



Supplement of

Mediterranean marine heatwave 2023: ecosystem and fisheries impacts in Italian waters

Riccardo Martellucci et al.

Correspondence to: Riccardo Martellucci (rmartellucci@ogs.it) and Sofia F. Darmaraki (sofia.darmaraki@dal.ca)

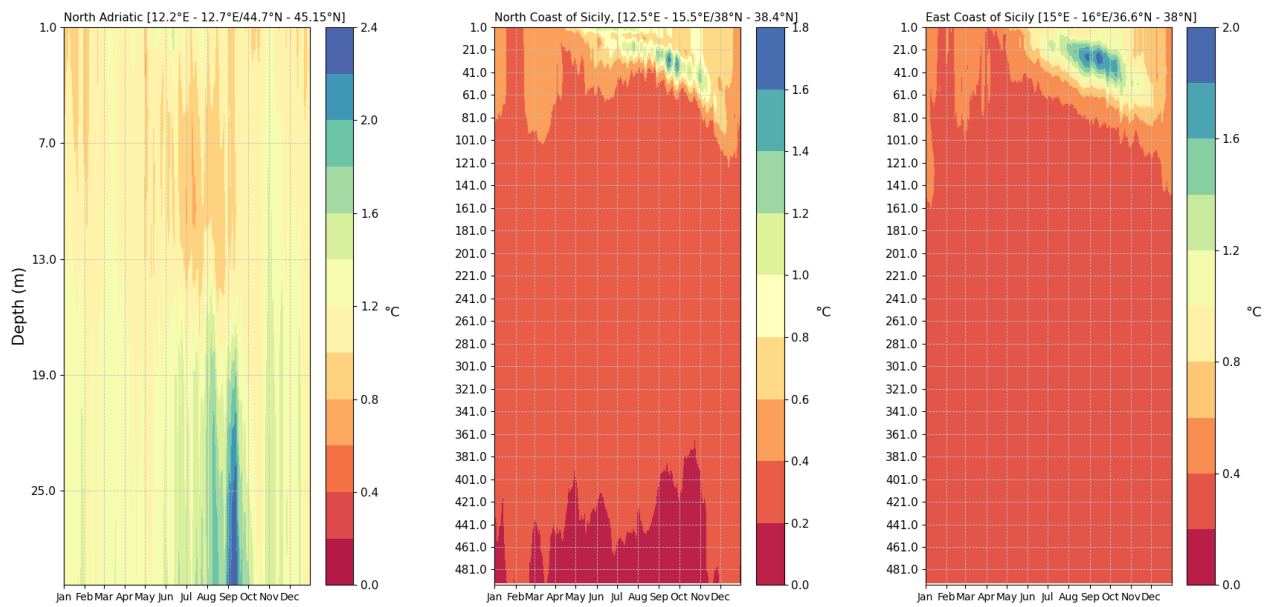
The copyright of individual parts of the supplement might differ from the article licence.

SUPPLEMENTARY MATERIAL:

Area	Event No	Starting Date	Ending date	Duration (Days)	Intensity (°C)	Category
North Adriatic	1	21-3-2023	25-3-2023	5	2.6	Moderate
	2	15-7-2023	23-7-2023	9	2.9	Moderate
	3	18-8-2023	28-8-2023	11	3	Strong
	4	16-9-2023	23-9-2023	8	2.5	Moderate
	5	1-10-2023	5-11-2023	36	2.6	Strong
	6	30-11-2023	4-12-2023	5	2	Moderate
East Sicily	1	7-7-2023	27-7-2023	21	2.6	Strong
	2	23-8-2023	27-8-2023	5	1.6	Moderate
	3	5-10-2023	3-11-2023	30	1.7	Moderate
North Sicily	1	23-3-2023	27-3-2023	5	1.4	Strong
	2	10-7-2023	3-8-2023	25	2.5	Strong
	3	7-10-2023	24-11-2023	24	1.6	Moderate

Table S1: Metrics of the MHWs identified in the 3 study areas, following the framework proposed by Hobday et al. (2016). The events were detected using the spatially-averaged SST time series between 1982-2023, from the Mediterranean Sea SST Analysis L4 product of the Copernicus Marine Service (<https://doi.org/10.48670/moi-00173>) .

Figure S1: Daily, standard deviation of the spatially-averaged temperature at each depth, for the Northern Adriatic (*left*), Northern (*middle*) and Eastern (*right*) Sicily study areas. Standard deviation is based on the period 1993-2023. Temperature data were obtained from the Mediterranean Sea Physics Reanalysis dataset

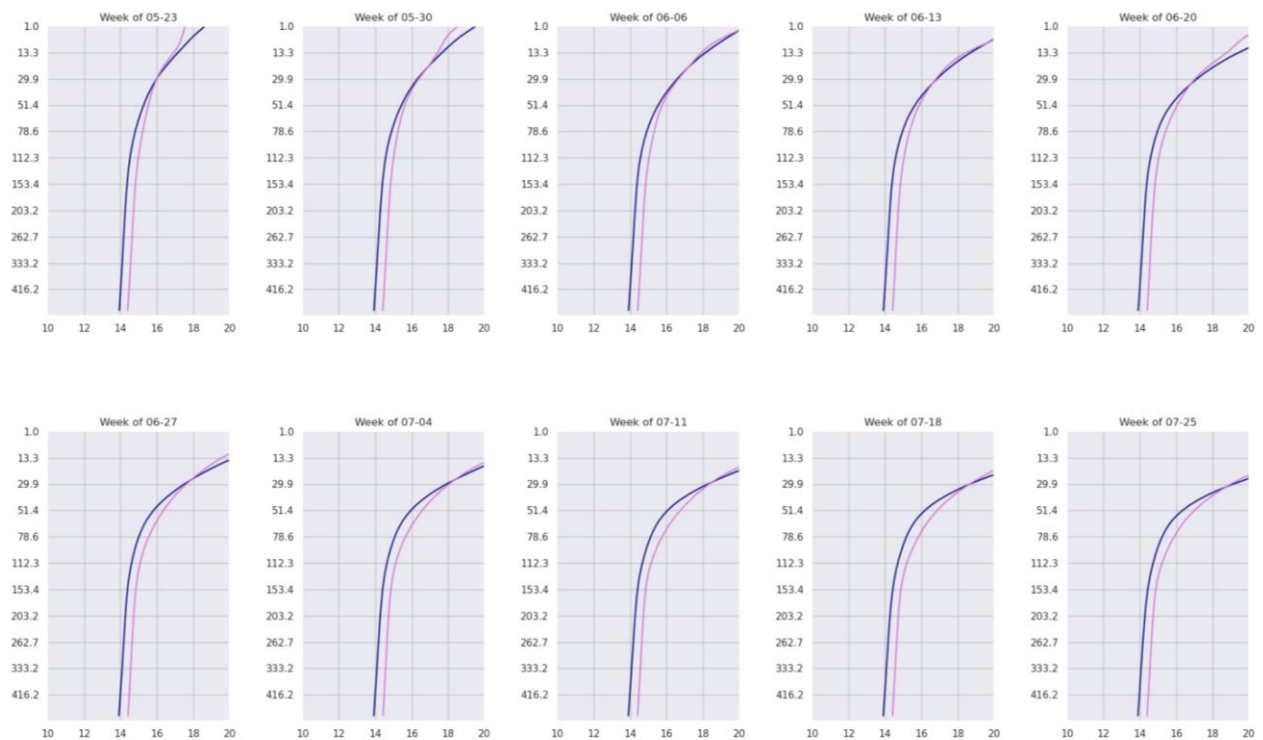


https://doi.org/10.25423/CMCC/MEDSEA_MULTIYEAR_PHY_006_004_E3R1

Figure S2. Weekly and spatially-averaged temperature at each depth in the Northern Sicily study area for the period between the end of May and the end of July. Climatological (1993-2016) temperatures are indicated in blue and those of 2023 in pink. The vertical temperature profiles correspond to the period with the highest negative, subsurface temperature anomalies of 2023 (see Figure.3d). Temperature data were obtained from the

Mediterranean Sea Physics Reanalysis dataset

https://doi.org/10.25423/CMCC/MEDSEA_MULTIYEAR_PHY_006_004_E3R1



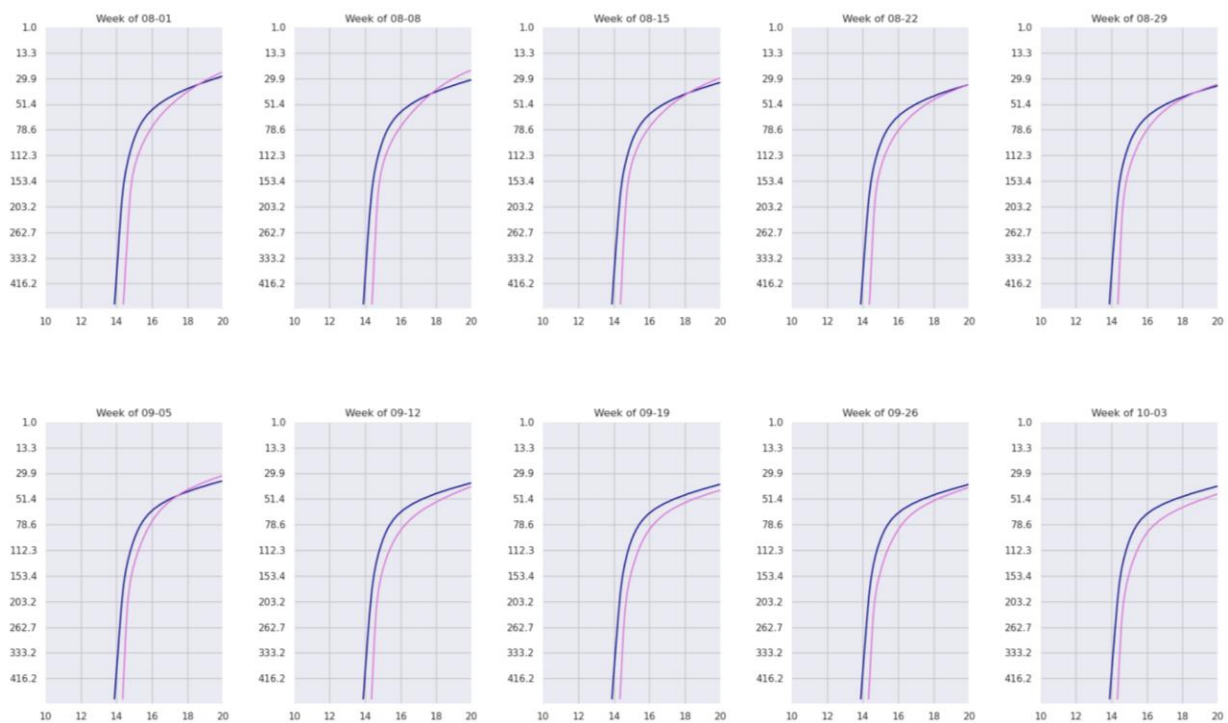


Figure S3. As in Figure S2 but for the Eastern Sicily study area and the period August-October.



Figure S4: Case containing male and female blue crab specimens, females show ventral part filled with eggs (top). Many cases containing blue crab, each case can hold up to 200 kg of specimens (lower left), pictures highlighting the presence of blue crab in the Scardovari lagoon (lower right)



Figure S5: Net containing fireworms that feed on caught fish (top). Fireworms attached at fish net (lower left), and large amount of fireworms caught during fish activities (lower right).