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Portorož, Slovenia, 5-8 December 2023

Agenda Item 3: Thematic Decisions
Agenda Item 5: Ministerial Session

Proposals for Amendment to Annexes II and III to the SPA/BD Protocol

UNEP/MAP
Athens, 2023

Note by the Secretariat

Amendments to Annexes II and III

1. SPA/RAC has received on 24 April 2023, a proposal from France of inclusion of nine species of cartilaginous fishes to the Annex II and Annex III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, using the related Form for amendment proposals.

2. The procedures as stated in the (Decision IG 17/14) "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" adopted by the 15th Meeting of the Contracting Parties (Almeria, Spain, 2008), have been followed by SPA/RAC.

3. The details of the related discussions and proposals during the 16th meeting of the focal points for SPA/BD (Malta, 20-24 May 2023) and MAP focal points meeting (Istanbul, Türkiye, 12-15 September 2023) are described and specified in the working document UNEP/MED IG.26/7.

4. The Forms for proposing amendments to Annex II and Annex III of the Protocol as submitted by France on 24 April 2023, are presented hereafter for information.

Form for proposing amendments to Annex II and Annex III of the Protocol concerning specially Protected Areas and Biological Diversity in the Mediterranean

Proposed by :

The Republic of France

Species concerned: *Aetomylaeus bovinus* (Geoffroy St. Hilaire, 1817)

Amendment proposed:

- ■ Inclusion in Annex II
- ☐ Inclusion in Annex III
- ☐ Removal from Annex II
- ☐ Removal from Annex III

Taxonomy

Class: Chondrichthyes

Order: Myliobatiformes

Family: Aetobatidae

Genus and Species: *Aetomylaeus bovinus*

Known Synonym(s): *Myliobatis bovina* Geoffroy St. Hilaire, 1817; *Myliobatis bonaparti* Duméril, 1865; *Pteromylaeus bovinus* (Geoffroy St. Hilaire 1817)

Common name:

English – Bull ray (Asfis); duckbill eagle ray

French - Aigle vachette

Spanish - Chucho vaca

Italian – Vaccarella

Arabic - بقرة راية

Inclusion in other Conventions:

Justification for the proposal:

The bull ray, *Aetomylaeus bovinus*, qualifies for listing in Annex II in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

This bentho- and semi- to epipelagic species is rarely recorded throughout the Mediterranean Sea, elsewhere it extends in southern eastern Atlantic from Morocco to South Africa, until the south-western Indian Ocean. The bull ray has a matrotrophic viviparous reproductive strategy and it exhibits low fecundity, 3–6 pups per litter after a gestation period of 5–6 months, therefore it is suspected to have limited productivity, similarly to other eagle rays. The bull ray appears to prefer

infralittoral muddy detritic and seagrass beds bottoms (<30 m), and it is exposed to be caught by inshore fishing gears, mainly purse seines and gillnets, occasionally by trawls. Its schooling behaviour is a factor that augment the risk of many individuals being caught in one single haul of trawls and gillnets.

Globally, in 2020, considering the declining catch trends and limited number of specimens recorded in trawl surveys and fisheries in several localities where it previously occurred, the large unmanaged fisheries that operate throughout its range and the suspected population reduction of 80% on the inferred three generation lengths (inferred to be about 51 years) it is assessed as Critically Endangered under criterion A2d (Jabado *et al*. 2021).

In Mediterranean, in 2016, considering the potential high catchability and the intense and unregulated fishing pressure across the bull ray's preferred habitats, the slow life history, paucity of records, and the suspected population reduction of at least 80% over the three generations (inferred to be about 45 years) the bull ray is assessed as Critically Endangered under criterion A2c (Walls and Buscher 2016).

If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedented prohibition measure for eagle rays. The enforcement of this measure should not cause any conflict with the fisheries sector, due to the non-commercial value of the species that is expected to be mostly discarded.

Biological data

Brief description of the species:

Identification

Disc transversally lozenge-shaped, about twice as wide as long. Tail about twice as long as disc, with a single, small dorsal fin on base originating far anterior to pelvic fins posterior margins, and with a long, serrated spine directly behind dorsal fin, after which the tail becomes rapidly thinner like a whiplash. Snout short but pronounced as a subrostral lobe that is narrowly rounded to a pointed tip. Front lobe of pectoral fin under snout (subrostral lobe) rather long and a little pointed in front. Middle row of teeth in upper jaw 6-8 times as broad as long. Dorsal fin originating before pelvic fin tips. Dorsal side of the disc brown with 7-8 pale transverse streaks whitish in juveniles, much less evident in adults; underside whitish, with tips of pectoral fins more or less brownish red.

Biology

The reproductive parameters may differ greatly between regions. The bull ray in Mediterranean reaches a size of 222 cm, but it is usually smaller (Dulcic *et al*. 2008; Ebert and Stehmann, 2013). Reproduction is matrotrophic viviparous, females mature at 83–100 cm DW and males at 80–100 cm DW (Capapé *et al*. 1995, Last *et al*. 2016). Females give birth to 3-6 pups per litter and size at birth of about 22-45 cm DW, after a gestation period of 5–6 months (Seck *et al*. 2002, Last *et al*. 2016). Some details on the reproductive cycle show that it last no less than one year, a block of the development of oocytes appears at the beginning of gestation and there seems to be an inability to ovulate soon after parturition; vitellogenesis start again when the embryos are practically at the end of their development (Seck *et al*. 2002). In South Africa, according to the length-age curve of Van der Elst (1988) bull rays are ~14 years old at ~180 cm DW/100 kg, therefore both sexes might mature at ~100 cm DW/10 kg. The IUCN global assessment infers the generation length (17 years) from a similar species (Martin and Caillet 1988; IUCN 2022).

It feeds mostly on hard-shelled bottom invertebrates like crabs and molluscs but also on demersal worms.

Distribution (current and historical):
The exact distribution of this species is uncertain, it is found throughout the Mediterranean Sea, but not in the Black Sea.

Capapé (1989) describes *Aetomylaeus bovinus* more frequently captured in the eastern basin than in the western. Historically reported as rare in Adriatic, more recently several individuals have been collected in north Adriatic (Dulcic, 2008). The bull ray was also reported off the coast of France by Moreau (1881), but no new records have been reported from this area so far, and throughout the North African shore, in Morocco (Collignon and Aloncle, 1972), Algeria (Dieuzeide et al., 1953) and Tunisia (Capapé and Quignard, 1975). Many recent records demonstrate the presence of this species in the northeastern Mediterranean.

Elsewhere, in the Eastern Atlantic it extends from off Morocco and Madeira, but not at Azores, northward along the Iberian Peninsula to the southern Bay of Biscay; southward along the West African to off South Africa, rare off Namibia and more common in the south-western Indian Ocean north to Zanzibar (Serena 2005; Ebert 2013).

Depth limits:
From coastal waters up to 100 m depth.

Countries of occurrence (Mediterranean):
Albania; Algeria; Bosnia and Herzegovina; Croatia; Cyprus; Egypt; France (more common in Corsica Island); Gibraltar; Greece; Israel; Italy; Lebanon; Libya; Malta; Monaco; Montenegro; Morocco; Palestine ; Slovenia; Spain; Syrian Arab Republic; Tunisia; Türkiye.

Population estimates and trends:
There are no species-specific time-series data available for the bull ray that can be used to estimate population reduction.

Between 1994 and 1999, there was not any specimen of this species caught in the International Trawl Survey in the Mediterranean (MEDITS) programme conducted in the entire northern Mediterranean basin (Baino *et al*. 2001). In 1948, 44 specimens were caught in only one haul in Adriatic Sea and after that event no other specimens had been caught in several scientific trawl surveys, analysed until 2005 (Ferretti *et al*. 2013). Similarly, from 1995 to 2006, no captures were recorded during trawl surveys in the Aegean Sea (Damalas and Vassilopoulou 2011) and from 1994 to 2015, only two specimens were recorded in the MEDITS programme in Iberian Peninsula and the Balearic Islands (Ramirez-Amaro *et al*. 2020).

More recently, an experimental trawl fishery in the Aegean Sea (Izmir Bay, Türkiye) reported bull ray as one of the least prevalent non-commercial species, with seasonal differences in the bycatch rate, 0.17% of the total catch weight during winter and 0.046% in spring, and it was not recorded in summer and autumn (Gurbet *et al*. 2013). In 2017, only one specimen (bycatch rate of 0.006 specimen per days at sea) was recorded from pelagic trawls in the Adriatic Sea (ICES-WGEF 2019).

The bottom trawl is not the ideal sampling tool for this mesopelagic species and the bull ray may not have been caught due to its lower trawl catchability compared to demersal species; when the by-catch rate of other gears is considered, this species is relatively more frequent (Carpentieri *et al*. 2021).

Other records of small numbers of this species have been published since 2000, suggesting that the bull ray can be considered a rare species but still occurring in Mediterranean:

- in 2001 one specimen in Rhode, caught with purse seine (Corsini-Foka 2009);
- in 2000, two specimens stranded on the beach, presumably a discard from gillnets and, in 2004, about 20 individual were sighted in the eastern Ionian Sea, Greece (Zogaris and Dussling 2010);
- in 2005, Dulcic *et al*. (2008) report several captures of bull rays from commercial trawl fisheries in the northern Adriatic Sea at about 20-30 m on muddy and detritic bottom. Nine out of 15 females were pregnant, suggesting the species is not vagrant but reproducing in this area.
- in 2009 one specimen caught in Mediterranean south-eastern Spain (Hernández-Orts et al. 2010);
- between 2010-2011, in Iskenderun Bay, Türkiye, 32 individuals caught by commercial gillnets, longlines and trawls, were collected and measured (Başusta *et al*. 2012);
- in 2016, three specimens caught with trawls in Izmir Bay, Türkiye (Akyol *et al*. 2017);
- in 2019, one individual caught by trawl off the coast of the Gökçeada Island in the Northern Aegean Sea.

Habitat (s):
Bentho- and semi- to epipelagic in tropical to warm temperate coastal waters between surf zone and moderate depth of 30 m, sometimes also farther offshore. In the past (30–40 years ago) it was relatively easy to find bull ray specimens in the free areas of seagrasses' beds in shallow waters at about 15–20 m depth in the northern Tyrrhenian Sea (Serena, pers. observ.).

Little information on habitat and ecology is available and most of the following comes from South Africa. *Aetomylaeus bovinus* is not confined to the bottom and is often seen on the surface (Van der Elst 1988), sometimes leaping from the water (Van der Elst 1988, Compagno *et al*. 1989, Smith 1991). It is sometimes found in small groups (Compagno et al. 1989). It tolerates greatly reduced salinities and also occurs in shallow bays, lagoons and estuaries (Ebert 2013). Several authors document a seasonal pattern of captures related to differences in water temperature, and sex segregation (Wallace 1967; Young 2001; Gurbet *et al*. 2013).

Threats

Existing and potential threats:
Fisheries represents the main threat for *Aetomylaeus bovinus*, as it is taken as bycatch in various commercial and artisanal fisheries, throughout its range in the Mediterranean Sea. Its schooling behaviour might expose this species to a high likelihood of large quantities being caught, intentionally or not, by trawl and gillnets in one haul. Due to its preference for shallow waters, soft bottom and seagrasses, it is likely susceptible to other stressors such as habitat degradation and pollution.

Exploitation:
There is no information on the catch of this species in targeted fisheries, but this species is susceptible to a variety of fishing gears, mainly purse seines, gillnets and longliners, but many accidental captures have been recorded with trawls as well. Mediterranean countries do not report this species in the official statistics (FAO-GFCM, 2022), the commercial value is presumably very low, and the accidental catches are likely to be discarded.

PROPOSED PROTECTION OR REGULATION MEASURES:

There are no species-specific conservation or management measures for this species in place in the Mediterranean Sea.

In Israel, in 2005, sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited-. Since 2018, enforcement seems somehow improved for sharks but is still inadequate for ray fishing. Cartilaginous fishes may not be consumed under Jewish kashrut law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

Although countries across its range have legislation concerning fisheries activities (including gear restrictions, and no-trawling zones in coastal waters), fisheries taking *Aetomylaeus bovinus* are generally unmanaged throughout large parts of the species' range and it is unlikely that fisheries pressure will decrease in the near future. If *Aetomylaeus bovinus* were to be listed on Annex II, to harmonize the Annexes, this provision should be considered for the similar species in the Order Myliobatiformes, *Myliobatis aquila* and *Rhinoptera marginata*.

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<table>
<tr><th colspan="3">Form for proposing amendments to Annex II and Annex III of the Protocol concerning specially Protected Areas and Biological Diversity in the Mediterranean</th></tr>
<tr><td colspan="2">Proposed by:
The Republic of France</td><td>Species concerned:
Alopias superciliosus (Lowe, 1841)
Amendment proposed:
■ Inclusion in Annex II
☐ Inclusion in Annex III
☐ Removal from Annex II
☐ Removal from Annex III</td></tr>
<tr><td colspan="2">Taxonomy
Class: Chondrichthyes
Order: Lamniformes
Family: Alopidae
Genus and Species: Alopias superciliosus
Known Synonyms: Alopecias superciliosus, Lowe 1841; Alopias profundus Nakamura, 1935
Common names:
English - Bigeye Thresher
Spanish - Zorro ojón
French – Requin renard à gros yeux
Arabic - العين كبير ثعلب
Italian – Squalo volpe occhi grosso
  </td><td>Inclusion in other Conventions:
CITES: Appendix II
CMS: Appendix II
ICCAT: Rec. 09-07; Rec 13-10</td></tr>
</table>

Justification for the proposal:
The bigeye thresher shark, *Alopias superciliosus*, qualifies for listing in Annex II in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

Alopias superciliosus is a highly migratory species occurring in the oceanic and coastal area, it is a circumglobally species in tropical and temperate seas (Ebert *et al.* 2021).

Life-history parameters and susceptibility to fisheries by-catch, coupled to a high at-vessel mortality, are the main vulnerability factors for this species. This species is especially vulnerable to fisheries activities as its epipelagic behavioural overlap with the range of many gillnet and longline fisheries. It inhabits the Mediterranean since a relatively short time, its rarity and lack of data for

many parts of its range prevent the inferences of its vulnerability due to other ecological or anthropogenic factors apart the fisheries (Serena *et al*. 2020).

The IUCN Red List global assessment conducted in 2019 reports the bigeye thresher as "Vulnerable", due to a population reduction by 30–49% over the last three generations (55.5 years) (Rigby *et al.* 2019). The IUCN regional assessment conducted in Mediterranean in 2016, considers *A. superciliosus* "Endangered" (Walls and Soldo 2016). Recognising that the species has been poorly documented in the region, instead of considering this species Data Deficient, the IUCN status was mostly assumed from the status of the congener common thresher *A. vulpinus,* which has undergone steep declines over the last century in the Mediterranean Sea. It is therefore probable that similar declines have also occurred for the bigeye thresher shark.

In the last decades, the records of this species were reported with increasing frequency, suggesting a colonization of the region, but these observations about the presence of the species are not adequate to indicate an increase of the species abundance. It is more likely that the species will face up severe threats across its range, where fishing effort is unlikely to stop or decrease in the near future, preventing any chance of further colonization. Considering these aspects, the current IUCN status "Endangered" respects a precautionary approach for its conservation.

If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as strengthening measure for the ICCAT regulation already implemented (Rec. 09-07), as both measures would prohibit retention of the big eye thresher.

In theory, the listing of *A. superciliosus* on Annex II and the current listing of *A. vulpinus* on Annex III would create a difficulty in the implementation of the different measures to which these two species are subject, prohibition for big eye thresher and data collection requirements for both the species. However, the identification of these two species should not create any impediment in the identification, due to the existing identification tools and the training activities that have already been carried out in Mediterranean. Therefore, as the GFCM Members shall implement species-specific actions for the congener common thresher *A. vulpinus*, it is likely that the attention to its identification might improve the species-specific recording of the two thresher species. Finally, the monitoring of the consistency of the population size for the two species is certainly required to confirm the effectiveness of these measures for their management and conservation.

Biological data

Brief description of the species:

Identification

Cylindrical body with very long curving tail, conical head with mouth extending behind eyes, two spineless dorsal fins, anal fin present. Snout quite long and bulbous with an evident and strong horizontal groove on each side of head above gills. Labial furrows absent; less than 25 rows of teeth in either jaw. Eyes very large, with orbits expanded onto the dorsal surface, space between them nearly flat. Two dorsal fins of which the second very small, the first one is closer to pelvic fins than to pectoral fins which are falcate with broad apices. Dark blue to purplish grey on the back; belly cream to grey, posterior edges of pectoral and pelvic fins dusky, light colour of abdomen not extending over pectoral fin bases (Compagno 2001).

Biology

Maximum total length about 460 cm TL in females, 410-421 cm in males. Litter up to 2 young, at birth 100 to 140 cm TL, with full term foetuses at 105 - 106 cm, free-swimming individuals down to 155 cm.

Males are immature up to 316 cm TL, they mature at about 279 to 300 cm. Females are immature up to 350 cm and maturing at about 294 to 355 cm. Estimated age at maturity is years 12-13 (females), 9-10 years (males) (Liu *et al.* 1998). It has very low fecundity (usually 2 pups/litter up to

100-130 in TL at birth). Size at birth ranges from 64-140 cm TL (Bauchot 1987; Golani 1996; Chen *et al.* 1997). Longevity is estimated between 15–20 years (Liu *et al.* 1998; Fernandez-Carvalho *et al.* 2015) Bigeye Thresher has a low intrinsic growth rate of population [r 0.009 (-0.001–0.018)] estimated by Cortes *et al.* (2015) in Atlantic Ocean.

Reported diet consists of pelagic bony fishes including scombroids, clupeoids and small billfishes, hake and cephalopods. This species uses its tail to stun the pelagic fishes on which it feeds. Observations from Sardinia show that the Bigeye Thresher sometimes interacts with swordfish, receiving fatal wounds (Vacchi and Serena 2000).

Distribution (current and historical):
Bigeye thresher is a species with a worldwide circumglobal distribution in tropical and temperate oceanic and coastal seas (Ebert *et al.* 2021). Bigeye thresher occurs in FAO fishing areas 21, 27, 31, 34, 37, 41, 47, 51, 57, 61, 67, 71, 77, 81, 87. It occurs predominantly in Western Atlantic, from north to south up to Florida, Texas and beyond: Mexico, Bahamas, Cuba, Venezuela, Brazil, Uruguay, and perhaps in Argentina but also in other areas. In details:

Eastern Atlantic: from eastern Portugal and Spain, Madeira, near Azores, Morocco, Canary Islands, Senegal, Guinea to Sierra Leone, Angola, South Africa (Western Cape), including the Mediterranean Sea.

Indian Ocean: South Africa (Eastern Cape and Kwazulu-Natal), Madagascar, Arabian Sea (Somalia), Gulf of Aden, Maldives, and Sri Lanka.

Western Pacific: Southern Japan (including Okinawa), Taiwan (Province of China), Viet Nam, between Northern Mariana Islands and Wake Island, North-western Submarine Rise, New Caledonia, Australia (North-western coast), New Zealand.

Central Pacific: Area between Wake, Marshall, Howland and Baker, Palmyra, Johnston, and Hawaiian Islands; north and south of Hawaiian Islands, off east of Line Islands, and between Marguesas and Galapagos Islands.

Eastern Pacific: USA (California), Mexico (Gulf of California) to approximately 15°S latitude off Peru, including west of Galapagos Islands, (Ecuador); possibly off northern Chile. Also, USA, north and south of Hawaiian Islands, off east of Line Islands, and between Marquesas and Galapagos Islands.

Mediterranean: It is likely that *A. superciliosus* entered in the Mediterranean Sea from the Atlantic Ocean via the Strait of Gibraltar (Serena *et al.* 2020). The presence of this species in the Mediterranean Sea was unknown until the early 1980s. Golani (1996) confirmed the species in Israeli waters. and Megalofonou *et al.* (2005) mentioned it for the Aegean Sea. Moreover, Kabasakal and Karhan (2007) mentioned the species also in the Marmara Sea. In recent years, increasing numbers of new records from the eastern Mediterranean (sometimes multiple captures) demonstrate that this species also penetrates widely to the east of Malta, occurring in the waters off Israel (Levantine basin), in the Aegean Sea off Türkiye and southern Greece, and off southern Crete.

Depth limits:
Epipelagic, oceanic and coastal in warm temperate and tropical waters, from the surface to 955 m, mostly > 100 m (Ebert *et al.* 2021).

A tagging study of two *A. superciliosus* (one from Hawaii and the other from the Gulf of Mexico) indicates strong diel vertical migration (Weng and Block 2004). These sharks spent most of the nigh time in waters warmer than 20°C and commonly spent eight or more hours during the daytime

in waters cooler than 10°C, requiring them to be eurythermal. Based on acoustic telemetry studies, Nakano *et al.* (2003) report distinct daily vertical migrations observed in the Eastern Central Pacific. These observations allowed the studies of the movements of some sharks that staying at 200 to about 500 m depth during the day and at 80 to 130 m at night. More recently, Coelho *et al.* (2015) recorded marked diel vertical movements of 15 specimens tagged in the tropical northeast Atlantic, with most of the daytime spent in deeper colder water (mean depth = 353 m, mean temperature = 10.7 °C) and nighttime spent in warmer water closer to the surface (mean depth = 72 m, mean temperature = 21.9 °C).

Countries of occurrence (Mediterranean):
Mediterranean: Albania; Algeria; Bosnia and Herzegovina; Croatia; Cyprus; Egypt; France (Corsica); Gibraltar; Greece; Israel; Italy; Lebanon; Libya; Malta; Monaco; Montenegro; Morocco; Slovenia; Spain; Syrian Arab Republic; Tunisia; Türkiye.

Population estimates and trends:
No global population estimates are available for bigeye thresher, however, the population is unlikely to be small. No Mediterranean population estimate is available.
Trejo (2004) conducted a global population genetic study of bigeye thresher that supported links in the population structure between Indo-Pacific and Atlantic populations, but not among populations spanning the entire Indo-Pacific Ocean. However, due to the preliminary nature of these data, and low sample size throughout the study, these results cannot be relied upon to confirm one or more genetically distinct stocks of the common or bigeye thresher shark.

- In the **Atlantic Ocean**, an analysis of observer data found the trend in bigeye thresher abundance to be relatively stable from 1992−2014. However, the exploitation of this stock began at least two decades before these series began.
- In the **Indian Ocean**, the only available information was for catch rather than catch rate (catch per unit effort CPUE) and thresher shark genus (all species) instead of for the bigeye thresher.
- In the **Western Central Pacific**, a standardized CPUE series for the thresher genus for 1996−2014 showed a slight decline in the most recent three years possibly due to late reporting but excluded the important Hawaiian longline observer data. A standardized CPUE series from the Hawaiian longline fishery, which operates in one of the areas where bigeye thresher is most abundant, was generally stable with a relatively recent increase in the catch rate over the 1995−2014 period.
- In **Mediterranean** no data are available on catch trends and this species has been poorly documented.

In the last twenty years, records of this species were reported with increasing frequency (Mancusi *et al.* 2020). Various authors do not exclude that the species may have a stable population in the Mediterranean Sea, though this species is much rarer than the congener *A. vulpinus* (Serena *et al.* 2020). Data available in the official FAO-GFCM Statistics in Mediterranean refer to the common thresher *A. vulpinus*, reported in small quantities (<1 tonnes/year) by France and Italy (FAO-GFCM 2021). Similarly, in the ICCAT Database, few countries, EU-España, EU-Malta, EU-France, EU-España, Chinese Taipei (NCC) and Japan report less than 1 tonnes for year of nominal catches of *A. superciliosus*.

Habitat (s):
Found in coastal waters over the continental shelves, sometimes close inshore in shallow waters, and on the high seas in the epipelagic zone far from land; also caught near the bottom in deep water on the continental slopes. Ranges from the surface and in the intertidal to at least 500 m deep and has been recorded at 723 m deep (Nakano *et al.* 2003), mostly below 100 m depth (Ebert *et al.* 2021).

Mediterranean observations from fisheries dependent records are typically from offshore continental shelf waters.

Threats

Existing and potential threats:

The bigeye thresher is caught globally as target and bycatch in commercial and small-scale pelagic longline, purse seine, and gillnet fisheries (Serena 2021). Its epipelagic habitat mostly overlaps with the range of commercial longline fisheries in which it is readily caught in offshore and high-seas waters (Camhi *et al.* 2008). It is also captured in coastal longlines, gillnets, trammel nets, and sometimes trawls, particularly in areas with narrow continental shelves (Camhi *et al.* 2008, Martinez-Ortiz *et al.* 2015, Temple *et al.* 2019, Fauconnet *et al.* 2019; IUCN, 2022).

In 2008, an Ecological Risk Assessment conducted by ICCAT ranked the bigeye thresher as the most vulnerable of 16 Atlantic elasmobranch species in terms of overfishing from longlines. The life history of this species, including a late age at maturity (12-13 years) and very low fecundity (average two pups per litter), make it highly vulnerable to overexploitation. *Alopias superciliosus* has the lowest annual rate of population increase of all thresher sharks and is therefore particularly at risk from depletion in fisheries.

At-haulback fishing mortality for this species, estimated as percentage of dead specimens at time of haulback in pelagic fisheries targeting swordfish and by-catching pelagic sharks in the Indian Ocean, was about 68%, relatively hight respect to other pelagic shark species (Coelho *et al.*, 2011). Where there are prohibitions on retention of thresher sharks, they are still caught and information suggests that mortality rates may be in the order of 50% (Clarke 2011; Coelho *et al.* 2011, Coelho *et al*. 2012; Gallagher *et al.* 2014).

The bigeye thresher generally spends time near the surface at night where it is exposed to fisheries capture but it likely has some refuge during the day, when it generally dives to greater depths than those at which most commercial tuna fleets operate (Coelho *et al.* 2015).

Since it documented presence in Mediterranean in the 1990s, the big eye thresher has been mostly a bycatch of the artisanal pelagic fisheries, such as swordfish and tuna, trammel and gillnet fisheries. *Alopias superciliosus* has been poorly documented in Mediterranean and it is so far considered scarce or rare (Serena *et al.* 2020). As a result, no data are available on catch trends or areas of aggregations for this species in the region, therefore currently it is not possible to infer other potential biological or ecological factors that would diminish or augment the concern for the status of conservation of this species.

Exploitation (Mediterranean):

This species is documented as bycatch of the semi-industrial fisheries (swordfish and other pelagic fisheries) of southern Spain, Morocco, Algeria, Sicily and Malta, and of artisanal trammel and gillnet fisheries elsewhere in the Mediterranean Sea (Bauchot 1987; Serena 2021)). Evidence from offshore pelagic fisheries in southern Sicily and Malta indicate that *A. superciliosus* is caught in unknown numbers each year, but routinely discarded at sea.

Proposed protection or regulation measures:

Species specific management and conservation measures in force

- Family Alopiidae is listed on Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea, which urges States to cooperate over the management of these species.
- In 2009, considering the results of the Ecological Risk Assessment conducted in 2008 that ranked the Bigeye Thresher as the most vulnerable of 16 Atlantic elasmobranch species in terms of overfishing from longlines, the ICCAT Commission adopted the Recommendation 09-07 on the

conservation of thresher sharks caught in association with fisheries in the ICCAT convention area. Some points of this recommendation relevant for Mediterranean countries are the following:

- Contracting Parties (CPS) shall prohibit, retaining onboard, transhipping, landing, storing, selling, or offering for sale any part or whole carcass of bigeye thresher sharks (*Alopias superciliosus*) in any fishery (…);
- CPCs shall require vessels flying their flag to promptly release unharmed, to the extent practicable, bigeye thresher sharks when brought along side for taking on board the vessel. (…).
- CPCs shall require the collection and submission of Task I and Task II data for *Alopias* spp other than *A. superciliosus* in accordance with ICCAT data reporting requirements. The number of discards and releases of *A. superciliosus* must be recorded with indication of status (dead or alive) and reported to ICCAT in accordance with ICCAT data reporting requirements (…).

- In 2011, in Spain all thresher shark species were listed on the Spanish List of Wild Species under Special Protection (Spanish Royal Decree Nº139/2011) resulting in prohibition of capture, injury, trade, import and export.
- In 2014, all thresher shark species were listed on Appendix II of the Convention on Migratory Species (CMS). CMS provides a global platform for the conservation and sustainable use of migratory animals and their habitats bringing together the States through which migratory animals pass. Parties that are Range States of migratory species listed in Appendix II shall endeavour to collaborate for the conservation the species.
- In 2016, all thresher shark species were added to Appendix II of the Convention on International Trade in Endangered Species (CITES). Trade in products of Appendix II species by CITES Parties have to be accompanied by a certificate demonstrating the legality and sustainability of its capture, overall that the trade will not be detrimental to the survival of the species in the wild.

Other relevant measures

- In 2017, the common threshes *A. vulpinus* was listed on Appendix III of the SPA/BD Protocol.
- In 2018, the GFCM Commission adopted the Recommendation GFCM/42/2018/2 on fisheries management measures for the conservation of sharks and rays in the GFCM area of application. Among others, CP shall:
  - Ensure that information on fishing activities, catch data, incidental catches, release and/or discarding of sharks species listed either in Annex II or Annex III of the SPA/BD Protocol, is recorded by the shipowner in the logbook or in an equivalent document, in line with the requirements of Recommendation GFCM/35/2011/1
  - Prohibit the finning of sharks and requiring retention measures to be adopted as well as requiring fins to be naturally- attached for all shark landing;

In 2021, the GFCM Commission adopted the Recommendation GFCM/44/2021/16 on additional mitigation measures for the conservation of elasmobranchs in the Mediterranean Sea, applying to all elasmobranch species in the Mediterranean Sea listed in Annex II and III of the SPA/BD Protocol and includes the adoption of species-specific actions for the common thresher (*Alopias vulpinus*):

- Assess incidental (bycatch) and targeted catch rates of the common thresher in all fisheries
- Assess survival rate of bycaught common threshers in the different fisheries
- Identify common threshers' critical habitats
- Identify fishing technology solutions to reduce bycatch and increase post-release survival rate
- Compile any fisheries management measure in place (including spatial) that can positively affect the conservation of the common threshers, if any
- Assess priority market's demand (domestic, export, etc.), if any.

In 2005, in Israel, sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited-. Since 2018, enforcement seems somehow improved for sharks. Cartilaginous fishes may not be consumed under Jewish kashrut law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as strengthening measure for the ICCAT regulation already implemented (Rec. 09-07), as both measures would prohibit retention of the big eye thresher. In theory the listing of *A. superciliosus* on Annex II and the current listing of *A. vulpinus* on Annex III would create a difficulty in the implementation of the different measures to which these two species are subject, prohibition for big eye thresher and data collection requirements for both the species. However, the identification of these two species of thresher sharks should not create any difficulty, due to the existing identification tools and the training activities that have already been carried out in Mediterranean. Moreover, as the GFCM Members shall implement species-specific actions for the congener common thresher *A. vulpinus*, the attention to its identification might improve the species-specific recording of the two thresher species.

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Form for proposing amendments to Annex II and Annex III of the Protocol concerning specially Protected Areas and Biological Diversity in the Mediterranean

Proposed by :
The Republic of France

Species concerned: *Bathytoshia lata* (Garman, 1880)

Amendment proposed:
- ■ Inclusion in Annex II
- ☐ Inclusion in Annex III
- ☐ Removal from Annex II
- ☐ Removal from Annex III

Taxonomy

Class: Chondrichthyes

Order: Myliobatiformes

Family: Dasyatidae Jordan & Gilbert, 1879

Genus and Species: *Bathytoshia lata*

Known Synonym(s): *Trygon lata* Garman, 1880; *Dasyatis lubricus* Smith, 1957; *Dasyatis thetidis* Ogilby in Waite, 1899

Common name:

English: Brown stingray

French: raie brune

Spanish: n.a.

Italian: Trigone spinoso

Arabic: راية لاسِعة مشوكة

Inclusion in other Conventions:

Justification for the proposal:
The brown stingray, *Bathytoshia lata*, qualifies for listing in Annex II in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

One of the largest marine and brackish water stingrays distributed widely throughout the eastern Atlantic Ocean from Bay of Biscay to Angola, including the Mediterranean Sea. The large size (maximum size 260 cm disc width) of this species and its low fecundity (two to six pups per litter) makes it intrinsically vulnerable to depletion.

In the Southwest Atlantic and Mediterranean, *Batytoshia lata* is a rare bycatch in artisanal and trawl fisheries. It is likely that the abundance of this species in catches has declined, due to the intense trawl fisheries operations at depths of 50 to 800 m, mostly overlapping with the bathymetric range of the species.

The assessment conducted in Mediterranean in 2016 for the IUCN Red List assigned the species, still considering the species *Dasyatis centroura*, to the category Vulnerable under criteria A2d. In accordance with the regional assessment, the global IUCN assessment conducted in 2020 confirmed the brown stingray as Vulnerable A2d.

If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedent prohibition measure for stingrays in Mediterranean. Although this species deserves the Annex II protection, it would benefit from an Annex III listing, for the species-specific activities foreseen for Annex III species in the GFCM Recommendation GFCM/44/2021/16. On the contrary in Annex II there is the risk that if becoming prohibited, this species might be easily illegally landed and traded with the generic name "skates or rays". To harmonise the Annexes, equal decisions should be accorded to the similar species *Dasyatis pastinaca* and *Dasyatis marmorata*.

Biological data

Brief description of the species:

Identification

Formerly present in Mediterranean as *Dasyatis centroura*, the taxonomy of the species changed after the revision made by Last *et al*. (2016), who confirmed *Dasyatis centroura* as synonym, considered valid the genus *Bathytoshia* and made a clear distinction regarding the geographical distribution of *Bathytoshia centroura* (Mitchill 1815), which is distributed only in the western Atlantic, and *Bathytoshia* lata (Garman 1880) distributed in the eastern Atlantic, including the Mediterranean where it is considered valid species .

The brown stingray has a snout obtuse; disc rhomboid, front and back margins relatively straight; tail twice as long as disc length, with a deep membranous fold below, no fold or ridge above. Floor of mouth with 5-6 fleshy papillae. Dorsal side with large tubercles or bucklers along midline and middle of disc in larger specimens, as well as large thorns along top and sides of tail. Dorsal surface olive-brown, ventral side whitish.

Biology

Maximum disc width (DW) observed up to 260 cm for a male from the southern Adriatic (Dulcic *et al*. 2003), usually 100-130 cm. Capapé (1993) reported for the Mediterranean a size at first maturity for males of 80 cm DW, and from 66 to 100 cm DW for females. This species is ovoviviparous (aplacental viviparity), different values of the size at birth are reported: from 34 to 37 cm (McEachran and de Carvalho 2002) and from 8 to 13 cm (Notarbartolo and Bianchi 1998; Bini 1967). Capapé (1993) reported the gestation period lasting a minimum of four months with fecundity ranging from 2 to 6 pups per litter.

Distribution (current and historical):

The species occurs in the Eastern Atlantic, from southern France to Angola, from Madeira and Morocco northward to southern Bay of Biscay including the Mediterranean Sea, where the species is most common off Algeria, Tunisia, and Sicily, absent in the Black Sea (Whitehead *et al*. 1984). In the Indo-Pacific it is widespread, from southern Africa to Hawaii.

It has a widespread but patchy distribution and its reporting under different names may have precluded its accurate identification in the past.

Depth limits:
The brown stingray occurs in a range of depth between surface up to 800 m, usually between 40–200 m.

Countries of occurrence (Mediterranean):
Albania; Algeria; Bosnia and Herzegovina; Croatia; Cyprus; Egypt; France; Greece; Israel; Italy (Sicilia, Sardinia, Italy (mainland)); Lebanon; Libya; Malta; Monaco; Montenegro; Morocco; Palestine; Slovenia; Spain (Spain (mainland), Baleares); Syrian Arab Republic; Tunisia; Türkiye.

Population estimates and trends:
In the Mediterranean Sea, the Brown Stingray is considered rare with few records over the last few decades (Capapé 1993, Serena *et al*. 2020). Capapé (1993) report the species relatively common along the North African coast, especially off Tunisia, but records are limited.

This species was recorded in one of 6,336 hauls conducted during the International Bottom Trawl Survey in the Mediterranean (MEDITS) program in the western, central, and eastern Mediterranean Sea, from 1994 to 1999 at depths of 10–800 m (Baino *et al*. 2001; Follesa *et al*. 2019).
In the Balearic Islands, a similar scientific survey conducted from 1994 to 2015 one individual was recorded at 58 m depth (Ramírez-Amaro *et al*. 2020).

In Italian seas, data from the 22 trawl surveys conducted by the program Gruppo Nazionale Risorse Demersali (GRUND) between 1985 and 1998, showed that the percentage presence of this species was one of the lowest recorded (0.83%) and it was only captured in the South Ligurian Sea and Sardinian waters (Relini *et al*. 2000). In particular, in Adriatic Sea, analysis of various trawl datasets from 1948 and 2005 four individuals were recorded (Ferretti *et al*. 2013).

Off the coast of Türkiye, about 5 individuals have been recorded in the surveys conducted between 2000 and 2017 in Iskenderun Bay, the Gulf of Antalya, and the Aegean Sea (Akyol *et al*. 2017).

Habitat (s):
Demersal or benthic species living over sandy and muddy bottoms, sometimes near hard bottoms of the continental shelves, usually from shallow water to about 200 m.

threats

Existing and potential threats:
The continental shelf and upper slope of the Mediterranean Sea have been highly exploited in the last 60 years, with intensive commercial trawling occurring at depths ranging from 50 to 700-800 m (Colloca *et al*. 2003). As a result, there has been increasing concern about changes in the abundance and diversity of elasmobranchs in this basin and decreases in the abundance and biomass of some species throughout the last decade have been recorded in highly exploited areas such as north-western Mediterranean (Aldebert 1997; Massuti and Moranta 2003). The detailed information of the brown stingray has been hampered by the different taxa names assigned to this species, however the life history intrinsic vulnerability coupled with the intense trawl fisheries operations overlapping with the bathymetric range of the species, support the suspicion that also the brown stingray population has declined from historical levels.

Exploitation:
In the Mediterranean, the brown stingray is caught as bycatch of the artisanal fisheries, bottom set longline, gillnet, handline and bottom trawl (Fischer *et al*. 1987; Carpentieri *et al*. 2021).

proposed protection or regulation measures:
In 2005, in Israel sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited. Since 2018, enforcement seems somehow improved for sharks but is still inadequate for ray fishing. Cartilaginous fishes may not be consumed under Jewish kashrut

law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

There are no species-specific conservation or management measures for this species in place in the Mediterranean Sea. Although countries across its range have legislation concerning fisheries activities (including gear restrictions, and no-trawling zones in coastal waters), fisheries taking *Bathytoshia lata* are generally unmanaged throughout large parts of the species' range and it is unlikely that fisheries pressure will decrease in the near future.

If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedent prohibition measure for stingrays in Mediterranean. Although the brown stingray deserves the Annex II protection, it would benefit from an Annex III listing, due to the species-specific activities foreseen for Annex III species in the GFCM Recommendation GFCM/44/2021/16. On the contrary in Annex II there is the risk that if becoming prohibited, this species might be easily illegally landed and traded with the generic name "skates or rays".
To harmonise the Annexes, equal decisions should be accorded to the similar species *Dasyatis pastinaca* and *Dasyatis marmorata*.

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<table>
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<tr><td rowspan="2">Proposed by
The Republic of France</td><td colspan="2">Species concerned: Dasyatis marmorata (Steindachner, 1892)</td></tr>
<tr><td colspan="2">Amendment proposed:
☐ Inclusion in Annex II
■ Inclusion in Annex III
☐ Removal from Annex II
☐ Removal from Annex III</td></tr>
<tr><td colspan="2">Taxonomy
Class: Chondrichthyes
Order: Myliobatiformes
Family: Dasyatidae
Genus and Species: Dasyatis marmorata
Known Synonym(s): Trygon pastinaca var. marmorata Steindachner, 1892
Common name:
English - Marble stingray
French - Pastenague marbrée
Spanish - Raja látigo jaspeada
Italian – Trigone marmorato
Arabic - راية لاسعة رخامية
  </td><td>Inclusion in other Conventions:</td></tr>
</table>

Justification for the proposal:
The marbled stingray *Dasyatis marmorata* qualifies for listing in Annex III in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

Dasyatis marmorata is a demersal ray that occurs in the Mediterranean Sea and the Eastern Central Atlantic ranging from the Levantine Basin and North African coast to the Republic of the Congo. Due to taxonomic uncertainty and its easy misidentification with the other stingray of the region, data on distribution and trends of this species have not properly reported in the past. Its occurrence is limited to Tunisia and the Levantine region, where recently has been more frequently recorded.

The marble stingray reaches a maximum size of about 75 cm TL. It is found in coastal waters over soft and muddy bottoms, resulting to be more vulnerable to small-scale inshore fisheries than to offshore trawling.

In Mediterranean, the marbled stingray has most recently been assessed for the Mediterranean IUCN Red List in 2016 and listed as Data Deficient. Globally, *Dasyatis marmorata* has most recently been assessed for the IUCN Red List in 2020 and listed as Near Threatened under criteria A2d, due to the level of intense and large unmanaged fisheries that operate throughout its range and the coastal anthropogenic factors impacting the habitat of the species.

Dasyatis marmorata would benefit from an Annex III listing, for the species-specific activities foreseen for Annex III species in the GFCM Recommendation GFCM/44/2021/16. An Appendix III listing, if properly implemented, will result in a specie specific data collection with the objective to produce more and higher quality by-catch data, allowing the proper conservation of these populations and the strengthen of the collaboration for its monitoring. To harmonise the Annexes, equal decisions should be accorded to the similar species *Bathytoshia lata* and *Dasyatis pastinaca*.

Biological data

Brief description of the species:

In Mediterranean, the taxonomic status of the marbled stingray *Dasyatis marmorata* had long been uncertain, due to its similarity with the congener *D. chrysonota*. In 2000, a genetic study critically revised the specimens from the Mediterranean Sea and Eastern Atlantic, confirming *Dasyatis marmorata* as a tropical Atlantic species that has rapidly spread throughout the Mediterranean Sea, and *Dasyatis chrysonota* distributed in the South-eastern Atlantic Ocean and the South-western Indian Ocean (Quignard and Tomasini 2000; Last *et al*. 2016).

Identification

Disc rhombic, about 1.2 times as wide as long; anterior margins dully concave; not projecting snout tip. Tail slender with 1 serrated and poisonous sting on its base. Low longitudinal fold and short on ventral side of tail. Dorsal side of the disc smooth, sometimes a few enlarged denticles in mid-dorsal line. Mouth almost straight, small, and blunt oral teeth arranged in pavement; a transverse row of 3 to 5 fleshy papillae on floor of mouth. dorsal side of the disc with a typical pattern of blue mottling on a golden-brown background; ventral side white.

Biology

Maximum lengths, 74.5 cm TL and 40 cm DW (tail about 70-75 cm long if undamaged) (Özgür Özbek *et al*. 2015).

Males mature from 33 to 35 cm disc width (DW) (estimated total length (TL) at 50% maturity 32.9 cm); females mature from 40 to 41 cm (estimated TL at 50% maturity 40.2 cm) (Capapé 1990; Capapé *et al*. 1996; Serena 2005). The reproduction strategy is aplacental viviparity, fecundity of 2–4 pups (up to 6) (Valadou *et al*. 2006), gestation length of 2–4 months and size at birth of about 16 cm DW.

Distribution (current and historical):

The first finding of *Dasyatis marmorata* was recorded in the southern part of Tunisia by Maurin and Bonnet (1970) and later confirmed in Tunisia by Capapé and Zaouali (1992, 1995) in the Gulf of Gabes and El Biban lagoon, and by El Kamel (2009) in the Lagoon of Bizerte (reported as *D. chrysonota*). Bilecenoğlu (2014), Ergüden *et al*. (2014), Yemişken *et al*. (2014) and Özgür Özbek *et a*l. (2015) reported records of the species caught off the Mediterranean coast of Türkiye, from Adana, Mersin, İskenderun and Antalya, at depths ranging from 17 to 100 m. Other records come from off the Israel (Golani and Capapé 2004), Lebanon (Lteif M. pers. comm.) and Greece (Chatzispyrou *et al*. 2020). Chaikin *et al*. (2020) report *Dasyatis chrysonota* in Irsael, but as stated

above, this species is currently not valid in Meditarranean, therefore these observations might correspond to *Dasyatis marmorata*.

Depth limits:
Demersal species occur in a range of 12–65 m up to about 100 m depth of the continental shelf (Capapé and Desoutter 1990; Serena 2005; Özgür Özbek *et al*. 2016).

Countries of occurrence (Mediterranean):
Limited to Tunisia and the Levantine region, recorded in Israel, Lebanon, Cyprus, Türkiye, and Greece.

Population estimates and trends:
There is no information on the size of the population of this species within the Mediterranean. Data from a bottom trawl survey conducted seasonally between August 2009 and April 2010 in the Gulf of Antalya reports *Dasyatis marmorata* rarely caught respect to *D. pastinaca* with mean abundance of 2.54±0.75 (ind./km2), biomass of 2.56±0.92 (kg/km2) and frequency of occurrence of about 11% in the 116 hauls carried out. D. marmorata was found in all seasons, the highest abundance and biomass in spring and the highest frequency of occurrence in spring and autumn **(**Özgür Özbek *et al.* 2016**)**.

Habitat (s):
The marble stingray is found in coastal waters over soft and muddy bottoms of the continental shelf down to about 100 m depth, often in bays and off sandy beaches (Serena 2005).

threats

Existing and potential threats:
The main threats to the species are fisheries and habitat degradation. The species preference for shallow waters makes it more vulnerable to artisanal inshore fisheries operating with multiple fishing gears including gillnet, set nets, tangle nets, and trammel nets, than to offshore trawling.

Exploitation:
This species is accidentally and rarely caught, its commercial value and consumption are not known. Similarly, to the other stingrays (e.g. D. pastinaca) few species-specific landing data are available and this species is suspected to be frequently discarded. It can be easily misidentified with other stingrays, and therefore eventually landed with a generic name of “ray”.

proposed protection or regulation measures:
In Israel, in 2005, sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited. Since 2018, enforcement seems somehow improved for sharks but is still inadequate for ray fishing. Cartilaginous fishes may not be consumed under Jewish kashrut law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

No other species-specific conservation or management measures are in place in the Mediterranean Sea. Some countries across its range have legislation concerning fisheries activities (e.g., gear restrictions and no-trawling zones) that could reduce the risk of this species to further decline, however, the fisheries taking *Dasyatis marmorata* are generally unmanaged throughout large parts of the species’ range, and it is improbable that fisheries pressure and the anthropogenic factors impacting the habitat of the species will decrease in the near future.

Assessed as Data Deficient in Mediterranean (Bradai *et al*. 2016) and Near Threatened in 2020 globally (Jabado *et al*. 2020), *Dasyatis marmorata* would benefit from an Annex III listing, for the species-specific activities foreseen for Annex III species in the GFCM Recommendation GFCM/44/2021/16. An Appendix III listing, if properly implemented, will result in a specie

specific data collection with the objective to produce more and higher quality by-catch data, allowing the proper conservation of these populations and the strengthen of the collaboration for its monitoring. To harmonise the Annexes, equal decisions should be accorded to the similar species *Bathytoshia lata* and *Dasyatis pastinaca*.

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The Republic of France</td><td colspan="2">Species concerned: Dasyatis Pastinaca (Linnaeus, 1758)</td></tr>
<tr><td colspan="2">Amendment proposed:
■ Inclusion in Annex II
☐ Inclusion in Annex III
☐ Removal from Annex II
☐ Removal from Annex III</td></tr>
<tr><td colspan="2">Taxonomy
Class: Chondrichthyes
Order: Myliobatiformes
Family: Dasyatidae
Genus and Species: Dasyatis pastinaca
Known Synonym(s): Pastinaca laevis Gronow in Gray, 1854; Pastinaca olivacea Swainson, 1839; Raja pastinaca Linnaeus, 1758
Common name:
English - Common stingray
French - Pastenague commune ou raie pastenague
Spanish - Raja látigo común
Italian – Trigone/Pastinaca
Arabic - راية لاسعة شائعة
 
</td><td>Inclusion in other Conventions:</td></tr>
</table>

Justification for the proposal:
The common stingray, *Dasyatis pastinaca*, qualifies for listing in Annex II in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

The common stingray is a demersal brackish to marine water species, found over sandy and muddy bottoms from shallow waters to a depth of approximately 200 m, more commonly found in shallow waters (<50 m) and occurring in the eastern Atlantic and Mediterranean Sea, from the shore to about 200 m depth. Due to its depth preferences, this species is more vulnerable to small-scale inshore fisheries than to offshore trawling. The reproductive biology of relatively better know relatively with respect to other stingrays, in particular there are evidence of aggregation events in several regions of Mediterranean Sea, highlighting the risk of exposure of many individuals being caught in few hauls of trawls and gillnets during the reproductive season.

This species appears to be less common than it once was in the northwestern Mediterranean, even if some analyses of comparison of scientific surveys show contrasting trends in the Adriatic Sea. So far, the potential protection foreseen by the marine reserves of the Balearic Islands has not evidenced a positive effect on the shark and ray populations. In the Levant region, the species is regulated in Israel waters, but the implementation of the ban of fisheries for batoids seem not implemented appropriately.

At regional level, the common stingray has most recently been assessed for the IUCN Red List in Mediterranean in 2016. Considering the scale and intensity of unmanaged fisheries that operate throughout its range, its preference for shallow waters, its susceptibility to fisheries pressure, and noted declines in rays in general across its range, it has been listed as Vulnerable under criteria A2d.

Similarly, at global scale *Dasyatis pastinaca* has most recently been assessed for the IUCN Red List in 2020 and has been listed as Vulnerable under criteria A2bd.

If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedent prohibition measure for stingrays in Mediterranean. Although this species deserves the Annex II protection, it would benefit from an Annex III listing, for the species-specific activities foreseen for Annex III species in the GFCM Recommendation GFCM/44/2021/16. On the contrary in Annex II there is the risk that if becoming prohibited, this species might be easily illegally landed and traded with the generic name "skates or rays". To harmonise the Annexes, equal decisions should be accorded to the similar species *Bathytoshia lata* and *Dasyatis marmorata*.

Biological data

Brief description of the species:

Identification

The common stingray *Dasyatis pastinaca* has a disc rhombic with the anterior margins relatively straight, snout tip not projecting; tail slim, whip-like, its length (if not damaged) about 1.5 times as long as disc, with a serrated sting on its base. Mouth nearly straight; 22 to 46 rows small, blunt teeth, settled in pavement, 5 bulbous papillae on floor of mouth. Dorsal side mostly smooth, a mid-dorsal row of a few thornlets from nape to root of tail, reducing in number with growth. Dorsal side uniformly greyish to greenish brown and ventral side white with dark margins.

Biology

Maximum disc width (DW) range between 69.5–140 cm, common at 60 cm DW and maximum reported total length of about 250 cm (if tail undamaged) (Bauchot 1987, Fisher *et al.* 1987, Notarbartolo and Bianchi 1998).

Reproduction strategy is a placental viviparity, the size at maturity estimated by Capapé *et al.* (2003) is 38 cm DW in females and 32 cm DW in males; by Ismen (2003) 28 cm DW/60 cm TL in females, and 26 cm DW/ 50 cm TL in males; and recently by Yigin *et al.* (2021) estimating the TL 50% combined for females and males attained at 62.5 cm TL. Females reproduce twice a year (Notarbartolo and Bianchi 1998) with gestation length of 4 months, litter sizes of 3–9 pups and size-at-birth of ~ 8–12 cm DW and 20 cm TL (Ismen 2003, Ebert and Stehmann 2013, Last *et al.* 2016). The age-at-maturity is estimated of 7 years, and a maximum age of 16 years (Yigin and Ismen 2012).

In the northern Adriatic, reproduction takes place between September and May, during which pregnant females approach the coast, and pupping occurred between July and August (Vatova 1928; Bini 1967). Data from scientific trawl surveys conducted off the Balearic Islands reports relative higher catch rates in shallow waters from late spring to early summer, with two main events in late June, suggesting that these high abundances and balanced sex ratios could be related

with reproductive movement patterns (Morey *et al*. 2006). In the eastern Mediterranean, in agreement with Bini (1967) parturition has reported to occur in early July, when young specimens are commonly found in shallow waters over sandy bottoms (Ismen 2003). Survey conducted using breath-hold diving along fixed transects, in very shallow waters of about 7 m depth, on sandy and rocky bottoms, showed a strong seasonality pattern of aggregations, with differences in sex ratio, active mate seeking and courtship behaviour, during March to June 2017–2018 along Israeli coast, Eastern Levantine basin (Chaikin et al., 2020).

Yigin and Ismen (2012) estimated von Bertalanffy growth parameters of the common stingray from the North Aegean Sea suggesting that males attain a slightly larger asymptotic total length (Linf 188.49 cm) than females (Linf 119.96 cm) and grow more slowly (K= 0.065 year-1 and 0.086 year -1, respectively). Girgin and Başusta (2016) estimated slightly different growth parameters from Iskenderun Bay, Türkiye: disc width-weight relationships, W=0.0272*DW3.06 for females and W=0.0247*DW3.08 for males, and von-Bertalanffy growth parameters, indicating larger asymptotic disc width (DW∞= 127.06cm) for females than for males (DW∞= 114.54cm) and growth parameters: k= 0.058 year -1, to= -1.508 and k=0.041 year -1, to= -3.632 for females and males, respectively.

Common stingray feed mainly on demersal and benthic animals, such as crustaceans, cephalopods, clams, polychaetes and fish (Notarbartolo and Bianchi 1998, Whitehead *et al*. 1984). In a study by Ismen (2003), crustaceans represented more than 99% of the diet when pooling all size classes, but teleost fish were of increasing importance in the diet of larger stingrays.

Distribution (current and historical):
This species occurs in the Eastern Atlantic, from southern Norway and the UK to South Africa, including the Canary Islands, Madeira, and throughout the Mediterranean and Black seas (Bilecenoglu *et al*. 2002, Serena 2005; Ebert and Dando 2021). Common stingray also occurs in western Baltic Sea, and Celtic Sea regarded as a vagrant from more southern waters of these seas (ICES, 2005).

In Mediterranean, data from scientific surveys shows that *Dasyatis pastinaca* has a higher presence in the western-central Mediterranean area off the coasts of Morocco, Spain, France, Italy, mostly around Corsica Islands, Sardinia and Sicily (Baino *et al*. 2001) and Balearic Islands (Morey *et al*. 2006). More recently data from the levant region confirmed the regular occurrence of the species in Türkiye and Israel (Ismen 2003; Chaikin *et al*. 2020).

Depth limits:
The common stingray is frequent from shallow waters (5 m) to a depth of approximately 200 m, more common between 20–35 m (Whitehead *et al*. 1984). Bottom trawl surveys conducted in Mediterranean, suggest that it is more common in waters <50 m depth (Relini *et al*. 2000; Massuti and Moranta 2003; Morey *et al*. 2006) with depth distribution of the biomass index of 1¬10 kg/km² between 0–100 m, and 0.1-1 kg/km² between 100–200 m (Baino *et al*. 2001).

Countries of occurrence (Mediterranean):
Albania; Algeria; Bosnia and Herzegovina; Croatia; Egypt; France (mainland and Corsica); Gibraltar; Greece; Israel; Italy; Lebanon; Libya; Montenegro; Morocco; Palestine; Slovenia; Spain (Baleares, mainland and North African Territories); Syrian Arab Republic; Tunisia; Türkiye.

Population estimates and trends:
There is no information on the size of the population of this species within the Mediterranean, but scattered data are available for short periods in different locations. The Mediterranean International Trawl Surveys (MEDITS) from 1994–1999 revealed a low frequency of occurrence for *Dasyatis pastinaca* (Baino *et al*. 2001) as it appeared in 49 hauls, representing the 0.5% of the total number of hauls. A similar estimate of presence has been estimated by Follesa *et al*. (2019). Low value of

presence might be due to the survey methodology, covering depths from 50–800 m, while this species is more common in shallower waters less than 50 m depth.

In the Adriatic Sea, comparison of surveys conducted in 1948 (Hvar) and 1998 (MEDITS), both up to 400 m depth, suggest that the abundance of common stingray may have decreased during this period. The frequency of occurrence of common stingray on the shelf according to the 1948 survey was ~0.5, whereas the frequency of occurrence on the shelf in the 1998 survey was <0.1 (Jukic-Peladic *et al*. 2001). On the contrary, Ferretti *et al*. (2013) report 1.13-fold increase of common stingray in Adriatic Sea.

In the Balearic Islands, surveys conducted in three marine reserves during 2000–2004 with trammel nets, in very shallow waters over mixed bottoms of seagrass meadows, sand and rock, show *Dasyatis pastinaca* as the most important species, representing about the 50% in biomass of the elasmobranch species caught, and the 20% in biomass of the total fish caught during the study, with CPUE values ranging between 3.1 ± 1.5 for the total surveys conducted in spring.

Data from a bottom trawl survey conducted seasonally between August 2009 and April 2010 in the Gulf of Antalya reports *Dasyatis pastinaca* relatively common respect to the other stingrays investigated, with mean abundance of 55.32±8.52 (ind./km2), biomass of 137.77±24.29 (kg/km2) and frequency of occurrence of about 56% in the 116 hauls carried out. The mean abundance and biomass were relatively higher in summer followed by spring, autumn and winter. The frequency of occurrence was higher in spring following by summer, autumn, and winter Özgür Özbek *et al*. (2015).

Habitat (s):
Dasyatis pastinaca is a demersal brackish to marine water species, found over sandy and muddy bottoms from shallow waters to a depth of approximately 200 m, although it seems to be most abundant in inshore waters; it can sometimes inhabit areas close to estuaries and over rocky reefs (Whitehead *et al*. 1984).

threats

Existing and potential threats:
The main threats to the species are represented by fisheries and habitat degradation. This species is bycatch of small-scale and semi-industrial fisheries, operating with bottom trawl, gillnet, beach seine, bottom longline and trammel nets, targeting cuttlefish, mullets, bass and flatfishes. Professional fishers use to cut off the tails of stingrays after the hauling, also prior of discarding, and it is unclear to which extent this affects the discard survival (Serena 2021).
The species preference for shallow waters (<50 m) makes it more vulnerable to small-scale inshore fisheries than to offshore trawling. Small scale fisheries operating in shallow waters is an important component of the European fishing fleet, fishing relatively high quantities of common stingray (Stergiou *et al*. 2006; Serena 2021), that is estimated to amount to more than 40% of the elasmobranch biomass captured in the trammel net fishery off the Balearic Islands (Morey *et al*. 2006). Moreover, the evidence of breeding aggregations exposes the species to the risk of many individuals being caught in one single haul of trawls and gillnets during the reproductive season.

Exploitation:
The common stingray has a very low commercial value in European countries. Few species-specific landing data are available as this species is frequently discarded, can be easily misidentified with other stingrays, and therefore eventually landed with a generic name of “ray”.

Proposed protection or regulation measures:
The common stingray is protected within the Balearic Island marine reserves. Although artisanal fishing is allowed within these marine protected areas (MPAs), if caught, this species must be released alive.

In Israel, in 2005, sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited. Since 2018, enforcement seems somehow improved for sharks but is still inadequate for ray fishing. Cartilaginous fishes may not be consumed under Jewish kashrut law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

In 2016, Croatia listed the common stingray under the "Regulation on strictly protected species" officially declaring the strictly protected species on the territory of the Republic of Croatia.
No other species-specific conservation or management measures are in place in the Mediterranean Sea. Some countries across its range have legislation concerning fisheries activities (e.g., gear restrictions and no-trawling zones) that could reduce the risk of this species to further decline, however, the fisheries taking *Dasyatis pastinaca* are generally unmanaged throughout large parts of the species' range, and it is improbable that fisheries pressure and the anthropogenic factors impacting the habitat of the species will decrease in the near future.

Even in MPAs well established, as it is the case in Balearic Islands, there are still some uncertainties on their role of protecting the common stingrays and in general sharks and rays populations (Morey *et al*. 2006). This is likely due to the small-scale fisheries allowed to operate in the area, but it is worth noting that the study reporting these findings was conducted for a period considered not sufficient to detect significant changes in relative abundances.

If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedent prohibition measure for stingrays in Mediterranean. Although this species deserves the Annex II protection, it would benefit from an Annex III listing, for the species-specific activities foreseen for Annex III species in the GFCM Recommendation GFCM/44/2021/16. On the contrary in Annex II there is the risk that if becoming prohibited, this species might be easily illegally landed and traded with the generic name "skates or rays". To harmonise the Annexes, equal decisions should be accorded to the similar species *Bathytoshia lata* and *Dasyatis marmorata*.

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<table>
<tr><th colspan="2">Form for proposing amendments to Annex II and Annex III to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean</th></tr>
<tr><td>Proposed by
The Republic of France</td><td>Species concerned: Hexanchus griseus (Bonnaterre,1788)

Amendment proposed:
☐ Inclusion in Annex II
■ Inclusion in Annex III
☐ Removal from Annex II
☐ Removal from Annex III</td></tr>
<tr><td>Taxonomy
Class: Chondrichthyes
Order: Exanchiformes
Family: Exanchidae
Genus and Species: Hexanchus griseus
Known Synonym(s): Squalus griseus, Bonnaterre (ex Broussonet) 1788; Squalus vacca, Bloch & Schneider 1801; Notidanus monge, Risso 1827
Common names:
English - Bluntnose sixgill shark
French - Requin griset
Spanish - Cañabota gris
Italian – Pesce vacca
Arabic - سنة أبو كلب

  </td><td>Inclusion in other Conventions:</td></tr>
</table>

Justification for the proposal:
The bluntnose sixgill shark (*Hexanchus griseus*) qualifies for listing in Annex III in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

Hexanchus griseus is a deep-benthic, littoral and semi pelagic shark, with a wide range of distribution, even if discontinuous, in boreal, temperate and tropical seas. In Mediterranean it is infrequently reported across much of its range, and relatively more abundant at depth between 200 and 800 m. Life-history parameters are the main vulnerability factors for this species, making it unable to sustain both professional and recreational fisheries for long periods, as demonstrated in other regions where populations have been depleted.

The IUCN Red List global assessment conducted in 2019 reports the bluntnose sixgill shark as Near Threatened (close to meeting Vulnerable A2bd) (Finucci *et al*. 2020), based on population

reduction and current levels of exploitation. The Mediterranean assessment conducted in 2016 reports this species as Least Concern (Soldo and Bariche 2016), for the probable negligible level of interaction with fishing activity, due to the wide depth range that exceeds the reach of fisheries and low occurrence in reports of catch and landings. It is therefore likely to have some refuge at depth in parts of its range and this factor might diminish the concern for the status of conservation of this species.

However, the evidence of schooling related to reproduction or predatory behaviour, coupled with the presence of juveniles mostly distributed at lower depth and the daily patterns of vertical migrations, might augment the risk of bycatch on particular fraction of the population and consequently the risk of becoming a near threatened species in the future.

The inclusion of *H. griseus* in Appendix III, will be a first step toward the respect of the principle of the UNLOS, asking "*to cooperate directly or through the appropriate existing international organizations for the conservation of straddling fish stocks and highly migratory species*"…"*to ensure the long term-sustainability of these stocks, including measures for their conservation and management*". In this direction, an Appendix III listing, if properly implemented, will result in a species-specific data collection with the objective to produce more and higher quality by-catch data, allowing the proper conservation of these populations and the strengthen of the collaboration for its monitoring.

In addition, the sharpnose sevengill shark (*Heptranchias perlo*), a similar species of the Order Hexanchiformes, assessed in 2016 as Data Deficient in Mediterranean, is already listed in Appendix III; therefore including *H. griseus* would also guarantee the proper implementation and harmonization of the Appendices.

biological data

Brief description of the species:

Identification

Six peculiar gill-slits. Moderately slender (juvenile) to stout (adult), head broad, snout relatively short and blunt. Upper jaw with 4 rows of front teeth, in line with lateral teeth, lower jaw with 6 rows of lateral teeth. Spineless dorsal fin rather far back, mostly above anal fin base; pectoral fins with almost straight posterior margin; lower caudal lobe moderately developed. Dorsal side dark brown to greyish, belly lighter. Up to about 5 m in total length.

Biology and life history

The reproduction strategy is aplacental viviparity, this species bears very large litters numbering from 22–108 young, with size at birth ranging between 65-74 cm TL. Males mature at about 315 cm and females at about 420 cm. Female age-at-maturity is estimated at 26.5 years and maximum age at 80 years (COSEWIC 2007), but this estimate has not been validated. The reproductive cycle is possibly biannual with a 12-month resting period followed by 12 month gestation period (Ebert and Stehmann 2013). There is evidence of multiple paternities in this species with as many as nine males siring a single female's litter (Larson *et al*. 2011).

Pupping grounds apparently occur on the upper slopes and outer continental shelves. Since this species preys on conspecifics opportunistically, some mechanism of separation of larger and smaller individuals undoubtedly occurs (Ebert 1994). As for many species of deep-water sharks, it is unknown whether this species segregates by sex. A capable predator, the bluntnose sixgill shark feeds on a wide variety of animals including other sharks (it is known to attack hooked conspecifics, which it sometimes follows to the surface from depth) and a variety of bony fishes, as well as many types of invertebrates including cephalopods and crustaceans. It also eats carrion and sometimes seals (Ebert 1994).

Distribution (current and historical):
Hexanchus griseus is widely but discontinuously distributed in temperate and tropical seas of the continental and insular shelves of Pacific, Atlantic (including Mediterranean) and Indian Oceans, apparently avoiding the tropics. It occurs along Atlantic coasts northward to southern Norway and to Iceland (rare) to south to Mauritania; not recorded from Baltic. This species is relatively more common in Mediterranean. The bluntnose six-gill shark was reported in Maltese waters, in the northern Tyrrhenian Sea, in southern Adriatic Sea, northern Ionian Sea, south Sicily waters, along the coasts of Tunisia and in the Turkish waters. It is also regularly captured along the coast of Lebanon (Mancusi *et al*. 2020). In particular, on the Calabrian coast it is commonly found in both Ionian and Tyrrhenian waters (Sperone et al. 2012), it appears to be relatively abundant in the Adriatic Sea (Soldo 2006), it is confirmed in the Sea of Marmara (Kabasaskal 2009) and this shark is also distributed and reproduces off the Algerian and Tunisian coasts (Capapé *et al*. 2003). In the Black Sea, only one individual incidentally caught by gillnet is documented by Kabasakal (2006).

Depth limits:
The bluntnose sixgill shark occurs from the surface to at least 2,000 m, on continental and insular shelves and upper slopes (including sea mounts). Depth range depends on geographic location. In Mediterranean, data from the MEDITS survey show a depth distribution of the biomass index ranging from about 0.1 kg/km^2 between 50 and 100 m to 0.1–10 kg/km2 from 200 to 800 m of depth (Baino *et al.* 2001). However, outside the Mediterranean, it has been recorded at much greater depths, even 2,490 m (Ebert *et al*. 2013) and it is frequent in shallow estuarine waters (Andrews *et al*. 2009).

Countries of occurrence (Mediterranean):
Albania; Algeria; Bosnia and Herzegovina; Croatia; France; Greece; Italy; Libya; Malta; Monaco; Montenegro; Morocco; Slovenia; Spain; Tunisia.

Population estimates and trends:
There is no population or sub-population structure available for this species in the Mediterranean.

Habitat (s):

It is a deep-benthic, littoral and semi pelagic shark, not known to be epipelagic. Young tend to be found in shallow waters often just off the shore, but as they grow, they move into successively deeper waters. In estuarine waters, they are found in shallow waters. In the Sea of Marmara, Türkiye, adult individuals have been mostly captured over the deeper parts of shelf and upper slope in the north, whereas young individuals have been captured in shallower waters (Kabasakal 2003). Adults and sub-adults tend to follow diurnal patterns of vertical range, sitting deep on the bottom by day and coming toward or to the surface at night to feed. Pupping grounds apparently occur on the upper slopes and outer continental shelves.

threats
Existing and potential threats:
Due to its broad depth range and relative sluggishness, this shark has often been captured incidentally in fisheries for other species. It is taken by handline, longline, gillnet, traps, trammel net, and both pelagic and bottom-trawls (Carpentieri *et al*. 2021).

The ban on fishing below 1,000 m depth in the Mediterranean region coupled with the species' wide depth range mean that it might occur largely outside the reach of fisheries. It is therefore likely to have some refuge at depth in parts of its range and this factor might diminish the concern for the status of conservation of this species. However, the presence of juveniles mostly distributed at lower depth and the diurnal patterns of occurrence might augment the risk of bycatch on particular fractions of population.

In 2019, a shoal of 21 individuals of *H. griseus* was landed at the fishing port of Kelibia, Tunisia, caught by bottom longline targeting groupers. Ben amour *et al*. (2019) discussed this event as the demonstration of that the species does not face to a drastic decline; however, they also noted that the capture of this shoal indicates that *H. griseus* could not be exclusively considered as solitary shark and the species can live in shoal probably during reproductive period or to check for preys, as already observed by Ebert (1986) and Capapé *et al*. (2004). This evidence of schooling behaviour exposes the species to the risk of many individuals being caught in one single haul of longlines. *Hexanchus griseus* is widely believed to be unable to sustain targeted fisheries for long periods as well as to sustain recreational fisheries. This have been demonstrated in Northeast Pacific and Arabian Seas, where populations have been depleted.

Exploitation:
Small-scales fisheries seasonally operating and targeting this species in the Mediterranean is documented by Celona *et al*. 2005.

Traditionally, when captured this species is often smoked in the Pacific Northwest and Italy to produce a fine cured product, usually for export to European markets. Additionally, it has been used for salted and dried food products, as well as fish meal and pet foods. Uses of fins may exist but are unreported. In Tunisia, this species is presumably not targeted due to the low economical value of the flesh and the fact it is not greatly appreciated for local consumption.

Proposed protection or regulation measures:
This species is defined as migratory species and listed in “Annex I. Highly migratory species of the United Nations Convention on the Law of the Sea (UNCLOS)”, therefore countries should cooperate for the monitoring and assessment of its status.

In European waters, this species is regulated by the Council Regulation (EC) No 1967/2006, setting a limitation of catch for EU vessels, therefore, in Mediterranean, only accidental by-catches of bottom-set nets of no more than 3 specimens may be retained on board or landed.

In Israel, in 2005, sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited-. Since 2018, enforcement seems somehow improved for sharks. Cartilaginous fishes may not be consumed under Jewish kashrut law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

In 2016, Croatia listed the bluntnose sixgill shark under the "Regulation on strictly protected species", officially declaring the strictly protected species on the territory of the Republic of Croatia.

Moreover, in Mediterranean Sea there is a ban on deep water fishing below 1 000 m depth, which may offer this species refuge from fishing activity throughout much of its potential bathymetric range, even if the enforcement of this ban is still unclear. At National level, Croatia claims to strictly protect this and other elasmobranch species, again the enforcement of this measure is unclear.

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Form for proposing amendments to Annex II and Annex III of the Protocol concerning specially Protected Areas and Biological Diversity in the Mediterranean

Proposed by:
The Republic of France

Species concerned: *Myliobatis aquila* (Linnaeus, 1758)

Amendment proposed:
- ■ Inclusion in Annex II
- ☐ Inclusion in Annex III
- ☐ Removal from Annex II
- ☐ Removal from Annex III

Taxonomy

Class: Chondrichthyes

Order: Myliobatiformes

Family: Myliobatidae

Genus and Species: *Myliobatis aquila*

Known Synonym(s): *Raia aquila* Stephan, 1779; *Myliobatis cervus* Smith, 1935

Common name:

English - Common eagle ray

French - Aigle commun

Spanish - Aguila marina

Italian – Aquila di mare

Arabic - عربي :عقاب البحر

Inclusion in other Conventions:

Justification for the proposal:

The common eagle ray, *Myliobatis aquila*, qualifies for listing in Annex II in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

This semi-pelagic ray occurs from the North Sea to South Africa in the eastern Atlantic, including the Mediterranean Sea, and off Kenya and South Africa in the Western Indian Ocean. It appears to be less common in the Mediterranean Sea and possibly the eastern Atlantic.

The common eagle ray has a matrotrophic viviparous reproductive strategy, age-at-maturity and generation time are not known, but it exhibits low fecundity, 3–7 pups per litter after a gestation period of 6–8 months, therefore it is suspected to have limited productivity, similarly to other eagle rays.

The common eagle ray appears to prefer inshore waters (<50 m), although it has been reported from depths of up to 537 m off southern Africa. Fishery operations mostly overlap with the bathymetric range of the common eagle ray, susceptible to be caught by a variety of fishing gears, including bottom trawls, purse seines, gillnets and pole and lines. This species often swims in groups close to the bottom and this schooling behaviour exposes it to the risk of many individuals being caught in one single haul of trawls and gillnets.

Historically, a decline of this species is evident in the time series data from demersal fishery landings and demersal trawl surveys in the Gulf of Lions, north-western Mediterranean Sea, in the late 1970s. It was recorded in extremely low numbers during northern Mediterranean-wide trawl surveys from 1994–1999, and in low quantities in other scientific surveys conducted in Iberian Peninsula and the Balearic Islands from 1994 to 2015.

Few data are currently available to assess trends in other areas of the Mediterranean Sea but given that fishing pressure is high throughout this species' bathymetric range, declines are also likely to have occurred elsewhere.

Globally, in 2021 this species was assessed by IUCN as Critically Endangered (under criteria A2bd), considering the declining catch trends and limited number of specimens recorded in trawl surveys and fisheries in several localities where is previously occurred, the level of intense and large unmanaged fisheries that operate throughout its range, its aggregating behaviour, its limited productivity, and the estimated reduction over of >80% over the past three generation lengths (about 36 years) based on abundance data and actual levels of exploitation.

In Mediterranean, in 2016 this species was assessed as Vulnerable (under criterion A2b) as it is suspected to have declined by at least 30% over three generations (about 33 years).

If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedented prohibition measure for eagle rays. Moreover, due to the concern off Mediterranean for the fishing effort increase in the Eastern Central Atlantic and the suspect of high levels of Illegal, Unreported, and Unregulated (IUU) fishing in this region (Gutiérrez *et al*. 2020), the Mediterranean might represent a refuge for the future of the common eagle ray.

Biological data

Brief description of the species:

Identification

Front lobe of pectoral fins under snout (subrostral lobe) rather short and obtuse. Middle row of teeth in upper jaw 4 -6 times as long as broad, distance between fifth gill-slits a little more than distance between nostrils. Dorsal fin with narrow base, less than distance between nostrils, its origin behind pelvic fin tips by 1-3 times its base.

Disc rhombic to lozenge-shaped, about 2 times as broad as long; thick. Head elevated, distinct from disc; snout projecting and rounded, subrostral lobe, below anterior part of head, broadly rounded and connected to pectoral fins by continuous borders alongside of head; pectoral fins wing-like with their outer corners narrowly angular; pelvic fins single-lobed, broad and distinctly extending posterior to pectoral posterior margins. Tail slender and whip-like, much longer than disc (up to 2.5 times longer than disc), with a small dorsal fin on its base, in front of one (rarely 2) long and serrated sting. Five gill slits on ventral side. Eyes and spiracles on sides of head. Mouth almost straight, a transverse row of fleshly papillae on floor of mouth; usually 7 series of broad, plate-like teeth; the teeth of the median series much larger than the lateral ones. Nasal curtain greatly expanded, its posterior margin slightly emarginate and fringed. Dorsal and ventral surfaces smooth,

sometimes with an irregular mid-dorsal band of denticles from nape to tail in large individuals. Large adult males develop a large tubercle in front of orbits.

Dorsal side uniform yellowish to greenish brown; ventral side white with reddish brown margins; tail blackish behind sting.

Biology

In the Mediterranean Sea, *M. aquila* reaches a maximum size of 150 cm disc width (DW) and 260 cm total length (TL) (Fischer *et al*. 1987; Notarbartolo and Bianchi 1998; Otero *et al*. 2019; Ebert and Dando 2021). Off southern Africa, this species reaches a maximum size of 79.1 cm DW, Matrotrophic viviparous (Whitehead *et al*. 1984; Last *et al*. 2016); life-history parameters vary regionally: in Mediterranean, females mature at 60 cm disc width (DW) and males at 40 cm DW (Fischer *et al*. 1987, Serena 2005; Ebert and Dando 2021); in southern Africa, males mature at 31.8 cm DW and females at 42.5 cm DW. Females give birth to 3–7 pups per litter, after a gestation period of 6–8 months (Fischer *et al*. 1987; Whitehead *et al*. 1984; Serena 2005; Ebert and Dando 2021). Reproduction in Mediterranean takes place between September and February (Notarbartolo and Bianchi 1998). There is no information on this species' age-at-maturity and maximum age, therefore generation length from a similar species is inferred to be 11–12 years (Martin and Cailliet 1988; IUCN 2022; Serena *et al*. 2016).

Common eagle ray feeds on invertebrates such as crabs, molecrabs and bivalves, and on small bony fishes.

Distribution (current and historical):
Eastern Atlantic from British Isles to South Africa, including Azores, Madeira, Canary Islands, Cape Verde Islands and São Tomé and Principe. in southwestern Indian Ocean (Natal coast). South Africa north to Kenya, including western Mascarenes. It ranges throughout the Mediterranean Sea, but it is not reported in the Black Sea.

Depth limits:
Found in coastal waters over the continental shelf, mainly inshore, generally from shoreline to about 100 m depth. This species occurred in low numbers in the MEDITS surveys at depths of 10–200 m (Baino *et al*. 2001; Follesa *et al*. 2019).

Countries of occurrence:
This species is more common in the southern part of its range (southern Africa) and appears to be less common in European waters. In Mediterranean the countries of occurrence are Albania; Algeria; Bosnia and Herzegovina; Croatia; Cyprus; Egypt; France; Gibraltar; Greece; Israel; Italy; Lebanon; Libya; Malta; Montenegro; Morocco; Palestine; Slovenia; Spain; Syrian Arab Republic; Tunisia; Türkiye.

Population estimates and trends:
Scattered data are available to assess trends in the Mediterranean Sea. Historically, an analysis of trends from commercial landings and from bottom trawl survey in the Gulf of Lions, France, northwestern Mediterranean Sea from 1970–1995 showed a clear decrease of *M. aquila* during the study period, and after the late 1970s it remained absent (Aldebert 1997).

Data from experimental surveys confirmed that decreasing trends were most likely related to the continuous increasing fishing intensity, resulting in a general decline in stocks under a not changing patterns of effort in the fishery. From 1994–1999, the common eagle ray was recorded in low numbers (37 of 6,336 scientific survey hauls) during northern Mediterranean-wide trawl surveys (Baino *et al*. 2001). Similar results have been confirmed by Follesa *et al*. (2019). An experimental trawl fishery in the Aegean Sea (Izmir Bay, Türkiye) revealed that this species was one of the more

prevalent non-commercial species, representing up to 5.9% of the total catch weight during the summer months and 4.3% in the autumn (Gurbet *et al*. 2013). In scientific surveys in the western Mediterranean (Iberian Peninsula and the Balearic Islands) from 1994 to 2015, about 200 specimens were recorded of which the majority around the Balearic Islands (Ramirez-Amaro et al. 2020). In 2017, a by-catch rate of 0.478 (specimen per days at sea) was estimated for pelagic trawls, from observations conducted in the Ionian Sea, and a bycatch rate of 0.075 (a total of 13 specimens caught) from pelagic trawls in the Adriatic Sea (Bonanomi *et al*. 2018; ICES 2019). From 2009 to 2015, Bonanomi *et al*. (2018), report an increase of the standardized catches in the North Adriatic Sea, which constitutes an important portion of the trawling bycatch. The assumption is that the non-commercialization of this species determines the discard of the specimens caught at sea, allowing the maintenance of the population and in some cases even its increase. These findings are in contrast to the Mediterranean situation and since the information on this species remains scarce, further work to understand the real impact of the incidental catches on the mortality of this species is needed.

Habitat (s):
Marine, demersal and semi pelagic, the common eagle ray is found inshore and offshore, it appears primarily to occur in inshore, coastal areas (<50 m), readily entering shallow lagoons and estuaries, although it has been reported from depths of up to 537 m in some areas (Whitehead *et al*. 1984). In the Mediterranean Sea it is reported to occur on sandy and muddy substrates, to 200 m depth (Notarbartolo and Bianchi 1998; Baino *et al*. 2001; Serena 2005). They can often be found solitary or in groups swimming close to the bottom, sometimes on the Posidonia beds, likely to migrate long distances (Auteri *et al*. 1986).

Threats

Existing and potential threats:
Fisheries represents the main threat for *M. aquila*, as it is taken as bycatch in various in commercial and artisanal fisheries, throughout its range in the Mediterranean Sea and it is likely taken in artisanal fisheries in the tropical Atlantic. Its schooling behaviour exposes it to a high likelihood of large quantities being caught, intentionally or not, by trawl and gillnets in one haul (Diop and Fossa 2011, Ebert and Stehmann 2013; Carpentieri *et al*. 2021,).

The inshore soft-substrate habitats preferred by rays are threatened by habitat degradation for coastal development and pollution.

Exploitation:
There is no information on the catch of this species in targeted fisheries, but this species is susceptible to a variety of fishing gears, including bottom trawls, purse seines, gillnets and longliners. Fisheries increased or remained stable in both effort and capacity in the Mediterranean Sea during the last decades (Cavanagh and Gibson 2007, Davidson *et al*. 2016; Spedicato *et al*. 2019), the continental shelf and upper slope are subject to high levels of exploitation, down to a depth of 800 m, meaning that fishery operations mostly overlap with the bathymetric range of the common eagle ray (Massuti and Moranta 2003). Even if not exploited or traded commercially, this species is still sometimes observed on fish markets, sold as generic ray (WWF SafeShark Project 2019). Since 2011, Croatia reports an average of 14 tonnes/year of nominal catches of *M. aquila* caught in Adriatic. In 2018-19, about 3 tonnes were officially reported by Italy in Adriatic. A decreasing trend in landing statistics is reported by Spain for the Balearic Division, from 45 tones in 2005 to about one tone in 2019 (FAO-GFCM 2021).

Proposed protection or regulation measures:
There are no species-specific conservation or management measures for this species in place in the Mediterranean Sea.

In Israel, in 2005, sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited-. Since 2018, enforcement seems somehow improved for sharks but is still inadequate for ray fishing. Cartilaginous fishes may not be consumed under Jewish kashrut law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

Although countries across its range have legislation concerning fisheries activities (including gear restrictions, and no-trawling zones in coastal waters) that might reduce the risk for the species to further decline, fisheries taking *Myliobatis aquila* are generally unmanaged throughout large parts of the species' range and it is unlikely that fisheries pressure will decrease in the near future.
If the listing in Annex II of the SPA/BD Protocol was implemented effectively, its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedented prohibition measure for eagle rays. Moreover, due to the concern off Mediterranean for the fishing effort increase in the Eastern Central Atlantic and the suspect of high levels of Illegal, Unreported, and Unregulated (IUU) fishing in this region (Gutiérrez *et al*. 2020), the Mediterranean might represent a refuge for the future of the common eagle ray.

Lastly, if *Myliobatis aquila* were to be listed on Annex II, to harmonize the Annexes, this provision should be considered for the similar species in the Order Myliobatiformes, *Aetomylaeus bovinus* and *Rhinoptera marginata*.

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Form for proposing amendments to Annex II and Annex III to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean

Proposed by:
The Republic of France

Species concerned: *Pteroplatytrygon violacea (Bonaparte, 1832)*

Amendment proposed:

- ☐ Inclusion in Annex II
- ■ Inclusion in Annex III
- ☐ Removal from Annex II
- ☐ Removal from Annex III

Taxonomy

Class: Chondrichthyes

Order: Myliobatiformes

Family: Dasyatidae

Genus and Species: *Pteroplatytrygon violacea*

Known Synonym(s): *Trygon violacea*, Bonaparte 1832; *Trygon purpurea*, Smith in Müller & Henle 1841

Common names:

English - Pelagic stingray

French - Pastenague violette

Spanish - Raja látigo violeta

Italian – Trigone viola

Arabic - راية لاسعة بنفسجية

Inclusion in other Conventions:

Justification for the proposal:

The pelagic stingray, *Pteroplatytrygon violacea*, qualifies for listing in Annex III in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

The pelagic stingray is widespread circumglobally and through the Mediterranean Sea, and it is the only species of stingray that occurs in pelagic, oceanic waters. It has a viviparous reproductive

strategy, and it exhibits a fecundity that is relatively higher with respect to other stingrays, but still low when considering that it gives birth to 4-13 pups after a gestation period of 2-4 months. The *Pteroplatytrygon violacea* is exposes to high catchability with artisanal fishing gears, in particular with longlines and it is therefore frequently caught by tuna and swordfish longlines. It is mostly discarded with post- discard survival rates likely to be low because they suffer serious damages of the mouth and the jaws.

Global IUCN assessment conducted in 2019, report abundance trends appearing stable, increasing in some region and declining (about 40%) in others, with an apparent resilience to fisheries. It is therefore assessed as Least Concern, "with the caveat that catches should continue to be monitored". In Mediterranean, the last IUCN assessment conducted in 2016 assigned the status of Least Concern as it reported similar findings and evaluations. Moreover, some concern is related to the consistency of reporting of the pelagic stingray in fisheries statistics, advising on the urgent need of proper monitoring.

Even if this species is assessed as Least Concern by IUCN both globally and in Mediterranean, an eventual increase of fishing effort in pelagic fisheries, owing to decreasing abundance of target species (swordfish and tunas), will result in an increase in catches of this species and associated high discard mortality in some areas, with the risk of becoming a near threatened species in the future.

There are no species-specific conservation or management measures in place in the Mediterranean Sea, however the pelagic stingray is listed in the "ICCAT species", as it is defined to be "elasmobranchs that are oceanic, pelagic, and highly migratory". The ICCAT Commission shall be responsible for studying these species, therefore, the pelagic stingray might become object of species-specific data collection with the objective to produce more and higher quality by-catch data, allowing the proper conservation of these populations.

The inclusion of *Pteroplatytrygon violacea* in Appendix III will result in a better harmonization between ICCAT and GFCM Recommendations in Mediterranean, and, if properly implemented, it would help strengthening the collaboration for its monitoring.

biological data

Brief description of the species:

Identification

Disc shape nearly triangular or trapezoid due to convex anterior margins forming an almost even arc, with very short snout broadly rounded. Tail long 2.5–3.0 times as long as disc, with serrated spines and a short and low membranous fold on underside, originating at the level of the spines, with sometimes a ridge above. Floor of mouth with 10–12 broad-based papillae. Upper surface of the disc dark, ranging from dark purple to dark greenish blue; ventral side similar or slightly lighter. This species reaches a maximum size of 96.0 cm disc width (Ebert 2003).

Biology and life history

Females reach maturity at 39–50 cm DW and males at 35–50 cm DW (Wilson and Beckett 1970; Mollet *et al*. 2002; Forselledo *et al*. 2007; Neer 2008; Junior and Rotundo 2012; Veras *et al*. 2014; Last *et al*. 2016). Females mature at 3 years, males mature at 2 years and longevity is about 10 years (Wilson and Beckett 1970; Mollet *et al*. 2002; Neer 2008).

The reproduction strategy is viviparous with histotrophy and the gestation period is less than 2-4 months (Ranzi and Zezza 1936; Tortonese 1956; Wilson and Beckett 2002; Forselledo *et al*. 2007). Females give birth to 4–13 pups per litter (average 6) (Ebert 2003; Neer 2008; Tortonese 1956; Fisher *et al*. 1987) and new-born measure approximately 14.3–24.1 cm DW (mean range) (Mollet 2002; Mollet *et al*. 2002).

Few observations are available describing the pattern of migration. In the Mediterranean Sea, copulation takes place in spring and females move inshore during summer to give birth (Tortonese, 1956; Whitehead *et al*. 1984) and females are supposed to give birth before the rays migrate to warmer water and this has been historically recorded in the Bay of Naples (Lo Bianco 1909; Ranzi, 1933; Mollet 2002). This can also be directly related to the by-catches recorded by. Indeed, pelagic stingray by-catch presents eco-geographical and temporal distribution patterns linked with summer season and fishing activity over continental shelf. Different eco-geographical and gear-type parameters heavily influence over the CPUE of pelagic stingray (Baez 2015). Moreover, Santana-Hernández et al. (2011) and Domingo et al. (2005) suggested the correlation between sea surface temperature and by-catch CPUE.

The migration pattern appears to be different in the Pacific Ocean, where the pelagic stingray give birth in winter in warmer waters near the equator before migrating to higher latitudes (Mollet 2002). In the Southwest Atlantic, the population existing off Brazil possibly carries out its reproductive cycle in water southeast of Brazil and Uruguay on the slope and in oceanic waters, migrating towards the tropical zone to give birth (Forselledo *et al*. 2007).

Diet consists primarily of planktonic crustaceans in the form of euphausiids and amphipods. Other food items include jellyfish, squid, octopus, shrimp, and small pelagic fishes such as herring and mackerel.

Distribution (current and historical):
This stingray is widespread, in circumtropical to temperate waters of the Pacific, Atlantic and Indian Oceans, between 52°N-50°S and 167°W-180°E (Mollet 2002), also throughout the Mediterranean (Ebert and Stehmann 2013).

Depth limits:
Usually found in the first 100 m, occasionally to 240 m, and it has been reported to 381 m (Mollet 2002, Weigmann 2016).

Countries of occurrence (Mediterranean):
Algeria; Croatia; Egypt; France; Greece; Israel; Italy; Libya; Morocco; Slovenia; Tunisia.

Population estimates and trends:
The population structure, migratory patterns and reproduction cycles are not well known throughout most of this species' range. There is evidence of the complexity of the populations structure of *Pteroplatytrygon violacea*, for the presumed existence of discrete population and differences in patterns of migration observed especially in the Pacific Ocean (Ebert 2013).

In the Mediterranean, *Pteroplatytrygon violacea* has never had commercial value, but has always represented an important component of the bycatch of the longline fisheries. This has prevented collecting information on population trends, as fishermen have always discarded this species by throwing it back into the sea. Therefore, there is the suspect that the surface longlines and the pelagic nets in general have decimated the population of this species over time. The pelagic and migratory habits of this species might be the ecological factors that have reduced the risk of *Pteroplatytrygon violacea* to become threatened, ensuring a recovery, which is nevertheless conditioned by the operational practices of the fishermen. An example is represented by longline fisheries in Ligurian Sea, where in recent years the fishers have modified their habits setting the gears on the seabed and no longer on the surface; as consequence the events of bycatch of stingrays become less frequent, probably allowing a significant recovery of the population, limited to that area.

Habitat (s):
This is perhaps the only species of stingray that occurs in pelagic, oceanic waters (Last *et al*. 1994). It is usually found from the surface to 100 m depth over deep water (Mollet 2002) but has been reported to 238 m (Bester *et al*. 2007; Ebert 2013).

threats

Existing and potential threats:
Fisheries represents the main threat for *Pteroplatytrygon violacea*, frequently taken as bycatch of purse seine and pelagic longlines targeting tuna and swordfish. Usually it is discarded, but might be retained and even utilised in some areas (e.g. Indonesia) (Mollet 2002; Vaske 2002; Domingo *et al*. 2005; White *et al*. 2006; Forselledo *et al*. 2007; Piovano *et al*. 2009).

Several authors report differences in the sex ratio in the captures, depending on the area investigated the females prevail on males or vice versa [e.g. 2:1 to 7:1 in the eastern Pacific; 3:1 for the western Atlantic; a prevalence of males observed in Southwest Atlantic (Wilson and Beckett 1970; Neer 2008)]. An asymmetric take of this species could potentially impact the long-term stability of pelagic stingray populations (Neer 2008).

In Mediterranean the magnitude of the captures in the entire basin is unknown. This species is captured mainly by pelagic longline fisheries, and it is mostly discarded, with an expected low discard survival rate, due to the damage to jaws and/or mouth caused by the treatments on board for releasing the individuals. In Italian seas, the pelagic stingray is the most common elasmobranch species by-catch of the longline fisheries targeting Albacore and the second most common in longlines targeting swordfish (Filanti et al. 1986; di Natale et al. 1995; Orsi Relini et al. 1999). Total bycatch of Pteroplatytrygon violacea in the swordfish fishery in the Ligurian Sea was estimated at ~2,000 (up to 20 per boat) in 1995, although the catch was estimated to be smaller and more variable in 1996) (Mollet 2002). Rey and Alot (1984) reporting the results of a swordfish longline surveys for Mediterranean Spanish waters, recorded only two pelagic stingrays in 11 fishing operations (<0.001).

The pelagic stingray is also occasionally taken by recreational fisheries (Fischer et al. 1987), which presumably does not have a significant impact on the populations.

Exploitation:
The pelagic stingray is not used or traded commercially in Mediterranean. The official FAO-GFCM statistics report nominal captures of the taxa Dasyatidae in very low quantities (<1 tonne) by Cyprus, Italy, Malta and Spain (FAO-GFCM, 2022).

Reports of common stingrays *Dasyatis pastinaca* in pelagic fisheries catches in the Mediterranean may likely refer to pelagic stingrays *Pteroplatytrygon violacea.*

Proposed protection or regulation measures:
There are no species-specific conservation or management measures for this species in place in the Mediterranean Sea.

In Israel, in 2005, sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited-. Since 2018, enforcement seems somehow improved for sharks but is still inadequate for ray fishing. Cartilaginous fishes may not be consumed under Jewish kashrut law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

Some studies have shown how the use of circular hooks in longline fishing can be able to mitigate the impact of this gear on the *Pteroplatytrygon violacea* population (Piovano *et al*. 2009; François *et al*., 2019).
The ICCAT Convention has included the pelagic stingray in the list of "elasmobranchs that are oceanic, pelagic, and highly migratory" frequently caught incidentally by tuna fleets, defined to be an "ICCAT species" by Recommendation 19-01 (ICCAT 2019). Article IV of the ICCAT Convention states: "*the Commission shall be responsible for the study of the population of tuna and tuna-like fishes* (….) *and such other species of fishes exploited in tuna fishing in the Convention area as are not under investigation by another international fishery organization*". Therefore, the pelagic stingray might become object of species-specific data collection with the objective to produce more and higher quality by-catch data allowing the protection of these populations.
The inclusion of *Pteroplatytrygon violacea* in Appendix III will result in a better harmonization between ICCAT and GFCM Recommendations in Mediterranean, and, if properly implemented, it would help strengthening the collaboration for its monitoring.

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Form for proposing amendments to Annex II and Annex III of the Protocol concerning specially Protected Areas and Biological Diversity in the Mediterranean

Proposed by :
The Republic of France

Species concerned: *Rhinoptera marginata* (Geoffroy St. Hilaire, 1817)

Amendment proposed:
- ■ Inclusion in Annex II
- ☐ Inclusion in Annex III
- ☐ Removal from Annex II
- ☐ Removal from Annex III

Taxonomy

Class: Chondrichthyes

Order: Myliobatiformes

Family: Rhinopteridae

Genus and Species: *Rhinoptera marginata*

Known Synonym(s): *Myliobatis marginata* Geoffroy St. Hilaire, 1817

Common name:

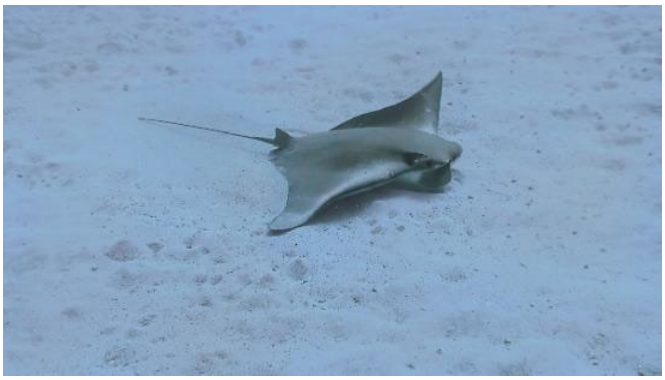
English - Lusitanian cownose ray

French - Mourine lusitanienne ou Mourine échancrée

Spanish - Gávilan lusitánico

Italian – Rinottera

Arabic - راية طائرة



Inclusion in other Conventions:

Justification for the proposal:
The Lusitanian cownose ray (*Rhinoptera marginata*) qualifies for listing in Annex II in accordance with the "Common Criteria for proposing amendments to Annexes II and III of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" (Decision IG 17/14, UNEP(DEPI)/MED IG.17/10 Annex V).

Rhinoptera marginata is a large benthopelagic species inhabiting the coastal waters of the Mediterranean Sea (excluding the Black Sea) as well as the western coast of Africa, eastern Atlantic Ocean.

The very low fecundity, its relatively large size, combined with the schooling behavior augmenting the risk of many individuals being caught in one single haul, are limiting life-history characteristics making this specie highly vulnerable to coastal fisheries, and suggesting that the current fishing pressure is likely to be unsustainable for this species which population reductions are suspected.

The most recent assessment conducted at global level for The IUCN Red List of Threatened Species in 2020, listed *Rhinoptera marginata* as Critically Endangered under criteria A2d (Jabado *et al*. 2020).

Formerly assessed in Mediterranean as Near Threatened (close to meeting the criteria for VU A2d+A3d) in 2007 (Cavanagh and Gibson 2007), its status has been updated in 2016 (Ferretti *et al*. 2016) and listed as Data Deficient but reaffirming the urgency of a precautionary approach toward the conservation of this rare species.

Due to its status of Critically Endangered species in the near Atlantic region, the Mediterranean populations of *Rhinoptera marginata* deserve an Annex II listings of the SPA/BD Protocol, as its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedent prohibition measure for cownose rays. Moreover, due to the concern off Mediterranean for the fishing effort increase in the Eastern Central Atlantic and the suspect of high levels of Illegal, Unreported, and Unregulated (IUU) fishing in this region (Gutiérrez *et al*. 2020), the Mediterranean might represent a refuge for the future of the Lusitanian cownose ray.

If *Rhinoptera marginata* were to be listed on Annex II, to harmonize the Annexes, this provision should be considered for the similar species in the Order Myliobatiformes, *Aetomylaeus bovinus* and *Myliobatis aquila*.

Biological data

Brief description of the species:

Identification

Disc rhombic, about twice broader than long, snout notched with a subrostral fleshy lobe, distinctly concave in front. Spiracle much larger than eye on side of head. Tail slender and whip-like, longer than disc, with a small dorsal fin on its base and a single (rarely more) long and serrated sting. Pectoral fins slightly falcate, outer angle blunt; pelvic fins longer than wide. Mouth without fleshy papillae on floor, usually with 9–11 rows in each jaw of broad plate-like teeth, those of the median series much larger than the lateral ones. Posterior margin of the nose smooth and greatly expanded, fringed or lobed. Upper surfaces without thorns or thornlets. Greenish brown to bronze on the back; ventral side whitish with dark margins (Whitehead *et al*. 1984).

Biology

Size up to 200 cm disc width (DW). Viviparous, usually with litters of a single pups. Males estimated to mature at ~75 cm DW and females at ~80 cm DW. Breeding appears to take place in June and parturition the following year in April-May; near term embrios mean of 42.0±5.3 TL and 23.4±3.3 DW, size at birth inferred of about 22–24 cm DW (Tırasın and Basusta 2018).
Cownose rays are among the least productive elasmobranchs with an estimated intrinsic rate of population growth rates (r) ranging from 0.018 yr−1 to 0.032 yr−1 (median r = 0.008) (Grubbs *et al*. 2016). Age data are not available for this species, but for its congener R. bonasus to use as a proxy for generation period, estimated as 11.25 years (Neer and Thompson 2005).

Distribution (current and historical):

In the eastern Atlantic, from Portugal to Gulf of Guinea, also in the Mediterranean Sea.

Depth limits:
This species prefers shallow waters of the continental shelf and around offshore islands. It occurs from shoreline to about 30 m depth, although it may occur to at least 100m depth (it was found at 50–100m depth in MEDITS trawl surveys in the Mediterranean) (Baino *et al*. 2001).

Countries of occurrence (Mediterranean):
Mainly reported along the Turkish coasts, absent in the Black Sea. (Baino *et al*. 2001; Tiraşin and Basuşta 2018). Infrequent elsewhere: Albania; Algeria; Bosnia and Herzegovina; Croatia; Cyprus; Egypt; France; Greece; Israel; Italy; Lebanon; Libya; Montenegro; Morocco; Palestine; Spain; Syrian Arab Republic; Tunisia.

Population estimates and trends:
No data are currently available to estimate the population and analyse of trends in abundance in Mediterranean, where it is apparently rare. During the scientific trawl surveys (MEDITS), conducted between 1994-1999 (at depths of 10-800 m) in the central western Mediterranean, it occurred in only two hauls (in the eastern Ionian Sea) of a total of 6,336 hauls (Baino *et al.* 2001). An exceptional event has been documented in February 2013, when 89 females and 40 males of lusitanian cownose ray were accidentally caught in Mersin Bay, Türkiye, eastern Mediterranean Sea. They included many gravid specimens with near-term embryos and mature males, and they were in a schooling formation, apparently for parturition and reproduction (Tiraşin and Basuşta 2018).

Habitat (s):
The lusitanian cownose ray is a semi pelagic or benthopelagic species, found in tropical to warm temperate coastal waters where it is relatively common. Gregarious, often forming large groups swimming near the surface, and occurring from shoreline to about 30 m depth, on soft bottoms.

threats

Existing and potential threats:
The main threat to the survival of the species is represented by the fishing pressure from commercial trawl fisheries, generally intensive on the continental shelf and upper slope of the Mediterranean Sea (at depths ranging from 50 to 700-800 m) and therefore overlapping with the species range (Colloca *et al*. 2003; Massuti and Moranta 2003).

The very low fecundity, a generation period inferred to exceed 11 years and its relatively large size are limiting life-history characteristics, combined with the schooling behavior augmenting the risk of many individuals being caught in one single haul, as documented by Tiraşin and Basuşta (2018), make the specie highly vulnerable to coastal fisheries, and suggest that the current fishing pressure is likely to be unsustainable for this species and population reductions are suspected

Exploitation:
Rhinoptera marginata is not targeted by commercial fisheries but incidentally caught by multiple gear types and is particularly vulnerable to coastal fisheries using purse seine, gillnet and trammel nets and above all by bottom trawlers (Serena 2021). The species is of little commercial importance for human consumption in the Mediterranean region.

Proposed protection or regulation measures:
There are no species-specific conservation or management measures for this species in place in the Mediterranean Sea.

In Israel, in 2005, sharks and rays were introduced into the list of species protected by law and fishing of them is prohibited-. Since 2018, enforcement seems somehow improved for sharks but is still inadequate for ray fishing. Cartilaginous fishes may not be consumed under Jewish kashrut

law, although there is a market for fish of these species among non-Jewish populations (Ariel and Barash 2015).

Although countries across its range have legislation concerning fisheries activities (including gear restrictions, and no-trawling zones in coastal waters), fisheries taking *Rhinoptera marginata* are generally unmanaged throughout large parts of the species' range and it is unlikely that fisheries pressure will decrease in the near future.

Formerly assessed in Mediterranean as Near threatened in 2007 and reassessed as Data Deficient in 2016, this species deserves an Annex II listings of the SPA/BD Protocol, as its immediate transposition in the GFCM Recommendation GFCM/42/2018/2 could act as immediate and unprecedented prohibition measure for cownose rays. Moreover, due to the concern off Mediterranean for the fishing effort increase in the Eastern Central Atlantic and the suspect of high levels of Illegal, Unreported, and Unregulated (IUU) fishing in this region (Gutiérrez *et al*. 2020), the Mediterranean might represent a refuge for the future of the Lusitanian cownose ray.

If *Rhinoptera marginata* were to be listed on Annex II, to harmonize the Annexes, this provision should be considered for the similar species in the Order Myliobatiformes, *Aetomylaeus bovinus* and *Myliobatis aquila*.

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