Status of the U.S. canary rockfish resource in 2009 (Update of 2007 assessment model)

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Executive Summary

Stock

This updated assessment reports the status of the canary rockfish (*Sebastes pinniger*) resource off the coast of the United States from southern California to the U.S.-Canadian border using data through 2008. As in 2007, the resource is modeled as a single stock.

Catches

The historical period (< 1981) of the catch history for canary rockfish has been substantially revised for this updated assessment. Historical reconstruction estimates from efforts by CDFG and NOAA scientists were made available and replaced existing estimates which dated back to the 2005 and earlier assessments. These older estimates assumed a constant percentage of canary rockfish in the total California landings, whereas the improved estimates now available allowed for changes in this percentage over time and fishing areas accounting for shifts in the fishery and the lower occurrence of canary in Southern California waters. The net result of this revision was a 24% reduction in the total estimated canary catch from 1916-2006 with most of this reduction occurring prior to 1968.

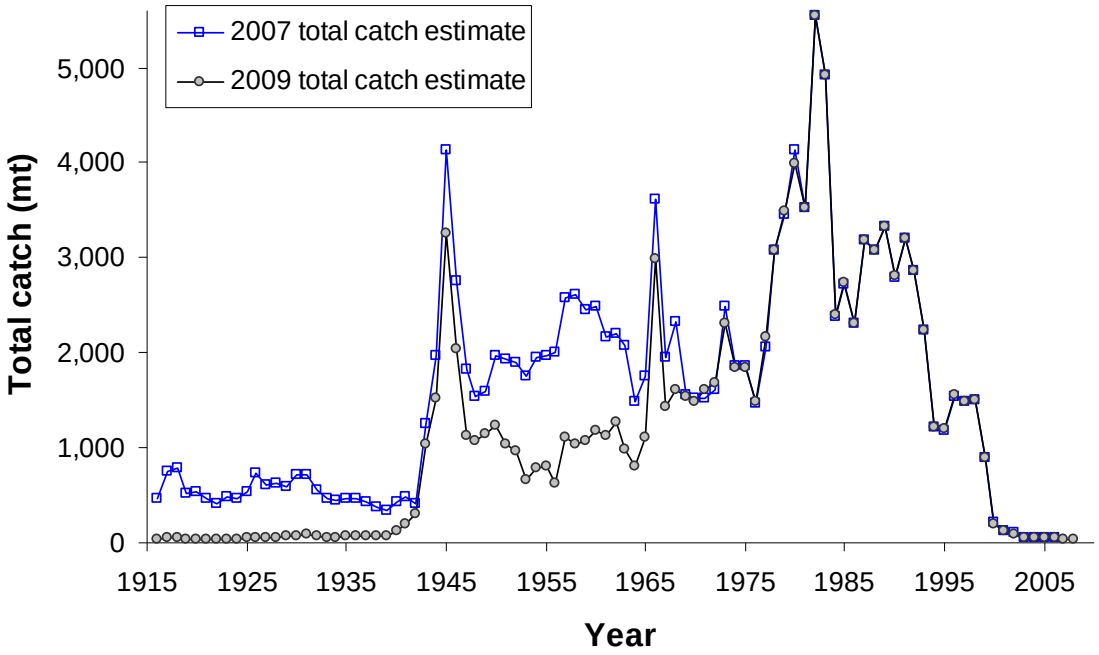

Figure a. Comparison of the 2007 and recently revised canary rockfish catch history, 1916-2008.

Recent canary rockfish catches were revised based on current total mortality estimates (2002-2007) and the GMT scorecard (2008). Where only aggregated catches were available, these were pro-rated to modeled fleets as was done in the 2007 assessment.

Table a. Recent canary rockfish catches (mt).

Year	Commercial trawl	Commercial non-trawl	At-sea whiting bycatch	Recreational	Research
1999	632.47	160.72	5.63	99.89	0.00
2000	12.63	18.29	2.35	95.52	0.00
2001	10.87	17.57	4.05	46.71	1.61
2002	16.13	5.26	5.24	17.34	0.13
2003	4.73	3.50	0.93	30.21	1.08
2004	2.24	9.35	5.22	16.35	2.24
2005	6.06	2.99	1.44	10.31	4.54
2006	6.53	3.55	1.09	22.01	7.78
2007	7.80	4.28	2.00	14.44	2.50
2008	8.47	6.20	5.96	12.50	2.90

Data and Assessment

This updated assessment used the newest version of Stock Synthesis available (3.03a, released 30 April 2009). Change in assessment results from 2007 due to Synthesis updates was negligible. The model data sources are unchanged, including updated catch, length- and age-frequency data from 11 fishing fleets. Biological data is derived from both port and on-board observer sampling programs. The National Marine Fisheries Service (NMFS) Northwest Fisheries Science Center (NWFSC) trawl survey relative biomass indices and biological sampling provide updated fishery independent information on relative trend and demographics of the canary stock. The Southwest Fisheries Science Center (SWFSC)/NWFSC/Pacific Whiting Conservation Cooperative (PWCC) coast-wide pre-recruit survey provides an updated source of recent recruitment strength information. The use of time varying selectivity (for commercial fisheries) and catchability (Triennial survey) is unchanged from the 2007 assessment.

As in 2007, the base case assessment model includes parameter uncertainty from a variety of sources, but underestimates the considerable uncertainty in recent trend and current stock status. For this reason, in addition to asymptotic confidence intervals (based upon the model's analytical estimate of the variance near the converged solution), two alternate states of nature regarding stock productivity (via the steepness parameter of the stock-recruitment relationship) are presented. The base case model (steepness = 0.51) is considered to be twice as likely as the two alternate states (steepness = 0.35, 0.72) based on the results of a 2007 meta-analysis of west coast rockfish (M. Dorn, personal communication). In order to best capture this source of uncertainty, all three states of nature will again be used as probability-weighted input to the rebuilding analysis.

Stock biomass

Updating all data sources through 2008 and including revised estimates of recent catch (1981-2008) could be considered the simplest form for an updated assessment. These new data resulted in a slightly more pessimistic view of the recent stock recovery trajectory, just inside the lower 95% confidence interval from the 2007 assessment. This

downward revision of recent spawning biomass was not attributable to a single data source, but appears to be incrementally informed by each updated series.

Addition of the fully revised catch history reduced the scale of the entire time-series estimate of spawning biomass by an average of 14% (19% in the first 10 years of the series and 47% in the last 10). The central portion of the time-series estimates remained largely unchanged (~1960-1990).

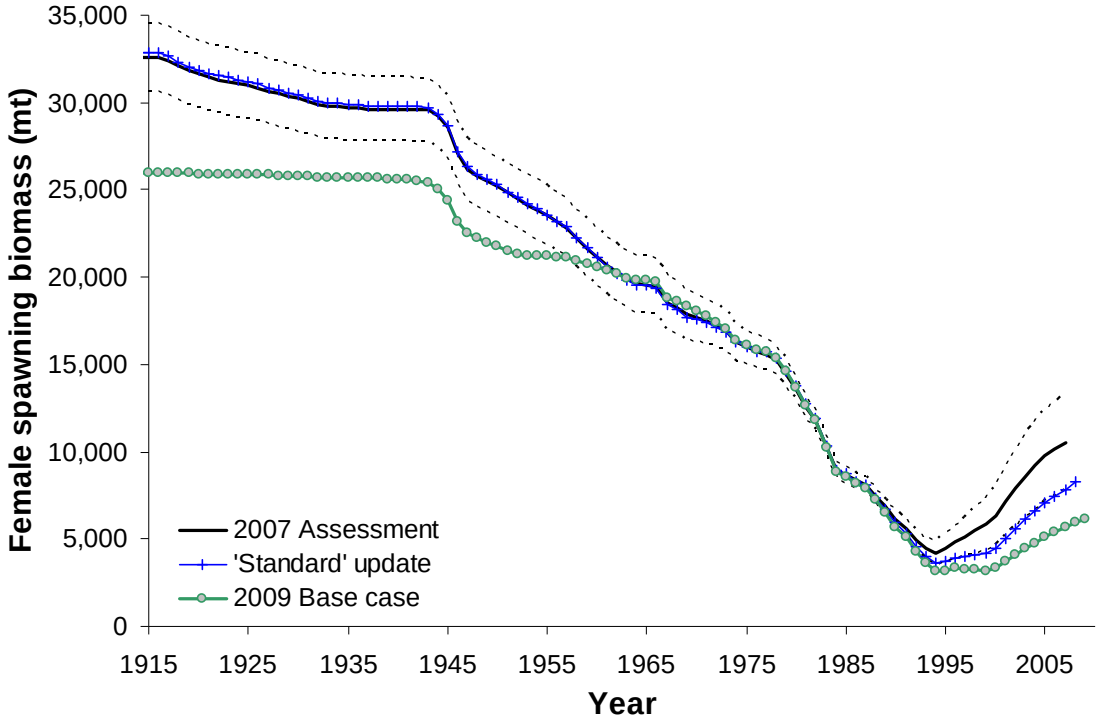

Figure b. Estimated spawning biomass time-series (1916-2009) for the 2007 assessment base case model (solid line) with approximate asymptotic 95% confidence interval (dashed lines), results of 'standard' update of recent data and catches (crosses), and 2009 base case model (round symbols).

Based on the revised catch series, canary rockfish were very lightly exploited until the early 1940's, when catches increased and a decline in biomass began. The spawning biomass experienced an accelerated rate of decline during the late 1970s, and finally reached a minimum (12% of unexploited, slightly below the estimate of 13% from the 2007 assessment) in the mid-1990s. The canary rockfish spawning stock biomass is estimated to have been gradually increasing since that time, in response to reductions in harvest and above average recruitment in the preceding decade. However, this trend is very uncertain. The estimated relative depletion level in 2007 is 21.7% (below the estimate of 32.4% from the 2007 assessment) and 23.7% in 2009 (~95% asymptotic interval: 16-28%, ~75% interval based on the range of states of nature: 9-40%), corresponding to 6,170 mt (5,642 in 2007, 54% of the 2007 estimate of 10,544 mt). The base model asymptotic interval for 2009 spawning biomass remains broad: 4,385-7,955 mt, and the states of nature interval: 2,459-10,244.

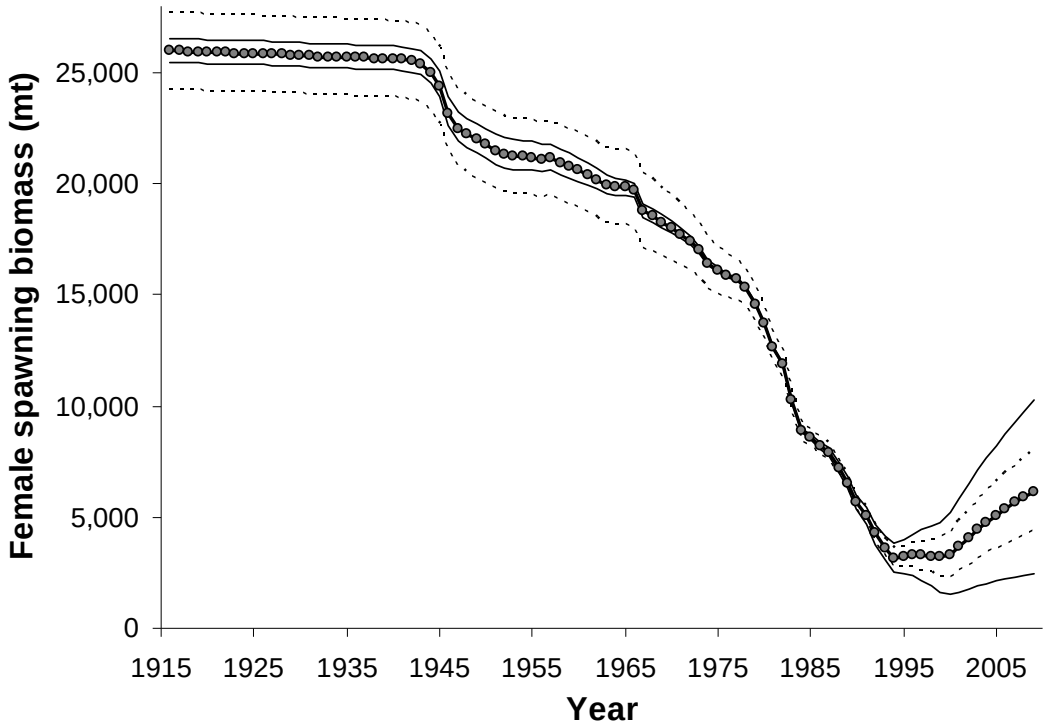

Figure c. Estimated spawning biomass time-series (1916-2009) for the base case model (round points) with approximate asymptotic 95% confidence interval (dashed lines) and alternate states of nature (light lines).

Table b. Recent trend in estimated canary rockfish spawning biomass and relative depletion level.

Year	Spawning biomass (mt)	~95% confidence interval	Range of states of nature	Estimated depletion	~95% confidence interval	Range of states of nature
2000	3,316	2,331-4,302	1,507-5,182	12.8%	9.2-16.4%	5.7-20.3%
2001	3,699	2,592-4,805	1,639-5,835	14.2%	10.2-18.3%	6.2-22.9%
2002	4,080	2,856-5,304	1,774-6,485	15.7%	11.2-20.2%	6.7-25.4%
2003	4,440	3,108-5,772	1,899-7,107	17.1%	12.2-21.9%	7.1-27.9%
2004	4,781	3,353-6,210	2,023-7,696	18.4%	13.2-23.6%	7.6-30.2%
2005	5,091	3,577-6,604	2,131-8,240	19.6%	14.1-25.1%	8.0-32.3%
2006	5,372	3,783-6,960	2,222-8,748	20.7%	14.9-26.4%	8.4-34.3%
2007	5,642	3,984-7,301	2,305-9,247	21.7%	15.7-27.7%	8.7-36.3%
2008	5,912	4,187-7,636	2,386-9,751	22.7%	16.5-29.0%	9.0-38.2%
2009	6,170	4,385-7,955	2,459-10,244	23.7%	17.3-30.2%	9.3-40.2%

Recruitment

The degree to which canary rockfish recruitment declined over the last 50 years is closely related to the level of productivity (stock-recruit steepness) modeled for the stock. High steepness values imply little relationship between spawning stock and recruitment, while low steepness values cause a strong positive correlation. After a period of above average recruitments, recent year-class strengths (1997-2008) have generally been low, with only 4 of the 12 years (1999, 2001, 2006, and 2007) producing large estimated

recruitments (the 2009 recruitment is based only on the stock-recruit function). Because of the limited number of years they have been observed, the strengths of the 2006-2007 year classes are subject to greater uncertainty than other strong recruitment events in the last 30 years. As the larger recruitments from the late 1980s and early 1990s move through the population in future projections, the effects of recent poor recruitment may tend to slow the rate of recovery.

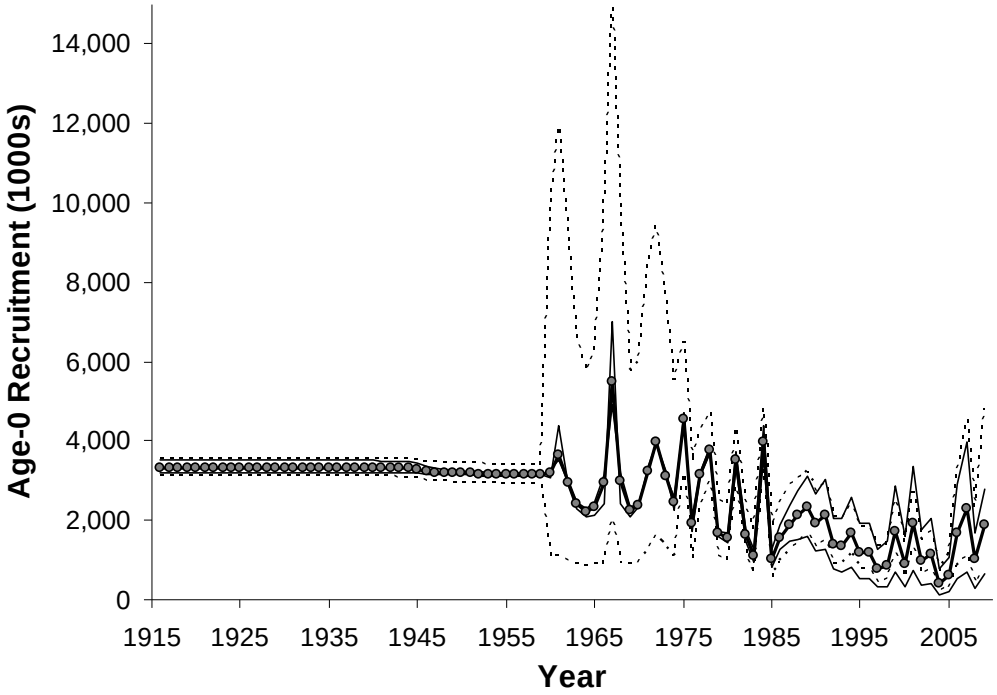

Figure d. Time series of estimated canary rockfish recruitments for the base case model (round points) with approximate asymptotic 95% confidence interval (dashed lines) and alternate states of nature (light lines).

Table c. Recent estimated trend in canary rockfish recruitment (1000s age-0).

Year	Estimated recruitment (1000s)	~95% confidence interval	Range of states of nature
2000	904	559-1,460	335-1,025
2001	1,936	1,361-2,754	735-2,491
2002	1,004	661-1,524	359-1,220
2003	1,148	761-1,733	400-1,416
2004	422	245-725	137-452
2005	594	306-1,156	185-556
2006	1,679	872-3,231	546-1,539
2007	2,276	1,143-4,530	715-2,004
2008	1,012	441-2,319	301-737
2009	1,886	734-4,848	636-1,104

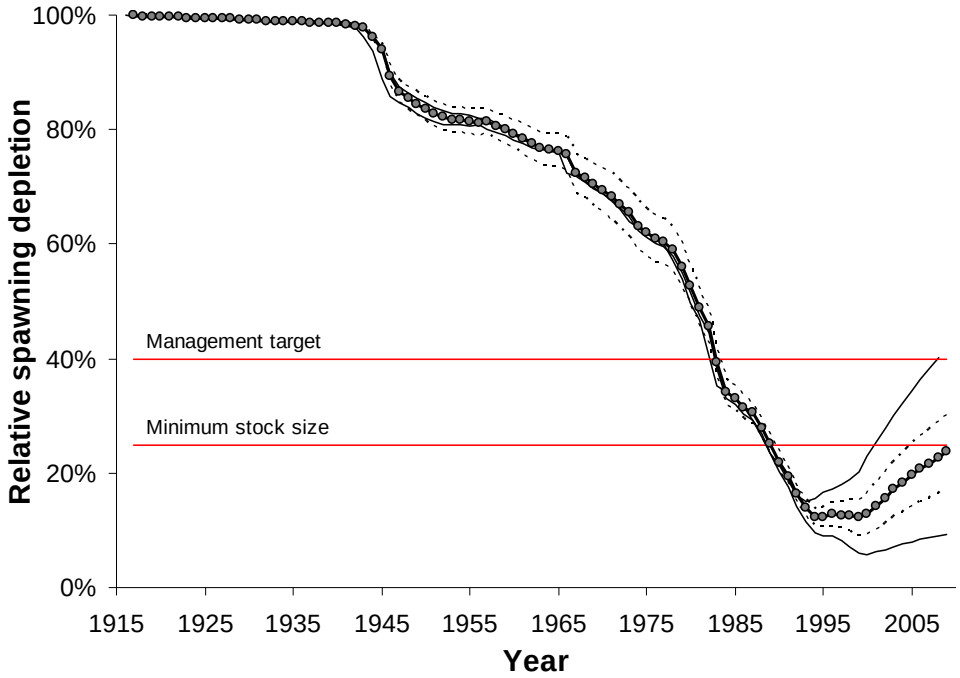

Figure e. Time series of depletion level as estimated in the base case model (round points) with approximate asymptotic 95% confidence interval (dashed lines) and alternate states of nature (light lines).

Reference points

Unfished spawning stock biomass was estimated to be 25,993 mt (down from the 2007 estimate of 32,561 mt) in the base case model. The target stock size ($SB_{40\%}$) is therefore 10,397 mt and the overfished threshold ($SB_{25\%}$) is 6,498 mt. Maximum sustained yield (MSY) applying current fishery selectivity and allocations (a 'bycatch-only' scenario) was estimated in the assessment model to occur at a spawning stock biomass of 9,928 mt and produce an MSY catch of 937 mt (down from 1,169 mt estimated in the 2007 assessment). This sustainable yield is achieved at an SPR of 53.0%, nearly identical to the estimate from the 2007 assessment (52.9%). This is nearly identical to the yield, 936 mt, generated by the SPR (54.4%) that stabilizes the stock at the $SB_{40\%}$ target. The fishing mortality target/overfishing level (SPR = 50.0%) generates a yield of 931 mt at a stock size of 8,909 mt. When selectivity and allocation from a 'target-fishery' in the mid 1990s (1994-1998) was applied, the MSY yield increased to 960 mt from a slightly larger stock size (9,949 mt), but nearly the same rate of exploitation (SPR = 53.0%). This is due to higher relative selection of older and larger fish when the fishery was targeting instead of avoiding canary rockfish. These yields are somewhat lower than those from the 2007 assessment.

Exploitation status

The abundance of canary rockfish was estimated to have dropped below the $SB_{40\%}$ management target in 1983 and the overfished threshold in 1990. In hindsight, the spawning stock biomass passed through the target and threshold levels at a time when the annual catch was averaging more than twice the current estimate of the MSY. The stock remains slightly below the overfished threshold (unlike the 2007 estimate), although the

spawning stock biomass still appears to have been increasing since 1999. The degree of increase is very sensitive to the value for steepness (state of nature), and is projected to slow as recent (and largely below average) recruitments begin to contribute to the spawning biomass. Fishing mortality rates in excess of the current F-target for rockfish of $SPR_{50\%}$ are estimated to have begun in the late 1970s and persisted through 1999. Recent management actions appear to have curtailed the rate of removal such that overfishing has not occurred since 1999, and recent SPR values are in excess of 70% (> 90% since 2003). Relative exploitation rates (catch/biomass of age-5 and older fish) are estimated to have been less than 1% since 2001. These patterns are largely insensitive to the three states of nature.

Table d. Recent trend in spawning potential ratio (SPR) and relative exploitation rate (catch/biomass of age-5 and older fish).

Year	Estimated SPR (%)	Range of states of nature	Relative exploitation rate	Range of states of nature
1999	31.2%	14.5-42.7%	0.0928	0.1855-0.0613
2000	73.0%	50.8-81.6%	0.0204	0.0453-0.0130
2001	81.6%	63.8-87.9%	0.0127	0.0289-0.0080
2002	86.7%	72.8-91.3%	0.0088	0.0205-0.0055
2003	91.1%	80.3-94.4%	0.0051	0.0121-0.0032
2004	93.0%	84.3-95.6%	0.0040	0.0096-0.0025
2005	92.6%	83.4-95.3%	0.0046	0.0111-0.0028
2006	92.2%	81.9-95.2%	0.0044	0.0109-0.0027
2007	94.5%	86.7-96.7%	0.0031	0.0076-0.0019
2008	95.0%	87.9-97.0%	0.0027	0.0067-0.0016

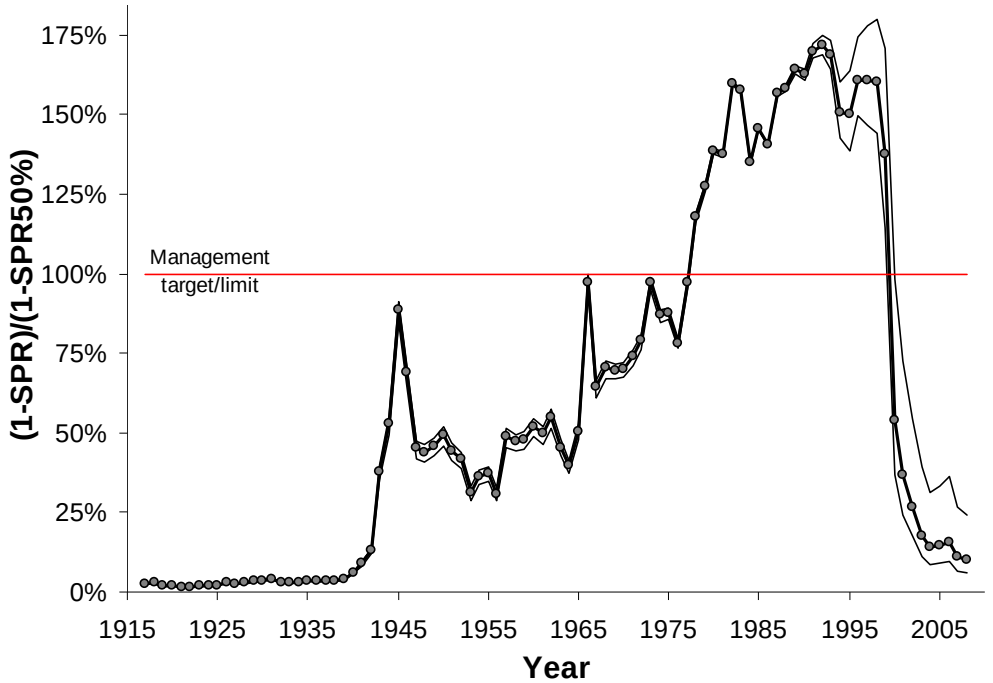

Figure f. Time series of relative spawning potential ratio (1-SPR/1-$SPR_{Target=0.5}$) for the base case model (round points) and alternate states of nature (light lines). Values of relative SPR above 100% reflect harvests in excess of the current overfishing proxy.

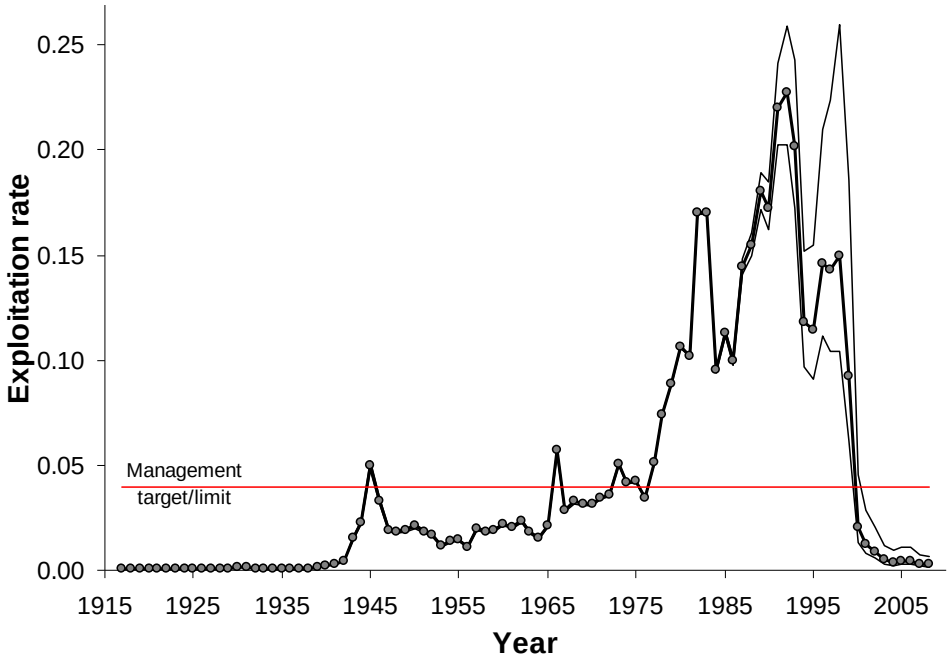

Figure g. Time series of estimated exploitation rate (catch/age 5 and older biomass) for the base case model (round points) and alternate states of nature (light lines). Horizontal line indicates the overfishing limit/target ($F_{50\%}$) from the base case.

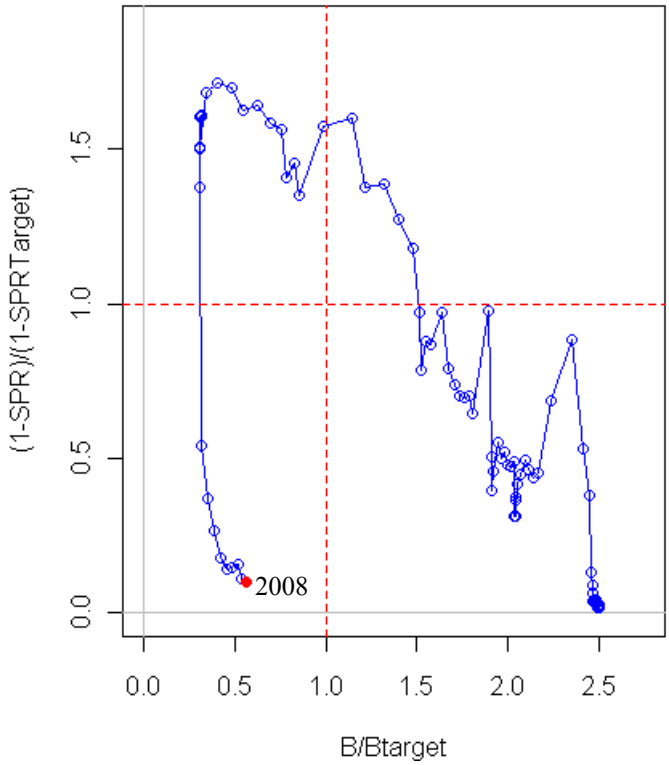

Figure h. Estimated relative spawning potential ratio relative to the proxy target/limit of 50% vs. estimated spawning biomass relative to the proxy 40% level from the base case model. Higher biomass occurs on the right side of the x-axis, higher exploitation rates occur on the upper side of the y-axis.

Management performance

Following the 1999 declaration that the canary rockfish stock was overfished, the canary OY was reduced by over 70% in 2000 and by the same margin again over the next three years. Managers employed several tools in an effort to constrain catches to these dramatically lower targets. These included: reductions in trip/bag limits for canary and co-occurring species, the institution of spatial closures, and new gear restrictions intended to reduce trawling in rocky shelf habitats and the coincident catch of rockfish in shelf flatfish trawls. In recent years, the total mortality has been slightly above the OY (higher in retrospect based on current methods used for total mortality estimates), but well below the ABC. Since the overfished determination in 1999, the total 9-year catch (749 mt) has been 14% above the sum of the OYs for 2000-2006. This level of removals represents only 34% of the sum of the ABCs for that period. The total 2008 catch (40.5 mt) is <1% of the peak catch that occurred in the early 1980s.

Table e. Recent trend in estimated total canary rockfish catch and commercial landings (mt) relative to management guidelines.

Year	ABC (mt)	OY (mt)	Commercial landings (mt)[1]	Total Catch (mt)
1999	1,045[2]	857[2]	666.3	898.7
2000	287	200	55.7	199.9
2001	228	93	42.6	133.0
2002	228	93	47.8	98.1
2003	272	44	8.6	59.9
2004	256	47.3	10.7	50.3
2005	270	46.8	12.0	60.4
2006	279	47	7.3	62.0
2007	172	44	12.1	44.7
2008	179	44	9.4	40.5

[1]Excludes all at-sea whiting, recreational and research catches.
[2]Includes the Columbia and Vancouver INPFC areas only.

Unresolved problems and major uncertainties

As in the 2007 assessment, parameter uncertainty is explicitly captured in the asymptotic confidence intervals reported throughout this assessment for key parameters and management quantities. These intervals reflect the uncertainty in the model fit to the data sources included in the assessment, but do not include uncertainty associated with alternative model configurations, weighting of data sources (a combination of input sample sizes and relative weighting of likelihood components), or fixed parameters. Specifically, there appears to be conflicting information between the length- and age-frequency data regarding the degree of stock decline, making the model results sensitive to the relative weighting of each. This issue was not revisited as part of the update. The relationship between the degree of domed shape in the selectivity curves and the increase in female natural mortality with age remains a source of uncertainty that is included in model results, as it has been in previous assessments for canary rockfish. Uncertainty in the steepness parameter of the stock-recruitment relationship is significant and will likely

persist in future assessments; this uncertainty is included in the assessment and rebuilding projections through explicit consideration of the three states of nature. Given the change in this update caused by the revised historical California catch estimates, future assessments are likely to be sensitive to additional revised estimates from ongoing efforts in Oregon and Washington should they prove appreciably different from the time-series used here.

Forecasts

The forecasts reported here are intended to illustrate harvest options for management consideration until the full rebuilding analysis is complete. In the interim, the total catch in 2009 and 2010 is set equal to the OY (105 mt). The exploitation rate for 2011 and beyond is based upon an SPR of 92.2%, which approximates the harvest level upon which the 2009 and 2010 OYs were based. This SPR represents a decrease in fishing mortality from the rebuilding SPR target indentified in the 2007 rebuilding strategy of 88.7%. Both values, along with many other management options are reported in the rebuilding analysis.

As in 2007, uncertainty in the rebuilding forecast will be based upon the three states of nature for steepness and random variability in future recruitment deviations for each rebuilding simulation. Current medium-term forecasts predict slow increases in abundance and available catch, with OY values for 2011 and 2012 lower than those predicted from the 2007 assessment. The following table shows the projection of expected canary rockfish catch, spawning biomass and depletion.

Table f. Projection of potential canary rockfish ABC, OY, spawning biomass and depletion for the base case model based on the SPR = 0.922 fishing mortality target used for the last rebuilding plan (OY) and $F_{50\%}$ overfishing limit/target (ABC). Assuming the OY of 105 mt is achieved exactly in 2009 and 2010.

Year	ABC[1] (mt)	OY[1] (mt)	Age 5+ biomass (mt)	Spawning biomass (mt)	Depletion
2009	*981*	*105*	15,483	6,170	23.7%
2010	*980*	*105*	15,687	6,379	24.5%
2011	627	69	16,129	6,548	25.2%
2012	661	73	16,825	6,694	25.8%
2013	690	76	17,229	6,828	26.3%
2014	718	79	17,862	6,975	26.8%
2015	749	83	18,554	7,152	27.5%
2016	780	86	19,300	7,365	28.3%
2017	812	90	20,094	7,616	29.3%
2018	843	93	20,925	7,904	30.4%
2019	874	96	21,783	8,224	31.6%
2020	905	100	22,658	8,567	33.0%

[1]ABC/OY values for 2009 and 2010 have already been adopted, and are not based on the results of this update.

In response to the reduced estimate of current stock size, requests were made to evaluate the projected effects of implementing reduced OYs

for 2010 of either 85 or 44 mt. Reducing the 2010 OY to 85 mt did not change the projected depletion in the near-term. Reducing the 2010 OY to 44 mt resulted in a 0.1% increase in relative stock size over the next 12 years.

Table f.2. Projection of potential canary rockfish ABC, OY, spawning biomass and depletion for the base case model based on the SPR = 0.922 fishing mortality target used for the last rebuilding plan (OY) and $F_{50\%}$ overfishing limit/target (ABC). Assuming the OY of 105 mt is achieved exactly in 2009 and a reduced OY of 85 mt is achieved in 2010.

Year	ABC (mt)	OY (mt)	Age 5+ biomass (mt)	Spawning biomass (mt)	Depletion
2009	*981*	*105*	15,483	6,170	23.7%
2010	*980*	***85***	15,687	6,379	24.5%
2011	628	69	16,150	6,555	25.2%
2012	662	73	16,847	6,702	25.8%
2013	691	76	17,251	6,836	26.3%
2014	719	79	17,884	6,984	26.9%
2015	750	83	18,576	7,161	27.6%
2016	781	86	19,322	7,374	28.4%
2017	813	90	20,116	7,625	29.3%
2018	844	93	20,947	7,913	30.4%
2019	874	97	21,805	8,233	31.7%
2020	906	100	22,680	8,576	33.0%

Table f.3. Projection of potential canary rockfish ABC, OY, spawning biomass and depletion for the base case model based on the SPR = 0.922 fishing mortality target used for the last rebuilding plan (OY) and $F_{50\%}$ overfishing limit/target (ABC). Assuming the OY of 105 mt is achieved exactly in 2009 and a reduced OY of 44 mt is achieved in 2010.

Year	ABC (mt)	OY (mt)	Age 5+ biomass (mt)	Spawning biomass (mt)	Depletion
2009	*981*	*105*	15,483	6,170	23.7%
2010	*980*	***44***	15,687	6,379	24.5%
2011	630	70	16,192	6,570	25.3%
2012	664	73	16,891	6,718	25.8%
2013	692	76	17,296	6,853	26.4%
2014	721	80	17,929	7,002	26.9%
2015	751	83	18,621	7,180	27.6%
2016	783	86	19,368	7,393	28.4%
2017	814	90	20,162	7,644	29.4%
2018	845	93	20,993	7,932	30.5%
2019	876	97	21,851	8,252	31.7%
2020	907	100	22,726	8,595	33.1%

Decision table

The format of this decision table is unchanged from the 2007 assessment. Because canary rockfish is currently managed under a rebuilding plan, this decision table is only intended to better compare and contrast the base case with uncertainty among states of nature. The results of the rebuilding plan integrate these three states of nature as well as projected recruitment variability. Further, various alternate probabilities of rebuilding by target and limit time-periods as well as fishing mortality rates will be evaluated in the rebuilding analysis. Relative probabilities of each state of nature are based on a meta-analysis for steepness of west coast rockfish (M. Dorn, AFSC, personal communication). Landings in 2009-2010 are 105 mt for all cases. Selectivity and fleet allocations are projected at the average 2006-2008 values.

Table g. Decision table of 12-year projections for alternate states of nature (columns) and management options (rows) beginning in 2011. Relative probabilities of each state of nature are based on a 2007 meta-analysis for steepness of west coast rockfish (M. Dorn, AFSC, personal communication). Landings in 2009-2010 are 105 mt for all cases. Selectivity and fleet allocations are projected at the average 2006-2008 values.

			State of nature					
			Low steepness (0.35)		Base case (steepness = 0.51)		High steepness (0.72)	
Relative probability			0.25		0.5		0.25	
Management decision	Year	Catch (mt)	Depletion	Spawning biomass (mt)	Depletion	Spawning biomass (mt)	Depletion	Spawning biomass (mt)
Rebuilding SPR 92.2% catches from low steepness state of nature	2011	25	9.4%	2,509	25.2%	6,548	43.3%	11,052
	2012	26	9.5%	2,535	25.8%	6,711	44.7%	11,397
	2013	27	9.6%	2,553	26.4%	6,862	46.0%	11,722
	2014	28	9.7%	2,572	27.0%	7,029	47.3%	12,068
	2015	29	9.8%	2,600	27.8%	7,228	48.8%	12,453
	2016	30	9.9%	2,639	28.7%	7,464	50.5%	12,876
	2017	31	10.1%	2,693	29.8%	7,741	52.3%	13,331
	2018	32	10.4%	2,761	31.0%	8,055	54.2%	13,813
	2019	33	10.7%	2,843	32.3%	8,403	56.1%	14,312
	2020	34	11.0%	2,934	33.8%	8,776	58.1%	14,820
Rebuilding SPR 92.2% catches from base case	2011	69	9.4%	2,509	25.2%	6,548	43.3%	11,052
	2012	73	9.5%	2,519	25.8%	6,694	44.6%	11,381
	2013	76	9.5%	2,519	26.3%	6,828	45.8%	11,688
	2014	79	9.5%	2,519	26.8%	6,975	47.1%	12,013
	2015	83	9.5%	2,525	27.5%	7,152	48.5%	12,376
	2016	86	9.6%	2,542	28.3%	7,365	50.1%	12,774
	2017	90	9.7%	2,571	29.3%	7,616	51.8%	13,205
	2018	93	9.8%	2,614	30.4%	7,904	53.6%	13,659
	2019	96	10.0%	2,668	31.6%	8,224	55.4%	14,131
	2020	100	10.3%	2,731	33.0%	8,567	57.3%	14,610
Rebuilding SPR 92.2% catches from high steepness state of nature	2011	118	9.4%	2,509	25.2%	6,548	43.3%	11,052
	2012	124	9.4%	2,500	25.7%	6,676	44.6%	11,362
	2013	129	9.3%	2,481	26.1%	6,790	45.7%	11,649
	2014	133	9.3%	2,460	26.6%	6,915	46.9%	11,952
	2015	137	9.2%	2,444	27.2%	7,069	48.2%	12,291
	2016	142	9.2%	2,437	27.9%	7,257	49.7%	12,665
	2017	146	9.2%	2,442	28.8%	7,483	51.3%	13,070
	2018	151	9.3%	2,460	29.8%	7,746	52.9%	13,498
	2019	155	9.4%	2,489	30.9%	8,039	54.7%	13,944
	2020	159	9.5%	2,526	32.1%	8,356	56.5%	14,397
Status quo (catch = 105 mt)	2011	105	9.4%	2,509	25.2%	6,548	43.3%	11,052
	2012	105	9.4%	2,507	25.7%	6,683	44.6%	11,369
	2013	105	9.4%	2,496	26.2%	6,806	45.7%	11,665
	2014	105	9.4%	2,485	26.7%	6,941	47.0%	11,978
	2015	105	9.3%	2,480	27.3%	7,106	48.3%	12,329
	2016	105	9.3%	2,485	28.1%	7,306	49.9%	12,715
	2017	105	9.4%	2,503	29.0%	7,546	51.5%	13,134
	2018	105	9.5%	2,536	30.1%	7,824	53.2%	13,578
	2019	105	9.7%	2,582	31.3%	8,135	55.1%	14,041
	2020	105	9.9%	2,637	32.6%	8,471	56.9%	14,514

Research and data needs

Progress on a number of research topics would substantially improve the ability of this assessment to reliably and precisely model canary rockfish population dynamics in the future and provide better monitoring of progress toward rebuilding:

1. Expanded Assessment Region: Given the high occurrence of canary rockfish close to the US-Canada border, a joint US-Canada assessment should be considered in the future.
2. Many assessments (including this one) have derived historical catch by applying various ratios to the total rockfish catch prior to the period when most species were delineated. Based on the sensitivity of this update to the revised catch history for California, a comprehensive historical catch reconstruction for all rockfish species is needed for Washington and Oregon as well.
3. Habitat relationships: The historical and current relationship between canary rockfish distribution and habitat features should be investigated to provide more precise estimates of abundance from the surveys, and to guide survey augmentations that could better track rebuilding through targeted application of newly developed survey technologies. Such studies could also assist determining the possibility of dome-shaped selectivity, aid in evaluation of spatial structure and the use of fleets to capture geographically-based patterns in stock characteristics.
4. Meta-population model: The spatial patterns show patchiness in the occurrence of large vs. small canary; reduced occurrence of large/old canary south of San Francisco; and concentrations of canary rockfish near the US-Canada border. The feasibility of a meta-population model that has linked regional sub-populations should be explored as a more accurate characterization of the coast-wide population's structure. Tagging of other direct information on adult movement will be essential to this effort.
5. Increased computational power and/or efficiency is required to move toward fully Bayesian approaches that may better integrate over both parameter and model uncertainty.
6. Additional exploration of surface ages from the late 1970s and inclusion into or comparison with the assessment model, or re-aging of the otoliths could improve the information regarding that time period when the stock underwent the most dramatic decline. Auxiliary biological data collected by ODFW from recreational catches and hook-and-line projects may also increase the performance of the assessment model in accurately estimating recent trends and stock size.
7. Due to inconsistencies between studies and scarcity of appropriate data, new data are needed on both the maturity and fecundity relationships for canary rockfish.
8. Re-evaluation of the pre-recruit index as a predictor of recent year class strength should be ongoing as future assessments generate a longer series of well-estimated recent recruitments to compare with the coast-wide survey index.
9. Meta-analysis or other summary of the degree of recruitment variability and the relative steepness for other rockfish and groundfish stocks should be ongoing, as this information is likely to be very important for model results (as it is here) in the foreseeable future.

Rebuilding projections

The rebuilding projections will be presented in a separate document after the assessment has been reviewed in June 2009.

Table h. Summary of recent trends in estimated canary rockfish exploitation and stock levels from the base case model; all values reported at the beginning of the year.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Commercial landings (mt)[1]	55.7	42.6	47.8	8.6	10.7	12	7.3	12.1	9.4	NA
Total catch (mt)	199.9	133	98.1	59.9	50.3	60.4	62	44.7	40.5	NA
ABC (mt)	287	228	228	272	256	270	279	172	179	981
OY	200	93	93	44	47.3	46.8	47.0	44	44	105
SPR	73.0%	81.6%	86.7%	91.1%	93.0%	92.6%	92.2%	94.5%	95.0%	NA
Exploitation rate (catch/age 5+ biomass)	0.0204	0.0127	0.0088	0.0051	0.004	0.0046	0.0044	0.0031	0.0027	NA
Age 5+ biomass (mt)	9,783	10,502	11,114	11,698	12,513	13,106	13,945	14,542	15,145	15,483
Spawning biomass (mt)	3,316	3,699	4,080	4,440	4,781	5,091	5,372	5,642	5,912	6,170
~95% Confidence interval	2,331-4,302	2,592-4,805	2,856-5,304	3,108-5,772	3,353-6,210	3,577-6,604	3,783-6,960	3,984-7,301	4,187-7,636	4,385-7,955
Range of states of nature	1,507-5,182	1,639-5,835	1,774-6,485	1,899-7,107	2,023-7,696	2,131-8,240	2,222-8,748	2,305-9,247	2,386-9,751	2,459-10,244
Recruitment (1000s)	904	1,936	1,004	1,148	422	594	1,679	2,276	1,012	1,886
~95% Confidence interval	559-1,460	1,361-2,754	661-1,524	761-1,733	245-725	306-1,156	872-3,231	1,143-4,530	441-2,319	734-4,848
Range of states of nature	335-1,025	735-2,491	359-1,220	400-1,416	137-452	185-556	546-1,539	715-2,004	301-737	636-1,104
Depletion	12.8%	14.2%	15.7%	17.1%	18.4%	19.6%	20.7%	21.7%	22.7%	23.7%
~95% Confidence interval	9.2-16.4%	10.2-18.3%	11.2-20.2%	12.2-21.9%	13.2-23.6%	14.1-25.1%	14.9-26.4%	15.7-27.7%	16.5-29.0%	17.3-30.2%
Range of states of nature	5.7-20.3%	6.2-22.9%	6.7-25.4%	7.1-27.9%	7.6-30.2%	8.0-32.3%	8.4-34.3%	8.7-36.3%	9.0-38.2%	9.3-40.2%

[1]Excludes all at-sea whiting, recreational and research catches.

Table i. Summary of canary rockfish reference points from the base case model. Values are based on 1994-1998 fishery selectivity and allocation to reflect the performance of recent targeted fishing rather than the current bycatch-only environment.

Quantity	Estimate	~95% Confidence interval	Range of states of nature
Unfished spawning stock biomass (SB_0, mt)	25,993	24,266-27,719	25,500-26,575
Unfished 5+ biomass (mt)	68,539	64,536-72,542	66,349-71,606
Unfished recruitment (R_0, thousands)	3,335	3,101-3,570	3,203-3,529
Reference points based on $SB_{40\%}$			
MSY Proxy Spawning Stock Biomass ($SB_{40\%}$)	10,397	9,706-11,088	10,200-10,630
SPR resulting in $SB_{40\%}$ ($SPR_{SB40\%}$)	54.4%	NA	45.8-67.9%
Exploitation rate resulting in $SB_{40\%}$	0.0353	NA	0.0213-0.0469
Yield with $SPR_{SB40\%}$ at $SB_{40\%}$ (mt)	959	882-1,036	599-1,248
Reference points based on SPR proxy for MSY			
Spawning Stock Biomass at SPR (SB_{SPR})(mt)	8,909		1,772-11,377
$SPR_{MSY\text{-}proxy}$	0.5	NA	NA
Exploitation rate corresponding to SPR	0.0409	NA	0.0406-0.0409
Yield with $SPR_{MSY\text{-}proxy}$ at SB_{SPR} (mt)	954	877-1,030	191-1,209
Reference points based on estimated MSY values			
Spawning Stock Biomass at *MSY* (SB_{MSY}) (mt)	9,949	9,315-10,582	8,105-11,629
SPR_{MSY}	53.0%	52.8-53.2%	38.4%-69.9%
Exploitation Rate corresponding to SPR_{MSY}	0.0369	0.0352-0.0387	0.0196-0.0596
MSY (mt)	960	883-1,037	602-1,278

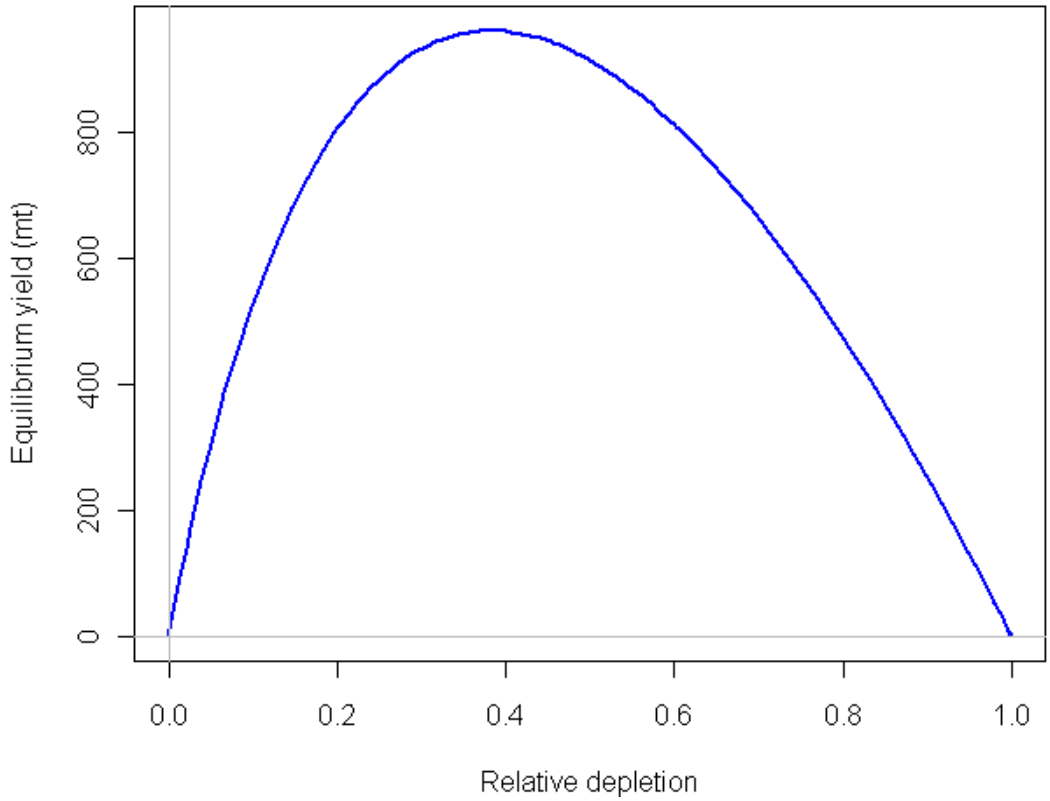

Figure i. Equilibrium yield curve for the base case model. Values are based on 1994-1998 fishery selectivity and allocation to reflect the performance of a targeted fishery.

1. Introduction

This updated assessment does not attempt to reiterate all background information for canary rockfish presented in the 2007 assessment document. Instead, only a few key assumptions are restated, along with a detailed description of changes made during the course of the update. Those interested in a more complete description of canary rockfish life-history and the details of previous assessments should refer to the 2007 assessment (Stewart 2008).

1.1 Distribution and Stock Structure

Canary rockfish (*Sebastes pinniger*) are distributed in the northeastern Pacific Ocean from the western Gulf of Alaska to northern Baja California; however, the species is most abundant from British Columbia to central California (Miller and Lea 1972, Hart 1973, Love et al. 2002). Adults are primarily found along the continental shelf shallower than 300 m, although they are occasionally observed in deeper waters. Juvenile canary rockfish are found in shallow and intertidal areas (Love et al. 2002).

There exists little direct information regarding the likely stock structure of canary rockfish off the U.S. Pacific coast, and the assumption of a single pan-mictic stock remains unchanged in this updated assessment. As in past assessments, this updated assessment treats the U.S. canary rockfish resource from the Mexican border to the Canadian border as a single coast-wide stock. The fishing fleets are separated geographically (Figure 1 in the 2007 assessment; Stewart 2008) to account for potential spatial patterns while retaining a coast-wide assessment area. The use of the U.S.-Canadian border as a biological boundary comprises a significant source of uncertainty and potential model misspecification as pelagic larvae, juveniles, and possibly adults likely cross this line while making their ontogenetic shift to deeper water or moving between areas of rocky habitat.

1.2 Life history and ecosystem interactions

Canary rockfish spawn in the winter, producing pelagic larvae and juveniles that remain in the upper water column for 3-4 months (Love et al. 2002). These juveniles settle in shallow water around nearshore rocky reefs, where they may congregate for up to three years (Boehlert 1980, Sampson 1996) before moving into deeper water. The mean size of individuals captured in the trawl survey shows a characteristic ontogenetic shift to deeper water with increasing body size. The degree to which this ontogenetic shift may be accompanied by a component of latitudinal dispersal from shallow rocky reefs is unknown. Canary rockfish are a medium to large-bodied rockfish; achieving a maximum size of around 70 cm. Female canary rockfish reach slightly larger sizes than males.

Adult canary rockfish primarily inhabit areas in and around rocky habitat. They form very dense schools, leading to an extremely patchy population distribution that is reflected in both fishery and survey encounter rates. This distribution may have effects on the calculation and interpretation of population indices and age- or size-composition data.

Canary rockfish are relatively long-lived, with a maximum observed age of 95 years, however only males are commonly observed above the age of 50, while females tend

to be rare above age 30. The degree to which this pattern reflects behavioral differences translating to reduced availability to fishery and survey fishing gear, or an increase in relative mortality for older females has been the focus of much discussion and remains unclear. A similar pattern has been observed for yellowtail rockfish (*Sebastes flavidus*), a closely related, but more pelagic species with a similar distribution (Wallace and Lai 2005).

1.3 Historical and Current Fishery

The historical and current fisheries are described in detail in the 2007 assessment (Stewart 2008). The recently revised historical catch reconstruction for canary rockfish is the major source of difference between this update and the 2007 assessment. A summary of this revision is provided under "2.3.1 Historical fishery reconstruction"; however, the net result of this revision was a 24% reduction in the total estimated canary catch from 1916-2006 with most of this reduction occurring prior to 1968 (Figure 1).

1.4 Management History and performance

The management history is described in detail in the 2007 assessment (Stewart 2008). Since the assessments conducted in 1999 (California and Washington-Oregon) which found the stock to be depleted and resulted in an overfished determination for 2000 the OYs have been reduced dramatically. Both commercial and recreational fishing opportunities have been severely restricted and recent removals have been primarily from bycatch. Table 1 summarizes the coast-wide ABC's and catch in recent years. In recent years, the total mortality has been slightly above the OY (higher in retrospect based on current methods used for total mortality estimates), but well below the ABC. Since the overfished determination in 1999, the total 9-year catch (749 mt) has been 14% above the sum of the OYs for 2000-2006. This level of removals represents only 34% of the sum of the ABCs for that period. The total 2008 catch (40.5 mt) is <1% of the peak catch that occurred in the early 1980s.

1.5 Fisheries in Canada and Alaska

The background provided in the 2007 assessment on Canadian and Alaskan fisheries for canary rockfish has not been updated for this assessment.

2. Assessment

The following sources of data, identical in scope to those used in 2007, were used in building this assessment:

1) Fishery independent data including bottom trawl survey-based indices of abundance and biological data (age and length) from 2003-2008 (NWFSC survey) and 1980-2004 (Triennial survey).
2) Pre-recruit survey index of recruitment strength from 2001-2008.
3) Estimates of fecundity, maturity, length-weight relationships and ageing error from various sources (not re-estimated as part of this update).
4) Commercial (targeted and bycatch) and recreational landings from 1916-2008. The historical time series of catch estimates is greatly revised (see below for details).

5) Estimates of discard rates, total mortality and discard mortality (recreational only) from various sources (updated only for 2002-2008).

6) Research catches from 1977-2008.

7) Fishery biological data (age and length) from 1968-2006

Data availability by source and year, as well as a delineation between data available for the 2007 assessment and what is new in this analysis, is presented in Table 2. A description of each of the specific data sources is presented below.

2.1 Fishery Independent Data

2.1.1 NWFSC trawl survey

The NWFSC shelf and slope trawl survey time series has been extended (only 2003-2006 was available for the 2007 assessment) to include 2007 and 2008. Three sources of information are produced by this survey: an index of relative abundance, length-frequency distributions, and age-frequency distributions. See the 2007 document (Stewart 2008) for a more detailed description of survey design and methods.

The NWFSC survey encounters canary infrequently, generally in less than 10% of the total tows conducted (Table 3, including slope tows, beyond the depth distribution for canary). These catches are infrequently very large: 4.9 mt in a single 12-15 minute tow in 2006. Tows of this magnitude were not observed in either 2007 or 2008.

As in 2007, an index of abundance based on a Generalized Linear Mixed Model (GLMM) including vessel-specific differences in catchability (via inclusion of random effects) was calculated for the survey time series. The GLMM approach explicitly models both the zero catches as well as allows for skewness in the distribution of catch rates through the use of a Gamma or lognormal error structure. The GLMM index was generated using the same basic method, but reprogrammed in the statistical language R (J. Wallace, personal communication). Although point estimates and confidence intervals differed slightly between the two implementations applied to data through 2006 (Figure 2), the basic trend remained unchanged. Further, addition of the 2007 and 2008 data reduced the estimated confidence intervals about the point estimates, but still did not have a large effect on the relative trend across years. As in 2007, monitoring of convergence of the random-effects variance parameter revealed relatively poor behavior; however the effects themselves were small enough to have little effect on the overall estimation. The implementation in R should be re-evaluated as part of the next full assessment to determine if a more efficient approach can be developed when the analysis is unencumbered by the need for updated data only.

The biomass index shows a relatively flat biomass trend over the period 2003-2008 with a large increase only in 2006 (Table 4, Figure 2). The sensitivity of the index to the very large tow in 2006 is not a new phenomenon, and was explored as part of the 2007 assessment. As in 2007, twenty-eight bins from 12 to 66 cm were used to summarize the length frequency of the survey catches in each year, the first bin including all observations less than 12 cm and the last bin including all fish larger than 66 cm. These bins are populated with a modest, but consistent degree of sampling: 32-56 tows and 423-799 fish per year (Table 5). Broadly, the length frequency distributions for the NWFSC survey from 2003-2008 show a range of sizes captured from a few 12-14 cm individuals out to some 64

cm females (Figure 3). No clear cohorts, nor any obvious trend, are visible in the length data; however the size distributions for both males and females in 2008 showed a very large number of small canary rockfish.

As in 2007, age-frequency data from the NWFSC survey was compiled as conditional age-at-length distributions by sex and year. The method and rationale is presented in the 2007 assessment document and remains unchanged. Age distributions included 35 bins from age 1 to age 35, with the last bin including all fish of greater age. Approximately half as many fish were sampled for age as for length, but these fish were collected from a similar number of tows (Table 5). These distributions show a tight range of ages at a given length, and clearly show the growth trajectory of females reaching larger sizes than males for a given age (Figure 4, Figure 5). It is often useful for interpretation to compute the marginal age-compositions, and include these in the assessment model (with the likelihood contribution turned off, so they do not affect model fit in any way) for comparison of the 'implied' fit to the margin of the age-length key. The marginal age compositions allow for easier visual tracking of strong cohorts (although this information is still imparted to the model using conditional age-at-length observations, it is harder to visualize) and offer a view of the data more familiar for those accustomed to diagnosing model fit based on marginal age-composition data. Although these NWFSC age distributions seem to show some diagonal structure, close inspection reveals that it does not track consistently through any of the recent cohorts (Figure 6).

2.1.2 Triennial trawl survey

The largest source of fishery-independent data regarding the abundance of canary rockfish is the triennial shelf trawl survey conducted by NMFS starting in 1977 (Dark and Wilkins 1994). The 2007 assessment contains a through description of the survey, and methods for analyzing the data for use in the canary assessment. The data are unchanged from those used in 2007. The GLMM-based index shows a decline in the population through the mid-1990s and then a flat or slightly increasing trajectory (Figure 7). This index is slightly lower than the NWFSC, indicating a difference in either catchability, selectivity (also supported by the difference in length distributions in 2004), or both. It is uncertain why the 1980 observation was lower than 1983 when the population was likely declining rapidly under very large removals, but this pattern is present for other species as well.

Size and conditional age-frequency distributions from the triennial survey are unchanged from those used in 2007.

2.1.3 Pre-recruit survey

The coast-wide mid-water trawl survey of pre-recruit pelagic juvenile rockfish conducted by the Southwest Fisheries Science Center (SWFSC) and the PWCC/NWFSC was included in the 2007 assessment as a pre-density dependent recruitment strength index. This ANOVA analysis was updated to include the 2007 and 2008 survey data for use in 2009 stock assessments (S. Ralston, personal communication). The sampling variance estimated from the Delta-GLM approach was used (and tuned) in 2007, but was not available for 2009. Instead the ANOVA variance was used, and subsequently tuned (see below). The index shows relatively large year-classes in 2002 and 2004 (Figure 8).

2.1.4 Canadian survey data

Canadian surveys for the area most likely to be linked to the U.S. resource, the waters off Vancouver Island, were not re-evaluated for this updated assessment.

2.1.5 Other fishery independent data

Since they were not included in the 2007 assessment, the NWFSC's cooperative fishery independent hook-and-line survey targeting rockfish in the Southern California Bight, the Oregon State University hook-and-line sampling (D. Sampson and S. Heppell), and the OSU 'volcano trawl' video sampling (D. Sampson and S. Heppell) were not revaluated for this update. However, these and other data sets may prove worth investigating in future canary assessments.

2.2 Biological Data

See the 2007 assessment document for a description of the source of biological parameters estimated outside the assessment model. These values are treated as fixed and therefore uncertainty reported for the stock assessment results does not include any uncertainty associated with these quantities. All input values remain unchanged from the 2007 assessment (Table 6).

2.2.1 Weight-Length

The weight-length relationship used for this update is identical to that used in 2007 (Table 6).

2.2.2 Maturity and fecundity

The maturity-at-length and fecundity relationships used for this update are identical to those used in 2007 (Table 6).

2.2.3 Natural Mortality

The natural mortality rate used for males and females < age 6 in this update is identical (0.06) to that used in 2007 (Table 6). As in the 2007 assessment, the degree of increase for older females (age 14+) is treated as an estimated parameter.

2.2.4 Ageing Precision and Bias

The ageing imprecision and bias estimates used for this update are identical to those used in 2007. That document provides a description of the data and methods upon which they are based.

2.2.5 Research removals

Research catches have historically been only a tiny fraction of the total removals from the canary rockfish population. However, as total mortality has been very low since 2000, the relative contribution of research removals to the total has increased. This was particularly true in 2006, when research catches comprised 7.8 mt (Table 7). As in 2007, research catches are explicitly accounted for in this updated stock assessment.

2.3 Fishery Dependent Data

2.3.1 Historical Catch Reconstruction

In the 2005 assessment, a reconstruction of historical removals was undertaken to more realistically reflect both the cumulative removals that have occurred from the coast-wide canary rockfish population as well as some of the variability during the time series. Documented landings of "rockfishes" were assembled from a variety of sources; this type of aggregated data was all that was available as individual species were not routinely identified until the 1960s. Since most landings were not identified by gear type, the focus of this effort was directed at trawl landings or mixed categories. Results indicated relatively large catches of canary (primarily in California) for the period 1916-1942 that nearly doubled for the period 1943-1977 (Figure 1). No further changes were made to that historical reconstruction for the 2007 assessment, as no new information had become available. A description of that reconstruction is included in both the 2005 and 2007 assessment documents. The most salient point for this update is that a ratio of 0.176 was used to estimate trawl-caught canary rockfish from total rockfish catch (from the entire state) in California over the period 1942-1963. The use of flat ratios for single-species has been a topic of discussion since the 2005 assessments and was the basis for a request by the Council to undertake comprehensive landings reconstructions by state such that the sum of all estimated species catches would necessarily equal the total being apportioned.

Immediately prior to this updated assessment, a revised estimate of California landings, produced through an extensive effort by the SWFSC and CGF&G became available (Ralston et al. DRAFT). This reconstruction evaluated the probable landings of all common rockfish, using detailed (and not previously available) data which were key-punched and quality checked over the last several years. This effort benefitted from additional historical species composition estimates as well as geographic data on the location of catch for these landings, allowing different species compositions by area to be reflected (this is especially important for canary, which occur in very low numbers south of Point Conception). The net result of this revision was a 24% reduction in the total estimated canary catch from 1916-2006 with most of this reduction occurring prior to 1968 (Figure 1, Table 7).

At the time of production for this update no similar series were available for Washington and Oregon, but extensive data-entry and database building efforts have been completed.

2.3.2 Recent Landings (1981 to present)

As in 2007, recent landings reflect the most current information from the PacFIN, CalCOM, NORPAC, RECFIN and State recreational databases. Commercial landings estimates of canary rockfish from 1981 to 2006 were generated from the PacFIN database (Extraction: May, 2009, Daspit et al. 1997) for Oregon and Washington and California. Corrections to California landings estimates in 2006-2008 were made subsequent to the data provided for this update, however, since the changes were small (< 0.2 mt for canary) and the total catch was apportioned from total mortality estimates, this change in landings distribution will have little effect on assessment inputs.

2.3.3 Discards

As in the 2005 and 2007 assessments, discard rates were applied to convert landings to total catch estimates. Those documents provide a description of the rationale for this approach. Values were 0.0123% for all commercial fleets until 1994 and then 16% for all commercial fleets until 1999. Beginning with the year 2001, there were discard observations collected by the West Coast Groundfish Observer Program that were considered applicable to some fleets. Discard rates used for 2002- 2008 were calculated to be consistent with total mortality estimates created for the submission to national NMFS reports, the Pacific Council, and the GMT. By working backward from the total mortality (or total discard by weight) and the current landings estimate, a likely discard rate was developed for each fleet. Because the delineations over geography, between gear types and tribal vs. non-tribal sectors often differ from GMT "scorecards" and other summaries available from the Council, it may be misleading to compare the actual discard rates and comparisons should focus on total mortality values. Where updated landings, bycatch estimates or research catches were available the most up to date information has been included in this assessment. The trawl fleets had a discard rates based on at-sea observer data on a year-specific basis for 2002-2008. These estimates (back-calculated from total mortality estimates and landings) ranged from 14.8% to 88.7%, and are given in Table 8. The non-trawl fleets had similarly high discard rates. Recreational discarding was incorporated through the use of the landed and discarded dead (A + B1) categories.

As in 2007, this updated assessment treats observations of the discarded canary rockfish in a similar manner to those collected from port samples. Biological observations from each tow are expanded from the fish actually measured to the total number of fish in the biological sample. This number is then further expanded to the estimated total number of fish in the discard for that tow. Expanded length- (or age-) frequencies were then brought to the fleet level by multiplying each value by the ratio of total discarded weight for that fleet to the total discard that was sampled by the observer program. This allowed port and observer samples to be combined into a set of biological observations representing the entire catch of canary rockfish for that fleet and year. Observer samples comprised much of the biological data for the commercial trawl and non-trawl fleets in 2004-2008, due to limitations on landing canary, which have restricted the access of port samplers to a very small fraction of the total mortality.

2.3.4 Recreational Fishery

Estimates of recreational catch from 1981-2005 remain unchanged from the 2007 assessment. For the most recent years, 2006-2008, updated state estimates are included. The historical recreational catch reconstruction provided by the SWFSC (Ralston et al. DRAFT) replaces the estimates included in the 2005 and 2007 assessments. This constituted a 29% reduction in the total recreational removals over the period 1929 to 1980, and an extension of the estimates from 1950 (in the 2007 assessment) to 1929 (Table 7). The years 1941-1947 are interpolated, but comprise only 81 tons in aggregate.

No attempt was made as part of this updated assessment to correct for the large numbers of recently discovered recreationally caught rockfish that are not apportioned to species and therefore not included in recreational catch estimates. This should be revisited as part of the next full assessment for canary rockfish if available.

2.3.5 Foreign Catches

Foreign catches are included in the catch estimates for trawl fleets by state (Table 7), as was done in the 2007 assessment.

2.3.6 Fishery Logbooks

As in 2007, no logbook information is included in this assessment.

2.3.7 Fishery Biological Sampling

Commercial length-frequency distributions were developed for each fleet for which observations were available, following the methods used for the 2007 assessment. The same bin structure as was used for research observations. Sampling statistics for each fleet and year are given in Table 9, Table 10, Table 11, Table 12, Table 13, and clearly show the different sampling targets employed over different time periods and between state agencies. Some recent data from the Northern California fishery may be extant, but was unavailable for this update due to an upload issue still being resolved between PacFIN and CalCOM.

Generally, the fishery length-frequency data have become much sparser in recent years, and small sample-sizes preclude much obvious signal from data sources that have never shown evidence of strong cohorts. Weighted age-frequency distributions were compiled by fleet and method of ageing, as was done in 2007. Break-and-burn ages read by CAP or ODFW were treated separately from those read by WDFW following the development of separate ageing error keys in the 2007 assessment. Surface ages are again excluded due to high levels of bias and imprecision for older fish. Again following the 2007 methods, commercial age data was not treated as conditional age-at-length data due to prohibitive model run time. Therefore, marginal commercial age-frequency distributions were used for all fishery age-frequency data.

New age data were sparse and this generally reflects low levels of landings and sampling of canary rockfish from fishery sources. One exception was the at-sea whiting fishery, which provides a few hundred age structures per year. The 2006 and 2007 age data are included here, but the 2008 canary ages were not read in time for this update.

2.4 History of Modeling Approaches

2.4.1 Previous assessments

The 2007 assessment document contains a detailed description of the history of canary rockfish assessments.

2.4.2 Pre-assessment workshop, GAP and GMT input

Because this is an updated assessment, there was no formal or informal discussion of data, modeling or management issues for 2009. This has been a valuable part of the assessment process in recent years and should be continued for the next full assessment.

2.4.3 Response to the review panel recommendations in 2007

The STAR panel reports from the 2007 review outlined a number of recommendations for future research and data collection. As this was an updated assessment these issues were not revisited, but are reiterated here for consideration in future canary and other assessments:

- *For the next canary rockfish stock assessment*
  - *Assumptions about stock structure and distributional boundaries should be reviewed in light of information on Canadian/Alaskan catches.*
  - *A catch history should be reconstructed using all available data including catch by gear and by region. The reconstruction should include an envelope of high and low values to set bounds for exploration of alternative catch histories. As has been previously recommended, the reconstruction needs to be done comprehensively across all rockfish species to ensure efficiency and consistency.*
  - *Evaluate the feasibility of a bi-lateral assessment with Canadian scientists, perhaps through the TSC (Technical Subcommittee of US Canada groundfish working group).*
  - *Investigate the importance of calendar date and other covariates on catch rates from the triennial survey and propose adjustments to account for seasonal and other variation in selectivity/availability.*
- *Generic issues for groundfish assessments*
  - *Establish a meta database of all data relevant to groundfish stock assessment. The database should include enough detail about the nature and quality of the data that a stock assessment author can make a well informed decision on whether it could be useful for their stock assessment.*
  - *Establish accessible online databases for all data relevant to groundfish stock assessment, so that assessment authors can obtain the raw data if required.*
  - *Establish a database for historical groundfish catch histories, "best" guesses and estimates of uncertainty (and processes for updating and revising the database).*
  - *Develop a concise set of documents that provide details of common data sources and methods used for analyzing the data to derive assessment model inputs.*
  - *Develop standard and appropriate methods for modeling age and length data, including choice of distribution, initial variance assumptions, and tuning methods (current methods can and should be improved).*
  - *Routinely produce and present supporting documentation for any derived indices which are included in a stock assessment model (e.g., GLMM derived trawl survey abundance indices).*

2.5 Model Description

2.5.1 Link from the 2007 to the updated assessment model

The bridge from the 2007 stock assessment model to the current base case followed three general steps: 1) upgrade to the newest version of SS, 2) rebuild all of the data inputs to reflect the best information currently available, including recent catch series, fishery biological data, and GLMM-based indices of survey abundance and 3) replace the historical catch reconstruction with the revised reconstruction produced by the SWFSC and CDF&G.

A thorough description of the 2007 assessment model is presented separately below; this section linking the two models is intended only to more clearly separate the effects of these changes.

The change from Stock Synthesis version 2.00g to version 3.0 was, in this author's experience, the easiest upgrade in recent assessment cycles. The 2007 depletion estimate was nearly identical (32.4% in the 2007 assessment version vs. 32.8% in version 3.0) when the model was configured in the same manner despite many new (and unused for this update) features.

Rebuilding the data streams was performed as described above. This incorporated all recently available assessment data as well as revised catch estimates from total mortality reports and standard sources for the period 1981-2008 (Table 2). These new data resulted in a slightly more pessimistic view of the recent stock recovery trajectory, just inside the lower 95% confidence interval from the 2007 assessment. This downward revision of recent spawning biomass was not attributable to a single data source, but appears to be incrementally informed by each updated series (Figure 9).

Addition of the fully revised catch history reduced the scale of the entire time-series estimate of spawning biomass by an average of 14% (19% in the first 10 years of the series and 47% in the last 10). The central portion of the time-series estimates remained largely unchanged (~1960-1990; Figure 9).

2.5.2 Summary of data for fleets and areas

As in the 2007 assessment, fishery removals were divided among 11 fleets: 1) Southern California trawl, 2) Northern California trawl, 3) Oregon trawl, 4) Washington trawl, 5) Southern California non-trawl, 6) Northern California non-trawl, 7) Oregon and Washington non-trawl, 8) Southern California recreational, 9) Northern California recreational, 10) Oregon and Washington recreational and 11) the canary bycatch from the at-sea whiting fishery. Removals associated with research projects (the trawl surveys, and other much smaller sources of permitted mortality due to scientific research) are treated as a fishing fleet, only in that the removals are included in the total. The data available for each fleet are described in Table 2; data that were new since the 2007 assessment are clearly identified.

2.5.3 Modeling software

This assessment used the Stock Synthesis modeling framework written by Dr. Richard Methot at the NWFSC. The most recent version (3.03a) was used, since it included many improvements in the output statistics for producing assessment results and several corrections to the older version (2.00g) used during the 2007 assessment.

2.5.4 Sample Weighting

The approach to sample weighting remains unchanged from the 2007 assessment: variance and sample sizes were first derived from the raw data sources using the same methods as in 2007, the variances and sample sizes were then iteratively re-weighted to ensure consistency between the input sample sizes (or standard errors) and the effective sample sizes (and root-mean-squared-errors) based on model fit. This approach attempts to reduce the potential for particular data sources to have a disproportionate effect of total model fit, while creating estimates of uncertainty that are commensurate with the

uncertainty inherent in the input data. Iterative re-weighting was applied to the length, age and survey data from all fleets. This consisted of comparing the mean input sample size for compositional data with the mean effective sample size based on model fit. Where the input sample size was greater, this implied the model was unable to fit the data in a manner that was consistent with the level of variability expected in the data and so a multiplicative scalar was used to reduce the input sample size for all length- or age-composition samples for that fleet accordingly. For index data, the mean input standard error was compared with the root-mean-squared-error of the model fit to assess consistency of data and model fit. Where the mean effective sample size was greater than the mean input sample size, no change was made. This choice reflects the post-hoc nature of model tuning and the potential for increasing weight on those data sources that are consistent with model predictions, thereby reducing the perceived uncertainty in model results. Table 14 shows the results of this re-weighting for compositional data, with the length and age data from a few fleets down-weighted slightly and the at-sea whiting bycatch data down-weighted substantially. This is not unexpected, since the sampling for at-sea data is on a per haul basis, and those fishing operations tend to move only when the large aggregations of whiting they are targeting move. Therefore, fish within hauls would be expected to be less representative of independent samples, and even fish from multiple hauls may be collected from a very small geographic area. Table 15 reports the results for index data. A small additional variance component was added to the early triennial observations (0.02) and the NWFSC trawl survey observations (0.09) resulting in reasonably close agreement between mean input standard errors and root-mean-squared-errors as well as a similar degree of observation error for all survey indices. The big change from the 2007 assessment was in the weighting of the pre-recruit index: in 2007 the mean input SE was 0.31 and an additional 0.11 was added during tuning. In this updated assessment, the input SE was much lower 0.05, due to the use of an alternate method of calculating this value, and a much larger additional component was added (0.93) to achieve consistency. This reflects substantially more information informing the recent recruitment estimates, apparently in conflict with the signal from the pre-recruit index.

Following the logic applied in the 2007 assessment, the lambda values (emphasis; a direct multiplier on the likelihood component) were again reduced to 0.5 for length and age data from a given fleet where both types of data are available. This is consistent with previous canary assessments, and many other west coast groundfish assessments.

2.5.5 Priors

Uniform (noninformative) priors exactly matching those used in 2007 were applied to all estimated parameters in the base case model. Parameter bounds were selected to be sufficiently wide to avoid truncating the searching procedure during maximum likelihood estimation. All parameter bounds and priors are provided in this document (Table 16).

The use of a prior on stock-recruitment steepness (M. Dorn, AFSC, personal communication) was explored during the 2007 STAR panel. Concern over the influence of recently revised (2007 assessments) steepness profiles led to the recalculation of the posterior predictive distribution from the meta-analysis performed in 2006 removing the darkblotched rockfish profile. The revised prior was shifted to slightly lower steepness values than the earlier analysis, resulting in a distribution with the mean of the middle 50% equal to 0.511, the mean of the lower 50% equal to 0.345 and the mean of the upper 50%

equal to 0.72. Although this prior is likely to be updated for 2009, it was unavailable for this assessment. As in 2007, the base case uses the mean of the middle 50% of the prior distribution (0.511) as a point estimate, and a 'states-of-nature" approach to uncertainty in this parameter.

2.5.6 General model specifications

Stock synthesis has a broad suite of structural options available for each application. These options were configured in the newest version to most closely match the behavior of the 2007 model and sensitivity to new and potentially important aspects are considered below (see *2.9.1 Sensitivity analyses*). The assessment remains sex-specific, including separate growth curves for males and females, and therefore tracking the spawning biomass of only females for use in calculating management quantities. Further, as has been done in previous canary assessments (and discussed above) natural mortality is allowed to increase (linearly) for females starting at age 6 and reaching an estimated asymptote at age 14, after which mortality is constant. Males and young females are assumed to have a natural mortality of 0.06.

For the internal population dynamics, ages 0-39 are individually tracked, with the accumulator age of 40 determining when the 'plus-group' calculations are applied. As there is little growth occurring at this age and the data are accumulated at age 35, this should be a robust choice (there needs to be enough space between the data 'plus-group' and that of the dynamics to avoid ageing error moving very old fish into observations of younger ages where this is unwarranted).

There are no explicit areas structuring the modeled dynamics of this assessment. No seasons are used to structure removals or biological predictions, so data collection is assumed to be relatively continuous throughout the year. Fishery removals occur instantaneously at the mid-point of each year and recruitment on the 1st of January. Since the time-series is started in 1916, the stock is assumed to be in equilibrium at the beginning of the modeled period. The sex-ratio at birth is fixed at 1:1, although by allowing increased natural mortality on females, size-based selectivity, and dimorphic growth is can vary appreciably due to differential mortality by age and sex.

2.5.7 Estimated and fixed parameters

A full list of all estimated parameters and values of key parameters that are fixed is provided in Table 16, with the exception of recent recruitment deviations this parameter estimation framework remains unchanged from the 2007 assessment.

Time-invariant sex-specific growth is fully estimated in this assessment. This requires nine parameters, with the length at age 1 assumed to be equal for males and females. The log of the unexploited recruitment level for the Beverton-Holt stock-recruit function is treated as an estimated parameter in this assessment. Recruitment deviations are estimated for each year of the period informed by the data (1960+). This approach may underestimate uncertainty in recruitment variability (and therefore derived quantities like spawning biomass) in the early years of the model. However, it provides for an efficient maximum likelihood minimization and may reduce unwarranted patterns in early deviations.

Double-normal selectivity was used for all fishing and survey fleets in the base case model (unchanged from 2007). The initial selectivity parameter was fixed to a value of -9.0 resulting in the smallest length bin always having a derived selectivity value of 0.0. An exception to this was applied to the NWFSC trawl survey, where the initial selectivity was estimated, based on the frequency of small fish relative to all other fleets in the model. The ascending width parameter was estimated for all fleets, as was the peak and final selectivity parameters. For fishing fleets, the width of the flat-top on selectivity was fixed at -4.0, as this parameter is often redundant. For surveys this parameter was estimated. Where estimated selectivity curves were strongly asymptotic, then the descending width parameter was fixed at a value of 4.0 to avoid full redundancy as the estimated final selectivity parameter approached the upper bound and the derived selectivity value for lengths greater than the peak selectivity approached 1.0. For fleets that showed strongly dome-shaped selectivity, the descending width parameter was estimated to allow the ability to fit a greater range of domed shapes. For survey fleets, catchability parameters were directly estimated.

An identical approach to time-blocks was applied in this and the 2007 assessment. When a time-block was added to the specification for a fleet, three parameters were allowed to vary: the ascending width, the peak and the final selectivity parameter. This was intended to allow flexibility in the full curve (ascending side, location and descending side) with the minimum amount of parameters.

2.6 Model Selection and Evaluation

2.6.1 Key assumptions and structural choices

Following the terms of reference for an updated assessment, all assumptions and structural choices remained unchanged, and were not reevaluated for 2009.

2.6.2 Alternate models explored

A ‘standard’ update, ignoring the newly available historical catch reconstruction is presented for comparison with the base case presented here (Figure 9).

Exploration of the statistical support for time-blocks on fishery selectivity and additional flexibility for static curves was performed as part of the 2007 assessment. This exercise was not repeated here, but should be in the next full assessment, as likelihood contributions change due to iterative reweighting. It is also possible that the larger OY available to the 2009 fishery will require an additional time block in future assessments if fishing behavior changes appreciably. Time-blocks remain unchanged from the 2007 assessment allowing changes in selectivity at up to five points for each fleet: 1) 1979, roughly the average year for conversion of older fishing gear to high-rise and larger footrope trawl gear, 2) 1995, when the first canary-specific trip limits were imposed, 3) 2000, when canary were first managed as overfished and OYs were drastically reduced, 4) 2002, when the Rockfish Conservation Areas (RCA) were first implemented, eliminating large portions of historical fishing grounds from legal rockfish harvest, and 5) 2005, when selectivity flatfish trawl gear was required shoreward of the RCA.

Sex-specific selectivity curves have been a topic of much exploration in canary assessments prior to 2007 (when selectivity was modeled as not sex-specific) and although not revisited here, they should be periodically revisited in future assessments. Likewise the

trade-off between age- and length-based selectivity curves was explored in 2007 and not revisited here, but remains a significant source of uncertainty in the canary assessment.

Given the considerable uncertainty in the value for steepness used in the base case, an alternate model estimating this parameter was evaluated for comparison only. As in 2007, the estimated value approaches the upper bound of 1.0 and the results indicate a much more optimistic trend in current status (2009 depletion estimate = 54.8%). Values of this magnitude for a long-lived rockfish have been considered quite implausible in the past and the general agreement among reviewers in recent assessments has been that steepness is very poorly estimated with the data available for canary rockfish.

2.6.3 Convergence status

To test for convergence, 100 trials were performed using a 'jitter' value of 0.1 for the base case model. Sixty-nine of these trials returned to the global minimum, inverting the Hessian and producing small gradients, 18 got close the global minimum but failed to completely converge, and 13 terminated without any sign of convergence. The spread of this search appears to indicate that the jitter was sufficient to search a large portion of the likelihood surface, and that the base case is not stuck in a local minimum. Results of runs that appeared to converge all showed very similar levels of ending depletion and spawning biomass.

2.7 Response to SSC recommendations

If the SSC determines that additional analysis beyond completion of a rebuilding plan for the updated 2009 assessment is warranted, this work will be completed subsequent to the June 2009 review. All STAR recommendations from 2007 that were incorporated into the final base case model are retained for 2009; the 2007 document provides a point-by-point list of these changes made during that review.

2.8 Base case model results

The biological parameters estimated from the base case model appear to be quite reasonable and consistent with the 2007 assessment (Table 17) and inspection of the raw data. Female and male canary rockfish showed similar growth trajectories to about age 10, with females growing to a maximum size (60 cm) that was about 8 cm larger than males (Table 18, Figure 10). Males are estimated to grow slightly faster than females, with both sexes showing a relatively tight distribution of lengths for a given age and with the relative CV decreasing with age. As in the 2007 assessment, natural mortality for females is estimated to increase from 0.06 at age 6 to 0.097 at age 14 (Figure 11, Table 19). With this difference in sex-specific natural mortality, a male-dominated sex-ratio would be expected for older ages, but given the dimorphic growth a female-dominated sex ration would be expected for larger sizes regardless of age.

Estimated selectivity curves for the NWFSC survey selected more small canary with the peak at a smaller size (48 vs. 66 cm) reflecting the capture of many small canary in 2008 (Table 17). The catchability values for the NWFSC and triennial surveys are very similar to those estimated in 2007, although the current values have increased slightly, reflecting the downward revision of the estimated biomass in this update (Table 17). Catchability for fully selected canary in the NWFSC survey was estimated to be 0.125 (vs. 0.114 in 2007), 0.111 (vs. 0.114) for the early triennial survey (1980-1992) and 0.078 (vs.

0.054) for the later triennial survey (1995-2004). Selectivity curves for the various fishing fleets showed very similar patterns to those observed in the 2007 assessment.

The base case model was able to fit the trawl survey indices quite well (Figure 12, Figure 13), despite the relatively small contribution to the total likelihood value. The root-mean-squared-error (*rmse*) for the fit to the NWFSC survey is unchanged from 2007 at 0.44, the early triennial survey is 0.41, and the late triennial survey 0.15 in log space. These values are close to or larger than the mean input standard errors for each (0.44, 0.41 and 0.05), except that the fit to the late triennial survey was much better than expected (Table 15). The base case model fit the coast-wide pre-recruit index much worse than the pre-iteration input standard error (0.05) which was inflated by a factor of 0.93 to achieve consistency with an *rmse* of 0.98 (Figure 14). This lack of fit reflects conflict between other data sources and the index, largely driven by the mismatch in 2002 and 2004 as well as the contribution of σ_r drawing subsequent recruitments away from the index and toward the stock-recruit expectation.

The base case model fit the length and age distributions from the NWFSC and triennial surveys slightly better than expected based on the input sample sizes (Table 14, Figures 15-26). Although there is some lack-of-fit in specific years of the two time-series of length-frequency data (Figure 15, Figure 16), there are no strong trends in the Pearson residuals (Figure 17, Figure 18). The implied fit to the marginal age-frequency data (not included in the likelihood, but used for comparison only) was also reasonably good for both surveys although the data are clearly quite noisy (Figure 19, Figure 20). The Pearson residuals reflect the noise in the data both within and between years but show no clear patterns (Figure 21, Figure 22). Pearson residuals for the fit to survey conditional age-at-length data are somewhat difficult to interpret, but generally show the effect of small sample-sizes within rows on each year-specific key as well as a few fish that deviate from expected growth pattern dramatically (Figures 23-26).

Fits to the fishery length- and age-frequency data required little tuning to make average effective sample sizes equal to or greater than average input sample sizes (Table 14, Appendix A). Fits were varied, but generally reflect the heterogeneity in data quantity and quality among fleets. It is uncertain whether patterns observed in the fit to these data are a function of heterogeneity in sampling intensity over areas or ports within each fleet (observation error) or more continuous changes in fishery selectivity that is reflected in the size and age of the fish captured (process error).

The estimated recruitment deviations show relatively low variability when compared to other rockfish species; the input value for the standard deviation was 0.50 and the *rmse* over the period 1960-2008 was 0.39 (0.41 in the 2007 assessment). The choice of start year (1960) is based on the 2007 assessment, although the variance for the recruitment deviations estimated prior to the early 1970's appears to be higher than it is was estimated to be in 2007 (Figure 27). Estimation of a full time-series of recruitment deviations and the appropriate level of bias correction should be revisited in the next full assessment (see *2.9.1 Sensitivity analysis below*). As in the 2007 assessment, there is a period in the late 1980s and early 1990s that shows 10 sequential recruitment deviations at or above the zero line, with 7 of 9 recruitment estimates around the turn of the millennium estimated to be below the expected level (Figure 27). The time-series of estimated recruitments shows a strong relationship with the decline in spawning biomass even with a steepness value of 0.511

(Figure 28). The level of steepness used had a very large effect on the magnitude of the recruitments in the last 20 years, but very little effect prior to that period (Figure 29).

Based on the revised catch series, canary rockfish were very lightly exploited until the early 1940's, when catches increased and a decline in biomass began (Figure 30). The rate of decline in spawning biomass accelerated during the late 1970s, and finally reached a minimum (12% of unexploited, slightly below the estimate of 13% from the 2007 assessment) in the mid 1990s. The canary rockfish spawning stock biomass is estimated to have been gradually increasing since that time, in response to reductions in harvest and above average recruitment in the preceding decade. However, this trend is very uncertain. The base model asymptotic interval for 2009 spawning biomass remains broad: 4,385-7,955 mt, and the states of nature interval: 2,459-10,244. The time series of population trends for the base case is reported in Table 20, and the uncertainty in Table 21. Predicted numbers at age from the base case for females and males are provided in Table 22 and Table 23.

2.9 Uncertainty and Sensitivity Analysis

As in 2007, the base case assessment model includes parameter uncertainty from a variety of sources, but underestimates the considerable uncertainty in recent trend and current stock status. For this reason, in addition to asymptotic confidence intervals (based upon the model's analytical estimate of the variance near the converged solution), two alternate states of nature regarding stock productivity (via the steepness parameter of the stock-recruitment relationship) are presented.

2.9.1 Sensitivity analysis

The already described sensitivity to the fixed value for stock-recruit steepness and the revised historical catch series appear to be the greatest sources of change to model results in this updated assessment. Beyond those aspects of the model, a full evaluation of structural choices and data weighting was not repeated for this update. However, it is expected that the conflicting signal in the age and length data seen in alternative weighting schemes as well as the approach to time-varying triennial survey and fishery selectivity and catchability remains as was identified in 2007.

An attempt to identify new factors most likely to be explored in the next full assessment included data weighting, time periods for recruitment deviation estimation and evaluation of a newly identified uncertainty in stock-recruit dynamics: the relative fraction of the bias correction applied to 'fully-informed' recruitment deviations. The latter structural decision reflects the reality that the appropriate degree of bias correction to apply is, in theory at least, a function of the ratio of the variance of the data informing recruitment deviations (relative to the true deviations) and the total variance of the data and true recruitment variability (R. Methot, personal communication). The default in recent assessments has been to assume that the correct fraction of the bias correction to apply is 1.0, but given sparse and noisy data, ageing error as well as conflicting signal from different data sources it is quite likely that a new default somewhat lower than 1.0 will emerge from ongoing simulation analyses at the NWFSC. To this end, the effects of assessment model results were evaluated for reduced fractional bias correction between 1.0 (the base case) and 0.6. The time series for canary rockfish was largely unaffected by the choice of bias correction, likely due to adequate flexibility in other model parameters to fit the data regardless of this scaling as well as the relatively low value for σ_r, and therefore the bias

correction itself (Figure 31). With a smaller bias correction applied, the recent trend in expected recruitment and therefore spawning biomass (Figure 31, lower panel) was somewhat more optimistic.

2.9.2 Retrospective analysis

A 5-year retrospective analysis was conducted by running the model using data only through 2003 ("retrospective in 2004"), 2004, 2005, 2006 and 2007 (Figure 32). The results are consistent with the observation that the updated data from 2006-2008 had the effect of reducing the current estimated spawning biomass and rate of recovery since the mid-1990s. Little retrospective pattern is apparent for data only through 2005 and earlier years. Given a short NWFSC survey time-series and extensively time-varying recent fishery selectivity some retrospective uncertainty is expected; however, the trend over the last few years should be noted.

The second type of retrospective addresses assessment error, or at least the historical context of the current result given previous analyses. All recent assessment models show a relative trend over the last 50 years that is very similar through the early 1990s (Figure 33). However, after this period, there is considerable uncertainty in the rate of rebuilding. The 2009 base case predicts a slower recovery than the 2007 model, but still a more rapid recovery than the 2005 and earlier models. Much of this difference with pre-2007 models is due to the change in steepness of the stock-recruit function; the 2002 and 2005 assessment results had a very low estimate of steepness relative to the value of 0.511 used in 2007 and this update.

2.9.3 Likelihood profiles

New likelihood profiles were not completed for this update; however, alternate values for stock-recruit steepness suggested little change in the likelihood surface for this parameter relative to the 2007 assessment, with most of the density close to a value of 1.0.

2.9.4 Parametric bootstrap using SS

A bootstrap analysis of the estimability of model parameters and derived quantities relative to the data was performed on the 2007 pre-STAR model. The results showed that estimation of the general trend in the canary rockfish stock is reasonably consistent with the available data. However, the degree of increase in female natural mortality tended to be underestimated. Unexploited spawning biomass was slightly overestimated and 2007 spawning biomass was underestimated, with the net result of the two being that current depletion tends to be slightly underestimated. All of these biases were well within the reasonable range of the confidence intervals for each quantity. This exercise was not repeated for this update, but should be considered a standard diagnostic for full assessments where time permits its application.

3. Rebuilding parameters

Revised rebuilding projections will be presented in a separate document after the assessment has been reviewed in September 2009. As in 2007, the base case assessment model includes parameter uncertainty from a variety of sources, but still likely underestimates the true uncertainty in recent trend and current stock status. For this reason,

the three states of nature for stock-recruit steepness will be resampled in proportion to their relative probability and combined for the rebuilding analysis, identical to the approach taken in the 2007 rebuilding analysis.

4. Reference points

Unfished spawning stock biomass was estimated to be 25,993 mt (down from the 2007 estimate of 32,561 mt) in the base case model. The target stock size ($SB_{40\%}$) is therefore 10,397 mt and the overfished threshold ($SB_{25\%}$) is 6,498 mt. The abundance of canary rockfish was estimated to have dropped below the $SB_{40\%}$ management target in 1983 and the overfished threshold in 1990. In hindsight, the spawning stock biomass passed through the target and threshold levels at a time when the annual catch was averaging more than twice the current estimate of the MSY. The stock remains just below the overfished level, although the spawning stock biomass appears to have been increasing since 1999 (Figure 34). The degree of increase is very sensitive to the value for steepness (state of nature), and is projected to slow as recent (and largely below average) recruitments begin to contribute to the spawning biomass. The estimated relative depletion level in 2007 is 21.7% (below the estimate of 32.4% from the 2007 assessment) and 23.7% in 2009 (~95% asymptotic interval: 16-28%, ~75% interval based on the range of states of nature: 9-40%), corresponding to 6,170 mt (5,642 in 2007, 54% of the 2007 estimate of 10,544 mt). The abundance of canary rockfish was estimated to have dropped below the $SB_{40\%}$ management target in 1983 and the overfished threshold in 1990.

Fishing mortality rates in excess of the current F-target for rockfish of $SPR_{50\%}$ are estimated to have begun in the late 1970s and persisted through 1999 (Table 1, Figures 35-37). Recent management actions appear to have curtailed the rate of removal such that overfishing has not occurred since 1999, and recent SPR values are in excess of 70% (> 90% since 2003). Relative exploitation rates (catch/biomass of age-5 and older fish) are estimated to have been less than 1% since 2001. These patterns are largely insensitive to the three states of nature.

Maximum sustained yield (MSY) applying current fishery selectivity and allocations (a 'bycatch-only' scenario) was estimated in the assessment model to occur at a spawning stock biomass of 9,928 mt and produce an MSY catch of 937 mt (down from 1,169 mt estimated in the 2007 assessment). This sustainable yield is achieved at an SPR of 53.0%, nearly identical to the estimate from the 2007 assessment (52.9%). This is nearly identical to the yield, 936 mt, generated by the SPR (54.4%) that stabilizes the stock at the $SB_{40\%}$ target. The fishing mortality target/overfishing level (SPR = 50.0%) generates a yield of 931 mt at a stock size of 8,909 mt. When selectivity and allocation from a 'target-fishery' in the mid 1990s (1994-1998) was applied, the MSY yield increased to 960 mt from a slightly larger stock size (9,949 mt), but nearly the same rate of exploitation (SPR = 53.0%). This is due to higher relative selection of older and larger fish when the fishery was targeting instead of avoiding canary rockfish. These yields are somewhat lower than those from the 2007 assessment.

The 'dynamic' unexploited spawning biomass calculation was performed for comparison with the current 'static' approach. The dynamic calculation consists of eliminating the catch time-series, and re-running the model without re-estimating any of the parameters (but starting from the maximum likelihood values). This run generates a time-

series of spawning biomass estimates that can be interpreted as the level that would have occurred in the absence of fishing, conditioned on the model parameters and stock-recruitment relationship. By calculating relative depletion based on the spawning biomass estimated from each year of this series, an alternate view of the effect of fishing on the stock can be constructed. As in the 2007 assessment differences were very small, no larger than 5% in any year.

5. Harvest projections and decision tables

The forecast reported here will be replaced by the rebuilding analysis to be completed in September-October 2009 following SSC review of the stock assessment. In the interim, the total catch in 2009 and 2010 is set equal to the OY (105 mt). The exploitation rate for 2011 and beyond is based upon an SPR of 92.2%, which approximates the harvest level in the current rebuilding plan. As in 2007, uncertainty in the rebuilding forecast will be based upon the three states of nature for steepness and random variability in future recruitment deviations for each rebuilding simulation. Current medium-term forecasts predict slow increases in abundance and available catch, with OY values for 2011 and 2012 lower than those predicted from the 2007 assessment (Table 24).

Because canary rockfish is currently managed under a rebuilding plan, the decision table provided with this update (Table 25) is only intended to better compare and contrast the base case with uncertainty among states of nature. The results of the rebuilding plan will integrate these three states of nature as well as projected recruitment variability. Further, various alternate probabilities of rebuilding by target and limit time-periods as well as fishing mortality rates will be evaluated in the rebuilding analysis. The format of this decision table is unchanged from the 2007 assessment. Relative probabilities of each state of nature are based on a meta-analysis for steepness of west coast rockfish (M. Dorn, AFSC, personal communication). Landings in 2009-2010 are 105 mt for all cases. Selectivity and fleet allocations are projected at the average 2006-2008 values.

6. Regional management considerations

As in 2007, the resource is modeled as a single stock. Spatial aspects of the coast-wide population are addressed through geographic separation of data sources/fleets where possible and consideration of residual patterns that may be a result of inherent stock structure. There is currently no genetic evidence that there are distinct biological stocks of canary rockfish off the U.S. coat and very limited tagging data to describe adult movement, which may be significant across depth and latitude. Future efforts to specifically address regional management concerns will require a more spatially explicit model that likely includes the portion of the canary rockfish stock residing in Canadian waters off Vancouver Island.

7. Research needs

Progress on a number of research topics would substantially improve the ability of this assessment to reliably and precisely model canary rockfish population dynamics in the future and provide better monitoring of progress toward rebuilding:

1. Expanded Assessment Region: Given the high occurrence of canary rockfish close to the US-Canada border, a joint US-Canada assessment should be considered in the future.

2. Many assessments (including this one) have derived historical catch by applying various ratios to the total rockfish catch prior to the period when most species were delineated. Based on the sensitivity of this update to the revised catch history for California, a comprehensive historical catch reconstruction for all rockfish species is needed for Washington and Oregon as well.
3. Habitat relationships: The historical and current relationship between canary rockfish distribution and habitat features should be investigated to provide more precise estimates of abundance from the surveys, and to guide survey augmentations that could better track rebuilding through targeted application of newly developed survey technologies. Such studies could also assist determining the possibility of dome-shaped selectivity, aid in evaluation of spatial structure and the use of fleets to capture geographically-based patterns in stock characteristics.
4. Meta-population model: The spatial patterns show patchiness in the occurrence of large vs. small canary; reduced occurrence of large/old canary south of San Francisco; and concentrations of canary rockfish near the US-Canada border. The feasibility of a meta-population model that has linked regional sub-populations should be explored as a more accurate characterization of the coast-wide population's structure. Tagging of other direct information on adult movement will be essential to this effort.
5. Increased computational power and/or efficiency is required to move toward fully Bayesian approaches that may better integrate over both parameter and model uncertainty.
6. Additional exploration of surface ages from the late 1970s and inclusion into or comparison with the assessment model, or re-aging of the otoliths could improve the information regarding that time period when the stock underwent the most dramatic decline. Auxiliary biological data collected by ODFW from recreational catches and hook-and-line projects may also increase the performance of the assessment model in accurately estimating recent trends and stock size.
7. Due to inconsistencies between studies and scarcity of appropriate data, new data are needed on both the maturity and fecundity relationships for canary rockfish.
8. Re-evaluation of the pre-recruit index as a predictor of recent year class strength should be ongoing as future assessments generate a longer series of well-estimated recent recruitments to compare with the coast-wide survey index.
9. Meta-analysis or other summary of the degree of recruitment variability and the relative steepness for other rockfish and groundfish stocks should be ongoing, as this information is likely to be very important for model results (as it is here) in the foreseeable future.

8. Acknowledgements

This assessment draws heavily on the text and analyses in the 2007 and earlier documents, and has benefited greatly from the efforts of all authors contributing to those analyses. All those who provided data sources for the 2007 assessment that have not been revisited in this update are recognized again for these important contributions. Many people at various state and federal agencies assisted with assembling the data sources included in this updated assessment. Stacey Miller and John Devore assisted in identifying points of contact and acquiring Pacific council and other documentation. Eliza Heery provided total mortality estimates from recent years and summarized biological data from the West Coast

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10. Tables

Table 1. Recent trend in estimated total canary rockfish catch and commercial landings (mt) relative to management guidelines.

Year	ABC (mt)	OY (mt)	Commercial landings (mt)[1]	Total Catch (mt)
1999	1,045[2]	857[2]	666.3	898.7
2000	287	200	55.7	199.9
2001	228	93	42.6	133.0
2002	228	93	47.8	98.1
2003	272	44	8.6	59.9
2004	256	47.3	10.7	50.3
2005	270	46.8	12.0	60.4
2006	279	47	7.3	62.0
2007	172	44	12.1	44.7
2008	179	44	9.4	40.5

[1]Excludes all at-sea whiting, recreational and research catches.
[2]Includes the Columbia and Vancouver INPFC areas only.

Table 2. Summary of data sources available in 2009. “X” denotes data used in 2007, “N” denotes new data for this update.

	1916-27	1928-31	1932-49	1950-65	1966-67	1968-72	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Catches																																										
S. CA trawl						N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
N. CA trawl	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
OR trawl		X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
WA trawl			X	X	X	X	X	X	X	X	X	X	X	X	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
S. CA non-trawl						N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
N. CA non-trawl	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
OR/WA non-trl																				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
S. CA Rec.														N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N
N. CA Rec.	N	N	N	N	N	N	N	N	N	N	N	N	N	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N
OR/WA Rec.									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N
At-sea whiting																									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N
Foreign					X	X	X	X	X	X																																	
Research											X			X			X			X			X			X			X			X			X	X	X	X	N	N
WCGOP discards																																		X	N	N	N	N	N	N	N	N
Fishery Data																																										
Age																																										
S. CA trawl														X	X		X	X	X																	X	X					
N. CA trawl														X	X	X	X	X	X		X														X	X	X					
OR trawl														X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N	N	N
WA trawl														X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N
OR/WA non-trl																														X	X		X	X	X		X	X	X			
WCGOP discards																																					X	X	N	N			
At-sea whiting																																				X	X	X	N	N			
Length																																										
At-sea whiting																																				X	X	X	X	N	N		
S. CA trawl											X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N		
N. CA trawl											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
OR trawl							X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N	
WA trawl						X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	
S. CA non-trawl											X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X		X								
N. CA non-trawl															X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X				
OR/WA non-trl														X								X		X						X	X	X	X	X	X	X		X		X	N	
S. CA Rec.														X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	

Table 2. Continued. Summary of data sources available in 2009. "X" denotes data used in 2007, "N" denotes new data for this update.

	1916-27	1928-31	1932-49	1950-65	1966-67	1968-72	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Fishery Data																																										
Length																																										
N. CA Rec.														X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	N	N
OR/WA Rec.														X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X				
WCGOP discards																																		X	X	X	X	X	N	N		
Survey data																																										
Index																																										
Triennial survey														X		X			X			X				X			X			X			X			X				
NWFSC survey																																				N	N	N	N	N	N	N	N
Pre-recruit index																																		N	N	N	N	N	N	N	N	N	N
Age																																										
Triennial survey																	X					X				X			X			X			X			X				
NWFSC survey																																					X	X	X	X	N	N
Length																																										
Triennial survey																	X			X			X			X			X			X			X			X				
NWFSC survey																																					X	X	X	X	N	N
For comparison																																										
PGCT hook-and-line																																								X	X		
YOY core area																	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
NWFSC Hook and Line																																							X	X	X	
N. CA trawl CPUE																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											
OR/WA Rec.																																			X	X	X						
N. CA Rec. CPFV CPUE																					X	X	X	X	X	X	X	X	X	X	X	X											

Table 3. Summary of sampling used in the calculation of biomass indices for the shelf trawl surveys.

	Triennial		NWFSC	
Year	Number of tows	Positive tows	Number of tows	Positive tows
1980	314	77	NA	NA
1983	493	185	NA	NA
1986	484	169	NA	NA
1989	452	93	NA	NA
1992	431	69	NA	NA
1995	450	43	NA	NA
1998	479	86	NA	NA
2001	474	74	NA	NA
2003	NA	NA	558	50
2004	383	63	497	41
2005	NA	NA	674	56
2006	NA	NA	652	32
2007	NA	NA	696	48
2008	NA	NA	685	36

Table 4. The GLMM-based trawl survey indices of biomass (median posterior values, mt).

Year	Triennial	NWFSC
1980	1,969.4	NA
1983	3,768.4	NA
1986	2,419.7	NA
1989	1,691.3	NA
1992	558.3	NA
1995	505.8	NA
1998	631.4	NA
2001	764.3	NA
2003	NA	1,450.0
2004	1,016.7	1,293.8
2005	NA	1,326.0
2006	NA	4,238.5
2007	NA	1,309.7
2008	NA	2,402.0

Table 5. Summary of data used to produce NWFSC survey length and age-at-length frequencies.

	Length data		Age-at-length data	
Year	Number of Samples	Number of fish	Number of samples	Number of Fish
2003	50	423	48	262
2004	41	550	41	288
2005	56	622	55	277
2006	32	623	32	247
2007	48	673	48	497
2008	36	799	36	459

Table 6. Summary of fixed biological parameters used in this stock assessment

Quantity	Value	Source
Natural mortality	0.06	All canary assessments since 1994, males and females < age 6, with a linear ramp to an estimated value for females age 14+.
Weight-length coefficient (*a*)	0.0000155	2005 assessment, pooled over both sexes from fishery and survey data combined.
Weight-length exponent (*b*)	3.03	
Length at 50% maturity	40.5	2005 assessment Oregon and Washington trawl fisheries sampled during fall and winter months only.
Maturity logistic slope	-0.25	
Fecundity eggs/gram intercept	1.0	No fecundity relationship available, so weight is assumed to be a reasonable proxy.
Fecundity slope	0.0	

Table 7. Total catches (mt) of canary rockfish by fleet used in the assessment model. Foreign catches are included in state trawl fisheries. See text for description of sources.

Year	S. CA trawl	N. CA trawl	Oregon trawl	WA trawl	S. CA non-trawl	N. CA non-trawl	OR-WA non-trawl	At-sea whiting bycatch	S. CA rec.	N. CA rec.	OR/WA rec.	Research catches
1916	10.63		0.00	0.00	26.31		0.00	0.00	0.00		0.00	0.00
1917	16.13		0.00	0.00	42.72		0.00	0.00	0.00		0.00	0.00
1918	16.40		0.00	0.00	44.90		0.00	0.00	0.00		0.00	0.00
1919	13.28		0.00	0.00	25.31		0.00	0.00	0.00		0.00	0.00
1920	13.20		0.00	0.00	27.56		0.00	0.00	0.00		0.00	0.00
1921	10.01		0.00	0.00	25.07		0.00	0.00	0.00		0.00	0.00
1922	8.95		0.00	0.00	23.25		0.00	0.00	0.00		0.00	0.00
1923	11.14		0.00	0.00	27.49		0.00	0.00	0.00		0.00	0.00
1924	5.89		0.00	0.00	34.46		0.00	0.00	0.00		0.00	0.00
1925	3.74		0.00	0.00	43.04		0.00	0.00	0.00		0.00	0.00
1926	12.58		0.00	0.00	49.92		0.00	0.00	0.00		0.00	0.00
1927	15.54		0.00	0.00	40.52		0.00	0.00	0.00		0.00	0.00
1928	19.16		8.16	0.00	34.99		0.00	0.00	0.00		0.00	0.00
1929	34.55		14.19	0.00	23.92		0.00	0.00	1.29		0.00	0.00
1930	29.84		13.14	0.00	34.09		0.00	0.00	2.09		0.00	0.00
1931	41.45		10.06	0.00	33.12		0.00	0.00	3.14		0.00	0.00
1932	28.35		3.69	0.04	27.40		0.00	0.00	4.19		0.00	0.00
1933	38.45		5.39	0.00	10.97		0.00	0.00	5.23		0.00	0.00
1934	33.00		5.86	0.30	15.27		0.00	0.00	6.28		0.00	0.00
1935	33.72		5.40	2.30	23.17		0.00	0.00	7.33		0.00	0.00
1936	20.21		13.41	2.96	20.92		0.00	0.00	8.38		0.00	0.00
1937	30.80		17.03	2.64	13.28		0.00	0.00	9.99		0.00	0.00
1938	31.36		15.47	3.90	13.62		0.00	0.00	9.80		0.00	0.00
1939	41.59		11.49	4.09	12.96		0.00	0.00	8.58		0.00	0.00
1940	33.96		68.56	9.05	9.52		0.00	0.00	12.18		0.00	0.00
1941	26.94		144.08	3.39	12.32		0.00	0.00	11.14		0.00	0.00
1942	6.48		210.19	65.81	9.23		0.00	0.00	12.09		0.00	0.00
1943	32.10		766.49	212.71	7.62		0.00	0.00	13.04		0.00	0.00
1944	133.92		1,258.48	88.40	28.63		0.00	0.00	13.99		0.00	0.00
1945	304.19		1,937.94	926.43	69.70		0.00	0.00	14.94		0.00	0.00
1946	275.87		1,215.83	467.02	71.77		0.00	0.00	15.89		0.00	0.00
1947	110.71		755.22	243.97	16.42		0.00	0.00	8.97		0.00	0.00
1948	114.62		519.74	396.17	32.11		0.00	0.00	18.11		0.00	0.00
1949	96.72		528.54	481.83	12.42		0.00	0.00	23.42		0.00	0.00
1950	92.93		633.70	463.03	10.06		0.00	0.00	28.53		0.00	0.00
1951	199.38		409.14	387.38	16.32		0.00	0.00	31.99		0.00	0.00
1952	134.15		418.88	369.45	12.33		0.00	0.00	28.55		0.00	0.00
1953	134.01		334.79	160.20	7.17		0.00	0.00	25.07		0.00	0.00
1954	90.29		421.04	229.79	17.49		0.00	0.00	33.86		0.00	0.00
1955	100.28		442.74	216.84	4.12		0.00	0.00	43.75		0.00	0.00
1956	99.01		271.93	207.15	6.36		0.00	0.00	49.41		0.00	0.00
1957	114.58		779.74	171.37	6.88		0.00	0.00	42.61		0.00	0.00
1958	147.85		599.62	216.94	9.02		0.00	0.00	65.93		0.00	0.00
1959	108.66		658.62	242.52	6.46		0.00	0.00	52.38		0.00	0.00
1960	83.92		834.55	219.31	8.97		0.00	0.00	41.37		0.00	0.00
1961	66.84		760.81	260.34	6.36		0.00	0.00	30.22		0.00	0.00
1962	66.25		795.34	362.74	9.39		0.00	0.00	36.80		0.00	0.00
1963	90.90		544.63	292.02	8.25		0.00	0.00	39.79		0.00	0.00
1964	59.74		489.43	215.56	7.09		0.00	0.00	38.20		0.00	0.00
1965	80.37		483.87	480.38	8.73		0.00	0.00	57.60		0.00	0.00
1966	59.46		2,127.32	729.91	6.57		0.00	0.00	65.34		0.00	0.00
1967	81.41		854.51	414.09	7.53		0.00	0.00	70.75		0.00	0.00
1968	77.62		788.70	671.26	4.80		0.00	0.00	76.65		0.00	0.00
1969	2.28	201.51	671.26	558.87	3.20	15.82	0.00	0.00	82.16		0.00	0.00

Table 7. Continued. Total catches (mt) of canary rockfish by fleet used in the assessment model.

Year	S. CA trawl	N. CA trawl	Oregon trawl	WA trawl	S. CA non-trawl	N. CA non-trawl	OR-WA non-trawl	At-sea whiting bycatch	S. CA rec.	N. CA rec.	OR/WA rec	Research catches
1970	3.02	215.09	679.36	472.82	3.60	8.40	0.00	0.00	104.22		0.00	0.00
1971	1.67	328.87	702.64	454.59	4.65	16.54	0.00	0.00	93.06		0.00	0.00
1972	3.32	420.27	927.41	163.00	5.83	35.12	0.00	0.00	121.34		0.00	0.00
1973	5.04	697.64	1,306.06	146.81	7.87	11.73	0.00	0.00	141.51		0.00	0.00
1974	3.92	551.04	602.41	480.92	9.89	40.22	0.00	0.00	153.15		0.00	0.00
1975	5.06	539.51	525.46	575.07	10.93	25.11	0.00	0.00	150.16		4.01	0.00
1976	5.63	524.00	283.49	454.59	10.83	39.32	0.00	0.00	156.59		2.11	0.00
1977	5.13	456.35	489.01	991.19	9.99	49.67	0.00	0.00	149.55		4.47	11.66
1978	0.00	655.43	990.18	1,126.86	15.02	131.35	0.00	0.00	144.37		10.30	0.00
1979	4.36	311.05	1,750.53	1,118.76	22.92	106.04	0.00	0.00	165.42		4.86	0.00
1980	10.38	433.41	2,309.41	945.63	17.21	78.80	0.00	0.00	74.36	86.37	34.98	5.31
1981	34.18	494.01	2,082.84	514.45	40.14	164.77	0.00	0.00	35.05	118.04	48.89	0.00
1982	0.90	797.71	3,941.26	435.11	37.82	10.68	0.00	0.00	34.33	241.28	44.47	0.00
1983	7.39	499.24	3,580.68	650.80	47.41	10.04	0.00	0.00	11.63	93.99	6.82	10.49
1984	1.80	414.82	1,188.43	612.87	32.35	20.88	0.00	0.00	31.77	75.66	26.65	0.00
1985	6.98	316.25	1,029.50	1,037.98	29.74	82.10	0.00	0.00	43.47	120.33	63.37	0.00
1986	0.81	166.16	902.13	899.06	12.37	43.98	15.64	0.00	61.40	165.45	24.21	11.78
1987	0.00	209.24	1,491.39	1,016.63	20.10	23.78	160.00	0.00	57.02	168.13	34.34	0.00
1988	0.28	223.62	1,576.42	979.31	21.64	31.73	0.00	0.00	46.59	137.65	56.59	0.00
1989	5.13	178.43	1,573.63	1,208.85	87.48	129.52	0.00	0.00	29.71	85.89	31.56	5.10
1990	0.95	326.72	1,029.44	1,099.48	39.83	180.05	17.35	0.00	10.02	61.34	38.43	0.00
1991	0.45	148.99	1,776.39	971.64	69.21	92.36	27.91	5.06	10.02	61.34	43.75	0.00
1992	2.21	223.75	1,423.29	825.03	19.24	107.82	152.43	1.81	10.02	61.34	38.43	1.17
1993	4.91	85.25	1,513.80	289.81	14.07	94.22	116.69	0.72	0.00	64.82	51.07	0.00
1994	0.33	126.13	644.15	149.54	13.03	82.80	104.87	4.83	0.00	53.46	38.78	0.00
1995	29.44	109.56	548.61	161.15	35.22	79.31	118.68	0.31	1.23	68.33	43.53	1.07
1996	11.39	206.97	758.21	189.85	31.40	104.98	166.36	1.35	2.49	60.59	25.24	0.00
1997	4.14	170.64	589.85	203.44	8.43	96.29	254.41	3.63	1.75	100.85	46.68	0.00
1998	4.05	154.93	716.05	203.02	8.73	71.53	250.13	5.47	1.14	25.46	53.49	0.97
1999	1.88	102.77	387.85	139.97	2.93	33.84	123.96	5.63	2.81	62.05	35.02	0.00
2000	0.17	12.45	38.36	32.70	0.87	7.18	10.25	2.35	0.41	76.64	18.46	0.00
2001	0.11	10.76	32.57	19.65	0.48	6.08	11.02	4.05	0.00	33.37	13.34	1.61
2002	0.07	16.06	31.84	22.15	0.06	0.75	4.45	5.24	0.21	6.00	11.13	0.13
2003	1.42	3.31	14.72	4.76	0.06	0.81	2.63	0.93	0.06	18.05	12.10	1.08
2004	0.36	1.88	9.59	5.29	0.21	2.63	6.51	5.22	1.48	9.11	5.76	2.24
2005	0.20	5.86	24.23	10.83	0.13	1.67	1.19	1.44	1.49	2.00	6.82	4.54
2006	0.92	5.61	15.31	5.73	0.18	2.23	1.14	1.09	5.73	12.30	3.98	7.78
2007	0.26	7.54	9.92	3.78	0.25	3.14	0.89	2.00	3.47	7.44	3.53	2.50
2008	0.28	8.19	1.22	3.25	0.06	0.82	5.31	5.96	2.20	4.80	5.50	2.90

Table 8. Canary rockfish discard rates applied to commercial fishing landings to generate the catches used in the assessment model.

Year	Southern CA trawl	Northern CA trawl	Oregon trawl	Washington trawl	Southern CA non-trawl	Northern CA non-trawl	OR-WA non-trawl
1916-1994	0.0123	0.0123	0.0123	0.0123	0.0123	0.0123	0.0123
1995-1999	0.160	0.160	0.160	0.160	0.160	0.160	0.160
2000	0.148	0.148	0.435	0.757	0.160	0.160	0.160
2001	0.282	0.282	0.600	0.644	0.160	0.160	0.160
2002	0.297	0.297	0.478	0.224	0.839	0.911	0.415
2003	0.892	0.892	0.812	0.062	1.000	0.988	0.679
2004	0.595	0.595	0.610	0.095	0.976	0.994	0.806
2005	0.660	0.660	0.837	0.524	0.910	0.969	0.386
2006	0.868	0.868	0.845	0.407	1.000	1.000	0.392
2007	0.004	0.004	0.887	0.213	0.861	1.000	0.760
2008	0.512	0.954	0.152	0.179	0.797	0.995	0.022

Table 9. Summary of sampling effort generating length-frequency distributions used in the assessment model for the trawl fleets.

	Southern California		Northern California		Oregon		Washington	
Year	N trips	N fish	N trips	N fish	N trips	N fish	N trips	N fish
1968	0	0	0	0	0	0	2	402
1969	0	0	0	0	0	0	2	718
1970	0	0	0	0	0	0	1	268
1971	0	0	0	0	0	0	8	1,804
1972	0	0	0	0	0	0	2	501
1973	0	0	0	0	1	51	1	230
1974	0	0	0	0	4	370	0	0
1975	0	0	0	0	0	0	5	1,244
1976	0	0	0	0	2	89	3	716
1977	0	0	0	0	8	750	2	481
1978	7	16	63	363	7	670	5	911
1979	2	2	30	168	6	600	8	799
1980	11	25	80	261	20	996	18	1,654
1981	8	10	50	176	8	633	18	1,765
1982	4	5	72	349	20	1,358	13	1,300
1983	7	12	118	409	30	2,836	17	1,650
1984	10	64	73	312	21	2,064	17	1,550
1985	25	56	69	391	29	1,891	18	1,750
1986	3	4	53	389	16	1,545	17	1,649
1987	0	0	61	306	35	1,751	25	1,300
1988	3	3	49	269	23	1,148	19	950
1989	3	15	42	232	23	1,130	18	900
1990	6	21	43	317	22	1,099	17	850
1991	6	20	29	170	22	869	22	1,100
1992	9	43	20	186	34	1,364	20	999
1993	21	210	13	42	22	1,113	17	854
1994	6	64	10	87	15	750	15	750
1995	5	60	11	213	16	847	22	1,100
1996	12	224	12	218	19	1,162	15	750
1997	16	239	7	116	28	1,545	17	847
1998	8	114	6	96	28	1,560	25	845
1999	5	50	9	255	28	1,517	18	743
2000	5	27	5	59	18	545	7	229
2001	9	83	7	107	34	908	13	320
2002	3	10	15	263	76	1,454	38	690
2003	7	17	5	50	45	427	29	376
2004	5	7	9	88	79	433	62	574
2005	7	16	2	5	85	724	78	1,383
2006	16	50	0	0	57	362	35	623
2007	14	76	0	0	14	31	56	488
2008	7	20	0	0	60	203	42	618

Table 10. Summary of sampling effort generating length-frequency distributions used in the assessment model for the non-trawl and at-sea whiting fleets.

	Southern California		Northern California		Washington and Oregon		At-sea whiting	
Year	N trips	N fish	N trips	N fish	N trips	N fish	N hauls	N fish
1970	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	1	1	0	0	0	0	0	0
1979	1	10	0	0	0	0	0	0
1980	4	30	0	0	1	22	0	0
1981	0	0	1	5	0	0	0	0
1982	0	0	4	38	0	0	0	0
1983	0	0	2	6	0	0	0	0
1984	0	0	1	1	0	0	0	0
1985	4	32	0	0	0	0	0	0
1986	29	100	0	0	0	0	0	0
1987	14	120	0	0	0	0	0	0
1988	13	94	0	0	3	287	0	0
1989	27	330	0	0	0	0	0	0
1990	19	84	0	0	1	100	0	0
1991	9	65	6	142	0	0	0	0
1992	100	1,086	48	755	0	0	0	0
1993	99	345	55	1,070	0	0	0	0
1994	93	647	55	1,410	0	0	0	0
1995	54	310	29	1,013	0	0	0	0
1996	68	458	38	932	1	37	0	0
1997	57	482	23	625	11	538	0	0
1998	31	122	14	265	8	335	0	0
1999	17	109	50	679	5	168	0	0
2000	0	0	16	148	24	176	0	0
2001	5	25	24	218	29	191	0	0
2002	0	0	3	22	6	54	0	0
2003	2	2	9	33	5	27	85	165
2004	17	93	51	167	10	57	103	221
2005	6	11	29	126	8	19	180	320
2006	12	81	17	123	2	37	165	247
2007	27	84	25	213	3	7	226	496
2008	0	0	4	27	0	0	203	581

Table 11. Summary of sampling effort generating length-frequency distributions used in the assessment model for the recreational fleets.

	Southern California		Northern California		Washington and Oregon	
Year	N trips	N fish	N trips	N fish	N trips	N fish
1970	0	0	0	0	0	0
1971	0	0	0	0	0	0
1972	0	0	0	0	0	0
1973	0	0	0	0	0	0
1974	0	0	0	0	0	0
1975	0	0	0	0	0	0
1976	0	0	0	0	0	0
1977	0	0	0	0	0	0
1978	0	0	0	0	0	0
1979	0	0	0	0	0	0
1980	129	546	61	334	85	263
1981	70	229	45	224	35	110
1982	88	264	66	383	78	224
1983	88	246	50	197	27	50
1984	105	311	72	242	89	338
1985	179	687	104	432	110	352
1986	156	716	107	671	51	158
1987	47	149	57	469	73	248
1988	70	183	61	212	107	379
1989	120	494	19	82	42	161
1990	0	0	0	0	0	0
1991	0	0	0	0	0	0
1992	0	0	0	0	0	0
1993	97	211	84	337	118	530
1994	44	75	78	391	116	604
1995	70	253	51	231	100	596
1996	126	637	84	458	77	336
1997	148	1177	53	585	110	433
1998	128	592	27	144	172	738
1999	141	637	62	346	160	765
2000	58	298	30	90	101	375
2001	52	155	13	21	66	181
2002	37	100	11	17	63	153
2003	8	8	25	38	16	36
2004	113	150	71	61	18	23
2005	136	239	97	159	11	18
2006	183	394	117	205	11	20
2007	109	209	72	139	7	8
2008	56	91	29	51	18	29

Table 12. Summary of sampling effort generating age-frequency distributions used in the assessment model for the trawl fleets.

	Southern California		Northern California		Oregon		Washington	
Year	N trips	N fish	N trips	N fish	N trips	N fish	N trips	N fish
1970	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	8	394	11	620
1981	4	6	43	155	2	60	20	1,031
1982	0	0	51	210	0	0	3	298
1983	3	4	113	392	29	2,724	10	997
1984	10	63	68	300	19	1,856	8	646
1985	14	36	62	365	24	1,204	12	1,197
1986	0	0	0	0	16	807	17	1,308
1987	0	0	1	1	29	1,448	17	897
1988	0	0	0	0	8	397	24	948
1989	0	0	0	0	22	1,044	29	887
1990	0	0	0	0	20	998	26	850
1991	0	0	0	0	22	850	21	997
1992	0	0	0	0	32	1,280	24	999
1993	0	0	0	0	22	1,110	22	848
1994	0	0	0	0	4	200	15	749
1995	0	0	0	0	14	794	22	1,100
1996	0	0	0	0	18	1,093	16	749
1997	0	0	0	0	28	1,537	17	843
1998	0	0	0	0	28	1,554	24	829
1999	0	0	0	0	28	1,516	17	737
2000	0	0	0	0	17	506	9	227
2001	0	0	1	28	24	734	15	306
2002	1	6	5	69	52	1,009	45	595
2003	1	2	3	41	37	249	32	271
2004	1	1	4	43	68	383	69	541
2005	3	4	2	5	75	593	78	1,035
2006	0	0	0	0	46	242	33	591
2007	0	0	0	0	38	107	57	469
2008	0	0	0	0	48	151	42	603

Table 13. Summary of sampling effort generating age-frequency distributions used in the assessment model for the non-trawl and at-sea whiting fleets.

	Southern California		Northern California		Washington and Oregon		At-sea whiting	
Year	N trips	N fish	N trips	N fish	N trips	N fish	N hauls	N fish
1968	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0
1997	0	0	0	0	1	17	0	0
1998	0	0	0	0	4	87	0	0
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
2001	0	0	0	0	5	39	0	0
2002	0	0	0	0	1	8	0	0
2003	0	0	0	0	3	14	82	143
2004	0	0	0	0	7	33	102	175
2005	0	0	0	0	6	17	173	265
2006	0	0	0	0	0	0	162	231
2007	0	0	0	0	0	0	208	388
2008	0	0	0	0	0	0	0	0

Table 14. Input and effective sample sizes used for tuning the composition data in the base model.

Type of data	Fleet	Input adjustment	Average input after adjustment	Average effective N	Harmonic mean effective N
Length	S. Cal. trawl	0.90	13.97	14.08	5.80
	N. Cal. trawl	1.00	63.46	64.19	40.03
	OR trawl	1.00	130.77	192.224	91.14
	WA trawl	1.00	99.70	215.12	101.51
	S. Cal. non-trawl	0.82	46.49	48.07	8.95
	N. Cal. non-trawl	1.00	73.20	112.04	11.10
	OR-WA non-trawl	1.00	24.26	51.67	11.58
	S. Cal. rec	0.88	123.59	124.28	54.19
	N. Cal. rec	0.82	78.78	79.94	44.63
	OR-WA rec	0.90	90.60	106.52	28.92
	At-sea hake fishery	0.73	134.33	138.39	72.96
	NWFSC trawl survey	1.00	86.88	123.13	97.84
	Triennial survey (1980-1992)	1.00	167.15	253.87	153.04
	Triennial survey (1995-2004)	1.00	97.34	115.34	67.97
Age	S. Cal. trawl	1.00	6.73	7.65	3.90
	N. Cal. Trawl	0.98	51.23	51.86	7.54
	OR trawl	1.00	126.74	203.17	123.99
	WA trawl – WDFW error	1.00	64.30	85.88	14.25
	WA trawl – CAP error	1.00	68.49	115.41	85.63
	OR-WA non-trawl	1.00	8.10	21.85	15.64
	At-sea hake fishery	0.36	64.29	73.35	40.23
	NWFSC trawl survey	1.00	4.71	6.34	1.80
	Triennial survey (1980-1992)	1.00	6.08	8.17	2.46
	Triennial survey (1995-2004)	0.90	5.39	5.65	2.44

Table 15. Adjusted mean input standard errors and root-mean-squared error (RMSE) of fits to index data used to tune the base model. ~95% confidence interval intersection is reported as number of predictions inside the interval/number of data points.

Fleet	Additional variance added	Mean input standard error after adjustment	RMSE	~95% CI intersection
NWFSC trawl survey	0.09	0.44	0.44	6/6
Triennial survey (1980-1992)	0.02	0.41	0.41	5/5
Triennial survey (1995-2004)	0.00	0.42	0.15	4/4
Pre-recruit index	0.93	0.98	0.98	8/8

Table 16. Description of model parameters in the base case assessment model.

Parameter	Number estimated	Bounds (low, high)	Prior (Mean, SD)
Natural mortality (*M*, male and female to age 6)	-	NA	Fixed at 0.06
Natural mortality (*M*, female age 14+, as exp. offset)	1	(-3,3)	Uniform
Stock and recruitment			
Ln(R_0)	1	(5,11)	Uniform
Steepness (h)	-	NA	Fixed at 0.511
σ_r	-	NA	Fixed at 0.50
Ln(Recruitment deviations): 1960-2009	50	(-10, 10)	Uniform
Catchability			
Ln(Q) – NWFSC survey	-	Analytic solution	
Ln(Q) – Triennial survey (1980-1992)	-	Analytic solution	
Ln(Q) – Triennial survey (1995-2004)	-	Analytic solution	
Ln(Q) – Pre-recruit survey	-	Analytic solution	
Selectivity (double normal)			
Fisheries:			
Length at peak selectivity	25	(20,60)	Uniform
Width of top (as logistic)	-	NA	Fixed at -4.0
Ascending width (as exp[width])	24	(-1,10)	Uniform
Descending width (as exp[width])	7	NA	Fixed at 1.0
Initial selectivity (as logistic)	-	NA	Fixed at -9.0
Final selectivity (as logistic)	23	(-5,5)	Uniform
Surveys:			
Length at peak selectivity	2	(15,66)	Uniform
Width of top (as logistic)	2	(-4,4)	Uniform
Ascending width (as exp[width])	2	(-1,10)	Uniform
Descending width (as exp[width])	-	NA	Fixed at 1.0
Initial selectivity (as logistic)	1	(-5,5)	Fixed at -9.0
Final selectivity (as logistic)	2	(-5,5)	Uniform
Individual growth			
Females:			
Length at age 1	1	(2,10)	Uniform
Length at age 20	1	(45,75)	Uniform
von Bertalanffy K	1	(0.01,0.25)	Uniform
CV of length at age 1	1	(0.01,0.25)	Uniform
CV of length at age 20 offset to age 1	1	(-3,3)	Uniform
Males:			
Length at age 1 offset to females	-	NA	Fixed at 0.0
Length at age 20 offset to females	1	(-3,3)	Uniform
von Bertalanffy K offset to females	1	(-3,3)	Uniform
CV of length at age 1 offset to females	1	(-3,3)	Uniform
CV of length at age 20 offset to females	1	(-3,3)	Uniform
Total: 99 + 50 recruitment deviations = 149 estimated parameters			

Table 17. Comparison of summary 2007 and 2009 base case model results.

Model	2007	2009
Description	Base case	Base case
Convergence		
Maximum gradient component	0.000085	0.00097
Likelihood penalties	0.0	0.0
Negative log-likelihoods		
Total	4,393.4	4,963.0
Indices	-8.1	-4.8
Length-frequency data	2,103.7	2,360.5
Age-frequency data	2,316.0	2,626.1
Recruitment	-17.4	-18.8
Priors	0.0	0.0
Forecast recruitment	-0.7	0.0
Select parameters		
Stock-recruit, productivity		
R_0	4,210	3,335
Steepness (h)	0.511	0.511
Female M age 14+	0.097	0.097
Survey catchability and selectivity		
NWFSC survey catchability (Q)	0.114	0.125
NWFSC survey peak selectivity	66.000	48.349
NWFSC survey width of selectivity top	-3.863	3.112
NWFSC survey ascending width	7.175	4.601
NWFSC survey descending width	4.000	4.000
NWFSC survey final selectivity	4.459	4.825
1980-1992 Triennial survey catchability (Q)	0.114	0.111
1995-2004 Triennial survey catchability (Q)	0.054	0.087
Triennial survey peak selectivity	66.000	61.254
Triennial survey width of selectivity top	-3.465	-4.000
Triennial survey ascending width	7.272	7.009
Triennial survey final selectivity	4.453	-4.999
Individual growth		
Female and male length at age 1	4.113	6.639
Female mean length at age 20	59.096	59.844
Female von Bertalanffy K	0.141	0.131
Female CV of length-at-age at age 1	0.145	0.134
Female CV of length-at-age at age 20	0.039	0.037
Male mean length at age 20	52.029	52.309
Male von Bertalanffy K	0.181	0.170
Male CV of length-at-age at age 1	0.152	0.168
Male CV of length-at-age at age 20	0.041	0.040
Management quantities		
SB_0	32,561	25,993
2009 Spawning biomass	11,072	6,170
2007 Depletion	32.4%	21.7%
2009 Depletion	34.0%	23.7%
2008 *SPR*	NA	95.0%
2008 Exp. rate: yield/age 5+ Biomass	NA	0.0027

Table 18. Canary rockfish growth parameter estimates and standard errors.

Parameter	Value	SD
Females:		
Length at age 1	6.639	0.433
Length at age 20	59.844	0.318
von Bertalanffy *K*	0.131	0.002
CV of length at age 1	0.134	0.010
CV of length at age 20	0.039	NA
Males:		
Length at age 1	6.639	Not est.
Length at age 20	52.309	NA
von Bertalanffy *K*	0.170	NA
CV of length at age 1	0.168	NA
CV of length at age 20	0.040	NA

Table 19. Canary rockfish catchability and productivity parameter estimates and standard errors.

Parameter	Value	SD
Catchability:		
NWFSC survey catchability (Q)	0.125	NA
1980-1992 triennial survey catchability (Q)	0.111	NA
1995-2004 triennial survey catchability (Q)	0.087	NA
Productivity:		
R_0	3,335	120
Steepness (h)	0.511	Not est.
Female natural mortality (M) age 14+	0.097	NA

Table 20. Time-series of population estimates from the base case model.

Year	Total biomass (mt)	Spawning biomass (mt)	Depletion	Age-0 recruits (1000s)	Total catch (mt)	SPR	Relative exploitation rate
1916	69,785	25,993	100.0%	3,336	36.94	99.1%	0.0005
1917	69,751	25,978	99.9%	3,335	58.85	98.6%	0.0009
1918	69,697	25,956	99.9%	3,334	61.30	98.6%	0.0009
1919	69,642	25,933	99.8%	3,334	38.59	99.1%	0.0006
1920	69,611	25,920	99.7%	3,333	40.75	99.0%	0.0006
1921	69,580	25,906	99.7%	3,333	35.08	99.2%	0.0005
1922	69,555	25,895	99.6%	3,333	32.20	99.2%	0.0005
1923	69,534	25,886	99.6%	3,332	38.64	99.1%	0.0006
1924	69,509	25,875	99.5%	3,332	40.35	99.0%	0.0006
1925	69,482	25,864	99.5%	3,332	46.78	98.9%	0.0007
1926	69,450	25,852	99.5%	3,331	62.49	98.5%	0.0009
1927	69,404	25,833	99.4%	3,331	56.06	98.7%	0.0008
1928	69,366	25,818	99.3%	3,330	62.31	98.6%	0.0009
1929	69,324	25,801	99.3%	3,330	73.95	98.3%	0.0011
1930	69,272	25,780	99.2%	3,329	79.17	98.1%	0.0012
1931	69,217	25,758	99.1%	3,328	87.76	97.9%	0.0013
1932	69,156	25,734	99.0%	3,328	63.67	98.5%	0.0009
1933	69,121	25,721	99.0%	3,327	60.05	98.5%	0.0009
1934	69,090	25,709	98.9%	3,327	60.71	98.5%	0.0009
1935	69,060	25,698	98.9%	3,326	71.93	98.2%	0.0011
1936	69,020	25,684	98.8%	3,326	65.87	98.3%	0.0010
1937	68,987	25,672	98.8%	3,326	73.74	98.2%	0.0011
1938	68,948	25,657	98.7%	3,325	74.15	98.2%	0.0011
1939	68,909	25,643	98.7%	3,325	78.70	98.1%	0.0012
1940	68,867	25,628	98.6%	3,324	133.27	96.9%	0.0020
1941	68,775	25,590	98.4%	3,323	197.87	95.5%	0.0029
1942	68,625	25,525	98.2%	3,321	303.79	93.5%	0.0045
1943	68,380	25,421	97.8%	3,318	1,031.97	81.1%	0.0154
1944	67,447	25,022	96.3%	3,305	1,523.41	73.5%	0.0230
1945	66,087	24,429	94.0%	3,285	3,253.20	55.7%	0.0502
1946	63,120	23,195	89.2%	3,242	2,046.37	65.6%	0.0331
1947	61,451	22,501	86.6%	3,216	1,135.29	77.4%	0.0189
1948	60,746	22,209	85.4%	3,205	1,080.75	78.1%	0.0182
1949	60,132	21,980	84.6%	3,196	1,142.93	77.0%	0.0194
1950	59,490	21,750	83.7%	3,187	1,228.25	75.2%	0.0211
1951	58,796	21,501	82.7%	3,177	1,044.21	77.8%	0.0181
1952	58,305	21,348	82.1%	3,170	963.36	79.1%	0.0169
1953	57,910	21,232	81.7%	3,166	661.24	84.4%	0.0117
1954	57,819	21,235	81.7%	3,166	792.47	81.8%	0.0140
1955	57,600	21,185	81.5%	3,164	807.72	81.2%	0.0143
1956	57,368	21,127	81.3%	3,161	633.86	84.5%	0.0113

Table 20. continued. Time-series of population estimates from the base case model.

Year	Total biomass (mt)	Spawning biomass (mt)	Depletion	Age-0 recruits (1000s)	Total catch (mt)	SPR	Relative exploitation rate
1957	57,303	21,142	81.3%	3,162	1,115.19	75.6%	0.0199
1958	56,773	20,939	80.6%	3,153	1,039.36	76.3%	0.0187
1959	56,328	20,780	79.9%	3,147	1,068.64	76.0%	0.0194
1960	55,869	20,606	79.3%	3,210	1,188.12	74.0%	0.0217
1961	55,320	20,381	78.4%	3,654	1,124.57	75.1%	0.0208
1962	54,848	20,192	77.7%	2,949	1,270.52	72.5%	0.0237
1963	54,268	19,958	76.8%	2,417	975.59	77.2%	0.0184
1964	54,013	19,859	76.4%	2,228	810.01	80.2%	0.0153
1965	53,922	19,834	76.3%	2,350	1,110.93	74.7%	0.0211
1966	53,498	19,706	75.8%	2,945	2,988.60	51.3%	0.0569
1967	51,241	18,789	72.3%	5,510	1,428.29	67.8%	0.0284
1968	50,461	18,572	71.5%	2,978	1,619.02	64.8%	0.0327
1969	49,535	18,291	70.4%	2,275	1,535.10	65.2%	0.0317
1970	48,799	18,027	69.4%	2,379	1,486.51	65.0%	0.0313
1971	48,184	17,746	68.3%	3,235	1,602.02	63.0%	0.0344
1972	47,482	17,394	66.9%	3,955	1,676.29	60.5%	0.0361
1973	46,709	17,015	65.5%	3,114	2,316.66	51.4%	0.0506
1974	45,352	16,423	63.2%	2,469	1,841.53	56.5%	0.0416
1975	44,554	16,118	62.0%	4,547	1,835.31	56.1%	0.0424
1976	43,766	15,848	61.0%	1,912	1,476.56	60.8%	0.0348
1977	43,406	15,730	60.5%	3,150	2,167.03	51.4%	0.0513
1978	42,428	15,338	59.0%	3,767	3,073.52	41.1%	0.0745
1979	40,577	14,586	56.1%	1,662	3,483.94	36.3%	0.0887
1980	38,402	13,717	52.8%	1,576	3,995.86	30.6%	0.1066
1981	35,813	12,677	48.8%	3,527	3,532.38	31.2%	0.1020
1982	33,646	11,860	45.6%	1,622	5,543.56	20.0%	0.1701
1983	29,522	10,243	39.4%	1,103	4,918.48	21.1%	0.1705
1984	26,117	8,887	34.2%	3,972	2,405.24	32.5%	0.0951
1985	25,097	8,604	33.1%	1,043	2,729.73	27.2%	0.1132
1986	23,724	8,199	31.5%	1,558	2,303.00	29.6%	0.0997
1987	22,743	7,920	30.5%	1,903	3,180.65	21.7%	0.1445
1988	20,848	7,228	27.8%	2,122	3,073.82	20.7%	0.1550
1989	19,014	6,533	25.1%	2,342	3,335.29	17.8%	0.1802
1990	16,900	5,700	21.9%	1,937	2,803.61	18.7%	0.1725
1991	15,328	5,074	19.5%	2,131	3,207.12	15.0%	0.2200
1992	13,403	4,260	16.4%	1,382	2,866.53	14.2%	0.2274
1993	11,872	3,592	13.8%	1,355	2,235.38	15.7%	0.2018
1994	11,004	3,178	12.2%	1,662	1,217.92	24.5%	0.1183
1995	11,114	3,205	12.3%	1,202	1,196.43	25.0%	0.1145
1996	11,201	3,305	12.7%	1,202	1,558.82	19.5%	0.1459
1997	10,874	3,270	12.6%	787	1,480.10	19.6%	0.1430

Table 20. continued. Time-series of population estimates from the base case model.

Year	Total biomass (mt)	Spawning biomass (mt)	Depletion	Age-0 recruits (1000s)	Total catch (mt)	SPR	Relative exploitation rate
1998	10,542	3,254	12.5%	860	1,494.96	19.7%	0.1493
1999	10,122	3,187	12.3%	1,726	898.71	31.2%	0.0928
2000	10,175	3,316	12.8%	904	199.85	73.0%	0.0204
2001	10,854	3,699	14.2%	1,936	133.03	81.6%	0.0127
2002	11,544	4,080	15.7%	1,004	98.10	86.7%	0.0088
2003	12,246	4,440	17.1%	1,148	59.93	91.1%	0.0051
2004	12,962	4,781	18.4%	422	50.27	93.0%	0.0040
2005	13,663	5,091	19.6%	594	60.40	92.6%	0.0046
2006	14,317	5,372	20.7%	1,679	62.01	92.2%	0.0044
2007	14,891	5,642	21.7%	2,276	44.73	94.5%	0.0031
2008	15,398	5,912	22.7%	1,012	40.50	95.0%	0.0027
2009	15,908	6,170	23.7%	1,886	NA	NA	NA

Table 21. Asymptotic standard deviation estimates for spawning biomass and recruitment.

Year	SD Spawning biomass (mt)	SD Age-0 recruits (1000s)	Year	SD Spawning biomass (mt)	SD Age-0 recruits (1000s)	Year	SD Spawning biomass (mt)	SD Age-0 recruits (1000s)
1916	881	120	1955	859	124	1994	210	323
1917	881	120	1956	858	124	1995	241	272
1918	880	120	1957	855	124	1996	279	269
1919	880	120	1958	858	124	1997	327	217
1920	880	120	1959	859	125	1998	382	222
1921	880	120	1960	860	1,981	1999	441	342
1922	880	120	1961	864	2,423	2000	503	225
1923	880	120	1962	866	1,808	2001	565	351
1924	879	120	1963	869	1,313	2002	624	216
1925	879	120	1964	867	1,151	2003	680	244
1926	879	120	1965	861	1,251	2004	729	119
1927	879	120	1966	848	1,939	2005	772	208
1928	879	120	1967	847	2,990	2006	810	577
1929	878	120	1968	814	1,951	2007	846	825
1930	878	120	1969	776	1,146	2008	880	448
1931	878	120	1970	736	1,188	2009	911	964
1932	877	120	1971	699	1,690			
1933	877	120	1972	664	1,845			
1934	877	120	1973	630	1,437			
1935	877	120	1974	598	1,058			
1936	876	120	1975	554	836			
1937	876	120	1976	512	601			
1938	876	120	1977	471	495			
1939	876	120	1978	441	450			
1940	876	120	1979	422	360			
1941	875	120	1980	370	346			
1942	875	120	1981	324	369			
1943	874	120	1982	287	303			
1944	874	120	1983	247	286			
1945	876	121	1984	216	393			
1946	882	122	1985	199	314			
1947	884	123	1986	184	358			
1948	883	123	1987	173	421			
1949	878	123	1988	163	402			
1950	875	123	1989	157	392			
1951	873	124	1990	156	344			
1952	869	124	1991	160	364			
1953	865	124	1992	170	297			
1954	861	124	1993	187	282			

Table 22. Female numbers at age (1000s) predicted by the base case model, 1916-2009.

Age (yr)	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
0	1,668	1,668	1,667	1,667	1,667	1,666	1,666	1,666	1,666	1,666	1,666	1,665	1,665	1,665	1,664	1,664	1,664	1,664	1,663	1,663	1,663	1,663
1	1,571	1,571	1,570	1,570	1,570	1,570	1,569	1,569	1,569	1,569	1,569	1,569	1,568	1,568	1,568	1,568	1,567	1,567	1,567	1,567	1,566	1,566
2	1,479	1,479	1,479	1,479	1,479	1,478	1,478	1,478	1,478	1,478	1,478	1,477	1,477	1,477	1,477	1,477	1,476	1,476	1,476	1,475	1,475	1,475
3	1,393	1,393	1,393	1,393	1,393	1,393	1,392	1,392	1,392	1,392	1,392	1,392	1,391	1,391	1,391	1,391	1,391	1,390	1,390	1,390	1,390	1,389
4	1,312	1,312	1,312	1,312	1,312	1,312	1,311	1,311	1,311	1,311	1,311	1,311	1,310	1,310	1,310	1,310	1,310	1,309	1,309	1,309	1,309	1,308
5	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,234	1,234	1,234	1,234	1,234	1,234	1,233	1,233	1,233	1,233	1,232	1,232
6	1,164	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,162	1,162	1,162	1,162	1,162	1,162	1,161	1,161	1,161	1,160	1,160	1,160
7	1,096	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,094	1,094	1,094	1,094	1,094	1,093	1,093	1,093	1,093	1,092	1,092	1,091
8	1,027	1,027	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,025	1,025	1,025	1,025	1,024	1,024	1,024	1,024	1,023	1,023	1,023
9	958	958	957	957	957	957	957	957	957	957	957	956	956	955	955	955	955	955	954	954	954	954
10	890	890	889	888	888	888	888	888	888	888	888	888	887	887	886	886	886	886	886	886	885	885
11	823	822	822	821	820	820	820	820	820	820	820	820	820	819	819	818	818	818	818	818	818	818
12	757	757	756	755	755	754	754	754	754	754	754	754	754	753	753	752	752	752	752	752	752	752
13	693	693	692	692	691	691	691	690	690	690	690	690	690	690	689	689	688	688	688	688	688	688
14	632	632	631	630	630	630	629	629	629	629	629	629	629	628	628	628	627	627	627	627	626	626
15	573	573	572	572	572	571	571	571	570	570	570	570	570	570	569	569	569	568	568	568	568	568
16	520	520	519	519	519	518	518	518	517	517	517	517	517	517	516	516	516	515	515	515	515	515
17	472	472	471	471	471	470	470	470	469	469	469	469	469	469	468	468	468	468	467	467	467	467
18	428	428	428	427	427	427	426	426	426	426	425	425	425	425	424	424	424	424	424	423	423	423
19	388	388	388	388	387	387	387	387	386	386	386	386	385	385	385	385	384	384	384	384	384	384
20	352	352	352	352	351	351	351	351	351	350	350	350	350	349	349	349	349	348	348	348	348	348
21	320	320	319	319	319	319	319	318	318	318	318	317	317	317	317	316	316	316	316	316	316	316
22	290	290	290	289	289	289	289	289	289	288	288	288	288	287	287	287	287	286	286	286	286	286
23	263	263	263	263	262	262	262	262	262	262	262	261	261	261	261	260	260	260	260	260	259	259
24	239	239	239	238	238	238	238	238	238	237	237	237	237	237	236	236	236	236	235	235	235	235
25	217	217	216	216	216	216	216	216	216	215	215	215	215	215	214	214	214	214	214	213	213	213
26	197	197	196	196	196	196	196	196	196	195	195	195	195	195	195	194	194	194	194	194	193	193
27	178	178	178	178	178	178	178	178	177	177	177	177	177	177	177	176	176	176	176	176	175	175
28	162	162	162	161	161	161	161	161	161	161	161	161	161	160	160	160	160	160	159	159	159	159
29	147	147	147	147	146	146	146	146	146	146	146	146	146	146	145	145	145	145	145	145	144	144
30	133	133	133	133	133	133	133	133	133	132	132	132	132	132	132	132	132	131	131	131	131	131
31	121	121	121	121	121	120	120	120	120	120	120	120	120	120	120	119	119	119	119	119	119	119
32	110	110	110	109	109	109	109	109	109	109	109	109	109	109	109	108	108	108	108	108	108	108
33	100	99	99	99	99	99	99	99	99	99	99	99	99	99	98	98	98	98	98	98	98	98
34	90	90	90	90	90	90	90	90	90	90	90	90	90	89	89	89	89	89	89	89	89	89
35	82	82	82	82	82	82	82	82	81	81	81	81	81	81	81	81	81	81	81	81	81	80
36	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	73	73	73	73	73	73
37	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66	66
38	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	60	60	60	60
39	56	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
40	543	543	542	542	542	541	541	541	540	540	540	539	539	538	538	537	536	536	535	535	534	534

Table 22. continued.

Age (yr)	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
0	1,663	1,662	1,662	1,662	1,660	1,659	1,652	1,643	1,621	1,608	1,602	1,598	1,593	1,588	1,585	1,583	1,583	1,582	1,581	1,581	1,577	1,573
1	1,566	1,566	1,566	1,565	1,565	1,564	1,562	1,556	1,547	1,527	1,514	1,509	1,505	1,501	1,496	1,493	1,491	1,491	1,490	1,489	1,489	1,485
2	1,475	1,475	1,475	1,474	1,474	1,474	1,473	1,471	1,466	1,457	1,438	1,426	1,421	1,417	1,413	1,409	1,406	1,404	1,404	1,403	1,402	1,402
3	1,389	1,389	1,389	1,389	1,388	1,388	1,388	1,387	1,386	1,380	1,372	1,354	1,343	1,338	1,335	1,331	1,327	1,324	1,322	1,322	1,321	1,320
4	1,308	1,308	1,308	1,308	1,308	1,307	1,307	1,307	1,306	1,305	1,300	1,292	1,275	1,264	1,260	1,257	1,253	1,249	1,246	1,244	1,244	1,243
5	1,232	1,231	1,231	1,231	1,231	1,231	1,230	1,230	1,229	1,228	1,228	1,223	1,215	1,199	1,189	1,185	1,182	1,178	1,173	1,171	1,169	1,168
6	1,159	1,159	1,159	1,159	1,158	1,158	1,157	1,157	1,155	1,154	1,155	1,154	1,149	1,141	1,125	1,116	1,113	1,109	1,105	1,100	1,098	1,094
7	1,091	1,091	1,091	1,090	1,090	1,090	1,088	1,086	1,083	1,083	1,085	1,085	1,083	1,078	1,070	1,056	1,048	1,044	1,040	1,036	1,031	1,027
8	1,022	1,022	1,021	1,021	1,021	1,020	1,018	1,015	1,008	1,007	1,011	1,012	1,012	1,011	1,005	998	986	978	974	970	965	959
9	953	953	952	952	951	951	947	942	931	929	934	937	938	938	936	931	927	914	907	903	898	892
10	885	884	884	883	882	881	877	870	853	849	854	859	861	862	862	861	859	854	842	836	830	824
11	817	817	816	816	815	813	807	798	776	770	775	780	783	785	786	786	789	786	781	772	762	757
12	751	751	751	750	749	747	739	729	703	694	697	702	705	707	710	712	716	717	714	711	699	690
13	688	687	687	686	685	683	674	663	635	623	624	627	630	632	635	639	644	647	647	647	639	628
14	626	626	626	625	624	621	612	600	571	558	557	557	559	561	564	568	575	579	580	583	577	571
15	568	568	567	567	565	563	554	542	513	499	496	494	494	495	498	502	509	513	516	520	517	513
16	515	515	514	514	512	510	502	489	462	448	443	440	438	437	439	443	449	454	458	462	461	459
17	466	466	466	466	464	462	454	443	417	402	397	393	389	387	388	390	396	401	405	410	409	409
18	423	423	423	422	421	419	412	400	377	363	357	352	348	344	343	344	349	353	357	362	363	363
19	383	383	383	383	382	380	373	362	341	328	321	316	312	307	305	305	308	311	315	320	321	322
20	348	347	347	347	346	344	338	328	308	296	290	285	280	275	273	271	273	275	277	282	283	284
21	315	315	315	314	314	312	306	297	279	268	262	257	253	248	244	242	243	243	245	248	249	251
22	286	286	286	285	284	283	278	269	253	243	238	233	228	223	220	217	217	216	217	219	220	221
23	259	259	259	258	258	256	252	244	229	220	215	211	206	202	198	195	194	193	193	194	194	195
24	235	235	235	234	234	232	228	221	208	200	195	191	187	182	179	176	175	173	172	173	172	172
25	213	213	213	213	212	211	207	201	189	181	177	173	169	165	162	159	158	156	155	154	153	152
26	193	193	193	193	192	191	188	182	171	164	160	157	154	150	147	144	143	141	139	138	136	135
27	175	175	175	175	174	173	170	165	155	149	145	142	139	136	133	131	129	127	125	125	122	121
28	159	159	159	158	158	157	154	150	141	135	132	129	126	123	121	119	117	115	113	112	110	109
29	144	144	144	144	143	143	140	136	128	122	120	117	115	112	110	107	106	104	103	102	99	98
30	131	131	130	130	130	129	127	123	116	111	108	106	104	101	99	98	96	95	93	92	90	88
31	119	118	118	118	118	117	115	112	105	101	98	96	94	92	90	88	87	86	84	83	81	80
32	108	107	107	107	107	106	104	101	95	91	89	87	86	84	82	80	79	78	77	76	74	72
33	98	98	97	97	97	96	95	92	86	83	81	79	78	76	74	73	72	71	69	69	67	65
34	89	88	88	88	88	87	86	83	78	75	73	72	70	69	67	66	65	64	63	62	61	59
35	80	80	80	80	80	79	78	75	71	68	67	65	64	62	61	60	59	58	57	57	55	54
36	73	73	73	73	72	72	71	68	64	62	60	59	58	57	56	54	54	53	52	51	50	49
37	66	66	66	66	66	65	64	62	58	56	55	54	53	51	50	49	49	48	47	47	45	44
38	60	60	60	60	60	59	58	56	53	51	50	49	48	47	46	45	44	44	43	42	41	40
39	54	54	54	54	54	54	53	51	48	46	45	44	43	42	41	41	40	40	39	38	37	37
40	533	532	532	531	529	526	516	500	471	452	442	433	424	414	406	398	393	387	380	376	366	358

Table 22. continued.

Age (yr)	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
0	1,605	1,827	1,474	1,209	1,114	1,175	1,473	2,755	1,489	1,137	1,189	1,617	1,978	1,557	1,234	2,274	956	1,575	1,883	831	788	1,764
1	1,482	1,512	1,720	1,388	1,138	1,049	1,106	1,387	2,595	1,402	1,071	1,120	1,523	1,862	1,466	1,162	2,141	900	1,483	1,774	782	742
2	1,398	1,395	1,423	1,620	1,308	1,072	988	1,042	1,306	2,443	1,321	1,009	1,055	1,435	1,754	1,381	1,095	2,017	848	1,397	1,670	737
3	1,321	1,317	1,314	1,341	1,526	1,231	1,009	930	981	1,230	2,301	1,244	950	993	1,351	1,652	1,300	1,031	1,899	798	1,315	1,572
4	1,243	1,243	1,240	1,237	1,262	1,436	1,159	950	875	923	1,157	2,164	1,170	893	934	1,269	1,552	1,222	968	1,784	750	1,232
5	1,167	1,167	1,168	1,165	1,162	1,186	1,348	1,087	891	820	865	1,082	2,025	1,093	833	870	1,183	1,446	1,138	902	1,659	693
6	1,094	1,095	1,096	1,096	1,093	1,091	1,111	1,261	1,017	833	766	806	1,009	1,883	1,014	772	806	1,095	1,339	1,052	832	1,518
7	1,025	1,026	1,027	1,027	1,028	1,025	1,021	1,037	1,178	950	776	713	750	936	1,740	937	713	744	1,011	1,231	965	757
8	956	955	956	957	958	959	955	945	963	1,094	880	718	659	690	856	1,596	859	654	682	920	1,116	869
9	888	885	884	885	886	888	887	874	872	888	1,006	808	659	602	625	779	1,451	782	594	613	820	986
10	820	815	813	811	813	816	815	801	800	796	809	917	735	596	539	563	701	1,311	702	525	535	707
11	752	746	743	740	740	744	743	726	726	722	718	730	825	660	529	481	502	628	1,160	609	448	449
12	685	679	675	670	670	672	672	652	651	649	645	643	651	735	579	467	424	446	549	991	511	368
13	620	614	610	604	602	604	602	581	580	577	575	573	568	575	639	507	409	374	386	463	819	412
14	561	552	547	541	539	540	538	515	513	509	507	506	502	498	496	556	441	359	321	322	378	652
15	507	496	489	483	481	481	478	455	452	448	445	444	442	438	427	429	480	385	305	266	261	299
16	455	448	439	431	429	428	425	403	399	394	391	389	386	384	374	369	370	419	327	252	215	206
17	407	401	396	387	382	382	378	358	353	347	343	341	339	336	328	323	318	323	357	270	204	170
18	362	359	355	349	343	340	337	318	313	307	303	300	297	294	286	283	279	277	275	294	219	161
19	321	319	317	312	309	305	301	283	278	272	268	264	261	258	250	247	244	243	237	227	239	173
20	285	284	282	279	277	275	270	252	248	242	238	234	230	226	219	216	213	213	208	195	185	189
21	252	251	250	248	247	246	243	226	221	216	211	208	204	200	193	189	187	186	182	172	159	146
22	222	222	222	220	220	220	218	204	198	192	188	185	181	177	170	166	164	163	159	151	140	126
23	196	196	196	195	195	196	195	183	179	172	168	164	161	157	150	147	144	143	140	132	123	111
24	172	172	173	172	173	174	173	163	160	156	151	147	143	139	133	130	127	126	123	116	108	98
25	152	152	152	152	153	154	154	146	143	139	136	132	128	124	118	115	112	111	108	102	95	86
26	135	134	134	134	135	136	136	129	127	125	122	119	115	111	106	103	100	98	95	90	83	75
27	120	119	119	118	119	120	121	115	113	111	109	107	104	100	94	91	89	87	84	79	73	66
28	107	106	105	104	105	106	106	101	100	99	97	95	93	90	85	82	79	78	75	70	65	59
29	96	95	94	93	93	93	94	89	89	88	86	85	83	81	76	73	71	69	67	62	58	52
30	87	85	84	82	82	83	83	79	78	78	77	76	74	72	69	66	64	62	60	56	51	46
31	78	76	75	74	73	73	73	70	69	68	68	67	66	64	61	59	57	56	53	50	46	41
32	71	69	67	66	65	65	65	62	61	60	60	59	59	57	55	53	51	50	48	44	41	37
33	64	62	61	59	59	58	58	55	54	53	53	52	52	51	49	47	46	45	43	40	37	33
34	58	56	55	54	53	52	52	49	48	47	47	46	46	45	43	42	41	40	39	36	33	29
35	53	51	50	49	48	47	46	43	43	42	41	41	40	40	38	37	37	36	35	32	30	26
36	48	46	45	44	43	42	42	39	38	37	37	36	36	35	34	33	32	32	31	29	27	24
37	43	42	41	40	39	38	38	35	34	33	33	32	32	31	30	29	29	28	28	26	24	21
38	39	38	37	36	35	35	34	32	31	30	29	29	28	27	26	26	25	25	25	23	21	19
39	36	35	34	33	32	32	31	29	28	27	26	26	25	24	23	23	22	22	22	21	19	17
40	350	340	331	322	315	309	302	280	271	261	253	244	236	226	213	205	197	193	185	173	160	143

Table 22. continued.

Age (yr)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
0	811	551	1,986	522	779	952	1,061	1,171	969	1,065	691	677	831	601	601	393	430	863	452	968	502	574
1	1,661	764	519	1,870	491	734	896	999	1,103	912	1,003	651	638	783	566	566	370	405	813	426	912	473
2	699	1,564	719	489	1,761	462	691	844	941	1,039	859	945	613	601	737	533	533	349	381	765	401	859
3	694	658	1,472	677	460	1,657	435	650	794	886	978	809	890	577	566	694	502	502	328	359	721	377
4	1,473	649	618	1,381	633	430	1,547	406	608	744	830	916	758	835	541	531	650	471	471	308	337	678
5	1,138	1,350	604	573	1,266	578	391	1,410	373	561	685	765	845	702	768	499	485	600	434	434	287	316
6	633	1,026	1,246	554	516	1,138	517	350	1,270	339	508	621	694	772	633	695	445	440	545	396	402	268
7	1,377	566	939	1,138	497	462	1,011	459	312	1,137	302	453	557	628	687	563	610	397	395	496	366	375
8	679	1,212	507	846	1,008	441	406	887	400	272	988	261	397	496	548	592	483	529	352	360	456	340
9	765	581	1,048	448	737	884	380	348	749	337	226	814	220	344	421	454	493	403	460	320	331	422
10	850	631	480	905	381	634	738	315	282	605	265	175	647	185	285	336	366	395	343	418	294	304
11	596	672	497	405	751	321	511	590	243	218	446	192	131	526	149	220	263	283	329	311	382	269
12	371	454	508	411	329	620	251	396	438	182	152	305	135	103	419	113	168	198	233	298	283	349
13	299	275	333	414	328	267	474	190	285	318	122	99	205	104	81	312	85	125	162	210	270	257
14	331	218	197	268	326	263	201	352	134	204	207	77	65	156	82	60	235	63	102	145	190	244
15	520	238	154	158	210	260	196	148	245	95	130	129	50	49	122	61	45	173	51	91	131	171
16	238	373	168	123	123	167	193	144	103	173	60	81	83	37	38	91	46	33	140	46	82	117
17	164	170	263	134	96	98	124	142	100	72	110	37	52	62	29	29	69	34	27	125	41	74
18	135	117	120	210	105	77	73	91	99	71	46	69	24	39	49	22	22	51	28	24	113	37
19	129	97	83	96	165	84	57	54	64	70	45	29	44	18	31	37	17	16	42	25	22	101
20	138	92	68	66	76	132	63	42	38	45	45	29	19	33	14	23	28	13	13	37	22	20
21	151	99	65	55	52	61	99	46	30	27	29	29	18	14	26	11	18	22	10	12	34	20
22	117	108	70	52	43	42	46	73	33	21	18	19	18	14	11	20	8	14	18	9	11	30
23	101	84	77	56	41	35	32	34	52	24	14	11	12	14	11	9	16	6	11	16	8	10
24	89	73	60	62	45	33	26	24	24	38	16	9	7	9	11	9	7	12	5	10	14	8
25	78	64	51	48	49	36	25	20	17	18	25	10	6	5	7	9	7	5	10	5	9	13
26	69	56	45	42	38	40	27	19	14	12	12	16	6	4	4	6	7	5	4	9	4	8
27	60	50	40	37	33	31	30	20	14	10	8	7	10	5	4	3	4	5	4	4	8	4
28	53	44	35	32	29	27	24	23	15	10	7	5	5	8	4	3	3	3	4	4	3	7
29	47	38	31	28	26	24	20	18	16	11	7	4	3	4	6	3	2	2	3	4	3	3
30	42	34	27	25	23	21	18	15	13	12	7	4	3	3	3	5	2	2	2	3	3	3
31	37	30	24	22	20	19	16	14	11	9	8	5	3	2	2	2	4	2	1	2	2	3
32	33	27	21	20	18	16	14	12	10	8	6	5	3	2	2	2	2	3	2	1	1	2
33	29	24	19	17	16	14	12	11	9	7	5	4	3	2	2	1	1	1	2	1	1	1
34	26	21	17	15	14	13	11	9	8	6	5	4	3	3	2	1	1	1	1	2	1	1
35	23	19	15	14	12	11	10	8	7	6	4	3	2	2	2	1	1	1	1	1	2	1
36	21	17	14	12	11	10	9	7	6	5	4	3	2	2	2	2	1	1	1	1	1	2
37	19	15	12	11	10	9	8	7	5	4	3	3	2	2	1	1	1	1	1	1	1	1
38	17	14	11	10	9	8	7	6	5	4	3	2	2	1	1	1	1	1	1	1	1	1
39	15	12	10	9	8	7	6	5	4	4	3	2	1	1	1	1	1	1	1	1	1	1
40	129	104	83	76	68	62	53	45	36	30	23	17	12	10	9	8	7	6	6	6	6	6

Table 22. continued.

Age (yr)	2004	2005	2006	2007	2008	2009
0	211	297	839	1,138	506	943
1	541	199	280	790	1,072	476
2	445	509	187	264	744	1,009
3	808	419	480	176	248	701
4	355	761	394	451	166	234
5	634	333	714	369	423	156
6	295	594	312	667	346	397
7	250	276	556	291	625	324
8	348	233	257	517	272	583
9	315	323	216	238	481	253
10	390	291	299	200	221	445
11	280	359	268	275	184	203
12	247	257	329	246	252	169
13	318	225	234	300	224	231
14	234	289	204	213	273	204
15	221	211	261	185	192	247
16	154	200	191	236	167	174
17	106	139	181	173	214	151
18	66	96	126	163	156	194
19	33	60	87	114	148	141
20	92	30	54	78	103	134
21	18	83	27	49	71	93
22	18	16	75	25	44	64
23	27	16	15	68	22	40
24	9	25	15	13	61	20
25	7	8	22	13	12	56
26	12	6	7	20	12	11
27	7	10	6	6	18	11
28	3	7	9	5	6	17
29	6	3	6	9	5	5
30	3	6	3	5	8	4
31	3	3	5	3	5	7
32	3	3	2	5	2	4
33	2	3	2	2	4	2
34	1	2	2	2	2	4
35	1	1	2	2	2	2
36	1	1	1	1	2	2
37	2	1	1	1	1	2
38	1	1	1	1	1	1
39	1	1	1	1	1	1
40	6	6	6	7	7	7

Table 23. Male numbers at age (1000s) predicted by the base case model, 1916-2009.

Age (yr)	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
0	1,668	1,668	1,667	1,667	1,667	1,666	1,666	1,666	1,666	1,666	1,666	1,665	1,665	1,665	1,664	1,664	1,664	1,664	1,663	1,663	1,663	1,663
1	1,571	1,571	1,570	1,570	1,570	1,570	1,569	1,569	1,569	1,569	1,569	1,569	1,568	1,568	1,568	1,568	1,567	1,567	1,567	1,567	1,566	1,566
2	1,479	1,479	1,479	1,479	1,479	1,478	1,478	1,478	1,478	1,478	1,478	1,477	1,477	1,477	1,477	1,477	1,476	1,476	1,476	1,475	1,475	1,475
3	1,393	1,393	1,393	1,393	1,393	1,393	1,392	1,392	1,392	1,392	1,392	1,392	1,391	1,391	1,391	1,391	1,391	1,390	1,390	1,390	1,390	1,389
4	1,312	1,312	1,312	1,312	1,312	1,312	1,311	1,311	1,311	1,311	1,311	1,311	1,310	1,310	1,310	1,310	1,310	1,309	1,309	1,309	1,309	1,308
5	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,234	1,234	1,234	1,234	1,234	1,234	1,234	1,233	1,233	1,233	1,232	1,232	1,232
6	1,164	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,163	1,162	1,162	1,162	1,162	1,162	1,162	1,161	1,161	1,161	1,161	1,160	1,160	1,159
7	1,096	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,094	1,094	1,094	1,094	1,094	1,093	1,093	1,093	1,093	1,092	1,092	1,091
8	1,032	1,032	1,031	1,030	1,031	1,031	1,031	1,031	1,031	1,031	1,030	1,030	1,030	1,029	1,029	1,029	1,029	1,028	1,028	1,028	1,028	1,027
9	972	971	971	970	970	970	970	970	970	970	970	969	969	969	969	968	968	968	968	968	967	967
10	915	915	914	913	913	913	913	913	913	913	913	913	912	912	912	911	911	911	911	911	910	910
11	862	861	861	860	860	859	859	859	860	860	860	859	859	858	858	857	857	857	857	857	857	856
12	812	811	811	810	809	809	809	809	809	809	809	809	808	808	807	807	806	806	806	806	806	806
13	765	764	763	763	762	762	762	761	761	761	761	761	761	761	760	760	759	759	759	759	759	758
14	720	720	719	718	718	717	717	717	717	717	716	716	716	716	716	715	714	714	714	714	714	714
15	678	678	677	676	676	676	675	675	675	674	674	674	674	674	673	673	672	672	672	672	672	672
16	639	638	638	637	637	636	636	636	635	635	635	634	634	634	634	634	633	633	632	632	632	632
17	601	601	600	600	600	599	599	599	598	598	598	597	597	597	597	596	596	596	595	595	595	595
18	566	566	566	565	565	564	564	564	563	563	563	562	562	562	561	561	561	561	560	560	560	560
19	533	533	533	532	532	531	531	531	531	530	530	529	529	529	528	528	528	528	527	527	527	527
20	502	502	502	501	501	501	500	500	500	499	499	499	498	498	497	497	497	497	496	496	496	496
21	473	473	472	472	472	471	471	471	471	470	470	470	469	469	468	468	467	467	467	467	467	467
22	446	445	445	444	444	444	444	443	443	443	443	442	442	441	441	440	440	440	440	440	439	439
23	420	419	419	419	418	418	418	418	417	417	417	416	416	416	415	415	414	414	414	414	414	413
24	395	395	395	394	394	394	394	393	393	393	393	392	392	391	391	391	390	390	390	389	389	389
25	372	372	372	371	371	371	371	370	370	370	370	369	369	369	368	368	367	367	367	367	366	366
26	350	350	350	350	349	349	349	349	349	348	348	348	348	347	347	346	346	346	345	345	345	345
27	330	330	330	329	329	329	329	329	328	328	328	328	328	327	327	327	326	326	325	325	325	324
28	311	311	310	310	310	310	310	309	309	309	309	309	309	308	308	308	307	307	307	306	306	306	305
29	293	293	292	292	292	292	292	291	291	291	291	291	291	290	290	290	289	289	289	288	288	288	288
30	276	276	275	275	275	275	275	274	274	274	274	274	273	273	273	272	272	272	272	271	271	271
31	260	259	259	259	259	259	259	258	258	258	258	258	257	257	257	257	256	256	256	256	255	255
32	245	244	244	244	244	244	244	243	243	243	243	243	242	242	242	242	241	241	241	241	240	240
33	230	230	230	230	230	229	229	229	229	229	229	229	228	228	228	228	227	227	227	227	226	226
34	217	217	217	216	216	216	216	216	216	216	215	215	215	215	215	214	214	214	214	213	213	213
35	204	204	204	204	204	204	203	203	203	203	203	203	203	202	202	202	202	201	201	201	201	201
36	192	192	192	192	192	192	192	191	191	191	191	191	191	191	190	190	190	190	190	189	189	189
37	181	181	181	181	181	180	180	180	180	180	180	180	180	179	179	179	179	179	178	178	178	178
38	171	170	170	170	170	170	170	170	170	170	169	169	169	169	169	169	168	168	168	168	168	168
39	161	161	160	160	160	160	160	160	160	160	160	159	159	159	159	159	159	158	158	158	158	158
40	2,578	2,578	2,576	2,575	2,575	2,574	2,573	2,573	2,572	2,571	2,570	2,569	2,567	2,565	2,563	2,560	2,557	2,555	2,553	2,551	2,549	2,547

Table 23. continued.

Age (yr)	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
0	1,663	1,662	1,662	1,662	1,660	1,659	1,652	1,643	1,621	1,608	1,602	1,598	1,593	1,588	1,585	1,583	1,583	1,582	1,581	1,581	1,577	1,573
1	1,566	1,566	1,566	1,565	1,565	1,564	1,562	1,556	1,547	1,527	1,514	1,509	1,505	1,501	1,496	1,493	1,491	1,491	1,490	1,489	1,489	1,485
2	1,475	1,475	1,475	1,474	1,474	1,474	1,473	1,471	1,466	1,457	1,438	1,426	1,421	1,417	1,413	1,409	1,406	1,404	1,404	1,403	1,402	1,402
3	1,389	1,389	1,389	1,389	1,388	1,388	1,388	1,387	1,386	1,380	1,372	1,354	1,343	1,338	1,335	1,331	1,327	1,324	1,322	1,322	1,321	1,320
4	1,308	1,308	1,308	1,308	1,308	1,307	1,307	1,307	1,306	1,304	1,300	1,292	1,274	1,264	1,260	1,256	1,253	1,249	1,246	1,244	1,244	1,243
5	1,231	1,231	1,231	1,231	1,231	1,231	1,230	1,230	1,229	1,228	1,227	1,222	1,214	1,198	1,188	1,184	1,181	1,177	1,173	1,170	1,168	1,167
6	1,159	1,159	1,159	1,158	1,158	1,158	1,157	1,156	1,154	1,154	1,155	1,153	1,148	1,140	1,125	1,116	1,112	1,109	1,104	1,100	1,097	1,093
7	1,091	1,090	1,090	1,090	1,090	1,089	1,088	1,086	1,082	1,081	1,084	1,084	1,083	1,077	1,070	1,055	1,047	1,044	1,039	1,035	1,030	1,026
8	1,027	1,026	1,026	1,026	1,025	1,025	1,023	1,019	1,012	1,011	1,014	1,016	1,016	1,015	1,009	1,003	990	982	978	974	969	963
9	966	966	966	965	964	964	961	956	945	942	946	949	951	951	949	944	939	927	919	916	910	904
10	910	909	909	908	907	906	902	896	881	876	880	884	887	887	887	886	884	878	867	860	854	848
11	856	856	855	855	854	852	847	839	820	813	816	820	823	825	826	827	828	825	820	810	800	795
12	806	805	805	804	803	801	795	786	763	754	756	759	762	764	766	768	772	772	769	766	752	744
13	758	758	758	757	756	754	746	736	710	699	699	701	703	705	708	711	716	718	719	717	710	698
14	714	713	713	712	711	709	701	690	662	649	648	648	648	649	652	656	662	666	668	670	664	657
15	671	671	671	670	669	667	658	647	618	604	601	599	598	598	600	604	611	615	619	622	619	614
16	632	632	631	631	630	627	619	607	578	563	558	555	552	551	552	555	562	567	571	576	574	572
17	594	594	594	593	592	590	582	570	541	525	520	515	511	508	508	510	516	521	526	531	531	530
18	559	559	559	558	557	555	547	535	507	491	485	479	474	470	469	469	474	479	483	489	490	490
19	526	526	526	525	524	522	514	503	476	460	453	447	441	436	433	433	436	440	444	449	451	452
20	495	495	495	494	493	491	484	472	446	431	424	418	411	405	402	400	402	404	407	413	414	416
21	466	466	466	465	464	462	455	444	419	404	397	391	384	378	373	371	372	373	375	379	380	382
22	439	439	438	438	437	435	428	417	394	380	373	366	359	353	348	345	344	344	345	348	349	350
23	413	413	413	412	411	409	402	392	370	356	350	343	337	330	325	321	320	319	319	321	320	321
24	389	389	388	388	387	385	378	369	348	335	328	322	316	309	304	300	298	297	295	296	295	295
25	366	366	366	365	364	362	356	347	327	315	308	302	296	290	285	280	278	276	275	275	273	272
26	344	344	344	344	343	341	335	326	307	296	290	284	278	272	267	263	260	258	256	255	253	251
27	324	324	324	323	323	321	315	307	289	278	272	267	261	255	250	246	244	241	239	238	235	233
28	305	305	305	304	304	302	297	289	272	261	256	251	245	239	235	231	229	226	223	222	219	216
29	287	287	287	286	286	284	279	272	256	246	241	236	230	225	221	217	214	212	209	207	204	201
30	271	270	270	270	269	268	263	256	241	231	226	222	217	211	207	203	201	198	196	194	191	188
31	255	254	254	254	253	252	247	241	226	218	213	208	204	199	195	191	189	186	184	182	179	176
32	240	240	239	239	238	237	233	227	213	205	200	196	192	187	183	180	177	175	172	171	167	164
33	226	226	225	225	224	223	219	213	201	193	188	184	180	176	172	169	167	164	162	160	157	154
34	213	213	212	212	211	210	206	201	189	181	177	174	170	165	162	159	157	154	152	150	147	145
35	200	200	200	200	199	198	194	189	178	171	167	163	159	155	152	149	147	145	143	141	138	136
36	189	189	188	188	187	186	183	178	167	161	157	154	150	146	143	140	139	136	134	133	130	127
37	178	178	177	177	176	175	172	168	157	151	148	145	141	138	135	132	130	128	126	125	122	120
38	167	167	167	167	166	165	162	158	148	142	139	136	133	129	127	124	123	121	119	117	115	112
39	158	157	157	157	156	156	153	149	139	134	131	128	125	122	119	117	115	114	112	110	108	106
40	2,544	2,542	2,539	2,534	2,526	2,512	2,466	2,399	2,252	2,163	2,113	2,066	2,016	1,964	1,921	1,881	1,855	1,825	1,794	1,771	1,729	1,691

Table 23. continued.

Age (yr)	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
0	1,605	1,827	1,474	1,209	1,114	1,175	1,473	2,755	1,489	1,137	1,189	1,617	1,978	1,557	1,234	2,274	956	1,575	1,883	831	788	1,764
1	1,482	1,512	1,720	1,388	1,138	1,049	1,106	1,387	2,595	1,402	1,071	1,120	1,523	1,862	1,466	1,162	2,141	900	1,483	1,774	782	742
2	1,398	1,395	1,423	1,620	1,308	1,072	988	1,042	1,306	2,443	1,321	1,009	1,055	1,435	1,754	1,381	1,095	2,017	848	1,397	1,670	737
3	1,320	1,317	1,314	1,341	1,526	1,231	1,009	930	981	1,230	2,301	1,244	950	993	1,351	1,651	1,300	1,031	1,899	798	1,315	1,572
4	1,242	1,243	1,239	1,237	1,261	1,436	1,158	949	875	922	1,156	2,162	1,169	892	932	1,268	1,550	1,220	967	1,781	749	1,229
5	1,166	1,166	1,168	1,164	1,161	1,185	1,347	1,086	890	819	863	1,080	2,022	1,091	831	868	1,179	1,441	1,135	899	1,653	690
6	1,093	1,094	1,095	1,096	1,092	1,090	1,110	1,260	1,015	831	765	804	1,007	1,879	1,011	770	803	1,091	1,334	1,047	829	1,511
7	1,024	1,024	1,026	1,026	1,027	1,024	1,020	1,036	1,177	948	775	712	748	934	1,735	934	711	742	1,007	1,226	961	754
8	960	958	960	960	961	962	958	949	967	1,098	883	720	661	692	858	1,598	860	655	683	921	1,117	869
9	900	897	896	897	898	900	899	887	884	900	1,020	819	667	610	633	789	1,468	791	601	620	831	999
10	844	839	837	835	837	840	839	827	824	820	834	944	756	614	555	580	722	1,347	722	541	553	733
11	790	785	781	778	778	781	781	766	766	762	757	769	868	694	557	506	528	660	1,222	645	476	480
12	738	733	728	723	723	725	725	708	707	705	700	696	705	794	626	506	459	482	595	1,081	560	407
13	689	683	679	673	671	672	671	652	651	648	646	642	636	643	715	567	457	418	432	522	930	473
14	646	637	632	626	623	623	621	600	599	595	592	591	585	579	577	646	512	416	373	377	446	778
15	608	596	588	582	579	579	575	553	550	545	542	540	537	532	519	520	581	464	370	324	320	370
16	567	560	550	541	537	537	533	510	506	500	496	494	491	488	475	467	468	527	412	320	274	264
17	528	522	516	504	499	498	494	471	466	459	454	452	448	445	435	428	419	424	467	355	270	226
18	489	486	481	473	465	462	458	436	430	422	417	413	409	406	397	391	384	380	375	402	299	222
19	452	450	447	441	436	431	425	403	397	389	383	379	374	371	362	356	351	347	336	322	338	246
20	416	415	413	409	406	404	396	374	367	360	353	348	343	339	330	325	319	317	307	288	271	277
21	383	383	382	379	377	376	371	348	340	332	326	321	315	310	301	296	291	289	280	263	242	222
22	351	352	351	349	349	349	345	325	316	308	301	296	290	285	276	270	265	263	255	240	221	198
23	322	323	323	322	322	323	320	303	296	286	279	273	268	262	253	247	242	240	232	219	202	181
24	296	296	296	295	296	298	296	281	275	268	259	253	247	242	233	227	221	219	212	199	184	165
25	272	271	272	271	272	274	273	259	255	249	242	235	229	223	215	209	203	200	193	181	167	150
26	250	249	249	248	250	252	251	239	236	231	225	220	213	206	198	192	187	184	177	165	152	137
27	231	230	229	228	229	231	231	220	217	213	209	204	199	192	183	178	172	169	162	151	139	125
28	214	212	211	209	210	212	212	202	200	196	193	189	185	179	170	164	159	156	149	139	127	114
29	199	196	195	193	193	194	194	185	184	181	178	175	171	167	159	153	147	144	138	128	117	104
30	185	182	180	178	177	178	178	170	168	166	164	161	158	155	148	143	137	133	127	118	107	95
31	173	170	167	165	164	164	163	156	154	152	150	148	146	143	137	132	128	124	117	109	99	88
32	162	159	156	153	152	151	150	143	141	139	138	136	134	132	127	123	119	116	109	100	91	81
33	151	148	145	143	141	140	139	132	130	128	126	125	123	121	117	113	110	107	102	93	84	75
34	142	139	136	133	131	130	129	121	120	117	116	114	113	111	107	105	101	99	95	87	78	69
35	133	130	127	124	122	121	119	112	110	108	106	105	103	102	98	96	94	92	88	81	73	64
36	125	122	119	116	114	113	111	104	102	100	98	96	95	93	90	88	86	85	81	75	68	60
37	117	114	112	109	107	106	104	97	95	92	90	89	87	85	83	81	79	78	75	69	63	56
38	110	107	105	102	100	99	97	91	88	86	84	82	80	79	76	74	72	71	69	64	58	52
39	103	101	99	96	94	93	91	85	82	80	78	76	74	72	70	68	66	65	63	59	54	48
40	1,653	1,610	1,570	1,525	1,493	1,466	1,430	1,329	1,285	1,235	1,190	1,149	1,107	1,065	1,008	966	925	897	850	781	705	620

Table 23. continued.

Age (yr)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
0	811	551	1,986	522	779	952	1,061	1,171	969	1,065	691	677	831	601	601	393	430	863	452	968	502	574
1	1,661	764	519	1,870	491	734	896	999	1,103	912	1,003	651	638	783	566	566	370	405	813	426	912	473
2	699	1,564	719	489	1,761	462	691	844	941	1,039	859	945	613	601	737	533	533	349	381	765	401	859
3	693	658	1,472	677	460	1,656	435	650	794	886	977	809	889	577	566	694	502	502	328	359	721	377
4	1,470	646	617	1,378	631	428	1,539	405	606	742	827	914	756	833	539	529	647	470	469	307	337	678
5	1,132	1,341	601	570	1,258	574	388	1,396	370	557	681	760	839	698	763	496	481	595	432	432	286	315
6	629	1,020	1,237	551	514	1,130	512	346	1,256	335	503	615	688	766	628	688	441	435	540	393	399	267
7	1,370	562	932	1,128	493	460	1,003	455	308	1,122	298	447	551	622	680	557	603	392	391	491	363	373
8	679	1,212	506	843	1,004	440	406	884	398	270	980	259	394	493	545	589	480	525	349	357	454	339
9	775	590	1,064	453	743	891	384	353	758	341	229	823	222	347	424	459	497	407	462	321	331	424
10	880	657	503	940	394	653	763	327	294	631	278	184	678	191	293	347	379	410	353	426	298	309
11	637	726	542	437	805	342	547	635	265	238	493	213	145	572	159	234	281	304	351	326	396	278
12	412	512	582	466	369	690	281	445	499	208	178	362	162	120	471	125	186	221	258	325	304	370
13	346	324	400	494	389	313	556	224	341	384	151	126	264	132	98	365	98	144	186	239	303	284
14	398	267	248	337	408	327	249	437	168	258	270	104	89	212	107	75	284	75	121	172	223	283
15	651	304	201	208	277	341	257	194	324	126	178	182	72	71	172	82	59	217	63	112	161	208
16	309	492	227	168	170	230	267	198	142	240	85	118	124	57	58	131	63	45	182	59	105	150
17	220	232	365	189	137	141	179	204	144	105	161	56	80	98	46	44	102	48	37	169	55	98
18	187	164	171	303	153	113	109	137	148	106	70	105	38	62	79	35	34	77	40	35	157	51
19	183	140	121	142	246	127	88	83	99	109	70	45	70	29	51	60	27	26	65	37	32	147
20	203	137	102	100	115	203	98	67	60	72	72	45	30	55	24	39	47	21	22	60	35	30
21	229	151	100	85	81	95	156	74	48	44	48	46	30	23	44	18	30	36	17	20	56	33
22	183	170	110	83	69	67	73	119	53	35	29	31	31	24	19	34	14	23	30	16	19	52
23	164	136	124	91	67	57	52	55	85	39	23	19	20	24	19	15	26	11	19	28	15	18
24	149	122	99	103	74	55	44	39	40	62	26	15	12	16	19	15	11	20	9	18	26	14
25	136	111	89	82	83	61	43	33	28	29	41	17	10	10	13	15	11	9	17	8	17	24
26	124	101	81	73	67	69	47	32	24	21	19	26	11	8	8	10	12	9	7	16	8	15
27	113	92	74	67	59	55	53	36	23	17	14	12	17	8	6	6	8	9	7	7	15	7
28	103	84	67	61	54	49	42	40	26	17	11	9	8	14	7	5	5	6	7	7	6	14
29	94	76	61	56	50	45	38	32	29	19	11	7	6	6	11	5	4	4	5	7	6	6
30	86	70	56	51	45	41	34	29	23	21	12	7	5	4	5	8	4	3	3	5	6	6
31	79	64	51	46	41	37	31	26	21	17	14	8	5	4	4	4	7	3	2	3	4	6
32	72	58	46	42	37	34	29	24	19	15	11	9	5	4	3	3	3	5	3	2	3	4
33	67	54	43	38	34	31	26	22	17	14	10	7	6	4	3	2	2	2	4	2	2	2
34	62	50	39	35	31	28	24	20	16	13	9	6	5	5	3	2	2	2	2	4	2	2
35	57	46	36	32	29	26	22	18	14	11	8	6	4	4	4	3	2	1	1	2	4	2
36	53	42	33	30	26	24	20	16	13	10	7	5	4	3	3	3	2	1	1	1	2	3
37	49	39	31	28	24	22	18	15	12	9	7	5	3	3	3	2	2	2	1	1	1	2
38	46	37	29	26	22	20	17	14	11	9	6	4	3	3	2	2	2	2	1	1	1	1
39	43	34	27	24	21	18	15	13	10	8	6	4	3	2	2	2	2	1	1	1	1	1
40	552	441	346	309	269	239	198	162	126	99	70	49	35	29	26	22	18	15	14	14	14	14

Table 23. continued.

Age (yr)	2004	2005	2006	2007	2008	2009
0	211	297	839	1,138	506	943
1	541	199	280	790	1,072	476
2	445	509	187	264	744	1,009
3	808	419	480	176	248	701
4	355	760	394	451	166	233
5	633	333	714	369	423	155
6	294	592	312	666	346	396
7	249	275	555	291	624	324
8	348	233	257	519	273	585
9	317	326	218	241	487	256
10	397	297	305	204	226	457
11	290	372	279	286	192	212
12	261	272	349	261	269	180
13	347	245	255	328	245	253
14	266	326	229	239	308	231
15	265	250	306	215	225	289
16	195	249	234	287	202	211
17	141	183	233	220	269	190
18	92	132	172	219	207	253
19	48	86	124	161	206	194
20	138	45	81	116	151	193
21	28	129	42	76	109	142
22	31	27	121	40	71	103
23	49	29	25	114	37	67
24	16	46	27	23	107	35
25	13	15	43	25	22	101
26	23	12	14	41	24	21
27	15	21	12	14	38	22
28	7	14	20	11	13	36
29	13	6	13	19	10	12
30	6	12	6	12	18	10
31	6	5	11	6	11	17
32	6	5	5	11	5	11
33	4	5	5	5	10	5
34	2	4	5	5	4	9
35	2	2	3	5	4	4
36	2	2	2	3	4	4
37	3	2	2	2	3	4
38	2	3	2	1	2	3
39	1	1	3	2	1	2
40	14	15	15	17	17	18

Table 24. Projection of potential canary rockfish ABC, OY, spawning biomass and depletion for the base case model based on the SPR = 0.922 fishing mortality target used for the last rebuilding plan (OY) and $F_{50\%}$ overfishing limit/target (ABC). Assuming the OY of 105 mt is achieved exactly in 2009 and 2010.

Year	ABC[1] (mt)	OY[1] (mt)	Age 5+ biomass (mt)	Spawning biomass (mt)	Depletion
2009	*981*	*105*	15,483	6,170	23.7%
2010	*980*	*105*	15,687	6,379	24.5%
2011	627	69	16,129	6,548	25.2%
2012	661	73	16,825	6,694	25.8%
2013	690	76	17,229	6,828	26.3%
2014	718	79	17,862	6,975	26.8%
2015	749	83	18,554	7,152	27.5%
2016	780	86	19,300	7,365	28.3%
2017	812	90	20,094	7,616	29.3%
2018	843	93	20,925	7,904	30.4%
2019	874	96	21,783	8,224	31.6%
2020	905	100	22,658	8,567	33.0%

[1]ABC/OY values for 2009 and 2010 have already been adopted, and are not based on the results of this update.

Table 25. Decision table of 12-year projections for alternate states of nature (columns) and management options (rows) beginning in 2011. Relative probabilities of each state of nature are based on a 2007 meta-analysis for steepness of west coast rockfish (M. Dorn, AFSC, personal communication). Landings in 2009-2010 are 105 mt for all cases. Selectivity and fleet allocations are projected at the average 2006-2008 values.

			State of nature					
			Low steepness (0.35)		Base case (steepness = 0.51)		High steepness (0.72)	
Relative probability			0.25		0.5		0.25	
Management decision	Year	Catch (mt)	Depletion	Spawning biomass (mt)	Depletion	Spawning biomass (mt)	Depletion	Spawning biomass (mt)
Rebuilding SPR 92.2% catches from low steepness state of nature	2011	25	9.4%	2,509	25.2%	6,548	43.3%	11,052
	2012	26	9.5%	2,535	25.8%	6,711	44.7%	11,397
	2013	27	9.6%	2,553	26.4%	6,862	46.0%	11,722
	2014	28	9.7%	2,572	27.0%	7,029	47.3%	12,068
	2015	29	9.8%	2,600	27.8%	7,228	48.8%	12,453
	2016	30	9.9%	2,639	28.7%	7,464	50.5%	12,876
	2017	31	10.1%	2,693	29.8%	7,741	52.3%	13,331
	2018	32	10.4%	2,761	31.0%	8,055	54.2%	13,813
	2019	33	10.7%	2,843	32.3%	8,403	56.1%	14,312
	2020	34	11.0%	2,934	33.8%	8,776	58.1%	14,820
Rebuilding SPR 92.2% catches from base case	2011	69	9.4%	2,509	25.2%	6,548	43.3%	11,052
	2012	73	9.5%	2,519	25.8%	6,694	44.6%	11,381
	2013	76	9.5%	2,519	26.3%	6,828	45.8%	11,688
	2014	79	9.5%	2,519	26.8%	6,975	47.1%	12,013
	2015	83	9.5%	2,525	27.5%	7,152	48.5%	12,376
	2016	86	9.6%	2,542	28.3%	7,365	50.1%	12,774
	2017	90	9.7%	2,571	29.3%	7,616	51.8%	13,205
	2018	93	9.8%	2,614	30.4%	7,904	53.6%	13,659
	2019	96	10.0%	2,668	31.6%	8,224	55.4%	14,131
	2020	100	10.3%	2,731	33.0%	8,567	57.3%	14,610
Rebuilding SPR 92.2% catches from high steepness state of nature	2011	118	9.4%	2,509	25.2%	6,548	43.3%	11,052
	2012	124	9.4%	2,500	25.7%	6,676	44.6%	11,362
	2013	129	9.3%	2,481	26.1%	6,790	45.7%	11,649
	2014	133	9.3%	2,460	26.6%	6,915	46.9%	11,952
	2015	137	9.2%	2,444	27.2%	7,069	48.2%	12,291
	2016	142	9.2%	2,437	27.9%	7,257	49.7%	12,665
	2017	146	9.2%	2,442	28.8%	7,483	51.3%	13,070
	2018	151	9.3%	2,460	29.8%	7,746	52.9%	13,498
	2019	155	9.4%	2,489	30.9%	8,039	54.7%	13,944
	2020	159	9.5%	2,526	32.1%	8,356	56.5%	14,397
Status quo (catch = 105 mt)	2011	105	9.4%	2,509	25.2%	6,548	43.3%	11,052
	2012	105	9.4%	2,507	25.7%	6,683	44.6%	11,369
	2013	105	9.4%	2,496	26.2%	6,806	45.7%	11,665
	2014	105	9.4%	2,485	26.7%	6,941	47.0%	11,978
	2015	105	9.3%	2,480	27.3%	7,106	48.3%	12,329
	2016	105	9.3%	2,485	28.1%	7,306	49.9%	12,715
	2017	105	9.4%	2,503	29.0%	7,546	51.5%	13,134
	2018	105	9.5%	2,536	30.1%	7,824	53.2%	13,578
	2019	105	9.7%	2,582	31.3%	8,135	55.1%	14,041
	2020	105	9.9%	2,637	32.6%	8,471	56.9%	14,514

11. Figures

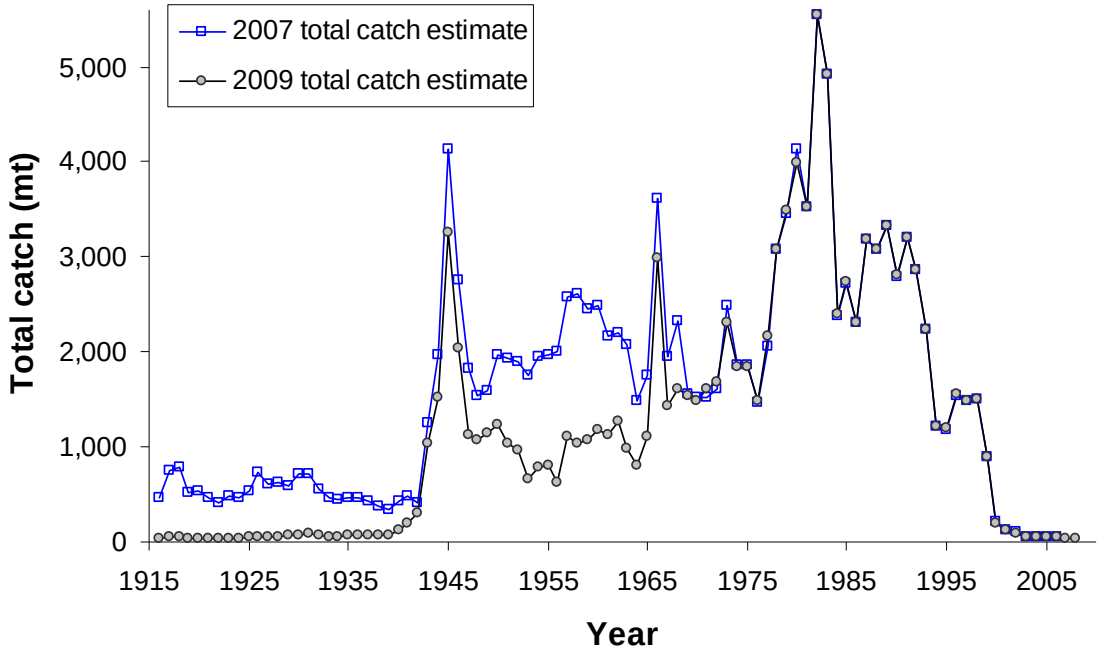

Figure 1. Comparison of the 2007 and recently revised canary rockfish catch history, 1916-2008.

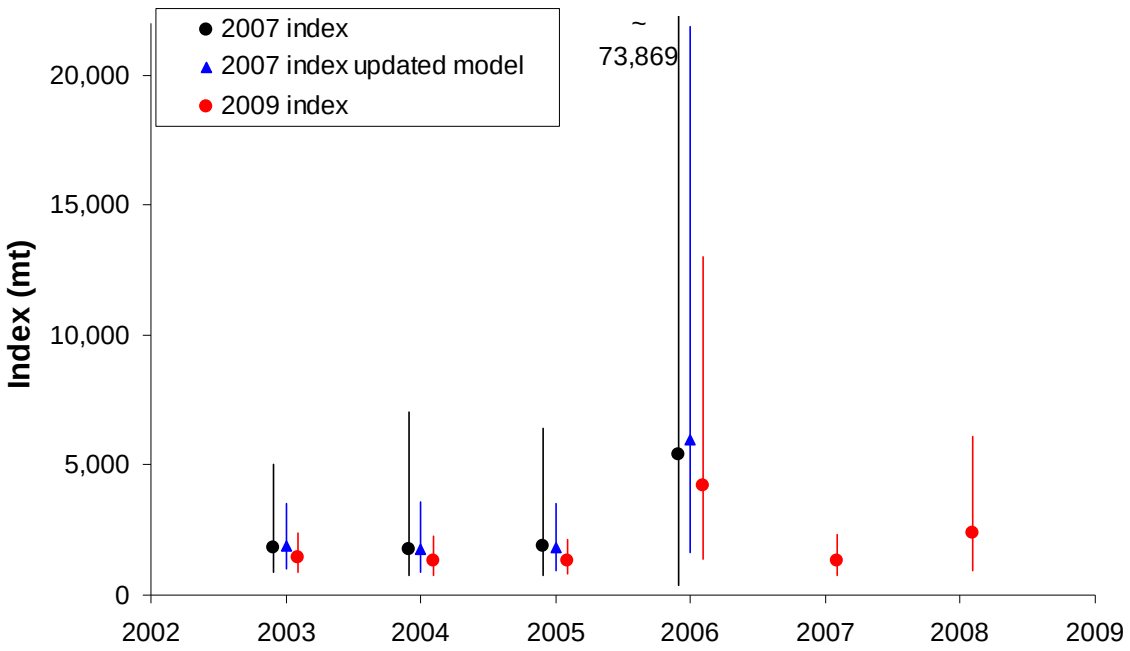

Figure 2. Comparison of 2007 GLMM-based index of abundance and the indices (using data through 2006 and 2008) generated for this update from the NWFSC trawl survey. Vertical lines indicate +/- 95% confidence intervals based on an assumption of lognormal error.

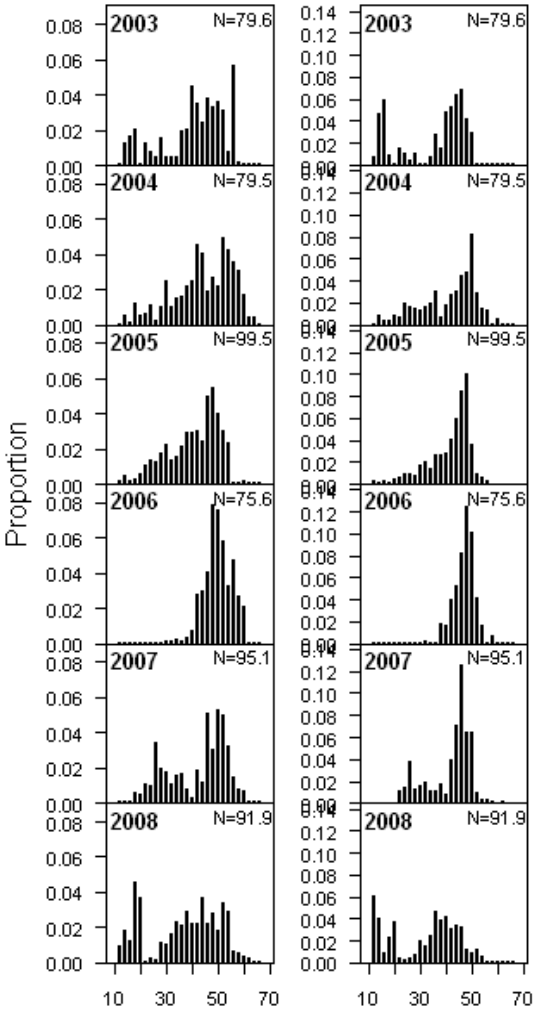

Figure 3. Length-frequency distributions for female (left panel) and male (right panel) canary rockfish from the NWFSC bottom trawl survey. The x-axis represents the 2-cm size bin and the Ns are the adjusted input sample sizes.

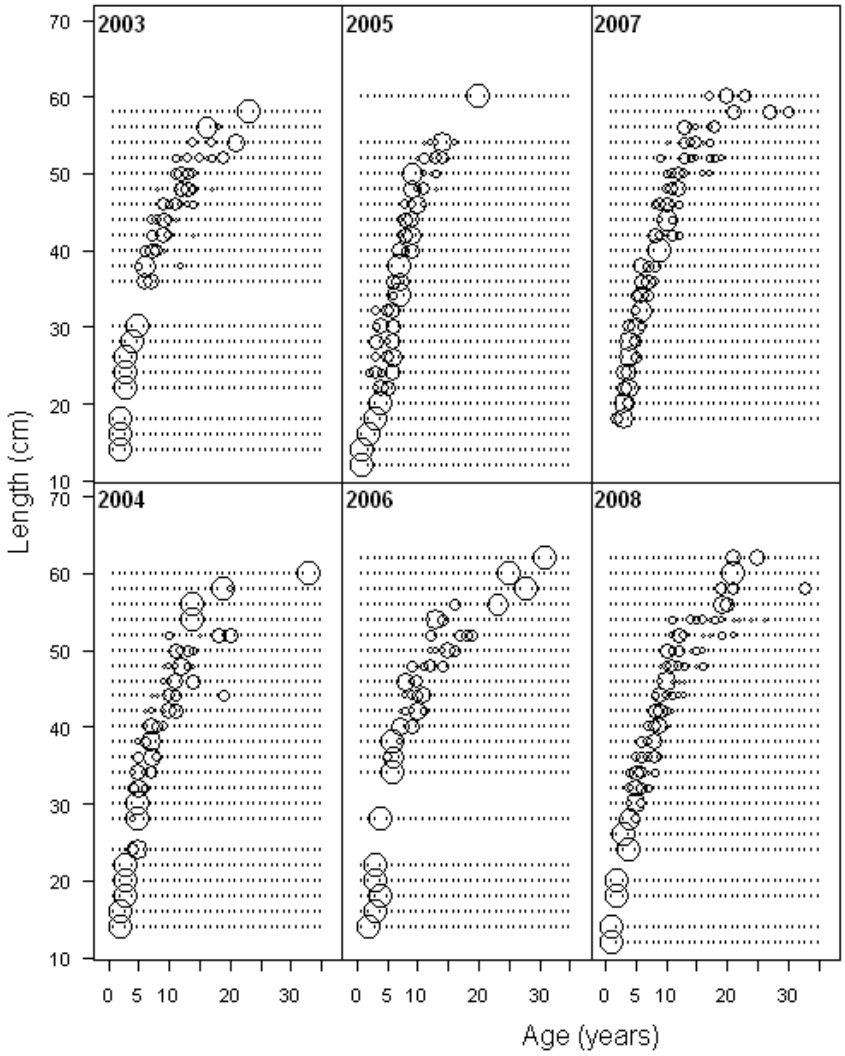

Figure 4. Conditional age-frequency distributions for female canary rockfish from the NWFSC survey. Each row is scaled to sum to 1.0 and the largest circle represents 0.97, the maximum proportion value.

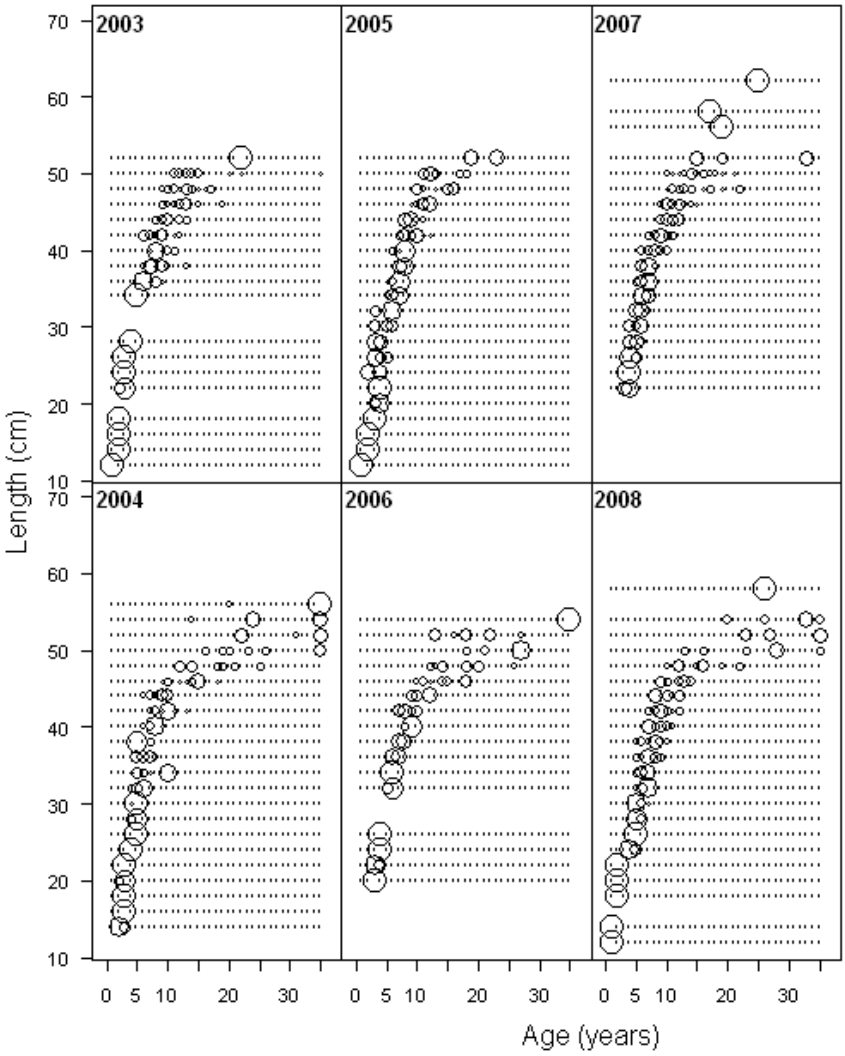

Figure 5. Conditional age-frequency distributions for male canary rockfish from the NWFSC survey. Each row is scaled to sum to 1.0 and the largest circle represents 0.97, the maximum proportion value.

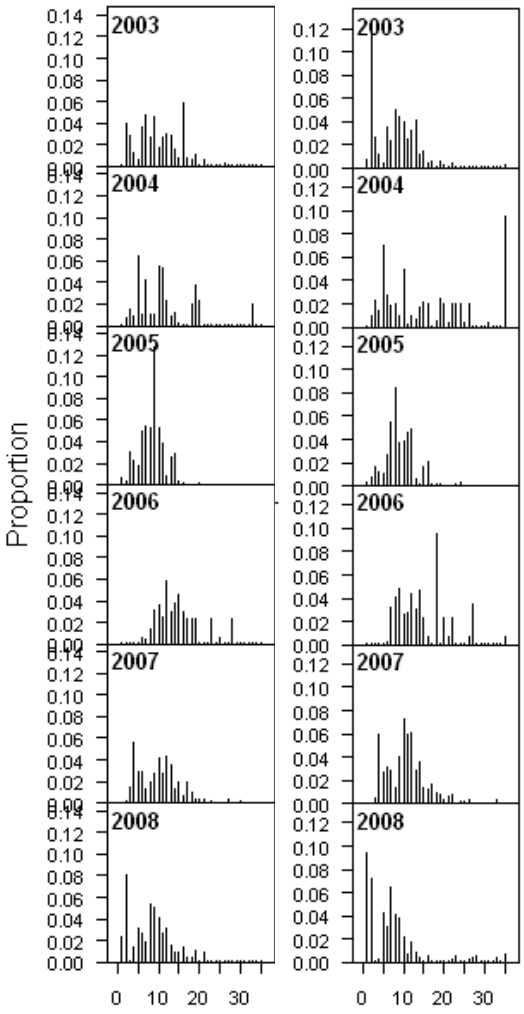

Figure 6. Marginal age-frequency distributions for female (left panel) and male (right panel) canary rockfish from the NWFSC survey. Note that these plots are intended to provide another view of the age data and are for comparison only; the conditional age-frequency distributions only are contributing to the total likelihood.

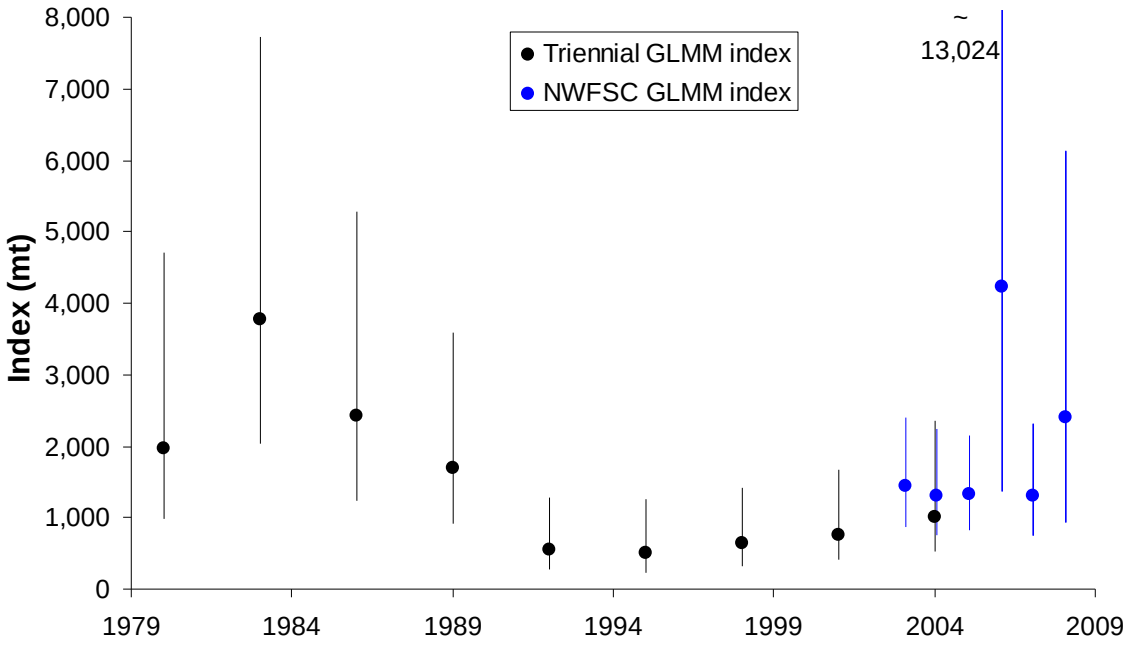

Figure 7.Triennial and NWFSC GLMM indices. Vertical lines indicate +/- 95% confidence intervals based on lognormal error.

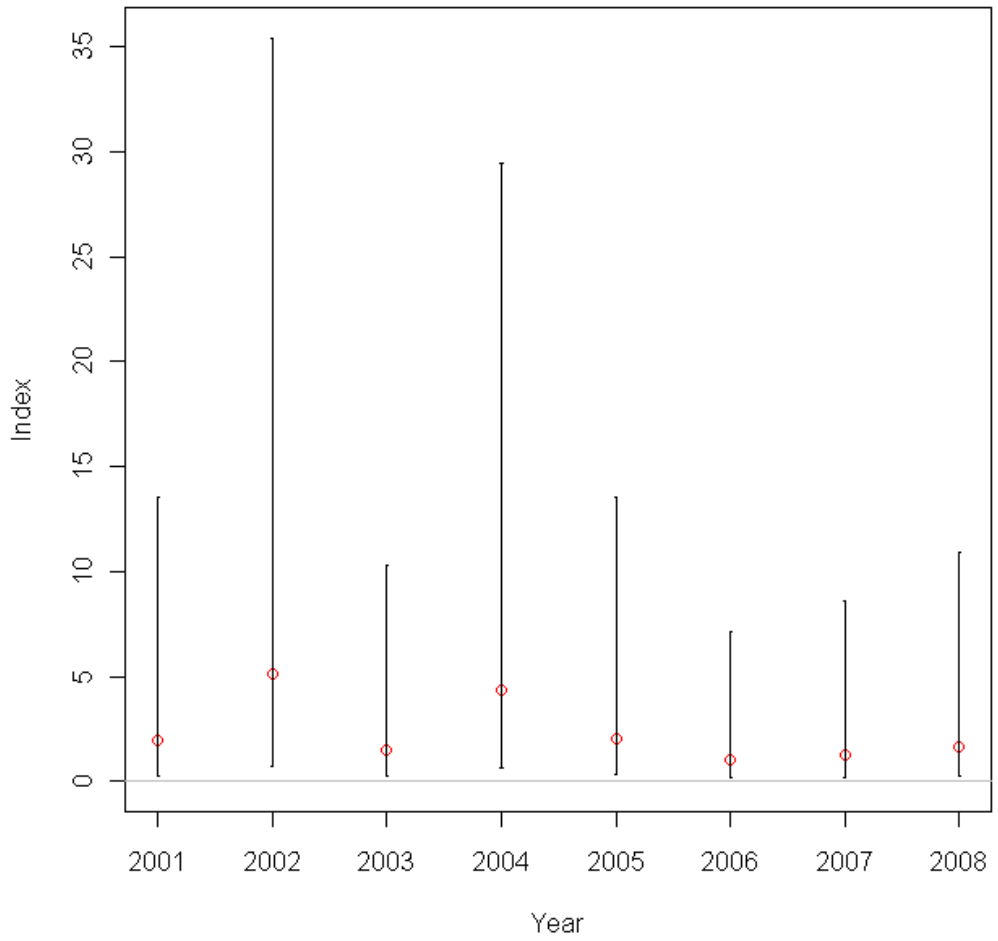

Figure 8. Coast-wide pre-recruit index for canary rockfish, 2001-2008.

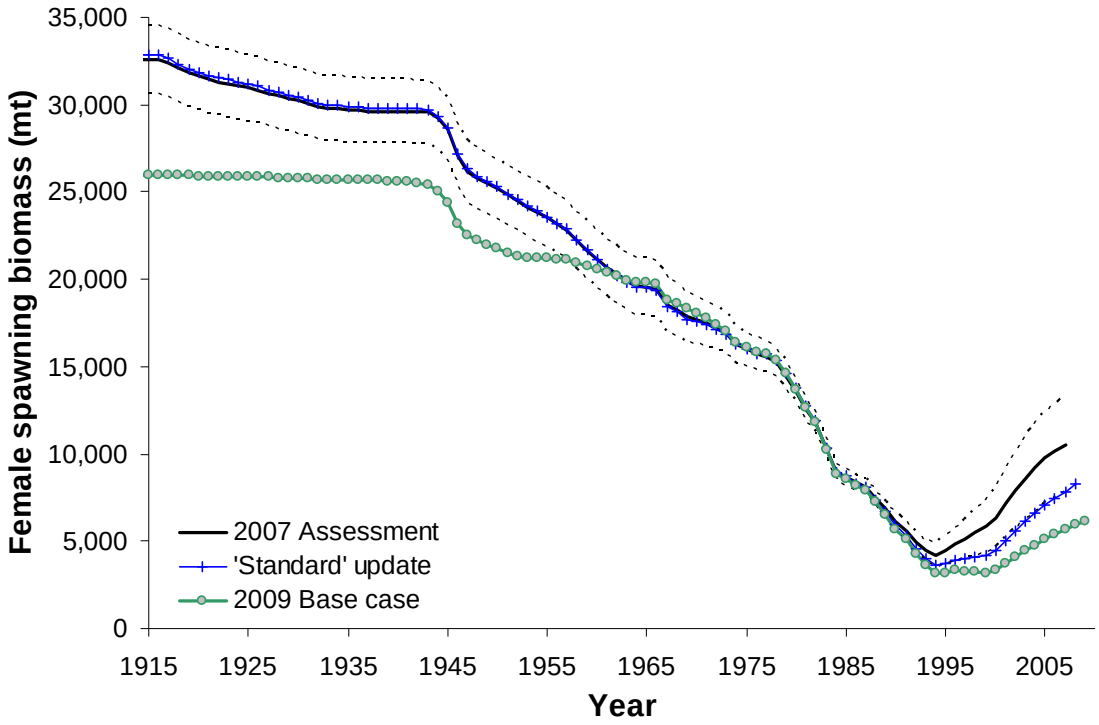

Figure 9. Estimated spawning biomass time-series (1916-2009) for the 2007 assessment base case model (solid line) with approximate asymptotic 95% confidence interval (dashed lines), results of 'standard' update of recent data and catches (crosses), and 2009 base case model (round symbols).

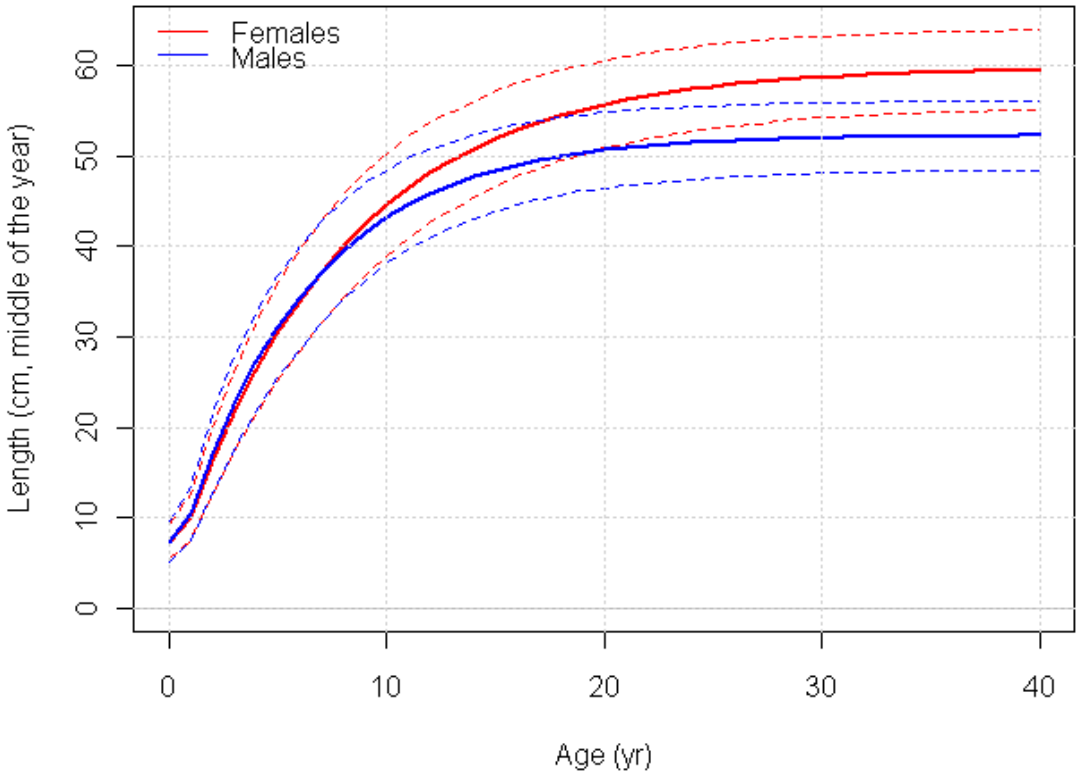

Figure 10. Growth curve for females (upper solid line) and males (lower solid line) with ~95% interval (dashed lines) indicating the expectation and individual variability of length-at-age for the base case model.

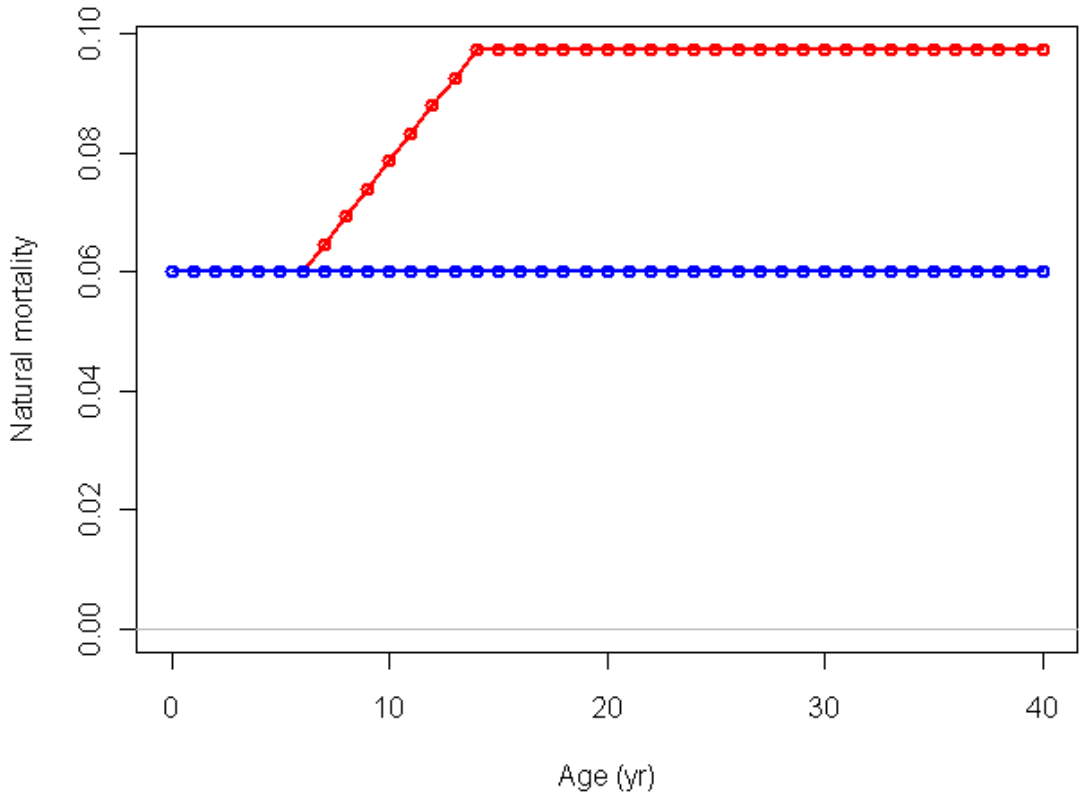

Figure 11. Natural mortality at age for males (horizontal line at 0.06) and females (linear ramp from 0.06 at age 6 to estimated value at age 14).

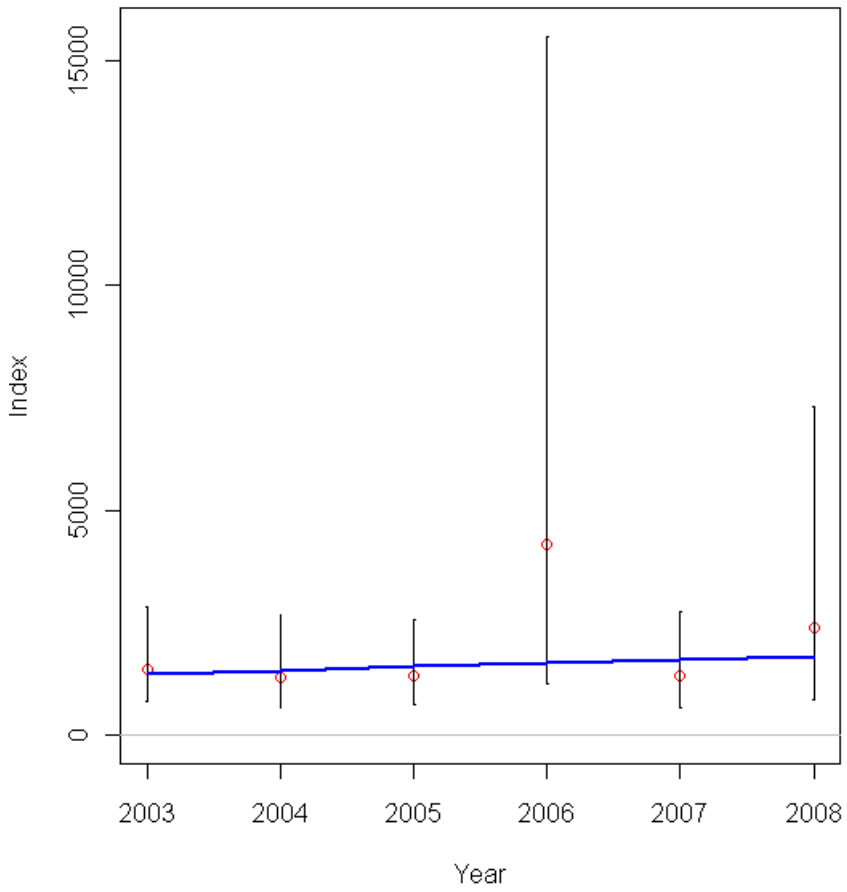

Figure 12. Fit to the NWFSC (upper panel) survey GLMM-based time series of relative biomass in the base case model.

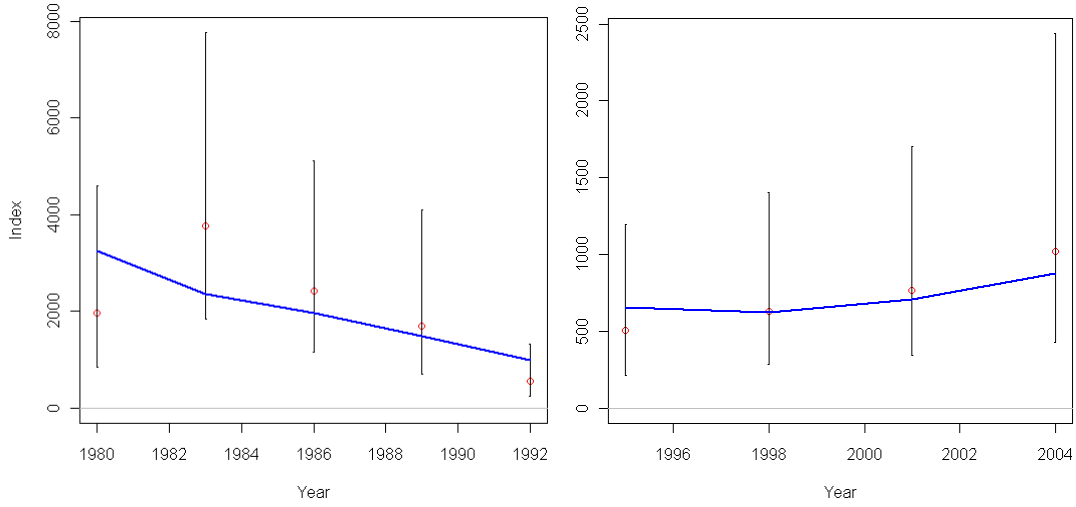

Figure 13. Fit to the triennial survey GLMM-based time series of relative biomass in the base case model.

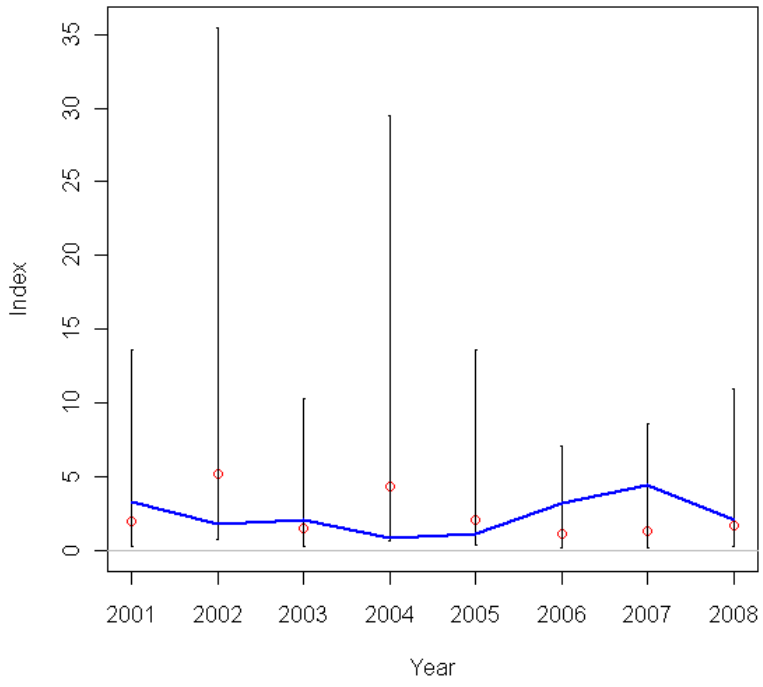

Figure 14. Fit to the coast-wide pre-recruit index.

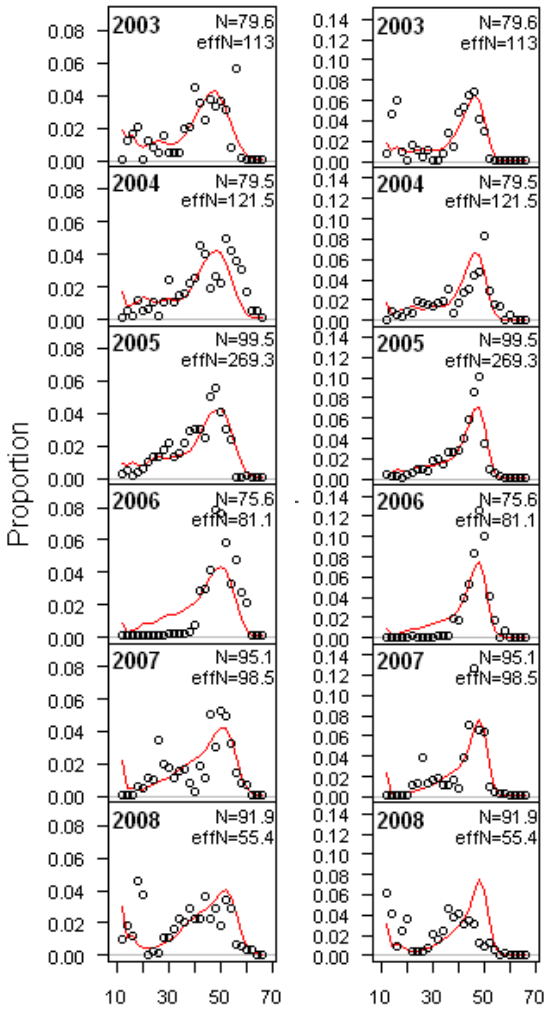

Figure 15. Fit to the NWFSC survey female (left panels) and male (right panels) length-frequencies.

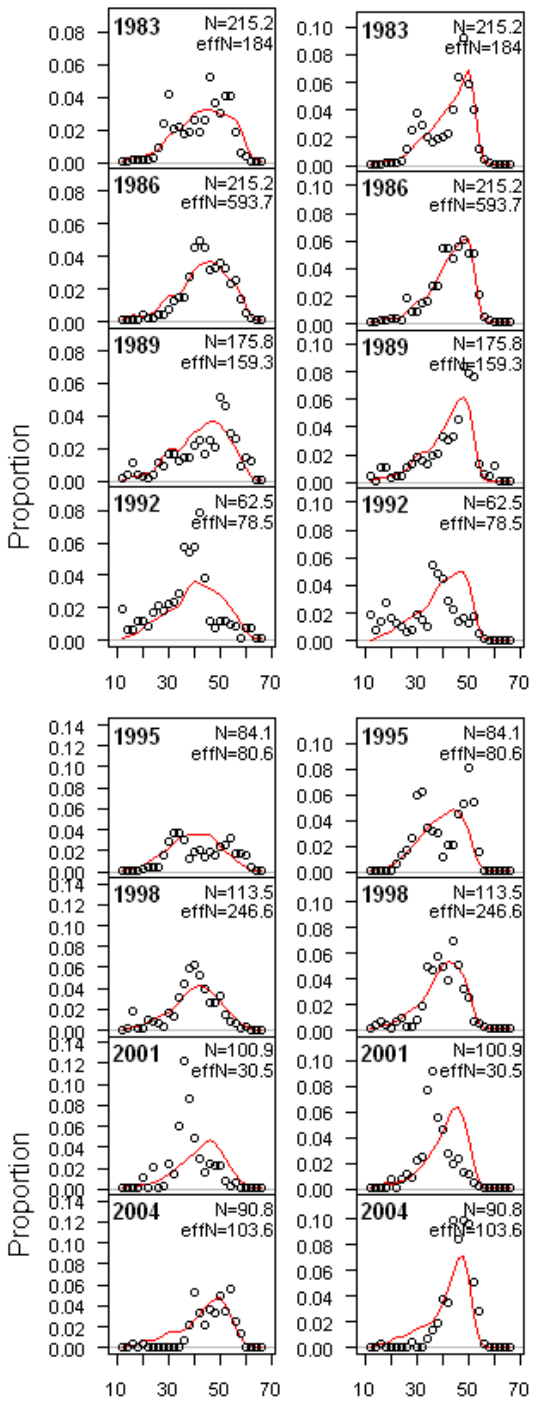

Figure 16. Fit to the triennial survey female (left panels) and male (right panels) length-frequencies; 1980-1992 (upper panels) and 1995-2004 (lower panels).

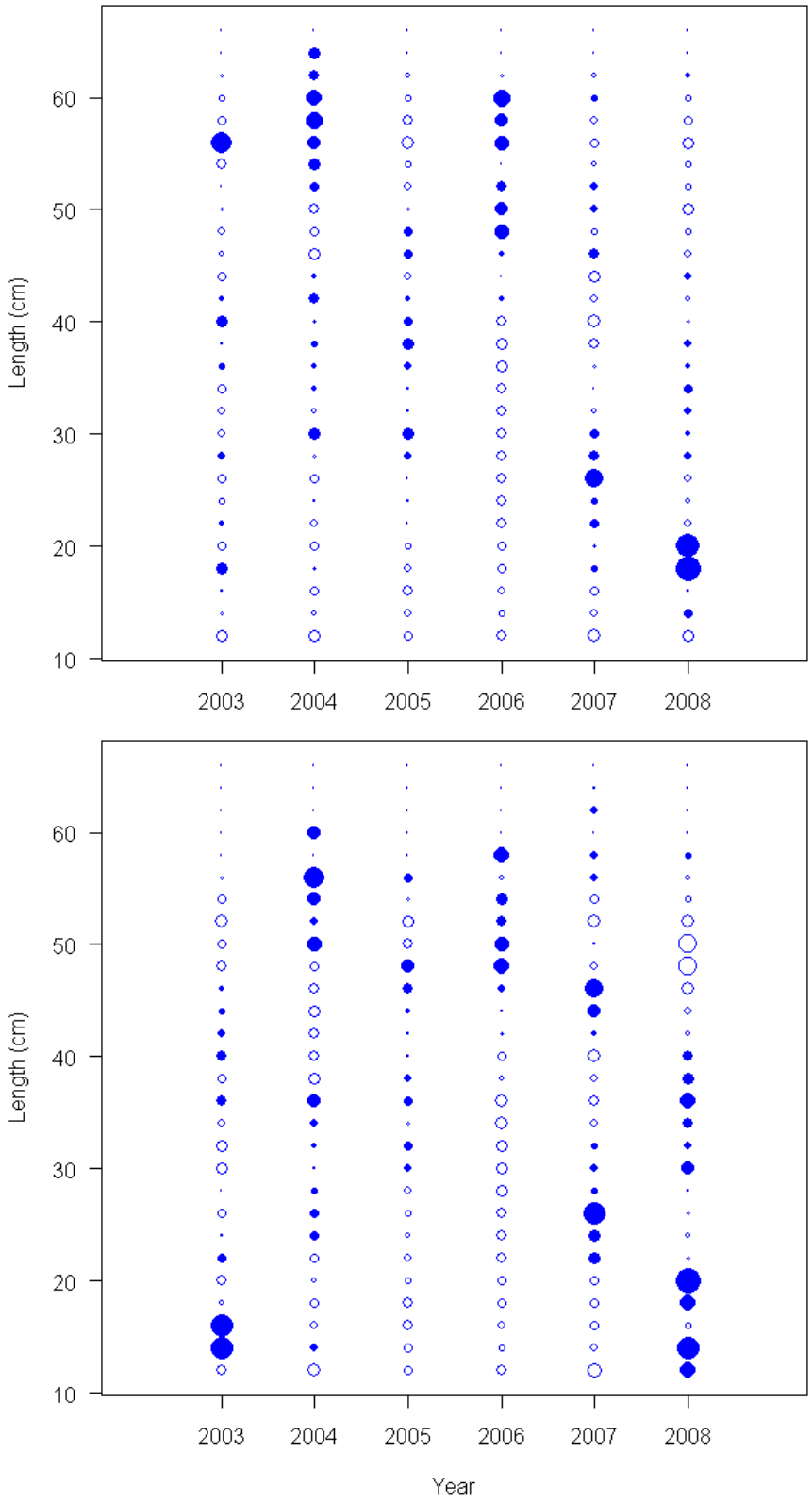

Figure 17. Pearson residuals for the fit to NWFSC survey female (upper panel, maximum = 4.55) and male (lower panel, maximum = 4.01) length-frequencies.

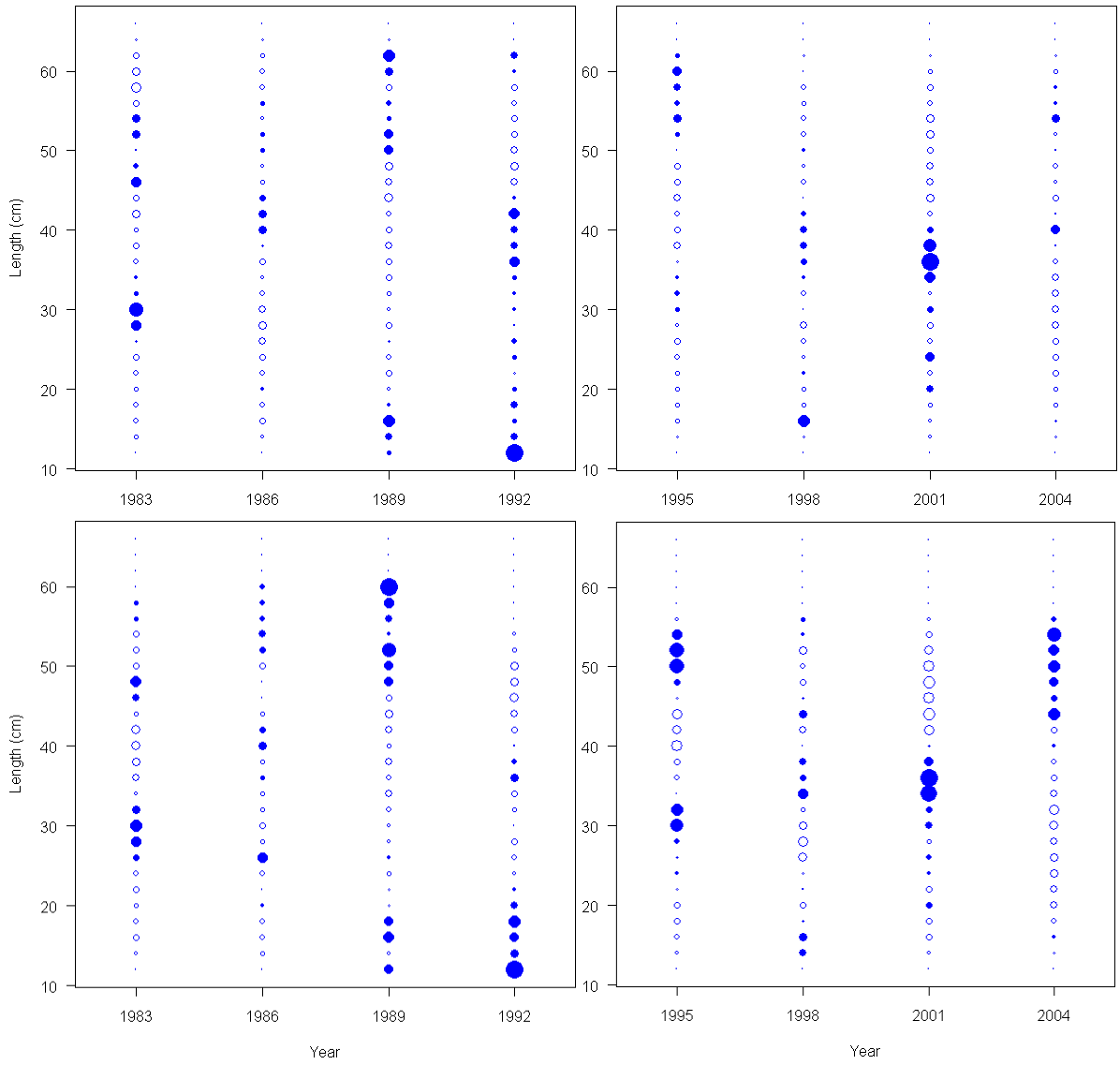

Figure 18. Pearson residuals for the fit to triennial survey female (upper panels, maximum = 4.71, 5.99) and male (lower panels, maximum = 4.78, 3.66) length-frequencies; 1980-1992 (left panels) and 1995-2004 (right panels).

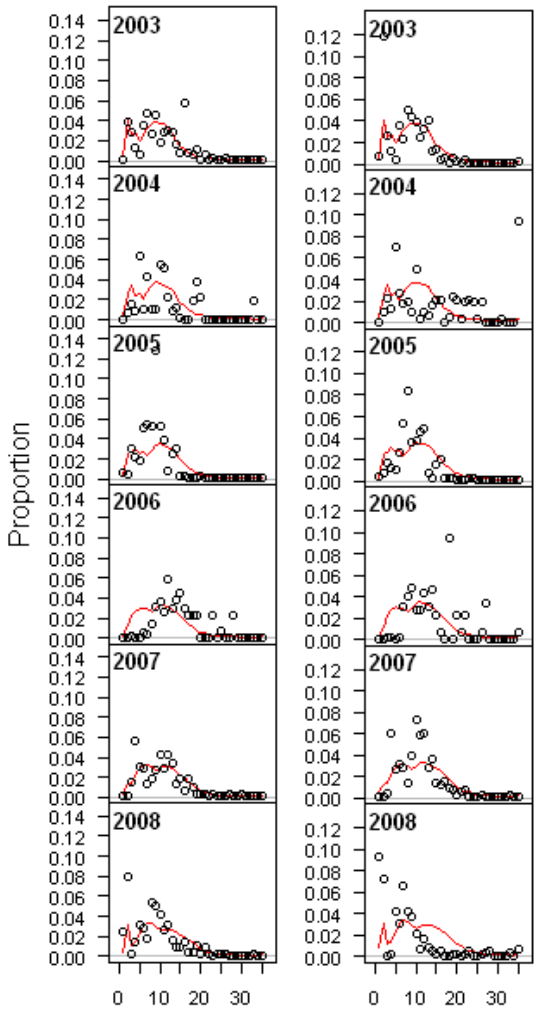

Figure 19. Implied fit to the NWFSC survey female (left panels) and male (right panels) marginal age-frequencies. Fits are provided for evaluation only, but not included in the model likelihood.

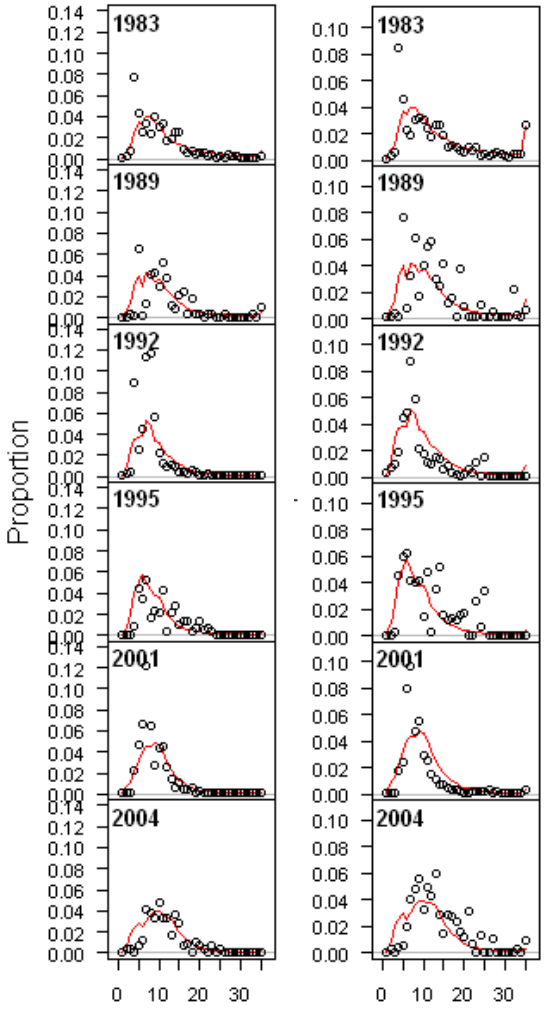

Figure 20. Implied fit to the triennial survey female (left panels) and male (right panels) marginal age-frequencies. Fits are provided for evaluation only, but not included in the model likelihood.

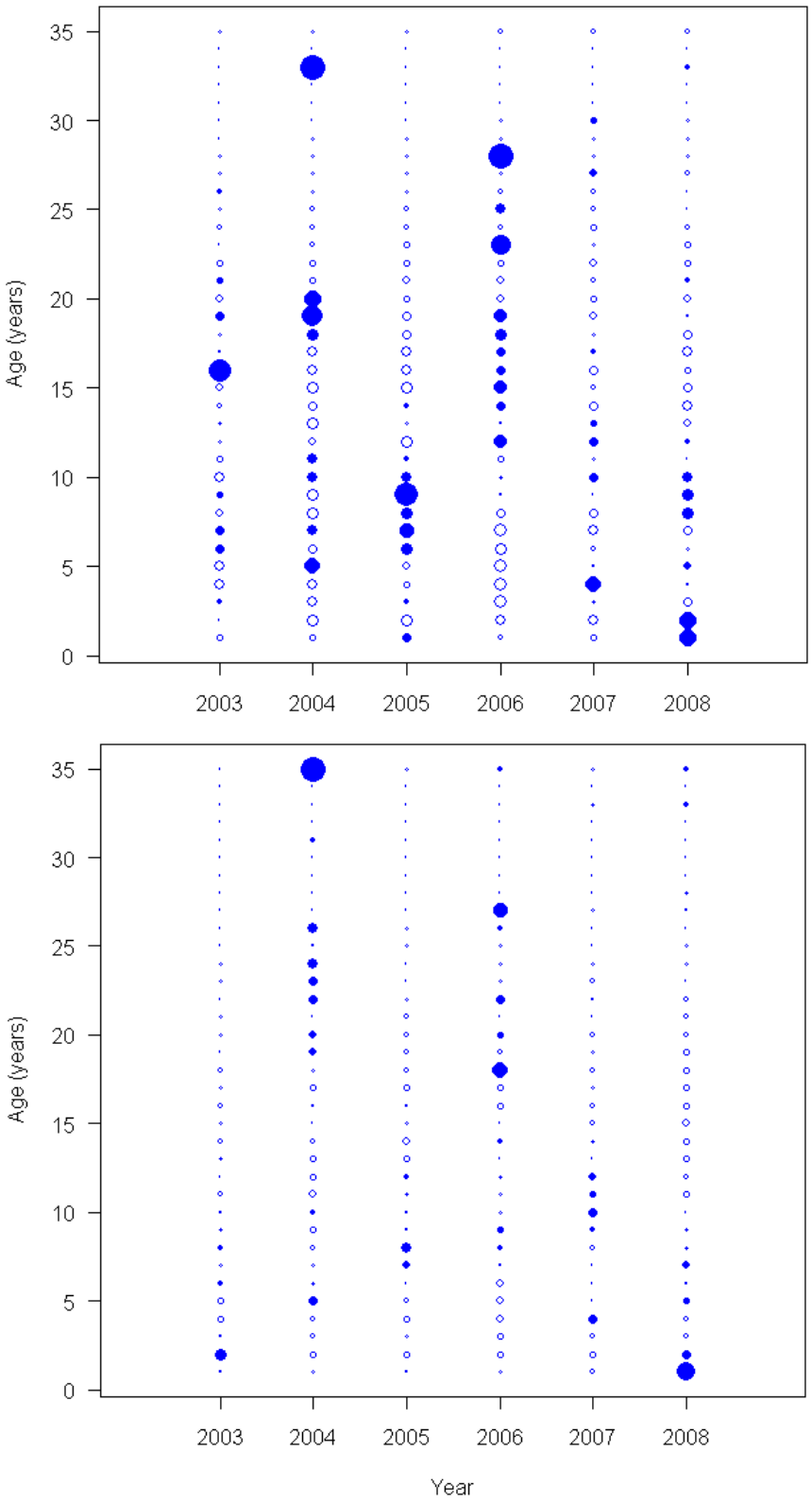

Figure 21. Pearson residuals for the implied fit to the NWFSC survey female (upper panel) and male (lower panel) marginal age-frequencies (for evaluation only, not included in the model fit).

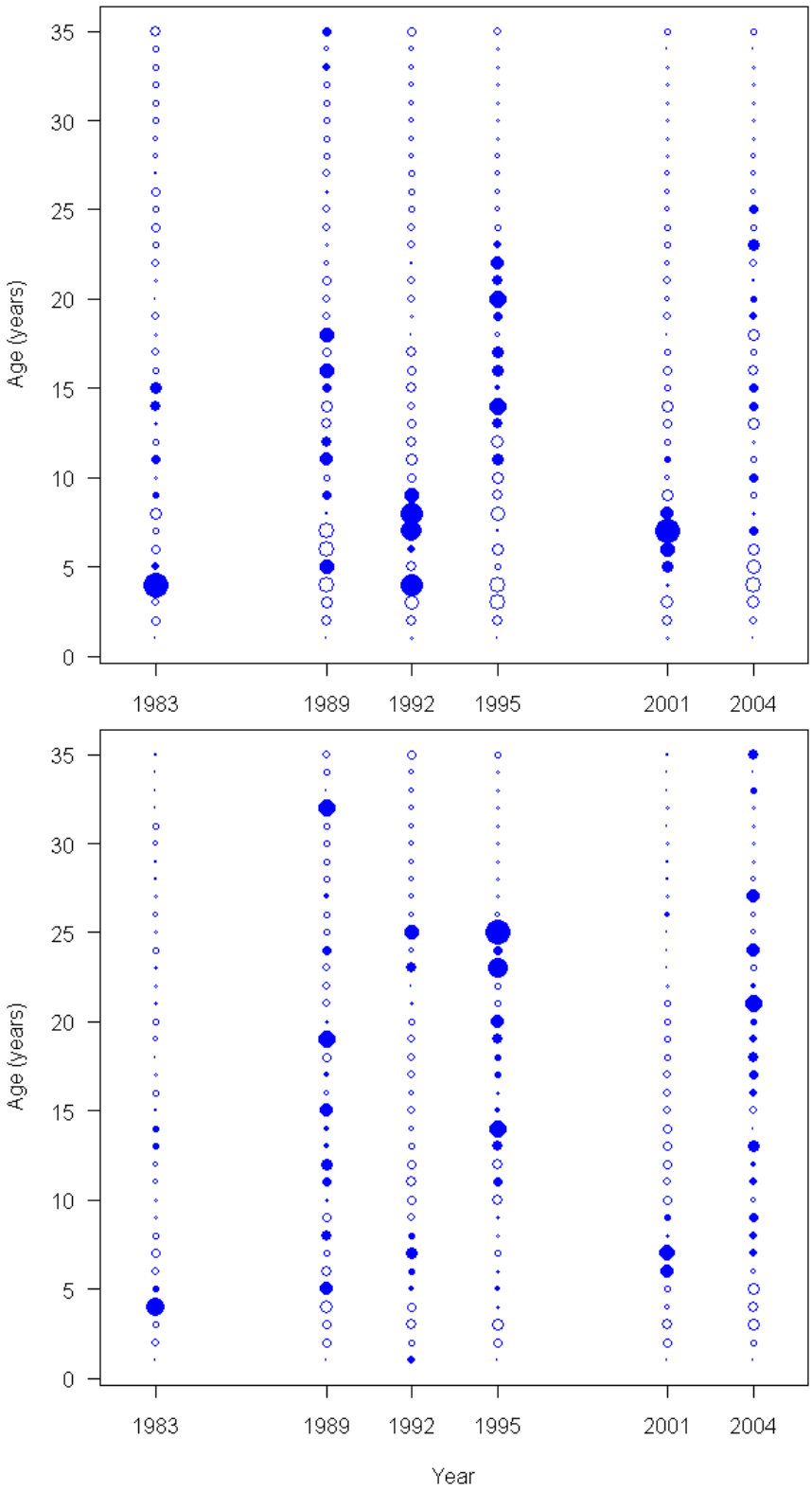

Figure 22. Pearson residuals for the implied fit to the triennial survey female (upper panel) and male (lower panel) marginal age-frequencies (for evaluation only, not included in the model fit).

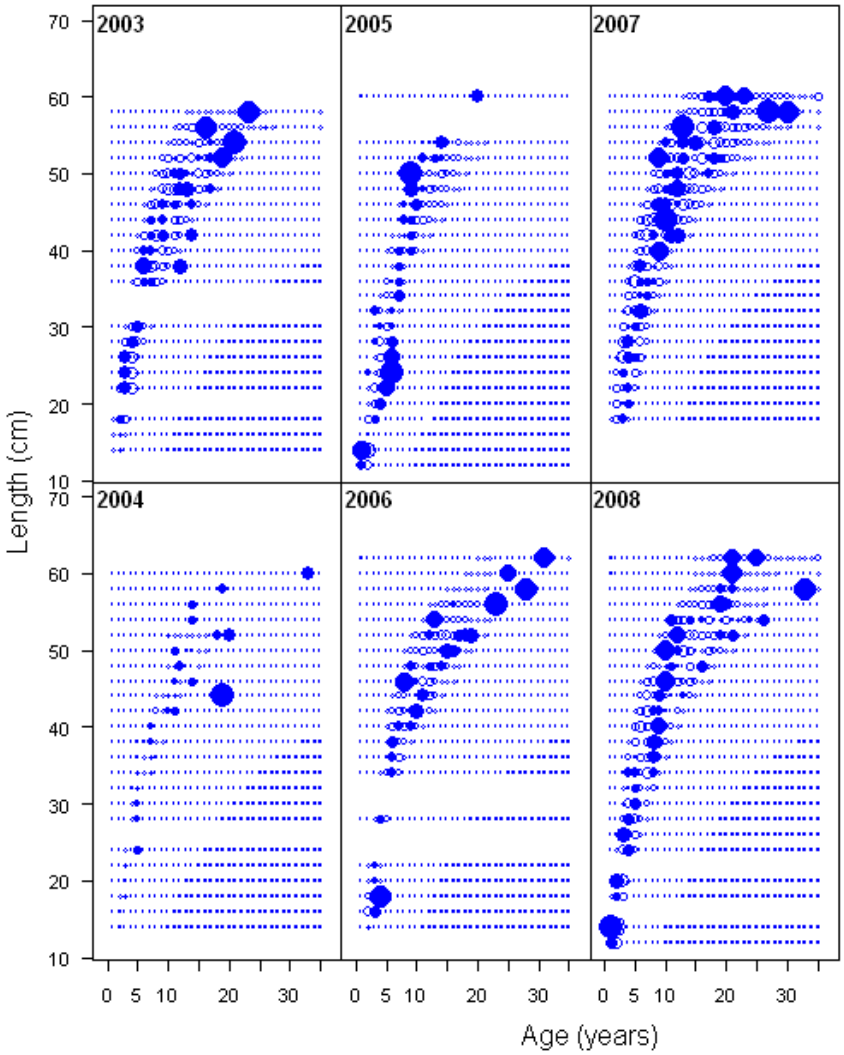

Figure 23. Pearson residuals for the fit to the NWFSC survey female conditional age-at-length frequencies (max = 23.01).

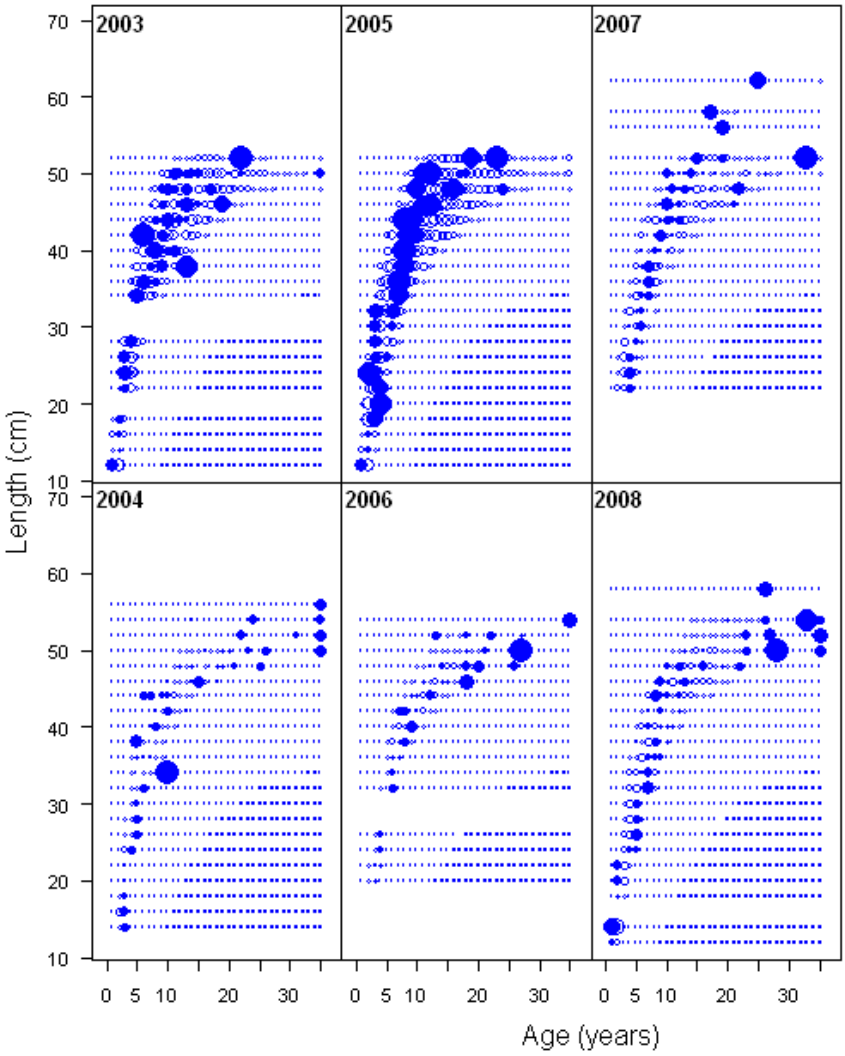

Figure 24. Pearson residuals for the fit to the NWFSC survey male conditional age-at-length frequencies (max = 20.75).

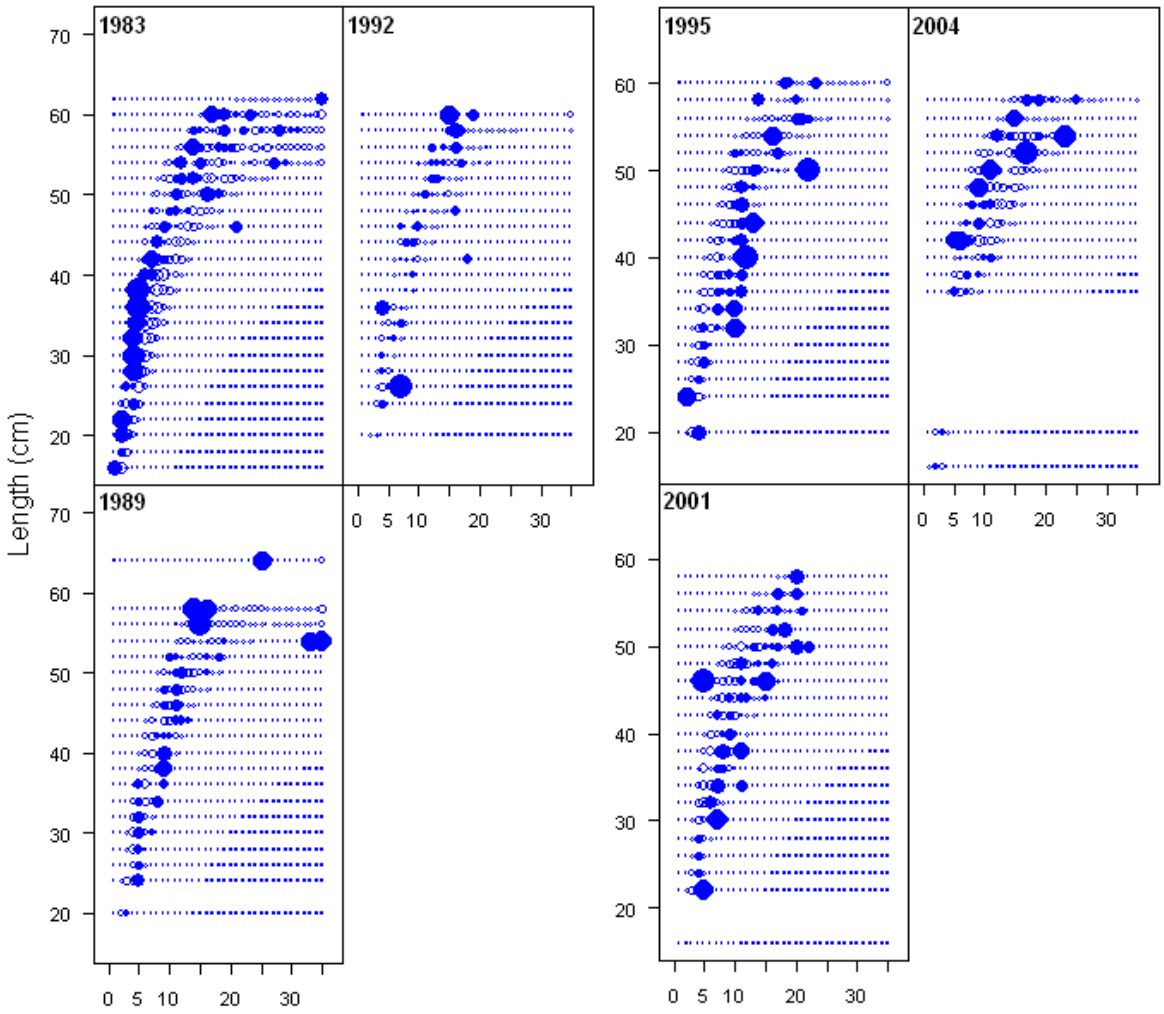

Figure 25. Pearson residuals for the fit to the triennial survey female conditional age-at-length frequencies.

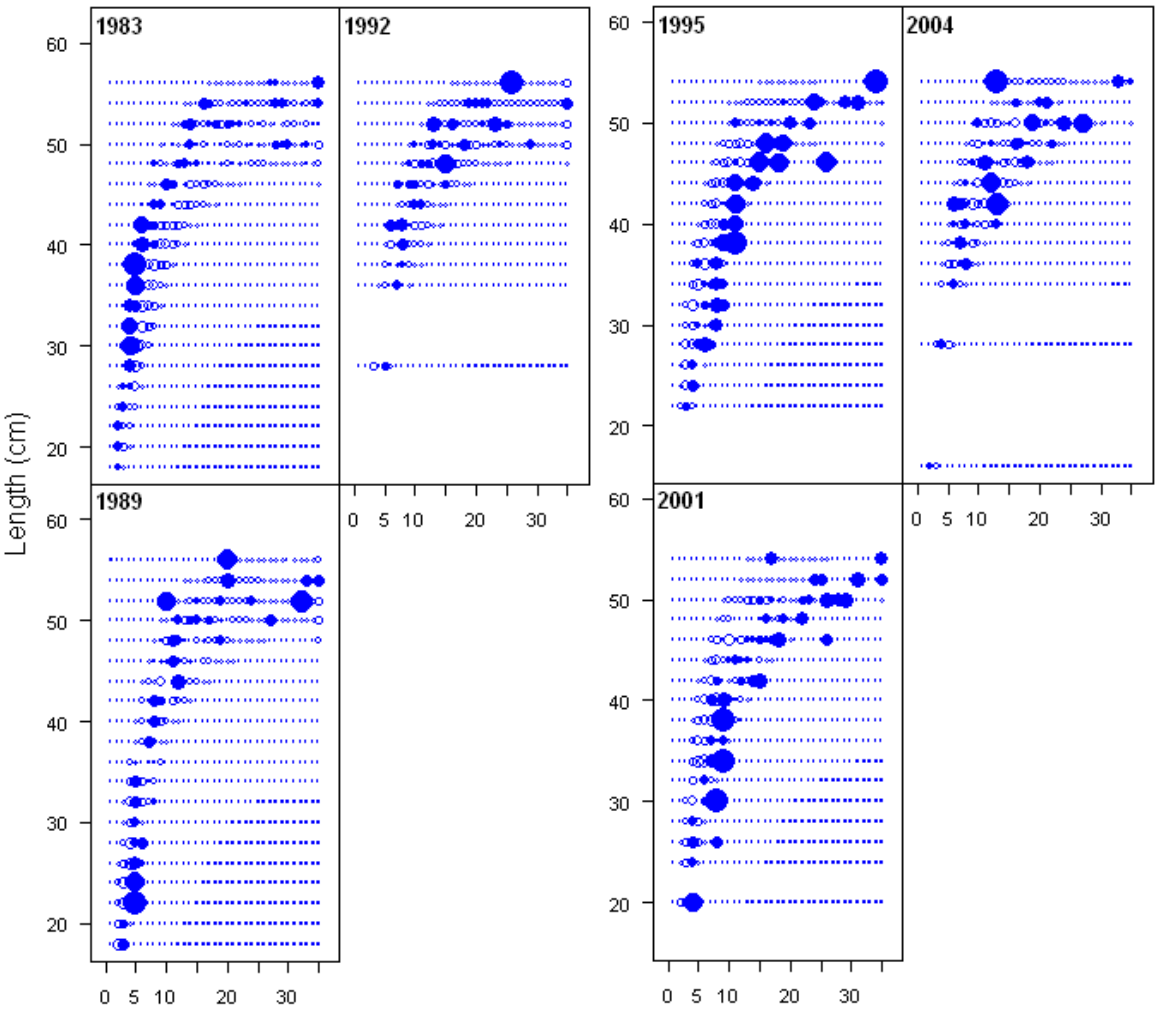

Figure 26. Pearson residuals for the fit to the triennial survey male conditional age-at-length frequencies.

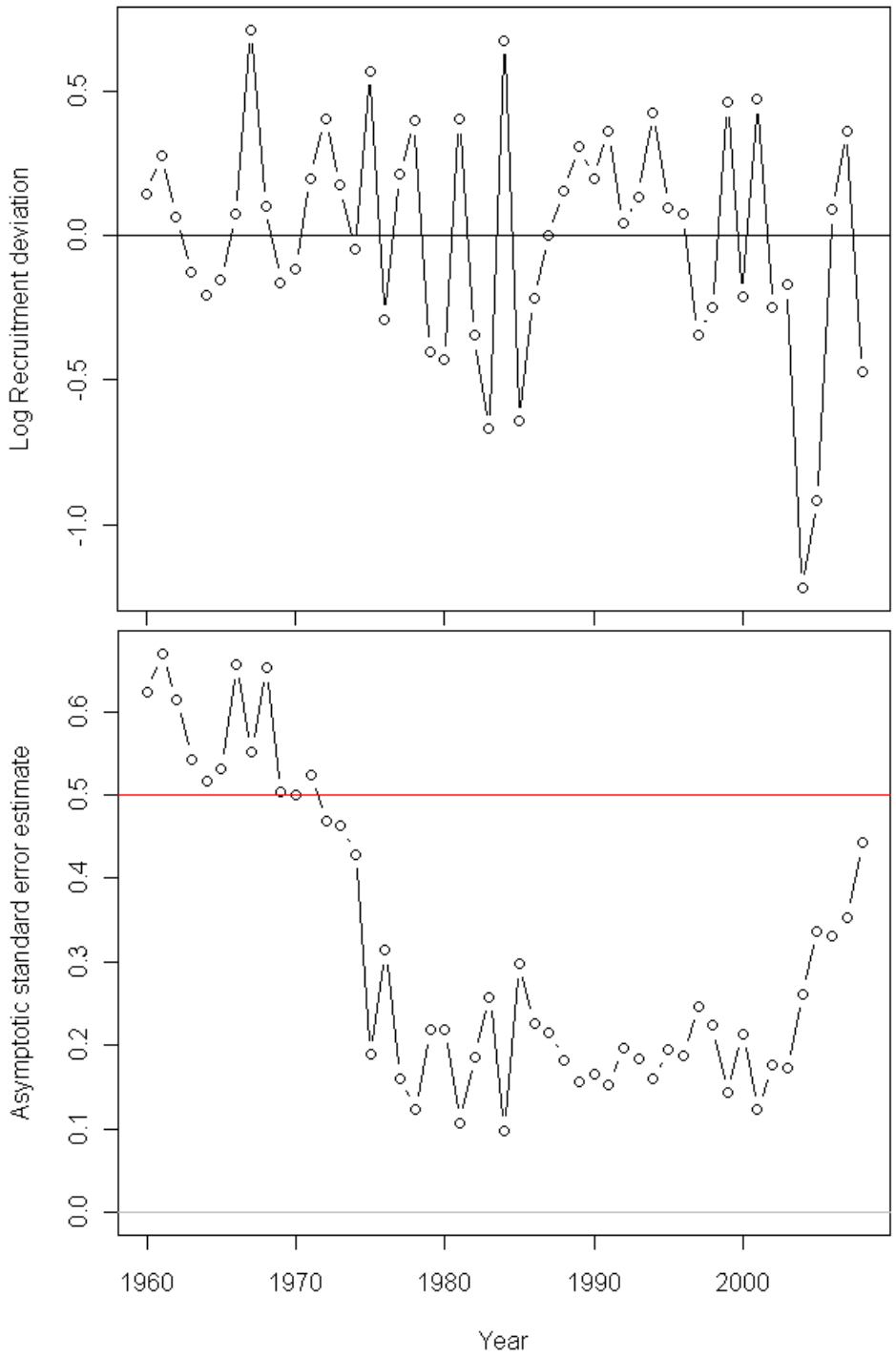

Figure 27. Log recruitment deviations (upper panel) and standard deviations of the recruitment deviations (lower panel) from the base case model run.

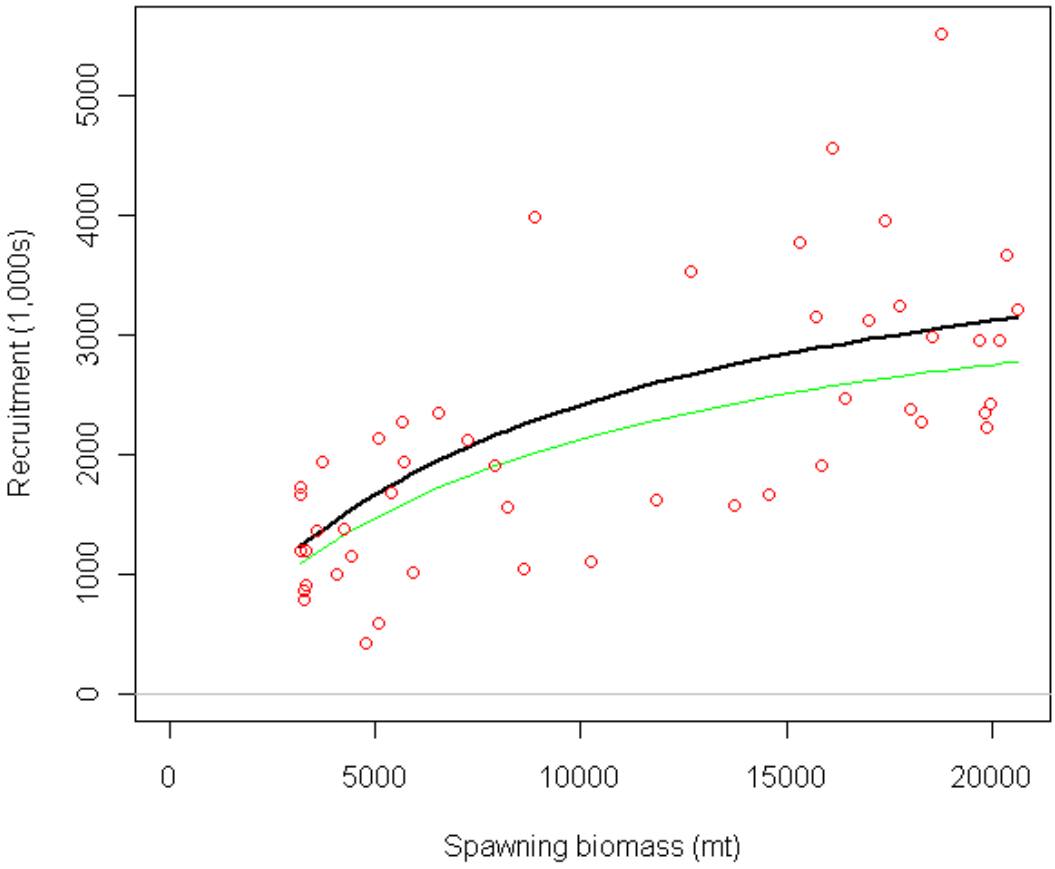

Figure 28. Stock-recruit function with predicted recruitments (points) and bias-corrected expectation (light line).

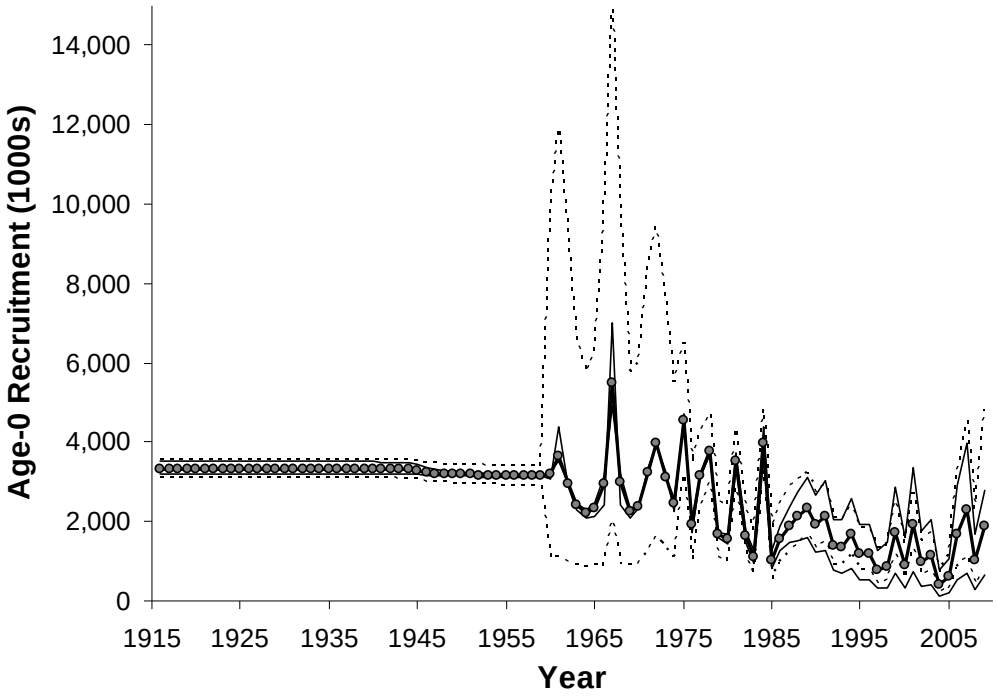

Figure 29. Time series of estimated canary rockfish recruitments for the base case model (round points), approximate asymptotic 95% confidence interval (dashed lines), and alternate states of nature (light lines).

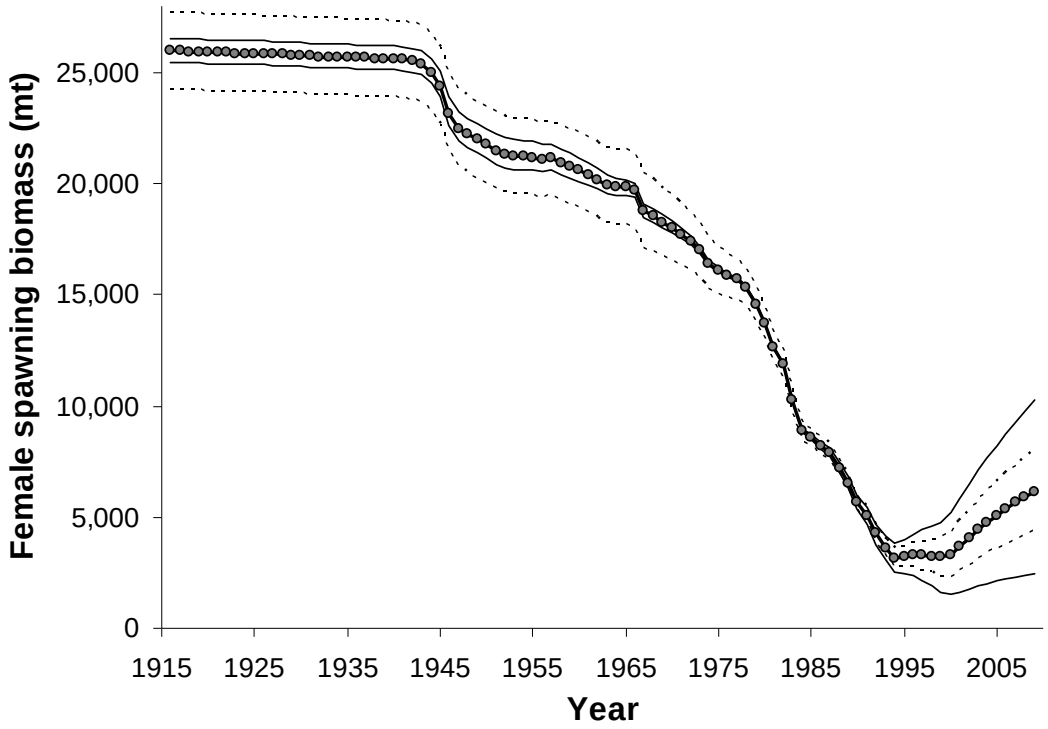

Figure 30. Estimated spawning biomass time-series (1916-2009) for the base case model (round points) with approximate asymptotic 95% confidence interval (dashed lines) and alternate states of nature (light lines).

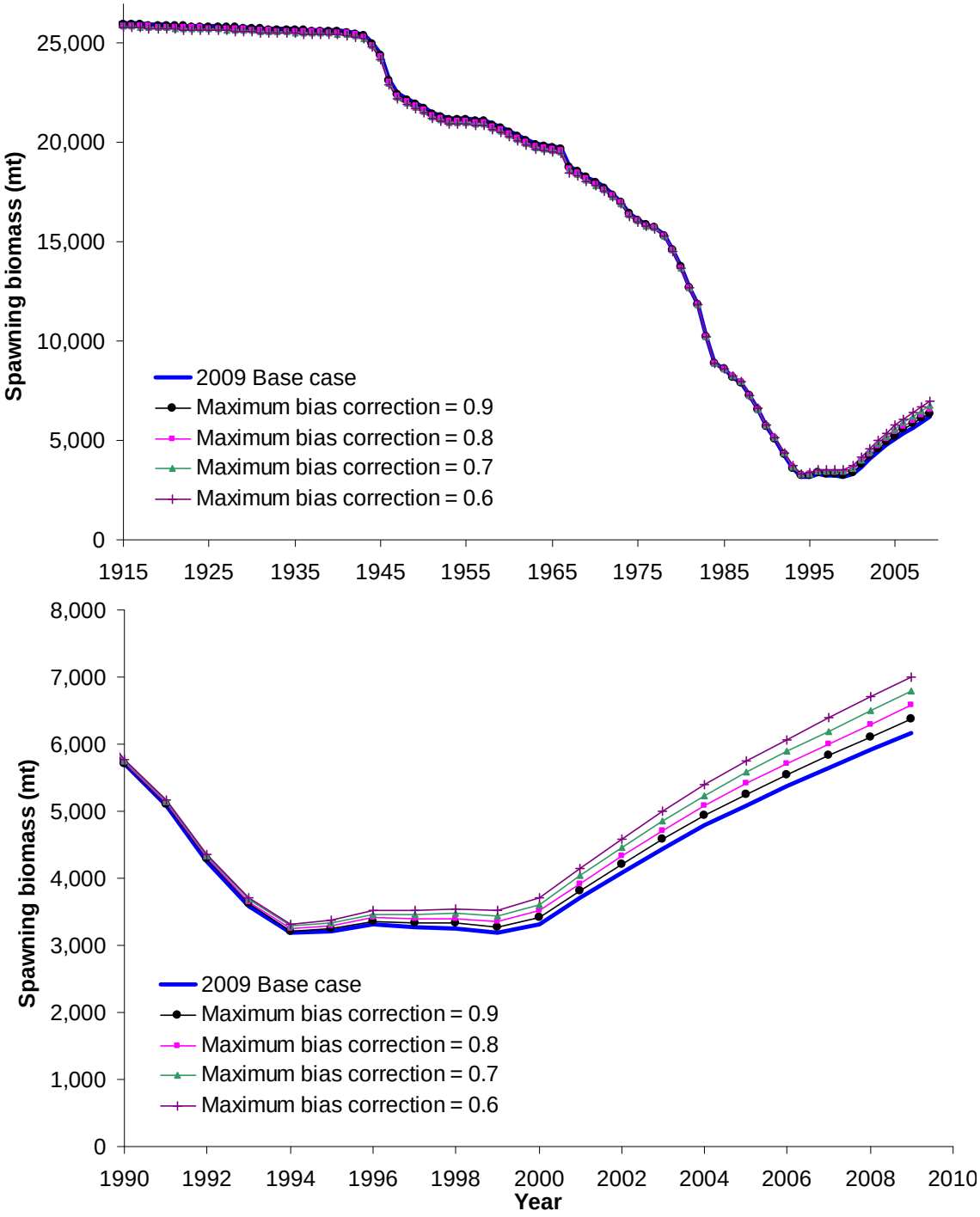

Figure 31. Analysis of sensitivity to the fraction of the maximum bias correction applied to 'fully-informed' recruitment deviations. Upper panel represents the entire time-series, lower panel only the most recent period for easier identification of effects on current status.

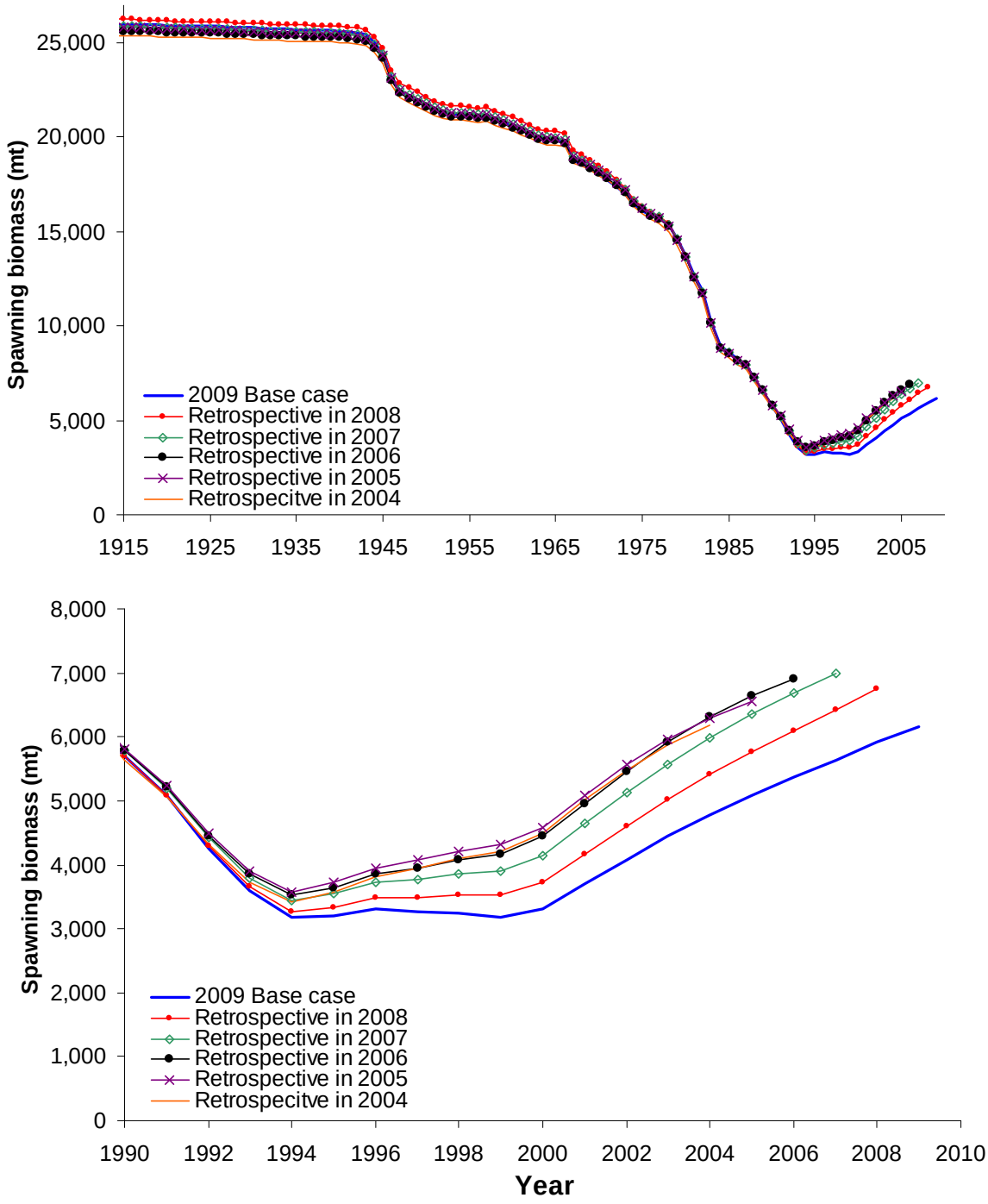

Figure 32. Results from a 5-year retrospective analysis. Each year of retrospective is performed as if the assessment were conducted in that year (i.e., retrospective in 2006 includes data through 2005). Upper panel represents the entire time-series, lower panel only the most recent period for easier identification of effects on current status.

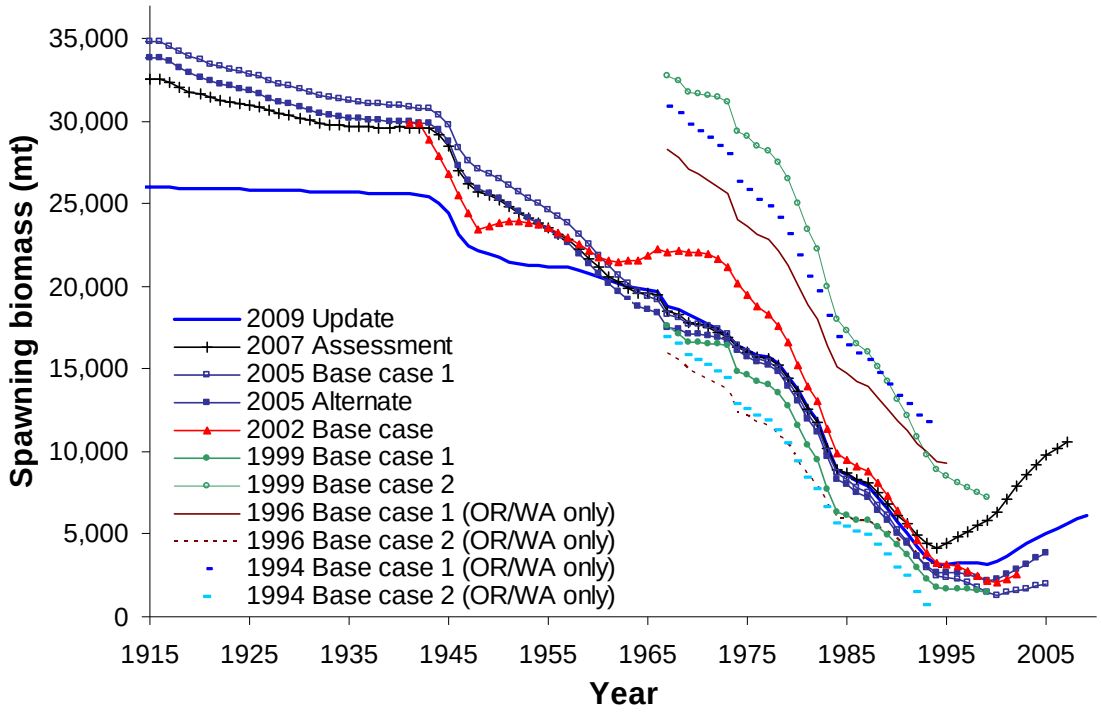

Figure 33. Retrospective analysis across stock assessments for canary rockfish, 1994-2009.

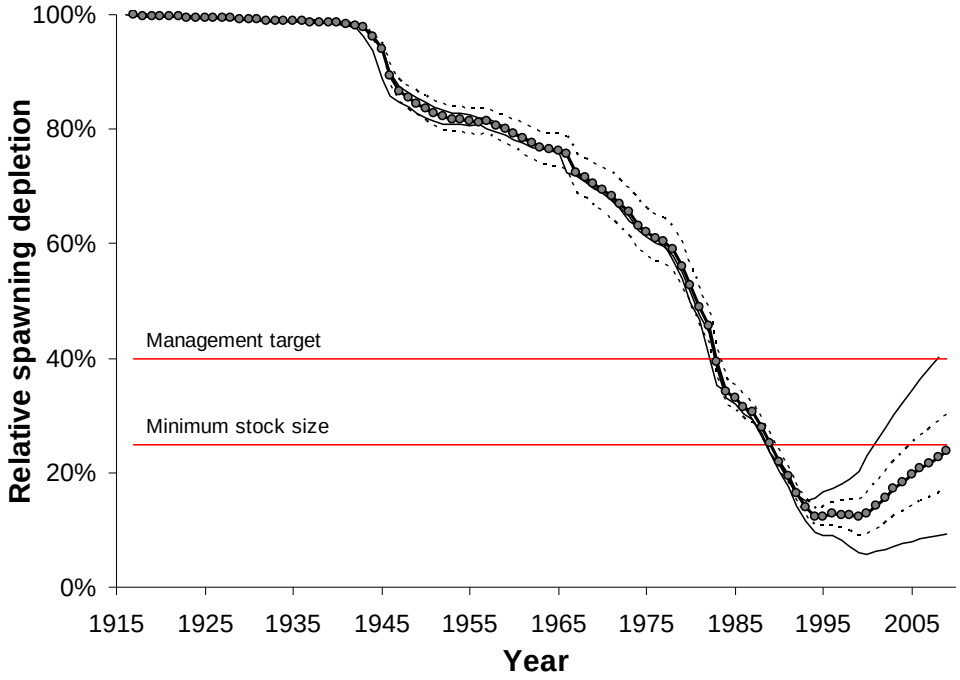

Figure 34. Time series of depletion level as estimated in the base case model (round points) with approximate asymptotic 95% confidence interval (2006-2007 only, dashed lines) and alternate states of nature (light lines).

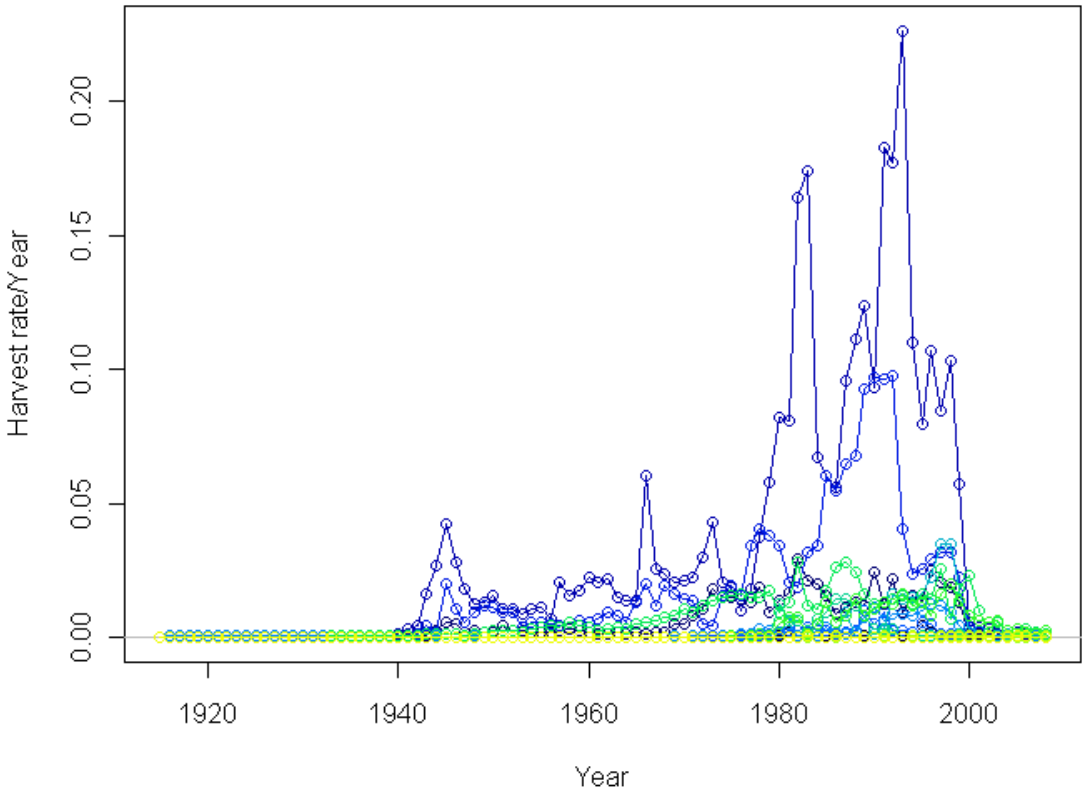

Figure 35. Time-series of harvest rate per year (F) for the fishing fleets. The Oregon trawl fleet is the upper line from 1979-1999 and the Washington trawl fleet is the second highest line 1983-1996.

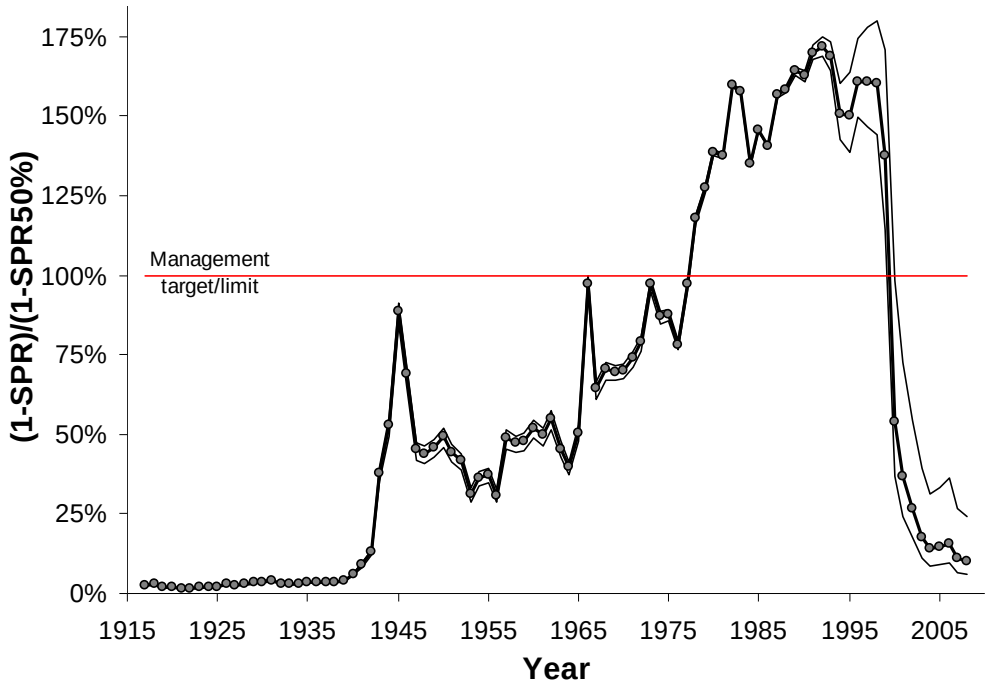

Figure 36. Time series of relative spawning potential ratio (1-SPR/1-$SPR_{Target=0.5}$) for the base case model (round points) and alternate states of nature (light lines). Values of relative SPR above 100% reflect harvests in excess of the current overfishing proxy.

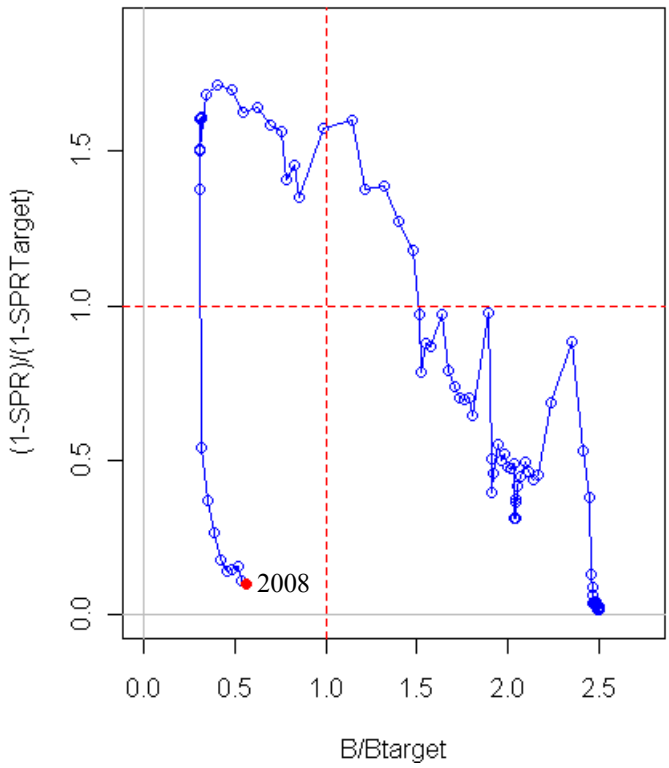

Figure 37. Estimated relative spawning potential ratio relative to the proxy target/limit of 50% vs. estimated spawning biomass relative to the proxy 40% level from the base case model. Higher biomass occurs on the right side of the x-axis, higher exploitation rates occur on the upper side of the y-axis.

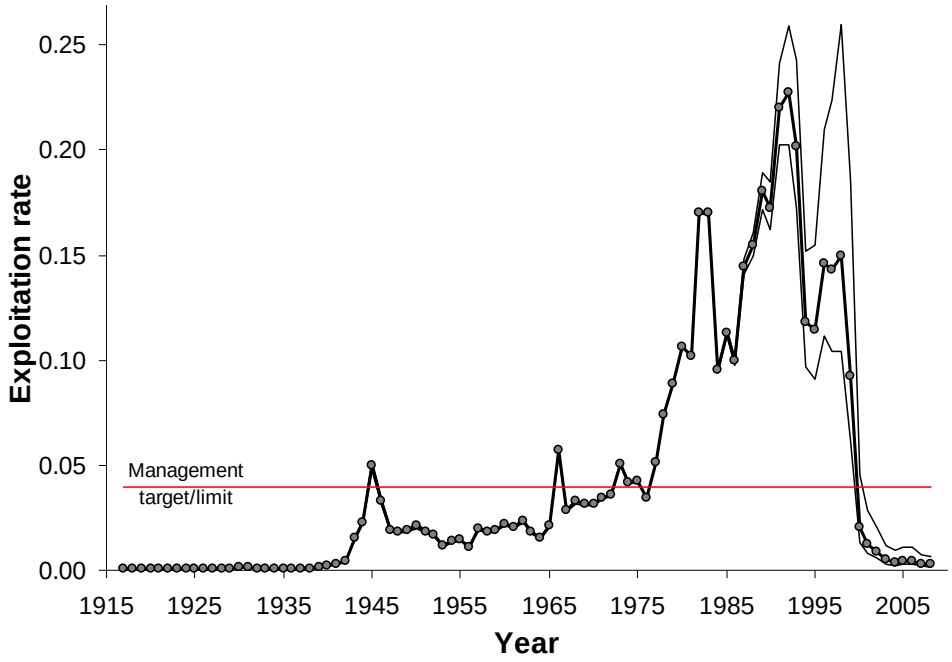

Figure 38. Time series of estimated exploitation rate (catch/age 5 and older biomass) for the base case model (round points) and alternate states of nature (light lines). Horizontal line indicates the overfishing limit/target ($F_{50\%}$) from the base case.

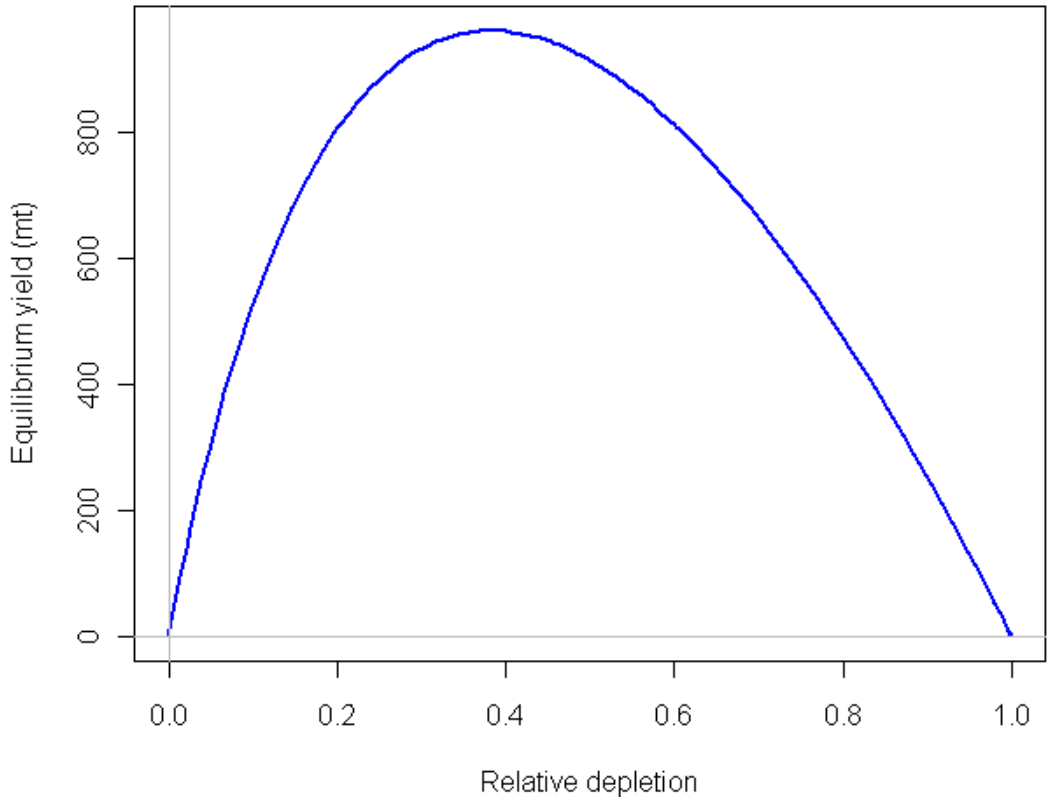

Figure 39. Equilibrium yield curve for the base case model. Values are based on 1994-1998 fishery selectivity and allocation to reflect the performance of a targeted fishery.

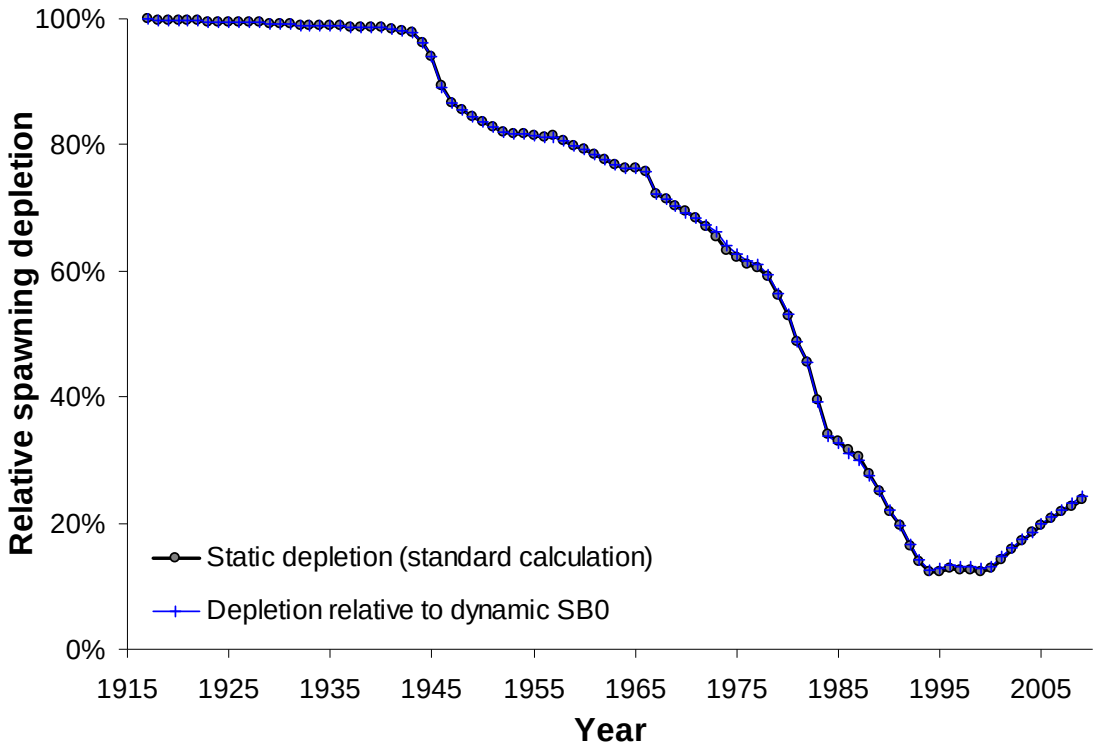

Figure 40. Comparison of the standard 'static' estimate of relative depletion (spawning biomass over unexploited spawning biomass) and the 'dynamic' estimate of spawning biomass over spawning biomass predicted for that year in the absence of any fishing.

12. Appendix A: Fits to fishery length and age data

In this appendix, plots of the fit to compositional data are presented for length and age data by fishing fleet.

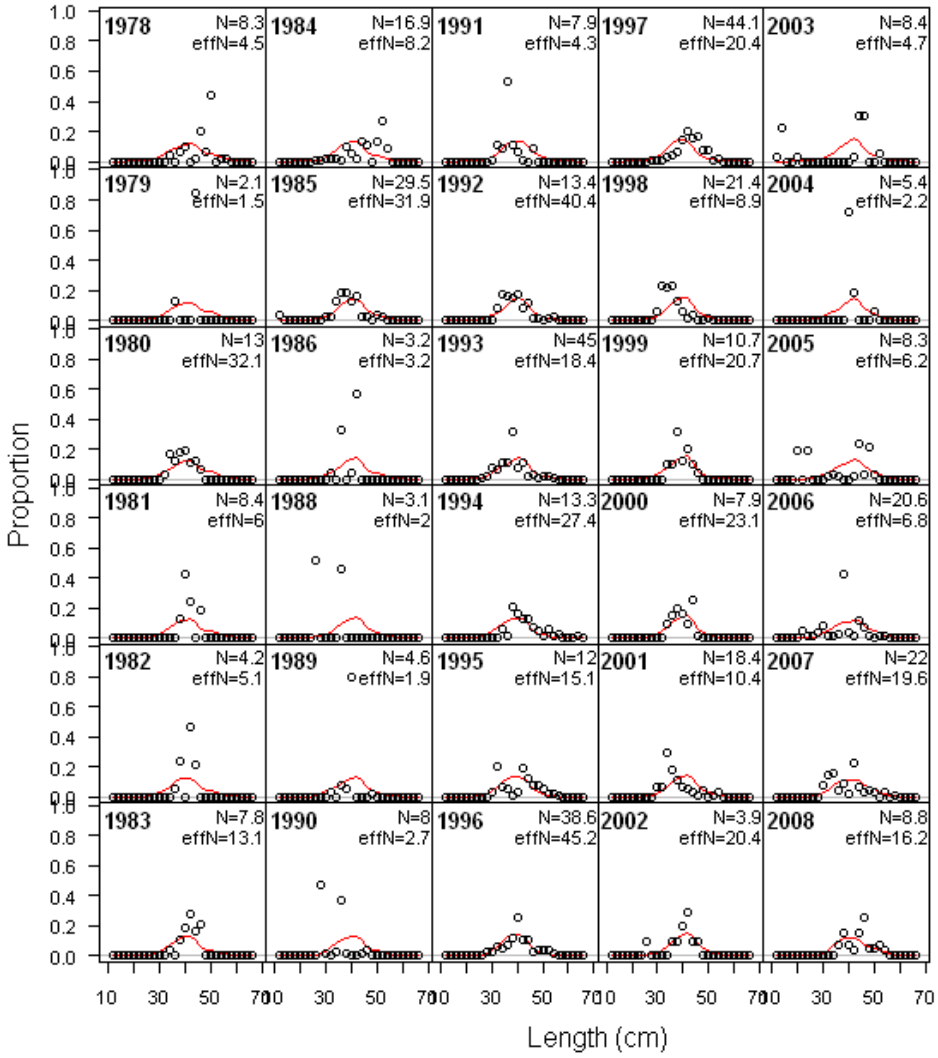

Figure 41. Fit to length-frequency observations (sexes combined) for the Southern California trawl fleet.

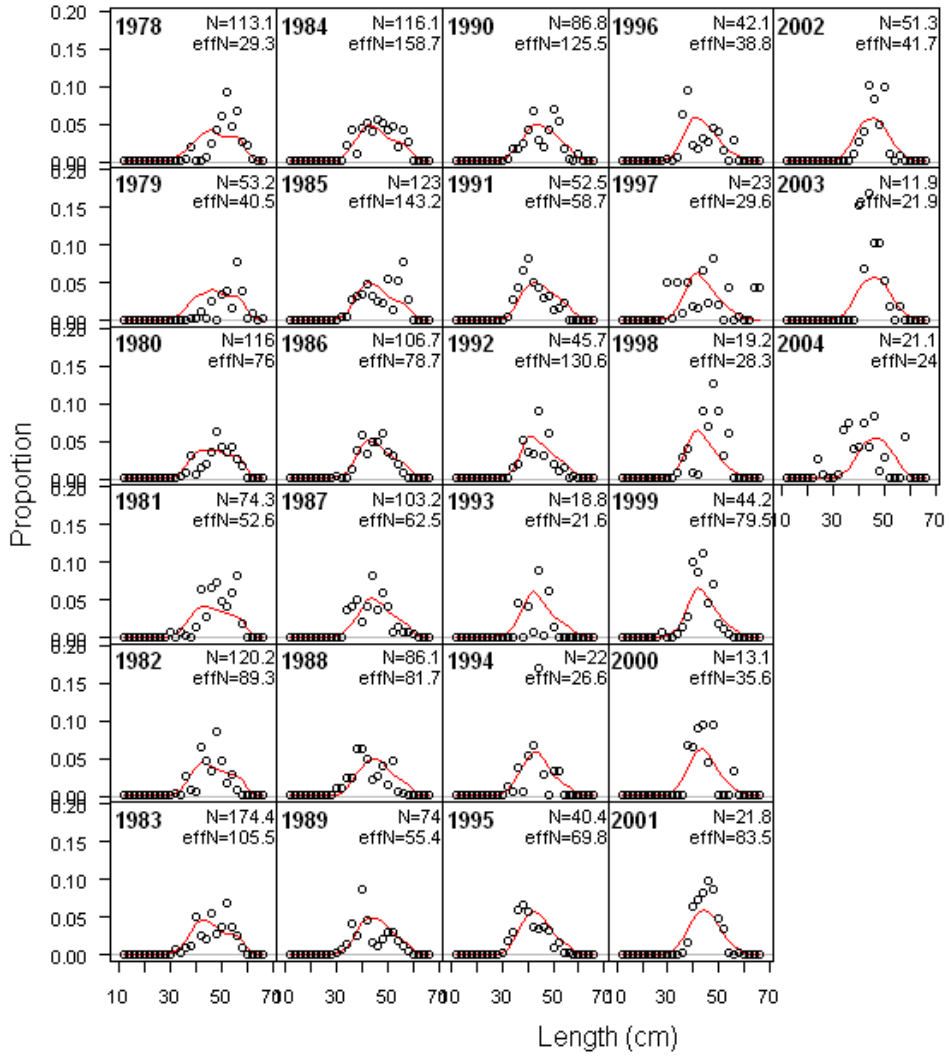

Figure 42. Fit to female length-frequency observations for the Northern California trawl fleet.

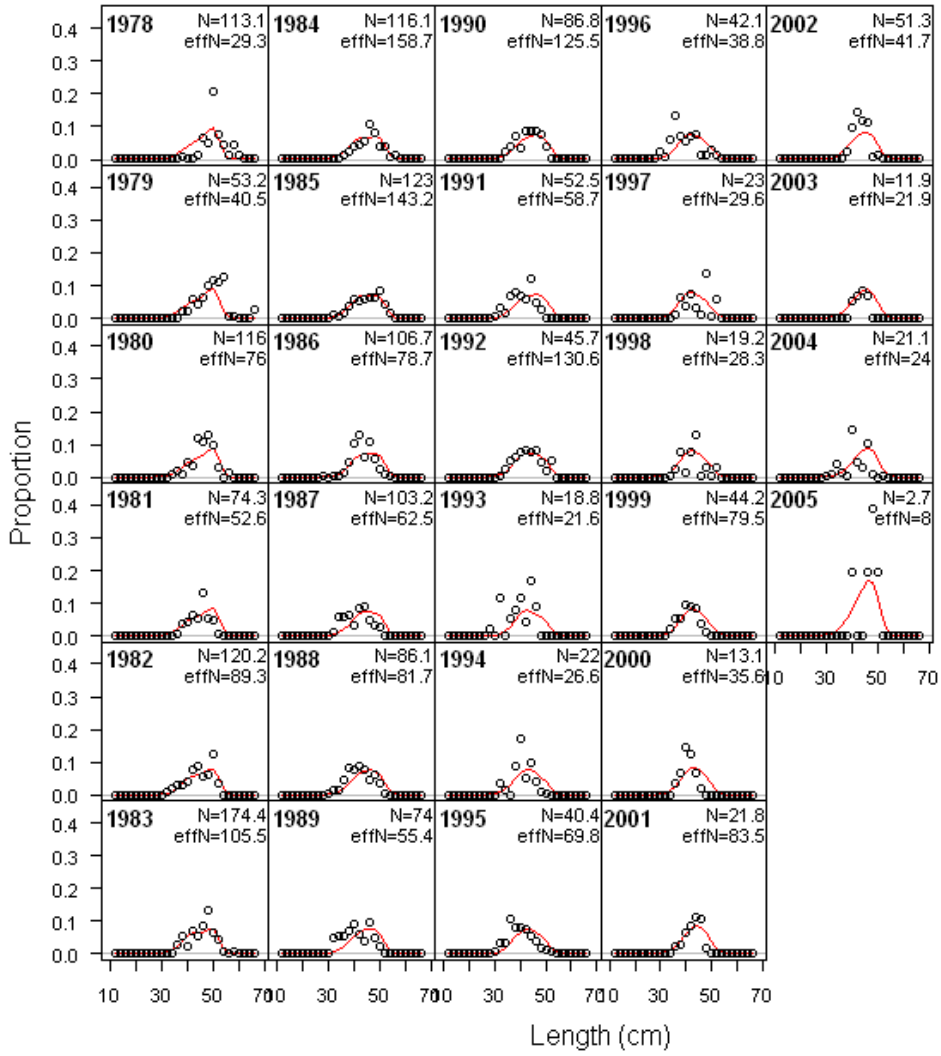

Figure 43. Fit to male length-frequency observations for the Northern California trawl fleet.

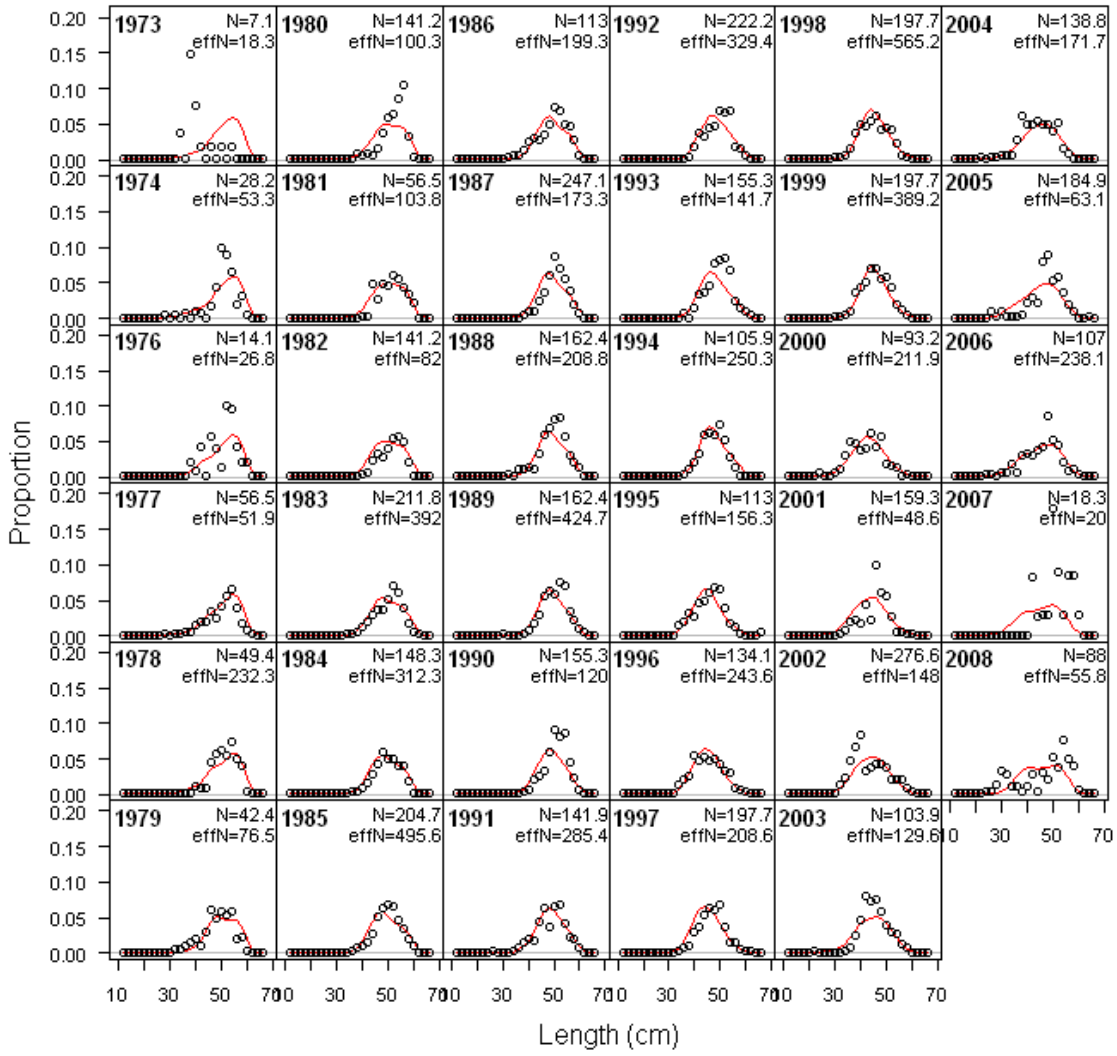

Figure 44. Fit to female length-frequency observations for the Oregon trawl fleet.

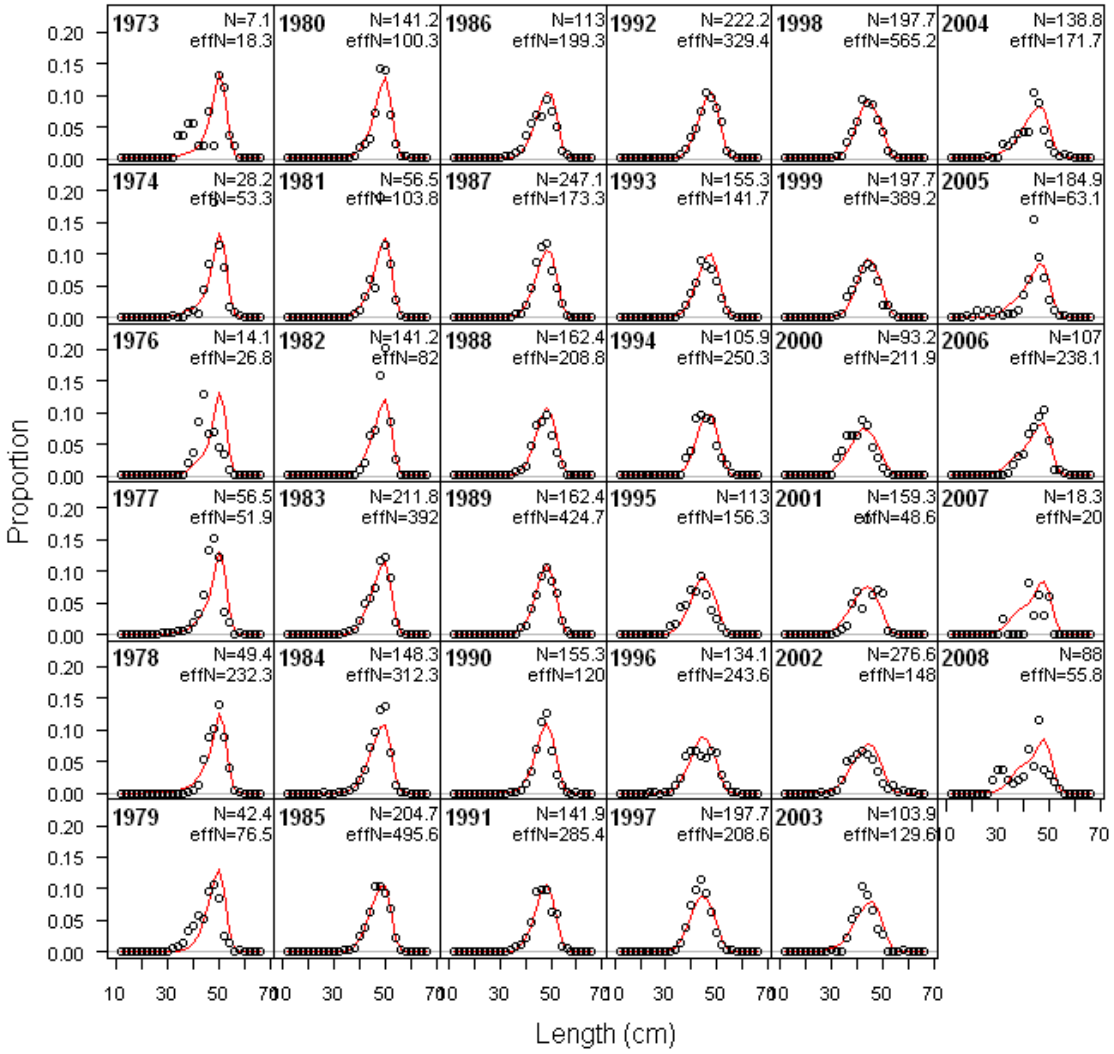

Figure 45. Fit to male length-frequency observations for the Oregon trawl fleet.

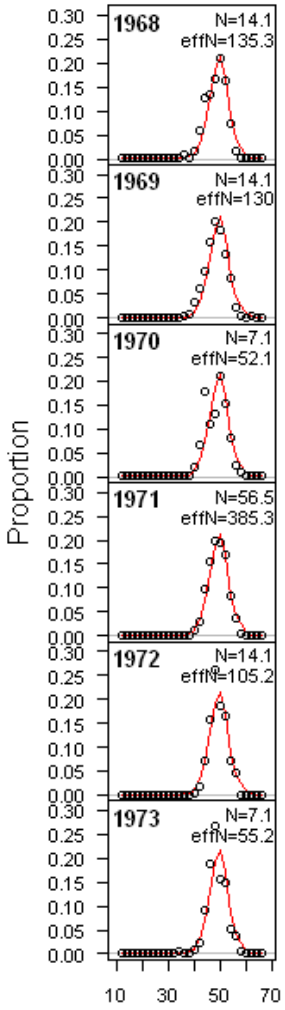

Figure 46. Fit to combined sex length-frequency observations for the historical Washington trawl fleet.

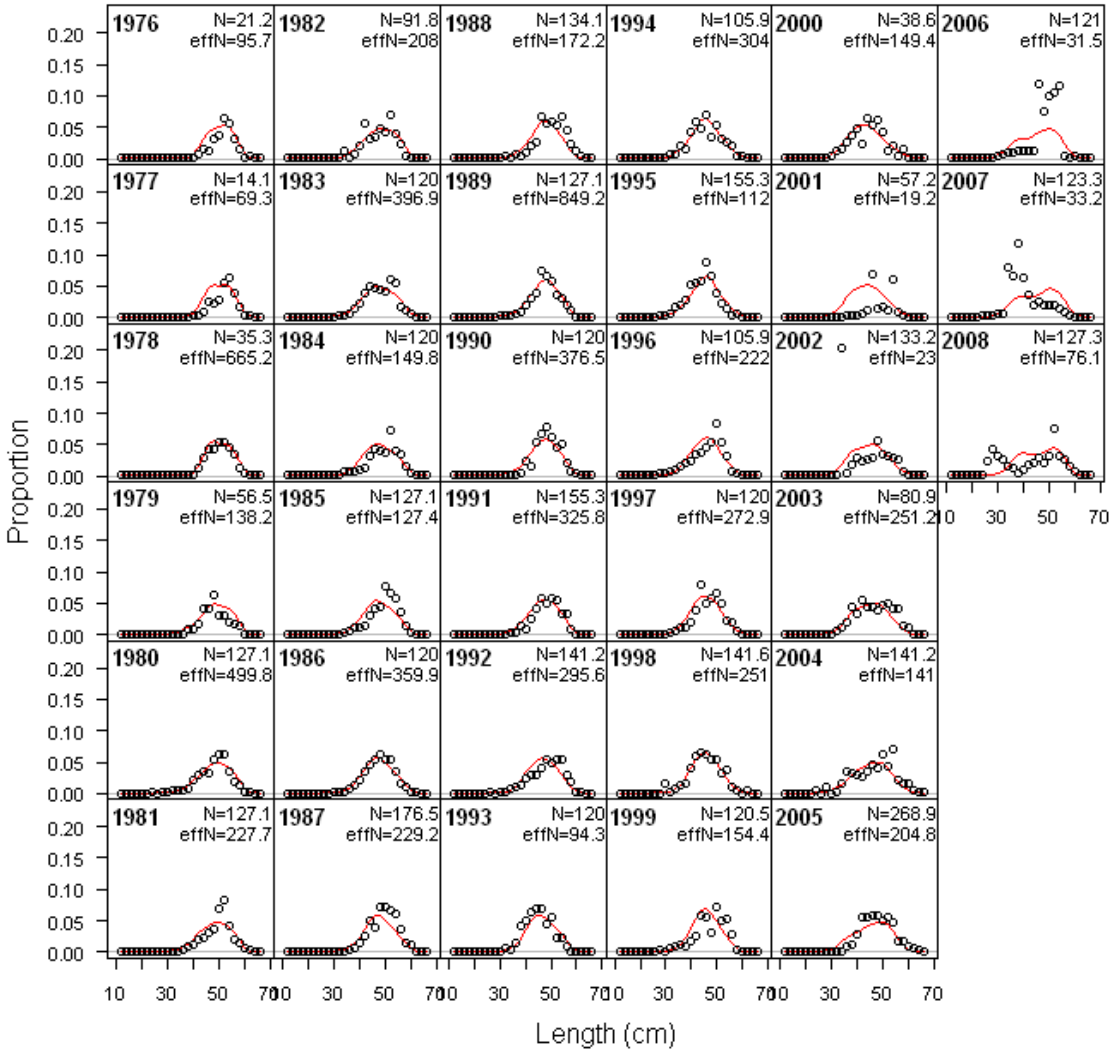

Figure 47. Fit to female length-frequency observations for the Washington trawl fleet.

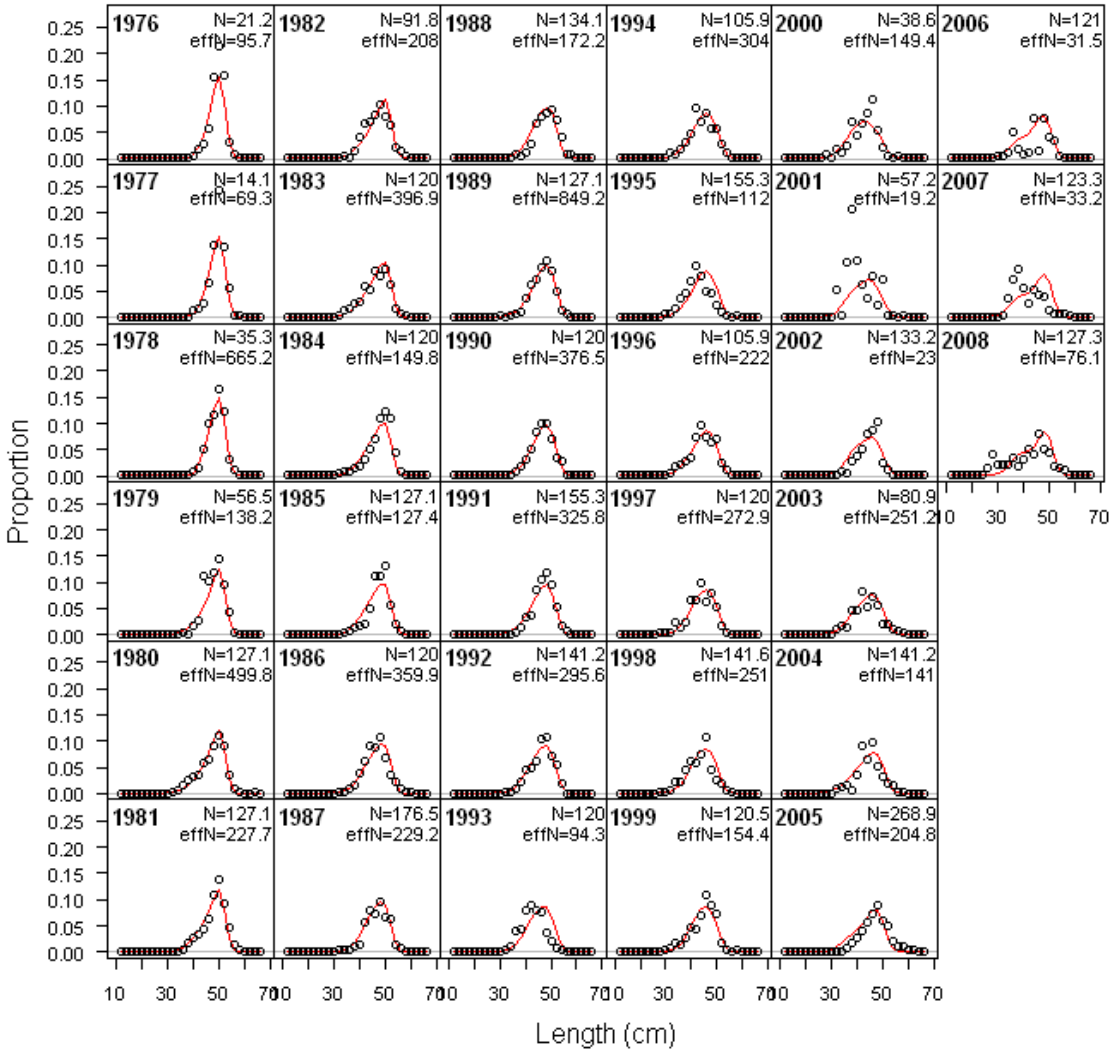

Figure 48. Fit to male length-frequency observations for the Washington trawl fleet.

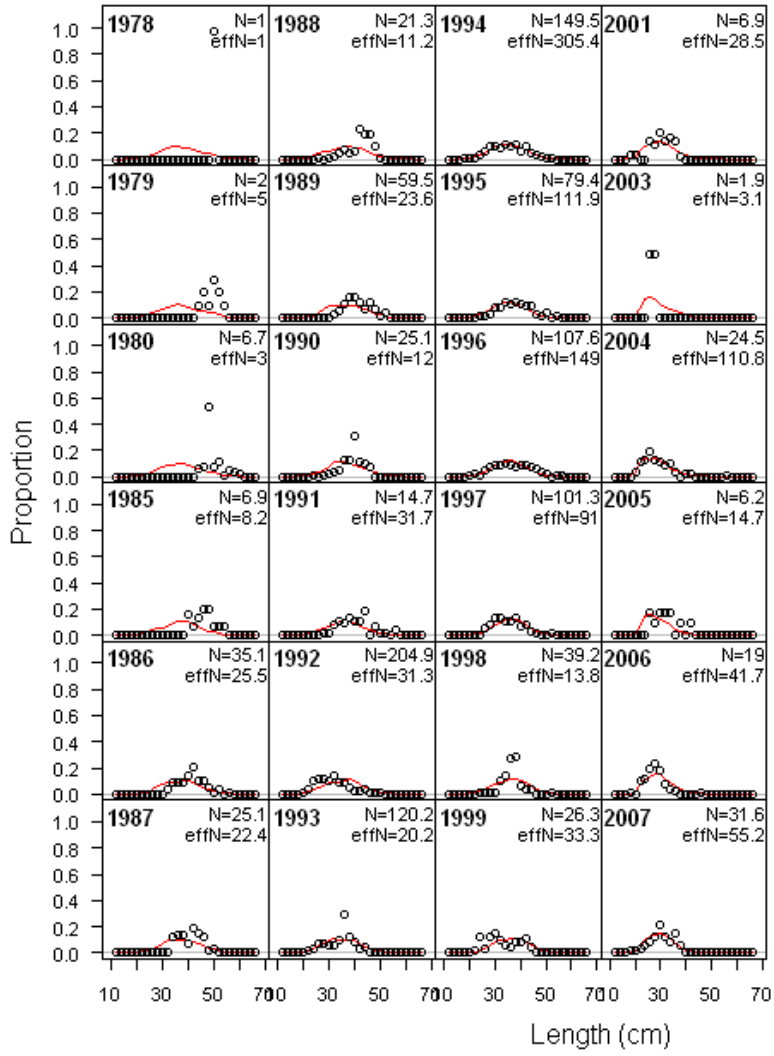

Figure 49. Fit to sexes combined length-frequency observations for the southern California non-trawl fleet.

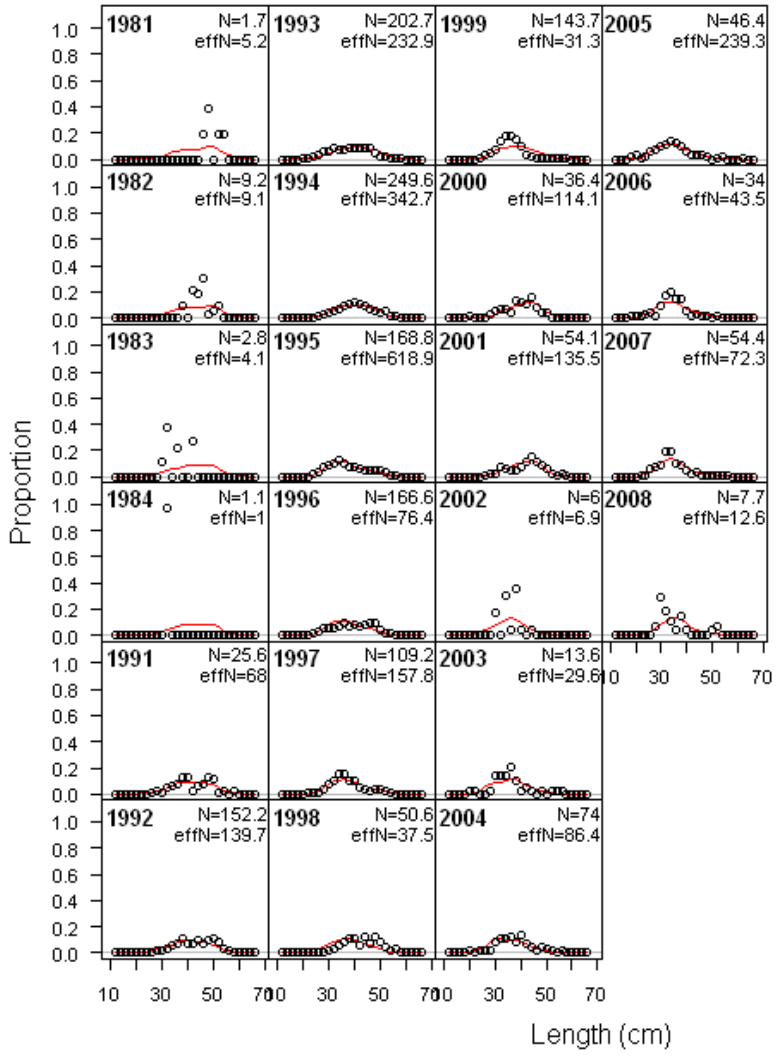

Figure 50. Fit to sexes combined length-frequency observations for the northern California non-trawl fleet.

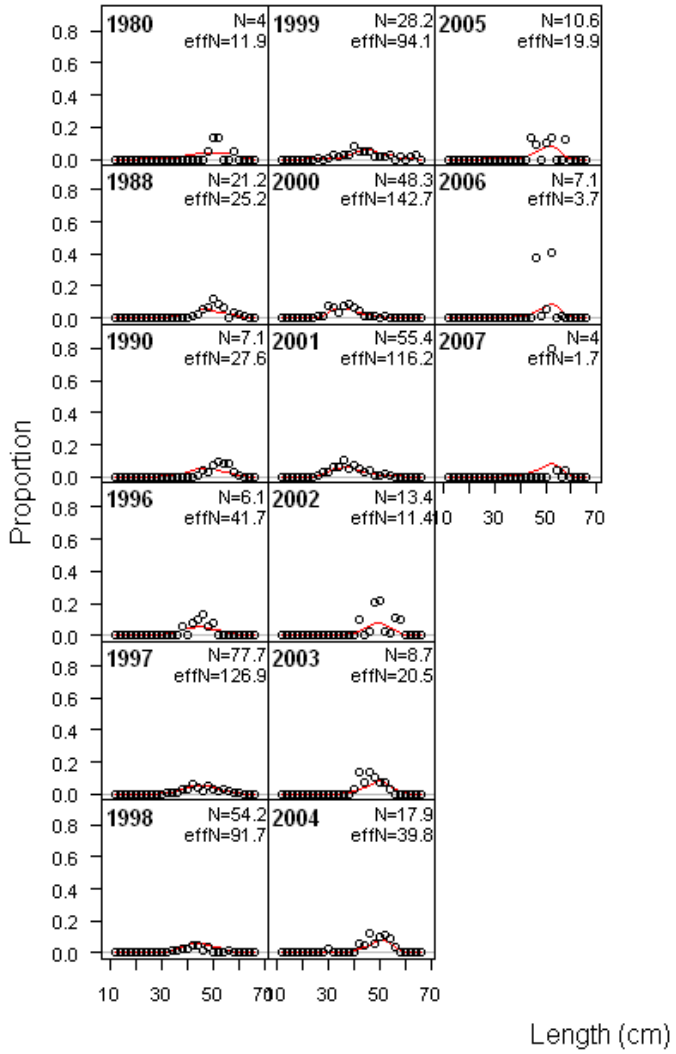

Figure 51. Fit to female length-frequency observations for the Oregon-Washington non-trawl fleet.

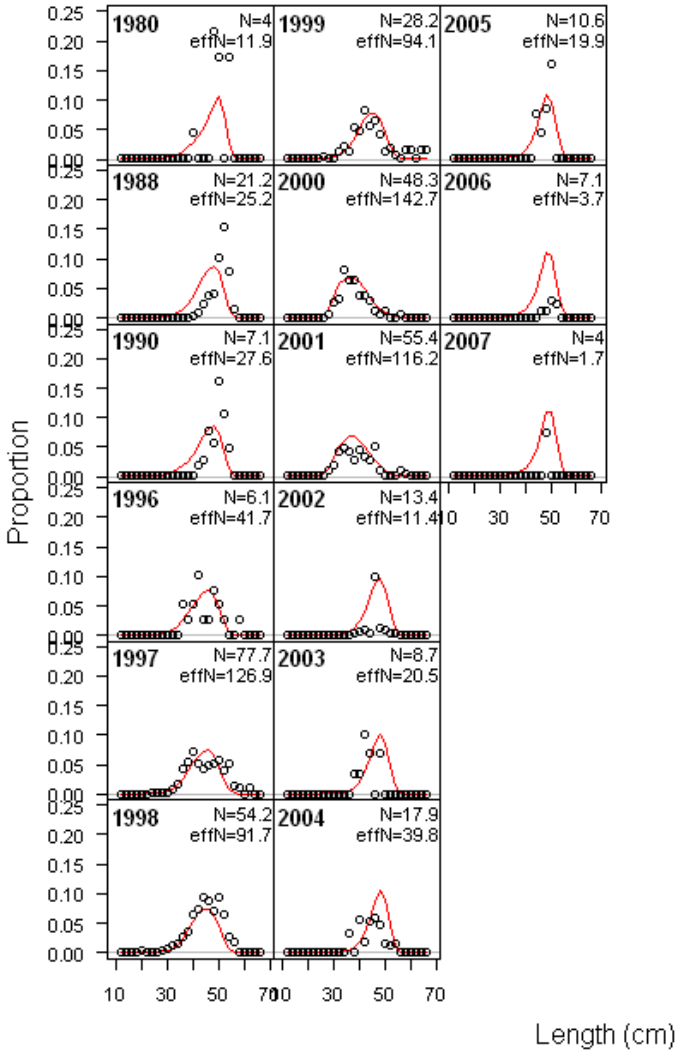

Figure 52. Fit to male length-frequency observations for the Oregon-Washington non-trawl fleet.

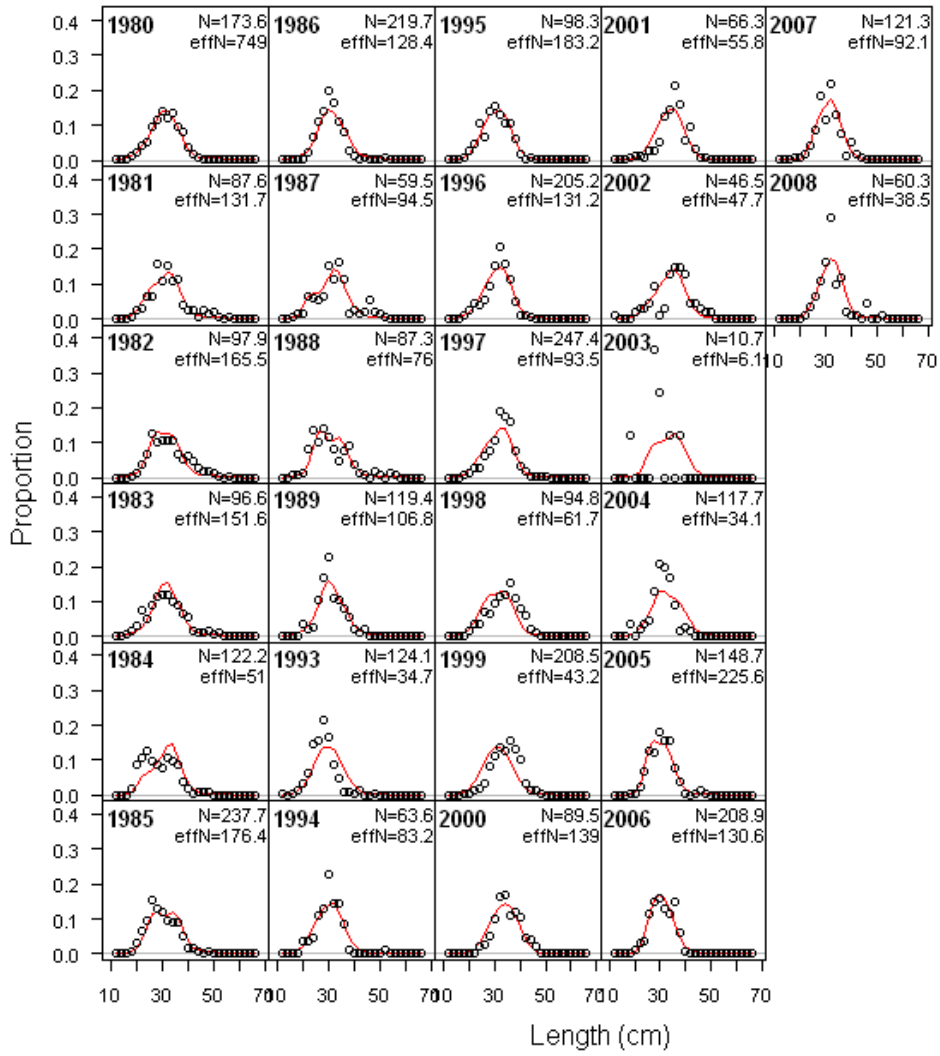

Figure 53. Fit to combined sex length-frequency observations for the southern California recreational fleet.

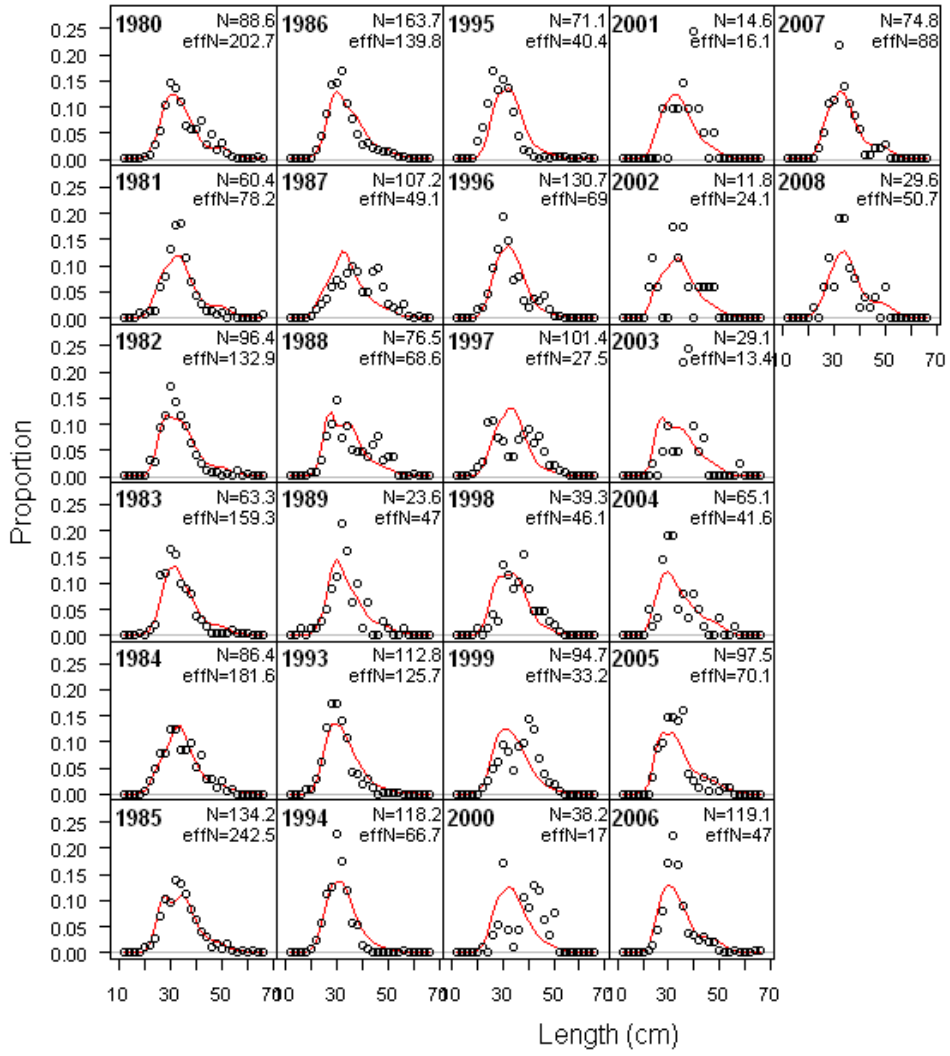

Figure 54. Fit to combined sex length-frequency observations for the northern California recreational fleet.

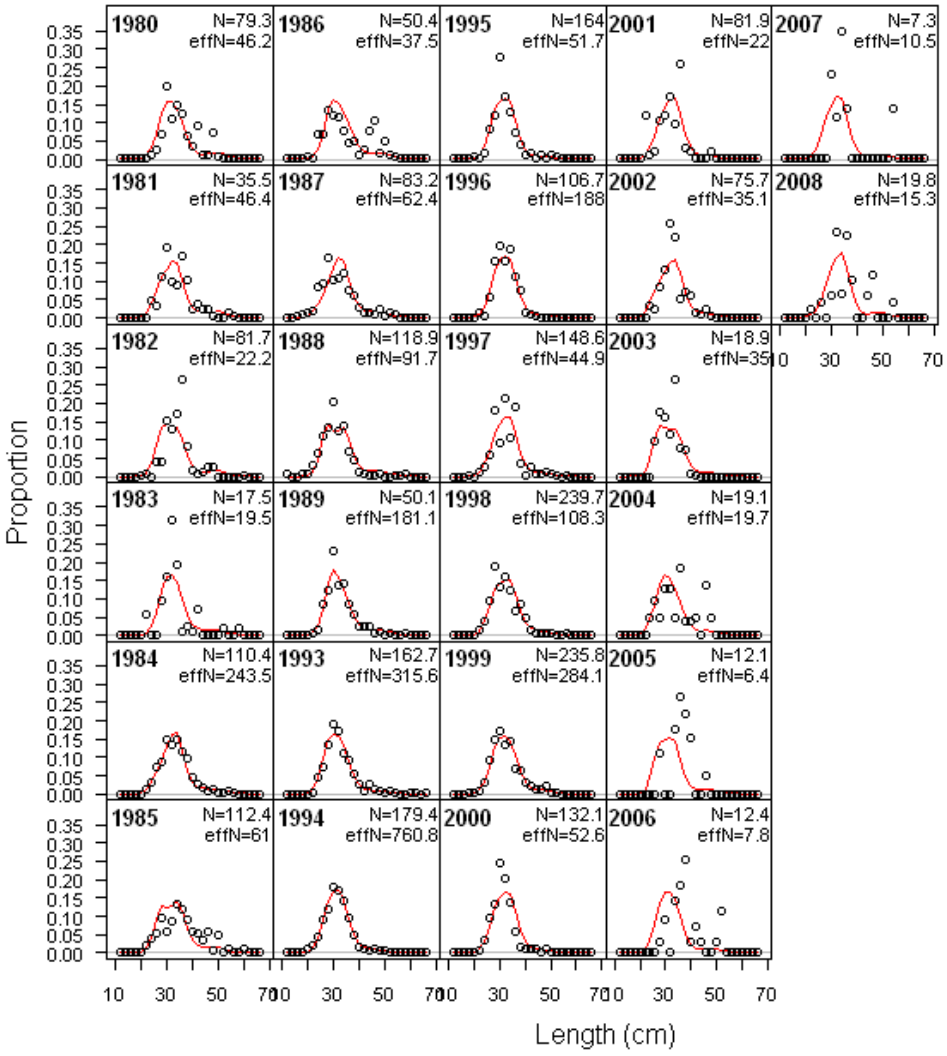

Figure 55. Fit to combined sex length-frequency observations for the Oregon-Washington recreational fleet.

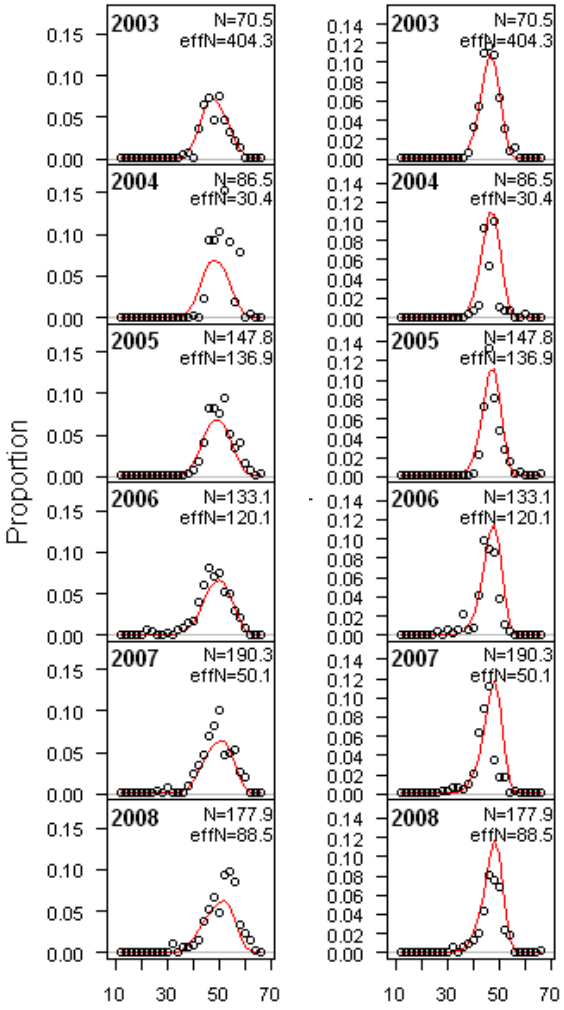

Figure 56. Fit to female (left panels) and male (right panels) length-frequency observations for the at-sea whiting fleet.

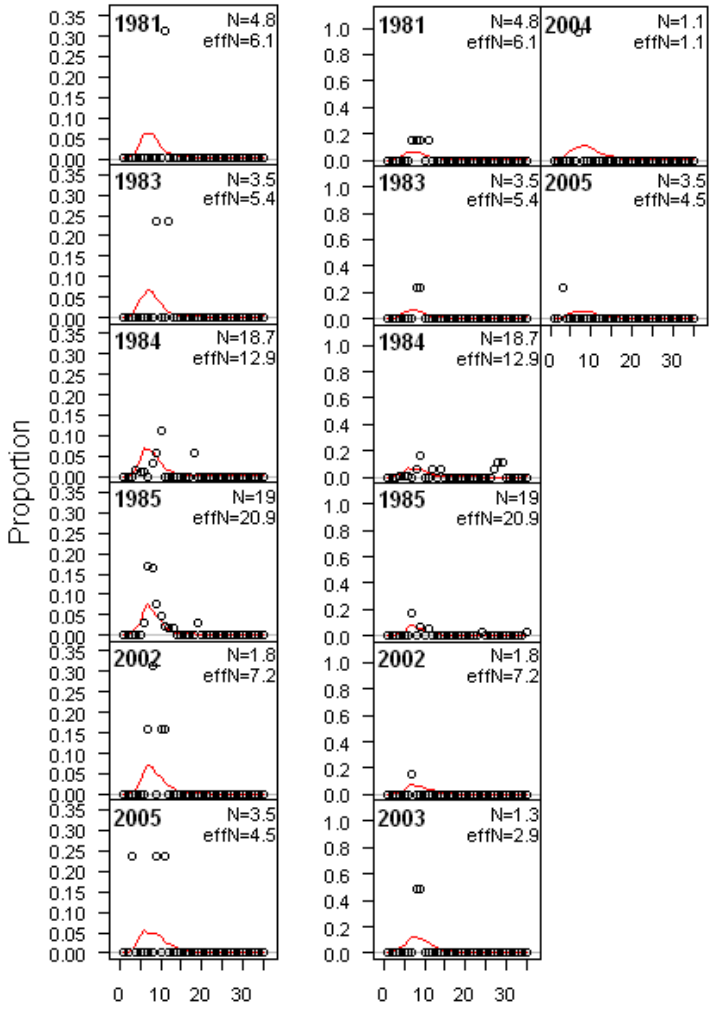

Figure 57. Fit to the southern California fishery female (left panels) and male (right panels) age-frequencies.

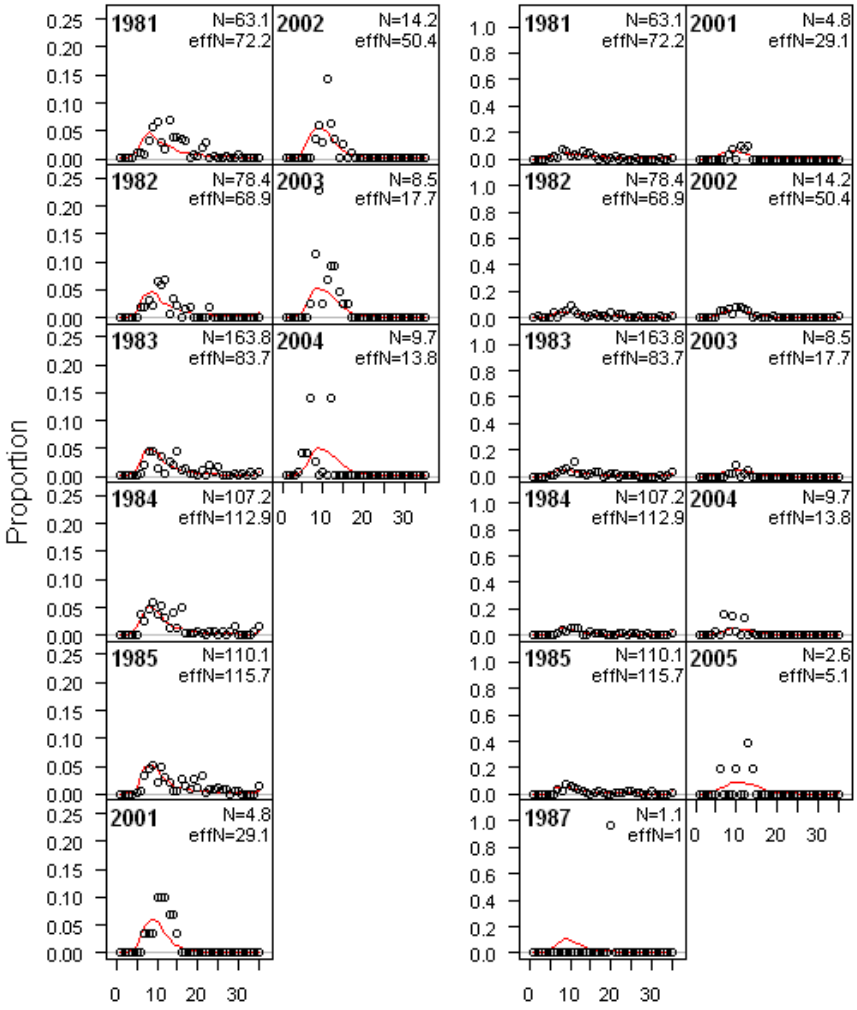

Figure 58. Fit to the northern California trawl fishery female (left panels) and male (right panels) age-frequencies.

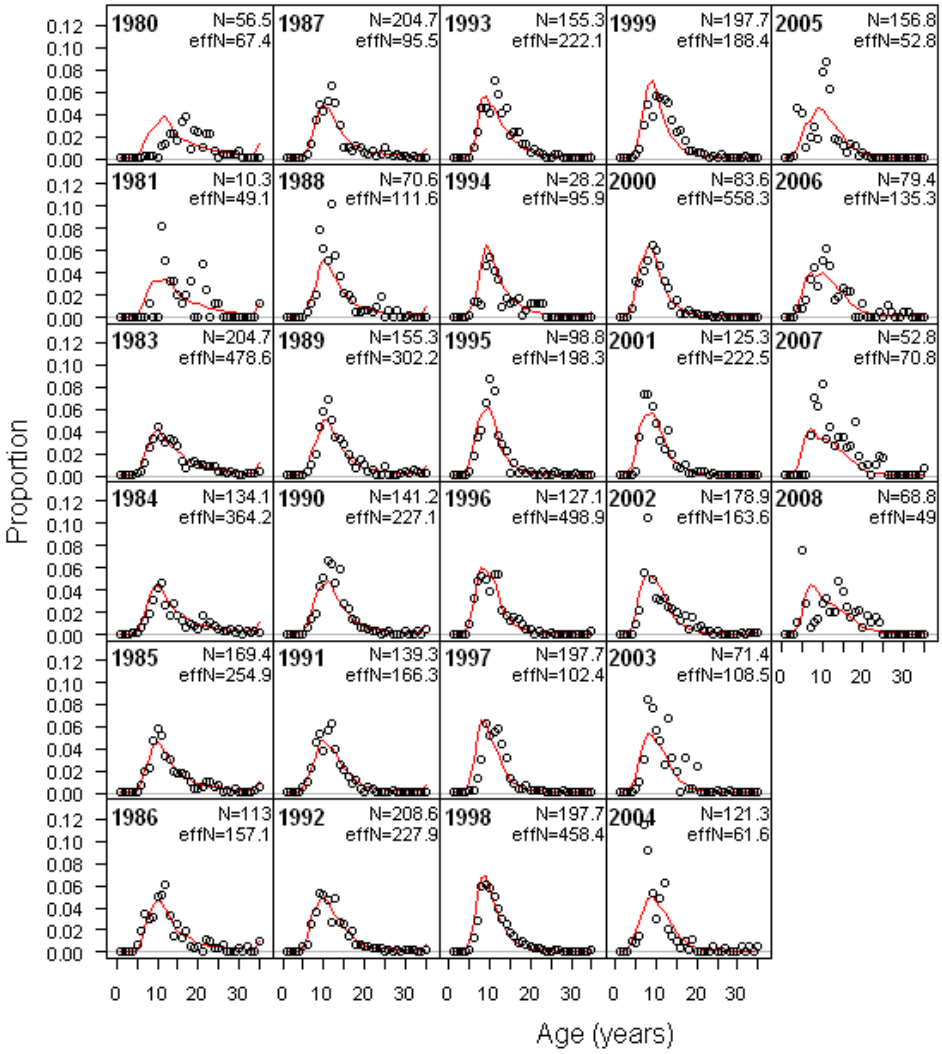

Figure 59. Fit to the Oregon trawl fishery female age-frequencies.

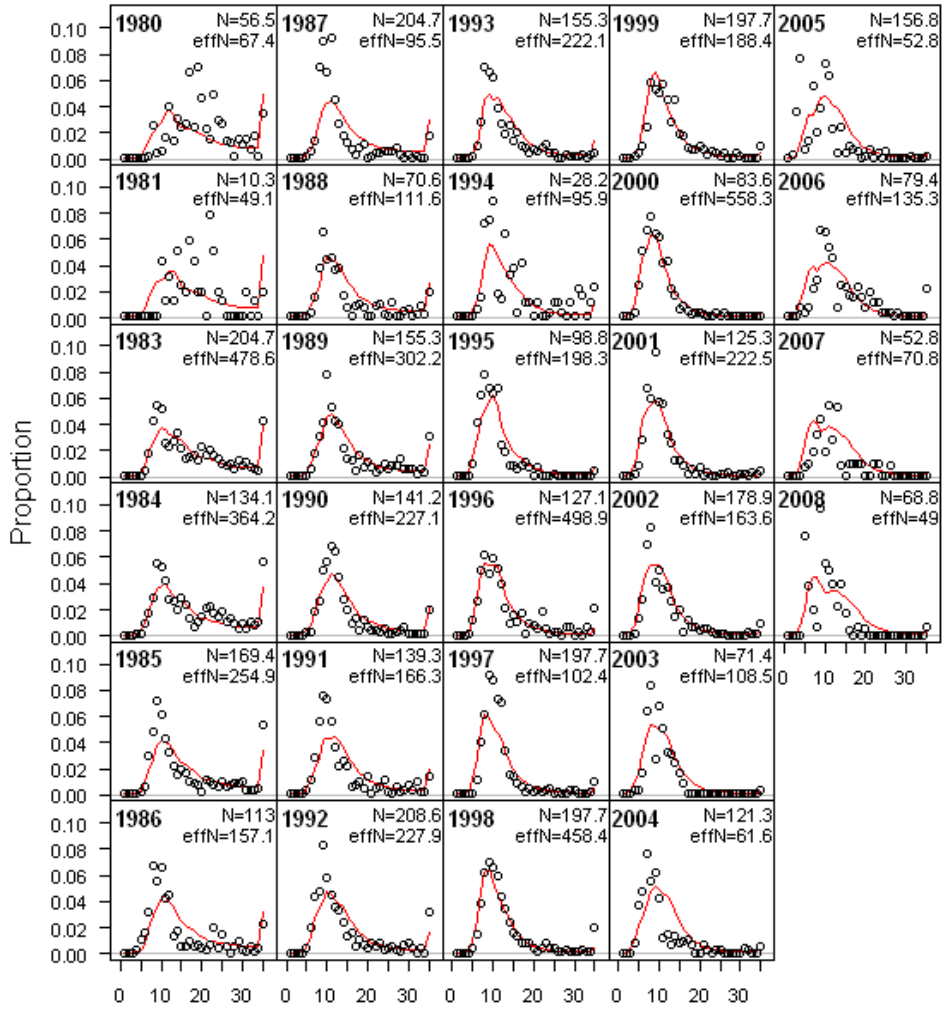

Figure 60. Fit to the Oregon trawl fishery male age-frequencies.

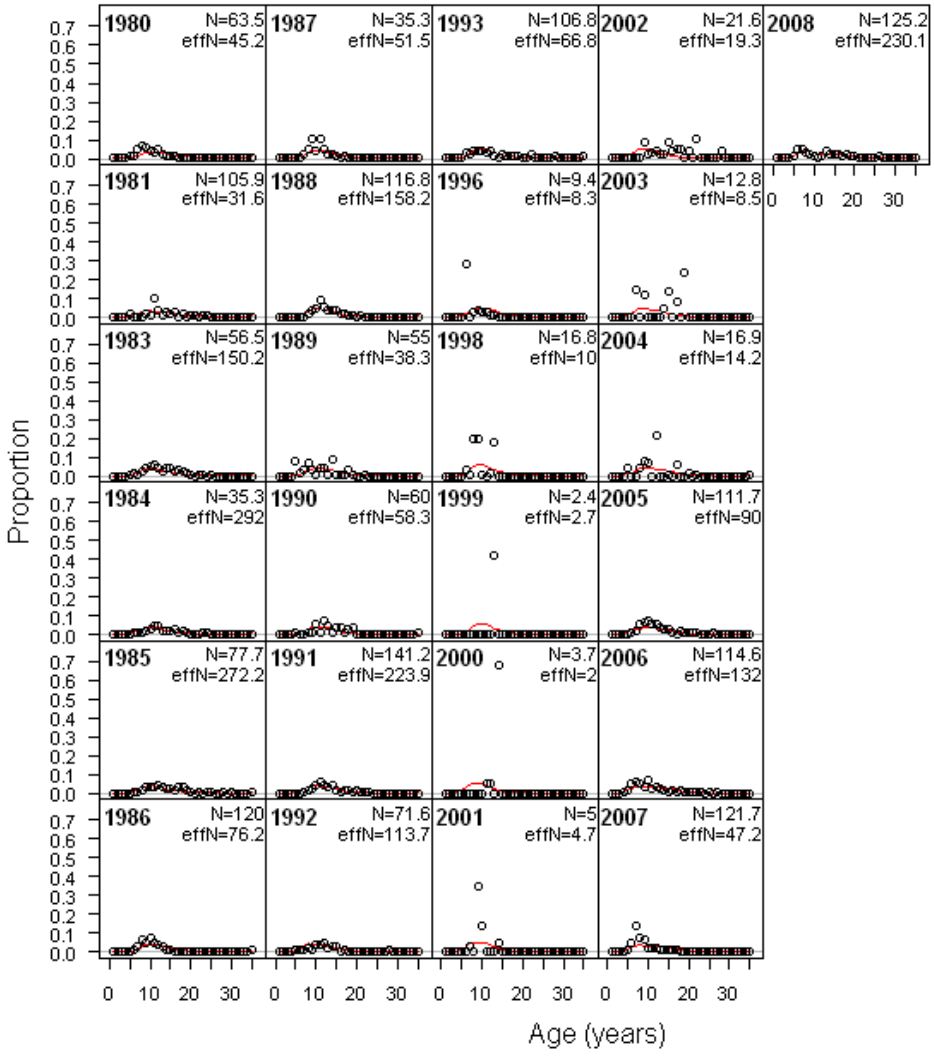

Figure 61. Fit to the Washington trawl fishery female age-frequencies based on WDFW ageing-error.

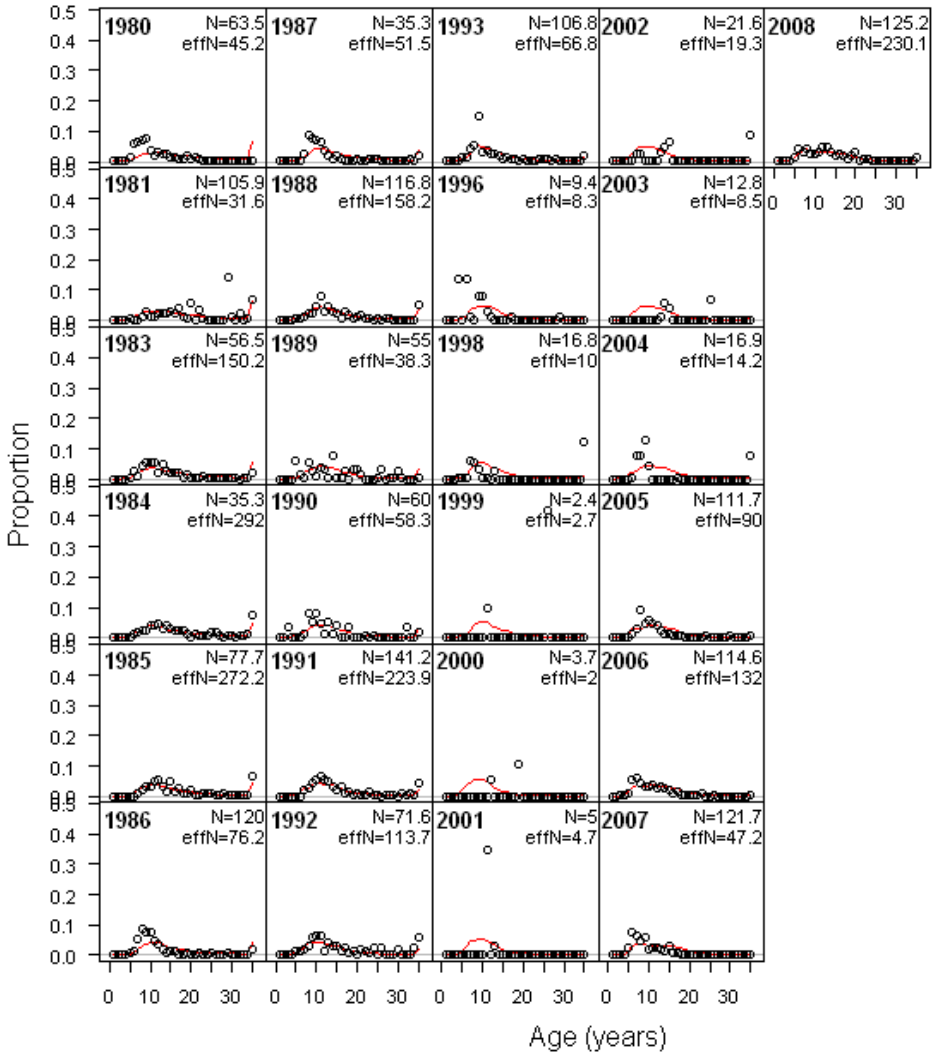

Figure 62. Fit to the Washington trawl fishery male age-frequencies based on WDFW ageing-error.

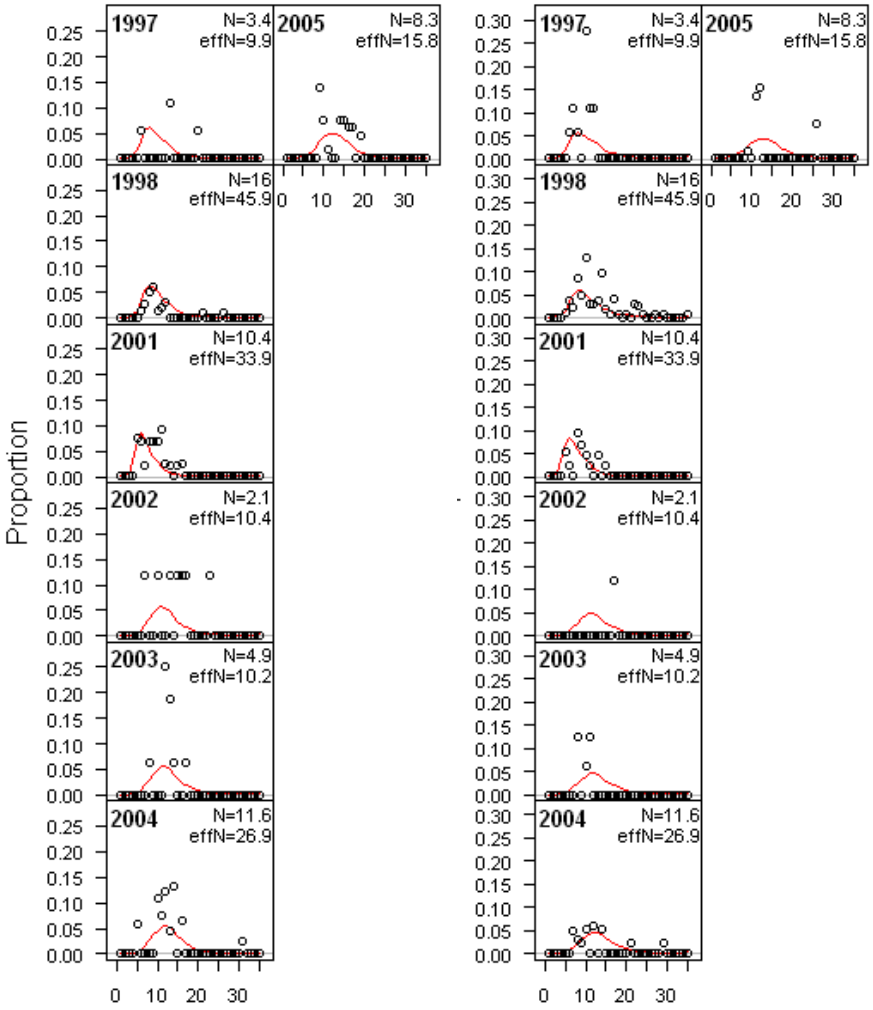

Figure 63. Fit to the Washington-Oregon non-trawl fishery female (left panels) and male (right panels) age-frequencies.

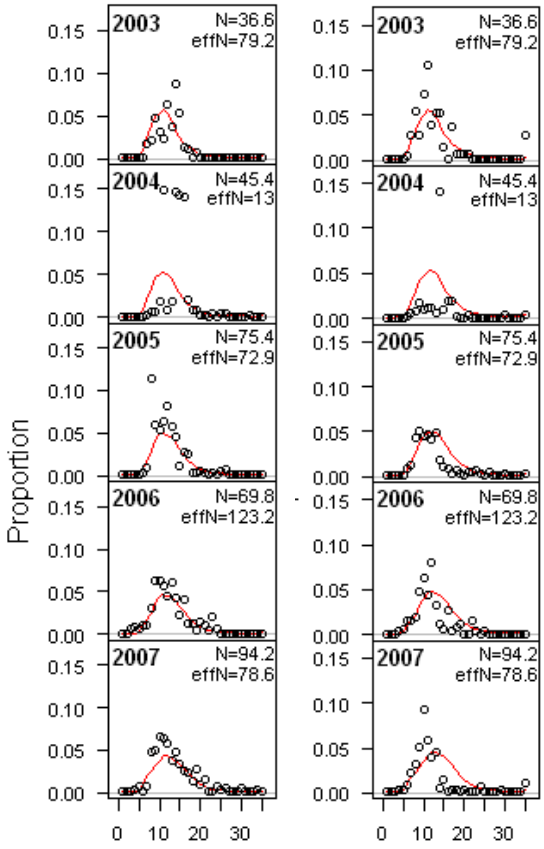

Figure 64. Fit to the at-sea whiting bycatch fishery female (left panels) and male (right panels) age-frequencies.

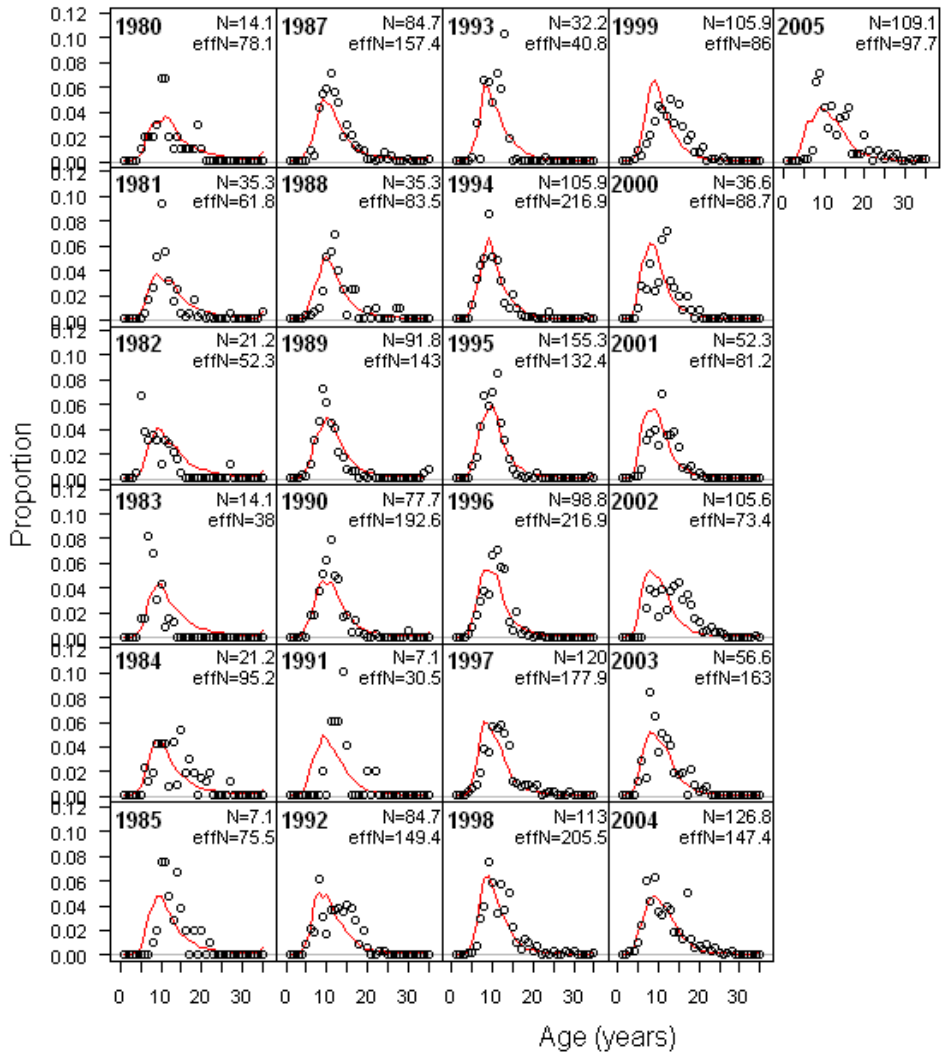

Figure 65. Fit to the Washington trawl fishery female age-frequencies based on CAP ageing-error.

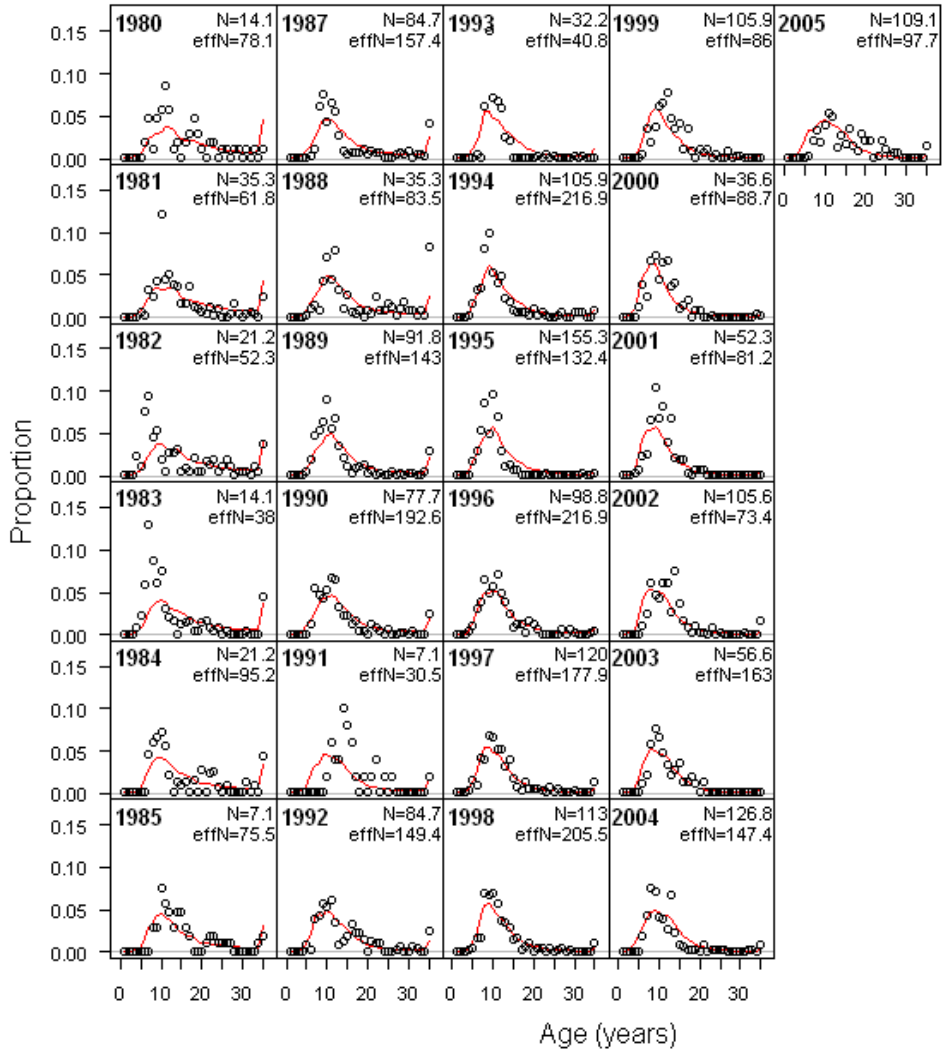

Figure 66. Fit to the Washington trawl fishery male age-frequencies based on CAP ageing-error.

13. Appendix B: SS Data file

Data file for 2009 Canary rockfish updated stock assessment

Global model specifications
1916 # Start year
2008 # End year
1 # Number of seasons/year
12 # Number of months/season (vector, by season)
1 # Spawning occurs at beginning of season
12 # Number of fishing fleets
6 # Number of survey fleets
1 # Number of areas
Fleet names (separated by "%")
1CA_S_trwl%2CA_N_trwl%3OR_trwl%4WA_trwl%5CA_S_nontrwl%6CA_N_nontrwl%7WAOR_nontrwl%8CA_S_rec%9CA_N_rec%10WAOR_rec%11_atseahake%12_NWFSC%13_Early_tri%14_pre_recruit%15_WAtrl_mirror%16_NWFSC_mirror%17_Late_tri%18_Tri_mirror
Fleet timing (proportion of season)
0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 # Area of each fleet
1 1 1 1 1 1 1 1 1 1 1 1 # Units for catch by fishing fleet: 1=Biomass(mt),2=Numbers(1000s)
0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 # SE of log(catch) by fleet for equilibrium and continuous options
2 # Number of genders (1=combined,2=females and males)
40 # Accumulator age (plus group for population dynamics)

Catch section
Initial equilibrium catch (landings + discard) by fishing fleet
0 0 0 0 0 0 0 0 0 0 0 0
93 # Number of lines catch data
Catch series - Updated for 2009
Catch(by fleet) YearSeason

0.00	10.63	0.00	0.00	0.00	26.31	0.00	0.00	0.00	0.00	0.00	0.00
	1916	1									
0.00	16.13	0.00	0.00	0.00	42.72	0.00	0.00	0.00	0.00	0.00	0.00
	1917	1									
0.00	16.40	0.00	0.00	0.00	44.90	0.00	0.00	0.00	0.00	0.00	0.00
	1918	1									
0.00	13.28	0.00	0.00	0.00	25.31	0.00	0.00	0.00	0.00	0.00	0.00
	1919	1									
0.00	13.20	0.00	0.00	0.00	27.56	0.00	0.00	0.00	0.00	0.00	0.00
	1920	1									
0.00	10.01	0.00	0.00	0.00	25.07	0.00	0.00	0.00	0.00	0.00	0.00
	1921	1									
0.00	8.95	0.00	0.00	0.00	23.25	0.00	0.00	0.00	0.00	0.00	0.00
	1922	1									
0.00	11.14	0.00	0.00	0.00	27.49	0.00	0.00	0.00	0.00	0.00	0.00
	1923	1									
0.00	5.89	0.00	0.00	0.00	34.46	0.00	0.00	0.00	0.00	0.00	0.00
	1924	1									
0.00	3.74	0.00	0.00	0.00	43.04	0.00	0.00	0.00	0.00	0.00	0.00
	1925	1									
0.00	12.58	0.00	0.00	0.00	49.92	0.00	0.00	0.00	0.00	0.00	0.00
	1926	1									
0.00	15.54	0.00	0.00	0.00	40.52	0.00	0.00	0.00	0.00	0.00	0.00
	1927	1									
0.00	19.16	8.16	0.00	0.00	34.99	0.00	0.00	0.00	0.00	0.00	0.00
	1928	1									
0.00	34.55	14.19	0.00	0.00	23.92	0.00	0.00	1.29	0.00	0.00	0.00
	1929	1									
0.00	29.84	13.14	0.00	0.00	34.09	0.00	0.00	2.09	0.00	0.00	0.00
	1930	1									
0.00	41.45	10.06	0.00	0.00	33.12	0.00	0.00	3.14	0.00	0.00	0.00
	1931	1									
0.00	28.35	3.69	0.04	0.00	27.40	0.00	0.00	4.19	0.00	0.00	0.00
	1932	1									
0.00	38.45	5.39	0.00	0.00	10.97	0.00	0.00	5.23	0.00	0.00	0.00
	1933	1									
0.00	33.00	5.86	0.30	0.00	15.27	0.00	0.00	6.28	0.00	0.00	0.00
	1934	1									

0.00	33.72	5.40	2.30	0.00	23.17	0.00	0.00	7.33	0.00	0.00	0.00
	1935	1									
0.00	20.21	13.41	2.96	0.00	20.92	0.00	0.00	8.38	0.00	0.00	0.00
	1936	1									
0.00	30.80	17.03	2.64	0.00	13.28	0.00	0.00	9.99	0.00	0.00	0.00
	1937	1									
0.00	31.36	15.47	3.90	0.00	13.62	0.00	0.00	9.80	0.00	0.00	0.00
	1938	1									
0.00	41.59	11.49	4.09	0.00	12.96	0.00	0.00	8.58	0.00	0.00	0.00
	1939	1									
0.00	33.96	68.56	9.05	0.00	9.52	0.00	0.00	12.18	0.00	0.00	0.00
	1940	1									
0.00	26.94	144.08	3.39	0.00	12.32	0.00	0.00	11.14	0.00	0.00	0.00
	1941	1									
0.00	6.48	210.19	65.81	0.00	9.23	0.00	0.00	12.09	0.00	0.00	0.00
	1942	1									
0.00	32.10	766.49	212.71	0.00	7.62	0.00	0.00	13.04	0.00	0.00	0.00
	1943	1									
0.00	133.92	1258.48	88.40	0.00	28.63	0.00	0.00	13.99	0.00	0.00	0.00
	1944	1									
0.00	304.19	1937.94	926.43	0.00	69.70	0.00	0.00	14.94	0.00	0.00	0.00
	1945	1									
0.00	275.87	1215.83	467.02	0.00	71.77	0.00	0.00	15.89	0.00	0.00	0.00
	1946	1									
0.00	110.71	755.22	243.97	0.00	16.42	0.00	0.00	8.97	0.00	0.00	0.00
	1947	1									
0.00	114.62	519.74	396.17	0.00	32.11	0.00	0.00	18.11	0.00	0.00	0.00
	1948	1									
0.00	96.72	528.54	481.83	0.00	12.42	0.00	0.00	23.42	0.00	0.00	0.00
	1949	1									
0.00	92.93	633.70	463.03	0.00	10.06	0.00	0.00	28.53	0.00	0.00	0.00
	1950	1									
0.00	199.38	409.14	387.38	0.00	16.32	0.00	0.00	31.99	0.00	0.00	0.00
	1951	1									
0.00	134.15	418.88	369.45	0.00	12.33	0.00	0.00	28.55	0.00	0.00	0.00
	1952	1									
0.00	134.01	334.79	160.20	0.00	7.17	0.00	0.00	25.07	0.00	0.00	0.00
	1953	1									
0.00	90.29	421.04	229.79	0.00	17.49	0.00	0.00	33.86	0.00	0.00	0.00
	1954	1									
0.00	100.28	442.74	216.84	0.00	4.12	0.00	0.00	43.75	0.00	0.00	0.00
	1955	1									
0.00	99.01	271.93	207.15	0.00	6.36	0.00	0.00	49.41	0.00	0.00	0.00
	1956	1									
0.00	114.58	779.74	171.37	0.00	6.88	0.00	0.00	42.61	0.00	0.00	0.00
	1957	1									
0.00	147.85	599.62	216.94	0.00	9.02	0.00	0.00	65.93	0.00	0.00	0.00
	1958	1									
0.00	108.66	658.62	242.52	0.00	6.46	0.00	0.00	52.38	0.00	0.00	0.00
	1959	1									
0.00	83.92	834.55	219.31	0.00	8.97	0.00	0.00	41.37	0.00	0.00	0.00
	1960	1									
0.00	66.84	760.81	260.34	0.00	6.36	0.00	0.00	30.22	0.00	0.00	0.00
	1961	1									
0.00	66.25	795.34	362.74	0.00	9.39	0.00	0.00	36.80	0.00	0.00	0.00
	1962	1									
0.00	90.90	544.63	292.02	0.00	8.25	0.00	0.00	39.79	0.00	0.00	0.00
	1963	1									
0.00	59.74	489.43	215.56	0.00	7.09	0.00	0.00	38.20	0.00	0.00	0.00
	1964	1									
0.00	80.37	483.87	480.38	0.00	8.73	0.00	0.00	57.60	0.00	0.00	0.00
	1965	1									
0.00	59.46	2127.32	729.91	0.00	6.57	0.00	0.00	65.34	0.00	0.00	0.00
	1966	1									
0.00	81.41	854.51	414.09	0.00	7.53	0.00	0.00	70.75	0.00	0.00	0.00
	1967	1									
0.00	77.62	788.70	671.26	0.00	4.80	0.00	0.00	76.65	0.00	0.00	0.00
	1968	1									
2.28	201.51	671.26	558.87	3.20	15.82	0.00	0.00	82.16	0.00	0.00	0.00
	1969	1									

3.02	215.09	679.36	472.82	3.60	8.40	0.00	0.00	104.22	0.00	0.00	0.00
	1970	1									
1.67	328.87	702.64	454.59	4.65	16.54	0.00	0.00	93.06	0.00	0.00	0.00
	1971	1									
3.32	420.27	927.41	163.00	5.83	35.12	0.00	0.00	121.34	0.00	0.00	0.00
	1972	1									
5.04	697.64	1306.06	146.81	7.87	11.73	0.00	0.00	141.51	0.00	0.00	0.00
	1973	1									
3.92	551.04	602.41	480.92	9.89	40.22	0.00	0.00	153.15	0.00	0.00	0.00
	1974	1									
5.06	539.51	525.46	575.07	10.93	25.11	0.00	0.00	150.16	4.01	0.00	0.00
	1975	1									
5.63	524.00	283.49	454.59	10.83	39.32	0.00	0.00	156.59	2.11	0.00	0.00
	1976	1									
5.13	456.35	489.01	991.19	9.99	49.67	0.00	0.00	149.55	4.47	0.00	11.66
	1977	1									
0.00	655.43	990.18	1126.86	15.02	131.35	0.00	0.00	144.37	10.30	0.00	0.00
	1978	1									
4.36	311.05	1750.53	1118.76	22.92	106.04	0.00	0.00	165.42	4.86	0.00	0.00
	1979	1									
10.38	433.41	2309.41	945.63	17.21	78.80	0.00	74.36	86.37	34.98	0.00	5.31
	1980	1									
34.18	494.01	2082.84	514.45	40.14	164.77	0.00	35.05	118.04	48.89	0.00	0.00
	1981	1									
0.90	797.71	3941.26	435.11	37.82	10.68	0.00	34.33	241.28	44.47	0.00	0.00
	1982	1									
7.39	499.24	3580.68	650.80	47.41	10.04	0.00	11.63	93.99	6.82	0.00	10.49
	1983	1									
1.80	414.82	1188.43	612.87	32.35	20.88	0.00	31.77	75.66	26.65	0.00	0.00
	1984	1									
6.98	316.25	1029.50	1037.98	29.74	82.10	0.00	43.47	120.33	63.37	0.00	0.00
	1985	1									
0.81	166.16	902.13	899.06	12.37	43.98	15.64	61.40	165.45	24.21	0.00	11.78
	1986	1									
0.00	209.24	1491.39	1016.63	20.10	23.78	160.00	57.02	168.13	34.34	0.00	0.00
	1987	1									
0.28	223.62	1576.42	979.31	21.64	31.73	0.00	46.59	137.65	56.59	0.00	0.00
	1988	1									
5.13	178.43	1573.63	1208.85	87.48	129.52	0.00	29.71	85.89	31.56	0.00	5.10
	1989	1									
0.95	326.72	1029.44	1099.48	39.83	180.05	17.35	10.02	61.34	38.43	0.00	0.00
	1990	1									
0.45	148.99	1776.39	971.64	69.21	92.36	27.91	10.02	61.34	43.75	5.06	0.00
	1991	1									
2.21	223.75	1423.29	825.03	19.24	107.82	152.43	10.02	61.34	38.43	1.81	1.17
	1992	1									
4.91	85.25	1513.80	289.81	14.07	94.22	116.69	0.00	64.82	51.07	0.72	0.00
	1993	1									
0.33	126.13	644.15	149.54	13.03	82.80	104.87	0.00	53.46	38.78	4.83	0.00
	1994	1									
29.44	109.56	548.61	161.15	35.22	79.31	118.68	1.23	68.33	43.53	0.31	1.07
	1995	1									
11.39	206.97	758.21	189.85	31.40	104.98	166.36	2.49	60.59	25.24	1.35	0.00
	1996	1									
4.14	170.64	589.85	203.44	8.43	96.29	254.41	1.75	100.85	46.68	3.63	0.00
	1997	1									
4.05	154.93	716.05	203.02	8.73	71.53	250.13	1.14	25.46	53.49	5.47	0.97
	1998	1									
1.88	102.77	387.85	139.97	2.93	33.84	123.96	2.81	62.05	35.02	5.63	0.00
	1999	1									
0.17	12.45	38.36	32.70	0.87	7.18	10.25	0.41	76.64	18.46	2.35	0.00
	2000	1									
0.11	10.76	32.57	19.65	0.48	6.08	11.02	0.00	33.37	13.34	4.05	1.61
	2001	1									
0.07	16.06	31.84	22.15	0.06	0.75	4.45	0.21	6.00	11.13	5.24	0.13
	2002	1									
1.42	3.31	14.72	4.76	0.06	0.81	2.63	0.06	18.05	12.10	0.93	1.08
	2003	1									
0.36	1.88	9.59	5.29	0.21	2.63	6.51	1.48	9.11	5.76	5.22	2.24
	2004	1									

```
0.20    5.86    24.23   10.83   0.13    1.67    1.19    1.49    2.00    6.82    1.44    4.54
        2005    1
0.92    5.61    15.31   5.73    0.18    2.23    1.14    5.73    12.30   3.98    1.09    7.78
        2006    1
0.26    7.54    9.92    3.78    0.25    3.14    0.89    3.47    7.44    3.53    2.00    2.50
        2007    1
0.28    8.19    1.22    3.25    0.06    0.82    5.31    2.20    4.80    5.50    5.96    2.90
        2008    1

### Abundance indices ###
23 # Total number of observations (all fleets)

# Year  Seas    Type    Value   s(log space)
# 2009 NWFSC survey - GLMM based (n=4)
2003    1       12      1449.97 0.257
2004    1       12      1293.77 0.281
2005    1       12      1325.95 0.248
2006    1       12      4238.49 0.573
2007    1       12      1309.70 0.287
2008    1       12      2402.02 0.477
# Triennial survey - GLMM based (n=9)
1980    1       13      1969.39 0.413
1983    1       13      3768.39 0.349
1986    1       13      2419.72 0.361
1989    1       13      1691.33 0.431
1992    1       13      558.28  0.422
1995    1       17      505.81  0.439
1998    1       17      631.39  0.408
2001    1       17      764.26  0.409
2004    1       17      1016.73 0.446
# Pre-recruit index Revised for 2009 (n=8)
2001    1       14      1.96  0.057
2002    1       14      5.13  0.056
2003    1       14      1.52  0.045
2004    1       14      4.33  0.048
2005    1       14      2.02  0.042
2006    1       14      1.06  0.040
2007    1       14      1.28  0.043
2008    1       14      1.62  0.043

### Discard section ###
# Discard observation setup
2       # Type: 1 = biomass (mt),2 = fraction (D/(D+R)) by weight
0       # Total number of discard observations all fleets and years

# Mean body weight observations
0       # Total number of mean body weight observations

## Population size structure
3  # Length bin method: 1=Use data bins,2=generate from min/max/width read below, 3=Read count and vector below
30 # Count of population bins
# Lower edge of bins
8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66

-1      # Minimum proportion for compressing tails of observed compositional data
0.001   # Constant added to expected frequencies
0       # Combine males and females at and below this bin number

28      # Number of length bins
# Lower edge of length bins by bins
12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66

### length composition data ###
291     # Total number of length observations all fleets and years
# Gender: 0=sexes combined into length bins, 1=females only (0s male bins), 2=males only (0s for female bins), 3=both males and
females, total should sum to 1.0
# Year  Seas    Type    Gender  Partition  Nsamp   Data: females then males
# 2009 Southern California trawl fleet (n=30)
1978    1       1       0       0       9.21    0       0       0       0       0       0
        0       0       0       0       0       36.75325  0       67.19697  103.95022 0       21.73913
```

	208.18626	61.38711	451.37755	0	21.73913	21.73913	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1979	1	1	0	0	2.28	0	0	0	0	0	0
	0	0	0	0	0	0	51.6129	0	0	0	354.32692
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1980	1	1	0	0	14.45	0	0	0	0	0	0
	0	0	0	0	121.76471	669.15126	506.66666	716.5967	768.92033	430.43613	510.92888
	285.94	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1981	1	1	0	0	9.38	0	0	0	0	0	0
	0	0	0	0	0	0	0	271.7884615		879.5896885	
	493.7285367		0	374.5306122		0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	
1982	1	1	0	0	4.69	0	0	0	0	0	0
	0	0	0	0	0	0	54.6	257.6422018		0	500
	228.8	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0				
1983	1	1	0	0	8.66	0	0	0	0	0	0
	0	0	0	0	0	37.0408163		0	115.4166667		
	212.0171166		309.7270766		192.0171166		238.8372093		0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0									
1984	1	1	0	0	18.83	0	0	0	0	0	0
	0	29.877551	59.755102	119.510204		109.5510204		93.5941915		24.4749711	
	603.1632653		324.2826087		137.0093458		810.6796117		702.5882353		0
	824.2826087		1658.048033		500	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1985	1	1	0	0	32.73	171.3207547		0	0	0	0
	0	0	0	0	119.9185635		90.0094961		527.6007593		
	787.6976493		795.7559878		515.3457244		664.0846327		102.4770777		
	111.295098		0	154.3269231		77.1634615		0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	3.55	0	0	0	0	0	0
	0	0	0	0	12.9591837		0	105.3	0	12.9591837	
	183.3	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0			
1988	1	1	0	0	3.41	0	0	0	0	0	0
	0	81.81	0	0	0	0	71.9958879		0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0				
1989	1	1	0	0	5.07	0	0	0	0	0	0
	0	0	0	0	21.4615384		0	53.6538462		36.9038462	
	532.1923077		0	0	0	10.7307692		0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
1990	1	1	0	0	8.90	0	0	0	0	0	0
	0	0	222.7990654		7.5	3.75	11.86	171.36125	9.55	0	3.75

	8.11	17.9313725	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0			
1991	1	1	0	0	8.76	0	0	0	0	0	0
	0	0	0	0.7088608	83.0546762		63.4044164		414.9436735		
	85.4511112		45.5111111		0.7088608	0	62.6955556	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0									
1992	1	1	0	0	14.93	0	0	0	0	0	0
	0	0	0	0	49.7728571		99.9788093		93.5015247		
	85.1026188		102.1530612		48.4931973		70.1564626		4.4859813	5.1666667	0
	5.1666667	10.8703704	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0							
1993	1	1	0	0	49.98	0	0	0	0	0	0
	0	15.6185158		59.5259383		253.1475428		229.9486807		368.4702333	
	371.8077533		1050.393493		253.6125338		370.1500121		64.4630154		
	84.8043099		17.8424547		81.4494418		49.3918036		15.6442308		3.2178218
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
1994	1	1	0	0	14.83	0	0	0	0	0	0
	0	0	0	0	0	40.286247	9.9955207	148.3938414		117.2055354	
	94.3406186		91.555442	50.2483862		36.6737708		12.0103093		45.8963124	
	12.0103093		16.9430016		0	0	0	12.0103093		0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0						
1995	1	1	0	0	13.28	0	0	0	0	0	0
	0	0	0	30.48	196.9303226		63.7545833		53.5945833		12.16
	27.1145833		183.3514493		116.0076993		71.7785326		78.2133152		
	49.6639493		22.1145833		22.1145833		10.16	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0				
1996	1	1	0	0	42.91	0	0	0	0	0	0
	0	2.5714286	58.7589286		53.643617	137.0168259		131.3431123		178.4191272	
	278.562743		600.0516522		269.2882356		253.1958774		59.0065554		
	85.5728155		99.9766617		85.5728155		42.7864078	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0		
1997	1	1	0	0	48.98	0	0	0	0	0	0
	0	0	3.0851064	7.0851064	23.228554	85.3796648		125.6838593		183.3232179	
	436.7562792		574.8167819		439.4557894		483.3556633		208.3741298		
	210.5980128		29.19	58.38	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0						
1998	1	1	0	0	23.73	0	0	0	0	0	0
	0	0	0	60.7042553		240.0974468		236.3539362		242.1889361	
	135.5595745		61.1304492		11.2348936		37.0948936		0	4.6	8.4148936
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0								
1999	1	1	0	0	11.90	0	0	0	0	0	0
	0	0	0	0	0	30.9288889		31.3177778		95.8288889	
	36.8577778		61.6288889		28.8777778		11.08	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2000	1	1	0	0	8.73	0	0	0	0	0	0
	0	0	0	0	0	7.5	11.9444444		15	12.5	7.5
	20.0979097		1	0	0	0	0	0	0	0	0

0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
2001 1 1 0 0 20.45 0 0 0 0 0 0
0 0 0 7.6905747 7.0411494 32.1920487 20.3857471 12.6034483
6.9730237 6.2495109 3.9730237 1 4.9730237 0 1 3.622449 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
2002 1 1 0 0 4.38 0 0 0 0 0 0
0 1 0 0 0 0 1 1 2 3 1
1 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0
2003 1 1 0 0 9.35 6.128650448 49.02920359 0 0
6.128650448 0 0 0 0 0 0 0 0
0 6.128650448 65.41403854 65.41403854 0 0 12.2573009
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0
2004 1 1 0 0 5.97 0 0 0 0 0 0
0 0 0 0 0 0 0 0 351.2282658
90.00222804 0 0 0 30.00074268 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0
2005 1 1 0 0 9.21 0 0 0 0 130.3278392
0 130.3278392 0 0 0 11.21425302 22.42850603
11.21425302 0 0 14.00919035 158.3462199 23.29114125
142.4047275 23.29114125 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0
2006 1 1 0 0 22.90 0.000 0.000 0.000 0.000 0.000 228.021
76.007 76.007 152.014 380.035 76.007 82.240 119.635 1904.433 164.479 76.007 538.282
310.261 76.007 0.000 76.007 76.007 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
2007 1 1 0 0 24.49 0.000 0.000 0.005 0.000 0.000 0.000
0.000 0.000 0.000 18.253 36.872 38.792 10.525 22.504 4.053 55.851 17.965
8.982 12.157 8.263 0.005 8.392 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
2008 1 1 0 0 9.76 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 6.487 13.513 6.487 3.774 14.034
23.099 4.064 4.869 6.604 3.774 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
2007 Northern California trawl fleet (n=28)
1978 1 2 3 0 113.09 0 0 0 0 0 0
0 0 0 0 0 0 118.620576 640.855595 0
37.87037 172.292127 816.027507 1487.747031 2096.798161 3191.75492
1603.777512 2335.164309 932.833843 756.792783 82.006941 53.48563 0
0 0 0 0 0 0 0 0 0 0 6.7
0 0 280.532271 159.785714 142.948124 493.097262
2354.266288 1684.743894 7371.176821 2611.463314 1502.707674
528.929746 1582.674231 469.962406 0 0 0
1979 1 2 3 0 53.18 0 0 0 0 0 0
0 0 0 0 0 0 0 31.37931 31.37931 114.583333
31.37931 281.930233 1.865385 380.830711 454.21914 181.704828 912.439928
441.447048 10.223279 96.257377 4.178947 23.751938 0 0 0 0 0
0 0 0 0 0 0 0 0 239.010207
268.647158 652.729227 501.387821 729.824654 1183.067607
1351.687493 1302.679503 1476.261677 54.505555 89.7 0 0 0
280.733333

1980	1	2	3	0	116.02	0	0	0	0	0	0
	0	0	0	0	0	67.963434	131.315789		587.133664		88.713516
	288.939401		368.491804		685.828172		1171.152206		809.393528		
	667.799892		800.639099		495.422916		304.898459	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0
	0	138.240703		375.199351		203.075686		879.121821		620.87789	
	2227.287931		2024.224985		2501.730777		1888.276231		593.223662		0
	233.910714		0	0	0	0	0				
1981	1	2	3	0	74.29	0	0	0	0	0	0
	0	0	0	124.75	0	124.75	53.4448244		8.1489362	255.4818868	
	1234.751363		518.8917677		1280.517625		1410.581854		919.6851325		
	770.2782992		1116.949268		1567.728721		350.1341303	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0
	0	0	93.0024225		759.482274		794.3314014		1180.161028		
	1033.105838		2523.177679		1033.681141		912.8045213		128.3242762		0
	0	0	0	0	0	0					
1982	1	2	3	0	120.16	0	0	0	0	0	0
	0	0	0	0	88.4693878		32.8371428		1007.440033		
	323.488755		176.7080594		2458.002137		1772.1635	1246.304479		3264.786854	
	1813.534221		683.7733475		1058.516111		263.7513975		10.8461538		4.2884615
	0	0	0	0	0	0	0	0	0	0	0
	0	0	303.2238449		818.0348666		1167.88308		1113.406082		
	1606.889284		2910.729196		3384.928817		2145.195514		2343.928141		
	4794.319474		1312.38659		4.2884615	0	0	0	0	0	0
1983	1	2	3	0	174.44	0	0	0	0	0	0
	0	0	0	53.6363636		291.6075229		77.6906558		441.218364	
	538.544462		2402.817271		1221.64721		973.0557754		2650.612503		
	1256.343337		1705.737494		3263.409513		1726.524794		1231.428868		
	464.482247		0	0	0	0	0	0	0	0	0
	0	0	0	0	0	145.1014394		182.2048485		1202.329627	
	2517.8163	1167.65492		3270.181734		2635.771907		3990.073468		6261.49987	
	2948.148886		2004.594796		361.1772969		54.0395349		206.961165		0
	0	0	0								
1984	1	2	3	0	116.06	0	0	0	0	0	0
	0	0	6.6438356	0	47.634434	749.7551379		1402.351341		315.1686367	
	1483.620261		1688.484195		1307.060526		1880.950895		1684.637748		
	1396.472342		1584.174496		656.5174063		1398.353281		893.0375056		10.9
	0	0	0	0	0	0	0	0	0	0	0
	0	13.2876712		63.0530261		97.9116912		433.7604463		796.8425966	
	1270.532623		1522.899657		1935.217138		3576.827901		2702.52329		
	1339.322596		1371.599481		340.3931452		356.1529412	0	0	0	
	0	0									
1985	1	2	3	0	122.96	0	0	0	0	0	0
	0	0	0	0	131.6391403		205.236851		1174.287597		
	1379.988011		1489.251662		2077.991069		1318.103597		1006.907644		
	959.1333095		2290.333141		569.7772609		2268.699416		3271.737375		
	1128.889796		0	0	0	0	0	0	0	0	0
	0	0	0	0	24.7327273		451.5098311		292.9054633		
	658.188647		1564.19122		2381.488066		2210.192169		2546.026142		
	2715.40301		2788.996369		3620.307485		1820.516493		583.6080116		2.7111111
	0	0	0	0	0						
1986	1	2	3	0	106.68	0	0	0	0	0	0
	0	0	0	45.7142857		0	27.1262136		272.4644907		
	799.8412897		1213.732792		699.954717		1006.509521		1038.55708		
	1274.744999		749.7632428		637.2293199		381.5464686		162.8707338		
	34.4039216		0	0	0	0	0	0	0	0	0
	0	0	0	45.7142857		0	8.5882353	13.1346154		313.2680762	
	959.9147094		2200.004668		2727.001576		1335.099892		2259.124011		
	1221.029807		487.6268166		139.2749821		29.2079208		0	0	0
	0	0	0								
1987	1	2	3	0	103.23	0	0	0	0	0	0
	0	0	0	0	0	1078.018227		1268.571344		1506.259631	
	606.7591491		1277.376256		2535.875084		1104.191711		1834.800406		
	1257.061249		175.6027272		429.1086868		192.239724		184.5454545		
	148.9393939		0	0	0	0	0	0	0	0	0
	0	0	88.2040816		0	363.5950495		1806.253371		1735.420442	
	1914.220942		971.7152224		2642.324304		2682.562774		1416.198514		
	1010.69907		771.3737156		49.2353952		0	0	0	0	0
	0	0									

1988	1	2	3	0	86.12	0	0	0	0	0	0
	0	0	0	218.4825371		205.7661583		497.7446001		516.6489736	
	1310.129926		1303.178279		1009.176446		475.697781		538.3533831		
	841.1609838		288.9236938		954.0637786		124.5436938		75.95	0	3.6
	0	0	0	0	0	0	0	0	0	0	0
	0	99.5876289		254.6893213		263.4307196		908.9894449		1770.909898	
	1654.45194		1787.748824		1665.893625		958.8669768		1287.201241		
	777.6895077		120.0891089		0	0	0	0	0	0	0
1989	1	2	3	0	74.02	0	0	0	0	0	0
	0	0	0	48.1568627		142.5841176		313.0685106		881.2309814	
	538.9568289		1831.72314		946.6937907		342.2584096		251.5827463		417.69
	617.8785149		610.7258886		380.9460606		262.9985149		97.6060606		0
	0	0	0	0	0	0	0	0	0	0	0
	0	57.5	988.6802263		1089.307809		1150.039032		1489.473443		
	1961.042627		1203.075266		845.1249546		2063.035095		1054.603658		
	483.9469997		82.4373738		0	21.8686869	0	0	0	0	
	0										
1990	1	2	3	0	86.75	0	0	0	0	0	0
	0	0	0	0	95.46	587.393573		614.022586		828.204582	
	1464.47111		2419.169212		960.1408962		699.9427342		1481.635347		
	2505.191785		1910.185249		618.1985544		101.9702971		26.8834951		
	330.340484		0	0	0	0	0	0	0	0	0
	0	0	0	0	105.5843434		791.8729063		1402.144381		
	2518.281471		1210.52657		3112.644551		3081.663932		3096.058823		
	2732.753312		1367.064497		0	46.3366337	0	0	0	0	
	0	0									
1991	1	2	3	0	52.46	0	0	0	0	0	0
	0	0	0	0	50.73	369.5609804		588.0744457		869.8504854	
	1089.170336		670.5044593		569.519125		387.5290365		417.6859088		
	175.5224345		202.2009804		302.1280877		0	0	0	0	0
	0	0	0	0	0	0	0	0	0	21.79	50.73
	424.9880392		186.5823077		937.7912774		1088.95382		933.3932039		
	800.9637274		1592.862786		603.0278269		343.2073364		21.49	0	
	25.3431373		25.3431373		0	0	0	0	0		
1992	1	2	3	0	45.67	0	0	0	0	0	0
	0	0	0	0	17.37	264.79	369.25	928.76	656.9	591.15	1660.83
	544.2716832		1093.5	368.34	167.27	253.45	0	74.95	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	95.32	430.5412621		961.67	1155.453316		1402.64	1482.16	1419.53	1462.87	788.88
	367.96	961.35	0	0	0	0	0	0	0		
1993	1	2	3	0	18.80	0	0	0	0	0	0
	0	0	0	0	0	0	217.36	0	189.0016667		25.8
	414.4983673		12.9	292.9183674		66.1	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	108.68	0	555.4454545		0	240.7916667		384.35	548.9983673		194.14
	802.8467346		419.4638219		0	0	0	0	0	0	0
	0	0	0								
1994	1	2	3	0	22.01	0	0	0	0	0	0
	0	0	0	0	128.24	64.12	408.7536634		64.12	584.8036634	
	726.0320326		1823.865376		314.246092		21.5	363.0160163		344.6336634	
	16.25	21.08	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	368.6836634		128.24	0	
	929.4373267		1842.435376		528.9974024		1055.40099		435.0097554		
	71.0084449		15.8613861		0	0	0	0	0	0	0
	0										
1995	1	2	3	0	40.39	0	0	0	0	0	0
	0	0	0	7.5940594	69.4740594		109.3568276		221.0267124		
	242.2950414		210.8799839		132.8174257		126.64059	139.0845464		117.3491089	
	35.0716832		57.1665306		8.8316832	8.8316832	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	30.94	
	121.3165804		130.3287088		404.4361722		292.7457264		297.6579996		
	282.1150414		192.9302889		150.2449464		62.1057426		39.63	34.18	0
	0	0	0	0	0	0					
1996	1	2	3	0	42.08	0	0	0	0	0	0
	0	0	0	14.5098039		8.9432943	40.7151125		458.6494869		
	692.3374081		156.2938614		123.6075065		222.3702174		178.9734653		314.7
	294.7634653		104.55	0	209.1	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	188.4280303		
	64.9654545		453.0789762		967.8485779		506.204717		396.9058595		

	531.189829	539.4227272	94.36	106.1863636	209.1	104.55	0	0			
	0	0	0	0	0						
1997	1	2	3	0	23.01	0	0	0	0	0	0
	0	0	0	137.7021277	4.32	140.0621277	23.4774257				
	141.2421277	48.7380838	45.1980838	185.8617381	63.4071227						
	231.7656285	56.0955096	1.18	123.6346154	0	13.2574257	0				
	0	123.6346154	123.6346154	0	0	0	0	0	0		
	0	0	0	0	0	3.54	35.4806581	177.7985058			
	100.0677807	212.3765896	91.9587821	29.5806581	387.2270785						
	13.2574257	166.4726992	0	0	0	0	0	0			
1998	1	2	3	0	19.25	0	0	0	0	0	0
	0	0	0	0	3.32	13.7	58.5848936	80.2027451	13.7		
	10.17	186.4382353	143.3854902	259.7909804	186.2282353	63.1827451					
	123.0454902	0	3.32	0	0	0	0	0	0		
	0	0	0	0	0	0	0	10.17	44.42		
	161.4438144	30.51	161.8617528	269.7509804	10.17	63.1827451	6.85				
	59.8627451	0	0	0	0	0	0				
1999	1	2	3	0	44.19	0	0	0	0	0	0
	0	0	55.4455446	0	0	44.8796703	113.6955446				
	228.2996703	823.4934991	717.881124	923.302707	368.7658416						
	580.8982842	155.0258089	86.1755446	41.3296703	0	0	0				
	0	0	0	0	0	0	0	0	0		
	0	0	0	169.8866337	441.7534991	436.3076575	799.9000348				
	754.0714536	708.8616505	302.0421782	105.5888782	19.2430693	0					
	0	0	0	0	0	0					
2000	1	2	3	0	13.14	0	0	0	0	0	0
	0	0	0	0	0	0	0	6.490909	6.3363636	8.6472727	9.190909
	4.3054545	9.1258505	0	0	0	3.2454545	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	3.2454545	6.4909091	14.2181818	12.1872727	6.3363636	1.7	0	0		
	0	0	0	0	0	0	0	0			
2001	1	2	3	0	21.77	0	0	0	0	0	0
	0	0	0	0	0	0	0.8148148	4.471243	17.3156253		
	19.8741457	21.8619864	26.492062	23.0518864	13.1845185	9.3810445	0.8148148				
	0	0.8148148	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	5.7446809	8.0647124	16.849699	23.48374
	30.3116208	29.0723276	4.2781818	0	0	0	0	0	0		
	0	0	0								
2002	1	2	3	0	51.29	0	0	0	0	0	0
	0	0	0	0	0	0	0	96.75982177	236.4404013		
	379.4742659	979.6157276	804.1685392	471.2873252	953.9885014						
	96.75982177	0	62.93016997	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	33.12114209		
	23.3280157	17.94462746	242.4045566	933.4975571	1388.375703						
	1136.599202	1093.179496	69.49057881	117.8172912	24.7196395	0					
	0	0	0	0	0	0					
2003	1	2	3	0	11.90	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	32.29653767		
	14.43719483	35.71868569	21.65579224	21.65579224	10.82789612						
	3.609298707	0	3.609298707	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	10.82789612	14.25004414	17.85934284	14.25004414	0				
	0	0	0	0	0	0	0	0	0		
2004	1	2	3	0	21.14	0	0	0	0	0	0
	36.40809209	6.068015348	0	0	6.068015348	86.59420292					
	100.3722217	54.61213813	56.25412618	100.7290548	56.25412618						
	112.8650855	12.1360307	38.05008014	0	0	0	76.10016028				
	0	0	0	0	0	0	0	0	0		
	0	0	6.068015348	12.1360307	56.25412618	18.20404604					
	6.068015348	195.3900942	60.68015348	42.47610743	138.7791349						
	12.1360307	0	6.068015348	0	0	0	0	0	0		
	0										
2005	1	2	2	0	2.69	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	302.1413017	0	0	302.1413017	604.2826035			
	302.1413017	0	0	0	0	0	0	0	0		

add recent if CA sex-specific PACFIN data translation issue is resolved

2009 Oregon trawl fleet (n=35)

1973	1	3	3	0	7.06	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	2.767	0.000	11.067	5.534	1.383	0.000
	1.383	0.000	1.383	0.000	1.383	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2.767	2.767	4.150	4.150	1.383	1.383	5.534	1.383	9.684	8.301	2.767
	1.383	0.000	0.000	0.000	0.000	0.000					
1974	1	3	3	0	28.24	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	24.747	0.000	24.747	0.000	52.608	0.000	68.672	49.493	3.501
	112.604	297.103	682.084	622.474	443.902	127.509	210.032	27.861	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.747
	3.501	3.501	47.040	62.724	31.356	297.103	589.811	1267.139	787.810	545.257	117.393
	52.608	24.747	0.000	0.000	0.000	0.000					
1976	1	3	3	0	14.12	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.878	7.734	35.757	0.000
	48.312	33.346	10.144	84.571	81.658	35.757	17.878	17.878	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	17.878	30.433	71.513	109.680	56.046	58.456	38.167	28.023	7.734
	0.000	0.000	0.000	0.000	0.000	0.000					
1977	1	3	3	0	56.48	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	10.035	0.000	7.015	8.817	25.867	22.360	75.969	108.127	101.339
	186.671	130.426	216.905	302.398	353.411	205.652	87.728	34.806	12.703	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.035	10.035	10.523
	27.196	22.360	41.604	101.474	171.606	340.748	721.575	818.309	660.887	182.312	98.129
	6.175	9.195	0.000	0.000	0.000	0.000					
1978	1	3	3	0	49.42	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	4.576	0.000	0.000	5.077	2.538	52.257	33.175	41.638
	192.485	248.087	275.452	237.034	327.842	222.822	177.763	12.783	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	7.884	24.169	55.158	237.074	386.665	443.795	619.595	386.876	170.014
	20.024	7.115	0.000	0.000	0.000	0.000					
1979	1	3	3	0	42.36	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	139.595	139.595	285.251	430.908	570.503	309.497	887.753
	1863.734	1502.698	1782.579	1668.419	1812.213	595.119	674.996	87.807	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	139.595
	285.251	449.092	1007.472	1239.908	1738.589	1643.333	2917.632	3310.562	2570.775	792.297	466.007
	16.571	87.807	0.000	0.000	0.000	0.000					
1980	1	3	3	0	141.20	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	529.666	324.938	548.544	355.317
	1116.778	2677.047	4085.327	4420.780	6007.093	7404.078	2318.382	245.628	98.561	67.431	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	106.540
	0.000	12.166	186.011	1276.679	1658.574	2122.953	5007.381	10026.331	9962.347	4938.313	1549.075
	234.513	205.102	0.000	0.000	0.000	0.000					
1981	1	3	3	0	56.48	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.810	93.949	28.655	1550.905
	867.224	1582.421	1454.409	1924.873	1815.211	1391.160	1041.089	647.915	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	130.002	319.001	1033.063	1884.398	1516.291	6138.146	3655.290	2679.977	871.421
	28.655	0.000	5.805	0.000	0.000	0.000					
1982	1	3	3	0	141.20	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	9.017	0.000	0.000	0.000	400.058	548.729	2418.367
	3251.310	2956.585	4184.768	5553.225	5847.335	5019.142	1981.069	190.392	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	108.261	161.793	1054.331	2172.285	6673.095	7521.086	16415.656	20898.089	8702.756	2538.404
	0.000	25.281	0.000	0.000	0.000	0.000					
1983	1	3	3	0	211.80	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	3.850	29.134	2.194	69.169	232.232	143.434	520.891	1140.820	1700.040	2511.753
	3139.140	3302.596	4494.634	6201.973	5332.770	3416.903	1505.128	416.233	95.706	0.000	0.000
	0.000	0.000	0.000	0.000	32.894	0.000	0.000	0.000	0.000	12.089	72.013
	192.001	577.067	657.338	1839.690	4466.876	5169.244	6583.045	10375.226	10827.528	8021.602	1756.419
	244.261	0.000	0.000	0.000	0.000	0.000					
1984	1	3	3	0	148.26	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	17.522	20.731	63.507	86.288	221.446	178.029	510.951	1066.040	1818.113
	2801.550	3923.414	3349.916	3230.294	2638.690	2692.555	1212.545	136.994	54.783	0.000	5.842
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.522	0.000	0.000	42.681

	55.972	188.489	576.803	1358.854	2399.715	4744.397	6376.978	8683.630	9059.273	4197.339	866.269
	59.674	61.902	0.000	0.000	0.000	0.000					
1985	1	3	3	0	204.74	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	70.482	0.000	213.051	438.151	680.199	973.023	1883.103
	3472.248	4269.249	4698.941	4536.364	3194.266	2273.431	1420.308	742.949	57.052	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.159
	111.787	147.877	483.305	1726.332	2558.299	4418.456	7120.686	7123.870	6392.525	4627.339	1575.495
	296.211	29.210	0.000	0.000	0.000	0.000					
1986	1	3	3	0	112.96	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	62.230	147.967	174.093	412.692	875.275	983.481	979.619
	1159.100	1707.175	2557.653	2403.195	1702.999	1603.104	915.202	176.236	36.180	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	47.130	110.931
	116.014	310.297	500.720	1203.755	1899.580	2400.882	2256.635	3258.785	2590.162	1680.375	421.265
	222.148	23.984	5.493	0.000	0.000	0.000					
1987	1	3	3	0	247.10	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	9.872	292.634	781.952	760.217	1769.957
	2780.376	4721.009	6882.012	5433.266	4336.392	3042.508	1566.308	444.154	29.222	4.297	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	468.935	423.696	1362.027	3648.631	6887.822	8807.806	9129.378	5730.582	3641.156	1724.807
	76.928	0.000	0.000	0.000	0.000	0.000					
1988	1	3	3	0	162.38	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	142.237	68.896	431.438	443.590	543.976	491.472	1401.241
	2524.938	2982.357	3480.504	3572.088	2451.055	1265.547	884.575	513.358	71.306	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	38.894
	51.954	250.707	445.338	659.524	2089.245	3433.124	3759.669	4211.985	2760.504	1640.899	736.894
	42.444	13.060	0.000	0.000	0.000	0.000					
1989	1	3	3	0	162.38	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	52.444	0.000	4.272	18.637	86.693	265.565	652.639	1163.761
	2254.093	2510.662	2341.395	2967.213	2763.622	1366.293	898.639	348.098	155.498	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	45.843	20.627	394.937	590.997	1597.005	2541.268	3744.838	4205.683	3400.449	2642.521	920.867
	194.054	38.402	0.000	0.000	0.000	0.000					
1990	1	3	3	0	155.32	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	10.681	19.659	143.849	176.767	706.872	870.104
	1084.757	2037.653	3122.297	2773.690	2905.506	1521.265	745.985	211.299	17.102	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	8.978	49.944	114.918	487.226	1119.973	2372.451	3800.779	4329.034	2226.857	933.485	447.579
	55.334	0.000	28.807	0.000	0.000	0.000					
1991	1	3	3	0	141.92	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	86.511	0.000	14.428	38.336	145.081	396.569	756.014	1108.295	926.465	2404.667
	3494.247	2011.002	3593.851	3714.005	2195.521	1136.582	1078.195	400.973	47.827	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.428	14.428	43.284	43.284
	148.462	477.587	539.362	1231.479	2539.539	5231.619	5423.404	5299.238	3396.074	3284.686	422.550
	251.542	12.110	0.000	0.000	0.000	0.000					
1992	1	3	3	0	222.23	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	115.721	84.226	338.482	1564.111	3372.224	2960.916
	4114.962	4372.073	6306.535	6120.810	6331.147	1628.552	1381.475	548.907	7.947	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	61.661	538.151	1243.056	3063.813	4374.532	6927.215	9621.340	8857.575	7501.344	5368.191	961.550
	654.096	38.932	0.000	0.000	0.000	0.000					
1993	1	3	3	0	155.32	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	12.065	467.221	42.059	987.307	2210.612	2425.457
	3012.190	5169.135	5495.870	5607.836	4603.483	1537.435	1012.900	605.948	243.725	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	8.885	271.891	1205.304	2497.950	3536.264	6026.149	5401.431	5071.262	3800.353	1886.889	607.080
	203.017	0.000	0.000	0.000	0.000	0.000					
1994	1	3	3	0	105.90	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	32.208	27.112	81.736	285.624	499.882	835.149	1463.266
	1517.552	1461.971	1800.963	1293.953	688.914	339.352	17.912	0.000	9.668	34.382	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.895	17.912
	37.921	55.605	724.931	984.675	2249.048	2385.906	2226.832	2199.997	1209.730	726.068	410.231
	74.401	0.000	0.000	0.000	0.000	0.000					
1995	1	3	3	0	112.96	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	173.919	210.237	371.597	318.813	538.281	555.071
	690.314	775.748	768.604	459.198	203.750	135.526	17.509	2.442	0.000	0.000	66.512
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.883	7.187	154.642
	183.923	502.315	546.710	829.713	790.391	1079.112	726.910	441.560	282.438	135.866	44.253
	10.020	0.000	0.000	0.000	0.000	0.000					
1996	1	3	3	0	134.14	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	3.360	0.000	22.509	21.514	226.132	366.721	439.109	943.300	832.196	895.728

	801.951	850.336	735.966	580.049	512.687	158.433	87.282	61.812	0.000	7.498	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	2.284	2.284	0.000	5.643	33.966
	207.001	407.200	1009.203	1166.363	1147.551	1033.274	954.265	1132.426	1088.164	506.036	197.169
	9.781	33.345	0.000	0.000	0.000	0.000					
1997	1	3	3	0	197.68	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	45.981	202.905	251.392	823.556	981.736	1422.651
	1689.262	1685.030	1854.608	965.222	388.379	425.215	131.957	59.311	42.118	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	22.783	6.139	0.000	13.770	28.752
	102.378	407.209	1023.103	2020.949	2698.830	3085.063	2538.051	1716.999	792.469	307.146	106.658
	80.142	1.252	4.238	0.000	0.000	0.000					
1998	1	3	3	0	197.68	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	52.626	58.361	178.399	453.731	1011.004	1413.360	1296.899	1511.663
	1754.953	1165.058	1272.065	1202.941	644.173	146.375	113.829	13.165	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.186	0.000	0.000	72.852
	118.176	745.610	1159.350	1657.024	2610.224	2505.880	2395.278	1739.195	1161.664	333.896	191.658
	16.105	0.000	0.000	0.000	0.000	0.000					
1999	1	3	3	0	197.68	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	13.190	11.742	24.209	44.948	128.620	197.192	885.817	1049.915	1276.502	1713.185
	1723.515	1352.987	1406.514	1058.130	439.894	269.870	115.495	12.073	1.526	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	3.914	7.828	3.914	14.834	0.000	59.341
	132.177	764.762	1073.316	1490.506	1847.700	2069.803	1965.025	1370.473	450.852	438.714	142.545
	14.952	0.000	0.000	0.000	0.000	0.000					
2000	1	3	3	0	93.21	0.000	0.000	0.000	0.000	0.000	0.000
	4.673	0.000	0.000	4.673	9.346	24.697	39.210	38.617	29.244	32.287	49.268
	33.846	45.633	14.350	11.543	9.760	1.112	2.512	1.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.804
	31.379	51.861	50.307	51.936	71.330	65.346	36.608	22.285	10.717	2.440	1.512
	0.000	0.000	0.000	0.000	0.000	0.000					
2001	1	3	3	0	159.30	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	6.879	42.735	157.739	428.298	467.502	379.021	950.854	476.394
	2166.331	1308.553	1223.460	592.477	105.563	113.457	48.874	27.167	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.757	41.253
	166.149	315.970	1052.224	1524.417	908.815	4022.688	1367.975	1583.057	1420.601	91.604	39.941
	5.785	0.000	0.000	0.000	0.000	0.000					
2002	1	3	3	0	276.65	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	333.258	550.507	1132.806	1569.568	1995.150	805.997	885.701
	1000.919	1009.508	905.409	480.577	513.292	490.168	227.671	111.950	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.606	0.000	60.367	97.114
	493.995	1179.529	1245.875	1465.947	1607.969	1459.614	1288.562	810.740	355.572	139.379	264.561
	10.865	67.211	33.606	33.606	0.000	0.000					
2003	1	3	3	0	103.93	0.000	0.000	0.000	0.000	0.000	4.807
	0.000	0.000	0.000	0.000	0.000	5.144	23.214	78.323	150.584	261.278	234.888
	244.483	191.351	126.404	93.086	86.946	35.885	27.811	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.871	0.000
	5.144	72.387	168.593	215.589	334.387	291.310	208.217	110.898	84.999	0.000	4.833
	0.000	7.871	0.000	0.000	0.000	0.000					
2004	1	3	3	0	138.75	0.000	0.000	0.000	0.000	0.000	10.667
	0.000	14.223	10.667	27.829	24.171	28.864	134.152	304.713	237.593	243.806	267.041
	237.512	243.065	197.682	251.820	74.933	37.774	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.334	0.000	3.247	105.185
	95.677	136.858	194.950	207.240	198.434	507.344	430.473	220.999	105.724	47.409	10.661
	27.698	10.667	0.000	0.000	0.000	0.000					
2005	1	3	3	0	184.91	0.000	0.000	0.000	0.000	0.000	0.772
	0.772	31.917	6.178	28.828	2.317	6.371	6.950	15.399	69.813	89.189	69.066
	255.265	285.847	170.106	182.332	117.239	58.419	31.100	0.000	0.000	4.334	0.000
	0.000	0.000	0.000	4.633	2.317	29.601	5.405	29.601	3.089	28.828	9.282
	11.599	14.688	31.663	108.230	190.517	487.127	302.749	200.294	84.082	28.613	3.089
	8.022	0.000	0.000	0.000	0.000	0.000					
2006	1	3	3	0	106.96	0.000	0.000	0.000	0.000	0.000	0.000
	8.588	12.340	6.170	20.218	19.044	55.957	20.490	96.563	101.482	91.237	114.408
	130.682	269.214	164.487	141.231	63.554	29.434	30.541	12.217	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	6.828	0.000	0.000	6.787	6.828
	13.088	54.598	99.476	105.230	214.659	247.666	295.004	330.235	174.944	32.242	29.035
	13.403	6.883	0.000	0.000	0.000	0.000					
2007	1	3	3	0	18.278	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.306	3.002
	3.371	3.279	20.283	10.180	3.393	9.524	9.502	3.393	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.610
	0.000	0.000	0.000	0.000	9.162	3.371	6.893	3.393	6.787	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					

2008 1 3 3 0 88.014 0.000 0.000 0.000 0.000 0.000 0.000
3.421 3.421 10.263 26.783 23.946 10.149 9.679 2.977 9.521 22.476 3.385
24.549 18.050 44.043 32.115 63.485 41.845 32.717 5.853 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 16.521 30.204 30.204
16.363 12.333 16.122 22.710 57.390 36.379 97.331 30.516 24.189 15.926 6.258
0.000 0.000 0.000 0.000 0.000 0.000
2009 Washington trawl fleet, updated 2007-2008 (n=40)

1968 1 4 0 0 14.12 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 104.085 38.004 226.321 832.678 1805.744
1873.525 2314.542 2929.124 2288.164 1030.921 226.321 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
1969 1 4 0 0 14.12 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 18.083 90.417 386.539 735.425 1168.734
1878.545 2396.969 2178.432 1588.417 969.766 244.894 18.083 0.000 18.083 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
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0.000 0.000 0.000 0.000 0.000 0.000
1970 1 4 0 0 7.06 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 204.703 736.932 2006.092
1228.219 1473.863 2374.558 1719.507 900.694 245.644 81.881 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
1971 1 4 0 0 56.48 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 25.493 15.118 698.672 2224.221 6999.636
11321.446 14441.291 14121.699 12357.950 5995.173 2521.231 373.407 6.235 0.000 6.235 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
1972 1 4 0 0 14.12 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 108.600 434.400 1954.115
4396.130 7330.157 5212.799 4564.854 1956.170 1250.156 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
1973 1 4 0 0 7.06 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 18.303 0.000 0.000 36.606 91.516 384.366
805.339 1153.099 677.217 640.611 219.638 164.728 18.303 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
#1975 1 4 0 0 35.3 0.000 0.000 0.000 0.000 36.129 0.000
0.000 167.114 828.813 756.238 1829.934 2569.234 7512.123 8574.651 10358.947 7042.944 2111.533
835.555 631.673 859.008 939.614 454.918 318.678 42.103 2.403 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
1976 1 4 3 0 21.18 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 1.008 0.000 3.023 0.000 6.046 86.268 343.811 931.058
796.239 1838.937 2309.179 4016.321 3367.749 1844.658 887.294 126.756 204.962 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.008 3.023 9.070 344.819 1162.651 1691.521 3574.652 9669.922 13300.935 9859.485 1941.759
459.482 0.000 1.008 0.000 0.000 0.000
1977 1 4 3 0 14.12 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 33.108 33.108 108.279
357.943 333.791 410.319 811.682 975.864 568.259 243.423 42.063 42.063 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 16.554
0.000 0.000 0.000 207.602 233.111 377.211 975.864 2103.970 3727.878 2050.781 832.307
42.063 42.063 0.000 0.000 0.000 0.000
1978 1 4 3 0 35.3 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 4.419 4.419 8.837 13.256 37.109 354.250 812.191
1227.754 1256.701 1529.120 1585.175 1283.201 1008.062 363.237 115.907 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

	0.000	8.837	17.675	259.606	442.456	1463.045	2897.746	3446.808	4816.816	3652.448	917.330
	378.096	0.000	0.000	25.650	0.000	0.000					
1979	1	4	3	0	56.48	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	34.895	0.000	515.372	496.375	998.847	2518.755
	2409.665	3833.332	1742.858	1843.348	1145.716	1036.302	825.716	20.444	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	246.780	17.447	958.533	1675.576	6724.120	6135.442	7048.722	8759.053	5719.057	2486.972
	129.184	0.000	0.000	0.000	0.000	0.000					
1980	1	4	3	0	127.08	0.000	0.000	0.000	0.000	0.000	0.000
	197.856	0.000	197.856	31.514	625.082	427.226	521.769	903.344	2597.881	3704.160	4290.218
	3738.236	6563.053	7713.342	7701.902	4094.748	2073.082	1580.696	327.456	159.428	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	260.885
	625.082	1708.905	2877.867	3689.800	4346.649	6969.248	7760.286	11343.321	13596.222	11141.158	4157.758
	1112.224	436.195	0.000	0.000	38.941	0.000					
1981	1	4	3	0	127.08	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	5.299	10.599	14.541	42.782	108.724	154.700	312.742	358.338
	450.688	545.602	1060.315	1241.733	637.714	302.818	215.344	78.870	28.205	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.299	10.061
	24.613	39.835	236.931	412.858	503.982	636.692	971.332	1650.396	2094.412	1390.323	685.355
	190.354	75.473	0.000	0.000	0.000	0.000					
1982	1	4	3	0	91.78	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	24.886	0.000	328.546	43.122	202.863	557.287	1585.350	869.278
	926.152	1345.255	1221.470	2008.117	1128.658	641.997	136.741	44.692	17.475	5.032	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.209	0.000	29.096
	102.623	39.920	442.944	1193.196	1940.341	1971.903	2377.540	2918.537	2252.714	1828.661	566.036
	419.091	110.787	0.000	0.000	0.000	0.000					
1983	1	4	3	0	120.02	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	43.912	165.137	247.407	367.088	1020.018	1715.425	2842.822	3647.473
	3476.488	3301.649	3060.912	4643.066	4229.710	1137.740	735.821	449.790	64.881	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.393	84.769	269.560
	1061.569	1350.783	2080.169	2201.005	4388.296	4022.645	6836.583	5901.799	7087.699	4676.106	1300.412
	396.186	142.642	0.000	0.000	0.000	0.000					
1984	1	4	3	0	120.02	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	32.631	97.892	229.178	236.408	325.627	369.959	569.673	1328.340
	1775.337	1740.033	1547.440	3062.303	1635.041	1404.509	627.224	176.806	25.298	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.685	168.482
	293.714	400.137	596.430	760.519	1374.774	2116.568	2997.191	4677.699	5316.577	4694.119	1861.550
	301.851	0.000	0.000	0.000	0.000	0.000					
1985	1	4	3	0	127.08	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	2.989	15.839	103.330	238.384	559.357	531.192	605.844	1490.291
	2030.809	2058.868	3694.619	3111.035	2832.487	1655.595	681.362	176.185	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.989	16.735	8.966
	134.994	327.628	574.765	745.689	1028.635	2307.471	5325.174	5336.196	6305.292	2654.871	896.536
	331.726	66.706	0.000	0.000	0.000	0.000					
1986	1	4	3	0	120.02	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	35.285	32.496	56.564	317.902	494.064	810.430	1425.069	1827.439
	2162.542	2469.396	2173.539	2203.401	1389.945	628.182	387.079	85.347	12.121	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.642
	114.467	298.140	595.463	1519.995	2483.161	3714.314	3509.131	4297.254	2672.789	1361.153	936.321
	394.696	71.085	19.863	0.000	0.000	0.000					
1987	1	4	3	0	176.5	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	28.077	32.720	75.542	238.493	321.462	833.518	1530.834	2950.135
	2330.603	4218.695	4258.030	3938.331	3673.934	2095.398	811.689	591.427	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	140.982
	177.379	249.819	557.568	758.980	3345.156	4763.938	4288.003	5709.554	3956.157	3728.052	843.278
	493.721	37.343	5.002	0.000	0.000	0.000					
1988	1	4	3	0	134.14	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	3.460	17.731	80.829	45.926	243.570	96.744	304.190	714.261	999.777
	2523.393	2094.367	2206.616	2014.405	2461.060	1696.944	822.223	473.125	125.072	21.110	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.770	22.969
	65.405	253.439	130.450	383.261	1050.815	2459.113	2934.398	3182.969	3479.590	2729.951	1551.980
	237.927	323.413	0.000	0.000	0.000	0.000					
1989	1	4	3	0	127.08	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	53.174	88.492	116.308	289.100	372.638	881.412	1513.833	1878.578
	3642.322	3246.403	2851.711	1747.321	1451.045	930.003	524.341	24.538	8.420	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.857	140.874	16.190
	198.857	343.503	438.646	1720.645	2983.983	3468.546	4565.652	5343.947	4305.480	2391.239	601.283
	310.756	0.000	6.230	0.000	0.000	0.000					
1990	1	4	3	0	120.02	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	8.864	4.432	26.592	112.955	197.503	1124.477	762.708	2733.743

	3408.024	3979.719	3121.514	2249.299	2550.504	988.332	390.145	176.454	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.716	13.296	22.160
	130.526	476.762	865.413	1659.118	2518.488	4321.956	5053.284	5045.810	3552.408	1720.371	1363.853
	100.939	0.000	0.000	0.000	0.000	0.000					
1991	1	4	3	0	155.32	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	132.032	113.271	954.080	602.738	1829.870	3195.848
	4568.224	3884.806	4384.573	4207.931	2604.531	2467.894	706.180	9.774	74.582	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.538
	75.092	336.273	1085.855	2486.687	2889.712	6601.191	8277.912	9176.603	7461.456	4147.401	1276.834
	502.043	74.582	0.000	0.000	3.321	0.000					
1992	1	4	3	0	141.2	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	19.331	0.000	65.605	167.228	413.396	593.861	898.962	1686.336	1954.679	1933.381
	2827.834	3725.351	3291.025	3724.332	3757.101	2063.323	1296.034	55.827	134.573	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.040	15.226	108.965
	225.978	604.399	1410.847	3039.418	3430.809	4193.906	7117.286	7542.803	4968.539	3774.365	1218.769
	5.845	0.000	0.000	0.000	0.000	0.000					
1993	1	4	3	0	120.02	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	1.174	0.000	0.000	145.991	55.140	339.713	1015.904	1258.626	1583.087	1731.309
	1730.824	1129.471	1365.677	554.052	565.490	200.104	1.184	1.184	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.998	1.998	86.438
	280.548	1017.158	1047.291	2009.383	2190.674	1956.893	1933.797	893.195	471.622	185.563	91.737
	0.000	0.000	0.000	0.000	0.000	0.000					
1994	1	4	3	0	105.9	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	25.065	25.065	119.353	173.235	498.026	347.428	999.240	1403.804	1148.810
	1693.197	784.059	1287.478	714.886	581.939	480.321	90.763	59.231	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.759	37.138	290.499
	209.174	450.722	769.290	1102.292	2358.564	1672.643	2080.482	1350.925	1409.134	622.703	255.417
	3.862	0.000	0.000	0.000	0.000	0.000					
1995	1	4	3	0	155.32	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	13.626	21.888	42.826	155.416	184.139	260.684	505.212	510.585	547.770
	837.511	612.709	348.875	195.276	120.347	19.413	41.192	2.565	0.000	1.809	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	6.813	6.813	11.023	45.444	60.663
	166.635	330.332	438.269	642.684	938.887	754.765	465.388	432.425	216.576	77.676	34.031
	0.000	31.708	0.000	0.000	0.000	0.000					
1996	1	4	3	0	105.9	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	11.263	23.895	17.558	46.323	69.688	100.866	143.980	152.860	246.662	253.588
	316.023	382.446	576.702	381.673	210.927	40.580	18.140	3.449	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	1.969	16.569	9.477	20.321	31.888
	122.682	138.799	201.275	244.161	512.928	684.214	513.045	443.938	500.053	168.263	80.697
	0.000	0.000	8.188	0.000	0.000	0.000					
1997	1	4	3	0	120.02	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	1.161	43.012	86.023	161.666	168.856	281.573	561.911	1121.116
	704.254	806.316	955.923	710.574	304.057	252.957	95.198	14.749	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.691	40.691	47.718
	333.713	172.561	310.326	929.052	955.761	1403.580	911.236	1101.395	766.225	214.752	62.384
	14.749	0.000	0.000	0.000	0.000	0.000					
1998	1	4	3	0	141.61	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	201.351	9.389	71.792	158.772	203.049	523.069	761.094	831.782
	778.245	685.331	676.433	411.148	463.548	137.832	45.995	0.000	36.865	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.560	35.388	76.959
	296.725	256.734	553.538	764.909	722.775	934.879	1380.343	585.381	312.343	222.569	78.751
	8.665	0.000	0.000	0.000	0.000	0.000					
1999	1	4	3	0	120.534	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	4.915	12.006	1.779	33.232	58.200	87.069	59.032	125.859	179.031	415.199
	386.455	212.276	507.216	343.535	361.064	201.140	24.138	0.000	0.000	0.000	1.821
	0.000	0.000	0.000	0.000	0.000	0.000	1.088	0.000	0.000	34.497	55.505
	113.264	92.731	198.116	330.745	295.913	500.312	775.089	638.619	523.905	108.118	24.862
	11.499	17.417	0.000	0.000	0.000	0.000					
2000	1	4	3	0	38.602	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	1.481	4.205	4.690	8.643	12.707	16.409	8.126	22.247
	18.609	21.784	14.554	4.205	7.264	1.012	5.065	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.158	0.000	6.556
	3.871	8.643	24.919	15.925	23.617	30.244	40.264	19.303	7.055	2.082	0.593
	1.012	0.000	0.000	0.000	0.000	0.000					
2001	1	4	3	0	57.16	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	4.606	26.627	28.342	44.598	86.517	154.969
	1085.183	213.889	264.800	153.320	976.554	118.618	20.205	0.000	5.386	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	845.704
	23.467	1722.602	3349.163	1767.405	1014.791	569.248	1275.507	379.867	1175.550	50.445	66.011
	0.000	22.930	0.000	0.000	0.000	0.000					

2002 1 4 3 0 133.22 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 4760.725 76.678 382.587 698.354 529.567 610.813
647.100 1288.210 815.705 714.979 658.795 633.708 139.060 23.450 7.235 7.235 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 64.821 8.564
202.171 138.602 627.150 901.287 1177.039 1888.291 2010.841 2381.146 546.612 294.483 6.186
17.677 17.712 0.000 0.000 0.000 0.000
2003 1 4 3 0 80.888 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 17.774 42.147 67.792 166.407 122.911 210.273 163.433
171.293 147.393 175.810 189.061 154.536 160.934 55.358 40.396 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 43.628
63.018 51.325 175.251 172.118 315.236 201.423 279.570 207.985 80.832 79.032 41.444
27.617 10.878 0.000 0.000 0.000 0.000
2004 1 4 3 0 141.212 0.000 0.000 0.000 0.000 0.000 0.000
22.549 0.000 45.255 0.000 4.001 71.317 153.904 149.813 133.328 120.944 163.076
211.818 187.100 284.776 197.177 329.619 96.333 66.136 71.288 20.118 10.735 7.761
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 34.251
57.292 66.020 23.867 153.645 418.862 291.695 448.754 243.589 152.704 80.884 67.623
4.054 11.274 0.000 0.000 0.000 0.000
2005 1 4 3 0 268.854 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 5.380 18.488 101.538 173.767 390.485 759.734 776.820
806.680 823.271 680.170 784.293 673.466 222.238 218.663 132.812 92.461 34.972 5.380
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 5.380
28.808 108.232 252.587 375.149 545.531 794.508 1020.845 1269.697 848.480 677.878 275.131
159.960 160.463 53.264 63.990 3.459 0.000
2006 1 4 3 0 120.974 0.000 0.000 0.000 0.000 0.000 3.720
8.249 7.845 7.441 28.904 61.633 83.406 82.380 93.861 94.780 93.470 90.799
1028.732 657.924 869.465 922.558 1007.959 27.059 8.676 29.906 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 8.249 4.125 4.125 14.828 30.286 41.306
82.516 444.543 140.506 74.676 96.793 671.425 119.801 675.463 339.552 300.103 24.521
16.786 5.462 5.293 0.000 0.000 0.000
2007 1 4 3 0 123.34 0.000 0.000 0.000 0.000 3.618 3.269
11.058 6.362 12.363 16.939 19.605 355.060 292.212 531.767 286.420 152.360 81.553
103.519 78.317 84.433 86.782 62.067 38.767 12.416 3.732 0.000 0.000 2.830
0.000 0.000 0.000 3.618 3.618 0.000 3.626 5.509 0.000 3.205 8.376
158.798 326.764 418.647 245.764 115.845 228.211 197.200 171.409 59.049 33.676 29.443
20.923 11.629 0.000 0.000 0.000 0.000
2008 1 4 3 0 127.28 0.000 0.000 0.000 0.000 0.000 0.000
0.000 79.493 148.414 107.066 92.671 51.405 45.460 15.314 32.365 58.274 72.605
97.709 67.843 112.553 258.027 111.047 93.553 54.349 20.570 3.671 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 6.229 51.707 144.980 71.381 76.439
79.676 115.567 59.560 106.966 179.975 143.706 281.700 171.899 154.146 64.547 49.625
39.086 9.684 0.000 0.000 0.000 0.000
2009 California South non-trawl fleet only 2006 and 2007 updated (n=24)

1978 1 5 0 0 1.138 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 155.769231 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0
1979 1 5 0 0 2.38 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 5.102041
10.204082 5.102041 15.306123 10.204082 5.102041 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1980 1 5 0 0 8.14 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 14.423077
19.23077 128.344231 17.528667 28.547539 1.552795 12.720975 9.615385 4.807692 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0
1985 1 5 0 0 8.416 0 0 0 0 0 0
0 0 0 0 2.172185 0 4.344371 0 99.14279 39.355556 79.893617
118.391963 117.853901 39.787234 39.893617 39.355556 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0			
1986	1	5	0	0	42.8	0	0	0	0	0	0
	0	0	0	0	35.122195	88.536521	85.652273	88.53637	140.140043		202.02677
	102.894765		90.543284	48.272934	8.788462	28.683644	0	4.267677	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0			
1987	1	5	0	0	30.56	0	0	0	0	14.103093	0
	0	0	0	0	0	242.091683		268.485149		266.77394	
	135.711547		361.897354		292.364077		238.470094		24.000978	50.449512	13.910795
	8.816178	0	0	3.113208	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0									
1988	1	5	0	0	25.972	0	0	0	0	0	0
	0	3.707071	0	3.707071	20.750373	46.277146	86.763573	55.235479	69.175557	259.0428	
	204.725494		217.969255		105.381908		9.610526	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	
1989	1	5	0	0	72.54	0	0	0	0	0	0
	0	0	12.27	7.326733	74.27697	175.021397		329.4444	479.535344		
	466.563555		359.872034		208.215837		365.635163		197.286374		58.407283
	112.627327		0	18.63531	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0							
1990	1	5	0	0	30.592	0	0	0	0	0	0
	2.691589	0	8.737345	13.932535	22.158915	35.070509	97.287122	97.475343	247.187963		93.303613
	83.571667	61.660194	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0				
1991	1	5	0	0	17.97	0	0	0	0	0	0
	0	0	5.769231	9.202021	33.750067	46.010101	43.32427	58.124328	48.307573	43.980063	79.789828
	0	27.306593	5.731481	5.731481	0	15.673469	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1992	1	5	0	0	249.868	0	0	0	0	57.448721	
	176.465379		555.044924		679.8155	682.496865		596.829185		780.714735	
	529.549599		503.663751		295.236615		99.649403	129.227127		177.299372	
	58.866318	62.069737	70.536481	15.020164	6.961538	14.461538	6.961538	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1993	1	5	0	0	146.61	0	0	0	0	0	13.477234
	36.736276	73.577552	79.192808	70.005012	66.162799	111.929037		327.779904		139.084215	
	86.512829	31.826094	52.113691	5.616162	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0		
1994	1	5	0	0	182.286	0	0	0	11.141304	27.84619	29.099068
	103.777175		197.041855		346.007909		360.516803		314.157782		
	398.863659		364.078038		408.474339		236.289254		359.785115		
	159.917557		115.168451		58.564862	21.801111	20.111111	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0		
1995	1	5	0	0	96.78	0	0	0	0	7.68	13.88
	56.041667	60.323333	112.081667		281.668744		279.797857		421.692824		
	404.148721		428.122229		377.791066		348.366747		339.113769		
	112.732995		74.809516	126.780701		12.884211	52.669828	2.346939	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0			
1996	1	5	0	0	131.204	0	0	0	0	45.857143	84.062857
	68.574929	251.630323		379.173798		477.618965		459.06708	501.780647		
	478.718823		388.259279		496.245166		494.646526		361.967866		

	323.868918		190.728976		117.457801		10.52381	55.449222	28.252336	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0		
1997	1	5	0	0	123.516	0	0	0	0	0	1
	10	131	221	358	359	268	267	345	185	199	70
	49	18	2	25	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1998	1	5	0	0	47.836	0	0	0	0.000	0.000	0.000
	6.909	20.000	10.000	23.855	138.492	190.691	385.066	397.390	82.753	53.969	49.218
	2.360	0.000	0.000	5.520	0.000	0.000	0.000	0.000	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1999	1	5	0	0	32.042	0	0	0	0.000	0.000	3.983
	27.440	8.208	27.496	33.131	22.251	14.329	11.247	18.270	19.652	26.005	9.478
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2001	1	5	0	0	8.45	0	0	0	1.387	1.387	0.000
	0.000	5.754	5.037	8.974	5.733	7.326	5.733	0.754	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2003	1	5	0	0	2.276	0	0	0	0.000	0.000	0.000
	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2004	1	5	0	0	29.834	0	0	0	0.000	10.250	37.350
	39.733	61.267	39.850	34.583	26.850	30.750	10.167	0.000	6.100	6.100	0.000
	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2005	1	5	0	0	7.518	0	0	0	0.000	0.000	0.000
	0.000	2.000	1.000	2.000	2.000	2.000	0.000	1.000	0.000	1.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2006	1	5	0	0	23.178	0.00	0.00	0.00	1.00	0.00	19.32
	19.99	34.24	42.57	33.48	13.91	6.41	3.75	0.00	0.00	0.00	0.00
	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00					
2007	1	5	0	0	38.592	0.00	1.00	0.00	2.00	2.00	3.40
	7.60	11.00	15.80	26.60	16.00	10.60	19.20	7.80	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00					
# 2007 California North non-trawl fleet (n=22)											
1981	1	6	0	0	1.69	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	70.080	140.160	0.000	70.080	70.080	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1982	1	6	0	0	9.24	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	417.046	15.846	987.064	882.483
	1452.501	151.569	235.277	464.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1983	1	6	0	0	2.83	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	7.079	24.845	0.000	14.158	0.000	0.000	17.765	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1984	1	6	0	0	1.14	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	18.535	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1991	1	6	0	0	25.60	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	15.605	25.102	16.096	50.694	74.278	88.011	141.983	138.892	27.645	67.149
	85.826	143.667	120.960	13.909	21.712	0.000	27.818	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1992	1	6	0	0	152.19	0.000	0.000	0.000	0.000	0.000	0.000
	14.640	54.689	140.879	129.079	218.686	305.756	449.891	622.561	419.241	396.772	573.629
	457.581	608.464	625.995	487.455	180.227	121.049	21.797	5.366	1.838	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1993	1	6	0	0	202.66	0.000	0.000	0.000	0.000	39.252	42.253
	143.422	245.319	351.505	385.579	544.492	448.920	460.477	561.082	537.158	553.973	551.546
	538.886	281.341	143.749	162.796	70.734	52.494	7.908	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1994	1	6	0	0	249.58	0.000	0.000	0.000	0.000	0.000	10.455
	58.932	157.765	198.098	343.086	465.128	471.821	681.149	812.397	904.115	863.386	692.537
	494.980	443.115	359.383	444.154	90.914	82.388	2.920	2.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1995	1	6	0	0	168.79	0.000	0.000	0.000	0.000	0.000	4.967
	68.671	115.859	272.873	326.421	393.972	481.528	392.515	303.636	295.934	216.465	203.654
	185.228	181.730	178.553	127.320	25.850	28.690	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1996	1	6	0	0	166.62	0.000	0.000	0.000	3.060	8.074	33.708
	123.337	211.515	370.010	341.345	359.481	406.174	563.921	391.582	519.850	436.825	472.194
	532.126	585.326	267.354	135.712	63.777	28.693	9.564	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1997	1	6	0	0	109.25	0.000	0.000	0.000	0.000	3.961	19.800
	13.860	26.849	77.854	160.787	226.902	320.700	322.333	208.149	207.819	103.785	83.153
	60.349	81.996	84.766	50.031	19.091	2.191	1.600	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1998	1	6	0	0	50.57	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	4.000	9.800	20.560	36.053	62.527	81.003	77.903	44.640	84.160
	53.343	83.170	54.587	35.520	15.110	20.663	5.870	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
1999	1	6	0	0	143.70	0.000	0.000	0.000	0.000	0.000	0.000
	4.708	26.667	36.282	57.677	116.000	144.400	144.248	121.300	77.040	28.400	15.760
	9.540	7.340	3.000	1.200	1.000	1.000	1.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2000	1	6	0	0	36.42	0.000	0.000	0.000	0.000	2.387	0.000
	0.000	1.194	5.194	10.000	12.000	12.922	7.961	26.358	22.613	19.515	31.403

	15.608	8.777	7.010	1.000	0.000	0.000	0.000	0.000	1.194	0.000	1.194
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2001	1	6	0	0	54.08	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	1.000	5.260	7.520	23.560	20.891	16.111	14.800	23.847	35.369	48.937
	36.639	28.111	20.240	6.714	4.160	5.610	2.900	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2002	1	6	0	0	6.04	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	4.000	0.000	7.000	1.000	8.000	1.000	0.000	1.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2003	1	6	0	0	13.55	0.000	0.000	0.000	0.000	1.983	1.983
	0.000	0.000	1.983	12.387	12.387	11.898	17.821	8.983	1.983	3.966	1.983
	0.000	1.983	0.000	1.983	1.983	1.983	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2004	1	6	0	0	74.05	0.000	0.000	0.000	0.000	3.000	1.000
	4.026	4.000	3.000	15.044	18.000	19.000	21.044	15.000	24.000	11.000	7.026
	4.000	7.000	5.000	3.000	1.000	2.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2005	1	6	0	0	46.39	0.000	0.000	0.000	3.000	4.000	1.000
	2.000	8.000	9.000	12.000	14.000	18.000	16.000	12.000	7.000	5.000	5.000
	4.000	2.000	0.000	1.000	2.000	0.000	0.000	0.000	1.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2006	1	6	0	0	33.97	0.000	0.000	0.000	1.000	1.000	1.000
	4.000	5.000	2.000	11.000	21.000	25.000	19.000	19.000	7.000	1.000	3.000
	1.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2007	1	6	0	0	54.394	0.000	0.000	0.000	0.000	0.000	1.000
	1.000	14.000	16.200	18.000	41.200	43.000	21.000	19.400	10.200	6.000	9.000
	1.000	3.000	3.000	3.000	3.000	1.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2008	1	6	0	0	7.726	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	2.000	8.000	5.000	3.000	1.000	4.000	1.000	0.000	0.000
	0.000	0.000	1.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					

2009 OR-WA non-trawl fleet (n=15)

1980	1	7	3	0	4.04	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.898	2.694	2.694	0.000	0.000	0.898	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.898	0.000	0.000	0.000	4.491	3.592	0.000	3.592
	0.000	0.000	0.000	0.000	0.000	0.000					
1988	1	7	3	0	21.18	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	89.134	177.891
	344.952	433.709	808.346	573.733	425.603	26.127	198.110	128.361	103.144	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	15.752	57.631	145.933	249.909	266.571	670.514	1027.201	526.473
	103.144	0.000	0.000	0.000	0.000	0.000					

1990	1	7	3	0	7.06	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.435
	101.742	76.306	203.483	254.354	228.918	228.918	76.306	25.435	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	50.871	76.306	203.483	152.612	432.401	279.789	127.177
	0.000	0.000	0.000	0.000	0.000	0.000					
1996	1	7	3	0	6.11	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.029	0.000	3.044	4.059
	5.073	2.029	3.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	2.029	1.015	2.029	4.059	1.015	1.015	3.044	2.029	1.015	0.000
	0.000	1.015	0.000	0.000	0.000	0.000					
1997	1	7	3	0	77.66	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	2.632	0.000	8.257	6.637	12.054	44.234	48.590	83.747	63.589
	32.941	81.483	41.605	33.193	36.578	20.011	19.371	5.436	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	2.752	2.752	2.264	4.352	11.633
	22.462	62.896	78.738	102.397	75.465	59.806	69.282	73.443	82.031	59.036	75.930
	21.177	13.467	0.000	13.467	0.000	0.000					
1998	1	7	3	0	54.23	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	20.783	21.124	32.702	43.625	69.784	73.268
	20.062	55.367	7.348	9.580	6.086	25.679	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	4.394	0.000	0.000	0.000	3.846	7.692	16.181
	20.177	38.828	52.952	94.156	107.508	139.738	128.532	105.051	137.777	96.859	41.116
	26.227	0.000	0.000	0.000	0.000	0.000					
1999	1	7	3	0	28.18	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.973	0.000	1.259	7.824	6.785	7.870	7.981	25.272	17.279	15.002
	14.587	5.398	5.464	4.140	7.336	0.000	5.234	0.000	5.234	10.467	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.973	0.000	0.000	4.048
	7.140	4.268	17.289	15.186	27.351	17.902	21.329	13.621	4.314	6.252	2.277
	0.000	5.234	5.234	0.000	5.234	5.234					
2000	1	7	3	0	48.29	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	2.000	3.018	14.935	11.623	7.067	14.001	16.039	12.023	9.145	2.091
	3.041	1.996	1.067	2.015	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.022	4.861	5.962
	14.923	12.090	12.086	7.100	7.243	5.097	2.067	1.091	1.996	0.000	0.000
	1.067	0.000	0.000	0.000	0.000	0.000					
2001	1	7	3	0	55.36	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	1.000	6.073	7.251	12.512	14.331	22.977	10.404	16.677	11.022	6.537
	8.662	2.448	2.102	3.568	1.075	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.250	4.253	9.126
	10.417	9.221	5.840	9.948	7.481	5.997	10.801	2.232	0.000	0.000	0.000
	2.157	1.157	0.000	0.000	0.000	0.000					
2002	1	7	3	0	13.45	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.867	0.000	155.510	0.000
	29.200	315.887	335.354	29.200	24.333	160.377	150.643	0.000	4.867	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	4.867	9.733	14.600	4.867	150.643	19.467	14.600	4.867	4.867
	0.000	0.000	0.000	0.000	0.000	0.000					
2003	1	7	3	0	8.73	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	127.509	510.037	255.019
	510.037	382.528	254.764	255.019	127.509	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	127.509	127.509	382.528	255.019	0.000	255.019	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2004	1	7	3	0	17.87	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	68.062	0.000	0.000	0.000	0.000	0.000	145.602	128.770
	315.757	151.569	263.139	286.665	238.217	80.723	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	87.304	0.000	145.602	43.508	141.063	153.324	119.694	41.753	34.031	38.970
	0.000	0.000	0.000	0.000	0.000	0.000					
2005	1	7	3	0	10.62	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.273
	44.969	0.000	51.359	66.273	0.000	0.000	59.647	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	38.345	21.302	42.603	79.051	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000					
2006	1	7	3	0	7.11	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	583.655	25.560	76.681	626.256	8.520	25.560	8.520	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

0.000 0.000 0.000 0.000 0.000 0.000 17.040 17.040 42.601 34.081 0.000
0.000 0.000 0.000 0.000 0.000 0.000
2007 1 7 3 0 3.97 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 108.510 5.342 0.000 5.342 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 9.975 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
2009 California South recreational fleet (n=26)
1980 1 8 0 0 197.278 0 0 1 6 11 23
29 52 64 76 66 74 52 43 19 9 4
0 1 0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1981 1 8 0 0 99.498 0 0 0 1 5 7
14 14 36 24 35 24 26 9 5 6 1
5 3 4 1 0 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1982 1 8 0 0 111.292 0 0 0 1 3 9
16 30 24 26 26 25 16 13 15 11 6
4 4 3 1 0 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1983 1 8 0 0 109.774 0 0 1 4 7 17
11 20 26 27 27 23 20 15 12 3 2
2 3 1 2 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1984 1 8 0 0 138.848 0 0 0 6 27 32
38 30 27 23 33 29 27 11 6 1 2
2 2 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1985 1 8 0 0 270.116 0 0 0 3 22 47
65 106 90 84 67 62 64 36 12 12 4
1 3 2 1 1 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1986 1 8 0 0 249.634 0 1 1 2 3 17
46 77 98 142 118 77 59 20 10 3 5
3 3 3 4 1 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1987 1 8 0 0 67.562 0 0 1 2 2 10
9 8 10 23 17 25 17 2 4 2 3
8 3 2 1 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1988 1 8 0 0 99.254 0 0 1 1 2 15
25 19 26 22 15 9 14 17 7 2 1
0 3 1 0 2 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0
1989 1 8 0 0 135.646 0 0 1 1 13 7
9 40 63 85 41 40 29 20 7 3 7
0 0 1 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0

1993	1	8	0	0	141.05	1	0	1	3	8	14
	34	36	50	38	20	11	2	2	1	3	0
	0	1	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1994	1	8	0	0	72.316	0	0	0	0	3	3
	4	9	11	19	12	12	7	1	0	0	0
	0	0	0	1	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1995	1	8	0	0	111.742	0	0	1	2	7	12
	28	17	37	41	34	28	28	16	4	1	2
	0	0	0	0	1	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1996	1	8	0	0	233.148	0	1	1	6	17	29
	27	37	61	100	137	104	76	31	8	7	2
	1	1	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1997	1	8	0	0	281.138	0	0	0	7	15	27
	28	65	77	111	194	181	162	77	32	16	4
	3	1	1	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1998	1	8	0	0	107.74	0	0	0	0	4	8
	8	16	15	22	27	28	36	26	19	14	5
	2	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1999	1	8	0	0	236.906	0	0	0	2	2	10
	12	21	53	72	90	83	101	87	65	23	7
	7	2	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2000	1	8	0	0	101.71	0	0	0	1	0	1
	6	8	15	30	49	51	33	36	31	14	13
	7	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2001	1	8	0	0	75.39	0	0	0	1	2	2
	1	4	4	8	20	23	34	25	9	15	5
	1	1	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2002	1	8	0	0	52.834	1	0	0	0	2	3
	3	4	9	1	3	12	14	14	12	4	4
	3	2	2	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2003	1	8	0	0	12.104	0	0	0	1	0	0
	0	0	3	2	0	1	0	1	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2004	1	8	0	0	133.7	0	0	0	5	0	3
	5	7	20	32	30	26	14	2	4	2	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2005	1	8	0	0	168.982	0	0	0	1	1	6
	16	31	30	44	38	38	19	9	1	0	1
	3	1	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2006	1	8	0	0	237.372	0	0	0	0	5	12
	15	47	61	65	52	46	61	25	2	1	1
	0	0	1	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2007	1	8	0	0	137.842	0	0	0	1	2	4
	9	18	39	25	47	28	16	3	11	4	2
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2008	1	8	0	0	68.558	0	0	0	0	0	1
	3	6	10	15	27	9	11	2	1	1	0
	4	0	0	1	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
# 2009 California North recreational fleet (n=26)											
1980	1	9	0	0	108.092	0	0	0	0	1	3
	9	18	35	50	47	37	22	20	19	25	9
	16	6	10	4	2	0	0	0	0	1	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1981	1	9	0	0	73.67	0	0	0	2	1	3
	3	13	17	29	39	40	25	15	9	6	3
	3	1	2	0	3	0	0	0	0	0	1
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1982	1	9	0	0	117.578	0	0	0	0	0	12
	11	37	46	67	56	46	38	25	16	9	4
	3	3	0	2	0	4	0	2	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1983	1	9	0	0	77.186	0	0	0	1	0	2
	4	23	24	33	31	20	18	16	7	6	3
	1	1	1	1	2	1	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1984	1	9	0	0	105.396	0	0	0	0	1	6
	12	19	19	31	31	21	21	24	13	18	7
	7	3	6	1	2	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1985	1	9	0	0	163.616	0	0	0	0	5	6
	12	31	45	43	61	58	50	37	28	17	13
	4	7	3	8	2	0	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1986	1	9	0	0	199.598	0	0	1	0	1	12
	30	59	97	100	116	74	53	33	18	21	14
	11	9	9	7	2	2	0	1	0	1	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					

1987	1	9	0	0	130.722	0	0	0	0	1	7
	13	17	29	35	30	41	47	42	24	24	42
	45	28	13	9	6	13	2	0	1	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1988	1	9	0	0	93.256	0	0	0	0	2	2
	7	17	22	32	16	21	11	10	10	8	13
	17	7	8	8	0	0	0	1	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1989	1	9	0	0	28.764	0	0	1	0	1	1
	2	4	7	9	17	13	5	8	1	5	0
	0	2	1	0	0	1	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1993	1	9	0	0	137.576	0	0	0	3	3	10
	22	46	62	62	51	39	15	14	7	10	4
	0	1	1	1	1	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1994	1	9	0	0	144.166	0	0	0	0	3	10
	23	47	52	95	73	50	23	22	5	3	0
	0	0	0	0	0	1	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1995	1	9	0	0	86.74	0	0	0	0	8	14
	25	40	31	36	32	21	10	4	3	1	0
	1	0	1	1	1	0	0	0	1	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1996	1	9	0	0	159.446	0	0	0	0	7	9
	22	45	62	92	70	34	38	15	9	17	16
	20	7	2	2	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1997	1	9	0	0	123.692	0	0	1	2	9	15
	57	58	41	36	21	21	38	44	50	35	43
	26	12	12	6	5	1	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1998	1	9	0	0	47.872	0	0	0	0	2	0
	2	6	4	20	17	13	15	23	13	7	7
	7	4	3	1	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1999	1	9	0	0	115.472	0	0	0	0	0	4
	9	17	22	33	29	16	32	34	51	44	24
	13	8	6	2	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2000	1	9	0	0	46.558	0	0	0	0	0	1
	0	3	5	16	4	1	4	10	8	12	11
	6	3	7	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2001	1	9	0	0	17.76	0	0	0	0	0	0
	0	0	2	0	2	2	3	2	5	2	1
	0	1	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2002	1	9	0	0	14.346	0	0	0	0	0	1
	2	1	0	0	3	2	3	1	0	1	1
	1	1	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2003	1	9	0	0	35.52	0	0	0	0	0	0
	1	0	2	4	2	2	9	10	4	2	3
	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2004	1	9	0	0	79.418	0	0	0	0	0	3
	1	2	9	12	12	3	5	2	5	3	1
	0	0	2	0	0	1	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2005	1	9	0	0	118.942	0	0	0	0	0	0
	5	14	16	24	24	23	26	6	4	2	5
	1	4	1	2	2	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2006	1	9	0	0	145.29	0	0	0	0	0	1
	3	9	17	36	47	35	19	8	7	5	6
	4	4	1	0	0	1	0	0	0	1	1
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2007	1	9	0	0	91.182	0	0	0	0	0	0
	3	7	15	16	31	20	15	12	8	1	1
	3	3	4	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2008	1	9	0	0	36.038	0	0	0	0	0	1
	0	3	6	3	10	10	5	4	1	2	1
	2	0	3	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
# 2009 OR-WA recreational fleet (n=26)											
1980	1	10	0	0	88.08	0	0	0	0	0	0
	288	602	1627	4785	2610	3585	3013	1558	841	2207	244
	226	1776	189	40	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1981	1	10	0	0	39.39	0	0	0	0	0	0
	3076	2180	7125	12028	6364	5579	10615	6549	1603	2453	1370
	1406	286	0	0	863	286	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1982	1	10	0	0	90.74	0	0	0	0	145	373
	0	2626	2602	9402	8012	10718	16367	4976	968	417	780
	1560	1560	0	0	0	0	0	145	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1983	1	10	0	0	19.42	0	0	0	0	0	465
	0	0	794	1369	2677	1616	97	194	97	612	0
	0	0	0	181	0	0	148	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					

1984	1	10	0	0	122.71	0	0	0	0	0	328
	939	2286	2683	4585	4161	4522	3566	3007	1361	874	501
	194	350	58	58	238	56	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1985	1	10	0	0	124.92	0	0	0	56	0	1396
	2502	3275	6112	3800	5625	8580	7800	5732	3773	3407	2151
	3818	300	3218	170	790	0	57	790	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1986	1	10	0	0	56.04	0	0	0	0	100	0
	1430	1383	2769	2533	2376	1615	975	1013	215	535	1646
	2168	375	1032	250	125	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1987	1	10	0	0	92.46	0	0	155	276	595	731
	3293	3643	6249	3905	4235	4775	2866	2300	1024	554	594
	330	850	209	591	424	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1988	1	10	0	0	132.16	469	0	0	469	483	2323
	5137	8609	10496	16259	9902	11025	5300	3722	1122	490	115
	36	534	0	0	341	36	469	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1989	1	10	0	0	55.70	0	0	0	0	0	225
	552	2884	4002	7673	4511	4672	2794	1937	759	765	750
	227	255	0	180	0	0	227	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1993	1	10	0	0	180.83	0	0	0	0	0	120
	1162	1917	3548	5058	4568	2951	2461	1429	757	198	669
	314	146	65	216	113	0	0	42	71	0	85
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1994	1	10	0	0	199.35	0	0	0	0	219	502
	1032	2089	2701	4214	3901	3303	2236	1129	401	243	92
	202	121	140	0	49	0	0	0	0	0	69
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1995	1	10	0	0	182.25	0	0	0	0	108	0
	315	1807	2623	6054	3758	2826	1604	894	245	337	0
	229	0	229	115	0	73	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1996	1	10	0	0	118.54	0	0	0	0	0	234
	89	908	2578	3224	2540	3089	1850	1216	217	144	79
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1997	1	10	0	0	165.06	0	0	0	37	0	524
	1301	2648	8424	4203	9861	4962	8688	1577	173	1194	324
	273	543	285	33	0	76	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1998	1	10	0	0	266.33	0	0	0	0	76	793
	2192	5171	10638	7279	8882	6772	3595	4799	2547	732	397
	254	353	162	0	0	162	0	0	0	76	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
1999	1	10	0	0	262.02	0	0	0	112	112	274
	1216	3411	5664	6513	5117	5451	2574	2467	1177	839	470
	389	912	70	65	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2000	1	10	0	0	146.78	0	0	0	0	0	140
	786	2055	2833	5322	4404	3003	1288	372	276	259	226
	0	212	18	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2001	1	10	0	0	90.98	0	0	0	0	0	1360
	115	231	1199	1332	1894	1069	2896	317	237	17	17
	23	236	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2002	1	10	0	0	84.11	0	0	0	0	0	0
	292	220	797	1199	2417	2047	465	654	545	126	66
	226	23	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2003	1	10	0	0	20.97	0	0	0	0	0	0
	0	80	147	135	93	219	64	61	4	2	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2004	1	10	0	0	21.17	0	0	0	0	0	0
	7	14	7	19	19	7	28	6	6	7	0
	21	7	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2005	1	10	0	0	13.48	0	0	0	0	0	0
	0	0	17	0	0	27	41	34	24	0	0
	8	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2006	1	10	0	0	13.76	0	0	0	0	0	0
	0	0	3	9	0	14	18	25	3	7	3
	0	0	3	11	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2007	1	10	0	0	8.10	0	0	0	0	0	0
	0	0	0	10	5	15	6	0	0	0	0
	0	0	0	0	6	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
2008	1	10	0	0	22.00	0	0	0	0	0	3
	0	5	0	7	28	8	27	12	0	0	7
	14	0	0	0	5	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0					
# 2009 At-sea hake fishery (n=6)											
2003	1	11	3	0	96.55	0	0	0	0	0	0
	0	0	0	0	0	0	2	3	0	16.111111	29.51634
	32.738562	20.26634	33.710784	20.873483	14.301587	9.151261	5.722222	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	2.6	14.643791	24.322222	49.410458	52.599673	48.207143	28.317927	13.857143	3
	4.634921	0	0	0	0	0					

2004 1 11 3 0 118.47 0 0 0 0 0 0
0 0 0 0 0 0 0 0 3.5 0 32.728571
136.17437 135.745798 150.712465 223.222549 133.012465 24.95
112.702941 0 6.25 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 3.5 9.571429 17.828571
133.931513 77.771429 144.62437 15.85 9.25 8.6 0 0 3 0
0 0
2005 1 11 3 0 202.40 0 0 0 0 0 0
0 0 0 0 0 0 0 1.75 5 11.5 27.277778
55.72 55.8 51.67 63.882222 33.888889 22.97 27.498889 10.826667 4.333333 0 2
0 0 0 0 0 0 0 0 0 0 0
0 0 0 1 14.5 48.586667 90.476667 55.525556 32.386667 18.36 9.493333
2 2.333333 0 0 0 1
2006 1 11 3 0 182.29 0 0 0 0 0 3
2 0 0 1 0 3 4 8 9 21 33.095238
43.5 38.833333 40.095238 28.333333 27.3 15.428571 11 4 0 0 0
0 0 0 0 0 0 0 2 0 3 1
3 11.8 3 4 22.633333 53.8 48.345238 46.761905 20.8 5.833333 2
0 0 0 0 0 0
2007 1 11 3 0 260.72 0 0 0 0 0 0
0 2.2 0 6.6 0 0 1.833333 9.666667 22.914787 34.407644 45.785965
68.555013 80.901116 99.077056 45.254762 48.647619 52.935965 25.964286 20.364719 0 0 0
0 0 0 0 0 0 0 0 2 2.2 6.2
6.619048 3.809524 9.359524 19.571679 62.355263 87.979073 111.800684 34.281385 17.485965 16.45
0 2.25 0 0 0 0 0
2008 1 11 3 0 243.67 0 0 0 0 0 0
0 0 0 0 8.5 0 5.9 5.9 6.4 12.333333 32.329469
44.932925 58.090574 41.54071 81.634804 85.330859 74.025614 28.506803 19.666667 13.5 2 0
0 0 0 0 0 0 0 0 0 0 3.833333
0 4 7.9 10.073913 17.356463 37.847732 70.180519 65.647066 59.151545 20.059215 15.186667
0 0 0 0 0 2
2009 NWFSC survey (n=6)
2003 1 12 3 0 79.61 0 43306 57741 72897 0 43190
25363 14357 54765 14357 15747 15786 71294 74632 166245 130017 88970
138216 120031 133437 114197 27694 208718 4550 0 0 0 0
25153 173224 220680 33019 0 54771 39761 14357 39802 0 0
24636 100687 54051 180177 197325 239272 256082 155510 108064 4660 0
0 0 0 0 0 0
2004 1 12 3 0 79.5 0 46225 9781 101655 39123 51157
92780 13115 90261 220272 85706 128292 141709 199472 223960 409937 367860
168530 240944 195117 447365 385664 323417 274293 148496 37124 37124 0
0 78842 33500 32061 75751 51385 168135 142813 127954 120285 143337
170795 278281 55167 152484 243127 269669 405235 429197 755614 253451 133642
122796 0 37124 0 0 0
2005 1 12 3 0 99.54 9312 25526 8973 16237 32473 62804
81477 80227 112847 140374 82628 96844 135024 186567 189341 190581 156303
322646 354907 258389 192365 150472 0 0 8702 0 0 0
18624 9312 12393 6197 27978 34827 58313 55054 47607 110161 128571
91365 166210 171969 180936 258143 383581 550201 653532 226432 57416 36276
18138 0 0 0 0 0
2006 1 12 3 0 75.61 0 9256 9256 9256 8621 7697
0 0 10606 47258 47258 63974 56121 132406 290410 1273628 1358876
1865188 3615270 3503977 2670924 1502499 2171131 1233554 936980 8888 0 0
0 0 0 0 8224 26068 7697 7697 0 0 76282
42775 37284 846074 740597 1822163 2427673 3815830 5786048 4642550 1894456 742727
0 296574 0 0 0 0
2007 1 12 3 0 95.11 0 0 0 32767 24576 62520
55905 203494 112588 105618 62495 90923 98861 42907 14007 106282 65867
303592 182580 314848 296942 189478 83952 41866 40511 0 0 0
0 0 0 1 0 62521 78703 228218 72612 95547 107332
65169 63556 97097 47650 231109 428427 760569 391727 387645 52870 19644
16122 8685 0 7220 64 0
2008 1 12 3 0 91.93 72571 142929 97196 378630 303211 0
16348 8213 88286 84629 132018 184457 167866 235730 180393 180844 300306
178426 231626 143428 277781 232835 50466 39457 19759 18583 0 0
504460 331896 62847 191495 301572 27565 21480 31499 52147 165915 126659
194268 379758 313698 339768 258384 282150 259455 92039 66287 90294 46439
0 8844 0 0 0 0
Triennnial survey (n=10)

1983 1 13 3 0 215.16 0 0 3578 3578 13121 14688
22563 113129 317694 562889 275905 287613 220792 246952 334313 233752 335422
699948 484401 391119 537382 545882 236888 73064 37180 1813 0 0
0 0 0 8946 14313 9641 27423 143716 326252 499398 389346
261883 212402 244898 267583 293468 542581 850132 1241293 789315 540169 155779
55125 11196 0 0 0 0
1986 1 13 3 0 215.16 0 3015 1386 2202 20059 7538
10696 19221 19347 40982 71310 84335 84117 166954 274047 301968 277293
192250 201573 219700 195734 141261 154333 78156 30502 8970 0 0
0 0 7148 10128 22063 19363 14420 112850 51652 52758 87857
96422 164530 167154 335559 336212 284279 344089 370193 307445 312377 125384
24739 8430 5836 0 0 0
1989 1 13 3 0 175.77 5678 22712 73814 23116 15040 5678
20314 69517 56203 107797 103159 75084 94889 94610 142711 162765 102671
161590 133711 343786 305478 190954 173833 54169 94060 77410 0 0
22712 0 68136 63175 19125 25160 22807 68265 81616 114142 104050
81889 127530 137864 221340 196940 221243 304104 560162 523668 512477 86396
31795 26226 75161 0 0 0
1992 1 13 3 0 62.49 34885 10902 10966 20773 19820 14781
30338 38288 31921 40398 42616 51985 106892 101108 107399 146992 69708
21254 11877 20135 19809 17140 14090 1234 12073 11881 0 0
34885 13301 25589 50418 28793 22995 16755 9768 11997 34329 26400
18422 100552 90942 82939 52979 41260 25057 28979 21189 31815 7830
1479 0 0 0 0 0
1995 1 17 3 0 84.12 0 0 0 0 2425 6219
9051 7444 34124 65169 84732 83277 68180 27715 41353 47699 28838
40874 34870 54909 56214 71852 39778 40100 32907 6853 0 0
0 0 0 0 0 13408 28080 35758 58054 137785 144116
78322 72250 69039 25359 47640 47653 100883 120910 187447 124051 34202
0 0 0 0 0 0
1998 1 17 3 0 113.54 0 196 22571 196 1570 11689
9864 7606 4191 21373 16103 40348 59768 79399 82635 70273 52250
34294 35430 43633 18110 10390 7156 701 2824 0 0 0
0 3982 7963 4963 1177 8729 11097 2159 1766 10547 24342
65749 61566 76257 65988 50491 93704 68243 41814 33539 7181 6747
2105 0 0 0 0 0
2001 1 17 3 0 100.86 0 0 3606 0 32110 0
67475 3520 7040 77336 44391 205336 414378 293143 161288 96909 54077
79501 72585 72892 23599 7090 16502 0 0 0 0 0
0 0 0 0 22492 0 22492 35200 26012 74040 83963
262245 311511 186368 156321 90186 65787 79815 40142 36151 13856 3684
0 0 0 0 0 0
2004 1 17 3 0 90.84 0 0 4597 0 4040 0
0 0 0 0 0 0 10782 35686 91136 56932 36869
60475 55129 84106 59555 94921 41846 22135 0 0 0 0
0 0 4040 0 0 0 0 0 6603 0 0
11675 21407 32063 64495 59598 171145 144096 170212 166250 86653 47887
4230 0 0 0 0 0

Age data
35 # Number of age bins for data inputs
Lower edge of age bins (first is a minus group, last is a plus group)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

2 # Number of ageing error types
Vectors of: Average age at true age (to accumulator age)
SD of ageing precision at true age
definition 1 CAP/NWFSC/ODFW
0.5 1.418732 2.33746 3.2562 4.17493 5.09366 6.01239 6.93113 7.84986 8.76859 9.68732 10.6061
11.5248 12.4435 13.3623 14.281 15.1997 16.1184 17.0372 17.9559 18.8746 19.7933 20.712
21.6307 22.5494 23.4681 24.3868 25.3055 26.2242 27.1429 28.0616 28.9803 29.899 30.8177
31.7364 32.6551 33.5738 34.4925 35.4112 36.3299 37.2486
0.0976918 0.0976918 0.195384 0.293075 0.390767 0.488459 0.586151 0.683843 0.781535 0.879226 0.976918 1.07461
1.1723 1.26999 1.36769 1.46538 1.56307 1.66076 1.75845 1.85614 1.95384 2.0515278 2.1492196
2.2469114 2.3446032 2.442295 2.5399868 2.6376786 2.7353704 2.8330622 2.930754 3.0284458 3.1261376 3.2238294
3.3215212 3.419213 3.5169048 3.6145966 3.7122884 3.8099802 3.907672

definition 2 WDFW

```
0.5     1.5     2.5     3.5     4.5     5.5     6.5     7.5     8.5     9.5     10.5    11.5
        12.5    13.5    14.5    15.5    16.5    17.5    18.5    19.5    20.5    21.5    22.5
        23.5    24.5    25.5    26.5    27.5    28.5    29.5    30.5    31.5    32.5    33.5
        34.5    35.5    36.5    37.5    38.5    39.5    40.5
0.112926 0.112926 0.225851 0.338777 0.451702 0.564628 0.677553 0.790479 0.903404 1.01633 1.12926 1.24218
        1.35511 1.46803 1.58096 1.69388 1.80681 1.91973 2.03266 2.14559 2.25851 2.371446 2.484372
        2.597298 2.710224 2.82315 2.936076 3.049002 3.161928 3.274854 3.38778 3.500706 3.613632 3.726558
        3.839484 3.95241 4.065336 4.178262 4.291188 4.404114 4.51704


### Age composition data ###
589   # Number of age comp observations using restricted length ranges
2   # Length bin refers to: 1=population length bin indices; 2=data length bin indices; 3= actual pop? data? lengths match bins?
0 #_combine males into females at or below this bin number

# Conditional ages for surveys, marginal for fishing fleets
# Year  Season  Type    Gender  Partition  ageerr  Lbin_lo  Lbin_hi  Nsamps  Data: females then males
# 2009 Southern California trawl fleet age error key 1, unchanged from 2007 (n=8)
1981    1       1       3       0       1       -1      -1      4.83    0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   1000.000 0.000  0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   500.000 500.000 500.000 0.000   500.000 0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000 #
1983    1       1       3       0       1       -1      -1      3.55    0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   500.000 0.000   0.000   500.000 0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   500.000 500.000 0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000 #
1984    1       1       3       0       1       -1      -1      18.69   0.000   0.000   0.000
        123.718 96.225  94.482  0.000   280.996 500.000 1000.000 0.000  0.000   0.000   0.000
        0.000   0.000   0.000   500.000 0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   13.746  123.718 68.732  96.225  0.000   513.746 1500.000 0.000  0.000   500.000
        0.000   500.000 0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   500.000 1000.000 1000.000 0.000 0.000   0.000   0.000   0.000
        0.000 #
1985    1       1       3       0       1       -1      -1      18.97   0.000   0.000   0.000
        0.000   0.000   364.773 2026.000 1982.173 890.773 559.273 242.250 182.800 182.800 0.000
        0.000   0.000   0.000   0.000   364.773 0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   2000.000 26.000 742.250 91.400  716.667 91.400
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        364.773 0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        364.773 #
2002    1       1       3       0       1       -1      -1      1.83    0.000   0.000   0.000
        0.000   0.000   0.000   1.000   2.000   0.000   1.000   1.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   1.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000 #
2003    1       1       2       0       1       -1      -1      1.28    0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   1.000   1.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000 #
2004    1       1       2       0       1       -1      -1      1.14    0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
        0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000
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0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
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0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 #
2005 1 1 3 0 1 -1 -1 3.55 0.000 0.000 1.000
0.000 0.000 0.000 0.000 0.000 1.000 0.000 1.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
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0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2009 Northern California trawl fleet age key 1, unchanged from 2007 (n=11)
1981 1 2 3 0 1 -1 -1 64.39 0.000 0.000 0.000
0.000 171.871 155.052 143.855 552.491 960.329 1078.854 476.593 252.977 1164.645 612.456
614.869 571.300 520.123 14.040 124.939 44.745 329.820 465.292 0.000 71.300 0.000
11.489 49.480 0.000 0.000 135.129 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 37.002 252.396 64.149 1172.284 1017.173 370.414 604.302 357.478
930.652 604.664 724.354 427.770 0.000 12.170 0.000 60.526 404.792 0.000 71.300
0.000 0.000 37.489 0.000 0.000 0.000 0.000 0.000 15.023 0.000 0.000
26.776
1982 1 2 3 0 1 -1 -1 79.98 0.000 0.000 0.000
0.000 0.000 455.671 505.739 809.562 534.882 1664.928 1515.326 1705.311 157.233 895.207
551.145 0.000 381.290 441.215 11.588 0.000 15.135 0.000 429.253 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
439.254 0.000 0.000 30.154 974.703 137.143 1009.961 1363.132 2457.232 1390.602 821.069
257.505 147.106 380.196 762.581 221.857 468.665 49.057 887.256 167.180 572.830 721.857
0.000 0.000 0.000 221.857 0.000 0.000 0.000 0.000 500.000 0.000 0.000
221.857
1983 1 2 3 0 1 -1 -1 167.10 0.000 0.000 0.000
5.747 93.377 219.512 952.225 2093.845 2071.412 562.523 1666.687 225.840 1206.857 921.750
1972.970 464.367 655.391 211.598 193.744 8.840 457.666 0.000 859.848 283.133 769.938
0.000 0.000 54.392 250.705 0.000 205.045 0.000 359.848 0.000 364.923 0.000
0.000 0.000 0.000 303.942 103.889 1867.813 1936.779 2824.357 1371.667 4971.029 1015.804
905.464 531.908 749.270 1574.260 1477.369 37.216 596.812 902.296 820.007 27.843 564.893
127.532 323.870 359.848 0.000 52.019 62.040 0.000 0.000 500.000 0.000 205.045
1400.464
1984 1 2 3 0 1 -1 -1 109.40 0.000 0.000 0.000
0.000 0.000 1163.744 740.745 1490.822 1832.411 1163.223 1672.036 1004.852 398.358 1296.562
399.151 1603.336 137.387 106.831 80.773 201.809 68.850 0.000 147.961 154.250 0.000
235.778 0.000 199.282 525.262 0.000 24.386 0.000 0.000 229.966 476.896 0.000
0.000 0.000 0.000 56.725 169.882 567.390 1413.331 878.886 1800.631 1602.013 1773.945
77.472 0.000 972.600 305.052 414.354 426.362 10.900 143.350 0.000 334.353 432.588
0.000 500.510 504.399 0.000 142.608 376.596 10.900 166.157 293.260 146.630 158.861
540.507
1985 1 2 3 0 1 -1 -1 112.37 0.000 0.000 0.000
0.000 78.393 208.954 1380.992 1828.328 2118.386 888.288 2023.116 1224.364 815.748 139.485
190.525 1057.559 633.697 302.630 1089.635 434.647 1384.695 108.774 325.874 293.774 434.647
347.121 288.030 0.000 190.525 186.804 0.000 0.000 0.000 2.386 576.061 0.000
0.000 0.000 0.000 24.733 117.263 1527.011 918.644 3339.029 2520.794 2081.283 1501.902
1062.287 599.978 139.485 415.724 769.725 453.161 0.000 16.760 340.399 347.121 470.495
1107.642 951.585 190.525 614.351 105.980 0.000 884.767 0.000 0.000 0.000 44.225
299.298
1987 1 2 2 0 1 -1 -1 1.14 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
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0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2001 1 2 3 0 1 -1 -1 4.86 0.000 0.000 0.000
0.000 0.000 0.000 1.818 1.818 1.818 5.455 5.455 5.455 3.636 3.636
1.818 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 1.818 3.636 0.000 5.455 3.636
5.455 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000

2002 1 2 3 0 1 -1 -1 14.52 0.000 0.000 0.000
0.000 0.000 0.000 0.000 4.495 7.773 3.795 18.610 8.061 4.495 0.000
3.495 0.000 1.378 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 6.448 7.606 7.931 4.031 10.479 10.463 8.984
7.485 1.000 1.300 0.000 1.000 0.000 1.300 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.378
2003 1 2 3 0 1 -1 -1 8.66 0.000 0.000 0.000
0.000 0.000 0.000 1.000 5.000 10.000 1.000 3.000 4.000 4.000 2.000
1.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
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0.000
2004 1 2 3 0 1 -1 -1 9.93 0.000 0.000 0.000
1.000 5.000 5.000 16.600 3.000 0.000 1.000 0.000 16.600 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
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0.000
2005 1 2 2 0 1 -1 -1 2.69 0.000 0.000 0.000
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2.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2009 Oregon trawl fleet with age error key 1 (n=28)
1980 1 3 3 0 1 -1 -1 56.48 0.00 0.00 0.00
0.00 0.00 0.00 19.05 35.52 32.94 16.47 246.15 295.52 515.24 496.79
351.50 783.85 869.63 199.17 604.65 544.89 222.54 521.91 517.59 163.83 0.00
83.90 63.46 65.89 63.46 130.89 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 9.53 16.47 576.13 101.56 108.51 379.03 929.28
317.98 717.08 549.37 620.61 1542.47 567.00 1651.31 1082.51 537.62 326.80 1143.93
678.94 621.85 318.04 273.26 32.94 351.55 256.79 348.56 145.58 415.01 25.81
795.78
1981 1 3 3 0 1 -1 -1 10.28 0.00 0.00 0.00
0.00 0.00 0.00 0.00 230.60 0.00 0.00 1588.75 982.30 606.45 606.45
375.85 230.60 375.85 606.45 0.00 0.00 922.40 461.20 0.00 230.60 230.60
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 230.60 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 837.05 230.60 606.45
230.60 982.30 461.20 375.85 1127.55 837.05 375.85 375.85 0.00 1503.40 982.30
375.85 230.60 0.00 0.00 0.00 0.00 0.00 375.85 0.00 230.60 0.00
375.85
1983 1 3 3 0 1 -1 -1 204.74 0.00 0.00 0.00
0.00 213.85 243.32 1067.23 2195.06 2894.85 3879.90 3054.13 2751.51 3001.94 2812.47
2441.26 1118.25 575.70 963.69 1087.08 899.33 856.22 698.73 708.53 758.73 356.84
246.49 188.01 229.87 208.72 40.59 8.66 151.48 110.21 137.31 313.64 0.00
0.00 0.00 0.00 58.21 412.78 1536.55 3802.60 4895.68 4690.51 2230.23 2085.70
2325.31 2980.21 1874.60 1216.73 1364.16 1401.06 1057.61 1990.86 1478.44 1755.86 1479.07
1160.92 826.63 755.42 839.71 536.18 1019.78 705.68 949.37 605.53 501.43 355.50
3867.99
1984 1 3 3 0 1 -1 -1 134.14 0.00 0.00 0.00
21.34 44.67 297.88 678.21 1051.87 1813.32 2405.42 2707.95 1561.48 989.46 1656.51
1000.46 680.96 312.68 509.46 396.11 273.40 934.27 404.89 651.02 449.53 245.70
196.46 186.68 228.52 94.46 211.96 0.00 115.79 58.37 132.08 108.46 0.00
0.00 0.00 13.58 32.34 487.31 970.32 1686.67 3250.02 3101.09 2451.24 1624.48
1503.43 1119.42 1687.90 1367.79 737.54 395.19 588.85 807.48 1235.68 1265.38 992.92
799.76 1025.54 621.04 756.90 528.96 266.94 512.33 270.61 586.62 459.05 607.24
3300.09
1985 1 3 3 0 1 -1 -1 169.44 0.00 0.00 0.00
0.00 0.00 347.40 892.90 1054.64 2274.97 2811.71 2492.57 1614.09 1467.35 962.32
886.83 871.80 773.20 457.97 189.74 195.55 220.49 464.78 503.64 277.28 328.44
0.00 67.79 0.00 192.89 18.73 7.33 54.49 0.00 59.69 221.41 0.00
0.00 0.00 0.00 68.94 283.65 1450.61 2293.48 3475.91 2941.36 2071.01 1565.44

	1053.33	744.22	924.04	781.65	491.77	421.40	324.54	104.04	527.74	461.53	333.20
	269.89	489.42	290.30	361.34	424.52	365.72	485.23	131.69	120.15	108.18	191.72
	2552.09										
1986	1	3	3	0	1	-1	-1	112.96	0.00	0.00	0.00
	0.00	115.75	332.04	597.07	533.66	538.70	895.69	911.89	1072.01	578.14	259.14
	433.14	227.18	329.00	75.73	50.59	77.00	0.00	197.54	175.05	46.17	53.45
	119.85	0.00	0.00	2.64	59.48	0.00	82.17	0.00	0.00	169.04	0.00
	0.00	0.00	46.99	173.73	276.85	553.37	1198.85	979.17	1180.24	760.34	789.55
	226.57	309.14	88.05	86.10	166.57	90.36	117.36	54.94	33.67	103.98	359.56
	71.87	252.85	98.80	0.00	87.70	165.19	46.68	25.33	99.53	22.69	53.45
	398.30										
1987	1	3	3	0	1	-1	-1	204.74	0.00	0.00	0.00
	0.00	37.21	212.34	794.35	2129.22	2945.26	2629.97	3209.99	4059.39	3070.66	1858.35
	587.41	550.70	370.00	633.20	613.02	261.54	231.17	335.65	82.74	163.21	538.77
	155.12	114.89	187.71	75.32	59.43	0.00	66.38	0.00	4.95	9.90	0.00
	0.00	0.00	0.00	32.66	355.17	822.27	4310.45	5579.25	4110.60	5705.40	2803.37
	1591.15	1049.07	760.37	397.08	120.89	463.18	671.68	0.00	100.18	215.33	233.51
	313.26	349.13	311.50	440.98	143.06	20.59	190.19	4.95	55.77	2.00	1.00
	1089.11										
1988	1	3	3	0	1	-1	-1	70.60	0.00	0.00	0.00
	0.00	0.00	68.90	213.76	358.77	1394.78	1091.61	900.07	1821.75	978.38	658.00
	377.13	334.92	265.26	83.34	57.36	97.70	96.64	57.36	163.84	327.67	0.00
	92.53	0.00	92.53	0.00	0.00	27.30	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	19.99	65.67	267.61	664.41	1172.29	779.35	799.97	636.23
	669.43	297.71	123.03	0.00	142.61	171.08	128.67	0.00	0.00	147.14	163.84
	39.27	0.00	194.33	0.00	0.00	92.53	105.85	0.00	27.30	142.61	39.27
	336.42										
1989	1	3	3	0	1	-1	-1	155.32	0.00	0.00	0.00
	4.27	6.55	125.42	370.49	689.64	1617.32	2116.64	2477.78	1813.23	1254.55	1170.62
	1021.98	664.86	435.97	210.80	488.26	329.02	95.27	196.23	33.37	14.10	298.77
	0.00	0.00	0.00	80.03	95.51	45.84	151.76	95.27	79.26	64.36	0.00
	0.00	0.00	0.00	6.55	176.48	623.92	1093.26	1468.30	2833.55	1901.38	1531.16
	1438.69	769.44	487.09	410.98	153.26	573.08	217.81	378.43	248.76	80.74	203.56
	329.98	198.67	299.45	292.12	491.06	194.78	194.48	207.19	60.82	171.09	77.45
	1127.34										
1990	1	3	3	0	1	-1	-1	141.20	0.00	0.00	0.00
	0.00	4.49	194.63	434.19	568.09	1310.92	1546.20	2061.42	1920.85	1431.23	1780.18
	852.48	696.77	409.35	372.00	158.55	172.78	131.11	86.60	85.90	0.00	14.44
	78.01	0.00	0.00	0.00	102.70	0.00	0.00	66.36	0.00	117.17	0.00
	0.00	0.00	0.00	52.45	69.36	567.73	810.15	1521.39	1745.46	2078.78	1963.51
	1355.73	826.72	597.59	281.34	374.28	118.84	336.56	184.54	97.36	103.99	54.48
	153.53	18.47	21.99	61.40	100.21	174.77	13.95	4.54	34.06	17.10	8.73
	600.63										
1991	1	3	3	0	1	-1	-1	139.30	0.00	0.00	0.00
	14.43	263.33	511.35	1217.20	2454.17	2885.91	2056.63	3004.19	3368.60	2137.68	1340.45
	1143.29	776.91	418.42	605.16	204.88	46.75	260.47	187.14	63.21	0.00	42.28
	0.00	118.37	4.60	0.00	0.00	0.00	0.00	0.00	0.00	43.94	0.00
	0.00	0.00	43.28	163.89	558.29	1522.27	3025.42	4076.05	3925.59	2995.57	1915.95
	1143.95	1348.41	1143.72	270.69	350.63	493.29	230.77	736.93	0.00	227.31	299.15
	544.60	69.57	8.18	315.45	81.47	167.86	335.90	142.56	501.44	75.22	58.86
	705.99										
1992	1	3	3	0	1	-1	-1	208.64	0.00	0.00	0.00
	2.55	413.58	463.30	2033.28	3041.33	4515.75	4390.17	3976.01	2159.07	4030.45	2278.95
	2040.72	1200.88	1617.42	500.68	514.04	404.87	327.69	179.64	219.02	256.07	0.00
	113.53	0.00	52.63	0.00	167.59	47.19	79.24	0.00	0.00	52.63	0.00
	0.00	0.00	0.00	282.33	1623.17	3676.17	3970.48	6987.89	4881.46	3766.99	3041.58
	2820.58	1956.42	1137.78	1303.64	402.65	875.22	547.43	337.70	605.52	409.48	647.44
	169.96	313.25	374.95	196.26	48.76	539.12	676.00	297.76	15.98	291.15	11.40
	2649.20										
1993	1	3	3	0	1	-1	-1	155.32	0.00	0.00	0.00
	0.00	29.85	634.34	1569.56	3019.89	3095.63	2703.16	4714.31	3855.04	2706.53	3081.15
	1376.19	1544.73	1587.66	821.81	812.34	353.07	493.51	278.48	184.19	24.11	42.75
	216.37	168.79	20.85	0.00	24.13	44.98	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	1.94	115.11	612.23	1868.88	4720.11	4477.75	4165.49	2607.38	1789.61
	1274.51	1721.10	870.31	1341.18	611.38	553.96	253.86	439.53	391.98	522.45	747.37
	248.36	230.17	12.42	7.63	129.57	75.44	80.14	108.24	143.66	0.00	150.52
	244.20										
1994	1	3	3	0	1	-1	-1	28.24	0.00	0.00	0.00
	0.00	5.89	86.45	83.34	70.57	290.96	344.15	264.60	219.41	58.78	108.56
	71.55	90.05	105.93	5.89	34.38	71.55	71.55	71.55	71.55	0.00	0.00

	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	5.89	0.00	36.19	95.96	463.38	481.89	571.58	114.94	89.91
	409.98	204.51	239.04	18.51	267.53	71.55	71.55	0.00	71.55	0.00	0.00
	18.51	71.55	71.55	18.51	0.00	71.55	0.00	143.09	105.93	0.00	71.55
	148.99										
1995	1	3	3	0	1	-1	-1	98.84	0.00	0.00	0.00
	0.00	35.25	183.29	375.95	427.26	706.13	929.99	823.84	385.01	304.66	228.74
	24.70	126.23	25.38	57.40	25.38	32.44	0.00	0.00	34.04	0.00	5.24
	28.29	25.38	0.00	0.00	0.00	25.38	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	99.97	442.74	665.36	834.07	722.72	679.62	714.80	248.22
	197.24	82.33	84.22	49.86	89.39	117.58	74.94	0.00	75.20	0.00	4.00
	2.02	14.47	5.24	5.24	0.00	0.00	0.00	0.00	7.26	2.02	0.00
	45.53										
1996	1	3	3	0	1	-1	-1	127.08	0.00	0.00	0.00
	3.36	160.51	534.04	791.92	863.43	832.35	633.67	891.68	889.35	343.43	275.18
	198.46	248.04	224.59	156.89	57.34	65.77	0.00	38.78	0.00	0.00	10.22
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.84	0.00
	0.00	0.00	3.04	185.66	429.31	829.92	1018.71	779.63	986.75	858.10	656.72
	337.01	155.98	244.50	159.71	277.98	11.14	144.71	129.01	72.46	298.68	83.19
	18.24	38.78	33.34	0.00	90.68	94.50	0.00	33.34	0.00	101.43	33.34
	336.67										
1997	1	3	3	0	1	-1	-1	197.68	0.00	0.00	0.00
	0.00	51.59	64.83	349.07	818.04	1736.64	1421.12	1485.09	1605.77	1205.97	869.35
	354.36	225.61	90.33	108.79	172.03	63.49	67.89	61.87	72.27	1.25	20.93
	0.00	1.25	55.88	0.00	0.00	0.00	0.00	27.90	0.00	25.30	0.00
	0.00	0.00	20.88	4.09	308.40	1099.70	1660.68	2509.52	2396.53	1987.46	1923.81
	912.12	395.82	374.02	207.74	146.71	40.69	122.27	55.51	73.22	32.75	60.90
	119.25	0.00	26.97	0.00	9.55	74.45	62.76	0.00	0.00	12.32	30.84
	254.48										
1998	1	3	3	0	1	-1	-1	197.68	0.00	0.00	0.00
	2.07	36.00	327.77	792.85	1678.77	1731.38	1655.66	1395.26	1091.29	854.64	706.85
	481.61	383.38	207.73	278.32	152.15	126.02	73.71	60.84	51.47	5.78	5.78
	18.27	42.70	0.00	5.78	0.00	0.00	0.00	10.56	0.00	18.60	0.00
	0.00	4.14	0.00	89.44	393.44	1072.20	1778.63	1994.73	1877.68	1679.61	1226.51
	976.08	669.63	458.28	355.60	207.04	218.68	223.54	111.14	37.93	87.07	205.03
	99.25	92.03	27.04	12.90	48.02	25.69	26.45	20.94	46.42	20.94	43.88
	574.00										
1999	1	3	3	0	1	-1	-1	197.68	0.00	0.00	0.00
	9.00	88.84	188.82	727.04	1194.62	921.11	1389.45	1378.86	1329.71	1244.84	867.28
	582.05	613.98	402.39	151.59	158.48	127.16	115.89	64.67	8.70	30.25	0.00
	67.94	0.00	9.93	0.00	0.00	0.00	33.71	2.14	0.00	0.00	0.00
	0.00	0.00	27.00	107.78	231.30	603.84	1435.07	1332.68	1234.18	1425.47	1110.01
	700.26	1107.75	448.50	433.63	184.38	169.78	176.09	239.13	156.69	50.48	116.86
	84.61	43.37	92.91	0.00	0.00	82.37	33.71	0.00	0.00	0.00	3.46
	219.35										
2000	1	3	3	0	1	-1	-1	83.62	0.00	0.00	0.00
	4.67	23.70	22.43	30.52	37.79	47.37	44.80	34.34	23.33	19.55	7.48
	11.21	1.51	2.15	3.54	2.22	1.95	1.11	1.15	1.00	0.00	0.00
	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	1.98	17.89	37.86	49.57	56.73	47.62	45.69	30.95	31.99
	15.84	12.61	3.90	6.10	3.71	1.11	2.43	2.27	1.04	0.00	0.00
	2.15	0.00	2.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00										
2001	1	3	3	0	1	-1	-1	125.29	0.00	0.00	0.00
	0.00	4.10	38.58	84.08	84.15	71.38	53.93	36.72	27.53	46.64	21.51
	8.27	7.05	11.18	2.50	2.10	3.20	4.64	3.61	1.03	2.38	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	1.12	8.53	32.21	77.64	67.76	109.39	64.38	63.92	35.59
	28.76	14.27	13.55	9.58	2.22	6.62	0.97	7.72	0.00	2.97	0.00
	0.00	1.42	1.84	2.84	0.00	0.00	0.84	1.22	0.00	2.64	1.42
	4.88										
2002	1	3	3	0	1	-1	-1	178.93	0.00	0.00	0.00
	0.00	16.71	37.41	99.06	185.37	88.18	55.67	53.49	55.52	42.61	40.62
	34.03	21.30	28.36	7.04	25.29	11.22	11.80	5.08	4.95	0.00	5.10
	0.00	0.00	0.00	0.00	0.00	1.12	0.00	1.00	1.12	2.25	0.00
	0.00	0.00	1.00	22.67	49.03	123.32	146.90	70.71	87.49	62.46	64.63
	45.97	25.83	34.91	3.12	19.96	10.62	10.75	6.27	7.46	8.29	4.11
	1.00	1.00	1.25	0.00	0.00	0.00	0.00	0.00	3.11	1.01	1.01
	15.43										

2003 1 3 3 0 1 -1 -1 71.36 0.00 0.00 0.00
0.00 5.60 17.43 53.60 151.65 136.21 102.06 83.91 43.98 121.10 56.27
34.54 0.00 57.05 4.97 5.85 43.27 0.00 0.00 0.00 0.00 3.97
0.00 0.00 3.97 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 5.83 5.60 28.70 113.66 150.22 46.81 121.04 89.61 56.13
54.90 42.05 29.75 14.27 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
5.85
2004 1 3 3 0 1 -1 -1 121.27 0.00 0.00 0.00
52.03 42.14 80.95 642.46 514.63 289.82 165.70 267.37 348.35 115.60 76.53
50.32 15.41 52.56 7.94 55.59 0.00 0.00 0.00 0.00 24.42 0.00
0.00 12.78 0.00 0.00 0.00 24.42 0.00 24.42 0.00 21.95 0.00
0.00 0.00 43.91 201.19 261.67 423.86 309.45 342.23 230.96 66.43 77.79
37.44 72.67 42.60 53.33 55.48 35.36 0.00 0.00 35.36 11.63 0.00
12.78 12.78 0.00 0.00 0.00 0.00 0.00 16.88 12.78 0.00 0.00
24.95
2005 1 3 3 0 1 -1 -1 156.83 0.00 0.00 22.54
499.53 454.46 97.75 200.21 315.66 192.28 853.61 964.50 683.50 183.04 173.87
124.78 59.88 136.15 119.21 25.68 43.61 22.12 8.13 0.00 4.39 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
22.54 386.85 841.31 72.32 149.34 609.89 219.59 426.67 799.94 700.60 248.48
45.82 255.43 39.16 101.72 75.73 53.87 0.00 10.66 75.58 0.00 45.07
0.00 51.66 0.00 0.00 4.76 0.00 0.00 5.84 0.00 0.00 0.00
19.40
2006 1 3 3 0 1 -1 -1 79.40 0.00 0.00 0.00
10.35 10.03 20.71 49.06 64.87 39.61 74.88 88.58 67.97 20.91 26.92
36.46 34.12 32.74 0.00 0.00 16.65 0.00 0.00 0.00 5.55 0.00
14.91 5.43 0.00 0.00 5.55 5.41 0.00 0.00 0.00 0.00 0.00
0.00 0.00 10.89 5.52 10.64 32.56 42.16 97.16 95.76 77.14 65.55
10.68 35.09 32.85 24.61 21.97 32.76 22.10 11.32 27.72 16.28 16.08
5.54 5.54 5.52 0.00 5.52 0.00 0.00 0.00 0.00 0.00 0.00
31.97
2007 1 3 3 0 1 -1 -1 52.77 0.00 0.00 0.00
0.00 0.00 0.00 23.06 45.16 39.76 53.27 21.34 28.17 16.92 22.41
22.35 16.53 17.42 31.33 11.05 4.63 6.00 0.00 5.69 10.86 10.44
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 4.44 0.00
0.00 0.00 0.00 4.43 5.96 11.72 20.49 28.12 11.76 34.47 17.55
34.26 5.50 0.00 5.76 5.69 6.03 5.58 0.00 0.00 6.03 5.76
0.00 0.00 5.29 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00
2008 1 3 3 0 1 -1 -1 68.84 0.00 0.00 0.00
7.32 51.21 18.17 3.66 6.54 9.06 18.54 22.03 12.94 13.08 32.24
26.38 16.25 10.68 13.76 14.16 3.75 11.09 6.70 10.53 6.92 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 51.21 25.63 13.24 3.66 65.96 36.90 33.99 26.86
14.73 26.00 11.05 2.43 0.00 3.77 0.00 3.42 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
3.77
2009 Washington trawl fleet with age error key 2 (n=25)
1980 1 4 3 0 2 -1 -1 63.54 0.000 0.000 0.000
197.856 593.568 396.629 1782.537 2489.546 2108.809 1338.983 1203.147 1742.406 979.166 523.004
349.047 550.754 313.489 140.015 158.685 1.833 19.765 40.447 93.676 93.676 0.000
0.000 0.000 0.917 0.000 0.000 0.000 0.000 0.917 0.917 34.681 0.000
0.000 0.000 0.000 407.868 2179.166 2375.189 2605.640 2680.213 1307.968 680.679 1099.193
923.254 969.905 424.226 461.088 208.162 339.534 672.852 262.307 529.635 263.600 23.080
138.003 24.312 45.244 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
21.852
1981 1 4 3 0 2 -1 -1 105.90 0.000 0.000 0.000
0.000 128.193 9.959 10.724 12.287 122.478 74.761 594.275 195.686 45.926 170.838
119.875 134.728 18.468 86.509 5.229 42.607 45.413 3.074 42.659 41.096 0.000
1.512 0.000 1.211 0.000 0.000 0.000 2.506 0.000 0.000 0.000 0.000
0.000 0.000 0.000 25.279 6.387 14.254 61.684 155.147 78.437 71.992 121.150
131.121 127.297 157.244 139.759 235.427 52.422 47.504 323.773 6.140 190.745 46.190
2.506 2.423 2.723 4.017 5.363 812.664 50.744 0.000 140.832 4.824 45.920
375.698
1983 1 4 3 0 2 -1 -1 56.48 0.000 0.000 0.000
0.000 47.393 204.351 116.651 376.633 543.503 647.165 786.236 513.667 313.955 571.866
612.908 372.350 456.148 305.658 144.816 98.026 13.324 114.722 51.957 0.000 60.237
0.000 3.242 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 47.357 348.393 116.006 602.288 716.108 737.761 708.251 301.112

	626.935	366.265	263.968	243.317	297.650	34.542	193.193	58.379	11.017	13.485	110.841
	76.964	9.635	6.484	53.907	63.479	7.062	56.995	6.423	3.242	53.248	8.791
	250.507										
1984	1	4	3	0	2	-1	-1	35.30	0.000	0.000	0.000
	0.000	0.000	1.763	2.545	2.818	4.640	6.184	10.739	10.565	3.864	4.321
	5.228	6.569	2.269	4.346	1.860	0.626	0.723	1.096	1.860	2.955	0.764
	1.096	1.096	1.428	0.332	0.764	0.332	0.000	0.000	0.764	1.290	0.000
	0.000	0.000	0.000	0.295	2.738	3.719	4.725	5.817	9.012	9.617	10.829
	6.161	8.972	5.959	5.091	4.767	5.779	3.150	0.589	2.449	1.253	1.450
	1.979	3.629	3.407	1.338	0.000	1.860	1.510	0.764	1.018	1.096	2.586
	16.689										
1985	1	4	3	0	2	-1	-1	77.66	0.000	0.000	0.000
	0.000	24.966	77.114	160.980	525.730	876.991	1055.242	1039.556	1143.940	971.531	679.445
	808.435	415.751	872.222	841.102	443.115	255.738	34.561	286.070	30.222	181.618	95.630
	0.000	27.688	190.570	23.349	93.582	13.594	3.407	3.407	23.349	108.796	0.000
	0.000	0.000	0.000	13.746	31.687	298.628	568.105	874.201	911.162	1282.770	1454.375
	914.483	478.458	1288.801	346.835	694.629	319.681	341.640	582.884	97.176	74.795	237.387
	282.908	273.950	119.666	167.058	225.247	128.492	162.235	155.680	76.885	148.458	51.446
	1783.508										
1986	1	4	3	0	2	-1	-1	120.02	0.000	0.000	0.000
	0.000	18.529	408.778	806.492	1723.598	1383.059	2148.497	1304.307	1014.918	822.288	325.707
	449.712	90.307	74.703	18.400	17.600	0.000	26.342	120.097	39.983	0.000	13.617
	32.008	0.000	0.000	74.703	25.212	0.000	0.000	0.000	98.591	215.059	0.000
	0.000	0.000	36.800	183.963	399.326	1417.868	2273.825	1973.574	2032.468	1279.494	1012.664
	517.203	231.766	387.022	330.388	56.983	85.667	214.376	85.947	98.591	236.679	15.508
	29.126	135.406	0.000	30.599	39.983	236.995	112.240	0.000	0.000	98.591	39.983
	528.395										
1987	1	4	3	0	2	-1	-1	35.30	0.000	0.000	0.000
	0.000	9.514	14.482	232.047	591.465	1198.636	464.937	1283.877	566.967	258.992	248.608
	132.230	4.968	117.748	87.805	8.700	31.070	14.482	82.837	0.000	4.968	0.000
	0.000	0.000	0.000	0.000	4.968	8.700	0.000	0.000	0.000	4.968	0.000
	0.000	0.000	0.000	9.514	28.543	330.994	1014.186	928.203	835.810	766.291	422.688
	207.915	107.677	227.922	96.506	8.700	8.700	9.514	121.481	0.000	0.000	121.481
	82.837	92.773	4.968	0.000	0.000	0.000	0.000	0.000	4.968	112.780	0.000
	241.169										
1988	1	4	3	0	2	-1	-1	116.84	0.000	0.000	0.000
	3.460	54.692	144.477	114.149	628.071	1233.436	1497.347	3014.890	1784.404	1085.264	1188.129
	1026.811	643.289	495.689	405.392	297.493	143.862	226.799	0.000	155.249	0.000	7.193
	9.395	125.072	0.000	125.072	0.000	0.000	0.000	18.149	0.000	0.000	0.000
	0.000	0.000	0.000	112.942	180.530	392.496	666.557	769.119	1432.410	2562.971	909.355
	1497.354	816.099	754.660	130.905	858.614	601.765	174.833	335.490	550.310	200.236	167.640
	7.193	101.727	24.992	116.112	162.441	0.918	27.544	9.395	71.329	12.392	0.000
	1575.847										
1989	1	4	3	0	2	-1	-1	55.05	0.000	0.000	0.000
	6.230	1244.059	293.912	594.113	1103.508	552.055	68.305	645.017	651.910	106.366	1413.011
	68.305	50.847	44.284	523.088	38.363	0.000	15.275	31.508	8.420	0.000	0.000
	0.000	4.671	0.000	0.000	0.000	0.000	14.668	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	949.548	222.815	65.124	891.130	391.225	165.293	619.173	474.863
	90.786	1231.735	27.759	29.943	462.358	4.671	500.000	514.668	284.773	0.000	4.671
	0.000	10.603	499.729	0.000	13.091	25.271	437.087	14.668	0.000	0.000	0.000
	25.254										
1990	1	4	3	0	2	-1	-1	59.99	0.000	0.000	0.000
	0.000	144.113	37.798	44.916	231.478	154.412	938.048	233.747	1191.783	728.206	190.805
	586.219	526.559	128.421	512.798	531.691	21.448	12.798	20.486	0.000	0.000	11.206
	0.000	0.000	0.000	0.000	0.000	0.000	10.243	0.000	0.000	98.687	0.000
	0.000	500.000	0.000	17.728	22.160	156.157	1265.852	835.947	1222.395	742.329	166.946
	778.705	203.822	621.793	45.518	21.763	515.419	0.000	0.000	1.343	80.598	1.343
	59.149	0.000	10.243	0.000	0.000	11.520	20.486	10.243	500.000	10.243	10.243
	262.278										
1991	1	4	3	0	2	-1	-1	141.20	0.000	0.000	0.000
	0.000	0.000	108.733	427.936	1266.002	1556.286	2991.128	4253.078	2618.288	2117.950	2867.729
	992.425	750.620	1218.003	1015.890	525.707	1002.853	488.385	324.756	376.611	139.321	95.622
	3.321	45.588	4.992	142.128	0.000	0.000	0.000	0.000	0.000	3.321	0.000
	0.000	0.000	0.000	0.000	61.924	1472.776	1957.819	3038.192	3808.162	4293.543	3812.485
	3256.649	2156.356	1559.364	2307.786	741.689	1013.608	109.686	710.021	423.870	364.805	895.027
	260.072	230.590	0.000	184.908	100.503	184.908	45.588	796.244	274.587	517.603	189.141
	2787.822										
1992	1	4	3	0	2	-1	-1	71.62	0.000	0.000	0.000
	19.331	222.050	230.699	271.872	523.226	304.573	868.709	845.847	1132.027	409.754	745.978
	710.722	119.446	264.023	50.240	35.236	50.240	50.240	4.371	50.240	0.000	0.000

	0.000	0.000	240.214	0.000	0.000	50.240	0.000	0.000	0.000	50.240	0.000
	0.000	0.000	24.121	261.448	258.702	371.445	725.460	1340.597	1389.456	1428.147	231.265
	908.499	615.515	613.302	248.579	603.836	173.861	240.214	4.371	468.045	328.311	227.831
	500.000	55.827	554.611	12.383	50.240	29.649	378.551	0.000	50.240	0.000	505.902
	1358.979										
1993	1	4	3	0	2	-1	-1	106.84	0.000	0.000	0.000
	30.452	79.111	458.197	306.947	674.386	637.764	652.093	546.905	554.960	197.263	64.930
	274.840	211.131	216.108	218.352	262.574	0.000	23.146	307.598	0.000	0.000	12.594
	94.817	23.146	189.635	94.817	0.000	0.000	0.000	94.817	0.000	202.921	0.000
	0.000	0.000	33.759	236.664	221.391	659.123	777.382	2306.465	476.400	564.540	421.125
	350.784	320.239	84.014	182.213	84.285	160.702	24.320	94.817	0.000	11.419	23.146
	94.817	94.817	133.274	0.000	94.817	0.000	0.000	0.000	0.000	0.000	23.146
	288.293										
1996	1	4	3	0	2	-1	-1	9.45	0.000	0.000	0.000
	0.000	0.000	78.838	0.000	7.353	11.029	7.353	7.353	3.676	3.676	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	37.581	0.000	37.581	3.676	0.000	22.059	22.059	7.353	3.676
	0.000	0.000	0.000	0.000	3.676	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	3.676	0.000	0.000	0.000	0.000	0.000
	0.000										
1998	1	4	3	0	2	-1	-1	16.83	0.000	0.000	0.000
	0.000	0.000	89.681	8.740	543.005	555.416	6.555	0.000	48.861	502.185	2.185
	0.000	0.000	0.000	0.000	2.185	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	2.185	2.185	10.925	160.503	149.578	89.681	4.370	6.555	0.000
	72.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	344.046										
1999	1	4	3	0	2	-1	-1	2.41	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	500.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	112.960	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000										
2000	1	4	3	0	2	-1	-1	3.69	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.992	7.992	0.000	103.473
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.992
	0.000	0.000	0.000	0.000	0.000	0.000	15.755	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000										
2001	1	4	3	0	2	-1	-1	4.97	0.000	0.000	0.000
	0.000	0.000	0.000	12.403	0.000	153.281	62.996	0.000	0.000	0.000	22.657
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	153.281	0.000
	12.403	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000										
2002	1	4	3	0	2	-1	-1	21.55	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	82.917	24.553	31.157	37.535	22.820	24.553
	82.917	38.171	51.169	44.858	0.000	40.420	0.000	100.692	0.000	0.000	0.000
	0.000	0.000	38.929	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	22.634	22.634	0.000	0.000	0.000	0.000
	29.787	42.327	60.168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	82.917										
2003	1	4	3	0	2	-1	-1	12.79	0.000	0.000	0.000
	0.000	0.000	0.000	25.889	0.000	20.796	0.000	0.000	0.000	0.000	7.824
	25.362	0.000	15.598	0.000	42.394	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2.288	10.184	7.323	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	12.238	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000										

2004 1 4 3 0 2 -1 -1 16.86 0.000 0.000 0.000
0.000 20.645 0.000 0.000 18.285 36.549 31.851 0.000 96.720 0.000 0.000
0.773 0.000 25.230 0.000 0.000 7.273 0.000 1.800 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.773 0.000
0.000 0.000 0.000 0.000 0.769 33.758 35.780 58.815 18.787 0.000 0.000
0.000 0.000 0.000 0.000 0.773 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
34.531
2005 1 4 3 0 2 -1 -1 111.69 0.000 0.000 0.000
0.000 0.000 8.754 15.213 35.013 42.591 52.945 37.835 35.070 25.698 18.751
16.920 6.730 3.471 12.262 6.775 5.295 4.681 5.422 0.000 1.013 3.331
4.370 1.043 2.374 0.000 0.000 0.000 0.935 0.000 0.000 0.000 0.000
0.000 0.000 0.000 1.360 6.366 18.740 62.162 30.532 38.227 32.048 26.756
14.622 8.440 8.168 4.910 4.943 3.351 2.105 1.013 1.043 2.196 2.037
3.366 0.000 1.024 0.000 0.777 0.777 2.748 0.000 1.132 1.132 0.000
5.811
2006 1 4 3 0 2 -1 -1 114.56 0.000 0.000 1.071
3.108 11.058 35.018 40.370 36.314 24.766 48.765 13.782 19.815 16.105 12.370
6.270 8.604 7.284 8.566 5.022 3.899 5.766 1.917 2.951 0.000 1.822
1.386 2.516 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 3.213 1.071 6.038 37.518 38.731 29.907 22.715 20.519 24.198 17.363
21.211 18.255 13.095 7.319 10.967 2.890 1.614 4.215 3.669 1.386 5.061
0.000 0.471 0.922 0.000 0.517 0.000 0.000 0.000 0.000 0.000 0.000
2.833
2007 1 4 3 0 2 -1 -1 121.72 0.000 0.000 0.849
0.712 12.422 57.429 161.446 82.329 74.695 23.863 25.740 21.515 17.568 15.887
9.899 15.650 13.210 8.275 6.959 5.617 2.974 1.950 2.730 2.612 2.741
3.025 0.885 2.343 0.482 0.969 0.000 0.000 0.000 0.000 0.900 0.000
0.000 0.000 2.820 28.603 86.629 73.077 54.512 64.508 22.209 29.878 26.507
18.760 15.273 37.072 9.687 9.830 4.971 2.224 3.267 3.781 0.000 1.560
2.840 0.000 0.855 0.000 0.000 0.885 1.205 1.060 0.000 0.000 0.000
3.851
2008 1 4 3 0 2 -1 -1 125.21 0.000 0.000 0.000
0.000 8.870 45.258 43.983 27.045 20.860 14.047 8.239 14.178 35.353 22.302
24.574 19.293 16.264 21.913 9.505 14.943 7.928 7.884 7.774 0.000 6.385
9.059 3.345 3.024 0.000 3.542 0.922 1.009 0.515 1.000 0.000 0.000
0.000 0.000 0.000 14.755 36.442 29.746 41.165 21.458 21.685 30.579 46.311
41.522 25.680 19.896 21.764 19.521 6.813 15.687 30.514 3.228 6.719 7.796
2.361 0.000 0.000 2.959 1.110 0.515 0.000 0.980 0.000 0.000 3.077
10.583
2009 OR-WA non-trawl fleet, unchanged from 2007 (n=7)
1997 1 7 3 0 1 -1 -1 3.35 0.000 0.000 0.000
0.000 0.000 1.004 0.000 0.000 0.000 0.000 0.000 0.000 2.008 0.000
0.000 0.000 0.000 0.000 0.000 1.004 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 1.004 2.008 1.004 0.000 5.021 2.008 2.008
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
1998 1 7 3 0 1 -1 -1 16.01 0.000 0.000 0.000
0.000 0.000 4.245 8.489 15.880 19.375 4.245 5.941 9.088 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 2.795 0.000 0.000 0.000 0.000
2.795 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 3.846 11.538 7.391 27.020 14.678 41.304 9.436 9.440
11.237 30.813 6.293 2.795 13.333 2.795 0.000 2.795 0.000 9.788 8.384
2.795 0.000 0.000 2.795 0.000 2.795 0.000 0.000 0.000 0.000 0.000
2.795
2001 1 7 3 0 1 -1 -1 10.38 0.000 0.000 0.000
0.000 3.355 3.084 1.028 3.139 3.084 3.139 4.167 1.084 1.028 0.000
1.028 1.084 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 2.393 1.143 0.000 4.223 3.139 2.111 1.028 0.000
2.056 0.000 1.028 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2002 1 7 3 0 1 -1 -1 2.10 0.000 0.000 0.000
0.000 0.000 0.000 1.034 0.000 0.000 1.034 0.000 0.000 1.034 0.000
1.034 1.034 1.034 0.000 0.000 0.000 0.000 0.000 1.034 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

0.000 0.000 0.000 0.000 1.034 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2003 1 7 3 0 1 -1 -1 4.93 0.000 0.000 0.000
0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 4.000 2.998 1.000
0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 2.000 0.000 1.000 2.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2004 1 7 3 0 1 -1 -1 11.55 0.000 0.000 0.000
0.000 109.346 0.000 0.000 0.000 0.000 207.528 141.690 231.099 87.017 251.058
0.000 121.753 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 43.530 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 91.842 54.673 43.530 98.182 0.000 110.610
0.000 98.182 0.000 0.000 0.000 0.000 0.000 0.000 43.530 0.000 0.000
0.000 0.000 0.000 0.000 0.000 43.530 0.000 0.000 0.000 0.000 0.000
0.000
2005 1 7 3 0 1 -1 -1 8.35 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 7.778 4.278 1.000 0.000 0.000 4.278
4.278 3.500 3.500 0.000 2.500 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 7.500 8.500
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 4.278 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2009 At-sea hake fishery, no ages read from 2008 (n=5)
2003 1 11 3 0 1 -1 -1 101.73 0.000 0.000 0.000
0.000 0.000 0.000 7.500 10.167 22.278 15.333 10.833 30.668 18.159 42.359
25.835 5.857 5.000 0.000 3.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 2.333 13.205 26.055 13.433 35.741 50.988 18.961
25.557 25.356 6.556 0.000 17.500 2.833 3.000 3.000 2.500 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
12.992
2004 1 11 3 0 1 -1 -1 126.15 0.000 0.000 0.000
0.000 0.000 0.000 2.000 10.893 12.300 39.943 358.260 17.900 42.643 350.700
341.067 337.400 48.717 15.700 15.800 3.000 5.500 0.000 7.800 0.000 7.800
7.800 0.000 0.000 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 1.000 13.250 15.293 37.443 20.500 26.743 26.800
13.750 338.400 19.200 42.700 45.800 1.000 0.000 0.000 6.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 7.800 0.000 0.000 0.000 0.000
6.000
2005 1 11 3 0 1 -1 -1 209.57 0.000 0.000 0.000
0.000 0.000 2.000 5.417 80.600 42.217 37.750 45.333 56.967 41.033 31.617
7.250 18.267 17.200 2.000 2.000 2.667 2.000 0.000 2.000 0.000 2.800
5.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 5.333 9.000 29.633 35.967 31.783 32.550 29.167
34.650 12.333 7.500 5.667 2.000 4.500 2.000 0.000 3.000 3.000 4.800
2.000 0.000 2.500 0.000 0.000 0.000 2.000 0.000 0.000 0.000 0.000
1.500
2006 1 11 3 0 1 -1 -1 193.88 0.000 0.000 2.800
4.000 2.800 5.000 5.000 16.800 34.700 35.000 31.667 24.667 34.067 23.500
12.167 22.833 6.467 6.750 2.000 7.700 5.000 2.000 10.667 3.750 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 2.000 2.800 8.800 8.000 10.800 26.867 35.033 24.750 45.300
18.667 6.000 3.500 15.000 2.000 4.000 6.000 0.000 0.000 8.400 2.000
0.000 1.750 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2007 1 11 3 0 1 -1 -1 261.54 0.000 0.000 0.000
2.200 6.600 0.000 6.000 46.633 49.750 64.367 63.683 57.433 36.867 46.333
34.000 25.833 22.000 12.000 26.350 8.600 14.450 1.000 0.000 6.200 2.000
5.000 0.000 0.000 0.000 4.000 0.000 0.000 0.000 2.250 0.000 0.000
0.000 0.000 2.000 2.200 9.200 21.017 30.600 50.733 91.550 57.517 39.433
44.800 4.600 14.750 0.000 2.400 2.800 1.400 2.000 0.000 0.000 0.000
6.000 0.000 0.000 0.000 0.000 2.000 0.000 0.000 0.000 0.000 0.000
9.450
2009 NWFSC survey conditionals (n=251)

2003	1	12	1	0	1	2	2	1.07	0	33683	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	3	3	1.14	0	67365	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	4	4	1.28	0	44026	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	6	6	3.21	0	0	62865
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	7	7	2.14	0	0	25576
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	8	8	1.07	0	0	14570
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	9	9	2.21	0	0	0
	43795	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	10	10	1.07	0	0	0
	0	14570	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	13	13	2.14	0	0	0
	0	0	28349	26320	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	14	14	3.28	0	0	0
	0	6219	52640	0	0	0	0	0	3972	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	15	15	6.77	0	0	0
	0	0	52640	88029	60888	9860	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	16	16	6.49	0	0	0
	0	0	0	32539	5576	56698	18014	0	0	0	5209
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	17	17	5.56	0	0	0
	0	0	0	28349	28349	66982	28349	7040	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	18	18	9.91	0	0	0
	0	0	0	0	0	37940	18368	36737	10769	12149	12869
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	19	19	8.84	0	0	0
	0	0	0	0	3972	0	0	4367	42163	40748	12438
	0	0	5209	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	20	20	9.98	0	0	0
	0	0	0	0	0	0	0	35189	48381	30457	22254
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	21	21	6.77	0	0	0
	0	0	0	0	0	0	0	18319	6219	23771	0
	24538	5525	18319	0	37662	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	22	22	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	5525
	0	0	5525	0	0	0	18319	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	23	23	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	212769	0	18319	0	0	0	0	0	0	0
	6219	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	1	0	1	24	24	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	4550	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	1	1	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	25366
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	2	2	1.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	101048	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	3	3	2.77	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	302480	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	4	4	1.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	33019	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	6	6	2.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	11577	43837	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	7	7	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	40189	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	8	8	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	14570	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	9	9	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	40231	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	12	12	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	12193	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	13	13	5.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	80157	3972	28349	3972	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	14	14	7.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	7944	31326	4550	28349	5016	0	0
	6219	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	15	15	9.91	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	11074	113307	7040	32510	26320	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	16	16	14.12	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	44388	28239	15384	54887	0	6219	12149
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	17	17	17.68	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	5006	26802	32106	68005	0	40197
	23893	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	18	18	15.75	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	4034	0	29079	21518	18468	45384
	70434	0	22869	5576	0	0	18319	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2003	1	12	2	0	1	19	19	13.26	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	10191	19719	21738	4550
	34351	15592	5576	5525	18319	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2003	1	12	2	0	1	20	20	8.91	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	17674	18319
	17436	23895	22052	0	0	0	0	6238	0	5525	0
	0	0	0	0	0	0	0	0	0	0	0
	5209										
2003	1	12	2	0	1	21	21	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	5209	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	2	2	2.28	0	46225	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	3	3	1.07	0	9781	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	4	4	2.21	0	0	54185
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	5	5	1.28	0	0	39123
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	6	6	2.28	0	0	38477
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	7	7	1.21	0	0	0
	25222	50444	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	9	9	3.28	0	0	0
	9781	94469	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	10	10	3.56	0	0	0
	0	219774	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	11	11	3.28	0	0	0
	20120	54743	9683	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	12	12	5.77	0	0	0
	20120	103851	20120	61161	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	13	13	3.7	0	0	0
	0	56658	0	123990	34623	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	14	14	4.42	0	0	0
	0	9135	29803	78930	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	15	15	4.49	0	0	0
	0	0	8220	67541	29230	19671	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	16	16	6.63	0	0	0
	0	0	20120	37767	0	19671	201041	172255	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	17	17	7.77	0	0	0
	0	0	0	19671	28519	32595	210014	172255	0	0	0
	0	0	0	0	172255	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	18	18	4.35	0	0	0
	0	0	0	0	0	6505	6077	33978	0	0	28200
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	19	19	10.84	0	0	0
	0	0	0	0	0	15636	18174	28200	180782	34198	11424
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	20	20	8.77	0	0	0
	0	0	0	0	0	0	9559	77186	28200	37949	26544
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	21	21	7.63	0	0	0
	0	0	0	0	0	0	56400	0	0	8615	12516
	17202	0	0	172255	0	186680	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	22	22	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	14425
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	23	23	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	6505
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	24	24	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	172255	14425	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	1	0	1	25	25	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	172255	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	2	2	3.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	68155	25222	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	3	3	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	37348	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	4	4	1.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	75665	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	5	5	2.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	8080	56984	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	6	6	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	8637	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	7	7	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	44404	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	8	8	1.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	50443	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	9	9	3.7	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	29342	185952	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	10	10	2.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	9534	173117	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2004	1	12	2	0	1	11	11	5.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	25222	44137	109487	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	12	12	6.7	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	9135	72746	39791	9559	0	0	172255	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	13	13	9.05	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	72745	78179	70482	14425	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	14	14	3.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	52893	0	6505	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	15	15	6.63	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	8848	22962	78683	6505	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	16	16	9.91	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	7809	29594	67542	19671	194098	13425	0
	19671	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	17	17	8.63	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	9067	20120	8848	34705	38373	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	18	18	8.84	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	9421	19671	49043	0	14425
	19671	42625	179915	0	0	11424	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	19	19	4.84	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	6505	0	0	65015
	0	67688	6505	0	0	28200	28200	0	28200	0	0

	0	28200	0	0	0	0	0	0	0	0	0
	0										
2004	1	12	2	0	1	20	20	5.91	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	6924	6505	0
	6924	0	0	178760	0	0	186680	172255	0	0	172255
	0	0	172255	0	0	0	0	0	0	0	0
	364630										
2004	1	12	2	0	1	21	21	4.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	6505	6851	0	6505	0	0	0	0	0	172255	0
	0	0	0	0	0	0	0	28200	0	0	0
	172255										
2004	1	12	2	0	1	22	22	3.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	28200	0	0	0	0	0	0	0	0	11424
	172255	0	0	0	0	0	0	0	0	0	0
	172255										
2004	1	12	2	0	1	23	23	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	11424	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	172255										
2005	1	12	1	0	1	1	1	1.07	9312	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	2	2	2.21	25526	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	3	3	1.07	0	8973	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	4	4	2.14	0	0	48601
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	5	5	1.14	0	0	0
	18220	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	6	6	3.56	0	0	9388
	54660	39491	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	7	7	3.35	0	12193	24386
	9110	0	39491	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	8	8	2.35	0	0	24386
	0	39491	78982	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	9	9	3.56	0	0	60965
	0	9110	78982	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	10	10	3.56	0	0	12193
	60965	0	48601	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	11	11	3.21	0	0	12193
	0	22573	39491	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	12	12	2.28	0	0	0
	0	0	18220	165088	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	13	13	2.28	0	0	0
	0	0	22573	32409	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	14	14	1.07	0	0	0
	0	0	0	10803	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	15	15	6.49	0	0	0
	0	0	0	105117	25213	97249	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	16	16	4.42	0	0	0
	0	0	0	22573	113019	173957	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	17	17	8.7	0	0	0
	0	0	0	22573	109663	115632	7322	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	18	18	10.98	0	0	0
	0	0	0	0	91413	91413	301492	31822	7322	10333	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	19	19	9.84	0	0	0
	0	0	0	0	0	188887	27255	106739	6134	14716	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	20	20	9.63	0	0	0
	0	0	0	0	0	173957	0	14677	8694	25154	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	21	21	8.84	0	0	0
	0	0	0	0	0	0	11843	91413	14840	106467	98735
	17568	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	1	0	1	22	22	5.35	0	0	0
	0	0	0	0	0	0	0	5406	11328	7767	91413
	0	9121	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2005	1	12	1	0	1	25	25	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	8702	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	1	1	1.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	18624
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	2	2	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	9312	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	3	3	1.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	18220	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	4	4	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	9110	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	5	5	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	9388	18220	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	6	6	1.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	27330	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	7	7	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	12193	0	10706	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	8	8	2.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	24386	9110	9110	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	9	9	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	12193	9110	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	10	10	2.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	36579	0	39491	39491	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	11	11	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	12193	0	0	39491	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	12	12	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	9762	39491	82544	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	13	13	6.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	4889	28099	122630	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	14	14	6.63	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	115373	183510	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	15	15	5.63	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	22573	8320	157866	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	16	16	13.19	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	24932	70471	26891	91121	7322	7322
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	17	17	14.61	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	124486	169417	26232	30648	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	18	18	11.68	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	13336	31799	39777	205940	281562
	14674	7322	0	7127	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	19	19	11.12	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	8577	91413	39185	8577
	15899	0	98735	124675	0	0	0	0	0	0	0
	10333	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	20	20	7.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	13983	22159
	8702	0	0	0	8320	7394	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2005	1	12	2	0	1	21	21	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	8702	0	0	0	8577
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	2	2	1.07	0	9256	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	3	3	1.07	0	0	9256
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	4	4	1.07	0	0	0
	9256	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	5	5	1.07	0	0	8621
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	6	6	1.07	0	0	7697
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	9	9	1.07	0	0	0
	10606	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	12	12	1.14	0	0	0
	0	0	41456	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	13	13	2.21	0	0	0
	0	8553	45249	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	14	14	2.21	0	0	0
	0	0	157567	17106	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	15	15	4.35	0	0	0
	0	0	0	39729	0	28289	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	16	16	8.05	0	0	0
	0	0	0	74529	208337	166455	1060633	199023	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	17	17	8.84	0	0	0
	0	0	0	0	69980	157567	181156	427885	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	18	18	8.98	0	0	0
	0	0	0	0	332672	44115	188374	0	0	14701	14701
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2006	1	12	1	0	1	19	19	6.77	0	0	0
	0	0	0	0	0	1038009	209471	540636	1308327	0	1060633
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	20	20	8.05	0	0	0
	0	0	0	0	0	0	0	0	332962	286676	286623
	2076018	1052710	8888	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	21	21	11.05	0	0	0
	0	0	0	0	0	0	0	0	1065319	31058	31401
	14701	8115	1046939	1038009	1038009	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	22	22	4.35	0	0	0
	0	0	0	0	0	0	0	0	0	1038009	329835
	0	0	0	9418	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	23	23	4.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	279736	0	0	0	0	0	0	1038009	14701	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	24	24	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	1038009	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	25	25	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	270318
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	1	0	1	26	26	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	8888	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	5	5	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	8224	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	6	6	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	18371	7697	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	7	7	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	7697	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	8	8	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	7697	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	11	11	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	12308	41456	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	12	12	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	7417	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	13	13	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	22624	20728	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	14	14	4.7	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	1122817	1351679	20728	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	15	15	6.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	43352	189609	1465894	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	16	16	10.33	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	225440	293572	111553	175061	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	17	17	12.26	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	22624	29616	504688	585451	0	1075964
	0	7167	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	18	18	13.17	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	8553	157567	444990	1256154	351957
	53258	1066089	1038009	23254	0	2076018	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	19	19	11.33	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	15917	17106	577949
	292371	1045361	0	10466	14701	1038009	0	1038009	0	0	0
	0	0	270318	0	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	20	20	6.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	7130	0	0	0	270318	0	0	293960	0	0
	0	8930	0	1308327	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	21	21	3.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	1038009	22624	0	270318	0	1038009	0	0	0	1038009	0
	0	0	0	270318	0	0	0	0	0	0	0
	0										
2006	1	12	2	0	1	22	22	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	7804	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	270318										
2007	1	12	1	0	1	4	4	1.21	0	8370	16740
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	5	5	1.21	0	0	16740
	8370	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	6	6	2.49	0	0	21740
	33480	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	7	7	3.56	0	0	31822
	36795	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	8	8	5.89	0	0	0
	152151	53787	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	9	9	5.05	0	0	0
	78575	35376	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	10	10	3.70	0	0	0
	26740	52594	11951	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	11	11	2.35	0	0	0
	0	11951	47580	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	12	12	2.56	0	0	0
	0	23903	47356	23902	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	13	13	4.70	0	0	0
	0	0	47806	40257	20096	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	14	14	4.28	0	0	0
	0	0	15181	6456	7595	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2007	1	12	1	0	1	15	15	1.07	0	0	0
	0	0	0	0	0	18050	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	16	16	7.70	0	0	0
	0	0	0	5553	50113	27272	6456	32743	18050	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	17	17	6.49	0	0	0
	0	0	0	0	0	6293	67499	8685	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	18	18	10.26	0	0	0
	0	0	0	0	32743	76779	94160	20411	29776	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	19	19	5.63	0	0	0
	0	0	0	0	0	0	29776	46640	69555	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	20	20	7.61	0	0	0
	0	0	0	0	0	0	49012	58797	122169	61914	0
	6861	32743	36100	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	21	21	8.12	0	0	0
	0	0	0	0	0	32743	0	0	8685	66514	36100
	24881	0	32743	35420	18050	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	22	22	6.91	0	0	0
	0	0	0	0	0	0	8685	0	8685	47688	32743
	72354	6861	27272	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	23	23	5.42	0	0	0
	0	0	0	0	0	0	0	0	0	32743	7489
	6868	0	6861	24911	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	24	24	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	18050	0	0	0	0
	0	18050	0	0	11726	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	1	0	1	25	25	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	6861	0	0	18050	0	0	11726	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	6	6	2.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	23425	40165	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	7	7	4.77	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	85526	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	8	8	7.17	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	175534	48589	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	9	9	5.70	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	34019	33466	11951	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	10	10	3.77	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	26740	15055	43746	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	11	11	4.70	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	51503	47805	6456	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	12	12	2.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	32273	23902	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	13	13	5.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	7279	20705	43224	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	14	14	6.70	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	27600	59512	6927	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	15	15	6.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	7279	8370	16769	8126	7284	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	16	16	9.40	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	27690	43654	101451	27279	32743	6861
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	17	17	9.89	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	76685	129174	115487	128321
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	18	18	19.06	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	11726	55910	232223	137986	178504
	67879	78171	28396	0	18050	0	0	0	18050	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	19	19	15.96	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	15677	49972	30863
	63307	39854	6861	13317	34286	7732	11726	0	0	32743	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	20	20	12.66	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	32743	21864	24911
	36644	96446	31773	54202	31772	43498	18587	11726	18050	6868	0
	6868	0	12052	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	21	21	4.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	12352	0	0	0	6868	0	0	0	0
	0	0	0	0	0	0	0	0	0	11726	0
	0										
2007	1	12	2	0	1	23	23	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	7753	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	24	24	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	8685	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2007	1	12	2	0	1	26	26	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	7220	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	1	1	1.07	38423	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	2	2	1.28	153694	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	4	4	1.49	0	268964	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	5	5	1.70	0	384235	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	7	7	1.07	0	0	0
	7160	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2008	1	12	1	0	1	8	8	1.07	0	0	8213
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	9	9	2.21	0	0	0
	50134	9003	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	10	10	3.42	0	0	0
	7160	75202	18007	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	11	11	5.63	0	0	0
	25067	66747	34071	14049	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	12	12	7.05	0	0	0
	25067	72475	53341	9003	27568	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	13	13	6.84	0	0	0
	0	25067	37129	28859	50408	9561	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	14	14	6.12	0	0	0
	0	0	75202	62640	155558	10358	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	15	15	8.91	0	0	0
	0	0	0	31869	56954	89395	9561	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	16	16	5.70	0	0	0
	0	0	0	0	83834	76500	28569	9561	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	17	17	6.26	0	0	0
	0	0	0	0	57138	197006	65620	57139	28569	28569	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	18	18	6.77	0	0	0
	0	0	0	0	0	17035	132410	9561	9561	9561	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	19	19	4.70	0	0	0
	0	0	0	0	0	9561	36343	57139	37050	28569	0
	9561	28569	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	20	20	7.84	0	0	0
	0	0	0	0	0	0	62122	19410	44825	0	7774
	19410	9849	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	21	21	7.40	0	0	0
	0	0	0	0	0	0	0	28569	134054	57139	9849
	9849	19087	19698	0	35784	0	25067	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	22	22	6.33	0	0	0
	0	0	0	0	0	0	0	28569	0	0	48267
	29547	46900	9561	29547	25067	0	9849	9561	0	8481	0
	9849	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	23	23	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	17623	9849	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	24	24	1.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	9849	0	9849	0	0	0	0
	0	0	0	0	0	0	0	9849	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	25	25	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	9849	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	1	0	1	26	26	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	9345	0	0	0	9238
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	1	1	2.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	208542
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	2	2	4.19	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	554355
	8176	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	4	4	2.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	131622	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	5	5	3.91	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	410160	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	6	6	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	38423	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	7	7	1.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	14320	7160	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	8	8	3.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	31499	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	9	9	3.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	48391	9003	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	10	10	6.05	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	159696	42840	9003	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	11	11	5.63	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	9003	25341	78966	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	12	12	8.12	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	25067	80288	121567	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	13	13	7.54	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	34345	32675	152004	77105	45818	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	14	14	8.33	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	25067	51093	24112	113360	41405	19121	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	15	15	9.54	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	8592	111893	32675	75875	44849	25067	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	16	16	6.19	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	32675	44031	87152	28569	10358	26895
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2008	1	12	2	0	1	17	17	11.05	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	69019	8443	48921	15388	45345
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2008 1 12 2 0 1 18 18 12.05 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 41405 25181 0 34432
51681 32877 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2008 1 12 2 0 1 19 19 6.42 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 7973 0 25067
0 0 7215 28569 0 0 7931 0 0 9849 0
0 0 0 0 0 0 0 0 0 0 0
0
2008 1 12 2 0 1 20 20 5.42 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
7774 0 0 9561 0 0 0 0 0 0 9849
0 0 0 0 34916 0 0 0 0 0 0
9433
2008 1 12 2 0 1 21 21 3.42 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 25067
0 0 0 25067 0 0 0 0 0 0 0
37570
2008 1 12 2 0 1 22 22 4.28 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 8288 0 0 0
0 0 8481 0 0 0 0 0 0 25067 0
9849
2008 1 12 2 0 1 24 24 1.07 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 8844 0 0 0 0 0 0 0 0
0
Triennial survey conditionals (n=217)
1983 1 13 1 0 1 3 3 1.14 68.35 68.35 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
1983 1 13 1 0 1 4 4 1.14 0 136.7 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
1983 1 13 1 0 1 5 5 2.28 0 1071.566 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	6	6	2.21	0	934.8661	68.35
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	7	7	3.35	0	0	137.2792
	1003.216	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	8	8	6.26	0	0	1938.661
	3215.278	68.35	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	9	9	9.92	0	0	205.05
	10639.04	119.23	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	10	10	13.81	0	0	119.23
	25256.28	853.0851	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	11	11	13.69	0	0	0
	8851.196	3270.325	274.4051	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	12	12	15.85	0	0	0
	3267.589	9369.206	477.7368	54.4775	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	13	13	13.59	0	0	0
	68.35	5273.543	618.1973	316.8574	0	54.4775	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	14	14	16.01	0	0	0
	0	1383.82	654.8543	828.5237	70.01429	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	15	15	17.45	0	0	0
	0	68.35	550.0615	929.3401	196.795	0	140.3946	12.32	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	16	16	17.89	0	0	0
	0	0	81.0598	1671.057	333.7599	998.1472	266.9624	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	17	17	14.52	0	0	0
	0	0	0	343.8408	1242.1	806.5965	457.311	128.4152	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	18	18	16.22	0	0	0
	0	0	68.35	90.16302	324.1718	1710.85	1391.807	1020.459	343.8105	0	0
	0	0	0	0	0	0	68.92924	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	19	19	13.52	0	0	0
	0	0	0	128.4152	112.1718	443.0446	1089.583	1217.146	469.8548	581.7685	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	20	20	13.45	0	0	0
	0	0	0	0	0	183.7386	367.176	1227.444	264.4086	395.431	432.1307
	243.4962	994.9313	0	280.35	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	21	21	15.36	0	0	0
	0	0	0	0	0	0	0	671.5023	1241.905	756.8156	1724.974
	1074.298	126.0443	12.32	256.8303	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	22	22	16.29	0	0	0
	0	0	0	0	0	0	0	216.24	687.621	302.9686	318.8861
	1037.639	271.051	254.4594	12.32	151.7807	274.6082	175.1462	111.9137	128.4152	0	68.35
	0	198.6124	0	70.1973	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

1983	1	13	1	0	1	23	23	12.75	0	0	0
	0	0	0	0	0	0	0	0	0	68.35	555.8105
	278.1823	57.69429	68.35	376.3055	323.9137	338.0443	54.4775	68.35	91.71552	0	128.4152
	0	68.35	0	0	0	0	0	0	0	68.35	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	24	24	8.12	0	0	0
	0	0	0	0	0	0	0	0	0	0	68.35
	57.69429	0	68.35	0	212	68.35	68.35	151.7807	68.35	0	111.9137
	0	0	160.0655	0	68.35	68.35	0	0	0	68.35	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	25	25	5.63	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	68.35	212	0	216.24	0	111.9137	0	212	0	0
	0	68.35	0	68.35	0	0	68.35	68.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	1	0	1	26	26	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	68.35	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	4	4	1.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	341.75	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	5	5	1.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	546.8	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	6	6	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	119.23	68.35	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	7	7	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	866.5161	137.2792	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	8	8	6.54	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	2599.548	4424.702	68.35	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	9	9	9.01	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	1783.912	12160.72	136.7	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	10	10	13.46	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	21146.27	666.6092	54.4775	68.35	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	11	11	15.39	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	50.88	12016.17	6404.001	80.67	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	12	12	12.01	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	3910.154	6571.06	328.8826	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	13	13	11.24	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	54.4775	2676.789	643.4669	262.5429	12.32	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	14	14	14.66	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	2528.666	752.7975	425.3714	57.69429	101.76	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	15	15	15.87	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	208.0558	1549.219	859.4029	1584.102	122.8275	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	16	16	19.8	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	1142.769	1002.724	1528.884	519.3132	506.8623	212	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	17	17	17.22	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	128.4152	280.35	1431.522	2042.251	1088.317	1126.82	216.24
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	18	18	14.69	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	248.6137	996.5949	2889.601	2068.12	956.2608
	1268.925	194.3943	196.7652	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1983	1	13	2	0	1	19	19	22.54	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	494.1973	0	601.4855	767.8779	2585.586
	3146.363	2109.39	2240.413	1280.573	1209.2	692.3563	867.8847	23.36552	503.876	710.9865	277.4352
	0	0	0	0	0	0	0	0	0	180.2637	23.36552
	138.5473										
1983	1	13	2	0	1	20	20	21.61	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	128.4152	428.24	320.5743
	1025.795	2080.831	1261.96	472.9337	805.596	684.1397	925.579	265.1152	385.3137	210.9455	925.579
	647.526	687.621	194.3943	323.9137	816.3572	608.9256	1072.866	186.1094	563.9412	628.4005	198.6124
	906.11772										
1983	1	13	2	0	1	21	21	16.9	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	485.9343	1031.431	57.69429	0	624.1605	844.6405	0	967.971	819.7265	813.6653	327.3886
	128.4152	380.5037	91.71552	115.3886	254.4594	111.9137	0	0	269.6943	0	305.5628
	2021.1464										
1983	1	13	2	0	1	22	22	12.75	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	57.69429	343.8105	212	0	0	57.69429	0	0	269.6943
	0	0	0	23.36552	343.8105	396.5037	0	0	186.1094	0	0
	1264.83428										
1983	1	13	2	0	1	23	23	4.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	57.69429	57.69429	0	0	0	0	0	0
	463.0405										
1989	1	13	1	0	1	5	5	1.07	0	0	17.19367
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	7	7	1.07	0	0	0
	0	17.19367	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	8	8	2.56	0	0	17.19367
	35.3694	103.162	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	9	9	2.63	0	0	0
	0	228.428	17.19367	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	10	10	4.63	0	0	0
	0	257.4364	0	17.19367	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	11	11	2.63	0	0	0
	0	300.1489	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	12	12	2.28	0	0	0
	0	52.56307	0	0	34.38735	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	13	13	4.56	0	0	0
	0	70.7388	0	62.41367	34.38735	35.3694	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	14	14	2.28	0	0	0
	0	0	0	7.59	0	41.97735	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	15	15	3.28	0	0	0
	0	0	0	0	35.3694	120.3148	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	16	16	3.49	0	0	0
	0	0	0	0	179.3333	164.1313	126.1813	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

1989	1	13	1	0	1	17	17	3.35	0	0	0
	0	0	0	0	65.48333	0	0	191.6647	126.1813	37.63	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	18	18	3.21	0	0	0
	0	0	0	0	0	44.41478	0	65.48333	1.39	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	19	19	3.49	0	0	0
	0	0	0	0	0	163.8113	40.76583	333.8944	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	20	20	5.56	0	0	0
	0	0	0	0	0	0	85.18062	166.9472	252.3627	0	0
	1.39	65.48333	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	21	21	2.42	0	0	0
	0	0	0	0	0	0	126.1813	126.1813	126.1813	39.29	0
	0	126.1813	0	126.1813	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	22	22	3.56	0	0	0
	0	0	0	0	0	0	0	0	1.39	0	126.1813
	40.76583	126.1813	0	0	126.1813	0	0	0	0	0	0
	0	0	0	0	0	0	0	126.1813	0	252.3626	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	23	23	6.7	0	0	0
	0	0	0	0	0	0	0	108.0475	0	0	126.1813
	5807.062	40.76583	65.48333	126.1813	0	0	0	0	126.1813	0	0
	126.1813	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	24	24	5.49	0	0	0
	0	0	0	0	0	0	0	0	1.39	0	2883.886
	1.39	2883.886	0	126.1813	0	108.0475	0	108.0475	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	1	0	1	27	27	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	2883.886
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	4	4	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	17.19367	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	5	5	1.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	34.38735	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	6	6	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	35.3694	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	7	7	2.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	86.95042	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	8	8	2.63	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	192.0766	17.19367	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	9	9	2.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	120.3557	35.3694	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	10	10	1.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	247.5858	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	11	11	2.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	229.4101	0	0	17.19367	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	12	12	2.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	123.3019	0	35.3694	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	13	13	3.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	35.3694	35.3694	54.82367	34.38735	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	14	14	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	37.63	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	15	15	2.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	44.41478	106.0232	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	16	16	5.63	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	65.48333	252.9609	170.5961	85.18062	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	17	17	6.77	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	44.41478	0	150.6639	170.5961	378.544
	95.735	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	18	18	9.19	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	44.41478	126.1813	189.6893	373.6975	80.05583
	80.05583	126.1813	65.48333	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	19	19	7.05	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	44.41478	0	298.1675	271.7205
	165.4713	126.1813	39.29	126.1813	0	0	126.1813	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	20	20	5.98	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	39.29	191.6647
	0	165.4713	252.3627	39.29	170.5961	0	83.70478	37.63	0	0	0
	0	0	0	126.1813	0	0	0	0	0	0	0
	0										
1989	1	13	2	0	1	21	21	4.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	65.48333	0	1.39
	0	0	39.29	0	0	0	78.58	0	0	0	0
	65.48333	0	0	0	0	0	0	0	191.6647	0	0
	0										
1989	1	13	2	0	1	22	22	4.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	108.0475	0	0	0
	0	0	0	0	0	0	0	0	0	65.48333	0
	170.59608										
1989	1	13	2	0	1	23	23	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	126.1813	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	5	5	1.07	0	0	6.72
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	7	7	1.07	0	0	0
	46.93345	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	8	8	1.14	0	0	0
	0	46.93345	0	46.93345	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	9	9	1.14	0	0	0
	93.8669	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	10	10	1.21	0	0	0
	93.8669	46.93345	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	11	11	2.21	0	0	0
	0	46.93345	53.65345	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

1992	1	13	1	0	1	12	12	2.21	0	0	0
	0	0	46.93345	51.62182	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	13	13	2.35	0	0	0
	93.8669	0	0	93.8669	4.688372	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	14	14	1.42	0	0	0
	0	0	46.93345	93.8669	93.8669	46.93345	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	15	15	2.7	0	0	0
	0	0	0	98.55527	103.2436	93.8669	4.688372	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	16	16	3.7	0	0	0
	0	0	0	98.55527	140.8003	98.55527	0	0	0	0	0
	0	0	0	12.78	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	17	17	3.42	0	0	0
	0	0	0	0	51.62182	56.31019	0	5.12	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	18	18	3.35	0	0	0
	0	0	0	8.96	4.688372	4.688372	46.93345	4.688372	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	19	19	2.42	0	0	0
	0	0	0	0	0	12.78	14.06512	12.78	0	0	0
	0	12.78	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	20	20	5.56	0	0	0
	0	0	0	0	0	0	12.78	22.7	17.55867	4.688372	12.78
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	21	21	2.21	0	0	0
	0	0	0	0	0	0	0	0	12.78	12.78	4.778667
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	22	22	4.91	0	0	0
	0	0	0	0	0	0	4.778667	0	17.46837	22.26837	22.24704
	0	0	25.56	4.8	0	4.778667	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	23	23	2.42	0	0	0
	0	0	0	0	0	0	0	0	12.78	0	12.78
	0	38.34	0	0	0	0	4.8	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	24	24	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	4.688372	12.78	4.8	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	1	0	1	25	25	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	12.78	0	0	0	8.96	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	9	9	1.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	46.93345	46.93345	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	13	13	1.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	46.93345	140.8003	46.93345	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	14	14	2.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	46.93345	103.2436	93.8669	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	15	15	2.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	51.62182	98.55527	4.688372	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	16	16	2.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	51.62182	0	140.8003	46.93345	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	17	17	1.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	4.688372	4.688372	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	18	18	3.77	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	4.688372	4.688372	17.46837	22.15674	4.688372	0
	12.78	4.778667	12.78	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	19	19	4.7	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	4.778667	0	12.78	14.24571
	0	0	39.84837	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	20	20	6.05	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	4.8	4.8	0
	17.55867	12.78	0	9.808372	9.376744	17.58	0	0	4.688372	4.8	0
	4.688372	0	0	0	0	4.8	0	0	0	0	0
	0										
1992	1	13	2	0	1	21	21	3.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	12.78	5.12	0	12.78	0	0	0	0	4.8	0	12.78
	0	5.12	0	0	0	0	0	0	0	0	0
	0										
1992	1	13	2	0	1	22	22	3.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	4.778667	5.12	4.8	4.778667	0
	0	0	0	0	0	0	0	0	0	0	0
	14.336001										
1992	1	13	2	0	1	23	23	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	5.12	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	5	5	1.07	0	0	0
	10.95	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	7	7	1.07	0	12.702	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	8	8	1.07	0	0	0
	87.7344	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	9	9	2.28	0	0	0
	0	282.4432	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	10	10	4.56	0	0	0
	15.05625	350.9376	106.9744	12.702	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	11	11	7.84	0	0	0
	0	223.197	34.29625	53.31978	0	0	21.37778	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	12	12	5.63	0	0	0
	0	0	49.3525	77.05181	12.702	0	12.702	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	13	13	5.91	0	0	0
	0	0	42.8145	128.1946	46.12478	25.404	0	12.702	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	14	14	5.35	0	0	0
	0	0	15.05625	87.7344	0	40.61778	0	12.702	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

1995	1	17	1	0	1	15	15	5.49	0	0	0
	0	0	15.05625	0	19.24	15.05625	12.702	61.27941	60.54941	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	16	16	5.56	0	0	0
	0	0	0	0	21.98778	43.48556	60.54941	72.59441	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	17	17	4.28	0	0	0
	0	0	0	0	0	0	0	70.17	0	60.54941	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	18	18	3.21	0	0	0
	0	0	0	0	0	0	0	132.7694	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	19	19	3.21	0	0	0
	0	0	0	0	0	0	0	75.60566	0	19.24	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	20	20	6.63	0	0	0
	0	0	0	0	0	0	0	0	0	149.3494	111.6202
	0	19.24	19.24	0	0	0	0	60.54941	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	21	21	3.42	0	0	0
	0	0	0	0	0	0	60.54941	50.32	0	0	2.44
	50.32	0	100.64	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	22	22	4.35	0	0	0
	0	0	0	0	0	0	0	0	0	0.732	0.7507692
	0	51.13333	0.8133333	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	23	23	3.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0.732
	0	0	50.32	0	0	110.8694	121.0988	60.54941	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	24	24	1.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	60.54941
	0	0	0	0	0	60.54941	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	1	0	1	25	25	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	60.54941	50.32	0	0	0	60.54941	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	6	6	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	19.24	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	7	7	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	34.29625	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	8	8	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	106.9744	15.05625	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	9	9	7.7	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	100.4364	164.6944	106.9744	12.702	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	10	10	4.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	30.1125	87.7344	34.07978	12.702	12.702	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	11	11	9.26	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	240.8336	250.1664	36.43403	91.83441	21.37778	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	12	12	6.84	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	166.0177	117.8469	87.7344	24.09	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	13	13	8.84	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	50.525	16.51625	27.10125	53.31978	0	0.73	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	14	14	5.49	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	15.78625	0	43.48556	0	31.942	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	15	15	3.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	61.27941	12.775	60.54941	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	16	16	4.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	19.24	0.732	69.56	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	17	17	8.7	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	19.99077	176.7402	50.32
	0.732	60.54941	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	18	18	6.7	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	62.03018	0
	0.7507692	1.970769	110.8694	0	0	50.32	0	0	0	0	0
	0	0	19.24	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	19	19	7.84	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	1.482769	0
	2.314872	19.99077	0	121.0988	1.22	50.32	60.54941	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	20	20	2.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	60.54941	0
	0	0	50.32	0	50.32	0	0	100.64	0	0	50.32
	0	0	0	0	0	0	0	0	0	0	0
	0										
1995	1	17	2	0	1	21	21	4.7	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	1.501538	0	0	0	0	50.32	0	0	0	0
	121.0988	50.32	0	0	0	50.32	0	60.54941	0	0	0
	51.05										
1995	1	17	2	0	1	22	22	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	60.54941
	0										
2001	1	17	1	0	1	3	3	1.07	0	22.94	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	6	6	1.07	0	0	0
	0	22.94	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	7	7	1.14	0	0	0
	555.8538	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	8	8	1.07	0	0	0
	22.94	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	9	9	1.14	0	0	0
	45.88	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	10	10	3.28	0	0	0
	0	68.82	0	277.9269	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	11	11	5.49	0	0	0
	0	22.94	349.4469	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2001 1 17 1 0 1 12 12 6.56 0 0 0
0 1.64 45.88 601.7338 0 0 0 22.94 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2001 1 17 1 0 1 13 13 12.54 0 0 0
0 0 627.3738 950.6008 556.9138 7.438095 22.94 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2001 1 17 1 0 1 14 14 13.4 0 0 0
0 22.94 24 325.9269 1165.026 0 24 285.365 7.81 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2001 1 17 1 0 1 15 15 12.26 0 0 0
0 0 0 279.5669 647.6138 858.0702 70.46 47.22941 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2001 1 17 1 0 1 16 16 11.05 0 0 0
0 0 0 286.425 47.22941 323.8069 32.78751 68.82 7.438095 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2001 1 17 1 0 1 17 17 10.91 0 0 0
0 0 0 0 0 48.86941 1.06 34.3681 24.58 0 0
1.64 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2001 1 17 1 0 1 18 18 17.33 0 0 0
0 22.94 0 0 0 1.06 25.92941 93.4 27.56941 38.56 1.06
45.88 0 1.64 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2001 1 17 1 0 1 19 19 14.33 0 0 0
0 0 0 0 0 22.94 0 346.7469 24.58 98.86 75.92
22.94 45.88 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2001 1 17 1 0 1 20 20 11.98 0 0 0
0 0 0 0 0 0 22.94 0 56.04 70.16941 0
30.04 22.94 22.94 0 0 22.94 0 7.1 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0

	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	21	21	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	1.64	22.94	0	22.94	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	22	22	4.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	24.28941
	0	0	22.94	0	7.1	0	7.438095	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	23	23	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	8.52	0	0	7.438095	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	1	0	1	24	24	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	7.1	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	5	5	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	1.06	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	7	7	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	22.94	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	8	8	3.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	24.58	0	0	0	1.06	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	9	9	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	300.8669	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	10	10	4.42	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	308.305	300.8669	0	277.9269	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	11	11	3.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	22.94	45.88	1.06	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	12	12	11.54	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	9.8	48	1436.864	601.7338	856.7208	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	13	13	10.33	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	1.64	323.8069	891.3608	287.3769	286.7969	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	14	14	15.19	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	50.7	30.3781	24	555.8538	24.36	0	7.438095
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	15	15	17.26	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	311.005	1.06	372.6763	3.28	54.62	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	16	16	17.68	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	1.64	0	94.45882	79.61941	58.31941	30.3781	49.16
	1.64	22.94	22.94	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	17	17	15.12	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	22.94	55.33	67.18	38.82751
	24.58	7.81	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	18	18	18.82	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	45.88	0	78.90941	24.58
	65.1181	52.98	45.88	30.04	22.94	45.88	0	0	0	0	0
	0	0	7.438095	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	19	19	6.77	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	22.94	22.94
	22.94	22.94	22.94	45.88	7.1	0	22.94	0	0	22.94	1.64
	0	0	0	0	0	0	0	0	0	0	0
	0										
2001	1	17	2	0	1	20	20	6.98	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	53.3181	0	30.3781	22.94	0	1.64	0	22.94	22.94
	0	0	30.3781	0	22.94	22.94	0	0	0	0	0
	1.06										
2001	1	17	2	0	1	21	21	2.35	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	22.94	22.94	0	0	0	0	0	22.94	0	0	0
	30.378095										
2001	1	17	2	0	1	22	22	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	22.94	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	22.94										
2004	1	17	1	0	1	3	3	1.07	0	3.94	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	5	5	1.07	0	0	14.97
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	13	13	1.14	0	0	0
	0	10.4016	0	10.4016	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	14	14	2.28	0	0	0
	0	0	0	25.3716	10.4016	10.4016	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	15	15	4.49	0	0	0
	0	0	14.97	23.64	20.8032	10.4016	14.97	10.4016	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										

2004	1	17	1	0	1	16	16	6.63	0	0	0
	0	14.97	55.6884	58.1748	14.97	0	7.03	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	17	17	7.56	0	0	0
	0	0	0	14.97	22	58.7784	29.94	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	18	18	9.7	0	0	0
	0	0	0	3.09	14.97	18.06	28.1	26.97	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	19	19	6.56	0	0	0
	0	0	0	0	0	111.3768	70.6584	0	3.09	10.4016	23.96
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	20	20	10.77	0	0	0
	0	0	0	0	0	0	3.09	43.84	6.18	12.08	8.99
	3.09	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	21	21	8.56	0	0	0
	0	0	0	0	0	0	0	3.09	16.5816	14.97	3.94
	3.94	0	55.6884	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	22	22	6.49	0	0	0
	0	0	0	0	0	0	0	0	74.85	0	55.6884
	3.09	8.99	0	0	26.97	14.97	0	0	55.6884	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	23	23	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	55.6884	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	1	0	1	24	24	2.28	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	55.6884	0	55.6884	0	26.97	0	0	0	26.97
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	2	0	1	3	3	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	14.97	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	2	0	1	9	9	1.07	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	3.09	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	2	0	1	12	12	2.21	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	14.97	25.3716	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	2	0	1	13	13	2.14	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	10.4016	14.97	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	2	0	1	14	14	4.56	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	13.4916	62.7432	18.06	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	2	0	1	15	15	7.77	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	20.8032	14.97	69.18	41.3116	10.4016	0	0
	8.99	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	2	0	1	16	16	10.77	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	25.3716	33.03	7.03	6.18	14.97	0	0
	55.6884	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0										
2004	1	17	2	0	1	17	17	16.82	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	6.18	52.06	48.2	21.15	52.06	211.5684
	3.09	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0										
2004	1	17	2	0	1	18	18	20.68	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

0 0 0 0 0 0 3.09 36.12 21.15 109.9084 36.12
54.02 14.97 14.97 0 0 26.97 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2004 1 17 2 0 1 19 19 9.19 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 55.6884 111.3768
56.91 41.94 26.97 139.5284 97.6284 26.97 0 0 0 26.97 0
0 0 0 0 0 0 0 0 0 0 0
0
2004 1 17 2 0 1 20 20 12.33 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 29.94 3.09 0
18.06 33.03 55.6884 0 29.94 14.97 109.6284 0 26.97 0 0
53.94 0 0 53.94 0 0 0 0 0 0 0
0
2004 1 17 2 0 1 21 21 1.21 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 55.6884 0 0 0 55.6884 55.6884 0 0
0 0 0 0 0 0 0 0 0 0 0
0
2004 1 17 2 0 1 22 22 4.28 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
74.85 0 0 0 0 14.97 0 0 0 0 0
0 0 0 0 0 0 0 0 0 14.97 0
14.97
Unchanged from 2007 WA Trawl age error key 1 (n=25)
1980 1 15 3 0 1 -1 -1 14.12 0.000 0.000 0.000
0.000 1.138 2.276 2.276 2.276 3.414 7.966 7.966 2.276 1.138 2.276
1.138 1.138 1.138 1.138 3.414 1.138 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 2.276 5.690 1.138 5.690 6.828 10.242 6.828
1.138 2.276 0.000 2.276 3.414 5.690 3.414 1.138 0.000 2.276 2.276
0.000 1.138 1.138 0.000 1.138 1.138 0.000 1.138 0.000 1.138 0.000
1.138
1981 1 15 3 0 1 -1 -1 35.30 0.000 0.000 0.000
0.000 0.000 19.166 68.332 110.669 212.922 397.324 229.214 131.123 58.653 99.620
21.933 10.967 23.170 68.382 10.967 19.166 5.483 10.967 0.000 0.000 0.000
5.483 19.166 0.000 0.000 0.000 0.000 0.000 0.000 0.000 27.366 0.000
0.000 0.000 0.000 25.887 5.483 135.102 103.598 176.202 510.172 184.052 208.568
155.640 154.269 66.987 65.616 152.710 47.578 40.966 23.170 10.967 51.824 5.483
43.816 0.000 0.000 13.683 65.616 13.683 0.000 13.683 19.166 13.683 0.000
95.699
1982 1 15 3 0 1 -1 -1 21.18 0.000 0.000 0.000
4.269 74.658 41.598 33.650 37.919 33.787 12.807 34.239 30.786 22.474 16.712
4.495 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 12.443 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 24.886 12.443 83.786 104.403 50.951 58.674 21.433 4.269 29.745
29.381 35.281 4.269 8.764 4.495 22.474 4.495 4.495 17.979 13.033 21.433
4.495 12.443 21.433 12.443 0.000 4.495 4.269 4.495 0.000 12.443 4.495
41.824
1983 1 15 3 0 1 -1 -1 14.12 0.000 0.000 0.000
0.000 285.283 285.283 1569.058 1296.316 570.566 815.882 155.183 297.824 232.774 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 142.642 427.925 1141.133 2515.040 1659.190 1153.674 1426.416 570.566 375.416
297.824 0.000 220.233 285.283 297.824 77.591 77.591 285.283 310.365 142.642 77.591
155.183 0.000 77.591 0.000 0.000 0.000 0.000 77.591 0.000 0.000 0.000
840.964

1984	1	15	3	0	1	-1	-1	21.18	0.000	0.000	0.000
	0.000	0.000	152.652	76.326	129.210	287.883	287.883	287.883	46.863	299.261	58.905
	369.545	123.189	199.515	123.189	0.000	93.726	76.326	129.210	0.000	0.000	0.000
	0.000	76.326	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	311.325	411.735	458.598	493.418	376.251	140.588
	6.021	94.389	64.926	93.726	0.000	105.768	6.021	187.451	6.021	152.652	176.073
	46.863	6.021	58.905	0.000	0.000	0.000	0.000	93.726	0.000	58.905	0.000
	293.219										
1985	1	15	3	0	1	-1	-1	7.06	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	48.931	97.861	391.445	391.445	244.653	146.792	342.514
	195.723	97.861	0.000	97.861	0.000	97.861	0.000	48.931	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	146.792	146.792	391.445	293.584	244.653
	146.792	244.653	244.653	146.792	97.861	0.000	0.000	0.000	48.931	97.861	97.861
	48.931	48.931	48.931	48.931	0.000	0.000	0.000	0.000	0.000	0.000	48.931
	97.861										
1987	1	15	3	0	1	-1	-1	84.72	0.000	0.000	0.000
	0.000	0.000	314.668	181.420	1672.042	2157.026	2323.814	2777.587	2166.543	1851.626	755.256
	1169.988	804.219	505.732	367.263	302.464	72.159	23.770	0.000	37.343	260.564	62.686
	166.382	0.000	0.000	0.000	23.770	0.000	0.000	0.000	0.000	42.346	0.000
	0.000	0.000	0.000	9.874	106.725	427.262	2379.180	2977.990	1680.528	2570.071	2146.587
	1060.484	326.843	199.689	275.267	252.504	257.835	410.780	174.627	336.861	231.434	214.000
	0.000	15.472	30.944	199.689	232.857	198.775	353.972	0.000	132.412	138.105	74.687
	1596.282										
1988	1	15	3	0	1	-1	-1	35.30	0.000	0.000	0.000
	7.962	31.846	39.808	56.960	88.819	214.853	485.450	523.221	664.417	374.519	231.878
	37.671	235.155	227.738	0.000	12.557	73.441	0.000	80.857	0.000	0.000	0.000
	0.000	80.857	80.857	0.000	0.000	0.000	11.556	0.000	11.556	12.557	0.000
	0.000	0.000	0.000	7.962	95.767	129.071	69.517	406.365	667.137	427.669	746.275
	312.735	84.997	246.711	46.225	37.671	73.441	0.000	73.441	24.113	235.155	80.857
	80.857	154.298	103.970	11.556	92.413	161.714	80.857	73.441	12.557	80.857	11.556
	792.499										
1989	1	15	3	0	1	-1	-1	91.78	0.000	0.000	0.000
	125.467	100.465	526.406	1444.355	2215.856	3493.773	2947.182	2161.451	1948.887	978.729	778.550
	362.258	246.616	290.120	0.000	51.073	0.000	214.229	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	218.285	341.862	0.000
	0.000	25.093	54.045	173.713	881.338	2243.636	2521.382	3072.295	4354.315	2677.730	3225.230
	1728.132	953.597	496.604	102.329	384.357	471.094	573.240	92.095	273.182	0.000	92.794
	68.159	0.000	214.229	0.000	107.115	51.073	120.061	102.146	51.073	69.687	206.578
	1359.841										
1990	1	15	3	0	1	-1	-1	77.66	0.000	0.000	0.000
	37.596	0.000	822.504	838.170	1724.910	2403.423	2948.462	3715.324	2325.520	2222.534	750.774
	801.003	198.969	601.608	195.933	135.030	3.035	3.035	127.895	0.000	0.000	0.000
	0.000	0.000	3.035	0.000	211.824	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	5.836	564.907	2546.672	2188.533	2037.928	2493.554	3198.335	3090.009
	1505.896	1066.520	1035.383	561.823	709.498	209.646	212.776	6.071	604.643	344.771	209.741
	0.000	225.316	3.035	6.071	97.434	97.434	3.035	212.776	3.035	30.461	3.035
	1128.254										
1991	1	15	3	0	1	-1	-1	7.06	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	186.491	0.000	559.474	559.474	559.474	932.456
	372.982	0.000	0.000	0.000	0.000	186.491	0.000	186.491	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	186.491	559.474	372.982
	372.982	932.456	745.965	559.474	186.491	0.000	186.491	0.000	186.491	372.982	0.000
	186.491	0.000	186.491	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	186.491										
1992	1	15	3	0	1	-1	-1	84.72	0.000	0.000	0.000
	0.000	385.145	1039.991	892.503	3116.253	1571.725	801.596	1796.922	1846.628	1865.441	1735.802
	2060.908	1863.535	1420.915	402.264	969.284	277.959	0.000	0.000	144.649	144.649	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.574	0.000	0.000
	0.000	0.000	0.000	398.997	110.513	1936.558	2139.602	2865.718	2716.253	3138.851	1752.359
	451.253	570.138	913.504	1644.213	1101.756	1096.679	680.079	21.415	614.964	535.429	478.947
	0.000	0.000	0.000	144.649	334.297	0.000	4.838	340.404	215.706	15.040	0.000
	1211.333										
1993	1	15	3	0	1	-1	-1	32.19	0.000	0.000	0.000
	0.000	41.572	378.135	24.273	813.573	793.459	591.422	893.955	736.212	1284.448	227.523
	0.000	16.138	0.000	0.000	0.000	0.000	0.000	0.000	37.504	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	2.034	6.101	52.613	10.168	772.277	1878.367	881.002	835.084	743.937
	297.304	248.889	0.000	0.000	0.000	0.000	0.000	0.000	37.504	0.000	53.643

	0.000	37.504	0.000	0.000	0.000	0.000	37.504	0.000	16.138	0.000	0.000
	0.000										
1994	1	15	3	0	1	-1	-1	105.90	0.000	0.000	0.000
	11.793	303.052	815.389	1068.324	1207.547	2090.416	1244.078	1171.043	767.828	311.398	222.589
	488.298	204.705	101.889	34.691	49.007	49.007	0.000	18.710	20.141	155.749	0.000
	0.000	1.759	0.000	1.097	0.000	0.000	17.613	54.717	0.000	18.190	0.000
	0.000	0.000	25.065	376.347	785.208	821.024	1975.058	2407.590	1297.573	971.284	1156.390
	524.855	439.259	166.417	139.613	140.949	135.314	38.220	247.029	22.479	139.410	18.710
	0.000	0.000	41.041	139.410	0.000	0.000	139.410	113.371	157.023	6.869	0.000
	191.946										
1995	1	15	3	0	1	-1	-1	155.32	0.000	0.000	0.000
	6.813	89.151	158.557	404.822	651.775	564.748	672.100	820.070	429.091	294.382	144.893
	68.908	23.451	8.749	5.130	12.591	5.977	47.390	0.000	5.130	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.117	0.000	0.000
	0.000	0.000	6.813	157.825	287.799	512.595	824.410	483.796	930.294	671.771	280.718
	110.676	116.835	66.458	71.220	8.632	10.369	12.591	9.948	0.000	0.000	25.387
	4.257	0.000	0.000	0.000	4.058	0.000	0.000	0.000	16.259	0.000	14.929
	32.492										
1996	1	15	3	0	1	-1	-1	98.84	0.000	0.000	0.000
	17.094	56.984	120.955	198.925	254.682	236.982	455.987	492.082	393.291	380.645	79.515
	31.367	140.331	11.698	37.420	8.188	0.000	3.155	3.511	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	20.650	66.958	207.306	264.271	452.880	328.607	397.931	485.390	339.480
	262.084	171.886	51.180	88.719	85.209	8.188	110.703	85.209	41.870	0.000	0.000
	0.000	0.000	0.000	43.338	0.000	33.682	10.477	0.000	0.000	0.000	8.188
	20.953										
1997	1	15	3	0	1	-1	-1	120.02	0.000	0.000	0.000
	42.501	87.323	114.824	273.283	543.503	496.606	809.017	779.741	824.275	724.531	596.595
	172.991	142.488	101.233	126.945	120.775	84.891	115.048	0.000	22.017	49.347	37.900
	0.000	0.000	0.000	34.598	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	43.661	212.569	119.037	603.479	573.911	990.154	943.757	757.181	740.893
	439.659	581.648	260.589	109.790	45.842	184.521	64.877	66.234	76.954	43.669	14.749
	100.299	0.000	56.615	0.000	14.749	0.000	31.636	0.000	0.000	0.000	0.000
	195.584										
1998	1	15	3	0	1	-1	-1	112.96	0.000	0.000	0.000
	5.595	7.553	83.710	364.494	476.123	935.200	728.423	416.294	699.450	442.869	615.200
	271.347	118.811	52.603	159.584	113.465	33.113	77.443	0.000	11.608	0.000	22.757
	0.000	0.000	23.987	11.608	36.865	0.000	0.000	0.000	0.000	11.608	0.000
	0.000	0.000	17.469	54.187	204.535	190.023	854.959	843.092	861.502	717.876	457.856
	439.627	345.411	180.176	208.889	24.514	84.147	126.786	0.000	46.973	60.852	0.000
	42.687	0.000	23.987	48.831	0.000	36.865	0.000	0.000	0.000	0.000	0.000
	125.337										
1999	1	15	3	0	1	-1	-1	105.90	0.000	0.000	0.000
	9.957	55.355	32.538	100.256	146.397	233.871	320.371	302.713	256.557	357.168	217.040
	330.586	198.855	121.465	151.106	49.122	47.882	74.813	0.000	4.977	6.257	0.000
	17.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	1.088	2.176	6.003	33.421	246.614	139.806	263.381	433.396	467.628	557.502
	335.087	243.625	287.164	74.749	249.033	59.834	3.370	73.904	46.671	70.862	0.000
	24.862	0.000	2.450	55.516	0.000	17.417	23.673	0.000	0.000	0.000	0.000
	2.527										
2000	1	15	3	0	1	-1	-1	36.64	0.000	0.000	0.000
	0.000	3.212	10.002	8.895	16.260	8.451	10.653	23.115	25.803	11.313	9.077
	6.821	2.596	6.821	2.596	0.000	2.596	0.000	0.000	0.000	0.000	0.000
	0.617	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	4.344	13.603	8.833	23.590	26.293	15.972	23.526	23.964
	12.841	14.564	3.152	4.841	6.821	0.000	2.596	2.596	0.000	0.000	0.617
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.012
	0.617										
2001	1	15	3	0	1	-1	-1	52.26	0.000	0.000	0.000
	1.248	1.248	5.963	24.416	28.733	30.514	21.519	53.550	27.944	27.583	30.326
	19.766	6.180	5.580	7.513	1.510	3.020	0.910	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	2.497	4.751	17.559	19.195	51.598	82.000	53.592	64.353	30.953
	52.942	17.130	14.945	14.920	1.510	1.117	5.438	4.670	5.438	0.000	1.117
	0.000	0.000	0.000	0.000	0.000	0.000	1.117	0.000	0.000	0.000	0.000
	0.000										
2002	1	15	3	0	1	-1	-1	105.56	0.000	0.000	0.000
	0.000	0.000	0.000	29.532	48.568	45.443	20.673	49.737	28.312	46.294	52.844
	55.333	37.873	43.055	32.171	18.309	14.675	4.186	6.038	9.875	4.079	3.960
	2.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.924	0.000	0.000

0.000 0.000 0.000 0.000 13.388 29.460 77.625 59.585 52.653 78.294 75.888
33.767 95.232 46.651 19.005 10.053 1.112 13.045 3.423 1.521 0.000 8.842
0.000 1.112 0.000 0.000 0.000 0.000 0.000 1.112 0.000 0.000 0.000
19.907
2003 1 15 3 0 1 -1 -1 56.60 0.000 0.000 0.000
0.000 3.134 8.169 4.121 24.110 18.518 10.287 14.354 13.282 11.597 5.459
4.854 5.342 0.000 6.173 2.399 1.083 1.160 1.930 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 3.181 6.188 16.741 21.946 18.779 13.751 9.685
6.313 7.843 10.364 3.971 3.561 5.720 3.235 0.000 3.774 0.000 0.367
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
2004 1 15 3 0 1 -1 -1 126.79 0.000 0.000 11.803
11.803 42.788 103.303 266.781 193.116 281.273 152.938 143.441 176.494 158.225 82.358
78.557 55.982 226.019 55.060 26.307 29.505 18.967 35.721 13.685 22.038 4.805
0.000 7.283 11.803 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 82.353 190.135 341.613 317.556 183.337 170.260 122.757
297.883 100.273 35.397 31.418 11.300 13.099 8.975 0.000 32.656 0.000 10.306
5.035 11.803 10.081 0.000 0.000 0.000 0.000 0.000 4.431 5.153 0.000
33.975
2005 1 15 3 0 1 -1 -1 109.14 0.000 0.000 0.000
0.000 1.000 2.000 9.000 68.769 76.644 46.785 27.986 47.013 22.600 37.750
38.443 46.950 6.000 5.579 6.279 23.050 8.421 0.000 9.150 4.000 1.000
5.750 3.400 6.500 0.000 0.000 1.000 0.000 1.000 1.000 2.000 0.000
0.000 0.000 0.000 1.000 2.000 21.173 35.894 20.691 41.863 57.751 53.608
13.200 28.171 18.050 37.700 16.050 9.000 31.850 21.350 21.050 0.000 2.000
22.300 11.950 2.000 5.750 7.500 0.000 1.000 1.000 1.000 0.000 0.000
16.100
NWFSC marginals for plotting only (n=6)
2003 1 16 3 0 1 -1 -1 1 0 145074 103011
43795 20789 133629 175237 98785 171480 64731 101652 111504 107125 58295
24538 218294 29053 18319 37662 0 18319 0 4550 0 0
6219 0 0 0 0 0 0 0 0 0 25366
448124 98596 40231 12193 132489 83651 188392 165624 146768 90419 120599
152333 39487 50497 11101 18319 0 18319 6238 0 10734 0
0 0 0 0 0 0 0 0 0 0 0
5209
2004 1 16 3 0 1 -1 -1 1 0 56006 131785
75243 589074 87946 389060 92372 94078 501265 483874 208982 80762 99614
17202 0 0 172255 344510 201105 0 0 0 0 0
0 0 0 0 0 0 0 172255 0 0 0
76235 203856 117637 652033 253181 159222 178919 87057 460693 19930 79440
52771 145364 186420 185265 0 39624 214880 183679 28200 172255 183679
172255 28200 172255 0 0 0 0 28200 0 0 0
881395
2005 1 16 3 0 1 -1 -1 1 34838 21166 192112
142955 110665 326340 358563 339308 841095 347912 250057 48318 164437 190148
17568 9121 0 0 0 8702 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 18624
39725 103849 74476 63252 169145 353799 549669 236684 248543 297078 319620
39275 7322 98735 131802 8320 7394 8702 0 0 0 8577
10333 0 0 0 0 0 0 0 0 0 0
0
2006 1 16 3 0 1 -1 -1 1 0 9256 25574
19862 8553 244272 131364 610989 1434435 1639634 1167544 2706608 1370444 1723193
2090719 1340561 1055827 1047427 1038009 0 0 0 1038009 14701 270318
0 0 1038009 0 0 8888 0 0 0 0 0
0 26595 23091 12308 71497 1434961 1873029 2260430 1221419 1273260 2005870
1383638 2148371 1038009 304038 14701 4422354 0 1045813 293960 1038009 0
0 8930 270318 1578645 0 0 0 0 0 0 0
270318
2007 1 16 3 0 1 -1 -1 1 0 8370 87042
336111 177611 169874 76168 110547 161137 255588 167276 256920 208859 76332
110964 39604 109837 60331 18050 18050 18050 0 11726 0 0
0 18050 0 0 11726 0 0 0 0 0 0
0 23425 361984 155892 191359 169154 79076 242172 444380 358052 369460
167830 214471 79382 67519 92793 51230 44934 11726 36100 39611 0
6868 7220 12052 0 0 0 0 0 0 11726 0
0

2008 1 16 3 0 1 -1 -1 1 192117 653199 8213
114588 248494 217750 146420 431460 409416 334625 209948 254059 123838 65890
68367 104405 29259 29547 88323 9849 63959 9561 0 8481 9238
9849 0 0 0 0 0 0 9849 0 0 762897
588381 0 14320 340228 249832 530220 336190 300098 174614 50813 131739
59455 32877 7215 38130 0 0 7931 8288 0 9849 34916
0 0 17325 25067 34916 0 0 0 0 25067 0
56852
Triennial marginals for plotting only (n=6)
1983 1 18 3 0 1 -1 -1 1 1789 27621 80600
1059623 578322 328239 455316 310005 528206 407144 449496 221668 239010 325851
340611 110404 63951 91723 47288 76521 63016 32924 35911 0 25245
0 34643 17757 12483 5752 5285 5914 1882 0 17236 0
28974 65062 1151279 623300 291965 254776 414736 421507 411595 318627 229723
346672 348890 254518 123781 140138 125471 78397 66843 129371 84449 116694
33654 52942 34438 51080 67770 58411 31775 12439 52663 43691 48611
351654
1989 1 18 3 0 1 -1 -1 1 0 0 14750
9047 391794 5374 71823 240849 253224 174674 312362 216568 66085 40123
119000 138201 19245 104940 15765 11239 0 11239 13040 0 0
13040 0 0 0 0 0 0 15765 0 53141 0
0 17937 0 456863 42011 186880 358492 97395 237381 321245 344866
175432 146428 239875 63776 90733 0 219836 47245 0 0 0
58086 0 0 27941 0 0 0 0 128119 12985 0
33978
1992 1 18 3 0 1 -1 -1 1 0 4220 5728
151991 42311 76086 192645 200244 96084 38175 20818 15026 15986 14965
6108 6537 2020 9137 6037 974 237 4300 0 0 0
0 0 0 0 0 0 0 0 0 0 4220
10234 16394 31408 75863 81925 147870 100347 36390 29768 16729 15134
23985 23226 9475 13975 5204 1632 271 2158 8780 4947 16996
815 24158 0 0 0 0 0 0 0 0 0
0
1995 1 18 3 0 1 -1 -1 1 0 0 0
16624 98129 77798 115218 37344 52032 47063 95381 5527 48649 62711
21805 29220 27184 6437 13595 28240 11667 14378 6437 0 0
0 0 0 0 0 0 0 0 0 0 0
0 4469 101537 132293 137491 90822 87870 91782 29427 107383 3989
76203 115488 32880 23927 26678 23927 32675 37688 0 0 57027
13267 73671 0 0 0 0 0 0 0 0 0
0
2001 1 18 3 0 1 -1 -1 1 0 3606 0
141990 302895 433694 804794 432377 182530 282111 298648 170197 94137 38023
65388 27718 29857 32156 7562 12413 2206 4390 0 0 0
0 0 0 0 0 0 0 0 0 0 0
3606 0 113833 154619 529211 636973 310154 365015 187195 167463 92678
71492 41027 42252 31139 20996 17928 8929 4646 0 11013 12465
9877 9877 16081 0 6098 4646 0 2653 0 0 0
17319
2004 1 18 3 0 1 -1 -1 1 0 4597 4040
0 12219 20380 69183 64844 57050 81643 55347 56950 29254 60550
48432 10488 13147 0 16671 10599 6295 0 10376 0 6295
0 0 0 0 0 0 0 0 0 0 0
4040 0 6603 7635 32011 68320 81561 95154 56375 83791 74036
103490 48771 24302 48961 45334 39525 25374 19609 52600 11036 0
21353 0 0 18025 0 0 0 0 0 3372 0
14838

0 # Total number of size-at-age observations
0 # Total number of environmental variables
0 # Total number of environmental observations
0 # No Weight frequency data
0 # No tagging data
0 # No morph composition data
999 # End file marker

14. Appendix C: SS Control file

```
# Control file for 2009 canary assessment update

# Morph setup
1           # Number of growth patterns
1           # N sub morphs within growth patterns

# Time block setup
13          # Number of time block designs for time varying parameters
1           # Blocks in design 1
1           # Blocks in design 2
1           # Blocks in design 3
1           # Blocks in design 4
2           # Blocks in design 5
2           # Blocks in design 6
2           # Blocks in design 7
2           # Blocks in design 8
3           # Blocks in design 9
3           # Blocks in design 10
3           # Blocks in design 11
3           # Blocks in design 12
2           # Blocks in design 13

1995 2008               # Block Design 1 Trip limits
2000 2008               # Block Design 2 footrope/overfished declaration
2002 2008                       # Block Design 3 RCA
2005 2008                       # Block Design 4 Flatfish trawl

1995 1999 2000 2008             # Block Design 5 trip limits + footrope
1995 2001 2002 2008             # Block Design 6 trip limits + RCA
2000 2001 2002 2008             # Block Design 7 footrope + RCA
2000 2004 2005 2008             # Block Design 8 footrope + flatfish trawl

2000 2001 2002 2004 2005 2008 # Block Design 9 footrope + RCA + flatfish trawl
1995 1999 2000 2001 2002 2008 # Block Design 10 trip limits + footrope + RCA
1995 1999 2000 2004 2005 2008 # Block Design 11 trip limits + footrope + flatfish trawl
1979 1994 1995 1999 2000 2008 # Block Design 12 roller gear + trip limits + footrope
1979 1999 2000 2008       # Block Design 13 roller gear + footrope/overfished declaration

# Mortality and growth specifications
0.5         # Fraction female at birth
1           # M setup: 0=single Par,1=N_breakpoints,2=Lorenzen,3=agespecific;_4=agespec_withseasinterpolate
2           # Number of M breakpoints
6 14        # Ages at M breakpoints
1           # Growth model: 1=VB with L1 and L2, 2=VB with A0 and Linf, 3=Richards, 4=Read vector of L@A
1           # Age for growth Lmin
80          # Age for growth Lmax
0.0         # SD constant added to LAA (0.1 mimics v1.xx for compatibility only)
0           # Variability about growth: 0=CV~f(LAA) [mimic v1.xx], 1=CV~f(A), 2=SD~f(LAA), 3=SD~f(A)
1           # maturity option: 1=length logistic, 2=age logistic, 3=read maturity at age for each growth pattern
2           # First age allowed to mature
1     # maturity option
0           # hermaphro
3           # mg parm offset option:
1           # mg parm adjust method 1=do V1.23 approach, 2=use logistic transform between bounds approach

# Mortality and growth parameters
# Lo        Hi        Init      Prior     Prior     Prior     Param     Env       Use       Dev       Dev       Dev
          Block     block
# bnd       bnd       value     mean      type      SD        phase     var       dev       minyr     maxyr     SD
          design    switch
# Females
0.04      0.08      0.06      0.06      0         50        -50       0         0         0         0         0.5
          0         0         #M1_natM_young
0         0.9       0.45      0.4       -1        50        3         0         0         0         0         0.5
          0         0         #M1_natM_old_as_exponential_offset(rel_young)
2         9         3.8       4         -1        50        2         0         0         0         0         0.5
          0         0         #M1_Lmin
```

```
50          70          59.0        60          -1          50          2           0           0           0           0           0.5
            0           0           #M1_Lmax
0.02        0.21        0.14        0.14        -1          50          2           0           0           0           0           0.5
            0           0           #M1_VBK
0.02        0.21        0.14        0.15        -1          50          2           0           0           0           0           0.5
            0           0           #M1_CV-young
-3          3           -1.3        -1.3        -1          50          2           0           0           0           0           0.5
            0           0           #M1_CV-old_as_exponential_offset(rel_young)
# Males
-3          3           0           0           0           50          -50         0           0           0           0           0.5
            0           0           #M2_natM_young_as_exponential_offset(rel_morph_1)
-3          3           0           0           0           50          -50         0           0           0           0           0.5
            0           0           #M2_natM_old_as_exponential_offset(rel_young)
-3          3           0           0           0           50          -50         0           0           0           0           0.5
            0           0           #M2_Lmin_as_exponential_offset
-3          3           -0.12       0           -1          50          2           0           0           0           0           0.5
            0           0           #M2_Lmax_as_exponential_offset
-3          3           0.24        0           -1          50          2           0           0           0           0           0.5
            0           0           #M2_VBK_as_exponential_offset
-3          3           0.04        0           -1          50          2           0           0           0           0           0.5
            0           0           #M2_CV-young_as_exponential_offset(rel_CV-young_for_morph_1)
-3          3           -1.3        0           -1          50          2           0           0           0           0           0.5
            0           0           #M2_CV-old_as_exponential_offset(rel_CV-young)
# Weight-Length and maturity parameters (L in cm, W in kg)
# Lo        Hi          Init        Prior       Prior       Prior       Param       Env         Use         Dev         Dev         Dev
            Block       block
# bnd       bnd         value       mean        type        SD          phase       var         dev         minyr       maxyr       SD
            design      switch
# Females
0           1           1.55E-05    1.55E-05    0           50          -50         0           0           0           0.5         0
            0           #Female wt-len-1
2           4           3.03        3.03        0           50          -50         0           0           0           0           0.5
            0           0           #Female wt-len-2
40          41          40.5        40.5        0           50          -50         0           0           0           0           0.5
            0           0           #Female mat-len-1
-3          3           -0.25       -0.25       0           50          -50         0           0           0           0           0.5
            0           0           #Female mat-len-2
-3          3           1.0         1.0         0           50          -50         0           0           0           0           0.5
            0           0           #Female eggs/gm intercept
-1          1           0.0         0.0         0           50          -50         0           0           0           0           0.5
            0           0           #Female eggs/gm slope
# Males
0           1           1.55E-05    1.55E-05    0           50          -50         0           0           0           0.5         0
            0           #Female wt-len-1
2           4           3.03        3.03        0           50          -50         0           0           0           0           0.5
            0           0           #Female wt-len-2

# Distribute recruitment among growth pattern x area x season
0           999         1           1           0           50          -50         0           0           0           0           0.5
            0           0           # GP 1
0           999         1           1           0           50          -50         0           0           0           0           0.5
            0           0           # Area 1
0           999         1           1           0           50          -50         0           0           0           0           0.5
            0           0           # Season 1
# Cohort growth (K) deviation parameter
-1          1           1           1           0           50          -50         0           0           1980        1983        0.5
            0           0
# Seasonal effects on biology parameters (0=none)
 0 0 0 0 0 0 0 0 0 0

# Spawner-recruit parameters
1           # S-R function: 1=B-H w/flat top, 2=Ricker, 3=standard B-H, 4=no steepness or bias adjustment
# Lo        Hi          Init        Prior       Prior       Prior       Param
# bnd       bnd         value       mean        type        SD          phase
 7          11          8.5         8.5         -1          50          1           # Ln(R0)
 0.21       0.99        0.511       0.4         0           50          -6          # Steepness
 0          2           0.5         0.4         0           50          -50         # Sigma R
 -5         5           0           0           0           50          -50         # Environmental link coefficient
 -5         5           0           0           0           50          -50         # Initial equilibrium offset to virgin
 0          2           0           1           0           50          -50         # Autocorrelation in rec devs
```

```
0 # index of environmental variable to be used
0 # env target parameter: 1=rec devs, 2=R0, 3=steepness
1 # rec dev type: 0=none, 1=devvector (zero-sum), 2=simple deviations (no sum constraint)

# Recruitment residuals
1960        # Start year recruitment residuals
2008        # End year recruitment residuals
1           # Phase

1 # Read 11 advanced recruitment options: 0=no, 1=yes
0           # first year for early rec devs
-4          # phase for early rec devs
5           # Phase for forecast recruit deviations
1           # Lambda for forecast recr devs before endyr+1
1959        #_last_yr_nobias_adj_in_MPD
1960        # first year of full bias correction (linear ramp up from this year minus the plus-age to this year)
2008        # last year for full bias correction in_MPD
2009        #_first_recent_yr_nobias_adj_in_MPD
1.0         # max bias adjustment
0           # placeholder
-5          # Lower bound rec devs
5           # Upper bound rec devs
0 # read intitial values for rec devs

# Fishing mortality setup
0.2         # F ballpark
1999        # F ballpark year
1           # F method:  1=Pope's; 2=Instan. F; 3=Hybrid (recommended)
0.9         # max F or harvest rate, depends on F_Method

# Initial F setup by fishing fleet
# Lo        Hi          Init        Prior       P_type      SD          Phase
0           1           0           0.01        0           50          -50 # 1_CA_S_trwl
0           1           0           0.01        0           50          -50 # 2CA_N_trwl
0           1           0           0.01        0           50          -50 # 3OR_trwl
0           1           0           0.01        0           50          -50 # 4WA_trwl
0           1           0           0.01        0           50          -50 # 5CA_S_nontrwl
0           1           0           0.01        0           50          -50 # 6CA_N_nontrwl
0           1           0           0.01        0           50          -50 # 7WAOR_nontrwl
0           1           0           0.01        0           50          -50 # 8CA_S_rec
0           1           0           0.01        0           50          -50 # 9CA_N_rec
0           1           0           0.01        0           50          -50 # 10WAOR_rec
0           1           0           0.01        0           50          -50 # 11atseahake
0           1           0           0.01        0           50          -50 # 12_NWFSC/research

# Catchability (Q) setup
# A=do power: 0=skip, survey is prop. to abundance, 1= add par for non-linearity
# B=env. link: 0=skip, 1= add par for env. effect on Q
# C=extra SD: 0=skip, 1= add par. for additive constant to input SE (in ln space)
# D=type: <0=mirror lower abs(#) fleet, 0=no par Q is median unbiased, 1=no par Q is mean unbiased, 2=estimate par for ln(Q)
#                3=ln(Q) + set of devs about ln(Q) for all years. 4=ln(Q) + set of devs about Q for indexyr-1
# E=Units: 0=numbers, 1=biomass
# F=err_type 0=lognormal, >0=T-dist. DF=input value
# A B C D E F
 0 0 0      0 1 0 # 1CA_S_trwl
 0 0 0      0 1 0 # 2CA_N_trwl
 0 0 0      0 1 0 # 3OR_trwl
 0 0 0      0 1 0 # 4WA_trwl
 0 0 0      0 1 0 # 5CA_S_nontrwl
 0 0 0      0 1 0 # 6CA_N_nontrwl
 0 0 0      0 1 0 # 7WAOR_nontrwl
 0 0 0      0 1 0 # 8CA_S_rec
 0 0 0      0 1 0 # 9CA_N_rec
 0 0 0      0 1 0 # 10WAOR_rec
 0 0 0      0 1 0 # 11atseahake
 0 0 0      0 1 0 # 12NWFSC/research
 0 0 0      0 1 0 # 13_Early_triennial
 0 0 0      0 0 0 # 14_pre_recruit
 0 0 0      0 1 0 # 15WA_trwl_mirror
 0 0 0      0 1 0 # 16_NWFSC_mirror
```

```
 0 0 0      0 1 0 # 17_Late_triennial
 0 0 0      0 1 0 # 18_triennial_mirror

# Selectivity section
# Size-based setup
# A=Selex option: 1-24
# B=Do_retention: 0=no, 1=yes
# C=Male offset to female: 0=no, 1=yes, 2=Female offset to male
# D=Mirror selex (#)
# A   B C D
 24  0 2 0  # 1CA_S_trwl
 24  0 2 0  # 2CA_N_trwl
 24  0 2 0  # 3OR_trwl
 24  0 2 0  # 4WA_trwl
 24  0 2 0  # 5CA_S_nontrwl
 24  0 2 0  # 6CA_N_nontrwl
 24  0 2 0  # 7WAOR_nontrwl
 24  0 2 0  # 8CA_S_rec
 24  0 2 0  # 9CA_N_rec
 24  0 2 0  # 10WAOR_rec
 24  0 2 0  # 11atseahake
 24  0 2 0  # 12_NWFSC/research
 24  0 2 0  # 13_Early_triennial
 32  0 0 0  # 14_pre_recruit
 5   0 0 4   # 15WA_trwl_mirror
 5   0 0 12 # 16_NWFSC_mirror
 5   0 0 13 # 17_Late_triennial
 5   0 0 13 # 18_triennial_mirror
# Age-based setup
 10 0 0 0   # 1CA_S_trwl
 10 0 0 0   # 2CA_N_trwl
 10 0 0 0   # 3OR_trwl
 10 0 0 0   # 4WA_trwl
 10 0 0 0   # 5CA_S_nontrwl
 10 0 0 0   # 6CA_N_nontrwl
 10 0 0 0   # 7WAOR_nontrwl
 10 0 0 0   # 8CA_S_rec
 10 0 0 0   # 9CA_N_rec
 10 0 0 0   # 10WAOR_rec
 10 0 0 0   # 11atseahake
 10 0 0 0   # 12_NWFSC/research
 10 0 0 0   # 13_Early_triennial
 10 0 0 0   # 14_pre_recruit
 10 0 0 0   # 15WA_trwl_mirror
 10 0 0 0   # 16_NWFSC_mirror
 10 0 0 0   # 17_Late_triennial
 10 0 0 0   # 18_triennial_mirror
# Selectivity and retention parameters
# Lo        Hi        Init      Prior     Prior     Prior     Param     Env       Use       Dev       Dev       Dev
            Block     block
# bnd       bnd       value     mean      type      SD        phase     var       dev       minyr     maxyr     SD
            design    switch
# 1CA_S_trwl double normal
20          60        40        50        -1        50        4         0         0         0         0         0.5
            0         2         # PEAK
-9.0        4.0       -4        -4        0         50        -50       0         0         0         0         0.5
            0         0         # TOP (logistic)
0.0         9.0       4.3       4.2       -1        50        5         0         0         0         0         0.5
            0         2         # Asc WIDTH exp
0.0         9.0       2.5       2.6       -1        50        5         0         0         0         0         0.5
            0         0         # Desc WIDTH exp
-9.0        5.0       -9.0      -9.0      0         50        -50       0         0         0         0         0.5
            0         0         # INIT (logistic)
-5.0        5.0       -1.0      5         -1        50        5         0         0         0         0         0.5
            0         2         # FINAL (logistic)
# Female offsets
10          60        40        50        0         50        -50       0         0         0         0         0.5
            0         0         # female dogleg
-4          0         0         0         0         50        -50       0         0         0         0         0.5
            0         0         # female offset at minage
```

```
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at dogleg
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at maxage

# 2CA_N_trwl double normal
20      60      43      50      -1      50      4       0       0       0       0       0.5
        0       0       # PEAK
-9.0    4.0     -4      -4      0       50      -50     0       0       0       0       0.5
        0       0       # TOP (logistic)
0.0     9.0     3.9     2.0     -1      50      5       0       0       0       0       0.5
        0       0       # Asc WIDTH exp
0.0     9.0     2.7     2.4     -1      50      5       0       0       0       0       0.5
        0       0       # Desc WIDTH exp
-9.0    5.0     -9.0    -9.0    0       50      -50     0       0       0       0       0.5
        0       0       # INIT (logistic)
-5.0    5.0     2.0     5       -1      50      5       0       0       0       0       0.5
        0       0       # FINAL (logistic)
# Female offsets
10      60      45      50      0       50      -50     0       0       0       0       0.5
        0       0       # female dogleg
-4      0       0       0       0       50      -50     0       0       0       0       0.5
        0       0       # female offset at minage
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at dogleg
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at maxage

#fishery-3OR_trwl double normal
20      60      50      50      -1      50      4       0       0       0       0       0.5
        12      2       # PEAK
-9.0    4.0     -4      -4      0       50      -50     0       0       0       0       0.5
        0       0       # TOP (logistic)
0.0     9.0     4.0     4.0     -1      50      5       0       0       0       0       0.5
        12      2       # Asc WIDTH exp
0.0     9.0     4.0     4.0     0       50      -7      0       0       0       0       0.5
        0       0       # Desc WIDTH exp
-9.0    5.0     -9.0    -9.0    0       50      -50     0       0       0       0       0.5
        0       0       # INIT (logistic)
-5.0    12      1       5       -1      50      4       0       0       0       0       0.5
        12      2       # FINAL (logistic)
# Female offsets
10      60      50      44      0       50      -50     0       0       0       0       0.5
        0       0       # female dogleg
-4      0       0       0       0       50      -50     0       0       0       0       0.5
        0       0       # female offset at minage
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at dogleg
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at maxage

#fishery-4WA_trwl double normal
20      60      50      50      -1      50      4       0       0       0       0       0.5
        13      2       # PEAK
-4.0    4.0     -4      -4      0       50      -50     0       0       0       0       0.5
        0       0       # TOP (logistic)
0.0     9.0     4.5     4.5     -1      50      5       0       0       0       0       0.5
        13      2       # Asc WIDTH exp
0.0     9.0     4.4     4.4     -1      50      5       0       0       0       0       0.5
        0       0       # Desc WIDTH exp
-9.0    5.0     -9.0    -9.0    0       50      -50     0       0       0       0       0.5
        0       0       # INIT (logistic)
-5.0    5.0     -3.3    5       -1      50      5       0       0       0       0       0.5
        13      2       # FINAL (logistic)
# Female offsets
10      60      50      44      0       50      -50     0       0       0       0       0.5
        0       0       # female dogleg
-4      0       0       0       0       50      -50     0       0       0       0       0.5
        0       0       # female offset at minage
```

```
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at dogleg
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at maxage

#fishery-5CA_S_nontrwl double normal
20          60         34         50         -1         50         4          0          0          0          0          0.5
            2          2          # PEAK
-4.0        4.0        -4         -4         0          50         -50        0          0          0          0          0.5
            0          0          # TOP (logistic)
0.0         9.0        4.3        4.1        -1         50         5          0          0          0          0          0.5
            2          2          # Asc WIDTH exp
0.0         9.0        4.3        4.3        -1         50         5          0          0          0          0          0.5
            0          0          # Desc WIDTH exp
-9.0        5.0        -9.0       -9.0       0          50         -50        0          0          0          0          0.5
            0          0          # INIT (logistic)
-5.0        5.0        -1.8       5          -1         50         5          0          0          0          0          0.5
            2          2          # FINAL (logistic)
# Female offsets
10          60         35         44         0          50         -50        0          0          0          0          0.5
            0          0          # female dogleg
-4          0          0          0          0          50         -50        0          0          0          0          0.5
            0          0          # female offset at minage
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at dogleg
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at maxage

#fishery-6CA_N_nontrwl double normal
15          60         40         50         -1         50         4          0          0          0          0          0.5
            10         2          # PEAK
-4.0        4.0        -4         -4         0          50         -50        0          0          0          0          0.5
            0          0          # TOP (logistic)
0.0         9.0        4.7        4.2        -1         50         5          0          0          0          0          0.5
            10         2          # Asc WIDTH exp
0.0         9.0        4.0        4.0        0          50         -7         0          0          0          0          0.5
            0          0          # Desc WIDTH exp
-9.0        5.0        -9.0       -9.0       0          50         -50        0          0          0          0          0.5
            0          0          # INIT (logistic)
-5.0        5.0        4.99       0.9        -1         50         -5         0          0          0          0          0.5
            10         2          # FINAL (logistic)
# Female offsets
10          60         40         44         0          50         -50        0          0          0          0          0.5
            0          0          # female dogleg
-4          0          0          0          0          50         -50        0          0          0          0          0.5
            0          0          # female offset at minage
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at dogleg
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at maxage

#fishery-7WAOR_nontrwl double normal
15          60         49         50         -1         50         4          0          0          0          0          0.5
            7          2          # PEAK
-4.0        4.0        -4         -4         0          50         -50        0          0          0          0          0.5
            0          0          # TOP (logistic)
0.0         9.0        4.7        5.8        -1         50         5          0          0          0          0          0.5
            7          2          # Asc WIDTH exp
0.0         9.0        4.0        4.0        0          50         -7         0          0          0          0          0.5
            0          0          # Desc WIDTH exp
-9.0        5.0        -9.0       -9.0       0          50         -50        0          0          0          0          0.5
            0          0          # INIT (logistic)
-5.0        5.0        4.0        5          -1         50         5          0          0          0          0          0.5
            7          2          # FINAL (logistic)
# Female offsets
10          60         53         44         0          50         -50        0          0          0          0          0.5
            0          0          # female dogleg
-4          0          0          0          0          50         -50        0          0          0          0          0.5
            0          0          # female offset at minage
```

```
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at dogleg
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at maxage

#fishery-8CA_S_rec double normal
15          60         30         50         -1         50         4          0          0          0          0          0.5
            8          2          # PEAK
-4.0        4.0        -4         -4         0          50         -50        0          0          0          0          0.5
            0          0          # TOP (logistic)
0.0         9.0        3.9        4.0        -1         50         5          0          0          0          0          0.5
            8          2          # Asc WIDTH exp
0.0         9.0        3.7        3.7        -1         50         5          0          0          0          0          0.5
            0          0          # Desc WIDTH exp
-9.0        5.0        -9.0       -9.0       0          50         -50        0          0          0          0          0.5
            0          0          # INIT (logistic)
-5.0        5.0        -3.5       5          -1         50         5          0          0          0          0          0.5
            8          2          # FINAL (logistic)
# Female offsets
10          60         30         44         0          50         -50        0          0          0          0          0.5
            0          0          # female dogleg
-4          0          0          0          0          50         -50        0          0          0          0          0.5
            0          0          # female offset at minage
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at dogleg
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at maxage

#fishery-9CA_N_rec double normal
15          60         28         50         -1         50         4          0          0          0          0          0.5
            0          2          # PEAK
-4.0        4.0        -4         -4         0          50         -50        0          0          0          0          0.5
            0          0          # TOP (logistic)
0.0         9.0        3.1        3.1        -1         50         5          0          0          0          0          0.5
            0          2          # Asc WIDTH exp
0.0         9.0        4.4        4.4        -1         50         5          0          0          0          0          0.5
            0          0          # Desc WIDTH exp
-9.0        5.0        -9.0       -9.0       0          50         -50        0          0          0          0          0.5
            0          0          # INIT (logistic)
-5.0        5.0        -2.3       5          -1         50         5          0          0          0          0          0.5
            0          2          # FINAL (logistic)
# Female offsets
10          60         28         44         0          50         -50        0          0          0          0          0.5
            0          0          # female dogleg
-4          0          0          0          0          50         -50        0          0          0          0          0.5
            0          0          # female offset at minage
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at dogleg
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at maxage

#fishery-10WAOR_rec double normal
15          60         31         50         -1         50         4          0          0          0          0          0.5
            2          2          # PEAK
-4.0        4.0        -4         -4         0          50         -50        0          0          0          0          0.5
            0          0          # TOP (logistic)
0.0         9.0        3.2        3.2        -1         50         5          0          0          0          0          0.5
            2          2          # Asc WIDTH exp
0.0         9.0        3.3        2.3        -1         50         5          0          0          0          0          0.5
            0          0          # Desc WIDTH exp
-9.0        5.0        -9.0       -9.0       0          50         -50        0          0          0          0          0.5
            0          0          # INIT (logistic)
-5.0        5.0        -2.4       5          -1         50         5          0          0          0          0          0.5
            2          2          # FINAL (logistic)
# Female offsets
10          60         31         50         0          50         -50        0          0          0          0          0.5
            0          0          # female dogleg
-4          0          0          0          0          50         -50        0          0          0          0          0.5
            0          0          # female offset at minage
```

```
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at dogleg
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at maxage

#fishery-11atseahake double normal
15      60      48      50      -1      50      4       0       0       0       0       0.5
        0       0       # PEAK
-4.0    4.0     -4      -4      0       50      -50     0       0       0       0       0.5
        0       0       # TOP (logistic)
0.0     9.0     3.6     3.7     -1      50      5       0       0       0       0       0.5
        0       0       # Asc WIDTH exp
0.0     9.0     4.0     4.0     0       50      -7      0       0       0       0       0.5
        0       0       # Desc WIDTH exp
-9.0    5.0     -9.0    -9.0    0       50      -50     0       0       0       0       0.5
        0       0       # INIT (logistic)
-5.0    5.0     4.0     5       -1      50      5       0       0       0       0       0.5
        0       0       # FINAL (logistic)
# Female offsets
10      60      48      50      0       50      -50     0       0       0       0       0.5
        0       0       # female dogleg
-4      0       0       0       0       50      -50     0       0       0       0       0.5
        0       0       # female offset at minage
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at dogleg
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at maxage

#survey-12_NWFSC double normal
20      65      60      50      -1      50      4       0       0       0       0       0.5
        0       0       # PEAK    value
-4.0    4.0     -4.0    -4      -1      50      4       0       0       0       0       0.5
        0       0       # TOP     logistic
0.0     9.0     8.8     4.0     -1      50      4       0       0       0       0       0.5
        0       0       # WIDTH up exp
0.0     9.0     4.0     4.0     0       50      -7      0       0       0       0       0.5
        0       0       # WIDTH dn exp
-9.0    5.0     -8.0    -9.0    -1      50      4       0       0       0       0       0.5
        0       0       # INIT    logistic
-5.0    5.0     4.5     5       -1      50      4       0       0       0       0       0.5
        0       0       # FINAL (logistic)
# Add female offsets
10      60      55      50      0       50      -50     0       0       0       0       0.5
        0       0       # female dogleg
-4      0       0       0       0       50      -50     0       0       0       0       0.5
        0       0       # female offset at minage
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at dogleg
-4      0       0       0       0       50      -6      0       0       0       0       0.5
        0       0       # female offset at maxage

#survey-13_Early triennial double normal
20      65      62      50      -1      50      4       0       0       0       0       0.5
        0       0       # PEAK    value
-4.0    4.0     -3.6    -4      -1      50      4       0       0       0       0       0.5
        0       0       # TOP     logistic
0.0     9.0     7.4     4.0     -1      50      4       0       0       0       0       0.5
        0       0       # WIDTH   exp
0.0     9.0     4.0     4.0     0       50      -7      0       0       0       0       0.5
        0       0       # WIDTH   exp
-9.0    5.0     -9.0    -9.0    0       50      -50     0       0       0       0       0.5
        0       0       # INIT    logistic
-5.0    5.0     4.5     5       -1      50      4       0       0       0       0       0.5
        0       0       # FINAL (logistic)
# Female offsets
10      60      55      50      0       50      -50     0       0       0       0       0.5
        0       0       # female dogleg
-4      0       0       0       0       50      -50     0       0       0       0       0.5
        0       0       # female offset at minage
```

```
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at dogleg
-4          0          0          0          0          50         -6         0          0          0          0          0.5
            0          0          # female offset at maxage
### Mirrors, leave fixed ###
#15_Wa trawl mirror for second age key
-2          0          -1         0          0          50         -50        0          0          0          0          0.5
            0          0          # Min mirror bin
-2          0          -1         0          0          50         -50        0          0          0          0          0.5
            0          0          # Max mirror bin
#16_NWFSC mirror for marginal ages
-2          0          -1         0          0          50         -50        0          0          0          0          0.5
            0          0          # Min mirror bin
-2          0          -1         0          0          50         -50        0          0          0          0          0.5
            0          0          # Max mirror bin
#17_Late_triennial
-2          0          -1         0          0          50         -50        0          0          0          0          0.5
            0          0          # Min mirror bin
-2          0          -1         0          0          50         -50        0          0          0          0          0.5
            0          0          # Max mirror bin
#17_triennial mirror for marginal ages
-2          0          -1         0          0          50         -50        0          0          0          0          0.5
            0          0          # Min mirror bin
-2          0          -1         0          0          50         -50        0          0          0          0          0.5
            0          0          # Max mirror bin
##############################

1           # Selex block setup: 0=Read one line apply all, 1=read one line each parameter
# Lo        Hi         Init       Prior      P_type     SD         Phase
20          60         46         50         -1         50         4 # OR trawl peak 1979-1994
20          60         46         50         -1         50         4 # OR trawl peak 1995-1999
20          60         41         50         -1         50         4 # OR trawl peak 2000-2006
0.0         9.0        4.0        4.0        -1         50         5 # OR trawl ascending width 1979-1994
0.0         9.0        4.0        4.0        -1         50         5 # OR trawl ascending width 1995-1999
0.0         9.0        3.7        3.9        -1         50         5 # OR trawl ascending width 2000-2006
-5.0        12.0       0.2        5          -1         50         5 # OR trawl final 1979-1994
-5.0        9.0        0.2        5          -1         50         5 # OR trawl final 1995-1999
-5.0        9.0        0.15       5          -1         50         5 # OR trawl final 2000-2006


20          60         41         50         -1         50         4 # WA trawl peak 1979-1999
20          60         41         50         -1         50         4 # WA trawl peak 2000-2006
0.0         9.0        3.6        4.6        -1         50         5 # WA trawl ascending width 1979-1999
0.0         9.0        3.6        4.6        -1         50         5 # WA trawl ascending width 2000-2006
-5.0        5.0        4.5        5          -1         50         5 # WA trawl final 1979-1999
-5.0        5.0        4.5        5          -1         50         5 # WA trawl final 2000-2006

20          60         24         50         -1         50         4 # S CA nontrawl peak 2000-2006
0.0         9.0        1.6        1.3        -1         50         5 # S CA nontrawl ascending width 2000-2006
-5.0        5.0        -4.5       5          -1         50         5 # S CA nontrawl final 2000-2006

20          60         33         50         -1         50         4 # N CA nontrawl peak 1995-1999
20          60         41         50         -1         50         4 # N CA nontrawl peak 2000-2001
20          60         33         50         -1         50         4 # N CA nontrawl peak 2002-2006
0.0         9.0        3.5        4.2        -1         50         -4 # N CA nontrawl ascending width 1995-1999
0.0         9.0        4.8        4.2        -1         50         5 # N CA nontrawl ascending width 2000-2001
0.0         9.0        3.9        4.2        -1         50         5 # N CA nontrawl ascending width 2002-2006
-5.0        5.0        0.1        5          -1         50         5 # N CA nontrawl final 1995-1999
-5.0        5.0        -0.3       5          -1         50         5 # N CA nontrawl final 2000-2001
-5.0        5.0        -2.9       5          -1         50         5 # N CA nontrawl final 2002-2006

15          60         33         50         -1         50         4 # OR/WA nontrawl peak 2000-2001
15          60         58         50         -1         50         4 # OR/WA nontrawl peak 2002-2006
0.0         9.0        2.9        5.8        -1         50         5 # OR/WA nontrawl ascending width 2000-2001
0.0         9.0        5.2        5.8        -1         50         5 # OR/WA nontrawl ascending width 2002-2006
-5.0        5.0        -1.6       5          -1         50         5 # OR/WA nontrawl final 2000-2001
-5.0        5.0        4.8        5          -1         50         5 # OR/WA nontrawl final 2002-2006

20          60         31         50         -1         50         4 # S CA rec peak 2000-2001
20          60         30         50         -1         50         4 # S CA rec peak 2002-2006
```

```
0.0     9.0     4.0     4.0     -1      50      5 # S CA rec ascending width 2000-2001
0.0     9.0     3.1     4.0     -1      50      5 # S CA rec ascending width 2002-2006
-5.0    5.0     -4.5    5       -1      50      5 # S CA rec final 2000-2001
-5.0    5.0     -4.8    5       -1      50      5 # S CA rec final 2002-2006

20      60      30      50      -1      50      4 # OR/WA rec peak 2000-2006
0.0     9.0     3.2     3.2     -1      50      5 # OR/WA rec ascending width 2000-2006
-5.0    5.0     -3.6    5       -1      50      5 # OR/WA rec final 2000-2006

1 # Selex parm adjust method 1=do V1.23 approach, 2=use new logistic approach
0 # Tagging flag: 0=none,1=read parameters for tagging

### Likelihood related quantities ###
# variance/sample size adjustment by fleet
1 # Do variance adjustments
#1  2   3    4    5   6   7   8   9   10  11  12  13   14   15  16  17  18 #
0.00 0.00 0.00  0.00  0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.09 0.02  0.93  0.00 0.00 0.00 0.00 # constant added to survey CV
0.00 0.00 0.00  0.00  0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00  0.00  0.00 0.00 0.00 0.00 # constant added to discard SD
0.00 0.00 0.00  0.00  0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00  0.00  0.00 0.00 0.00 0.00 # constant added to body weight SD
0.90 1.00 1.00  1.00  0.82 1.00 1.00 0.88 0.82 0.90 0.73 1.00 1.00  1.00  1.00 1.00 1.00 1.00 # multiplicative scalar for length comps
1.00 0.98 1.00  1.00  1.00 1.00 1.00 1.00 1.00 1.00 0.36 1.00 1.00  1.00  1.00 1.00 0.90 1.00 # multiplicative scalar for agecomps
1.00 1.00 1.00  1.00  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  1.00  1.00 1.00 1.00 1.00 # multiplicative scalar for length at age
obs

30          # DF For discard T-distribution
30          # DF For meanbodywt T-distribution
1           # Max number of lambda phases: read this number of values for each component below
1           # SD offset (CPUE, discard, mean body weight, recruitment devs): 0=omit log(s) term, 1=include

16 # N changes to default Lambdas = 1.0
# Component codes:
#  1=survey
#  2=discard
#  3=mean body weight
#  4=length frequency
#  5=age frequency
#  6=Weight frequency
#  7=size at age
#  8=catch
#  9=initial equilibrium catch
#  10=rec devs
#  11=parameter priors
#  12=parameter deviations
#  13=Crash penalty
#  14=Morph composition
#  15=Tag composition
#  16=Tag return
# Component fleet/survey  phase  value  wtfreq_method
 4 1 1 0.5 1 # Len data half fleet 1
 4 2 1 0.5 1 # Len data half fleet 2
 4 3 1 0.5 1 # Len data half fleet 3
 4 4 1 0.5 1 # Len data half fleet 4
 4 7 1 0.5 1 # Len data half fleet 7
 4 11 1 0.5 1 # Len data half fleet 11
 5 1 1 0.5 1 # Age data half fleet 1
 5 2 1 0.5 1 # Age data half fleet 2
 5 3 1 0.5 1 # Age data half fleet 3
 5 4 1 0.5 1 # Age data half fleet 4
 5 7 1 0.5 1 # Age data half fleet 7
 5 11 1 0.5 1 # Age data half fleet 11
 5 15 1 0.5 1 # Age data half fleet 15
 5 11 1 0.5 1 # Age data half fleet 11
 5 16 1 0 1 # Ghost age data zero fleet 16 NWFSC mirror
 5 18 1 0 1 # Ghost age data zero fleet 18 Triennial mirror

0 # extra SD

999 # end file marker
```

15. Appendix D: SS Starter file

```
# 2009 Canary update starter file

Canary_data.SS          # Data file
Canary_control.SS       # Control file
0       # Read initial values from .par file: 0=no,1=yes
1       # DOS display detail: 0,1,2
2       # Report file detail: 0,1,2
0       # Detailed checkup.sso file (0,1)
0       # Write parameter iteration trace file during minimization
0       # Write cumulative report: 0=skip,1=short,2=full
0       # Include prior likelihood for non-estimated parameters
0       # Use Soft Boundaries to aid convergence (0,1) (recommended)
0       # N bootstrap datafiles to create
25      # Last phase for estimation
1       # MCMC burn-in
1       # MCMC thinning interval
0       # Jitter initial parameter values by this fraction
-1      # Min year for spbio sd_report (neg val = styr-2, virgin state)
-2      # Max year for spbio sd_report (-1=endyr+1, -2=entire forecast)
0       # N individual SD years
0.0001 # Ending convergence criteria
0       # Retrospective year relative to end year
5       # Min age for summary biomass
1       # Depletion basis: denom is: 0=skip; 1=rel X*B0; 2=rel X*Bmsy; 3=rel X*B_styr
1.0     # Fraction (X) for Depletion denominator (e.g. 0.4)
1       # (1-SPR)_reporting:  0=skip; 1=rel(1-SPR); 2=rel(1-SPR_MSY)
1       # F_std reporting: 0=skip; 1=exploit(Bio); 2=exploit(Num); 3=sum(frates)
0       # F_report_basis: 0=raw; 1=rel Fspr; 2=rel Fmsy ; 3=rel Fbtgt

999 # end of file marker
```

16. Appendix E: SS Forecast file

```
# Forecast specifications - 2009 Canary update

1       # Forecast: 0=none; 1=F(SPR); 2=F(MSY) 3=F(Btgt); 4=F(endyr)
2006    # First year for averaging selex for forecast (e.g. 2004; or use -x to be rel endyr)
2008    # Last year for averaging selex to use in forecast
1       # Benchmarks:0=skip, 1=calc Fspr, Fbtgt, Fmsy
2       # MSY: 0=none,1=F(SPR),2=calc F(MSY),3=F(Btgt),4=set to F(endyr)
0.922   # SPR target (e.g. 0.40)
0.4     # Biomass target (e.g. 0.40)
12      # Number of forecast years
1    # Read advanced options add indents below if 1
0       # Puntalyzer output: 0=no,1=yes
-1      # Rebuilder:  first year catch could have been set to zero (Ydecl)
-1      # Rebuilder:  year for current age structure (Yinit)
1       # Control rule method (1=west coast adjust catch; 2=adjust F)
0.05    # Control rule Biomass level for constant F (as frac of Bzero, e.g. 0.40)
0.001   # Control rule Biomass level for no F (as frac of Bzero, e.g. 0.10)
1       # Control rule fraction of Flimit (e.g. 0.75)
-1      # maximum annual catch during forecast (not coded yet)
0       # Implementation error (not coded yet)
0.1     # stddev of log(realized F/target F) in forecast (not coded yet)
1       # fleet allocation (in terms of F) (1=use endyr pattern,no read; 2=read below)
24      # Number of manual forecast catches to input
2       # basis for forecatch:  1=retained catch; 2=total dead catch (if line above > 0)
# Year Seas Fleet Catch
# 2009-2010 OYs (105mt) hard-wired at 2006-2008 average allocations
2009    1       1       0.14
2009    1       2       13.43
2009    1       3       22.25
2009    1       4       8.41
2009    1       5       0.56
2009    1       6       7.08
2009    1       7       2.37
2009    1       8       6.45
2009    1       9       8.13
2009    1       10      17.50
2009    1       11      9.28
2009    1       12      9.40
2010    1       1       0.14
2010    1       2       13.43
2010    1       3       22.25
2010    1       4       8.41
2010    1       5       0.56
2010    1       6       7.08
2010    1       7       2.37
```

2010 1 8 6.45
2010 1 9 8.13
2010 1 10 17.50
2010 1 11 9.28
2010 1 12 9.40

999 # end of forecast file