

Recent history of stock assessments and rebuilding analyses for overfished West Coast groundfish species.

Stock	Year declared overfished	Assessments	Rebuilding Analyses <sup>a/</sup>	Management Response		Depletion (Percent of B <sub>0</sub> )	Resulting Tmin	Resulting Tmax
				Resulting ABC, OY, or HG (mt) <sup>b/</sup>	Year			
Bocaccio	1999	Bence and Hightower 1990	NA	1,100	1991	NA	NA	NA
		Bence and Rogers 1992	NA	1,540	1993	NA	NA	NA
		Ralston et al. 1996	NA	265	1997	NA	NA	NA
		MacCall et al. 1999	NA	100	2000	2.1%	NA	NA
Canary	2000	MacCall 2002	MacCall and He 2002	<=20	2003	4.8%	2096	2108
		MacCall 2003	MacCall 2003	250	2004	7.4%	2018	2032
		Golden and Demery 1984	NA	2,700	1985	NA	NA	NA
		Golden and Wood 1990	NA	2,900	1991	NA	NA	NA
Cowcod	2000	Sampson and Stewart 1994	NA	1,250	1995	NA	NA	NA
		Sampson 1996	NA	1,000	1997	NA	NA	NA
		Southern stock: Williams et al. 1999;	NA	93	2000	6.6%	2041	2058
		Northern stock: Crone et al. 1999	NA	44	2003	7.9%	2057	2076
Darkblotched	2000	Methot and Piner 2002	Methot and Piner 2002	44	2003	7.9%	2057	2076
		Butler et al. 1999	Butler and Barnes 2000	5	2000	7.0%	2061	2098
		Lenarz 1993	NA	NA	1994	NA	NA	NA
		Rogers et al. 1996	NA	260	1997	NA	NA	NA
Lingcod	1999	Rogers et al. 2000	NA	130	2001	22.0%	NA	NA
		Rogers 2003	Methot and Rogers 2001	168	2002	14.0%	2014	2047
		Adams 1986	Rogers 2003	240	2004	11.0%	2011	2044
		Jagiello et al. 2000	NA	7,000	1987	NA	NA	NA
Bocaccio	1999	Jagiello 1994	NA	2,400	1995	NA	NA	NA
		Northern stock: Jagiello et al. 1997	NA	838	1998	NA	NA	NA
		Southern stock: Adams et al. 1999	NA	730	2000	NA	NA	NA
		Jagiello et al. 2000	Jagiello et al. 2000	611	2001	Northern stock: 11%; Southern stock: 14%;	NA	2009
Cowcod	2000	Jagiello and Haslie 2001	Jagiello and Haslie 2001	577	2002	Northern stock: 17%; Southern stock: 15%;	Northern stock: 2003; Southern stock: 2004	2009
		Jagiello et al. 2004	Jagiello et al. 2004	2,414	2005-2006	Northern stock: >40%; Southern stock: 31%	Northern stock: rebuilt; Southern stock: 2006	2009

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POP	1999	Westheim et al. 1972	NA		1973	NA	NA	NA	
		Gunderson et al. 1977	NA		1978	NA	NA	NA	
		Fraidenburg et al. 1978	NA		1979	NA	NA	NA	NA
		Gunderson 1979	NA		1980	NA	NA	NA	NA
		Gunderson and Sample 1980	NA		1981	NA	NA	NA	NA
		Gunderson 1981	NA		1982	NA	NA	NA	NA
		Wilkins and Golden 1983	NA		1984	NA	NA	NA	NA
		Ito et al. 1986	NA		1987	1,550	NA	NA	NA
		Ito et al. 1987	NA		1988	0	NA	NA	NA
		Ianelli et al. 1992	NA		1993	1,550	NA	NA	NA
		Ianelli et al. 1995	NA		1996	750	NA	NA	NA
		Ianelli and Zimmerman 1998	NA		1999	595	13.0%	NA	NA
		Ianelli et al. 2000	NA	Punt and Ianelli 2001	350	2002	21.7%	2012	2042
		Hamel et al. 2003	NA	Punt et al. 2003	444	2004	28.0%	2014	2042
Widow	2001	Lenarz and Hightower 1985	NA		1986	NA	NA	NA	
		Hightower and Lenarz 1986	NA		1987	NA	NA	NA	
		Hightower and Lenarz 1987	NA		1988	12,500	NA	NA	NA
		Lenarz and Hightower 1988	NA		1989	12,100	NA	NA	NA
		Hightower and Lenarz 1989	NA		1990	12,400	NA	NA	NA
		Hightower and Lenarz 1990	NA		1991	8,900	NA	NA	NA
		Rogers and Lenarz 1993	NA		1994	7,000	NA	NA	NA
		Rogers 1994	NA		1995	6,500	NA	NA	NA
		Ralston and Pearson 1997	NA		1998	7,700	NA	NA	NA
		Williams et al. 2000	NA		1998	5,090	NA	NA	NA
		He et al. 2003a	NA	MacCall and Punt 2001	2,300	2001	23.6%	2006	NA
		Wallace 2001	NA	Punt and MacCall 2002	856	2002	24.6%	2022	2038
		Method et al. 2003	NA	He et al. 2003b	832	2003	24.6%	2024	2040
		Method et al. 2003	NA		285	2005	22.4%	2028	2042
Yelloweye	2002	Wallace 2001	13.5	2002	7% in N. CA; 13% in OR	NA	NA		
		Method et al. 2003	22	2004	24.0%	2027	2071		

a/ Formal rebuilding analyses did not exist prior to the development of the SSC Terms of Reference for Groundfish Rebuilding Analyses in April 2001. The one exception is the cowcod rebuilding analysis done in 2000 by Butler and Barnes.

b/ This represents the harvest specification that was the management target, which would typically limit fishing opportunities.

Recent history of stock assessments for non-overfished West Coast groundfish species.

Stock	Assessments	Management Response		Depletion (Percent of B <sub>0</sub> )	Fishery Constraint? <sup>b/</sup>
		Resulting ABC, OY, or HG (mt) <sup>a/</sup>	Year		
Arrowtooth Flounder	Rickey 1993	5,800	1994	NA	No
Bank Rockfish	Pearson 1994	NA	NA	NA	No
	Rogers et al. 1996	81	1997	NA	
	Piner et al. 2000	81	2001	25% - 31%	
Black Rockfish	Stewart 1993	NA	NA	NA	No
	Wallace and Tagart 1994	NA	NA	NA	
	Wallace et al. 1999	700	2000	45.0%	
	Ralston and Dick 2003	775	2004	48.8%	
Blackgill Rockfish	Butler et al. 1998	365	1999	40% - 54%	Possibly
Cabezon	Cope et al. 2004	69	2005-2006	34.7%	Possibly
Chilipepper Rockfish	Henry 1985	2,300	1986	NA	No
	Henry 1986	3,600	1987	NA	
	Rogers and Bence 1992	3,600	1993	NA	
	Rogers and Bence 1993	4,000	1994	NA	
	Ralston et al. 1998	3,724	1999	46% - 61%	
Dover Sole	Demory et al. 1984	27,900	1985	NA	Yes
	Methot et al. 1990	22,500	1991	NA	
	Turnock and Methot 1991	19,400	1992	NA	
	Turnock and Methot 1992	17,900	1993	NA	
	Turnock et al. 1994	14,300	1995	NA	
	Brodziak et al. 1997	9,426	1998	NA	
	Sampson and Wood 2002	7,440	2003	29.0%	
English Sole	Jow and Geibel 1985	1,500	1986	NA	No
	Golden 1986	1,900	1987	NA	
	Sampson 1993	3,100	1994	NA	
Longspine Thornyhead	Jacobson 1990	7,900 (for LST and SST combined)	1991	NA	No
	Jacobson 1991	7,000 (for LST and SST combined)	1992	NA	
	Ianelli et al. 1994	7,000	1995	NA	
	Rogers et al. 1997	4,102	1998	NA	
Pacific Whiting	Francis et al. 1982	175,000	1983	NA	Yes
	Francis and Hollowed 1984	175,000	1985	NA	
	Francis 1985	300,000	1986	NA	
	Hollowed and Francis 1986	195,000	1987	NA	
	Hollowed et al. 1987	261,600	1988	NA	
	Hollowed et al. 1988	300,000	1989	NA	
	Dorn and Methot 1989	245,000	1990	NA	
	Dorn et al. 1990	228,000	1991	NA	
	Dorn and Methot 1991	208,800	1992	NA	
	Dorn and Methot 1992	142,000	1993	NA	
	Dorn et al. 1993	260,000	1994	NA	
	Dorn 1994	178,400	1995	NA	
	Dorn 1995	212,000	1996	NA	
	Dorn 1996	232,000	1997	NA	
	Dorn and Saunders 1997	232,000	1998	NA	
Dorn et al. 1999	232,000	1999	37.0%		
Helser et al. 2002a	190,400	2001	37.0%		
Helser et al. 2002b	129,600	2002	20.0%		
Helser et al. 2004	250,000	2004	47.0%		

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Stock	Assessments	Management Response		Depletion (Percent of B <sub>0</sub> )	Fishery Constraint? <sup>b/</sup>
		Resulting ABC, OY, or HG (mt) <sup>a/</sup>	Year		
Petrale Sole	Demory 1984	3,200	1985	NA	Yes
	Demory 1987	3,200	1988	NA	
	Turnock et al. 1993	2,700	1994	NA	
	Sampson and Lee 1999	2,950	2000	42.0%	
Sablefish	Francis 1984	12,300	1985	NA	Yes
	Francis 1985	10,600	1986	NA	
	Demory and Golden 1986	12,000	1987	NA	
	McDevitt 1987	10,000	1988	NA	
	Methot and Hightower 1988	9,000	1989	NA	
	Methot and Hightower 1989	8,900	1990	NA	
	Methot and Hightower 1990	8,900	1991	NA	
	Methot 1992	7,000	1993	NA	
	Methot et al. 1994	9,100	1995	NA	
	Crone et al. 1997	5,600	1998	NA	
	Methot et al. 1998	10,160	1999	23% - 41%	
	Hilborn et al. 1998			25% - 44%	
	Hilborn et al. 2001	4,596	2002	31% - 38%	
	Schirripa and Methot 2001	7,786	2003	27% - 37%	
Schirripa 2002	31% - 39%				
<i>Sebastes</i> Complex	Rogers et al. 1996				Yes
Shortbelly Rockfish	Pearson et al. 1989	13,000	1990	NA	No
Shortspine Thornyhead	Jacobson 1991	7,900 (for LST and SST combined)	1991	NA	Yes
	Jacobson 1991	7,000 (for LST and SST combined)	1992	NA	
	Ianelli and Lauth 1994	1,500	1995	NA	
	Rogers et al. 1997	1,000	1998	NA	
	Rogers et al. 1998	1,325	1999	26.0%	
	Hilborn et al. 1998			41.0%	
	Piner and Methot 2002	955	2003	25% - 50%	
Splitnose Rockfish	Rogers 1994	NA	NA	NA	No
Yellowtail Rockfish	Weinberg et al. 1984	3,000	1985	NA	Sometimes
	Coleman 1986	4,000	1987	NA	
	Tagart 1988	4,300	1989	NA	
	Tagart 1993	6,740	1994	NA	
	Tagart and Wallace 1996	2,762	1997	NA	
	Tagart et al. 1997	3,118	1998	NA	
	Tagart et al. 2000	3,146	2001	60.5%	
Lai et al. 2003	4,320	2004	46.0%		

a/ This represents the harvest specification that was the management target, which would typically limit fishing opportunities.

b/ The stock is only considered to constrain a fishery if it is a primary target species or if incidental catch and resulting mortality could