

Recovery of Haemal Lordosis in European Seabass

Dicentrarchus labrax (Linnaeus 1758) [†]

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† This paper is dedicated to the memory of Dr. Pascal Divanach, an outstanding researcher and mentor who has made pioneering contributions to the science of Aquaculture. He was the first who conceived and tested the hypothesis of exercised-induced (haemal) lordosis in fish.

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Table S1. Lordosis rates, sample and expected for the population, at 111 and 150 dph. N, fish with normal external morphology. L, fish with lordotic external morphology.

Age (dph)	External morphology	Lordosis % in the sample	Fish number in the population	No of lordotic fish in the population (expected)	Lordosis rate – (population, expected)
111	N	16.5 (33/200)	400	66	44.3
	L	100 (100/100)	200	200	
150	N+L	46.2 (43/93)			46.2

Table S2. Cumulative frequency of fish with lordotic (L), recovered (N-Rec) and normal (N) external morphology based on the degrees of the PrAn₁ index. At the juvenile stage, the N-Rec group consists of the lordotic juveniles that presented recovered external morphology at the adult stage.

Juveniles (150 dph)			Adults (502 dph)			
Angle (°)	L	N-Rec	Angle (°)	L	N-Rec	N
134	3		129	3		
135	3		130	3		
136	6		131	3		
137	13		132	3		
138	13	0	133	3		
139	19	2	134	6		
140	29	4	135	10		
141	32	4	136	10		
142	32	9	137	13		
143	35	11	138	13		
144	58	26	0	139	19	
145	77	43	140	26		
146	84	59	141	29		0
147	84	76	142	32	0	1
148	90	91	143	48	2	2
149	94	100	144	65	9	7
150	97		145	81	13	14
151	100		146	81	26	19
152			147	90	37	31
153			148	94	54	48
154			149	100	72	61
155			150		85	79
156			151		91	89
			152		100	94
			153			96
			154			98
			155			100
			100			

Table S3. Cumulative frequency of fish with lordotic (L), recovered (N-Rec) and normal (N) external morphology based on the degrees of the PrAn₂ index. At the juvenile stage, the N-Rec group consists of the lordotic juveniles that presented recovered external morphology at the adult stage.

Juveniles (150 dph)				Adults (502 dph)			
Angle (°)	L	N-Rec	N	Angle (°)	L	N-Rec	N
251	3			253	3		
250	3			252	3		
249	3			251	3		
248	3			250	3		
247	3			249	3		
246	3			248	3		
245	3			247	3		
244	3			246	3		
243	3			245	3		
242	3			244	3		
241	10			243	3		
240	10			242	3		
239	10			241	3		
238	13			240	3		
237	13			239	6		
236	13			238	6		
235	19			237	6		
234	26			236	6		
233	26			235	10		
232	29	0		234	10		
231	29	2		233	13		
230	29	2		231	13		
229	29	4		230	13		
228	29	7		229	13		
227	29	7		228	19		
226	35	9		227	23		
225	35	9		226	26		
224	39	13		225	26		
223	42	13		224	26	0	
222	48	20		223	26		1
221	52	22		222	26		1
220	65	30	0	221	32		2
219	68	35	1	220	39	0	2
218	68	39	2	219	48	2	4
217	77	50	3	218	55	4	5
216	81	57	7	217	55	4	7
215	81	65	11	216	65	7	11
214	81	72	13	215	74	9	11
213	84	76	17	214	77	13	14
212	90	83	20	213	81	17	17
211	94	89	26	212	84	24	19
				211	84	26	22

210	94	89	33	210	84	30	25
209	94	91	43	209	90	37	31
208	94	96	49	208	90	39	37
207	94	100	61	207	94	46	42
206	94		65	206	94	59	47
205	97		73	205	97	61	53
204	97		79	204	97	67	60
203	97		83	203	100	72	66
202	97		87	202		76	73
201	97		92	201		85	77
200	100		94	200		87	80
199			96	199		91	86
198			96	198		93	88
197			97	197		96	92
196			98	196		96	94
195			98	195		100	94
194			99	194			95
193			99	193			96
192			100	192			98
				191			98
				190			99
				189			99
				188			100