

SUPPLEMENTARY MATERIAL

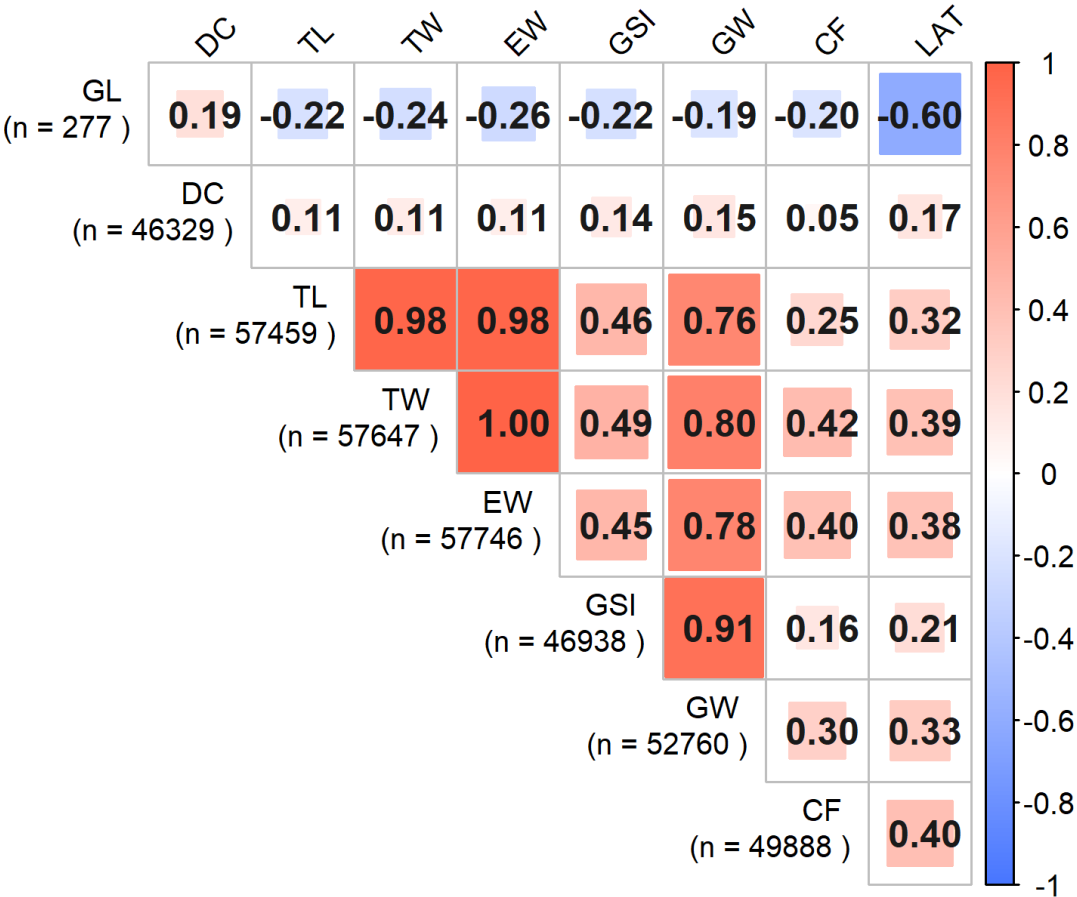


Figure S1. – Spearman's correlation matrix between variables for the classification of Peruvian anchovy gonadal maturity stages. The number of observations used for each variable is indicated in parentheses. The variables were ordered using hierarchical clustering. CF, condition factor; DC, distance to coast; EW, eviscerated weight; GL, gonad length; GSI, gonadosomatic index; GW, gonad weight; LAT, latitude; TL, total length; TW, total weight.

Table S1. – Summary of Kruskal–Wallis statistics and Dunn’s post hoc pairwise comparisons (with Benjamini–Hochberg adjusted p -values) for continuous variables evaluated across different gonadal maturity stages. Only significant pairwise differences are reported. CF, condition factor; DC, distance to coast; GSI, gonadosomatic index; LAT, latitude; TL, total length.

Variable	Kruskal-Wallis Test		Dunn’s Test
	X^2	p -values	Significant paired contrasts (p -values = 0.05)
GSI	27 915	< 0.001	(I–II), (I–III), (I–IV), (I–O), (I–V), (II–III), (II–IV), (II–O), (II–V), (III–IV), (III–O), (III–V), (IV–O), (IV–V), (O–V)
CF	2 105	< 0.001	(I–III), (I–IV), (I–O), (II–III), (II–IV), (II–O), (III–IV), (III–O), (III–V), (IV–O), (IV–V), (O–V)
TL	26 021	<0.001	(I–II), (I–III), (I–IV), (I–O), (I–V), (II–III), (II–IV), (II–O), (II–V), (III–IV), (III–O), (III–V), (IV–O), (O–V)
LAT	3 306	< 0.001	(I–III), (I–IV), (I–O), (I–V), (II–III), (II–IV), (II–O), (II–V), (III–IV), (III–O), (IV–O), (IV–V), (O–V)
DC	863	< 0.001	(I–II), (I–III), (I–IV), (I–V), (II–III), (II–IV), (II–O), (III–O), (III–V), (IV–O), (IV–V), (O–V)

Table S2. – Summary of chi-square statistics and post hoc evaluation using standardized residuals ($|\text{residual}| > 2$) for categorical variables associated with gonadal maturity stages.

Variable	Chi-square test			Residuals
	χ^2	df	<i>p</i> -values	Std. residuals > 2
SEX	985.83	5	< 0.001	O, I, II
SPAWNING PERIODS	8 033.6	10	< 0.001	O, I, II, III, IV, V
ENSO	4 546.5	10	0.001	O, I, II, III, IV, V