

National Parks and Wildlife Service

Conservation Objectives Series

Slaney River Valley SAC 000781



An Roinn
Ealaíon, Oidhreachta agus Gaeltachta

Department of
Arts, Heritage and the Gaeltacht



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Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

* indicates a priority habitat under the Habitats Directive

000781	Slaney River Valley SAC
1029	Freshwater Pearl Mussel <i>Margaritifera margaritifera</i>
1095	Sea Lamprey <i>Petromyzon marinus</i>
1096	Brook Lamprey <i>Lampetra planeri</i>
1099	River Lamprey <i>Lampetra fluviatilis</i>
1103	Twaite Shad <i>Alosa fallax</i>
1106	Atlantic Salmon <i>Salmo salar</i> (only in fresh water)
1130	Estuaries
1140	Mudflats and sandflats not covered by seawater at low tide
1355	Otter <i>Lutra lutra</i>
1365	Harbour Seal <i>Phoca vitulina</i>
3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation
91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles
91E0	* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)

Please note that this SAC is adjacent to/overlaps with Raven Point Nature Reserve SAC 000781; The Raven SPA 004019; and Wexford Harbour and Slobs SPA 004076. See map 2.

Supporting documents, relevant reports & publications (listed by date)

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

Title: Comparison of field- and GIS-based assessments of barriers to Atlantic salmon migration: a case study in the Nore Catchment, Republic of Ireland

Year: in press

Author: Gargan, P.G.; Roche, W.K.; Keane, S.; King, J.J.; Cullagh, A.; Mills, P.; O'Keeffe, J.

Series: Journal of Applied Ichthyology

Title: Slaney River Valley SAC (000781). Conservation objectives supporting document - marine habitats and species [Version 1]

Year: 2011

Author: NPWS

Series: Unpublished Report to NPWS

Title: NPWS Rare and Threatened Species Database

Year: 2011

Author: NPWS

Series: Unpublished NPWS Dataset

Title: Slaney River Valley SAC (000781). Conservation objectives supporting document - woodland habitats [Version 1]

Year: 2011

Author: NPWS

Series: Unpublished Report to NPWS

Title: Subtidal Benthic Investigations in Slaney River Valley cSAC (000781) and Wexford Harbour and Slobbs SPA (004076) Co. Wexford

Year: 2010

Author: Aquafact

Series: Unpublished Report to NPWS & MI

Title: Otter tracking study of Roaringwater Bay

Year: 2010

Author: De Jongh, A.; O'Neill, L.

Series: Unpublished Draft Report to NPWS

Title: A provisional inventory of ancient and long-established woodland in Ireland

Year: 2010

Author: Perrin, P.M.; Daly, O.H.

Series: Irish Wildlife Manuals No. 46

Title: Report of the standing scientific committee to the DCENR. The status of Irish salmon stocks in 2010 and precautionary catch advice for 2011

Year: 2010

Author: SSC

Series: Unpublished Report to DCENR

Title: A survey of mudflats and sandflats in Ireland. An intertidal soft sediment survey of Wexford Harbour

Year: 2009

Author: ASU

Series: Unpublished Report to NPWS

Title:	The European Communities Environmental Objectives (Surface Water) Regulations 2009. [S.I. 272 of 2009]
Year:	2009
Author:	Government of Ireland
Series:	Irish Statute Book
Title:	Aspects of anadromous Allis shad (<i>Alosa alosa</i> Linnaeus) and Twaite shad (<i>Alosa fallax</i> Lacépède) biology in four Irish Special Areas of Conservation (SACs): status, spawning indications and implications for cons
Year:	2008
Author:	King, J.J.; Roche, W.K.
Series:	Hydrobiologia 602, 145–154
Title:	Water-starworts, <i>Callitriche</i> , of Europe
Year:	2008
Author:	Lansdown, R.V.
Series:	BSBI Handbook, No. 11, London
Title:	Poor water quality constrains the distribution and movements of Twaite shad <i>Alosa fallax fallax</i> (Lacepede, 1803) in the watershed of river Scheldt
Year:	2008
Author:	Maas, J.; Stevens, M. ; Breine, J.
Series:	Hydrobiologia 602, 129 - 143
Title:	National Survey of Native Woodlands 2003-2008
Year:	2008
Author:	Perrin, P.; Martin, J.; Barron, S.; O'Neill, F.; McNutt, K.; Delaney, A.
Series:	Unpublished Report to NPWS
Title:	Supporting documentation for the Habitats Directive Conservation Status Assessment - backing documents, Article 17 forms and supporting maps
Year:	2007
Author:	NPWS
Series:	Unpublished Report to NPWS
Title:	A Survey of Juvenile Lamprey Populations in the Corrib and Suir Catchments
Year:	2007
Author:	O'Connor, W.
Series:	Irish Wildlife Manuals No. 26
Title:	Otter Survey of Ireland 2004/2005
Year:	2006
Author:	Bailey, M.; Rochford, J.
Series:	Irish Wildlife Manuals No. 23
Title:	Otters - ecology, behaviour and conservation
Year:	2006
Author:	Kruuk, H.
Series:	Oxford University Press

-
- Title:** Harbour seal population assessment in the Republic of Ireland: August 2003
Year: 2004
Author: Cronin, M.; Duck, C.; Ó Cadhla, O.; Nairn, R.; Strong, D.; O'Keeffe, C.
Series: Irish Wildlife Manuals No. 11
-
- Title:** The status and distribution of lamprey and shad in the Slaney and Munster Blackwater SACs
Year: 2004
Author: King, J.J.; Linnane, S.M.
Series: Irish Wildlife Manuals No. 14
-
- Title:** Monitoring the river, sea and brook lamprey, *Lampetra fluviatilis*, *L. planeri* and *Petromyzon marinus*
Year: 2003
Author: Harvey, J.; Cowx, I.
Series: Conserving Natura 2000 Rivers Monitoring Series No. 5, English Nature, Peterborough
-
- Title:** Ecology of Watercourses Characterised by *Ranunculion fluitantis* and *Callitriche-Batrachion* Vegetation
Year: 2003
Author: Hatton-Ellis, T.W.; Grieve, N.
Series: Conserving Natura 2000 Rivers Ecology Series No. 11. English Nature, Peterborough
-
- Title:** Ecology of the Allis and Twaite shad
Year: 2003
Author: Maitland, P.S.; Hatton-Ellis, T.W.
Series: Conserving Natura 2000 Rivers Ecology Series No. 3. English Nature, Peterborough
-
- Title:** Pondweeds of Great Britain and Ireland
Year: 2003
Author: Preston, C.D.
Series: BSBI Handbook, No. 8, London
-
- Title:** Reversing the habitat fragmentation of British woodlands
Year: 2002
Author: Peterken, G.
Series: WWF-UK, London
-
- Title:** Aquatic Plants in Britain and Ireland
Year: 2001
Author: Preston, C.D.
Series: Harley Books, Colchester
-
- Title:** Diet of Otters *Lutra lutra* on Inishmore, Aran Islands, west coast of Ireland
Year: 1999
Author: Kingston, S.; O'Connell, M.; Fairley, J.S.
Series: Biol & Environ Proc R Ir Acad B 99B:173–182
-
- Title:** The spatial organization of otters (*Lutra lutra*) in Shetland
Year: 1991
Author: Kruuk, H.; Moorhouse, A.
Series: J. Zool, 224: 41-57
-

Title: CORINE Biotopes Database - Ireland

Year: 1989

Author: NPWS

Series: Unpublished NPWS Dataset

Title: The vegetation of Irish rivers

Year: 1987

Author: Heuff, H.

Series: Unpublished Report

Title: Otter survey of Ireland

Year: 1982

Author: Chapman, P.J.; Chapman, L.L.

Series: Unpublished Report to Vincent Wildlife Trust

Title: The distribution of grey and common seals on the coasts of Ireland

Year: 1966

Author: Lockley, R.M.

Series: Irish Naturalists' Journal 15: 136-143

Spatial data sources

Year:	2010
Title:	EPA WFD transitional waterbody data
GIS operations:	Clipped to SAC boundary
Used for:	1130 (map 3)
Year:	Interpolated 2011
Title:	2008 intertidal survey data; 2010 subtidal survey data
GIS operations:	Polygon feature classes from marine community types base data sub-divided based on interpolation of marine survey data. Expert opinion used as necessary to resolve any issues arising
Used for:	Marine community types, 1140 (maps 4 and 5)
Year:	2005
Title:	OSi Discovery series vector data
GIS operations:	High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; EU Annex I Saltmarsh and Coastal data erased out if present
Used for:	Marine community types base data (map 5)
Year:	Revision 2010
Title:	National Survey of Native Woodlands 2003-2008. Version 1
GIS operations:	QIs selected; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used for:	91A0, 91E0 (map 6)
Year:	Derived 2011
Title:	Internal NPWS files
GIS operations:	Dataset created from spatial references contained in files
Used for:	3260 (map 6)
Year:	2011
Title:	NPWS rare and threatened species database
GIS operations:	Dataset created from spatial references in database records. Expert opinion used as necessary to resolve any issues arising
Used for:	1365 (map 7)
Year:	2005
Title:	OSi Discovery series vector data
GIS operations:	High Water Mark (HWM) polyline feature class converted into polygon feature class; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used for:	1365 (map 7)
Year:	2005
Title:	OSi Discovery series vector data
GIS operations:	Creation of an 80m buffer on the marine side of the high water mark (HWM); creation of a 10m buffer on the terrestrial side of the HWM; combination of 80m and 10m HWM buffer datasets; creation of a 10m buffer on the terrestrial side of the river banks data; creation of 20m buffer applied to canal centreline data. These datasets are combined with the derived EPA WDF Waterbodies data. Overlapping regions investigated and resolved; resulting dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used for:	1355 (no map)

Year:	2010
Title:	EPA WFD Waterbodies data
GIS operations:	Creation of a 20m buffer applied to river and stream centreline data; creation of 80m buffer on the aquatic side of lake data; creation of 10m buffer on the terrestrial side of lake data. These datasets are combined with the derived OSi data. Overlapping regions investigated and resolved; resulting dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used for:	1355 (no map)

1029 Freshwater Pearl Mussel *Margaritifera margaritifera*

The status of the freshwater pearl mussel (*Margaritifera margaritifera*) as a qualifying Annex II species for the Slaney River Valley SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species

1095 Sea Lamprey *Petromyzon marinus*

To restore the favourable conservation condition of Sea lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution: extent of anadromy	% of river accessible	Greater than 75% of main stem length of rivers accessible from estuary	Artificial barriers can block or cause difficulties to lampreys' upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas. In this site, some barrier modification is required (e.g. Clohamon weir) to permit sea lamprey passage (Gargan et al., in press)
Population structure of juveniles	Number of age/size groups	At least three age/size groups present	Attribute and target based on Harvey and Cowx (2003)
Juvenile density in fine sediment	Juveniles/m ²	Juvenile density at least 1/m ²	Juveniles burrow in areas of fine sediment in still water. Attribute and target based on data from Harvey and Cowx (2003)
Extent and distribution of spawning habitat	m ² and occurrence	No decline in extent and distribution of spawning beds. Improved dispersal of spawning beds into areas upstream of barriers	Attribute and target based on spawning bed mapping by Inland Fisheries Ireland (IFI). Lampreys spawn in clean gravels
Availability of juvenile habitat	Number of positive sites in 3rd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive	Target based on studies by Central Fisheries Board (CFB)/IFI; Ecofact for NPWS (e.g. King and Linnane, 2004; O'Connor, 2007)

1096 Brook Lamprey *Lampetra planeri*

To restore the favourable conservation condition of Brook lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	% of river accessible	Access to all water courses down to first order streams	Artificial barriers can block lampreys' upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas. Barrier modification required to facilitate passage of adult fish within channels (Gargan et al., in press)
Population structure of juveniles	Number of age/size groups	At least three age/size groups of brook/river lamprey present	Attribute and target based on data from Harvey & Cowx (2003). It is impossible to distinguish between brook and river lamprey juveniles in the field, hence they are considered together in this target
Juvenile density in fine sediment	Juveniles/m ²	Mean catchment juvenile density of brook/river lamprey at least 2/m ²	Juveniles burrow in areas of fine sediment in still water. Attribute and target based on data from Harvey & Cowx (2003) who state 10/m ² in optimal conditions and more than 2/m ² on a catchment basis
Extent and distribution of spawning habitat	m ² and occurrence	No decline in extent and distribution of spawning beds	Attribute and target based on spawning bed mapping by Inland Fisheries Ireland (IFI). Lampreys spawn in clean gravels
Availability of juvenile habitat	Number of positive sites in 2nd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive	Target based on studies by Central Fisheries Board (CFB)/IFI; Ecofact for NPWS (e.g. King and Linnane, 2004; O'Connor, 2007)

1099 River Lamprey *Lampetra fluviatilis*

To restore the favourable conservation condition of River lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution: extent of anadromy	% of river accessible	Greater than 75% of main stem and major tributaries down to second order accessible from estuary	Artificial barriers can block lampreys' upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas. Barrier modification required to facilitate passage of adult fish within channels (Gargan et al., in press)
Population structure of juveniles	Number of age/size groups	At least three age/size groups of river/brook lamprey present	Attribute and target based on data from Harvey & Cowx (2003). It is impossible to distinguish between brook and river lamprey juveniles in the field, hence they are considered together in this target
Juvenile density in fine sediment	Juveniles/m ²	Mean catchment juvenile density of brook/river lamprey at least 2/m ²	Juveniles burrow in areas of fine sediment in still water. Attribute and target based on data from Harvey & Cowx (2003) who state 10/m ² in optimal conditions and more than 2/m ² on a catchment basis
Extent and distribution of spawning habitat	m ² and occurrence	No decline in extent and distribution of spawning beds	Attribute and target based on spawning bed mapping by Inland Fisheries Ireland (IFI). Lampreys spawn in clean gravels
Availability of juvenile habitat	Number of positive sites in 2nd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive	Target based on studies by Central Fisheries Board (CFB)/IFI; Ecofact for NPWS (e.g. King and Linnane, 2004; O'Connor, 2007)

1103 Twaite Shad *Alosa fallax*

To restore the favourable conservation condition of Twaite shad in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution: extent of anadromy	% of river accessible	Greater than 75% of main stem length of rivers accessible from estuary	In some catchments, artificial barriers block twaite shads' upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas. Barrier modification required to facilitate passage of adult fish within channels (Gargan et al., in press)
Population structure- age classes	Number of age classes	More than one age class present	Regular breeding has not been confirmed in the River Slaney in recent years (King and Roche, 2008)
Extent and distribution of spawning habitat	m ² and occurrence	No decline in extent and distribution of spawning habitats	
Water quality- oxygen levels	Milligrammes per litre	No lower than 5mg/l	Attribute and target based on Maas, Stevens and Briene (2008)
Spawning habitat quality: Filamentous algae; macrophytes; sediment	Occurrence	Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth	

Conservation objectives for: Slaney River Valley SAC [000781]

1106 Atlantic Salmon *Salmo salar* (only in fresh water)

To restore the favourable conservation condition of Salmon in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution: extent of anadromy	% of river accessible	100% of river channels down to second order accessible from estuary	Artificial barriers can block salmon's upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas
Adult spawning fish	Number	Conservation Limit (CL) for each system consistently exceeded	A conservation limit is defined by the North Atlantic Salmon Conservation Organisation (NASCO) as "the spawning stock level that produces long-term average maximum sustainable yield as derived from the adult to adult stock and recruitment relationship". The target is based on the Standing Scientific Committee of the National Salmon Commission's annual model output of CL attainment levels. See SSC (2010). Stock estimates are either derived from direct counts of adults (rod catch, fish counter) or indirectly by fry abundance counts. The fish counter at Clohamon is used to assess the run of salmon on the Slaney. The Slaney is currently (2011) below its CL for both 1SW salmon (meeting 54%) & MSW salmon (meeting 34%)
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling	Target is threshold value for rivers currently exceeding their conservation limit (CL)
Out-migrating smolt abundance	Number	No significant decline	Smolt abundance can be negatively affected by a number of impacts such as estuarine pollution, hydroelectric schemes, predation and sea lice (<i>Lepeophtheirus salmonis</i>)
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes	Salmon spawn in clean gravels
Water quality	EPA Q value	At least Q4 at all sites sampled by EPA	Q values based on triennial water quality surveys carried out by the Environmental Protection Agency (EPA)

1130 Estuaries

To maintain the favourable conservation condition of Estuaries in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 3	Habitat area was estimated as 1,905ha using OSi data and the defined Transitional Water Body area under the Water Framework Directive. See marine supporting document for further information
Community distribution	Hectares	The following community types should be maintained in, or restored to, a natural condition: Mixed sediment community complex; Estuarine muds dominated by polychaetes and crustaceans community complex; and Sand dominated by polychaetes community complex. See map 5	The likely area of sediment communities was derived from a combination of intertidal and subtidal surveys undertaken in 2008 and 2010 (ASU, 2009; Aquafact, 2010). See marine supporting document for further information

1140 Mudflats and sandflats not covered by seawater at low tide

To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 4	Habitat area was estimated as 1,027ha using OSi data. See marine supporting document for further information
Community distribution	Hectares	The following community types should be maintained in a natural condition: Estuarine muds dominated by polychaetes and crustaceans community complex; and Sand dominated by polychaetes community complex. See map 5	The likely area of sediment communities was derived from a intertidal surveys undertaken in 2008 (ASU, 2009). See marine supporting document for further information

1355 Otter *Lutra lutra*

To restore the favourable conservation condition of Otter in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. FCS target, based on 1980/81 survey findings, is 88% in SACs. Current range in south-east estimated at 73% (Bailey and Rochford 2006)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 64.7ha above high water mark (HWM); 453.4ha along river banks/ around ponds	No field survey. Areas mapped to include 10m terrestrial buffer along shoreline (above HWM and along river banks) identified as critical for otters (NPWS, 2007)
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 534.7ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (HWM) (NPWS, 2007; Kruuk, 2006)
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 264.1km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Extent of freshwater (lake/lagoon) habitat	Hectares	No significant decline. Area mapped and calculated as 0.4ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk, 2006; Kruuk and Moorhouse, 1991)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford 2006) and wrasse and rockling in coastal waters (Kingston et al., 1999)
Barriers to connectivity	Number	No significant increase	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh & O'Neill, 2010). It is important that such commuting routes are not obstructed

1365 Harbour Seal *Phoca vitulina*

To maintain the favourable conservation condition of Harbour Seal in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use. See map 7	See marine supporting document for further details
Breeding behaviour	Breeding sites	The breeding sites should be maintained in a natural condition. See map 7	Attribute and target based on background knowledge of Irish breeding populations and review of data from unpublished National Parks & Wildlife Service records. See marine supporting document for further details
Moulting behaviour	Moult haul-out sites	The moult haul-out sites should be maintained in a natural condition. See map 7	Attribute and target based on background knowledge of Irish populations, review of data from Lockley (1966), Cronin et al. (2004) and unpublished National Parks & Wildlife Service records. See marine supporting document for further details
Resting behaviour	Resting haul-out sites	The resting haul-out sites should be maintained in a natural condition. See map 7	Attribute and target based on background knowledge of Irish populations and unpublished National Parks & Wildlife Service records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour seal population at the site. See map 7	See marine supporting document for further details

Conservation objectives for: Slaney River Valley SAC [000781]

3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 6 for mapped known extent	The full distribution of this habitat and its sub-types in this site is currently unknown. The basis of the selection of the SAC for the habitat is the presence of an excellent example of the vegetation assemblage associated with tidal reaches of large rivers between Enniscorthy and Polladern townland (see map 6). This sub-type is characterised by the presence of the rare and protected species short-leaved water-starwort (<i>Callitriche truncata</i>) and Opposite-leaved pondweed (<i>Groenlandia densa</i>). Other sub-types of the habitat were recorded in two tributaries of the Slaney: <i>Scapanietum undulatae</i> and <i>Pellietum epiphyllae scapanietosum</i> (Derreen River) and <i>Callitricho-Batrachionthe</i> (Derreen and Derry Rivers) (Heuff, 1987). Other examples of these or other sub-types may be present within the SAC
Habitat area	Kilometres	Area stable at 12.6km or increasing, subject to natural processes. See map 6	The full extent of this habitat in this site is currently unknown. The target of 12.6km applies to the tidal sub-type only
Hydrological regime: river flow	Metres per second	Maintain appropriate hydrological regimes	Due to regular disturbance (through variations in flow), river macrophytes rarely reach a climax condition but frequently occur as transient communities. A natural (relatively unmodified) flow regime is required for both plant communities and channel geomorphology to be in favourable condition, exhibiting typical dynamics for the river type (Hatton-Ellis and Grieve, 2003). For most of the sub-types of this habitat, high flows are required to maintain the substratum (see below) necessary for the characteristic species. Flow variation is particularly important, with high and flood flows being critical to the hydromorphology
Hydrological regime: tidal influence	Daily water level fluctuations - metres	Maintain natural tidal regime	The disturbance associated with the tidal regime is the primary driver of the tidal sub-type and rare associated species (see Lansdown, 2008; Preston, 2003; Preston and Croft, 2001)

3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Substratum composition: particle size range	Millimetres	For the tidal sub-type, the substratum of the channel must be dominated by particles of sand to gravel, with silt at the river margins	Target applies to tidal sub-type only. The size and distribution of substratum particles is largely determined by the river flow and tidal regime. Short-leaved water-starwort (<i>Callitriche truncata</i>) has been recorded from gravel-dominated substratum in the centre of the channel, as well as muds in marginal inlets and at the rivers' edge (J. Ryan, pers. comm., NPWS Rare and Threatened Species Database, 2011). Opposite-leaved pondweed (<i>Groenlandia densa</i>) is typically found on silts, sometimes sands, while needle spike-rush (<i>Eleocharis acicularis</i>) requires the marginal fine muds
Water quality: nutrients	Milligrammes per litre	The concentration of nutrients in the water column must be sufficiently low to prevent changes in species composition or habitat condition	The Environmental Protection Agency (EPA) do not monitor the tidal stretch of the Slaney. However, the data from upstream of Enniscorthy suggest the water quality for the tidal stretch is at good status (2007-2009). It is likely that the rare species associated with the tidal sub-type are tolerant of some nutrient enrichment, but may be sensitive to severe enrichment (Preston, 2003). Consequently, water quality should reach Water Framework Directive good status, in terms of nutrient standards, and macroinvertebrate and phytobenthos quality elements (see S.I. 272 of 2009)

Conservation objectives for: Slaney River Valley SAC [000781]

3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: typical species	Occurrence	Typical species of the relevant habitat sub-type reach favourable status	The sub-types of this habitat are poorly understood and their typical species have not yet been defined. Additional typical species and appropriate targets may emerge. The typical species of the tidal sub-type in the Slaney include short-leaved water-starwort (<i>Callitriche truncata</i>), opposite-leaved pondweed (<i>Groenlandia densa</i>), spiked water-milfoil (<i>Myriophyllum spicatum</i>), other pondweeds (<i>Potamogeton</i> spp.), as well as pioneer vegetation of bare mud, e.g. needle spike-rush (<i>Eleocharis acicularis</i>) (NPWS Rare and Threatened Species Database, 2011; NPWS, 1989; J. Ryan, pers. comm.). The tidal stretch also supports important reed beds (including common reed (<i>Phragmites australis</i>), greater pond-sedge (<i>Carex riparia</i>), reed canary-grass (<i>Phalaris arundinacea</i>) and common club-rush (<i>Schoenoplectus lacustris</i>)), marginal swamp vegetation and freshwater marsh. The invasive macrophyte Nuttall's waterweed (<i>Elodea nuttallii</i>) is also known to occur in the tidal stretch of the Slaney (R. Goodwillie, pers. comm.). The typical species may include higher plants, bryophytes, macroalgae and microalgae
Floodplain connectivity: area	Hectares	The area of active floodplain at and upstream of the habitat must be maintained	River connectivity with the floodplain must be maintained. The site of the tidal sub-type in the Slaney River is within an area of floodplain. Floodplain connectivity is particularly important in terms of sediment sorting and nutrient deposition

Conservation objectives for: Slaney River Valley SAC [000781]

91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

To restore the favourable conservation condition of old sessile oakwoods with *Ilex* and *Blechnum* in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, at least 146.17ha for sub-sites surveyed. See map 6	Minimum area, based on 10 sites surveyed by Perrin et al. (2008) - site codes 1, 8, 26, 158, 172, 180, 210, 310, 749 and 988. NB further unsurveyed areas maybe present within the SAC
Habitat distribution	Occurrence	No decline. Surveyed locations shown on map 6	Distribution based on Perrin et al. (2008). NB further unsurveyed areas maybe present within the SAC
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	The sizes of at least some of the existing woodlands need to be increased in order to reduce habitat fragmentation and benefit those species requiring 'deep' woodland conditions (Peterken, 2002). Topographical constraints may restrict expansion
Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb layer	Described in Perrin et al. (2008). See woodland habitats supporting document for further details
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	Described in Perrin et al. (2008). See woodland habitats supporting document for further details
Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	Oak regenerates poorly. In suitable sites ash can regenerate in large numbers although few seedlings reach pole size
Woodland structure: dead wood	m ³ per hectare; number per hectare	At least 30m ³ /ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter	Dead wood is a valuable resource and an integral part of a healthy, functioning woodland ecosystem.
Woodland structure: veteran trees	Number per hectare	No decline	Mature and veteran trees are important habitats for bryophytes, lichens, saproxylic organisms and some bird species. Their retention is important to ensure continuity of habitats/niches and propagule sources
Woodland structure: indicators of local distinctiveness	Occurrence	No decline	Includes ancient or long-established woodlands, archaeological and geological features as well as red-data and other rare or localised species. Perrin and Daly (2010) list sites 1, 26, 158, 172, 180, 310, 749 as potential ancient/long-established woodlands

91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

To restore the favourable conservation condition of old sessile oakwoods with *Ilex* and *Blechnum* in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%	Species reported in Perrin et al. (2008)
Vegetation composition: typical species	Occurrence	A variety of typical native species present, depending on woodland type, including oak (<i>Quercus petraea</i>) and birch (<i>Betula pubescens</i>)	Species reported in Perrin et al. (2008)
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	The following are the most common invasive species in this woodland type: beech (<i>Fagus sylvatica</i>), rhododendron (<i>Rhododendron ponticum</i>), cherry laurel (<i>Prunus laurocerasus</i>)

Conservation objectives for: Slaney River Valley SAC [000781]

91E0 * Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

To restore the favourable conservation condition of Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*) in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, at least 18.7ha for sites surveyed. See map 6	Minimum area, based on 7 sites surveyed by Perrin et al. (2008) - site codes 1, 157, 208, 209, 211, 875, 988. NB further unsurveyed areas maybe present within the SAC
Habitat distribution	Occurrence	No decline. Surveyed locations shown on map 6	Distribution based on Perrin et al. (2008). NB further unsurveyed areas maybe present within the SAC
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	The sizes of at least some of the existing woodlands need to be increased in order to reduce habitat fragmentation and benefit those species requiring 'deep' woodland conditions (Peterken, 2002). Topographical and land-ownership constraints may restrict expansion
Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb layer	Described in Perrin et al. (2008). See woodland habitats supporting document for further details
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	Described in Perrin et al. (2008). See woodland habitats supporting document for further details
Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	Alder and oak regenerate poorly. Ash often regenerates in large numbers although few seedlings reach pole size
Hydrological regime: Flooding depth/height of water table	Metres	Appropriate hydrological regime necessary for maintenance of alluvial vegetation	Periodic flooding is essential to maintain alluvial woodlands along river floodplains
Woodland structure: dead wood	m ³ per hectare; number per hectare	At least 30m ³ /ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder)	Dead wood is a valuable resource and an integral part of a healthy, functioning woodland ecosystem

Conservation objectives for: Slaney River Valley SAC [000781]

91E0 * Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)

To restore the favourable conservation condition of Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion) in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Woodland structure: veteran trees	Number per hectare	No decline	Mature and veteran trees are important habitats for bryophytes, lichens, saproxylic organisms and some bird species. Their retention is important to ensure continuity of habitats/niches and propagule sources
Woodland structure: indicators of local distinctiveness	Occurrence	No decline	Includes ancient or long-established woodlands, archaeological and geological features as well as red-data and other rare or localised species. Perrin & Daly (2010) list site 1as containing potential ancient/long established woodlands
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%	Species reported in Perrin et al. (2008)
Vegetation composition: typical species	Occurrence	A variety of typical native species present, depending on woodland type, including alder (<i>Alnus glutinosa</i>), willows (<i>Salix</i> spp) and, locally, oak (<i>Quercus robur</i>) and ash (<i>Fraxinus excelsior</i>)	Species reported in Perrin et al. (2008)
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	The following are the most common invasive species in this woodland type: sycamore (<i>Acer pseudoplatanus</i>) and Himalayan balsam (<i>Impatiens glandulifera</i>)