

## **Estuarine–terrestrial habitat gradients enhance nursery function for resident and transient fishes in the San Francisco Estuary**

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*Marine Ecology Progress Series 637: 141–157 (2020)*

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### **Supplementary tables**

Table S1 (A-G). Full table of GLMM comparisons for each species and age class. The Leave One Out Cross-Validation Information Criterion (looic) was calculated by taking averages of log-likelihood over the posterior distribution; it represents an estimate of out-of-sample deviance. The plloo value is the estimated effective number of parameters and the dloo value is the relative difference between each looic and the lowest looic value. Model weight is the Akaike weight for each model and can be interpreted as “an estimate of the probability that the model will make the best predictions on new data, conditional on the set of models considered” (McElreath 2018, pp. 199). SE is the standard error of the looic estimate. dSE is the standard error of the difference in looic between each model and the top-ranked model. Random effect grouping variables included season, year and site (i.e., revisited trawl location in the long-term monitoring study). Additive effects are denoted by a plus sign (+) and interaction effects are denoted by an asterisk (\*). Model selections were based on a combination of model weights and prediction performance. Predictor variables are shortened (Yr=Year; Sn=Season; MOW=Marsh:OW; POW=Pond:OW, UOW=Upland:OW; LOW=Land:OW; S=Sinuosity).

Table S1. (A) Sacramento splittail YOY

Species Code	Age Class	Model No.	Rank	Equation	loic	ploo	dloo	Model weight	SE	dSE
SPT	YOY	24	1	Effort + Site + Yr + Sn + Outflow*Depth	7515.4	429.6	0.0	1.00	516.19	
		22	2	Effort + Site + Yr + Sn + Outflow*UOW	7547.1	434.7	31.8	0.00	519.76	6.08
		18	3	Effort + Site + Yr + Sn + Outflow*MOW	7566.5	428.7	51.2	0.00	520.55	4.53
		14	4	Effort + Site + Yr + Sn + Outflow*LOW	7588.9	429.5	73.5	0.00	519.42	5.78
		16	5	Effort + Site + Yr + Sn + Outflow*WOW	7604.7	429.8	89.3	0.00	517.93	7.17
		20	6	Effort + Site + Yr + Sn + Outflow*POW	7617.5	429.7	102.2	0.00	516.93	7.01
		21	7	Effort + Site + Yr + Sn + Outflow + UOW	7618.7	425.5	103.4	0.00	515.72	5.96
		7	8	Effort + Site + Yr + Sn + WOW	7620.3	411.4	105.0	0.00	509.67	8.94
		26	9	Effort + Site + Yr + Sn + Outflow*S	7620.4	430.0	105.1	0.00	523.74	6.51
		5	10	Effort + Site + Yr + Sn + Outflow	7620.9	426.8	105.5	0.00	515.19	7.59
		23	11	Effort + Site + Yr + Sn + Outflow + Depth	7621.0	430.0	105.6	0.00	516.14	7.73
		25	12	Effort + Site + Yr + Sn + Outflow + S	7623.2	431.9	107.9	0.00	515.27	6.75

		17	13	Effort + Site + Yr + Sn + Outflow + MOW	7624.0	428.4	108.7	0.00	517.41	6.16
		19	14	Effort + Site + Yr + Sn + Outflow + POW	7625.0	429.7	109.7	0.00	515.92	6.54
		9	15	Effort + Site + Yr + Sn + POW	7625.7	417.1	110.3	0.00	510.88	7.83
		11	16	Effort + Site + Yr + Sn + Depth	7627.9	420.9	112.6	0.00	511.8	6.86
		15	17	Effort + Site + Yr + Sn + Outflow + WOW	7628.3	429.7	112.9	0.00	517.59	6.47
		10	18	Effort + Site + Yr + Sn + UOW	7629.8	417.7	114.5	0.00	512.5	6.94
		6	19	Effort + Site + Yr + Sn + LOW	7630.1	422.3	114.8	0.00	513.08	6.24
		12	20	Effort + Site + Yr + Sn + S	7631.9	421.2	116.5	0.00	512.23	6.66
		8	21	Effort + Site + Yr + Sn + MOW	7631.9	423.3	116.5	0.00	513.86	8.70
		13	22	Effort + Site + Yr + Sn + Outflow + LOW	7634.9	436.7	119.6	0.00	519.14	8.16
		4	23	Effort + Site + Yr + Sn	7643.8	428.4	128.5	0.00	515.19	6.96
		3	24	Effort + Site + Yr	10976.3	527.3	3460.9	0.00	731.37	18.43
		2	25	Effort + Site	13244.5	303.2	5729.2	0.00	918.21	28.42
		1	26	Effort	16311.2	38.8	8795.8	0.00	1139.25	58.77

Table S1. (B) Sacramento splittail age-1+

Species Code	Age Class	Model No.	Rank	Equation	looi	ploo	dloo	Model weight	SE	dSE
SPT	Age-1+	26	1	Effort + Site + Yr + Sn + Outflow*S	14635.3	532.4	0.0	1.00	745.92	
		14	2	Effort + Site + Yr + Sn + Outflow*LOW	14646.6	533.5	11.3	0.00	730.44	5.41
		17	3	Effort + Site + Yr + Sn + Outflow + MOW	14650.7	513.8	15.4	0.00	738.30	6.64
		15	4	Effort + Site + Yr + Sn + Outflow + WOW	14651.9	518.3	16.6	0.00	738.33	8.13
		25	5	Effort + Site + Yr + Sn + Outflow + S	14654.0	522.3	18.7	0.00	736.66	5.76
		13	6	Effort + Site + Yr + Sn + Outflow + LOW	14655.2	518.5	19.9	0.00	738.73	6.18
		16	7	Effort + Site + Yr + Sn + Outflow*WOW	14656.6	538.6	21.3	0.00	732.99	6.52
		18	8	Effort + Site + Yr + Sn + Outflow*MOW	14659.4	540.0	24.1	0.00	734.60	7.28
		23	9	Effort + Site + Yr + Sn + Outflow + Depth	14663.5	526.1	28.2	0.00	740.89	5.65
		5	10	Effort + Site + Yr + Sn + Outflow	14666.3	526.4	31.0	0.00	742.20	5.78
		22	11	Effort + Site + Yr + Sn + Outflow*UOW	14667.3	542.4	32.0	0.00	738.75	7.62
		21	12	Effort + Site + Yr + Sn + Outflow + UOW	14668.0	524.8	32.7	0.00	741.91	4.23

		19	13	Effort + Site + Yr + Sn + Outflow + POW	14672.5	530.2	37.1	0.00	742.97	6.64
		24	14	Effort + Site + Yr + Sn + Outflow*Depth	14676.4	537.1	41.1	0.00	745.19	5.67
		20	15	Effort + Site + Yr + Sn + Outflow*POW	14683.2	542.1	47.9	0.00	743.24	5.91
		10	16	Effort + Site + Yr + Sn + UOW	14729.1	519.0	93.8	0.00	744.67	6.90
		7	17	Effort + Site + Yr + Sn + WOW	14730.2	515.4	94.9	0.00	746.04	6.35
		6	18	Effort + Site + Yr + Sn + LOW	14732.8	520.8	97.5	0.00	745.81	6.21
		8	19	Effort + Site + Yr + Sn + MOW	14735.3	522.6	100.0	0.00	746.75	6.56
		11	20	Effort + Site + Yr + Sn + Depth	14735.5	521.0	100.2	0.00	746.29	6.85
		12	21	Effort + Site + Yr + Sn + S	14736.8	521.7	101.5	0.00	744.93	7.67
		4	22	Effort + Site + Yr + Sn	14737.6	521.3	102.3	0.00	745.80	7.84
		9	23	Effort + Site + Yr + Sn + POW	14744.4	529.8	109.1	0.00	747.42	6.05
		3	24	Effort + Site + Yr	16400.8	558.1	1765.5	0.00	885.19	14.88
		2	25	Effort + Site	20377.3	357.6	5742.0	0.00	1242.21	29.42
		1	26	Effort	23698.8	55.6	9063.5	0.00	1560.52	54.20

Table S1. (C) Striped bass YOY

Species Code	Age Class	Model No.	Rank	Equation	loaic	ploo	dloo	Model weight	SE	dSE
STB	YOY	24	1	Effort + Site + Yr + Sn + Outflow*Depth	39388.4	1972.5	0.0	1.00	3362.50	
		18	2	Effort + Site + Yr + Sn + Outflow*MOW	39600.1	2005.1	211.7	0.00	3368.48	14.98
		26	3	Effort + Site + Yr + Sn + Outflow*S	39622.8	2007.5	234.4	0.00	3390.23	18.92
		14	4	Effort + Site + Yr + Sn + Outflow*LOW	39656.2	2025.3	267.8	0.00	3376.35	17.83
		22	5	Effort + Site + Yr + Sn + Outflow*UOW	39658.2	2034.8	269.8	0.00	3314.37	29.94
		16	6	Effort + Site + Yr + Sn + Outflow*WOW	39708.7	2015.6	320.2	0.00	3395.98	17.94
		17	7	Effort + Site + Yr + Sn + Outflow + MOW	39765.8	1980.7	377.4	0.00	3348.54	20.20
		20	8	Effort + Site + Yr + Sn + Outflow*POW	39778.2	1999.3	389.8	0.00	3342.96	27.03
		15	9	Effort + Site + Yr + Sn + Outflow + WOW	39783.3	2003.3	394.9	0.00	3355.78	25.54
		23	10	Effort + Site + Yr + Sn + Outflow + Depth	39785.6	1992.9	397.1	0.00	3359.41	22.95
		25	11	Effort + Site + Yr + Sn + Outflow + S	39788.6	1986.3	400.1	0.00	3355.35	22.31
		13	12	Effort + Site + Yr + Sn + Outflow + LOW	39794.2	2000.0	405.8	0.00	3358.87	21.51

		21	13	Effort + Site + Yr + Sn + Outflow + UOW	39796.0	2017.6	407.6	0.00	3355.34	24.69
		19	14	Effort + Site + Yr + Sn + Outflow + POW	39807.1	2022.8	418.7	0.00	3358.16	32.64
		5	15	Effort + Site + Yr + Sn + Outflow	39821.3	2003.7	432.9	0.00	3363.47	20.37
		8	16	Effort + Site + Yr + Sn + MOW	39948.2	1960.8	559.8	0.00	3309.84	23.90
		12	17	Effort + Site + Yr + Sn + S	39953.9	1956.1	565.4	0.00	3316.04	26.39
		11	18	Effort + Site + Yr + Sn + Depth	39972.1	1958.6	583.7	0.00	3314.31	23.97
		4	19	Effort + Site + Yr + Sn	39973.9	1973.8	585.4	0.00	3310.06	22.26
		6	20	Effort + Site + Yr + Sn + LOW	39975.5	1957.3	587.1	0.00	3319.54	24.11
		10	21	Effort + Site + Yr + Sn + UOW	39976.8	1975.0	588.4	0.00	3313.36	22.99
		9	22	Effort + Site + Yr + Sn + POW	39981.1	1990.8	592.6	0.00	3311.19	26.33
		7	23	Effort + Site + Yr + Sn + WOW	39982.3	1963.5	593.9	0.00	3313.21	24.12
		3	24	Effort + Site + Yr	69337.0	2742.0	29948.6	0.00	4998.86	126.45
		2	25	Effort + Site	82124.9	1667.4	42736.5	0.00	6591.18	113.74
		1	26	Effort	97141.2	308.7	57752.7	0.00	8634.93	188.85

Table S1. (D) Striped bass age-1+

Species Code	Age Class	Model No.	Rank	Equation	loaic	ploo	dloo	Model weight	SE	dSE
STB	Age-1+	26	1	Effort + Site + Yr + Sn + Outflow*S	17831.0	872.9	0.0	1.00	1675.22	
		15	2	Effort + Site + Yr + Sn + Outflow + WOW	17878.1	865.4	47.1	0.00	1692.78	11.78
		21	3	Effort + Site + Yr + Sn + Outflow + UOW	17878.6	856.2	47.6	0.00	1698.76	12.82
		19	4	Effort + Site + Yr + Sn + Outflow + POW	17878.9	858.9	47.9	0.00	1692.17	9.59
		13	5	Effort + Site + Yr + Sn + Outflow + LOW	17883.9	849.3	53.0	0.00	1696.96	9.68
		20	6	Effort + Site + Yr + Sn + Outflow*POW	17884.1	857.3	53.1	0.00	1691.92	8.84
		17	7	Effort + Site + Yr + Sn + Outflow + MOW	17886.7	852.5	55.7	0.00	1698.13	10.74
		25	8	Effort + Site + Yr + Sn + Outflow + S	17888.6	854.4	57.6	0.00	1689.50	9.51
		23	9	Effort + Site + Yr + Sn + Outflow + Depth	17891.6	869.1	60.6	0.00	1697.73	12.06
		18	10	Effort + Site + Yr + Sn + Outflow*MOW	17894.9	863.8	63.9	0.00	1695.27	8.70
		24	11	Effort + Site + Yr + Sn + Outflow*Depth	17905.9	876.5	74.9	0.00	1700.9	14.19
		5	12	Effort + Site + Yr + Sn + Outflow	17906.7	864.0	75.8	0.00	1702.85	11.96



		22	13	Effort + Site + Yr + Sn + Outflow*UOW	17908.1	876.0	77.1	0.00	1705.76	8.97
		16	14	Effort + Site + Yr + Sn + Outflow*WOW	17911.4	878.8	80.5	0.00	1701.61	14.84
		14	15	Effort + Site + Yr + Sn + Outflow*LOW	17919.6	878.4	88.6	0.00	1706.01	13.35
		7	16	Effort + Site + Yr + Sn + WOW	18028.6	861.2	197.6	0.00	1726.24	20.40
		9	17	Effort + Site + Yr + Sn + POW	18033.2	854.6	202.2	0.00	1728.26	10.65
		4	18	Effort + Site + Yr + Sn	18034.4	852.1	203.5	0.00	1731.90	10.81
		12	19	Effort + Site + Yr + Sn + S	18034.7	855.2	203.7	0.00	1727.67	17.70
		11	20	Effort + Site + Yr + Sn + Depth	18035.7	837.4	204.8	0.00	1732.52	10.14
		10	21	Effort + Site + Yr + Sn + UOW	18039.6	852.4	208.6	0.00	1731.23	12.67
		8	22	Effort + Site + Yr + Sn + MOW	18045.7	848.5	214.8	0.00	1738.39	11.23
		6	23	Effort + Site + Yr + Sn + LOW	18061.7	867.5	230.8	0.00	1735.51	10.47
		3	24	Effort + Site + Yr	21626.3	910.9	3795.3	0.00	2194.56	19.04
		2	25	Effort + Site	23660.8	551.9	5829.8	0.00	2797.77	57.74
		1	26	Effort	26607.7	100.5	8776.7	0.00	3787.46	31.16

Table S1. (E) Tule perch YOY

Species Code	Age Class	Model No.	Rank	Equation	loic	ploo	dloo	Model weight	SE	dSE
TUP	YOY	24	1	Effort + Site + Yr + Sn + Outflow*Depth	7916.2	441.3	0.0	1.00	509.22	
		20	2	Effort + Site + Yr + Sn + Outflow*POW	7936.2	441.9	19.9	0.00	504.04	5.89
		18	3	Effort + Site + Yr + Sn + Outflow*MOW	7937.3	441.9	21.1	0.00	507.99	4.24
		26	4	Effort + Site + Yr + Sn + Outflow*S	7946.6	450.2	30.4	0.00	522.19	5.67
		23	5	Effort + Site + Yr + Sn + Outflow + Depth	7951.1	432.6	34.8	0.00	515.70	4.75
		22	6	Effort + Site + Yr + Sn + Outflow*UOW	7951.7	449.1	35.5	0.00	509.12	4.82
		7	7	Effort + Site + Yr + Sn + WOW	7952.2	429.7	35.9	0.00	516.08	4.45
		17	8	Effort + Site + Yr + Sn + Outflow + MOW	7954.0	438.9	37.8	0.00	515.13	5.64
		14	9	Effort + Site + Yr + Sn + Outflow*LOW	7954.8	444.2	38.6	0.00	513.02	4.72
		4	10	Effort + Site + Yr + Sn	7956.6	431.1	40.3	0.00	518.62	5.59
		8	11	Effort + Site + Yr + Sn + MOW	7956.8	432.0	40.5	0.00	516.52	4.58
		5	12	Effort + Site + Yr + Sn + Outflow	7957.3	442.8	41.1	0.00	516.67	8.11

		11	13	Effort + Site + Yr + Sn + Depth	7958.1	437.6	41.8	0.00	518.23	6.85
		21	14	Effort + Site + Yr + Sn + Outflow + UOW	7961.4	439.8	45.2	0.00	515.93	3.97
		16	15	Effort + Site + Yr + Sn + Outflow*WOW	7962.6	448.8	46.4	0.00	516.63	6.57
		13	16	Effort + Site + Yr + Sn + Outflow + LOW	7962.7	440.4	46.5	0.00	518.83	5.94
		9	17	Effort + Site + Yr + Sn + POW	7963.5	437.4	47.3	0.00	517.65	5.51
		12	18	Effort + Site + Yr + Sn + S	7963.5	438.0	47.3	0.00	519.10	7.41
		6	19	Effort + Site + Yr + Sn + LOW	7964.9	441.1	48.6	0.00	517.31	5.71
		10	20	Effort + Site + Yr + Sn + UOW	7967.5	438.3	51.2	0.00	519.51	6.20
		25	21	Effort + Site + Yr + Sn + Outflow + S	7967.7	449.0	51.4	0.00	517.93	9.58
		15	22	Effort + Site + Yr + Sn + Outflow + WOW	7968.7	455.0	52.5	0.00	518.61	11.24
		19	23	Effort + Site + Yr + Sn + Outflow + POW	7973.0	448.0	56.8	0.00	517.93	4.28
		3	24	Effort + Site + Yr	9841.1	485.8	1924.8	0.00	654.02	15.51
		2	25	Effort + Site	10940.3	264.2	3024.1	0.00	796.02	30.19
		1	26	Effort	12453.3	30.2	4537.0	0.00	984.71	56.18

Table S1. (F) Tule perch age-1+

Species Code	Age Class	Model No.	Rank	Equation	loic	ploo	dloo	Model weight	SE	dSE
TUP	Age-1+	22	1	Effort + Site + Yr + Sn + Outflow*UOW	7053.9	272.5	0.0	0.90	326.86	
		18	2	Effort + Site + Yr + Sn + Outflow*MOW	7058.3	278.2	4.5	0.10	329.63	3.39
		25	3	Effort + Site + Yr + Sn + Outflow + S	7065.5	269.9	11.6	0.00	326.86	2.12
		21	4	Effort + Site + Yr + Sn + Outflow + UOW	7070.5	273.8	16.6	0.00	327.1	2.66
		6	5	Effort + Site + Yr + Sn + LOW	7070.7	273.7	16.9	0.00	327.08	2.13
		24	6	Effort + Site + Yr + Sn + Outflow*Depth	7071.8	277.5	18.0	0.00	327.54	2.86
		23	7	Effort + Site + Yr + Sn + Outflow + Depth	7072.8	275.6	19.0	0.00	328.02	2.45
		19	8	Effort + Site + Yr + Sn + Outflow + POW	7073.0	273.4	19.2	0.00	327.9	2.69
		17	9	Effort + Site + Yr + Sn + Outflow + MOW	7074.5	276.9	20.6	0.00	328.62	3.72
		20	10	Effort + Site + Yr + Sn + Outflow*POW	7075.5	277.8	21.6	0.00	328.14	2.77
		26	11	Effort + Site + Yr + Sn + Outflow*S	7078.8	281.0	24.9	0.00	327.87	2.71
		9	12	Effort + Site + Yr + Sn + POW	7130.2	283.2	76.4	0.00	333.39	7.00
		7	13	Effort + Site + Yr + Sn + WOW	7202.9	285.4	149.1	0.00	339.62	6.42

		4	14	Effort + Site + Yr + Sn	7203.4	276.7	149.6	0.00	338.64	4.16
		15	15	Effort + Site + Yr + Sn + Outflow + WOW	7203.4	277.6	149.6	0.00	338.31	4.37
		12	16	Effort + Site + Yr + Sn + S	7203.9	278.1	150.0	0.00	337.9	4.51
		13	17	Effort + Site + Yr + Sn + Outflow + LOW	7207.1	278.3	153.3	0.00	338.99	4.84
		5	18	Effort + Site + Yr + Sn + Outflow	7207.9	279.8	154.0	0.00	338.9	4.57
		16	19	Effort + Site + Yr + Sn + Outflow*WOW	7208.1	279.6	154.2	0.00	339.77	4.79
		11	20	Effort + Site + Yr + Sn + Depth	7212.6	294.4	158.8	0.00	341.02	6.68
		14	21	Effort + Site + Yr + Sn + Outflow*LOW	7214.0	283.9	160.2	0.00	340.84	5.88
		10	22	Effort + Site + Yr + Sn + UOW	7219.5	300.5	165.7	0.00	342.02	7.68
		8	23	Effort + Site + Yr + Sn + MOW	7222.9	291.9	169.0	0.00	341.08	5.26
		3	24	Effort + Site + Yr	7614.0	282.6	560.1	0.00	368.66	6.55
		2	25	Effort + Site	9389.3	174.0	2335.5	0.00	470.08	14.24
		1	26	Effort	10888.9	21.6	3835.1	0.00	555.47	26.43

Table S1. (G) Starry flounder YOY

Species Code	Age Class	Model No.	Rank	Equation	loic	ploo	dloo	Model weight	SE	dSE
STAFLO	YOY	14	1	Effort + Site + Yr + Sn + Outflow*LOW	1912.4	102.8	0.0	0.35	128.72	
		18	2	Effort + Site + Yr + Sn + Outflow*MOW	1912.5	103.4	0.1	0.33	129.11	0.65
		16	3	Effort + Site + Yr + Sn + Outflow*WOW	1913.6	103.3	1.2	0.19	129.37	0.89
		25	4	Effort + Site + Yr + Sn + Outflow + S	1917.4	102.3	5.0	0.03	128.84	0.90
		15	5	Effort + Site + Yr + Sn + Outflow + WOW	1917.5	101.8	5.0	0.03	128.70	0.82
		5	6	Effort + Site + Yr + Sn + Outflow	1917.6	102.6	5.2	0.03	129.49	2.21
		22	7	Effort + Site + Yr + Sn + Outflow*UOW	1918.2	103.9	5.8	0.02	129.27	0.86
		24	8	Effort + Site + Yr + Sn + Outflow*Depth	1920.5	103.7	8.1	0.01	129.38	0.87
		21	9	Effort + Site + Yr + Sn + Outflow + UOW	1921.1	104.4	8.6	0.00	130.46	1.67
		13	10	Effort + Site + Yr + Sn + Outflow + LOW	1921.2	103.8	8.8	0.00	130.19	1.47
		23	11	Effort + Site + Yr + Sn + Outflow + Depth	1921.5	104.7	9.1	0.00	130.07	1.43
		19	12	Effort + Site + Yr + Sn + Outflow + POW	1922.6	104.8	10.2	0.00	131.30	2.40

		17	13	Effort + Site + Yr + Sn + Outflow + MOW	1922.7	105.2	10.3	0.00	130.88	2.00
		26	14	Effort + Site + Yr + Sn + Outflow*S	1923.8	107.1	11.4	0.00	130.34	2.06
		20	15	Effort + Site + Yr + Sn + Outflow*POW	1924.3	106.2	11.9	0.00	131.10	2.45
		4	16	Effort + Site + Yr + Sn	1928.8	100.2	16.3	0.00	130.01	1.07
		9	17	Effort + Site + Yr + Sn + POW	1929.6	100.1	17.2	0.00	130.36	1.21
		12	18	Effort + Site + Yr + Sn + S	1930.5	100.8	18.1	0.00	130.33	0.90
		6	19	Effort + Site + Yr + Sn + LOW	1931.5	100.9	19.1	0.00	129.66	1.24
		11	20	Effort + Site + Yr + Sn + Depth	1932.7	102.0	20.3	0.00	130.69	1.04
		10	21	Effort + Site + Yr + Sn + UOW	1932.7	102.1	20.3	0.00	131.16	1.24
		8	22	Effort + Site + Yr + Sn + MOW	1934.8	103.2	22.4	0.00	131.65	1.90
		7	23	Effort + Site + Yr + Sn + WOW	1934.9	103.5	22.5	0.00	131.56	1.87
		3	24	Effort + Site + Yr	2123.1	109.6	210.7	0.00	156.74	5.55
		2	25	Effort + Site	2663.5	63.9	751.1	0.00	236.51	7.46
		1	26	Effort	2751.2	10.1	838.8	0.00	244.34	14.73

## Supplementary figures

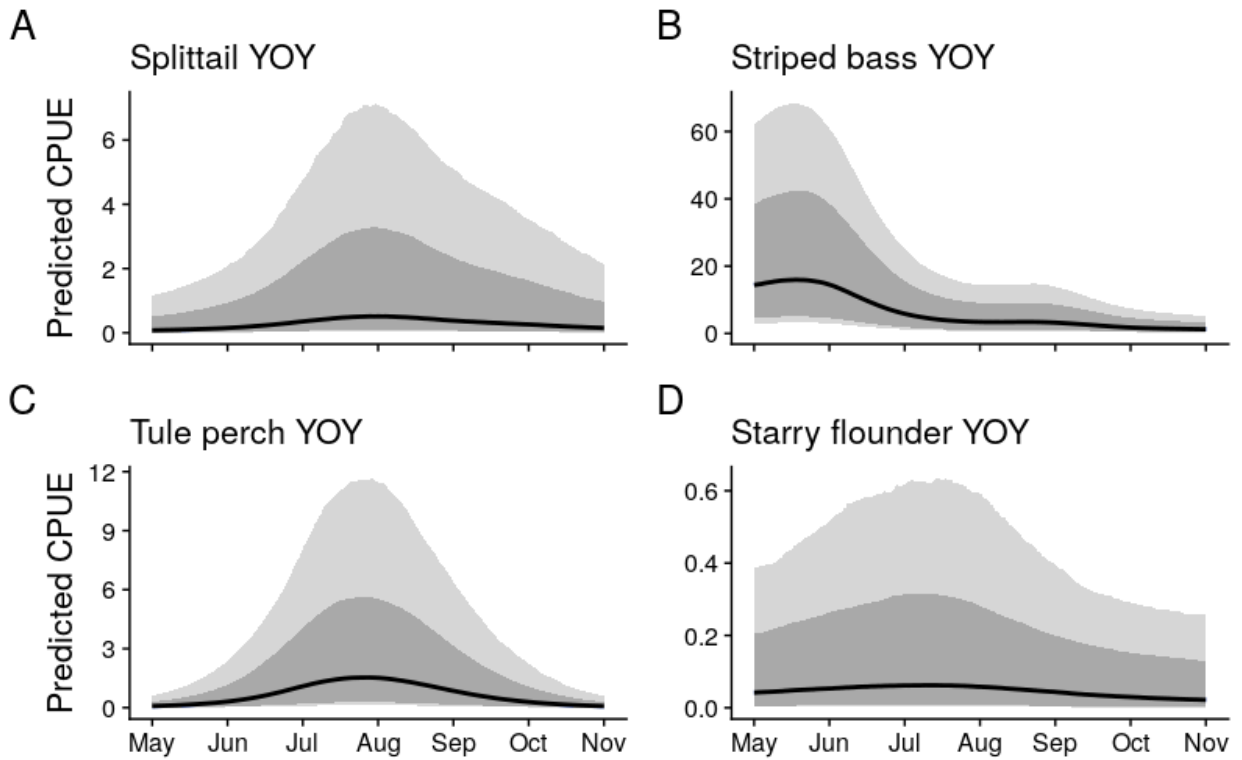


Fig. S1. Predicted catch per unit effort (CPUE) for focal species across months in Suisun Marsh. Lines indicate predicted median estimates (black lines) from generalized additive mixed models. Light and dark ribbons indicate 95% and 80% credible intervals around the median, respectively



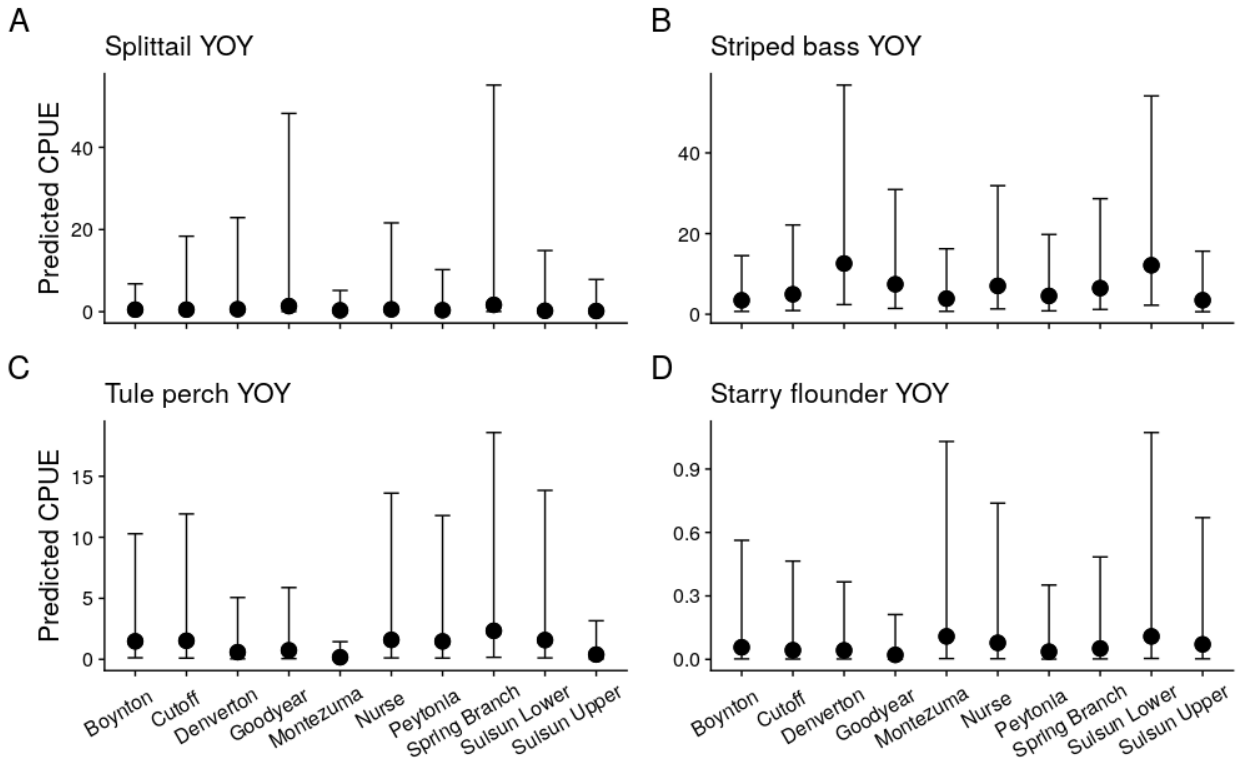


Fig. S2. Predicted catch per unit effort (CPUE) for focal species across sites in Suisun Marsh. Intervals represent median estimates (circle) and 95% credible intervals (lines)

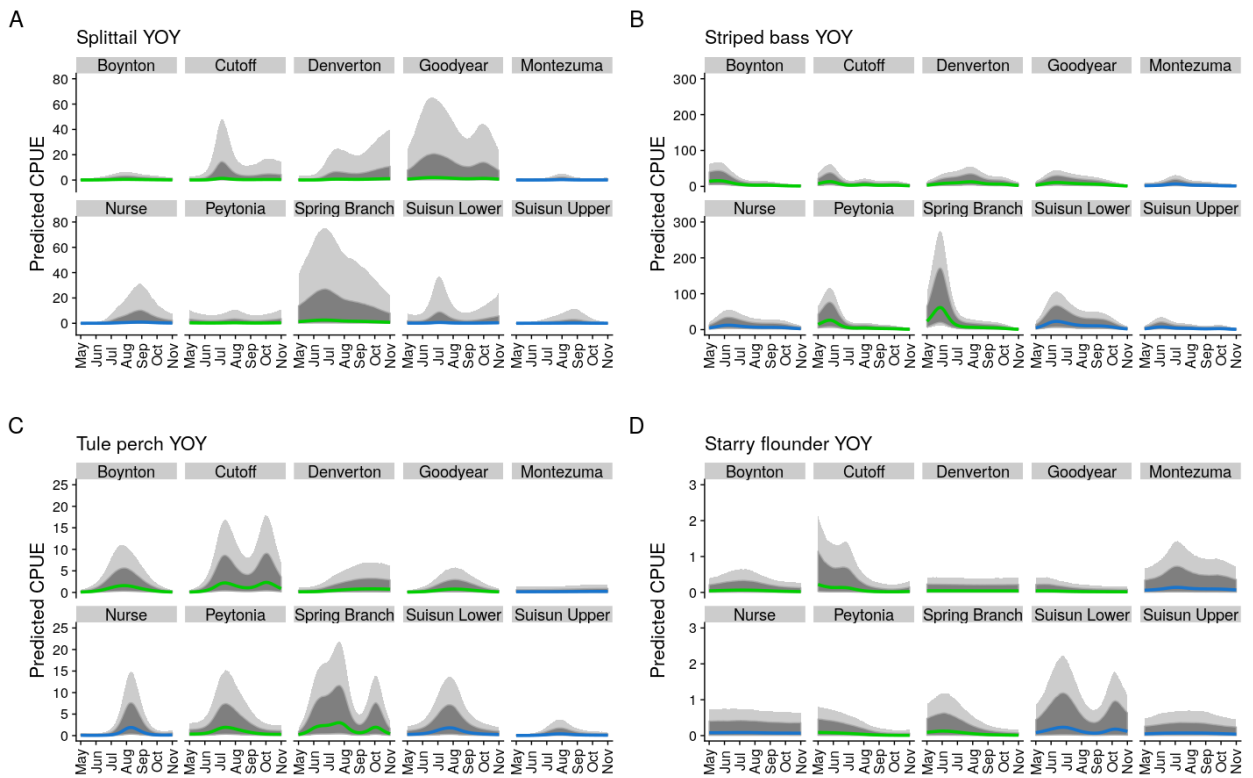


Fig S3. Seasonal dynamics for predicted young-of-the-year (YOY) catch per unit effort in Suisun Marsh. Lines indicate predicted estimates from generalized additive mixed models;

lines represent median estimates and colors represent dominant site type (green=land-dominated, blue=open-water-dominated). Light and dark ribbons indicate 95% and 80% credible intervals around the median and include random effects, respectively

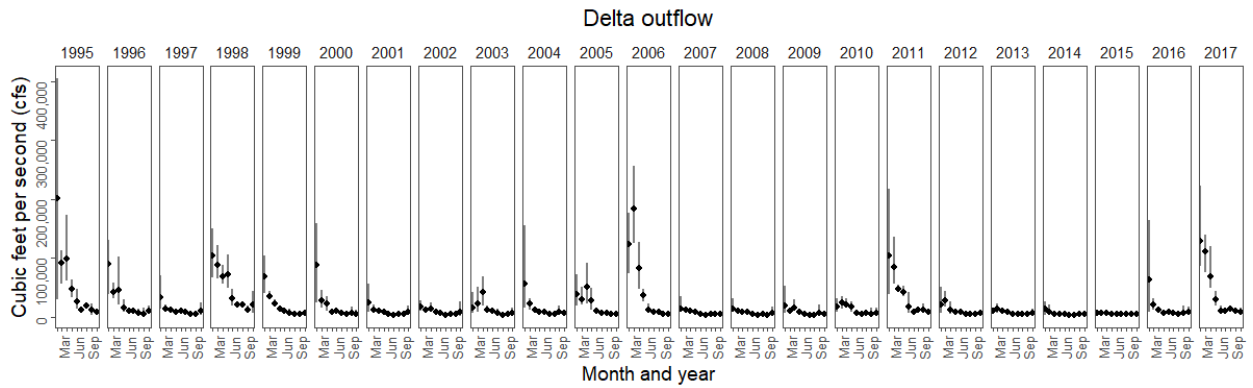


Fig. S4. Freshwater outflow from the upstream Sacramento-San Joaquin Delta by month and year shown as mean (points) and min and max (line ranges). Data source: CDEC 2018.

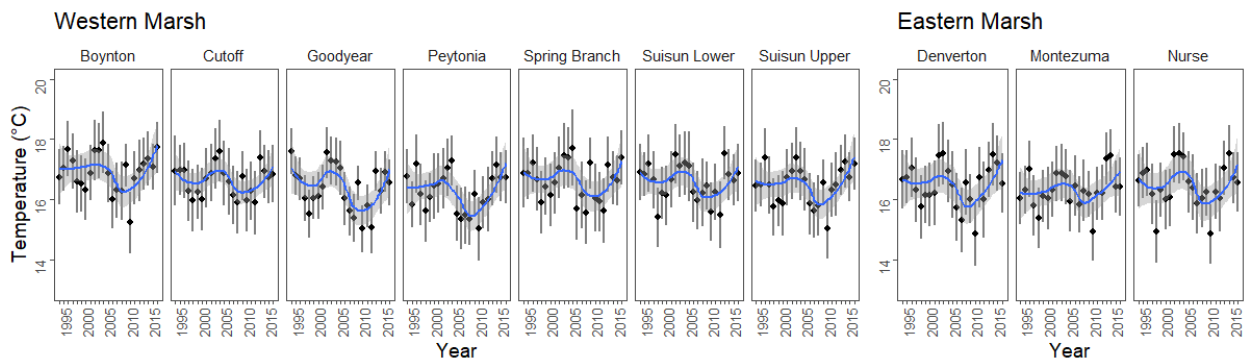


Fig. S5. Temperature (°C) by year and slough as measured by a handheld YSI device during trawl surveys

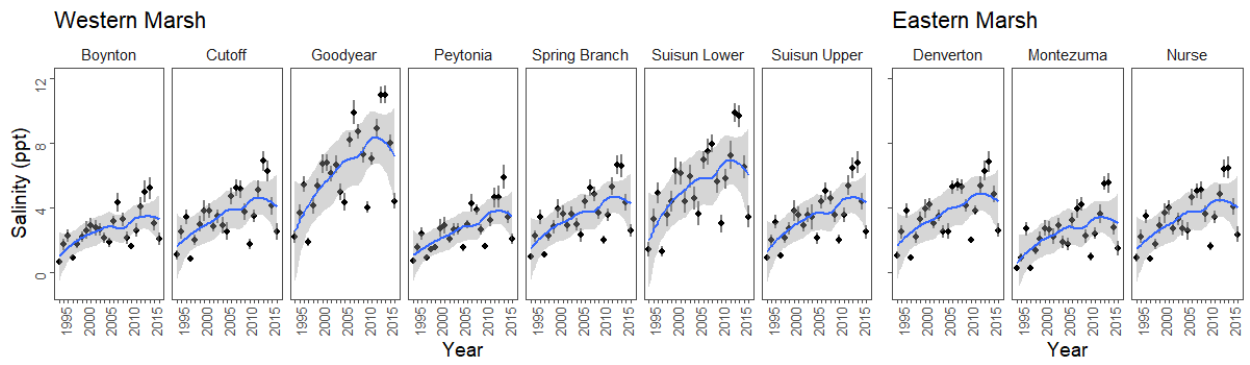


Fig. S6. Salinity (ppt) by year and slough as measured by a handheld YSI device during trawl surveys.

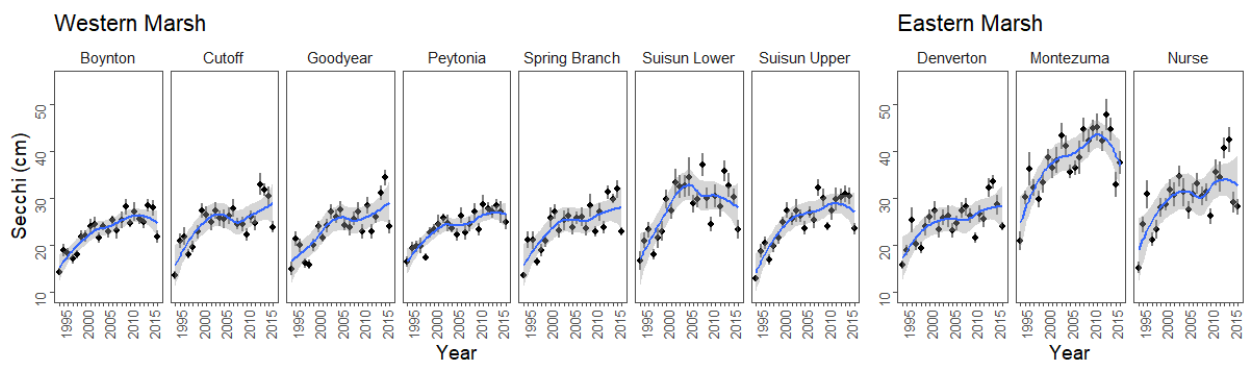


Fig. S7. Secchi (cm) by year and slough as measured by a secchi disc during trawl surveys

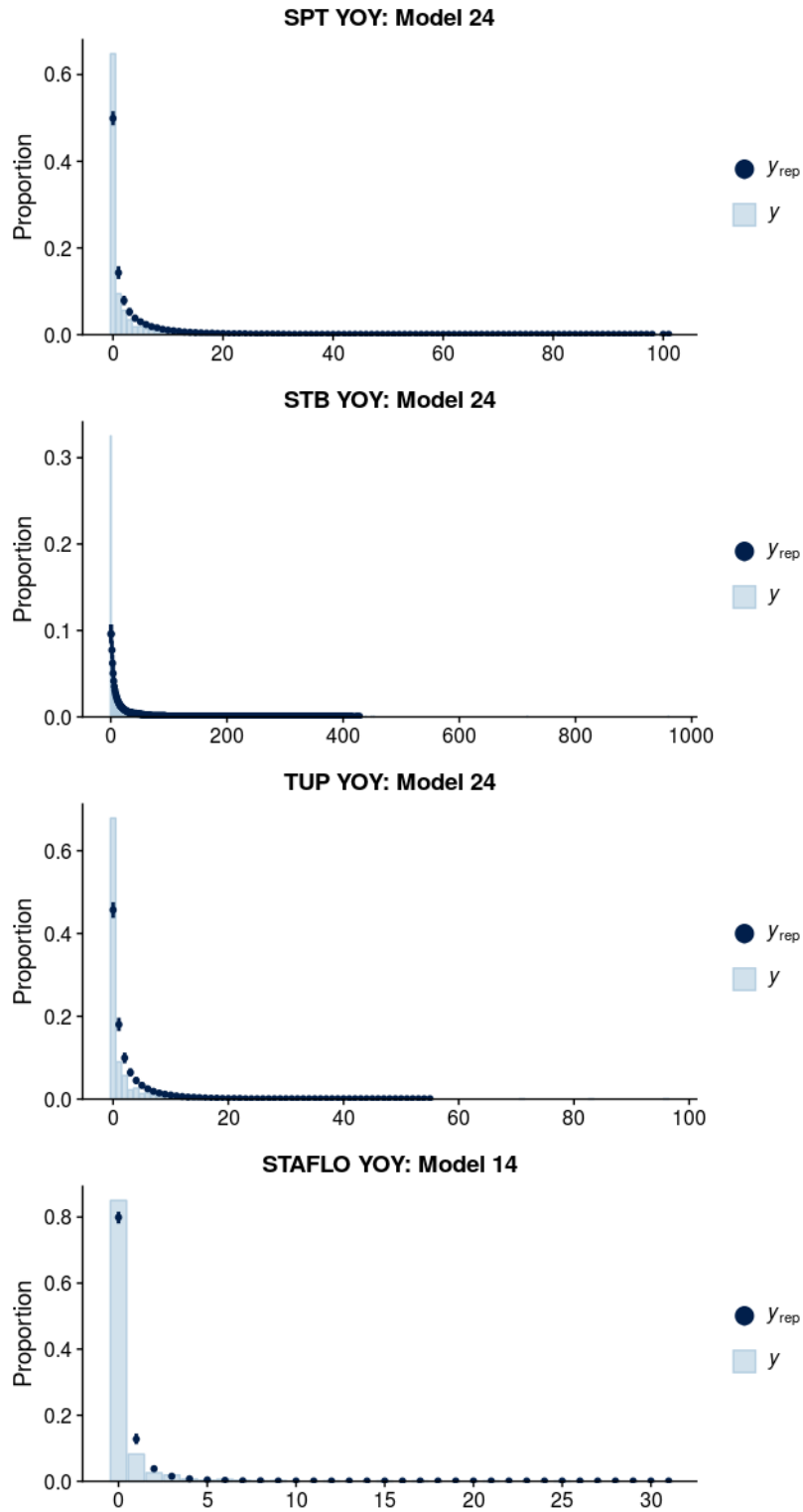


Fig. S8. Posterior predictive distribution of the selected YOY models, comparing observed YOY counts ( $y$ ) and simulated posterior draws ( $y_{rep}$ )

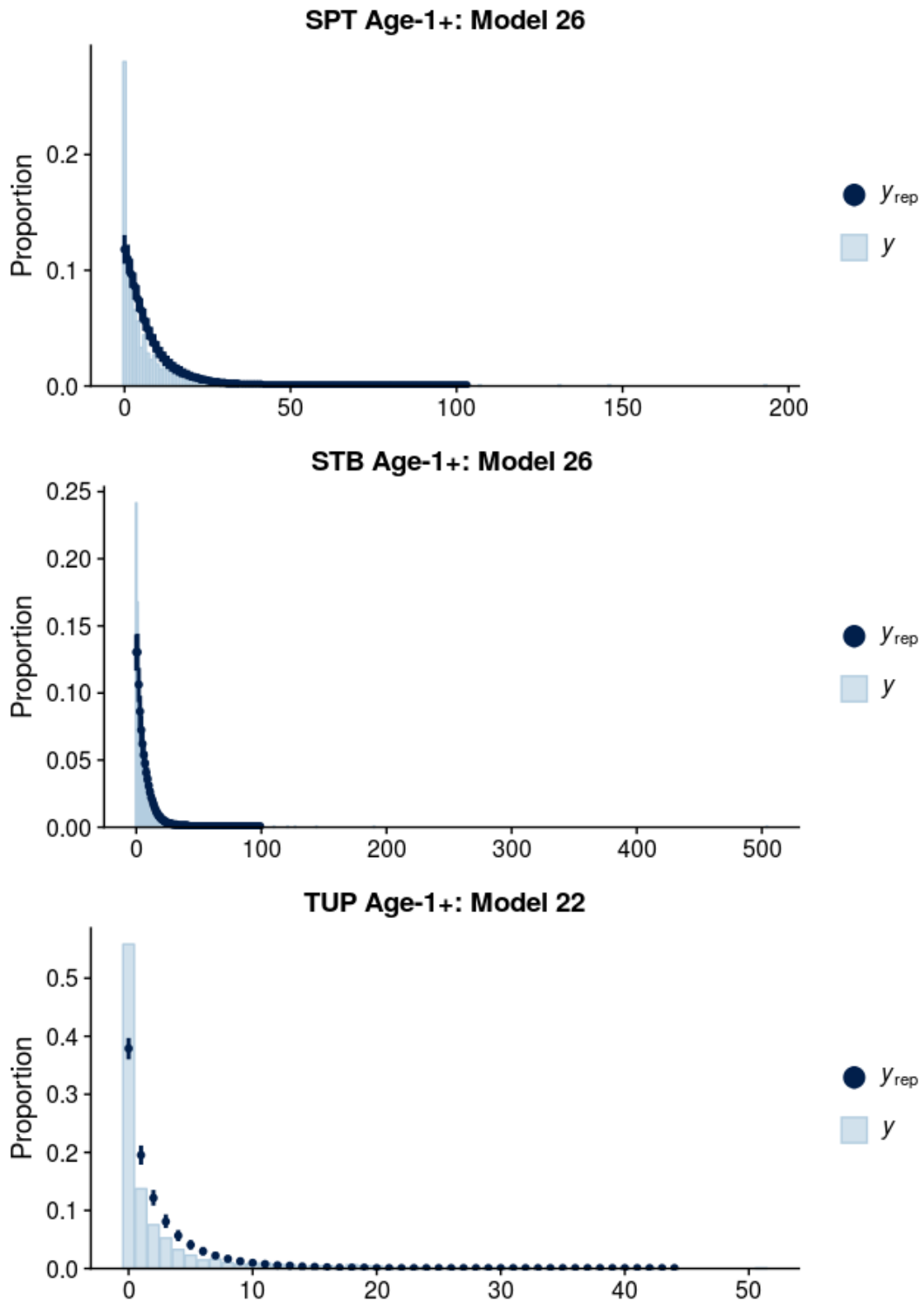


Fig. S9. Posterior predictive distribution of the selected Age-1+ models, comparing observed fish counts ( $y$ ) and simulated posterior draws ( $y_{rep}$ )