

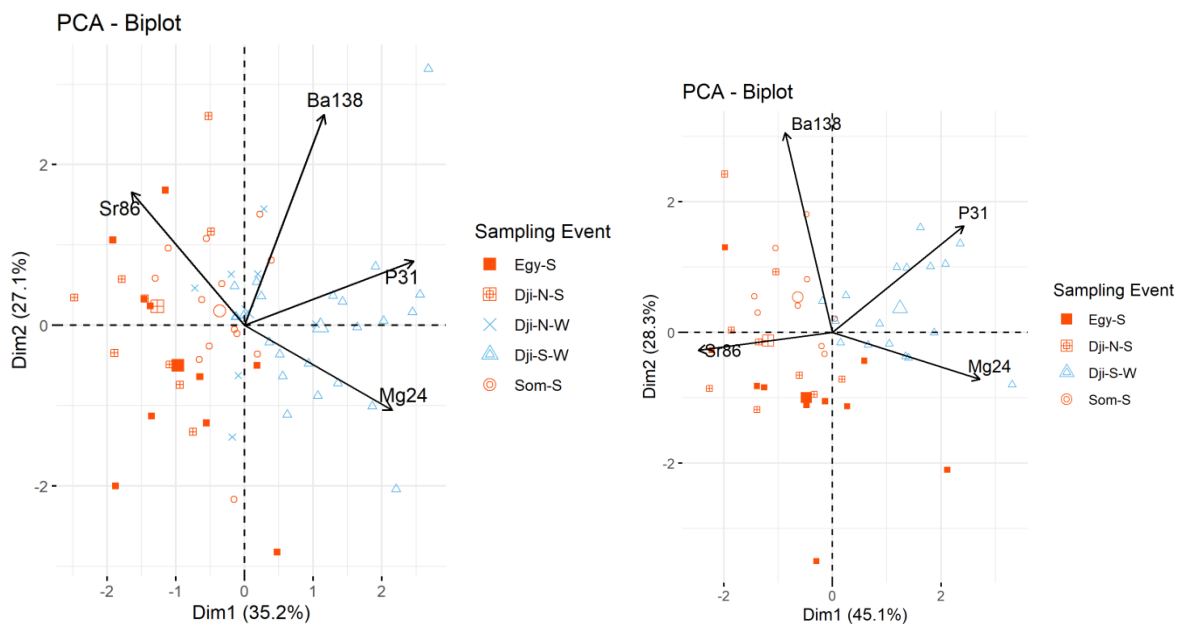
Online Supplementary table T1: Analysis of two-factor PERMANOVA crossed with chemical elements ^{24}Mg , ^{31}P , ^{86}Sr and ^{138}Ba for the last points of transect of all Narrow Barred Spanish Mackerel individual fish samples. Euclidean distances were measured using ward criteria.

Element		Df	SumOfSqs	F	p
^{24}Mg	Sites	5	55,83	28,53	0,01**
	Season	1	1,29	3,30	0,05*
	Residual	84	32,87		
^{31}P	Sites	5	54,96	27,03	0,01**
	Season	1	0,88	2,17	0,10
	Residual	84	34,15		
Sr^{86}	Sites	5	0,00045	4,77	0,01**
	Season	1	0,000081	3,89	0,05*
	Residual	84	0,0016		
^{138}Ba	Sites	5	44,04	16,30	0,01**
	Season	1	0,57	1,06	0,30
	Residual	84	45,37		

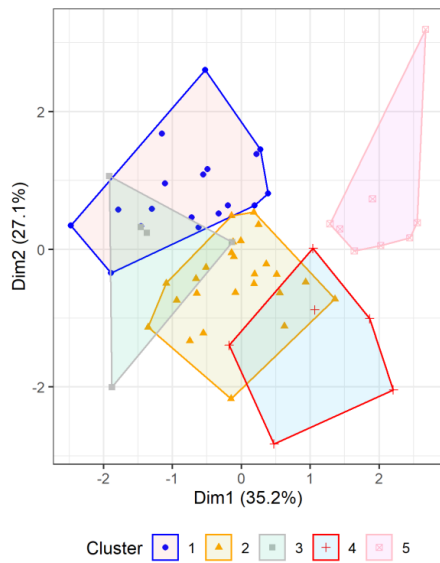
Online Supplementary table T2: Analysis of two-factor PERMANOVA crossed with chemical elements ^{24}Mg , ^{31}P , ^{86}Sr and ^{138}Ba for the first points of transect (near core) of all Narrow Barred Spanish mackerel individual fish samples. Euclidean distances were measured using ward criteria.

Element		Df	SumOfSqs	F	p
^{24}Mg	Sites	5	7,13	1,46	0,25
	Season	1	0,68	0,70	0,56
	Residual	84	82,18		
^{31}P	Sites	5	36,46	15,86	0,01**
	Season	1	14,95	32,53	0,01**
	Residual	84	38,60		
Sr^{86}	Sites	5	22,69	5,82	0,01**
	Season	1	1,86	2,38	0,13
	Residual	84	65,45		
^{138}Ba	Sites	5	12,71	3,09	0,02**
	Season	1	8,36	10,18	0,02*
	Residual	84	68,93		

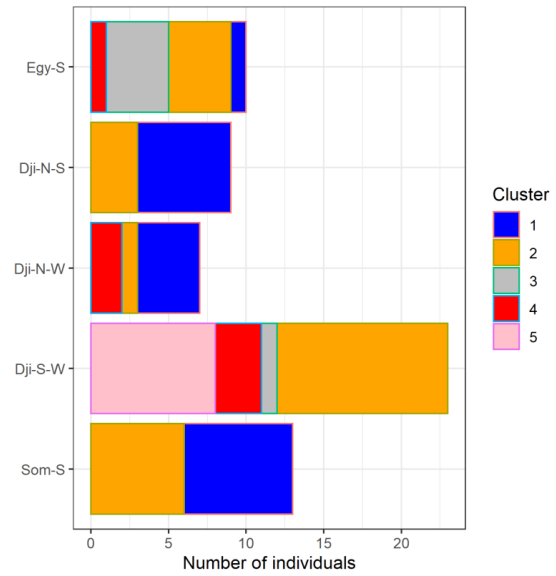
Online Supplementary Figure S1: PCA results made with otolith capture points signatures. First two PCA axes of trace element concentration signatures (^{24}Mg , ^{31}P , ^{86}Sr and ^{138}Ba) for all narrow-barred Spanish mackerel samples size from Egypt, Djibouti (North and South) and Somalia (on the left) and considering only sample size (70-90 cm) right made with the narrow-barred Spanish mackerel otolith captures locations signatures. Sampling events are: Egypt in summer (Egy-S), North Djibouti during summer (Dji-N-S), North Djibouti in winter (Dji-N-W), South Djibouti in winter (Dji-S-W) and Somalia in summer (Som-S). Fish sampled in winter are in blue and fish caught in summer in red. The black arrows represent the contribution of each trace elements to the first two PCA axes.



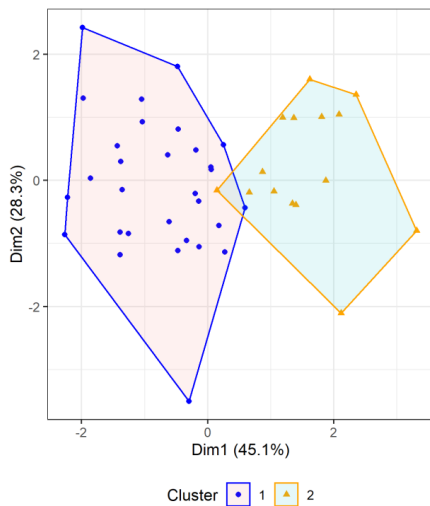
Online Supplementary Figure S2: The numbers of clusters obtained using agglomerative Ward's hierarchical clustering applied to the last three points of the transects (capture point), of all samples size from Egypt, Djibouti (North and South) and Somalia (on the left) (a) and considering only samples size 70-90cm (c). Analyses consider sampling event in Egypt, Djibouti (North and South) and Somalia and exclude samples caught in Mozambique and South Africa. Euclidean distances were measured using ward criteria. The abscissa axis on the barplot represents the number of individuals by cluster



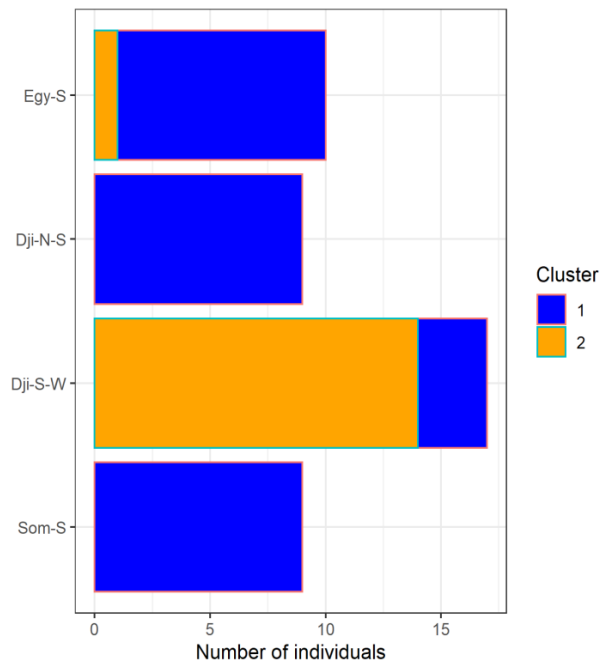
(a)



(b)



(c)



(d)

Online Supplementary Figure S3: The main PCA axes (1 and 2) of chemical elements (^{24}Mg , ^{31}P , ^{86}Sr and ^{138}Ba) for all individual sample size from Egypt, Djibouti (North and South) and Somalia made with otolith near-core signatures: Egypt in summer (Egy-S); North Djibouti during summer (Dji-N-S), North Djibouti in winter (Dji-N-W), South Djibouti in winter (Dji-S-W); Somalia in summer (Som-S), Mozambique in winter (Moz-W) and South Africa in winter (Sa-W). Fish sampled in winter are colored in blue and fish caught in summer are colored in red. The black arrows represent the contributions of chemical variations for each component

