



Marine Scotland

Solway Firth Special Protection Area (SPA) Business and Regulatory Impact Assessment

December 2020

Business and Regulatory Impact Assessment

Title of Proposal

Solway Firth Special Protection Area (SPA)

Purpose and intended effect

Background

The Scottish Government is committed to a clean, healthy, safe, productive and biologically diverse marine and coastal environment that meets the long term needs of people and nature. In order to meet this commitment our seas must be managed in a sustainable manner - balancing the competing demands on marine resources. Biological and geological diversity must be protected to ensure our future marine ecosystem is capable of providing the economic and social benefits it yields today.

The EU Wild Birds Directive (2009/147/EC as codified) requires Member States to classify as Special Protection Areas (SPAs) the most suitable territories for wild birds. Building on the work of the SPA Review Working Group and taking account of existing guidelines on the identification of SPAs (JNCC, 1999), Scottish Natural Heritage (SNH) and the Joint Nature Conservation Committee (JNCC) have identified 14 sites which they consider essential for marine SPA status. These proposals include sites supporting wintering waterfowl, important areas for red throated divers, terns, European shag and foraging seabirds.

The Solway Firth SPA is a large estuarine/marine site with a total area of 1357.49km² situated between the western coastal margins of Cumbria in England and Dumfries and Galloway in Scotland, off the west coast of Great Britain. It is one of the largest estuaries in the UK along with Morecambe Bay and the Wash.

The Solway Firth (including the previously classified Upper Solway Flats and Marshes SPA and the marine extension) supports populations of European importance of the following Annex 1 species:

- Red-throated diver (*Gavia stellata*)
- Whooper swan (*Cygnus cygnus*)
- Barnacle goose (*Branta leucopsis*)
- Golden plover (*Pluvialis apricaria*)
- Bar-tailed godwit (*Limosa lapponica*)

And supports migratory populations of European importance, of the following species:

- Pink footed goose (*Anser brachyrhynchus*)
- Shelduck (*Tadorna tadorna*)*
- Teal (*Anas crecca*)*
- Pintail (*Anas acuta*)
- Shoveler (*Anas clypeata*)*
- Scaup (*Aythya marila*)

- Common scoter (*Melanitta nigra*)*
- Goldeneye (*Bucephala clangula*)*
- Goosander (*Mergus merganser*)*
- Oystercatcher (*Haematopus ostralegus*)
- Knot (*Calidris canutus*)
- Ringed plover (*Charadrius hiaticula*)
- Grey plover (*Pluvialis squatarola*)*
- Lapwing (*Vanellus vanellus*)*
- Dunlin (*Calidris alpina*)*
- Sanderling (*Calidris alba*)*
- Redshank (*Tringa totanus*)
- Turnstone (*Arenaria interpres*)*
- Curlew (*Numenius arquata*)
- Cormorant (*Phalacrocorax carbo*)*
- Black-headed gull (*Larus ridibundus*)*
- Common gull (*Larus canus*)*
- Herring gull (*Larus argentatus*)*

*Named qualifiers of the water bird assemblage.

The coastal area within the previously classified SPA includes a range of habitats including mudflats and sandflats, lagoons, salt marshes and inland water bodies. This diversity is extended into the marine environment with the sea bed comprising a wide range of mobile sediments.

The inner Solway firth is shallow often less than 10m deep, as is Wigtown Bay. This and the funnel-like shape of the inner firth cause strong tidal currents and therefore the sediments tend to be predominantly sandy nature. Channels within the estuary are constantly moving changing the shapes of sandbanks.

The tidal currents decrease in speed to the north of the Irish Sea, and hence the sea-bed sediments generally become muddier. However, northwards towards the entrance to Luce Bay, the sea bed is largely covered with a coarse gravel overlying till or glacial sediments.

The extensive mudflats and sandflats of the Solway support a typical estuarine fauna including a mix of polychaetes worms and bivalves, together with vast numbers of the burrowing amphipods *Corophium volutator* and *Bathyporeia* species (Perkins 1973). A wide range of pelagic and demersal fish also occur in the area, which acts as spawning grounds or nursery areas for a number of species.

Red-throated divers and goosanders move to coastal areas in winter from their breeding sites and feed on a wide variety of fish, which they catch by diving from the surface and pursuing their prey underwater. The fish species taken will be influenced by what is locally most readily available, but the diet of divers and goosanders can include haddock *Melanogrammus aeglefinus*, cod *Gadus morhua*, herring *Clupea harengus*, sprats *Sprattus sprattus* and gurnard *Eutrigla gurnardus*

along with smaller species such as sand-eels *Ammodytidae*, pipefish *Syngathidae*, gobies *Gobiidae*, flatfish *Pleuronectidae* and butterfish *Pholis gunnellus*.

Common scoter feed almost exclusively on molluscs and small crustaceans, diving from the surface to pluck their prey from the sea bed.

Diving activity varies among species but average foraging dive depths for red-throated diver, common scoter and goosander are shallower than 15m.

The presence of high densities of non-breeding waterfowl at this site is indicative of the productivity and availability of prey these shallow waters and their habitats provide.

Whilst the shallower areas may be the focus for foraging activities, the wider area within close proximity will also be used by non-breeding birds for preening, moulting, loafing and roosting. The northern Irish Sea is relatively land-locked and the exposure of coasts to winds is variable. Local topography and wind direction are important in determining local conditions and extreme wind speeds and therefore prime factors in determining suitable habitat for birds that over-winter.

Objective

The EU Wild Birds Directive requires member states of the EU to identify SPAs for:

- rare or vulnerable bird species (as listed in Annex I of the Directive); and
- regularly occurring migratory bird species.

And to do so in the geographical sea and land area where the Directive applies.

The EU Wild Birds Directive was adopted in 1979 by the EU member states due to increasing concerns about declines in Europe's wild bird populations caused by pollution, loss of habitats and unsustainable exploitation. The EU Wild Birds recognises that wild birds, many of which are migratory, are a shared heritage of the member states and that their conservation needs international co-operation. The creation of a network of protected sites, including SPAs, is one of several conservation measures that contribute to the protection of rare, vulnerable and migratory bird species.

The Joint Nature Conservation Committee (JNCC) has been working on behalf of all the countries' Statutory Nature Conservation Bodies (SNCBs) to complete a programme of data collection and analysis to inform the provision of advice on possible sites. Natural England, Natural Resources Wales, and the Department of Environment Northern Ireland (DoENI) are considering several possible marine SPAs in English, Welsh and Northern Irish inshore waters, including extensions to existing seabird colony SPAs and entirely marine SPAs.

The network of marine SPAs in Scotland is being progressed by Scottish Natural Heritage (SNH) where these fall largely within 12 nautical miles from shore and by Joint Nature Conservation Committee (JNCC) where they fall largely beyond 12 nautical miles. SNH and JNCC have identified 14 sites which they consider essential for the completion of a list of marine SPAs. These proposals include sites

supporting wintering waterfowl, important areas for red throated divers, terns, European shag and foraging seabirds.

Evidence in this BRIA is drawn from the work of statutory nature conservation bodies and consultants ABPmer¹. It brings together the science-led arguments for classification and the projected potential social and economic consequences of such action. This informs Scottish Ministers of the possible impacts of classifying the SPA, and due to requirements of the Birds Directive is for informational purposes only as the decision to classify SPAs can only be on the basis of scientific evidence. The site has been identified for classification as an SPA due to the confirmed presence of biodiversity features detailed above.

This BRIA examines the socio-economic impact of classifying the Solway Firth site as an SPA. At consultation stage, the assessment period covered the 20 year period from 2015 to 2034 - reflecting the time horizon within which the majority of impacts are expected to occur. Cost estimates have been updated to reflect new evidence provided as part of the consultation and these impacts are now expected to be incurred during the 20 year period, 2019-2038. To ensure consistency with the consultation BRIA, costs remain in 2015 prices. As with any socio-economic assessment related to environmental classifications, the findings should be considered as estimates, and in cases where greater uncertainty exists, such as for fisheries, are deliberately presented as worst-case scenarios to build in necessary caution.

In addition a range of scenarios are presented to account for the inherent uncertainty associated with such proposals. Lower, intermediate and upper scenarios have been developed to reflect the requirements for management measures, the spatial extent of features and the extent to which OSPAR/BAP² features are already afforded protection. The intermediate scenario is viewed as the best estimate. The estimated impacts across the three scenarios commonly vary quite significantly.

Scottish Natural Heritage (SNH) is the lead Statutory Nature Conservation Body (SNCB) for the purposes of this consultation, working in close collaboration with Natural England (NE). In the case of the Solway Firth SPA, SNH is acting as the lead SNCB for the site, while Marine Scotland has led on the delivery of the BRIA, working with DEFRA .

Rationale for Government intervention

The EU Wild Birds Directive (2009/147/EC as codified) requires Member States to classify as Special Protection Areas (SPAs) the most suitable territories for wild birds. The Scottish Government is responsible for identifying SPAs for Scotland.

In addition, the Scottish Government has a number of international commitments to deliver a network of MPAs.

¹ The Scottish MPA Project: Second Iteration of Site Proposals – Developing the Evidence Base for Impact Assessments, ABPmer

² Biodiversity Action Plan

Scotland's marine environment provides: food; energy sources (wind, wave and tidal power, minerals and fossil fuels); routes and harbours for shipping; tourism and recreational opportunities; and sites of cultural and historical interest.

Scotland's seas contain important distinctive habitats and support a diverse range of species that require protection in order to be conserved or for recovery to be facilitated. There are a number of market failures evident in the ways in which the marine environment is utilised. These relate to:

- *Public goods*: A number of the benefits of the marine environment such as the non-use value of biological diversity have 'public good' characteristics (no-one can be excluded from enjoying the benefits (non-excludability), and enjoyment of the benefits they provide by one person does not diminish the benefits that are available to others (non-rivalry)). These characteristics of the benefits from the marine environment mean that private individuals do not have an incentive to voluntarily ensure the continued flow of these goods, which can lead to their under-provision.
- *Negative and positive externalities*: externalities occur when actions of marine users affect other parties positively or negatively, but this is not reflected in market prices. In many cases, the market does not account fully for the value of benefits and costs of the activities of marine users. In the case of negative externalities (positive externalities) this can lead to more damage (less benefits) occurring from economic activity than would occur if the full cost (benefits) of economic activity was accounted for. For example, for marine harvestable goods that are traded, such as wild fish, market prices often do not reflect the potential damage caused to the environment by that exploitation.

Due to the competing demands placed upon Scotland's marine resources, market failures related to public goods provision and externalities will lead to insufficient protection of the marine environment if left to the market. This provides rationale for government to intervene to protect the marine environment.

The SPAs will form part of an ecologically coherent network of well-managed MPAs that is vital to conserve and regenerate our seas, in turn protecting the many goods and services they provide now, and for generations to come.

Consultation

Within Government

Consultation has been undertaken with policy colleagues within Marine Scotland, including aquaculture, nature conservation, marine renewables, fisheries and fresh water fisheries, and with Transport Scotland.

Historic Environment Scotland and the Scottish Environmental Protection Agency have also been consulted. Meetings were held with policy officials within these public bodies to discuss the development of these SPAs. We have also been working with Defra and other UK Departments on the join up between the Scottish MPA network, which includes SPAs, and the wider UK contribution to the OSPAR MPA network.

Public Consultation

The 2016 consultation on 10 proposed SPAs (pSPAs) (July-October 2016) was undertaken by Scottish Natural Heritage (SNH) on behalf of Scottish Ministers. This was followed by a second 2016/17 consultation (October 2016 to January 2017) on the remaining five pSPAs undertaken by SNH, the Joint Nature Conservation Committee (JNCC) and Natural England on behalf of Scottish Ministers and UK Ministers.

Business

Routine updates are provided to the Marine Strategy Forum and are supplemented with bilateral meetings across sectors including the fishing industry, environmental NGOs, tourism and recreation, nature conservation, renewable energy, aquaculture, ports and harbours, defence and local community groups.

A National Workshop attended by a wide range of stakeholders was held in March 2016 to present the proposals and gather feedback on the proposed consultation package.³

Options

Option 1: Do nothing

This option is not predicted to create any additional costs to the sectors and groups outlined above.

However failure to classify the “most suitable territories” as SPAs would leave the Scottish Government exposed to a high risk of EU infringement proceedings, which may result in substantial one off and recurring fines.

In addition it should be noted that the societal cost of not classifying could be both large and irreversible relative to the current condition of the marine environment. The absence of management measures to conserve the identified features may produce future economic and social costs in terms of increased marine habitat and biodiversity degradation. The option to not classify holds the potential to undermine the overall ecological coherence of the SPA Network. This potentially large and irreversible societal cost avoided is presented within the benefits section of the ‘do classify’ scenario (option 2) to avoid double counting the same impact.

Option 2: Classify site as a Special Protection Area

Option 2 involves the formal classification of the Solway Firth site. Classification would provide recognition and protection to the natural features of the site while also contributing to the wider Scottish and UK SPA network. Requisite management would be required to maintain the status of the site.

³ <http://www.gov.scot/Topics/marine/marine-environment/mpanetwork/marinespas/spaworkshop>

- **Sectors and groups affected**

The following sectors have been identified as present (or possibly present in the future) within the Solway Firth site and potentially interact with one or more of the features:

- Coastal defence and flood protection
- Commercial fisheries (GVA)
- Energy generation
- Military
- Ports and harbours
- Recreational boating
- Water sports
- Public Sector

Affected sectors may be impacted to a greater or lesser degree by classification depending on which scenario is pursued and which management option is preferred.

- **Benefits**

Option 1: Do nothing

No additional benefits are expected to arise from this policy option.

Option 2: Classify site as a Special Protection Area

The extent and quality of habitat and available food around Scotland's coast supports huge numbers of different species of seabirds. Few countries can match this and we have an international responsibility to protect what we have around Scotland. Therefore the appropriate action is to protect and maintain Scotland's seabird and water bird populations and meet the requirements of the EU Wild Birds Directive.

SPAs are created to meet international commitments under the EU Wild Birds Directive, which promotes the conservation of wild birds. SPAs are managed to safeguard the birds and avoid significant disturbance and deterioration of their habitats. This means that proposed activities likely to affect an SPA are assessed for their potential to cause such disturbance or deterioration. The relevant consenting authority must ensure beyond reasonable scientific doubt that any impact is not significant before permitting the activity.

While it may not be possible with current levels of research to monetise benefits with a satisfactory degree of rigour, it is clear that many of the benefits relate to aspects of our lives that we take for granted and for which it is good practice and common sense to maintain through protection measures such as SPAs.

Contribution to an Ecologically Coherent network

Scotland's seas support a huge diversity of marine life and habitats, with around 6,500 species of plants and animals, with plenty more no doubt to be found in the undiscovered deeps of the north and west of Scotland. Our seas account for 61% of UK waters and remain at the forefront of our food and energy needs, through fishing, aquaculture, oil and gas, and new industries such as renewables, as well as recreation activities and tourism. This SPA is a contribution to a wider network of Marine Protected Areas designed to conserve and regenerate our seas. This in turn will help ensure that ecosystem goods and services continue to support current and future generations. It is considered that an ecologically coherent network of marine protected areas is likely to provide greater benefit than the sum of its individual components.

Ecosystem Services Benefits

Ecosystems are very complex, and it is thought that the more complex an ecosystem is the more resilient it is to change. Therefore, if it is damaged or if a species or habitat is removed from that ecosystem, the chances of survival for those services reduce as the ecosystem becomes weaker. However, by conserving or allowing the species and habitats that make up that ecosystem to recover, we can be more confident of the continuation of the long term benefits the marine environment provides.

Non-Use Values

Non-use value of the natural environment is the benefit people get simply from being aware of a diverse and sustainable marine environment even if they do not themselves use it. We take for granted many of the things we read about or watch, such as bright colourful fish, reefs and strange shaped deep sea curiosities, to lose them would be a loss to future generations that will not be able to experience them. It is challenging to put a precise value on this, but the high quality experience derived from Scotland's seas can be better preserved through measures such as SPAs.

It is expected that non-use value will be attained as a result of classification and the support of wider conservation objectives. Whilst ecosystem services benefits at an individual site level cannot be readily calculated, the one-off non-use value to Scottish households of marine conservation in Scottish waters generated by the additional 14 SPAs is estimated to be in the region of £74 million.⁴ This figure uses valuation evidence across several sites with similar features and characteristics and highlights the significant positive non-use value that divers and anglers within the Scottish marine environment place on securing the quality of the marine resources they use as a result of protection against degradation.

⁴ Developing the Evidence Base for Impact Assessments, ABPMer

Use Values

There could be a major transformative effect on inshore habitat and a significantly enhanced flow of environmental goods and services. We know the inherent capacity of the system and the flora and fauna that it could support. Achieving that could see the expansion of recreational activities such as diving, sea-angling, and other tourism alongside sustainable methods of fishing.

Research by Kenter et al⁵ has been used to estimate the use benefits to divers and anglers specifically, as a result of classifications safeguarding the total recreational value of the sites. The additional increase in recreational value as result of implementing management measures for the 14 new SPAs has an estimated total present value of £2.1-6.2 million over the 20 year assessment period.⁶

In addition there is likely to be increased activity for businesses in the marine wildlife and tourism sector. This includes those directly involved (e.g. operating boat trips) and those benefiting indirectly (e.g. accommodation providers). The scale of this increase across the sites cannot be quantified, but it can be expected to be some increment of the existing value of these activities. Given the marine wildlife tourism market is currently estimated to be worth £100s of millions per year, an increment of this could be expected to be worth in the region of £10 million per year across the network to the Scottish wildlife tourism market.⁷

Summary of Benefits

The uncertainties in each of the benefits assessed result in a large range of estimated values. Based on the available evidence, the combined total present value of the benefits for the new network (based on the additional benefits of the 14 new SPAs and 4 MPAs combined) is tentatively estimated to be between **£130 million and £240 million** over the 20 year assessment period.⁸

For a qualitative summary of anticipated benefits to ecosystem services in this particular site see appendix A.

- **Costs**

Option 1: Do nothing

This option is not predicted to create any additional costs to the sectors and groups outlined above.

However failure to classify the “most suitable territories” as SPAs would leave the Scottish Government exposed to a high risk of EC infraction proceedings, which may result in substantial one off and recurring fines.

⁵ <http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=Mb8nUAphh%2bY%3d&tabid=82>

⁶ Developing the Evidence Base for Impact Assessments, ABP Mer

⁷ Developing the Evidence Base for Impact Assessments, ABP Mer

⁸ Developing the Evidence Base for Impact Assessments, ABP Mer

In addition it should be noted that the societal cost of not classifying could be both large and irreversible relative to the current condition of the marine environment. The absence of management measures to conserve the identified features may produce future economic and social costs in terms of increased marine habitat and biodiversity degradation. The option to not classify holds the potential to undermine the overall ecological coherence of the Scottish SPA Network. This potentially large and irreversible societal cost avoided is presented within the benefits section of the 'do classify' scenario (option 2) to avoid double counting the same impact.

Option 2: Classify site as a Special Protection Area

Costs have been evaluated based on the implementation of potential management measures. Where feasible, costs have been quantified, where this has not been possible costs are stated qualitatively. All quantified costs have been discounted in line with HM Treasury guidance using a discount rate of 3.5%. Discounting reflects the fact that individuals prefer present consumption over future consumption.

Additional assessment costs have been included for a number of sectors at £5,200 (2015 prices). These are not costs for full HRAs but for are a notional amount to reflect the likelihood that some minor additional assessment and reporting will be required. However, it is considered that the majority of information required would already be prepared to inform the EIA / Environmental Report, therefore this additional cost is relatively minor. These costs are current best estimates.

Coastal defence and flood protection

There are 15 coast protection and flood defence structures (2 x floodwall, 4 x raised coastal defence (man-made), 2 x groynes and 6 x embankment) which overlap the Solway Firth SPA boundary or within the 10km buffer. Therefore, management costs may be incurred under the assumption structures will require maintenance or construction works once every 20 years (starting in 2024). However, ten of these structures (2 x groynes, 6 x embankment and 2 x raised coastal defence (man-made)) overlap with other SPAs for which no costs impacts are anticipated in this assessment.

Seasonal controls will be applied to construction activity, where necessary, to minimise impacts to protected features. It has been assumed that these seasonal restrictions can be accommodated without imposing any additional cost on the construction programme.

Economic Costs on the Activity of Classification of the Site as a SPA			
	Lower Estimate	Intermediate Estimate	Upper Estimate
Assumptions for cost impacts	<ul style="list-style-type: none"> ▪ Additional assessment to support planning application (maintenance or 	<ul style="list-style-type: none"> ▪ Additional assessment to support planning application (maintenance or 	<ul style="list-style-type: none"> ▪ Additional assessment to support planning application (maintenance or

	construction works).	construction works).	construction works).
Description of one-off costs	<ul style="list-style-type: none"> Additional assessment to support planning application (maintenance or construction works) – £5.2k per application. Applications estimated for four developments to be submitted in 2024. 	<ul style="list-style-type: none"> Additional assessment to support planning application (maintenance or construction works) – £5.2k per application. Applications estimated for four developments to be submitted in 2024. 	<ul style="list-style-type: none"> Additional assessment to support planning application (maintenance or construction works) – £5.2k per application. Applications estimated for four developments to be submitted in 2024.
Description of recurring costs	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None.
Description of non-quantified costs	<ul style="list-style-type: none"> Seasonal controls applied to construction activity. 	<ul style="list-style-type: none"> Seasonal controls applied to construction activity. 	<ul style="list-style-type: none"> Seasonal controls applied to construction activity.

Quantified Costs on the Activity of Classification of the Site as an SPA (£million)

Total costs (2015–2034)	0.021	0.021	0.021
Average annual costs	0.001	0.001	0.001
Present value of total costs (2015–2034)	0.015	0.015	0.015

Commercial Fisheries:

According to VMS-based estimates and ICES rectangle landings statistics, pots, dredges, nephrops trawls and other gears (over-15m) and nephrops trawls, pots, dredges, beam trawls, hand fishing, whitefish trawls and other gears (under-15m vessels) operate within the Solway Firth SPA. The value of catches from the SPA area was £12,000 (over-15m vessels) and £157,000 (under-15m vessels, indicated from ICES rectangle landings data) (annual average for 2009–2013, 2015 prices). Landings from the over-15m vessels are predominantly into Whitehaven (52% by value), Maryport (20%) and Kirkcudbright (20%). For the over-15m fleet, a total of 61 UK vessels operated in the Solway area in the period

2009-2013, including dredges (42), nephrops trawls (10) and pots (6). Pots, dredges and nephrops trawls operate in the south-west part of the SPA.

It should be noted that there was formerly an important cockle fishery in the Solway, but this was not active in the period 2009-2013.

Management measures for the scenarios have been developed based on the sensitivity and vulnerability of the features to the pressures caused by different gear types and SNH recommendations.

Upated ScotMap data (which provides the best currently available indication of the location of under-15m vessels) indicate that the annual average earnings from the Solway SPA was £187,000 for the period 2007-2011, with nephrops trawls contributing the highest value. The coverage for ScotMap interviews in the region was 61% (total value of reported landings from the Fisheries Information Network for those vessels included in the ScotMap value analysis expressed as a percentage of the total reported landings for all vessels <15m); the spatial representation of the value of fishing is more robust in regions where coverage is higher..

Economic Costs on the Activity of Classification of the Site as a SPA			
	Lower Estimate	Intermediate Estimate	Upper Estimate
Assumptions for cost impacts	<ul style="list-style-type: none"> ▪ No change to existing 	<ul style="list-style-type: none"> ▪ 10% reduction in mobile bottom gear effort across the site ▪ 10% reduction in pelagic gear effort across the site 	<ul style="list-style-type: none"> ▪ 30% reduction in mobile bottom gear effort across the site ▪ 25% reduction in pelagic gear effort across the site
Description of one-off costs	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ None
Description of recurring costs	<ul style="list-style-type: none"> ▪ None. 	<ul style="list-style-type: none"> ▪ Loss of >15m fishing income (annual values, £ k): <ul style="list-style-type: none"> - dredges (0.4); - nephrops trawls (0.4); - whitefish trawls & seines (<0.1). ▪ Loss of <15m fishing income (annual values, £ k): <ul style="list-style-type: none"> - nephrops trawls (6.0); - dredges (2.4); 	<ul style="list-style-type: none"> ▪ Loss of >15m fishing income (annual values, £ k): <ul style="list-style-type: none"> - dredges (1.3); - nephrops trawls (1.1); - whitefish trawls & seines (<0.1). ▪ Loss of <15m fishing income (annual values, £ k): <ul style="list-style-type: none"> - nephrops trawls (18.1); - dredges (7.2);

		- beam trawls (1.8); and - all other trawls & seines (0.5)	- beam trawls (5.4); and - all other trawls & seines (1.4)
Description of non-quantified costs	▪ None.	▪ Displacement impacts (additional fishing pressure on other areas, potential conflict with other vessels, additional steaming time/fuel costs, gear development and adaptation costs, and additional quota costs).	▪ Displacement impacts (additional fishing pressure on other areas, potential conflict with other vessels, additional steaming time/fuel costs, gear development and adaptation costs, and additional quota costs).

Commercial fisheries costs are presented below in terms of Gross Value Added (GVA). GVA more accurately reflects the wider value of the sector to the local area and economy beyond the market value of the landed catch. Stating costs purely in terms of landed value would overstate the true economic cost of not fishing. If fishermen are prevented from catching fish they forgo the landed value of those fish but subsequently forgo the payment of intermediate costs such as fuel (it is assumed that no fishing activity is displaced). Costs are also presented in terms of the reduction in full-time equivalent (FTE) employment. It is also possible that effort not continuing in the area could be transferred to other locations resulting in no or reduced loss of income.

It is important to note that fishing activity in the area may be linked to other economic activity, including processing, and that such diversification is important for local economies. However, as direct impacts have been judged to be very small, it is not possible to meaningfully quantify these wider impacts for the purposes of the BRIA. GVA impacts in the below table therefore only include direct impacts.

Quantified Costs on the Activity of Classification of the Site as a SPA (£Million)			
Total change in GVA (2015–2034)	0.000	0.098	0.294
Average annual change to GVA	0.000	0.005	0.015
Present value of total change in GVA (2015–2034)	0.000	0.072	0.217

Direct and Indirect reduction in Employment	0.0 jobs	0.2 jobs	0.5 jobs
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These estimates represent a worst-case scenario, based on the assumption of zero displacement of fishing activity. In reality, it is likely that some commercial fishing activity will be displaced to other grounds and hence it is likely that the impacts on employment are likely to be lower than those estimated. A Marine Scotland study on fisheries displacement in relation to the 2015 Nature Conservation MPA classifications⁹ indicated that a significant proportion of fishing effort affected by the classifications was likely to relocate elsewhere. In reality, vessels are likely to react to any management measures in place in order to maintain profitability (i.e. by changing target species/gear type) but this could add to their costs (i.e. the extra fuel cost associated with fishing elsewhere). This uncertainty surrounding the change in behaviour is the reasoning behind not attempting to quantify this cost impact. Other non-quantified costs include: potential conflict with other fishing vessels, environmental consequences of targeting new areas, longer steaming times and increased fuel costs, changes in costs and earnings, gear development and adaptation costs, and additional quota costs.

Energy Generation:

There is one operational energy generation development within the Solway Firth SPA boundary. Robin Rigg (E.ON Climate & Renewables, 180 MW) is a fully operational (since September 2010) offshore wind development comprising of two wind farms (East and West).

There are currently no wave or tidal energy generation developments within the SolwaySPA boundary (or 10 km buffer).

Economic Costs on the Activity of Classification of the Site as an SPA			
	Lower Estimate	Intermediate Estimate	Upper Estimate
Assumptions for cost impacts	▪ None.	▪ None.	▪ Additional reporting of bird surveys for consented/operational developments following review of consents.
Description of one-off costs	▪ None.	▪ None.	▪ None.
Description of recurring costs	▪ None.	▪ None.	▪ Additional reporting of bird surveys for consented/operational developments

⁹ <http://www.gov.scot/Topics/marine/marine-environment/mpanetwork/Displacement>

			following review of consents - £1k per year. Surveys estimated for one operational offshore wind development (Robin Rigg) from 2016-2034.
Description of non-quantified costs	<ul style="list-style-type: none"> Costs of project delays during consenting; potential impact on investment opportunities. 	<ul style="list-style-type: none"> Costs of project delays during consenting; potential impact on investment opportunities. 	<ul style="list-style-type: none"> Costs of project delays during consenting; potential impact on investment opportunities.

Quantified Costs on the Activity of Classification of the Site as an SPA (£Million)

Total costs (2015–2034)	0.000	0.000	0.019
Average annual costs	0.000	0.000	0.001
Present value of total costs (2015–2034)	0.000	0.000	0.014

Possible social impacts may flow from the economic costs resulting from classification. There may be reduced future employment opportunities if additional costs are significant and render development projects economically unviable or if delays arising from classification impact on potential investment opportunities. It is not possible to assess potential cost impacts relating to potential future development areas, such as the Sectoral Marine Plan options, that could be affected due to the uncertainty surrounding the location and nature of future development.

Military

2 military practice areas (Kirkcudbright (D405A) and Kirkcudbright (D405); both firing danger areas) overlap with the Solway Firth SPA.

The features which overlap with military activities have not been described as vulnerable to MoD activities in this SPA. It is assumed that management relating to MoD activity will be coordinated through the MoD's Maritime Environmental Sustainability Appraisal Tool (MESAT) which the MoD uses to assist in meeting its environmental obligations. This process will include operational guidance to reduce significant impacts of military activities on SPAs. It is assumed that the MoD will incur additional costs in adjusting MESAT and other MoD environmental assessment tools in order to consider whether its activities will impact on the conservation objectives of SPAs and also incur additional costs in adjusting

electronic charts to consider SPAs. However, these costs will be incurred at national level and hence no site-specific cost assessments have been made.

Ports and Harbours

There are eight minor ports/harbours (Annan, Carsethorn, Garlieston, Harrington, Maryport, Silloth, Whitehaven and Workington) located within the Solway Firth SPA boundary or within the 1km buffer. Therefore, management costs may be incurred under the assumption that minor ports/harbours will undertake development every 10 years (starting in 2025) within the assessment period (2015-2034). However, three of these minor ports/harbours (Annan, Carsethorn and Silloth) overlap with other existing SPAs for which no costs impacts are anticipated in this assessment.

There are five open disposal sites (Workington Anchorage, Solway Firth, Harrington Harbour, Maryport Harbour Dispersive and Silloth B) within the Solway Firth SPA boundary (or 1km buffer). Therefore, management costs may be incurred under the assumption that disposal sites will require licence applications to be submitted every 3 years (starting in 2017) within the assessment period (2015-2034). However, one of these disposal sites (Silloth B) overlap with other existing SPAs for which no costs impacts are anticipated in this assessment.

Economic Costs on the Activity of Classification of the Site as an SPA			
	Lower Estimate	Intermediate Estimate	Upper Estimate
Assumptions for cost impacts	<ul style="list-style-type: none"> ▪ Additional assessment of new port/harbour developments in or adjacent to SPA to support licence applications; and ▪ Additional assessment of maintenance dredging disposal licence application affecting SPA. 	<ul style="list-style-type: none"> ▪ Additional assessment of new port/harbour developments in or adjacent to SPA to support licence applications; and ▪ Additional assessment of maintenance dredging disposal licence application affecting SPA. 	<ul style="list-style-type: none"> ▪ Additional assessment of new port/harbour developments in or adjacent to SPA to support licence applications; and ▪ Additional assessment of maintenance dredging disposal licence application affecting SPA.
Description of one-off costs	<ul style="list-style-type: none"> ▪ Additional assessment of new port/harbour developments – £7.1k per application. Assessment estimated for 	<ul style="list-style-type: none"> ▪ Additional assessment of new port/harbour developments – £7.1k per application. Assessment estimated for 	<ul style="list-style-type: none"> ▪ Additional assessment of new port/harbour developments – £7.1k per application. Assessment estimated for

	<p>five minor ports (Garlieston, Harrington, Maryport, Whitehaven, Workington) to be submitted in 2025; and</p> <ul style="list-style-type: none"> ▪ Additional assessment of maintenance dredging disposal licence application – £7.1k per application. Assessment estimated for four disposal sites (Workington Anchorage, Solway Firth, Harrington Harbour, Maryport Harbour Dispersive) to be submitted in 2017, 2020, 2023, 2026, 2029 and 2032. 	<p>five minor ports (Garlieston, Harrington, Maryport, Whitehaven, Workington) to be submitted in 2025; and</p> <ul style="list-style-type: none"> ▪ Additional assessment of maintenance dredging disposal licence application – £7.1k per application. Assessment estimated for four disposal sites (Workington Anchorage, Solway Firth, Harrington Harbour, Maryport Harbour Dispersive) to be submitted in 2017, 2020, 2023, 2026, 2029 and 2032. 	<p>five minor ports (Garlieston, Harrington, Maryport, Whitehaven, Workington) to be submitted in 2025; and</p> <ul style="list-style-type: none"> ▪ Additional assessment of maintenance dredging disposal licence application – £7.1k per application. Assessment estimated for four disposal sites (Workington Anchorage, Solway Firth, Harrington Harbour, Maryport Harbour Dispersive) to be submitted in 2017, 2020, 2023, 2026, 2029 and 2032.
Description of recurring costs	<ul style="list-style-type: none"> ▪ None. 	<ul style="list-style-type: none"> ▪ None. 	<ul style="list-style-type: none"> ▪ None.
Description of non-quantified costs	<ul style="list-style-type: none"> ▪ Costs of project delays during consenting; potential impact on investment opportunities. 	<ul style="list-style-type: none"> ▪ Costs of project delays during consenting; potential impact on investment opportunities. 	<ul style="list-style-type: none"> ▪ Costs of project delays during consenting; potential impact on investment opportunities.

Quantified Costs on the Activity of Classification of the Site as an SPA (£Million)

Total costs (2015–2034)	0.206	0.206	0.206
Average annual costs	0.010	0.010	0.010
Present value of total costs (2015–2034)	0.150	0.150	0.150

It should be noted that additional cost impacts could also arise as a result of consenting delays. The cost impacts and uncertainty associated with SPA classification may impact on potential investment opportunities.

Recreational Boating

Three light and seven medium traffic cruising routes for recreational boating intersect with the Solway SPA. Two marinas are also located in the Solway Firth SPA (and associated 1km buffer zone).

Economic Costs on the Activity of Classification of the Site as an SPA			
	Lower Estimate	Intermediate Estimate	Upper Estimate
Assumptions for cost impacts	▪ None.	▪ None.	▪ Zoning of recreational activities to avoid important bird foraging areas
Description of one-off costs	▪ None.	▪ None.	▪ Development of each zoning plan – £1k per site (at 2015 prices) and that this cost is incurred in 2016. It is unclear who will be responsible for this cost.
Description of recurring costs	▪ None.	▪ None.	▪ None.
Description of non-quantified costs	▪ None.	▪ None.	▪ None.

Quantified Costs on the Activity of Classification of the Site as an SPA (£Million)			
Total costs (2015–2034)	0.000	0.000	0.001
Average annual costs	0.000	0.000	<0.001
Present value of total costs (2015–2034)	0.000	0.000	0.001

Water Sports

Sea angling is carried out along most of the Scottish coastline within 6nm (SSACN). The Solway Firth SPA overlaps with several sections of coastline and these areas out to 6nm are areas of potential recreational sea angling. Other water sports activities such as jet skiing and kayaking are also undertaken in the Solway Firth.

Economic Costs on the Activity of Classification of the Site as an SPA			
	Lower Estimate	Intermediate Estimate	Upper Estimate
Assumptions for cost impacts	▪ None.	▪ None.	▪ Zoning of water sports activities to avoid important bird foraging areas.
Description of one-off costs	▪ None.	▪ None.	▪ Discussions on zoning will be undertaken as part of the development of a Scheme of Management for individual SPAs. Estimates cost of £1k per site (at 2015 prices) and that this cost is incurred in 2016. Discussions will determine who is responsible for bearing this cost.
Description of recurring costs	▪ None.	▪ None.	▪ None.
Description of non-quantified costs	▪ None.	▪ None.	▪ None.

Quantified Costs on the Activity of Classification of the Site as an SPA (£Million)			
Total costs (2014–2033)	0.000	0.000	0.001
Average annual costs	0.000	0.000	<0.001
Present value of total costs (2014–2033)	0.000	0.000	0.001

Public Sector:

The decision to classify the Solway Firth site as a SPA, would result in costs being incurred by the public sector in the following areas:

- Preparation of Marine Management Schemes
- Preparation of Statutory Instruments
- Development of voluntary instruments
- Site monitoring
- Compliance and enforcement
- Promotion of public understanding
- Regulatory and advisory costs associated with licensing decisions

Some of these costs will accrue at the national level and as such have not been disaggregated to site level.

Site-specific Public Sector Costs (£Million, 2015-2034)			
	Lower Estimate	Intermediate Estimate	Upper Estimate
Preparation of Marine Management Schemes	0.025	0.025	0.025
Preparation of Statutory Instruments	0.000	0.004	0.004
Development of voluntary measures	0.000	0.004	0.004
Site monitoring	0.088	0.088	0.088
Regulatory and advisory costs associated with licensing decisions	0.017	0.017	0.017
Total Quantified Public Sector Costs	0.130	0.138	0.138

Total Costs

Total quantified costs are presented in present value terms. Commercial fisheries costs are presented in terms of GVA.

Total Present Value of Quantified Costs (£Million, 2015-2034)			
Sector	Lower Estimate	Intermediate Estimate	Upper Estimate
Coastal defence and flood protection	0.015	0.015	0.015
Energy generation	0.000	0.000	0.014
Military	<i>See National Costs</i>	<i>See National Costs</i>	<i>See National Costs</i>
Ports and harbours	0.150	0.150	0.150
Recreational Boating	0.000	0.000	0.001
Water Sports	0.000	0.000	0.001
Public Sector	0.130	0.138	0.138
Total Present Value of Costs	0.295	0.303	0.319

GVA Impacts (£million 2015-2034)			
Commercial Fisheries	0.000	0.072	0.217

Total Non-Quantified Costs			
Scenario	Low	Intermediate	Upper
Sector/Group			
Coastal defence and flood protection	<ul style="list-style-type: none"> Seasonal controls applied to construction activity. 	<ul style="list-style-type: none"> Seasonal controls applied to construction activity. 	<ul style="list-style-type: none"> Seasonal controls applied to construction activity.
Commercial fisheries	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Loss of value of catches from non-UK vessels and Displacement impacts 	<ul style="list-style-type: none"> Loss of value of catches from non-UK vessels and Displacement impacts
Energy generation	<ul style="list-style-type: none"> Costs of project delays during consenting; potential impact 	<ul style="list-style-type: none"> Costs of project delays during consenting; potential impact 	<ul style="list-style-type: none"> Costs of project delays during consenting; potential impact

	on investment opportunities.	on investment opportunities.	on investment opportunities.
Ports and harbours	<ul style="list-style-type: none"> ▪ Costs of project delays during consenting; potential impact on investment opportunities. 	<ul style="list-style-type: none"> ▪ Costs of project delays during consenting; potential impact on investment opportunities. 	<ul style="list-style-type: none"> ▪ Costs of project delays during consenting; potential impact on investment opportunities.

Scottish Firms Impact Test

This section is informed by evidence gathered during the consultation phase.

Businesses affected include some small and micro-sized firms. Additional costs imposed by the classification of the proposed site have the potential to fall on small businesses.

- **Competition Assessment**

Classification of the site as a SPA may affect marine activities where businesses operate within a given spatial area or require a spatial licence for new or amended operations.

Competition Filter Questions

Will the proposal directly limit the number or range of suppliers? e.g. will it award exclusive rights to a supplier or create closed procurement or licensing programmes?

No. It is unlikely that classification of the site as a SPA will directly limit the number or range of suppliers.

Will the proposal indirectly limit the number or range of suppliers? e.g. will it raise costs to smaller entrants relative to larger existing suppliers?

Limited / No Impact. Classification of the site as a SPA could affect the spatial location of commercial fisheries activity and may restrict the output capacity of this sector. However, restrictions on fishing locations may well be negated by displacement i.e. vessels fishing elsewhere. It is not expected that the distribution of additional costs will be skewed towards smaller entrants relative to larger existing suppliers.

Classification could affect the preparation of applications, location of marine developments and activities, or requirements for marine developments which would apply to any developer of an affected licensed activity when preparing and submitting an application. Additional costs will potentially be incurred by developers submitting new licence applications, but they will apply to both new entrants and to incumbents looking to expand or alter their operations.

Will the proposal limit the ability of suppliers to compete? e.g. will it reduce the channels suppliers can use or geographic area they can operate in?

No. Classification of the site will not directly affect firms' route to market or the geographical markets they can sell into.

Will the proposal reduce suppliers' incentives to compete vigorously? e.g. will it encourage or enable the exchange of information on prices, costs, sales or outputs between suppliers?

No. Classification of the site is not expected to reduce suppliers' incentives to compete vigorously.

Test run of business forms

It is not envisaged that classification of the site will result in the creation of new forms for businesses to deal with, or result in amendments of existing forms.

Legal Aid Impact Test

It is not expected that the SPA will have any impact on the current level of use that an individual makes to access justice through legal aid or on the possible expenditure from the legal aid fund as any legal/authorisation decision impacted by the SPA will largely affect businesses rather than individuals.

Enforcement, sanctions and monitoring

The relevant competent authorities for each activity / industry has responsibility for compliance, monitoring and enforcement of the requirement to protect the site. This must be done in accordance with Article 6 of the EU Habitats Directive.

Implementation and delivery plan

After classification of the site the relevant competent authorities must adhere to the legislative requirements so that adequate protection of the site occurs. Marine Scotland will be responsible for considering whether fisheries management measures are required.

Summary and recommendation

Option 2: Classify site as a Special Protection Area – is the preferred option.

The extent and quality of habitat and available food around Scotland's coast supports huge numbers of different species of seabirds. Few countries can match this and we have an international responsibility to protect what we have around Scotland. Therefore the appropriate action is to protect and maintain Scotland's seabird and water bird populations and meet the requirements of the EU Wild Birds Directive.

Declaration and publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs. I am satisfied that business impact has been assessed with the support of businesses in Scotland.

Signed:

A handwritten signature in black ink, appearing to read 'Mairi Gougeon', written in a cursive style.

Date:

3 December 2020

Mairi Gougeon, Minister for Rural Affairs and the Natural Environment

Scottish Government Contact point:

marine_conservation@gov.scot

Appendix A - Ecosystem Services Benefits, Solway Firth

Summary of Ecosystem Services Benefits arising from Classification of the Site as an SPA								
Services	Relevance to Site	Baseline Level	Estimated Impacts of Classification			Value Weighting	Scale of Benefits	Confidence
			Lower	Intermediate	Upper			
Fish for human consumption	Moderate, benthic habitats contribute to the food web	Stocks not at MSY	Nil	Low, small increase in fish stocks possible		Low	Minimal - Low	Moderate
Fish for non-human consumption		Stocks reduced from potential maximum						
Gas and climate regulation	Minimal	Minimal	Nil			Low	Nil	High
Non-use value of natural environment	Moderate, bird species, and contribution of the site to MPA network, have non-use value.	Non-use value of the site may decline	Minimal	Low, maintain features of site	Moderate, protection of features of site from decline, possibly allowing some recovery, but parts of site already protected	Moderate, range of features contributes to maintaining marine biodiversity	Low - Moderate	Moderate, extent of features, responses to management measures, and value to society all uncertain
Recreation	Moderate - High, wildlife tourism and recreation at site	Recreation value of the site may decline	Minimal, protection of features of site	Low - Moderate, protection of features of site that contribute to recreation, possibly allowing some recovery		Moderate, recreation and tourism support jobs, but substitutes are available.	Low - Moderate	Moderate, significance of change from management measures uncertain.
Research and Education	Moderate, features	Value of site may decline	Minimal, protection	Low, protection of key characteristics of site from		Low, for individual	Low	Low – Moderate,

Summary of Ecosystem Services Benefits arising from Classification of the Site as an SPA								
Services	Relevance to Site	Baseline Level	Estimated Impacts of Classification			Value Weighting	Scale of Benefits	Confidence
			Lower	Intermediate	Upper			
	have research value, but there are substitutes		of features of site	decline, improving future research opportunities. Classification may play role in communicating management needs.		features. Moderate for opportunity to understand response of range of features to management.		extent to which research uses site in future uncertain.
Total value of changes in ecosystem services	Minimal for lower scenario, Low - moderate for intermediate and upper scenarios	Low - Moderate	Low					



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