

Supplementary material

Abundance patterns at the invasion front: the case of *Siganus luridus* in Linosa (Strait of Sicily, Central Mediterranean Sea)

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Fig. S1. Video of Linosa Island (Sicily Strait, Mediterranean Sea) on 27 August 2016 – see <https://youtu.be/IDqIVfgUPPY>. Large aggregations of more than one hundred specimens of adult *Siganus luridus* were spotted on seagrass beds at depths of 5–20 m. Credit: Ernesto Azzurro underwater footage.

Environmental data collection

Sea surface temperature (SST) data of the Sicily strait were collected from the Mediterranean Forecasting System (http://gnoo.bo.ingv.it/mfs/B4G_indicators/SST.htm), from the European Environmental Agency (<http://www.eea.europa.eu/data-and-maps/indicators/sea-surface-temperature-1/assessment-1>) and also downloaded from SeaWiFS satellite images (http://gdata1.sci.gsfc.nasa.gov/daac-bin/G3/gui.cgi?instance_id=ocean_month).

Sea surface salinity data were compiled for the Sicily strait from Gačić *et al.* (2013) and for the whole Mediterranean from http://gnoo.bo.ingv.it/mfs/B4G_indicators/SSS.htm.

Environmental data results

The analyses of sea surface temperature (SST) anomalies from the Mediterranean basin pointed out to a constant increase of the SST positive anomalies since 1997 (Fig. S2). Notwithstanding, the analysis of monthly-averaged sea surface temperature from satellite data for the Sicily Strait, from July 2002 to May 2015 (Fig. S3) and for the whole Mediterranean basin (figure available at http://gnoo.bo.ingv.it/mfs/B4G_indicators/SST.htm) reported a typical seasonal trend of surface temperature (i.e. peaks of SST in summer and the lowest values from December to April) with no clear significant increase in the last 16 years (from the 1999 onwards).

Sea surface salinity (SSS) showed a clearer increasing trend than temperature in the last decades, both at sub-basin scale, i.e. the Sicily Strait (Gačić *et al.* 2013), and at basin scale, the whole Mediterranean (Fig. S4), with a mean increase of ~ 0.5 PSU since 1999.

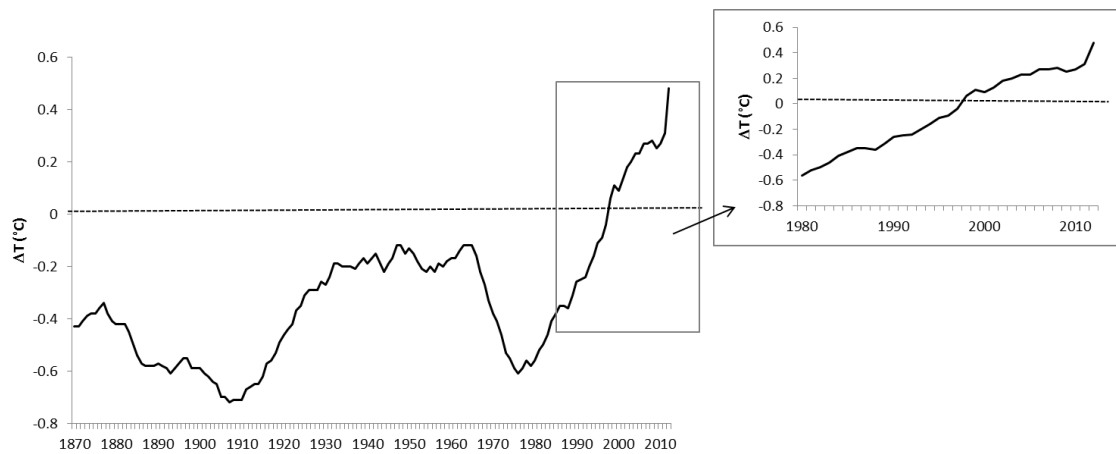


Fig. S2. Sea surface temperature (SST, ΔT) anomalies from 1870 to 2012 for the Mediterranean basin from <http://www.eea.europa.eu/data-and-maps/indicators/sea-surface-temperature-1/assessment-1>. The insight rectangle indicates SST anomalies from 1980 to 2012.

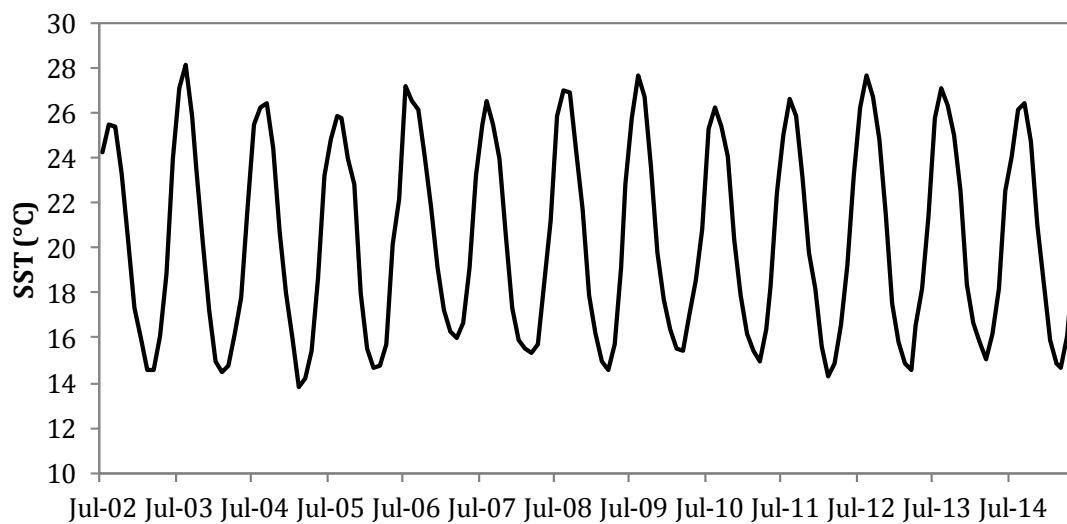


Fig. S3. Sea surface temperature (SST) monthly trend from July 2002 to May 2015 for the Sicily Strait from http://gdata1.sci.gsfc.nasa.gov/daac-bin/G3/gui.cgi?instance_id=ocean_month.

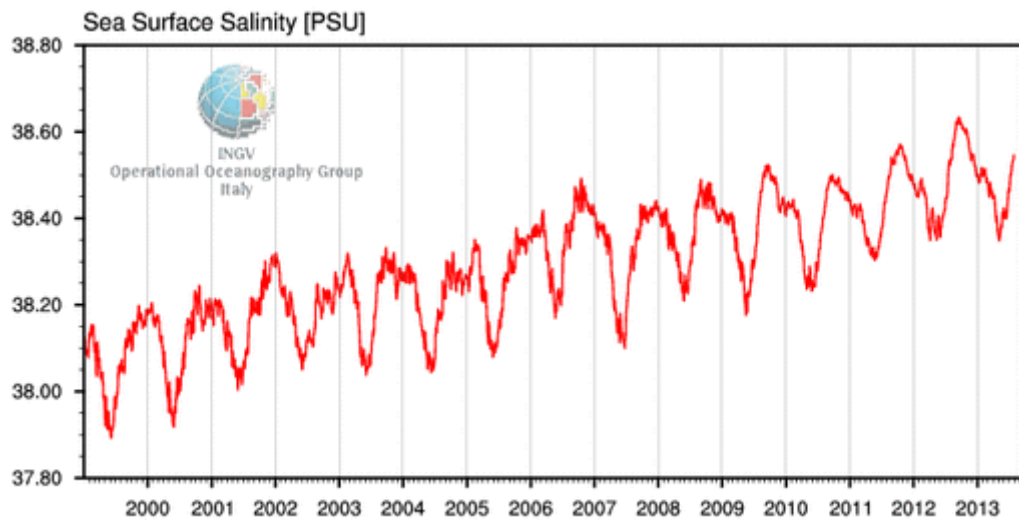


Fig. S4. Sea surface salinity (SSS) monthly trend from 1999 to 2014 from http://gnoo.bo.ingv.it/mfs/B4G_indicators/SSS.htm.

Reference

Gačić, M., Schroeder, K., Civitarese, G., Cosoli, S., Vetrano, A., and Eusebi Borzelli, G. L. (2013). Salinity in the Sicily Channel corroborates the role of the Adriatic–Ionian Bimodal Oscillating System (BiOS) in shaping the decadal variability of the Mediterranean overturning circulation. *Ocean Science* **9**, 83–90. doi:10.5194/os-9-83-2013