

PROVENCE AND MEDITERRANEAN WARMING: THE PARROTFISH *SPARISOMA CRETENSE* IS COMING

P. Astruch¹, P. Bonhomme², A. Goujard¹, E. Rouanet¹, C. Boudouresque^{3*}, J. Harmelin¹ and M. Harmelin-Vivien³

¹ GIS Posidonie, Aix-Marseille University, OSU Pytheas, 13288 Marseille, France

² Parc national des Calanques, Parc Valad, Impasse Paradou, 13009 Marseille, France

³ Mediterranean Institute of Oceanography (MIO) Aix-Marseille University - charles.boudouresque@mio.osupytheas.fr

Abstract

The parrotfish *Sparisoma cretense*, the only Scaridae native to the Mediterranean and a thermophilic species, has been observed and photographed for the first time in eastern Provence, in October 2014. This sighting confirms some scattered accounts of its presence in the north-western Mediterranean and constitutes new evidence of the spread of 'southern' species, most likely linked to the warming of the Mediterranean Sea.

Keywords: Global change, Teleostei, Ligurian Sea

The parrotfish *Sparisoma cretense* (Linnaeus, 1758) (Pisces, Scaridae) is a thermophilic teleost common along the Eastern Atlantic coasts from Senegal to Portugal and the southern and eastern parts of the Mediterranean Sea. It has also been recorded from south-eastern Italy [1], southern Adriatic Sea [2], and around Sardinia, Balearic Islands and Andalusia. To date, it was uncommon in the north-western part of the Mediterranean [3]. Primarily a herbivore, it lives on shallow rocky substrate where it can feed on macroalgae and small invertebrates [4, 5]. Adults reach usually 25-35 cm TL (Total Length).



Fig. 1. Juvenile of *Sparisoma cretense* (8 cm TL) with two colour patterns, observed on October 2014 at Bagaud Island. Above: pale colour pattern; Bottom: an individual with stripe colour pattern (foreground) and two *Symphodus tinca* labrids (background).

During a survey with UVC (Underwater Visual Census) [6], a 8-cm TL individual of *Sparisoma cretense* was observed by SCUBA diving, at 6-7 m depth, along the west coast of Bagaud Island (Port-Cros Archipelago, Port-Cros National Park, Provence, France) on the 8th and the 16th of October 2014 (Figure 1). This single juvenile was swimming along with about 20 juvenile labrids (*Symphodus tinca*), over *Posidonia oceanica* meadows, infralittoral rocky substrates with photophilous macroalgae (*Dictyota* spp., *Padina* sp., *Halopteris scoparia*, etc.) and pebbles. The colour pattern of parrotfish juveniles differs from that of the adult; the body is pale-grey with pink and yellow glints, and big yellow eyes. It can turn into white with two

large horizontal and brown stripes when the fish is stressed (e.g. presence of divers, swell). Given the small size of the observed individual, its settlement occurred probably not far from this area.

This is the first observation of this species with photographic proof along the French continental Mediterranean coast. This sighting confirms some scattered accounts of its presence in the north-western Mediterranean, e.g. at Sugiton (V. Raimondino pers. comm.) and at Laurons Cove (F. Bachel, pers. comm.), near Marseille and in southern Corsica (J.M. Culioli, pers. comm.). The presence of the parrotfish along the Provence coast constitutes new evidence of the northwards spread of 'southern' species, most likely linked to the warming of the Mediterranean Sea [7, 8]. At the moment, the parrotfish individuals are scattered, and distant from the closest established population, so that the probability of these individuals surviving and finding congeners to reproduce is low. But that could change in the near future, with the arrival of new individuals and the increase in warming. The functional compartment of herbivorous teleosts, mainly represented to date, in the north-western Mediterranean, by *Sarpa salpa*, could then be considerably strengthened. Other herbivorous teleosts, the Red Sea invasive species *Siganus* spp., which are spreading westwards and northwards in the Mediterranean, could also strengthen, in the future, this functional compartment.

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