

Supplement

Table S1. Spearman correlations (r) between total lipids from food sources and polar lipids from sand dollars for three essential polyunsaturated fatty acids (i.e. 20:4 ω 3, 20:5 ω 3, and 22:6 ω 3). Shaded boxes indicate either a test with a non-significant p-value (p) (i.e. > 0.05) or the absence of a statistical test (NA). HTS: High Stratification Period, WTS: Weak Stratification Period.

	Surface POM			Bottom POM			SOM		
	20:4 ω 6	20:5 ω 3	22:6 ω 3	20:4 ω 6	20:5 ω 3	22:6 ω 3	20:4 ω 6	20:5 ω 3	22:6 ω 3
HTS (Sept. 2017)	NA	NA	NA	NA	$r = -0.10$ $p = 0.63$	$r = 0.37$ $p = 0.06$	NA	NA	NA
WTS (July 2018)	NA	$r = 0.35$ $p = 0.02$	$r = -0.16$ $p = 0.32$	NA	$r = -0.34$ $p = 0.03$	$r = -0.60$ $p < 0.01$	NA	NA	NA

Table S2. Mean Diameter (mm), Total weight (mm), Wet Flesh Weight (mg) and Condition Index (CI) of sand dollars collected during WTS (July 2018) and HTS (September 2017) periods.

Period	Station	Diameter (mm)	SE	n
WTS	1	49.2	1.22	14
WTS	2	46.8	2.14	12
WTS	3	55.3	1.82	14
HTS	1	53.7	0.66	13
HTS	2	55.7	0.46	11
HTS	4	49.5	1.13	3
Period	Station	Total Weight (g)	SE	n
WTS	1	11.81	0.95	14
WTS	2	9.51	1.40	10
WTS	3	13.86	1.29	14
HTS	1	12.14	0.62	13
HTS	2	14.71	0.51	11
HTS	4	12.36	1.16	3
Period	Station	Wet Flesh Weight (mg)	SE	n
WTS	1	20.71	3.26	14
WTS	2	8.02	2.02	10
WTS	3	40.35	5.68	14
HTS	1	17.9	2.21	13
HTS	2	40.14	9.53	11
HTS	4	38.96	1.53	3
Period	Station	Condition Index	SE	n
WTS	1	4.93	0.22	14
WTS	2	3.25	0.65	10
WTS	3	5.5	0.85	14
HTS	1	4.68	0.18	13
HTS	2	5.13	0.43	11
HTS	4	8.08	1.25	3

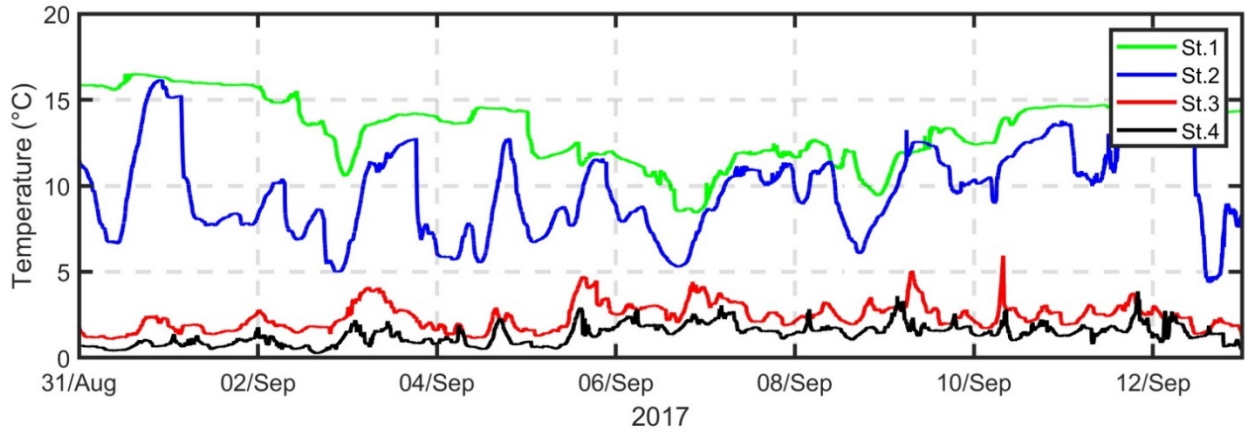


Figure S1. Diurnal thermal oscillations resulting from the internal wave action over the sampled stations 1, 2 and 4 during the HTS period. Of note, although the internal wave acts over the entire water column, it is the most intense on station 2.

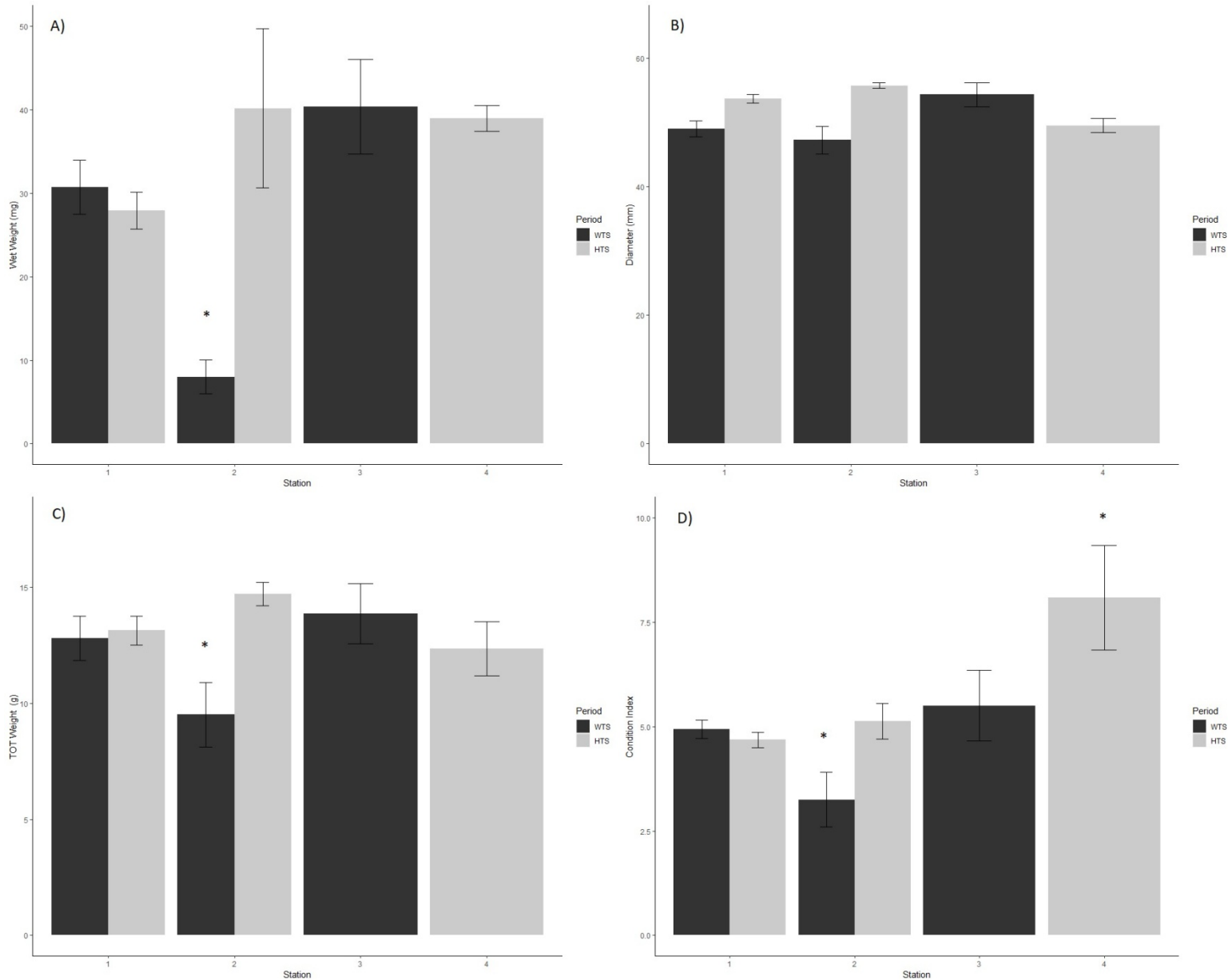


Figure S2. Bar graphs illustrating the mean A) Wet Flesh Weight, B) Diameter, C) Total Weight, and D) Condition Index. A value significantly different from all the others is represented by an asterisk ($p < 0.05$).

The condition index (CI) is based on the following formula proposed by Davenport and Chen (1987), which we applied to echinoderms:

$$CI = (\text{Wet Flesh Weight} / (\text{Wet Test Weight})) * 100$$

With: Wet Test Weight = Total Weight – Wet Flesh Weight

Literature cited

Davenport J, Chen X (1987) A comparison of methods for the assessment of condition in the mussel (*Mytilus edulis* L.). J Moll Stud 53:293-297.