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Additional Information

Table S1. ANOVA multifactorial tests for the environmental variables. Stations, depths and sampling campaigns are organised from the lowest to the highest in the results of the Tukey post hoc tests.

	Station p-value	Station post hoc	Depth (m) p-value	Depth post hoc	Sampling campaign p-value	Sampling campaign post hoc	Interactions Factors	Interactions p-value
Temperature	0.2516	N.S.	0.0947	N.S.	0	February 2014 X; December 2014 X; July 2013 X	Depth-Station	0.054
							Depth-Sampling campaign	0.0601
							Station-Sampling campaign	0
Salinity	0.0015	E X; B XX; A X; C X; D X	0.0007	0.5 X; 1 XX; 2 XX; 4 X; 3 X	0	February 2014 X; July 2013 X; December 2014 X	Depth-Station	0.1656
							Depth-Sampling campaign	0.0273
							Station-Sampling campaign	0.0001
SS	0.0008	C X; D X; B XX; A X; E X	0.0175	3 X; 4 XX; 2 XX; 1 XX; 0.5 X	0	February 2014 X; July 2013 X; December 2014 X	Depth-Station	0.1158
							Depth-Sampling campaign	0.0849
							Station-Sampling campaign	0.004
DIN	0.0154	E X; D XX; A XX; C XX; B X	0.0001	4 X; 3 XX; 2 XX; 1 XX; 0.5 X	0	July 2013 X; February 2014 X; December 2014 X	Depth-Station	0.2406
							Depth-Sampling campaign	0.0002
							Station-Sampling campaign	0.0192
$Si(OH)_4$	0.0058	E X; D XX; A XX; C XX; B X	0.077	N.S.	0	February 2014 X; July 2013 X; December 2014 X	Depth-Station	0.7658
							Depth-Sampling campaign	0.9733
							Station-Sampling campaign	0.13
PO_4^{-3}	0.2767	N.S.	0.1791	N.S.	0.0813	N.S.	Depth-Station	0.7187
							Depth-Sampling campaign	0.0782
							Station-Sampling campaign	0.6546
TP	0.3973	N.S.	0.4147	N.S.	0	February 2014 X; July 2013 X; December 2014 X	Depth-Station	0.5067
							Depth-Sampling campaign	0.4728
							Station-Sampling campaign	0.004
Alloxanthin	0.457	N.S.	0.3155	N.S.	0	December 2014 X; July 2013 X; February 2014 X	Depth-Station	0.5348
							Depth-Sampling campaign	0.4524
							Station-Sampling campaign	0.0059
Chl_*a*	0.4851	N.S.	0.2311	N.S.	0	December 2014 X; July 2013 X; February 2014 X	Depth-Station	0.348
							Depth-Sampling campaign	0.3048
							Station-Sampling campaign	0.0255
Chl_*b*	0.0015	C X; A XX; B X; D X; E X	0.5564	N.S.	0	December 2014 X; July 2013 X; February 2014 X	Depth-Station	0.3044
							Depth-Sampling campaign	0.2572
							Station-Sampling campaign	0

	Station		Depth (m)		Sampling campaign		Interactions	
	p-value	post hoc	p-value	post hoc	p-value	post hoc	Factors	p-value
Fucoxanthin	0.0458	N.S.	0.1661	N.S.	0	December 2014 X July 2013 X February 2014 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.0835 0.016 0
Lutein	0.5435	N.S.	0.249	N.S.	0.0135	December 2014 X July 2013 XX February 2014 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.2807 0.2969 0.5417
Neoxanthin	0.6953	N.S.	0.8467	N.S.	0.0001	December 2014 X July 2013 X February 2014 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.1512 0.5477 0.7994
Peridinin	0	D X E X C XX A X B X	0.307	N.S.	0	February 2014 X December 2014 X July 2013 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.4807 0.2997 0
Prasinoxanthin	0.3991	N.S.	0.5642	N.S.	0	July 2013 X December 2014 X February 2014 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.4335 0.1975 0.1479
Violoxanthin	0.0517	N.S.	0.4494	N.S.	0	December 2014 X July 2013 X February 2014 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.4853 0.0554 0.1158
Zeaxanthin	0.0432	D X E XX B XX A XX C X	0.0841	N.S.	0.0007	December 2014 X February 2014 X July 2013 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.5443 0.2452 0.3846
19' butanoyloxyfucoxanthin	0.2965	N.S.	0.1167	N.S.	0	December 2014 X July 2013 X February 2014 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.4386 0.3992 0
19' hexanoyloxyfucoxanthin	0	A X C X B X E X D X	0.2129	N.S.	0	December 2014 X February 2014 X July 2013 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0 0.43 0
Mean grain size	0.0043	E X A X B XX C XX D X	0	4 X 3 X 2 X 1 XX 0.5 X	0.0789	N.S.	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.0127 0.032 0.6725

	Station		Depth (m)		Sampling campaign		Interactions	
	p-value	**post hoc**	**p-value**	**post hoc**	**p-value**	**post hoc**	**Factors**	**p-value**
OM	0.0754	N.S.	0	1 X 0.5 X 2 XX 3 X 4 X	0.0036	December 2014 X July 2013 XX February 2014 X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.0278 0.5837 0.0787

Table S2. ANOVA multifactorial tests for the fauna variables. Stations, depths and sampling campaigns are organised from the lowest to the highest in the results of the Tukey post hoc tests.

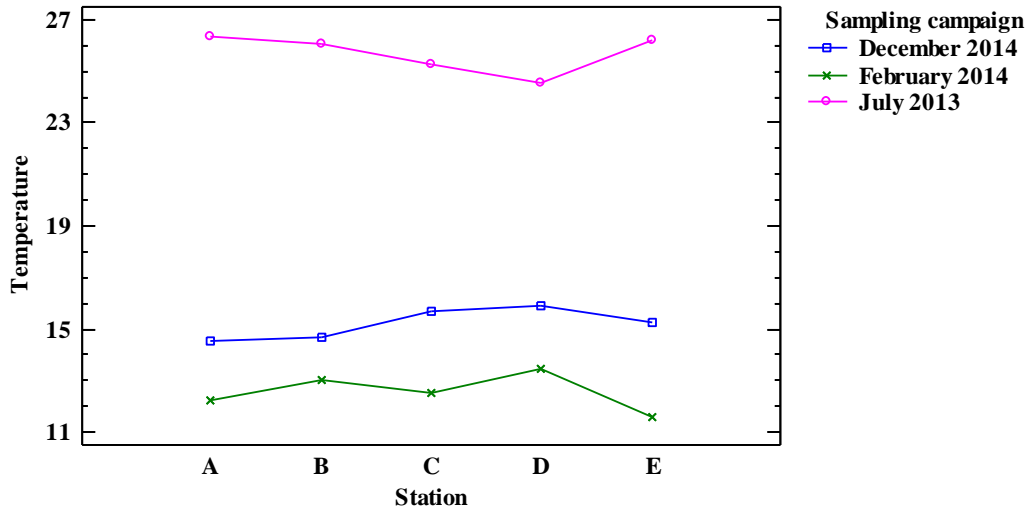|	Station		Depth (m)		Sampling campaign		Interactions	
	p-value	post hoc	p-value	post hoc	p-value	post hoc	Factors	p-value
Total density	0	E X D XX C XX B X A X	0	0.5 X 1 X 2 X 3 X 4 X	0	Late winter X Early winter X Summer X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.0779 0.0016 0.1553
Bivalve density	0.0252	E X D XX B XX C XX A X	0	1 X 0.5 X 2 X 3 X 4 X	0.0001	Late winter X Early winter X Summer X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.2882 0.0001 0.7547
Crustacea density	0	E X D X C X A XX B X	0	0.5 X 1 X 2 X 3 X 4 X	0	Late winter X Early winter X Summer X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.0023 0.0059 0.0447
Polychaeta density	0.0069	E X D XX C XX B X A X	0	1 X 0.5 X 2 X 3 X 4 X	0.009	Late winter X Early winter X Summer X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.7129 0.8124 0.5756
Donax trunculus density	0.0039	E X A XX C XX B XX D X	0	3 X 4 X 2 X 0.5 X 1 X	0	Late winter X Early winter X Summer X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.0626 0.0003 0.6407
Chamelea gallina density	0.3511	N.S.	0	0.5 X 2 X 1 X 3 X 4 X	0.0153	Early winter X Late winter XX Summer X	Depth-Station Depth-Sampling campaign Station-Sampling campaign	0.2008 0.0922 0.3157

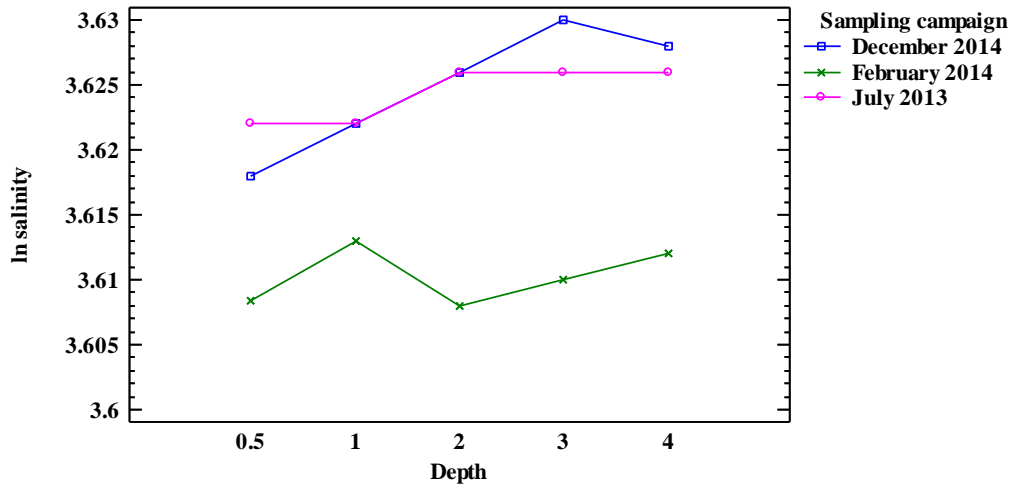**Fig. S1.** Interaction graph between stations and sampling campaigns for temperature.

Fig. S2. Interaction graph between depths and sampling campaigns for the natural logarithm of salinity.
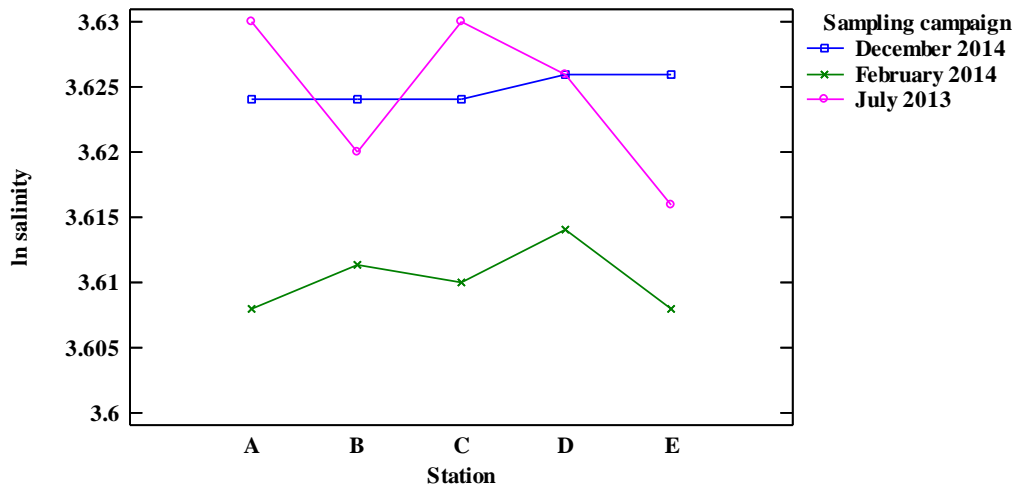

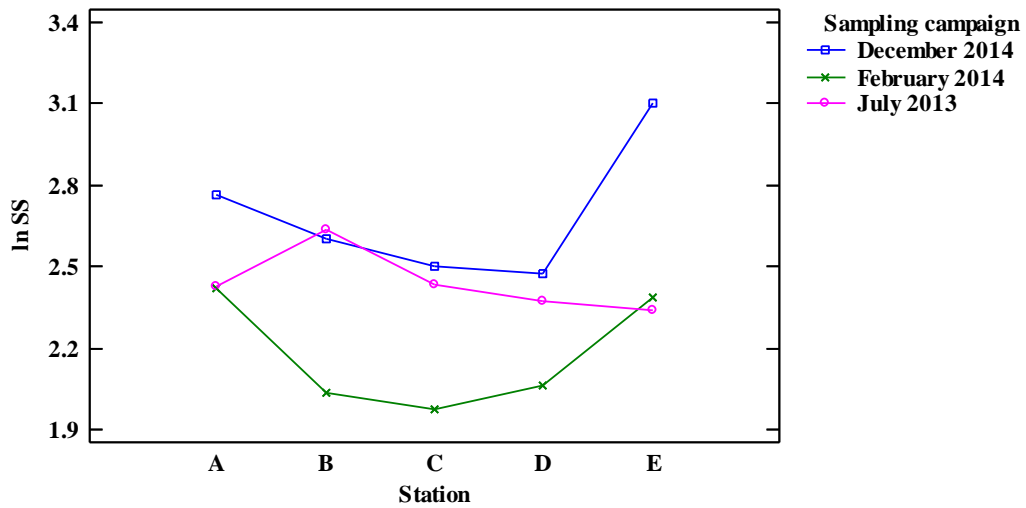**Fig. S3**. Interaction graph between stations and sampling campaigns for the natural logarithm of salinity.

Fig. S4. Interaction graph between stations and sampling campaigns for the natural logarithm of suspended solids
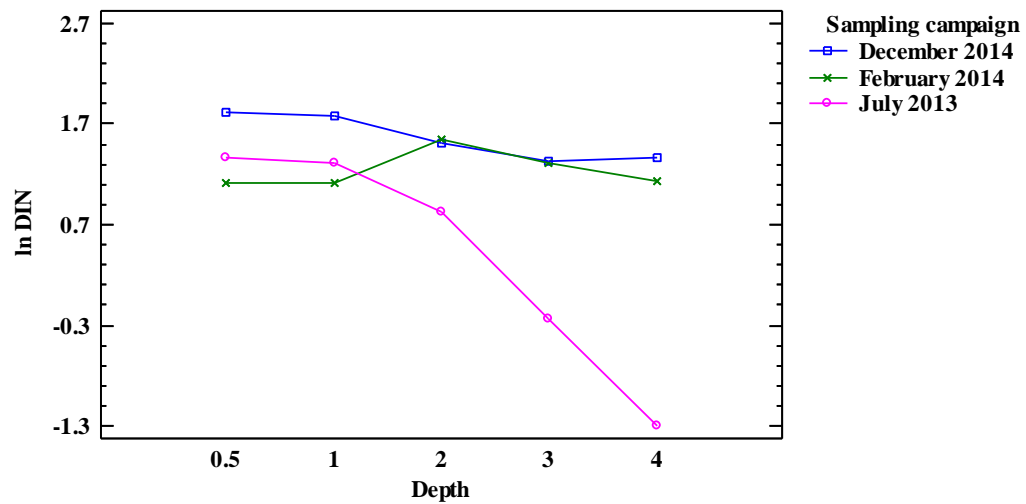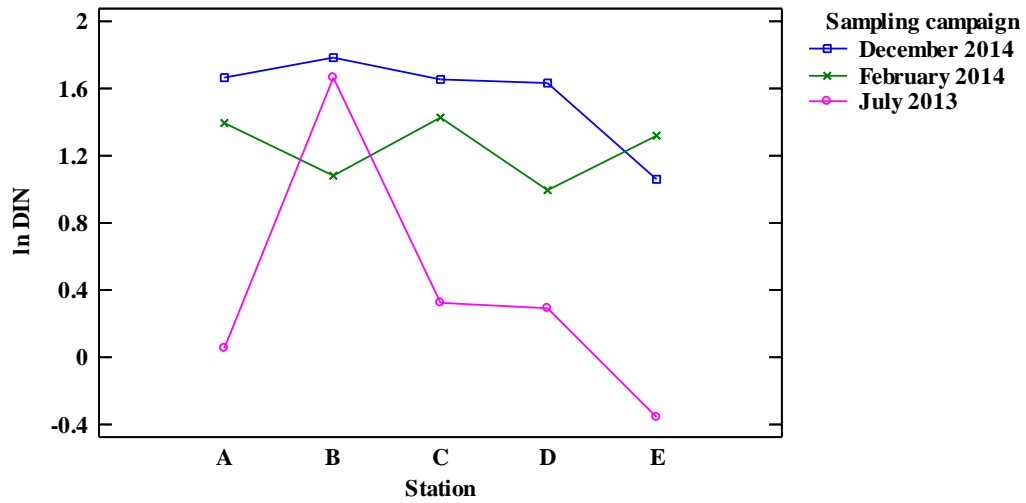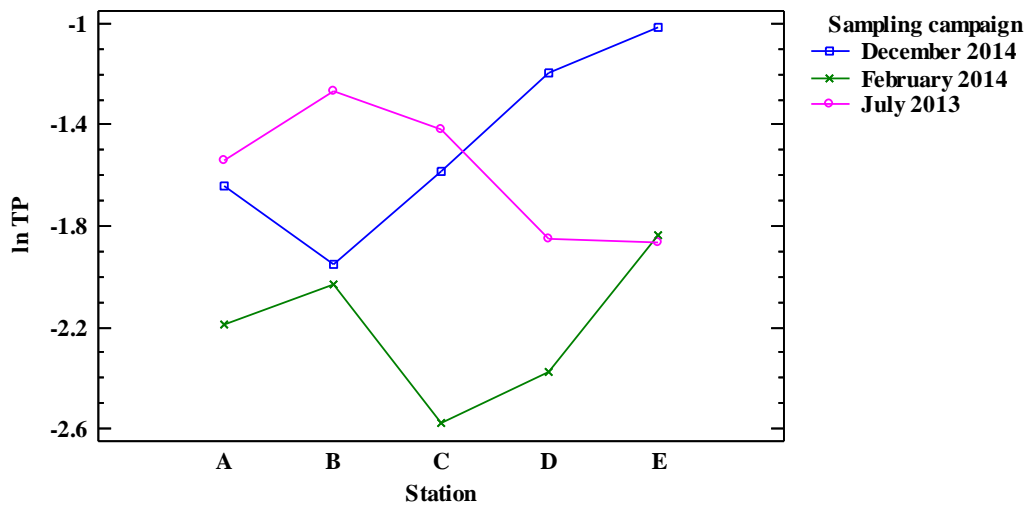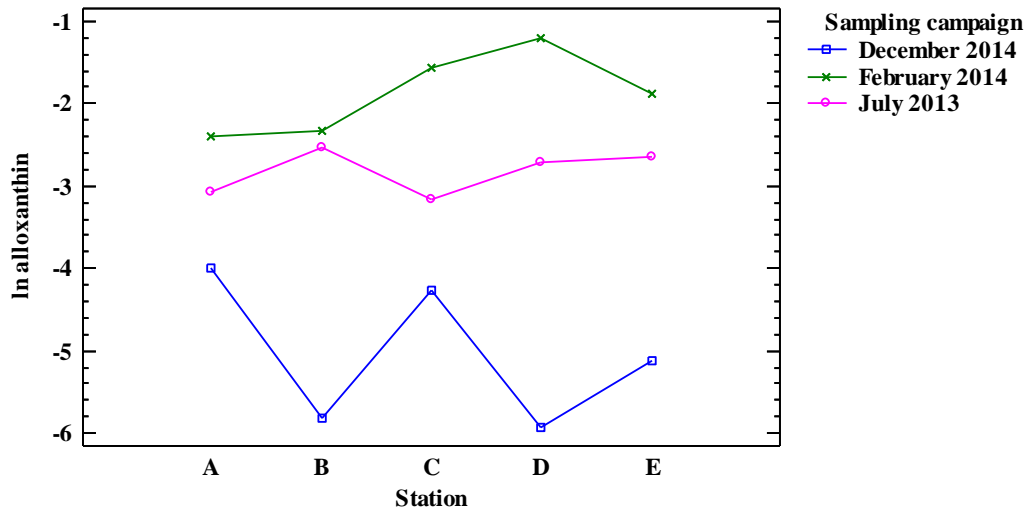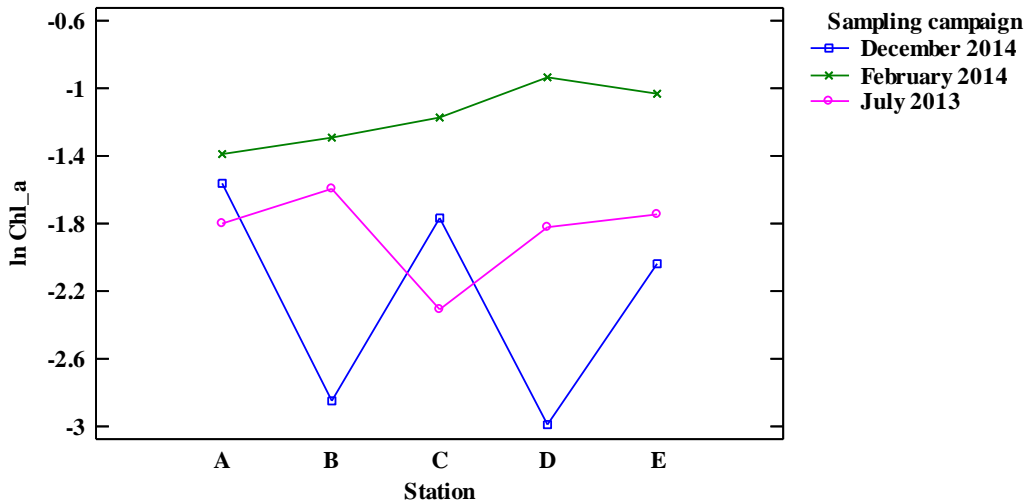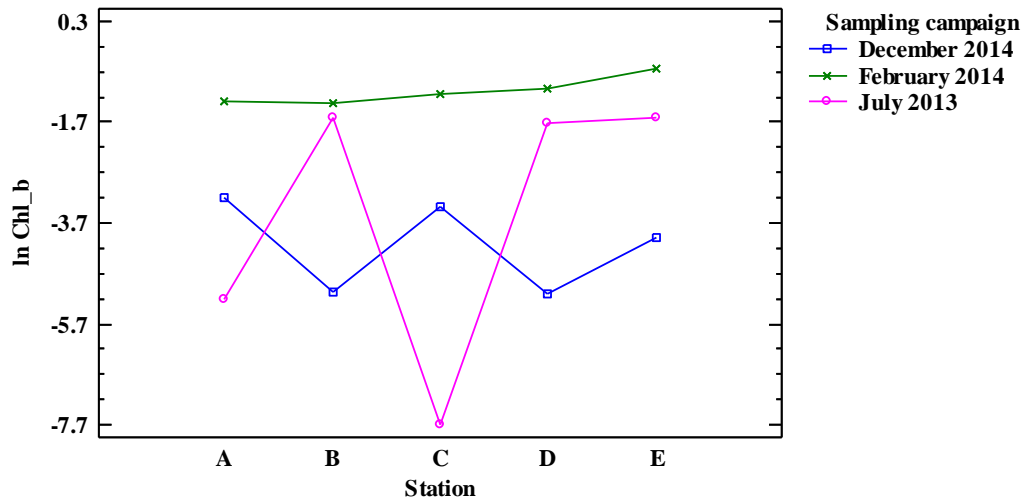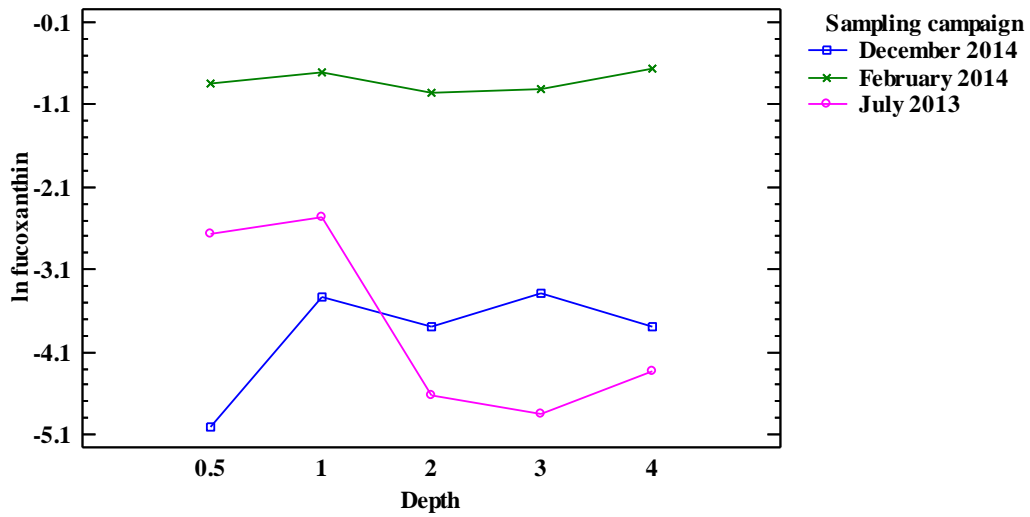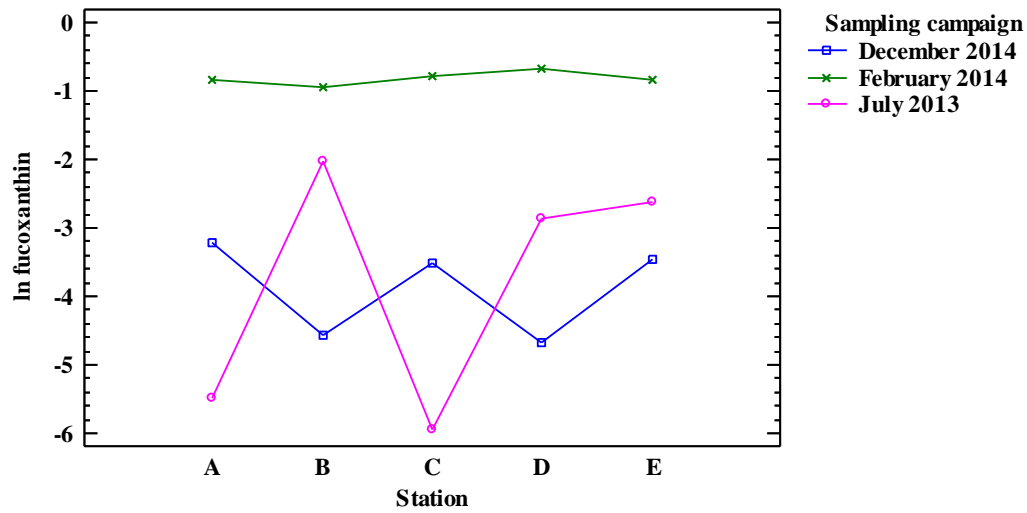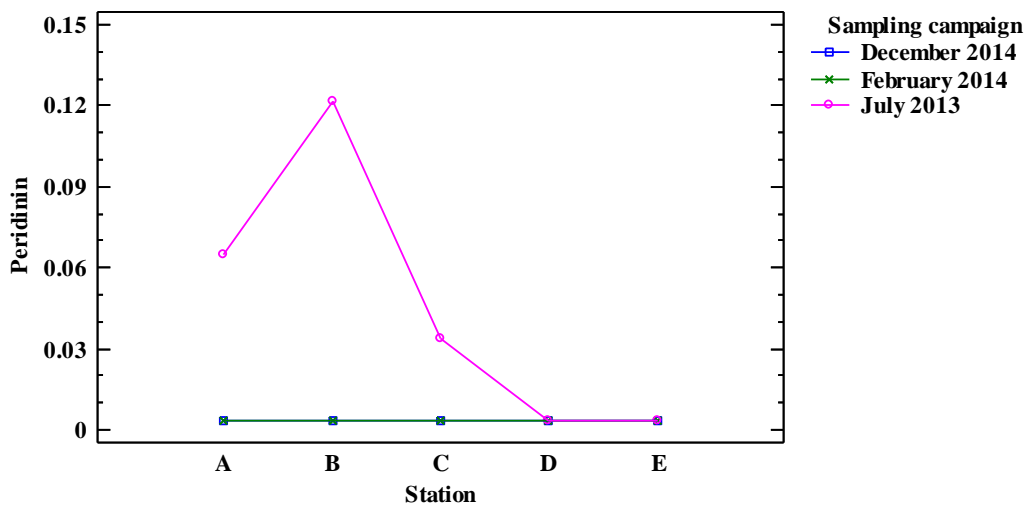

Fig. S5. Interaction graph between depths and sampling campaigns for the natural logarithm of dissolved inorganic nitrogen.

Fig. S6. Interaction graph between stations and sampling campaigns for the natural logarithm of dissolved inorganic nitrogen.

Fig. S7. Interaction graph between stations and sampling campaigns for the natural logarithm of total phosphorus.

Fig. S8. Interaction graph between stations and sampling campaigns for the natural logarithm of alloxanthin.

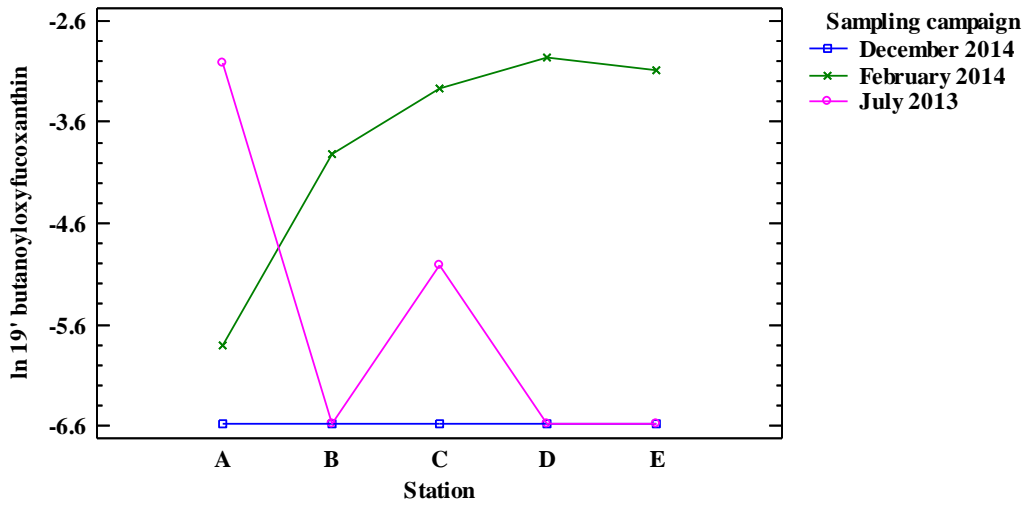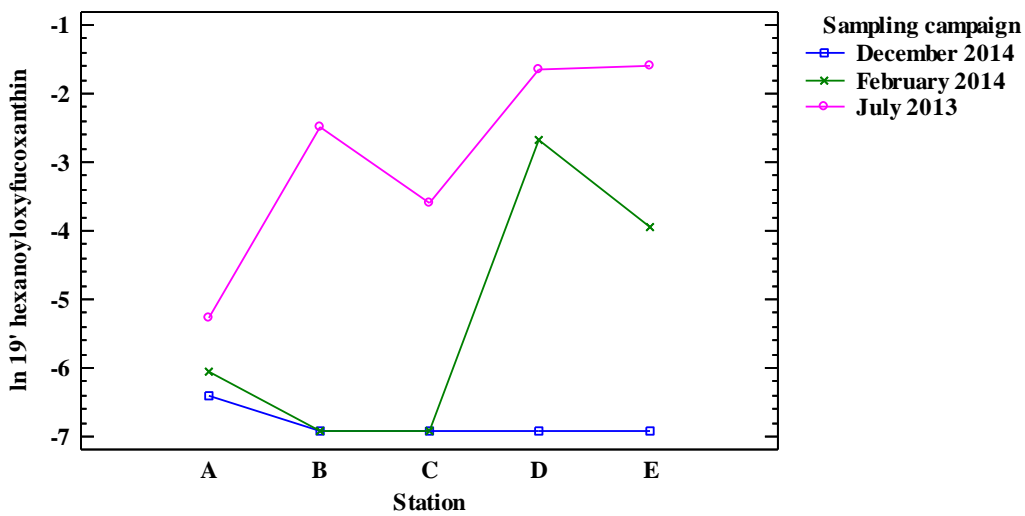**Fig. S9.** Interaction graph between stations and sampling campaigns for the natural logarithm of chlorophyll *a*.

Fig. S10. Interaction graph between stations and sampling campaigns for the natural logarithm of chlorophyll *b*.

Fig. S11. Interaction graph between depths and sampling campaigns for the natural logarithm of fucoxanthin.

Fig. S12. Interaction graph between stations and sampling campaigns for the natural logarithm of fucoxanthin.
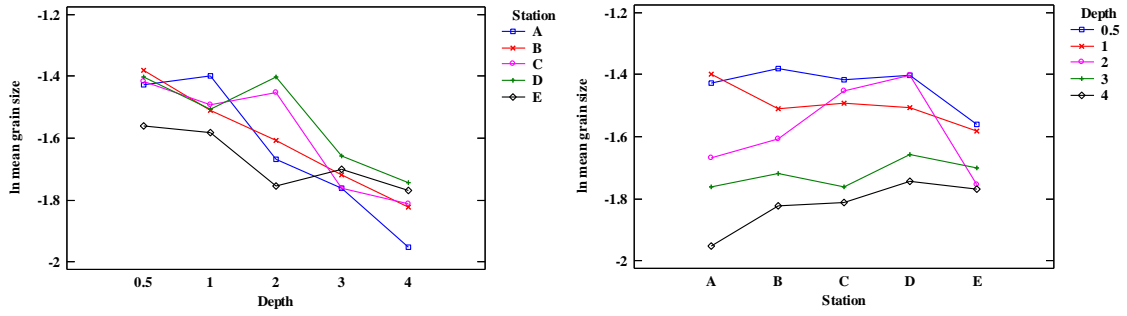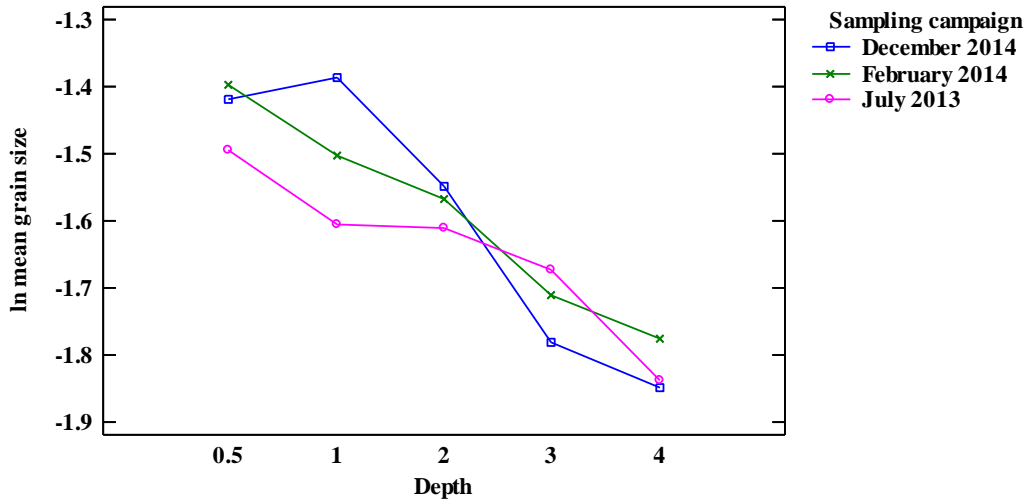

Fig. S13. Interaction graph between stations and sampling campaigns for peridinin.

Fig. S14. Interaction graph between stations and sampling campaigns for the natural logarithm of 19'butanoyloxyfucoxanthin.
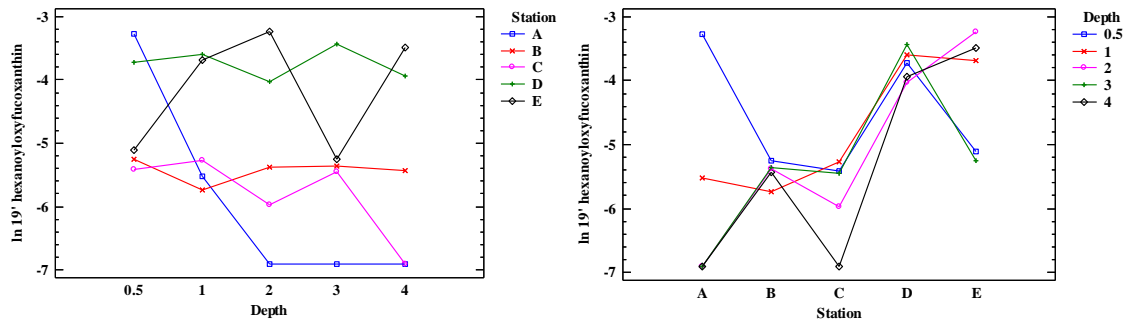
Fig. S15. Interaction graph between stations and depth for the natural logarithm of 19'hexanoyloxyfucoxanthin.

Fig. S16. Interaction graph between stations and sampling campaigns for the natural logarithm of 19'hexanoyloxyfucoxanthin.

Fig. S17. Interaction graph between stations and depths for the natural logarithm of mean grain size.

Fig. S18. Interaction graph between depths and sampling campaigns for the natural logarithm of mean grain size.
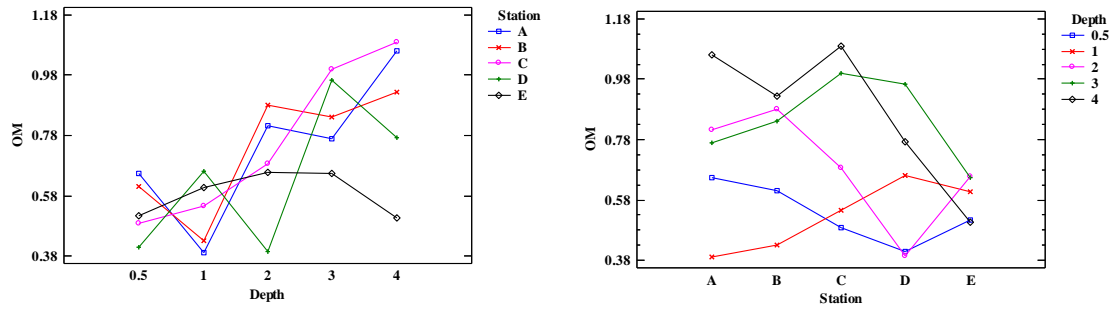

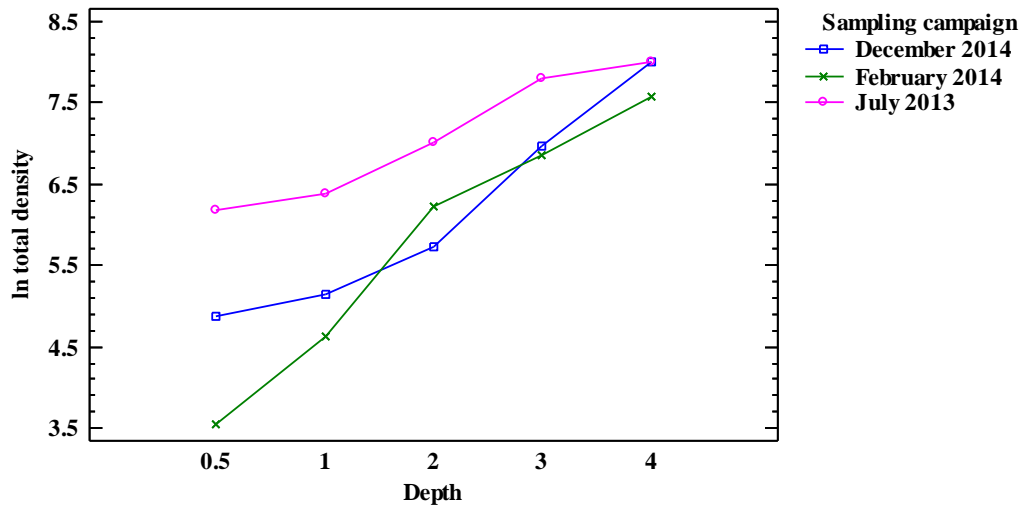**Fig. S19.** Interaction graph between depths and station for organic matter.

Fig. S20. Interaction graph between depths and sampling campaigns for the natural logarithm of total density.
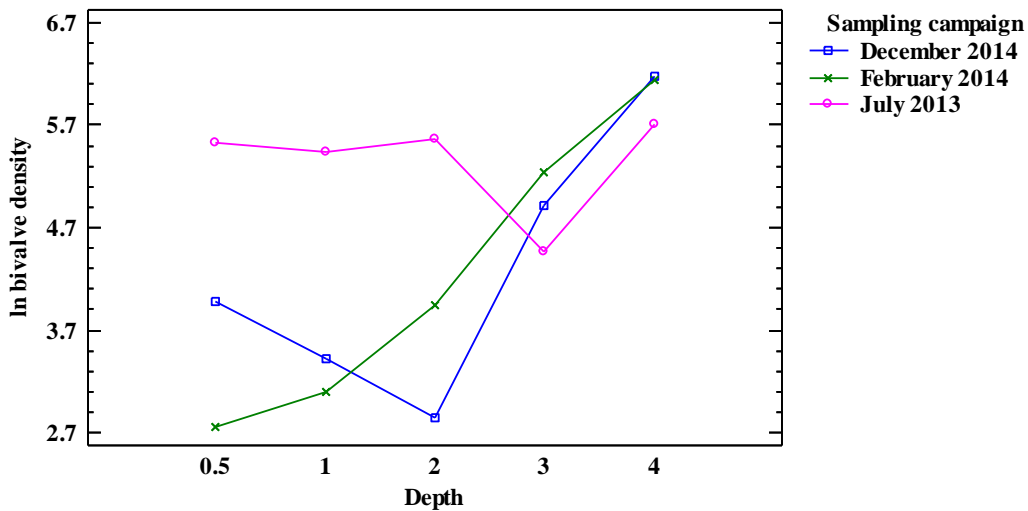

Fig. S21. Interaction graph between depths and sampling campaigns for the natural logarithm of bivalve density.
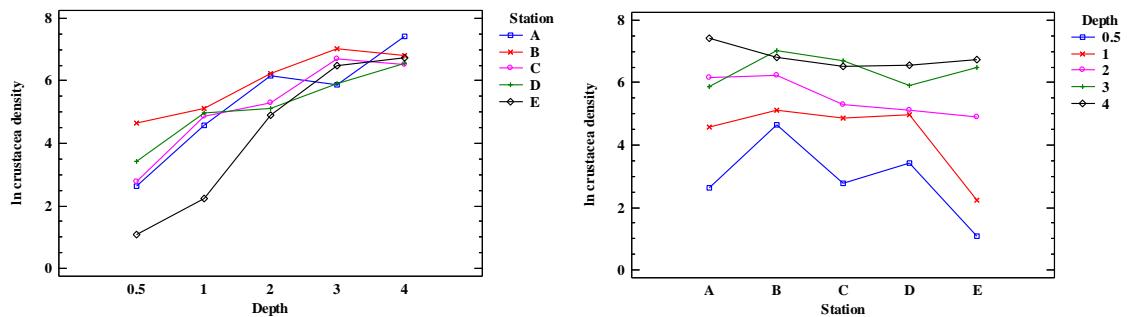

Fig. S22. Interaction graphs between stations and depths for the natural logarithm of crustacea density.
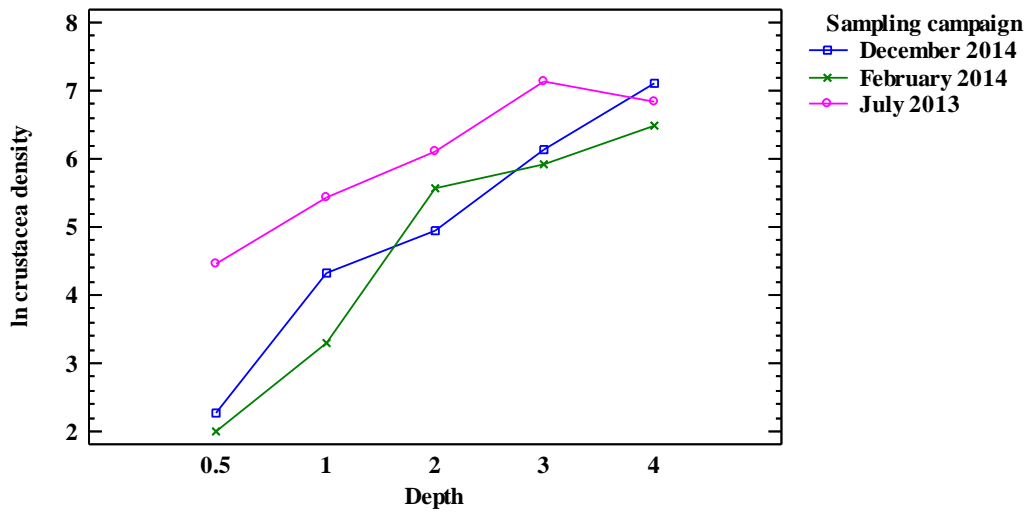
Fig. S23.: Interaction graph between depths and sampling campaigns for the natural logarithm of crustacea density.
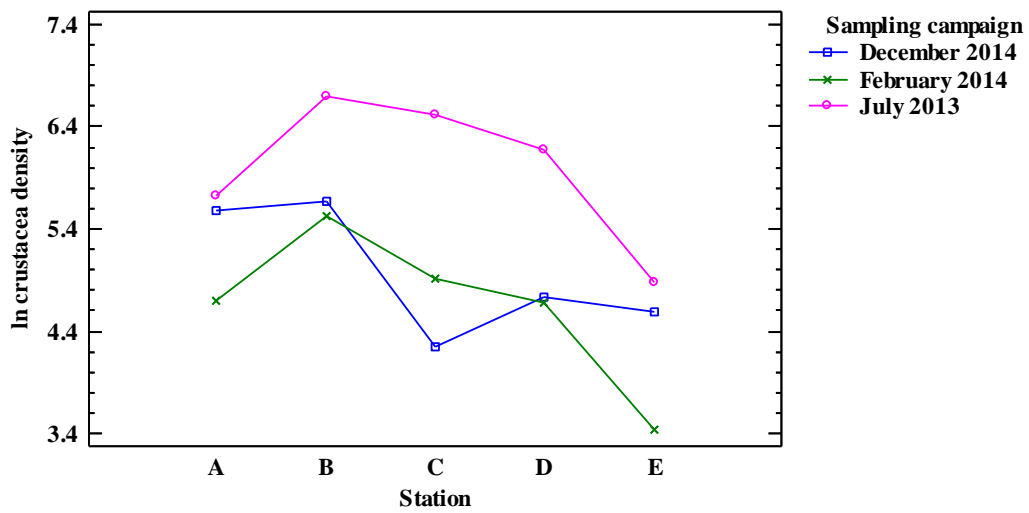

Fig. S24. Interaction graph between stations and sampling campaigns for the natural logarithm of crustacea density.
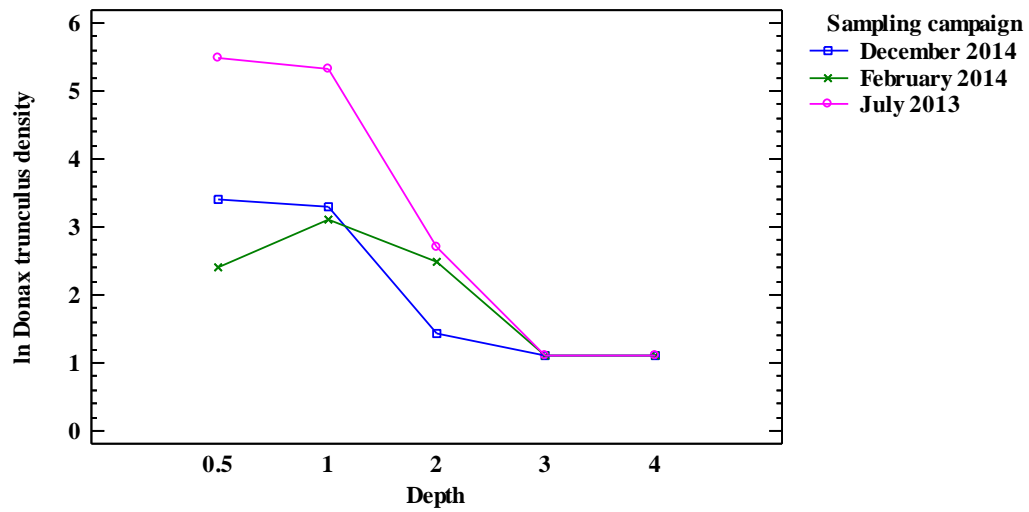
Fig. S25.: Interaction graphs between depths and sampling campaigns for the natural logarithm of *Donax trunculus* density.