Scottish Sea Angling Conservation Network

Sound of Jura, Argyll Nature Conservation MPA Proposal based on the Priority Marine Feature Common Skate *Dipturis batis*.

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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 Sound of Jura, Argyll south of the Firth of Lorn. The MPA is part of a coherent ecological network of protected areas proposed by SSACN that runs begins in the Sound of Jura and travels northward through the Firth of Lorn and Sound of Mull to Loch Sunart.

SSACN believe the area should be afforded MPA status on the basis of populations of critically endangered Common Skate *Dipturis 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 sound of Jura as an extremely important area for Common Skate: with a recapture rate of over 70% in the Sound of Jura 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 the Firth of Lorn – 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.

Allowing recreational 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 Sound of Jura 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.

Sound of Jura, Argyll Nature Conservation MPA Proposal based on the Priority Marine Feature Common Skate *Dipturis batis*.

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 Sound of Jura, Argyll as shown in figure 1. It is proposed that the Sound of Jura is designated as a Nature Conservation MPA in order to protect populations of critically endangered Common skate *Dipturus batis* and their habitats.

It is thought that populations of Common Skate in the Sound of Jura may be closely linked to those in the Firth of Lorn and Sound of Mull through ecological corridors. Any ecological corridors linked to the population within the Sound of Jura should also be searched and suitably protected in order to ensure that populations do not become fragmented and the area does not become an isolated hotspot for Common skate. This will allow sufficient migration to take place ensuring the long term viability of this mobile species.

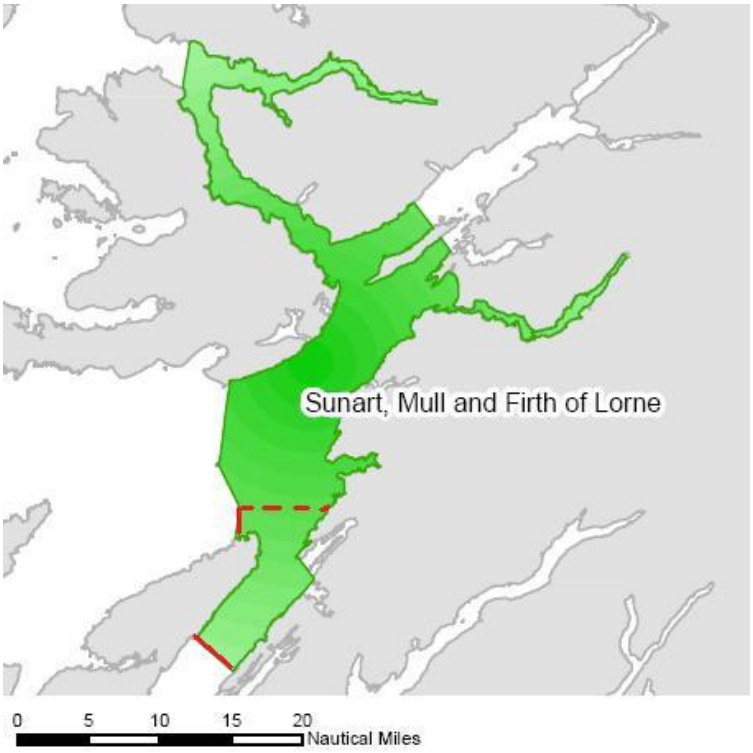

Figure 1: Nature Conservation MPA network proposed by SSACN based on priority marine features (Common Skate *Dipturis batis*). Boundary lines to the north and south of the Sound of Jura are marked in red.

2. Sound of Jura

2.1 Site Description

The Sound of Jura is a deep strait of water, situated between the Isle of Jura and the Knapdale peninsula on the mainland of Scotland. Loch Sween and Loch Caolisport feed into the Sound of Jura in the south. The current SSTP database on Common skate does not represent captures south of approximately 56.03 decimal degrees and the northern boundary is undefined between the Sound of Mull and the Firth of Lorn.

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 respectively[1]. Females have a low fecundity laying around 40 eggs every two years[2]. 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 features[3] and is considered '*critically endangered*' on the IUCN Red List[4]. Populations have been declining across European inshore waters since the early 20th century[4]. 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 Sound of Jura is an important area for Common Skate: recaptures of tagged fish are recorded throughout the year showing that the fish are present all year round. The area is also believed part of an important ecological network for Common Skate populations that includes the Firth of Lorn and Sound of Mull to the north. SSTP tagging data shows a high level of site fidelity in Common Skate captured in the Sound of Jura making the area a strong candidate for spatial protection in the form of a Nature Conservation MPA.

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

There have been a total of 334 Common skate tagged, and 236 recaptured within the Sound of

Jura. SSTP data shows that Common Skate are captured in the Sound of Jura throughout the entire year. A total of 131 unique Common Skate recaptures have been recorded in the Sound of Jura, many of these fish have been recaptured more than once. A summary of tags and recaptures and the time of year during which captures were made is shown in figures 1 and 2.

Common skate from the Sound of Jura show a high level of site fidelity; only 26 fish from the Sound of Jura have been recaptured in other areas. It must be noted, however, that 21 of these were undefined locations; due to the nature of the voluntary tagging programme, locations are not always submitted to the SSTP by anglers. This means that undefined locations could also be within the Sound of Jura.

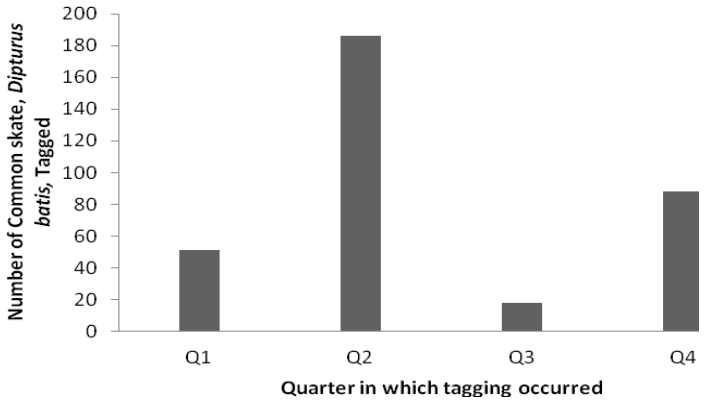

Figure 1: Number of tagged Common Skate in the Sound of Jura and the time of year they were tagged.

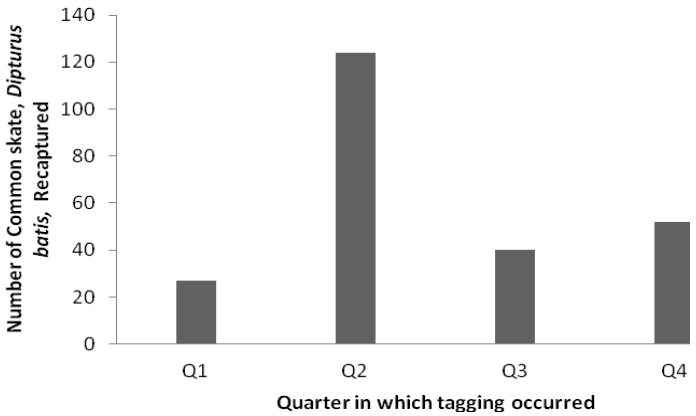

Figure 2: Number of Common Skate recaptured in the Sound of Jura and the time of year they were recaptured.

The Sound of Jura accounts for ~17% of the total tags and ~24% of the total recaptures of Common skate on the SSTP database. Despite this relatively low percentage, there is a recapture rate of ~71% within the region. The Firth of Lorn has a recapture rate of ~47%, illustrating how important this stretch of coast line is to the species and the importance of searching neighbouring areas. A summary of Common Skate tagging data is shown in table 1.

The Sound of Jura would contribute significantly to the Scottish Governments commitments to create an ecologically coherent MPA network with management objectives based on the critically endangered Common Skate. By committing to further research, details of the migratory life

strategy may be revealed allowing informed decision making and ultimately leading to the regeneration of west coast Skate populations.

Marine Scotland are currently carrying out a tagging project using acoustic devices in the Sound of Jura that will give more accurate information on the movements of tagged skate in the area and the driving factors behind any movements. The results of this study will be used alongside the SSTP dart tag database in the hope that the hypotheses of site fidelity can 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 Sound of Jura highlighted. The percentage of tagging and recaptures, and rate of recapture is shown for each area.

Summary of captures and recaptures of Common Skate, *Dipturus batis*						
	Total Captures	**Total Tagged**	**Total Recapt**	**% of Total Taggings on Database**	**% of Total Recapts 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 Sound of Jura, 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 species[5].

Further research into the population ecology of Common Skate within the Sound of Mull, migratory life 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 the Sound of Jura - where Common Skate may be residing, or spending a large proportion of their life before moving on to neighbouring regions (Firth of Lorn and Sound of Mull). The ongoing work of the SSTP hopes to facilitate future research at little cost utilising data gathered by volunteer anglers.

3.2 Activities & Management Recommendations

3.2.1 Recreational Sea Angling

The Sound of Jura is a well known and important sea angling destination on the west coast of Scotland. Recreational sea angling opportunities are available year round by boat with easily accessible launch sites in Loch Crinan and several charter boats available in the area. The year-round angling opportunity has allowed a constant feedback of tagging data and anecdotal evidence regarding Common Skate populations over several years. Many anglers now regularly tag Common Skate in the Sound of Jura as part of the Scottish Shark Tagging Programme (SSTP).

Based on the best available evidence, SSACN do not believe that recreational sea angling has a negative effect on Common Skate or critical habitat and therefore SSACN would expect these activities would continue should Sound of Jura be designated a Nature Conservation 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 designations[6].

3.2.2 Charter Boat Operations

An estimate of the charter boat tourism, particularly those associated with recreational sea angling, in the Sound of Jura is difficult to assess. There are several charter boats operating and working within the Sound of Jura who primarily target skate on a catch-and-release basis, particularly around the Crinan area. 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 Sound of Jura be designated a Nature Conservation MPA.

3.2.3 Creeling

There are two or three local vessels working from Tayvallich/Carsaig throughout the year deploying lagoustine pots in the deeps of the Sound of Jura. There are also several seasonal visits from small creel boats working in the shallow coastal grounds. Based on the best available evidence, SSACN do not believe this has a negative effect on Common Skate or the habitat, and therefore SSACN would expect these activities would continue should the Sound of Jura be designated a Nature Conservation MPA.

3.2.4 Aquaculture Farms

There are currently several aquaculture facilities in the Sound of Jura, particularly along the west coast of the Knapdale peninsula. Based on the best available evidence, SSACN do not believe this activity has a direct negative effect on Common Skate populations or critical habitats. Therefore SSACN would expect these activities would continue should the Sound of Jura be designated a Nature conservation MPA. Any future development would be assessed against the conservation objectives of the MPA and suitably managed.

3.2.5 Mobile Fishing Gear

Details on inshore fisheries in the Sound of Jura area are difficult to quantify as the area is used by both local and non-local fishing vessels. SSACN are unaware of any current restrictions on the use of mobile fishing gear such as scallop dredgers or prawn trawlers. It is expected that any current and future use of destructive mobile fishing gears within Sound of Jura, would be required to be

assessed against the conservation objectives of the MPA designation, and managed accordingly.

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.

It is hoped that the ongoing Marine Scotland acoustic tagging project in the Sound of Jura will yield more conclusive evidence regarding the movements of skate in the area. The project will run until October 2012.

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 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 accordingly.

In the Scottish Governments study on the economic 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 Scotland[7]. Recreational sea angling in the Sound of Jura contributes to over 250,000 days annually spent sea angling in the region with an estimated annual expenditure of over £22,500,000 for Argyll and Lochaber[7].

The Sound of Jura, has one of the most popular launch sites in Argyll and Lochaber (Crinan, 10.1%), with several charter boats operating from this area contributing to the annual expenditure in the region. In addition to ongoing recreational activities, SSACN and the SSTP also hold an annual tagging event in April in the Sound of Jura based in Crinan, this event is extremely popular and attracts anglers from all over Scotland[10, 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 recreational sea angling in Scotland directly benefit these elasmobranch species and the economy, but many other marine species would benefit indirectly from increased protection.

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."[8]

6. Conclusion

Spatial management measures are required in order to protect and allow regeneration of Common Skate in Scotland, and indeed throughout Europe. The Sound of Jura 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 Common Skate and a high degree of site fidelity in local populations. More information on the intricate movements of Common Skate populations in the Sound of Jura is likely to be gained after completion of the ongoing Marine Scotland acoustic tagging project.

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[5, 9].

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 designations[6].

SSACN believe it is essential for the protection of Scottish Common Skate populations that the Sound of Jura 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.

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