

Title: The decadal variability of elemental, isotopic and biochemical compositions of coastal Mediterranean zooplankton responds to environmental changes.

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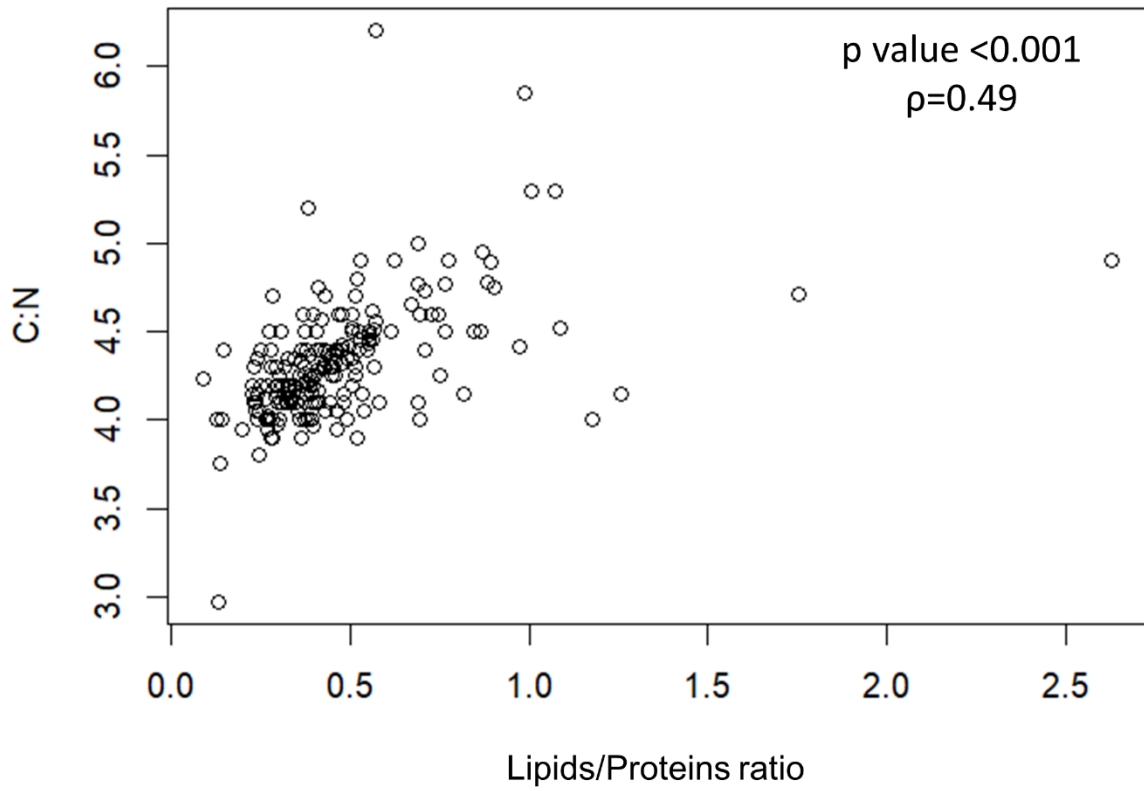


Figure 1: Pearson correlation (with Chelton correction for autocorrelation) between Lipids/Proteins ratio and C:N.

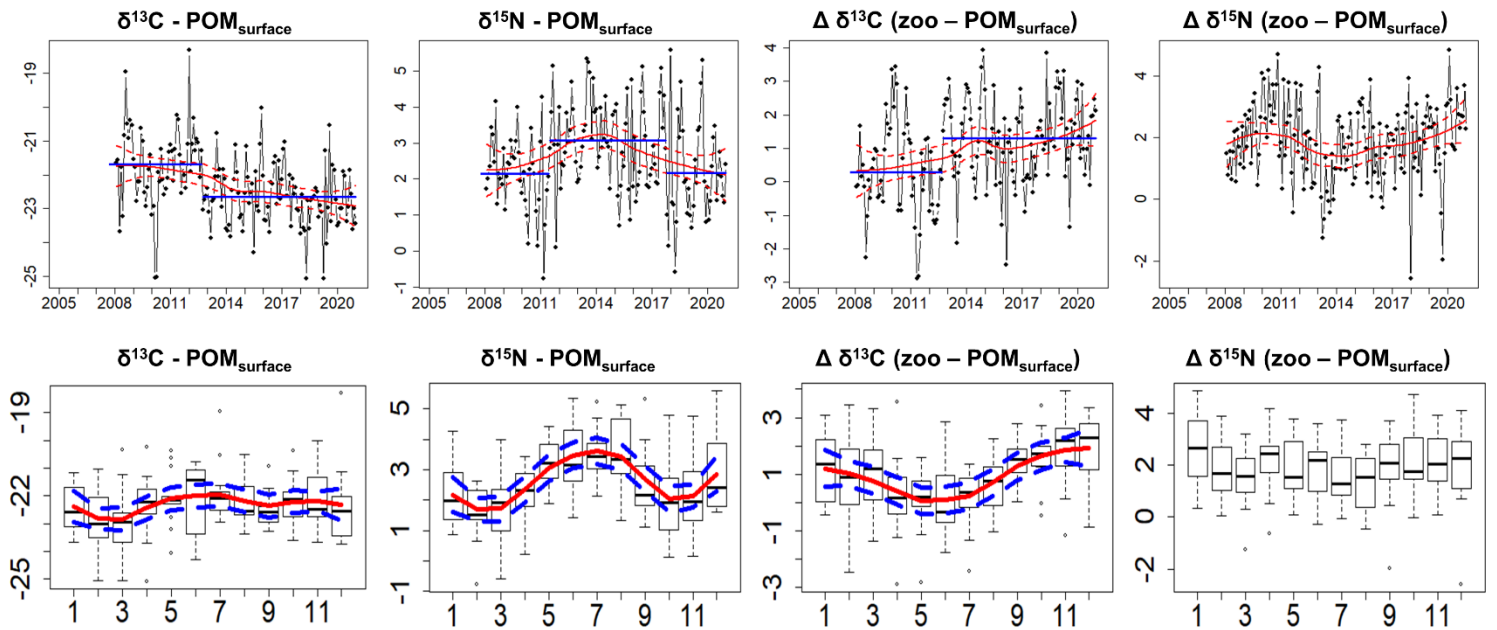


Figure 2: (Upper panels) Monthly interannual variations of subsurface POM stable isotope composition times series and their difference relative to stable isotope zooplankton time series (black points & lines). The continuous red lines correspond to the local regressions smoothing to describe the trends (dashed lines correspond to 95% confidence interval). The blue lines correspond to the mean values of the series before and after a breakpoint date. For series without blue lines no breakpoints were detected. $\delta^{13}\text{C}$ (zoo and POM_s) and $\delta^{15}\text{N}$ (zoo and POM_s) are expressed in ‰. (Bottom panels) Boxplot of the seasonal pattern of subsurface POM stable isotope composition times series and their difference relative to stable isotope zooplankton time series. When significant loess regression models were found the seasonal effect is represented by a red continuous line. The 95% confidence interval is represented by blue dashed lines. $\delta^{13}\text{C}$ (zoo and POM_s) and $\delta^{15}\text{N}$ (zoo and POM_s) are expressed in ‰.

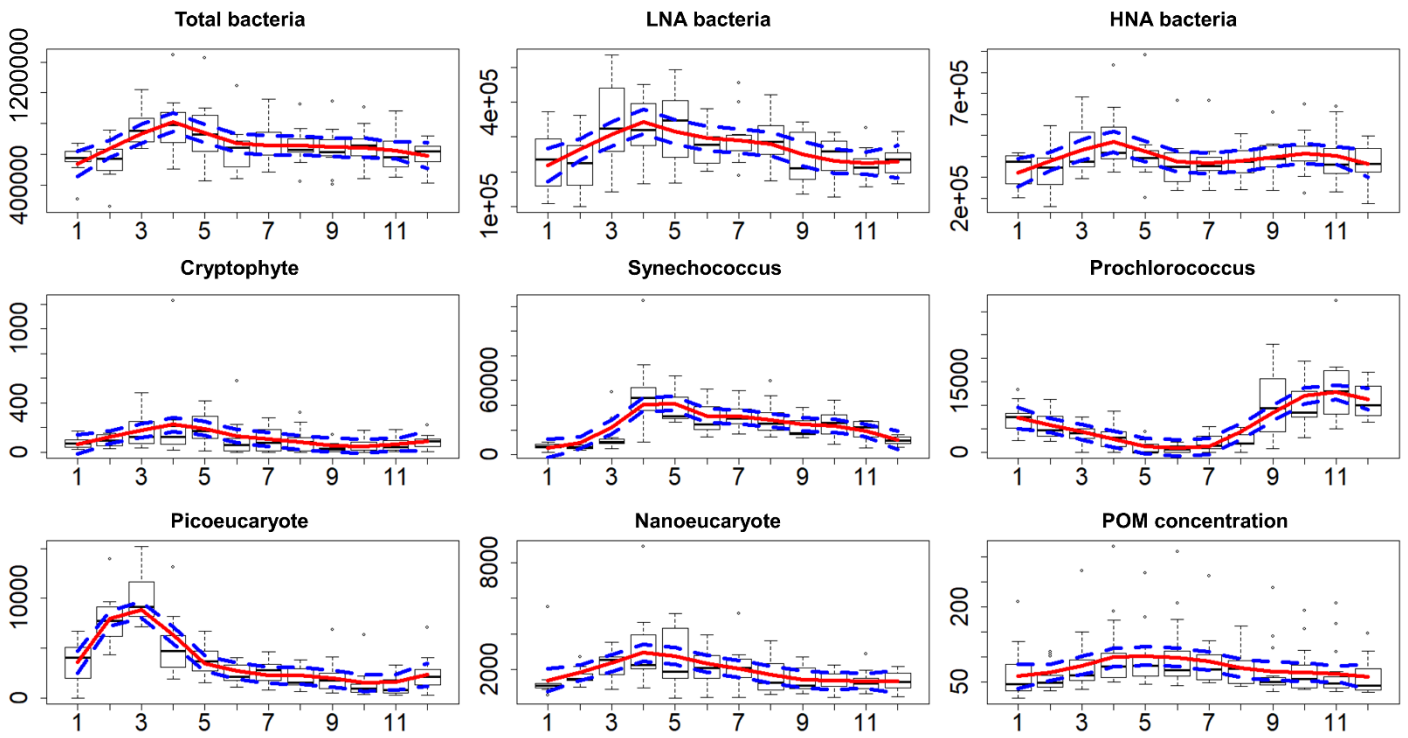


Figure 3: Boxplot of the seasonal pattern of the plankton groups abundances (cells.mL⁻¹)

observed by means of cytometry (-1 m) and POM concentration (μg.L⁻¹) time series. When significant loess regression models were found the seasonal effect is represented by a red continuous line. The 95% confidence interval is represented by blue dashed lines.

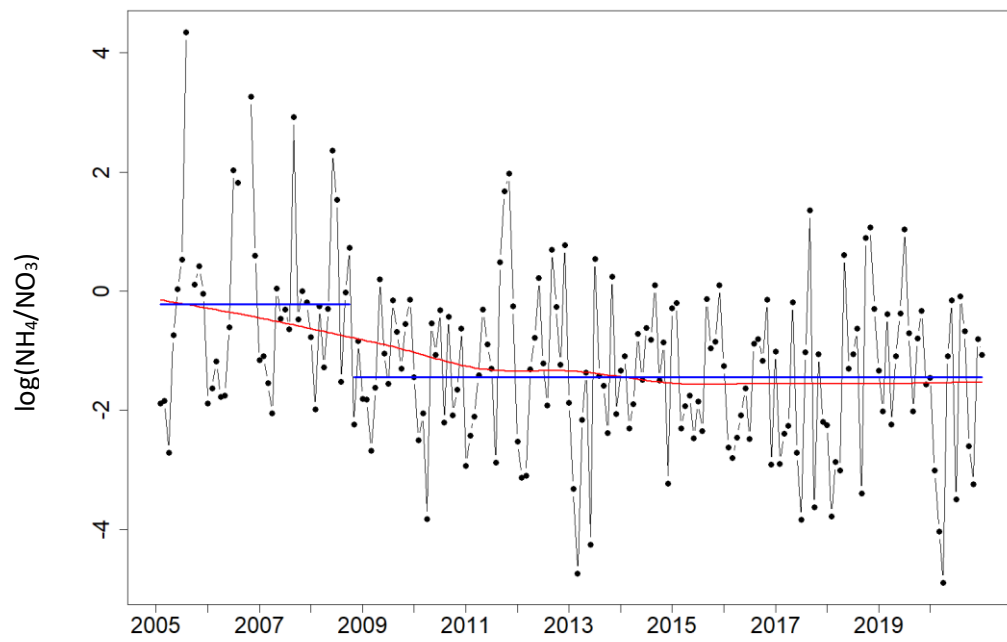


Figure 4: Temporal change of logarithm value of NH_4/NO_3 ratio. The red line corresponds to the local regressions smoothing to describe the trends. The blue lines correspond to the mean values of the series before and after the breakpoint date.

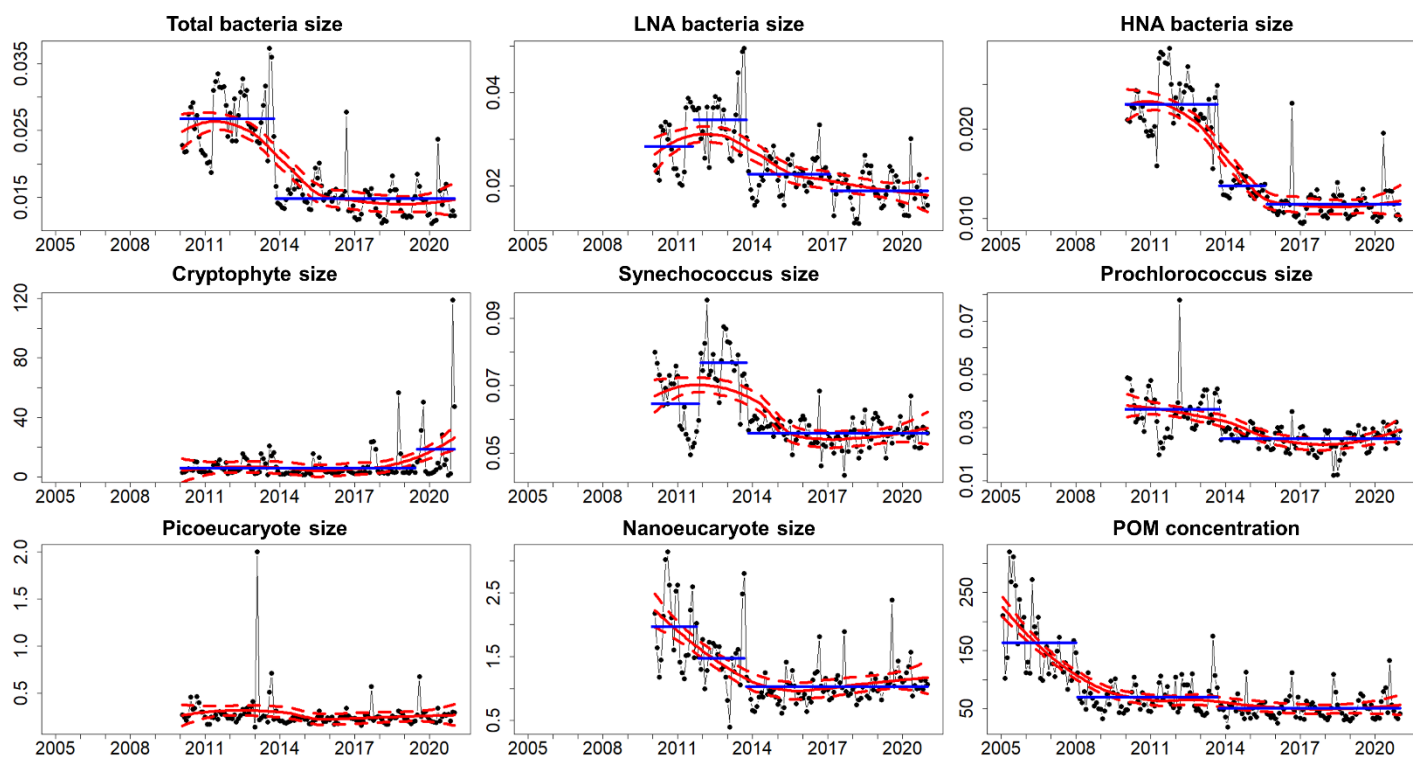


Figure 5: Monthly interannual variations of the plankton groups size (unitless) observed by means of cytometry (-1m) and POM concentration ($\mu\text{g.L}^{-1}$) time series (black points & lines). The continuous red lines correspond to the local regressions smoothing to describe the trends (dashed lines correspond to 95% confidence interval).

Table 1: Summary of the characteristics of the stable isotope ratios time series of subsurface particulate organic matter ($\text{POM}_{\text{surface}}$). Differences (Δ) between stable isotopes ratios ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) of zooplankton 300-500 μm and surface POM are reported at time t (i.e. for a same month).

Variable	Unit	Mean (min/max)	Shifts date	Mean before/after shift
$\delta^{13}\text{C-POM}_{\text{surface}}$	‰	-22.3 (-25.07/-18.30)	2012	-21.69 / -22.65
$\delta^{15}\text{N- POM}_{\text{surface}}$	‰	2.6 (-0.76/5.58)	2011, 2017	2.14 / 3.06 / 2.17
$\Delta \delta^{13}\text{C (zoo-POM}_{\text{surface}})_t$	‰	0.9 (-2.9/3.9)	2012	0.27 / 1.29
$\Delta \delta^{15}\text{N (zoo-POM}_{\text{surface}})_t$	‰	1.9 (-2.6/4.9)	-	-