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**Le Bourg, Baptiste; Lepoint, Gilles; Michel, Loïc N (2019):** Stable isotope and C/N ratios in the sea star *Marthasterias glacialis* preserved frozen, dried, in formaldehyde or in ethanol. *PANGAEA*, <https://doi.org/10.1594/PANGAEA.906520>,  
*Supplement to:* Le Bourg, B et al. (2019): Effects of preservation methodology on stable isotope compositions of sea stars. *Rapid Communications in Mass Spectrometry*, <https://doi.org/10.1002/rcm.8589>

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## Abstract:

Stable isotope analysis (SIA) is used to investigate the trophic ecology of organisms. After field sampling, tissues are usually preserved dried or frozen. However, samples not initially collected for SIA such as museum samples are often fixed in preservative fluids. Nevertheless, preservative fluids may alter stable isotope ratios and, potentially, diverse metrics derived from isotopic data (i.e. isotopic niches). Consequently, their effects should be quantified to determine whether museum samples are suitable for SIA. This dataset is the result of the experimental assessment of the long-term effects (up to 24 months) of freezing, drying, formaldehyde and ethanol preservation on  $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$ ,  $\delta^{34}\text{S}$  values, C/N ratios and on isotopic niche parameters of the sea star *Marthasterias glacialis* (Echinoderm). Formaldehyde quickly affected  $\delta^{13}\text{C}$  values. However, after being altered, the mean  $\delta^{13}\text{C}$  value remained stable over time, suggesting that a correction factor could be used regardless of preservation time. Ethanol induced a gradual increase of  $\delta^{13}\text{C}$  values until an asymptote that could also be adjusted with a correction factor. None of the preservation methods had significant or consistent effect on  $\delta^{15}\text{N}$ . Formaldehyde induced a decrease of  $\delta^{34}\text{S}$  values that could be adjusted by adding correction factors. The parameters of the isotopic niches were slightly modified across time when computed with  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values, but inconsistent variations occurred when computed with  $\delta^{13}\text{C}$  and  $\delta^{34}\text{S}$  values. Overall, these results show that correction factors may be used to mitigate the effects of the preservation method on stable isotope ratios of sea stars and that, in most case, museum samples are suitable to calculate isotopic niche parameters.

## Keyword(s):

isotopic niche [Q](#); preservation [Q](#); sea stars [Q](#); Stable isotopes [Q](#)

## Parameter(s):

#	Name	Short Name	Unit	Principal Investigator	Method/Device	Comment
1	Sample ID <a href="#">Q</a>	Sample ID		Le Bourg, Baptiste <a href="#">Q</a>		material
2	Species <a href="#">Q</a>	Species		Le Bourg, Baptiste <a href="#">Q</a>		scientificName
3	Identification <a href="#">Q</a>	ID		Le Bourg, Baptiste <a href="#">Q</a>		anbialID

9	$\delta^{13}\text{C}$ , standard deviation 	$\delta^{13}\text{C}$ std dev $\pm$		Le Bourg, Baptiste 		
10	$\delta^{15}\text{N}$ 	$\delta^{15}\text{N}$	$\text{‰ air}$	Le Bourg, Baptiste 		vs Air
11	$\delta^{15}\text{N}$ , standard deviation 	$\delta^{15}\text{N}$ std dev $\pm$		Le Bourg, Baptiste 		
12	$\delta^{34}\text{S}$ 	$\delta^{34}\text{S}$	$\text{‰ CDT}$	Le Bourg, Baptiste 		vs CTD
13	$\delta^{34}\text{S}$ , standard deviation 	$\delta^{34}\text{S}$ std dev $\pm$		Le Bourg, Baptiste 		
14	Carbon/Nitrogen ratio 	C/N		Le Bourg, Baptiste 		mass ratio

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Size:

7840 data points

## Download Data

Download dataset as tab-delimited text — use the following character encoding:

UTF-8: Unicode (PANGAEA default) 

View dataset as HTML (*shows only first 2000 rows*)

## Datasets with similar metadata

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**Power, M; Power, G; Reist, JD et al. (2009):** (Table 6) Stable isotope ratios and C/N ratios in muscle tissue of Arctic charr (*Salvelinus alpinus*) from Lake Aigneau. <https://doi.org/10.1594/PANGAEA.818403>

**Simstich, J; Stanovoy, VV; Bauch, D et al. (2010):** Stable isotope ratios from foraminifera in Kara Sea sediments. <https://doi.org/10.1594/PANGAEA.754600>

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**Leider, A; Hinrichs, K-U; Schefuß, E et al. (2013):** (Table 2) Location of marine sediment samples along the eastern Italian shelf, CPI, ACL, ratio between n-C31 and n-C29 alkane, concentration of summed n-C29 and n-C31 alkane, stable  $\delta^{13}\text{C}$  and dD composition of n-C29 and n-C31 alkane. <https://doi.org/10.1594/PANGAEA.815068>

**Naeher, S; Geraga, M; Papatheodorou, G et al. (2012):** Bulk parameters in sediments of Amvrakikos Gulf, Greece, core 15. <https://doi.org/10.1594/PANGAEA.777455>

