

SHORT NOTE

First record of Montagu's sea snail *Liparis montagui* (Donovan, 1804) in Belgian waters

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This paper presents the first record of a fish species new to the Belgian Part of the North Sea, including its taxonomy and ecology, and discusses the occurrence of the species in the Belgian and neighbouring waters.

Montagu's sea snail *Liparis montagui* (DONOVAN, 1804) is a demersal fish species from the Liparidae family, occurring in the inshore waters of the North East Atlantic. It is found around southern Iceland and from the Barents Sea southwards through the North Sea and the Baltic Sea and along European coasts. Young specimens are also found in the Wadden Sea (1, 2, 3, 4). *L. montagui* occurs from the intertidal to 30 m, under stones at low tide, in rock pools or clinging to algae (e.g., *Fucus*). It feeds primarily on gammarid amphipods in intertidal areas and shrimps and small crabs in subtidal areas (2, 3, 5, 6).

A specimen of *L. montagui* was found on March 9th, 2011 at sampling location ft330 (N51.433, E2.815 - N51.427, E2.794) on the Gootebank at a depth of 23 m (Fig. 1). The sample was taken with an 8 meter-shrimp beam trawl (stretched mesh width 22 mm in the cod end) dragged over

the bottom for 15 minutes at an average speed of 4 knots. The 40 l catch contained some larger stones, and dab *Limanda limanda* and whiting *Merlangius merlangus* as the most abundant fish species.

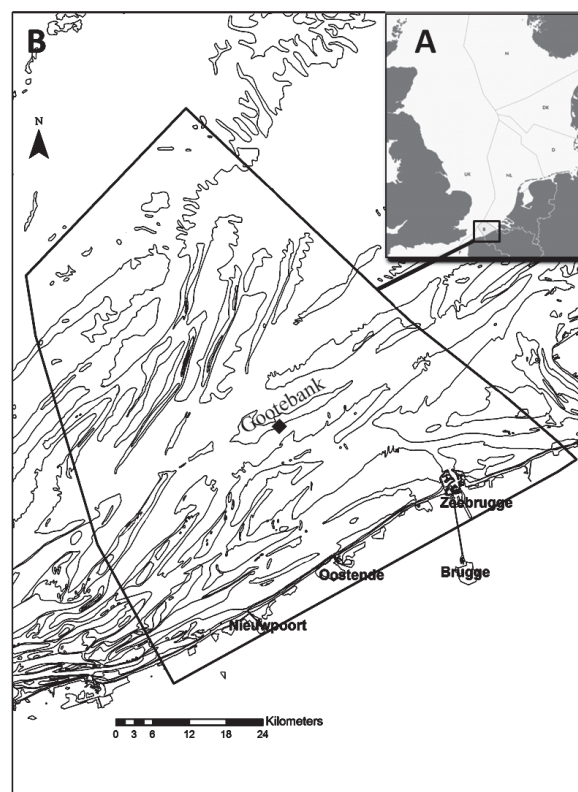


Fig. 1. – (A) North Sea exclusive economic zones. (B) Belgian part of the North Sea (BPNS) with sampling station ft330 where *Liparis montagui* was caught.

Table 1

Overview of literature concerning the number of dorsal and anal fin rays in *Liparis montagui* and *Liparis liparis*.

		NIJSSEN & DE GROOT ⁵	EALES & KEMP ⁶	QUÉRO <i>et al.</i> ⁸	HAYWARD & RYLAND ⁹	LYTHGOE & LYTHGOE ¹⁰
<i>Liparis montagui</i>	dorsal fin rays	26-32	26-30	26-32	28-30	28-30
	anal fin rays	22-25	24	22-26	22-25	22-25
<i>Liparis liparis</i>	dorsal fin rays	32-36	34-36	32-45	33-35	33-36
	anal fin rays	26-30	27-28	26-38	27-29	27-29

Montagu’s sea snail *Liparis montagui* is very similar in appearance and habits to the sea snail *L. liparis*. The pelvic fins of both species are modified into a suction disc on the belly and both are variably coloured. Still, a number of characteristics make it possible to distinguish the two species. *L. montagui* is purplish brown in appearance to the naked eye, but with the assistance of a lens one can see that the ground-colour is yellowish brown with dark spots. *L. liparis* on the other hand tends to be pale grey or brown, with darker brown or purplish longitudinal bands (6, 7). *L. montagui* can further be distinguished from *L. liparis* by its smaller size (max. 12 cm *versus* 18 cm), the never overlapping dorsal and caudal fins, the rarely overlapping anal and caudal fins, the smaller number of rays in the dorsal (26-32 *versus* 32-45) and anal fins (22-26 *versus* 26-38) and the posterior nostrils in adults that are covered by skin (3, 5, 6, 8, 9, 10).

Since fin ray counts provide the most reliable distinction between the two species (11), we particularly focused on this characteristic. Table 1 gives an overview of the literature concerning the number of dorsal and anal fin rays in both species. Table 2 presents the identification characteristics of the found specimen and a *L. liparis* specimen caught at another location in the Belgian part of the North Sea, compared to the minima and maxima found in literature. The photograph (Fig. 2) and drawing (Fig. 3) of the found specimen clearly show that neither the dorsal nor the anal fins overlap with the caudal. Also, the fin ray counts of the anal and dorsal fins of the found specimen clearly correspond with the characteristics of *L. montagui*. We can conclude that this is the first unequivocal evidence of a recording of *L. montagui* in the Belgian part of the North Sea.

Table 2

Examined identification characteristics compared with literature.

	Literature (*min-max values taken from table 1)					Own specimen		
	dorsal/caudal overlap ³	anal/caudal overlap ³	maximum length ¹⁹	dorsal fin rays*	anal fin rays*	dorsal fin rays	anal fin rays	fin overlap
<i>Liparis montagui</i>	no	rarely	120 mm	26-32	22-26	29	23	no
<i>Liparis liparis</i>	yes	yes	180 mm	32-45	26-38	33	28	yes



Fig. 2. – Photograph of the fresh *Liparis montagui* specimen caught in BPNS (© Hans Hillewaert).

During our long-term monitoring programs, regular beam trawl samples have been taken for over 20 years on the Belgian part of the North Sea. These data showed that *L. liparis* is a common species throughout the area (4) while *L. montagui* was never observed (pers. obs.). There was uncertainty about the possible observation of *L. montagui* during a sampling campaign on September 24th, 2007 (4 years prior to the reported observation), but unfortunately due to the inferior condition of the specimen we were unable to make a straightforward identification. Hence, the recording of March 9th, 2011 is considered to be the first official reported catch of *L. montagui* for the Belgian marine waters. Since then, *L. montagui* has been reported from Belgian waters by Hans De Blauwe (12) at the marina of Zeebrugge and by Kelle Moreau (pers. comm.) at the coastal zone of Nieuwpoort, the latter caught on September 9th, 2013 from R.V. Simon Stevin with a 6 meter shrimp beam

trawl and a similar small mesh net. In both cases, the specimen was not preserved and the identification could not be confirmed. However, these observations may indicate that *L. montagui* has established a resident population along the Belgian coast. *L. montagui* has been reliably reported in the UK (13). Also WHEELER (14) has examined specimens from various parts of the coasts of England, Wales and the Isle of Man. In the North of France (Nord-Pas-de Calais), the species was inventoried by Glaçon in the 1970s, and it was identified in the updated inventory of MÜLLER (2004) as a common species for this region (15, 16). In the Netherlands, *L. montagui* is considered a very rare species and its protection status is covered by national and international legislation (17, 18).

We can assume that *L. montagui* has been present in the Belgian part of the North Sea for some time already, but probably in very low

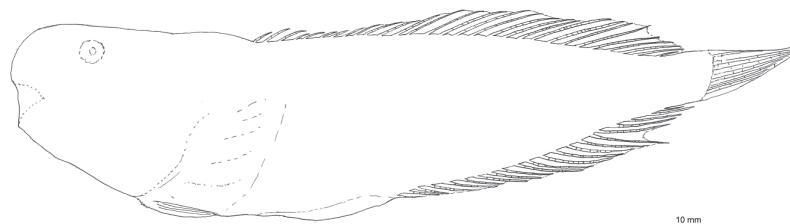


Fig. 3. – Drawing of the dorsal and caudal fin rays of the same fixed specimen of *Liparis montagui* (© Hans Hillewaert).

numbers. The small population, small size and limited distribution make it difficult to capture representatives of this species (13). The fact that our monitoring program normally covers soft sandy sediments, and *L. montagui* is a typical species of rocky sediments, contributes to this. Although location ft330 has always been a ‘stony’ habitat, *L. montagui* was not previously caught in this area. Perhaps climate change has favoured the appearance of this species in Belgian waters in recent years. Also, the recent introduction of wind farms (and hard substrates) in the vicinity of this area may act as an attraction pole for *L. montagui*.

Increased monitoring efforts will probably reveal more species that are new to the Belgian fauna in the future. For now, we have shown that Montagu’s sea snail *L. montagui* is indeed present in the Belgian part of the North Sea.

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REFERENCES

- DUNNE J (1981). A contribution to the biology of Montagu’s sea snail, *Liparis montagui* Donovan, (Pisces). The Irish Naturalists’ Journal, 20 (6):217- 222.
- www.fishbase.org (consulted February 20th, 2014)
- MUUS BJ & Nielsen JG (1999). Sea fish. Scandinavian Fishing Year Book, Hedehusene, Denmark.
- VANDEPITTE L, DECOCK W & MEES J (eds) (2010). Belgian Register of Marine Species, compiled and validated by the VLIZ Belgian Marine Species Consortium. VLIZ Special Publication, 46. Vlaams Instituut voor de Zee (VLIZ): Oostende, Belgium. Online available at <http://www.marinespecies.org/berms/> (accessed February 23th, 2014).
- NIJSSEN H & DE GROOT SJ (1987). De vissen van Nederland: systematische indeling, historisch overzicht, het ontstaan van de viskweek, uitheemse vissoorten, determineersleutels, beschrijvingen, afbeeldingen, literatuur, van alle in Nederlandse wateren voorkomende zee- en zoetwatervissoorten. KNNV Uitgeverij Utrecht.
- EALLES NB & KEMP S (1939). The littoral fauna of Great Britain: a handbook for collectors. University Press Cambridge.
- JENYNS L (1835). A manual of British vertebrate animals. Cambridge & London, pp. 472-473.
- QUÉRO JC, DUNNE J & LABASTIE J (1980). Les *Liparis liparis* (Linne, 1766) (Pisces, Scorpaeniformes, Liparidae) du Canal Saint-Georges et du Canal de Bristol. Distribution, abundance et remarques biologiques. Rev. Trav. Inst. Pêches marit., 44 (3): 235-243.
- HAYWARD PJ & RYLAND JS (eds) (1990). The marine fauna of the British Isles and North-West Europe: 2. Molluscs to chordates. Clarendon Press, Oxford.
- LYTHGOE JN & LYTHGOE GI (1974). Meeresfische: Nordatlantik und Mittelmeer. BLV Verlagsgesellschaft. München.
- BURKE V (1930). A revision of the Fishes of the Family Liparidae. U.S. Nat. Mus.Bull. 150:59-69.
- DE BLAUWE H (2013). Excursieverslag jachthaven van Zeebrugge op 23 juni 2013. De Strandvlo 33(2):68-69.
- STEIN DL (2006). New and rare species of snail-fishes (Scorpaeniformes: Liparidae) collected during the ICEFISH cruise of 2004. Polar Biol. 29:705-712.
- WHEELER A (1992). A list of the common and scientific names of fishes of the British Isles. J. Fish Biol. 41 (Suppl. A):1-37.
- MÜLLER Y (2004). Faune et flore du littoral du Nord, du Pas-de-Calais et de la Belgique: inventaire. Commission Régionale de Biologie Région Nord Pas-de-Calais: France.
- AMARA R & CORNILLE V (2003). Faune et flore du littoral du Pas-de-Calais et de la Manche orientale: mise à jour de l’inventaire des poissons du littoral Nord-Pas-de-Calais. Rev. Trav. Stat. Mar. Wimereux 2002(25):12-17.

17. DOTINGA HM & TROUWBORST A (2008). Juridische bescherming van biodiversiteit in de Noordzee. Internationaal, Europees en Nederlands recht. Centrum voor Omgevingsrecht en –beleid/ Netherlands Institute for the Law of the Sea, Utrecht.
18. www.nederlandsesoorten.nl (consulted February 28th, 2014)
19. MUUS BJ & DAHLSTROM P (1978). Meeresfische der Ostsee, der Nordsee, des Atlantiks. BLV Verlagsgesellschaft, München.

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