Assessment Table Examples

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July 26, 2016

Table 1: Commercial removals (mt) from the Oregon live and dead commercial fisheries, north and south of Florence, OR.

Year	Southern Dead	Northern Dead	Southern Live	Northern Live	Total Removals	Source
1900	0.01	0.01			0.02	Karnowski et al.
1901	0.00	0.00			0.00	Karnowski et al.
1902	0.00	0.00			0.00	Karnowski et al.
1903	0.00	0.00			0.00	Karnowski et al.
1904	0.00	0.00			0.00	Karnowski et al.
1905	0.00	0.00			0.00	Karnowski et al.
1906	0.00	0.00			0.00	Karnowski et al.
1907	0.00	0.00			0.00	Karnowski et al.
1908	0.00	0.00			0.00	Karnowski et al.
1909	0.00	0.00			0.00	Karnowski et al.
1910	0.00	0.00			0.00	Karnowski et al.
1911	0.00	0.00			0.00	Karnowski et al.
1912	0.00	0.00			0.00	Karnowski et al.
1913	0.00	0.00			0.00	Karnowski et al.
1914	0.00	0.00			0.00	Karnowski et al.
1915	0.00	0.00			0.00	Karnowski et al.
1916	0.00	0.00			0.00	Karnowski et al.
1917	0.00	0.00			0.00	Karnowski et al.
1918	0.00	0.00			0.00	Karnowski et al.
1919	0.00	0.00			0.00	Karnowski et al.
1920	0.00	0.00			0.00	Karnowski et al.
1921	0.00	0.00			0.00	Karnowski et al.
1922	0.00	0.00			0.00	Karnowski et al.
1923	0.00	0.00			0.00	Karnowski et al.
1924	0.00	0.00			0.00	Karnowski et al.
1925	0.00	0.00			0.00	Karnowski et al.
1926	0.00	0.00			0.00	Karnowski et al.
1927	0.00	0.00			0.00	Karnowski et al.
1928	0.00	0.00			0.01	Karnowski et al.
1929	0.01	0.01			0.01	Karnowski et al.
1930	0.00	0.00			0.01	Karnowski et al.
1931	0.00	0.00			0.01	Karnowski et al.
1932	0.00	0.00			0.00	Karnowski et al.
1933	0.00	0.00			0.01	Karnowski et al.
1934	0.00	0.00			0.01	Karnowski et al.
1935	0.00	0.00			0.00	Karnowski et al.
1936	0.00	0.00			0.01	Karnowski et al.
1937	0.00	0.00			0.01	Karnowski et al.
1938	0.00	0.00			0.01	Karnowski et al.
1939	0.00	0.00			0.00	Karnowski et al.
1940	0.01	0.01			0.01	Karnowski et al.
1941	0.01	0.01			0.02	Karnowski et al.

Table 1: Commercial removals (mt) from the Oregon live and dead commercial fisheries, north and south of Florence, OR.

Year	Southern Dead	Northern Dead	Southern Live	Northern Live	Total Removals	Source
1942	0.01	0.01			0.03	Karnowski et al.
1943	0.04	0.04			0.07	Karnowski et al.
1944	0.01	0.01			0.01	Karnowski et al.
1945	0.04	0.04			0.08	Karnowski et al.
1946	0.05	0.05			0.11	Karnowski et al.
1947	0.01	0.01			0.02	Karnowski et al.
1948	0.01	0.01			0.02	Karnowski et al.
1949	0.07	0.07			0.13	Karnowski et al.
1950	0.00	0.00			0.01	Karnowski et al.
1951	0.00	0.00			0.00	Karnowski et al.
1952	0.00	0.00			0.00	Karnowski et al.
1953	0.00	0.00			0.00	Karnowski et al.
1954	0.00	0.00			0.00	Karnowski et al.
1955	0.00	0.00			0.00	Karnowski et al.
1956	0.00	0.00			0.00	Karnowski et al.
1957	0.00	0.00			0.00	Karnowski et al.
1958	0.00	0.00			0.00	Karnowski et al.
1959	0.00	0.00			0.00	Karnowski et al.
1960	0.00	0.00			0.00	Karnowski et al.
1961	0.00	0.00			0.00	Karnowski et al.
1962	0.00	0.00			0.00	Karnowski et al.
1963	0.00	0.00			0.00	Karnowski et al.
1964	0.01	0.01			0.02	Karnowski et al.
1965	0.00	0.00			0.00	Karnowski et al.
1966	0.00	0.00			0.00	Karnowski et al.
1967	0.00	0.00			0.00	Karnowski et al.
1968	0.00	0.00			0.00	Karnowski et al.
1969	0.00	0.00			0.01	Karnowski et al.
1970	0.00	0.00			0.00	Karnowski et al.
1971	0.00	0.00			0.00	Karnowski et al.
1972	0.00	0.00			0.00	Karnowski et al.
1973	0.00	0.00			0.01	Karnowski et al.
1974	0.01	0.01			0.02	Karnowski et al.
1975	0.00	0.00			0.01	Karnowski et al.
1976	0.00	0.00			0.00	Karnowski et al.
1977	0.09	0.09			0.17	Karnowski et al.
1978	0.01	0.01			0.03	Karnowski et al.
1979	0.13	0.13			0.26	Karnowski et al.
1980	0.07	0.07			0.13	Karnowski et al.
1981	0.07	0.07			0.14	Karnowski et al.
1982	0.32	0.32			0.64	Karnowski et al.
1983	0.35	0.35			0.69	Karnowski et al.
1984	0.23	0.23			0.45	Karnowski et al.
1985	0.21	0.21			0.41	Karnowski et al.
1986	0.14	0.14			0.28	Karnowski et al.
1987	0.88	0.84			1.72	Karnowski et al.
1988	0.85	1.11			1.97	Karnowski et al.
1989	1.05	0.81			1.86	Karnowski et al.
1990	1.13	0.53			1.66	Karnowski et al.

Table 1: Commercial removals (mt) from the Oregon live and dead commercial fisheries, north and south of Florence, OR.

Year	Southern Dead	Northern Dead	Southern Live	Northern Live	Total Removals	Source
1991	0.66	0.64			1.30	Karnowski et al.
1992	0.86	0.64			1.50	PacFIN
1993	0.82	0.01			0.82	PacFIN
1994	6.16				6.16	PacFIN
1995	6.35				6.35	PacFIN
1996	5.62				5.62	PacFIN
1997	5.31		5.31		10.63	PacFIN
1998	9.54		9.15		18.69	PacFIN
1999	8.39		14.92		23.31	PacFIN
2000	2.54		9.51		12.05	PacFIN
2001	3.83		15.47		19.31	PacFIN
2002	3.06		17.06		20.12	PacFIN
2003	1.88		8.16		10.04	PacFIN
2004	1.08		5.84		6.92	PacFIN
2005	0.63		3.39		4.02	PacFIN
2006	0.54		4.11		4.64	PacFIN
2007	1.15	0.01	4.88		6.03	PacFIN
2008	1.45	0.04	6.28	0.00	7.76	PacFIN
2009	1.12	0.02	6.70	0.04	7.88	PacFIN
2010	0.52	0.02	4.30	0.00	4.84	PacFIN
2011	1.37	0.02	6.59		7.98	PacFIN
2012	1.29	0.04	7.41	0.02	8.76	PacFIN
2013	1.55	0.02	5.41	0.00	6.98	PacFIN
2014	0.72	0.01	3.62	0.02	4.38	PacFIN

tab:OR_comm_removal

Table 2: Estimated discarded and retained China rockfish in the Nearshore Fixed-gear Fishery provided by the West Coast Groundfish Observer Program (WCGOP). For the area South of 40°10′, where discards are higher, bootstraping was used to estimated a coefficient of variation (CV) of the total discard amount. The mortality of discarded China rockfish is estimated by WCGOP as a function of the fishing depth which varies by year. The average mortality fraction south of40°10′ across all years was 59%.

tab:WCGOP_trip_discard

Year	Area	Estimated total discard (mt)	CV of total discard	Estimated dead discard (mt)	Estimated mortality fraction	Estimated landings (mt)	Estimated dead discard + landings	Ratio of dead discard:total dead
2003	N of 40′10′	0.54	-	0.25	47%	10.62	10.87	2%
2004	N of 40′10′	0.54	-	0.24	45%	7.28	7.52	3%
2005	N of 40′10′	0.38	-	0.17	45%	4.56	4.73	4%
2006	N of 40′10′	0.47	-	0.21	44%	5.62	5.83	4%
2007	N of 40′10′	0.20	-	0.08	43%	7.99	8.08	1%
2008	N of 40′10′	1.02	-	0.42	41%	9.40	9.81	4%
2009	N of 40′10′	0.70	-	0.29	41%	8.53	8.82	3%
2010	N of 40′10′	0.34	-	0.13	38%	5.15	5.28	2%
2011	N of 40′10′	0.28	-	0.12	44%	8.42	8.54	1%
2012	N of 40′10′	0.61	-	0.23	38%	9.15	9.39	2%
2013	N of 40′10′	0.26	-	0.12	45%	7.20	7.32	2%
2004	S of 40′10′	0.61	51%	0.35	57%	1.96	2.31	15%
2005	S of 40′10′	1.40	51%	0.65	46%	2.35	3.00	22%
2006	S of 40′10′	0.87	48%	0.48	55%	2.02	2.50	19%
2007	S of 40′10′	1.06	19%	0.61	57%	2.20	2.81	22%
2008	S of 40′10′	1.35	77%	0.81	60%	2.28	3.09	26%
2009	S of 40′10′	1.77	64%	0.96	54%	1.97	2.92	33%
2010	S of 40′10′	2.68	69%	1.68	63%	1.80	3.49	48%
2011	S of 40′10′	2.92	45%	1.38	47%	1.55	2.93	47%
2012	S of 40′10′	2.73	82%	1.81	66%	1.44	3.25	56%
2013	S of 40′10′	1.61	53%	1.28	79%	1.20	2.47	52%

Table 3: Recreational removals (mt) from the Washington party/charter (PC) and private (PR) vessels. Northern WA represents MCAs 3 and 4 and soutern WA represents MCAs 1 and 2. WDFW provided all data. Note: A discard mortality rate was applied to removals presented in this table.

Year	Southern PC	Southern PR	Northern PC	Northern PR	Total Removals
1967	0.00	0.00	0.27	1.04	1.30
1968	0.02	0.00	0.32	1.25	1.58
1969	0.04	0.00	0.37	1.45	1.87
1970	0.06	0.00	0.43	1.66	2.15
1971	0.07	0.00	0.48	1.87	2.43
1972	0.09	0.00	0.53	2.08	2.71
1973	0.11	0.00	0.59	2.29	2.99
1974	0.13	0.00	0.64	2.49	3.27
1975	0.15	0.00	0.69	2.70	3.55
1976	0.02	0.00	0.38	1.48	1.88
1977	0.01	0.00	0.29	1.12	1.42
1978	0.06	0.00	0.78	3.02	3.86
1979	0.01	0.00	0.62	2.40	3.02
1980	0.02	0.00	0.53	2.04	2.59
1981	0.06	0.00	0.47	1.83	2.37
1982	0.05	0.00	0.56	2.18	2.79
1983	0.00	0.00	0.62	2.42	3.04
1984	0.11	0.00	0.67	2.62	3.40
1985	0.06	0.00	0.68	2.64	3.38
1986	0.16	0.00	0.78	3.02	3.96
1987	0.19	0.00	1.03	3.73	4.96
1988	0.23	0.01	1.28	4.45	5.97
1989	0.26	0.01	1.54	5.16	6.97
1990	0.30	0.01	1.79	5.88	7.98
1991	0.23	0.00	0.51	3.58	4.31
1992	0.35	0.01	1.46	5.81	7.63
1993	0.32	0.00	1.13	5.08	6.54
1994	0.31	0.00	1.18	3.24	4.74
1995	0.10	0.01	0.60	3.43	4.13
1996	0.12	0.01	0.45	2.29	2.86
1997	0.18	0.00	0.40	2.13	2.71
1998	0.19	0.07	0.08	1.65	1.99
1999	0.06	0.00	0.09	2.35	2.50
2000	0.10	0.00	0.41	2.51	3.02
2001	0.25	0.00	0.25	3.13	3.63
2002	0.10	0.00	0.23	2.17	2.50
2003	0.08	0.01	0.12	2.18	2.39
2004	0.07	0.04	0.14	1.97	2.23
2005	0.03	0.01	0.19	2.46	2.68
2006	0.02	0.00	0.08	2.20	2.31
2007	0.07	0.00	0.14	2.73	2.94
2008	0.16	0.01	0.31	2.68	3.16
2009	0.07	0.00	0.17	2.55	2.79
2010	0.15	0.04	0.13	3.36	3.68
2011	0.07	0.00	0.16	3.02	3.26
2012	0.07	0.01	0.26	2.63	2.96
2013	0.05	0.02	0.27	3.06	3.39
2014	0.03	0.02	0.30	2.68	3.03

tab:WA_rec_removal

Table 4: Recreational removals (mt) from the Oregon party/charter and private vessels. North and South refer to north and south of Florence, OR.

tab:OR_rec_removal

Year	Charter North	Charter South	Private North	Private South	Total North	Total South	OR Total	Source
1973	0.44	0.16	0.07	0.19	0.51	0.34	0.86	ODFW Reconstruction
1974	0.75	0.27	0.13	0.32	0.88	0.59	1.47	ODFW Reconstruction
1975	0.37	0.13	0.06	0.16	0.43	0.29	0.72	ODFW Reconstruction
1976	1.08	0.38	0.27	0.47	1.35	0.85	2.20	ODFW Reconstruction
1977	1.15	0.41	0.29	0.49	1.44	0.90	2.34	ODFW Reconstruction
1978	1.50	0.53	0.25	0.64	1.75	1.18	2.93	ODFW Reconstruction
1979	1.52	2.94	0.98	1.53	2.51	4.47	6.98	ODFW Reconstruction
1980	1.63	0.91	0.90	0.53	2.54	1.44	3.98	ODFW Reconstruction
1981	2.18	1.56	0.97	0.89	3.15	2.45	5.60	ODFW Reconstruction
1982	2.14	1.42	0.95	0.82	3.09	2.24	5.33	ODFW Reconstruction
1983	2.69	1.36	1.20	0.81	3.89	2.17	6.07	ODFW Reconstruction
1984	2.71	1.43	1.21	0.48	3.92	1.90	5.82	ODFW Reconstruction
1985	1.38	1.04	0.62	0.59	2.00	1.63	3.62	ODFW Reconstruction
1986	1.58	0.99	0.70	0.57	2.28	1.56	3.84	ODFW Reconstruction
1987	1.03	1.29	0.46	0.69	1.49	1.99	3.48	ODFW Reconstruction
1988	1.44	0.38	0.29	0.45	1.73	0.82	2.55	ODFW Reconstruction
1989	2.21	1.04	0.31	1.57	2.52	2.61	5.13	ODFW Reconstruction
1990	2.19	1.29	0.49	1.81	2.68	3.10	5.78	ODFW Reconstruction
1991	1.44	0.52	0.31	0.68	1.75	1.19	2.94	ODFW Reconstruction
1992	2.41	0.76	0.65	0.88	3.06	1.64	4.70	ODFW Reconstruction
1993	3.03	0.90	0.99	1.12	4.02	2.02	6.04	ODFW Reconstruction
1994	2.13	0.97	0.73	1.21	2.86	2.19	5.05	ODFW Reconstruction
1995	1.09	0.68	0.51	0.94	1.60	1.62	3.22	ODFW Reconstruction
1996	1.74	0.84	0.26	0.71	2.00	1.55	3.55	ODFW Reconstruction
1997	2.04	1.08	0.47	1.00	2.51	2.09	4.60	ODFW Reconstruction
1998	1.56	0.79	0.47	0.76	2.03	1.55	3.58	ODFW Reconstruction
1999	2.11	1.78	0.45	1.26	2.56	3.04	5.60	ODFW Reconstruction
2000	1.71	0.85	0.39	0.59	2.10	1.45	3.54	ODFW Reconstruction
2001	1.41	0.32	1.41	0.36	2.83	0.69	3.51	RecFIN
2002	1.40	0.32	1.40	0.38	2.79	0.70	3.49	RecFIN
2003	1.12	0.26	1.12	0.32	2.23	0.58	2.81	RecFIN
2004	0.99	0.23	0.99	0.40	1.98	0.62	2.60	RecFIN
2005	0.77	0.26	0.77	0.51	1.53	0.77	2.31	RecFIN
2006	1.11	0.35	1.11	0.50	2.22	0.85	3.07	RecFIN
2007	1.40	0.38	1.40	0.48	2.79	0.87	3.66	RecFIN
2008	1.25	0.26	1.25	0.45	2.50	0.72	3.22	RecFIN
2009	0.95	0.12	0.95	0.49	1.89	0.60	2.50	RecFIN
2010	1.02	0.20	1.02	0.61	2.05	0.80	2.85	RecFIN
2011	1.56	0.31	1.56	0.60	3.12	0.91	4.02	RecFIN
2012	1.68	0.37	1.68	0.41	3.36	0.78	4.14	RecFIN
2013	1.48	0.25	1.48	0.64	2.96	0.89	3.85	RecFIN
2014	0.51	0.18	0.51	0.48	1.01	0.66	1.67	RecFIN

Table 5: Recreational removals (mt) from the California party/charter (PC) and private (PR) vessels.

Year	South of 40°10′ PC	South of 40°10′ PR	North of 40°10′ PC	North of 40°10′ PR	Total Removals	Source
1928	0.10	0.31	0.00	0.00	0.42	Ralston et al. 2010
1929	0.21	0.62	0.00	0.00	0.84	Ralston et al. 2010
1930	0.24	0.72	0.00	0.00	0.96	Ralston et al. 2010
1931	0.32	0.95	0.00	0.01	1.28	Ralston et al. 2010
1932	0.40	1.19	0.00	0.01	1.60	Ralston et al. 2010
1933	0.48	1.43	0.00	0.01	1.92	Ralston et al. 2010
1934	0.56	1.67	0.00	0.01	2.24	Ralston et al. 2010
1935	0.64	1.91	0.00	0.01	2.56	Ralston et al. 2010
1936	0.72	2.15	0.00	0.02	2.88	Ralston et al. 2010
1937	0.85	2.55	0.01	0.02	3.42	Ralston et al. 2010
1938	0.83	2.50	0.01	0.02	3.36	Ralston et al. 2010
1939	0.73	2.19	0.01	0.02	2.94	Ralston et al. 2010
1940	1.05	3.15	0.01	0.02	4.23	Ralston et al. 2010
1941	0.97	2.91	0.01	0.02	3.91	Ralston et al. 2010
1942	0.52	1.55	0.00	0.01	2.08	Ralston et al. 2010
1943	0.49	1.48	0.00	0.01	1.99	Ralston et al. 2010
1944	0.40	1.21	0.00	0.01	1.63	Ralston et al. 2010
1945	0.54	1.62	0.00	0.01	2.17	Ralston et al. 2010
1946	0.93	2.79	0.01	0.02	3.74	Ralston et al. 2010
1947	0.74	2.21	0.01	0.02	2.98	Ralston et al. 2010
1948	1.48	4.43	0.01	0.03	5.95	Ralston et al. 2010
1949	1.91	5.74	0.01	0.04	7.70	Ralston et al. 2010
1950	2.33	6.99	0.02	0.05	9.39	Ralston et al. 2010
1951	2.73	8.20	0.02	0.06	11.01	Ralston et al. 2010
1952	2.38	7.15	0.02	0.05	9.60	Ralston et al. 2010
1953	2.04	6.11	0.01	0.05	8.20	Ralston et al. 2010
1954	2.55	7.66	0.02	0.06	10.29	Ralston et al. 2010
1955	3.07	9.21	0.02	0.07	12.38	Ralston et al. 2010
1956	3.43	10.30	0.03	0.08	13.84	Ralston et al. 2010
1957	3.42	10.25	0.03	0.10	13.80	Ralston et al. 2010
1958	5.62	16.85	0.03	0.08	22.58	Ralston et al. 2010
1959	4.36	13.07	0.02	0.06	17.50	Ralston et al. 2010
1960	3.63	10.90	0.01	0.04	14.59	Ralston et al. 2010
1961	3.16	9.49	0.01	0.04	12.71	Ralston et al. 2010
1962	2.98	8.93	0.00	0.01	11.92	Ralston et al. 2010
1963	3.72	11.17	0.01	0.02	14.91	Ralston et al. 2010
1964	2.52	7.55	0.01	0.02	10.10	Ralston et al. 2010
1965	4.13	12.38	0.01	0.04	16.55	Ralston et al. 2010
1966	4.65	13.96	0.00	0.01	18.63	Ralston et al. 2010
1967	6.03	18.10	0.02	0.05	24.20	Ralston et al. 2010
1968	5.28	15.85	0.01	0.02	21.16	Ralston et al. 2010
1969	4.49	13.48	0.02	0.05	18.05	Ralston et al. 2010
1970	7.59	22.76	0.00	0.01	30.37	Ralston et al. 2010
1971	5.57	16.72	0.01	0.02	22.31	Ralston et al. 2010
1972	7.84	23.52	0.02	0.05	31.43	Ralston et al. 2010
1973	8.67	26.02	0.01	0.03	34.73	Ralston et al. 2010
1974	9.84	29.52	0.00	0.01	39.38	Ralston et al. 2010
1975	9.51	28.52	0.00	0.01	38.04	Ralston et al. 2010
1976	10.28	30.83	0.00	0.01	41.12	Ralston et al. 2010

Table 5: Recreational removals (mt) from the California party/charter (PC) and private (PR) vessels.

Year	South of 40°10′ PC	South of 40°10′ PR	North of 40°10′ PC	North of 40°10′ PR	Total Removals	Source
1977	9.30	27.90	0.00	0.01	37.22	Ralston et al. 2010
1978	7.33	21.99	0.03	0.08	29.44	Ralston et al. 2010
1979	8.34	25.02	0.03	0.10	33.49	Ralston et al. 2010
1980	10.94	21.85	0.04	0.08	32.90	RecFIN
1981	4.75	10.99	0.04	0.10	15.89	RecFIN
1982	5.68	25.00	0.03	0.14	30.84	RecFIN
1983	5.10	10.82	0.08	0.16	16.17	RecFIN
1984	1.05	12.17	0.00	0.06	13.28	RecFIN
1985	3.28	23.87	0.02	0.14	27.31	RecFIN
1986	7.75	31.95	0.12	0.49	40.31	RecFIN
1987	18.35	34.12	0.28	0.53	53.29	RecFIN
1988	8.28	26.83	0.11	0.35	35.56	RecFIN
1989	9.55	22.43	0.06	0.14	32.17	RecFIN
1990	8.46	22.74	0.23	0.61	32.03	RecFIN
1991	7.57	23.49	0.20	0.64	31.89	RecFIN
1992	6.74	24.48	0.12	0.42	31.75	RecFIN
1993	5.78	25.02	0.15	0.66	31.61	RecFIN
1994	4.88	25.25	0.14	0.70	30.97	RecFIN
1995	3.98	20.01	0.12	0.60	24.71	RecFIN
1996	3.12	14.77	0.06	0.28	18.23	RecFIN
1997	3.60	3.54	0.06	0.06	7.26	RecFIN
1998	0.84	6.40	0.02	0.17	7.44	RecFIN
1999	2.97	11.71	0.10	0.40	15.18	RecFIN
2000	5.64	11.24	0.25	0.50	17.63	RecFIN
2001	6.51	9.19	0.31	0.43	16.44	RecFIN
2002	5.14	10.00	0.27	0.52	15.92	RecFIN
2003	4.40	12.12	0.33	0.91	17.77	RecFIN
2004	3.72	4.09	0.08	0.44	8.33	RecFIN
2005	8.48	4.90	0.15	0.37	13.91	RecFIN
2006	4.86	5.86	0.14	0.49	11.35	RecFIN
2007	4.40	6.79	0.64	0.87	12.70	RecFIN
2008	5.24	7.58	0.20	0.81	13.82	RecFIN
2009	7.03	11.14	0.66	0.89	19.72	RecFIN
2010	7.81	9.13	0.27	0.64	17.85	RecFIN
2011	7.46	6.61	0.16	1.06	15.29	RecFIN
2012	6.15	6.26	0.37	1.02	13.80	RecFIN
2013	4.53	4.27	0.26	0.97	10.03	RecFIN
2014	4.34	5.25	0.08	0.66	10.32	RecFIN

tab:CA_rec_removal

Table 6: WDFW recreational dockside data sample sizes at each data filtering step. The bold value indicates the final sample size used for delta-GLM analysis.

tab:WAdock_filter

Filter	Criteria	Sample size with Stephens-MacCall filter	Sample size with Stephen-MacCall filter, retaining all positive observations	Sample size without Stephens-MacCall filter
Full data set	All data	736271		
Trip type	Retain only bottomfish trips	109619		
Punch Card Areas	Remove non-rockfish areas (0,5,20,42,51,55,99 (1981-1989); 0,5,6,20,41,42,51,53:56, 61 (1990-2014))	107762		
Boat Type	Remove shore-based trips	106063		
Boat Type	Remove records with missing values	106052		
Remove NAs	1980-1989 Anglers	106026		
Stephens-MacCall	Remove trips not in China habitat	12819	20608	-
Months	Remove months with little to no data (3,10)	12755	20518	104615
Sampling Area	Remove area 52, very few records	12738	20499	102267
Area	Retain only area 4	**10428**	**16193**	**54285**

Table 7: AIC values for each model using the data with Stephens-MacCall filtering for the Washington dockside index.

tab:WAdock_aic

Model	Binomial	Lognormal
Year	14279.1	9990.2
Year+Month	13920.0	9850.0
Year+Month+BoatType	**13905.3**	**9830.2**
Year+Month+BoatType+BagLimits	13905.3	9838.2
Year+Month+BoatType+BagLimits+DepthRestrict	13905.3	9840.2

Table 8: Washington (Area 4 only) recreational dockside CPUE indices for China rockfish.

tab:WAdock

	Area 4 with Stephens MacCall			Area 4 with Stephens-MacCall, retain all positive records			Area 4 without Stephens-MacCall		
Year	Index	SE	CV	Index	SE	CV	Index	SE	CV
1981	0.4810	0.1580	0.2820	0.6940	0.1230	0.1540	0.3010	0.0570	0.1660
1982	0.3830	0.0600	0.1690	0.5400	0.0600	0.1050	0.2300	0.0260	0.1060
1983	0.4550	0.0600	0.1340	0.6430	0.0650	0.0980	0.2520	0.0300	0.1130
1984	0.4820	0.0480	0.0930	0.5000	0.0400	0.0710	0.1790	0.0150	0.0720
1985	0.6910	0.0690	0.0920	0.7360	0.0490	0.0590	0.2830	0.0210	0.0650
1986	0.5620	0.0590	0.0960	0.6160	0.0530	0.0770	0.3070	0.0290	0.0830
1987	0.4540	0.0360	0.0750	0.4860	0.0310	0.0600	0.2550	0.0170	0.0620
1988	0.5590	0.0500	0.0810	0.5870	0.0410	0.0640	0.3090	0.0220	0.0650
1989	0.7130	0.0480	0.0650	0.6660	0.0360	0.0510	0.4140	0.0230	0.0520
1990	0.7810	0.0570	0.0710	0.8010	0.0490	0.0560	0.4260	0.0260	0.0560
1991	0.5970	0.0630	0.1000	0.6650	0.0470	0.0660	0.3490	0.0270	0.0710
1992	0.7030	0.0470	0.0680	0.7040	0.0880	0.1090	0.3760	0.0510	0.1180
1993	0.6030	0.0490	0.0790	0.6300	0.0380	0.0570	0.3180	0.0210	0.0620
1994	0.5670	0.0470	0.0750	0.6480	0.0380	0.0540	0.3270	0.0200	0.0560
1995	0.5490	0.0360	0.0640	0.5900	0.0310	0.0510	0.2640	0.0150	0.0540
1996	0.3320	0.0260	0.0810	0.3890	0.0230	0.0600	0.1690	0.0110	0.0640
1997	0.3240	0.0270	0.0880	0.3680	0.0240	0.0670	0.1550	0.0100	0.0660
1998	0.3210	0.0280	0.0970	0.4020	0.0290	0.0750	0.1390	0.0110	0.0810
1999	0.3490	0.0420	0.1190	0.4030	0.0340	0.0810	0.1560	0.0150	0.0940
2000	0.4580	0.0450	0.1030	0.5200	0.0370	0.0710	0.2060	0.0170	0.0810
2001	0.5680	0.0580	0.1010	0.5940	0.0430	0.0680	0.2670	0.0210	0.0730
2002	0.4150	0.0560	0.1310	0.5210	0.0420	0.0770	0.1780	0.0160	0.0880
2003	0.3540	0.0620	0.1610	0.4720	0.0430	0.0870	0.1870	0.0180	0.0940
2004	0.2910	0.0480	0.1690	0.4350	0.0390	0.0930	0.1660	0.0150	0.0970
2005	0.2970	0.0300	0.1050	0.4270	0.0280	0.0650	0.1480	0.0110	0.0770
2006	0.3430	0.0500	0.1450	0.4800	0.0390	0.0810	0.1580	0.0140	0.0880
2007	0.4590	0.0880	0.1770	0.6550	0.0850	0.1130	0.2260	0.0310	0.1200
2008	0.5240	0.0740	0.1260	0.6550	0.0530	0.0700	0.2500	0.0220	0.0780
2009	0.5100	0.0600	0.1160	0.6350	0.0580	0.0810	0.2130	0.0220	0.0930
2010	0.6430	0.1230	0.1490	0.7110	0.1060	0.1110	0.1940	0.0300	0.1170
2011	0.6800	0.0770	0.1160	0.7260	0.0590	0.0750	0.2290	0.0230	0.0920
2012	0.5830	0.1070	0.1600	0.6310	0.0770	0.1040	0.1650	0.0240	0.1210
2013	0.7100	0.0890	0.1180	0.7130	0.0610	0.0780	0.1890	0.0190	0.0920
2014	0.6170	0.1200	0.1650	0.6030	0.0710	0.1030	0.1390	0.0190	0.1180

Table 9: CA South recreational MRFSS dockside data sample sizes at each data filtering step.The bold value indicates the final sample size used for delta-GLM analysis.

tab:MRFSS_S_filter

Filter	Criteria	Sample size (no. of trips)
Full data set	CPFV trips including counties from San Luis Obispo to Sonoma	2297
Stephens-MacCall	Retain all positive China trips, plus False Positives (trips predicted to be in China habitat, but with no China retained)	446
Poor spatial coverage in year	Drop 1993, 1994 (trips in SLO county only)	**431**

Table 10: Number of trips by year and region in the CA South recreational MRFSS index.

tab:MRFSS_S_sample_size

Year	San Luis Obispo	Monterey-Santa Cruz	S.F. Bay Area	Mendocino-Sonoma
1980	8	10	5	4
1981	4	0	2	5
1982	2	2	3	6
1983	4	4	1	3
1984	7	5	1	4
1985	7	15	17	7
1986	13	11	12	4
1987	8	2	11	5
1988	7	3	9	0
1989	6	3	14	3
1995	4	3	4	8
1996	19	12	24	18
1998	3	5	5	0
1999	17	7	10	4
2000	3	0	7	0
2001	2	5	5	2
2002	6	5	2	3
2003	2	6	1	2

Table 11: AIC values for each model in the CA South MRFSS dockside index.

tab:MRFSS_S_aic

Model	Binomial	Lognormal
Year	518.90	813.90
Year + Area X	520.90	814.70
Year + Area X + Wave	528.70	822.40
Year + Area X + Wave + Region	518.80	808.20
Year + Area X + Region	510.90	800.90
Year + Region	509.10	804.90
Year + Region + Year:Region	537.40	817.20

Table 12: Year effects for the CA South MRFSS dockside index.

tab:MRFSS_S_index

Year	Index	Log-scale SE
1980	0.06	0.26
1981	0.05	0.39
1982	0.08	0.32
1983	0.09	0.31
1984	0.05	0.30
1985	0.06	0.25
1986	0.08	0.18
1987	0.13	0.25
1988	0.12	0.28
1989	0.07	0.27
1995	0.09	0.21
1996	0.04	0.14
1998	0.04	0.27
1999	0.02	0.18
2000	0.04	0.35
2001	0.06	0.30
2002	0.06	0.29
2003	0.05	0.40

Table 13: Sample sizes at each data filtering step for the Oregon Recreational Boat Survey data. The bold value indicates the final sample size used for delta-GLM analysis.

tab:ORBS_filter

Filter	Criteria	Sample size (no. of trips)
Full data set	Charter boat trips from Oregon (statewide)	36752
Highliners	Retain vessels with 20+ trips;(13% of vessels made 89% of trips)	32394
Missing Effort	Delete records with TripHours=NULL	32387
Remove Multi-day	Delete trips with TripHours>12	31247
No tuna or dive trips	Drop TripType=(T or D); no China caught on tuna trips; CPUE not comparable for dive trips	30665
Extreme counter-indicators	Drop trips with common species that never co-occur with China (Blue shark, white sturgeon, steelhead and albacore)	30004
Delete catch = NA	Delete 3 trips with catch=NA	30001
Pelagic Rockfish Target	Delete trips in which >99% of catch is pelagic rockfish (silvergray, widow, yellowtail, black, blue)	28215
Stephens-MacCall	Retain all positive China trips, plus False Positives (trips predicted to be in China habitat, but with no China retained)	**6232**

Table 14: Number of trips by year and subregion in the Oregon Recreational Boat Survey (ORBS) charter boat index. Southern Oregon is defined as ports south of Florence. Northern Oregon includes the port of Florence and all ports to the OR-WA border.

tab:ORBS_sample_size

Year	Southern Oregon	Northern Oregon
2001	210	176
2002	330	206
2003	270	241
2004	251	120
2005	298	181
2006	274	170
2007	291	151
2008	420	157
2009	256	116
2010	271	155
2011	354	137
2012	329	166
2013	300	171
2014	122	109

Table 15: AIC values for each model in the Oregon Recreational Boat Survey (ORBS) charter boat index. (*) The binomial model with interaction between year and wave did not converge.

tab:ORBS_aic

Model	Binomial	Lognormal
Year	8184.0	8791.0
Year + Wave	8119.3	8797.6
Year + Region	8184.6	8688.9
Year + Wave + Region	**8118.8**	8695.1
Year + Wave + Region + Year:Region	8120.8	8659.3
Year + Wave + Region + Year:Wave	*	8736.8
Year + Region + Year:Region	8189.5	**8650.9**

Table 16: . The Oregon Recreational Boat Survey (ORBS) charter boat index (area-weighted).

tab:ORBS_index

Year	Index	Log-scale SE
2001	0.02	0.08
2002	0.02	0.08
2003	0.02	0.08
2004	0.02	0.09
2005	0.01	0.10
2006	0.02	0.08
2007	0.03	0.08
2008	0.02	0.07
2009	0.01	0.09
2010	0.02	0.09
2011	0.02	0.08
2012	0.02	0.09
2013	0.02	0.08
2014	0.01	0.11

Table 17: Onboard observer dataset filtering criteria and resutling sample sizes used for China rockfish.

tab:Onboard_filter

Dataset	Filter	Criteria	Positive drifts	Total drifts
Oregon	Entire dataset		325	14415
(2001,	General data filters	Filters 1-9, section **??**	269	11009
2003-2014)	Depth	< 180 ft (<30 fm)	269	10671
	Midwater drifts	<95% midwater species	266	6579
	Reef	Reefs with China rockfish	259	6038
California	Entire dataset		881	7712
(1989-1999)	General data filters	Filters 1-3, section **??**	880	7050
	Depth	< 360 ft (<60 fm)	880	6495
	Reef	Reefs with China rockfish	852	5557
California	Entire dataset		1468	62207
(2000-2014)	General data filters	Filters 1-9, section **??**	1431	15912
	Depth	< 240 ft (< 40 fm)	1427	15381
	Reef	Reefs with China rockfish	1403	13993

Table 18: AIC and BIC values for each model considered for the Oregon onboard observer index.

tab:OR_onboard_aic

Model	AIC	BIC
Lognormal submodel		
Year + Wave + Depth + Region + Year:Region + Region:Wave + Wave:Depth	461.20	568.03
Year + Wave + Depth + Region + Wave:Region + Wave:Depth	458.93	522.95
Wave + Depth + Region + Wave:Region + Wave:Depth	445.96	467.3
Wave + Depth + Region + Wave:Depth	444.18	461.97
Wave + Depth + Region		458.48
Wave + Region		**452.99**
Wave		449.85
1		447.43
Binomial submodel		
Year + Depth + Region + Wave + Year:Region	2121.11	2308.88
Year + Depth + Region + Wave	2116.09	2223.39
Year + Region + Wave	2114.25	
Depth + Region + Wave		2148.49
Region + Wave		**2140.20**

Table 19: Year effects for the Oregon onboard observer index

tab:OR_onboard

Year	Index	Log-scale SE
2001	0.0503	0.2462
2003	0.0386	0.2096
2004	0.0306	0.2646
2005	0.0290	0.2871
2006	0.0364	0.2538
2007	0.0582	0.1901
2008	0.0295	0.2450
2009	0.0452	0.2361
2010	0.0128	0.4352
2011	0.0506	0.2890
2012	0.0436	0.2591
2013	0.0256	0.2925
2014	0.0170	0.4147

Table 20: AIC and BIC values for each model considered for the California 1988-1999 onboard observer index.

tab:prehist_onboard_aic

Model	AIC	BIC
Lognormal submodel		
Year + Wave + Depth + Region + Year:Region + Region:Wave + Depth:Wave	599.29	1077.61
Year + Wave + Depth + Region + Wave:Region + Wave:Depth	565.35	844.77
Year + Wave + Depth + Region + Wave:Depth	552.56	737.25
Year + Wave + Depth + Region	540.09	653.74
Year + Depth + Region	532.50	
Depth + Region + Wave		611.27
Depth + Region		**580.73**
Binomial submodel		
Year + Depth + Region + Wave	4059.48	4217.86
Year + Depth + Region		**4201.99**

Table 21: Year effects for the California 1988-1999 onboard observer index

tab:prehist_onboard

Year	Index	Log-scale SE
1988	0.0889	0.1264
1989	0.0770	0.1426
1990	0.1394	0.2216
1991	0.0693	0.2013
1992	0.0422	0.1498
1993	0.0406	0.1427
1994	0.0506	0.1351
1995	0.0332	0.1547
1996	0.0378	0.1208
1997	0.0246	0.1293
1998	0.0206	0.1614
1999	0.0446	0.2663

Table 22: AIC and BIC values for each model considered for the California 2000-2014 onboard observer index.

tab:CA_onboard_aic

Model	AIC	BIC
Lognormal submodel		
Year + Wave + Depth + Region + Year:Region + Region:Wave + Depth:Wave	2348.95	2927.52
Year + Wave + Depth + Region + Wave:Region + Wave:Depth	2316.05	2571.45
Year + Wave + Depth + Region + Wave:Depth	2308.72	2493.08
Year + Wave + Depth + Region	2301.14	2372.95
Year + Depth + Region	**2299.87**	**2273.95**
Year + Region		2339.58
Binomial submodel		
Depth + Region + Wave + Year	8025.34	8219.59
Depth + Region + Wave		8165.79
Depth + Region + Year	**8023.65**	
Depth + Region		8144.34

Table 23: Year effects for the California 2000-2014 onboard observer index

tab:CA_onboard

Year	Index	Log-scale SE
2000	0.0199	0.0198
2001	0.0465	0.0465
2002	0.0850	0.0849
2003	0.0691	0.0690
2004	0.0665	0.0665
2005	0.0694	0.0693
2006	0.0669	0.0668
2007	0.0774	0.0773
2008	0.0988	0.0985
2009	0.1266	0.1261
2010	0.0964	0.0961
2011	0.0925	0.0923
2012	0.0653	0.0652
2013	0.0457	0.0457
2014	0.0464	0.0464

Table 24: Sample sizes of available length at age data by region and fleet. California North/South is defined as north/south of 40°10′, Oregon North/South is defined as north/south of Florence, OR, and Washington North/South is defined as south=MCAs 1-2 and north=MCAs 3-4.

tab:growth_sample_size

Region	Comm. dead	Comm. live	Rec. mode unknown	Rec. party/ charter	Rec. private	Research	Rec./ Research
California North	0	0	0	0	0	19	0
California South	0	0	0	83	0	159	113
Oregon North	7	0	0	0	439	0	0
Oregon South	1371	17	0	1	359	0	0
Washington North	0	0	266	27	1088	0	0
Washington South	0	0	0	14	0	0	0

Table 25: von Bertalanffy growth parameters for each region, with age-0 fixed at 2 cm.

tab:growth_params

Region	L_∞	Standard Error	k	Standard Error	t_0	Sample size
California South	33.62	0.23	0.23	0.01	-0.26	339
California North	39.44	1.48	0.14	0.02	-0.36	19
Oregon South	36.58	0.09	0.22	0.00	-0.26	1668
Oregon North	36.94	0.20	0.23	0.01	-0.24	432
Washington South	41.37	1.63	0.13	0.04	-0.37	11
Washington North	34.77	0.10	0.22	0.01	-0.27	1261

Table 26: The annual number of China rockfish sampled by WDFW for ages and lengths.

tab:WA_FishD_bio

Year	N fish lengths	N fish ages
1979	40	0
1980	2	0
1981	24	0
1983	2	0
1995	36	0
1996	16	0
1997	9	0
1998	58	50
1999	180	55
2000	55	55
2001	38	26
2002	69	11
2003	60	0
2004	223	171
2005	363	206
2006	277	89
2007	220	119
2008	143	73
2009	118	22
2010	78	22
2011	182	50
2012	76	24
2013	172	11
2014	441	414

Table 27: Number of length and age port samples and fish sampled in Oregon. Source:PacFIN.

tab:OR_pacfin_bio

Year	State	Fish condition	N port samples with lengths	N fish length samples	N port samples with ages	N fish age samples
1998	OR	Alive	23	100	0	0
1999	OR	Alive	74	93	0	0
2000	OR	Alive	196	1095	0	0
2001	OR	Alive	239	1858	13	16
2002	OR	Alive	294	1339	0	0
2003	OR	Alive	196	794	0	0
2004	OR	Alive	170	586	0	0
2005	OR	Alive	93	194	0	0
2006	OR	Alive	121	408	0	0
2007	OR	Alive	156	680	0	0
2008	OR	Alive	117	348	0	0
2009	OR	Alive	144	348	32	1
2010	OR	Alive	174	454	0	0
2011	OR	Alive	260	688	0	0
2012	OR	Alive	161	446	0	0
2013	OR	Alive	194	423	0	0
2014	OR	Alive	175	355	0	0
1995	OR	Dead	33	102	0	0
1996	OR	Dead	45	118	0	0
1998	OR	Dead	23	38	0	0
1999	OR	Dead	74	37	0	0
2000	OR	Dead	196	137	0	0
2001	OR	Dead	239	196	13	47
2002	OR	Dead	294	253	55	121
2003	OR	Dead	196	200	74	181
2004	OR	Dead	170	115	21	55
2005	OR	Dead	93	23	7	14
2006	OR	Dead	121	30	7	29
2007	OR	Dead	156	44	14	40
2008	OR	Dead	117	28	13	26
2009	OR	Dead	144	82	32	79
2010	OR	Dead	174	75	40	65
2011	OR	Dead	260	309	103	307
2012	OR	Dead	161	156	59	152
2013	OR	Dead	194	265	86	260
2014	OR	Dead	175	165	0	0