

Scottish Sea Angling Conservation Network

Firth of Lorn, Argyll Nature Conservation MPA Proposal based on
the Priority Marine Feature Common Skate *Dipturus batis*.





Executive Summary

The Scottish Sea Angling Conservation Network (SSACN) welcomes the opportunity to submit a 3rd party Nature Conservation Marine Protected Area as part of the Scottish MPA Project.

We propose the designation of a Nature Conservation MPA in the Firth of Lorn, Argyll between the Sound of Jura in the south and Sound of Mull in the north. The MPA is part of a coherent ecological network of protected areas proposed by SSACN that runs northwards from the Sound of Jura, through the Firth of Lorne and Sound of Mull to Loch Sunart.

Parts of the Firth of Lorn are already designated as a marine SAC on account of rocky reefs and high marine biodiversity. SSACN believe the area should be afforded MPA status on the basis of populations of critically endangered Common Skate *Dipturus batis* that inhabit the area.

The west coast of Scotland is one of few coastal regions where Common Skate remain in relatively high numbers. Tagging data collected by the Scottish Shark Tagging Programme identifies the Firth of Lorn as an extremely important area for Common Skate: with a recapture rate of over 47% in the Firth of Lorn it is evident that Skate in this area show a high level of site fidelity. Short migrations to neighbouring areas have been observed – namely to and from the Sound of Jura and Sound of Mull – emphasizing the need for the spatial protection of ecological pathways to ensure that populations of endangered elasmobranchs do not become fragmented and areas isolated.

The Argyll area is widely regarded as one of Scotland's most valuable recreational sea angling destinations with many safe, easily accessible shore marks, boat launch sites and a number of charter boats. Each year over 250,000 angling days are spent in the region generating an estimated £22,500,000 in the region. Recreational sea angling for Common Skate is one of the region's most valuable unique selling points and attracts anglers from all over the country.

Other recreational activities include SCUBA diving and sight-seeing, it is expected that such activities would also benefit from the designation of a Nature Conservation MPA.

Allowing recreational sea angling in protected areas has consistently been shown to generate sustainable income to rural areas and increase public support and acceptance of MPAs. In addition to the direct benefits of such a designation to both the local communities and native marine life a host of indirect benefits exist: indirect benefits include the overspill of commercially important species and preservation of genetic diversity in marine organisms.

Complex migratory life strategies like those seen in the Common Skate may require a combination of fisheries management (with statutory instruments) and spatial management (through the identification and designation of MPA's to protect the species and critical habitats). It has previously been supported that additional spatial protection such as MPA's can be beneficial to many mobile species such as Common Skate, particularly in cases where populations show a high degree of site fidelity.

SSACN believe it is essential for the protection of Scottish Common Skate populations that the Firth of Lorn is considered for MPA designation and included in the MPA search locations. The presence of multiple search features makes the site a particularly strong candidate for designation as a Nature Conservation MPA.

Firth of Lorn, Argyll Nature Conservation MPA Proposal Based on the Priority Marine Feature Common Skate *Dipturus batis*.

1.1 Proposal

The Scottish Sea Angling Conservation Network welcomes the opportunity to submit a 3rd party marine protected area proposal and would like to propose the designation of a Nature Conservation MPA in the Firth of Lorn, Argyll as shown in figure 1. It is proposed that the Firth of Lorn is designated as a Nature Conservation MPA in order to protect populations of critically endangered Common skate *Dipturus batis* and their habitats.

This area has several pockets of Common skate and is believed to be an ecological corridor linked to both the Sound of Mull and the Sound of Jura. Surrounding areas should also be searched and suitably protected in order to ensure that a coherent ecological network is maintained and that populations of Common skate do not become fragmented isolating hotspots such as the Sound of Jura. This will allow sufficient migration to take place ensuring the long term viability of this mobile species.

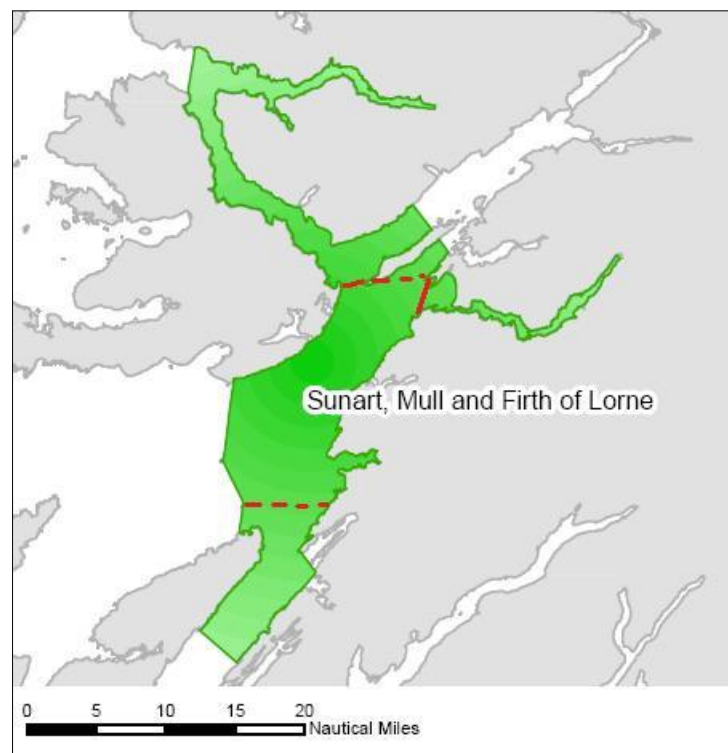


Figure 1: Nature Conservation MPA network proposed by SSACN based on priority marine features (Common Skate *Dipturus batis* and Spurdog *Squalus acanthias*). Boundary lines between the Firth of Lorn, Sound of Jura and Sound of Mull are marked in red.

2. The Firth of Lorn

2.1 Site Description

The Firth of Lorn is a well defined area that contains several islands, sounds and inlets. The region has areas of strong tidal currents as well as sheltered pockets. The Firth of Lorn is bordered by Sound of Jura to the south, and the sound of Mull and Loch Linnhe to the north and northwest. The central area of the Firth of Lorne already designated as a special area of conservation on account of rich rocky reef habitats.

2.2 Important Marine Features

Common skate are the largest European batoid reaching lengths of up to 3 metres. They show typical elasmobranch life history characteristics with both females and males maturing late at an average of 11 years old at 180cm and 125cm respectively¹. Females have a low fecundity laying around 40 eggs every two years². Slow growth rates and low fecundity mean that Common Skate have a low intrinsic rebound potential and populations may suffer significantly from overfishing or habitat degradation: for these reasons it is felt that spatial protection is required - particularly in areas where juveniles reside - to effectively conserve Scottish populations of Common Skate.

Common Skate have seen drastic declines in the north-east Atlantic; the species is currently included on the OSPAR list of threatened or declining features³ and is considered '*critically endangered*' on the IUCN Red List⁴. Populations have been declining across European inshore waters since the early 20th century⁴. The west coast of Scotland is one of few coastal regions where Common Skate remain in relatively high numbers. The high site fidelity seen in some areas makes this species particularly suitable for spatial protection in the form of an MPA.

SSACN believe the Firth of Lorn may be an important area for Common Skate, with recaptures of tagged fish recorded throughout the year. The area is also believed to be an ecological corridor for Common Skate migrating to the Sound of Jura and Sound of Mull.

Although there is currently insufficient data to determine if there is a population of Spurdog *Squalus acanthius* residing within the Firth of Lorn, a survey conducted near the mouth of Loch Etive captured 254 Spurdog in several surveys between the months of October and January, with the majority falling within December⁵. There is also a wealth of anecdotal evidence from recreational sea anglers supporting this data. SSACN are currently trying to shift the focus of the anglers to many of these areas in order to tag and gather data on Spurdog in the Firth of Lorn.

The Community Plan of Action (CPOA) for the conservation and management of sharks (2009) aims to ensure a greater understanding of sharks and their role in ecosystems and fisheries and identified an urgent need for improved data collection. The work of SSACN through the Scottish Shark Tagging Programme (SSTP) plays a vital role in the collection of this essential data for many species found in Scottish waters and it is likely that this research will assist the Scottish Government in achieving their international commitments to protect vulnerable shark species.

SSACN believe that the data collected thus far indicates that spatial protection of Common Skate and their critical habitats in Scottish waters is required in addition to statutory instruments that may be put in place. This will allow the government to effectively manage and conserve this critically endangered species.

2.3 Residency

SSTP recapture data suggests Common Skate are present within the area throughout the year with a similar distribution seen in tagged and recaptured Common skate as shown in figure 2 and 3.

A total of 446 Common Skate have been tagged in the Firth of Lorn to date, 210 of which have subsequently been recaptured. Of 210 recaptures, 150 were both tagged and recaptured in the Firth of Lorn; other recaptured fish were caught in surrounding areas (most notably in the Sound of Mull and Sound of Jura). Some Common Skate have been recaptured more than once giving a total of 233 recaptures.

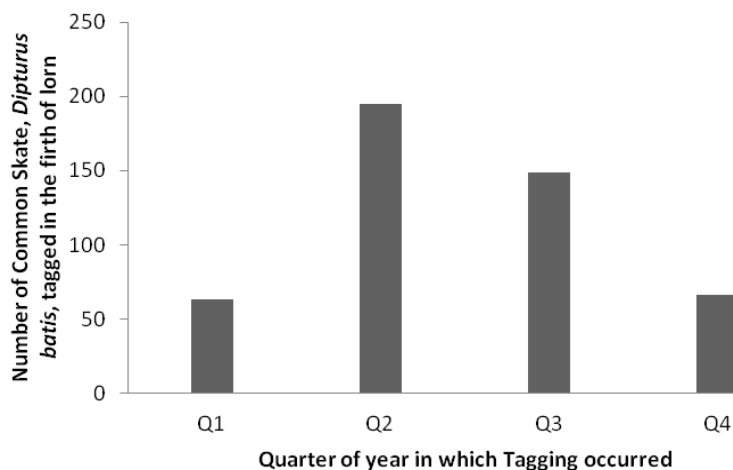


Figure 2: Number of tagged Common Skate in the Firth of Lorn and the time of year they were tagged.

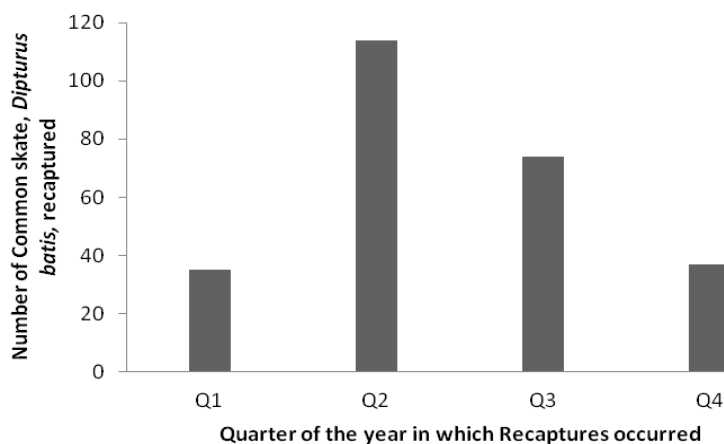


Figure 3: Number of Common Skate recaptured in the firth of Lorn and the time of year they were recaptured.

Several of the tagged fish (53) with corresponding recaptures were caught across borders, representing some level of migration. When data is plotted it is apparent that some cross-border migrations are relatively short, this emphasizes the need for spatial protection to ensure that an ecologically coherent network is maintained regardless of regional borders.

Another aspect that should be considered is that in historical studies of the Firth of Lorn. Gordon & The Scottish Sea Angling Conservation Network - www.ssacn.org – contact@ssacn.org
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Duncan (1984) found that Spurdog were captured in the Firth of Lorn, close to the mouth of Loch Etive between the months of October and January. Therefore temporal management for this species within the Firth of Lorn may contribute to the MPA management objectives for both the Firth of Lorn and Loch Etive (detailed in SSACN's Loch Etive Nature Conservation MPA proposal).

The Firth of Lorn accounts for around 21% of the total recaptures of Common Skate on the database with a recapture rate of around 47% within the region. It should be noted that neighbouring regions – most notably the Sound of Mull and Sound of Jura - have recapture rates of 63% and 71% respectively; this data is shown in table 1 and shows how important this stretch of coast is to the species.

Marine Scotland are currently carrying out a tagging project using acoustic devices in the Sound of Jura that will give more information on the movements of tagged skate in the area. The results of this study will be used alongside the SSTP dart tag database in the hope that the hypotheses of site fidelity will be supported. Further data is available from SSACN on request, Marine Scotland are currently analysing all skate recapture data using ArcGIS.

Table 1: Summary of Common skate *Dipturus batis* captures within the main regions with the Firth of Lorn highlighted. The percentage of tagging and recaptures, and rate of recapture is shown for each area.

	Total Captures	Total Tagged	Total Recapt	% of Total Taggings on Database	% of Total Recapt on Database	Recapture rate within area
Sound of Mull	909	556	353	28.54	35.91	63.49
Firth of Lorn	656	446	210	22.90	21.36	47.09
Sound of Jura	570	334	236	17.15	24.01	70.66
Loch Sunart	72	50	22	2.57	2.24	44.00
West of Mull	430	349	81	17.92	8.24	23.21
Other	294	213	81	10.93	8.24	38.03
Total	2931	1948	983			

3. Current Protection & Alternative Management Options

3.1 Legislation

Common Skate are considered a prohibited species in all EU Waters meaning no vessel is allowed to land them in the EU. However, this prohibition on landings will not protect the species from any direct or indirect impacts of activities that are currently permitted within the Firth of Lorn including habitat destruction, or from activities that may be initiated the future. Common Skate are often captured as by-catch, and although many commercial vessels discard the species, there are still concerns over misidentification of many species of ray and skate.

Spatial protection of key areas where mobile species aggregate, is required in order for this particular slow growing species to regenerate and MPA's have previously been supported as an effective option for mobile species⁷.

Further research into the population ecology of Common skate within Firth of Lorn, migratory life

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strategies and genetic mixing will determine the best combination of management options throughout Scotland and Europe. Nature Conservation MPA's are required for key regions - such as Firth of Lorn - where Common Skate may be residing or spending a large proportion of their life before moving on to neighbouring regions such as the Sound of Mull and Sound of Jura. The ongoing work of the SSTP hopes to facilitate future research at little cost utilising data gathered by volunteer anglers.

The Firth of Lorn already has a marine Special Area of Conservation (SAC) designation. This is based on the rocky reef habitat under the Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora). The rocky reefs are well known to support an exceptional biodiversity of marine life, communities and species and are amongst the most diverse in both the UK and Europe. It is likely that a wide range of marine species would benefit from the designation of a Nature Conservation MPA.

3.2 Activities & Management Recommendations

The SAC designation of Firth of Lorn means many activities in the area have been considered against the conservation management plan for the rocky reef habitat. However assessment against the conservation objectives of an MPA designation based on Common skate would be required in the future.

3.2.1 Recreational Sea Angling

Firth of Lorn is a well known and important sea angling location on the west coast of Scotland. Recreational sea angling opportunities are available all year round with easily accessible launch sites and several hire boats available in the area. This year-round angling opportunity has allowed the constant feedback of tagging data and anecdotal evidence to be collected from anglers over several years.

Many recreational sea anglers now regularly tag Common Skate in Firth of Lorn as part of the SSTP. Based on the best available evidence, SSACN do not believe this has a negative effect on Common skate or critical habitat and therefore SSACN would expect these activities would continue should Firth of Lorn be designated a Nature MPA.

Many countries have already successfully implemented MPAs whilst allowing recreational sea angling to continue as a means of generating income to rural areas and increasing public acceptance and support of MPA designations⁸.

It is expected that not only would recreational sea angling and tagging programmes continue should MPA status be granted, but that the socio-economic benefits to the area would increase through promotion of the sport and an increase in tourism.

3.2.2 Mobile Fishing Gear & Long Lining

Currently there are no restrictions on the use of destructive mobile fishing gears such as scallop dredging or benthic trawling activities for nephrops. It is expected that any current or future use of mobile fishing gear within Firth of Lorn would be required to be assessed against the conservation objectives of the MPA designation in order to protect Common Skate and valuable benthic habitats.

3.2.3 Creeling & Other Static Fishing Gear

Creeling is carried out throughout the Firth of Lorn. Based on the best available evidence, SSACN



do not believe this has a negative effect on Common Skate or their habitat and therefore SSACN would expect these activities would continue should the Firth of Lorn be designated a Nature conservation MPA.

3.2.4 Tangle Nets

Fixed tangle nets have been used in the past, however local fishermen and Natura officers initiated a replacement of this gear with creels after various consultations regarding the SAC designation.

SSACN believe that these activities are no longer undertaken regularly within Firth of Lorn. However, there is no statutory position regarding the use of this gear in the area and therefore non-local fishermen may use tangle nets and locals may consider using this gear in the future. It is expected that any future use of tangle nets would be assessed against the conservation objectives of the MPA designation in order to protect Common Skate as well as other mobile species within the area and managed accordingly.

3.2.5 Charter Boat Operations

Charter boat tourism is another economically important sector in Argyll, with an estimated annual turnover of around £4.56 million from Campbeltown to Port Appin⁹. Many of these charters are used for recreational sea angling, as well as diving, site-seeing and wildlife watching.

3.2.6 Recreational and Professional SCUBA Diving

SCUBA diving occurs throughout the Firth of Lorn on both a recreational and professional level. Many recreational divers may also collect shellfish from the area. Based on the best available evidence, SSACN do not believe this has a negative effect on Common Skate populations and therefore would expect these activities would continue should the Firth of Lorn be designated a Nature Conservation MPA.

3.2.7 Aquaculture

The strong tidal regime and wave exposure means that the majority of the Firth of Lorn is unsuitable for finfish aquaculture facilities. It is expected that any future aquaculture facilities in the Firth of Lorn would be assessed against the conservation objectives of the MPA designation in order to protect Common Skate populations and habitats.

There are currently a number of shellfish aquaculture facilities in the area. Based on the best available evidence, SSACN do not believe this activity has a negative effect on Common Skate and therefore would expect these activities would continue should the Firth of Lorn be designated a Nature Conservation MPA.

4. Additional Research

As the migratory life history of the Common Skate is complex and inconclusive a Nature Conservation MPA would facilitate further research necessary to ensure the future viability and conservation of stocks. Continued collection of SSTP data by anglers would help determine the migratory life strategy and to what extent Common Skate show site fidelity on the west coast of Scotland.

SSACN have been gathering data on Common Skate through the SSTP since 2009; these records along with others from the Glasgow Museum and UK Shark Tagging Programmes are now held by SSACN in one master database. If required, further data can be provided. This database is

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currently being used by Marine Scotland and two PhD students at the University of Aberdeen to investigate the population dynamics of elasmobranchs in Scottish waters.

5. Implications of MPA status

SSACN believe that spatial management is required to ensure long term protection of the habitats and the species in the event that the current legislations or management plans are revised. Any activity returning to the area would need to be assessed against the conservation objectives of the MPA and managed in accordance.

In an economic study on the impact of recreational sea angling in Scotland, the Argyll and Lochaber region was found to be one of the top areas for sea angling in Scotland¹⁰. Recreational sea angling in the Firth of Lorn contributes to over 250,000 days annually spent annually by sea anglers in the region with an estimated annual expenditure of over £22,500,000 for Argyll and Lochaber¹⁰. The Firth of Lorn was ranked as the most popular launch site in Argyll and Lochaber and therefore it is likely that a large proportion of this expenditure can be attributed to the Firth of Lorn as anglers travel to the area to fish for Common Skate.

In a recent Scottish Study into the social and community benefits of angling in the Assynt region, it was concluded that *“local, regional or national governments, or statutory and regional agencies, should consider investment in angling-based tourism initiatives to increase economic benefits through increased numbers.”*¹¹

It is expected that the positive economic impacts of recreational sea angling and tourism in the region could be maximised through the designation of a Nature Conservation MPA. Not only would MPA status and the development of a sea angling in Scotland benefit these elasmobranch species and the economy, but many other marine species would benefit indirectly from increased protection.

6. Conclusion

Spatial management measures are required in order to protect and allow regeneration of Common skate in Scotland, and indeed throughout Europe. The Firth of Lorn is believed to be a critical habitat for Common Skate. This is supported by SSTP tagging data of Common Skate which shows a reasonable abundance of Skate and a degree of site fidelity in the area.

Most significantly, the Firth of Lorn appears to serve as an ecological corridor for Common Skate travelling through neighbouring regions including the Sound of Jura and Sound of Mull. It has been suggested that spatial protection in the form of MPA's can be highly beneficial to mobile species such as Common Skate^{7, 12}.

Recreational sea angling has a low environmental impact and a significant positive socio-economic impact in rural areas whilst providing a low cost method of gathering valuable data through the SSTP. In addition to the direct socio-economic benefits of recreational sea angling, encouraging angling in protected areas has consistently been shown generate income to rural areas, and increase public acceptance and support of MPA designations⁸.

SSACN believe it is essential for the protection of Scottish Common Skate populations that the Firth of Lorn is considered for MPA designation and included in the MPA search locations.

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