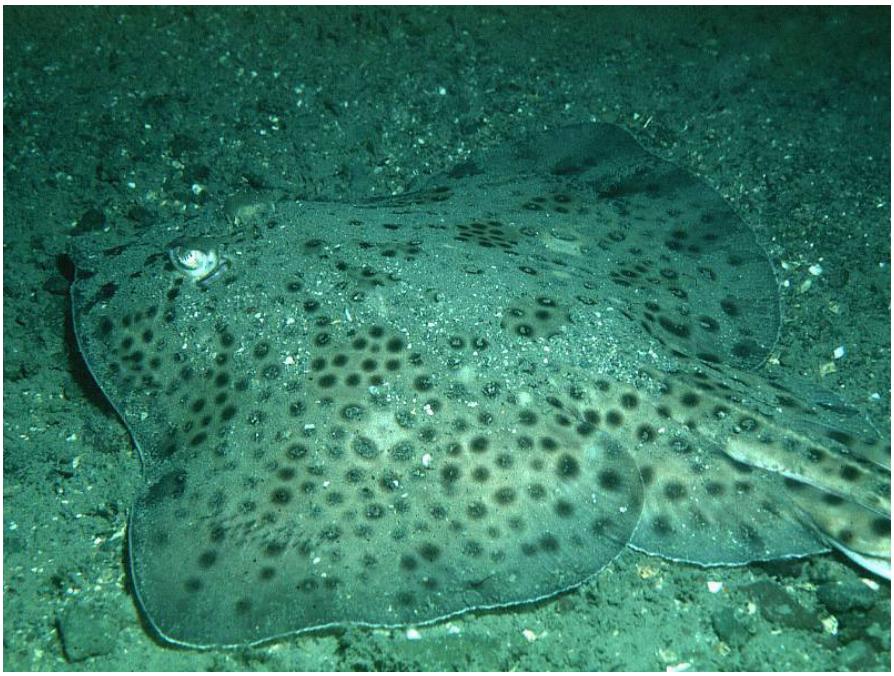
OSPAR COMMISSION

Background Document for Spotted ray

Raja montagui



Biodiversity Series

2010

OSPAR Convention

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. It has been ratified by Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom and approved by the European Community and Spain.

Convention OSPAR

La Convention pour la protection du milieu marin de l'Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998. La Convention a été ratifiée par l'Allemagne, la Belgique, le Danemark, la Finlande, la France, l’Irlande, l’Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne et d’Irlande du Nord, la Suède et la Suisse et approuvée par la Communauté européenne et l’Espagne.

Acknowledgement

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Photo acknowledgement

Cover page: © Bernard Picton

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Background Document for Spotted ray *Raja montagui*

Executive Summary

This Background Document on the Spotted ray *Raja montagui* has been developed by OSPAR following the inclusion of this species on the OSPAR List of threatened and/or declining species and habitats (OSPAR Agreement 2008-6). The document provides a compilation of the reviews and assessments that have been prepared concerning this species since the agreement to include it in the OSPAR List in 2003. The original evaluation used to justify the inclusion of *R.montagui* in the OSPAR List is followed by an assessment of the most recent information on its status (distribution, population, condition) and key threats prepared during 2009-2010. Chapter 7 provides proposals for the actions and measures that could be taken to improve the conservation status of the species. In agreeing to the publication of this document, Contracting Parties have indicated the need to further review these proposals. Publication of this background document does not, therefore, imply any formal endorsement of these proposals by the OSPAR Commission. On the basis of the further review of these proposals, OSPAR will continue its work to ensure the protection of *R.montagui*, where necessary in cooperation with other competent organisations. This background document may be updated to reflect further developments or further information on the status of the species which becomes available.

Récapitulatif

Le présent document de fond sur la raie douce a été élaboré par OSPAR à la suite de l'inclusion de cette espèce dans la liste OSPAR des espèces et habitats menacés et/ou en déclin (Accord OSPAR 2008-6). Ce document comporte une compilation des revues et des évaluations concernant cette espèce qui ont été préparées depuis qu'il a été convenu de l'inclure dans la Liste OSPAR en 2003. L'évaluation d'origine permettant de justifier l'inclusion de la raie douce dans la Liste OSPAR est suivie d'une évaluation des informations les plus récentes sur son statut (distribution, population, condition) et des menaces clés, préparée en 2009-2010. Le chapitre 7 fournit des propositions d'actions et de mesures qui pourraient être prises afin d'améliorer l'état de conservation de l'espèce. En se mettant d'accord sur la publication de ce document, les Parties contractantes ont indiqué la nécessité de réviser de nouveau ces propositions. La publication de ce document ne signifie pas, par conséquent que la Commission OSPAR entérine ces propositions de manière formelle. A partir de la nouvelle révision de ces propositions, OSPAR poursuivra ses travaux afin de s'assurer de la protection de la raie douce, le cas échéant avec la coopération d'autres organisations compétentes. Ce document de fond pourra être actualisé pour tenir compte de nouvelles avancées ou de nouvelles informations qui deviendront disponibles sur l'état de l'espèce.

1. Background information

Name of species

Spotted ray (*Raja montagui* **or** *Dipturus montagui*) **Fowler, 1910**

2. Original evaluation against the Texel-Faial selection criteria

List of OSPAR Regions and Dinter biogeographic zones where the species occurs

OSPAR Regions: II, III, IV, V

Dinter biogeographic zones: Lusitanean, Lusitanean-boreal, Cold-temperate pelagic waters, Boreal-lusitanean

List of OSPAR Regions where the species is under threat and/or in decline

OSPAR Regions: The OSPAR List identifies *R. montagui* as under threat or in decline in all Regions where it occurs. This updated assessment concludes that the *R. montagui* is threatened only in parts of the Greater North Sea (OSPAR Region II).

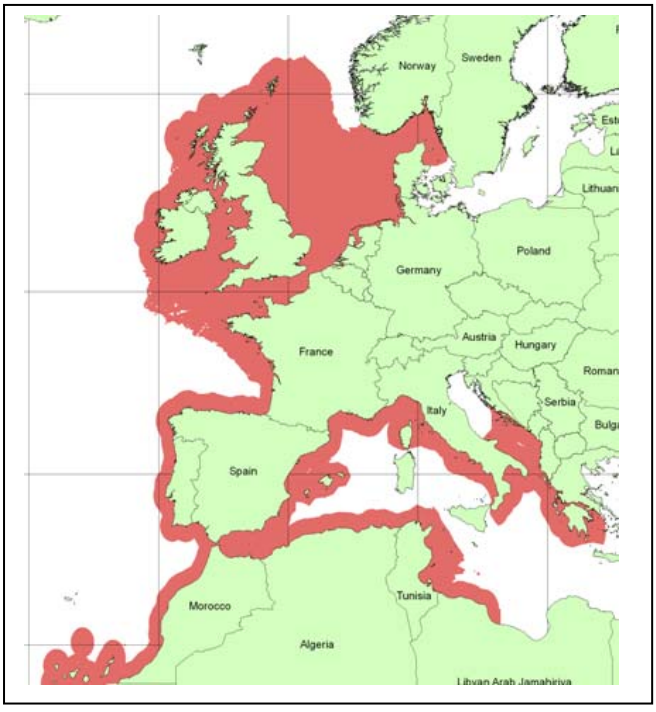


Figure 1: Distribution of Spotted ray (*Raja montagui*)
Source: www.iucnredlist.org

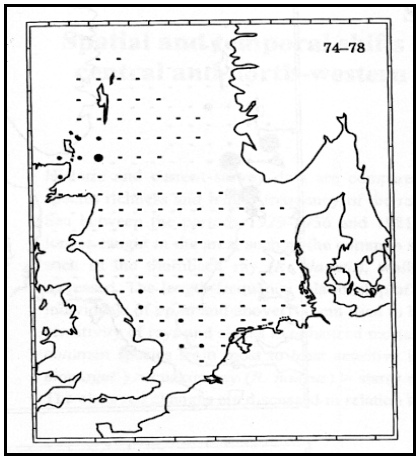
Original evaluation against the Texel-Faial criteria for which the species was included on the OSPAR List

Raja montagui was nominated for inclusion in the OSPAR List of threatened and/or declining species and habitats in 2001 with particular reference to decline, sensitivity, rarity, and threat in Belgian waters (Region II).

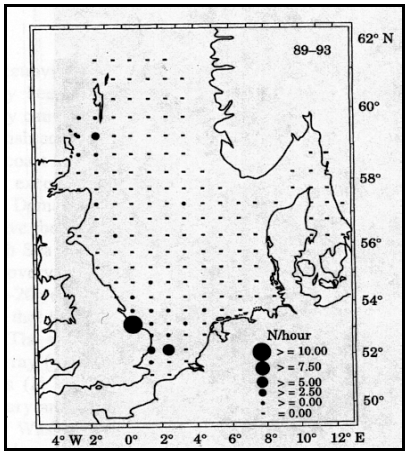
Table 1: Summary assessment of Spotted ray (*Raja montagui*) against the Texel-Faial criteria

Criterion	Comments	Evaluation
Global importance	Widely distributed through the southern North Sea and adjacent shelf waters, including west coast of the British Isles, from Shetland to the southern North Sea, English Channel, off Spain and Portugal, and in the western Mediterranean	Does not qualify
Regional importance		Does not qualify
Rarity	Rare in Belgium waters, but not in the whole OSPAR Area (Figures 2 and 3).	Does not qualify
Sensitivity	A relatively large (to 80cm), long-lived species with a low fecundity compared with teleosts, which is vulnerable to capture by bottom trawl fisheries. It is, however, smaller, more fecund and less sensitive than some other rays in the OSPAR Area (e.g. Thornback ray (*R. clavata*)).	Qualifies
Keystone species	No information	Unknown
Decline	The Spotted ray was proposed for the OSPAR list because it was considered to be a commonly occurring species in Belgian waters in the mid-1900s, but had declined severely since then and become very rare. This decline/scarcity has persisted only in the southern and eastern North Sea and eastern Channel. Its range and abundance has, however, reportedly increased significantly elsewhere in the North Sea (Region II), and in other parts of its range in the OSPAR Area.	Qualifies only in part of OSPAR range
Citations in original proposal: J. Haelters & F. Kerckhof pers.com; Poll 1947; Walker & Ellis 1998; Walker & Heessen 1996; Walker & Hislop 1998.		

Figure 2: North Sea distribution of Spotted ray (*Raja montagui*) by 5-year period
Source: Figure 5 in Walker & Heesen, 1996
Key:
Left: 1974-78
Right: 1989-93



1974-78



1989-93

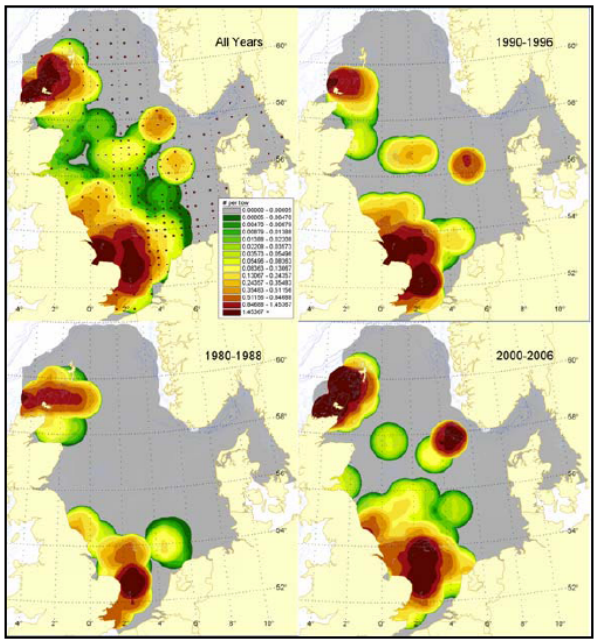


Figure 3: Changes in abundance and area occupied by Spotted ray (*R. montagui)* (1980-2006) expressed as mean number per tow

Source: ICES WGEF 2007

Key:

Top left: all years

Bottom left: 1980–1988

Top right: 1990–1996

Bottom right: 2000–2006

3. Current status of the species

Distribution in the OSPAR Maritime Area

This species is widespread in shelf waters throughout most of the OSPAR Area (excluding Region I and the deep waters of Region V). It extends from Shetland, Skagerrak and Kattegat in the north and northeast, to Spain and Portugal in the south. It is quite common in most areas of the North Sea (Area II), particularly in the west where its area of distribution has been increasing (Figure 3). It is abundant in the Irish Sea and Celtic Seas (Region III) and on the continental shelf of the Cantabrian Sea (Region IV). Warming sea temperature may be a reason for its increasing abundance in the north of its distribution in recent years. Its northern limit of distribution is currently ~62–64^{o}N (ICES WGEF 2007). ICES (2008) advice for 2009 noted that the area occupied by this species has fluctuated without trend.

Outside the OSPAR Area, it also extends into the Mediterranean, where it is common in the western and central basins, and south to Morocco, but not at Madeira (Fricke *et al.* 2007, Wirtz *et al.* 2008).

Population (current/trends/future prospects)

There is no stock assessment and therefore no estimate of biomass or numbers, but the population of this species is considered to be stable or even increasing in most of the OSPAR Area (e.g. Ellis *et al*. 2007; ICES WGEF 2007, 2008), also that abundance has fluctuated without trend (ICES 2008). Fisheries-independent data show an increase in abundance and distribution in the western North Sea (Figure 3). In the Irish Sea it is especially abundant in inshore areas, as well as being one of the dominant skate species on coarser grounds further offshore (ICES WGEF 2007). An increasing trend has been observed in recent years on the continental shelf of the Cantabrian Sea (Sánchez *et al.,* 2002). Fisheries landings from North Sea, Irish Sea and NW Scotland stocks are also increasing. The increase in abundance and range of this Lusitanian (southern) species in recent decades may be the result of rising sea temperatures and/or competitive release as stocks of larger, less resilient species of skates and rays decline. These trends are likely to continue throughout the OSPAR Area in coming years.

The eastern and southern areas of the North Sea and eastern Channel (Region II) are possibly an exception. Daan *et al.* (2005) analysed the time series of abundance for major species caught in the

North Sea during 1977–2004. *R. montagui* appeared to increase from the mid to late seventies into the early eighties, possibly followed by a decline. The recent increased abundance illustrated in Figure 3 has not extended into the south-eastern North Sea and eastern English Channel where survey catch rates have declined in recent years (ICES WGEF 2008), although it is unclear whether this could be due to misidentification of the juveniles usually caught in these surveys.

Figure 4: Area occupied by Spotted ray (*Raja montagui*) throughout the North Sea and eastern Channel (area illustrated in Figure 2)

Source ICES WGEF 2008

Key:

Light shading represents total area of distribution, dark shading represents area with high abundance.

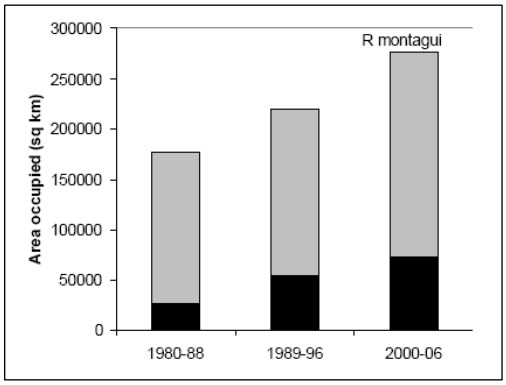


Figure 5: Spatial patterns observed for Spotted ray (*Raja montagui*) in the North Sea

Source: ICES WGEF 2008

Key:

A: Annual estimates of relative abundance (with three year running average)

B: Relationship between total area occupied and relative abundance

C: Relationship between high density area occupied and relative abundance

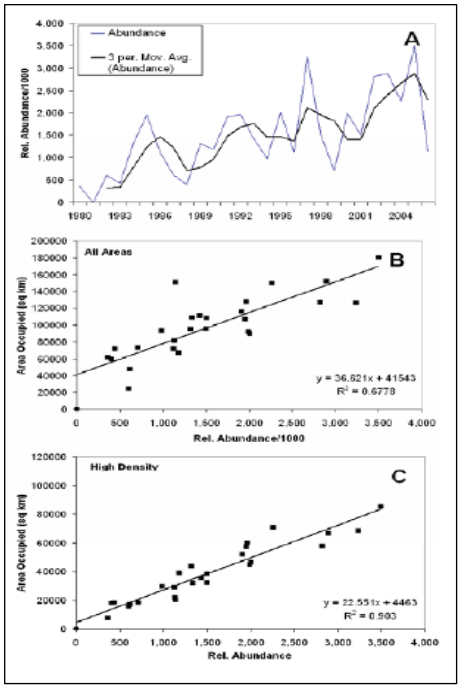


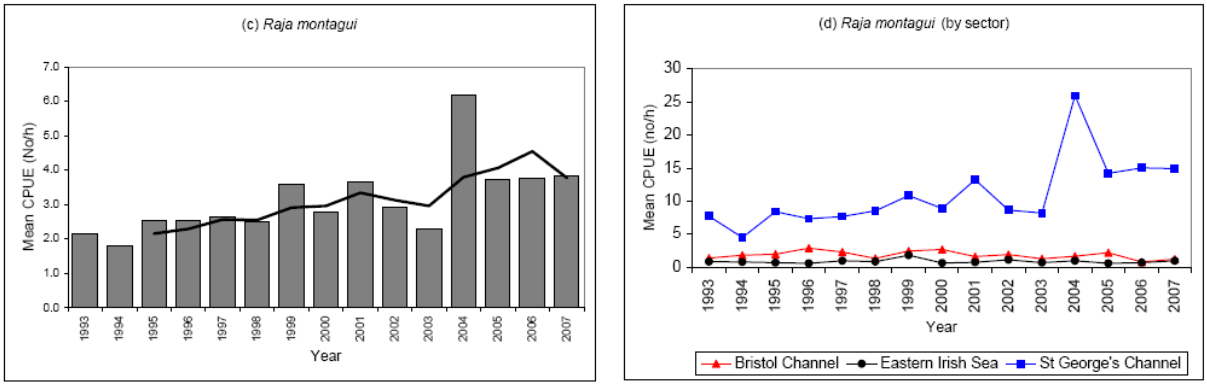
Figure 6: Mean catch rates of Spotted ray in the Celtic Seas from the UK 4m-beam trawl survey in the Irish Sea and Bristol Channel (1993–2007)

Source: ICES WGEF 2008

Key:

Left: smoothed line is three year moving average

Right: mean catch rates by area



Condition (current/trends/future prospects)

This species is relatively productive for an elasmobranch and appears to be doing well under current fisheries regimes and climatic conditions in the majority of the OSPAR Area. Smaller individuals in the population tend to be discarded from fishing vessels and probably survive well, although the largest fish are retained and marketed. Rising sea water temperatures may be favouring the northward extension of this southern species.

Limitations in knowledge

Since 2008, EU Member States have been required to provide species specific landings data for the major species of skates and rays, including *Raja montagui*, landed from ICES Regions IIa and IV (OSPAR Region II and part of Region I). Council Regulation (EC) No. 43/2009 extended this reporting requirement to ICES Areas IIIa, VIa–b and VII (the majority of OSPAR Region III). This will ultimately improve understanding of skate fisheries and trends in landings of *R. montagui* in the OSPAR Area. However, the ICES Working Group on Elasmobranch Fishes has noted some potential species identification issues in parts of the OSPAR Area, which may continue to disguise some survey and/or catch trends (ICES WGEF 2008).

4. Evaluation of threats and impacts

The key threat to this species continues to be capture (target and by-catch) in demersal fisheries. However, because the Spotted ray is relatively fecund and breeds at a fairly small size, it is not as seriously affected by fisheries mortality as are larger species of skates and rays, which are also more highly valued. Furthermore, skate and ray fisheries have come under more stringent quota management in recent years and trawl fishing effort is falling in the OSPAR Area.

Table 2: Summary of key threats to and impacts on Spotted ray (*Raja montagui*)

Type of impact	Cause of threat	Comment
Excessive mortality	Removal through utilised bycatch in fisheries	Fisheries mortality mainly affects the largest adults and does not appear to be unsustainable for this species in most parts of the OSPAR Area, where populations are stable or increasing. Fisheries mortality is also declining through management and decreasing fishing effort.
Habitat damage	Mobile fishing gears, pollution, eutrophication	Not evaluated; considered likely to be a very minor impact in all or most of the range.

5. Existing management measures

A total allowable catch (TAC) has been set for all species of skates and rays combined in the North Sea (ICES Areas IIa and IV, OSPAR Region II) since 1999. Because this TAC was not species-specific and higher than recent landings, it probably did not restrict mortality of *R. montagui*. In 2008 and 2009 the North Sea TAC was reduced to 1643 t, i. e. 25 % less than the TAC in 2007, and became restrictive.

In 2009, skate fisheries also came under precautionary TAC management in the majority of OSPAR Region III (ICES Areas IIIa, VIa–b and VII) (Council Regulation (EC) N^{o}. 43/2009). Vessels over 15 m in length are no longer permitted to target skates and rays in these areas (they only have a bycatch quota – skates may not comprise more than 25 % of the live weight of catch retained on board).

From 2008 onwards the EC has obliged Member States to provide species specific landings data for the major species of skates and rays, including Spotted ray (see 3.4).

A minimum landing size has been set for skates and rays in a few Sea Fisheries Committee Districts in English and Welsh waters. These protect small species like Spotted ray more effectively than they do larger, seriously depleted species.

6. Conclusion on overall status

The overall status of Spotted ray across the OSPAR Area is good, with stable or increasing populations in most areas. The species is therefore assessed as “Least Concern” on the IUCN Red List of Threatened Species (Ellis *et al*. 2007). This species does not meet the decline criteria in the OSPAR Area as a whole. There is evidence of a recent decline in a small area of the southern North Sea and eastern Channel, in Region II, but Figures 4 and 5 indicate that this is localised in its effect.

7. Action to be taken by OSPAR

Action/measures that OSPAR could take, subject to OSPAR agreement

As set out in Article 4 of Annex V of the Convention, OSPAR has agreed that no programme or measure concerning a question relating to the management of fisheries shall be adopted under this Annex. However where the Commission considers that action is desirable in relation to such a question, it shall draw that question to the attention of the authority or international body competent for that question. Where action within the competence of the Commission is desirable to complement or support action by those authorities or bodies, the Commission shall endeavour to cooperate with them.

Recent fisheries management measures, particularly when combined with declining demersal fishing effort, appear to be sufficient to maintain this species in good condition throughout most of the OSPAR Area. The exception appears to be small areas in the southern North Sea and eastern Channel. Species identification problems may limit data quality in some Regions.

Table 3: Summary of key priority actions and measures which could be taken for Spotted ray (*Raja montagui*). Where relevant, the OSPAR Commission should draw the need for action in relation to questions of fisheries management to the attention of the competent authorities. Where action within the competence of the Commission is desirable to complement or support action by those authorities or bodies, the Commission shall endeavour to cooperate with them.

Key threats	Fisheries mortality (primarily bycatch in commercial fisheries)	
Other responsible authorities	EC and Council of Fisheries Ministers (Common Fisheries Policy, TACs) OSPAR Contracting Parties ICES (e.g. provision of advice on trends, assessment criteria and triggers) and other RFOs	
Already protected? Measures adequate?	EU: TAC and bycatch quotas	Becoming restrictive in some areas. Since larger skate species are preferentially retained and small Spotted rays are discarded, TACs may contribute to limiting capture rates.
	EU: species-specific catch records	Should increase data availability if identification is adequate and accurate records are provided.
	GB Sea Fisheries Committees	Minimum landing sizes protect this small-bodied species in some areas.
Recommended Actions and Measures	OSPAR Commission	Monitor information compiled by the ICES Working Group on Elasmobranch Fisheries.
	Contracting Parties	Make identification guides available to industry and agencies to ensure that accurate species-specific catch records are collected (ICES is preparing an elasmobranch photo-identification key); Support ICES and EC recommendations for fishery management measures in the Council of Ministers; Consider establishing closed areas for seasonal aggregations or critical habitat.
	Research needs	Life history and trend data; Location of critical habitats, particularly spawning and nursery grounds

Brief summary of the proposed monitoring system (see annex 2)

Fishery-independent surveys are already providing adequate monitoring for this species in the majority of its range. Species-specific landings data, now required from EU MS, will greatly improve monitoring of the status of fisheries for and stocks of this species. Species-specific discard data (where discard of skates and rays is permitted) will be of additional value.

Annex 1: Overview of data and information provided by Contracting Parties

Contracting Party	**Feature occurs in CP's Maritime Area**	**Contribution made to the assessment (e.g. data or information provided)**	**National reports** **References or web links**
Belgium	Y	N	
Denmark	Y	N	
France	Y	N	
Germany	Y	Y – Compilation of Background Document	Fricke, R., M. Bilecenoglu & H. M. Sari (2007) Annotated checklist of fish and lamprey species (Gnathostomata and Petromyzontomorphi) of Turkey, including a Red List of threatened and declining species. *Stuttgarter Beiträge zur Naturkunde*, (A) 706: 1-169, figs 1-3, tabs 1-8. Wirtz, P., R. Fricke & M. J. Biscoito (2008) The coastal fishes of Madeira Island – new records and an annotated checklist. *Zootaxa*, 1715: 1-26, figs 1-8.
Iceland	N	N	
Ireland	Y	N	
Netherlands	Y	N	
Norway	Y	N	
Portugal	Y	N	
Spain	Y	Y – Review of Draft	See country-specific information
Sweden	N	Y – Review of Draft	
United Kingdom	Y	Y – Review of Draft	

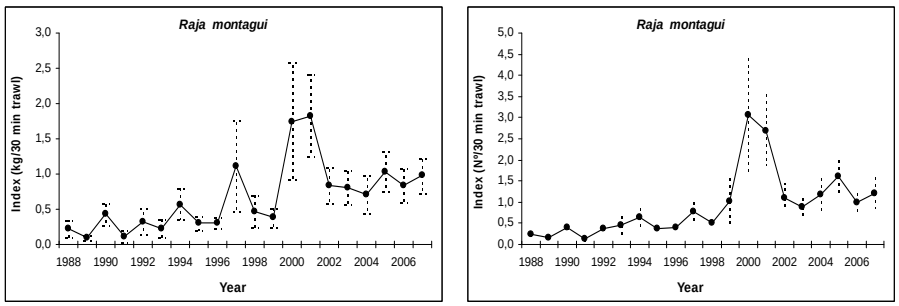
Summaries of country-specific information provided

Spain: *Raja montagui* (Spotted ray) in the Cantabrian Sea

Spotted ray (*Raja montagui,* Fowler, 1910) is quite a common ray found in the continental shelf of the Cantabrian Sea. It is found over sandy or muddy bottoms mainly at 50-150 m. [Distribution and abundance maps are available, 1999–2008.] The historical series of abundance index showed inter-annual fluctuations. The highest levels either in biomass or number were achieved in 2000 and 2001 while the lowest indices corresponded to the first period of the historical series, 1989 and 1991. A slightly increasing trend is observed in the recent years (see Figure). Similar to *R. clavata*, we do not

know which factors may contribute to this increasing trend; maybe closed areas could help to enhance the population (Rodríguez-Cabello *et al*., 2008).

Figure: Historical series of abundance index (1988-2007) mean and standard error (dotted bars), expressed in kilograms by 30 minutes trawl and number of rays by 30 minutes trawl. The catch is composed of specimens from 12 cm to nearly 100 cm; however most of the rays are within 25 to 60 cm.



The Spanish demersal fishery along the Cantabrian Sea and Bay of Biscay takes many species of rays with a wide variety of gears, but most of the landings come from the bycatch of fisheries targeting other demersal species such as hake, anglerfish and megrim. Due to a lack of species-specific landings data, limited knowledge of the species composition of skates in commercial landings is available (Rodríguez-Cabello *et al.*, 2005; Bañón *et al*., 2008b). Landings of rays from 1996 to 2006 by ICES division and country are compiled in the last WGEF 2008 (ICES, 2008).

Annex 2: Detailed description of the proposed monitoring and assessment strategy

Rationale for the proposed monitoring

Monitoring of catches, landings, abundance and distribution will enable OSPAR to evaluate future trends for Spotted ray in OSPAR Regions II and III.

Use of existing monitoring programmes

Regular fishery independent surveys undertaken by research vessels and chartered vessels in the OSPAR Area report records of R. montagui. This species should now also be reported accurately in landings by EU Member States in OSPAR Regions II and III. The ICES Working Group on Elasmobranch Fishes uses these and all other available sources to report regularly on the status of this species in the OSPAR Area.

Synergies with monitoring of other species or habitats

Monitoring of other coastal species of sharks, skates and rays on the OSPAR list require very similar strategies.

Assessment criteria

It is not considered necessary to develop assessment criteria or triggers for additional monitoring of this species.

Techniques/approaches

As already underway, with the addition of more accurate identification guides for use by industry and at landing sites.

Selection of monitoring locations

n/a

Timing and Frequency of monitoring

As already underway.

Data collection and reporting

As already undertaken or required.

Quality assurance

n/a

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