First record of the pelagic fish species blue whiting *Micromesistius poutassou* in the Belgian part of the North Sea

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The blue whiting *Micromesistius poutassou* (Risso, 1827) is a member of the cod family (Gadidae) and occurs in the western Mediterranean Sea and in the North Atlantic, ranging from Morocco to Spitsbergen in the east, and from Maine (US) towards southern Greenland in the west (1). It reaches lengths up to 50 cm and can weigh up to 830 g (1, 2). Blue whittings are bathypelagic oceanodromous fish that occupy depth ranges from 150-3000 m, but are mostly found at 300-400 m (3, 4).

These fish prey on small crustaceans but large individuals also forage on small fish and cephalopods. Blue whiting stocks are the target of the largest fishery in the Atlantic (5); the meat is sold both fresh and frozen, and is also processed as oil and fishmeal (1). Annual European landings fluctuate around 500, 000 tonnes (6).

In 2009 and 2010, monthly fish tracks using an otter trawl were carried out at ten monitoring stations (Fig. 1) in the Belgian part of the North Sea (BPNS). The trawl net with a 4*2 m diameter opening was dragged over the seabed for 30min at 3-4 mph.

On 16/7/2010 a whiting measuring 22 cm was caught near Nieuwpoort at station W03 (N 51°10’10”, E 2°42’50”) in very shallow waters (7 m depth). The fish had a partly digested adult brown shrimp *Crangon crangon* (Linnaeus, 1758) in its stomach, indicating that it had been feeding recently.

Fig. 1. – (A): North sea exclusive economic zones. (B): Belgian part of the North Sea (BPNS) with ten sampling stations sampled monthly in 2009 and 2010 for pelagic fish. The cross (X) indicates where the blue whiting was caught.
Photographs 1 and 2 of this individual show that the three dorsal fins are widely spaced and that the interspace between the second and third fin is larger than the base length of the first dorsal fin. Also obvious is that the mouth and gill cavities are black and that the lower jaw is somewhat protruding. The eyes are very big. These morphological features are characteristic for the blue whiting (6, 7). Pawson (8) states that a blue whiting measuring 22cm is most likely three years old. Some blue whiting reach maturity in their third year, but recruitment to the breeding stock is not complete until most fish are 7-8 years old (8).

In order to validate the morphological identification, part of the caudal fin was cut for DNA analysis. This DNA was used as a template for the amplification of part of the mitochondrial cytochrome b gene in a PCR reaction with two in-house-developed primers UCYTB152BF (GGSGCWACTGTNATYACWAA) and UCYT B271BR (TANGCRAANAGRAARTAYCAYTCNGG). Amplified PCR products were sequenced on a capillary sequencer (ABI 3730XL). Subsequently, fragment analysis (364bp) was conducted. Positions showing two peaks were coded as degenerated. Sequence identity was evaluated performing an NCBI-BLASTN search against the GenBank database.

The sequence of the caught specimen showed a best hit with a similarity and maximum identification of 98-100% and a query coverage of 100% with 18 specimens of blue whiting present in the GenBank.

There are currently 121 fish species known to be present in the BPNS, of which 18 are considered vagrants. Six more species have probably gone extinct in Belgian marine waters (9). The last new fish species to be added was the Atlantic croaker Microgogonia undulatus (Linnaeus, 1766), a non-indigenous species that was first observed in the BPNS in 1998. It probably reached our waters by ballast water transport (9). The Belgian Register of Marine Species BERMS (consultation date 18/7/2011) states that there are no registered sightings of blue whiting in the BPNS (9). This makes sense: blue whiting usually live in much deeper waters and were long considered rare in the shallow southern North Sea and English Channel (10). De Groot (11) reports a blue whiting caught in the Dutch part of the North Sea and Blacker (12) described an influx of M. poutassou in the English Channel towards the southern North Sea in 1979-1980, which he attributed to an unusual intrusion of water from the south and west. On 27/1/1980 he caught a blue whiting in the close vicinity of the BPNS. Muller (13) as well mentions blue whiting being caught in the Channel, at Wimereux (northern France). Perry et al. (14) report that the southern boundary of the blue whiting distribution in the North Sea has shifted north by 816 km between 1978 and 2001. The authors state that this pelagic fish may retract completely from the North Sea by 2050.

These sightings indicate that blue whittings have wandered close to Belgian waters in the past and that a warming climate is likely to push blue whiting stocks further north.
Consequently, this manuscript describes the first reported sighting of blue whiting in Belgian waters, thereby adding this species to the Belgian marine species list.

REFERENCES


2. IGFA (2001). Database of IGFA angling records until 2001, made available to FishBase. IGFA, Fort Lauderdale, USA.


biological association of the United Kingdom 60 (1): 39-44.


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