The following supplement accompanies the article

Using otolith organic matter to detect diet shifts in *Bardiella chrysoura*, during a period of environmental changes

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Table S1: Stable isotopic signatures of *B. chrysoura*'s muscle: (A) individual signatures and (2) calculation of the signature of the theoretical muscle

Fish size (mm SL)	Size category	Muscle signature $\delta^{13}C$	$\delta^{15}N$
73	70–80	–17.17	14.39
78	70–80	–16.32	13.71
83	80–90	–15.35	13.07
83	80–90	–16.08	13.33
88	80–90	–19.01	11.86
92	90–100	–12.22	7.65
93	90–100	–19.36	11.73
94	90–100	–18.75	11.96
96	90–100	–19.52	12.14
98	90–100	–16.20	10.80
100	90–100	–17.37	10.87
101	100–110	–15.40	9.22
102	100–110	–18.62	11.41
102	100–110	–19.07	11.97
108	100–110	–16.38	12.04
109	100–110	–15.93	9.31
110	100–110	–21.99	12.76
112	110–120	–19.16	12.10
115	110–120	–19.24	11.64
115	110–120	–17.90	11.34
116	110–120	–19.90	12.51
116	110–120	–19.21	12.23
118	110–120	–19.15	12.28
121	120–130	–18.70	12.28
122	120–130	–19.71	11.97
122	120–130	–19.49	12.02
123	120–130	–19.24	12.48
124	120–130	–19.02	12.19
125	120–130	–18.91	12.38
125	120–130	–18.78	12.03
125	120–130	–18.30	12.18
129	120–130	–18.75	11.71

With 10 mm SL category		
Mean signature of each category	$\delta^{13}C$	$\delta^{15}N$
70–80	–16.75	14.05
80–90	–16.81	12.75
90–100	–17.23	10.86
100–110	–17.90	11.12
110–120	–19.09	12.02
120–130	–18.99	12.14

Signature in the theoretical muscle	$\delta^{13}C$	$\delta^{15}N$
70–80	–9.02	7.57
80–90	–1.29	0.98
90–100	–1.33	0.84
100–110	–1.38	0.86
110–120	–1.47	0.92
120–130	–1.46	0.93
Final Value	–15.94	12.10

Table S2: Choice of the parameter in the equation for reconstructing the signature of the theoretical muscle. To reconstruct optimally the signature of the theoretical muscle experiencing a 0-turnover rate, we decided to weight the signature of the muscles by the somatic growth occurring during each stages (Equation 1). To this aim, we investigated which somatic parameter (either fish length or fish weight) was the best parameter to reflect otolith growth (based on the R^2 of the models linking fish weight to respectively fish length and to fish weight).

Model	Linear	Exponential	Logarithms
Fish length (1)	**0.70**	0.67	0.69
Fish weight (2)	0.63	0.58	0.66

R^2 of the models linking otolith weight to respectively fish length and weight

According to R^2 (higher value), as otolith weight was here better correlated to fish length than fish weight, this parameter has therefore been included in the Equation 1

Table S3: SIAR outputs presenting the contribution in weight (mean, standard deviation and the confidence interval of the mean)

Contribution (in % of weight)	Mean	SD	Confidence interval of the mean 2.50%	5%	25%	50%	75%	95%	97.50%
Polychaetes	0.39	0.22	0.02	0.04	0.20	0.39	0.55	0.74	0.78
Fishes	0.22	0.20	0.01	0.01	0.06	0.16	0.33	0.64	0.71
Portunidae	0.08	0.07	0.00	0.00	0.02	0.06	0.11	0.23	0.27
Shrimps	0.18	0.18	0.01	0.01	0.05	0.13	0.26	0.59	0.66
Thanaideacea	0.13	0.11	0.01	0.01	0.05	0.11	0.19	0.35	0.43

Table S4: comparison of the prey contribution (% of the total weight) in *B. chrysoura*'s diet between past (Chavance 1984) and present periods (this study) (UOM: Unidentified Matter)

% (weight) in prey in *B. chrysoura*'s diet		Past period (from Chavance 1984) Dry season	Wet season	Mean	Present period (present study)
Fish	Unidentify fish sp.	11.9	2.2	7.1	22.1
	Engaulidae	78.7	29.7	54.2	
	Ariidae		9.5	9.5	
	Fish larvae	0.0	0.0	0.0	
Polychaetes		0.6	0.0	0.3	38.5
Tanaidacae		3.3		3.3	13.3
Shrimps	Penaeidae	4.2		4.2	18.4
	Caridae	0.0	33.0	16.5	
Unidentified decapod sp.		1.0	18.5	9.8	
Crustaceans egg			0.0	0.0	
Tunicates larvae			0.0	0.0	
Portunidae					7.7
Invertebrate larvae			0.0	0.0	
UOM		0.3	7.2	3.8	