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OCCURRENCE OF THE RARE BLONDE RAY, *RAJA BRACHYURA* (RAJIDAE), OFF THE ALGERIAN COAST (SOUTHWESTERN MEDITERRANEAN SEA)

Farid HEMIDA

École Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral (ENSSMAL), BP 19, Bois des Cars, 16320 Dely Ibrahim, Algiers, Algeria

Christian REYNAUD

Laboratoire Interdisciplinaire en Didactique, Education et Formation, Université de Montpellier, 2, place Marcel Godechot, B.P. 4152, 34092 Montpellier cedex 5, France

Christian CAPAPÉ

Laboratoire d'Ichtyologie, Université de Montpellier, 34095 Montpellier cedex 5, France
e-mail: capape@orange.fr

ABSTRACT

The paper describes captures of large specimens of blonde ray, Raja brachyura Lafont 1873, off the Algerian coast. The presence of large egg-producing females in the catch and cases of already laid eggs suggest that a population of R. brachyura is successfully established in the area. The Algerian coast is likely a starting point for migrations of the species towards northern regions, such as the coast of Sardinia, where several specimens have recently been found.

Key words: *Raja brachyura*, egg case, migration, distribution, western Mediterranean basin

PRESENZA DELLA RARA RAZZA A CODA CORTA, *RAJA BRACHYURA* (RAJIDAE), AL LARGO DELLA COSTA ALGERINA (MEDITERRANEO SUD-OCCIDENTALE)

SINTESI

L'articolo riporta la cattura di grandi esemplari della razza a coda corta, Raja brachyura Lafont 1873, al largo della costa algerina. La presenza nelle catture di grandi femmine produttrici di uova e di casi di uova già deposte suggeriscono che una popolazione di R. brachyura si è stabilita con successo nell'area. La costa algerina è probabilmente un punto di partenza per le migrazioni della specie verso le regioni settentrionali, come le coste della Sardegna, dove sono stati recentemente rinvenuti diversi esemplari.

Parole chiave: *Raja brachyura*, uova, migrazione, distribuzione, Mediterraneo occidentale

INTRODUCTION

The blonde ray, *Raja brachyura* Lafont, 1873, occurs in the eastern Atlantic from the Shetlands and the English Channel to the western part of the North Sea (Stehmann & Bürkel, 1986). Further south, the species is found in the Bay of Biscay, off the northern coast of Spain, and along the coast of Portugal (Quéro *et al.*, 2003). South of the Strait of Gibraltar, *R. brachyura* has been recorded off the Moroccan coast (Aloncle, 1966), around the Madeira Islands (Wirtz *et al.*, 2008). In addition, the species is present around the Azores Archipelago (Santos *et al.*, 2020).

Stehmann & Bürkel (1986) noted that *R. brachyura* is only known in the western Mediterranean basin, while in the eastern basin, the species is rare with a single and doubtful record from the Aegean Sea. *R. brachyura* used to be rare off the Spanish coast (Lozano Rey, 1928) and around the Balearic Islands (Massutí & Moranta, 2003). With regard to the Mediterranean coast of France, the first record of a single specimen was made by Euzet (1960), while Quignard (1965) noted that the species was very rare in the area. The last recorded specimen in France was captured by trawl on 14 April 1992, between Sète and Palavas (Capapé *et al.*, 2006). Another specimen was photographed in a fish shop in Montpellier on 8 September 2021, but no information was available on its origin (see Association Ailerons, 2021).

Tortonese (1956) studied a single specimen caught in the Ligurian Sea, and more recently, Bottaro *et al.* (2009) reported the capture of two specimens, noting that the species was very rare in Italian waters. Conversely, Catalano *et al.* (2007) and Porcu *et al.* (2015) documented the capture of several specimens around Asinara Island, located off northwestern Sardinia, providing studies on the diet and feeding habits of the species, along with descriptions of certain

aspects of its reproductive biology. It appears that *R. brachyura* is regularly caught in the area and holds economic significance for local fisheries. Soldo & Lipej (2022) noted that while *R. brachyura* is present in the Adriatic Sea, it is very rare; in fact, it is absent from the Croatian coast (Balaka *et al.*, 2023) and the coast of Montenegro (Četković *et al.*, 2024).

In the central Mediterranean, *R. brachyura* is a rarely occurring species found in the waters around the Maltese Islands (Borg *et al.*, 2026). A single specimen was captured on 16 March 1972, off Tabarka on the northern Tunisian coast. It was a female, measuring 920 mm in total length (TL), 620 mm in disc width (DW), and weighing 6.5 kg (Quignard & Capapé, 1972). No new specimens have been recorded in the area since (Rafrafi-Nouira, 2016; Enajjar *et al.*, 2022).

R. brachyura has been reported from the Aegean Sea (Papaconstantinou, 2014), more specifically from Turkish marine waters (Turan *et al.*, 2024) and off Cyprus (Giovos *et al.*, 2021; O'Keefe *et al.*, 2023). This appears to be the easternmost range of the species in the Mediterranean Sea, as *R. brachyura* is unknown in the southern Levant Basin (Golani, 2005; Ali, 2018; Bariche & Fricke, 2020). In the south, the species is recorded neither on the Libyan coast (Shakman *et al.*, 2023) nor the Mediterranean coast of Egypt (El Sayed *et al.*, 2017).

Dieuzeide *et al.* (1953) reported the capture of a large female specimen off the Algerian coast, measuring 1150 mm TL, 620 mm DW, and weighing 6.5 kg TBW. The capture occurred on 2 February 1950, off Bou-Ismaïl (formerly Castiglione) in central Algeria, at a depth of 30 m. Dieuzeide *et al.* (1953) provided no further details apart from noting that the species is locally caught by trawl and longline. Observations consistently conducted over two decades (2000–2020) along the Algerian coast, at fish landings and markets,

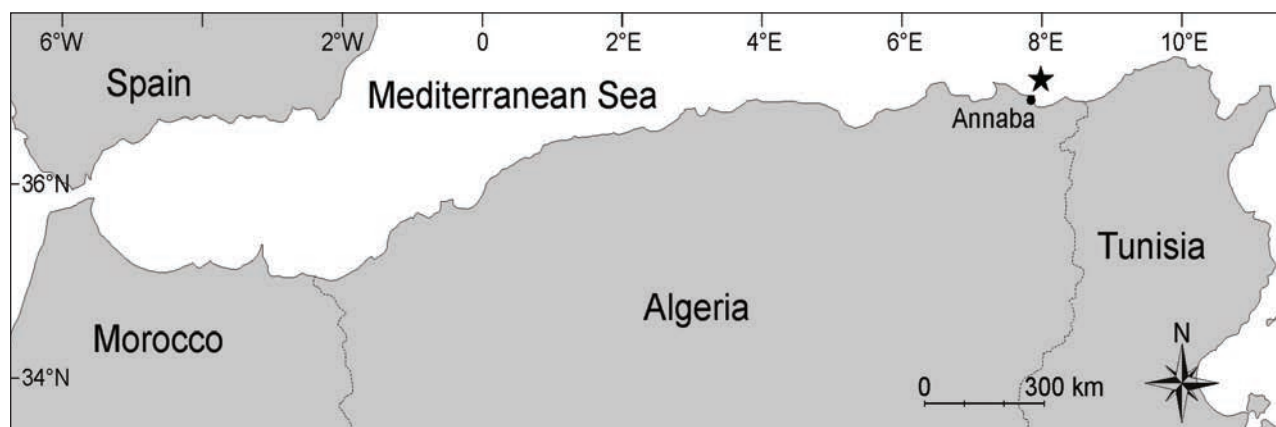


Fig. 1: Map of the Algerian coast with the black star indicating the capture site of *Raja brachyura* specimens, off Annaba.
Sl. 1: Zemljevid alžirske obale s črno zvezdico, ki označuje mesto ulova primerkov vrste *Raja brachyura* v vodah blizu Annaba.



Fig. 2: Numerous *Raja brachyura* captured off Annaba, with arrow 1 indicating a rough ray, *R. radula* (Photo by F. Hemida).

Sl. 2: Številni primerki vrste *Raja brachyura*, ujeti v vodah pri Annabi, s puščico 1, ki označuje hrapavo ražo, *R. radula* (Foto by F. Hemida).

show that *R. brachyura* is caught in relative abundance. This paper describes some specimens captured in Algerian marine waters and offers a few comments on the species' distribution in the local area and the broader Mediterranean Sea.

MATERIAL AND METHODS

The specimens of *R. brachyura* presented herein were observed at the main fish market of Algiers, where catches made along the entire Algerian coast, from the Moroccan to the Tunisian border, are landed. On 29 October 2018, several specimens were captured off Annaba, in the eastern region, at 35°42'35" N and 1°22'17" W (Fig. 1). They were caught by trawler at a depth of 50 m, on sandy-muddy bottoms, together with a rough ray, *R. radula* Delaroche, 1809 (Fig. 2). The specimens were carefully examined and identified using field guides and ichthyological fauna references (see *infra*). They were photographed and, when possible, measured. Obtaining morphometric measurements was generally difficult, as the specimens were rapidly sold, mainly in large quantities, for local consumption.

RESULTS AND DISCUSSION

Based on our observations of the landings of *R. brachyura* in the area, the species has been caught in relatively abundance in Algerian marine waters. All specimens were identified based on the combination of the following main morphological characters: body medium-sized, about 1200 mm in total length, rhomboid disc slightly wider than long, with sinuous anterior margins, rostrum short and slightly rounded at its distal end, pectoral fins with clear rounded angles on the lateral side, upper surface entirely prickly (except in juveniles), ventral surface only prickly along front margins of disc, separate orbital thorns, tail short and thick, dorsal surface ochre, covered entirely with small dark spots and several light blotches surrounded by dark spots, belly white.

These features are in complete agreement with previous descriptions of the species (Clark, 1926; Dieuzeide *et al.*, 1953; Tortonese, 1956; Stehmann & Bürkel, 1984; Serena, 2005; Ebert & Stehmann, 2013 and Last *et al.*, 2016). The specimens herein presented were large; the six that were measured had DW ranging between 530 and 630 mm, and TL between 605 and 942 mm. No information on their total body

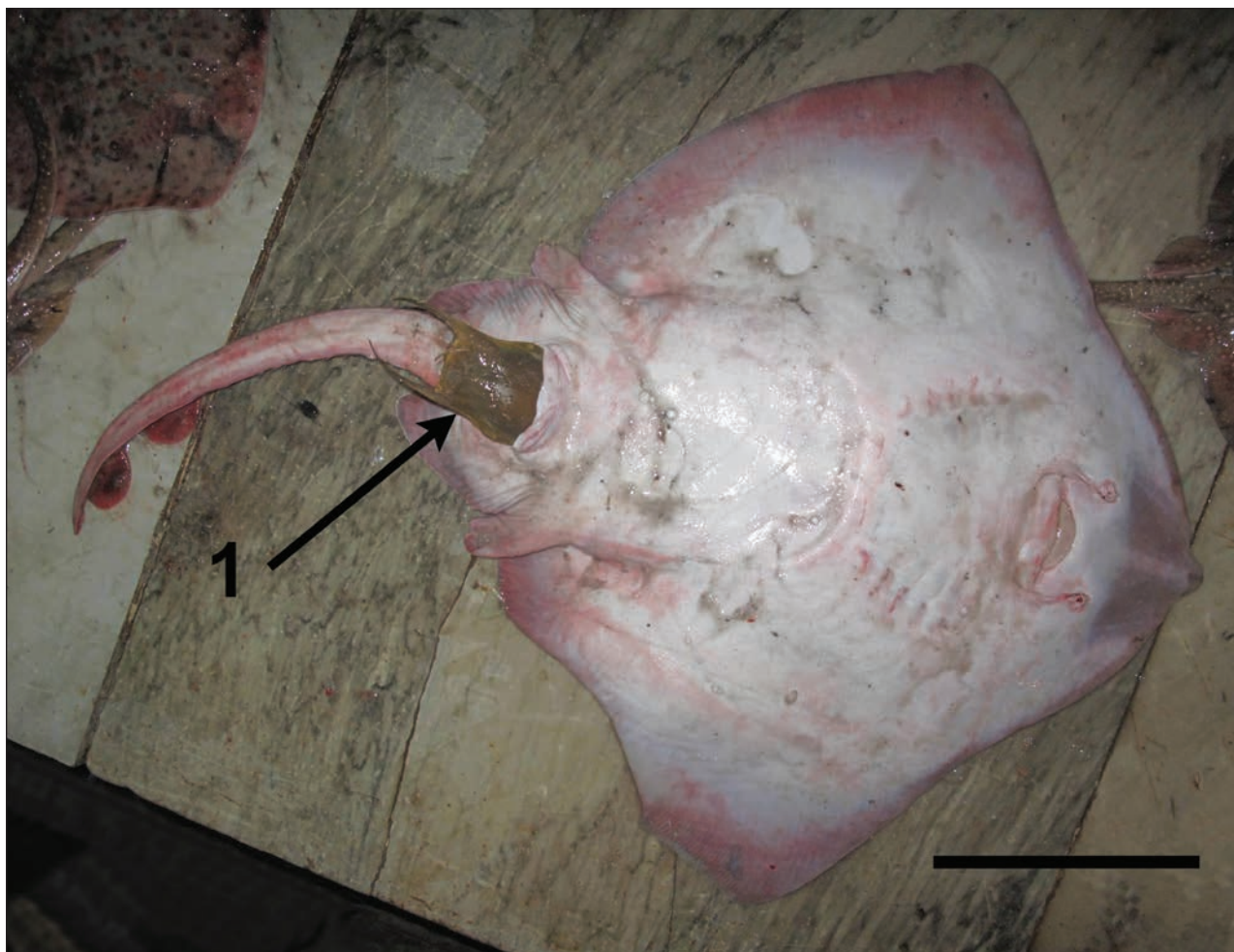


Fig. 3: Adult female of *Raja brachyura* expelling an egg case (arrow 1) (Photo by F. Hemida).

Sl. 3: Odrasla samica vrste *Raja brachyura*, ki je izvrгла jajčno kapsulo (puščica 1) (Foto: F. Hemida).

weight was provided, but their large size, along with previous data on the species (see Capapé *et al.*, 2006), suggests that they likely weighed around 6 kg. Among the captured blonde rays, a large female was observed expelling an egg case (Fig. 3), and a fully expelled egg case was found next to a large male (Fig. 4). This egg case measured 112 mm in length (excluding the horns) and 83 mm in width, which are values similar to those typically observed for this species (Stehmann & Bürkel, 1984). Its general morphology also confirmed the description by Porcu *et al.* (2017).

Common captures of *R. brachyura* along the Algerian coast, along with females producing egg cases suggest that a viable population is successfully established in the area. The species is quite abundant and regularly landed in the eastern Atlantic according to Stehmann & Bürkel (1984) and Ebert & Stehmann (2013). It can therefore be assumed that by migrating to the Mediterranean Sea through the

Strait of Gibraltar, the species reached the Algerian coast, where it found sufficient resources to develop and reproduce. The same assumption has also been suggested for other skate species found in Algerian marine waters, such as the cuckoo ray *Leucoraja naevus* (Müller and Henle, 1841) (see Capapé *et al.*, 2023) and the undulate ray *Raja undulata* Lacépède, 1802 (see Hemida *et al.*, 2024), which could thus be considered Herculean migrants (cf. Quignard & Tomasini, 2000).

In addition, the Algerian coast likely constitutes a hotspot for *R. brachyura* in the western Mediterranean basin. Migrations toward northern areas could explain its abundance off southern Sardinia (Catalano *et al.*, 2007; Porcu *et al.*, 2015), the sporadic captures reported in the Ligurian Sea (Bottaro *et al.*, 2006), off southern Corsica (MSRG-Corsica, 2013), possibly off the coast of Languedoc (Association Ailerons, 2021), and its range extension in the eastern Mediterranean basin (Giovos *et al.*, 2021; Turan *et al.*, 2024).

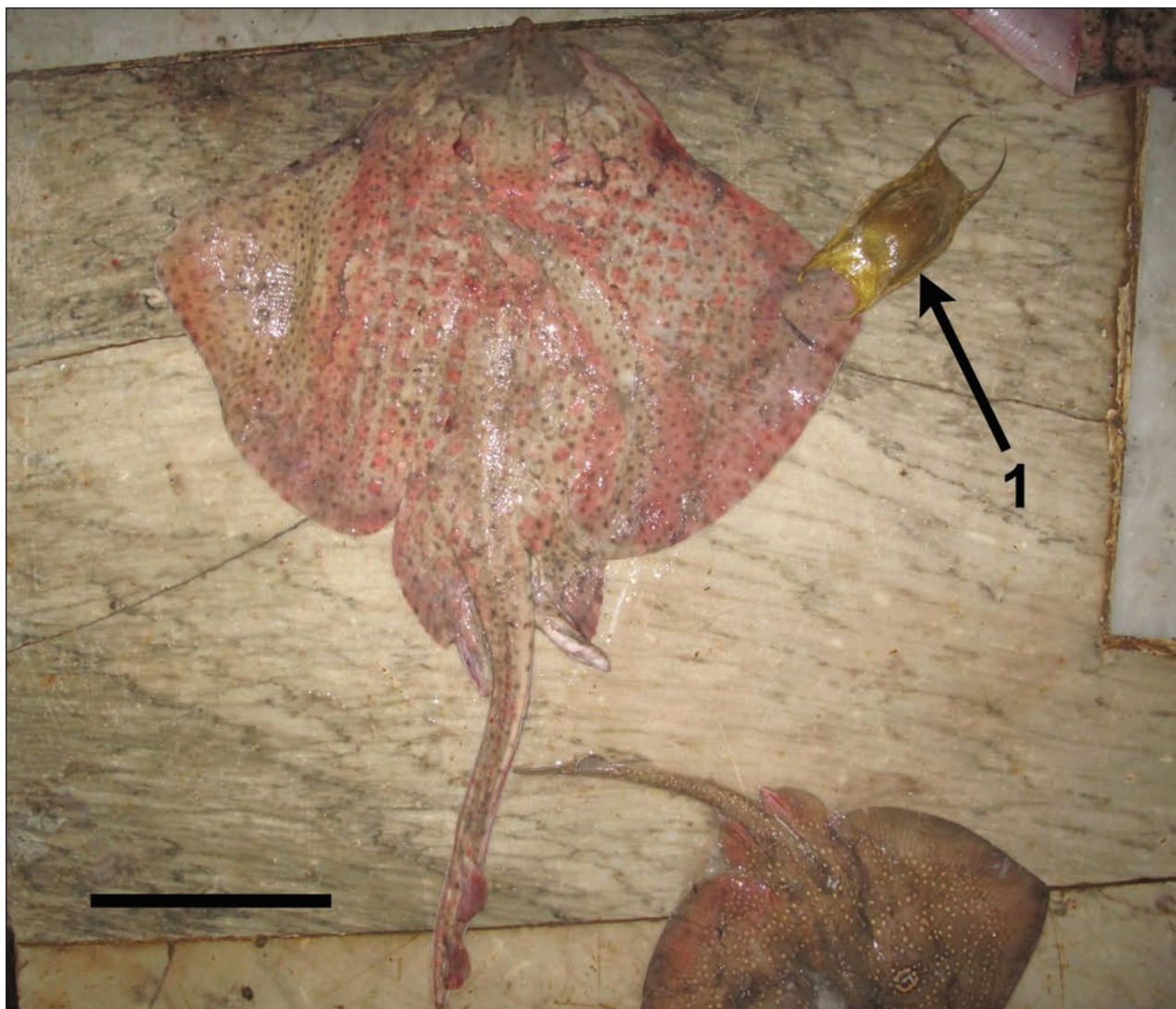


Fig. 4: Egg case of *Raja brachyura* found near an adult male (arrow 1) (Photo by F. Hemida).

Sl. 4: Jajčna kapsula vrste *Raja brachyura*, najdena blizu odraslega samca (puščica 1) (Foto: F. Hemida).

R. brachyura is known to be caught in the temperate waters off the eastern Atlantic coast (Stehmann & Bürkel, 1984; Ebert & Stehmann, 2013). According to Golani *et al.* (2021), the waters of the eastern Mediterranean basin are warmer than those of the western basin, which could explain the successful establishment of alien species from the Red Sea and the Indian Ocean in the eastern basin, as well as the scarcity of species such as *R. brachyura* farther from the Strait of Gibraltar.

Ebert & Stehmann (2013) consider the conservation status of *R. brachyura* to be least concern

globally, but near threatened in the Mediterranean Sea, despite the fact that some viable populations still exist in its western basin. The warming of the Mediterranean Sea (Francour *et al.*, 1994) due to global climate change, along with its particular morphology (flattened shape), *K*-selected reproductive characteristics, and over-exploitation, makes this skate species vulnerable (Silva *et al.*, 2012). Therefore, a management plan should be implemented across Mediterranean fisheries to protect *R. brachyura* and prevent its decline, as is the case for all elasmobranch species.

POJAVLJANJE REDKE OKRASTE RAŽE, *RAJA BRACHYURA* (RAJIDAE), OB ALŽIRSKI OBALI (JUGOZAHODNO SREDOZEMSKO MORJE)

Farid HEMIDA

École Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral (ENSSMAL), BP 19, Bois des Cars, 16320 Dely Ibrahim, Algiers, Algeria

Christian REYNAUD

Laboratoire Interdisciplinaire en Didactique, Education et Formation, Université de Montpellier, 2, place Marcel Godechot, B.P. 4152, 34092 Montpellier cedex 5, France

Christian CAPAPÉ

Laboratoire d'Ichtyologie, Université de Montpellier, 34095 Montpellier cedex 5, France
e-mail: capape@orange.fr

POVZETEK

Avtorji poročajo o ulovu velikih primerkov okraste raže, Raja brachyura Lafont 1873, ob alžirski obali. Na podlagi ulovljenih velikih samic, ki nosijo jajca, in primerov že odloženih jajc, kaže, da je populacija vrste R. brachyura na tem območju uspešno vzpostavljena. Domnevajo, da je alžirska obala najverjetneje izhodišče za selitev vrste proti severnim regijam, kot je na primer obala Sardinije, kjer so pred kratkim našli nekaj primerkov.

Ključne besede: *Raja brachyura*, jajčna kapsula, selitev, razširjenost, zahodni sredozemski bazen

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