

Marine Scotland

Outer Firth of Forth and St Andrews Bay Complex Special Protection Area (SPA)

Business and Regulatory Impact Assessment

December 2020



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Title of Proposal

Outer Firth of Forth and St Andrews Bay Complex 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 Outer Firth of Forth and St Andrews Bay Complex proposed SPA is a large estuarine/marine site with a total area of 2720 km² situated off the south-east coast of Scotland. It consists of the outer sections of the adjacent Firths of Forth^[1] and Tay, including St Andrews Bay, together with marine waters, to the east of the Isle of May, extending in places to beyond the 12 mile Territorial Sea limit.

The Outer Firth of Forth and St Andrews Bay Complex proposed SPA supports populations of European importance of the following Annex 1 species:

- Red-throated diver (*Gavia stellata*)
- Slavonian grebe (*Podiceps auritus*)
- Little Gull (Larus minutus)
- Common tern (Sterna hirundo))
- Arctic tern (Sterna paradisaea)

It also supports migratory populations of European importance of the following species:

^[1] The Firth of Forth, as defined herein, extends east from the River Forth for almost 100 km to a wide estuary mouth, ending at Fife Ness on the northern coast - the southern extremity of the Firth of Tay and St Andrews Bay - and Dunbar on the southern coast. St Andrews Bay encompasses the marine area stretching from Red Head in the north, to Fife Ness in the south, including the estuary of the Tay.

- Common eider (Somateria mollissima mollissima)
- Long-tailed duck (Clangula hyemalis)
- Common Scoter (Melanitta nigra)
- Velvet scoter (*Melanitta fusca*)
- Common goldeneye (Bucephala clangula)
- Red-breasted merganser (Mergus serrator)
- Northern gannet (Morus bassanus)
- Manx shearwater (*Puffinus* puffinus)
- European shag (*Phalacrocorax aristotelis*)
- Black-legged kittiwake (Rissa tridactyla)
- Common guillemot (*Uria aalge*)
- Razorbill (Alca torda)
- Atlantic puffin (Fratercula arctica)
- Black-headed gull (*Chroicocephalus ridibundus*)
- Common gull (*Larus canus*)
- Herring gull (*Larus argentatus*)

The Firth of Forth, along with the Firth of Tay, is a major feature formed during the last flooding of the land by the sea at the end of the last glaciation (Barne *et al* 1997). The mid Firth of Forth holds a belt of mud-rich sediments whilst, on either side, along the shore are sandy gravels and shell material. As the estuary widens towards the outer firth, there are extensive areas of sandy and gravelly muds and fine sediments. In contrast, St Andrews Bay contains clean sands and gravel with only small areas of muddy sediments. Offshore of both the Forth and the Tay lie large areas of muddy sand carried out of the estuaries, as well as gravelly sand and clean shell sand. Water depth is variable but large areas, in both the Firth of Forth and St Andrews Bay, are shallow and less than 10m deep (Barne *et. al.* 1997).

The area supports a wide variety of both pelagic and demersal fish, including sandeels, and crustaceans, molluscs and marine worms. The range of prey species available within shallow and in places relatively sheltered waters is reflected in the diversity of bird species using the area throughout the year.

Red-throated divers and mergansers 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. Slavonian grebe and little gull are winter migrants from the North and also feed on small fish species, as well as on marine invertebrates such as small amphipods and other crustaceans. Blackheaded gulls and common gulls wintering in coastal areas eat a variety of molluscs, crustaceans and marine worms while herring gulls take fish (including fisheries discards) and larger invertebrates including crabs and starfish. These gulls will also feed opportunistically on human food waste.

Eider, scoters and long-tailed duck feed almost exclusively on molluscs and small crustaceans, diving from the surface to pluck their prey from the seabed. Common goldeneye also feed mainly on invertebrates such as molluscs, worms, and crustaceans but will take also small fish. Eider are resident throughout the year, and breed on islands in the Firth of Forth, but long-tailed duck, common and velvet

scoters and goldeneye migrate long distances from their northern breeding grounds to reach wintering grounds in Britain.

The abundance of sandeels is of particular importance to colonial seabirds including terns, shags, puffins, razorbills, guillemots and kittiwakes which breed in colonies within and close to the SPA, including the Isle of May. Northern gannet also feed on sandeels but are capable of taking a wider range of fish, including larger species such as herring and mackerel. Bass Rock, which is the largest gannet colony in the UK, is also situated in the Firth of Forth. Terns and kittiwake feed on prey close to the water surface, whereas shags, puffins, razorbills, guillemots and gannet will also pursue prey underwater, in some cases to great depths

Large numbers of Manx shearwaters also use the offshore waters for feeding. These birds are not associated with specific breeding colonies but occur within the site during the breeding season (summer). The status of the birds is uncertain but they are likely to be a mixture of breeding adults from distant colonies, sabbatical or pre-breeding age birds and possibly failed breeders, with the majority being in the latter categories after June. Manx shearwater feed mainly by pursuit-plunging and pursuit-diving on small shoaling fish, but also take squid and crustaceans.

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 Directive recognises that wild birds, many of which are migratory, are a shared heritage of the member states and that their conservation needs international cooperation. 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.

Further work is required to complete a marine UK-wide network of SPAs at sea in order to meet the needs of seabirds and waterfowl. The Joint Nature Conservation Committee (JNCC) has been working over the past decade 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 has been 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 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 ABPmer and eftec¹. It brings together the science-led arguments for classification and the projected potential social and economic consequences of such action. This will inform Scottish Ministers of the possible impacts of classifying the SPA, and due to requirements of the Birds Directive this will be 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 Outer Firth of Forth and St Andrews Bay Complex site as an SPA. The assessment period covers the 20 year period from 2015 to 2034 - reflecting the time horizon within which the majority of impacts are expected to occur. As with any socio-economic assessment related to environmental designations, 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.

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. 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. Due to the competing demands placed upon Scotland's marine resources, more effective management is required so that a balance between conservation and sustainable use can be struck. Currently there

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

² Biodiversity Action Plan

is not sufficient protection in place to ensure that the marine environment is properly protected and complex ecosystems safeguarded.

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

A full public consultation took place in Autumn 2016. Further consultation took place in Autumn 2018 on at Network Assessment for the proposed set of sites and the SEA. An update to the SEA was consulted on in the summer of 2019.

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

Option 1 is the 'Do nothing' option; this is the baseline scenario. Under this option, the proposed Outer Firth of Forth and St Andrews Bay Complex site is not classified. Accordingly, no additional management measures would be required.

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

Option 2: Classify site as a Special Protection Area

Option 2 involves the formal classification of the Outer Firth of Forth and St Andrews Bay Complex 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.

Sectors and groups affected

The following sectors have been identified as present (or possibly present in the future) within the Outer Firth of Forth and St Andrews Bay Complex site and potentially interact with one or more of the features:

- Coastal defence and flood protection
- Commercial fisheries (GVA)⁴
- 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

⁴ GVA is used as stating costs purely in terms of landed value would overstate the true economic cost of not fishing.

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 ecotourism. 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 likely 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.⁵ 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.

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 al⁶ 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.⁷

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 £100's 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.⁸

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 sites) is tentatively estimated to be between in the region of £80 million over the 20 year assessment period.

This is comprised of a one-off non-use value to Scottish households of marine conservation in Scottish waters generated by the additional 14 SPAs of £74 million and an additional use value as result of implementing management measures for the 14 new SPAs of £2.1-£6.2 million, based on an increase in recreational value to divers and anglers specifically. Furthermore classification of the SPA network is likely to provide further benefits to the marine wildlife tourism market.

⁵ Developing the Evidence Base for Impact Assessments, ABPMer

⁶ http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=Mb8nUAphh%2bY%3d&tabid=82

⁷ Developing the Evidence Base for Impact Assessments, ABPMer

⁸ Developing the Evidence Base for Impact Assessments, ABPMer

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.

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.

Coastal defence and flood protection

There are nine coast protection and flood defence structures (3 x hard engineered schemes, 1 x rock revetment, 3 x embankment, 1 x artificial protection (dyke) and 1 x artificial beach) which overlap the Outer Firth of Forth and St Andrews Bay Complex 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, five of these structures (3 x embankment, 1 x artificial protection (dyke) and 1 x artificial beach) overlap with existing 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	 Additional assessment to support planning application (maintenance or construction works). 	 Additional assessment to support planning application (maintenance or construction works). 	 Additional assessment to support planning application (maintenance or construction works).
Description of one-off costs	Additional assessment to support planning application (maintenance or construction works) - £5.2k per application. Applications estimated for four developments to be submitted in 2024.	Additional assessment to support planning application (maintenance or construction works) - £5.2k per application. Applications estimated for four developments to be submitted in 2024.	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	• None.	None.	■ None.
Description of non-quantified costs	 Seasonal controls applied to construction activity. 	 Seasonal controls applied to construction activity. 	 Seasonal controls applied to construction activity.

Quantified C (£million)	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, nephrops trawls, dredges, other trawls and whitefish trawls (over-15m) and pots,

nephrops trawls, dredges, other trawls, hand fishing, whitefish trawls, lines and other gears (under-15m) operate within the Outer Firth of Forth and St Andrews Bay Complex SPA. The value of catches from the Outer Firth of Forth and St Andrews Bay Complex area was £980,000 (over-15m vessels) and £6,728,840 (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 Eyemouth (46% by value), Pittenweem (22%) and Fraserburgh (9%). For the over-15m fleet, a total of 238 UK vessels operated in the Outer Firth of Forth and St Andrews Bay Complex area in the period 2009-2013, comprising nephrops trawls (139), dredges (64), other trawls (45) and whitefish trawls (15). Nephrops trawls mainly operate across the central and southern parts and dredges operate mainly in the north-east and south-west parts of the SPA.

Uprated ScotMap data (under-15m vessels) indicate that the annual average earnings from the Outer Firth of Forth and St Andrews Bay Complex SPA was £24,248,206 for the period 2007-2011, with pots and nephrops trawls contributing the highest value. The coverage for ScotMap interviews in the region was 88% (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	No change to existing	 10% reduction in mobile bottom gear effort across the site 10% reduction in pelagic gear effort across the site 	 30% reduction in mobile bottom gear effort across the site 25% reduction in pelagic gear effort across the site
Description of one-off costs	None	None	None
Description of recurring costs	■ None	■ Loss of >15m fishing income (annual values, £ k): - nephrops trawls (76.2); - dredges (13.9); - other trawls (2.7); and - whitefish trawls (1.8). ■ Loss of <15m fishing income	 Loss of >15m fishing income (annual values, £ k): nephrops trawls (228.7); dredges (41.6); other trawls (8.2); and whitefish trawls (5.3). Loss of <15m fishing income

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		(annual values, £ k):	(annual values, £ k):
		- nephrops	- nephrops
		trawls (306.7);	trawls (920.1);
		 dredges (17.0); 	- dredges (50.6);
		 whitefish trawls 	- whitefish trawls
		(6.7); and	(20.1); and
		- all other trawls	- all other trawls
		(8.9).	(26.8).
Description of	None	Loss of value of	 Loss of value of
non-quantified		catches from	catches from
costs		non-UK vessels	non-UK vessels
		using mobile	using mobile
		bottom contact	bottom contact
		and pelagic	and pelagic
		gears in the	gears in the
		ŠPA; and	SPA; and
		 Displacement 	 Displacement
		impacts	impacts
		(additional	(additional
		fishing pressure	fishing pressure
		on other areas,	on other areas,
		potential conflict	potential conflict
		with other	with other
		vessels,	vessels,
		additional	additional
		steaming	steaming
		time/fuel costs,	time/fuel costs,
		gear	gear
		development	development
		and adaptation	and adaptation
		costs, and	costs, and
		additional quota	additional quota
		costs).	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.

Quantified Costs on the Activity of Classification of the Site as a SPA (£Million)			
Total change in GVA (2015–2034)	0.000	3.012	9.495
Average annual change to GVA	0.000	0.151	0.475
Present value of total change in GVA (2015–2034)	0.000	2.215	6.984
Direct and Indirect reduction in Employment	0.0 jobs	6.6 jobs	19.7 jobs

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 designations⁹ indicated that a significant proportion of fishing effort affected by the designations 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 Outer Firth of Forth and St Andrews Bay Complex SPA boundary. The Methil (Samsung) Demonstration Project is an offshore (albeit just 50 m off the coast at Methil) wind test site comprising one 7 MW turbine, with construction completed in October 2013. There are no further operational energy generation developments within the Outer Firth of Forth and St Andrews Bay Complex SPA boundary; thus economic costs and management measures associated with energy generation in this SPA are described in light of known possible future developments.

In October 2014, Seagreen Wind Energy Limited (Seagreen) received consent from the Scottish Government to construct two offshore wind farms (Project Alpha and Project Bravo, 525MW each) in the Firth of Forth Offshore Wind Zone (Phase 1). It should be noted that neither Phase 1 wind farm overlaps with the Outer Firth of Forth and St Andrews Bay Complex SPA boundary, although export cable

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

routes from these potential wind farm developments do overlap with the Outer Firth of Forth and St Andrews Bay Complex SPA boundary.

Seagreen's plans are ongoing regarding the development of two further areas of the Firth of Forth Offshore Wind Zone (Phases 2 and 3, up to 2.6 GW combined capacity). Phase 2 is planned to comprise three wind farms (Seagreen Charlie, Seagreen Delta and Seagreen Echo) and Phase 3 is planned to comprise two wind farms (Seagreen Foxtrot and Seagreen Golf). The search area considered for Phases 2 and 3 overlaps the Outer Firth of Forth and St Andrews Bay Complex SPA boundary, as do the proposed export cable routes. Therefore, should Seagreen successfully obtain permission(s) to construct Phases 2 and 3, additional management measures may be required.

Economic Costs on the Activity of Classification of the Site as an SPA			
	Lower Estimate	Intermediate Estimate	Upper Estimate
Assumptions for cost impacts	 Additional assessment of new offshore wind development. 	 Additional assessment of new offshore wind development. 	 Additional assessment of new offshore wind development; and Additional reporting of bird surveys for consented/operational developments following Review of Consents.
Description of one-off costs	Additional assessment for licence application — £1k per licence application. Applications estimated for three offshore wind developments (SeaGreen Phase 2, Seagreen Phase 3 and 2-B Energy Test Site) to be submitted in 2016.	Additional assessment for licence application — £1k per licence application. Applications estimated for three offshore wind developments (SeaGreen Phase 2, Seagreen Phase 3 and 2-B Energy Test Site) to be submitted in 2016.	Additional assessment for licence application – £1k per licence application. Applications estimated for three offshore wind developments (SeaGreen Phase 2, Seagreen Phase 3 and 2-B Energy Test Site) to be submitted in 2016.
Description of recurring costs	• None.	• None.	 Additional reporting of bird surveys for consented/operational developments

			following Review of Consents. Surveys estimated for four consented offshore wind developments (Seagreen (Phase 1), Inch Cape, Neart na Gaoithe, Methil (Samsung) Demonstration Project) - £1k per year per development
Description of	Costs of project	 Costs of project 	from 2016-2034. Costs of project
non-quantified	delays during	delays during	delays during
costs	consenting;	consenting;	consenting; potential
	potential	potential	impact on investment
	impact on	impact on	opportunities.
	investment	investment	
	opportunities.	opportunities.	

Quantified Costs on the Activity of Classification of the Site as an SPA (£Million)			
Total costs (2015–2034)	0.003	0.003	0.079
Average annual costs	<0.001	<0.001	0.004
Present value of total costs (2015–2034)	0.003	0.003	0.058

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

15 military practice areas (Burnt-island (X5610), Firth of Forth (X5613(S)), Firth of Forth (X5613(N)), Kirkcaldy Bay (X5611), Aberlady Bay (X5612), May Island (X5614), Firth of Forth (Southern) (X5637), Firth of Forth (Middle) (X5641), Firth of Forth (Outer) (X5642), Barry Buddon (D604), Firth of Forth (Northern) (X5638), Anstruther (X5625) and Forth Deep (X5615); thirteen firing danger areas and two explosives dumping grounds (neither are in use)) overlap with the Outer Firth of Forth and St Andrews Bay Complex 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 MPAs 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 six major ports/harbours (Burntisland, Dundee, Granton, Inverkeithing, Leith and Methil) located within the Outer Firth of Forth and St Andrews Bay Complex SPA boundary or within the 5km buffer. Therefore, management costs may be incurred under the assumption that major ports/harbours will undertake development every 5 years (starting in 2018) within the assessment period (2015-2034). However, three of these major ports/harbours (Granton, Inverkeithing and Leith) overlap with existing SPAs for which no costs impacts are anticipated in this assessment.

There are 24 minor ports/harbours (Aberdour, Anstruther, Arbroath, Braefoot Terminal, Carron, Cockenzie, Cove, Crail, Dunbar, Dysart, Elie, Fisherrow, Hound Point Terminal, Kinghorn, Kirkcaldy, Newhaven, North Berwick, Pettycur, Pittenweem, Port Seton, St Andrews, St Monans, Tayport and West Wemyss) located within the Outer Firth of Forth and St Andrews Bay Complex 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, 17 of these minor ports/harbours (Aberdour, Braefoot Terminal, Carron, Cockenzie, Crail, Dunbar, Dysart, Fisherrow, Hound Point Terminal, Kinghorn, Kirkcaldy, Newhaven, North Berwick, Pettycur, Port Seton, Tayport and West Wemyss) overlap with existing SPAs for which no costs impacts are anticipated in this assessment.

There are eight open disposal sites (Arbroath, Methil, Middle Bank (Tay), Blae Rock A, Narrow Deep B, Oxcars Ext A, Oxcars Ext B and Oxcars Main) within the Outer Firth of Forth and St Andrews Bay Complex 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, three of these disposal sites (Oxcars Ext A, Oxcars Ext B and Oxcars Main) overlap with existing SPAs for which no cost 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	 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. 	 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. 	 Additional assessment of new port/harbour developments in or adjacent to SPA to support licence applications; Additional monitoring of development project (major ports/harbours only); and Additional assessment of maintenance dredging disposal licence application affecting SPA.
Description of one-off costs	 Additional assessment of new port/harbour developments – £7.1k per application. Assessment estimated for three major ports (Burntisland, Dundee, Methil) to be submitted in 2018, 2023, 2028 and 2033 and seven minor ports (Anstruther, Arbroath, Cove, Elie, Pittenweem, St Andrews, St Monans) to be 	 Additional assessment of new port/harbour developments – £7.1k per application. Assessment estimated for three major ports (Burntisland, Dundee, Methil) to be submitted in 2018, 2023, 2028 and 2033 and seven minor ports (Anstruther, Arbroath, Cove, Elie, Pittenweem, St Andrews, St Monans) to be 	 Additional assessment of new port/harbour developments – £7.1k per application. Assessment estimated for three major ports (Burntisland, Dundee, Methil) to be submitted in 2018, 2023, 2028 and 2033 and seven minor ports (Anstruther, Arbroath, Cove, Elie, Pittenweem, St Andrews, St Monans) to be submitted in 2025;

	1 10 11		
	submitted in 2025; and Additional assessment of maintenance dredging disposal licence application – £7.1k per application. Assessment estimated for five disposal sites (Arbroath, Methil, Middle Bank (Tay), Blae Rock A, Narrow Deep B) to be submitted in 2017, 2020, 2023, 2026, 2029 and 2032.	submitted in 2025; and Additional assessment of maintenance dredging disposal licence application – £7.1k per application. Assessment estimated for five disposal sites (Arbroath, Methil, Middle Bank (Tay), Blae Rock A, Narrow Deep B) to be submitted in 2017, 2020, 2023, 2026, 2029 and 2032.	 Additional monitoring of major port development – £30k per development. Monitoring estimated for three major ports (Burntisland, Dundee, Methil) to be conducted in 2019, 2024, 2029 and 2034; and Additional assessment of maintenance dredging disposal licence application – £7.1k per application. Assessment estimated for five disposal sites (Arbroath, Methil, Middle Bank (Tay), Blae Rock A, Narrow Deep B) to be submitted in 2017, 2020,
			2023, 2026,
Descriptions	Nissa	Nama	2029 and 2032.
Description of recurring costs	None.	■ None.	■ None.
Description of	Costs of project	Costs of project	Costs of project
non-quantified	delays during	delays during	delays during
costs	consenting;	consenting;	consenting;
	potential impact	potential impact	potential impact
	on investment	on investment	on investment
	opportunities.	opportunities.	opportunities.

Quantified Costs on the Activity of Classification of the Site as an SPA (£Million)			
Total costs (2015–2034)	0.348	0.348	0.708
Average annual costs	0.017	0.017	0.035

Present value of			
total costs (2015–	0.252	0.252	0.499
2034)			

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

One light and 13 medium traffic cruising routes for recreational boating intersect with the Outer Firth of Forth and St Andrews Bay Complex SPA boundary. Four marinas (Anstruther Harbour, Arbroath Marina, Edinburgh Marina and Tayport Harbour) are located in the Outer Firth of Forth and St Andrews Bay Complex SPA or within a 1km buffer zone.

Economic Costs	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.	It has been assumed that RYA (Scotland)/Scottish Boating Alliance is required to contribute to the development of each zoning plan at a cost of £1,000 per site (at 2015 prices) and that this cost is incurred in 2016.		
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— 0.000 0.000 0.001							
Average annual costs	Average annual 0,000 0,000 c0,001						

Present value of			
total costs (2015-	0.000	0.000	0.001
2034)			

Water Sports

Two sea kayaking routes overlap with the Outer Firth of Forth and St Andrews Bay Complex SPA boundary. There are also a large number of dive sites within the Outer Firth of Forth and St Andrews Bay Complex SPA, including 45 wreck dives (of which five are submarines), a scenic boat dive (Blae rock) and five shore dives (Peticowick, Dunbar Harbour, Elie Harbour and Fife Ness). Sea angling is carried out along most of the Scottish coastline within 6nm (SSACN). The Outer Firth of Forth and St Andrews Bay Complex SPA overlaps with several sections of coastline and these areas out to 6nm are areas of potential recreational sea angling.

Economic Costs	Economic Costs on the Activity of Classification of the Site as an SPA				
	Lower Estimate	Intermediate	Upper Estimate		
		Estimate			
Assumptions for	None.	■ None.	Zoning of water		
cost impacts			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. It has been assumed that the British Marine Federation is required to contribute to the development of each zoning plan		
			 £1k per site (at 2015 prices) and that this post is 		
			that this cost is incurred in 2016.		
Description of	• None.	■ None.	None.		
recurring costs	1101101	110.10.	1,01101		
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 Outer Firth of Forth and St Andrews Bay Complex 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	Upper Estimate	
		Estimate		
Preparation of				
Marine	0.025	0.025	0.025	
Management	0.023	0.023	0.023	
Schemes				
Preparation of				
Statutory	0.000	0.004	0.004	
Instruments				
Development of				
voluntary	0.000	0.000	0.004	
measures				
Site monitoring	0.088	0.088	0.088	
Regulatory and				
advisory costs				
associated with	0.027	0.035	0.035	
licensing				
decisions				

Total Quantified Public Sector	0.140	0.152	0.156
Costs			

Total Costs

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

Total Present Valu	e of Quantified Cos	sts (£Million, 2015-2	034)
Sector	Lower Estimate		
Coastal defence and flood protection	0.015	0.015	0.015
Energy generation	0.003	0.003	0.058
Military	See National Costs	See National Costs	See National Costs
Ports and harbours	0.252	0.252	0.499
Recreational Boating	0.000	0.000	0.001
Water Sports	0.000	0.000	0.001
Public Sector	0.140	0.152	0.156
Total Present Value of Costs	0.410	0.422	0.730

GVA Impacts (£million 2015-2034)						
Commercial Fisheries	0.000	2.215	6.984			

Total Non-Quantified Costs						
Scenario	Low	Intermediate	Upper			
Sector/Group						
Coastal defence and flood protection	 Seasonal controls applied to construction activity. 	 Seasonal controls applied to construction activity. 	 Seasonal controls applied to construction activity. 			
Commercial fisheries	• None	 Loss of value of catches from non-UK vessels and Displacement impacts 	 Loss of value of catches from non-UK vessels and Displacement impacts 			

Energy generation	Costs of project	Costs of project	 Costs of project
	delays during	delays during	delays during
	consenting;	consenting;	consenting;
	potential impact	potential impact	potential impact
	on investment	on investment	on investment
	opportunities.	opportunities.	opportunities.
Ports and	Costs of project	Costs of project	Costs of project
harbours	delays during	delays during	delays during
	consenting;	consenting;	consenting;
	potential impact	potential impact	potential impact
	on investment	on investment	on investment
	opportunities.	opportunities.	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 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 proposed 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:

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, Outer Firth of Forth and St Andrews Bay Complex

Services	Relevance to Site	Baseline Level	Estimated Lower	d Impacts of Clast Intermediate	ssification Upper	Value Weighting	Scale of Benefits	Confidence
Fish for human consumption Fish for non- human consumption	Moderate, benthic habitats contributes to the food web	Stocks not at MSY Stocks reduced from potential maximum	Nil	Low, recovery of fish stocks possible in medium to long term from protection of benthic features	Moderate, recovery of fish stocks possible in medium to long term due to extent of protection of benthic features	Low	Low	Moderate
Gas and climate regulation	Minimal	Minimal	Nil			Low	Nil	High
Non-use value of natural environment	Moderate - High, large number of bird species across extensive site, and contribution of the site to MPA network, have non-use value.	Non-use value of the site may decline	Minimal, protectio n of features of site	Low, maintain features of site	Low - Moderate, protection of features of site from decline, and/or allowing some recovery, but main habitats within site already protected	Moderate - High, range of features, and iconic locations (e.g. Bass Rock) are comparable to other bird-rich marine areas in UK (e.g. Farne Islands, Pembrokeshire Islands), which have high non- use value	Low - Moderate	Moderate, response of feature to management measures, and value to society, uncertain

Services	Relevance to Site	Baseline Level	Estimated Impacts of Classification			Value	Scale of	Confidence
			Lower	Intermediate	Upper	Weighting	Benefits	Confidence
						(Kenter <i>et al.</i> 2013).		
Recreation	Moderate - High, wildlife tourism and recreation at site	Recreation value of the site may decline	Minimal	Low, protection of features of site that contribute to recreation	Low - Moderate, protection of features of site that contribute to recreation from decline	Moderate, recreation and tourism support jobs, but substitutes are available.	Low - Moderate.	Low, extent of change from management measures, including in context of climate-induced changes uncertain.
Research and Education	Moderate - High, features have research value (e.g. long term study on Isle of May)	Value of site may decline	Minimal	Low, protection maintains future research opportunities. Classification may play role in communicating management needs.		Moderate for opportunity to understand response of range of features to management.	Low	Low – Moderate, 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. Based on recreational and non-use value of site.				Low - Moderate	Moderate



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