

Dynamics of larval fish assemblages in the California Current System: a comparative study between Oregon and southern California

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Supplement 1. Additional data

Table S1. Month of sampling and number of samples collected (in parentheses) for each year by region by season combination

Year	California		Oregon	
	Spring	Summer	Spring	Summer
2004	April (10)	July (12)	May (12)	no samples
2005	April (12)	July (12)	May (11)	August (8)
2006	April (12)	July (12)	May (9)	August (9)
2007	April (11)	July (12)	May (9)	August (9)
2008	April (7)	August (11)	May (9)	August (9)
2009	March (12)	July (11)	May (4)	August (5)
2010	April (9)	August (12)	June (9)	August (13)
2011	April (11)	August (12)	May (9)	September (9)

Table S2. Coefficient of determination values (R^2) for area under curve (AUC) scores of models using temperature and salinity measurements taken at 20 m, 3 m and integrated over 100 m. Values below and above the diagonal are from Oregon and California, respectively

	AUC 20	AUC surface	AUC to 100
AUC 20	–	0.89	0.69
AUC surface	0.67	–	0.59
AUC to 100	0.25	0.31	–

Table S3. Coefficients of determination and associated p-values between environmental parameters (mean temperature and salinity), mean taxa concentration (left), and mean proportion of stations occupied (right) for taxa found in at least 20% of stations in Oregon and California. The values in **bold** are significant following a sequential Bonferroni correction and the sign in parentheses indicates whether the relationship is positive or negative. Comparisons of *L. exilis* were not made in summer because this species was always absent in California in that season

Variable	Concentration				Presence/Absence			
	Spring		Summer		Spring		Summer	
	R ²	p	R ²	p	R ²	p	R ²	p
Temperature	0.66 (pos)	0.015	0.36	0.15	–	–	–	–
Salinity	0	0.95	0.46	0.10	–	–	–	–
Upwelling index	0.10	0.43	0	0.91	–	–	–	–
<i>Citharichthys</i> spp.	0	0.99	0.12	0.45	0	0.87	0.15	0.38
<i>Engraulis mordax</i>	0.31	0.15	0.01	0.83	0.31	0.15	0.13	0.43
<i>Lipolagus ochotensis</i>	0.19	0.28	0.09	0.51	0	0.99	0.02	0.78
<i>Lyopsetta exilis</i>	0.44	0.07	–	–	0.81 (pos)	0.002	–	–
<i>Stenobranchius leucopsarus</i>	0.10	0.44	0.06	0.61	0.74 (neg)	0.01	0.01	0.96
<i>Sebastes</i> spp.	0.01	0.81	0.27	0.24	0.04	0.62	0.47	0.09

Supplement 2. Hellinger transformation

A Hellinger transformation is a square root standardization across rows of a matrix with M rows (samples) and N columns (species). The transformed element y'_{ij} is defined as:

$$y'_{ij} = \sqrt{\frac{y_{ij}}{\sum_{n=1}^N y_{in}}}$$

where y_{ij} are the entries of the original data matrix.

The transformed values are then used in the PCA. Legendre & Gallagher (2001) showed that this transformation is much better for obtaining unbiased results in PCAs and RDAs than commonly used log or square root transformations.

LITERATURE CITED

Legendre P, Gallagher ED (2001) Ecologically meaningful transformations for ordination of species data. *Oecologia* 129:271–280