm bank at the coast edge. Muds reproduce the lower foreshore.

3  NO40652659  0.4 km  Alluvial/marine muds  Cliff (>5 metres)  Raised beach and marine deposits with drift, boulder clay  

4  NO409292679  0.4 km  Mainly rock platform  Low edge (<5 metres)  Drift, boulder clay over visible rock  
Resistant rock outcrops on the upper foreshore with intermixed shingle deposits. Muds dominate the lower foreshore. At the coast edge basaltic rocks are overlain with drift.

5  NO39892648  0.7 km  Alluvial/marine muds  Cliff (>5 metres)  Drift, boulder clay over visible rock  
Muds dominate the foreshore with a narrow upper foreshore composed of shingle. The cliff edge which rises in the west is composed of volcanic conglomerates, in the west a brick wall in front of the cliff edge represents the remains of an old building. The upper foreshore has a steep shingle beach, whilst the lower foreshore consists of muds.

6  NO39380263  0.5 km  Mainly rock platform  Mannmade barrier  Raised beach and marine deposits  
At the low coast edge housing is situated on resistant rock. Mannmade walls and access points to the beach are positioned along the edge. The foreshore consists of resistant platform with a cover of shingle.

7  NO38792575  0.9 km  Alluvial/marine muds  Shingle  Raised beach and marine deposits  
Wormit Bay is a curved beach with a flat lower foreshore of silty wet muds and a steep upper-shingle beach with a ridge at the top of the upper foreshore. The coast edge is low, in the central section a concrete wall 0.5m wide in height is situated along the coast edge. Raised beach deposits compose the hinterland.

8  NO38612582  0.4 km  Alluvial/marine muds  Cliff (>5 metres)  Drift, boulder clay over visible rock  
At the far west side of Wormit Bay muds dominate the lower foreshore with shingle on the upper foreshore. Cobbles occur mid shore with attached seaweed. The basaltic and andesitic cliffs are overlain with drift.

9  NO38482583  0.3 km  Mainly rock platform  Cliff (>5 metres)  Drift, boulder clay over visible rock  
At the coast edge there are Devonian sandstone cliffs with igneous intrusions, glacial boulders occur along the front of the cliffs. Resistant rock platform outcrops on the upper foreshore and muds compose the lower foreshore.

10  NO38222575  0.4 km  Alluvial/marine muds  Cliff (>5 metres)  Drift, boulder clay over visible rock  
The upper foreshore is composed of coarse shingle and boulders, with muds on the lower foreshore. Igneous rocks compose the cliffs.

Historic Scotland
## MAP 10 - NEWPORT HARBOUR TO PEACESHILL

### BUILT HERITAGE AND ARCHAEOLOGY UNITS

#### Sites behind the coast edge

<table>
<thead>
<tr>
<th>Reference</th>
<th>Name</th>
<th>Description</th>
<th>Category</th>
<th>Condition</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO40652094</td>
<td>WOODHAVEN FARMHOUSE, RIVERSIDE RD, WORMIT</td>
<td>LISTED BUILDING 19th Century</td>
<td>Not seen</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>NO42NW48</td>
<td>WORMIT, 97 RIVERSIDE ROAD, MARS COTTAGE COTTAGE</td>
<td>LISTED BUILDING 19th Century</td>
<td>Not seen</td>
<td>Nil</td>
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</tr>
</tbody>
</table>

#### Sites on the coast edge and foreshore

<table>
<thead>
<tr>
<th>Reference</th>
<th>Name</th>
<th>Description</th>
<th>Category</th>
<th>Condition</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO32NE8147</td>
<td>WRECK AND WHARF REMAINS</td>
<td>Uncertain</td>
<td>Poor</td>
<td>Survey</td>
<td><em>See site description 5</em></td>
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<tr>
<td>NO396263</td>
<td>Tay railway Bridge and foundation columns of old bridge</td>
<td>19th Century</td>
<td>Fair</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>NO39272602</td>
<td>Salmon fishing station, salmon cable and coinges</td>
<td>Uncertain</td>
<td>Fair</td>
<td>Survey</td>
<td><em>See site description 6</em></td>
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<tr>
<td>NO32NE13</td>
<td>WORMIT ENCLOSURE ; CROPPMARKS</td>
<td>Uncertain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO32NE15</td>
<td>WORMIT MILLSTONE MILLSTONE</td>
<td>Uncertain</td>
<td></td>
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</tbody>
</table>
BUILT HERITAGE AND ARCHAEOLOGY: The coast edge as far as Balmerino is thickly wooded making identification of archaeological sites fairly difficult. The foreshore is characterised by thick mud overlying a shingle beach. Although this mud should provide a favourable burial environment for archaeological remains, few foreshore sites were located. The exception to the rule was the intact wreck of a salvage barge which is visible at LW but submerged at HW (NO37782577). The majority of monuments relate to the Tay Salmon fishing industry (site description 6). Contrary to the rest of the Tay coastline, related monuments in the vicinity of Balmerino appear to have been fairly well recorded and several salmon fishing boathouses have been listed as Historic Buildings (NO35782479, NO35772479). These particular examples have been restored as houses and are therefore in good condition. With the exception of Balmerino Mill (NO325239) which is dilapidated although not because of coast erosion, the Balmerino monuments all appear to be in fair condition. Balmerino Abbey (NO35832246) is worthy of note due to its importance as a 13th Century Cistercian Abbey. However, set back approximately 100 metres from the coast edge, this monument is under no threat from coastal processes. Although clearly of importance to the Balmerino salmon industry, the decaying pier (NO35602482) and the associated iron salmon cobbles (NO35664881) at the western end of the village have not been adequately recorded.

HINTERLAND GEOLOGY AND COASTAL GEOMORPHOLOGY: Erosion class-East of Balmerino the coastline is stable. The cliffed edge is composed of resistant Lower Devonian igneous rocks. Where the coast edge lowers at Balmerino raised deposits overlying the hard rock are more susceptible to erosion at the coast edge (Erosion Unit 2.4). A stone wall protects the coast edge in front of the Balmerino Mill. West of Balmerino, Upper Devonian sandstones with Lower Devonian basaltic and andesitic rocks outcrop along the cliffed edge. The overlying raised beach deposits with drift experience slip which causes the trees to topple. Slip is the result of surface processes as opposed to coastal erosion. The foreshore consists of alluvial muds with steep friable shingle beaches, which often create ridges at the coast edge. To the west, shingle bars perpendicular to the shore extend into the low water muds, they form as a result of wave and tidal interaction. Cobbles at the mid-shore line have a veneer of mud and seaweed, highlighting the limited movement of the coarse deposits.

Maritime Fife 53 Historic Scotland
MAP 11 KILBRUS TO LOPW WOOD

EROSION UNITS

1
NO36992552
2 km
Stable
Bedrock and undercliffs create a resistant coast edge. The foreshore is composed of thick muds which are
overreaching over stable dunes on the upper foreshore.

2
NO35962341
0.35 km
Eroding or stable
The low edge in front of the houses is protected with concrete and stone walls. There is localised undercutting by scar
venation during high wave activity.

3
NG35782505
0.6 km
Stable
In the vicinity of the mill resistant platform protects the foreshore and stone walls are situated along the coast edge.
West of the mill, there is a stable shingle beach. The sandy raised beach deposits of the edge are susceptible to erosion
only at the highest tides.

4
NO35572475
1.3 km
Eroding or stable
At Ballermamock the low edge is composed of raised beach deposits, the vertical undercut face shows signs of erosion.
Human disturbance with the placement of boulders provides some protection to the edge.

5
NO346652359
1 km
Stable
The foreshore has stable thick muds, which have encroached over the static shingle and cobbles on the upper foreshore.
The low edge composed of raised beach deposits is protected by vegetation. Toppled trees are the result of surface
processes which cause slip in the drift cover. Elsewhere, the cliffs at the coast edge are composed of resistant
sandstones with igneous rocks in the west.

Historic Scotland

54
MAP CLASS: EROSION
(Assessment date: 15, 16 October 1986)
NO 12/22
Scale: 1:25,000

KILBURNS TO LOW WOOD

KEY

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<thead>
<tr>
<th>Erosion class</th>
<th>Standard colour</th>
<th>Colour</th>
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<td>dark green</td>
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<td>Accelerating or unstable</td>
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<tr>
<td>Stable</td>
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<td>Finishing or stable</td>
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<td>orange</td>
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<td>Definitely finishing</td>
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<td>No source</td>
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</tr>
<tr>
<td>Land below flood</td>
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<td>variegated yellow</td>
</tr>
</tbody>
</table>

Maritime Fife

Historic Scotland
LOW EDGE (c.5 metres)
Raised beach and marine deposits
West of the wall, the low edge is composed of sandy raised beach deposits. On the foreshore there is a wide beach composed of coarse deposits. Silty muds with shingle compose the lower foreshore with sand and shingle on the upper foreshore.

3
NO1752549
1 km
Alluvial/marine muds
High cliff (>5 metres)
Drift, boulder clay over visible rock
West of Jocks Hille the coastline is curved with a wide lower foreshore composed of flat wet silty muds and a fringing steep shingle beach on the upper foreshore. At the mid tide level, witched seaweed and mud cover the shingle. The coast edge consists of high cliffs composed of basaltic and andesitic rocks. The overlying drift is composed of red sandy boulder clay.

5
NO1552450
0.8 km
Alluvial/marine muds
Shingle
raised beach and marine deposits
Muds compose the lower foreshore with a steep upper foreshore of shingle. A shingle ridge is situated at the coast edge. The low undercut coast edge is composed of sandy raised beach deposits. Human disturbance presents vulnerable places along the edge with boulders. In the hinterland the low undulating fields are composed of raised beach deposits.

6
NO34792403
1 km
Alluvial/marine muds
(high cliff (>5 metres)
Raised beach deposits with drift, boulder clay
The upper foreshore consists of shingle and cobbles with a low shingle bank at the coast edge in the east. To the west, the shingle deposits narrow and the cliff edge rises. Resistant Devonian basaltic and andesitic rocks compose the cliffs which are overlain by raised beach deposits, with drift to the south.

7
NO33772372
0.7 km
Alluvial/marine muds
High cliff (> 5 metres)
Drift, boulder clay
Shingle bars perpendicular to the shoreline extend into the lower foreshore muds. The shingle bars develop as a result of wave and tidal interaction which concentrate the shingle deposits into a bar with finer sediments on either side. The high coast edge has drift deposits of boulder clay overlying the hard rock which is composed of basalt.

Historic Scotland

Maritime Fife
<table>
<thead>
<tr>
<th>Sites behind the coast edge</th>
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<tbody>
<tr>
<td>NO325SE30.1</td>
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<table>
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<th>Sites on the coast edge and foreshore</th>
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</thead>
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<tr>
<td>NO325SE30</td>
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<tr>
<td>LISTED BUILDING</td>
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<tr>
<td>19th Century</td>
</tr>
<tr>
<td>Poor</td>
</tr>
<tr>
<td>Nil</td>
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</tbody>
</table>

| NO325SE2  | BALMERINO ABBEY  |
| PROTECTED ANCEST MONUMENT  |
| 13th Century  |
| Fair  |
| Nil  |

| NO325SE3  | BYRES LINEAR CROPMARK  |
| Uncertain  |
| Not seen  |
| Nil  |

| NO3360033  | Birkhill House  |
| 18th and 19th Centuries  |
| Not seen  |
| Nil  |

| NO35782482  | BRIDGEND HOUSE & COMMALON HOUSE  |
| LISTED BUILDING  |
| 18th Century  |
| Fair  |
| Nil  |

| NO35782479  | THE NEUK, BRIDGEND COTTAGE  |
| LISTED BUILDING  |
| 19th Century  |
| Fair  |
| Nil  |

19th Century  
Fair  
Nil  
*See site description 6  

NO35772479  
TAY COTTAGE, BALMERINO COTTAGE  
LISTED BUILDING  
19th Century  
Fair  
Nil  
*See site description 6  

NO321NE8164  
MARITIME AREA, CRAFT  
Intact wreck of salvage barge submerged at HW  
20th Century  
Fair  
Survey (visit again at LW springs.)  

NO321NT9  
KIRKTON ENCLOSURES  (POSSIBLE)  
ENCLOSURES  
Uncertain  
Not seen  
Nil  

NO35972533  
Nether Kirkton slipway and converted salmon fishing station  
Uncertain  
Good  
*See site description 6  

NO35842515  
Single storey cottages at coast edge  
Uncertain  
Poor  
Survey  
*See site description 6  

NO35602482  
Balmerino harbour consisting of natural rock spur and stone quay  
Uncertain  
Poor  
Survey  
*See site description 6  

NO35662841  

Maritime Fife  

56  

Iron cable-like working boat  
20th Century  
Poor  
Survey  
*See site description 6  

NO33722357  
Concrete platform and metal railings situated at HW mark  
Uncertain  
Poor  
Nil  

Historic Scotland
Birkhill heritage and archaeology - Fishing lodges and their associated remains dominate this coastal sector and these are described in more detail elsewhere in the wider context of the Tay salmon fishing industry (site description 5). Intermittent sections of the foreshore between Birkhill and Scalp Lodges also preserve environmental evidence from a much earlier period. Remains of a post-glacial shoreline can be seen (NO326231 - NO312227) intermittently along a 1.5 km stretch of coast, visible where localised scour has removed the thick silty mud which dominates the mud-flats elsewhere. This feature is characterised by outcrops of waterlogged organic remains of trees, shrubs, and seeds of other plants in a 17 metres wide strip which runs parallel to the shoreline and is exposed only at low water. This land surface probably dates to the Mesolithic or Neolithic periods and illustrates the significant archaeological potential of this section and the favourable burial environment of the foreshore here. Although no manmade material was identified, the discovery of Mesolithic settlements along the Tay estuary to the east at Morton (Wickham Jones 1994, 67-68) confirm the potential of the area.

Hinterland geology and coastal geomorphology; Erosion class-West of Corbie Den Upper Devonian sandstone cliffs form the coast edge. The hard rock is overlain with sandy drift deposits, with localised raised beach deposits at Dominies Den. The curved bay between the resistant rock promontories of Birkhill and Flink Point is favourable to the deposition of thick mud. A Postglacial mud flat up to 200 metres long outcrops beneath alluvial mud. Although the area may be currently experiencing accretion, localised scour at the visible edge of this mud flat caused by the flow of the estuary, and hollows in the flat indicate that these prehistoric mud-flats do experience cyclical erosion. Consequently, a survey of the area should be undertaken including scientific dating of some of the organic remains. In addition, this whole coastal stretch should be periodically monitored to establish the extent of this land surface, and to assess the effects of sediment accretion and erosion more accurately (Erosion Unit 4). Flink Point is a shingle promontory that extends into muds on the lower foreshore. The low undercut coast edge at the Point is protected by a sloping wall of basaltic boulders (Erosion Unit 5). To the west the coast edge lowers at Durwards Scalp the low coast edge is composed of raised beach deposits with glacial sands and gravels. The coast edge is protected with reed and marsh, however undercutting occurs where marsh is sparse.
The drift deposits at the coast edge are prone to slip due to surface processes, which accounts for the toppled trees. To the west there is localised erosion of the low coast edge where the protective marsh frills are absent. The low edge, composed of sandy drift deposits is undercut at high water, especially where reed beds which absorb wave energy are less well developed or absent. A fascia has come adrift the edge. Basaltic boulders are placed along the edge for protection.

### Erosion Units

1. **NO3452356**
   - 0.2 km
   - Stable
   - Resistant arenitic cliffs comprise the coast edge. The foreshore has flat lying stable muds. The shingle and cobbles on the upper foreshore are stabilised by muds and seaweed.

2. **NO3321241**
   - 0.4 km
   - Both accreting and eroding
   - On the lower foreshore there is the accretion of drift muds. To the west, reed and marsh development stabilises the muds at the coast edge. The irregular edge of the mud flat is attributed to shingle scour during high wave action.

3. **NO2952126**
   - 0.4 km
   - Stable
   - The accumulation of shingle has created a stable promontory which is perpendicular to the shoreline.

4. **NO2092290**
   - 2 km
   - Accreting or stable
   - Between the shingle promontories at Birkhill and Flisk Point there is a sheltered low energy zone for the deposition of muds. A Postglacial mud flat decomposed to peat is situated in centre of the bay. The irregular surface of the flat is the result of repeated advance and retreat of the water level. Mud is accreting in the erosion hollows in the peaty flat and to the west, the peaty flat is buried beneath algal mud.

5. **NO1111276**
   - 0.6 km
   - Definitely ending
   - At Flisk Point, a shingle promontory stabilises the foreshore. The mixed beach deposits at the low coast edge are undercut and the stone seawall protecting the fishing lodge is in disrepair. Basaltic boulders have been placed at the edge for protection.

### Maritime Fife

- **NO30002200**
  - 2.6 km
  - Ending or stable
flooded a previously forested area. The vegetation has been partially decomposed to peat with wood, plant fragments and seeds. The peaty flat extends approximately 200 metres to the west and is 12 metres wide. The surface is irregular as a result of the advance and retreat of the water level, which cuts channels into the flat. A shingle bank occurs on the upper foreshore. As the coast edge red boulder clay deposits overlie Devonian sandstones.

Drift, boulder clay over visible rock
Muds dominate the foreshore with a narrow coarse reach of shingle and cobbles on the upper foreshore. The veneer of mud and seaweed over the shingle reaches the coast edge. Basaltic boulders at the base of the cliff are the remnants of past rockfall. The cliffs at the coast edge are composed of resistant basaltic rocks.

Drift, boulder clay over visible rock
Muds compose the foreshore with rock and marsh beds on the upper foreshore. Shingle incursion of the mud flats creates an irregular coast edge.

Marsh
Low edge (<5 metres)
Drift, boulder clay over visible rock
Muds compose the lower foreshore. Shingle on the upper foreshore creates a rise to the coast edge. At certain locations shingle bars perpendicularly to the shoreline extend into the lower foreshore muds. The adjacent cliffs are composed of boulder clay, a red sandy clay matrix encloses local and foreign clasts.

Drift, boulder clay
Muds compose the lower foreshore. Shingle on the upper foreshore creates a rise to the coast edge. At certain locations shingle bars perpendicularly to the shoreline extend into the lower foreshore muds. The adjacent cliffs are composed of boulder clay, a red sandy clay matrix encloses local and foreign clasts.

Marsh
Low edge (<5 metres)
Drift, boulder clay over visible rock
Muds dominate the lower foreshore with localised marsh development. On the upper foreshore a steep shingle bank is situated at the low coast edge. The hinterland consists of undulating fields of raised beach deposits with glacial sands and gravels. The land rises steeply to the south.
MAP 12- BIRKĦILL LODGE TO SCALP LODGE

BUILT HERITAGE AND ARCHAEOLOGY UNITS

Stones on unconsolidated foreshore

NO23382240
Birkhill Fishing Lodge, breakwater, spit, trackway and cart remains
19th Century
Fair
Survey
*See site description 6

NO2362231 - NO312221
Preliminary land surface exposed at LW
Musolithic or Neolithic
Poor
Survey and Monitor

NO3236207
Derecked stone building and concrete platform marking possible remains of fishing lodge
Uncertain
Poor
NI
*See site description 6

NO3200276
2 lines of stones on foreshore perpendicular to shore marking possible boundary wall
Uncertain
Fair
NI
*See site description 6

NO31262271
Fisk Point fishing lodge
Uncertain
Poor
Survey
*See site description 6

NO38632229
Mannman stone spit on foreshore
Uncertain
Fair
NI

NO30552200
Lower Taas Fishing Lodge - single storey stone cottage heavily overgrown
Uncertain
Poor
Survey
*See site description 6

Maritime Fife

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Historic Scotland
MAP 13: DEIL MA CARE TO BALLINBREICH CASTLE

Built heritage and archaeology - Dense undergrowth at the coast edge limited the effectiveness of the foreshore survey by making detection and identification of all but the largest features almost impossible. Monuments noted vary from several fishing lodges and associated buildings (Site description 6) to the important 14th Century Ballinbreich Castle (NO22SE8). This Protected Ancient Monument is almost inaccessible because it has become densely overgrown with shrubs and mature broad leaf trees growing inside and outside the castle walls which in itself may be cause for concern. The NMR5 records the location of a chapel site (NO22SE10) close to the main castle remains, the foundations of which remained visible in 1845. There was no evidence of this site although the dense undergrowth at the coast edge and the intensive arable cultivation of the adjacent fields may have obscured any remains.

Hinercross geology and coastal geomorphology: Erosion-The foreshore is narrow as the deep tidal channels of the Tay flow close to the edge. Mud dominates the lower foreshore, with dense marsh and reed development on the upper foreshore. The low coast edge is composed of glacial sand and gravels, with raised beach deposits. In front of the lodges manmade stonewalls protect the coast edge suggesting that erosion has been a problem in the past. The marsh area widens to the west and a dense forested area overlying the glacial deposits restricts access onto the foreshore.
EROSION UNITS

1
NO28582149
0.5 km
Eroding or stable
Reeds and marsh stabilise the mud on the foreshore. The low coast edge is locally undercut as the sandy drift deposits are susceptible to erosion. Boulders of basalt have been placed along the edge at vulnerable locations.

2
NO28352315
0.5 km
Stable
Reed and marsh beds protect the foreshore by stabilising the mud and absorbing wave energy. The ledge is protected with a stone wall and basalt boulders.

3
NO28082099
0.4 km
Definitely eroding
A fence has come adrift the low undercut edge. The sandy drift deposits are susceptible to erosion where there are no reeds to protect the low edge. Boulders have been placed along the edge to reduce the erosion.

4
NO27132052
2 km
Stable
Reeds along the foreshore stabilise the mud and help to protect the coast edge. In front of the fishing lodge flattened reeds illustrate the effects of strong wave action, boulders have been placed along the edge to provide additional protection. To the west, the reeds thicken and dense woodland along the edge stabilises the sandy glacial deposits.
MAP 13 DEL MA CARE TO BALLINBREICH CASTLE

GEOLaGY UNITS

1
N028683149
0.5 km
Marsh
Shingle
Raised beach and marine deposits with glacial sand and gravel
The foreland is composed of light muds which create mud flats with dense marsh and reed growth. The upper foreland is composed of shingle and gravels with a storm edge at the low coast edge. The hinterland consists of raised beach and marine deposits with glacial sands and gravels.

2
N028352115
0.5 km
Marsh
Low edge (<5 metres)
Glacial sand and gravel with raised beach and marine deposits
Marsh and reeds stabilise the muds of the foreshore. The low edge is composed of glacial sand and gravel. Along the frontage of the foreland, the edge is protected by a shingle bank at the coastal edge.

3
N028012099
0.4 km
Alluvial/marine muds
Shingle
Raised beach and marine deposits with glacial sand and gravel
Thick alluvial muds compose the upper foreshore, the steep upper foreshore is composed of coarse shingle, with a shingle bank at the coastal edge.

4
N0279652083
0.7 km
Marsh
Low edge (<5 metres)
Glacial sand and gravel with raised beach and marine deposits
Marsh and reed beds create mud flats on the foreshore. Vegetation and reedbeds stabilise the muds of the foreshore. Low edge disturbance along the coastal edge of the foreshore involves a sloping wall of boulders.

5
N026992045
1.2 km
Marsh
Cuff (>5 metres)
Glacial sand and gravel with raised beach and marine deposits
Marsh and reeds stabilise the muds on the foreshore. The high coastal edge with a dense vegetation cover is composed of glacial deposits.

Maritime Fife

Historic Scotland
MAP 13 - DEIL MA Care TO BALLINBREICH CASTLE
BUILT HERITAGE AND ARCHAEOLOGY UNITS

 Sites behind the coast edge

NO29082090
Building marked "Camcase " on O.S. 1:25,000 - single storey cottage with gable end facing to Tay and 2 wings at rear.
19th to 20th Centuries
Fair
Nil
*See site description 6

 Sites on the coast edge and foreshore

NO28572124
Deil na Care Fishing Lodge - single storey stone cottage
Uncertain
Poor
Survey
*See site description 6

NO225215
CAMCASE BARROW: SQUARE (POSSIBLE), CIRCUMMARKS
Uncertain
Not seen
Nil

NO27062091
Lochanslot Fishing Lodge - single storey cottage with recent rear extension to rear.
19th to 20th Centuries
Poor
Nil
*See site description 6

NO2522083
Dooen Fishing Lodge - single storey cottage and more recent lean to shed at gable end
19th to 20th Centuries
Fair
Nil
*See site description 6

NO22525
BALLINBREICH CASTLE CASTLE AND CROSS
PROTECTED ANCIENT MONUMENT
14th Century with 16th and 17th Century additions
Poor
Monitor

Maritime Fift

Historic Scotland
Built heritage and archaeology - To the west of Ballinbreich Castle, the coast edge narrows and a stone wall can be traced along the edge most of the way towards Newburgh. This feature probably dates to the 19th Century and originates from the salmon fishing industry which was focused on Newburgh and the south shore of the Tay. In places, platforms have been incorporated into the wall construction such as that at NO23591960 which consists of a semicircular flat platform protruding 4 metres from the line of the wall, and built onto a sloping revetment with a stone wall supporting an embankment to the rear. This feature and a rectangular stone enclosure cut into the sloping bank of the Tay at NO25401944 are both presumed to have fulfilled a fishing function. Several fishing boathouses can also be seen and these are described in more detail elsewhere (site description 6). The collapsed remains of a small clinker built wooden boat were seen from a distance, deeply embedded in mud on the NE bank of the burn at Pow of Lindores (NO24201880). Thick reed beds and mud at this point prevented closer examination of this wreck but the accumulation of mud nearby suggest that the boat is probably not very old. None of the monuments listed in this section have been recorded in the NMRS and in some cases, further survey work is therefore recommended.

Maritime geology and coastal geomorphology; Erosion class - An extensive area of marsh comprises the foreshore and extends over the low coast edge. The land then rises steeply to the south to the former shoreline. To the east a flood embankment protects the coast edge. The raised embankment has a sloping wall of basaltic boulders which dip towards the Tay. Localised undercutting of the wall has dislodged blocks and allowed souther erosion to take place. To the west the foreshore is limited, as tidal channels flow close to the edge, with intertidal sand bars. The entrance of Pow of Lindores has thick accreting muds which are stabilised with marsh. (Erosion Unit 4).
MAP 14 JOCKS HOLE TO NEWBURGH

EROSION UNITS

1
NO26221907
0.8 km
Stable
A wide extensive area of muds is stabilised with marsh and tall reed beds. An old flood embankment protects the low coast edge.

2
NO25581954
0.4 km
Ending or stable
There are no reed beds to stabilise the foreshore as deep channels of the Tay flow close to the coast edge. A sloping stonewall of the flood embankment protects the coast edge which is locally undercut where the sea has dislodged the stone blocks of the wall.

3
NO25351942
0.4 km
Stable
In front of California Lodge a stone wall and dense marsh protect the edge.

4
NO24701909
1.2 km
Accreting or stable
The coast edge is protected. The entrance of the Pool of Lindsors has thick accreting muds with a wide zone of reed and marsh growth.
MAP 14 JOCKS HOLE TO NEWBURGH

GEOLGY UNITS

1
NO26221967
0.8 km
Marsh
Low edge (<5 metres)
Alluvium with glacial sands and gravels.
An extensive low flat area of marsh and reed beds comprise the foreshore and extend far inland over the coast edge. The flat lying area passes into fields of glacial sands and gravels which rise steeply to the south.

2
NO25311945
1 km
Marsh
Manmade barrier
Raised beach and marine deposits
The foreshore is limited as deep tidal channels of the Tay flow close to the edge. Only narrow stretches of beach alluvium mud occur near the coast edge. At the coast edge there is a manmade embankment with a sloping wall of basaltic blocks. The fishing lodges are surrounded by stone walls and fishing platforms project into the Tay. The raised flood embankment is vegetated with reeds and shrubs. In the hinterland undulating fields of raised beach deposits rise steeply to the south.

3
NO24391901
0.9 km
Alluvial/marine mud
Low edge (<5 metres)
Raised beach and marine deposits
West of California Lodge the sloping stone embankment comes to an end and dense reed beds comprise the foreshore. At the Pow of Undooes thick alluvial muds cover the foreshore. The low embankment at the coast edge is well vegetated. The fields beyond rise steeply to the south.

Maritime Fife

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Historic Scotland
MAP 14 - JOCESHOLE TO NEWBURGH

BUILT HERITAGE AND ARCHAEOLOGY UNITS

Sites on the coast edge and foreshore

NO25721960
Joshehole Fishing Lodge - single storey cottage and navigation marker
19th - 20th Centuries
Poor
Survey
*See site description 6

NO25591960 to NO25311934
Fishing platforms and stonewall
19th to 20th Centuries
Fair
NI

NO25401934
Rectangular stone enclosure cut into foreshore
17th Century uncertain
Poor
Survey

NO25261936
California Fishing Lodge - Single storey cottage with twin cells and later brick lean to shed to gable end
19th to 20th Centuries
Fair
Survey
*See site description 6

NO24921918
Tank traps re-used as a barrier on embankment
20th Century
Fair
NI

NO210NW6
OLD CRUIVE BANC, FIRTH OF TAY
2 LOGBOATS DUG FROM BANK AND REMOVED C. 1816
Uncertain
Not seen
NI

NO25401880
Pew of Lindores - small boat remains embedded in deep mud at mouth of burn.
Uncertain
Fair
Survey
*See site description 6

Maritime File 68

Historica Scotland
MAP 15 - NEWBURGH TO FIFE BOUNDARY

Built heritage and archaeology - The village of Newburgh provided the focal point for the Tay Salmon Fishing industry. Its strategic position, conveniently positioned between Perth and Dundee, meant that it became an important stage for the transfer of goods onto shallow draft vessels on the journey to Perth. The monuments identified in this section are a reflection on these twin roles. Piers and buildings (NO23341877 to 33421838) were built in the 14th Century to promote the town as a staging post for the transfer of goods to shallow or deeper drafted vessels depending on whether the cargo was destined up, or down stream. Newburgh's role as a port has declined and with that decline, collapsing of the harbour walls is evident and remedial work is needed if the harbour structure is to be retained. The village's fishing connections are also evident from the holds of two fishing yaws (NO23811876) embedded in mud on the banks at the eastern end of the village, and in the salmon coble yard, slipway and collection of net winches identified at the western end of the village (NO23118861). None of these sites have been recorded in the National Monuments Record and more attention is required. Accordingly, further details are given elsewhere (site description 6). Of the known monuments, Mugdrum House (NO241W54) and gardens are of importance although, set back from a stable coast edge, they are not under any threat from coastal erosion. The location of a neolithic funerary head (NO211W38) near Mugdrum Island and reports of two logboats (NO212W6: map 14) and other Bronze Age and Iron Age finds from the sand near Mugdrum Island as well as from elsewhere on the banks of the Tay near Newburgh are of interest in that they suggest this settlement of the banks of the Tay dates to prehistoric times, and that Mugdrum Island may have been used as a ritual site from the Late Bronze Age (pers. comm. Mike King). Finds such as these may continue to occur as localised erosion of the foreshore and bank sediments causes the uncovering of buried artefacts.

Hinterland geology and coastal geomorphology; Erosion class-Mud is accreting on the foreshore in the shelter of Croy Point. To the west, the coast edge of the Yacht club is eroding as a result of a combination of bad storms and high spring tides. Newburgh harbour is in disrepair, the outer harbour piers have missing stone blocks as they are subject to wave attack. However it is the rear harbour walls which are most at risk to collapse. Poor drainage behind the walls causes scour erosion. The stone blocks have been pushed out from behind causing the harbour walls to bulge. To the west, mud accretion on the foreshore is stabilised with marsh and reed beds.
1. NO23841867
0.6 km
Accreting or stable
Mud is accreting in the shelter of Croy Point and the offshore mud/sand banks.

2. NO23641855
0.2 km
Definitely eroding
The slipway of the yacht club is positioned where the protective marsh flats break. As a result of bad storms in conjunction with high spring tides the coast edge in front of the club house is badly eroded. The owners are installing a localised section of gabion defences to protect the edge.

3. NO23451863
0.6 km
Both accreting and eroding
The piers of the harbour are in disrepair due to poor maintenance and erosion. Between the piers mud is accreting on the foreshore. The foreshore of the piers experience wave damage, however it is the rear harbour walls that are in the worst condition. The concentration of runoff behind the harbour walls is causing the stone blocks to be pushed out from behind. The rear walls are bulging and will be susceptible to collapse during high wave activity.

4. NO23211861
0.7 km
Stable
A stone wall protects the coast edge and stable muds compose the foreshore. The Slipway has a few dislodged blocks however it is generally stable.

5. NO22301848
2 km
Accreting or stable
Mud accreting on the foreshore are encouraged by the dense marsh and reed beds.
MAP 15 NEWBURGH TO FIFE BOUNDARY

GEOLOGY UNITS

1
NO23891869

0.4 km
Alluvial/marine
Low edge (<5 metres)
Alluvium with raised beach and marine deposits
Mud dominates the foreshore with intertidal sand and mud banks. Reed beds and marsh are situated on the upper foreshore. The low coast edge is protected with a flood embankment. The low lying fields beyond rise steeply to the south.

2
NO21651862

0.2 km
Alluvial/marine muds

Human disturbance
Raised beach and marine deposits
A manmade flood embankment is positioned at the low coast edge. Where the embankment ends human disturbance results in a break in the marsh for a slipway which extends onto the foreshore. Boulders have been placed to protect the low edge.

3
NO23211861

0.8 km
Alluvial/marine muds
Manmade barrier
Raised beach and marine deposits
A series of piers make up the harbour with alluvial mud deposition in between. The stone walls of the harbour form the coast edge. Stonewalls continue to the west towards the slipway of the salmon lodge.

4
NO22451855

0.4 km
Alluvial/marine muds

Low edge (<5 metres)
Glacial sand and gravel
Mud comprises the foreshore with a low edge backed with a stone wall.

5
NO222201845

2 km
Marsa

High cliff (>5 metres)
Glacial sand and gravel
Marsh and reed beds develop on the mud flats of the foreshore. The marsh area widens to the west. The coast edge is steep with a dense forest cover. The hinterland is composed of glacial sands and gravels.

Maritime Fife

Historic, Scotland
<table>
<thead>
<tr>
<th>Code</th>
<th>Site Name</th>
<th>Description</th>
<th>Date</th>
<th>Condition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NG23811876</td>
<td>Two yawl fishing boat hulls embedded in foreshore mud</td>
<td>19th - 20th Centuries</td>
<td>Poor</td>
<td>Survey</td>
<td></td>
</tr>
<tr>
<td>NO23711860</td>
<td>Newburgh Y.C. building and slipway</td>
<td>20th Century</td>
<td>Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO23741877</td>
<td>Newburgh harbour - wharfs, quays, bollards, hulls</td>
<td>18th - 20th Centuries</td>
<td>Poor</td>
<td>Survey</td>
<td>*See site description 6</td>
</tr>
<tr>
<td>NO23551863</td>
<td>Wreck of small fishing boat</td>
<td>Uncertain</td>
<td>Poor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO23511863</td>
<td>Salmon coble boatyard, shed, slipway, not winches (many) and cobles</td>
<td>19th to 20th Centuries</td>
<td>Fair</td>
<td>Survey</td>
<td></td>
</tr>
<tr>
<td>NO22851855</td>
<td>Building foundations and clearing in reeds marking possible slipway</td>
<td>20th Century</td>
<td>Fair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO22711847</td>
<td>Clearing in reed allowing access onto foreshore</td>
<td>20th Century</td>
<td>Fair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO22611845</td>
<td>Small shed in Mugdrum boundary wall - possibly a coble storage shed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NEWBURGH TO FIFE BOUNDARY

KEY

Site locations    Symbol    Standaer    Significance

-jojojojojoj     orange     Promined Ancient Monument
-jojojojojoj     green      Listed Historic Building
-jojojojojoj     yellow     Monuments formally proposed by Historic Scotland for designation
-jojojojojoj     blue       Other known monuments
-jojojojojoj     yellow      Designated landscape
-jojojojojoj     orange     Undesignated area
-jojojojojoj     green      Important settlement, may work involved (no access, only walked)
-jojojojojoj     yellow      Probably archaeological sites
Coastal Assessment Survey
For Historic Scotland

Fife -
Kincardine to Fifeness

Maritime Fife

APRIL 1996
Coastal Assessment Survey
For Historic Scotland

Fife -
Kincardine to Fifeness

By
Philip Robertson
with illustrations by Christopher Burgess,
Alex Hale, Rudiger Bahr, and Neil Dobson

Maritime Fife

April 1996
1.0 INTRODUCTION

A field survey was carried out over a period of 12 days in January 1996 of the north coast of the Forth Estuary and Firth of Forth from Kincardine in the west to Fifes Ness in the east, a survey section of approximately 107 km in length. The survey was carried out to the specification A Procedure For Coastal Assessment Surveys Funded By Historic Scotland (version 1.5), hereafter referred to as "the Procedures". Notifications of any variations from the Procedures are made clear in the relevant section of this report.

A period of research into documentary sources and aerial photographs was followed by a 12 day field survey carried out by two teams of two fieldwalkers. The principal objectives of a rapid assessment of the coast edge, intertidal zone, and 100 metre landward strip were covered. However, the constraints imposed by a winter survey schedule meant that only sporadic coverage was achieved along built up areas, the coastal edge behind high cliffs, or a wide intertidal zone and this report has relied on information from the National Monuments Record for Scotland (hereafter NMRS) and other documentary sources to fill in gaps.

For the purposes of description, the survey area can be split into three distinct geographical sections.

- From Kincardine to Dalgety Bay, mud flats dominate the foreshore. This mud is deposited in bays and on rocky foreshores and lies in places over 2 metres in depth, due probably to agricultural activity such as de-forestation along the higher reaches of the River Forth to the west of Stirling. Coastal defence walls are common and these clearly help to protect the coastal edge from erosion and obscure any monuments which might be found in an eroding face. In contrast to the sections further east, the intertidal zone is fairly rich in monuments. The presence of these features may be due to changes in sea-level; their survival may be explained by the favourable burial environment and the more sheltered location of this coastal stretch. Previously un-recorded monuments include a cairn field (NT02428569), a boat ‘graveyard’ at Kincardine (NS92508760 to NS93248665: site description 1), as well as a possible crannog (NT03248446: site description 2) and industrial monuments related to mining and salt panning works. Most of this coastal section appears stable.

- From Dalgety Bay to Elie, the coast is characterised by sandy bays interspersed by rocky headlands. In the east these bays extend up to 5 km in length but this distance shortens further west until the bays measure less than 1 km across. Sea-wall protection is widespread, particularly along built up areas and along protected sections the effects of coastal erosion will be limited. Where the coastal edge is unprotected, the coastline varied from stable to suffering serious erosion (West Wemyss, East Wemyss, and Lundin Links). Where erosion appeared to be a major factor, this will have a detrimental effect on archaeology and the built heritage. Examples of monuments where some damage was evident during the survey include the
Protected Ancient Monument Scafield Tower (NT28N5), the Pictish Cist at Lundin Links (NO40SW13: site description 4), and the Gas Works at East Wemyss (NT39NW20: Site description 3). While the Protected Ancient Monuments of the Wemyss Caves appear to be stable at present, they may be threatened in the future if the erosion of existing coastal defences which was apparent during the survey is to continue.

Two major types of site may be identified along the foreshore. Firstly, fishing traps are common. In many cases these probably pre-date the 20th Century although the salmon stake nets situated along Largo Bay remained in use until recently. Secondly, the remains of coastal defence measures such as tank and glider traps, as well as anti aircraft defence positions and pill-boxes, are located throughout this coastal strip and feature elsewhere along the survey area.

* From Fifeness to Elie the coast is dominated by igneous intrusions and bare sedimentary rock backed by low cliffs and agricultural land. Although few sections of this coastline are defended by a sea-wall the area appears to be mostly stable. However, the effects of erosion were clearly visible on three shell and bone mounds located in the eroding faces at the back of a rocky foreshore or sandy beach (Crail: NO61720789, NO61580780 and Elie: NT498059940, NT49289955). Recent breaches and damage to the fabric of Cellardyke harbour wall (NO50SE47: site description 6) suggest that the same may be true for some of the important harbours of the North Forth coastline. Erosion may also be a factor on the Protected Ancient Monuments of Newark Castle (NO50SW17), and Newark Castle Dovecot (NO50SW21).

While there was good survival of material along the eroding face, there appeared to be infrequent survival of sites on the beach itself. Those sites which were located included stone slip-ways, and track-ways cut into the foreshore bedrock that were probably used for harvesting marine produce. The survey identified 724 sites within the target area. Of the total, 179 are not listed NMRS and the majority of these were located on the foreshore. A further 545 sites have already been recorded on the NMRS.

Maritime Fife recommends that no action is needed on 595 sites but suggests that a survey programme be set up or continued on 86 sites, with monitoring to take place of 21 sites, and a combined programme of survey and monitoring on 22 sites. Details of each site and the recommended action on each are contained in the map gazetteers and, in the case of the ‘priority’ sites, in the summary and recommendations at the end of this report.

The following maps and gazetteers are arranged as indicated in the Procedures. However, the survey was carried out using the Ordnance Survey 1:25,000 Pathfinder series as base maps because they offered more topographical detail than the suggested Ordnance Survey 1:50,000 Landranger system. This option has...
been retained in the following map and gazetteer section. Each gazetteer is located where possible opposite the relevant map. The terms used in the gazetteers conform with the Procedures but the information has been produced as a list because this proved to be more practical than the suggested tabular format.
Fig 1: Location map of survey area.
Fife- Kincardine to Fifeness
MAP 1 - KINCARDINE TO LONGANET

- **Built heritage and archaeology.** The foreshore either side of Kincardine Bridge displays an important collection of ship builts and associated structures (NS9508760 - N293486550) representing perhaps the most important intertidal sites seen during the entire field survey. These remains are described in more detail in site description 1. Although there is no visible evidence on the ground, Longanet Point (NS98NE40) is said to be the site of a disused church of the 9th-10th century. The evidence for this seems to have been attributed to the derivation of the work 'Longanet' in which 'Annaisd' is a 9th-10th century term for a church-site of any kind abandoned during that period and not subsequently re-used (Macdonald 1977, 141). Longanet Power Station (NS98NE40) was built in 1966 on reclaimed land and remains in use today.

- **Hinterland geology and coastal geomorphology; Erosion class.** The estuary of the Forth remains fairly narrow until it broadens out south east of Kincardine into the Firths of Forth. The intertidal zone throughout this enclosed section is dominated by thick mud flats which accumulate up to 2 metres deep in places. Whereas the mud flats on the western shore of the estuary at this point cover a wide expanse of saltmarsh terrain, on the eastern side, their extent has been limited by the deployment of a man-made barrier preventing inundation of the broad coastal plain of raised beach and marine deposits on which the village of Kincardine has been located. This mud probably originates from agricultural activity in the upper reaches of the Forth and its tributaries, which has been allowed to accumulate on the banks of the estuary, sheltered as they are from the open sea. As a result, this sector offers a favourable burial environment for archaeological remains in the intertidal zone and the coast edge is under no apparent threat from erosion.
MAP 1: XINCARDINE TO LONGANNET

EROSION UNITS

1
NS935866
3.6 km
Accreting or stable
Mud from Forth Estuary accreting on banks.

2
NS938351
1.6 km
Not seen
No access along shorefront of Longannet Power Station. Mudflats suggest accreting or stable.
1
NG039861
0-75 km
Mainly alluvial/marine mud
Man made barrier
Raised beach and marine deposits
Alluvial mud accumulates in the foreshore in front of a gently sloping boulder and cobble revetment with flat arable land behind comprising raised beach materials.
MAP 1: KINCARDINE TO LONGANNET
BUILT HERITAGE AND ARCHAEOLOGY UNITS

Sites behind the foreshore at Kincardine (KIN).

NS99NW48
KINCARDINE-ON-FORTH
BURGH, TOWN
17th Century
Not seen
Nil

NS99NW37
KINCARDINE; 23 FORTH STREET
COTTAGE
Uncertain
Not seen
Nil

NS98NW16
KINCARDINE HOUSE
ROMAN FORTLET (POSSIBLE)
Uncertain
Not seen
Nil

NS98NW91
TULLIALLAN GARDENS
GARDENS
DESIGNED LANDSCAPE
Uncertain
Not seen
Nil

Sites along the coastal edge

NS9258760
Kincardine
Remains of dock, piers, walkways, oulty bank and 5 or 6 wooden ship hulls.
* See site description 1.
Uncertain
Fair
Survey

NS9287725
Kincardine
Wooden ship hulk
* See site description 1.
Uncertain
Fair
Survey

NS92858720
Kincardine
Wooden ship hulk
* See site description 1.
Uncertain
Fair
Survey

NS92858800
Kincardine
Wooden ship hulk
* See site description 1.
Uncertain
Fair
Survey

NS93284665
Kincardine
Wooden ship hulk
* See site description 1.
Uncertain
Fair
Survey

NS93489650
Kincardine
Wooden dock and jetty, survives as wooden stakes & lines
* See site description 1.
Uncertain
Fair
Survey

NS988N5W15
LONGANNET POINT CHURCH (POSSIBLE)
CHURCH
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
10th Century
Not seen
Nil

NS98N5W40
LONGANNET POWER STATION
POWER STATION, LAND-FILL
20th Century
Good
Nil
MAP 2 - LONGANNET TO CULROSS

- **Built heritage and archaeology** - The importance of the medieval burgh of Culross was recognised in the 1930s when the Fife Inventory was produced and the National Trust for Scotland set up its 'Little Houses Scheme'. The town is now largely the property of the National Trust for Scotland. While the origins of the burgh are medieval, few of the surviving buildings are older than the 17th century and the waning fortunes of the town in the late 19th and early 20th centuries saw the abandonment of the medieval plan altogether. Notable exceptions include Culross Abbey (NS98NE3), which dates to the 13th century, the 16th century 'Culross Palace' (NS98NE12) built for George Bruce of Culross, and the base of Market Cross (NS98NE14), situated at the head of Back and Mid Causeway which dates from the late 16th century (Walker and Ritchie 1987, 59;77). Sites on the foreshore include a heap of stones which are reported to be visible at low tide (NS98NE9: NMRS records) originating from a 17th century mound built as an entrance to a coal shaft. The mound consisted of a shaft sunk in the sea a short distance below the high water mark and encased with three concrete walls which rose above sea-level. The shaft and walls were destroyed by storm damage in 1617 and the majority of the stones were later used to build a pier at Leith (NS98NE9: NMRS records). These remains were not seen by the survey team although this may have been due to tidal coverage. Further attention is therefore recommended to identify whether anything still remains of this site. There are also remains of two piers along the foreshore at Culross. The remains of a stone pier (NE97708570) are visible west of the main town and a dilapidated pier of stone and wood construction may be seen on the foreshore further east (NS98488380). These piers almost certainly date to between the 17th and 19th centuries and were probably built to enable the transportation of coal from nearby Culross mine.

- **Hinterland geology and coastal geomorphology; Eroded cliffs** - Extensive mud flats cover the foreshore in front of Culross. In contrast to the mud flats further west, these mud flats contain gravel which may imply a local increase in wave energy, an interpretation that is supported by the exposure of patches of rock platform in the upper part of the intertidal zone (Firth, Collias, Smith 1995). Localised concentrations of larger stones on the foreshore have originated probably from the degraded remains of the piers (NS91708570, NS98488380) and perhaps, the 17th century coal shaft and moat (NS98NE9). The sea-front at Culross is partially protected by a sea-wall and the coastal edge material throughout this sector comprises raised beach deposits from a degraded cliff.
MAP 2: LONGANNET TO CULROSS

EROSION UNITS

1
NS969850
1 km
Not seen
No access along shorefront of Longannet Power Station.

2
NS987857
2.5 km
Acceeding or stable.
Mud flats may be acceeding along Culross sea-front and up against Preston Island coastal defences.

3
NS 966835
0.5 km
Not seen
Access deemed unsafe due to Preston Island fly ash.
1
NS96/3852
1.1 km
Mainly alluvial/marine mud
Man made barrier
Raised beach and marine deposits
Alluvial mud is restricted to a narrow band on the foreshore by a man-made barrier protecting Longannet Power Station and land to the east, raised beach deposits form the hinterland geology.

2
NS98/2858
2.75 km
Mainly alluvial/marine mud
Low cliff (< 5 metres)
Raised beach and marine deposits
The foreshore in front of stress is fronted by mud flats with bedrock outcrops showing, particularly in the upper part of the intertidal zone suggesting increased wave energy here.

3
NS97/7854
1.3 km
Mainly alluvial/marine mud
Man made barrier
Raised beach and marine deposits
A man made barrier separates Preston Island fly ash dump from mud flats. The geology behind this Preston Island consists of raised beach material.
MAP 2: LONGANNET TO CULROSS

BUILT HERITAGE AND ARCHAEOLOGY UNITS

Sites behind the foreshore at Culross (CUL)

NS98NE18 CULROSS BURGH HOUSES; GATEWAYS
ARCHAEOLOGICAL AREA OF REGIONAL IMPORTANCE
16th Century
Not seen
Nil

NS98NE36 DUNMARLE CASTLE
COUNTRY HOUSE
LISTED BUILDING
Uncertain
Not seen
Nil

NS98NE37 DUNMARLE; ST. SERFS CHURCH
CHURCH; MAUSOLEUM
Uncertain
Not seen
Nil

NS98NE7 CULROSS; BALGOWNIE HOUSE
HOSPITAL
LISTED BUILDING
Uncertain
Not seen
Nil

NS98NE39 CULROSS; ICE HOUSE
ICE HOUSE
LISTED BUILDING
Uncertain
Not seen
Nil

NS98NE23 CULROSS; WEST GREEN; AAVAAR HOUSE
LISTED BUILDING
Uncertain
Not seen
Nil

NS98NE12.0 CULROSS; THE PALACE HOUSE
PROTECTED ANCIENT MONUMENT
Uncertain
Not seen
Nil

NS98NE12.1 CULROSS; THE PALACE; GARDEN
GARDEN
PROTECTED ANCIENT MONUMENT
Uncertain
Not seen
Nil

NS98NE12.2 CULROSS; THE PALACE
COIN
Uncertain
Not seen
Nil

NS98NE43 CULROSS
WALL; TRIAL EXCAVATION
Uncertain
Not seen
Nil

NS98NE25 CULROSS; BESSE BARS WELL
WELL
16th Century
Not seen
Nil

NS98NE24 CULROSS; SANDHAVEN; JANUARY HOUSE
HOUSE
LISTED BUILDING
Uncertain
Not seen
Nil

NS98NE39 CULROSS; THE TRON
TRON (POSSIBLE)
LISTED BUILDING
Uncertain
Not seen
Nil

NS98NE13 CULROSS
TOWN HOUSE
LISTED BUILDING
Uncertain
Not seen
Nil

NS98NE25 CULROSS; LOW CAUSEWAY HOUSE
LISTED BUILDING
Uncertain
Not seen
Nil

Marileen Fife

Historic Scotland
CULROSS, BACK CAUSEWAY
COTTAGE
Uncertain
N/D

CULROSS, 4-6 MID CAUSEWAY, DUNDONALD
ARMS
HOTEL
LISTED BUILDING
Uncertain
Not seen
N/D

CULROSS, LOW CAUSEWAY, RED LION INN
INN
LISTED BUILDING
Uncertain
Not seen
N/D

CULROSS, MARKET CROSS
PROTECTED ANCIENT MONUMENT
16th-17th Centuries
Not seen
N/D

CULROSS, LOW CAUSEWAY
TRIAL EXCAVATION
Uncertain
Not seen
N/D

CULROSS, HOUSE
Uncertain
Not seen
N/D

CULROSS, THE CAUSEWAY
HOUSE
Uncertain
Not seen
N/D

CULROSS, LOW CAUSEWAY, THE RIDGE
AND THE NEUK
HOUSES, SHOPS
LISTED BUILDING
Uncertain
Not seen
N/D

CULROSS ABBEY
ABBOT
PROTECTED ANCIENT MONUMENT
Medieval
Not seen
N/D

CULROSS, LOW CAUSEWAY
ORTHORD VIEW COTTAGE
COTTAGE
LISTED BUILDING
Uncertain
Not seen
N/D

CULROSS, LOW CAUSEWAY
WATCHING BRIEF
Uncertain
Not seen
N/D

CULROSS, ST MUNGO'S CHAPEL
CHAPEL
PROTECTED ANCIENT MONUMENT
Uncertain
Not seen
N/D

CULROSS, LOW CAUSEWAY, VALLEYFIELD
ENDOWMENT
CHARITABLE INSTITUTION
LISTED BUILDING
Uncertain
Not seen
N/D

P.T.O.
Sites along the coastal edge

NS97088570
Culross.
Stone pier.
17th - 19th Century
Fair
Nil

NS98NE9
Culross.
Mine Shaft.
17th Century
Not seen
Survey

NS98488580
Culross.
Stone and wood pier, dismantled.
17th - 19th Century
Fair
Nil

NS98488521
CULROSS.
BURIALS.
Uncertain
Not seen
Nil
MAP 3 - PRESTON ISLAND TO CROMBIE

- Built heritage and archaeology - The remains of a combined salt pan and coal mine complex are situated in the middle of Preston Island (NT08NW31), located on reclaimed land above the level of mean high water. A watching brief and excavation was carried out on one of the 18th century salt-pan houses as part of an extensive restoration and clearance project on behalf of Fife Region and Scottish Power. These investigations revealed structural evidence of the saltworking industry as well as indications of multiphase usage of this site as a salt pan (Ewart 1993). The existence of a disused coal mine at High Valleyfield (NT08NW43) and a disused pike at Nevmills, Torryburn (NT01508625) that was used partly as a loading point for cargoes of coal both reinforce the importance of the coal industry to the Culross, Torryburn area. Other sites of interest include a collection of 7 stone cairns built on the mudflats and situated high up on the foreshore (NT02428569), a stone structure which is probably a fishtrap (NT01908625) and the possible site of a crannog on the east side of Crombie Pier (NT03248446; site description 2) all of which need to be surveyed individually. The remains of Crombie Old Parish Church may be seen approximately 150 metres behind the foreshore. A ruin which may date to the 13th century, this rectangular building with substantially rebuilt sections was the parish church of Crombie before the parishes of Crombie and Torry were united in the parish of Torryburn at some date prior to 1623 (RCAHMS 1933,272). Two middens (NT08NW34, NT08NW37) previously recorded near to the church site were not seen during the survey.

- Hinterland geology and coastal geomorphology; Erosion class - At the eastern side of Torryburn, the mudflats pass into fine, then coarse sand and gravel, which covers a rock platform in some places but is exposed over widespread areas, a factor which suggests that a degree of scour is occurring along this coastal sector. Piers at Kinny Braes and Crombie have caused localised accretion and erosion of sediments on either side but, generally speaking, at the time of the survey, this coastal sector was either stable or showing evidence of some sediment deposition. There is evidence at Crombie Point in particular of a degraded cliff behind the coastal edge suggesting the level of an older coastline.
1 NT004848
0.9 km
Not seen
Mudflats not walked as access was deemed unsafe due to Preston Island fly ash.

2 NT023859
3.8 km
Accreting or stable
Viewed but not walked. Access was deemed unsafe due to Preston Island fly ash.

3 NT031845
0.2 km
Definitely accreting
Mudflats accreting on the east side of Crombie Pier.

4 NT033845
0.2 km
Accreting or stable
Mudflats may be accreting on brackish outcrops.

5 NT036842
1 km
Stable
Coastal defenses along shoreline between Long Craig and Horse Craig.

6 NT044844
0.18 km
Accreting or stable
Mudflats may be accreting along coastal defenses.
MAP 3: PRESTON ISLAND TO CROMBIE

GEOLOGY UNITS

1
NT012882
2.3 km
Mainly alluvial/marine mud
Man-made barrier
Raised beach and marine deposits
Man-made barrier separates Preston Island fly ash dump from mud foreshore. Coastal edge consists of raised beach material.

2
NT018862
1.3 km
Mainly alluvial/marine mud
Low edge (< 5 metres)
Raised beach and marine deposits
From Sewalls to Torryburn

3
NT027854
1.53 km
Maine rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
Mud flats change into fine, then coarse sand, then gravel interspersed by bed rock outcrops which dominate the upper intertidal zone.

4
NT031845
0.1 km
Maine rock platform
Man-made barrier
Raised beach and marine deposits
Bed-rock outcrops particularly visible around Crombie Point where coarse material on the foreshore may have originated from the deteriorating old Crombie Pier.

5
NT034844
0.7 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
Mud flats interspersed with bed-rock outcrops.

6
NT038841
0.1 km
Mainly rock platform
Man-made barrier
Raised beach and marine deposits
Stone pier in front of Kinny burn has been built.
Built heritage and archaeology - From Crombie to Aberl'n, the foreshore is not accessible due to the regulations of the bordering landowner, the Ministry of Defence. Although the area has not been walked, it is reasonable to suggest that this area has moderate to high potential as a location of archaeological remains given that the burial environment appears favourable. If the bordering coastal sectors provide a useful indicator, likely sites might include fish-traps and disposed piers. In the vicinity of Charlestown and Limekilns many of the sites located originate from the production of lime, limestone and coal since the early industrial period, an industry which was vital to both villages and which played an important role in the agricultural improvements of the 18th and 19th centuries in providing lime for soil fertilisation and for the construction of new farm buildings. This industry was based on the existence of a seam of natural limestone which ran parallel to the north shore of the Firth of Forth that was capable of producing a durable high grade product. Exploitation of this resource by the 5th Earl of Elgin saw the construction of a new harbour (NT08SE31; site description 6) which is now an Archaeological Site of Regional Importance (ASRI), as well as a roadway between the quarry and kilns (now lifted). The present range of draw kilns (NT08SE32) dating to between 1777 and 1778, are constructed of dressed ashlar and many have been re-faced (Walker and Ritchie 1987,30). Elsewhere, aerial photographs indicate that there may be a fort behind the foreshore at Aberlyn (NT08SE15: NMRS Records) although there were no signs of this on the ground. The majority of the other sites located during the survey are disposed piers, typically of 17th-19th century date and used at different periods in the lime industry, and mostly before the 'new' harbour at Charlestown (NT08SE31) was completed. The majority of these need no further investigation, but the deteriorating condition of a loose stone pier at NT06878340 may be cause for concern and this site should be surveyed.

Hinterland geology and coastal geomorphology; Erosion class - Mud mixed with sand and gravel continue to dominate the coastal geomorphology of this sector although bedrock outcrops are exposed in places. Accumulations of sediment overlying the rock platform are at their greatest in Ironmill Bay which has acted as a natural trap for sediment accretion. Behind the coastal edge, there is evidence of a degraded cliff west of Charlestown which suggests the position of a former coastline. The resulting raised beach deposits are mostly stable along the coastal edge and in many places, sea-defences have been deployed to protect the coastal edge suggesting that erosion has been a factor in the past. The only instance where ongoing erosion was visible include a two short sections of unprotected coastal edge to the east of Charlestown, harbour and at Bruce Haven which are both fully exposed to easterly storm conditions (Erosion class sector #4).
<table>
<thead>
<tr>
<th>No.</th>
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<th>Coastal defence fronted by mudflats and up against Crombie Pier.</th>
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<td>Coastal defences and pier not walked due to lack of access to MOD grounds of Crombie Pier.</td>
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<td>0.2 km</td>
<td>Definitively accreting</td>
<td>Mud flats accreting on coastal defences. Shorefront is owned by MOD and therefore not walked but viewed from a distance.</td>
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<tr>
<td>4</td>
<td>NT05834</td>
<td>1.5 km</td>
<td>Accreting or stable</td>
<td>Mud flats accreting on coastal defences. Not walked but viewed from a distance.</td>
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<td>5</td>
<td>NT065835</td>
<td>0.25 km</td>
<td>Stable</td>
<td>West pier of Charlesown Harbour.</td>
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<td>NT066853</td>
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<td>Stable</td>
<td>Charlesown Harbour may be silted up.</td>
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<td>7</td>
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<td>0.15 km</td>
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<td>East pier of Charlesown Harbour.</td>
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<td>NT067814</td>
<td>0.15 km</td>
<td>Erodend or stable</td>
<td>Soil and rock cliffs fronted by mudflats.</td>
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</table>
MAP 1. CROMBIE TO LIMEKILNS

GEOLOGY UNITS

1
NT055842
0.4 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
West of Crombie Pier, mud on a rock platform with a low coastal edge in front of raised beach deposits

2
NT048849
0.1 km
Mainly rock platform
Man made barrier
Raised beach and marine deposits
Rock platform around Crombie Pier with low coastal edge and man made barrier behind Pier.

3
NT075834
2.5 km
Mainly alluvial/marine mud
Man made barrier
Raised beach and marine deposits
Foreshore mainly comprises alluvial mud and sand which has accumulated in Ironmill Bay, possibly overlying bed-rock which is visible in localised areas. Raised beach materials behind a man-made barrier which extends from the west side of Ironmill Bay and takes in the walls of Charlestoun Harbour.

4
NT067934
0.25 km
Mainly alluvial/marine mud
Low edge (< 5 metres)
Raised beach and marine deposits
Foreshore consists of sandy mud on rock platform base with an unprotected low edge storefront to the east of Charlestoun harbour.

5
NT071835
0.4 km
Mainly alluvial/marine mud
Man made barrier
Raised beach and marine deposits
Foreshore consists of sandy mud on rock platform base with a man made barrier and raised beach behind.

6
NT075832
0.8 km
Mainly rock platform
Man made barrier
Raised beach and marine deposits
Piers by Limekilns harbour and west of Bruich an sea-wall along Limekilns sea-front.

7
NT083829
3.5 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
East of Bruich Haven Harbour, sea-wall ends and low coastal edge is un-protected.
MAP 6: CROMBIE TO LIMEKILNS
BUILT HERITAGE AND
ARCHAEOLOGY

Sites behind the foreground at Charlestown
(Ch)

NT085E35
CHARLESTOWN VILLAGE
VILLAGE
Uncertain
Not seen
Nil

NT085E40
CHARLESTOWN;BRAESIDE
HOUSE
Uncertain
Not seen
Nil

NT085E19
CHARLESTOWN;ELGIN BRIDGE
RAILWAY BRIDGE
Uncertain
Not seen
Nil

NT085E35.4
CHARLESTOWN;SOUTH ROW COTTAGES
COTTAGES
Uncertain
Not seen
Nil

NT085E35.8
CHARLESTOWN; THE GREEN
GREEN
Uncertain
Not seen
Nil

NT085E24
CHARLESTOWN; EASTER COTTAGE
HOUSE
Uncertain
Not seen
Nil

NT085E25.5
CHARLESTOWN; HALL ROW COTTAGES
COTTAGES
Uncertain
Not seen
Nil

NT085E15
WAUSEMILL; CROMBIE;
FORTH; PROMONTORY; CROPMARK
ARCHAEOLOGICAL SITE OF REGIONAL
IMPORTANCE
Uncertain
Fair

Nil

NT085E32
CHARLESTOWN; LIMEKILNS
LIMEKILNS
PROTECTED ANCIENT MONUMENT
17th - 19th Century
Fair
Nil

NT085E31
CHARLESTOWN HARBOUR
TRANSPORT & COMMUNICATIONS
HARBOUR

*Sec detailed site description 6
ARCHAEOLOGICAL SITE OF REGIONAL
IMPORTANCE
17th - 19th Century
Fair
Survey; Monitor

NT06708339
Charlestown
Pier; Stone; 70.0 metres long.
20th Century
Fair
Nil

NT085E347
Charlestown
Pier; 'stone moat.'
Uncertain
Poor
Survey

NT085E340
Charlestown
Fenestre in Charlestown harbour, possibly.
wooden parts.
Uncertain
Fair
Nil

NT085E23
LIMEKILNS; PIER
TRANSPORT & COMMUNICATIONS
SHIPPING PIER
Uncertain
Fair
Nil

NT085E22
LIMEKILNS; BRUCE HAVEN; CAPE
NAUM PIER
TRANSPORT & COMMUNICATIONS PIER
17th - 19th Century
Fair
Nil

NT085E28
LIMEKILNS; 19-21 MAIN ST;
PUB/READ HOUSE
HOUSE
Uncertain
Not seen
Nil

NT085E24
LIMEKILNS; 26 MAIN STREET
HOUSE
Uncertain
Not seen
Nil

NT085E2
LIMEKILNS; THE KINGS CELLAR;
WAREHOUSE; SCHOOL
Uncertain
Not seen
Nil

NT085E5
LIMEKILNS; 9, 11 AND 13 MAIN ST
HOUSES
Uncertain
Not seen
Nil

NT085E6
LIMEKILNS; 12 AND 14 MAIN STREET
LIMEKILNS
Uncertain
Not seen
Nil

NT085E25
LIMEKILNS; CHERCH ST; LIMEKILNS
MANS;
MANSE
Uncertain
Not seen
Nil

NT085E29
LIMEKILNS; SANDILANDS, FORTH
COTTAGE
COTTAGE
Uncertain
Not seen
Nil

NT085E30
LIMEKILNS; 7 HALKETS HALL
HOUSE
Uncertain
Not seen
Nil

Maritime Fife

Historic Scotland

21
Built heritage and archaeology - The remains of Rosyth Church stand within a churchyard 1/2 mile south-east of Limekilns. Only the eastern gable and part of the south wall remain. The origins of the church date to the 12th century with later additions from the 19th and 17th centuries (RCAHMS 1933,106). On the foreshore nearby to Rosyth Church is a beacon structure with three supporting concrete blocks (NT9845880) that was probably used by ships to aid navigation into Bruce Haven. Due to Ministry of Defence access restrictions into Rosyth Dockyard, none of the coastal edge or foreshore was investigated. However, the following sites are known to exist behind the coastal edge. Rosyth Castle (NT185SW20) consists of a rectangular enclosure of 16th and 17th century date abutting a late 15th century tower. A dovecote (NT185SW20.1) dating to the 16th century stands on the mainland to the north of the castle in apparently excellent state of preservation (RCAHMS 1933,157).

Hinterland geology and coastal geomorphology; Erosion class - An intertidal zone of sand, gravel and mud overlies a rock platform base on the foreshore between Bruce Haven and the western boundaries of Rosyth dockyard sea-wall. The dockyard itself has been built on reclaimed land and, although the area was not walked, when viewed from a distance, it appears that the sea-wall has acted as a trap for the accumulation of sediment to build up along its edge. Towards the eastern boundaries of the dockyard, a substantial change in the geology of the coastline occurs. Whereas the geology of the coastal sector to the west has been dominated by a low coastal edge of predominantly raised beach deposits, North Queensferry promontory is a steep sided bed rock promontory with a covering of drift, boulder clay, that marks the boundary between the Forth estuary and the Firth of Forth.
MAP 5: LIMEKILNS TO NORTH
QUEENSFERRY

EROSION UNITS

1
NT086828
0.2 km
Stable
Coastal defences fronted with mudflats and bedrock.

2
NT086828
0.7 km
Both accreting and eroding
Cliffs eroding with mudflats accreting in front.

3
NT094825
0.75 km
Accreting or stable
Mudflats accreting in front of coastal defences and on the west side of Rosyth Dockyard. Not walked but seen from a distance due to no access to Rosyth Naval Base.

4
NT093818
0.5 km
Not seen
Due to no access to Rosyth Naval Base.
GEOLGY UNITS

1
NT095828
9.3 km
Mainly alluvial/marine mud
Man made barrier
Raised beach and marine deposits
Foreshore consists mostly of an exposed rock platform with
localised sandy mud coverage and a man made barrier in
front of Rosyth Church promontory.

2
NT091827
3 km
Mainly alluvial/marine mud
Low edge (≤ 5 metres)
Raised beach and marine deposits
Mud overlies rock cut platform in places and is accumulat-
ing on the western side of Rosyth dockyard breakwater.

3
NT167817
4 km
Mainly alluvial/marine mud
Man made barrier
Reclaimed land
Mud in front of Rosyth dockyard breakwaters with re-
claimed land behind and further inland, a degraded cliff.

4
NT123911
0.5 km
Mainly alluvial/marine mud
Cliff (≥ 5 metres)
Drift, boulder clay over visible rock
From Calt Ness to Forth Road Bridge, a steep sided slope
descends to the sea with sandy mud overlying rock on the
foreshore.
Sites known to be within Rosyth Naval Base
(No access).

NT18SW20
ROSYTH CASTLE
CASTLE
PROTECTED ANCIENT MONUMENT
15th to 17th Centuries
Not seen
Nil

NT18SW20.1
ROSYTH CASTLE; DOVECOT
DOVECOT
PROTECTED ANCIENT MONUMENT
16th Century
Not seen
Nil

Sites along the coastal edge.

NT08458280
Rosyth
Beacon stances, 3 concrete piers.
20th Century
Fair
Nil

NT085585
ROSYTH CHURCH
CHURCH; CEMETERY,
PROTECTED ANCIENT MONUMENT
12th - 15th Century
Fair
Nil
KEY

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<tr>
<th>Site Location</th>
<th>Symbol</th>
<th>Colour</th>
<th>Significance</th>
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</tbody>
</table>

Historic Scotland

Maritime File

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MAF 6 - NORTH QUEENSFERRY TO DONIBRISTLE BAY

- Built heritage and archaeology - Areas west of the Forth Road Bridge and under the Forth Rail Bridge were not walked due to access complications. The coastal edge sites on the promontory of North Queensferry broadly reflect the maritime activities of the village in the 19th and 19th centuries. Stone piers (NT12738040, NT1881030), 'Railway Pier' built in 1877 as a railway link for Dunfermline and now used as a modern marina quay and slipway (NT12858030), and a fine stone quay with nearby early 19th century harbour light consisting of a hexagonal stone building with a domed lantern (NT188112) are all visible today. These staging posts were used either as ferry slipways for connections with the southern coast of the Forth before the construction of the twin bridges, or to serve the coastal trade which North Queensferry was engaged in. For example, the remains of another quay and quay at NT13408050 presumably served the transport of whinstone from 'Battery quarry' which was opened in 1754 and closed in 1924 (Brown 1994, 38). The remains of a probable 19th century ship hull (NT12888045) and a nearby wooden raft lie on a mud and gravel foreshore in a small bay which lies between the Town Pier (NT1258030) and Railway Pier (NT188112). This craft is in poor condition and should be recorded before it falls apart completely. Sites on the eastern side of the North Queensferry promontory are exposed to the sea from the east and this must have some effect on the preservation of remains along the foreshore. Existing features include the corroded and fragmented remains of an iron pier (NT13648087) which may have been connected with Carlingnose Submarine Mining Station (NT188124), a feature which should be recorded before it disintegrates completely. Other evidence of the military use of the North Queensferry promontory may be found behind the high coastal edge at Carlingnose Barracks (NT188124), Carlingnose Battery (NT188105), Port Laing Barracks and Scaplane Base (NT188106) but these sites were not visited. The most interesting aspects of Inverkeithing Harbour include Wards Shipbreakers Yard (NT188113) and a quay with sluice next to Inverkeithing Paper Mill on the north side of the Inner Bay (NT1258268). Sites on the north side of Inverkeithing Bay include a quay, conveyor belt, and building foundations at disused Prestonhill quarry (NT1380825) and a stone landing mark probably used as a navigation transit for entering nearby St. David's Harbour (NT18850). Between Hopewell Point and Donibristle, a high coastal edge has been useful for coastal defence purposes during the World Wars with gun emplacements at Hopewell Wood (NT18824) and a possible signalling beacon at Downing Point (NT15978247).

- Firth and coastal geology and geomorphology: Erosion class - The low coastal edge of the coastline as far as Culross rises fairly sharply to form the North Queensferry peninsula. This promontory of boulder clay over visible rock represents a geological and geomorphological boundary between the Firth of Forth and Firth Estuary. To the west, the coastline comprises sand and gravel which accumulates particularly in bays interspersed by rocky headlands which retain little sediment. This coastal sector, except for bays such as Inverkeithing harbour and Dalgety Bay which are sheltered from the coastal transportation of sediment, is exposed to the open sea. However, east of the peninsula, mud accumulates on the foreshore area and the coastal edge is dominated by low lying raised beach deposits in a fairly stable environment.
MAP 6: NORTH QUEENSFERRY TO DONIBRISTLE

EROSION UNITS

1
NT128065
0.4 km
Not seen
No access to Rosyth Naval Base

2
NT128805
0.5 km
Accreting or stable
Under Forth Road Bridge.

3
NT129803
0.3 km
Static
Coastal defences of the Harbour wall and slipway of North Queensferry Marina

4
NT130806
0.5 km
Accreting or stable
Inner Harbour at North Queensferry may be silting up.

5
NT131803
0.3 km
Static
Old town quay of North Queensferry.

6
NT132824
0.3 KM
Accreting or stable
Shingle beach opposite old town quay North Queensferry.

7
NT133802
0.2 km
Static
Pier and slipway almost under railway bridge.

8
NT134803
0.4 km
Not seen
No access to private property under railway bridge.

9
NT134805
0.6 km
Accreting or stable
Mudflats and soft silty sand of the harbour basin may be silting up.

10
NT136807
0.6 km
Both accreting and eroding
Cliffs below Carlingmore Barracks are eroding; rocky shoreline is accreting or stable.

11
NT138813
0.3 km
Accreting or stable
Silty sand beach below Port Lang.

12
NT135820
2.0 km
Static
Mud along southern edge of Inverkeithing harbour basin and rocky shore along southern approaches to harbour.

13
NT132824
0.7 km
Accreting or stable
Mudflats along northern edge of Inverkeithing harbour. Some of this section was observed but not walked.

14
NT134823
0.2 km
Static
East Ness piers at entrance to Inverkeithing harbour.

15
NT138823
0.5 KM
Both accreting and eroding
Prestonhill Quarry cliff face may be eroding and the shoreline below may be accreting.

16
NT143827
0.6 km
Accreting or stable
Shingle and rock shore as far as St. David’s Harbour.

17
NT147825
0.1 km
Static
Within St. David’s Harbour.

18
NT151823
1.0 km
Both accreting and eroding
Cliffs along Hopewell Point may be eroding with accretion along the rocky shore.

19
NT157824
0.6 km
Static
Rocky and shingle shoreline between Hopewell and Downie Point.

20
NT158827
0.7 km
Accreting or stable
Shingle and soft sand in Downiebrite Bay.

21
NT163829
0.3 KM
Static
Shingle and rocks round to New Harbour.

Maritime Fife

Historic Scotland
### MAP 6: NORTH QUEENSTERR TO DONTIBRISTLE

#### GEOLOGY UNITS

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<thead>
<tr>
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Historic Scotland
MAP 3 NORTH QUEENSFERRY TO DUMBRE TilE

HILTH HERITAGE AND ARCHAEOLOGY

Sites behind the foreshore in North Queensferry

NT185W118 NORTH QUEENSFERRY; OUR LADY'S WELL
Well
Uncertain
Not seen
Nil

NT185W43 NORTH QUEENSFERRY, DAVIDSONS BUILDINGS A AND B
House
Uncertain
Not seen
Nil

NT185W69 NORTH QUEENSFERRY, 3 POST OFFICE LANE
House
Uncertain
Not seen
Nil

NT185W70 NORTH QUEENSFERRY, CHAPEL
ACE, CLifton HOUSE
House
Uncertain
Not seen
Nil

NT185W22 NORTH QUEENSFERRY CHAPEL
14th Century - uncertain.
Not seen
Nil

NT185W127 INVERKEITHING, HELEN PLACE TRIAL EXCAVATIONS
Uncertain
Not seen
Nil

NT185W47 NORTH QUEENSFERRY, 10 POST OFFICE LANE
COTTAGE
Uncertain
Not seen
Nil

NT185W48 NORTH QUEENSFERRY, HELEN PLACE, YOLL COTTAGE
Cottage
Uncertain
Not seen
Nil

NT185W45 NORTH QUEENSFERRY, HELEN PLACE, HEMING HOUSE
House
Uncertain
Not seen
Nil

NT185W46 NORTH QUEENSFERRY, HELEN PLACE, GREEK COTTAGE
Cottage
Uncertain
Not seen
Nil

NT185W49 NORTH QUEENSFERRY, HELEN PLACE, MELINKIE COTTAGE
Cottage
Uncertain
Not seen
Nil

NT185W105 NORTH QUEENSFERRY, CARLINGNOSE BATTERY
COAST BATTERY
PROTECTED ANCIENT MONUMENT
19th-20th Century
Not seen
Nil

Sites along the coastal edge

NT185W119 NORTH QUEENSFERRY; CRAIGDHU, HAND CRANE
Crane
Uncertain
Not seen
Nil

NT17238040 North Queensferry
Stone Pier, Remains of
17th - 19th Century
Poor
Survey

NT12850030 North Queensferry
Pier
17th - 19th Century
Fair
Nil

NT12850045 North Queensferry
Ship hulls and raft
19th-20th Century
Poor
Survey

Magazine Hill

Historic Scotland
INVERKEITHING, WEST NESS
TRANSPORT & COMMUNICATIONS/ PORTS & HARBOURS/ PIER
Uncertain
Good
Nil

NT18SW112
INVERKEITHING, WARD'S SHIP-BREAKING YARD
SHIP-BREAKING YARD
18th - 20th Century
Fair
Nil

NT18SW95
INVERKEITHING HARBOUR
TRANSPORT & COMMUNICATIONS/ SHIPPING/ HARBOUR
Uncertain
Fair
Nil

NT13258289
Inverkeithing
Pier or quay
17th - 19th Century
Fair
Nil

NT18SW96
INVERKEITHING, EAST NESS, PIER
TRANSPORT & COMMUNICATIONS/ PORTS & HARBOURS/
Uncertain
Good
Nil

Sites behind the foreshore at Inverkeithing (INVER)

NT18SW75
INVERKEITHING, BURGH, TOWN
12th Century
Noted but not visited
Nil

NT18SW03
INNER BAY, INVERKEITHING
SALT WORKS
19th Century
Not seen
Nil

NT18SW16
INVERKEITHING, 4 BANK STREET
DOVECOT
17th Century

NT18SW85
INVERKEITHING, 54 HOPE ST; OLD PARISH MANSE
MANSE
Uncertain
Not seen
Nil

NT18SW2
INVERKEITHING
TOWN WALL
Uncertain
Not seen
Nil

NT18SW30
INVERKEITHING
CINERARY URN
Uncertain
Not seen
Nil

NT18SW73
INVERKEITHING
PRIORY
Uncertain
Not seen
Nil

NT18SW75
INVERKEITHING
WINDMILL
18th Century
Not seen
Nil

NT18SW117
INVERKEITHING PAPER MILLS
WOODWORKING / PAPER, MILL
Uncertain
Not seen
Nil

NT18SW37
INVERKEITHING, 52 HIGH STREET
DOVECOTE
17th Century
Not seen
Nil

NT18SW102
INVERKEITHING
SALT WORKS
16th Century
Not seen
Nil

Maritime File

Historic Scotland

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Sites behind the foreshore at Inverkeithing (INNER)

NT145SW56
INVERKEITHING; 2-8 BANK STREET
URBAN EXCAVATION
Uncertain
Not seen
Nil

NT185SW64
INVERKEITHING, COMMERCIAL ROAD BRIDGE
TRANSPORT & COMMUNICATIONS/ ROADS/ ROAD BRIDGE
Uncertain
Not seen
Nil

Sites along the coastal edge

NT13708225
Prestonhill Quarry
Quarry and quarry goods
Modern
Fair
Nil

NT14208260
Inverkeithing bay
Modern navigation light for St. David’s harbour;
19th - 20th century
Fair
Nil

NT185SW50
INVERKEITHING BAY, ST DAVID’S HARBOUR; SHIP-BREAKING YARD. Noted as “St David’s Harbour”
17th - 19th Century
Fair
Nil

NT185SW32
ST DAVID’S CASTLE (POSSIBLE).
Uncertain
Not seen
Nil

NT185SE24
DOWNING POINT BATTERY
COAST BATTERY, noted as 2 AAA emplacements
Mid 20th Century
Fair
Survey

NT15978247
Downing Point Beacon
Wooden Beacon with concrete stay foundations
Uncertain
Fair
Survey

NT185SE16
DONIBRISTLE; OLD HARBOUR
HARBOUR - iron mooring block and chain
18th Century
Fair
Nil

NT185SE5
DONIBRISTLE HOUSE;
HOUSE
16th Century uncertain
Not seen
Nil

NT185SE7
DONIBRISTLE GARDENS AND HOUSE
DESIGNED LANDSCAPE
16th Century uncertain
Not seen
Nil
- **Built heritage and archaeology** - The main sites in Donibristle Bay relate to a series of harbour developments which appear to have been built of small scale and limited success. A stone pier and cleared slip-way at NT16308275 may originate to the Old Harbour which was probably of 18th century date. A second harbour and pier was constructed, probably in the 19th Century and the remains of this are also still visible (NT18SE17). A further pier and twin slipway can be seen north of New Harbour and these are currently used by the local sailing club (NT16558315). Dalgety Bay is of archaeological interest because the mud which dominates the intertidal zone represents a favourable burial environment and the existence of old Dalgety village close to the existing 12th Century St. Bridget’s church (NT18SE2) might indicate the widespread use of this sheltered bay from an early period. The church itself remains in a fair condition and there were no obvious signs of old Dalgety village in the surrounding fields confirming theories that the village disappeared in the early 19th century (Piggott and Simpson 1970, 72). Although the thickness of the foreshore mud prevented any closer observations of the intertidal zone, the identification of a midden (NT17098380) in the eroding face close to the church is of interest and this site needs to be monitored. Other sites which are worthy of mention along this coastal sector include a midden and stone building in the eroding face (NT17908362) and gun or searchlight emplacements (NT18158340, NT18SE27) on which survey work is recommended. Lastly, the survey team did not visit Inchcolm island and they failed to identify the Protected Ancient Monument (NT18SE1). Further investigations may therefore be required to monitor the individual sites concerned.

- **Hinterland geology and coastal geomorphology; Erosion class** - With the exception of Dalgety Bay, this coastal sector is characterised by sheltered beach catchment zones such as Donibristle Bay, Braefoot Bay and Barnhill Bay where sand and gravel are accreting. On the other land rock promontories such as Braefoot Point and Bell Rock contain little sediment and these appear to be stable although they are exposed to the sea from all sectors. Dalgety Bay appears to be sheltered from the natural sediment transport systems along this coastline and thick mud is accumulating in its basin, due perhaps to the diversion of currents by Braefoot Point away from the bay.
MAP 7: DONIBRISTLE TO ABERDOUR

EROSION UNITS

1
NT165831
0.3 km
Eroding or stable
From New Harbour to point at entrance to Dalgety Bay.

2
NT166835
1.2 km
Accreting or stable
Thick mud and sand accreting in Dalgety Bay.

3
NT173837
0.6 km
Both accreting and eroding
Mud accreting in bay, low coastal edge may be eroding.

4
NT175834
0.4 km
Accreting or stable
Sand and mud may be accreting in bay north west of Broomfoot Point.

5
NT178831
0.3 km
Stable
Broomfoot Point and pier are stable.

5
NT180833
0.2 km
Accreting or stable
Sand and mud may be accreting in Broomfoot Bay.

7
NT182833
0.4 km
Not seen
No access to Broomfoot Bay Oil Terminal pier.

8
NT184836
0.3 km
Accreting or stable
Sand and shingle with rock outcrops

9
NT187836
0.4 km
Stable
Rocky foreland round by Monk’s Cave.

10
NT184842
0.6 km
Accreting or stable
Sand and shingle accreting in Barnhill Bay.

11
NT187843
0.2 km
Stable
Rocky foreland round to Port Haven.

12
NT188846
0.4 km
Accreting or stable
Sand and shingle accreting in Port Haven.

13
NT192846
0.3 km
Stable
Rocky foreland from Bell Rock to Pan Rocks.

14
NT193850
0.5 km
Definitely Accreting
Sediment may be accreting west of Aberdour Harbour entrance at harbour mouth.

15
NT195851
0.4 km
Both accreting and eroding
Shoreline may be accreting and low cliffs eroding.

16
NT198849
0.2 km
Accreting or stable
Sand may be accreting north east side of Aberdour Bay.

17
NT199849
0.1 km
Eroding or stable
Rocky shoreline by Forth View may be eroding.
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Historic Scotland

Manxie File

GEOLOGY UNITS

1
NT165832
0.5 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits with
boulder clay behind

Section of foreshore bed rock outcrops and
rocks protruding to the north east and
south west. Soft coastal edge of raised
beach and marine deposits.

2
NT165831
0.4 km
Mainly sand
Low edge (< 5 metres)
Raised beach and marine deposits with
boulder clay behind

Sandy foreshore north of New Harbour
around Durlston Bay Estuary slip-way.

3
NT164832
0.2 km
Mainly alluvial/marine mud
Low edge (< 5 metres)
Raised beach and marine deposits with
boulder clay behind

Thin alluvium with some bed-rock outcrops
and sand higher on the foreshore. Raised
beach and marine deposits along the coastal
edge.

4
NT170837
1.5 km
Mainly alluvial/marine mud
Low edge (< 5 metres)
Drift, boulder clay

Coastal edge changes to boulder clay
along the back of Durlston Bay.

5
NT178834
0.4 km
Mainly alluvial/marine mud
Low edge (< 5 metres)
Drift, boulder clay

Drift, boulder clay over visible rock.

6
NT178832
0.1 km
Mainly rock platform

Man made barrier
Drift, boulder clay over visible rock

Brasford Point pier is built on a rock plat-
form.

7
NT179833
0.5 km
Mainly alluvial/marine mud

Man made barrier
Drift, boulder clay over visible rock

Raised beach and marine deposits

Foreshore of Port Haven is sand beach with
golf course behind.

8
NT182834
0.25 km
Mainly sand

Man made barrier
Drift, boulder clay over visible rock

Foreshore mainly of sandy deposits in Brat-
ford Bay.

9
NT183825
0.3 km
Mainly sand

Man made barrier
Drift, boulder clay over visible rock

The twin piers of Brasford Bay Oil Termi-
nal.

10
NT185836
0.4 km
Mainly sand

Low edge (< 5 metres)
Raised beach and marine deposits.

Soft coastal edge of raised beach deposits.

11
NT190838
1.4 km
Mainly rock platform

Low edge (< 5 metres)
Glacial sand and gravel

Low coastal edge comprising glacial sand
and gravel material round Monk’s Cave.

12
NT194842
0.6 km
Mainly sand

Low edge (< 5 metres)
Raised beach and marine deposits

Foreshore of Burnhill Bay comprises sand
and shingle with a low coastal edge behind.

13
NT196845
0.4 km
Mainly sand

Man made barrier
Glacial sand and gravel

Raised beach and marine deposits

Foreshore is an alluvium of sand and shingle
behind.

14
NT189847
0.35 km
Mainly sand

Low edge (< 5 metres)
Raised beach and marine deposits

Foreshore of Port Haven is sand beach with
golf course behind.

15
NT192847
0.2 km
Mainly rock platform

Low edge (< 5 metres)
Raised beach and marine deposits

Forehead round promontory to the
north of Aberdeen Harbour bay.

16
NT192848
0.15 km
Mainly sand

Low edge (< 5 metres)
Raised beach and marine deposits

Sand covers foreshore over bed-rock base
round Pan rocks.

17
NT193850
0.5 km
Mainly sand

Raised beach and marine deposits

Coastal defences protect Winter Aberdeen
sea-front and harbour wall protects outer
harbour basin.

18
NT191852
0.5 km
Mainly sand

Cliff (> 5 metres)
Raised beach and marine deposits

Easter Aberdeen and Aberdeen harbour
basin.

19
NT196851
0.3 km
Mainly sand

Cliff (> 5 metres)
Raised beach and marine deposits

Outcrop east of Aberdeen foreshore com-
prising sand and shingle deposits.

20
NT199846
0.3 km
Mainly sand

Man made barrier

Drift, boulder clay over visible rock

Man made barrier protecting disused pit
and shorefront by Farra View. Visible
rock along coastal edge.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT185E13</td>
<td>DONIBRISTLE. STABLES. Good. Nil.</td>
</tr>
<tr>
<td>NT1658370</td>
<td>Dalgety Bay. Rough stone dyke or green. Uncertain. Nil.</td>
</tr>
<tr>
<td>NT1658355</td>
<td>Dalgety Bay. Building or Pier foating, now dismantled. Uncertain. Fair. Survey.</td>
</tr>
<tr>
<td>NT1728362</td>
<td>Dalgety Bay. Possible slipway, possibly a pipeline. Uncertain. Aerial photograph, unconfirmed on the ground. Nil.</td>
</tr>
<tr>
<td>NT1728370</td>
<td>Dalgety Bay. Coast Guard lookout and Pier. (Military?). Modern. Fair. Survey.</td>
</tr>
<tr>
<td>NT185E18</td>
<td>BRAEFOOT BAY. JETTY. 20th Century. No access. Nil.</td>
</tr>
</tbody>
</table>
Sites on Inchcolm Island

**NT185E7**
INCHCOML ABBEY
ABBEY
PROTECTED ANCIENT MONUMENT
12th Century
Not seen
Nil

**NT185E7.2**
INCHCOML ABBEY
CROSS-SLAB
PROTECTED ANCIENT MONUMENT
Early Christian
Not seen
Nil

**NT185E7.3**
INCHCOML ABBEY
HOG-HACKED TOMBSTONE
PROTECTED ANCIENT MONUMENT
16th Century
Not seen
Nil

**NT185E22**
INCHCOML ISLAND
BATTERIES
20th Century
Not seen
Nil

**Sites behind the foreshore at Aberdour (ABD)**

**NT185E24**
ABERDOUR; 6:8:10 MANSE STREET
HOUSES
Uncertain
Not seen
Nil

**NT185E26**
ABERDOUR; SEASIDE PLACE; ST HELENS
HOUSE
Uncertain
Not seen
Nil

**NT185E8**
ABERDOUN CASTLE
CASTLE
PROTECTED ANCIENT MONUMENT
Uncertain
Not seen
Nil

**NT185E25**
ABERDOUR; SEASIDE PLACE; CLACHAILG
HOTEL
Uncertain
Not seen
Nil
Sites along the coastal edge

**NT18NE39**
ABERDEEN HARBOUR
HARBOUR
17th - 19th Century
Fair
X

**NT18NE23**
ABERDEEN; HAWK CRAIG ROAD
ROMAN COIN; BARN: TITHE
7th Century
Not seen
X

**NT988848S**
Aberton
Wooden pier, stone pier (dismantled) and a wooden slip-way
17th - 19th Century
Fair
Survey

**NT18SE11**
HAWK CRAIG
FLINT ARROWHEAD
Uncertain
Not seen
X

---

Marianne Fife

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Historic Scotland
MAP 8 - ABERDOUR TO BURNTISLAND

- Built heritage and archaeology - There are several sites located on Hawkeraig Point which probably have military origins and of them a modern lighthouse which erected on military hard standing (NT20188493) and a second complex of concert building foundations (NT10108490) require further survey work. While the harbours at Starleyburn (NT280W63) and Carron (NT29NW64,64.1) have been recorded previously and were seen to be in fair condition at the time of survey, an unrecorded and collapsing stone building on the side of the railway at Kirkton (NT21018596) requires further survey work. Aerial photographs indicated the existence of a rectangular structure (NT29282864) on the rocks of Ross Point but this was not identified by the field team. Except for its eastern and western boundaries, Burntisland dockyard was inaccessible but it is worth noting that while the existing harbour buildings and layout are of fairly recent date, the importance of Burntisland as a port since the 16th century suggests that the harbour is a subject of interest. The strategic importance of the town is further reinforced by the existence of Cromwellian forts at Tickness Point (NT88NW32) and East Head (NT88NW29). These latter sites together with a 20th century coast battery were not seen by the survey team. The collapsed stone structure of the 'Old Pier' at Burntisland (NT28NW65) was witnessed and this feature should be a matter for concern with further survey work required.

- Hinterland geology and coastal geomorphology; Erosion class - Between Hawkeraig Point and Burntisland, sand dominates the foreshore except for localised sections on Hawkeraig Point (Geology Unit 1) itself and on the western side of Burntisland dockyard (Geology unit 3) where bed-rock outcrops are exposed along a widespread area. Except for the boundaries of Burntisland dockyard which has largely been built on reclaimed land, most of the coastal edge is unprotected.
MAP F: ABERDOUR TO HURSTINLAND

1
NT220849
0.4 km
Eroding or stable
Hawk craig point may be eroding

2
NT240853
0.5 km
Definitely accreting
Sand building up in Silver sands Bay

3
NT299857
1.5 km
Stable
Coastal defence along shore fronted by bedrock outcrops

4
NT217859
0.3 km
Definitely accreting
Sediment accreting on western side and outer face of harbour wall

5
NT220859
0.4 km
Accreting or stable
Sediment may be accreting amongst bedrocks to east of harbour wall

6
NT258857
0.3 km
Stable
Coastal defence at western side of Burntisland dockyard boundary

7
NT244856
0.7 km
Eroding or stable
Rocky promontory 'Ross Point'

8
NT212853
1.7 km
Not seen
Access not allowed to Burntisland Dockyard

9
NT239856
0.5 km
Eroding or stable
Headland of sand and rocky outcrops may be eroding

10
NT218860
0.6 km
Definitely accreting
Sand is accreting on eastern side of Burntisland peninsula

11
NT243863
0.3 km
Stable
Vilage itself is disappated but coastline appears stable, protected by coastal defence.
### MAP 8: ABERDOUR TO BURNTISLAND

#### GEOLOGY UNITS

<table>
<thead>
<tr>
<th>Location</th>
<th>Details</th>
</tr>
</thead>
</table>
| NT202849 | 0.6 km  
Mainly rock platform  
Clay (> 5 metres)  
Drift, boulder clay over visible rock  
Rock platform on foreshore of Hawkcraig Point with low cliffs behind. |
| NT205857 | 1.1 km  
Mainly sand  
Low edge (< 5 metres)  
Drift, boulder clay over visible rock  
Sand accumulating on foreshore with low coastal edge behind. |
| NT216859 | 1.2 km  
Mainly rock platform  
Low edge (< 5 metres)  
Drift, boulder clay over visible rock  
Rocky platform on the foreshore west of Kirkton. |
| NT222858 | 0.5 km  
Mainly rock platform  
Man made barrier  
Reclaimed land  
Reclaimed land exists either side of Ross Point promontory and the whole of the dockyard complex is protected by a sea-wall. |
| NT224857 | 0.4 km  
Mainly rock platform  
Man made barrier  
Drift, boulder clay over visible rock  
Narrow finger of boulder clay and visible bed rock to Ross Point |
| NT232853 | 1.2 km  
Mainly sand  
Man made barrier  
Reclaimed land  
The coastal geomorphology outside Burntisland dockyard complex consists of sand overlying bedrock which is visible in parts (i.e. at Lammerlaws). |

---

The sea-front of east Burntisland comprises blown sand protected by a sloping concrete sea-wall with intermittent groynes to retain beach sediment. There is a debris rock field around the collapsing 'Old Pier'.

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Historic Scotland
Sites along the coastal edge:

- NT2233864 Foxtonland Rectangular structure built on rocks Uncertain Aerial photograph unconfirmed on the ground Survey

Sites behind the foreshore at Burntisland (BURN IT):

- NT289822 ROSESEND CASTLE TOWER-HOUSE 17th Century Not seen Nil

- NT289823 EAST BROOM HILL, EAST TIMBERS 17th Century Not seen Nil

- NT289825 BURNTISLAND-KIRKTON-OLD PARISH CHURCH CHURCH PROTECTED ANCIENT MONUMENT Uncertain Not seen Nil

- NT289826 BURNTISLAND ROSENDEN GARDENS ARCHWAY Uncertain Not seen Nil

- NT289827 BURNTISLAND SEAFORETH PLACE, ROYAL HOTEL HOPE Uncertain Not seen Nil

- NT289829 BURNTISLAND EAST HEAD FORT. CROMWELIAN ARCHITECTURAL SITE OF REGIONAL IMPORTANCE Mid 17th Century Not seen Nil

Sites along the coastal edge:

- NT289830 BURNTISLAND HARBOUR Uncertain Not seen Nil

- NT289831 BURNTISLAND, RAILWAY STATION RAILWAY STATION PROTECTED ANCIENT MONUMENT AND LISTED BUILDING Mid 19th Century Not seen Nil

- NT289832 BURNTISLAND HARBOUR, HWINSEN CRAIG FIER 17th Century No access Nil

- NT289833 BURNTISLAND HARBOUR, CROMWELLIAN CRANES Uncertain No access Nil

- NT289834 BURNTISLAND, EAST HEAD FORT. CROMWELIAN ARCHITECTURAL SITE OF REGIONAL IMPORTANCE Mid 17th Century Not seen Nil
• Built heritage and archaeology - The wide expanse of sand foreshore in Burntisland Bay is covered in wooden posts which have been set into square concrete bases. These have been arranged in lines and squares and were probably used as glider traps to prevent an airborne invasion of the Firth of Forth during World War 2. The survey team experienced difficulties in identifying the precise configuration of these traps and further recording work is therefore necessary. This could be achieved by aerial photography from fairly low levels, or alternatively by E.D.M. survey. There may also be a series of fish-traps at different locations on the beach. However, except for a probable fish trap site on the south side of Black Rocks, in most cases it was impossible to identify conclusively which were fish-traps and which were glider traps. The most interesting sites on Kinghorn Ness include Pettycur Harbour with a fine iron capstan at its head (NT28NE43:43.2) the tidal gauge at the Ness (NT271862), and a pillbox (NT26708612). The coast battery at NT28NE47 was not seen by the team.

• Hinterland geology and coastal geomorphology; Erosion class - The largest accumulation of sand within the survey area occurs between Burntisland and Kinghorn where low water exposes a northeast-southwest orientated bar extending from near the coast at “The Bents” towards and some way beyond Black Rocks. The general impression is that the coastline experiences long shore drift of material resulting from waves approaching from the north east. There are localised areas of shingle and gravel accumulation particularly high up on the foreshore near Old Pier. Some of the material may have eroded from the disintegrating stone pier structure. There are also localised areas of erosion particularly at the exposed Lannermuir point and Carlinhead (Erosion Unit 9).
MAP 9: BURNTISLAND TO KINGHORN

EROSION UNITS

1
NT246864
0.7 km
Stable
Coastline appears stable, protected by coastal defence.

2
NT251864
0.2 km
Eroding or stable
Localised erosion taking place at the coastal defence.

3
NT253863
0.2 km
Accreting or stable
Shingle and sand beach is accreting.

4
NT257863
0.5 km
Eroding or stable
Cliffs below Holiday Park are eroding and shoreline is accreting.

5
NT261863
0.3 km
Stable
Rock outcrops and rocky shoreline are stable.

6
NT264863
0.4 km
Accreting or stable
Petticoar Harbour may be silting up.

7
NT268861
0.2 km
Stable
Rocky shoreline east of Petticoar harbour wall appears stable.

8
NT269862
0.3 km
Both accreting and eroding
Cliffs eroding and shoreline below may be accreting.

9
NT271868
0.5 km
Eroding or stable
Coastline by Carlisthead rocks may be eroding.

10
NT271868
0.3 km
Accreting or stable
Sandy shore of Kinghorn Harbour may be accreting.
MAP 9: BURNTISLAND TO KINGHORN

GEOLoGY UNITS

1
NT244864
0.2 km
Mainly sand
Man-made barrier
Blown sand
Sea wall continues along sea-front protected coastal edge of Blown sand material. Intertidal zone east to Black Rocks consists of fine sand, presumably eroding from the coastal edge or being deposited by longshore drift from coastal areas to the east.

2
NT247864
0.3 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock
Localised area of boulder clay coastal edge.

3
NT249964
0.2 km
Mainly sand
Low edge (< 5 metres)
Blown sand
Unprotected coastal edge of Blown sand forming dunes in places. Shoreline behind begins to rise towards the east.

4
NT253864
0.5 km
Mainly sand
Cliff (> 5 metres)
Blown sand
High cliffs below Kingswood End recede behind the coastal edge further east.

5
NT259865
0.6 km
Mainly sand
Low edge (< 5 metres)
Blown sand
Dunes and sandy beach visible at the shores with localised bedrock outcrops visible along the intertidal zone to the east of this section.

6
NT264863
0.2 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock
Coastal edge turns south east to form Pettycur Bay with sand accumulating behind harbour wall structures.

7
NT266862
0.1 km
Mainly sand
Man-made barrier
Drift, boulder clay over visible rock
Stone harbour wall shelters Pettycur harbour.

8
NT265861
0.3 km
Mainly rock platform
Man-made barrier
Drift, boulder clay over visible rock
Foreshore is a rock platform and houses have been built on boulder clay close to a coastal edge which rises from Pettycur harbour towards Kinghorn Ness.

9
NT271863
0.5 km
Mainly rock platform
Cliff (> 5 metres) with coastal defence
Drift, boulder clay over visible rock
High cliffs of boulder clay mostly protected at base by coastal defence measures. Foreshore of rocky platform and shingle.

10
NT270868
0.5 km
Mainly sand
Man-made barrier
Drift, boulder clay over visible rock
Sandy foreshore with coastal edge
Sandy foreshore in Kinghorn harbour with protected seafront behind.
<table>
<thead>
<tr>
<th>NT28NE8</th>
<th>KINGHORN, DOMINICAN PRIORY</th>
<th>ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE.</th>
<th>15th Century</th>
<th>Not seen</th>
<th>Nil</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT28NE15</td>
<td>KINGHORN HOSPITAL; CHAPEL</td>
<td>15th Century</td>
<td>Not seen</td>
<td>Nil</td>
<td></td>
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<tr>
<td>NT28NE18</td>
<td>KINGHORN BRONZE SPREADHEAD</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
<td></td>
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<tr>
<td>NT28NE38</td>
<td>KINGHORN GAS HOLDER STATION</td>
<td>Gas Holder Station</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NT28NE14</td>
<td>KINGHORN CINERARY URN</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
<td></td>
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<tr>
<td>NT28NE25</td>
<td>KINGHORN; 28-32 NETHERGATE HOUSES</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>NT28NE10</td>
<td>KINGHORN COIN HOARD</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
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</tbody>
</table>

Sites along the coastal edge

<table>
<thead>
<tr>
<th>NT26708612</th>
<th>Kinghorn</th>
<th>Pillbox</th>
<th>Mid 20th Century</th>
<th>Fair</th>
<th>Survey</th>
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<tbody>
<tr>
<td>NT26758608</td>
<td>Kinghorn</td>
<td>Jetty</td>
<td>17th - 19th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NT28NE47</td>
<td>KINGHORN BATTERY COAST BATTERY</td>
<td>20th Century</td>
<td>Not seen</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>NT271062</td>
<td>Kinghorn Tidal Gauge</td>
<td>Tidal Gauge</td>
<td>Uncertain</td>
<td>Fair</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Sites on the coastal edge at Burntisland

<table>
<thead>
<tr>
<th>NT260660</th>
<th>Burntisland</th>
<th>Area of gillnet traps, and fish traps.</th>
<th>Mid 20th Century</th>
<th>Fair</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT28NE12</td>
<td>ALEXANDER III MONUMENT; KINGSWOODEND MONUMENT</td>
<td>20th Century</td>
<td>Not seen</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>NT28NE43.0</td>
<td>KINGHORN; PETTYCUR HARBOUR HARBOUR</td>
<td>17th - 19th Century</td>
<td>Fair</td>
<td>Monitor</td>
<td></td>
</tr>
<tr>
<td>NT28NE43.1</td>
<td>PETTYCUR HARBOUR; CAPSTAN CAPSTAN</td>
<td>17th - 19th Century</td>
<td>Fair</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>NT28NE45.2</td>
<td>PETTYCUR HARBOUR CANNON, 19th Century</td>
<td>Not seen</td>
<td>Nil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sites behind the foreshore at Kinghorn (KING)

<table>
<thead>
<tr>
<th>NT28NE37</th>
<th>KINGHORN BURGH; TOWN</th>
<th>Uncertain</th>
<th>Not seen</th>
<th>Nil</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT28NE48.0</td>
<td>PETTYCUR BATTERY COAST BATTERY</td>
<td>20th Century</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
</tbody>
</table>
Built heritage and archaeology

- Kinghorn harbour is protected from the sea by the narrow promontory of Abden and Skellies Rocks. In the shelter of the harbour area, there are several sites of interest. The remains of a 16th century burial site were located by contractors and a subsequent watching brief was carried out with the removal of human bones, pottery and fabrics (Mackenzie 1994). There was no evidence of this site on the survey walk and, set back behind a protected coastal edge as the site is, coastal erosion should not present a problem. The same is true for the ruined 13th century Kinghorn Old Parish Church (NT28NE11) and the nearby but more recent modern parish church of Kinghorn (NT28NE36). The coastal sector between Abden Rocks and Seafield Tower was not walked. Seafield Tower (NT28NE5) itself probably dates from the early 16th century and is now a shell in need of repair. The coast edge is close to the east walls of the castle structure and evidence of erosion on a midden next to the Tower suggests that erosion of the castle structure itself may occur within the next five years or so. The site and the associated midden should therefore be surveyed and periodically monitored. The remaining sites on this sector are most probably associated with the activities of Seafield colliery and consist of a masonry wall visible in an ending face (NT28008919), a substantial sea-wall and pier structure (NT27908935) with associated concrete beacon stance (NT28028920) which presumably protected the colliery workings.

Hinterland geology and coastal geomorphology

- Erosion class - Apart from the short section of sheltered bay which forms Kinghorn harbour, the foreshore of this sector is exposed to the east and retains little sediment cover except in localised indentations and rock-cuts which act as catchment zones for sand and shingle. Behind the coastal edge, the rock promontory of Kinghorn Ness with its high coastal edge descends after Kinghorn to form a low coastal edge. In the vicinity of Seafield Colliery (Geology units 3-6), there has been substantial human interference in the form of land-fill of colliery waste behind the coastal edge and also in the deployment of short sections of sea-wall to protect the colliery workings.
1
NT277877
1.9 km
Not seen
*Section not walked.*

2
NT280888
0.7 km
*Both accreting and eroding*
Erosion of low cliff line undermined by wave action and
accretion of sediments on some parts of a rocky shoreline.

3
NT279895
0.8 km
Stable
Rocky shoreline is stable - some sections of coastal defence
along shoreline in front of Seaford Colliery.
**KEY**

<table>
<thead>
<tr>
<th>Erosion class</th>
<th>Interpretation colour</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely Accreting</td>
<td>wheat-yellow</td>
<td>yellow</td>
</tr>
<tr>
<td>Accretion or Stable</td>
<td>light blue</td>
<td>light blue</td>
</tr>
<tr>
<td>Stable</td>
<td>light green</td>
<td>green</td>
</tr>
<tr>
<td>Eroding or Stable</td>
<td>orange</td>
<td>orange</td>
</tr>
<tr>
<td>Definitively Dismantle</td>
<td>dark</td>
<td>dark purple</td>
</tr>
<tr>
<td>Both accreting and eroding</td>
<td>light purple</td>
<td>light purple</td>
</tr>
<tr>
<td>No access</td>
<td>black</td>
<td>black</td>
</tr>
<tr>
<td>Landscape Elm</td>
<td>wheat-yellow</td>
<td>yellow</td>
</tr>
</tbody>
</table>

Maritime Före  
Historic Scotland
1
NT272870
0.5 km
Mainly rock platform
Man made barrier
Drift, boulder clay over visible rock
Rocky foreshore to the south east and east of Kinghorn by Abden Rocks and Skillicies Rocks. Sea-wall along the coastal edge.

2
NT272881
1.7 km
Mainly rock platform
Low edge (< 1 metres)
Drift, boulder clay over visible rock.
Although this section was not walked, British Geological Society Drift Maps suggest that the foreshore of this section consists of a rocky platform, with shingle and boulder debris and a low coastal edge behind.

3
NT278891
0.2 km
Mainly rock platform
Low edge (< 5 metres)
Blown sand
Rocky foreshore continues with hinterland geology changing to blown sand.

4
NT279893
0.3 km
Mainly rock platform
Man made barrier
Blown sand
Localised concrete sea-wall to protect Seafield Colliery.

5
NT279896
0.4 km
Mainly rock platform
Human disturbance
Blown sand
Land-fill from Seafield colliery makes up the coastal edge.

6
NT279899
0.2 km
Mainly sand
Human disturbance
Blown sand
The deposition of land-fill along the coastal edge is wildevident but sand has accumulated on a rocky foreshore, probably originating from the beach systems further to the north east.
MAP 10: KINGHORN LINKS TO LONG CRAIG

BUILT HERITAGE AND ARCHAEOLOGY UNITS

Sites along the coastal edge

NT27904638
Kinghorn Pillbox
Mid 20th century
Fair
Survey

NT28NE 49
KINGHORN, THE PROMENADE
BURIAL
16th Century uncertain
Not seen
Monitor

NT27050809
Kinghorn
Kinghorn RNLI slip-way
19th - 20th Century
Fair
Nil

NT27089885
Kinghorn
Slip-way
Uncertain
Fair
Nil

NT28NE11
KINGHORN, OLD PARISH CHURCH
CHURCH
PROTECTED ANCIENT MONUMENT
12th Century
Fair
Nil

NT28NE36
KINGHORN PARISH CHURCH
CHURCH
Uncertain
Not seen
Nil

NT28NE17
SEAFIELD TOWER
BRONZE ARMLET
Uncertain
Not seen
Nil

NT28NE5
SEAFIELD TOWER
TOWER, and midden in the eroding face
PROTECTED ANCIENT MONUMENT
Early 16th Century
Poor
Monitor

NT28008918
Seafield
Stone wall and brick foundation in the eroding face
Uncertain
Poor
Nil

NT28020920
Seafield Colliery
Concrete breakwater for the colliery beacon
Modern
Poor
Nil

NT27908935
Seafield Colliery
Sea wall and pier, part of old colliery complex
19th - 20th century
Fair
Nil

NT27938881
Kinghorn
2 coneseat tank traps
Mid 20th century
Fair
Nil
Built heritage and archaeology - The only visible sites along the foreshore by Kirkcaldy are a series of tank traps which have been reused possibly as a defence against erosion (NT27929012), Kirkcaldy Harbour and harbour caisson (NT295E44;44.1) and Kirkcaldy Harbour Maltings (NT295E68). A late 16th century dovecot (NT295E10) and Ravenst craig Castle (NT295E11) occupy cliffs on sites overlooking Kirkcaldy Sands. This 15th-16th century castle built for Mary of Gueldres, Queen to James II, represents one of the earliest attempts to provide for defence by and from artillery (Walker and Ritchie 1987, 105). The town of Dysart has long had associations with the fishing and coal mining industries. Remains of one older harbour by Partan Craig (NT39SW20: site description 6) and a second more recent harbour (NT39SW21) are reminders of the maritime connections of the town.

Hinterland geology and coastal geomorphology: Erosion class - From the eastern boundary of this sector, Link and Kirkcaldy sands extend for approximately kilometres along Kirkcaldy sea-front to Kirkcaldy harbour. At the north end of Pathead sands, a low coastal edge rises steeply to form cliffs, a topographical variation reflected by a change from blown sand and raised beach to drift, boulder clay over visible rock. The resulting rock promontory and cliffs (c. 15 metres O.D.) stretch from Ravens craig Castle round to Ravens craig Park before the coast edge descends once again southwest of Dysart Harbour. Substantial land-fill has occurred north east of Dysart town originating from the workings of the colliery. The presence of sand beaches and a sea-wall along the sea-front at Kirkcaldy suggest that sediments may be accreting along most of this sector. Exceptions include some areas of the cliff at Ravens craig Park (Geology unit 9) where erosion of the cliff face is visible with resulting deposition of material onto the foreshore. The same is true is-front of the Dysart colliery workings (erosion unit 13) where erosion of the low coastal edge is resulting in the deposition of land-fill material onto the foreshore.
1
NT279901
0.1 km
Accreting or stable
Sand and shingle foreshore may be accreting.

2
NT279902
0.1 km
Definitely accreting
Sand and shingle foreshore is definitely building up.

3
NT282910
1.6 km
Accreting or stable
Kirkcaldy and Link Sands backed by hard coastal defence.

4
NT286918
0.2 km
Stable
No access to Kirkcaldy harbour walls and inner harbour but they appear to be stable.

5
NT288922
0.5 km
Definitely accreting
Pittenhead Sands and sand dunes are building up on the north side of Kirkcaldy Harbour East Pier.

6
NT289923
0.2 km
Accreting or stable
Sand写字楼 are accreting at the north eastern end of Pittenhead Sands.

7
NT291924
0.1 km
Stable
Ravenscraig Sands appear stable.

8
NT292925
0.1 km
Accreting or stable
The sands below Ravenscraig Castle may be building up.

9
NT293924
0.2 km
Both accreting and eroding
The shoreline appears to be accreting but a low cliffline below Ravenscraig Park and Ravenscraig Castle Dovecot is gradually eroding.

10
NT298924
1.0 km
Accreting or stable
Shingle foreshore with rocky outcrops below Ravenscraig Park and sand around White Craig may be accreting. The same is the case for Dysart Harbour.

11
NT303928
0.2 km
Both accreting and eroding
The foreshore north east of Dysart harbour wall appears to be accreting but the low coastal edge comprising sandfill may be eroding.

12
NT306932
0.6 km
Definitely accreting
Shingle appears to be building up along Dysart sea-front.

13
NT309935
0.4 km
Both accreting and eroding.
The foreshore appears to be accreting but the low coastal edge comprising sandfill may be eroding.
MAP 11: SEAFIELD COLLIERY TO DYSART

GEOLOGY UNITS

1
NT278902
6.3 km
Mainly sand
Man-made barrier
Blown sand in front of raised beach and marine deposits
The northern end of a long sea-wall protecting Kirkcaldy sea-front.

2
NT279904
0.1 km
Mainly sand
Man-made barrier
Blown sand in front of mixed beach and marine deposits with alluvium from river basin.
Localised deposits of alluvium in the hinterland from the ancient route of a river.

3
NT282911
1.5 km
Mainly sand
Man-made barrier
Blown sand in front of raised beach and marine deposits.
Link Sands and Kirkcaldy Sands consist of fine grained sand. Kirkcaldy Harbour and sea-front are all protected by sea-walls.

4
NT289921
0.5 km
Mainly sand
Low edge (< 5 metres)
Blown sand in front of raised beach and marine deposits
Un-protected section of coast by Fathhead sands

5
NT292924
0.5 km
Mainly sand
Cliff (> 5 metres)
Drift, boulder clay over visible rock with raised beach and marine deposits
Ravenscraig Bay consists of sand and shingle with bedrock outcrops, and a high coastal edge behind consists of bedrock with a boulder clay covering

6
NT296924
0.3 km
Mainly rock pavement
Cliff (> 5 metres)
Drift, boulder clay over visible rock with raised beach and marine deposits
Ravenscraig Park, east of Dysart Harbour.

7
NT299926
0.4 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock with raised beach and marine deposits
A sandy foreshore fronts a low coastal edge comprising boulder clay with bedrock visible in places

8
NT302927
0.1 km
Mainly sand
Man-made barrier
Drift, boulder clay over visible rock with boulder clay behind.
Dysart Harbour walls

9
NT304928
0.1 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock with raised beach deposits behind.
East of Dysart Harbour.

9
NT304926
0.2 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock with boulder clay behind.
Sand and shingle foreshore by Persoon Craig.

10
NT307934
0.8 km
Mainly sand
Human disturbance
Drift, boulder clay over visible rock with boulder clay behind.
Land-fill on the coastal edge from mining industries.
<table>
<thead>
<tr>
<th>Site Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sites behind the foresore at Kirkcaldy (KIRK)</strong></td>
<td></td>
</tr>
<tr>
<td>NT29SE57</td>
<td>KIRKCALDY, EAST PORT GATE</td>
</tr>
<tr>
<td>NT29SE67</td>
<td>KIRKCALDY, EAST BIRDIE FELLS, MIELES AND HARBOUR</td>
</tr>
<tr>
<td>NT29SE70</td>
<td>KIRKCALDY, NAIRN STREET WATCHING BREEF POTTERY</td>
</tr>
<tr>
<td>NT29SE73</td>
<td>KIRKCALDY, NETHER STREET, SCOTTISH FLOOR-CLOTH WORKS WORKS</td>
</tr>
<tr>
<td><strong>Sites along the coastal edge</strong></td>
<td></td>
</tr>
<tr>
<td>NT29SR01</td>
<td>KIRKCALDY, NUMEROSA</td>
</tr>
<tr>
<td>NT29SF44.1</td>
<td>KIRKCALDY HARBOUR, CAPTAINS</td>
</tr>
<tr>
<td>NT29SF44</td>
<td>KIRKCALDY HARBOUR</td>
</tr>
<tr>
<td>NT29SE68</td>
<td>KIRKCALDY, HARBOUR MALTINGS MALTINGS</td>
</tr>
<tr>
<td>NT29SE61</td>
<td>RAWNSCRAIG CASTLE, CASTLE</td>
</tr>
<tr>
<td>NT29SE10</td>
<td>RAVENSCRAIG DOOCOT DOOCOT LISTED BUILDING</td>
</tr>
<tr>
<td>NT29SW24</td>
<td>DYSTART</td>
</tr>
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<td><strong>Sites behind the foresore at Dystart (DYS)</strong></td>
<td></td>
</tr>
<tr>
<td>NT29SW17</td>
<td>DYSTART HOUSE</td>
</tr>
<tr>
<td>NT29SW22</td>
<td>DYSTART</td>
</tr>
<tr>
<td>NT29SW18</td>
<td>DYSTART, 1 PAN HA, BAY HORSE INN</td>
</tr>
<tr>
<td>NT29SW19</td>
<td>DYSTART, 1-2 SHORE ROAD, THE ANCHORAGE</td>
</tr>
<tr>
<td>NT29SW3</td>
<td>DYSTART, SAINT DENNIS CHAPEL</td>
</tr>
<tr>
<td><strong>Sites along the coastal edge</strong></td>
<td></td>
</tr>
<tr>
<td>NT29SW21</td>
<td>DYSTART HARBOUR</td>
</tr>
<tr>
<td>NT29SW20</td>
<td>DYSTART OLD HARBOUR</td>
</tr>
<tr>
<td>NT29SW15</td>
<td>DYSTART, SHORE ROAD, SAINT SEDERS CHURCH</td>
</tr>
</tbody>
</table>
- **Built heritage and archaeology** - The coast edge north-east of Dysart town displays numerous sites originating from the colliery workings which run parallel to the shoreside just short of Chapel Wood and then between West and East Wemyss (NT39NW11,23). Regarding individual sites, Frances Colliery (NT39SW25) is a Listed Building and it appears to be in poor condition requiring a survey. There are numerous buildings associated with the coal workings (NT31459408, NT31209380, NT70759345) and all of these are in poor condition, and because they are not listed in the NMRS, a thorough survey of these features is required. The same is true for a collection of colliery trucks and engine which are located next to some stanchions for a narrow gauge site (NT30959355). West Wemyss harbour (NT39SW5; site description 6) appears to be in fairly stable condition. The coastline around the villages of East and West Wemyss is most notable for its sandstone caves. A cave at West Wemyss (NT3009515) does not appear to be on the NMRS and a survey of this is therefore recommended. The caves situated in the sandstone cliffs to the north east of East Wemyss have long been of interest to archaeology as a source of Pictish carvings dating broadly to the 1st Millennium AD (Walker and Ritchie 1987,146) and these have been widely recorded and researched (NT39NW7,10,4,28,27,9,31,8,15). While the caves appear to be stable at present, the boulder defences along the coast edge parallel to the caves may be experiencing erosion and this is a cause for concern. In the first instance, baseline erosion survey measurements are required between East Wemyss and East Wemyss Gasworks (NT39NW20) to assess whether erosion does represent a concern even to protected sections of the coast edge.

- **Hinterland geology and coastal geomorphology: Erosion class** - Where colliery workings border the coastal edge, much of the natural geological base has been covered by colliery land-fill (Geology units 1, 2, 3, 10, 11). There are localised sections of coastal defence (Geology units 6,8,15) but for the most part the coastal edge is unprotected. This coastal sector is probably the most threatened by erosion which is particularly bad around the shoreline of East Wemyss and some unprotected sections to the north of the village (Erosion units 2,11,13).
EROSION UNITS.

1
NT314939
0.8 km
Both accreting and eroding

The foreshore appears to be accreting but the low coastal edge comprising colliery land-fill may be eroding.

2
NT317944
0.2 km
Definitely eroding
Coastal edge north east of Frances Colliery.

3
NT318945
0.5 km
Accreting or stable
Shingle beach with sections of colliery land-fill behind.

4
NT322947
0.2 km
Both accreting and eroding
Coastal edge comprising land-fill may be eroding but sediment appears to be accreting on the beach.

5
NT325946
0.6 km
Stable
Eroding face protected by sea-wall.

6
NT329949
0.3 km
Both accreting and eroding
Build up of shingle on the beach and possible erosion of the low coastal edge behind.

7
NT331953
0.4 km
Eroding or stable
Beach may be eroding south east of a concrete wall groin on the beach.

8
NT339955
0.2 km
Accreting or stable
Beach may be accreting north east of a concrete wall groin on the beach.

9
NT335958
0.6 km
Both accreting and eroding
Colliery land-fill over mine may be eroding along the coastal edge with sediment build up along the shore.

10
NT338963
0.4 km
Eroding or stable
Land-fill along coastal edge may be eroding along a shorefront that is partially protected by boulder coastal defence.

11
NT341967
0.4 km
Definitely eroding
Unprotected shorefront.

12
NT343969
0.3 km
Stable
Due to boulder coastal defence measures.

13
NT345972
0.5 km
Eroding or stable
Partially protected boulder defences may be eroding away.
MAP 12: DYSART TO MACDUFF’S CASTLE

GEOLOGY UNITS

1
NT312937
0.3 km
Mainly sand
Human disturbance
Drift, boulder clay over visible rock with boulder clay behind
Land fill from the mining industries along the coastal edge with a shingle and sand foreshore.

2
NT313939
0.1 km
Mainly sand
Human disturbance
Drift, boulder clay
The hinterland geology comprises boulder clay which has been exposed at this point on the coastal edge, where signs of human disturbance are visible too.

3
NT314942
0.2 km
Mainly sand
Human disturbance
Drift, boulder clay over visible rock with boulder clay behind
Debris land-fill in front of Frances and Blair collieries.

4
NT318946
0.8 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock with boulder clay behind
Foreshore comprises sand and shingle with a low coastal edge round to a bay formed by the promontory dominated by the village of West Wemyss.

5
NT323946
0.1 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock with boulder clay and raised beach deposits behind
Raised beach deposits behind the coastal edge.

6
NT36946
0.6 km
Mainly sand
Man made barrier
Drift, boulder clay over visible rock with raised beach and boulder clay deposits behind.
Concrete jetty, harbour walls, and sea-wall protect the village of West Wemyss.

7
NT310950
0.8 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock with raised beach and boulder clay deposits behind.
Foreshore comprises sand and shingle with low coastal edge of boulder clay deposits and a raised beach and degraded cliff behind.

8
NT332953
0.1 km
Mainly sand
Man made barrier
Drift, boulder clay over visible rock
Large coastal defence groynes on beach controlling movement of sediment along foreshore.

9
NT332954
0.2 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock with boulder clay deposits behind.
Continuation of sand and shingle on foreshore with low coastal edge behind.

10
NT336948
0.9 km
Mainly sand
Human disturbance
Raised beach and marine deposits
Land fill from mine consisting of wood, metal, coal dust and other scrap debris forms an un-protected coastal edge.
Foreshore consists mostly of sand with debris from the eroding coastal edge.

11
NT339963
0.1 km
Mainly sand
Human disturbance
Drift, boulder clay with raised beach and marine deposits behind.
Boulder clay deposits visible on the coastal edge where land-fill ends.

12
NT339965
0.3 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay with raised beach and marine deposits behind.
Foreshore of sand and shingle with a low coastal edge which is protected by a boulder revetment in parts, and unprotected in others.

13
NT342967
0.4 km
Mainly sand
Low edge (< 5 metres)
Raised beach and marine deposits with boulder clay behind.
Raised beach evident behind a foreshore protected in parts by boulder revetments. Caves in raised beach suggest active marine erosion in the past.

14
NT342969
0.1 km
Mainly sand
Man made barrier
Raised beach and marine deposits with boulder clay over visible rock behind.
Sea wall protecting part of the sea-front of East Wemyss.

15
NT344970
0.2 km
Mainly sand
Man made barrier
Drift, boulder clay over visible rock.
Boulder clay visible along the coastal edge with boulder revetments on the foreshore protecting coastal edge from erosion.

16
NT347973
0.6 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock.
Sand and shingle cover the intertidal zone with a low coastal edge of boulder clay behind which is slumping badly towards the north end of the section.
### Sites along the coastal edge

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
<th>Date</th>
<th>Assessment</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT30759345</td>
<td>Blair Point, Brick structure under edge of coal bing. Military?</td>
<td>Mid 20th Century</td>
<td>Poor</td>
<td>Survey, Monitor</td>
</tr>
<tr>
<td>NT30769345</td>
<td>Blair Point, Iron coal cart, narrow gauge</td>
<td>20th Century</td>
<td>Poor</td>
<td>Survey</td>
</tr>
<tr>
<td>NT30959355</td>
<td>Dyset, Colliery trucks and engine, by grauchions for narrow gauge line</td>
<td>20th Century</td>
<td>Fair</td>
<td>Survey</td>
</tr>
<tr>
<td>NT30999360</td>
<td>Dyset, Concrete tanktraps reused as coastal erosion defence.</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NT3099925</td>
<td>FRANCES COLLiERY, COAL MINE</td>
<td>LISTED BUILDING</td>
<td>20th Century</td>
<td>Poor</td>
</tr>
<tr>
<td>NT31209380</td>
<td>Blair Point, Brick structure under edge of coal bing, mining structure?</td>
<td>19th - 20th Century</td>
<td>Poor</td>
<td>Survey, Monitor</td>
</tr>
<tr>
<td>NT31459408</td>
<td>Blair Point, Dyset, Surface mining, (Coal) with stone/mortar buildings in section</td>
<td>17th - 19th Century</td>
<td>Poor</td>
<td>Survey</td>
</tr>
</tbody>
</table>

---

**Map 12: Dysart to Macduff's Castle**

**Built Heritage and Archaeology Units**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
<th>Date</th>
<th>Assessment</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT30759345</td>
<td>Blair Point, Brick structure under edge of coal bing. Military?</td>
<td>Mid 20th Century</td>
<td>Poor</td>
<td>Survey, Monitor</td>
</tr>
<tr>
<td>NT30769345</td>
<td>Blair Point, Iron coal cart, narrow gauge</td>
<td>20th Century</td>
<td>Poor</td>
<td>Survey</td>
</tr>
<tr>
<td>NT30959355</td>
<td>Dyset, Colliery trucks and engine, by grauchions for narrow gauge line</td>
<td>20th Century</td>
<td>Fair</td>
<td>Survey</td>
</tr>
<tr>
<td>NT30999360</td>
<td>Dyset, Concrete tanktraps reused as coastal erosion defence.</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
<tr>
<td>NT3099925</td>
<td>FRANCES COLLiERY, COAL MINE</td>
<td>LISTED BUILDING</td>
<td>20th Century</td>
<td>Poor</td>
</tr>
<tr>
<td>NT31209380</td>
<td>Blair Point, Brick structure under edge of coal bing, mining structure?</td>
<td>19th - 20th Century</td>
<td>Poor</td>
<td>Survey, Monitor</td>
</tr>
<tr>
<td>NT31459408</td>
<td>Blair Point, Dyset, Surface mining, (Coal) with stone/mortar buildings in section</td>
<td>17th - 19th Century</td>
<td>Poor</td>
<td>Survey</td>
</tr>
</tbody>
</table>

---

**NT30759345**

WEMYSS, CHAPEL GARDEN
CHAPEL (POSSIBLE), BUIRDAL ENCLOSURE
LISTED BUILDING AND ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
17th - 19th Century
Fair
Nil

**NT30769345**

WEMYSS, CHAPEL GARDEN
TOWER-HOUSE, TOWER, DOVECOTE (POSSIBLE)
LISTED BUILDING AND ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
17th - 19th Century
Fair
Nil

**NT30959355**

WEMYSS, CHAPEL GARDEN
TOWER-HOUSE, TOWER, DOVECOTE (POSSIBLE)
LISTED BUILDING AND ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
17th - 19th Century
Fair
Nil

**NT30999360**

WEMYSS, CHAPEL GARDEN
TOWER-HOUSE, TOWER, DOVECOTE (POSSIBLE)
LISTED BUILDING AND ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
17th - 19th Century
Fair
Nil

---

**Maritime Fife**

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Historic Scotland
<table>
<thead>
<tr>
<th>Reference</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT395W21</td>
<td>WEST WEMYSS VILLAGE</td>
<td>Uncertain Not seen Nil</td>
</tr>
<tr>
<td>NT395W8</td>
<td>WEMYSS, CHAPEL, GARDEN HOUSE</td>
<td>Uncertain Not seen Nil</td>
</tr>
<tr>
<td>NT395W6</td>
<td>WEST WEMYSS, 1-4 SHORE HEAD HOUSES</td>
<td>Uncertain Not seen Nil</td>
</tr>
<tr>
<td>NT395W27</td>
<td>WEST WEMYSS, COGSTOOL HOUSES</td>
<td>Uncertain Not seen Nil</td>
</tr>
<tr>
<td>NT395W11</td>
<td>WEST WEMYSS GASWORKS GASWORKS</td>
<td>Uncertain Not seen Nil</td>
</tr>
<tr>
<td>NT395W13</td>
<td>WEST WEMYSS TOLLBOOTH TOLLBOOTH</td>
<td>PROTECTED ANCIENT MONUMENT Early 18th Century Not seen Nil</td>
</tr>
<tr>
<td>NT395W7</td>
<td>WEST WEMYSS, 53 MAIN STREET HOUSE</td>
<td>Uncertain Not seen Nil</td>
</tr>
<tr>
<td>NT395W12</td>
<td>WEST WEMYSS; GAS HOLDER STATION</td>
<td>GAS HOLDER STATION Uncertain Not seen Nil Sites along the coastal edge</td>
</tr>
<tr>
<td>NT32859480</td>
<td>West Wemyss Tidal pool</td>
<td>Uncertain Fair Survey Nil</td>
</tr>
<tr>
<td>NT32759486</td>
<td>West Wemyss Fishermen’s boat huts, and boat winches</td>
<td>20th Century Fair Survey Nil</td>
</tr>
<tr>
<td>NT32809510</td>
<td>West Wemyss Wells visible in the eroding face</td>
<td>Uncertain Poor Monitor Nil</td>
</tr>
<tr>
<td>NT39NW14</td>
<td>WEMYSS CASTLE TOWER-HOUSE; HOUSE; DOVE-COTE</td>
<td>ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE Uncertain Fair Nil</td>
</tr>
<tr>
<td>NT32009515</td>
<td>West Wemyss Caves with carvings</td>
<td>Early Christian/Uncertain Fair Survey Nil</td>
</tr>
<tr>
<td>NT39NW12</td>
<td>WEMYSS CASTLE CROSS-SLAB</td>
<td>Uncertain Not seen Nil Sea defences 17th - 19th Century Fair Nil</td>
</tr>
</tbody>
</table>

Historic Scotland
Built heritage and archaeology - The gasworks at East Wemyss (NT39NW20) have been documented in more detail in site description 4. Nearby to this interesting industrial site a sandstone cave (NT39NW13) showing signs of habitation, and a midden (NT39NW21) have been recorded but these were not seen during the survey. The remainder of the sites in this sector comprise aspects of Buckhaven Oil Rig Construction Yard and Methil Dockyard. The yards themselves were not surveyed by the team because of prohibited access and because Methil Dockyard (NT375099950) may contain aspects of interest, a further survey is recommended of this area.

Hinterland geology and coastal geomorphology; Erosion class - To the north east of Macduff’s Castle there is a sloping hill of boulder clay which appears to be experiencing substantial landslip and erosion along its edge (Erosion unit 1). Land-fill along much of the coast-edge of Buckhaven promontory has covered up the natural geological base but has been deployed to stabilise erosion rates along the sea-front of the town. As the coastline progresses north-east, much of the coastal edge is protected by a sea-wall deployed to protect Buckhaven Oil Rig Construction Yard and Methil Dockyard which have mostly been constructed on reclaimed land.
MAP 13: MACDUFF’S CASTLE TO METHIL

EROSION UNITS.

1
NT349975
0.5 km
Definitely eroding
Unprotected shoreline eroding fairly rapidly with land-slip of steep clay slope behind.

2
NT354977
0.3 km
Accreting or stable
Land-fill along the shore and accretion of sand, coal dust and shingle along a sheltered fore-
shore.

3
NT356976
0.2 km
Both accreting and eroding.
Coastal edge comprising land-fill may be eroding with depression of sand, coal dust and shingle along a sheltered fore-
shore.

4
NT357975
0.2 km
Accreting or stable
Sea-wall protects the coastal edge while sand, coal dust and shingle may be accreting on the foreshore.

5
NT359976
0.3 km
Stable
Coastal defence sea-wall.

6
NT361979
1.0 km
Accreting or stable
Sea-wall protects the coastal edge and sediment may be building up on the foreshore.

7
NT329985
0.4 km
Not seen
Sea-walls at entrance to Buckhaven Harbour

8
NT371990
0.5 km
Accreting or stable
Sea-wall protects the coastal edge and sediment may be building up on the foreshore.

9
NT379995
1.5 km
Stable
Methil Harbour breakwater
MAP 13: EAST WEMYSS TO METHIL

GEOLOGY UNITS

1
NT351977
0.5 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay
Boulder clay forms a steep slope to a sand and shingle foreshore.
Evidence of land-slip and slumping of the clay onto the foreshore.

2
NT359977
1.1 km
Mainly sand
Human disturbance
Reclaimed land and boulder clay behind.
Land-fill along the coastal edge to prevent ongoing erosion of the
southern promontory and original entrance to old Buckhaven Har-
bour.

3
NT372990
3.0 km
Mainly sand
Man made barrier
Reclaimed land with raised beach and marine deposits, and boulder
clay deposits in the hinterland behind.
Long concrete sea-wall forms outer boundary to Buckhaven Oil Rig
Construction facility and Methil Dockyard. Both these facilities
have been built on reclaimed land which lies in front of a raised
beach.
MAP 13: MACDUFF'S CASTLE TO METHIL

BUILT HERITAGE AND
ARCHAEOLOGY UNITS

Sites along the coastal edge

NT30NW13
EAST WEMYSS: GASWORKS CAVE
CAVE; STONE; MORTAR;
ARCHAEOLOGICAL SITE OF REGIONAL
IMPORTANCE
Uncertain
Not seen
Nil

NT30NW20
EAST WEMYSS GASWORKS
GASWORKS, noted at brick and stone in the section
* See site description 4
Uncertain
Poor
Survey

NT30NW21
EAST WEMYSS CAVES
MIDDEN,
Uncertain
Not seen
Nil

NT35749765
Buckhaven
Sea-wall
Uncertain
Fair
Nil

NT35809776
Buckhaven
Concrete pier
19th-20th Century
Fair
Nil

NT36209810
Buckhaven
Tank traps, concrete
Mid 20th century
Fair
Nil

NT36509830
Buckhaven
Coal mine and bing, disused
19th Century
Fair
Nil

NT36709870
Methil
Shipparts
20th Century
Fair
Survey

NT37589950
Methil
Harbour, Docks, quay by Forth Harbour Co.
17th - 19th Century
Fair
Survey
• Built heritage and archeology - The main sites of interest on this short coastal sector are two foreshores sites on Leven Links. One is a U shaped wooden fish trap (NT38750075) in fair condition and one a stone cairn with visible cells (NT38790080) which may also be a fish trap. Both these sites need to be investigated further to confirm their origin.

• Hinterland geology and coastal geomorphology; Erosion class - At Leven, a broad band of sand foreshore stretches westwards towards Lundin Links and Largo Bay. Along the coastal edge, the drift geology comprises raised beach materials (Geology units 1, 3) and blown sand (Geology unit 4). There is also a localized accumulation of alluvium associated with the mouth of the River Leven (Geology Unit 2). While the majority of the coast edge is either accreting or stable, there is evidence that unprotected sections of blown sand coastal edge are been affected with resulting erosion of the coast edge causing deposition of sediments onto the foreshore (Erosion unit 3).
1
NO343003
0.5 km
Increasing or stable
Sea-wall protects the coastal edge and sediment
may be building up on the foreshore.

2
NO391612
2.4 km
Both accreting and eroding
Sand may be building up along the foreshore while
the coastal edge may be eroding.
MAP 14: LEVEN

GEOLOGY UNITS

1
NO383002
0.3 km
Mainly sand
Man-made barrier
Raised beach and marine deposits

Around the mouth of the River Leven, sand deposits have built up on the foreshore.

2
NO381904
0.1 km
Mainly sand
Man made barrier
Alluvium

From the basin of the mouth of the River Leven

3
NO386006
0.9 km
Mainly sand
Man made barrier
Raised beach and marine deposits
Sea-wall protects shore front as far as Leven Links.

4
NO394015
1.5 km
Mainly sand

Lown edge (< 5 metres)

Tideway sand with raised beach deposits behind.

Thick layer of sand on a rock platform with blown sand behind. Beach between here and Largo Bay in the east is the most extensive beach in the survey area.
# MAP 14: LEVEN

## BUILT HERITAGE AND ARCHAEOLOGY UNITS

### Sites along the coastal edge

<table>
<thead>
<tr>
<th>Code</th>
<th>Site</th>
<th>Feature Description</th>
<th>Periods</th>
<th>Condition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT38290030</td>
<td>Leven</td>
<td>Power Station</td>
<td>20th Century</td>
<td>Good</td>
<td>Nil</td>
</tr>
<tr>
<td>NT38300038</td>
<td>Leven</td>
<td>Wooden channel markers.</td>
<td>19th - 20th Century</td>
<td>Fair</td>
<td>Survey</td>
</tr>
<tr>
<td>NT38750075</td>
<td>Leven</td>
<td>U shaped wooden fish trap</td>
<td></td>
<td>Uncertain</td>
<td></td>
</tr>
<tr>
<td>NT38790080</td>
<td>Leven</td>
<td>Stone cairn with cells visible, possible fish trap</td>
<td></td>
<td>Fair</td>
<td>Survey, Monitor</td>
</tr>
<tr>
<td>NT38900105</td>
<td>Leven</td>
<td>4 concrete/wooden glider traps and sovereign stations</td>
<td>20th Century</td>
<td>Fair</td>
<td>Nil</td>
</tr>
</tbody>
</table>
MAP 15 - LUNDIN LINKS TO LGARO BAY

- **Built heritage and archaeology** - This coastal sector displays fairly good preservation of archaeological remains on the foreshore area and along the eroding face of the Links either side of Lower Largo and Lundin Links villages. Sites on the foreshore include coastal defences (NO40200195, NO40400225, NO40900245) and the harbour piers of Lower Largo (NO40500205, NO40500275). While a cairn covering a cist (NO4050018) could not be found amidst the sand dunes of Lundin Links, the Pictish Cut Burial at Lundin Links (NO4050013) was seen by the team and visible erosion of material from the site was identified as a cause for serious concern (see site description 4). East of Lower Largo Harbour, the majority of sites on the foreshore are fish-traps, either appearing as a U-shaped line of round wooden stakes embedded in the sand (NO41900245) or as metal and wooden posts in line (NO43400230). On the seafront towards the eastern end of Lower Largo, the gable ends of the Lower Largo Networks are visible (NO4050082) and they appear to be in fair condition. Other sites on the intertidal zone to the east of the networks include a series of coastal defence buildings and revetments (NO43300255) and one isolated metal mooring hoop set into bedrock on the edge of a natural rock cut (NO417500215).

- **Hinterland geology and coastal geomorphology** - The sand bay which stretches from Leven and Roddon's Point is at its narrowest pint at Lower Largo (NO4200024) where sediment only forms a thin and intermittent veneer across the intertidal rock platform, and widens to the west and east. The thin distribution of sand here suggests that sediment is removed and transported by natural processes eastwards where it has accumulated in Largo Bay itself. Most of the coast edge along Lower Largo seafront is stable, but the dune systems to the west and east of the town may be eroding, resulting in further deposition of sand onto the foreshore.
MAP 15: LUNDIN LINKS TO LARGO BAY

EROSION UNITS.

1

NO401022

0.5 km

Accreting or stable

Sand dunes may be eroding and sand building up on

Lundin Links beach.

2

NO406023

0.3 km

Accreting or stable

Sand may be accreting on the beach.

3

NO408024

0.1 km

Stable

4

NO409024

0.1 km

Accreting or stable

Localized build up of sand on foreshore

5

NO411024

0.1 km

Eroding or stable

Localized erosion of sand dunes

6

NO414025

0.6 km

Stable

Rocky foreshore and sea-wall protecting coastal edge.

7

NO423026

1.5 km

Accreting or stable

Sea-wall protecting coastal edge and build up of sand

along the upper shore with bed rock outcrops.

8

NO445019

1.4 km

Both accreting and eroding

Dunes eroding, sand accreting along the foreshore.
MAP 15: LUNDIN LINKS TO
LARGO BAY

GEOLOGY UNITS

1
NO405023
1.1 km
Mainly sand
Low edge (< 5 metres)
Blown sand
Sand beach continues in-front of a blown sand system,
and beach narrows to the west of this segment to consist
of a thin veneer of sand on intertidal rock.

2
NO413025
0.6 km
Mainly rock platform
Low edge (< 5 metres)
Blown sand
Beach is at its narrowest at this point with little sand
coverage. This suggests that currents transport sediment
eastwards to Largo Bay itself.

3
NO418026
0.4 km
Mainly sand
Man-made barrier
Raised beach and marine deposits
Limited sand over a rock platform with a raised beach
behind a protected shoreline.

4
NO423026
0.5 km
Mainly sand
Man made barrier
Blown sand
Sea-wall protecting Lower Largo sea-front continues to
Temple Hill.

5
NO437023
1.9 km
Mainly sand
Low edge (< 5 metres)
Blown sand
Sandy beach interspersed with rocky outcrops and low
dune system behind the foredune.
### MAP 15: LUNDIN LINKS TO LARGO BAY

**BUILT HERITAGE AND ARCHAEOLOGY UNITS**

Sites behind the foreshore at Lundin Links and Lower Largo (IL)

<table>
<thead>
<tr>
<th>Reference</th>
<th>Name and Address</th>
<th>Type</th>
<th>Date of Documentation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO40SW99</td>
<td>Lundin Links, 35-4 Links Rd.; Markenlea Court</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW98</td>
<td>Lundin Links; 31 Links Road; Weithall House</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW71</td>
<td>Lundin Links; Lower Largo; Drummochy Road; Drum Lodge House</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW69</td>
<td>Lower Largo; Fernbank; 40 Drummochy Road Cottage</td>
<td>Cottage</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW68</td>
<td>Lower Largo; Bankton Cottage; 30 Drummochy Road Cottage</td>
<td>Cottage</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW72</td>
<td>Lower Largo; Drummochy Rd; Covery Cottage Cottage</td>
<td>Cottage</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW73</td>
<td>Lower Largo; Drummochy Road Net House</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW70</td>
<td>Lower Largo; Bellevue &amp; Gullane View; Drummochy Rd Cottages</td>
<td>Cottage</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW77</td>
<td>Drummochy House; Lower Largo; 16 Drummochy Road House</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW66</td>
<td>Keilsdie Cottage; Lower Largo; Drummochy Rd House</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW86</td>
<td>Lower Largo; 2, 4 &amp; 6 Drummochy Road Houses</td>
<td>Houses</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW79</td>
<td>Lower Largo Railway Viaduct Archaeological Site of Regional Importance 19th Century</td>
<td>Site</td>
<td>Not seen: Nil</td>
<td></td>
</tr>
<tr>
<td>NO40SW74</td>
<td>Lower Largo, Cruide Hotel Hotel</td>
<td>Hotel</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW76</td>
<td>Lower Largo; Bridgeend House House; Outbuildings Uncertain</td>
<td>House</td>
<td>Not seen: Nil</td>
<td></td>
</tr>
<tr>
<td>NO40SW78</td>
<td>Lower Largo; 1 &amp; 3 Station House; Inn</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW77</td>
<td>Lower Largo; 5 &amp; 7 Station Wynd Houses</td>
<td>Houses</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW188</td>
<td>Lower Largo; 1 - 9 Main Street Terraced Houses; Shop</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW87</td>
<td>Lower Largo; House at Station House</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW189</td>
<td>Lower Largo; 11 - 21 Main Street Terraced Houses</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW100</td>
<td>Lower Largo; 23 Main Street; The Old Manse Manse</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
<tr>
<td>NO40SW177</td>
<td>Lower Largo Railway Station Terraced Houses</td>
<td>Station</td>
<td>Uncertain</td>
<td>Not seen: Nil</td>
</tr>
</tbody>
</table>

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Historic Scotland
NO04SW191
LOWER LARGO; 25 - 35 MAIN STREET
PLATS
Uncertain
Not seen
Nil

NO04SW10
LARGO STATION
CISTS
Uncertain
Not seen
Nil

NO04SW192
LOWER LARGO; 37 - 39 MAIN STREET
TERRACED HOUSES
Uncertain
Not seen
Nil

NO04SW184
LOWER LARGO; 49 MAIN STREET
WHITE COTTAGE
COTTAGE
Uncertain
Not seen
Nil

NO04SW180
LOWER LARGO; 57 MAIN STREET
HOUSE
Uncertain
Not seen
Nil

NO04SW183
LOWER LARGO; 59 AND 61 MAIN STREET
HOUSES
Uncertain
Not seen
Nil

NO04SW182
LOWER LARGO; 65 MAIN STREET, BASS HOUSE
HOUSE
Uncertain
Not seen
Nil

NO04SW44
LOWER LARGO; ST. DAVID’S PARISH CHURCH
CHURCH; GRAVEYARD
Uncertain
Not seen
Nil

NO04SW181
LOWER LARGO; OFF MAIN STREET
OUTBUILDINGS
Uncertain
Not seen
Nil

NO04SW179
LOWER LARGO; 79 MAIN STREET,
COURT HOUSE
HOUSE
Uncertain
Not seen
Nil

NO04SW193
LOWER LARGO; 81 - 83 MAIN STREET
HOUSE
HOUSES
Uncertain
Not seen
Nil

NO04SW194
LOWER LARGO; 85 MAIN STREET
HOUSE
Uncertain
Not seen
Nil

NO04SW195
LOWER LARGO; 91-95 MAIN STREET
HOUSES
Uncertain
Not seen
Nil

NO04SW186
LOWER LARGO; MAIN STREET
COTTAGE
Uncertain
Not seen
Nil

NO04SW81
LOWER LARGO; MARINS VILLA
HOUSE
Uncertain
Not seen
Nil

NO04SW187
LOWER LARGO; 123 MAIN STREET
COTTAGES
Uncertain
Not seen
Nil

NO04SW84
LOWER LARGO; MAIN ST.; CARDY COTTAGE
COTTAGE
Uncertain
Not seen
Nil

NO04SW83
LOWER LARGO; MAIN STREET;
CARDY HOUSE
HOUSE
Uncertain
Not seen
Nil

Sites along the coastal edge

NO040200195
Lundin Links
Two posts, possibly glider traps
Uncertain
Fair
Nil

NO0405W18
LINDIN LINKS
CARN
Uncertain
Not seen
Nil

NO040400225
Lundin Links
Concrete tank traps
Mid 20th century
Fair
Nil

NO040900245
Lundin Links
2 concrete bunkers with an enclosure
Mid 20th Century
Fair
Survey

NO0405W13
LUNDIN LINKS
BURIAL, PICTISH CEMETERY
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
*See Site description 5
Uncertain
Poor
Survey, Monitor

Maritime Fife

72

Historic Scotland
### MAP 15: LUNDIN LINKS TO LARGO BAY

**BUILT HERITAGE AND ARCHAEOLOGY UNITS (CONT.)**

**Sites behind the foreshore at Lower Largo (cont.)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Largo Bay</th>
<th>Condition</th>
<th>Age</th>
<th>Site Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO408SW205</td>
<td>LARGO/HARBOUR, WEST PIER PIER</td>
<td></td>
<td>Not seen</td>
<td>17th-19th C.</td>
<td>Nil</td>
</tr>
<tr>
<td>NO408SW75</td>
<td>LARGO HARBOUR, EAST PIER PIER</td>
<td></td>
<td>Fair</td>
<td>17th-19th C.</td>
<td>Nil</td>
</tr>
</tbody>
</table>

**Sites on the coastal edge**

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Largo Bay</th>
<th>Condition</th>
<th>Date &amp; Type</th>
<th>Site Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO41900245</td>
<td>Lower Largo Fish Trap, U-shaped</td>
<td></td>
<td>Fair</td>
<td>17th-19th C.; Uncertain</td>
<td>Survey</td>
</tr>
<tr>
<td>NO408SW92</td>
<td>LOWER LARGO; MAIN STREET; CARDY NETWORKS</td>
<td></td>
<td>Fair</td>
<td>19th C.</td>
<td>Nil</td>
</tr>
<tr>
<td>NO408SW5</td>
<td>LOWER LARGO GOLD TORCS</td>
<td></td>
<td>Not seen</td>
<td>Bronze</td>
<td>Nil</td>
</tr>
<tr>
<td>NO405SW202</td>
<td>VIEWFORTH DESERTED FARMSTEAD</td>
<td></td>
<td>Fair</td>
<td>Uncertain</td>
<td>Nil</td>
</tr>
</tbody>
</table>

**NO43150240**
Largo Bay
2 metal posts in sand in intertidal zone
Uncertain
Fair
Nil

**NO43300255**
Largo Bay
Coastal defence buildings and revetments
Uncertain
Fair
Survey

**NO43400230**
Largo Bay
Metal and wooden posts, fish trap or glister nets
Mid 20th C.
Fair
Nil

**NO43750115**
Largo Bay
Metal mooring hoop set in to bedrock
Uncertain
Fair
Nil
### KEY

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Location</td>
<td></td>
<td>Listed Site</td>
</tr>
<tr>
<td>Site Location</td>
<td></td>
<td>Scheduled Site</td>
</tr>
<tr>
<td>Site Location</td>
<td></td>
<td>arris Site</td>
</tr>
<tr>
<td>Site Location</td>
<td></td>
<td>Site of Archaeological Interest</td>
</tr>
<tr>
<td>Site Location</td>
<td></td>
<td>Site of Indigenous Heritage Interest</td>
</tr>
<tr>
<td>Site Location</td>
<td></td>
<td>Unused Site</td>
</tr>
<tr>
<td>Site Location</td>
<td></td>
<td>Unmapped Site</td>
</tr>
</tbody>
</table>

**Maritime Firth**

*Historic Scotland*
• Built heritage and archaeology - The expansive sandy foreshore of Largo Bay is covered in a series of U-shaped arrangements of wooden fish traps (NO44700180, NO44600170) and lines of disused stake nets laid perpendicular to the coast edge (NO45100170, NO45380135, NO45500140, NO45380135, NO45600100) which in some instances remain remarkable intact. There appears to have been a network of military coastal defences along the back of Largo bay including a military bunker (NO44300220, NO444000225) and lines of tank traps (NO44450215, NO44500200) both in Largo Bay and Shell Bay (NO45400140). Large wooden posts embedded in a concrete base, almost identical to the glider traps of Burntisland Bay (See map 9) reappear throughout Largo Bay. These may originally have been part of a second glider defence system. However, they may also have been used (or re-used) as anchor posts for the lines of stake netting. It is reasonable to assume that the disused corrugated iron storage hut at the mouth of Cocklemill Burn (NO45900085) was the focal point of this industry until its demise and the condition of the storage hut is now poor. Several cist burials have been located at Raddons Point (NO46590030) although these were not visible during the survey period. The remaining sites on this sector are a track cut into the bedrock foreshore (NO46500030) which was probably used for harvesting marine produce from the foreshore, a series of military defences situated behind high cliffs on Kincaig Hill (NT499NE44), and the back wall of an eroding stone and brick built structure complete with hearth which was located at approximately the same grid reference as Macduff's Cave (NT49NE1). Is this the wall referred to in the NMRs (NT49NE1)?

• Hinterland geology and coastal geomorphology: Erosion class - The sandy beach of Largo Bay reaches its maximum width of approximately 500 metres just to the north of Rudden's Point. The partial covering of the pyramidal tank traps at the back of Shell Bay (NO45400140) and the suggestion by aerial photographs of a blown out dune at the back of Largo Bay (NO45300150) indicate that the dune systems in both these bays are eroding and that the eroded material is accumulating on the foreshore. While the sand beaches of Largo and Shell Bays are the dominant features of the sector, the underlying bedrock layer is exposed at Raddons Point and Kincaig Point where coastal currents and wave action have prevented the accumulation of mobile sediment. Evidence for higher relative sea levels during the Holocene is preserved mainly in the form of a fossil cliffline which is best seen inland of Largo Bay and at Kincaig Point. The base of this cliffline occurs at approximately 10 metres O.D., which correlates with the predicted altitude of the Main Postglacial shoreline for this part of the coast (Firth, Collins, Smith 1995, 66). The coastal edge of these points is mostly stable except for signs of localised erosion on the most exposed sectors (Erosion Units 5, 9).
1. NO445019
   2.0 km
   Both accreting and eroding.
   Dunes eroding, sand accreting along the foreshore.

2. NO458007
   0.1 km
   Accreting or stable.
   Accreting at the mouth of Cocklemill Burn.

3. NO456600E
   0.3 km
   Definitely accreting.
   Sand building up on the north shore of Ruddons Point.

4. NO453905
   0.3 km
   Stable.
   Rocky foreshore.

5. NO456005
   0.6 km
   Eroding or stable.
   Partial erosion of sand dunes at the back of a sandy bay
   interspersed with bedrock outcrops.

6. NO463005
   0.7 km
   Accreting or stable.
   Sand is accreting in Shell Bay.

7. NT462999
   0.2 km
   Eroding or stable.
   Coastal edge of igneous bed rock with topsoil covering
   which may be eroding.

8. NT463997
   0.4 km
   Stable.
   Rocky foreland with high cliffs.

9. NT468998
   0.4 km
   Eroding or stable.
   Rocky foreland with steep slope behind which may
   be eroding.

10. NT474998
    1.0 km
    Accreting or stable.
    Sand may be accreting along the foreshore in front of Earls-
    ferry Links. The dune system behind the foreshore appears
    stable.

11. NT476994
    0.4 km
    Stable.
    Rocky foreland.

12. NT479993
    0.1 km
    Accreting or stable.
    Sand accreting in narrow bays interspersed by rock promon-
    tories which are stable.
Drift, boulder clay over visible rock.
Sweep cliffs and boulder clay with evidence of some
slumping in places. Raised beach continues east towards
Craigmillar.

7
NT469999
0.2 km
Mainly sand
Low edge (< 5 metres)
Drift, boulder clay over visible rock.
High cliffs descend and sandy beach opens out into
Earlsferry Bay.

8
NT475997
1 km
Mainly sand
Low edge (< 5 metres)
Blown sand
Sand and shingle foreshore with some localised bed-
rock outcrops and dune system at the back of the beach
marking the seaward boundary of Earlsferry Links.

9
NT478993
0.9 km
Mainly sand
Low edge (< 5 metres)
Rounded beach and marine deposits with blown sand
behind.
A raised beach is evident round the promontory of
Craigmillar with small sandy bays interspersed by rock
promontories.

Mariner's Mile
<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO44756180</td>
<td>Large Bay Floor trap consisting of concrete set wooden posts in pattern. Uncertain Fair Nil</td>
</tr>
<tr>
<td>NO44759175</td>
<td>Large Bay Concrete tank traps with wooden glider traps in parallel line Mid 20th Century Fair Nil</td>
</tr>
<tr>
<td>NO44980165</td>
<td>Large Bay Single glider post, Concrete/wood shuttered block and post Mid 20th century Fair Nil</td>
</tr>
<tr>
<td>NO45100180</td>
<td>Large Bay Line of concrete tank traps, 150 metres behind the beach Mid 20th Century Fair Nil</td>
</tr>
<tr>
<td>NO45300150</td>
<td>Large Bay Semi circular enclosure, possibly built out with sand Uncertain Fair Monitor</td>
</tr>
<tr>
<td>NO45258145</td>
<td>Large Bay Glider traps possibly mixed with fish traps Mid 20th Century Fair Nil</td>
</tr>
<tr>
<td>NO45300140</td>
<td>Large Bay 3 single glider posts - salmon stake net and concrete/wood shuttered block and post Mid 20th Century Fair Nil</td>
</tr>
<tr>
<td>NO45800135</td>
<td>Large Bay Salmon stake nets and posts. 20th Century Fair Survey</td>
</tr>
<tr>
<td>NO45800100</td>
<td>Large Bay 2 Glider traps mounted in concrete/wood shuttered blocks Mid 20th Century Fair Nil</td>
</tr>
<tr>
<td>NO45300140</td>
<td>Large Bay 2 lines of wooden posts, salmon stake nets. Mid 20th Century Fair Survey</td>
</tr>
<tr>
<td>NO45400140</td>
<td>Shell Bay Tank traps, concrete pyramidal Mid 20th Century Fair Nil</td>
</tr>
<tr>
<td>NO45400120</td>
<td>Large Bay Tied net on the beach Uncertain. Aerial photograph unconfirmed on the ground Nil</td>
</tr>
<tr>
<td>NO45500100</td>
<td>Large Bay Possible fish trap, mixed in with several glider traps Uncertain Fair Nil</td>
</tr>
<tr>
<td>NO45900085</td>
<td>St Fords Links Corrugated iron fishing net Uncertain Poor Survey</td>
</tr>
<tr>
<td>NO45600092</td>
<td>St Fords Links Circular depressions on the east of Cockiemill burns Uncertain Aerial photograph unconfirmed on the ground Nil</td>
</tr>
<tr>
<td>NO45600100</td>
<td>Ruddocks Point CIST Uncertain Poor Monitor</td>
</tr>
<tr>
<td>NO44900065</td>
<td>Kinnaird ranges Earthworks, possibly part of the range activities Uncertain Fair Survey</td>
</tr>
<tr>
<td>NO46300020</td>
<td>Kinnaird Point Demarcation trace from beach, possibly related to help collecting industries Uncertain Fair Nil</td>
</tr>
<tr>
<td>NT49 NE44</td>
<td>KINZARO BATTERY RADAR OBSERVATION POST Mid 20th Century Fair Survey</td>
</tr>
<tr>
<td>NT49 NE44</td>
<td>KINZARO BATTERY BATTERY OBSERVATION POST AND BATTERY Mid 20th Century Fair Survey</td>
</tr>
<tr>
<td>NT49 NE44</td>
<td>MAUDIFFS CAVE CAVE Stobs, brick and earth visible in the overlying fleur. Uncertain Poor Survey Monitor</td>
</tr>
<tr>
<td>NT49 NE44</td>
<td>EKSFERRY Links Dry stone wall Uncertain Fair Nil</td>
</tr>
</tbody>
</table>
• Built heritage and archaeology - Earlsferry chapel (NT49N63) stands on an exposed promontory to the south west of Elie village. This 11th or 12th century chapel remains in fair condition but due to its exposed location, the site should be periodically monitored. On the rocky coastal edge to the south of the chapel, there appears to be a small natural rock cut which has been enhanced with mooring hoops and a metal mooring post (NT48019830). It is likely that this was probably used for bringing small boats alongside at high water and during fair weather conditions. Sites worthy of mention around Elie Harbour include the harbour warehouse (NT49N622), and a shell midden located on the outer side of the harbour wall (NT49285955: site description 5). Soutar Point appears to be an area of interest with the identification of a possible promontory fort (NT49959948) consisting of a promontory protected at the landward side by a rough stone and turf dyke, a bathing shelter (NT49909948), the remains of a stone and mortar constructed building (NT49909951) and another shell midden located in an eroding face (NT49809946). All these sites require further investigation. The condition of the 15th century Ardross Castle (NO50SW15) and the 16th century Newark Castle and Dovecot (NO56SW17, 21) are cause for concern. In particular, the coastal edge next to Newark Castle appeared to be eroding and this may have an effect on the castle structure in the future. These three sites should be periodically monitored.

• hinterland geology and coastal geomorphology; Erosion class - The foreshore of this sector mostly consists of an exposed rock platform with sediment only covering its surface in isolated bays where the natural processes bringing about sediment transportation have been curbed (e.g. Geology units 1, 3, 5, 7). In these sheltered bays sand and shingle, and in some places, large boulders cover the platform. Further accumulations were seen at localised sections where there was visible erosion of the coastal edge (Erosion units 10, 11, 16, 18). Behind the coastal edge, a raised beach can be seen throughout this section and the coastal edge is only protected by a sea-wall along the shorefront of Elie.
<table>
<thead>
<tr>
<th>Number</th>
<th>NT</th>
<th>Erosion or Stable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NT481995</td>
<td>0.4 km</td>
<td>Eroding or stable</td>
</tr>
<tr>
<td>2</td>
<td>NT487999</td>
<td>1.2 km</td>
<td>Accreting or stable</td>
</tr>
<tr>
<td>3</td>
<td>NT494996</td>
<td>0.4 km</td>
<td>Definitely accreting</td>
</tr>
<tr>
<td>4</td>
<td>NT492998</td>
<td>0.2 km</td>
<td>Stable</td>
</tr>
<tr>
<td>5</td>
<td>NT494997</td>
<td>0.5 km</td>
<td>Definitely accreting</td>
</tr>
<tr>
<td>6</td>
<td>NT498996</td>
<td>0.1 km</td>
<td>Stable</td>
</tr>
<tr>
<td>7</td>
<td>NT497995</td>
<td>0.2 km</td>
<td>Eroding or stable</td>
</tr>
<tr>
<td>8</td>
<td>NT497994</td>
<td>0.3 km</td>
<td>Stable</td>
</tr>
<tr>
<td>9</td>
<td>NT499994</td>
<td>0.2 km</td>
<td>Both accreting and eroding</td>
</tr>
<tr>
<td>10</td>
<td>NT500995</td>
<td>0.2 km</td>
<td>Eroding or stable</td>
</tr>
<tr>
<td>11</td>
<td>NT500996</td>
<td>0.1 km</td>
<td>Definitely eroding</td>
</tr>
<tr>
<td>12</td>
<td>NT501998</td>
<td>0.3 km</td>
<td>Definitely accreting</td>
</tr>
<tr>
<td>13</td>
<td>NO504004</td>
<td>0.8 km</td>
<td>Accreting or stable</td>
</tr>
<tr>
<td>14</td>
<td>NO508006</td>
<td>0.2 km</td>
<td>Both accreting and eroding</td>
</tr>
<tr>
<td>15</td>
<td>NO509008</td>
<td>0.2 km</td>
<td>Accreting or stable</td>
</tr>
<tr>
<td>16</td>
<td>NO514010</td>
<td>0.6 km</td>
<td>Eroding or stable</td>
</tr>
</tbody>
</table>
MAP 17: EARLSFERRY LINKS TO LONG SHANK

GEOLoGY UNITS

1
NT 486 999
1.75 km
Mainly sand
Man made barrier
Raised beach and marine deposits
Eel shore-front is protected by a stone seawall and sand overlies a rock platform on the foreshore. The stone harbour wall at Elie appears to be retaining sand within the harbour basin.

2
NO 495 996
0.3 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
Elie harbour wall is built on a rock promontory which extends north east to Wood Haven.

3
NO 497 995
0.4 km
Mainly sand
Low edge (< 5 metres)
Raised beach and marine deposits
A sandy beach is building up in sheltered Wood Haven.

4
NO 32 996
1.3 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
From Elie/less east, a rock platform dominates the foreshore.

5
NO 50 900
0.2 km
Mainly sand
Shingle beach
Raised beach and marine deposits
Shingle may be eroding from the coastal edge deposits in this exposed bay.

6
NO 50 706
0.4 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
A continuation of the rock platform which dominates the sheltered zone of this area.

7
NO 51 900
0.4 km
Mainly sand
Shingle beach
Raised beach and marine deposits
A shingle beach exists around the level of mean High Water from sediments that have perhaps eroded from the coastal edge deposits.

8
NO 51 712
1.3 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
The foreshore consists of a rock platform with localised accumulations of shingle and rocks at the foot of the coastal edge.
NT48NE18 Earlsferry; Links Road Houses Uncertain Not seen Nil

NT48NE2 Earlsferry; Danish Stone Cists Uncertain Not seen Nil

NT48NE33 Earlsferry; Chaapel Green Lane; Grange Villa House Uncertain Not seen Nil

NT48NE34 Earlsferry; Chaapel Green Lane & Gowers Wynd, Iona House House Uncertain Not seen Nil

NT48NE10 Elie; High Street; Sandford Cottage Cottage Uncertain Not seen Nil

NT48NE9 Elie; High St., Barclay and St Johns Houses Uncertain Not seen Nil

NT48NE8 Elie; High St, The Old Mansie House Uncertain Not seen Nil

NT48NE11 Elie; High Street; Earlslea House Uncertain Not seen Nil

NT48NE35 Earlsferry, 1-6 Allan Place Houses Uncertain Not seen Nil

NT48NE19 Earlsferry; Links Road, Summerlea House Uncertain Not seen Nil

NT48NE36 Earlsferry; Links Rd, Linksview Cottage & Solefield Cottage; House Uncertain Not seen Nil

NT48NE12 Elie; Highstreet; Bayview House Uncertain Not seen Nil

NT48NE13 Elie; High Street, Hosierie and Rose Cottage Cottages Uncertain Not seen Nil

NT48NE14 Elie; High St, Smith (Grocer) and St Leonard's Shop, Flat Uncertain Not seen Nil

NT48NE7 Elie High Street; Corbie House Uncertain Not seen Nil

NT48NE37 Elie; High Street; Houses; Town Hall Uncertain Not seen Nil

NT48NE15 Elie; High Street; Methven House House; Shop Uncertain Not seen Nil

Marionte Eile

Historic Scotland
| No 405SE42 | ELIE; LINKS PLACE; ROCKCLIFFE COTTAGE | HOUSE | Uncertain | Not seen | Nil |
| No 405SE40 | ELIE; LINKS PLACE; MARINE HOTEL | HOTEL | Uncertain | Not seen | Nil |
| No 405SE38 | ELIE; LINKS ROAD; "OCHTER HOUSE" | HOUSE | Uncertain | Not seen | Nil |
| No 405SE94 | ELIE; SOUTH STREET; SUNNYSIDE | HOUSE | Uncertain | Not seen | Nil |
| No 405SE93 | ELIE; SOUTH STREET; THE BLUE HOUSE | HOUSE | Uncertain | Not seen | Nil |
| No 405SE92 | ELIE; SOUTH STREET; FORMYLO | HOUSE | Uncertain | Not seen | Nil |
| No 405SE73 | ELIE; 16 BANK STREET | HOUSE; SHOP | Uncertain | Not seen | Nil |
| No 405SE72 | ELIE; 16 BANK STREET; GREENBANK | HOUSE | Uncertain | Not seen | Nil |
| No 405SE28 | ELIE; 21-27 SOUTH STREET | HOUSES | Uncertain | Not seen | Nil |
| No 405SE71 | ELIE; 12 BANK STREET | HOUSE | Uncertain | Not seen | Nil |
| No 405SE70 | ELIE; 10 BANK STREET | HOUSE | Uncertain | Not seen | Nil |
| NT49NE27 | ELIE; 13 AND 15 SOUTH STREET | HOUSES | Uncertain | Not seen | Nil |
| NT49NE29 | ELIE; SOUTH STREET; THE CASTLE | HOUSE | Late 16th Century | Not seen | Nil |
| No 405SE79 | ELIE; 3 CITY STREET | HOUSE | Shop | Uncertain | Nil |
| NT49NE49 | ELIE; 5-8 BANK STREET | SHOP | Uncertain | Not seen | Nil |
| NT49NE26 | ELIE; SOUTH STREET | HOUSE | Uncertain | Not seen | Nil |
| No 405SE75 | ELIE; 3 PARK PLACE | HOUSES | Uncertain | Not seen | Nil |
| NT49NE24 | ELIE; SOUTH STREET | HOUSE | Uncertain | Not seen | Nil |
| NT49NE25 | ELIE; 3 AND 7 SOUTH STREET | HOUSES | Uncertain | Not seen | Nil |
| NT49NE41 | ELIE; 4 SOUTH STREET; SEAFOOT | HOUSES | Uncertain | Not seen | Nil |
| NT49NE23 | ELIE; 5-7 THE TERRACE | HOUSE | Uncertain | Not seen | Nil |
| NT49NE40 | ELIE; 23 SOUTH STREET; EASTER GABLES & SEVEN GABLES | HOUSE | Uncertain | Not seen | Nil |
| No 405SE62 | ELIE; HIGH STREET; THE VENNEL, CLYDESDALE BANK | BANK | Uncertain | Not seen | Nil |
| No 405SE61 | ELIE; 55 SOUTH STREET; ST ANNS | HOUSES | SHOP | Uncertain | Not seen | Nil |
| No 405SE46 | ELIE; 3 WATERLOO ST; TULLIE | HOUSE | Uncertain | Not seen | Nil |
MAP 17: EARLSFERRY
LINKS TO LONG SHANK

BUILT HERITAGE AND ARCHAEOLOGY UNITS

Sites behind the forecourt at Elle (cont.)
NO405E5
EILE, RANKEILLOUR
STREET
Houses
Uncertain
Not seen
Nil

NO405E40
EILE, 51 & 5A HIGH STREET
House, Shop
Uncertain
Not seen
Nil

NO405E59
EILE, 41-49 HIGH STREET
(CODG NOB) HOUSES
Uncertain
Not seen
Nil

NO405E58
EILE, 37 HIGH STREET,
HOMESTEAD HOUSE
Uncertain
Not seen
Nil

NO405E56
EILE, 35 & 35A HIGH STREET
Houses
Uncertain
Not seen
Nil

NO405E85
EILE, HIGH STREET, CHAPMANS PLACE, QUEENS HOTEL
House
Uncertain
Not seen
Nil

NO405E86
EILE, 5-9 CHAPMANS PLACE (CDD NOB)
COTTAGES
Uncertain
Not seen
Nil

NO405E57
EILE, 23 & 25 HIGH STREET & 1 CHAPMANS PLACE
Houses
Uncertain
Not seen
Nil

NO405E47
EILE, 22-24 HIGH STREET & 2-10 STENTON ROW
HOUSES, OFFICES
Uncertain
Not seen
Nil

NT409N30
EILE, 7-16 THE TOFT
Houses, Public House
Uncertain
Not seen
Nil

Sites along the coastal edge
NT409N20
Earlsferry
Small rock inset embedded with placement of metal post and mooring loops and used probably for mooring small boats in fair weather.
Uncertain
Fair
Nil

NT409N32
EARLSFERRY, CHAPEL GREEN, EARLSNEUK HOUSE
Uncertain
Not seen
Nil

NT409N33
EARLSFERRY, CHAPEL HOSPITAL
PROTECTED ANCIENT MONUMENT
Medieval
Fair
Monitor

NT409N31
ELIJE, WADDELEA ROAD, COASTGUARD STATION
COASTGUARD STATION
20th Century
Stable
Nil

NT409N32
EILE HARBOUR, WAREHOUSE, PIER, Confirmed on ground 17th-19th Century
Fair
Nil

NT49219950
Elie
Concrete walkways and building foundations, Coastguard watch post 20th Century
Fair
Nil

NT49289555
Elie
Midden, shell and fish bones
*See detailed site description 6
Uncertain
Fair
Survey/monitor

NT49309960
Elie
Revetment
Uncertain
Fair
Nil

NT49659947
Elie
Concrete tank traps
Mid 20th Century
Fair
Nil

NT49689940
Elie
Light House, generator and oil tank
Modern
Fair
Nil

NT49809940
Elie
Roundabout
Shell midden Possibly natural
Uncertain
Fair
Monitor

NT49999951
Elie
Remains of coastal fort building 17th-19th Century
Poor
Monitor

NT49999948
Elie
Corbelled cave, bathing shelter 19th Century
Fair
Survey, monitor

NT49599948
Elie
Well isolating promontory, possible Promontory fort
Uncertain, possibly Prehistoric
Fair
Survey, Monitor

NT49599948
Elie
Reconstructed Folly, Ladies Tower
Uncertain
Nil

NO50800065
Sandar Point
Stone built Greyne
Uncertain
Stable
Nil

NO5096W15
ARDOIRISH CASTLE
CASTLE, 17th Century
Poor
Monitor

NO5096W17
NEWARK CASTLE
CASTLE
PROTECTED ANCIENT MONUMENT
16th Century
Poor
Monitor

NO5096W11
NEWARK CASTLE
DOWETICE
PROTECTED ANCIENT MONUMENT
16th Century
Fair
Monitor

Historic Scotland
Built heritage and archaeology - The harbour at St. Monance (NO50SW81: site description 6) and the complex of salt-pans, windmill and coalfarm workings (NO50SW48,70,80) to the north east of the town are the most important sites within the vicinity of St. Monance. Substantial excavations have taken place on the coal farm salt pans (NO50SW70) exposing intertidal remains of the pan workings as well as coastal edge remains of a pan house. The remains date probably to the mid to late 18th Century (Martin 1979,10,53) and except for localised erosion affecting a short section of colliery land-fill along the coast edge to the north east of the main complex (Geology unit 5), the main workings appear stable at present. Other sites along the coast edge between St. Monance and Pittenweem include a wood and stone wall in an eroding face (NO54070230), another trackway cut into the rock foreshore for harvesting marine produce (NO54070218) and an intertidal swimming pool (NO542800220) of s type which features frequently along the coastline of the East Neuk. At Pittenweem the main features of interest include the harbour area (NO50SW71: site description 6), a coastguard lookout (NO55800275), and some stone and shell filled pits which were visible in section in the eroding face (NO55900265).

Hinterland geology and coastal geomorphology: Erosion class - Like the sectors to the west and east, the foreshore between St. Monance and Anstruther Wester consists mostly of an exposed rock platform with sediment only covering its surface in occasional sheltered bays, most notably just west of Pittenweem harbour (Geology unit 7) where sand and shingle, and occasionally large boulders cover the rock platform. A raised beach runs parallel to the coastal edge the length of this sector interrupted only by a patch of alluvium (Geology unit 1) originating from St. Monance burn. Except for sections of sea-wall protecting the sea-fronts at St. Monance and Pittenweem, the coast edge is mostly unprotected and shows evidence of some erosion in parts (Erosion units 3, 5, 9, 10).
Erosion Units.

1. NO524015
   0.25 km
   Not seen
   The presence of a sea wall foreshore suggests that this section is probably stable.

2. NO528016
   0.7 km
   Stable
   Outer wall and inner harbour at St Monans

3. NO534019
   0.3 km
   Eroding or stable
   Coastal edge by St Monans Salt pans and Windmill may be eroding.

4. NO539022
   0.3 km
   Eroding or stable
   Sediment may be building up on a rocky foreshore.

5. NO541022
   0.3 km
   Eroding or stable
   Coastal edge may be eroding.

6. NO545022
   0.2 km
   Stable
   Rocky promontory appears stable.

7. NO546024
   0.3 km
   Accreting or stable
   Sediment may be accreting in the bay west of Pittenweem harbour.

8. NO549024
   0.5 km
   Stable
   Pittenweem harbour is stable.

9. NO555027
   0.6 km
   Both accreting and eroding
   The coastal edge may be eroding with evidence suggesting accretion of sediments on the foreshore.

10. NO559027
    0.2 km
    Eroding or stable
    Localised erosion of the coastal edge.

11. NO561027
    0.15 km
    Stable
    A rocky promontory near the Coastguard's Lookout.

12. NO562028
    0.1 km
    Accreting or stable
    Localised accretion of sediments on the rocky foreshore.

13. NO562029
    0.1 km
    Stable
    A rocky promontory.

14. NO563031
    0.15 km
    Accreting
    Shingle and sand are building up on the foreshore.
<table>
<thead>
<tr>
<th>Number</th>
<th>NO</th>
<th>Distance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NO522013</td>
<td>0.1 km</td>
<td>Mainly rock platform. Low edge (~5 metres). Raised beach and marine deposits.</td>
</tr>
<tr>
<td>2</td>
<td>NO523015</td>
<td>0.1 km</td>
<td>Mainly rock platform. Man made barrier. Alluvium associated with St Monance Burn.</td>
</tr>
<tr>
<td>3</td>
<td>NO523016</td>
<td>0.4 km</td>
<td>Mainly rock platform. Man made barrier. Raised beach and marine deposits. Rock platform with some shingle and sand deposited around St. Monance Harbour.</td>
</tr>
<tr>
<td>4</td>
<td>NO530017</td>
<td>0.7 km</td>
<td>Mainly rock platform. Low edge (~5 metres). Raised beach and marine deposits. Low coastal edge with rock platform and shingle deposits around the high water mark.</td>
</tr>
<tr>
<td>5</td>
<td>NO534019</td>
<td>0.15 km</td>
<td>Mainly rock platform. Human disturbance. Raised beach and marine deposits. Coal dust land-fill along the coastal edge probably originates from Coal firm or nearby salt panning industries.</td>
</tr>
<tr>
<td>6</td>
<td>NO540023</td>
<td>1.2 km</td>
<td>Mainly rock platform. Low edge (~5 metres). Raised beach and marine deposits. Low coastal edge with rock platform and shingle deposits around the high water mark.</td>
</tr>
</tbody>
</table>

Maritime Fife
MAP 18: LONG SHANK TO ANSTRUTHER WESHER

ARCHAEOLOGY AND BUILT HERITAGE UNITS

Sites along the coast edge

NOS65SW8
ST MONANS CHAPEL
CHURCH; CEMETERY
Uncertain
Fair
Nil

NOS65SW11
ST MONANS CELL
CAVE
Uncertain
Not seen
Nil

NOS65SW1
ST MONANCE HARBOUR
HARBOUR
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
*See site description 6
17th - 19th Century
Fair
Survey; Monitor

NOS65SW17
ST MONANCE
Concrete harbour defence; aerial photograph seen on the ground
15th - 20th Century
Fair
Nil

NOS65SW3
ST MONANCES ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
17th - 19th Century
Fair
Nil

Not seen

NOS65SW6
ST MONANCE, COALFARM
SALT PANS
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
15th - 16th Century
Fair
Nil

NOS65SW7
ST MONANCE HARBOUR
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
*See detailed site description 6
17th - 19th Century
Fair
Survey; Monitor

Sites behind the foreshore at Pittenweem (PITT)

NOS65SW8
PITTENWEEM BURGH
VILLAGE
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
Uncertain
Not noted but visited
Nil

NOS65SW9
PITTENWEEM, 4 STILL PARK HOUSE
Uncertain
Not seen
Nil

NOS65SW10
PITTENWEEM, 18 EAST SHORE HOUSE
Uncertain
Not seen
Nil

NOS65SW11
PITTENWEEM, 2 & 3 STILL PARK HOUSES
Uncertain
Not seen
Nil

NOS65SW12
PITTENWEEM, 5 MID SHORE MIDDEN; POTTEY
Uncertain
Not seen
Nil

NOS65SW13
PITTENWEEM, 23 HIGH ST.; REILLY LODGE
TOWN HOUSE
Uncertain
Not seen
Nil

NOS65SW14
PITTENWEEM, EAST PORT GATEWAY
Uncertain
Not seen
Nil

NOS65SW15
PITTENWEEM, 10-11 COVE WIND
WACHING BRIEF; STONE
Uncertain
Not seen
Nil

NOS65SW16
PITTENWEEM PARISH CHURCH
CHURCH; TOLLSHOOT
Uncertain
Not seen
Nil

NOS65SW17
PITTENWEEM MARKET CROSS
MARKET CROSS
PROTECTED ANCIENT MONUMENT
Uncertain
Not seen
Nil

NOS65SW18
PITTENWEEM, 18 EAST SHORE HOUSE
Uncertain
Not seen
Nil

NOS65SW19
PITTENWEEM, 4 STILL PARK HOUSE
Uncertain
Not seen
Nil

NOS65SW20
PITTENWEEM, 2 & 3 STILL PARK HOUSES
Uncertain
Not seen
Nil

NOS65SW21
PITTENWEEM, 5 MID SHORE MIDDEN; POTTEY
Uncertain
Not seen
Nil

NOS65SW22
PITTENWEEM, 23 HIGH ST.; REILLY LODGE
TOWN HOUSE
Uncertain
Not seen
Nil

NOS65SW23
PITTENWEEM, EAST PORT GATEWAY
Uncertain
Not seen
Nil

NOS65SW24
PITTENWEEM, 10-11 COVE WIND
WACHING BRIEF; STONE
Uncertain
Not seen
Nil

NOS65SW25
PITTENWEEM PARISH CHURCH
CHURCH; TOLLSHOOT
Uncertain
Not seen
Nil

NOS65SW26
PITTENWEEM MARKET CROSS
MARKET CROSS
PROTECTED ANCIENT MONUMENT
Uncertain
Not seen
Nil

NOS65SW27
PITTENWEEM, 18 EAST SHORE HOUSE
Uncertain
Not seen
Nil

NOS65SW28
PITTENWEEM BURGH
VILLAGE
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
Uncertain
Not noted but visited
Nil

NOS65SW29
PITTENWEEM, 4 STILL PARK HOUSE
Uncertain
Not seen
Nil

NOS65SW30
PITTENWEEM, 2 & 3 STILL PARK HOUSES
Uncertain
Not seen
Nil

NOS65SW31
PITTENWEEM, 5 MID SHORE MIDDEN; POTTEY
Uncertain
Not seen
Nil

NOS65SW32
PITTENWEEM, 23 HIGH ST.; REILLY LODGE
TOWN HOUSE
Uncertain
Not seen
Nil

NOS65SW33
PITTENWEEM, EAST PORT GATEWAY
Uncertain
Not seen
Nil

NOS65SW34
PITTENWEEM, 10-11 COVE WIND
WACHING BRIEF; STONE
Uncertain
Not seen
Nil

NOS65SW35
PITTENWEEM PARISH CHURCH
CHURCH; TOLLSHOOT
Uncertain
Not seen
Nil

NOS65SW36
PITTENWEEM MARKET CROSS
MARKET CROSS
PROTECTED ANCIENT MONUMENT
Uncertain
Not seen
Nil

NOS65SW37
PITTENWEEM, 18 EAST SHORE HOUSE
Uncertain
Not seen
Nil

NOS65SW38
PITTENWEEM BURGH
VILLAGE
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
Uncertain
Not noted but visited
Nil

NOS65SW39
PITTENWEEM, 4 STILL PARK HOUSE
Uncertain
Not seen
Nil

NOS65SW40
PITTENWEEM, 2 & 3 STILL PARK HOUSES
Uncertain
Not seen
Nil

NOS65SW41
PITTENWEEM PARISH CHURCH
CHURCH; TOLLSHOOT
Uncertain
Not seen
Nil

NOS65SW42
PITTENWEEM MARKET CROSS
MARKET CROSS
PROTECTED ANCIENT MONUMENT
Uncertain
Not seen
Nil

NOS65SW43
PITTENWEEM, 18 EAST SHORE HOUSE
Uncertain
Not seen
Nil

NOS65SW44
PITTENWEEM PRIRRY
GATEHOUSE
17th Century
Not seen
Nil

NOS65SW45
PITTENWEEM PRIRRY
WALLS
Not seen
Nil

NOS65SW46
PITTENWEEM, ST FILLANS
CAVE AND WELL
CAVE, WELL
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
17th Century
Not seen
Nil

NOS65SW47
PITTENWEEM, ABBEY WELL
WELL
Uncertain
Not seen
Nil

Sites along the coastal edge

NOS55SW265
Pittenweem
Concrete tank traps
Mid 20th Century
Fair
Nil

NOS55SW275
Celleidhyke
Coffin guard lookout (possibly military)
Mid 20th Century
Fair
Survey

NOS55SW265
Anstruther
Stone and shell filled pits in section
Uncertain
Fair
Monitor

Historic Scotland
MAP 19 - ANSTRUTHER WESTER TO THE COVES

- Built heritage and archaeology - Between Anstruther Wester and the Coves, the only sites found on the foreshore are those of a particularly durable construction including two more intertidal swimming pools (NO56150279, NO57990420), a steam ship boathouse (NO56150272), a cleared beach inlet near Kilaveny Mill with natural rock quay enhanced by iron mooring loops (NO58950495). Two other sites at Cellardyke are located just above the high water mark. They are a series of 3 net hanger posts (NO57720380) and a building foundation and possible slipway (NO57400355), both sites which taken in context with the nearby Cellardyke fish warehouse (NO57250348) reflect the importance of fishing to the village of Cellardyke since at least the 17th century. The harbour of Anstruther Wester (NO50SE49), Anstruther Easter (NO50SE48), and Cellardyke (NO50SE47) were also vital to this trade and they are described in more detail in site description 6. The coastline between Cellardyke and the Coves is fairly short on archaeological sites except for a cluster of features recorded in the vicinity of Caiplie farmhouse (NO50NE25). Sites include the location of an isolated stone axe find (NO50NE13), and a rectangular stone enclosure (NO50NE21). The area of land at the north east boundary of this sector, marked as 'the Coves' is of archaeological importance. The Caiplie Coves (NO50NE6.0) are a group of sandstone caves formed by marine action with Pictish carvings visible on the wall face (RCAHMS 1933,169-70,337). Closely associated with the Coves and nearby is a small spring named ‘Hermit’s Well’ (NO50NE6.1). The NMRS lists the location of a prominent fort visible as cropmarks in a field to the north of the Coves: 'Barns Mill Fort' (NO50NE11). There was no visible evidence of this feature during fieldwalking.

- Hinterland geology, and coastal geomorphology - The geology of the coast between Anstruther Wester and the Coves is characterised by a raised beach behind a low coast edge with a foreshore of bare rock interrupted in sheltered bays (Geology units 1, 3) where sand and gravel have been able to accumulate over the rock platform. Most of the coast edge is unprotected except for the sea-front at Anstruther and Cellardyke where a sea-wall has been deployed and where garden walls front the beach. The majority of the coastline is stable although there was localised evidence of erosion, particularly on the shorefront at Cellardyke (Erosion unit 4) where unusually high tides and easterly gales during the survey period had caused localised damage to the garden walls of the houses situated along the seafront.
MAP 19: ANSTRUTHER WESTER TO THE COVES

Erosion Units

<table>
<thead>
<tr>
<th>Number</th>
<th>OS Grid Reference</th>
<th>Distance</th>
<th>Stable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NO564041</td>
<td>0.1 km</td>
<td>Eroding or stable</td>
<td>Localised erosion of the coastal edge.</td>
</tr>
<tr>
<td>2</td>
<td>NO565035</td>
<td>0.45 km</td>
<td>Eroding or stable</td>
<td>Shingle and sand are building up on the foreshore of Anstruther West Haven.</td>
</tr>
<tr>
<td>3</td>
<td>NO568034</td>
<td>0.5 km</td>
<td>Stable</td>
<td>Anstruther Harbour</td>
</tr>
<tr>
<td>4</td>
<td>NO572035</td>
<td>0.4 km</td>
<td>Eroding or stable</td>
<td>Erosion of the coastal edge. Garden walls protect housing along the back of the foreshore.</td>
</tr>
<tr>
<td>5</td>
<td>NO574035</td>
<td>0.1 km</td>
<td>Accreting or stable</td>
<td>Localised accretion of sediments in natural rock tolet on the foreshore.</td>
</tr>
<tr>
<td>6</td>
<td>NO576036</td>
<td>0.4 km</td>
<td>Stable</td>
<td>Section of rocky foreshore with garden walls protecting housing at the back of the foreshore.</td>
</tr>
<tr>
<td>7</td>
<td>NO579039</td>
<td>0.3 km</td>
<td>Accreting or stable</td>
<td>Sediments may be building up within and outside Cellardyke Harbour although recent damage to the harbour walls suggests erosion to the feature itself.</td>
</tr>
<tr>
<td>8</td>
<td>NO579041</td>
<td>0.2 km</td>
<td>Stable</td>
<td>Rocky foreshore with coastal defence sea wall.</td>
</tr>
<tr>
<td>9</td>
<td>NO581043</td>
<td>0.2 km</td>
<td>Accreting or stable</td>
<td>Shingle and boulders may be accreting on the foreshore.</td>
</tr>
<tr>
<td>10</td>
<td>NO583045</td>
<td>0.3 km</td>
<td>Stable</td>
<td>Rocky foreshore with stable coastal edge.</td>
</tr>
<tr>
<td>11</td>
<td>NO586048</td>
<td>0.4 km</td>
<td>Accreting or stable</td>
<td>Shingle and boulders may be accreting on the foreshore.</td>
</tr>
<tr>
<td>12</td>
<td>NO587049</td>
<td>0.1 km</td>
<td>Stable</td>
<td>Rocky foreshore with stable coastal edge.</td>
</tr>
<tr>
<td>13</td>
<td>NO588050</td>
<td>0.1 km</td>
<td>Accreting or stable</td>
<td>Shingle and boulders may be accreting on the foreshore.</td>
</tr>
<tr>
<td>14</td>
<td>NO590050</td>
<td>0.1 km</td>
<td>Stable</td>
<td>Rocky foreshore with stable coastal edge.</td>
</tr>
<tr>
<td>15</td>
<td>NO591051</td>
<td>0.2 km</td>
<td>Accreting or stable</td>
<td>Shingle and boulders may be accreting on the foreshore in front of Caiplie Farm.</td>
</tr>
<tr>
<td>16</td>
<td>NO592052</td>
<td>0.2 km</td>
<td>Stable</td>
<td>Rocky foreshore with stable coastal edge.</td>
</tr>
<tr>
<td>17</td>
<td>NO593053</td>
<td>0.1 km</td>
<td>Accreting or stable</td>
<td>Shingle and boulders may be accreting on the foreshore.</td>
</tr>
<tr>
<td>18</td>
<td>NO594054</td>
<td>0.2 km</td>
<td>Stable</td>
<td>Rocky foreshore with stable coastal edge.</td>
</tr>
<tr>
<td>19</td>
<td>NO596055</td>
<td>0.6 km</td>
<td>Accreting or stable</td>
<td>Shingle and boulders may be accreting on the a rocky foreshore in front of the Caiplie Cove.</td>
</tr>
</tbody>
</table>
1
NO562031
0.2 km
Mainly sand
Low edge (< 5 metres)
Raised beach and marine deposits
West Haven retains a sea-bed of shingle and sand covering the rock platform with a low coastal edge behind.

2
NO564033
0.5 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
The coast around Anstruther Wester Harbour is dominated by a rock platform foreshore and increasing amounts of sand and shingle overlaying the platform to be found in the lee of Anstruther Harbour walls.

3
NO568035
0.5 km
Mainly sand
Man made carrier
Raised beach and marine deposits
Sand and shingle have accumulated over the bed rock platform due probably to the shelter provided from longshore drift by the harbour walls of Anstruther Harbour.

4
NO578037
1.4 km
Mainly rock platform
Man made breaker
Raised beach and marine deposits
The shorefront from Anstruther Wester to the eastern boundary of Cellardyke is protected by harbour defenses or a stone sea-wall. Some sections show signs of recent human disturbance caused by sewerage works, visible in particular along the shorefront west of Cellardyke harbour.

5
NO587050
2.6 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
Shingle and boulders can be found high up on a rock platform foreshore with a low coastal edge stretching right along as far as the Coupie Coves.
Sites along the coastal edge

NOS05E172
Anstruther
Bolder from stone powered ship.
Uncertain
Fair
Survey

NOS05E279
Anstruther
Concrete bathing pool concrete. Aerial photo confirmed on the ground.
16th - 17th Century
Fair
Nil

NOS05E280
Anstruther
Stone buildings visible in the eroding section.
Uncertain
Fair
Monitor

NOS05E6
ANSTRUTHER WESTER
DOVECOTE
17th Century
Fair
Nil

NOS05E49
ANSTRUTHER WESTER HARBOUR
HARBOUR, 17th-19th Century
Fair
Survey, Monitor

NOS05E48
ANSTRUTHER EAST HARBOUR
HARBOUR, EAST PIER AND CRANE.
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE: *See Site Description 6
17th - 19th Century
Fair
Survey, Monitor,

Sites behind the foreshore at Anstruther (AIS)

NOS05E50
ANSTRUTHER WESTER; CHESTERGILL,
CASTLE, WELL, CASTLE, MOUND
Uncertain
Not seen
Nil

NOS05E57
ANSTRUTHER EASTER/WESTER,
GREEN BUDGE
Uncertain
Not seen
Nil

NOS05E10
ANSTRUTHER WESTER, ST NICHOLAS
CHURCH, GRAVEYARD
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
Uncertain
Not seen
Nil

NOS05E53
ANSTRUTHER WESTER TOLLBOOTH
TOLLBOOTH
Uncertain
Not seen
Nil

NOS05E11
ANSTRUTHER EASTER, ANSTRUTHER
PLACE, MANSION; MANSIONS
Uncertain
Not seen
Nil

NOS05E59
ANSTRUTHER EASTER, DRIEIL CASTLE
CASTLE
16th Century
Not seen
Nil

NOS05E12
ANSTRUTHER EASTER, MARKET
CROSS
MARKET CROSS
PROTECTED ANCIENT MONUMENT
16th Century
Not seen
Nil

NOS05E21
ANSTRUTHER EASTER, SCHOOL
GREEN
CISTERN
Uncertain
Not seen
Nil

NOS05E41
ANSTRUTHER EASTER, 16 CARDS
WIND, WIND HOUSE
HOUSE
Uncertain
Not seen
Nil

NOS05E15
ANSTRUTHER EASTER
MANSE
LISTED BUILDING
16th Century
Not seen
Nil

NOS05E21
ANSTRUTHER EASTER, THE MANSE
DOVECOTE
DOVECOTE
17th Century
Not seen
Nil

NOS05E12
ANSTRUTHER EASTER, ST AYLES
CHAPEL
CHAPEL
15th Century uncertain
Not seen
Nil

NOS05E50
ANSTRUTHER EASTER, SCOTTISH FISHERIES MUSEUM
MUSEUM
Uncertain
Not seen
Nil

NOS05E21
ANSTRUTHER EASTER, ST AYLES
HOUSE
HOUSE
Uncertain
Not seen
Nil

NOS05E29
ANSTRUTHER EASTER, EAST SHORE,
HARBOUR HEAD
PUBLIC HOUSE, HOUSE
Uncertain
Not seen
Nil

NOS05E90
ANSTRUTHER, BACKDYKES,
CHALMERS MEMORIAL CHURCH
CHURCH
Uncertain
Not seen
Nil

NOS05E41.1
ANSTRUTHER EASTER, EAST SHORE,
SMITH AND HUTTON BOATHOUSE
WELL
Uncertain
Not seen
Nil

NOS05E41.0
ANSTRUTHER EASTER, EAST SHORE,

Macine Fits

91

Historic Scotland
<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
<th>Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB563E46</td>
<td>ANSTROTHER EASTER; GASWORKS</td>
<td>19th Century</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB572S0348</td>
<td>CELARDYKE; OLD FISH WAREHOUSE</td>
<td>17th - 19th Century</td>
<td>Fair</td>
</tr>
<tr>
<td>NB574S0505</td>
<td>CELARDYKE</td>
<td>17th - 19th Century</td>
<td>Fair</td>
</tr>
<tr>
<td>NB560E29.19</td>
<td>CELARDYKE; 40 JOHN St</td>
<td>Uncertain</td>
<td>Fair</td>
</tr>
<tr>
<td>NB572S0380</td>
<td>CELARDYKE</td>
<td>19th - 20th Century</td>
<td>Fair</td>
</tr>
<tr>
<td>NB560E47</td>
<td>CELARDYKE; HARBOUR; DRYSTONE AND STONE/MORTAR</td>
<td>17th - 19th Century</td>
<td>Poor (Heard in 1996)</td>
</tr>
<tr>
<td>NB593S0420</td>
<td>CELARDYKE</td>
<td>19th - 20th Century</td>
<td>Fair</td>
</tr>
<tr>
<td>NB563E62</td>
<td>KILKENNY CROSS</td>
<td>ARCHAELOGICAL SITE OF REGIONAL IMPORTANCE</td>
<td>Uncertain</td>
</tr>
</tbody>
</table>

Sites behind the foreshore at Celardyke (CDA) - Not seen

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
<th>Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB563E24</td>
<td>CELARDYKE; JAMES STREET</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.1</td>
<td>CELARDYKE; 41 JAMES STREET</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.2</td>
<td>CELARDYKE; 43 JAMES ST</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.12</td>
<td>CELARDYKE; 44 JAMES ST</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.13</td>
<td>CELARDYKE; 45 JAMES ST</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.14</td>
<td>CELARDYKE; 46 JAMES ST</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.15</td>
<td>CELARDYKE; 50 &amp; 51 JAMES ST</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.16</td>
<td>CELARDYKE; 54 &amp; 56 JAMES ST</td>
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<td>NB563E24.17</td>
<td>CELARDYKE; 55 JAMES ST</td>
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</tr>
<tr>
<td>NB563E24.18</td>
<td>CELARDYKE; 58 &amp; 60 JAMES ST</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.19</td>
<td>CELARDYKE, 57 JAMES ST</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NB563E24.20</td>
<td>CELARDYKE, 66 JAMES ST</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
</tbody>
</table>

Maritime Sites - 92
MAP 19: ANSTRUTHER WES tern to THE COVNS

BUILT HERITAGE AND ARCHAEOLOGY UNITS (CONT.)

Sizes behind the foreshore at Cellardyke (s.b.f.) (CONT.)

NO58SE24.19 CELLARDYKE, 44 JAMES ST
HOUSE
Uncertain
Not seen
Nil

NO58SE24.10 CELLARDYKE, 61 & 63 JAMES ST
HOUSES
Uncertain
Not seen
Nil

NO58SE24.21 CELLARDYKE, 68 JAMES ST
HOUSE
Uncertain
Not seen
Nil

NO58SE24.11 CELLARDYKE, 65 & 67 JAMES ST
HOUSES
Uncertain
Not seen
Nil

NO58SE18 CELLARDYKE, MARTINS COURT
HOUSE
Uncertain
Not seen
Nil

NO58SE27 CELLARDYKE, MARTINS COURT
HOUSE
Uncertain
Not seen
Nil

NO58SE16 CELLARDYKE, 5 & 7 TOLBOOTH RD
HOUSES
Uncertain
Not seen
Nil

NO58SE29.17 CELLARDYKE, 4 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.18 CELLARDYKE, 1 JOHN ST & 1 TOL-
BOOTH RD
HOUSE
Uncertain
Not seen
Nil

NO58SE29.2 CELLARDYKE, 3 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.3 CELLARDYKE, 5 & 7 JOHN ST
HOUSES
Uncertain
Not seen
Nil

NO58SE29.4 CELLARDYKE, 9 & 11 JOHN ST
HOUSES
Uncertain
Not seen
Nil

NO58SE29.20 CELLARDYKE, 12 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.21 CELLARDYKE, 14 & 16 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.22 CELLARDYKE, 18 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.23 CELLARDYKE, 20 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.24 CELLARDYKE, 22 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.25 CELLARDYKE, 24 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.26 CELLARDYKE, 26 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.27 CELLARDYKE, 28 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.37 CELLARDYKE, 4 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.46 CELLARDYKE, 13 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.57 CELLARDYKE, 2 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.67 CELLARDYKE, 3 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.77 CELLARDYKE, 5 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.87 CELLARDYKE, 7 JOHN ST
HOUSE
Uncertain
Not seen
Nil

NO58SE29.97 CELLARDYKE, 9 JOHN ST
HOUSE
Uncertain
Not seen
Nil

Marine life

93

Picture: Scotland
<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
<th>Location</th>
<th>Status</th>
<th>Notes</th>
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<tr>
<td>NOSISE29.28</td>
<td>Clandyke, 30 John St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
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<tr>
<td>NOSISE29.8</td>
<td>Clandyke, 47 John Street</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
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<tr>
<td>NOSISE29.31</td>
<td>Clandyke, 44 &amp; 46 John St</td>
<td>Houses</td>
<td>Uncertain</td>
<td>Not seen</td>
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<tr>
<td>NOSISE29.29</td>
<td>Clandyke, 51 John St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
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<tr>
<td>NOSISE29.30</td>
<td>Clandyke, 42 John St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NOSISE29.9</td>
<td>Clandyke, 49 John St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NOSISE29.32</td>
<td>Clandyke, 48 John St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NOSISE29.11</td>
<td>Clandyke, 33 John St</td>
<td>House</td>
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<td>Not seen</td>
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<tr>
<td>NOSISE29.53</td>
<td>Clandyke, 50 &amp; 52 John St</td>
<td>Houses</td>
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Maritime File 94

Historic Scotland
<table>
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<tr>
<th>Site Code</th>
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<th>Type</th>
<th>Date/Period</th>
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<tr>
<td>NOS03E30.6</td>
<td>Cellardyke</td>
<td>27 George St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
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<tr>
<td>NOS03E30.9</td>
<td>Cellardyke</td>
<td>48 George St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NOS03E30.11</td>
<td>Cellardyke, 50 George St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NOS03E30.18</td>
<td>Cellardyke, 52 George St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
</tr>
<tr>
<td>NOS03E20.20</td>
<td>Cellardyke</td>
<td>36 George St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NOS03E20.3</td>
<td>Cellardyke</td>
<td>4 George St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
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**Sites along the coastal edge**

<table>
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<th>Date/Period</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>NOS03E35</td>
<td>Cellardyke, 14 &amp; 15 Dune St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NOS03E34</td>
<td>Cellardyke, 16 and 17 Dune St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NOS03E33</td>
<td>Cellardyke, 18 Dune St</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
<tr>
<td>NOS03E32</td>
<td>Cellardyke, Shore St, Sea Braes</td>
<td>House</td>
<td>Uncertain</td>
<td>Not seen</td>
</tr>
</tbody>
</table>

**Map 19: Anstruther, Wester to the Coves**

**Built heritage and Archaeology Units**

**Sites behind the Fruitheath at Cellardyke (CDM) (cont.)**

**Note:**

- Nil: Not recorded
- Uncertain: Information is uncertain or incomplete
- Not seen: Site not observed

**Additional Notes:**

- Honeysuckle Mill: Built.
- Old Pearl Mill: curtains.
- Old Cow Mill: Curtains.
- Old Freeport Mill: Uncertain.
- Old Mains Mill: Uncertain.

**Archaeological Sites:**

- DEA 0.0: Caplive, the Coves.
- DEA 0.1: Hermit's Well.
- DEA 0.2: Caplive, the Coves.
- DEA 0.3: Archaeological site.
- DEA 0.4: Site of regional importance.
- DE 0.5: Early Christian.
- DEA 0.6: Survey.
- DEA 0.7: Post Mill.
- DEA 0.8: Uncertain.
- DEA 0.9: Not seen.
- DEA 0.10: Early Christian.
- DEA 0.11: Survey.
- **Built heritage and archaeology** - There are no foreshore sites between the Coves and Crail but there are a number of interesting coastal edge sites including two vault pans (NO6016W16, NO6016W39), a salmon fisherman’s cottage (NO6060W660), and a disused coast-guard station (NO60910682). There is also a collection of sites on the shore below the coast-guard station all located within a small area, a cleared slipway (NO60980688), evidence of mine working (NO60980698), drystone buildings visible in the eroding cliff-face (NO61100698), and a recorded burial cist burial site (NO6016W16) which was not seen. The Royal Burgh of Crail has two harbours. The main harbour (NO6014W71) is still in use and is described in more detail in site description 5. A second, ‘Roome harbour’ was used periodically as a natural haven since the 16th century and there are still remains of a cobbled slip-way at that site. Two shell and bone middens were also located above the high water mark at the north-east end of Crail village (NO61580782, NO61720785); site description 5) and these need to be recorded in more detail. In the same area there is an intertidal swimming pool (NO61600772) with cement bordering which bears a ship graffiti inscribed in cement with the date “1915” next to it. Between Crail and Fife Ness, no sites have survived on the foreshore but there are numerous features associated with the defence of Crail airfield which are still visible along the coast edge. These include pillboxes (NO62170783, NO62770812, NO62990853, NO6016W49.6, NO6016W49.5), disused trackways to the airfield (NO62300795, NO62610808), foundations for airfield buildings (NO6016W49.1) and standing buildings (NO62800850, NO63950851). In addition to the Crail Airfield complex, the area of Kilminting Castle is of interest. Although there are no visible remains of Kilminting chapel (NO6016W39), a known burial site in the ploughed fields nearby has yielded numerous human bones. A flat grass platform(NO63200865) below the position given for the chapel site was identified as being of particular interest.

- **Hinterland geology and coastal geomorphology** - The lack of foreshore sites along this coastal stretch may be due to the predominance of the rock platform along this coastline. Except for localised sheltered bays like Roome Harbour and in the lot of Crail harbour walls (Geology units 4, 7), there is almost no sand cover along this stretch. Any sediment which may have accumulated high up on the rocky shore will have eroded from the coast edge. A raised beach backs the foreshore except for a section of blown sand deposit which can be seen near the coast edge in the vicinity of Crail. The raised beach is most evident in short cliff sections by Roome Harbour (Geology Unit 7) and west of Crail Harbour (Geology Unit 3). There was clear evidence of erosion of much of the unprotected raised beach just behind the coastal edge but this has not been caused by marine action. For the most part, the rocky foreshore remains stable.
### MAP 20: THE COVES TO FIFFENESS

#### EROSION UNITS

<table>
<thead>
<tr>
<th>No.</th>
<th>Reference</th>
<th>Distance</th>
<th>Type</th>
<th>Condition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NO601058</td>
<td>0.2 km</td>
<td>Stable</td>
<td>Accreting</td>
<td>Rocky foreshore by Coitlie Coves.</td>
</tr>
<tr>
<td>2</td>
<td>NO602060</td>
<td>0.1 km</td>
<td>Stable</td>
<td>Accreting or Stable</td>
<td>Localised build-up of sand on the foreshore.</td>
</tr>
<tr>
<td>3</td>
<td>NO604062</td>
<td>0.4 km</td>
<td>Stable</td>
<td>Accreting or Stable</td>
<td>Localised erosion of land-fill coastal edge behind a stable foreshore.</td>
</tr>
<tr>
<td>4</td>
<td>NO605065</td>
<td>0.2 km</td>
<td>Stable</td>
<td>Stable rocky foreshore.</td>
<td>Rocky foreshore is stable.</td>
</tr>
<tr>
<td>5</td>
<td>NO609066</td>
<td>0.2 km</td>
<td>Stable</td>
<td>Accreting and Eroding</td>
<td>Accretion of sediments along the foreshore and erosion of the coastline behind.</td>
</tr>
<tr>
<td>6</td>
<td>NO611069</td>
<td>0.1 km</td>
<td>Accreting or Stable</td>
<td>Accretion of sediments along the foreshore and a stable coastal edge.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>NO612071</td>
<td>0.2 km</td>
<td>Definitely Eroding</td>
<td>Localised cliff erosion near Westland Shelly.</td>
<td></td>
</tr>
</tbody>
</table>
| 8   | NO612073  | 0.2 km   | Eroding or Stable | The cliff may be eroding but the rocky fore- |}

---

shore is stable.

10 NO611074 0.1 km
Both accreting and eroding. Cliffs west of harbour are eroding with evidence suggesting accretion on a sandy beach.

11 NO612074 0.1 km
Stable. Crail Harbour is stable.

12 NO616076 0.5 km
Eroding or Stable. Partial erosion of the coastal edge and a stable rocky foreshore.

13 NO618079 0.3 km
Accreting or Stable. Accumulation of sand in the bay to the north east of Crail. Coastal edge is partially protected by coastal defence.

14 NO620079 0.2 km
Definitely Eroding. The cliffs at the eastern end of Roome Harbour.

15 NO626080 1.2 km
Eroding or Stable. The coastal edge may be eroding behind a rocky foreshore.

16 NO630085 0.2 km
Definitely Eroding. Localised erosion of the cliff face.

17 NO634091 1.5 km
Eroding or Stable. The coastal edge may be eroding behind a rocky foreshore between Kilnamanich and Fiffeness.
MAP 20: THE COVES TO PIFNESS

GEOLOGY UNITS

1
NO606065
1.5 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
The Griffiths Coves are formed from raised beach materials, the dominant coastal edge geology type along this sector.

2
NO611070
0.3 km
Mainly rock platform
Cliff (> 5 metres)
Raised beach and marine deposits
Cliffs rise steeply just to the west of the Coastguard Station. Large boulders occur on the platform surface below and these have presumably eroded from the cliffs.

3
NO611072
0.2 km
Mainly rock platform
Cliff (> 5 metres) and man made barrier
Raised beach and marine deposits
The high cliff continues round towards Cral Harbour by Westland Skelly. As the cliffs approach Cral village, some of the coastline has been protected by sea-defences.

4
NO611974
0.1 km
Mainly sand
Man made barrier
Blown sand
Sand has accumulated over the rock platform within the sheltered environment created by Cral Harbour, forming a beach with high cliff behind. Some of the beach material may have eroded from the cliffs.

5
NO614075
0.5 km
Mainly rock platform
Cliff (> 5 metres) and man made barrier
Blown sand
A high cliff continues to the east of Cral Harbour but descends in height as it trends eastwards. The coastal edge is protected in parts and exposed in others and a rock platform dominates the foreshore once again.

6
NO616078
0.2 km
Mainly rock platform
Man made barrier
Blown sand
The cliff line descends to form a low coastal edge the majority of which is protected by sea-wall.

7
NO619079
0.2 km
Mainly sand
Cliff (> 5 metres)
Raised beach and marine deposits
A cliff (approx 10 metres above O.D.) rises behind Roome Harbour. The sea-beat of this natural cove consists of shingle and sand with a rocky promontory to the west.

8
NO622078
0.2 km
Mainly rock platform
Cliff (> 5 metres)
Raised beach and marine deposits
The cliff continues but descends to form a low coastal edge of raised beach materials behind a rocky foreshore.

9
NO622086
2.0 km
Mainly rock platform
Low edge (< 5 metres)
Raised beach and marine deposits
A low raised beach extends from Cral to Pifness with a rock platform foreshore interpreted only by localized accumulations of boulders and shingle, particularly near the high water mark.
MAP 20: THE COVES TO FIFENESS
BUILT HERITAGE AND ARCHAEOLOGY

Sites behind the foreshore at Crail (CRL)

NO60NW28
CRAIL BURGH
VILLAGE
ARCHAEOLOGICAL SITE OF REGIONAL IMPORTANCE
Uncertain
Noted but not visited
Nil

NO60NW26
CRAIL, TEMPLE CRESCENT; UPPER MEAD BEACON
BEACON
Uncertain
Not seen
Survey

NO60NW25
CRAIL, TEMPLE CRESCENT; LOWER MEAD BEACON
BEACON
Uncertain
Fair
Nil

NO60NW18
CRAIL
JAR
Uncertain
Not seen
Nil

NO60NW46
CRAIL, BATTERY
BATTERY
20th Century
Not seen
Nil

NO60NW13
CRAIL, THE MARKET CROSS; MARKETGATE
PROTECTED ANCIENT MONUMENT
Early 17th Century
Not seen
Nil

NO60NW15
CUNNINGHAM'S CASTLE HOUSE
17th Century uncertain
Not seen
Nil

NO60NW22
CRAIL, BRIERY WELL
WELL
Uncertain
Not seen
Nil

Sites along the coastal edge

NO60NW36
THE COVES
SALT PAN
Uncertain
Fair
Survey

NO60NW37
THE COVES
ENCLOSURE
Uncertain
Not seen
Nil

NO60NW39
CRAIL
BUILDINGS: SALT PANS
17th - 19th Century
Fair
Survey

NO60600660
Crair
Salmon Fisherman's Cottage
17th - 19th Century
Fair
Survey

NO60NW38
CRAIL
TILE-WORKS
Uncertain
Not seen
Nil

NO60601668
Crair
Coastguard Station, Disused
19th - 20th Century
Fair
Nil

NO60980698
Crair
Surface mining, with signs of military reuse
19th and mid 20th Century
Poor
Survey

NO61000690
Crair
Fossil Beds
Uncertain
Fair
Nil

NO61090690
Crair
Fossil Beds
Uncertain
Fair
Nil

NO61100698
Crair
Drystone buildings visible in the eroding face
Uncertain
Poor
Survey, Monitor

NO60NW16
CASTLE HAVEN
CISTS: LONG (POSSIBLE)
Uncertain
Not seen
Nil

NO61100730
Crair
Fossil Tree
Uncertain
Fair
Survey
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<th>Reference</th>
<th>Description</th>
<th>Site Type</th>
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<tr>
<td>NO628000850</td>
<td>Craill Airfield</td>
<td>Buildings</td>
<td>Craill</td>
<td>Buildings at Gouts</td>
<td>Mid 20th Century</td>
<td>Fair</td>
<td>Survey</td>
<td>Nil</td>
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<tr>
<td>NO62910853</td>
<td>Craill Airfield</td>
<td>Octagonal, brick pill box</td>
<td>Craill</td>
<td>Octagonal, brick pill box</td>
<td>Mid 20th Century</td>
<td>Fair</td>
<td>Survey</td>
<td>Nil</td>
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<tr>
<td>NO63250851</td>
<td>Craill Airfield</td>
<td>Pump house (1.5 metres square)</td>
<td>Craill</td>
<td>Pump house (1.5 metres square)</td>
<td>Mid 20th Century</td>
<td>Fair</td>
<td>Survey</td>
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<tr>
<td>NO632509865</td>
<td>Kilmninng Castle</td>
<td>Below site of Kilmninng castle is a large flat ground platform</td>
<td>Kilmninng Castle</td>
<td>Below site of Kilmninng castle is a large flat ground platform</td>
<td>Uncertain</td>
<td>Fair</td>
<td>Monitor</td>
<td>Nil</td>
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<tr>
<td>NO65NW 8</td>
<td>KILMINNING CASTLE</td>
<td>LONG CIST CEMETERY; CHAPEL</td>
<td>KILMINNING CASTLE</td>
<td>LONG CIST CEMETERY; CHAPEL</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Monitor</td>
<td>Nil</td>
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<tr>
<td>NO6320990</td>
<td>Kilmninng Castle</td>
<td>Quarry pits</td>
<td>Kilmninng Castle</td>
<td>Quarry pits</td>
<td>Uncertain</td>
<td>Fair</td>
<td>Monitor</td>
<td>Nil</td>
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<td>-------</td>
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</tr>
<tr>
<td>NO60NW29</td>
<td>CRAIL, 8 WEST SHOREGATE: SHIRE HOUSE</td>
<td>Uncertain</td>
<td>Not seen</td>
<td>Nil</td>
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<td></td>
<td></td>
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<tr>
<td>NO60NW44</td>
<td>CRAIL, 35 SHOREGATE, CUSTOM HOUSE</td>
<td>17th Century</td>
<td>Fair</td>
<td>Nil</td>
<td></td>
<td></td>
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<tr>
<td>NO60NW31</td>
<td>CRAIL HARBOUR</td>
<td>ARCHAELOGICAL SITE OF REGIONAL IMPORTANCE</td>
<td><em>See site description 6</em></td>
<td>Fair</td>
<td><em>Survey Monitor</em></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>NO60NW12</td>
<td>CRAIL DOVECOTE</td>
<td>17th–19th Century</td>
<td>Fair</td>
<td>Nil</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO61720789</td>
<td>CRAIL</td>
<td>Midden containing shell, pottery, and bone in the eroding face.</td>
<td>Uncertain</td>
<td>Poor</td>
<td><em>Survey Monitor</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO60NW35</td>
<td>ROOME HARBOUR, HARBOUR (POSSIBLE) including laid pebble slipway and track through the stable dunes (NGR: NO62040781)</td>
<td>17th–19th Century</td>
<td>Poor</td>
<td>Survey</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO60NW49.0</td>
<td>CRAIL AIRFIELD</td>
<td>AIRFIELD, HANGARS, NISSAN HUTS, MONUMENT FORMALLY PROPOSED FOR PROTECTION BY HISTORIC SCOTLAND</td>
<td><em>ARCHAELOGICAL SITE OF REGIONAL IMPORTANCE</em></td>
<td>Fair</td>
<td>Nil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO62170785</td>
<td>CRAIL AIRFIELD</td>
<td>Pill box, concrete (looking north into the airfield)</td>
<td>Mid 20th Century</td>
<td>Fair</td>
<td>Survey</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**P.T.O.**

*Historic Scotland*
Site Description: A complex of hulks and jetty piles lying in mud on the foreshore below Kincardine and comprising:
- Remains of dock, piers, walkways, Cruive bank and 5 or 6 wooden ship hulks NS92508760.
- Remains of hulk NS92808727
- Remains of hulk NS92878725
- Remains of hulk NS92858720
- Remains of hulk NS92058690
- Remains of hulk NS93248665
- Wooden dock and jetty, survives as wooden stakes in lines NS93408650

Threat:
The site is not under any immediate threat. Potential threats include the proposed building of a third Forth crossing at Kincardine, or any other development of this coastal stretch.

Importance:
Although under no immediate threat the archaeological resource of this area is of great importance to the maritime heritage of Fife. The collection of hulks and other remaining features at Kincardine represent the maritime community of this area from 1828 onwards and aspects of fishing, transport, ship building and trade are all present at Kincardine.

Research:
NS92508760: 'Believed to be the remains of' a boathbuilding jetty and walkway dating from the 19th Century with the widest of the two lines of wooden piles probably indicating a boathbuilding platform and the narrow run of wooden piles a walkway. One of the hulks may have been the Oceanic, a twin ruddered cattle ferry towed back and forth by two steam tugs the Tulillan and the Robert Bruce. The Oceanic saw service between 1828-1835 but was abandoned in 1835 when the two steam tugs moved up to Aulco. The cruise bank was used as a fishing platform with 2 walkway approaches. One of the walkways has now been covered over by a drainage pipe. In place of nets, the Kincardine fishermen used a cruive or fish-trap. The cruive was constructed out of wicker work and consisted of three parts fitted over each other: a funnel shape, 10' long with a mouth of 7' diameter tapering to 4' on which was fitted a bung which was the same form as the cruive but smaller. The final part, and the section which formed the trap, was the weld. The weld which was about 4' long with a closed end. The fishermen weighed their traps with stones, placed them on specially constructed platforms, with the mouth of the cruive positioned facing up river to trap any fish moving downstream with the ebb tide. In the 1790's this part of the Dunfermline shore of the Forth had 180 such devices, and the remains of one of these platforms can be seen just to the west of Kincardine Bridge (NS92508760). This method of fishing seems to have been in use for a considerable period as the original rights to use cruives in this area belonged to the Abbot of Culross, passing to lay proprietors at the time of the Reformation.

Recommendations:
Historic Scotland should consider a survey of the intertidal wrecks and associated structures (NS92508760 to NS93248665). Maritime Fife also suggests that Historic Scotland consider legislative protection of this site.

Fig. 3 - Kincardine NS95208760
Kincardine sheet NS98NW
Scale 1:10,000 Series enlarged to 2:1

Fig. 4 Kincardine buoys, jetty, and cruise bank
NS92308760. January 1996. (Rodger Bahr)
Site Description 2: NO03248446.
NMRS code: None
Site status: Other known monument

Description:
Existing remains consist of a circular mound of stone blocks (size: small boulders to cobbles) with possible internal semi-circular cells, an entrance way facing the shore. The site is situated on an exposed bed-rock outcrop on the foreshore to the east of Crombie Point. The general orientation of the site is west through south to east and the visible remains cover an approximate area of 10 square meters.

Threat: This interesting site appears to be fairly stable at present as it is situated in a fairly sheltered burial environment where the general picture is of sediment accretion.

Research: No research has been undertaken to date. However, this site is of archaeological interest and if confirmed as a crannog, represents the only known crannog site in the Forth Estuary (Hale A., Pers Comm.)

Recommendations: Maritime Fife is proposing to undertake a survey of the visible remains of the site under the direction of Alex Hale in order to identify the layout of the site and to investigate its origin and function. Maritime Fife has tabled a provisional date for the survey to be undertaken and anticipates that further information from this survey will be available by the end of 1996.
Fig. 5 - Crombie 'crannog'
Crombie: sheet NT08SW
Scale 1:10,000 enlarged to 2:1

Fig. 6
Photograph of Crombie Point
January 1996 (Alex Hale, Christopher Burgess)
Site name: EAST WEMYSS GAS WORKS

NMRs code: NT39NW20
Site status: Other known monument

Description:
This interesting industrial site consists of brick foundations (bricks marked 'Boyle, McJannet and Co.') laid out and levelled to the ground, a concrete circular basin, remains of a brick building structure in the eroding face, possibly the foundations of houses for the gas-work staff, an outer sea defence wall and several stone boundary walls. The remains originate from the East Wemyss gas works which dates to the 19th Century and was in use well into the 20th Century. The existing features run parallel to the coastline and extend between 40 and 100 metres along it. The existing coastal path between East Wemyss and Buckhaven runs directly through the site and the remains are located at approximately the level of High Water Springs. Associated sites include Gasworks Cave (NT39NW13) which was located during the building of a gasometer in the 19th Century where investigations identified signs of human habitation but no remains of wall carvings.

The site was photographed and a sketch plan made of the outstanding features.

Threat:
The main threat posed to this site is from erosion by the sea. The remains are located close to the high water mark and exposed to the sea, as the site is from south-west through south to north-east, the site appears to be battered by the force of the waves, particularly during periods of high tides and strong easterly winds. The whole site was strewn with litter and beach debris, some of which may have originated from the gaswork remains. Although the concrete circular basin foundations appear stable, those brick foundations which are at the coastal edge appear to be eroding fairly rapidly. The site will be further destabilised once the original concrete sea defence wall collapses due to the force of the sea. One breach has already occurred and the remaining wall appears dilapidated. In addition, graffiti on the walls of the building structure suggest that vandalism may also present a management problem.

Research:
No research or survey information located.

Recommendations:
This site has not been surveyed, probably because it is a fairly modern industrial monument. The lack of survey information on this site and the ongoing threat of erosion to it suggest that more investigation is needed. Maritime Fife suggest that this would be most effectively carried out by undertaking a measured survey of the site and a more detailed assessment of erosion rates using baseline datum measurements set up along the coast edge by the gasworks and between the works and East Wemyss. This survey should be backed up by periodic monitoring and remeasuring of the datum positions in relation to the coast edge which would enable an accurate assessment of the effects of erosion to the site to be made.
Fig. 7 - East Wemyss Gasworks
East Wemyss sheet NT39NW
Scale 1:10,000 Series enlarged to 2:1

Fig. 8: Eroding brick pipework and foundations
Photograph by Rudiger Bahr

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Historic Scotland
Site description: NO41300240  Site Name: LUNDIN LINKS CEMETERY: LONG CIST
NMRS code: NO46SW013
Site status: Archaeological Site of Regional Importance.

Description:
A burial mound of 17 long cists, arranged in parallel rows E-W at regular distances was located during quarrying work in 1856-8. Extended skeletons lay on shells and pebbles covering a floor paved with flagstones. A piece of corroded iron about 2” long was found in one cist. The site was at that time located just above the high water mark. In 1864, another oriented long cist was found, situated approximately 3 feet above the high water mark. A few skeletal fragments from the cists were removed (Henshall 1955-56, 383).

In 1967, a rescue excavation was carried out following a police report on the finding of a burial site at this location. The skeleton of one burial was removed and no grave goods were found. The skeleton and others from the same burial ground are now in the possession of Dundee University Anatomy Department (Maclagan-Webb 1967, 26).

The survey located several bones, possibly rib and limb bones, protruding from a top-soil and sand layer over bedrock on an eroding face behind the foreshore at Lundin Links. There was no other archeological evidence although material may have been lost to erosion of the face. The site was photographed and a sketch taken of the eroding face. Three loose bones were recovered and the Pifo Police Department were informed of the find.

Threat:
Recent coastal erosion has broken through the sea defences at this site and undermined soft blown sand deposits along the coastal edge causing slumping of material onto the foreshore. This erosion has exposed features from this long cist burial and some of the remains have probably been lost as a result. The extent of the erosion at this point will be exacerbated by further periods of strong easterly winds and spring tides, and the existence of further remains inshore but, now near to the coastal edge must be cause for concern. Further combinations of bad weather and spring tides will inevitably cause further erosion along this unprotected edge and, as a consequence, the loss of these archaeological deposits.

Research:
Descriptions above have been taken from the National Monuments Record (NMRS):
And: Durham-Dundas, A 1857-60 Proc Soc Antiq Scot, 3 P.159; P.183.

Recommendations:
Given the threat of erosion to this important site, a survey and partial rescue excavation of exposed remains is recommended along with follow-up site monitoring to assess the ongoing threat posed by coastal erosion and slumping of the eroding face.
Fig 9: Lundin Links
Lundin: sheet Fifeshire XX1SW
6 inch (1:10,650) - scale enlarged to 2:1

Fig 10: Exposed human remains on the eroding face
Photograph - Christopher Burgess, Alex Hale
Description: Shell middens as follow:

- **NT49809940**: Concentration of shell deposits which may be natural, located in an eroding face at Sauchar Point. The date of this deposit, if it is confirmed as a midden, is uncertain, and its condition fair.

- **NT49829955**: A layer of mussel shells and fish bones in a deposit of sandy brown soil indicating that this is possibly the site of a kitchen midden. The date of this deposit is uncertain and its condition fair.

- **NO61580780**: Layer of shells, bones and roughly cast pottery under about 0.5 metres of topsoil with a base of rubble and soil. The eroding face is fronted by a delapidated beach wall built on a sandstone bedrock layer. The date of the deposit is uncertain and its condition is fairly poor due to the collapse of the facing wall structure (Location shown opposite).

- **NO61720789**: Layer of midden and limpet shells mixed with rough pottery and bone fragments and raised beach deposits covered by c. 0.5 metres of topsoil. The face of the deposit may be eroding but not due to marine action, the midden is located above the high water mark on a sandstone platform. The date of this deposit is uncertain and its condition is fair (Location and photograph opposite).

Threat:
The principal threat to these sites is from erosion. All of the middens are located above the high water mark so erosion by marine action, except perhaps during bad easterly gales, should not present a problem. However, in the case of the sites at Craul, erosion of the face appeared to be occurring probably caused by rainwater run-off or wind.

Research:
No middens are recorded in either of these locations although middens generally feature heavily throughout the National Monuments Record. Their frequency suggests a widespread use of the marine resource throughout antiquity by inhabitants of this coastline. In general, raised beaches often consist of areas of sand and pebbles, and sometimes contain seashells or middens comprising shells and bones of marine animals used by humans.

The location of those mentioned above and, in particular, of NO61720789, in a raised beach environment with sandstone platform, provides pointers to the level of a post-glacial coastline. However, further survey work and identification of the deposits would be needed to confirm a possible date for the deposits and any connection with earlier coastlines.

Recommendations:
Further investigation is required to confirm the identity, extent and origin of these sites. In view of a potential threat by erosion in the future, and because the sites are already exposed, the following action is recommended:

- **NT49809940**: Monitor
- **NT49829955**: Survey/Monitor
- **NO61580780**: Survey/Monitor
- **NO61720789**: Survey/Monitor

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Fig 11: Crawl middens (NO6158/78,W),(NO6172/78,W)
Crawl: sheet NO60/WW
Scale 1:10,000 Series enlarged to 2:1

Fig 12: Recording midden (NO6172/78)
Photograph by Rodiger Bahr
Site description 6

Site name: Small Harbours (listed below)

NMRS code: Various (listed below)

Site status: Archaeological Sites of Regional Importance

Description: As follows

- Charlestown Harbour (NT08SE31) - Breakwater and inner basin dates probably to the 18th Century harbour but harbour fabric shows 19th Century alterations. Harbour was built to serve the Earl of Elgin's limekilns.

- Dysart Old Harbour (NTJ9SW20) - Existing remains consist of a reinforced natural rock cut with cut post holes and Bagstones now located below low-water which may have formed a causeway to a landing place at the reef marked 'Partan Craig'. Harbour may date to the 15th Century and was reported to have fallen into disrepair by the late 16th Century when a new harbour was built to the West (NTJ9SW21).

- West Wemyss Harbour (NTJ9SW5) - Harbour works pre-date 1655 when reports suggest storm damage to the works. Long breakwater sheltering inner and outer basins. Some 19th Century construction features of interest, particularly evidence of positioning of warping gear.

- St Monans Harbour (NO50SW70) - Harbours works consist of an outer and inner basin with disused boat yard (Millars of St. Monans). Existing harbour structure dates to 19th Century although there were probably harbour walls in place by the mid 17th Century.

- Pittenweem Harbour (NO50SW71) - Harbour structures were probably in place by the late 16th or early 17th Century but the existing fabric dates mostly to the 18th and 19th centuries following frequent repair programmes. Harbour consists of a west basin, an inner basin and a main pier with a fine 18th or early 19th Century granary building on the shore head. A second 'boat harbour' was created to the east of the main harbour and this consists of a reinforced natural rock cut with iron rails and a place for wooden mast. This dates possibly to the 16th Century. A modern extension to one of the piers is reported to have caused erosion to the east of the harbour (Ashmore, Pers. Comm.) although this was not immediately evident during the survey.

- Anstruther West or Harbour (NO50SE49) - Earliest evidence for a harbour structure dates to 1604. However, the burgh lost trade in the 17th Century and the harbour fell into disrepair. Existing remains consist of a stone quay which has probably been rebuilt.

- Anstruther Easter Harbour (NO50SE48) - This basin was used as an anchorage at least since the Medieval period. A harbour was certainly in existence by the 1580's. Today, the harbour consists of two basins separated by an original 18th Century stone pier. A whole was cut into the end of this original pier to allow access to the inner basin. The West Pier dates mostly from the 18th Century with an extension from the 19th Century. Damage is reported to have occurred during 1995 (Ashmore, Pers. Comm.) although this was not immediately evident during the survey.

- Cefn Harpdyke Harbour (NO50SE47) - The origins of the harbour at Cefnharpdyke go back to the 16th Century and a cross-pier with breakwater certainly existed before improvements in 1829. The slipway has been added since 1854.

- Crail Harbour (NO60NW31) - A 'Haven' was known to exist at the present site during the late 15th Century and a harbour breakwater was certainly in place by the late 16th Century. The existing West Pier dates to improvements made in 1823 and the slipway, the quay to the north of the harbour basin as well as the Pier Head are both 19th Century developments.

Threat: Recent breaches and damage to the harbour walls at St. Andrews and Cefnharpdyke (See photographs) suggest that the fabric of some of these harbours may be deteriorating and that a substantial repair programme may be necessary to prevent them from falling into a dilapidated state. The state of disrepair is due mainly to a peacetime approach to maintenance which has been the favoured policy since the 18th Century. Now that most of these harbours are used only sporadically, the incentive to spend the necessary funds on them may be lacking, and in time, this will have an severe effect on the long term condition of these important sites.
Research: Information has been taken from the following references:


Recommendations: A thorough photographic and measured survey of these harbours should be undertaken to assess the importance of each, the current condition of their harbour walls, with a view to establishing priorities for management and repair.

Fig 13: Damage to the head of the outer harbour wall at Cellardyke. Photograph taken on 5 February 1996 by Neil Dobson
Fig 14: Measured survey of Cellardyke Harbour 1994 by Michael Tude
SUMMARY AND RECOMMENDATIONS

In general the survey achieved its main objectives, a rapid assessment of the coast edge, intertidal zone, and 100 metre land strip. However, a 12 day field survey of a coastline 107 km in length with 700+ sites cannot achieve total coverage and further work is needed to enable more complete recording of the resource. The field team located a large number of new sites on the foreshore which will be included in the Maritime Fife database. Where sites have been recorded before, this survey generally confirmed existing bibliographic records, but in some cases changes had occurred and mostly this was due to coastal erosion. The value of ongoing monitoring and coastal assessments became clear because rapid changes were soon to be occurring to coastal sites which had been set-off by some environmental or man made trigger. Without such periodic assessment, identifying sites under threat would be impossible as would any management to meet that threat.

The following pages represent a summary of the findings of the survey including observations on the coastal heritage resource, estimates of coastal erosion and its effects on this resource, and general recommendations for the future management of this resource. Detailed recommendations have been submitted separately to Historic Scotland.

Built heritage and archaeology

The survey identified 724 sites within the target area. The table below illustrates how these sites breakdown by status.

<table>
<thead>
<tr>
<th>MONUMENT STATUS</th>
<th>TOTAL NUMBER OF SITES</th>
<th>NUMBER AFFECTED BY EROSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROTECTED ANCIENT MONUMENTS</td>
<td>44</td>
<td>3</td>
</tr>
<tr>
<td>OTHER KNOWN MONUMENTS</td>
<td>325</td>
<td>23</td>
</tr>
<tr>
<td>MONUMENTS FORMALLY PROPOSED FOR PROTECTION</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>LISTED BUILDINGS</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>NON LISTED BUILDINGS</td>
<td>294</td>
<td>0</td>
</tr>
<tr>
<td>WRECKS</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>DESIGNED LANDSCAPES</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>ARCHAEOLOGICAL SITES OR AREAS OF REGIONAL IMPORTANCE</td>
<td>31</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>724</td>
<td>31</td>
</tr>
</tbody>
</table>

Fig 15: Breakdown by site status of total numbers of recorded sites and the effects of erosion on each site.
Previously un-recorded sites.

The survey located 179 sites which as far as is known, have not been recorded on either the National Monuments Record for Scotland (NMRS) or the Fife Sites and Monuments Record. The majority of these new sites were located on the foreshore where little systematic recording has been undertaken until now. A smaller proportion were seen on the eroding face of the coast edge.

Of particular regional interest are the intertidal wrecks and associated structures located on the banks of the Forth estuary at Kincardine (NS92508760 to NS9324865) see site description 1) a feature described as the Crombie Crannog (NT0248446: see site description 2). The numerous fish-traps seen along the foreshore are also of interest although in some cases it was unclear whether the features were indeed ‘fish-traps’. Of particular local interest are the salmon stake nets along the beach of Largo Bay, some of which have not long fallen into disrepair. The fragile nature of these features was evident to the survey team and, although they remain in a fair condition at present, they will not do so for long (see map and gazetteer for Largo Bay No. 16).

Amongst the numerous sites dating to the Defence of Britain campaigns in World War I and II, the glider traps (NT250860) visible in Burntisland Bay may be of particular interest because they remain largely unrecorded. Like many of the sheltered foreshore sites, these glider traps appeared to be fairly stable. Notable examples of newly recorded features where erosion was perceived to be a management problem include the middens at Crail and Elie (Crail: NO61720789, NO61580780 and Elie: NT49809940, NT49289955 and site description 5).

Known sites

A further 545 sites within the target area have already been recorded on the National Monuments Record for Scotland (NMRS). Very few of these sites were located on the foreshore, a statistic which illustrates where surveys have concentrated in the past. The total recorded resource includes 44 Protected Ancient Monuments, 14 Listed Buildings, and 31 Archaeological Sites of Regional Importance (ASRs). These recorded sites vary from small harbours (e.g. various: site description 6) and industrial monuments relating to the production of salt (e.g. NT08NW31), lime (e.g. NT08SE32), and coal (e.g. NT39SW25), to Pictish burials (e.g. NO40SW13: site description 4), caves (e.g. NO50NE6), castles (e.g. NT21ME5, NO50SW17), and dovecots (e.g. NO30SW21). The character of this archaeological record broadly reflects the settlement, industrial activities and land-use of this coastline since antiquity.
Coastal erosion

Estimates on coastal erosion have been restricted to the subjective observations of the survey team and their discussions with locals on route. There is clearly a need to corroborate this evidence by baseline recording at a number of fixed locations.

By calculation of the lengths of erosion units, observed during the survey, it appears that approximately 3.21 km (3.8%) of the coastal survey area is definitely experiencing erosion and that there may be erosion occurring along approximately a further 18.19 km (17%) of the coast (see chart opposite). Although erosion rates were seen to vary substantially, even between adjacent sections of coastline, it is nevertheless possible to identify the following trends in coastal erosion along the survey section:

- The coastal stretch between Kincardine and Rosyth is mostly experiencing sediment accretion.
- Between North Queensferry and Dysart, the coastline is mostly stable with localised accretion or erosion.
- Between Dysart and Buckhaven, unprotected sections of coast are experiencing erosion which may be occurring rapidly in places.
- Between Methil and Earlsherry, erosion of sand along the coast edge is commonly redeposited on the foreshore.
- Between Earlsherry and Fifeness, erosion of an unprotected coast edge can be seen in many places and, particularly in the sheltered bays between Earlsherry and Elie, sand is accreting on the foreshore.

The factors which were perceived to play a major part in controlling the erosion rates along the coastal edge include the deployment of coastal defence measures, the geology of the coastal edge, and the degree of shoreline exposure.

Coastal defences were seen to be effective in limiting erosion along protected stretches but the resulting effects to unprotected sections of coastline, while difficult to quantify, need to be considered by Historic Scotland. For example, while a coastal stretch protected by a hard concrete wall might be stable, the adjacent unprotected coastal edge might be experiencing rapid erosion (West Wemyss and East Wemyss: Erosion Class Map and Gazetteer No 12).

Erosion rates varied between a coastal edge comprising bedrock geology and raised beach and marine deposits or land-fill. The unprotected coastal edge between West, Wemyss, East Wemyss and Buckhaven, which comprises drift clay or land-fill deposits is experiencing rapid erosion whereas the unprotected bed-rock promontories between North Queensferry and Kinghorn appear stable.

While the Firth of Forth east of the Forth Road bridge is fully exposed to the open sea with the effects of erosion by the sea particularly destructive during prolonged periods of easterly gales and spring tides (as happened during the winter of 1995/6), the sheltered estuarine area to the west of the Forth Road Bridge displays an altogether different picture, with sediment accretion along the foreshore, comprising mostly mud originating from the upper reaches of the Forth.

Marine Fife

Historic Scotland
It is estimated that erosion may be having a detrimental effect on 31 of the sites seen during the survey (see table on previous page). The important Pictish Cist at Londin Links (N040/SW13: site description 4) is probably the site that is most under threat with significant erosion of the deposits caused by slumping of the coast edge occurring during the three weeks of the field survey. Further material will be lost from this deposit when easterly gales and spring high tides coincide once again. More gradual deterioration of features is evident on a number of monuments and sites including the Gas Works at East Wemyss (NT39NW20: site description 3), and the midden at Crail and Elie (Crail: NO6172789, NO61580780 and Elie: NT49809940, NT49289955). A selection of sites was identified where erosion is not occurring to the monument itself, but where deterioration of the surrounding environment and deposits nearby suggest that there may be a problem in the future. Examples which fit this latter category and which may come under threat within the next five years include the Protected Ancient Monument Seafield Tower (NT28NE5), Newark Castle (NO50SW17) and the Wemyss Caves (See Built Heritage and Archaeology map and gazetteer No.12).

The condition of the ‘small harbours’ of the Firth of Forth (designated as Archaeological Sites of Regional Importance: see site description 6) must be a matter for grave concern. Recent breaches in the harbour walls at Collardyke, secondhand reports of erosion to Anstruther Easter and Pittenweem harbours (Ashmore, pers comm.) and a major restoration project underway at St. Andrews are both indications that the fabric of these important harbours may be in a serious state of disrepair. While erosion is undoubtedly a factor in this, the decline in use of these harbours in the last 100 years has been marked by a ‘peacetime’ approach to their maintenance (Moore,1992).

![Diagram showing distances (km) for erosion units (% by total length (km))](image)

Marion Flic

Historic Scotland
General recommendations

The following recommendations concern previously unrecorded sites where there is further need for investigatory fieldwork, or recorded sites where the survey team identified a need to carry out further work because the site appeared to be in poor condition or because erosion represented a threat to its fabric. Recommendations have been categorised as suggested in the Procedures (‘Nil’, ‘Survey’, ‘Monitor’, ‘Survey and Monitor’). Detailed recommendations including suggestions related to many of the sites singled out above have been submitted separately to Historic Scotland.

Maritime Fife suggests that the following management programme be considered:

- **Survey**: 86 sites
- **Monitor**: 21 sites
- **Survey and monitor**: 22 sites
- **Nil - no action required**: 595 sites.
3.0 ACKNOWLEDGEMENTS

The following individuals deserve acknowledgement. Field director Christopher Burgess and other members of the field team Rudiger Bahr, and Alex Hale; Ian Oxley, Patrick Ashmore, Peter Yoonan, Sarah Govan, Robert Prescott, Annabel Wood, Michael Dun, Colin Martin, Michael Tattle, Neil Dobson, Kevin Robinson, Deanna Groom, and others for their assistance, advice, information, drawings, or photographs.
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Maps

Ordnance Survey 1993 Pathfinder 393 (NS 88/98) Falkirk (North) 1:25 000

Ordnance Survey 1988 Pathfinder 394 (NT 08/08) Dunfermline 1:25 000

Ordnance Survey 1992 Pathfinder 395 (NT 28) Burntisland 1:25 000

Ordnance Survey 1993 Pathfinder 385 (NT 29/39) Kirkcaldy and Buckhaven 1:25 000

Ordnance Survey 1993 Pathfinder 373 (NO 20/30) Glenrothes and Falkland 1:25,000

Ordnance Survey 1977 Pathfinder 374 (NO 40/50) Anstruther 1:25 000

Ordnance Survey 1979 Pathfinder [unnumbered] (NO 60/61) Cram 1:25 000

Ordnance Survey 1971 British Geological Survey North Berwick 41 1: 50 000

Ordnance Survey 1967 British Geological Survey Edinburgh 32 1: 50 000

Ordnance Survey 1972 NO60NW 1:10,000 Series

Ordnance Survey 1912 Fifeshire XXIIW 6 inch (1:10,650) series

Ordnance Survey 1972 NT39NW 1:10,000 Series

Ordnance Survey 1972 NT08SW 1:10,000 Series

Ordnance Survey 1972 NS08NW 1:10,000 Series

Marine Flora