

Northern Ireland Habitat Action Plan
Coastal Saltmarsh
March 2005

1. Current Status

1.1 Physical and biological status

- 1.1.1 Saltmarshes are highly productive habitats dominated by species that are tolerant of inundation by saline water. They require some degree of shelter from wave energy and are therefore usually restricted to low energy locations. Coastal saltmarshes in the UK comprise the upper, vegetated portions of intertidal mudflats, lying approximately between mean high water neap tides (MHWN) and mean high water spring tides (MHWS), where a net accumulation of sediment occurs. For the purpose of this action plan, the lower limit of saltmarsh is defined as the lower limit of pioneer saltmarsh vegetation (but excluding seagrass *Zostera* spp. beds) and the upper limit as one metre above the level of highest astronomical tides, to take in transition zones.
- 1.1.2 There are five main physiographic situations in which saltmarshes can occur: in estuaries, saline lagoons, behind barrier islands, at the heads of sea loughs and on beach plains. They may also occur on shingle spits and on extensive tidal flats where there is a lack of enclosure. Estuarine saltmarshes are the most common type and are found where rivers gradually merge into the open sea. There is usually a degree of influence by fresh water, which often leads to transitions to other habitats such as reed beds or fen. Saline lagoon saltmarshes occur where a narrow spit of land encloses a tidal water body with a narrow opening to the sea. Saltmarshes often develop in the lee of spits or barrier islands, where the angle of the slope of the intertidal and immediate sub-tidal area is shallow on the exposed side. Saltmarshes can also develop at the head of sea loughs or bay heads; these are typically small and are characteristic of Northern Ireland and northwest Scotland. Further small and often fragmentary beach-headed saltmarshes are frequent at other sites on rocky shores and behind raised beaches around much of the coastal zone. They generally develop over and adjacent to the sand and shingle deposits at the back of wave cut platforms, where these transition zones can be rich in plant species.
- 1.1.3 Saltmarsh is a relatively rare habitat in the UK with an estimate of the total extent of saltmarsh (including transitional communities) being approximately 45,500 ha. Of this there are 32,500 ha in England, 6747 ha in Scotland, 6089 ha in Wales and 250 ha in Northern Ireland (Boorman, in press). The saltmarsh in Northern Ireland therefore equates to only around 0.5% of the total UK saltmarsh resource; however the coast of Northern Ireland forms 2.7% of the total UK coastline. Saltmarsh is, therefore, an even scarcer habitat in Northern Ireland than in the rest of the UK. This may be due to the fact that tidal ranges are smaller in Northern Ireland than in the UK and Ireland, therefore creating less potential area for saltmarshes to establish. Around 100 ha of saltmarsh are lost in the UK annually, due to a variety of factors. The extent of loss of saltmarsh in Northern Ireland alone is unknown.

- 1.1.4 There are two main types of saltmarsh in the region. The first, and more extensive, is the estuarine type with conspicuous natural transitions from low to upper marsh communities. Saltmarsh plays a major role in estuarine processes, both through the cycling of nutrients within the estuary and through its ability to dissipate wave energy and thus act as a natural coastal defence. The largest of the estuarine saltmarshes are found in the Roe Estuary in Lough Foyle, around Strangford Lough, at Ballycarry in Larne Lough, in the Bann Estuary and at Mill Bay in Carlingford Lough. These five sites account for 90% of the saltmarsh area of Northern Ireland. The second main type is the smaller beach-head type (Bame *et al.*, 1997), which tends to occur as small pockets on rocky shores and often consists of only one or two middle-marsh communities, with transitions to lower and upper communities truncated. Other saltmarshes occur as a narrow coastal marginal fringe or as very small parcels (Baxter & Boaden, 1990).
- 1.1.5 The first stage in the colonisation of this highly specialised plant community is the establishment of halophytic (salt-tolerant) plants on sheltered tidal flats where the roots of germinating pioneer plants are left undisturbed by tidal action for several days. If the sediment load of the water is high, pioneer plants such as the glasswort *Salicornia* spp colonise mud and sand flats, trapping and stabilizing the sediment. The accumulation of the sediment raises the surface and vegetation, which then becomes covered by progressively fewer tides. This creates conditions that enable further colonisation by other species; for example saltmarsh grass *Puccinellia maritima* and sea aster *Aster tripolium*. The process of succession then takes place, which can result in complex stands of vegetation developing out of reach of all but the highest tides. An increasingly diverse community of plants and animals can then develop. The speed with which saltmarshes grow depends in part on the amount of sediment present in the water. It has been estimated by Chapman (1959) that it could take 120 years for a saltmarsh containing sea aster to develop from bare mud.
- 1.1.6 The communities of stabilised saltmarsh can be divided into species-poor low-mid marsh, and the more complex, diverse communities of the mid-upper marsh. At the upper limits of the saltmarsh, transition communities are present whose characteristics depend on the habitat type adjacent to the marsh and the physical characteristics of the transition zone, e.g. slope, presence of sea walls. True saltmarsh communities can be replaced by driftline, swamp or transitional communities, which can only withstand occasional inundation.
- 1.1.7 Plant communities present at a site are influenced by a number of factors, including the particle size of the sediment, the geographical location and the local land use. Saltmarsh communities are additionally affected by rainfall and temperature and, within estuaries, by decreasing salinity in the upper reaches.
- 1.1.8 The northern limits of some saltmarsh species also influence plant community variation between the north and south of Britain. This leads to there being a number of geographically restricted vegetation communities and plant species that are associated with saltmarshes, particularly where they are flushed with freshwater. Some of the transitional communities are non-tidal vegetation types and many are floristically rich or

complex. Differences occur between the communities in the zones across the saltmarsh in various geographical regions.

- 1.1.9 In Ireland, lax-flowered sea-lavender *Limonium humile*, replaces common sea-lavender *L. vulgare*, which is frequent in saltmarshes in Britain. *Atriplex portulacoides*, a southern species dominant in ungrazed saltmarshes, reaches its northern limit in Co. Down. Other southern saltmarsh species e.g. *Seriphidium maritimum*, are very rare in Northern Ireland. Conversely *Blysmus rufus* occurs on many beach-head saltmarshes in Northern Ireland but is rare further south in Britain and Ireland.
- 1.1.10 As part of a study of coastline plant communities, Cooper *et al.* (1992) surveyed the main saltmarshes of Northern Ireland. The survey was based on the National Vegetation Classification (Rodwell, 2000). It was found that the most abundant NVC saltmarsh vegetation types in Northern Ireland are the SM 16b *Festuca rubra* – *Juncus gerardii* and SM 13 *Puccinellia maritima* communities, which were present at all of the sites surveyed.
- 1.1.11 Scarcer NVC communities including SM 19 *Blysmus rufus* and SM 20 *Eleocharis uniglumis* are recorded in Northern Ireland. Strangford Lough has the most diverse saltmarsh areas, with 14 of the 17 NVC saltmarsh communities listed as occurring in Northern Ireland occurring in the NVC occurring within the Lough.
- 1.1.12 In the pioneer saltmarsh habitats, there are 3 communities present in Northern Ireland. They are SM 6 *Spartina anglica*, SM 8 Annual *Salicornia* saltmarsh, and SM 9 *Suaeda maritima* saltmarsh. These are localised although the extent of the invasive SM 6 community is extensive and expanding in some sea loughs at the expense of mudflats, seagrass beds and native saltmarsh communities.
- 1.1.13 The low-mid communities in Northern Ireland have 3 saltmarsh sub communities of SM 10 (transitional low marsh vegetation with *Puccinellia maritima*, annual *Salicornia* species and *Suaeda maritima*), SM 13a *Puccinellia maritima* saltmarsh, *Puccinellia maritima* dominant sub-community and SM 14 *Halimione (Atriplex) portulacoides* saltmarsh.
- 1.1.14 The mid-upper marsh communities present in Northern Ireland comprise 10 different vegetation communities. These include the SM 13 *Puccinellia maritima* dominated saltmarsh communities with any one of the following also present - *Glauca maritima*, *Limonium vulgare*-*Armeria maritima*, or *Plantago maritima*-*Armeria maritima*. The SM 16 *Festuca rubra* dominated community is also well represented with any one of *Juncus gerardii*, *Glauca maritima* and *Leontodon autumnalis* also present. There are also SM 18 *Juncus maritimus*, SM 19 *Blysmus rufus* and SM 20 *Eleocharis uniglumis* mid-upper saltmarsh communities. The only driftline saltmarsh community found in Northern Ireland is SM 28 *Elytrigia repens*.
- 1.1.15 A number of rare and scarce plant species are associated with saltmarshes of Northern Ireland. Dwarf spike-rush *Eleocharis parvula*, a 'Red Data Book' species and Northern Ireland Priority Species, has one of its few Britain and Ireland localities in the Bann Estuary. Beach-head saltmarshes contain *Blysmus rufus* (at the northern limit of its range)

and they also contain *Parapholis strigosa* (at the southern end of its range). Beaked tasselweed *Ruppia maritima* occurs mostly in upper saltmarsh pools on the Comber Estuary and sparsely elsewhere. The rare saltmarsh alga *Percursaria purcursa* can be found at Ballymacormick point.

- 1.1.16 Saltmarshes are important habitats for a range of organisms, in particular specialist plant communities and associated animals (especially breeding and wintering birds) and often have a high conservation interest. They provide a valuable resource for wading birds and wildfowl as they act as high tide refuges for birds feeding on adjacent mudflats. They also provide breeding sites for waders, gulls and terns, and are a source of food for passerine birds particularly in autumn and winter.
- 1.1.17 Species such as linnet *Carduelis cannabina* and twite *Carduelis flavirostris* feed on the seeds of saltmarsh plants during the winter months. Also in winter, wigeon *Anas penelope* and light-bellied brent geese *Branta bernicla hrota* feed on a number of saltmarsh plant species including eel-grass *Zostera* spp. and salt marsh grass *Puccinellia maritima*. In addition, a number of waders use saltmarshes for roosting and feeding. These include oystercatchers *Haematopus ostralegus*, lapwing *Vanellus vanellus*, redshank *Tringa totanus*, golden plover *Pluvialis apricaria* and curlew *Numenius arquata*.
- 1.1.18 Northern Ireland is one of the most important regions in the UK for wintering wildfowl, due to its mild winter climate and abundance of wetland. Strangford Lough is considered to be Northern Ireland's major coastal site for migrant and wintering waterfowl, as it supports 25 waterfowl species at levels of national importance in an all Ireland context. Three of these attain levels of international importance, and the site also qualifies as internationally important by virtue of significantly more than 20,000 waterfowl.
- 1.1.19 Lough Foyle and Belfast Lough are also of international importance as sites that support more than 20,000 wintering waterfowl. Lough Foyle supports nationally important populations of 17 species, with five of these attaining levels of international importance. Belfast Lough regularly supports internationally important populations of two species of wader and nationally important numbers of a further ten species of waterfowl.
- 1.1.20 A number of specialist invertebrate species are associated with saltmarshes in Northern Ireland including the rove beetle *Bledius erraticus*, a Northern Ireland Priority Species recorded from the saltmarshes in the Bann Estuary.
- 1.1.21 The rare narrow mouthed whorl snail *Vertigo angustior* is confined in Northern Ireland to the upper edge of saltmarsh at the Giant's Causeway and it is a selection feature of the North Antrim Coast candidate Special Area of Conservation (cSAC).
- 1.1.22 In addition to the many plant and animal species that are directly associated with the saltmarsh itself there are other species that benefit indirectly from saltmarshes. Tidal saltmarshes have been identified as areas of high productivity providing a source of organic matter and nutrients for fish and a variety of invertebrates in adjacent marine habitats.

1.2 Links with other action plans

- 1.2.1 This coastal saltmarsh habitat action plan identifies targets and actions required to deliver Northern Ireland's contribution to the UK Biodiversity action plan (UK Biodiversity Steering Group, 1999).
- 1.2.2 As saltmarshes occur adjacent to a range of habitats, the overlap of this habitat action plan with the habitat action plans for seagrass beds, saline lagoons, sand dunes, mudflats, sheltered muddy gravels, maritime cliff and slope and coastal vegetated shingle must be taken into account when delivery of this action plan for saltmarsh is being considered.
- 1.2.3 As saltmarshes are nursery grounds for some fish species, the habitat action plan may have implications for some 'commercial marine fish', a grouped species action plan in the UK.
- 1.2.4 Within Northern Ireland, saltmarsh habitat is important for a number of UK priority species identified as part of the UK Biodiversity Action Plan programme. These include the narrow mouthed whorl snail *Vertigo angustior*, and the linnet. The requirements of these species should be taken into account during the implementation of this plan.
- 1.2.5 In addition, saltmarshes are important for a range of Northern Ireland priority species including pale-bellied brent goose, redshank *Tringa totanus*, lapwing and twite. The requirements of such species should be taken into account during the implementation of this plan.
- 1.2.6 An all-Ireland Species Action Plan has been published for the Irish hare *Lepus timidus hibernicus*.
- 1.2.7 Relevant published Northern Ireland Species Action Plans include the Irish hare, pale-bellied brent goose, curlew *Numenius arquata*, redshank and lapwing.

2. Current Factors Affecting the Habitat

- 2.1 Reclamation - for agricultural use, harbours, ports and other infrastructures have reduced saltmarshes to a narrow fringe along estuary shores. Large scale land claim schemes for agriculture are now rare, but smaller schemes scale for industry, port facilities, transport infrastructure and waste disposal are still comparatively common. Marina development on saltmarsh sites occurs occasionally. These developments usually affect the more botanically diverse upper marsh and landward transitional zones. Increased pressure for development due to growth of needs has led to plans such as the Strangford Lough Sustainable Development Strategy.
- 2.2 Agricultural improvement - including re-seeding and draining has affected the upper transitional zones of some saltmarshes in the past and may still occur on a small scale.

- 2.3** Saltmarsh squeeze - exemplifies erosion and sea level rise. Erosion of the seaward edge of saltmarshes occurs widely in the high energy locations of larger estuaries as a result of coastal processes. Many saltmarshes are being squeezed between an eroding seaward edge and fixed flood defence walls. This erosional process is being intensified by a reduced supply of sediment in some locations. It is suggested that saltmarshes are being lost to erosion in the UK at a rate of 100ha per year.
- 2.4** Grazing - has a significant effect on the structure and composition of saltmarsh vegetation and biodiversity by reducing the height of the vegetation and the diversity of the species. Intensive grazing creates a sward attractive to wintering and passage wildfowl and waders and is considered to be a problem in some cases. Less intensive grazing produces a tussock structure which favours breeding waders. In recent decades, some grazed saltmarshes have been abandoned, leading to domination by rank grasses of the mid to upper marsh. General overstocking e.g. through the provision of supplementary feeding can be locally significant.
- 2.5** Cutting – cutting of the saltmarsh for turf can affect saltmarsh survival, in particular on smaller sites.
- 2.6** Introduced species - the naturalised alien species, smooth cord grass *Spartina alternifolia*, was introduced to the UK in the 1820's. This introduction led to a subsequent crossing with *S. maritima*, the only species of cord grass that is native to Great Britain, and resulted in a sterile hybrid i.e. townsend's cord-grass *S. townsendii*. A chromosome doubling of *S. townsendii* lead to the fertile hybrid, common cord grass *S. anglica*, both of these hybrids occur in Northern Ireland. Common cord grass readily colonises mudflats and has spread around the coast. The presence of common cord grass in many of our saltmarshes has resulted in the saltmarsh being considered to be in unfavourable condition. It has also been extensively planted to aid stabilisation of mudflats and as a prelude to land claim. This often produces extensive monoculture swards of much less intrinsic value to wildlife, and in many areas is considered to be a threat to bird feeding grounds on mudflats.
- 2.7** Recreation - which includes access for sport, bird watching, walking etc. is not well understood but may be locally significant. Boats create wash onto shore which adds to other causes of erosion.
- 2.8** Pollution - from oil, chemicals and litter can potentially destroy saltmarsh vegetation and whilst it usually recovers, sediment may be lost during the period of die-back. Eutrophication due to sewage effluent and agricultural fertiliser run-off has caused local problems of algal growth on saltmarshes.
- 2.9** Sediment dynamics - local sediment budgets may be affected by coastal protection works, or by changes in estuary morphology caused by land claim, dredging of shipping channels and the impacts of flood defence works over the years.
- 2.10** Accretion and/or erosion - accretion and development of saltmarsh is occurring on parts of the British coastline, notably in north west England where sediments are comparatively

coarse and isostatic uplift largely negates sea level rise. However, this accretion is not sufficient to offset the national loss of saltmarsh, and in many cases the newly created saltmarsh differs from those being lost.

3. Current Action

3.1 Legal status

- 3.1.1 Statutory site designation plays an important part in the conservation of saltmarshes. In 1992, the EC adopted the *Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna*, known as the 'Habitats Directive'. The Habitats Directive requires member states to designate and manage Special Areas of Conservation (SACs) for habitats (listed in Annex 1 of the Directive) and species (listed in Annex 2). A small proportion of these habitats and species, which are considered to be most in need of conservation at a European level, are given priority status. Annex 1 contains *Atlantic and Continental saltmarshes and salt meadows* (H1330) and in Northern Ireland, these are a selection feature in four candidate Special Areas of Conservation: the Bann Estuary, the North Antrim Coast, Murlough and Strangford Lough.
- 3.1.2 The *Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) 1995* and *The Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland) 2004* (The Habitat Regulations) require competent authorities, when considering a plan or project not directly connected with the management of a European site e.g. an SAC or SPA, to undertake an Article 6 assessment. This assessment will determine if the plan or project, either alone or in combination with other plans or projects, is likely to have a significant impact on the site. In the case of a negative or undetermined assessment, a competent authority may only agree to the plan or project where it is satisfied that there are no alternative solutions and that the plan or project must be carried out for imperative reasons of overriding public interest, which may be of a social or economic nature. However, if the site hosts a priority habitat or species then the plan or project may only be approved for: a) reasons of human health, public safety, beneficial consequences of primary importance to the environment, or b) other reasons which the Department (DOE), having considered the opinion of the European Commission (EC), determines are imperative reasons of overriding public interest.
- 3.1.3 Under the terms of the Habitat Regulations, the above Article 6 assessment by the competent authority is required for plans or projects e.g. land reclamation, which are outside European sites but may still have an impact on the site.
- 3.1.4 Guidance to help competent authorities and others to interpret the Habitat Regulations has been published (EHS, 2002).
- 3.1.5 Guidance on the completion of an Article 6 assessment has also been published (European Commission, 2000)

- 3.1.6 Under the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985*, Areas of Special Scientific Interest (ASSIs) are identified and declared by the Department of the Environment (DOE) through the Environment and Heritage Service (EHS). The majority of ASSI designated saltmarsh is contained within 10 sites with a total area of 235 ha.
- 3.1.7 In 2000, the Northern Ireland Biodiversity Group (NIBG) made its Recommendations to Government (NIBG, 2000). These were largely accepted by the Northern Ireland Executive in 2002, with the publication of the *Northern Ireland Biodiversity Strategy* (DOE, 2002). *The Regional Development Strategy 2025* (DRD, 2001) is underpinned by the sustainable approach and includes Strategic Planning Guidelines (SPGs) on the protection of the environment which bring together a comprehensive collection of natural heritage and built heritage strategic guidance that includes sustaining and enhancing biodiversity.
- 3.1.8 Regional Planning and Transportation Division within DRD is responsible for co-ordinating the implementation of the *Regional Development Strategy (RDS) for Northern Ireland 2025* (DRD, 2001). The RDS contains a Spatial Development Strategy and related Strategic Planning Guidelines (SPGs). The emphasis in the SPGs is on competitiveness, sustainable development and tackling social exclusion and division. Operational policies to give effect to the SPGs are contained in Planning Policy Statements (PPSs). Some of these policies have a direct or indirect bearing on the prevention of adverse impacts on priority habitats and species.
- 3.1.9 *PPS2 Planning and Nature Conservation* (DoE Northern Ireland, 1997) (under review) contains planning policy for the hierarchy of sites of nature conservation importance. It also addresses trees and woodlands, protection of species and peatlands.
- 3.1.10 *PPS15 Planning and Floodrisk* is currently out to public consultation. It embodies the Government's commitment to sustainable development and the conservation of biodiversity and adopts a precautionary approach to decision making that takes account of climate change.
- 3.1.11 *PPS14 Sustainable Development in the Countryside* is due to be published by the end of 2005.
- 3.1.12 Site protection policies are included in Development Plans. Sites of Local Nature Conservation Importance (SLNCIs) are being identified for consideration by Planning Service and will be formally included in Development Plans. Where such sites are confirmed in adopted plans, specific planning policies will be applied to development proposals on those sites. The SLNCI network will include a number of mixed ashwood sites of substantive nature conservation interest, which are not designated as ASSIs or NNRs.
- 3.1.13 The European Water Framework Directive aims to rationalise much of the EC's water legislation with an overall purpose of providing a framework for the protection of surface waters, including coastal waters, by preventing the deterioration of aquatic ecosystems through a strong emphasis on ecological quality targets.

3.1.14 Semi-natural areas, which are likely to be of particular environmental importance, are protected through the *Environmental Impact Assessment (Uncultivated Land and semi-Natural Areas) Regulations (Northern Ireland) 2001*. These regulations, which came into operation in Northern Ireland in February 2002, are administered by DARD and seek to ensure that agricultural development of uncultivated land or semi-natural areas must first be assessed for environmental significance. This would also include cases where the land use changes are aimed at restoring or enhancing saltmarsh.

3.2 Management, research and guidance

3.2.1 EHS, as part of the requirements of the Habitats Directive, has prepared conservation objectives for those sites submitted as cSACs. Where saltmarsh occurs on cSACs and ASSIs, it is protected by control of potentially damaging operations and by the application of targeted conservation objectives.

3.2.2 Common standards monitoring protocols are also being established across the UK to assess the extent and condition of saltmarshes within designated sites. This programme will be extended to include all saltmarsh ASSIs. However, standards for assessing favourable condition of the habitat in the wider countryside have not yet been agreed. Advice on undesignated areas will depend on the detection of a habitat that is often difficult to differentiate from adjacent habitats and communities.

3.2.3 The Management of Sensitive Sites Scheme (MOSS), launched in 2002 by EHS, is a voluntary scheme designed to ensure the positive management of the site features to maintain their extent and favourable condition within ASSIs. Under the scheme, landowners can receive payment for carrying out conservation work within the framework of a written agreement. MOSS covers issues that have relevance to the conservation of the site features including dumping, grazing and control of invasive species. EHS has negotiated several management agreements on ASSIs to help secure sympathetic ASSI management through the MOSS scheme.

3.2.4 The UK Government has set out its commitment to sustainable management of the coast in a number of publications. *Planning Strategy for Rural Northern Ireland* (DOE, 1993) has provisions relating to development, access and conservation of the coast.

3.2.5 The conservation of the coastline of Northern Ireland took a step forward with the publication in 1995 of a consultation paper on coastal zone management (DOE, 1995). Currently an Integrated Coastal Zone Management strategy is being developed for Northern Ireland and is due for completion by 2006. This will help provide a strategic context for the implementation of this action plan.

3.2.6 DARD, through its Countryside Management Branch (CMB), has developed a series of agri-environment schemes including the Environmentally Sensitive Areas (ESA) Scheme (revised in 2000) and the Countryside Management Scheme (CMS). A further revision to both the ESA and CMS has recently been approved under the current Northern Ireland Rural Development Programme (2000-2006). Their objective is to protect and enhance

semi-natural habitats by encouraging more sensitive management practices. Both these schemes have similar management provisions, are voluntary and apply to the whole farm.

- 3.2.7 The Habitat Improvement Scheme (HIS) aims to help farmers protect, enhance and establish habitats which are considered to have major conservation value. This is achieved by taking land out of agricultural production or by entering into a 10 year agreement which involves extensive grazing based on non-application of fertilizers and pesticides to the land. No new applications for the HIS are being accepted as the scheme closed in mid-1999. The scheme has been replaced by the Countryside Management Scheme (CMS).
- 3.2.8 The CMS, launched in 1999, was developed with the primary aim of maintaining and enhancing biodiversity and is open to application from all farmers and landowners outside ESAs. As funding is limited, entry into the scheme is competitive, being based on who can offer the greatest environmental benefits. DARD can provide area-based payments on blocks of > 0.1 ha in area within the farm unit, where it meets clearly defined criteria. The priority habitat must be brought under agreement and managed according to the specific objectives and prescriptions of the agri-environment scheme. A range of habitats are under long-term monitoring by QUB's Agri-environment Monitoring Unit (QUB, 2004b). As defined by DARD, the priority habitat which is most closely associated with saltmarsh is 'coastal farmland'.
- 3.2.9 DARD has developed the Entry Level Countryside Management Scheme (ELCMS) which is due to open mid 2005. ELCMS has been designed to be easily accessible and to deliver a range of basic agri-environment improvements. Participants in the scheme will be required to undertake a field boundary management module, one of 3 possible water quality modules and one of 5 further biodiversity modules. The scheme will complement the existing agri-environment programme.
- 3.2.10 The Rivers Agency, as the statutory Drainage and Flood Protection Authority for Northern Ireland are responsible for maintaining the effective drainage function of designated watercourses under the *Drainage (Northern Ireland) Order 1973*. All drainage and flood defence proposals are subject to the *Drainage (Environmental Assessment) Regulations (Northern Ireland) 1991*, as amended, which require an assessment at planning stage of the environmental impact of the proposed works. Rivers Agency also consult with EHS on their annual programme of drainage maintenance, where this may have an impact on designated sites of nature conservation importance. This includes both localised operations such as maintenance of outfalls for field drains and more significant river maintenance works or flood defence schemes.
- 3.2.11 The Management of Sensitive Site scheme (MOSS) launched in 2003 by EHS, is a voluntary scheme designed to ensure the positive management of ASSIs. Under the scheme, landowners can receive payment for carrying out conservation work within the framework of a written agreement. MOSS covers issues such as agricultural improvement, grazing and the control of invasive scrub species. One-off payments for works such as fencing and scrub clearance to assist grazing can be made. The MOSS scheme covers coastal areas including saltmarshes where annual payments can be

received for correct levels of grazing, non-use of fertilisers and other positive management prescriptions.

- 3.2.12 The *Northern Ireland Countryside Survey* (NICS), is a sample survey of Northern Ireland vegetation communities used to estimate the extent and distribution of broad habitats across Northern Ireland countryside. Repeat surveys are used to assess land-use change. The first phase in the process was *A land classification and landscape ecological study of Northern Ireland* carried out in the early 1990s (Murray *et al.*, 1992). The *NICS 2000* (Cooper & McCann, 2001) repeated the survey in 1998.
- 3.2.13 Other relevant information is gathered through specialist biological recording groups, Non-Governmental Organisations (NGOs), universities and other government bodies. Biological records are currently stored at the National Museums and Galleries of Northern Ireland (MAGNI) at the Centre for Environmental Data and Recording (CEDaR). CEDaR was established in 1995 in partnership with EHS, MAGNI and the biological recording community. There are currently over 1.4 million records held by CEDaR and there are developments underway to make these records more accessible through the Internet. This will be achieved through the National Biodiversity Network, a union of organisations throughout the UK working together to create an information network of biological data providing an accessible data source for biodiversity information.
- 3.2.14 Over 700 miles of coastline are owned and protected by the National Trust; 125 miles of which are in Northern Ireland including saltmarsh at Strangford, the Barmouth, Ballymacormick Point and Dundrum coastal path. The National Trust is actively involved in reinstating grazing on many of their properties. Other NGOs, such as the Wildfowl and Wetlands Trust (WWT) and the RSPB also own or manage a number of other important saltmarsh sites in Northern Ireland. These owned areas often have the benefit of a warden/ranger service that encourages appropriate management and control of damaging activities and provides interpretative and educational services. They all contribute to coastal zone management initiatives in Northern Ireland.
- 3.2.15 The Strangford Lough Management Scheme was formally launched on the 8th October 2001, with a new version currently being developed. It is intended to safeguard the conservation status of those features for which Strangford Lough has been selected as a candidate Special Area of Conservation (cSAC) and classified as a Special Protection Area (SPA). The scheme sets the framework through which activities will be managed so as to achieve the conservation objectives of the European marine site.
- 3.2.16 The Strangford Lough Wildlife Scheme, created by the National Trust, manages and controls the wildfowling on the foreshore in this Lough and on adjacent lands owned or managed by the National Trust. Shooting free core wildlife zones have been designated to protect the wildfowl populations not only from excessive killing, but from the disturbance it causes e.g. trampling pressures. On other estuaries such as Lough Foyle and Dundrum Inner Bay, agreements are in place between wildfowling groups, the RSPB and local authorities.

- 3.2.17 In Northern Ireland, the 1985 Wildlife Order makes it an offence to plant, or cause to grow in the wild, any species of *Spartina*. Attempts have been made to control the spread of *S. anglica* on Strangford Lough and Lough Foyle since the early 1970s with herbicide applications. A major effort was launched by the DOE, National Trust and Ards Borough Council in 1978 to eradicate *Spartina* from Strangford Lough which virtually cleared the area. However, fears arising from the use of herbicides lead to the cessation of control and the re-colonisation of the grass and the spread to many new locations. Part of the Strangford Lough Management Scheme objectives includes the continued control of the spread of *Spartina* through the use of herbicide and other suitable methods.
- 3.2.18 The development of Local Biodiversity Action Plans (LBAPs), based on District Council areas and/or discrete landscape areas, and the appointment of Local Biodiversity Officers will help to build on the SLNCI network and encourage, co-ordinate and inform local biodiversity action.

4. Action Plan Targets

- 4.1 Maintain the current extent of all saltmarsh at 250ha.
- 4.2 Maintain the area of saltmarsh in favourable condition at 135ha.
- 4.3 By 2015, restore to favourable condition the area of saltmarsh in unfavourable condition (100ha.)

5. Proposed Action with Lead Agencies

5.1 Policy and legislation

- 5.1.1 By 2005, initiate discussions with other government departments to ensure appropriate consultation mechanisms exist for proposed changes in land-use.
(ACTION: DOE, DARD, Planning Service, EHS)
- 5.1.2 By 2006, review *Planning Policy Statement 2 (PPS2) – Planning and Nature Conservation*, to include policies relating to the conservation of priority habitat and species.
(ACTION: Planning Service, EHS)
- 5.1.3 By 2006, produce *Planning Policy Statement (PPS15) on Planning and Flood Risk*. This includes an objective to promote an integrated sustainable approach to the management of development and flood risk that, among other matters, will contribute to the conservation and enhancement of the biodiversity of Northern Ireland.
(ACTION: Planning service, EHS)

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- 5.1.4 By 2005, produce *Planning Policy Statement (PPS14) on Sustainable Development in the Countryside* which includes objectives to minimise the impact of housing development on the environmental resources of habitat, water quality and biodiversity of the rural area, thereby contributing to the conservation of biodiversity in Northern Ireland.
(ACTION: DRD, EHS, Planning Service)
- 5.1.5 By 2005, produce a Planning Policy Statement (PPS) on the coast to manage coastal development in a sustainable manner and protect the natural character and landscape of the coast.
(ACTION: DRD)
- 5.1.6 Identify further examples of saltmarsh as SLNCIs for consideration for adoption into appropriate Development Plans.
(ACTION: EHS, Planning Service)
- 5.1.7 Ensure that important coastal saltmarsh sites not already identified e.g. as SLNCIs, are recognised and, where appropriate, site protection policies are included in Development Plans and other strategic plans such as Local Biodiversity Action Plans (LBAPs) and coastal zone management strategies.
(ACTION: Planning Service, EHS, DARD, District Councils, Forest Service)
- 5.1.8 In the preparation of Planning Policy Statements, the promotion of biodiversity will be taken into account where appropriate.
(ACTION: Planning service, DRD, EHS)
- 5.1.9 By 2006, develop and promote policies and procedures which will aim to prevent losses of saltmarsh habitat to development and exploitation through for example, development schemes, flood and coastal defence works, dredging operations.
(ACTION: Planning Service, DARD, Rivers Agency, EHS, DETI, Harbour Authorities)
- 5.1.10 By 2006, explore options for using statutory measures, aside from those specifically designed for nature conservation, to protect saltmarshes.
(ACTION: DOE, DARD, DCAL, DRD)
- 5.1.11 By 2006, develop and promote agri-environment schemes which will encourage restoration and sustainable management of saltmarshes.
(ACTION: DARD)
- 5.1.12 By 2006, consider the implications of enabling agricultural land to be made available for coastal habitat creation, for example through awareness of agri-environment schemes, the development of appropriate management mechanisms and the incorporation of the non-use value of saltmarsh into cost/benefit analysis for flood defence schemes.
(ACTION: EHS, DARD, DOE, District Councils)
- 5.1.13 By 2006, develop and promote incentives to encourage the management and restoration of landward transitional saltmarsh habitats.
(ACTION: EHS, DARD)

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- 5.1.14 By 2007, ensure that agri-environment scheme prescriptions relevant/appropriate to coastal saltmarshes are contributing to maintaining and enhancing the habitat across Northern Ireland.
(ACTION: DARD, EHS)
- 5.1.15 By 2006, develop and promote coastal zone management policies which allow the maximum possible free movement of coastal sediment and pay full regard to the conservation of saltmarshes.
(ACTION: DOE)
- 5.1.16 By 2006, prepare an Integrated Coastal Zone Management Strategy for Northern Ireland.
(ACTION: DOE, EHS)
- 5.1.17 By 2007, establish a Northern Ireland cross-sectoral steering group, to take forward the requirements of the coastal habitat action plans.
(ACTION: EHS, DARD)
- 5.1.18 By 2007, consider the use of Shoreline Management Plans in the delivery of this plan.
(ACTION: EHS)
- 5.1.19 Ensure that designated saltmarsh sites are properly recognised within River Basin Management Plans by 2009 as required by the Water Framework Directive.
(ACTION: EHS)
- 5.1.20 By 2007, give consideration to how planning policy might discourage new built development within appropriate buffer zones in the vicinity of saltmarshes.
(ACTION: DOE, Planning Service, EHS, District Councils)
- 5.1.21 By 2005, ensure that the importance of saltmarshes and offshore sediment resources is recognised in flood and coastal defence strategies and, where appropriate, encourage such strategies to contribute to the objectives and targets of this plan.
(ACTION: DOE)
- 5.1.22 By 2005, ensure conservation management requirements for saltmarsh are included in the development and implementation of coastal zone management plans and ensure that they are not managed in isolation from other habitats and communities in these areas.
(ACTION: DOE, EHS)
- 5.1.23 By 2010, look into the feasibility of developing provisions within the planning system to encourage the resiting of developments which are vulnerable to coastal erosion.
(ACTION: DOE)

5.2 Site safeguard and management

- 5.2.1 By 2006, determine the extent and quality of the saltmarsh resource which falls within protected areas and notify further sites, if required, to fill significant gaps. In particular, ensure that there is adequate representation of the full range of variation in saltmarsh communities found around Northern Ireland.
(ACTION: EHS)
- 5.2.2 By 2005, identify saltmarsh that has been damaged or degraded by, for example, coastal defences, drainage schemes, recreation, tourism development, agricultural management, land reclamation and invasive species.
(ACTION: EHS)
- 5.2.3 By 2006, prioritise areas, timescales and targets based on designation status and restoration potential, for the conservation and improvement of saltmarsh habitat.
(ACTION: EHS, DARD)
- 5.2.4 By 2007, where feasible, initiate remedial action to restore damaged or degraded saltmarshes to favourable condition.
(ACTION: EHS)
- 5.2.5 By 2006, produce conservation objectives for all statutory sites that incorporate saltmarsh habitats ensuring that the objectives do not conflict with the requirements of saltmarshes.
(ACTION: EHS)
- 5.2.6 By 2007, promote uptake of management agreements, including MOSS, with landowners and occupiers on statutory designated sites aimed at creating or maintaining the favourable condition of saltmarshes.
(ACTION: EHS, DARD, District Councils)
- 5.2.7 By 2007, promote and encourage the restoration of saltmarsh vegetation on suitable land used for arable farming or agriculturally improved grassland.
(ACTION: DARD, EHS)
- 5.2.8 By 2006, produce a management strategy for the control of *Spartina anglica* and other invasive species and their impacts on saltmarshes.
(ACTION: EHS, DARD, District Councils)
- 5.2.9 By 2007, consider adopting a strategy for managed realignment with regard to saltmarsh instead of protecting or restoring areas where sea levels are rising.
(ACTION: DOE, DARD, District Councils)
- 5.2.10 By 2008, encourage golf course management policies and practices which are sympathetic to the flora and fauna of coastal ecosystems.
(ACTION: EHS, District Councils)

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- 5.2.11 By 2008, encourage the increased use of soft e.g. foreshore recharge, rather than hard engineering techniques where some degree of coastal stabilisation is essential.
(ACTION: DARD, DOE, District Councils)

5.3 Advisory

- 5.3.1 By 2006, provide information to landowners on the conservation and importance of saltmarsh habitat through production, promotion and dissemination of literature.
(ACTION: EHS, DARD)
- 5.3.2 By 2006, make use of the potential provided by coastal partnerships in taking forward the actions of this plan.
(ACTION: EHS, District Councils)
- 5.3.3 By 2006, develop guidelines that identify those circumstances under which the restoration of degraded saltmarsh should be encouraged.
(ACTION: EHS, DARD)
- 5.3.4 By 2007, develop and promote awareness and training programmes on the conservation, management and restoration of saltmarsh through key organisations/individuals involved in the delivery of advice to farmers and land managers.
(ACTION: EHS, DARD)
- 5.3.5 By 2007, promote and develop demonstration sites for the management and creation of saltmarsh.
(ACTION: EHS, DARD)
- 5.3.6 By 2006, encourage applications from potential partners to obtain funding to bring saltmarsh habitat into favourable management.
(ACTION: EHS, DARD, District Councils)

5.4 International

- 5.4.1 By 2006, develop further links with Great Britain, the Republic of Ireland and European and international organisations and programmes such as the European Environment Agency and the European Centre for Nature Conservation, to promote the exchange of information and experience in research, management techniques, education, and conservation strategies.
(ACTION: EHS)
- 5.4.2 By 2008, liaise with research institutions in Europe and elsewhere to exchange data and information on the conservation of saltmarshes.
(ACTION: EHS)

5.5 Monitoring and research

- 5.5.1 Assess and report on the need for research on natural and anthropogenic impacts on coastal dynamics in relation to saltmarsh.
(ACTION: EHS)
- 5.5.2 By 2006, initiate an assessment of land management practices on saltmarsh including grazing.
(ACTION: EHS)
- 5.5.3 By 2005, set standards for assessing favourable condition of saltmarsh throughout Northern Ireland.
(ACTION: EHS)
- 5.5.4 By 2006, compile an inventory of all saltmarsh in Northern Ireland.
(ACTION: EHS)
- 5.5.5 By 2007, prioritise those sites which are suitable for improving condition, for restoration and for enhancement.
(ACTION: EHS)
- 5.5.6 By 2006, carry out an assessment of how the conservation interest of saltmarshes may be affected by nitrogen deposition, climate change and sea level rise and promote research needs accordingly.
(ACTION: EHS)
- 5.5.7 By 2006, commission a study to identify possible coastal and sea defence strategies that may be more sympathetic to the nature conservation interests of saltmarsh and identify stretches of coastline where such sympathetic modifications are feasible.
(ACTION: DOE, EHS, DETI, DRD, DARD)
- 5.5.8 By 2006, ensure that all relevant information gathered in surveys is passed to the Centre for Environmental Data and Recording (CEDaR) based at the Ulster Museum and to other relevant centres. Encourage access to, and exchange of these records, by contributing to the National Biodiversity Network web-based catalogue of environmental information.
(ACTION: EHS)
- 5.5.9 By 2007, initiate monitoring programmes to establish the effectiveness of government funded schemes and management methods in achieving the targets of this plan.
(ACTION: EHS, DARD)
- 5.5.10 By 2010, monitor saltmarsh restoration sites so that management resources can be focused on areas most likely to show a positive response.
(ACTION: EHS)

5.5.11 By 2007, assess the likely medium to long-term demand for offshore sediment in order to maintain the current saltmarsh structures and their associated habitats.
(ACTION: CEC, DOE, DRD)

5.5.12 By 2006, set in place a reporting and monitoring structure to encourage progress towards the delivery of the targets and the completion of actions identified in this plan.
(ACTION: EHS)

5.6 Communications and publicity

5.6.1 By 2006, raise public awareness of saltmarsh and its value for a variety of interests including coastal processes, flood defence, fisheries, nature conservation, amenity and recreation.
(ACTION: EHS)

5.6.2 By 2005, devise a strategy for ensuring the effective distribution of existing advisory material to managers and farmers and if gaps are identified, produce and disseminate appropriate material to fill these.
(ACTION: EHS, DARD)

5.6.3 By 2006, encourage appropriate access, as well as interpretative and educational provisions on saltmarshes, to increase enjoyment and public awareness of this habitat.
(ACTION: EHS, District Councils)

5.6.4 By 2008, facilitate production of information such as a simple web-site, an attractive booklet and CD-ROM for the public and schools which explains the conservation importance of saltmarsh in Northern Ireland.
(ACTION: EHS, Department of Education, DARD)

5.6.5 By 2008, implement at appropriate venues such as the Ulster Museum, the Exploris Aquarium and coastal EHS Countryside Centres, 'flagship' programmes for achieving education, increased public awareness and appreciation of saltmarshes in Northern Ireland.
(ACTION: EHS)

6. Costings

6.1 A table showing the global costs for this and other HAPs is available on the EHS/Biodiversity web page.

7. References

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List of Useful Acronyms

ASSI	Area of Special Scientific Interest
BAP	Biodiversity Action Plan
CEDaR	Centre for Environmental Data and Recording
CMD	Countryside Management Division
CMS	Countryside Management Scheme
DARD	Department of Agricultural and Rural Development
DCAL	Department of Culture, Arts and Leisure
DETI	Department of Enterprise, Trade and Industry
DOE	Department of the Environment
DRD	Department for Regional Development
EHS	Environment and Heritage Service
ESA	Environmentally Sensitive Area
ESCRs	Earth Science Conservation Review Site
HAP	Habitat Action Plan
JNCC	Joint Nature Conservation Committee
MAGNI	The National Museums and Galleries of Northern Ireland
NIBG	Northern Ireland Biodiversity Group
NICS	Northern Ireland Countryside Survey
NNR	National Nature Reserve
PPG	Planning Policy Guideline
PPS	Planning Policy Statement
RA	Rivers Agency
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SLNCI	Sites of Local Nature Conservation Importance
SoCC	Species of Conservation Concern
SPA	Special Protection Area
WFD	Water Framework Directive
WWT	Wildfowl and Wetlands Trust