

## Record of the bluespotted cornetfish *Fistularia commersonii* Rüppell, 1838 in the Ligurian Sea (NW Mediterranean)

Fulvio Garibaldi\* and Lidia Orsi Relini

Laboratorio di Biologia Marina, DIP.TE.RIS., Università di Genova, C.so Europa, 26 – 16132 Genova, Italy

\*Corresponding author

E-mail: [largepel@unige.it](mailto:largepel@unige.it)

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### Abstract

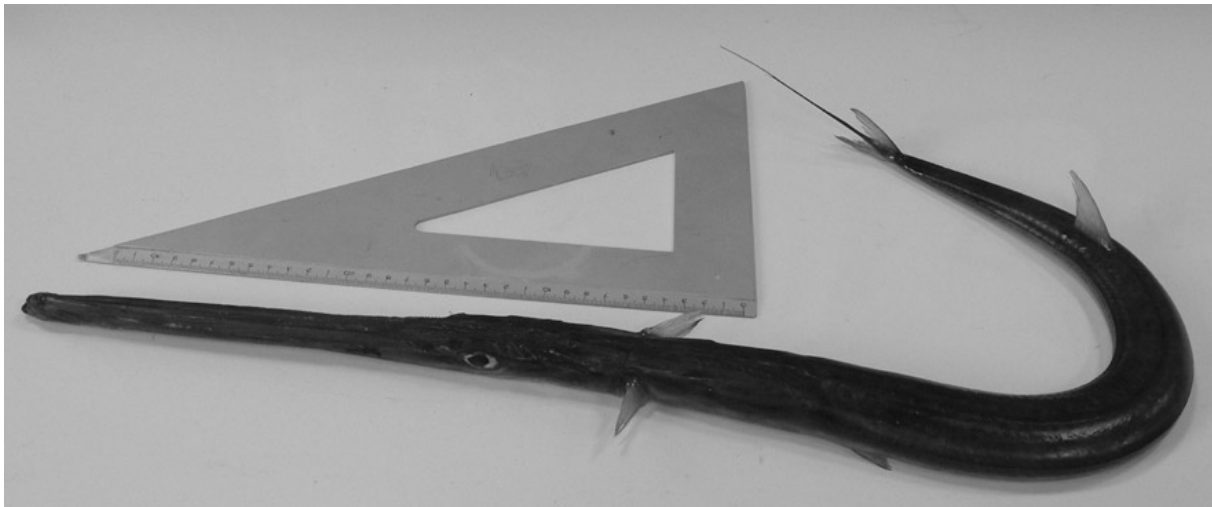
The record of one adult female of the bluespotted cornetfish *Fistularia commersonii* Rüppell, 1838, caught using trawl nets in coastal waters near Sanremo, Western Ligurian Sea, in October 2007 is reported. This record confirms the rapid spread of the species and suggests a possible fast expansion toward French and Spanish waters by means of the Western Mediterranean Northern Current. Previous records in Italian waters apparently indicate a pioneer phase of colonization by adult fish and a stabilized phase, with adult and young fish, four years later.

*Key words:* *Fistularia commersonii*; Lessepsian migration; Ligurian Sea

Among 90 non native fish species so far recorded in the Mediterranean (Golani et al. 2002), *Fistularia commersonii* Rüppell, 1838 has been given the name of “Lessepsian sprinter” (Karachle et al. 2004) because of the rapidity of its invasion. Recorded first in Israel in 2000 (Golani 2000), two years later it was considered established by Golani et al. 2002. At the end of 2002 some specimens were caught in the Strait of Sicily, both in Tunisian (Ben Souissi et al. 2004) and Italian waters, around Lampedusa Island (Fiorentino et al. 2004; Azzurro et al. 2004). In 2003 it began to spread in the Tyrrhenian Sea (Pipitone et al. 2004); the several records obtained there during the last four years seem to indicate an incoming colonization of this basin (Micarelli et al. 2006; Pais et al. 2007; Psomadakis et al. 2008).

This note reports the presence of *F. commersonii* in the Western Ligurian Sea, so far the most northerly and westerly record of the species in the Mediterranean, and forecasts a rapid “Conquest of the West”.

On 30 October 2007, one specimen of the bluespotted cornetfish (Figure 1) was caught by trawl net in the waters off Sanremo (Western Ligurian Sea, Italy; 43°48'47"N; 007°51'16"E), near the coast, on a muddy bottom, at about 60 m depth, in an area close to a large bed of *Posidonia oceanica* (L.) Delile. The fish was photographed (Figure 1) and then immediately frozen at 20°C and then brought to the laboratory, where it was measured and dissected for gonads and stomach contents analysis. The specimen was deposited at the Museo Civico di Storia Naturale “G. Doria” of Genova, as MSNG 54285.



**Figure 1.** Specimen of *Fistularia commersonii* caught near Sanremo, Western Ligurian Sea

The specimen was a female, measuring 926 mm in Total Length (TL), the standard length (SL) being 810 mm and total weight 450g. It showed the typical diagnostic features of *F. commersonii*, with an elongated body shape, a long tubular mouth, caudal middle rays joined to form a long filament and the absence of elongated bony plates along the dorsal midline. Some characteristics, considered of taxonomic value for other species belonging to this genus (*F. petimba* Lacepède, 1803 and *F. tabacaria* L., 1758), such as the absence of spines ossifications of the posterior lateral line and the presence of highly serrate ridges on the snout, were checked. The colour was brownish to olive, with rows of blue spots along the back; the free margins of fins were orange to red in colour. Fin ray counts were: 15 dorsal, 14 anal, 14 pectoral, and 6 pelvic.

Ovaries were moderately large, weighing 3.45g: under the dissecting microscope the parenchyma was mainly made up of small eggs, ranging between 0.3 and 0.4 mm in diameter, with several bigger eggs still embedded in the ovarian laminae; a similar structure was also described by Pais et al. 2007. In the central lumen of the organ, few large collapsed eggs were found, with a diameter of about 1.2-1.4mm. These patterns suggest that the female was at the end of a spawning event.

Stomach contents consisted of 2 small fish vertebral columns and 3 otoliths: the advanced digestion of the remains prevented identification.

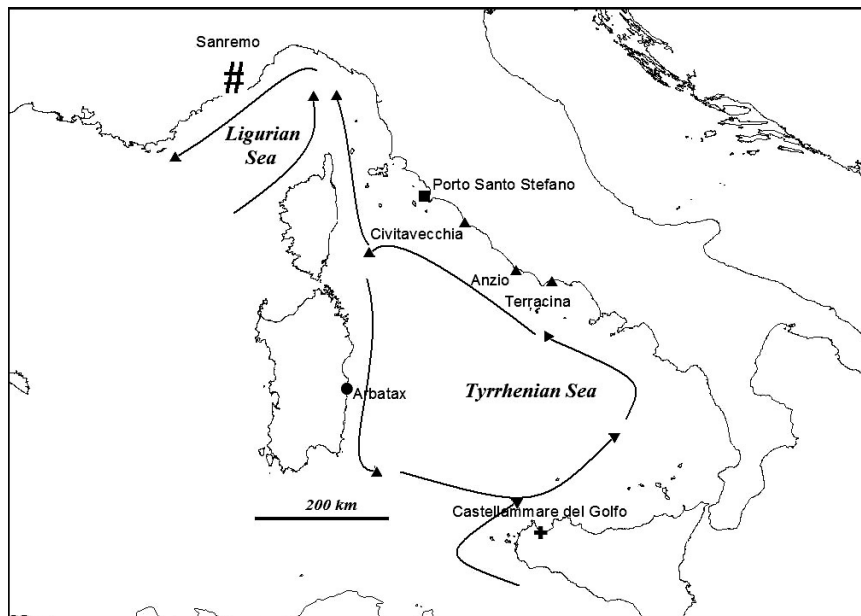
On the basis of specimens caught in the Mediterranean, recent papers have described aspects of biology of *F. commersonii*, gradually contributing to the better understanding of the invasion process and the role of the species in its new environment.

Golani et al. 2007, comparing specimens caught in the Mediterranean (from Israel, Turkey, Greece and Italy) with fish of native areas (from the Pacific Ocean to the Red Sea), found that the invaders present a genetic bottleneck, suggesting that all the Mediterranean individuals sampled in 2003-2006 could be related to the reproductive success of only two females.

The arrival of adult fish in the Mediterranean was also suggested by Pais et al 2007, who found in a Sardinian specimen the strictly genus-specific trematode *Allolepidapedon fistulariae* Yamaguti, 1940. In the Eastern Mediterranean, where the species has been established since 2001 (Corsini et al. 2002) and in particular in the waters around Rhodes, the fish is present in large numbers throughout the year, with both adult fish and juveniles (Corsini-Foka and Economidis 2007). This situation apparently represents the pattern of a real colonization and is of great concern for the possible impact of this fast-growing carnivorous predator on the indigenous fish population (Kalogirou et al. 2007). So far, in Italian waters a similar pattern has been found only in the area around Lampedusa Island (S. Canese, personal communication).

The distribution path of this species in Italian waters underlines the importance of surface currents for the dissemination of this invader. After its appearance in the Strait of Sicily (2002), *F. commersonii*, probably moved along the western side of the isle and entered the Tyrrhenian Sea, where it was caught in the Gulf of Castellammare in November 2003 (Pipitone et al. 2004). About one year later, in October 2004, it was observed in the North Tyrrhenian, along the coast of Monte Argentario

(Micarelli et al 2006) and in October 2005 off the Eastern coast of Sardinia, near Arbatax (Pais et al. 2007). These three records in the Tyrrhenian basin correspond to a large gyre of the surface currents, well known to the oceanographers as “Tyrrhenian gyre” (Figure 2). Current gyres generally recall a transport of eggs and larval stages, but probably, in the case of *F. commersonii*, movements of adult fish as well could be influenced by oceanographic factors.



**Figure 2.** Map showing the main surface currents and the localities of the *F. commersonii* records in the Tyrrhenian and Ligurian Seas, according to the year of capture. + 2003 (Pipitone et al. 2004) ■ 2004 (Micarelli et al. 2006) ● 2005 (Pais et al. 2007) ▲ 2007 (Psomadakis et al., 2008).# Present record

Moreover, at the end of 2007, 15 adult specimens, ranging from 927 to 1013 mm TL, were collected in the Tyrrhenian Sea, on the Latium coasts, from the end of October to the middle of November; thereafter, although sampling continued, records suddenly ceased (Psomadakis et al. 2008).

In general, all Italian records, including the most recent in the Adriatic Sea (Dulcic et al. 2008) and the present one, occurred in autumn and involved adult fish. So in spite of the large number of records, this seems to be still a pioneer phase of the spread of the invader. *F. commersonii* demonstrated a great capability to adapt to the new Mediterranean environment, favoured by the increase of water temperature. Probably for this thermophilic species, a quicker

spreading was possible in eastern and southern Mediterranean areas, with waters warmer than in the northern part of the basin, where winter temperature could be too low to allow the colonization by juveniles. Nevertheless the case of Lampedusa shows that at least a four years period was necessary from the first appearance to full colonization.

With the present record *F. commersonii* has reached the launching pad to the westernmost localities of the Mediterranean. Along the Western Ligurian Sea the dominant surface current is the Liguro-Provençal current or Northern Current (Milot 1999), which flows westward with a  $1.6 \text{ million m}^3/\text{sec}^{-1}$  flow.

It does not seem to be too hazardous to forecast the appearance of *F. commersonii* along

the French and Spanish coasts within a short time, perhaps even as soon as October 2008, in the Gulf of Lion.

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