

**Blackwater River (Cork/Waterford) SAC (site code
2170)
Conservation objectives supporting document
-coastal habitats**

NPWS

Version 1

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Please note that the opinions expressed in the site reports from the Saltmarsh Monitoring Project are those of the authors and do not necessarily reflect the opinion or policy of NPWS.

Please note that this document should be read in conjunction with the following report: NPWS (2012). Conservation Objectives: Blackwater River (Cork/Waterford) SAC 002170. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

1 Introduction

Achieving Favourable Conservation Status (FCS) is the overall objective to be reached for all Annex I habitat types and Annex II species of European Community interest listed in the Habitats Directive 92/43/EEC (Commission of the European Communities, 2007). It is defined in positive terms, such that a habitat type or species must be prospering and have good prospects of continuing to do so.

The River Blackwater is one of the largest rivers in Ireland, draining a major part of County Cork and parts of Counties Kerry, Limerick and Waterford including five mountain ranges. The site consists of most of the freshwater stretches of the river system as well as the estuarine component downstream from Cappoquin.

Blackwater River (Cork/Waterford) SAC (site code: 2170) is designated for a range of coastal habitats including vegetated shingle and saltmarsh. The following four coastal habitats are included in the list of qualifying interests for the site:

- Perennial vegetation of stony banks (1220)
- *Salicornia* and other annuals colonising mud and sand (1310)
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (ASM) (1330)
- Mediterranean salt meadows (*Juncetalia maritimi*) (MSM) (1410)

The first habitat represents vegetated shingle, the next three are saltmarsh habitats. All four of these habitats are found in close association with each other.

This backing document sets out the conservation objectives for the four coastal habitats listed above in Blackwater River (Cork/Waterford) SAC, which are defined by a list of parameters, attributes and targets. The main parameters are (a) Range (b) Area and (c) Structure and Functions, the last of which is broken down into a number of attributes, including physical structure, vegetation structure and vegetation composition.

The targets set for the **shingle** are based in part on the findings of the National Shingle Beach Survey (NSBS), which was carried out in 1999 on behalf of the National Parks and Wildlife Service (NPWS) (Moore & Wilson, 1999).

The NSBS visited the following sub-site within Blackwater River SAC:

1. Ferrypoint (County Waterford), which is located on the eastern side of the entrance to Youghal Harbour.

Profiles and transects were recorded from each shingle beach and each site was assigned a High/Medium/Low interest ranking. A 'high interest' ranking denotes a site that is of high

conservation value. The site may be of interest botanically or geomorphologically. A 'medium interest' ranking implies the site may be extensive but not of particular interest either botanically or geomorphologically. A 'low interest' ranking is reserved for small sites, highly damaged sites or sites that are of a very common classification. At Blackwater River, the Ferrypoint sub-site is rated 'high interest owing to the presence of a diverse flora'.

The Ferrypoint sub-site represents one of the larger shingle systems in County Waterford and is of particular interest as a well-developed vegetated shingle spit. It supports a diverse flora that includes bramble (*Rubus fruticosus*), gorse (*Ulex europaeus*) and even hawthorn (*Crataegus monogyna*) growing near the centre, over a shingle-based *Festuca*-dominated grassland. There is also a brackish lagoon on the eastern side of the site. A small population of yellow horned poppy (*Glaucium flavum*) is found on the southern side of the spit. A house and access road runs along the northern edge of the spit (Moore & Wilson, 1999). The habitat was not mapped by the NSBS but the vegetation was recorded, as were the human impacts and alterations at the site, which are useful tools for assessing the Structure & Functions of the site.

The targets set for the **saltmarsh habitats** are based primarily on the results of the Saltmarsh Monitoring Project (SMP) (McCorry & Ryle, 2009) and this document should be read in conjunction with that report. The distribution of saltmarsh habitats within Blackwater River (Cork/Waterford) SAC is presented in Appendix I.

The SMP surveyed, mapped and assessed one sub-site within Blackwater River (Cork/Waterford) SAC (McCorry & Ryle, 2009):

1. Kinsalebeg

Kinsalebeg is a small inlet connected to the main estuary that drains at low tide and exposes extensive saltmarsh. This is a bay-type saltmarsh that is underlain by a mud substrate and is an important roosting site for wintering wildfowl. The dominant type of saltmarsh present is ASM and a suite of characteristic species occur at the site. The main inlet forks into two separate smaller inlets with a mainly east-westerly orientation. Both inlets are quite sheltered from the main river estuary. Saltmarsh is found around the shoreline of both inlets and is quite narrow but is best developed in the southern inlet. Small streams flow into the head of both inlets. The saltmarsh fringes soft intertidal mudflats.

Additional saltmarsh sites occur at Tourig Hall and Ballintray House (Curtis & Sheehy-Skeffington 1998; Natura 2000 form).

The habitat *Salicornia* and other annuals colonising mud and sand, was not recorded at Kinsalebeg by the SMP, however it is known to occur elsewhere within the SAC. The largest

area of *Salicornia* is found at the eastern side of the townland of Foxhole, above Youghal. Smaller areas occur at Blackbog and along the Tourig and Kinsalebeg estuaries. In the townland of Foxhole, the saltmarsh area was formerly a reclaimed field. The sluice on the embankment no longer operates and the field area is reverting to saltmarsh. There is a relatively large area of abundant *Salicornia* bed surrounded by saltmarsh on slightly higher ground. The spread of *Spartina* poses a threat to this habitat.

As part of the SMP, detailed individual reports and habitat maps were produced for each sub-site and those produced for the Kinsalebeg sub-site are included in Appendix II. The conservation objectives for the saltmarsh habitats in Blackwater River SAC are based primarily on the findings of the report for the sub-site. However, as it is estimated that this sub-site as surveyed by the SMP represents less than 10% of the total area of saltmarsh within Blackwater River (Cork/Waterford) SAC, the targets set are quite generic and may be adjusted in the future in light of new information.

2 Conservation Objectives

The conservation objective aims to define the favourable conservation condition of a habitat or species at a particular site. Implementation of these objectives will help to ensure that the habitat or species achieves favourable conservation status at a national level.

3 Perennial vegetation of stony banks

Perennial vegetation of stony banks is vegetation that is found at or above the mean high water spring tide mark on shingle beaches (i.e., beaches composed of cobbles and pebbles). It is dominated by perennial species (i.e. plants that continue to grow from year to year). The first species to colonise are annuals or short-lived perennials that are tolerant of periodic displacement or overtopping by high tides and storms. Level, or gently-sloping, high-level mobile beaches, with limited human disturbance, support the best examples of this vegetation. More permanent ridges are formed by storm waves. Several of these storm beaches may be piled against each other to form extensive structures.

There is one large area of shingle at Ferrypoint where it forms a stable spit with a well developed vegetation cover. The spit is composed of small stones and cobbles.

3.1 Overall Objective

The overall objective for 'perennial vegetation of stony banks' in Blackwater River (Cork/Waterford) SAC is to 'maintain the favourable conservation condition'. This objective is

based on an assessment of the current condition of the habitat under a range of attributes and targets. The assessment is divided into three main headings (a) Range, (b) Area and (c) Structure and Functions.

3.2 Area

3.2.1 Habitat extent

Habitat extent is a basic attribute to be assessed when determining the condition of a particular habitat. The target for favourable condition is *'no decrease in extent from the established baseline'*. Bearing in mind that coastal systems are naturally dynamic and subject to change even within a season, this target is assessed subject to natural processes, including erosion and succession.

The exact current extent of this habitat in Blackwater River SAC is unknown, but is thought to be concentrated around the vegetated shingle spit at Ferrypoint. This site represents one of the larger shingle systems within County Waterford (Moore & Wilson, 1999). The National Shingle Beach Survey recorded the habitat at this site, but did not map the extent (Moore & Wilson, 1999).

The target is that the area should be stable or increasing, subject to natural processes, including erosion and succession.

3.3 Range

3.3.1 Habitat distribution

Shingle is concentrated at the spit at Ferrypoint, although there may be other small areas throughout the site.

There should be no decline or change in the distribution of this habitat, unless it is the result of natural processes, including erosion and succession.

3.4 Structure and Functions

A fundamental aim of shingle conservation is to facilitate natural mobility. Shingle beaches are naturally dynamic systems, making them of geomorphological interest as well as ecological interest. They are constantly changing and shingle features are rarely stable in the long term.

3.4.1 Functionality and sediment supply

The health and on-going development of this habitat relies on a continuing supply of shingle sediment. This may occur sporadically as a response to storm events rather than continuously. Interference with the natural coastal processes, through offshore extraction or coastal defence structures in particular, can interrupt the supply of sediment and lead to beach starvation.

The target is to maintain the natural circulation of sediment and organic matter, without any physical obstructions.

3.4.2 Vegetation structure: zonation

Ecological variation in this habitat type depends on stability; the amount of fine material accumulating between the pebbles; climatic conditions; width of the foreshore and past management of the site. The ridges and lows also influence the vegetation patterns, resulting in characteristic zonations of vegetated and bare shingle. In the frontal less stable areas of shingle, the vegetation tends to be dominated by annuals and short-lived salt-tolerant perennials. Where the shingle is more stable the vegetation becomes more perennial in nature and may include grassland, heathland and scrub, depending on the exact nature of the site. The presence of lichens indicates long term stability of the shingle structure.

At the Ferrypoint sub-site there are clear zonations from the mobile substrate at the front of the spit to the more stabilised cobble at the rear of the spit. The vegetated shingle is associated with a *Festuca*-dominated grassland and lagoon.

The target is to maintain the range of coastal habitats, including transitional zones, subject to natural processes including erosion and succession.

3.4.3 Vegetation composition: typical species & sub-communities

The degree of exposure, as well as the coarseness and stability of the substrate determines species diversity. The shingle in Blackwater River (Cork/Waterford) SAC (specifically at Ferrypoint) is known to support a typical flora for this habitat.

The dominant vegetation of the shingle beach at Ferrypoint includes kidney vetch (*Anthyllis vulneraria*), thrift (*Armeria maritima*), sea beet (*Beta vulgaris* ssp. *maritima*), rock samphire (*Crithmum maritimum*), wild carrot (*Daucus carota*), creeping red fescue (*Festuca rubra*), common cleavers (*Galium aparine*), birdsfoot trefoil (*Lotus corniculatus*), long-leaved plantain

(*Plantago lanceolata*) and sea mayweed (*Tripleurospermum maritimum*). Some sections of the spit are very stable and support bramble (*Rubus fruticosus*), gorse (*Ulex europaeus*) and hawthorn (*Crataegus monogyna*). Lichens are well established indicating a level of stability. An interesting feature of this sub-site is the presence of a small population of the locally rare yellow horned poppy (*Glaucium flavum*) (Moore & Wilson, 1999, Natura 2000).

The target for this attribute is to ensure that the typical flora of vegetated shingle is maintained, as are the range of sub-communities within the different zones.

3.4.4 Vegetation composition: negative indicator species

Where the shingle becomes more stabilised, negative indicator species can become an issue. Negative indicator species can include non-native species (e.g. *Centranthus ruber*, *Lupinus arboreus*); species indicative of changes in nutrient status (e.g. *Urtica dioica*) and species not considered to be typical of the habitat (e.g. *Pteridium aquilinum*).

The negative indicator species common nettle (*Urtica dioica*) was recorded in the vegetated shingle habitat at Ferrypoint by the NSBS (Moore & Wilson, 1999).

The target for this attribute is that negative indicator species (including non-native species) should make up less than 5% of the vegetation cover.

4 Saltmarsh habitats

Saltmarshes are stands of vegetation that occur along sheltered coasts, mainly on mud or sand, and are flooded periodically by the sea. They are restricted to the area between mid neap tide level and high water spring tide level. In Ireland, there are four saltmarsh habitats listed under Annex I of the EU Habitats Directive (92/43/EEC):

- ***Salicornia* and other annuals colonising mud and sand (1310)**
- **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (1330) (ASM)**
- **Mediterranean salt meadows (*Juncetalia maritimi*) (1410) (MSM)**
- Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)

The first three habitats (in bold) are listed as Qualifying Interests for Blackwater River (Cork/Waterford) SAC. The fourth is restricted to a small number of sites along the Wexford coast.

One saltmarsh sub-site was surveyed by McCorry and Ryle (2009) in this SAC:

1. Kinsalebeg

Detailed descriptions of each habitat recorded at Kinsalebeg by McCorry and Ryle (2009) during the Saltmarsh Monitoring Project (SMP) can be found in Appendix II.

4.1 Overall Objectives

The overall objective for 'Salicornia and other annuals colonising mud and sand' in Blackwater River (Cork/Waterford) SAC is to '*maintain the favourable conservation condition*'.

The overall objective for 'Atlantic salt meadows' in Blackwater River (Cork/Waterford) SAC is to '*restore the favourable conservation condition*'.

The overall objective for 'Mediterranean salt meadows' in Blackwater River (Cork/Waterford) SAC is to '*maintain the favourable conservation condition*'.

These objectives are based on an assessment of the current condition of each habitat under a range of attributes and targets. The assessment is divided into three main headings (a) Area (b) Range and (c) Structure and Functions.

4.2 Area

4.2.1 Habitat extent

Habitat extent is a basic attribute to be assessed when determining the condition of a particular habitat. The target is no decrease in extent from the baseline which was established by McCorry and Ryle (2009). Bearing in mind that coastal systems are naturally dynamic and subject to change, this target is assessed subject to natural processes, including erosion and succession.

A baseline habitat map of all saltmarsh in the Blackwater River (Cork/Waterford) SAC was produced based on the findings of the SMP (McCorry & Ryle, 2009) and is presented in Appendix I. A total of 4.127ha of saltmarsh habitat was mapped by the SMP within the SAC and an additional 36.797ha of potential saltmarsh habitat was identified using aerial photographs, to give a total estimated area of 40.924ha for the SAC. Of this potential saltmarsh, it is estimated that 28.127ha represents Atlantic salt meadows and 8.67ha represents Mediterranean salt meadows. Future groundtruthing may lead to an adjustment of these figures.

The total area of each saltmarsh habitat within the SAC and the total area of each habitat within the site as mapped by the SMP are presented in the following tables. The target for each habitat is outlined below the relevant table.

There are a number of differences in the figures below. Most of the differences can be explained by the fact that the SMP mapped the total saltmarsh resource at Blackwater River (Cork/Waterford) and not all of the saltmarsh mapped is contained within the SAC boundary. In addition, the total area within the SAC can be greater than given in the SMP as the SMP did not include any mosaics when calculating their total areas. The following rules were applied when calculating the areas for the site's conservation objectives:

1. Where a polygon was identified as a mosaic of an Annex I habitat and a non-Annex I habitat, then the entire area was counted as the Annex I habitat.
2. Where a polygon was identified as a mosaic of two Annex I habitats, the area was divided 50:50 for each habitat.

Sub-site	Total area (ha) of ASM (excluding mosaics) from SMP	Total area (ha) of ASM within SAC boundary (including mosaics)
Kinsalebeg	3.187	2.769
Total	3.187	2.769
Potential habitat	28.127	28.127
Total	31.314	30.896

The target is that the area of ASM should be stable or increasing, subject to natural processes, including erosion and succession.

Sub-site	Total area (ha) of MSM (excluding mosaics) from SMP	Total area (ha) of MSM within SAC boundary (including mosaics)
Kinsalebeg	1.591	1.358
Total	1.591	1.358
Potential habitat	8.67	8.67
Total	10.261	10.028

The target is that the area of MSM should be stable or increasing, subject to natural processes, including erosion and succession.

In the absence of any mapped data on the occurrence of *Salicornia* mudflats the target is that the area should be stable or increasing, subject to natural processes, including erosion and succession.

4.3 Range

4.3.1 Habitat distribution

The current distribution of saltmarsh habitats is presented in Appendix I. Saltmarsh is concentrated at three sites within the SAC: Kinsalebeg (SMP), Tourig Hall and Ballintray House (Curtis & Sheehy-Skeffington, 1998).

The target is that there should be no decline or change in the distribution of these saltmarsh habitats, unless it is the result of natural processes, including erosion, accretion and succession.

4.4 Structure and Functions

The location, character and dynamic behaviour of saltmarshes are governed by sediment supply, tidal regime, wind-wave climate and sea level change. The slope of the saltmarsh allows the development of several ecological gradients such as tidal submergence and salinity, and this influences the development of distinctive zones of halophytic and salt tolerant plant communities. Maintaining the favourable conservation condition of the saltmarsh habitat in Blackwater River (Cork/Waterford) SAC in terms of its structure and functions depends on a range of attributes for which targets have been set as outlined below.

4.4.1 Physical structure: sediment supply

Accretion and erosion are natural elements of saltmarsh systems. Maintaining the sediment supply is vital for the continued development and natural functioning of a saltmarsh system. Interruption to the sediment circulation through physical structures can starve the system and lead to accelerated erosion rates.

The target is to maintain the natural circulation of sediment and organic matter, without any physical obstructions.

4.4.2 Physical structure: creeks and pans

Saltmarshes can contain a distinctive topography with an intricate network of creeks and pans occurring on medium to large-sized sites. Creek density is influenced by vegetation cover,

sediment supply and tidal influence. Creeks absorb tidal energy and assist with delivery of sediment into the saltmarsh. The efficiency of this process depends on creek pattern. Creeks allow pioneer vegetation to become established along their banks higher up into the saltmarsh system. Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network, ultimately leading to the creation of mud basins.

At Kinsalebeg, the larger sections of the marsh that support a typical *Armeria-Plantago* sward have well-developed salt pan development in the mid marsh. Within the MSM the saltmarsh topography is moderately well-developed (McCorry & Ryle 2009).

The target is to maintain creek and pan networks where they exist and to restore areas that have been altered.

4.4.3 Physical structure: flooding regime

The regular ebb and flow of the tide brings salinity, but also nutrients, organic matter and sediment, which are central to the development, growth and indeed survival of saltmarshes. Saltmarsh vegetation consists of a limited number of halophytic (salt-tolerant) species that are adapted to regular immersion by the tides. Species in the lowest part of the saltmarsh require regular inundation, while those higher up on the marsh can only tolerate occasional inundation.

The target is to maintain a flooding regime whereby the lowest levels of the saltmarsh are flooded daily, while the upper levels are flooded occasionally (e.g. highest spring tides).

4.4.4 Vegetation structure: zonation

Saltmarshes are naturally dynamic coastal systems. 'Atlantic salt meadows' is the dominant saltmarsh habitat at Blackwater River (Cork/Waterford) SAC where it occurs in a mosaic with 'Mediterranean salt meadows'. In order to ensure the ecological functioning of all of the saltmarsh habitats it is vital to maintain the zonations and transitions to other habitats, including inter-tidal, shingle and sand dune habitats.

The target is to maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.

4.4.5 Vegetation structure: vegetation height

A varied vegetation structure is important for maintaining species diversity and is particularly important for invertebrates and birds. Grazing is often used as a tool for maintaining structural

diversity in the sward but stocking levels need to be appropriate. Overgrazing can lead to loss of species and destruction of the vegetation cover, while undergrazing can lead to a loss of plant diversity due to competitive exclusion.

At Kinsalebeg most of the ASM is grazed at a moderate to heavy intensity and this has caused some damage in places. The sward height is quite low, but is higher on some ungrazed inaccessible 'islands'. The MSM is generally in good condition and is less intensively grazed compared to the surrounding ASM (McCorry & Ryle, 2009).

The target is to maintain structural variation within the sward. A general guideline is that there should be a sward ratio of 30% tall:70% short across the entire saltmarsh.

4.4.6 Vegetation structure: vegetation cover

Vegetation cover can have a major effect on saltmarsh development by reducing the velocity of the tide and thereby enhancing the deposition of sediment. Excessive bare mud, however, is often a sign of overuse by livestock or humans and can lead to destabilisation and accelerated erosion of the system.

At the Kinsalebeg sub-site both sides of the main saltmarsh in the southern inlet are overgrazed. The southern side is grazed by sheep while the northern end is grazed by cattle and is quite poached. There are some negative indicators present such as frequent green algae cover and bare substrate in badly damaged sections (McCorry & Ryle, 2009).

The target is to maintain 90% of the area outside of the creeks vegetated.

4.4.7 Vegetation composition: typical species & sub-communities

Saltmarshes contain several distinct zones that are related to elevation and frequency of flooding. The lowest part along the tidal zone is generally dominated by the most halophytic (salt-tolerant) species including common saltmarsh-grass (*Puccinellia maritima*) and species more usually associated with *Salicornia* muds. The mid-marsh zone is generally characterised by sea thrift (*Armeria maritima*), sea plantain (*Plantago maritima*) and sea aster (*Aster tripolium*). This mid-zone vegetation generally grades into an herbaceous community in the upper marsh, dominated by red fescue (*Festuca rubra*), sea milkwort (*Glaux maritima*) and saltmarsh rush (*Juncus gerardii*).

The target for this attribute is to ensure that a typical flora of saltmarshes is maintained, as are the range of sub-communities within the different zones. Below are lists of typical species

for the different saltmarsh zones, although some of these species have a restricted distribution nationally and may not occur in the Blackwater River area.

Typical species		
Lower marsh	Low-mid marsh	Mid-upper marsh
<i>Salicornia</i> spp. <i>Suaeda maritima</i> <i>Puccinellia maritima</i> <i>Aster tripolium</i>	<i>Puccinellia maritima</i> <i>Triglochin maritima</i> <i>Plantago maritima</i> <i>Atriplex portulacoides</i> <i>Aster tripolium</i> <i>Spergularia</i> sp. <i>Suaeda maritima</i> <i>Salicornia</i> spp. <i>Glaux maritima</i> Turf fucoids	<i>Festuca rubra</i> <i>Juncus gerardii</i> <i>Armeria maritima</i> <i>Agrostis stolonifera</i> <i>Limonium humile</i> <i>Glaux maritima</i> <i>Seriphidium maritimum</i> <i>Plantago maritima</i> <i>Aster tripolium</i> <i>Juncus maritimus</i> <i>Triglochin maritima</i> <i>Blysmus rufus</i> <i>Eleocharis uniglumis</i> <i>Leontodon autumnalis</i> <i>Carex flacca</i> <i>Carex extensa</i> Turf fucoids

4.4.8 Vegetation structure: negative indicator species

The only invasive and non-native species recorded on saltmarshes during the SMP was common cordgrass (*Spartina anglica*). This species is present at the Kinsalebeg sub-site, however it does not form a significant part of the vegetation cover and only a few clumps were recorded. It does not form swards on the mudflats either (McCorry & Ryle, 2009).

The aim is that negative indicators such as *Spartina* should be absent or under control. The current target for this particular site is no significant expansion, with an annual spread of less than 1%.

5 References

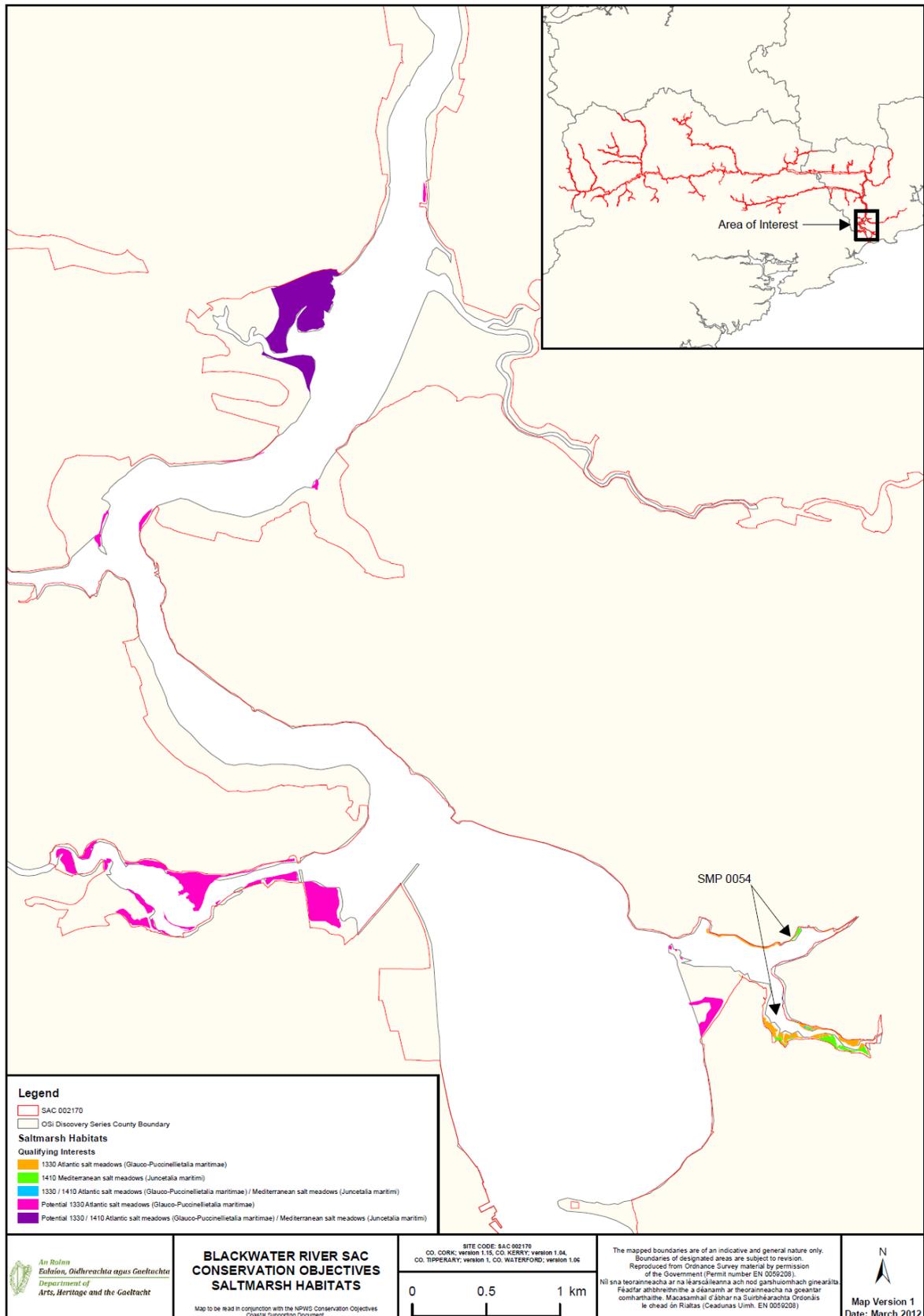
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Appendix I – Saltmarsh habitats distribution map within Blackwater River (Cork/Waterford) SAC.



Appendix II– Kinsalebeg site report and habitat map from the SMP (McCorry & Ryle, 2009)

1 SITE DETAILS

SMP site name: Kinsalebeg	SMP site code: SMP0054
Dates of site visit 27/09/2007	CMP site code: N/A
SM inventory site name: Kinsalebeg	SM inventory site code: 203
NPWS Site Name: Blackwater River (Cork/Waterford)	
NPWS designation cSAC: 2170	MPSU Plan: N/A
pNHA: 72	SPA: 4028
County: Waterford	Discovery Map: 76 Grid Ref: 212500, 794000
Aerial photos (2000 series): O 6254-C; (O 6253-D)	6 inch Map No: Wa 037
Annex I habitats currently listed as qualifying interests for Blackwater River (Cork/Waterford) cSAC:	
H1310 Salicornia and other annuals colonizing mud and sand	
H1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	
H1410 Mediterranean salt meadows (Juncetalia maritimi)	
Other SMP sites within this SAC/NHA: N/A	
Saltmarsh type: Bay	Substrate type: Mud

2 SITE DESCRIPTION

Kinsalebeg saltmarsh is located on the western border of Co. Waterford with Co. Cork, in the Blackwater River Estuary. This site is located 3 km from Youghal on the east side of the river. Kinsalebeg is a small inlet connected to the main estuary that drains at low tide and exposes extensive saltmarsh. The N25 Cork-Waterford road is positioned 1 km north of this estuary. The surrounding landscape is low-lying and is dominated by farmland. There is scattered habitation in the area and there is some recent housing development along the minor road between Kinsalebeg and Moord's Cross-roads close to the site.

The main inlet forks into two separate smaller inlets with a mainly east-westerly orientation. Both inlets are quite sheltered from the main river estuary. Saltmarsh is found around the shoreline of both inlets and is generally quite narrow, but is best developed in the southern inlet. Small streams flow into the head of both inlets. The saltmarsh fringes soft intertidal mudflats.

The majority of the site is located within the Blackwater River (Cork/Waterford) cSAC and pNHA. This is large cSAC that includes many riparian and riverine habitats along the River Blackwater and its tributaries and also includes a large part of the river estuary. Kinsalebeg is an important roosting site for the wintering waterfowl that use the Blackwater River estuary. Three Annex I saltmarsh habitats have been listed as qualifying interests for this cSAC; *Salicornia* flats, Atlantic salt meadows (ASM) and Mediterranean salt meadows (MSM). However, only two of these habitats are present at Kinsalebeg saltmarsh, ASM and MSM. *Spartina* swards have also developed within the estuary and particularly in the Tourig River estuary, but this habitat was not recorded at Kinsalebeg. There are two other saltmarshes

located within this estuary that are listed on the SM inventory (Curtis and Sheehy-Skeffington 1998), Tourig Hall and Ballintray House, but these were not surveyed during the SMP.

Nearly all of saltmarsh habitat mapped at this site is located within the cSAC boundary. A small amount of saltmarsh habitat has been excluded from the digital boundary from the small offset between the aerial photo series and the OSI 6 inch map series. A small difference between these two map series means that some of the very narrow saltmarsh along the shoreline is excluded. Saltmarsh has also been excluded from the southern inlet due to a small realignment of the shoreline at the mouth of this inlet.

3 SALTMARSH HABITATS

General description

This saltmarsh is dominated by Atlantic salt meadows (Table 3.1). The saltmarsh is best developed in the southern inlet. Saltmarsh has developed on mud in this inlet and it is generally relatively flat with a moderately developed saltmarsh topography. Mediterranean salt meadows are found on both sides of this inlet in small patches. Some of the saltmarsh is quite dissected and there are several sections that are isolated and are 'islands'. Common Cordgrass (*Spartina anglica*) is present at this site but is quite rare. Several clumps were recorded on the saltmarsh and also on the mud.

There are tall steep saltmarsh cliffs along the lower saltmarsh boundary, adjacent to soft intertidal mudflats. The saltmarsh seems to be perched quite high above the intertidal mudflats compared to other sites. There is very little transitional vegetation along the upper saltmarsh boundaries. There are several small patches of Sea Club-rush (*Bolboschoenus maritimus*) along the upper saltmarsh boundary around the site. These stands have been classified and mapped as CM2 or other Non-Annex saltmarsh vegetation in accordance with the SMP project classification. A fringe of wet grassland vegetation dominated by Hard Rush (*Juncus inflexus*) appears adjacent to the saltmarsh in places. Several small sections of the shoreline are protected from grazing by dense scrub and are not grazed and Sea Club-rush is spreading into these areas. The saltmarsh in the southern inlet is situated adjacent to improved grassland on both sides. A hedge marks the boundary between the saltmarsh and the terrestrial zone.

A narrow band of saltmarsh vegetation is present along both sides of the northern inlet and along the shoreline between these two inlets. Much of this saltmarsh is less than 5 m wide. Much of this saltmarsh is a mosaic of ASM and MSM. However, there are some sections with some typical zonation and a band of Sea Rush (*Juncus maritimus*) along the back of the ASM. Sea Rush is also spreading on the mudflats along the edge of the saltmarsh in places, forming an open mono-specific sward.

Table 3.1. Area of saltmarsh habitats mapped at Kinsalebeg.

EU Code	Habitat	Area (ha)
1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	3.187
1410	Mediterranean salt meadows (<i>Juncetalia maritimi</i>)	1.591
	Total*	4.778

* note that saltmarsh habitat may continue outside the mapped area.

Atlantic salt meadows (H1330)

There are several vegetation communities present on this saltmarsh. The main saltmarsh is dominated by mid and mid-upper ASM communities. The larger sections have a typical extensive mid marsh *Armeria-Plantago* sward. These areas also have well-developed salt pan development in the mid marsh. Other species present include Sea Milkwort (*Glaux maritima*), Common Scurvy-grass (*Cochlearia officinalis*), Sea Aster (*Aster tripolium*), Sea Arrowgrass (*Triglochin maritimum*) and Creeping Bent (*Agrostis stolonifera*). The larger sections have a well-developed zonation within some shallow hollows and around salt pans. These hollows contain some increased Common Saltmarsh-grass (*Puccinellia maritima*) cover that forms a sward in places, particularly along the southern side. These hollows also contain Glasswort (*Salicornia* sp.). Small mounds in the larger sections contain grassier vegetation dominated by Red Fescue (*Festuca rubra*) or Saltmarsh Rush (*Juncus gerardii*). Some of the ASM also contains Sea Rush at low densities. Sea Purslane (*Atriplex portulacoides*) is present in this habitat but is rather rare in occurrence. Long-bracted Sedge (*Carex extensa*) appears in the saltmarsh along the upper boundary. The sward height is quite low due to moderate-heavy grazing levels.

The ASM saltmarsh towards the head of the southern inlet is dominated by Red Fescue and contains several transitional species such as Celery-leaved Buttercup (*Ranunculus sceleratus*), Wild Celery (*Apium graveolens*), and Brookweed (*Samolus valerandi*).

A narrow fringe of ASM/MSM mosaic is found along much of the northern shoreline. This vegetation contains Sea Rush at various densities intermixed with species such as Red Fescue, Sea Plantain, Sea Arrowgrass and Creeping Bent. There is very little zonation within this narrow band of vegetation. However Sea Rush is spreading along the saltmarsh on the soft intertidal mud.

Mediterranean salt meadows (H1410)

The MSM found at this site is a mid-upper marsh type and forms mosaics with the ASM in places. The MSM has variable cover of Sea Rush, which can be quite sparse in places. There is no significant topographical difference in height between the ASM and the MSM. There are frequent indicators of low marsh communities present in some of the MSM such as Sea Aster and Common Saltmarsh-grass, indicating the development of MSM in low-mid zone. Most of the MSM is dominated by grasses such as Red Fescue. Other species present include Sea Pink, Sea Milkwort, Common Scurvy-grass, Greater Sea-spurrey (*Spergularia media*), Sea Arrowgrass and Long-bracted Sedge. The habitat is generally in better condition compared to the ASM and it has a variable sward height. Some of the MSM is not grazed as it is isolated on small mud 'islands'. The saltmarsh topography is moderately well-developed within this habitat and is quite dissected.

Another MSM-type vegetation is developing at this site with the spread of Sea Rush on the soft mud at the seaward edge of the established saltmarsh. Clumps of Sea Rush are spreading on the mud in the absence of any other saltmarsh species.

***Spartina* swards**

While Common Cordgrass is present at this site there has been no development of *Spartina* swards on the mudflats or the saltmarsh yet.

4 IMPACTS AND ACTIVITIES

The main impact affecting this site is grazing (Table 4.1). Both sides of the main saltmarsh in the southern inlet are overgrazed. The southern side is grazed by sheep (142) while the northern side is grazed by cattle (143). The northern side is quite poached. There are some negative indicators present such as frequent green algae cover and bare substrate cover in badly damaged sections. Both sides contain some isolated 'islands' of saltmarsh which are cut off from the main saltmarsh by creeks and are not grazed. The sward height is much higher compared to the adjacent grazed sections. The MSM is less intensively grazed compared to the MSM. There is open access from adjacent fields on both sides onto the saltmarsh. Some of the saltmarsh is quite dissected and this may be related to long-term heavy grazing and poaching-induced erosion along the creek edges.

Common Cordgrass is present at this site. This is an invasive species of saltmarsh (954). It is not known when it was planted or when it colonised this estuary (Nairn 1986). Common Cordgrass was first recorded in Co. Waterford in 1958 (Green 2008). Common Cordgrass does not form a significant part of the ASM vegetation and only a few clumps were recorded. It does not form *Spartina* swards on the mudflats either. The *Spartina* sward cover is quite low relative to the cover of ASM saltmarsh and the remaining intertidal mudflats. There are no indications that it has spread significantly during the current monitoring period. There is potential for this species to spread on the mudflats at this site in the future.

This has been some infilling around the site at several locations (803). This infilling is probably related to dumping of construction and demolition waste. Infilling has occurred at the head of the southern inlet and is now re-vegetating. More recent infilling also occurred along the shoreline between the two inlets. This infilling is not likely to have destroyed much saltmarsh as only a narrow fringe of saltmarsh is present at both locations in adjacent undisturbed sections.

There are some indications of an erosional trend at this site (900). A tall saltmarsh cliff is present along the lower saltmarsh boundary and some of the saltmarsh is quite dissected. The outer saltmarsh along the shoreline between the two inlets does display some signs of erosion such as exposed mud tussocks. However, Sea Rush is also spreading in places along the more established saltmarsh and this may be an indication of the future expansion of saltmarsh in places. This area is quite sheltered so it is likely that erosional pressure in this area is quite low. A comparison of the OSI 2nd edition 6 inch map to the current OSI 2005 series aerial photos shows that there have been some loss of saltmarsh along the southern side of the main marsh during this period (about 0.1 ha). However, a comparison of the 1995, 2000 and 2005 OSI aerial photos shows that there has been no measurable loss of saltmarsh habitat by erosion during the monitoring period. Therefore the impacts of erosion are assessed as neutral.

There are signs of former land-use of the saltmarsh at this site. Several small boat quays are marked on the saltmarsh in the old maps but there is no sign of these quays now. A Corn Mill was built at the head of the upper inlet (marked on the 1st edition 6 inch map). This construction probably destroyed some saltmarsh in the past. There was also some infilling of saltmarsh and mudflats at the head of the southern inlet in the 19th century.

Impacts and activities adjacent to the site include dispersed habitation (403), agriculture (102, 120, 140) and roads (502). These activities have little or no measurable impact on the saltmarsh habitats.

Table 4.1. Intensity of various activities on saltmarsh habitats at Kinsalebeg.

EU Habitat Code	Activity code	Intensity	Impact	Area affected (ha)	Location of activity
1330	140	B	0	1.0	Inside
1330	142	B	-1	1.5	Inside
1330	143	B	-1	0.6	Inside
1330	803	B	-2	0.001	Inside
1330	900	C	0	0.15	Inside
1330	954	C	0	3.187	Inside
1410	140	C	0	1.591	Inside
1410	803	B	-2	0.001	Inside
1410	900	C	0	0.025	Inside

¹ EU codes as per Interpretation Manual.

² Description of activity codes are found in Appendix III, Summary Report 2007-2008.

³ Intensity of the influence of an activity is rated as A = high, B = medium, C = low influence and D unknown.

⁴ Impact is rated as -2 = irreparable negative influence, -1 = reparable negative influence, 0 = neutral, +1= natural positive influence and +2 = strongly managed positive influence.

⁵ Location of activity: Inside = activities recorded within and directly impacting the saltmarsh habitat, outside = activities recorded outside but adjacent to saltmarsh habitat that are impacting the saltmarsh habitat.

5 CONSERVATION STATUS

Overall Conservation Status

The conservation status of a site is assessed on the condition of the site and on baseline information. The main source of baseline information for this site is the 1995, 2000 and 2005, OSI aerial photo series. The baseline information from the NHA survey is generally limited to some descriptions of saltmarsh habitat and does not record the specific condition of the saltmarsh during the survey at this site. There are no specific notes in the NHA survey for the saltmarsh at this site.

Kinsalebeg is a saltmarsh with few features of significant conservation interest. The overall conservation status of this site is *unfavourable-bad*. The main impact at this site is grazing and there are frequent signs of heavy grazing damage around the site. Common Cordgrass is present at this site but does not form a significant area of *Spartina* sward and does not form a significant part of the ASM vegetation either.

This site is located within the Blackwater River cSAC. A NPWS management plan is not available for this cSAC.

Table 5.1. Conservation status of Annex I saltmarsh habitats at Kinsalebeg.

Habitat	EU Conservation Status Assessment			Overall EU conservation status assessment
	Favourable	Unfavourable - Inadequate	Unfavourable - Bad	
Atlantic salt meadows (1330)	Extent		Structure and functions, Future prospects	Unfavourable - Bad
Mediterranean salt meadows (1410)	Extent Structure and functions, Future prospects			Favourable

Atlantic salt meadows (H1330)

Extent

The extent of this habitat is assessed as *favourable*. There are no indications of any significant loss of habitat due to land-use changes or erosion within the current monitoring period. There is not likely to have been a significant loss of saltmarsh habitat due to infilling at this site during the current monitoring period (< 0.001 ha). There are signs of an erosional trend at this site but the rate of loss of saltmarsh due to erosion (that may be poaching enhanced) is likely to be very low.

Habitat structure and functions

The structure and functions of this habitat are assessed as *unfavourable-bad*. Eight monitoring stops were carried out in this habitat and two failed (25%). Most of this habitat is grazed at a moderate to heavy intensity and this has caused some damage in places. The sward height is generally quite low, but higher on some ungrazed inaccessible 'island'. There are negative indicators such as frequent green algae and bare substrate cover present. The habitat diversity is typical of ASM and there are several ASM communities present with typical zonation. The saltmarsh topography is moderately well-developed. There is no significant transitional vegetation between the saltmarsh and the adjacent terrestrial vegetation.

Future prospects

The future prospects of this habitat are assessed as *unfavourable-bad*. This assessment assumes that the current management activities and level of impacts continue in the near future. The main impact affecting this site is heavy grazing. There is no updated NPWS conservation plan for this site. Most of the saltmarsh habitat is located within an SAC so the site should be protected from negative impacts such as infilling or development that require licensing from local authorities or NPWS. In spite of this there has been some infilling around the site and this is likely to have been unlicensed.

Common Cordgrass, an invasive species, is present at this site, although it is quite rare. Some sections of the ASM are vulnerable to the spread of Common Cordgrass in the future, as there are low marsh communities are heavily grazed and are under significant pressure.

Mediterranean salt meadows (H1410)

Extent

The extent of this habitat is assessed as *favourable*. There are no indications of any significant loss of habitat due to land-use changes or erosion within the current monitoring period. There is not likely to have been a significant loss of saltmarsh habitat due to infilling at this site (< 0.001 ha). The MSM is much less vulnerable to erosion compared to the ASM, due to its position on the saltmarsh.

Habitat structure and functions

The structure and functions of this habitat are assessed as *favourable*. Five monitoring stops were carried out in this habitat and they all passed. All of the attributes required for the structure and functions of this habitat reached their targets for each monitoring stop. The MSM is generally in good condition and is less intensively grazed compared to the surrounding ASM. Species diversity is typical and the site displays a good example of zonation with several MSM communities present.

Future prospects

The structure and functions of this habitat are assessed as *favourable*. This assessment assumes that the current management activities and level of impacts continue in the near future. The main impact affecting this site is heavy grazing but this does not affect the MSM to the small extent as the ASM. There is no updated NPWS conservation plan for this site. Most of the saltmarsh habitat is located within an SAC so the site should be protected from negative impacts such as infilling or development that require licensing from local authorities or NPWS. In spite of this there has been some infilling around the site and this is likely to have been unlicensed.

6 MANAGEMENT RECOMMENDATIONS

There are no management recommendations for this site.

7 REFERENCES

Curtis, T.G.F.C. and Sheehy-Skeffington, M.J. (1998). The Saltmarshes of Ireland: An Inventory and Account of their Geographical Variation. *Biology and Environment: Proceedings of the Royal Irish Academy* **98B**, 87-104.

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8 APPENDIX I

Table 8.1. Areas of SMP habitats mapped using GIS.

SM Habitat code	SM habitat description	Mapped Area (ha)	Area (ha)				
			1310	1330	1410	1420	Spartina swards
1	1310 <i>Salicornia</i> flats						
2	Spartina swards						
3	1330 Atlantic salt meadow	3.031		3.031			
4	1410 Mediterranean salt meadow	1.435			1.435		
5	ASM/MSM mosaic (50/50)	0.311		0.155	0.155		
6	ASM/ <i>Spartina</i> mosaic						
7	1330/other SM (CM2) mosaic						
8	1330/coastal grsld mosaic						
9	Other (non saltmarsh)	2.001					
10	<i>Spartina</i> clump/mudflat mosaic (50/50)						
11	Isolated <i>Spartina</i> clumps on mud (5%)						
12	pioneer 1330/1310/ <i>Spartina</i> mosaic						
13	1410/other SM (CM2) mosaic						
14	<i>Spartina</i> sward dominated, with some ASM						
15	1310/ <i>Spartina</i> mosaic						
16	ASM dominated with some <i>Spartina</i>						
17	1330/sand dune mosaic						
18	Other SM (CM2)						
19	1330/rocky shore mosaic						
20	1420 Mediterranean scrub						
21	1310/1330 mosaic						
	Total	6.778		3.187	1.591		

