The following supplement accompanies the article

Differing importance of salinity stratification and freshwater flow for the recruitment of apex species of estuarine fish

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Supplement

Table S1. Results of AIC-based model selection investigating the role of flow and salinity during the spawning season in driving short-term (2004-onwards) black bream recruitment variability. k= number of model parameters; MDF= mean daily flow; P10= flow exceeded 10% of the time; lowersal, midsal and uppersal= stratification in lower, middle and upper sections of the estuary respectively. Each site's best model is highlighted in **bold**. Note: upper salinity data was not available for Eumeralla and no salinity data was available for Snowy

Site	Year	Model	k	ΔAIC
Glenelg	2005-2011	Age*sample	9	12.86
		Age*sample+MDF	10	3.12
		Age*sample+lowersal	10	12.83
		Age*sample+midsal	10	11.38
		Age*sample+uppersal	**10**	**0.00**
		Age*sample+avsal	10	8.65
		Age*sample+MDF+lowersal	11	4.96
		Age*sample+MDF+midsal	11	3.29
		Age*sample+MDF+avsal	11	3.46
		Age*sample+P10	10	11.53
		Age*sample+P10+midsal	11	9.37
		Age*sample+P10+avsal	11	8.23
Surry	2005-2010	Age	3	8.58
		Age+MDF	4	5.14
		Age+lowersal	4	9.11
		Age+midsal	4	8.24
		Age+uppersal	4	5.28
		Age+avsal	4	6.58
		Age+MDF+lowersal	5	6.85
		Age+MDF+midsal	5	6.45
		Age+MDF+uppersal	5	**0.00**
		Age+MDF+avsal	5	4.29
		Age+P10	4	4.80
		Age+P10+lowersal	5	6.51
		Age+P10+midsal	5	6.37
		Age+P10+uppersal	5	0.19

		Age+P10+avsal	5	4.30
Hopkins	2005-2011	Age+sample	5	1.46
		Age+sample+MDF	6	3.18
		Age+sample+lowersal	6	3.31
		Age+sample+midsal	6	3.45
		Age+sample+uppersal	**6**	**0.00**
		Age+sample+avsal	6	3.25
		Age+sample+MDF+lowersal	7	5.18
		Age+sample+MDF+midsal	7	4.59
		Age+sample+MDF+uppersal	7	1.91
		Age+sample+MDF+avsal	7	5.17
		Age+sample+P10	6	3.09
		Age+sample+P10+lowersal	7	5.08
		Age+sample+P10+midsal	7	4.29
		Age+sample+P10+uppersal	7	1.93
		Age+sample+P10+avsal	7	5.09
Fitzroy	2005-2010	Age	3	9.26
		Age+MDF	4	7.92
		Age+lowersal	4	7.18
		Age+midsal	4	6.99
		Age+uppersal	4	9.29
		Age+avsal	4	0.62
		Age+MDF+lowersal	**5**	**0.00**
		Age+MDF+midsal	5	7.59
		Age+MDF+uppersal	5	9.58
		Age+MDF+avsal	5	2.62
		Age+P10	4	7.59
		Age+P10+lowersal	5	0.28
		Age+P10+midsal	5	7.12
		Age+P10+uppersal	5	8.68
		Age+P10+avsal	5	2.62
Eumeralla	2005-2011	Age*sample	4	18.10
		Age*sample+MDF	5	17.21
		Age*sample+lowersal	5	9.67
		Age*sample+midsal	5	6.33
		Age*sample+avsal	5	8.88
		Age*sample+MDF+lowersal	6	1.52
		Age*sample+MDF+midsal	6	6.05
		Age*sample+MDF+avsal	**6**	**0.00**
		Age*sample+P10	5	18.87
		Age*sample+P10+lowersal	6	1.79
		Age*sample+P10+midsal	6	7.54
		Age*sample+P10+avsal	6	0.31

Table S2. Results of AIC-based model selection investigating the role of flow during the spawning season in driving long-term (full data set) black bream recruitment variability. k= number of model parameters; MDF= mean daily flow; P10= flow exceeded 10% of the time. Each site's best model is highlighted in **bold**.

Site	Years	Model	k	ΔAIC
Glenelg	1993-2011	Age*sample	9	23.95
		Age*sample+MDF	10	2.57
		Age*sample+MDF^2	**11**	**0.00**
		Age*sample+P10	10	9.12
		Age*sample+P10^2	11	7.05
Surry	1996-2010	Age	3	5.97
		Age+MDF	**4**	**0.00**
		Age+MDF^2	5	2.00
		Age+P10	4	0.41
		Age+P10^2	5	2.41
Hopkins	1982-2011	Age+sample	9	22.81
		Age+sample+MDF	**10**	**0.00**
		Age+sample+MDF^2	11	1.92
		Age+sample+P10	10	1.71
		Age+sample+P10^2	11	3.25
Eumeralla	1994-2011	Age*sample	5	3.24
		Age*sample+MDF	6	4.95
		Age*sample+MDF^2	7	6.20
		Age*sample+P10	6	5.18
		Age*sample+P10^2	**7**	**0.00**
Fitzroy	1998-2010	Age	3	0.96
		Age+MDF	4	**0.00**
		Age+MDF^2	5	1.16
		Age+P10	4	0.64
		Age+P10^2	5	1.63
Snowy	2000-2010	Age	3	2.13
		Age+MDF	**4**	**0.00**
		Age+MDF^2	5	1.52
		Age+P10	4	0.55
		Age+P10^2	5	1.64

Table S3. Results of AIC-based model selection investigating the role of flow and salinity during the spawning season in driving short-term (2004-onwards) estuary perch recruitment variability. k= number of model parameters; MDF= mean daily flow; P10= flow exceeded 10% of the time; lowersal, midsal and uppersal= stratification in lower, middle and upper sections of the estuary respectively. Each site's best model is highlighted in **bold**. Note: no salinity data was available for Snowy

Site	Years	Model	k	Δ AIC
Glenelg	2005-2011	Age+sample	4	18.44
		Age+sample+MDF	5	18.96
		Age+sample+lowersal	5	18.76
		Age+sample+midsal	5	8.64
		Age+sample+uppersal	5	13.90
		Age+sample+avsal	5	6.41
		Age+sample+MDF+lowersal	6	14.41
		Age+sample+MDF+midsal	6	7.57
		Age+sample+P10	6	8.00
		Age+sample+P10+avsal	5	19.61
		Age+sample+P10+midsal	**6**	**0.00**
		Age+sample+P10+avsal	6	5.80
Hopkins	2005-2011	Age+sample	8	5.81
		Age+sample+MDF	9	7.30
		Age+sample+lowersal	9	7.80
		Age+sample+midsal	9	7.79
		Age+sample+uppersal	**9**	**0.00**
		Age+sample+avsal	9	7.54
		Age+sample+MDF+lowersal	10	8.50
		Age+sample+MDF+midsal	10	8.61
		Age+sample+MDF+uppersal	10	1.40
		Age+sample+P10	10	9.28
		Age+sample+P10+avsal	9	7.25
		Age+sample+P10+lowersal	10	8.26
		Age+sample+P10+midsal	10	8.43
		Age+sample+P10+uppersal	10	1.24
		Age+sample+P10+avsal	10	9.20

Table S4. Results of AIC-based model selection investigating the role of flow during the spawning season in driving long-term (full data set) estuary perch recruitment variability. k= number of model parameters; MDF= mean daily flow; P10= flow exceeded 10% of the time. Each site's best model is highlighted in **bold**

Site	Years	Model	k	Δ AIC
Glenelg	1993-2011	Age+sample	4	0.57
		Age+sample+MDF	5	0.49
		Age+sample+MDF^2	**6**	**0.00**
		Age+sample+P10	5	0.75
		Age+sample+P10^2	6	1.35
Hopkins	1982-2011	**Age+sample**	**8**	**0.00**
		Age+sample+MDF	9	1.73
		Age+sample+MDF^2	10	1.12
		Age+sample+P10	9	1.93
		Age+sample+P10^2	10	1.11
Snowy	2000-2010	**Age**	**3**	**0.00**
		Age+MDF	4	2.00
		Age+MDF^2	5	1.89
		Age+P10	4	2.00
		Age+P10^2	5	2.27