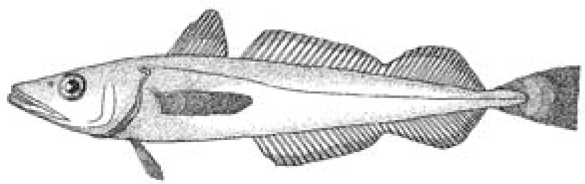
Stock Assessment of Pacific Hake, *Merluccius productus*, (a.k.a. Whiting) in U.S. and Canadian Waters in 2010



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Executive Summary

Stock

This assessment reports the status of the coastal Pacific hake (or Pacific whiting, *Merluccius productus*) resource off the west coast of the United States and Canada. The coastal stock of Pacific hake is currently the most abundant groundfish in the California Current system. Smaller populations of hake occur in the major inlets of the northeast Pacific Ocean, including the Strait of Georgia, Puget Sound, and the Gulf of California. However, the coastal stock is distinguished from the inshore populations by larger body size and seasonal migratory behavior. The coastal population is modeled as a single stock, but the United States and Canadian fishing fleets are treated separately in order to capture some of the spatial variability in Pacific hake distribution, size- and age-structure, as well as fishery selectivity.

Catches

Coast-wide fishery landings of Pacific hake averaged 221 thousand mt from 1966 to 2009, with a low of 90 thousand mt in 1980 and a peak of 361 thousand mt in 2006. Recent coast-wide landings from 2004-2008 were above the long term average. Landings in this period were predominately comprised of fish from the large 1999 year class. In 2008, the fishery began harvesting considerable numbers of the then emergent 2005 year class. In response to projection of a continued decline in abundance from the 2009 stock assessment, landings were reduced to 177 thousand metric tons. These catches were again dominated by the 2005 year class with some contribution from an emergent 2006 year class and relatively small numbers of the 1999 cohort. The United States has averaged 165 thousand mt, or 74.5% of the average total landings over the time series, with Canadian catch averaging 56 thousand mt. The 2009 landings had a slightly different distribution between nations, with 68.5% harvested by the United States fishery. In the current stock assessment the terms catch and landings are used interchangeably; estimates of discard within the target fishery are included, but discarding of Pacific hake in non-target fisheries is not. Total discard is estimated to be less than 1% of landings and therefore is likely to be negligible with regard to the population dynamics.

Table a. Recent commercial fishery landings (1000s mt).

Year	US at-sea	US shore-based	US Tribal	US total	Canadian foreign and JV	Canadian shore-based	Canadian total	Total
2000	116	86	7	208	16	6	22	231
2001	102	73	7	182	22	32	54	236
2002	63	46	23	132	0	51	51	183
2003	67	51	25	143	0	62	62	206
2004	90	89	31	210	59	65	124	335
2005	150	74	35	259	15	85	100	360
2006	134	97	35	267	14	80	94	361
2007	121	73	30	225	7	66	73	297
2008	166	50	32	248	4	70	74	322
2009	58	41	22	121	0	56	56	177

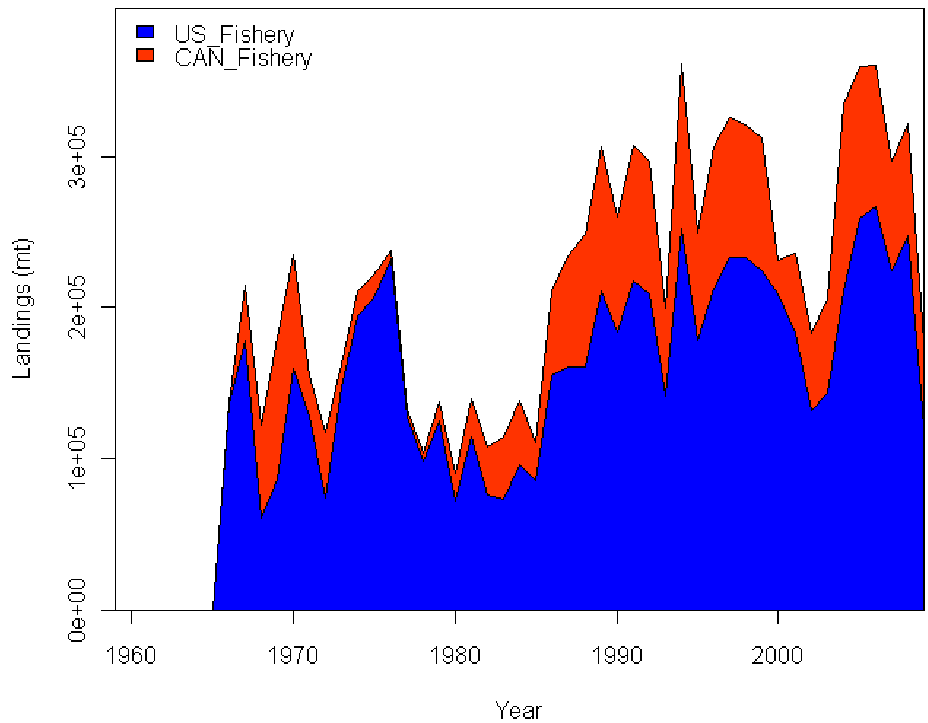

Figure a. Total Pacific hake landings used in the assessment by nation, 1960-2009 (Canadian landings are represented by the lighter region above the darker U.S. values).

Data and assessment

The 2010 assessment includes the same basic sources of data as the 2009 model. These have been supplemented with: 2009 catch estimates from the U.S. and Canada; the 2009 Acoustic survey biomass index, length and conditional age-at-length compositions, length and conditional age-at-length compositions from the 2009 U.S. and Canadian fisheries, and the 2009 juvenile index. Additional changes made in this assessment are: evaluated for the first time of bycatch rates of juvenile hake in the pink shrimp trawl fishery as a potential recruitment index, and removal of historical length-frequency distributions from California in the 1960s which were added for the 2009 assessment, but ultimately identified as adding no appreciable contribution to model results. An important aspect of the data for this assessment is the amount of uncertainty associated with the 2009 acoustic survey. For the base case model we have assumed a standard error (in log-space) of 0.5, the same level as has been used for historical acoustic surveys, and larger then the value (0.25) used for more recent surveys. This choice reflects the difficulty experienced during the 2009 survey in positively identifying hake from Humboldt squid in the acoustic backscatter.

Age-structured assessment models of various forms have been used to assess Pacific hake since the early 1980's, using total fishery landings, fishery length and age compositions and survey abundance indices. In 2006, the hake assessment model was converted from an ADMB model developed by Dorn (Dorn et al. 1998) to Stock Synthesis (SS, Methot, 2005). Updated versions of Stock Synthesis have been used each year since 2006; the current (2010) model is implemented in SS v3.1 (Methot 2009). No major structural changes to the modeling approach or implementation have been added for 2010.

Stock biomass

The base model indicates that the Pacific hake female spawning biomass declined rapidly after a peak in 1984 (3.78 million mt) until 2000 (0.55 million mt). This long period of decline was followed by a brief increase to a peak of 1.31 million mt in 2003 as the large 1999 year class matured. In 2010 (beginning of year), spawning biomass is estimated to be the lowest in the time-series, 0.41 million mt, however this estimate is quite uncertain, with asymptotic 95% confidence intervals ranging from 0.22 to 0.59 million mt. This level equates to approximately 31% of the estimated unfished spawning biomass (SB_0). Estimates of uncertainty in current relative depletion range from 17%-45% of unfished biomass. The estimate of spawning biomass for 2009 is 0.48 million mt, higher than the estimate of 0.43 million mt from the 2009 assessment, reflecting an upward revision in the estimated absolute scale of the hake stock, largely attributable to an increase in the estimate of the 2005 year class. Unexploited equilibrium biomass decreased slightly from 1.37 million metric tons in the 2009 assessment to 1.33 this year, with an approximate 95% confidence interval from 1.15 to 1.50. The recent peak of spawning biomass in 2003 generated by the 1999 year class is now estimated to have reached 99% of the unexploited equilibrium whereas the estimate from the 2009 assessment was 102% of that equilibrium level.

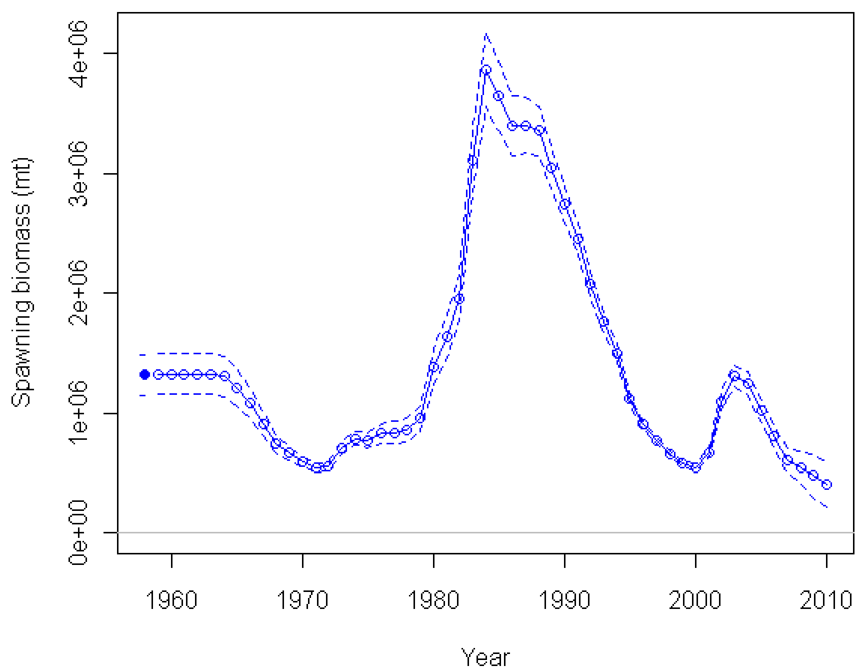

Figure b. Estimated female spawning biomass time-series with approximate asymptotic 95% confidence intervals.

Table b. Recent trend in estimated Pacific hake biomass and depletion level.

Year	Total biomass (million mt)	Age 3+ biomass (million mt)	Female spawning biomass (million mt)	~95% confidence interval	Estimated depletion	~95% confidence interval
2001	2.83	1.29	0.67	0.63 - 0.71	50%	44% - 57%
2002	3.05	2.95	1.10	1.02 - 1.17	83%	71% - 94%
2003	3.00	2.87	1.31	1.22 - 1.41	99%	85% - 113%
2004	2.72	2.65	1.25	1.15 - 1.35	94%	81% - 108%
2005	2.30	2.06	1.02	0.93 - 1.12	77%	66% - 88%
2006	1.88	1.72	0.80	0.71 - 0.90	61%	51% - 71%
2007	1.64	1.21	0.61	0.50 - 0.71	46%	37% - 55%
2008	1.43	1.25	0.55	0.40 - 0.69	41%	30% - 52%
2009	1.13	1.08	0.48	0.30 - 0.65	36%	22% - 49%
2010	1.04	0.84	0.41	0.22 - 0.59	31%	17% - 44%

Recruitment

Estimates of historical Pacific hake recruitment indicate a very large year class in 1980. Secondary large recruitment events occurred in 1977, 1984 and 1999, with 1970, 1973, 1987, 1990 and 2005 being substantially larger than adjacent years. The 1999 year class was estimated to be the largest in 15 years (11.77 billion, 95% interval: 10.98 - 12.61 billion) and to have supported fishery catches from 2002 through 2007. Uncertainty in estimated recruitments is substantial, especially for recent years, as indicated by the asymptotic 95% confidence intervals. Recruitment to age 0 before 1962 is assumed to be equal to the long-term mean recruitment. Age-0 recruitment in 2005 appears slightly higher than was estimated in the 2009 assessment but despite a wide range of uncertainty is not of the same scale as the largest historical recruitments and will not be sufficient to support the fishery for as long as the 1999 cohort. The 2006 year class is estimated to be the third largest since the 1999 cohort (1.34 billion), but still well below the unexploited equilibrium level of 1.95 billion. Recruitments subsequent to 2008 are drawn exclusively from the stock-recruit curve, with correspondingly high levels of uncertainty.

Table c. Recent estimated trend in Pacific hake recruitment.

Year	Estimated recruitment (billions age-0)	~95% confidence interval
2001	0.92	0.82 - 1.04
2002	0.01	<0.01 - 0.02
2003	1.68	1.38 - 2.04
2004	0.20	0.15 - 0.28
2005	2.90	2.09 - 4.02
2006	1.34	0.90 – 2.00
2007	0.01	0.01 - 0.02
2008	0.88	0.13 - 5.90
2009	1.84	0.26 - 12.80
2010	1.81	0.26 - 12.61

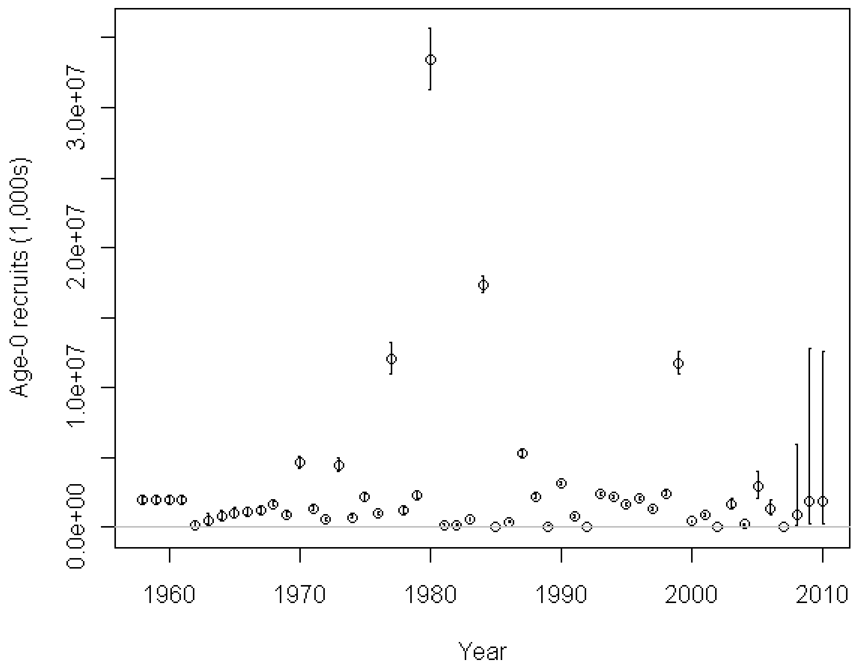

Figure c. Estimated recruitment time-series with approximate asymptotic 95% confidence intervals.

Reference points

Two types of reference points are reported in this assessment: those based on the population parameters at the beginning of the modeled time period and those based on the most recent time period in a ‘forward projection’ mode of calculation. This distinction is important since temporal variability in growth and other parameters can result in different reference point calculations across alternative chronological periods. All strictly biological reference points (e.g., unexploited spawning biomass) are calculated based on the unexploited conditions at the start of the model, whereas management quantities (*MSY*, SB_{msy}, etc.) are based on the current growth and maturity schedules and are marked throughout this document with an asterisk (*).

Unexploited equilibrium Pacific hake spawning biomass (SB_0) is estimated to be 1.33 million mt (~ 95% confidence interval: 1.15-1.50 million mt), with a mean expected recruitment of 1.95 billion age-0 hake (~ 95% confidence interval: 1.72-2.22). The *MSY*-proxy target biomass ($SB_{40\%}$) is estimated to be 0.53 million mt and the minimum biomass threshold ($SB_{25\%}$) is 0.33 million mt. *MSY* is estimated to be 279,071* mt, produced by a female spawning biomass of 292,432* mt, and reflecting the high value (0.88) estimated for steepness of the stock-recruit curve. The equilibrium *MSY*-proxy harvest rate ($F_{40\%}$) yield under the base model is estimated to be 262,957* mt, occurring at a spawning biomass of 453,986* mt. The equilibrium yield at the biomass target ($SB_{40\%}$) is estimated to be 247,589* mt, occurring at a spawning biomass of 530,545* mt given current life history parameters.

Exploitation status

The spawning potential ratio for Pacific hake has been below the proxy target of 40% for the history of this fishery, but the ratio is uncertain and estimated to have been very close to 1.0 in 2008 (0.96%). Pacific hake are presently in the precautionary zone with regard to biomass level (31% of unfished spawning biomass in 2010) and below, at 80% of (in 2009), the target SPR rate. The full exploitation history in terms of both the biomass and F targets is portrayed graphically via a phase-plot.

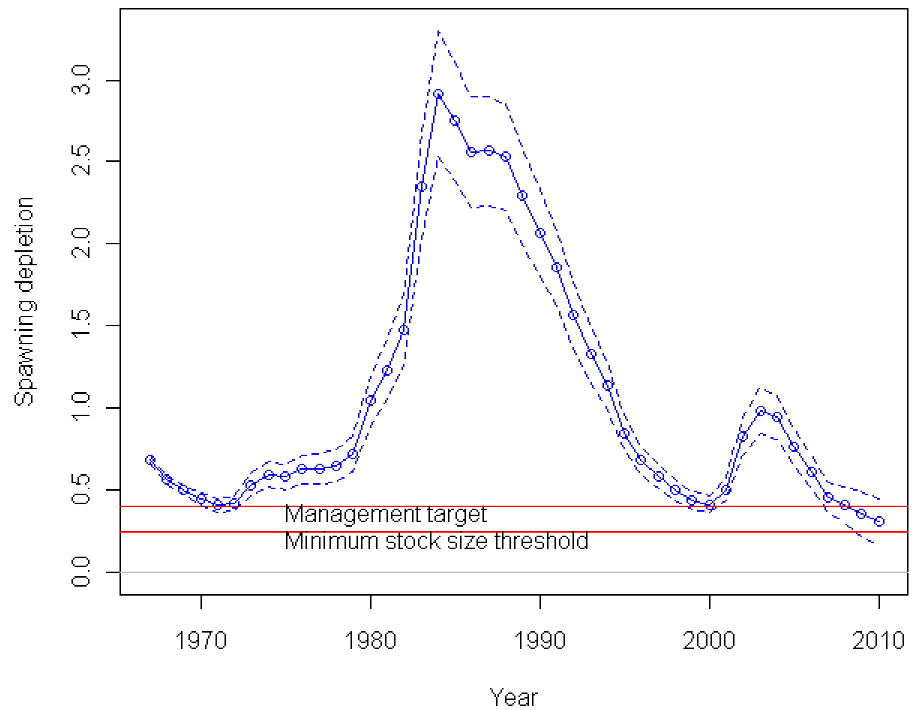

Figure d. Time-series of estimated spawning depletion, 1967-2010.

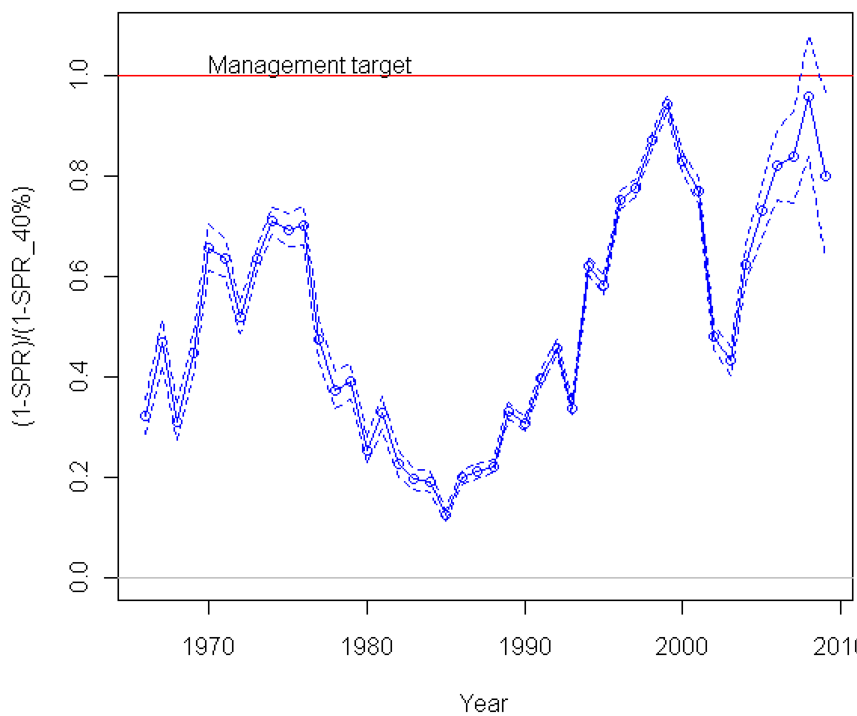

Figure e. Trend in relative spawning potential ratio through 2009 (1-SPR/1-$SPR_{Target=0.4}$).

Table d. Recent trend in relative spawning potential ratio ($1\text{-}SPR/1\text{-}SPR_{Target=0.4}$) and exploitation fraction (catch/3+biomass). Values for 2010 are part of the forecast results.

Year	Relative SPR ratio	~95% confidence interval	Exploitation fraction	~95% confidence interval
2000	0.83	0.81 - 0.85	0.20	0.19 - 0.21
2001	0.77	0.75 - 0.80	0.18	0.17 - 0.19
2002	0.48	0.46 - 0.51	0.06	0.06 - 0.07
2003	0.43	0.40 - 0.46	0.07	0.07 - 0.08
2004	0.62	0.59 - 0.66	0.13	0.12 - 0.14
2005	0.73	0.68 - 0.79	0.17	0.16 - 0.19
2006	0.82	0.75 - 0.89	0.21	0.18 - 0.24
2007	0.84	0.75 - 0.93	0.24	0.20 - 0.29
2008	0.96	0.84 - 1.08	0.26	0.19 - 0.33
2009	0.80	0.64 - 0.96	0.16	0.10 - 0.23

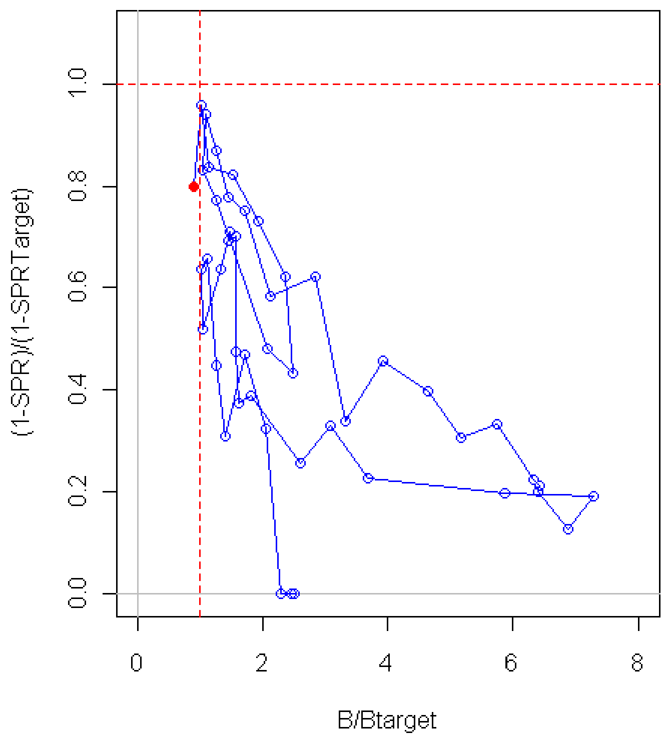

Figure f. Temporal pattern (phase plot) of relative spawning potential ratio ($1\text{-}SPR/1\text{-}SPR_{Target=0.4}$) vs. estimated spawning biomass relative to the proxy 40% level, 1960-2009. The filled circle denotes 2009 and the line connects years through the time-series.

Management performance

Since implementation of the Magnuson-Stevens Fishery Conservation and Management Act in the U.S. and the declaration of a 200 mile fishery conservation zone in Canada in the late 1970's, annual quotas have been the primary management tool used to limit the catch of Pacific hake in both zones by foreign and domestic fisheries. Scientists from both countries have collaborated through the Technical Subcommittee of the Canada-US Groundfish Committee (TSC), and there has been informal agreement on the adoption of an annual fishing policy. During the 1990s, however, disagreement between the U.S. and Canada on the division of the acceptable biological catch (ABC) between the two countries led to quota overruns; 1991-1992 quotas summed to 128% of the ABC and quota overruns averaged 114% from 1991-1999. Since 2000, total catches have been below coast-wide ABCs. A recent treaty between the United States and Canada (2003), which has not yet been fully implemented, establishes U.S. and Canadian shares of the coast-wide allowable biological catch at 73.88% and 26.12%, respectively.

In recent years, failure to extract the entire OY available to the fishery in U.S. waters has been a result of extremely restrictive bycatch limits on overfished rockfish species, particularly widow and canary rockfishes. In 2008, there was a voluntary 'stand-down' during the period of highest bycatch rates as the fleet approached the bycatch limit, and the U.S. fishery ultimately achieved 92% of its OY. Two important changes influenced the 2009 fishery: 1) the OY was reduced by just less than 50%, and 2) the U.S. mothership, catcher-processor and shore-based sectors were assigned sector specific, and much larger, bycatch limits. Although Canadian catches exceeded their allocation fraction of the total OY, and the primary U.S. sectors were very close to allocations, some of the tribal allocation remained uncaught and so the total catch was 96.0% of the OY and 69.7% of the ABC.

Table e. Recent trend in Pacific hake management performance.

Year	Total landings (mt)	Coast-wide (U.S. + Canada) OY (mt)	Coast-wide (U.S. + Canada) ABC (mt)
2000	230,820	290,000	290,000
2001	235,962	238,000	238,000
2002	182,911	162,000	208,000
2003	205,582	228,000	235,000
2004	334,672	501,073	514,441
2005	359,661	364,197	531,124
2006	360,683	364,842	661,680
2007	297,098	328,358	612,068
2008	321,547	364,842	400,000
2009	176,730	184,000	253,582

Unresolved problems and major uncertainties

As in 2009, this assessment includes the uncertainty associated with several important model parameters, including acoustic survey catchability (q), the steepness (or productivity, h) of the stock-recruitment relationship, as well as the degree of recruitment variability (σ_R). This uncertainty is integrated into the Bayesian results presented in the decision table. However, it is a gross underestimate of the true uncertainty in current stock status and future projections due to known model misspecification represented by poor residual patterns to size data, sensitivity to the relative weighting of data sources and model structure (treatment of sex-specific growth, fleet structure, spatial issues, and others). Further, the 2009 acoustic survey estimated a relatively large biomass, which is contradictory to fishery dependent information and very uncertain due to the presence of large numbers of Humboldt squid, making the unambiguous assignment of backscatter to Pacific hake very difficult, and there was reduced survey effort in Canadian waters. Estimates of current stock status are very sensitive to the degree of uncertainty in this index, yet there are currently no data for directly quantifying uncertainty in the process of scoring acoustic backscatter. Historical issues identified in previous assessments including the appropriate variance to assign to acoustic survey years that did not survey the waters off northern Canada and the representativeness of trawl sampling for the acoustic backscatter also remain.

Many of these issues may be resolved for the 2011 assessment, when a full reanalysis of historical acoustic survey data will be available. However, the Pacific hake stock displays the highest degree of recruitment variability of any west coast groundfish resulting in large and rapid changes in stock biomass. This volatility, coupled with a dynamic fishery displaying targeting of strong incoming cohorts and a biannual fishery independent acoustic survey, will continue to result in highly uncertain estimates of current stock status and even less certain projections of stock trajectory in future stock assessments.

Forecasts

Forecasts are generated applying the 40:10 control rule and coast-wide catch allocation of 73.88% and 26.12% to the U.S. and Canada, respectively, to maximum likelihood results. Extremely wide confidence intervals for forecast quantities reflect uncertainty in recent and future year-class strengths as well as current biomass levels. Alternative management actions are presented in a decision table based on MCMC integration of the posterior distribution for model quantities. The stock is projected to continue to decline in the near future for all 2010 catch levels above 50,000 mt, with declines estimated to be slightly steeper for the Bayesian results (as was the case in the 2009 assessment; likely due to bias in the maximum likelihood estimator for the degree of recruitment variability). A catch level greater than 200,000 mt is projected to result in at least a 50% probability of the stock declining below the $SB_{25\%}$ minimum biomass threshold in 2011.

Table f. Three-year projections of maximum likelihood-based Pacific hake ABC, OY, spawning biomass and depletion for the base case model based on the 40:10 harvest control rule and the $F_{40\%}$ overfishing limit/target.

Year	ABC (mt)	OY (mt)	Female spawning biomass (millions mt)	~95% confidence interval	Estimated depletion	~95% confidence interval
2010	253,517	224,975	0.41	0.22 - 0.59	31%	17% - 44%
2011	226,067	181,462	0.34	0.12 - 0.55	25%	10% - 41%
2012	221,866	181,185	0.34	0.01 - 0.68	26%	1% - 51%

Table g. Decision table with three year projections of posterior distributions for Pacific hake female spawning biomass, depletion (both of at the beginning of the year, before fishing takes place) and relative spawning potential ratio (1-SPR/1-$SPR_{Target=0.4}$; values greater than 1.0 denote overfishing). Catch alternatives are based on: 1) arbitrary constant catch levels of 50,000, 100,000, 150,000 and 200,000 mt (rows a, b, c, and e), 2) the status quo OY from 2009 (row d), and 3) the values estimated via the 40:10 harvest control rule and the $F_{40\%}$ overfishing limit/target for the base case MLE model (row f; from Table f above).

Management Action			States of nature														
			Female spawning biomass (millions mt) posterior interval					Estimated depletion posterior interval					Relative spawning potential ratio posterior interval				
	Year	Catch	5th	25th	50th	75th	95th	5th	25th	50th	75th	95th	5th	25th	50th	75th	95th
a	2010	50,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.27	0.33	0.37	0.43	0.51
	2011	50,000	0.25	0.33	0.40	0.47	0.63	19%	25%	30%	35%	46%	0.24	0.31	0.35	0.41	0.50
	2012	50,000	0.25	0.33	0.42	0.52	0.86	19%	25%	31%	39%	63%	0.20	0.28	0.34	0.40	0.51
b	2010	100,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.47	0.56	0.62	0.69	0.80
	2011	100,000	0.23	0.31	0.37	0.45	0.61	17%	23%	28%	34%	45%	0.43	0.54	0.62	0.70	0.83
	2012	100,000	0.21	0.29	0.37	0.48	0.81	15%	22%	28%	36%	60%	0.39	0.53	0.61	0.72	0.88
c	2010	150,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.62	0.72	0.79	0.87	0.98
	2011	150,000	0.21	0.29	0.35	0.43	0.59	16%	21%	26%	32%	43%	0.59	0.73	0.82	0.92	1.06
	2012	150,000	0.16	0.24	0.33	0.44	0.77	12%	19%	25%	32%	57%	0.55	0.73	0.84	0.97	1.16
d	2010	184,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.70	0.81	0.88	0.96	1.07
	2011	184,000	0.19	0.27	0.33	0.41	0.57	14%	20%	25%	31%	42%	0.69	0.84	0.93	1.03	1.18
	2012	184,000	0.13	0.22	0.30	0.41	0.74	10%	16%	22%	30%	54%	0.65	0.85	0.98	1.11	1.31
e	2010	200,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.74	0.85	0.92	0.99	1.10
	2011	200,000	0.18	0.26	0.33	0.40	0.56	14%	19%	25%	30%	41%	0.73	0.88	0.97	1.08	1.23
	2012	200,000	0.12	0.20	0.29	0.39	0.73	9%	15%	21%	29%	53%	0.69	0.90	1.03	1.17	1.38
f	2010	224,975	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.79	0.90	0.97	1.04	1.15
	2011	181,462	0.17	0.25	0.31	0.39	0.55	13%	19%	24%	29%	40%	0.70	0.85	0.95	1.05	1.21
	2012	181,185	0.12	0.20	0.29	0.39	0.72	8%	15%	21%	29%	53%	0.66	0.86	0.99	1.14	1.35

Research and data needs

The majority of the research recommendations remain unchanged from the 2009 assessment, however extensive efforts to address full reanalysis of the acoustic survey time series and provide reasonable variance estimates (especially for those years when the survey did not extend to northern Canadian waters) as well as estimates of the numbers at length sex and age for constructing a 2-sex assessment model have been underway since early 2009. Acquisition of the underlying data from the Alaska Fisheries Science Center and historical archives as well as creating of new software for processing these data was required for this work to proceed. These efforts will result in the ability to reevaluate all major aspects of the stock assessment for 2011.

1) Reanalyze the historical acoustic survey time-series and calculate annual variance estimates incorporating uncertainties in spatial variability, sampling variability and target strength uncertainty.

2) Evaluate a sex-specific model and use of split-sex selectivity for the survey and the U.S. and Canadian fisheries.

3) Evaluate whether modeling the distinct at-sea and shore-based fisheries in the U.S. and Canada resolves some lack of fit in the compositional data.

4) Investigate aspects of the life history characteristics for Pacific hake and their possible effects on the interrelationship of growth rates and maturity at age. This should include additional data collection of maturity states and fecundity, as current information is limited.

5) Evaluate the quantity and quality of biological data prior to 1988 from the Canadian fishery for use in developing length and conditional age-at-length compositions.

6) Compare spatial distributions of hake across all years and between bottom trawl and acoustic surveys to estimate changes in catchability/availability across years. The two primary issues are related to the changing spatial distribution of the survey as well as the environmental factors that may be responsible for changes in the spatial distribution of hake and their influences on survey catchability and selectivity.

7) Conduct further exploration of ageing imprecision and the effects of large cohorts via simulation and blind source age-reading of samples with differing underlying age distributions – with and without dominant year classes.

8) Investigate alternative methods of parameterizing as well as alternative time blocking and/or restricted annual changes for fishery selectivity. Investigate reasons for changes in selectivity over time to validate estimated selectivity patterns.

9) Develop alternative indices for juvenile or young (0 and/or 1 year old) Pacific hake.

Table h. Summary of recent trends in Pacific hake exploitation and stock levels; all values reported at the beginning of the year.

Quantity	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Coast-wide landings (mt)	235,962	182,911	205,582	334,672	359,661	360,683	297,098	321,547	176,730	NA
ABC (mt)	238,000	208,000	235,000	514,441	531,124	661,680	612,068	400,000	253,582	NA
OY (1000s mt)	238,000	162,000	228,000	501,073	364,197	364,842	328,358	364,842	184,000	NA
Relative SPR: (1-SPR/1-$SPR_{Target=0.4}$)	0.77	0.48	0.43	0.62	0.73	0.82	0.84	0.96	0.80	NA
~95% interval	0.75 - 0.80	0.46 - 0.51	0.40 - 0.46	0.59 - 0.66	0.68 - 0.79	0.75 - 0.89	0.75 - 0.93	0.84 - 1.08	0.64 - 0.96	NA
Total biomass (millions mt)	2.83	3.05	3.00	2.72	2.30	1.88	1.64	1.43	1.13	1.04
3+ biomass (millions mt)	1.29	2.95	2.87	2.65	2.06	1.72	1.21	1.25	1.08	0.84
Spawning biomass (millions mt)	0.67	1.10	1.31	1.25	1.02	0.80	0.61	0.55	0.48	0.41
~95% interval	0.63 - 0.71	1.02 - 1.17	1.22 - 1.41	1.15 - 1.35	0.93 - 1.12	0.71 - 0.90	0.50 - 0.71	0.40 - 0.69	0.30 - 0.65	0.22 - 0.59
Recruitment (billions age-0)	0.92	0.01	1.68	0.20	2.90	1.34	0.01	0.88	1.84	1.81
~95% interval	0.82 - 1.04	<0.01 - 0.02	1.38 - 2.04	0.15 - 0.28	2.09 - 4.02	0.90 – 2.00	0.01 - 0.02	0.13 - 5.90	0.26 - 12.80	0.26 - 12.61
Depletion	50%	83%	99%	94%	77%	61%	46%	41%	36%	31%
~95% interval	44% - 57%	71% - 94%	85% - 113%	81% - 108%	66% - 88%	51% - 71%	37% - 55%	30% - 52%	22% - 49%	17% - 44%

Table i. Summary of Pacific hake reference points. *MSY related values reflect current growth patterns.

Quantity	Estimate	~95% Confidence interval
Unfished female spawning biomass (SB_0, millions mt)	1.33	1.15 - 1.50
Unfished total biomass (millions mt)	3.14	2.73 - 3.55
Unfished 3+ biomass (millions mt)	2.79	2.43 - 3.16
Unfished recruitment (R_0, billions)	1.95	1.72 - 2.22
Reference points based on $SB_{40\%}$		
MSY Proxy female spawning biomass ($SB_{40\%}$ mt)	530,545	461,712 - 599,378
SPR resulting in $SB_{40\%}$ ($SPR_{SB40\%}$)	0.46	0.42 - 0.50
Exploitation fraction resulting in $SB_{40\%}$	0.21	0.18 - 0.24
Yield at $SB_{40\%}$ (mt)	247,589	202,005 - 293,173
Reference points based on SPR proxy for MSY		
Female spawning biomass at $SPR_{MSY\text{-}proxy}$ (SB_{SPR} mt)	453,986	376,045 - 531,927
$SPR_{MSY\text{-}proxy}$	0.40	NA
Exploitation fraction corresponding to SPR	0.26	NA
Yield with $SPR_{MSY\text{-}proxy}$ at SB_{SPR} (mt)	262,957	217,483 - 308,431
Reference points based on estimated MSY values		
Female spawning biomass at *MSY* (SB_{MSY} mt)	292,432	182,607 - 402,256
SPR_{MSY}	0.27	0.14 - 0.40
Exploitation fraction corresponding to SPR_{MSY}	0.41	0.20 - 0.63
MSY (mt)	279,071	211,315 - 346,827

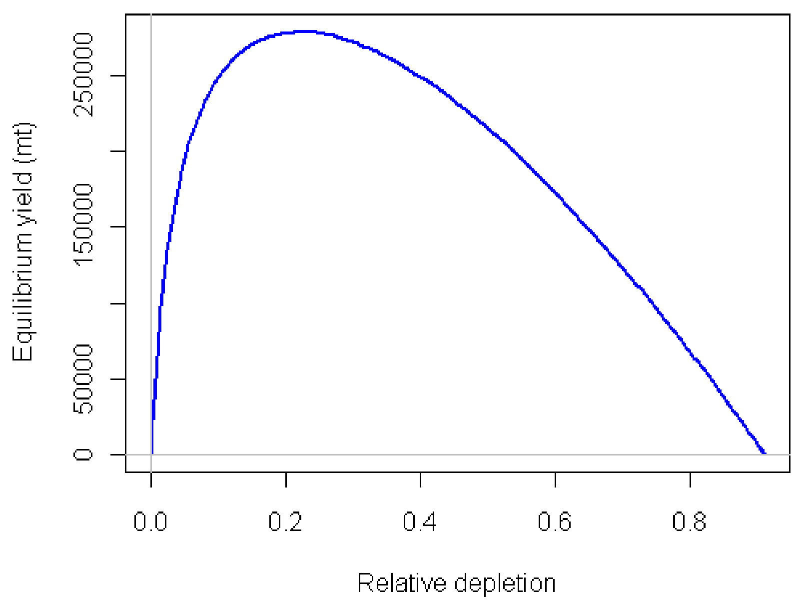

Figure h. Equilibrium yield curve for the base case model. Note that values will differ from table h above where iteration was performed to ensure that the U.S.-Canadian catch allocation was maintained.

1. Introduction

Prior to 1997, separate Canadian and U.S. assessments were submitted to each nation's assessment review process. This practice resulted in differing yield options being forwarded to each country's managers for this shared trans-boundary fish stock. Multiple interpretations of Pacific hake status made it difficult to coordinate an overall management policy. Since 1997 the Stock Assessment and Review (STAR) process for the Pacific Fishery Management Council (PFMC) has evaluated assessment models and the PFMC council process, including NOAA Fisheries, has generated management advice that has been largely utilized by both nations. The Joint US-Canada treaty on Pacific Hake was formally ratified in 2006 (signed in 2007) by the United States as part of the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act, and has been considered in force (according to Canada) since June 25, 2008. However, as of this writing the treaty has not been fully implemented. Under this treaty, Pacific hake (a.k.a. Pacific whiting) stock assessments are to be prepared by the Hake Technical Working Group comprised of U.S. and Canadian scientists and reviewed by a Scientific Review Group (SRG), with memberships as appointed by both parties to the agreement. In the interim, analysts from both nations have continued to work in collaboration, but using largely independent modeling approaches. The current (2010) U.S. assessment retains the structure and features of the 2009 assessment, but is updated to include new data available from the 2009 fishery and acoustic survey. A number of issues raised during and since the 2009 assessment, as well as several new data sources are also evaluated via sensitivity analyses to the base model. A more extensive exploration of the assessment model and data is anticipated as part of the 2011 assessment, once a full re-analysis of the acoustic survey data has been conducted.

1.1 Stock structure and life history

Pacific hake (*Merluccius productus*), also referred to as Pacific whiting, is a semi-pelagic schooling species distributed along the west coast of North America generally ranging from 25^0 N. to 55^0 N. latitude. It is among 13 species of hake from the genus, *Merluccius* (being the majority of the family *Merluccidae)*, which are distributed worldwide in both hemispheres of the Atlantic and Pacific oceans and collectively have constituted nearly two million mt of catch annually (Alheit and Pitcher 1995). The coastal stock of Pacific hake is currently the most abundant groundfish population in the California Current system. Smaller populations of this species occur in the major inlets of the North Pacific Ocean, including the Strait of Georgia, Puget Sound, and the Gulf of California. Historical electrophoretic studies indicate that Strait of Georgia and the Puget Sound populations are genetically distinct from the coastal population (Utter 1971). Genetic differences have also been found between the coastal population and hake off the west coast of Baja California (Vrooman and Paloma 1977). The coastal stock is also distinguished from the inshore populations by larger body size and seasonal migratory behavior.

The coastal stock of Pacific hake typically ranges from the waters off southern California to Queen Charlotte Sound. Distributions of eggs, larvae, and infrequent observations of spawning aggregations indicate that Pacific hake spawning occurs off south-central California during January-March. Due to the difficulty of locating major offshore spawning concentrations, details of spawning behavior of hake remains poorly understood (Saunders and McFarlane 1997). In spring, adult Pacific hake migrate onshore and to the north to feed along the continental shelf and slope from northern California to Vancouver Island. In summer, Pacific hake form extensive midwater aggregations in association with the continental shelf break, with highest densities located over bottom depths of 200-300 m (Dorn 1991, 1992). Pacific hake feed on euphausiids, pandalid shrimp, and pelagic schooling fish (such as eulachon and Pacific herring) (Livingston and Bailey 1985). Larger Pacific hake become increasingly piscivorous, and Pacific herring are commonly a large component of hake diet off Vancouver Island. Although Pacific hake are cannibalistic, the geographic separation of juveniles and adults usually prevents cannibalism from being an important factor in their population dynamics (Buckley and Livingston 1997).

Older (age 5+), larger, and predominantly female hake exhibit the greatest northern migration each season. During El Niño events, a larger proportion of the stock migrates into Canadian waters, apparently due to intensified northward transport during the period of active migration (Dorn 1995, Agostini et al. 2006). El Niño conditions also result in range extensions to the north, as evidenced by reports of hake off of southeast Alaska during these warm water years. Throughout the warm period experienced in 1990s, there were changes in typical patterns of hake distribution. Spawning activity was recorded north of California. Frequent reports of unusual numbers of juveniles off of Oregon to British Columbia suggest that juvenile settlement patterns also shifted northwards in the late 1990s (Benson et al. 2002, Phillips et al. 2007). Because of this shift, juveniles may have been subjected to increased cannibalistic predation and fishing mortality. Subsequently, La Nina conditions in 2001 resulted in a southward shift in the stock’s distribution, with a much smaller proportion of the population found in Canadian waters in the 2001 survey. Hake were distributed across the entire range of the survey in 2003, 2005, 2007 (Figure 1) after displaying a very southerly distribution in 2001. Although a few adult hake (primarily from the 1999 cohort) were observed north of the Queen Charlotte Islands in 2009 (Figure 2) most of the stock appears to have been distributed off Oregon and Washington.

1.2 Ecosystem considerations

Pacific hake are an important contributor to ecosystem dynamics in the Eastern Pacific due to their relatively large total biomass and predatory behavior. The role of hake predation in the regulation of other groundfish species is likely to be important (Harvey et al. 2008), although difficult to measure. Hake migrate farther north during the summer during relatively warm water years and their local ecosystem role therefore differs year-to-year depending on environmental conditions. Recent research indicates that hake distributions may be growing more responsive to temperature, and that spawning and juvenile hake may be occurring farther north (Phillips et al. 2007; Ressler et al. 2007). Given long-term climate-change projections and changing distributional patterns, considerable uncertainty exists in any forward projections of stationary stock productivity and dynamics.

Hake are also important prey items for many piscivorous species including lingcod (*Ophiodon elongatus*) and jumbo flying squid (also known as Humboldt squid, *Dosidicus gigas*). In recent years, the lingcod stock has rebuilt rapidly from an overfished level and jumbo flying squid have substantially extended their range northward from more tropical waters to the west coast of North America. Recent observations of jumbo flying squid from hake fishermen as well as recreational fishermen, and scientists in the U.S. and Canada reflect a very large increase in squid abundance as far north as southeast Alaska (e.g., Gilly et al., 2006; Field et al., 2007) during the same portions of the year that hake are present. Although the relative biomass of these squid and the cause of this range extension are not completely known, squid predation on pacific hake is likely to have increased substantially. There is evidence from the Chilean hake (a similar gadid species) fishery that squid may have a large and adverse impact on abundance, due to direct predation of individuals of all sizes (Alarcón-Muñoz et al., 2008). Squid predation as well as secondary effects on schooling behavior and distribution of Pacific hake may become important to this assessment in the future, however it is unlikely that the current data sources will be able to detect squid related changes in population dynamics (such as an increase in natural mortality) until well after they have occurred, if at all. There is considerable ongoing research to document relative abundance, diet composition and habitat utilization of jumbo flying squid in the California current ecosystem (e.g., J. Field, SWFSC, and J. Stewart, Hopkins Marine Station, personal communication, 2010; Gilly et al., 2006; Field et al., 2007) which should be considered in future assessments.

1.3 Fisheries

The fishery for the coastal population of Pacific hake occurs along the coasts of northern California, Oregon, Washington, and British Columbia primarily during April-November. The fishery is conducted almost exclusively with midwater trawls. Most fishing activity occurs over bottom depths of 100-500 m, while offshore extensions of fishing activity have occurred in recent years to prevent bycatch of depleted rockfish and salmon. The history of the coastal hake fishery is characterized by rapid changes brought about by the development of substantial foreign fisheries in 1966, joint-venture fisheries by the early 1980's, and domestic fisheries in 1990's (Table 1).

Large-scale harvesting of Pacific hake in the U.S. zone began in 1966 when factory trawlers from the Soviet Union began targeting Pacific hake. During the mid 1970's, factory trawlers from Poland, Federal Republic of Germany, the German Democratic Republic and Bulgaria also participated in the fishery. During 1966-1979, the catch in U.S. waters is estimated to have averaged 137,000 t per year (Table 1, Figure 3). A joint-venture fishery was initiated in 1978 between two U.S. trawlers and Soviet factory trawlers acting as mother ships (the practice where the catch from several boats is brought back to the larger, slower ship for processing and storage until the return to land). By 1982, the joint-venture catch surpassed the foreign catch, and by 1989, the U.S. fleet capacity had grown to a level sufficient to harvest the entire quota, and no foreign fishing was allowed, although joint-venture fisheries continued for another two years. In the late 1980's, joint ventures involved fishing companies from Poland, Japan, former Soviet Union, Republic of Korea and the People’s Republic of China.

Historically, the foreign and joint-venture fisheries produced fillets as well as headed and gutted products. In 1989, Japanese mother ships began producing surimi from Pacific hake using a newly developed process to inhibit myxozoan-induced proteolysis. In 1990, domestic catcher-processors and mother ships entered the Pacific hake fishery in the U.S. zone. Previously, these vessels had engaged primarily in Alaskan walleye pollock (*Theragra chalcogramma*) fisheries. The development of surimi production techniques for pollock was expanded to include Pacific hake as a viable alternative. Similarly, shore-based processors of Pacific hake had been constrained by a limited domestic market for Pacific hake fillets and headed and gutted products. The construction of surimi plants in Newport and Astoria, Oregon, led to a rapid expansion of shore-based landings in the U.S. fishery in the early 1990's. In 1991, the joint-venture fishery for Pacific hake in the U.S. zone ended because of the increased level of participation by domestic catcher-processors and mother ships, and the growth of shore-based processing capacity. In contrast, Canada allocates a portion of the Pacific hake catch to joint-venture operations once shore-side capacity is filled.

The sectors involved in the Pacific hake fishery in Canada exhibit a similar historical pattern, although phasing out of the foreign and joint-venture fisheries has proceeded more slowly relative to the U.S. (Table 1). Since 1968, more Pacific hake have been landed than any other species in the groundfish fishery on Canada's west coast. Prior to 1977, the fishing vessels from the former Soviet Union caught the majority of Pacific hake in the Canadian zone, with Poland and Japan accounting for much smaller landings. After declaration of the 200-mile extended fishing zone in 1977, the Canadian fishery was divided among shore-based, joint-venture, and foreign fisheries. In 1992, the foreign fishery ended, but the demand of Canadian shore-based processors remained below the available yield, thus the joint-venture fishery continues today, although no joint-venture fishery took place in 2002, 2003, or 2009. The majority of the shore-based landings of the coastal hake stock is processed into surimi, fillets, or mince by processing plants at Ucluelet, Port Alberni, and Delta, British Columbia. Although significant aggregations of hake are found as far north as Queen Charlotte Sound, in most years the fishery has been concentrated below 49° N. latitude off the south coast of Vancouver Island, where there are sufficient quantities of fish in proximity to processing plants.

1.4 Management of Pacific hake

Since implementation of the Magnuson-Stevens Fishery Conservation and Management Act in the U.S. and the declaration of a 200-mile fishery conservation zone in Canada in the late 1970's, annual harvest quotas have been the primary management tool used to limit the catch of Pacific hake. Scientists from both countries have historically collaborated through the Technical Subcommittee of the Canada-U.S. Groundfish Committee (TSC), and there have been informal agreements on the adoption of annual fishing policies. During the 1990s, however, disagreements between the U.S. and Canada on the allotment of the acceptable biological catch (ABC) between U.S. and Canadian fisheries led to quota overruns; 1991-1992 quotas summed to 128% of the ABC, while the 1993-1999 combined quotas were 107% of the ABC on average. In the current Pacific hake agreement, the United States is allocated 73.88% of the total coast-wide harvest and Canada 26.12%.

In the last decade, the optimal yields (OYs, harvest targets) for Pacific hake have been set well below the Allowable Biological Catches (ABCs, harvest limits) and the total coastwide catch has tracked the harvest targets reasonably closely (Table 2). In 2002, after Pacific hake was declared overfished by the U.S., the catch of 183 thousand metric tons exceeded the OY; however it was still below the ABC of 208 thousand mt. In 2004, after Pacific hake was declared rebuilt, and when the large 1999 cohort was at near-peak biomass, the catch fell well short of the OY of 501 thousand mt. This OY was based on the 40:10 harvest control rule (the "40:10 HCR"; this rule consists of applying an $F_{40\%}$ policy and decreasing the catch linearly when the stock drops below 40% of unfished equilibrium spawning output such that catch would be equal to zero at a relative spawning depletion of 10%) and was very close to the ABC of 514 thousand mt; larger than the largest catch ever realized. Constraints imposed by bycatch of canary and widow rockfishes limited the commercial U.S. OY to 259 thousand mt. U.S. catch has not substantially exceeded the harvest guideline for the U.S. zone in any recent year, indicating that in-season management procedures have been effective.

1.4.1 United States

In the U.S. zone, participants in the directed fishery are required to use pelagic trawls with a codend mesh that is at least 7.5 cm (3 inches). Regulations also restrict the area and season of fishing to reduce the bycatch of Chinook salmon and several depleted rockfish stocks. More recently, yields in the U.S. zone have been restricted to levels below optimum yields due to bycatch of overfished rockfish species, primarily widow and canary rockfishes, in the Pacific hake fishery. At-sea processing and night fishing (midnight to one hour after official sunrise) are prohibited south of 42° N. latitude. Fishing is prohibited in the Klamath and Columbia River Conservation zones, and a trip limit of 10,000 pounds is established for Pacific hake caught inside the 100-fathom contour in the Eureka INPFC area. During 1992-1995, the U.S. fishery opened on April 15; however in 1996 the opening date was changed to May 15. Shore-based fishing is allowed after April 1 south of 42° N. latitude, but is limited to 5% of the shore-based allocation being taken prior to the opening of the main shore-based fishery. The main shore-based fishery opens on June 15. Prior to 1997, at-sea processing was prohibited by regulation when 60 percent of the harvest guideline was reached. The current allocation agreement, effective since 1997, divides the U.S. non-tribal harvest guideline among factory trawlers (34%), vessels delivering to at-sea processors (24%), and vessels delivering to shore-based processing plants (42%). Since 1996, the Makah Indian Tribe has conducted a separate fishery with a specified allocation in it’s "usual and accustomed fishing area”, and for the first time in 2009 there was a separate Quileute tribal allocation.

1.4.2 Industry actions

Shortly after the 1997 allocation agreement was approved by the PFMC, fishing companies owning factory trawlers with west coast groundfish permits established the Pacific Whiting Conservation Cooperative (PWCC). The primary role of the PWCC is to allocate the factory trawler quota among its members. Anticipated benefits of the PWCC include more efficient allocation of resources by fishing companies, improvements in processing efficiency and product quality, and a reduction in waste and bycatch rates relative to the former “derby” fishery in which all vessels competed for a fleet-wide quota. The PWCC also initiated recruitment research to support hake stock assessment. As part of this effort, PWCC sponsored a juvenile recruit survey in the summers of 1998 and 2001, which since 2002 has become an ongoing collaboration with NMFS. In 2009, the PWCC contracted a review of the 2009 stock assessment which is discussed in further detail below.

1.5 Overview of Recent Fisheries

1.5.1 United States

In 2005 and 2006, the coast-wide ABCs were 531,124 and 661,680 mt respectively. The OYs for these years were set at 364,197 and 364,842 and were nearly fully utilized. For the 2007 fishing season the PFMC adopted a 612,068 mt ABC and a coast-wide OY of 328,358 mt. This coast-wide OY continued to be set considerably below the ABC in order to avoid exceeding bycatch limits for overfished rockfish. In 2008, the PFMC adopted an ABC of 400,000 mt and a coast-wide OY of 364,842 mt, based upon the 2008 stock assessment. This ABC was set below the overfishing level indicated by the stock assessment, and therefore the difference between the ABC and OY was substantially less than in prior years. However, the same bycatch constraints caused a mid-season closure in the U.S. in both 2007 and 2008 and resulted in final landings being below the OY in both years.

Based on the 2009 whiting assessment, the Pacific council adopted a U.S.-Canada coast-wide ABC of 253,582 mt, and a U.S. ABC of 187,346 mt. The council adopted a U.S.-Canada coast-wide OY of 184,000 mt and a U.S. OY of 135,939 mt, reflecting the agreed-upon 73.88% of the OY apportioned to U.S. fisheries and 26.12% to Canadian fisheries. Within the U.S. fishery, the 135,939 mt OY was divided among the target whiting sectors after accounting for tribal and research/bycatch set-asides. The original Makah tribal allocation was 42,000 mt, and the Quileute tribal allocation was 8,000 mt. However, the Makah Tribal Representatives indicated their intent to harvest only 23,789 mt, and proposed that the remaining 18,211 mt of their allocation to be divided among the rest of the U.S. Fishery. The Quinault and Hoh tribes did not request an allocation in 2009. In 2009, 4,000 mt was set aside for research catch along with bycatch in non-hake fisheries. Among U.S. sectors, at-sea catcher/processors received 34 percent (34,051 mt), motherships received 24 percent (24,034 mt), and the shore-based fishery received 42 percent (42,063 mt) of the target (non-tribal) whiting sector share. On December 7, 2009, 1,325 mt were re-apportioned from the shore-based sector (now with an allocation of 40,738 mt) to the catcher/processor sector (35,376 mt).

Bycatch limits were assigned to each sector of the fishery for the first time in 2009. For the combined non-tribal Pacific whiting sectors in 2008 were as follows: 250 mt of widow rockfish catcher/processor: 85 mt; mothership: 60 mt; shorebased: 105 mt), 18 mt of canary rockfish (catcher/processor: 6.1 mt; mothership: 4.3 mt; shorebased: 7.6 mt), and 25 mt of darkblotched rockfish (catcher/processor: 8.5 mt; mothership: 6 mt; shorebased: 10.5 mt).

The official dates of fishing included a standard spring start with continued fishing opportunity through the end of 2009. By sector, seasons were: mothership sector, May 15 to June 1 (when the allocation was reached); catcher/processor sector, May 15 until the end of the year; Shore-based sector: June 15 to July 7 (when the allocation was expected to be reached) north of 42° N. latitude; April 1 to May 14 between 42°-40°30’ N. latitude; April 15 to May 41 south of 40°30’ N. latitude.

The shore-based sector caught 40,681 mt, or 99.8% of its remaining quota after in-season reallocations during the summer. The at-sea mothership sector caught 24,091 mt, or 100.2% of its remaining quota after in-season reallocations in a short season in late spring. The at-sea catcher/processor sector caught 34,620 mt, or 97.9% of its remaining quota after in-season reallocations with fishing beginning in the fall and continuing until mid-December. Tribal catches totaled 21,719 mt, or 68.3% of the quota allocated. In total, the 2009 U.S. fishery caught 121,110 mt, or 89.1% of the U.S. OY. Bycatch limits were not exceeded by any sector of the U.S. fishery.

1.5.2 Canada

DFO managers allow a 15% discrepancy between the quota and total catch. The quota may be exceeded by up to 15% in any given year, which is then deducted from the quota for the subsequent year. Conversely, if less than the quota is taken, up to 15% can be carried over into the next year. For instance, an apparent overage in 1998 was due to carry-over from 1997 when 9% of the quota was not taken; this policy has not resulted in catch exceeding the coast-wide OY in the past 6 years (Table 2).

Canadian Pacific hake catches were fully utilized in the 2005 fishing season with 85,284 mt and 15,178 mt taken by the domestic and joint venture fisheries, respectively. In 2006, the joint-venture and domestic fisheries harvested 13,700 mt and 80,000 mt, respectively. During the 2007 fishing season, Canadian fisheries harvested 85% of the 85,373 mt national allocation. In 2008, Canadian fisheries harvested 78% of the 95,297 mt national allocation with joint-venture and domestic sectors catching 3,590 mt and 70,160 mt, respectively. During the 2009 season, no catches were made under joint-venture agreement. The Canadian domestic fishery harvested 55,620 mt in 2009, or 115.7% of the Canadian OY.

2. Available data sources

Data from the primary fishery dependent and independent sources fit directly in the stock assessment model include:

- Total catch from the U.S. and Canadian fisheries (1966-2009).
- Length compositions from the U.S. fishery (1975-2009) and Canadian fishery (1988-2009).
- Age compositions from the U.S. fishery (1973-1974) and Canadian fishery (1977-1987). These are the traditional age compositional data generated by applying fishery length compositions to an age-length key. Use of this approached was necessary to fill in gaps for those years in which biological samples could not be re-acquired from standard procedures.
- Conditional age-at-length compositions from the U.S. fishery (1975-2009) and Canadian fishery (1988-2009).
- Biomass indices, length compositions and conditional age-at-length composition data from the Joint US-Canadian integrated acoustic and trawl survey (1977, 1980, 1983, 1986, 1989, 1992, 1995, 1998, 2001, 2003, 2005, 2007, and 2009). The 1986 acoustic survey biomass estimate, length and age data are retained in the current model (as in 2009), however these data have been the topic of considerable discussion due to calibration issues (the 1986 data were removed from the model by the 2004 STAR panel and re-included by the 2008 STAR panel).

Some sources were not included in the final base model, but were explored and included in sensitivity runs:

- NWFSC/SWFSC/PWCC coast-wide juvenile hake and rockfish survey (2001-2009). These data remain contradictory to the fishery and acoustic survey composition data and are therefore again effectively tuned out of the model.

- Bycatch of Pacific hake in the trawl fishery for pink shrimp off the coast of Oregon, 2004-2005, 2007-2008. This time-series was too short to add appreciable information to the stock assessment, but anecdotal reports have indicated the presence of hake in the shrimp fishery, and since these are primarily juvenile hake there is the potential that this source of data could be used as an index of abundance.
- Length data collected in Santa Barbara for the years 1963-1970 (Jow, 1973). These data were included in the 2009 assessment, but were found to contribute no appreciable information to the stock assessment.

Some sources were not included, but had been explored during the course of the 2008 assessment, including:

- CalCOFI larval hake production index, 1951-2006. The data source was previously explored and rejected as a potential index of hake spawning stock biomass, and has not been revisited since the 2008 stock assessment.

The assessment model also used biological relationships derived from external analysis of auxiliary data; these were unchanged from the 2009 assessment and include:

- Proportion of individual female hake mature by size.
- Natural mortality rate (ages 2-13).
- Allometric growth relationship of mean weight at size.
- Growth parameters including the length of age-2 fish and the CVs of length at age for the youngest and oldest fish.
- Aging error matrices based on cross-read otoliths (unchanged from the 2009 assessment).

2.1 Fishery-dependent data

2.1.1 Total catch

The catch of Pacific hake for 1966-2009 by nation and fishery is shown in Table 1. Catches in U.S. waters for 1966-1980 are from Bailey et al. (1982). Prior to 1977, the at-sea catch was reported by foreign nationals without independent verification by observers. Bailey et al. (1982) suggest that the catch from 1968 to 1976 may have been under-reported because the apparent catch per vessel-day for the foreign fleet increased after observers were placed on foreign vessels in the late 1970's. An alternate model run to evaluate the sensitivity to this assumption was produced for the 2008 assessment. For 1981-2008, the shore-based landings are from Pacific Fishery Information Network (PacFIN). Foreign and joint-venture catches for 1981-1990 and domestic at-sea catches for 1991-2009 are estimated from the AFSC’s and, subsequently, the NWFSC's at-sea hake observer programs.

At-sea discards are included in the foreign, joint-venture, at-sea domestic landings estimates in the U.S. zone. Discards have been recently estimated for the shore-based non-whiting fishery but are nominal relative to the total fishery catch. The majority of vessels in the U.S. shore-based fishery have operated under experimental fishing permits that required them to retain all catch and bycatch for sampling by plant observers. Canadian joint-venture catches are monitored by at-sea observers, which are placed on all processing vessels. Observers use volume/density methods to estimate total catch. Domestic Canadian landings are recorded by dockside monitors using total catch weights provided by processing plants. Catch data from Canadian fisheries have been provided by Chris Grandin (DFO, Pacific Biological Station, Nanaimo, B.C.).

2.1.2 Fishery biological data

Biological information from the U.S. at-sea commercial Pacific hake fishery was extracted from the NORPAC database. This yielded length, weight and age information from the foreign and joint venture fisheries from 1975-1990, and from the domestic at sea fishery from 1991-2009. Specifically these data included sex-specific length and age data which observers collect by selecting fish randomly from each haul for biological data collection and otolith extraction. Biological samples from the U.S. shore-based fishery were collected by port samplers where there are substantial landings of Pacific hake: primarily Newport, Astoria, Crescent City, and Westport, from 1991-2009. Port samplers routinely take one sample per offload (or trip) consisting of 100 randomly selected fish for individual length and weight and 20 randomly selected fish for otolith extraction. The sampling unit for the shore-based fishery is the trip, while the haul is used for the at-sea fishery. Since detailed haul-level information is not recorded on trip landings documentation in the shore-based fishery, and hauls sampled in the at-sea fishery can not be aggregated to a comparable trip level, there is no least common denominator for aggregating at-sea and shore-based fishery samples. As a result, samples sizes are simply summed over hauls and trips for U.S. fishery length- and age-compositions, and each fishery is weighted according to the proportion of its catch. Detailed sampling information including the numbers of hauls sampled, lengths collected, and otoliths aged in the foreign, joint-venture and domestic at-sea and shore-based fisheries are presented in Table 3.

Length data from the early United States fishery (4,550 lengths) was recorded at Santa Barbara between 1963 and 1970 (Jow, 1973) were included as seasonal length compositions in the 2009 stock assessment. As there was no information on the number of trips or hauls sampled, initial input sample sizes were set at one-tenth the number of length samples in each year and season. These data were removed from the 2010 assessment as they contributed no appreciable information to the model and the selectivity parameters performed poorly during MCMC integration (Hamel and Stewart, 2009).

The Canadian shore-based fishery is subject to 10% observer coverage. On observed trips, otoliths (for ageing) and lengths are sampled from Pacific hake caught in the first haul of the trip, with length samples taken on subsequent hauls. Sampled weight from which biological information is collected must be inferred from year-specific length-weight relationships. For unobserved trips, port samplers obtain biological data from the landed catch. Observed domestic haul-level information is then aggregated to the trip level to be consistent with the unobserved trips that are sampled in ports. Canadian domestic fishery biological samples are available from 1996-2009.

For the Canadian at-sea joint-venture fishery, an observer aboard the factory ship records the codend weight for each codend transferred from a companion catcher boat. Length samples are collected every second day of fishing operations, and otoliths are collected once a week. Length and age samples are taken randomly from a given codend. Since the weight of the sample from which biological information is taken is not recorded, sample weight must be inferred from a weight-length relationship applied to all lengths taken and summed over haul. Length and age information is available from the joint-venture fishery from 1988-2009. As in the case with the U.S. at-sea fishery, the basic sampling unit in the Canadian joint-venture fishery is the haul. Detailed sampling information for the Canadian fisheries is presented in Table 4.

Length and age data were analyzed based on the sampling protocols used to collect them, and expanded to estimate the corresponding statistic from entire landed catch by fishery and year when sampling occurred. In general, the analytical steps can be summarized as follows:

1) Count lengths (or ages) in each size (or age) bin for each haul in the at-sea fishery and for each trip in the shore-based fishery, generating “raw” frequency data.
2) Expand the raw frequencies from the haul or trip level to account for the catch weight and weight sampled in each trip.
3) Expand the summed frequencies by fishery sector to account for the total landings.
4) Calculate sample sizes (number of samples) and normalize to proportions that sum to unity within each year.

To complete step (2), it was necessary to derive a multiplicative expansion factor for the observed raw length frequencies of the sample. This expansion factor was calculated for each sample corresponding to the ratio of the total catch weight in a haul or trip divided by the total sampled weight from which biological samples were taken within the haul or trip. In cases where there was not an estimated sample weight (more common in the Canadian domestic shore-based trips), a predicted weight of the sample was computed by applying a year-specific length-weight relationship to each length in the sample, then summing these weights. Anomalies that could emerge when very small numbers of fish lengths are collected from very large landings were avoided by constraining expansion factors to not exceed the 95^{th} percentile of all expansion factors calculated for each year and fishery. The expanded lengths (N at each length times the expansion factor for the sample) were then summed within each fishery sector, and then weighted a second time by the relative proportion of catches by fishery within each year and nation. Finally, the year-specific length frequencies were summed over fishery sector and normalized so that the sum of all lengths in a single year and nation was equal to unity. The total sample size (# samples) from all sectors by year is used as the multinomial sample size input to the stock assessment model.

In recent U.S. fisheries, between 9% and 19% of all shore-based landings has been sampled, compared to between 41% and 95% of the at-sea catch (Table 5). In both sectors, the fraction sampled has generally increased over time. The percentage of sampled harvest has been more variable in the Canadian fisheries over the same time period (Table 6). All recent age data have been included in the model as conditional age-at-length compositions. As in the 2009 assessment, 18 (out of more than 2,600) individual conditional age-at-length compositions were not used due to unrealistic age-at-size compositions (Pearson residuals > 50). These generally represented small samples sizes and purported very old but small or very young but large hake. Sample sizes for conditional age-at-length compositions for the U.S. and Canadian fisheries are given in Tables 7 and 8, respectively.

U.S. fishery length and implied age compositions representing fish caught in both the at-sea and shore-based fisheries are shown in Figures 4-5 and Figure 6-7, respectively. Implied age compositions are the proportions at age arrived at after collapsing the conditional age at length compositions over the length margin (appropriately weighted). There are differences between the length compositions of the at-sea and shore-based domestic fisheries, suggesting that, in the future, an attempt should be made to model them separately. In general, the composite U.S. fishery length and age compositions confirm the well known pattern of year-class strengths, including the extra-dominant 1980, dominant 1977, 1984 and 1999, and secondary 1970, 1973, 1987 and 1990 year classes moving through the size structure (Figure 6-7). The most recent length and age compositional data from the 2008-2009 U.S. fishery and the 2009 acoustic survey also indicate the presence of a relatively strong 2005 year class. Apparent also in 2009 is the emergence of another pronounced cohort at age 3 (the 2006 year class) and the continued presence of a small number of fish from the 1999 year-class, now age 10 (Figures 6-7). Conditional age-at-length compositions suggest that the sizes of hake caught in the U.S. fishery have changed over time, possibly due to growth, selectivity or both. This is particularly evident with the appearance of larger fish before 1990 and a shift to smaller fish between 1995 and 2000. These features are explored in the population dynamics model.

As with the U.S. fleet sectors, differences in length compositions between the Canadian joint-venture and domestic fleets among some of the years warrant future exploration of fitting the fisheries separately. The composite Canadian fishery length compositions (Figures 8 and 9) and age compositions (Figures 10 and 11) indicate that the Canadian fleets exploit larger and older hake. A particularly interesting feature of these length compositions is that the Canadian fleet prosecuted a seemingly fast growing 1994 year class of hake in 1995 (age 1), 1996 (age 2) and subsequent years. It is unclear whether this is due to size- vs. age-based selectivity; however, it is well known that larger (and older) hake migrate further northward annually (Dorn, 1995). The 2001 and 2002 Canadian length compositions appear to be anomalies. In recent years the 1999 year class has dominated the catch of the Canadian fleets, strong and increasing presence of the 2005 year class in the Canadian fisheries in 2008 and 2009. As in the U.S. fishery, Canadian age and length compositions show some temporal pattern in the range of fish exploited by the fishery.

U.S. and Canadian fishery length and conditional age-at-length compositions constitute the bulk of compositional data in this assessment and provide information on recruitment strength, growth and growth variability. As such, the model is actually fitting the conditional age-at-length compositions, but fits are shown to the "implied" age compositions (fits are simply collapsed in the margin of proportions at age) for convenience. Since age-composition data available for pre-2006 hake assessments extended further back in time than the currently documented conditional age-at-length data, the older age data are retained in the assessment model in their original form to augment information on recruitment earlier in the time series (U.S. fishery = 1973-1974, Canadian fishery = 1977-1987). Status of the raw data for these compositional observations remains to be determined, and they should be fully re-analyzed or discarded pending future evaluation.

2.1.3 Bycatch in the pink shrimp fishery

Historical fishery dependent data sources available for the Pacific hake assessment provide little information on the strength of incoming year classes due to changes in targeting behavior that depend on cohort strengths and geographic availability, and the avoidance of juvenile hake (ages 0-1 and in many years also including age 2) due to market factors. However, juvenile hake are frequently encountered by the trawl fishery for pink shrimp, which operates primarily in the waters off Oregon (NWFSC, 2009; Hannah and Jones, 2009). This fleet carries observers employed by the West Coast Groundfish Observer Program (WCGOP). As part of this assessment, the estimated bycatch of juvenile hake in the pink shrimp fishery were examined in order to determine whether they might provide an alternate index of recent year-class strength prior to clear signal in the fishery.

The sampling protocols for the WCGOP are documented in the WCGOP observer training manual: (www.nwfsc.noaa.gov/research/divisions/fram/observer/observermanual/observermanual.cfm), and the fleet coverage plan: (www.nwfsc.noaa.gov/research/divisions/fram/observer/observersamplingplan.pdf). The WCGOP observed this fishery during 2004, 2005, 2007, and 2008, 2009 (however the data are not yet available for the entire 2009 calendar year); the fleet was not observed in 2006. The WCGOP only observes vessels with Oregon state pink shrimp licenses and California state northern pink shrimp trawl vessel licenses. Washington pink shrimp trawlers are not observed by the WCGOP, as the state has not yet issued a ruling allowing federal observer coverage of its state managed fisheries. However, Oregon licensed pink shrimp vessels can and do fish in waters off Washington. State-issued pink shrimp trawl licenses are selected for observation using stratified random sampling without replacement. Vessels with pink shrimp permits were assigned to a port group based upon the location of their landings in the previous year. Within each port group, permits are then randomly selected for coverage. California shrimp vessels were selected for a two-month period. Oregon pink shrimp vessels were selected for a one-month period due to the high number of vessels and trips. The pink shrimp trawl fleet is one of WCGOP's lower priorities for observer coverage, as their incidental take of groundfish species is much lower than other observed fisheries. As such, only 4.6-10.1% of pink shrimp fishery landings are observed annually (Table 9).

Prior to 2009, WCGOP observers did not collect individual length measurements for Pacific hake encountered in the pink shrimp fishery. In order to determine whether larger hake may be occasionally included with juvenile hake in the bycatch of this fishery we examined the distribution of mean individual weights for all shrimp hauls sampled during 2004-April 2009 (Figure 12). The presence of a small number of fish larger than one-third to one-half of a pound suggest that not all larger hake are removed by all types of excluder devices utilized in this fishery. Without length-frequency information for each haul, it is therefore impossible to delineate between juvenile hake and adults in the historical data (although this will be possible in the future, since lengths are now being collected). This delineation could not be approximated with the 2009 hake lengths collected, due to the small number (198) and the lack of any hake greater than age-1 (Figure 13). The length frequency distribution for two additonal species with similar body morphologies to Pacific hake (lingcod and sablefish) are included, the aggregate does reflect the presence of infrequent individual fish greater than about 20 cm and as large as 64 cm (Figue 14).

In order to attempt to derive information on juvenile hake from the pink shrimp fishery, we compiled several products: the total estimated discards of hake by year (expanded to the entire fleet level), the observed discards (expanded only within observed trips), discard rates per trip and per unit shrimp catch as well as estimated discards only for trips with less than a 0.5 lb average individual body weight. All of these methods for summarizing bycatch produced very similar relative time-series, with no obvious differences between rates or absolute estimates; further, the exclusion of hauls discarding hake greater than 0.5 lbs also had little effect on estimated discards, indicating this was a relatively infrequent events and/or such hauls did not comprise the majority of shrimp tows (Figure 15).

The summary index produced from this analysis reflects only trips with average individual weight less than 0.5 lbs (Table 10, Figure 16). The magnitude of the observation for 2007 is relatively large, however confidence intervals represent bootstrapped variance only in the sampling process itself. There are several factors that are likely more important to the proportionality of this index with juvenile hake abundance than the sampling variance. The most important of these factors are the geographic distribution of the hake fishery and ongoing modifications by fishermen (specifcally to avoid hake and other finfish) to fishing behavior, the excluders and the net panels used in this fishery. Specifically, age-1 hake comprising the bulk of the shrimp bycatch hake seem to be present over a broad geographic region from southern/central California as far north as the Canadian border in some years. The observer data comes only from the Oregon shrimp fleet, and that fleet accesses a very specific habitat (both depth and bottom substrate) conducive to high catch rates of pink shrimp, and will often move in response to increased finfish bycatch. The presence of large quantities of finfish (often hake) in shrimp catches slows the sorting process and is generally undesirable (R. Hannah, ODFW, personal communication). Fishermen have responded to increased cathes of hake by adding panels to the nets and changing the spacing, type and configuration of excluder devices, particularly in 2008 when observed discard was low (Hannah and Jones, 2009). All these factors may result in an inabilty to create a proportional index of juvenile hake from the shrimp fishery. In the future, when and if the gear and behavior in the shrimp fishery becomes stable and consistent sampling for length has been performed for several years the proportionality of this index may improve, although the spatial issues may remain. For the present assessment we evaluate the index reported above as a sensitivity analysis to the base case model.

2.2 Fishery independent data

2.2.1 Acoustic survey

The joint U.S. and Canadian integrated acoustic and trawl survey has been the primary fishery independent tool used to assess the distribution, abundance and biology of coastal Pacific hake, *Merluccius productus*, along the west coasts of the United States and Canada (Fleischer et al. 2005). From 1977-1992, surveys in U.S. waters were conducted every three years by the Alaska Fisheries Science Center (AFSC). The 1995, 1998, and 2001 coast-wide surveys were carried out jointly by AFSC and the Pacific Biological Station (PBS) of the Canadian Department of Fisheries and Oceans (DFO). Following 2001, the responsibility for the U.S. portion of the survey was transferred to the Fishery Resource Analysis and Monitoring (FRAM)

Division of NOAA's Northwest Fisheries Science Center (NWFSC). Following the transfer, the survey was scheduled on a biennial basis, with joint acoustic surveys conducted by FRAM and PBS in 2003, 2005, 2007 and 2009. The acoustic survey biomass estimates (age 2+) and confidence intervals for 1977-2009 are shown in Figure 17.

The distribution of Pacific hake can vary greatly between acoustic surveys. It appears that northward migration patterns are related to the strength of subsurface flow of the California Current (Agostini et al. 2006) and upwelling conditions (Benson et al. 2002). Distributions of hake backscatter plotted for each acoustic survey since 1995 illustrate the variable spatial patterns (Figure 1, Figure 2). The 1998 acoustic survey stands out and shows an extremely northward occurrence that is thought to be tied to the strong 1997-1998 El Nino. In contrast, the distribution of hake during the 2001 survey was very compressed into the lower latitudes off the coast of Oregon and Northern California. In 2003, 2005 and 2007 the distributions generally followed the "normal" coast-wide pattern. In 2009, the majority of the hake distribution was found in U.S. waters (Figure 2).

As with the fishery data, acoustic survey length and conditional age-at-length compositions were used to reconstruct the age structure of the hake observed by this survey. In general, biological samples taken by midwater trawls were post-stratified based on geographic proximity and similarity in size composition. Estimates of numbers (or biomass) of hake at length (or age) for individual cells were summed for each transect to derive a coast-wide estimate. Details of this procedure can be found in Fleischer et al. (2005). Each sample was given equal weight without regard to the total catch weight. The composite length frequency was used to characterize the hake size distribution along each transect and predict the expected backscattering cross section for Pacific hake based on the fish size-target strength (TS) relationship TS_{db} = 20logL-68 (Traynor 1996). Recent target strength work (Henderson and Horne 2007), based on in-situ and ex-situ measurements, suggests a regression intercept of 4-6 dB lower than that of Traynor. A lower intercept to the TS-to-length regression suggests that an individual hake reflects 2.5-4 times less acoustic energy, implying considerably more biomass than that of Traynor's equation. Both estimates of the TS-to-length regression use night time in-situ measurements. Hake may have different behavior characteristics at night than during the daytime when the acoustic survey is conducted. The biomass estimates continue to be based on Traynor's TS-to-length regression, which has been used historically to interpret the acoustic survey data. Additional *in situ* measurements on hake TS need to be collected *during daytime*, and the depth dependence of the hake TS needs to be investigated. The uncertainty in the TS regression is not accounted for in the survey biomass uncertainty estimates.

The 2009 survey was conducted aboard the NOAA vessel *Miller Freeman* and the DFO (Canadian) vessel *Ricker* from spanning the continental slope and shelf areas along the west coast from south of Monterey California to the Dixon Entrance area. A total of 123 line transects, generally oriented east-west and spaced at 10 or 20 nm intervals, were completed (Figure 2). During the 2009 acoustic survey, aggregations of coastal Pacific hake were detected nearly continuously from Southern Oregon through the middle of Vancouver Island, with very few hake observed in Canadian waters. Mid-water trawls are deployed throughout the survey to indentify the species composition of the backscatter as well as the size composition of Pacific hake and to collect biological information (i.e., age composition, sex). This sampling revealed the presence of four clear cohorts in the hake population: individuals of age 3, 4, 6, and 10 corresponding to the 2006, 2005, 2003 and 1999 year classes. The 2009 Pacific hake age-2+ biomass index was just over 1.46 million mt, the second highest since 1992. Humboldt squid were present in very large numbers and represented the second most common species in the acoustic survey trawl catch by weight (47% after hake at 50%). This led to difficulty in unambiguously assigning regions of backscatter to Pacific hake, and led the survey team to conclude that there was substantially more variance associated with the biomass estimate in 2009 than in previous recent years. Further, due to limited sea time, transects in Canadian waters were more sparse than recent surveys, and did not always follow the standard parallel design. Acoustic survey sampling information including the number of hauls, lengths taken, and hake aged are provided in Tables 11. Conditional age-at-length proportions (Table 12) are shown in Figure 18 and summarized into the marginal age distributions in Figures 19-20. Length-frequency distributions for the acoustic survey are shown in Figures 21-22.

For previous stock assessments, estimates of variability were calculated for the 2003, 2005 and 2007 surveys based on the Jolly-Hampton estimator (1989) with CVs on the order of 25%. This takes spatial variability of the acoustic backscatter into account but leaves other sources of observation error, including sampling variability (haul to haul variation in size/age) and target strength unaccounted for. Increased uncertainty in the index due to the prevalence of squid, their uncertain target strength, and uncertainty in the estimation of relative numbers of squid and hake in the backscatter indicate a larger SE is appropriate for the 2009 index. Expert opinion elicited from the acousticians lead to using twice the SE in log-space for 2009 as for earlier years. This happens to be the same SE in log-space (0.5) as is used for the years for which the survey did not extent all the way up the coast of British Columbia (Table 11), and therefore an estimated expansion factor is needed. The survey in 1992 has historically been assigned a SE of 0.25, since it did reach the northern end of Vancouver Island, however it did not survey to the Canada-Alaska border as have more recent surveys. Error bars shown around point estimates of biomass are not estimated but rather based on reliability of the survey in a given year and are used as input in SS (SE[log-space]=0.5 in 1977-1989, 0.25 in 1992-2007, 0.5 in 2009). The 1986 survey index is assigned a SE of 0.5, despite the fact that pre- and post-cruise acoustic calibration experiments resulted in different values and no correction for this has been made (the data point has been removed and returned to the model during previous STAR panels).

In the course of previous stock assessments there has been considerable discussion regarding the extent to which acoustic survey selectivity may be dome-shaped. Dome-shaped selectivity implies a greater proportion of older hake in the population than observed in the survey. Reasons for dome-shaped selectivity could be due to a number of factors, including net avoidance by older hake and differential distribution of older fish near the bottom or at deeper depths. This was investigated for the 2008 assessment by comparing the numbers at age in both the acoustic and bottom trawl surveys between 1977-2001, as data for these two surveys overlapped spatially and temporally. Hake catches (in number) from the triennial bottom trawl survey were summed at each age, and assumed to be representative of the underlying population age structure. These were then compared to the catch in numbers at age taken from hauls in the acoustic survey. Results indicate empirical support for dome-shaped acoustic survey selectivity (Figure 23). A comparison of the ratio of acoustic survey numbers at age to the sum of the acoustic and triennial bottom trawl survey numbers at age (normalized to have a peak of unity), indicate that only 2 out of the nine years had asymptotic-like selectivity patterns. The remaining nine years show curves that peak at about ages 5-7, decline between 0.2-0.9 at ages 11-13, and further decline between <0.1-0.7 at ages 14-15+. For ages 14-15+, the mean is about 0.5 (when normalized) for all years. The weight of evidence suggests dome-shaped selectivity, although the results are not definitive, as the shape of the selectivity curve for the triennial survey is not precisely known.

The acoustic survey catchability coefficient, *q*, has historically been quite uncertain. This parameter globally scales population biomass higher if *q* is lower and lower if *q* is higher, and thus uncertainty in *q* reflects the uncertainty in the absolute scale of the hake population. Early assessments that used the acoustic survey in age-structured assessments (Dorn et al. 1999) asserted *q*=1.0 and treated the parameter as a fixed quantity (In fact ABCs and OYs until 2003 were predicated upon that assumption). Helser et al. (2004) conducted a likelihood profile over the value of *q* as well as estimated it freely in the model, and found values of *q* in the range of 0.38 to 0.6, depending on model structure. In general, the best fit to the data is achieved when *q* is estimated to be low; however, allowing *q* for an acoustic survey to be substantially lower than 1.0 (whether through estimation or specification) has been met with some resistance. The 2004-2007 assessments presented two models with differing *q*'s in order to bracket the range of uncertainty in the acoustic survey catchability coefficient. In 2008, an attempt was made to integrate out the uncertainty in *q* while incorporating uncertainty in the shape of the acoustic survey selectivity curve. In both the 2009 assessment and the current assessment, *q* is freely estimated.

2.2.2 Bottom trawl surveys

The Alaska Fisheries Science Center conducted a triennial bottom trawl survey along the west coast of North America from 1977 to 2001 (Wilkins et al. 1998). This survey was repeated for a final time by the Northwest Fisheries Science Center in 2004. In 1999, the Northwest Fisheries Science Center began to take responsibility for bottom trawl surveys off of the West Coast, and, in 2003, the Northwest Fisheries Science Center survey was extended shoreward to a depth of 30 fathoms to match the shallow limit of the triennial survey (Keller et al., 2008). Despite similar seasonal timing of the two surveys, the 2003 and subsequent annual surveys differ from the triennial survey in size/horsepower of the chartered fishing vessels and bottom trawl gear used. As such, the two were determined (at a workshop on the matter in 2006) to be separate surveys which cannot be combined into one. In addition, the presence of significant densities of hake both offshore and to the north of the area covered by the trawl survey, coupled with the questionable effectiveness of bottom trawls in catching mid-water schooling hake, limits the usefulness of this survey to assess the hake population. For these reasons, the neither the triennial nor the Northwest Fisheries Science Center shelf trawl survey are used in this assessment. However, age-composition data from the triennial survey are used, in conjunction with age-composition data from the acoustic survey, to evaluate the selectivity pattern associated with the acoustic survey external to the assessment model. Results of this analysis are described above.

2.2.3 Pre-recruit survey

NOAA’s Southwest Fisheries Science Center (SWFSC) has conducted an annual survey since 1983 to estimate the relative abundance of pelagic juvenile rockfish off central California coast (36.50°–38.33° N.). The survey was designed to measure the annual relative abundance of pelagic juvenile rockfishes (*Sebastes* spp.), but also captures YOY Pacific hake (Sakuma et al. 2006). Standardized 15 minute midwater trawls were conducted at a series of standard stations, using a headrope depth of 30 m and a 9.5 mm mesh liner. The survey was expanded substantially in 2004 to cover a much larger spatial area (i.e., from San Diego to Point Delgada: 32.75°–40.00° N.). Since 1999, the NWFSC and Pacific Whiting Conservation Cooperative (PWCC), in coordination with the SWFSC Rockfish survey have conducted an expanded survey to improve targeting of juvenile hake and rockfish. The SWFSC/NWFSC/PWCC pre-recruit survey uses a midwater trawl with an 86' headrope and ½" codend with a 1/4" liner to obtain samples of juvenile hake and rockfish (identical to that used in the SWFSC Juvenile Rockfish Survey). Trawling was done at night with the head rope at 30 m at a speed of 2.7 kt. Some trawls were made before dusk to compare day/night differences in catch. Trawl tows of 15 minutes duration at target depth were conducted along transects at 30 nm intervals along the coast. Stations were located along each transect, at bottom depths of 50, 100, 200, 300, and 500 m. Since 2001, side-by-side comparisons were made between the vessels used for the survey.

In 2008 a Delta-GLM was applied to catch data from the SWFSC/NWFSC/PWCC midwater trawl data. The Delta-GLM approach is a type of mixture distribution analysis which models zero and non-zero information from catch data separately (Pennington 1983, Stefansson 1996). The delta-GLM accounted for year, depth, and latitude × survey. However, during tuning of the model, the resultant time series was essentially tuned out of the assessment model. A simpler ANOVA was used in the 2009 assessment (Ralston, 2007). The ANOVA-based standardization accounts for a year × latitude interaction, depth, vessel (or survey), and period effects. The survey effect in both models accounts for potential differences between the NWFSC-PWCC survey and SWFSC survey catch data while the latitudinal effect attempts to capture changes in relative abundance of young-of-year hake. In particular, between 2001 and 2004, peak relative abundance shifted from approximately 38 to 42 degrees latitude.

Trends in the coast-wide index and associated 95% intervals are shown in Figure 24 and Table 14. The survey shows a large value in 2004 compared to the surrounding years, followed by very low values in 2005 through 2008. This is in stark contrast to the fishery and survey data which suggest a strong 2005 year class and a weak 2004 year class. This mismatch has led to the variance for this survey being inflated until it contributed nothing to previous assessments. The observed 2009 pre-recruit index is again very low, however it will take a relatively long time series, before correlation with recruitments implied by fishery and acoustic survey data can improve even if recent years track future estimates closely. Given the brevity of the coast-wide pre-recruit time series, and the lack of a very large (e.g., 1999, 1984, 1980, 1977) recruitment event, it is difficult to judge the future utility of this survey. A sensitivity analysis to the inclusion of this index is reported as was done for the 2009 assessment.

2.3 Externally analyzed data

2.3.1 Maturity

The fraction mature by size was estimated with a logistic regression (for the 2006 assessment) using data from Dorn and Saunders (1997). These data consisted of 782 individual ovary collections based on visual maturity determinations by observers (Figure 25). The highest variability in the percentage of each length bin that was mature within an age group occurred at ages 3 and 4, with virtually all age-one fish immature and age 4+ hake mature. Within ages 3 and 4, the proportion of mature hake increased with larger sizes such that only 25% were mature at 31 cm while 100% were mature at 41 cm. Maturity in hake probably varies both as a function of length and age, however, in this assessment, the relationship is modeled as a function of length. Less then 10% of the fish smaller than 32 cm are predicted to be mature, while 100% maturity is predicted by 45 cm.

2.3.2 Natural mortality

The natural mortality rate used in recent Pacific hake stock assessments is a fixed value of 0.23 per year to age 13, with estimated increases in M at age 14 and 15+. The value of 0.23 was obtained by tracking the decline in abundance of a year class from one acoustic survey to the next (Dorn et. al 1994). Pacific hake longevity data, natural mortality rates reported for Merluciids in general, and previously published estimates for Pacific hake natural mortality indicate that natural morality rates in the range 0.20-0.30 could be considered plausible for Pacific hake (Dorn 1996). In the 2008 assessment, we also considered Hoenig's (1983) method for estimating natural mortality (M), assuming a maximum age of 22 (attributing a single observation at age 25 to ageing error or anomaly), The relationship between maximum age and M was recalculated using data available in Hoenig (1982) and assuming a log-log relationship (Hoenig, 1983), while forcing the exponent on maximum age to be -1. The recalculation was done so that uncertainty about the relationship could be evaluated, and the exponent was forced to be -1 because theoretically, given any proportional survival, the age at which that proportion is reached is inversely related to M (when free, the exponent is estimated to be -1.03). The median value of M via this method was 0.193. Two measures of uncertainty about the regression at the point estimate were calculated. The standard error, which one would use assuming that all error about the regression is due to observation error (and no bias occurred) and the standard deviation, which one would use assuming that the variation about the regression line was entirely due to actual variation in the relationship (and no bias occurred). The truth is undoubtedly somewhere in between these two extremes (the issue of bias not withstanding). The value of the standard error in log space was 0.094, translating to a standard error in normal space of about 0.02. The value of the standard deviation in log space was 0.571, translating to a standard deviation in normal space of about 0.1. Thus Hoenig's method suggests that a prior distribution for M with mean of 0.193 and standard deviation between 0.02 and 0.1 would be appropriate if it were possible to accurately estimate M from the data, all other parameters and priors were correctly specified, and all correlation structure was accounted for (note that SS does not currently allow for priors in log-normal space). The fixed value of M has been evaluated annually in this assessment via a likelihood profile.

2.3.3 Aging error

With the transfer of Pacific hake ageing to the NWFSC in 2001, an effort was made to evaluate age reader agreement and calibrate readers at the Cooperative Aging Project (CAP, Newport, Oregon) and Department of Fisheries and Oceans (DFO). A total of 991 ages from otoliths collected over the years 2001-2007 were compared between the Cooperative Aging Project and DFO or read more than once by one of the labs. As expected, agreement was greater for younger fish than for older fish. This exchange was used to estimate the ageing imprecision matrix applied in the 2008 assessment. AFSC ageing prior to 2001 relied on similar protocols, but roughly 20% of the otoliths that were difficult to read were ‘reconciled’, or read by multiple readers and discussed before final age determination was assigned. Because no comparisons between AFSC and more recent ageing, nor duplicate reconciled ages from the AFSC were available in 2008, the level of ageing imprecision for that lab was assigned 50% of the imprecision estimated for CAP and the topic flagged for further investigation.

Subsequent to the 2008 assessment, 1,773 age estimates were compared between the CAP and AFSC for otoliths collected throughout the time-series but prior to 2001. These estimates allowed estimation of the degree of ageing imprecision for the AFSC reconciled ages. Ageing imprecision was quantified for use in the stock assessment model according to the maximum likelihood method of Punt et al. (2008), as was done in the 2008 assessment. This method estimates bias and precision of the observed age from the "true" age, assuming an unbiased sample in the observed data. There were insufficient samples to estimate bias; however, precision was estimated and quantified as the standard deviation of observed age from true age. Values of imprecision at age estimated directly were found to be of similar magnitude to those from the CAP, and substantially larger then the 50% values used in the 2008 assessment. Figure 26 shows the relationship for individual age reads by AFSC, based on the sample of historically aged otoliths re-read by CAP.

With this much larger available data set, the 2009 assessment included an additional process influencing the ageing of hake: cohort-specific ageing error related to the relative strength of a year-class. This process reflects a tendency for uncertain age determinations to be assigned to predominant year classes. The result is a tendency towards reduced mis-ageing of strong year classes, and perhaps increased mis-ageing of neighbor year-classes. To account for this process in the model, we simply created year-specific ageing-error matrices (or vectors of standard deviations), where the standard deviations of strong year classes were reduced by a constant proportion. In the 2009 assessment, this proportion was determined empirically by comparing double read error rates for strong year classes with rates for other year classes (Figure 27). The result suggested that strong year classes only had 55% of the read-to-read disagreement in ageing as other year classes (Figure 28). In each year, that proportion (0.55) was applied for the strong year classes (for ages 3-15) as a multiplicative factor to the base ageing error vectors of standard deviations. For relatively strong but not dominant year classes, a proportion of 0.80 was applied.

This approach has not been revised in the 2010 assessment; however we provide sensitivity analyses to the assumptions. In particular, on sensitivity assume no cohort effect on aging error, and another uses varying multiplicative factors with original standard deviation to more exactly match the observed or assumed average change in disagreement (0.55 or 0.8).

2.3.4 Size at age

There is considerable variability in observed length-at-age among the historical acoustic surveys. The processes governing variation in observed length-at-age may include changes in size-selectivity over time, effects on the population due to size-selective fishing, and variation in growth rates over time. In order to explore this latter effect, alternative growth models were fit during the 2006 assessment to the length-at-age data collected in the acoustic surveys through 2005 (assuming size-selectivity in the acoustic surveys has been constant over time). The first of these models was a simple time-varying growth model, where the growth coefficient (*K*) was allowed to vary over time. This assumed that all extant cohorts are subject to the same time varying changes in metabolic rates (presumably associated with changes in available food). Two other growth models assumed that growth is density-dependent within cohort. In the second model, asymptotic size (and thus overall growth rate) was cohort specific. In the third model, *K* was cohort specific. Of the three alternative growth models, the model with cohort-specific L_∞ (asymptotic size) values explained more of the variation in the length-age data than the time varying *K* model and cohort *K* model (Figure 29). In particular, cohort-based L_∞ begins relatively high (> 55 cm) prior to 1980 and then appears to decline rapidly as the very large 1980 and 1984 year class grow. Expected size at age, based on the cohort based L_∞ parameter, is above the expected size for the other models in the 1977, 1980, and 1983 survey data. Likewise, cohort based *K* declines rapidly between the mid 1970s and mid 1980s. These cohort-based models did not assume any cumulative affects of size-selective fisheries.

A similar exploratory growth analysis was conducted on other sources of age data including the acoustic survey (1977-2007), AFSC triennial bottom trawl survey (1977-2003), and the U.S. at sea hake fishery (1973-2006). In particular, a hierarchical von Bertalanffy growth model was fit separately to each data source, which treated cohort as a random linear effect with the growth coefficients, L_∞ and *K*. The scale parameter (t_0) was estimated as the mean fixed effect. Markov Chain Monte Carlo simulation in WinBUGs (Bayesian inference Using Gibbs Sampling, Thomas et al. 1992; Spiegelhalter et al. 1999) was used to estimate the marginal posterior density of the cohort specific L_∞ and *K* parameters, which were plotted sequentially by cohort (Figure 23). The results illustrate striking consistency in the change in L_∞ and *K* parameters over time (by cohort) from each data source and confirm the observations described above. In the 2009 assessment we implemented time varying *K* and asymptotic size, but allow each to assume only two or three distinct values across the timeframe of the model to match the observed changes. In order to stabilize modeling of growth, size at age 2 is constant throughout.

A final analysis was conducted, using the same hierarchical model, to investigate differences in sex-specific growth of hake. A plot of the bivariate posterior density of 1,000 MCMC samples of L_∞ and *k* reveal that female hake grow to a significantly larger asymptotic size (L_∞) but at a slower rate (*k*) than males (Figure 31). While the present base model does not model hake by sex, it is expected that the next assessment (in 2011) will be based upon a separate-sex model that will be able to account for differential fishery selectivity by sex. To properly represent the cumulative effects of size-selective fisheries in this approach, the cohort-based growth model should be integrated into the assessment model itself. This would provide a fruitful area of research for improving SS. Since this feature is not currently implemented in SS, blocks were created aggregating various years in which it was anticipated the cohort affects on growth would be manifested (See *Model Selection and Evaluation* below).

The treatment of growth parameters has not been revised for the current assessment from the approach used in 2009.

3. Stock assessment

3.1 Modeling history

Age-structured assessment models of various forms have been used to assess Pacific hake since the early 1980s, using total fishery landings, fishery length and age compositions, and abundance indices. Modeling approaches have evolved as new analytical techniques have been developed. Initially, a cohort analysis tuned to fishery CPUE was used (Francis et al. 1982). Later, the cohort analysis was tuned to NMFS triennial acoustic survey estimates of absolute abundance at age (Francis and Hollowed 1985, Hollowed et al. 1988a). In 1989, the hake population was modeled using a statistical catch-at-age model (Stock Synthesis) that utilized fishery catch-at-age data and survey estimates of population biomass and age-composition data (Dorn and Methot, 1991). The model was then converted to AD Model Builder (ADMB) in 1999 by Dorn et al. (1999), using the same basic population dynamics equations. This allowed the assessment to take advantage of ADMB's post-convergence routines to calculate standard errors (or likelihood profiles) for any quantity of interest. Beginning in 2001, Helser et al. (2001, 2003, and 2004) used the same ADMB model to assess the hake stock and examine important assessment modifications and assumptions, including the time varying nature of the acoustic survey selectivity and catchability. The acoustic survey catchability coefficient (q) has been, and continues to be, one of the major sources of uncertainty in the model. Due to the lengthened acoustic survey biomass trends, the assessment model in 2004 was able to freely estimate the acoustic survey q. These estimates were substantially below the assumed value of q=1.0 from earlier assessments. The 2004 and 2005 assessments presented uncertainty in the final model result as a range of biomass. The lower end of the biomass range was based upon the conventional assumption that the acoustic survey q was equal to 1.0, while the higher end of the range represented a q=0.6 assumption.

In 2006, the coastal hake stock was modeled using the Stock Synthesis modeling framework (SS2 Version 1.21, December, 2006) written by Dr. Richard Methot (Northwest Fisheries Science Center) in AD Model Builder. Conversion of the previous hake model into SS2 was guided by three principles: 1) incorporate less *derived* data, favoring the inclusion of unprocessed data where possible, 2) explicitly model the underlying hake growth dynamics, and 3) pursue parsimony in model complexity. "Incorporating less *derived* data" entailed fitting observed data in their most elemental form. For instance, no pre-processing to convert length data to age compositional data was performed. Also, incorporating conditional age-at-length data for each fishery and survey, allowed explicit estimation of expected growth, dispersion about that expectation, and its temporal variability, all conditioned on selectivity. In 2006 and 2007, as in 2004 and 2005, assessments presented two models (which were assumed equally likely) in an attempt to bracket the range of uncertainty in the acoustic survey catchability coefficient, q. The lower end of the biomass range was again based upon the conventional assumption that the acoustic survey q was equal to 1.0, while the higher end of the range allowed estimation of q with a fairly tight prior about q = 1.0 (effective q = 0.6 - 0.7). In the 2008 assessment, also conducted in SS2 (Version 2.00n), an effort was made to include the uncertainty in q, as well as additional uncertainty regarding the acoustic survey selectivity and the natural mortality rate (M) of older fish (ages 14 and 15+) within a single model. As a result, a broader range of uncertainty is presented via probability distributions and risk profiles using Markov Chain Monte Carlo simulation. Further refinements included, for the first time, incorporation of age-reading error matrices.

In the 2009 model, conducted in SS v3.02b (Methot, 2009), we built upon the 2008 model, adding new data and refining the modeling of ageing imprecision. New data in the 2009 assessment included: Historical length data from Santa Barbara, California (1963-1970); 2008 catches from the U.S. and Canada; 2008 length and conditional age-at-length compositions from the U.S.; and the 2008 juvenile index. The 2009 assessment model incorporated further uncertainty in the degree of recruitment variability (σ_R) as well as more flexible time-varying fishery selectivity. Additionally, the 2009 assessment incorporated further refinements to the ageing-error matrices, including both updated data and cohort-specific reductions in ageing error to reflect "lumping" effects due to strong year classes. The 2009 model continued to integrate uncertainty in acoustic survey q and selectivity and in M for older fish.

In the current (2010) model, conducted in SS v3.1 (Methot, 2009), we have used the same basic data sources and model structure as in the 2009 assessment.

3.2 Industry-contracted review of the 2009 assessment

A review of the 2009 Pacific hake stock assessment was conducted in 2009 by Quantitative Resource Assessment LLC (Dr. Mark Maunder, 2009). The review was thorough and suggested a number of improvements to the model, most of which are feasible, but some of which are not. In particular, Dr. Maunder suggested two main changes to the assessment: 1) Explicit modeling of sex structure (i.e. treating males and females separately in the model and the data), and 2) Splitting the data into more fisheries, in part to improve the modeling of selectivity and changes in selectivity over time. Of additional concern was the treatment of the acoustic survey data for years when geographic coverage was incomplete as well as the assumption that trawl sampling (the biological data) and acoustic backscatter (the acoustic index) necessarily arise from the same selectivity process. Dr. Maunder emphasized that due to actual differences in growth between the sexes, most of the other suggested improvements would be far less helpful without a split-sex model.

We agree that a split-sex model would be an important improvement to the current model and are working towards that end. However, there was insufficient time to re-analyze the acoustic (and fishery) data as sex-specific inputs before the 2010 assessment. This along with other re-analysis of the historical acoustic survey time-series will be done for the 2011 assessment. In the meantime, we conducted, among our sensitivity analyses, four sensitivities specifically suggested by Dr. Maunder after an informal meeting (November 2009):

1) A sex-structured model with sex-specific growth but fitting to sex aggregated data.
2) A run where the acoustic survey is modeled as fully selecting all individuals age two and above but the composition data from the acoustic survey is treated as a separate survey with domed-shaped selectivity.
3) A run with both the selectivity and catchability of the acoustic survey allowed to differ between the early (1977-1992) and late (1995-2009) survey periods.
4) A run where the model starts in 1995.

3.3 Response to 2009 STAR Panel recommendations

1. *The Panel recommends the investigation of how the biological sampling in the acoustic survey occurs to determine whether these data are representative of the backscatter in the survey.*

Response: Midwater or bottom trawls are made during survey operations in order to classify the observed acoustic quantity and to gather the length and age data needed to scale the acoustic data into units of biomass. The locations of these trawl deployments are not systematic, but rather opportunistic, depending on the local acoustic observations, recent and anticipated trawl effort, and other logistical constraints (time available for trawling, time required to process the catch, weather and sea conditions, etc.). Due primarily to logistic and time constraints, not all scattering aggregations can be sampled. Typically, one to three trawl sets are made per day during the survey. While the biological sampling is not completely random, the trawls tend to occur at points of the most density, and the trawls are thus representative of about 99% of the hake observed by the acoustic survey. A larger issue may be the differences between the selectivity of the acoustics and the trawls. This issue is explored in a sensitivity analysis.

2. *The panel recommends and investigation of how the biological samples are processed and applied to the acoustic estimates, including the post-stratification of length samples.*

Response:

<u>*Trawl information*</u>: During the trawl, trawl headrope depths are recorded with a conductivity-temperature-depth (CTD) instrument. The time allowed at the target depth will be determined by the scientist and logged, aiming to collect enough hake samples (~ 300 or more) and/or other species for the purpose of mixed catch analysis and acoustic signature verification.

<u>*Biological information from trawl sampling*</u>: Pacific hake were subsampled (roughly 350) to determine length composition by sex. When fewer than roughly 300 to 400 Pacific hake were caught, they were sampled completely from a trawl catch. About 50 samples from the 350 samples are also measured for length, sex, sexual maturity, individual weight, and age determined with collected otoliths. Further subsampling (~10 out of these 50 specimens) is performed to collect stomachs for hake diet analysis.

<u>*Stratification*</u>*:* Since hake distribution is highly patchy and non-homogenous, to obtain a more robust estimate of echo intensity distribution and reduce the variability from trawl to trawl, we need to conduct a *stratification* process: grouping the trawls with a similar statistical distribution signature to form different *strata*, sometimes called composite catch samples. Each acoustic region defined and explained in Sec. 3.1 will be assigned to a particular *stratum*, or composite catch sample, based on the geographic proximity of the hauls and the acoustic signatures (intensity distribution – patchiness and frequency response).

To cluster the hauls into strata, we use a two-sample Kolmogorov-Smirnov (KS-2) statistic (Campbell, 1974). The KS-2 is a *Cumulative Distribution Function* (CDF) based statistical analysis of the length distributions of each trawl pair, which compares the probability density functions of two sample distributions and computes their maximum difference (Fig. 3). The asymptotic significance level becomes very accurate for large sample sizes, and is believed to be reasonably accurate for sample sizes n_1 and n_2 such that

$$\frac{n_1 n_2}{n_1 + n_2} \geq 4 \text{ or } \min(n_1, n_2) \geq 8 .$$

3. *The panel recommends that the raw data in the acoustic survey, including the length samples, be appropriately assembled to allow statistical analysis of these data as well as appropriate stratification*.

Response: This work is ongoing and will be available for the 2011 assessment.

4. *The Panel recommends that a Management Strategy Evaluation approach be used to evaluate whether the current 40-10 harvest control rule is sufficient to produce the management advice necessary to ensure the sustainable use of the Pacific hake stock with its dramatically episodic recruitment. The 40-10 rule assumes that simply reducing catches in a linear fashion as stock biomass declines will be sufficient to guide the fishery back towards the target spawning biomass level. However, with the fishery being dependent upon a single declining cohort just reducing the catch may achieve the status quo but it rebuilding will not occur without new recruitment.*

Although the STAT agrees with this recommendation, due to changes in assessment duties and the ongoing incomplete treaty agreement this extensive analysis will be best addressed by a joint U.S.-Canadian STAT under the treaty terms of reference.

4.1 *Related to Recommendation 4, the operating model developed for the Management Strategy Evaluation should evaluate how well the different assessment models recapture true population dynamics. At issue is whether a simpler model such as ADAPT / VPA performs better or worse than a more complex model such as SS2.*

As above.

5. *Future assessment models should explore gender- and length-based selection processes, in recognition that the gender differ in growth and that many of the more influential dynamic processes that operate in the fishery and length-based but are currently considered from and age-based perspective (for example selectivity).*

This goal was beyond the scope of available resources for the 2010 assessment.

6. When the raw acoustic survey data become available there should be a re-evaluation of the treatment of pre-1995 acoustic survey data and index values. For example, the biomass index implied by the area covered by the pre-1995 surveys should be compared with the total biomass *from the full area covered by the post-1995 surveys. The difference between these two indices has implications for the magnitude of the survey catchability coefficient prior to 1995.*

Acquisition of historical survey data and re-analysis of these data with regard to sampling design and variance estimates, the target strength relationship, and selection of trawl sets is ongoing and much new information is expected to be available for the 2011 assessment. Specifically, the following efforts are ongoing by the Acoustics Team at NWFSC:

1. In situ hake daytime target strength (TS) data collection using Drop Acoustic Information SYstem (DAISY). Preliminary analysis indicated that the in situ hake daytime TS data followed the regression formula (38 kHz) originally suggested by Traynor (1992) better than that suggested by Henderson and Horne (2007). However, we feel that more work is needed to make a definitive conclusion on what is the most appropriate regression formula to use for hake biomass estimate.
2. With the help from colleagues at the AFSC, we have historical acoustic data in digital form and are capable of applying the TS formula we have been used for the recent hake surveys (Traynor, 1992) to the data that used old TS formula (-35 dB per kilogram). Although we are not able to provide the re-processed historical hake biomass estimates for this years STAR panel, we should be able to provide alternative historical hake biomass estimates for the 2010 assessment.
3. It is also expected that by next year we should be able to provide the variance analysis for hake biomass estimates using Objective Mapping technique (Kriging) for both historical and recent hake acoustic data.

7. *There should be further exploration of geographical variations in fish densities and relationships with average age and the different fisheries, possibly by including spatial-structure into future assessment models.*

This goal was beyond the scope of available resources for the 2010 assessment.

8. *There should be exploration of possible environmental effects on recruitment and the acoustic survey.*

This goal was beyond the scope of available resources for the 2010 assessment.

3.4 2010 Model description

This assessment retains the same basic structure and treatment of the data as was applied in 2009. The assessment used the Stock Synthesis modeling framework written by Dr. Richard Methot at the NWFSC. The Stock Synthesis application provides a general framework for modeling fish stocks that permits the complexity of population dynamics to vary in response to the quantity and quality of available data. In the current assessment model, the Pacific hake population is assumed to be a single coast-wide stock along the Pacific coast of the United States and Canada. Sexes are combined within all data sources, including fishery and survey size/age compositions, as well as in the model structure. The accumulator age for the internal dynamics of the population is set at 15 years, well beyond the expectation of asymptotic growth. The length structure is explicitly modeled in one cm increments between 9 cm (the minus group) and 70 cm (the plus group) in the population; however the data are aggregated at a minimum value of 20 cm. The modeled period includes the years 1960-2009 (last year of available data), with forecasts extending to 2011. The population was assumed to be in equilibrium with no fishing mortality prior to the first year of the model. There were no large-scale commercial fisheries for hake until the arrival of foreign fleets in the mid to late 1960s, however the exact level of hake removals prior to 1966 (the first catches included in the assessment) is unknown.

The model structure, including parameter specifications, bounds and prior distributions (where applicable) is summarized Table 15. The assessment model includes two national fisheries: the U.S. and Canadian trawl fisheries. Although the U.S. at-sea and shore-based fisheries, as well as the Canadian JV and domestic fisheries could be modeled separately for reasons mentioned above, there was insufficient time to explore this topic for the current assessment. Therefore, in this assessment (as has been done in all recent assessments) sectors within each nation's fleets were combined; estimated selectivity changes over time will therefore reflect changes in the distribution of catch among sectors as well as fishing behavior within sectors. The selectivity curves for the acoustic survey and the U.S. and Canadian fisheries were modeled as functions of age using the double normal function (option 20 in SS). This is a change from the 2008 model which used the double logistic formulation for the fisheries; the double normal parameterization has the same number of parameters and has been found to be more stable over a range of assessment applications for U.S. west coast groundfish. Selectivity curves for all fleets are allowed to be dome-shaped (as in previous assessments) and fishery selectivity curves were allowed to vary over time to account for temporal changes in fishery operations (distant water fleets, domestic fleets, etc.) as well as shifts in selectivity as the fishery focused exploitation on abundant cohorts.

Growth is modeled as a von Bertalanffy function in this assessment. Although model misspecification is present due to sexually dimorphic growth patterns (Figure 31), there was insufficient time to do the analysis necessary to develop the sex-specific data needed as input to a complete sex-specific model formulation for 2010. External analyses conducted as part of recent assessments (2006, 2007), as well as evaluation of model fits to conditional age-at-length data has shown strong evidence of changes in hake growth curves over time. The 2008 model allowed the size at age 12 and the von Bertalanffy *K* parameter to vary among two discrete time blocks. Specifying time-invariant growth has, and continues to result in, a decline of several hundred units in the negative log likelihood as well as marked degradation of the model residual pattern over all data sources. In this assessment, we extend the block structure used in 2008 to accommodate faster observed growth for the 1999 year class. Two blocks were used for the parameter defining length at age 12, 1960-1983 and 1984-2008, which allowed the model to account for the larger asymptotic fish size and the general prevalence of larger fish observed during the early period. Four blocks of years were used to partition the growth parameter k: a common k-value was estimated for the periods 1960-1979 and 1987-1998, with distinct k-values estimated for the periods 1980-1986 and 1999-2008. The 1980-1986 period was intended to allow the model to accommodate the slightly smaller body size of age 4-6 year old fish during those years (Figure 30). The blocks were constrained, via a relatively tight prior distribution on the temporal change in growth, so that estimated values would be time-invariant unless a strong signal was present in the data. Size at age 2 and the parameters describing the distribution of length at each age were fixed at values estimated directly from the data. These choices improved the stability of growth estimation while still allowing the model to accommodate major patterns in growth. A more rich characterization of growth will be possible only with a split-sex formulation. The temporal structure of hake growth in terms of the expected size at age is characterized as an early period from 1960 to the early 1980s where expected maximum size (i.e., length at age 12) is high relative to the subsequent period from the mid 1980s to 2008, with a decline in growth rates (i.e., smaller expected size at age for ages 4-6) during the early-to-mid 1980s. In the most recent block, 1999-2009, growth increases above baseline rates but the expected maximum size continues to be lower.

In modeling temporal changes in fishery selectivity, we employed the same approach used in recent assessments and developed a block structure consistent with the empirical data, but attempted to retain parsimony by allowing blocks only for those parameters and time periods where they made an appreciable improvement in model fit. Specifically, the U.S. fishery was allowed more flexibility, as it has been observed to target specific cohorts and have variable access to the oldest fish in the population, which frequently migrate the farthest north during the fishing season. For the U.S. fishery, both the peak and ascending width parameters were allowed to vary among 8 periods: 1960-1980, 1981-1984, 1985-1988, 1989-1992, 1993-1996, 1997-2000, 2001-2004, and 2005-2009. Final selectivity was allowed to vary among 2 periods: 1960-1983, and 1984-2009 (three periods were included in the 2009 assessment, but parameter performance during MCMC was poor and there was no effect on model results of removing the more recent block.). The Canadian fishery selectivity was slightly less flexible than the U.S. (as has been the case in recent assessments), given that targeting of large cohorts does not occur until the fish are several years older. The Canadian fishery ascending width parameter was allowed to vary among 5 periods: 1960-1984, 1985-1988, 1989-2000, 2001-2004 and 2005-2008. The Canadian fishery peak parameter was allowed to vary among 7 periods: 1966-1980, 1981-1984, 1985-1988, 1989-1992, 1993-2000, 2001-2004 and 2005-2008.

For the base model, the instantaneous rate of natural mortality (*M*) is assumed to be time-independent and equal to 0.23 y^{-1} for ages 2-13, and then allowed to increase linearly to a freely estimated value at age 15+. The stock-recruitment function was a Beverton-Holt parameterization, with the log of the mean unexploited recruitment freely estimated. This assessment used a beta prior for stock-recruit steepness (*h*) applied to previous assessments. This prior is based on the median (0.79), 20th (0.67) and 80th (0.87) percentiles from Myers et al. (1999) meta-analysis of the family Gadidae. Year-specific recruitment deviations were estimated from 1962-2008. This structure was based upon inspection of year-specific standard deviations relative to the estimated value of σ_R. The constraint and bias-correction standard deviation, σ_R, for recruitment variability is estimated in this assessment. Maturity and fecundity relationships are assumed to be time-invariant and fixed values remain unchanged from recent assessments (Figure 32).

Multinomial sample sizes for the length composition and conditional age-at-length data used in this assessment are based on the number of hauls or trips sampled for the commercial at-sea and shore-based fisheries, respectively, and the number of tows in the research surveys. Input sample sizes were iterated prior to the final 2009 assessment by examining the relationship between effective sample size estimated in the model and the observed input sample sizes. Ratios of effective to input sample size remained close to 1.0, indicating the final model was fitting the data about as well as the input values implied. It was decided during the course of the 2009 STAR review that, in light of poor residual patterns to the size data, additional iterative reweighting would not be performed. As has been the case for all recent assessments, the acoustic survey standard deviations for the survey index were not iterated, although the RMSE from the base case model was somewhat larger than the mean of the input standard deviations. The base case model employed equal emphasis factors (lambdas=1.0) for all likelihood components.

3.5 Modeling results

3.5.1 Bridge from 2009 results

This assessment transitioned to the newest version of Stock Synthesis (SS v.3.1) and therefore, a comparison was performed to evaluate differences in model results, if any, from the 2009 assessment attributable to changes in the software. The exact same model structure and data through 2008 produced no visible change in time-series of expected quantities, indicating all changes in the 2010 results were to be a function of newly included data (Figure 33). The 2010 model was then updated in a step-wise manner as new data were acquired (and the largely irrelevant historical California length data were removed). The final results are described fully below.

3.5.2 Model selection and evaluation

Acoustic survey catchability (q) has been viewed as the principal axis of uncertainty in the hake assessment for a number of years. This choice has reflected a lack of clear signal for catchability in the data sets available to hake and the situation where very small changes in model fit and likelihood result in very dramatic changes in management advice as a function of the estimate or assumed value for q. Likelihood profiles (see sensitivity analyses below) indicated more information on survey catchability and less sensitivity to the estimated value than in previous assessments.

Extensive evaluation of fishery selectivity time-period blocking structure was performed during the 2009 assessment. With simple time-period structures the model was found to be very sensitive to the choice of which parameters were allowed to vary over time and when the changes were allowed to occur. A general pattern emerged over hundreds of model runs that the sensitivity to these choices was reduced as more flexibility (in parameters and time-periods) was introduced. For this reason, the blocking structure in the 2009 model was somewhat more complex than in the last several assessment models (however it is more similar to the approach of smoothed annual variations in selectivity used in assessments prior to 2006). Sensitivity analyses to recent time-blocks for the 2010 model are reported below.

Arbitrary constraint on the degree of recruitment variability (σ_R) was found to be especially important to the scale of the problem for the 2009 assessment. For this reason the parameter was freely estimated. This allowed use of the value most consist with the model time series of estimated recruitments. This choice is stable in a maximum likelihood framework only when there is sufficient signal in the data to avoid the true global minima for the parameter, zero. In the case of hake this is not a relevant concern, as the data clearly indicate the largest variability in year-class strength observed for west coast groundfish, however the maximum likelihood estimate of the parameter may be biased due to the reliance on point estimates for individual recruitment deviations rather than integrals, as would normally be the case when estimating a hierarchical variance parameter. However, when Bayesian integration is performed, this parameter can be considered a standard hierarchical variance parameter, the integration of which incorporates substantial uncertainty present in the model estimates.

Sample sizes for all compositional data were iteratively reweighted to prior to the 2009 STAR panel. This approach represents an effort to make the combined process and observation error attributed to the data consistent with the model's ability to fit those data. During the 2009 review the conclusion was reached that reweighting should not be continued in light of residual patterns present in the data. For this reason, the final 2009 base case model was not reweighted beyond the initial values achieved prior to the panel, despite major changes in the model structure during the panel. We did not iteratively reweight the base case model for 2010, because we did not reanalyze the sources of process error due to changes in selectivity and/or growth over time, pending full reanalysis of the treatment of these factors for 2011. Input and effective sample sizes remained similar to the results from 2009 and are reported in Table 16. Sensitivity to the relative weighting of the compositional data is reported below. A topic of considerable importance for this assessment is the relative precision assigned to the 2009 acoustic survey index. The base case relies on the assumption of a SE (in log-space) of 0.5 for the 2009 index reflecting the greater uncertainty associated with the presence of large numbers of Humboldt squid making attribution of backscatter regions to hake very difficult as well as the reduced survey effort and change in survey design (many non-parallel transects) in Canadian waters. Sensitivity analyses using alternate values for the 2009 survey SE are reported below.

3.5.3 Assessment model results

Estimates of individual growth and natural mortality for fish above age 13 remain largely unchanged from the 2009 assessment (Figures 34, 35).

The fit of the modeled time series to the acoustic survey biomass index is shown in Figure 36. The assessment model fit to the acoustic survey biomass time series is quite reasonable, given the variability assigned to each point, but the 2009 index appears to be much higher than any predicted value observed in model evaluation. The RMSE was slightly larger than the mean input SD (Table 16). During all survey years, the predicted biomasses are within asymptotic 95% confidence intervals, and recent residuals show no strong pattern in sign.

Selectivity at age is estimated for the U.S. and Canadian fisheries by time block (Figures 37-38), and for the acoustic survey (Figure 39). The acoustic survey selectivity was estimated but constrained to be time invariant. This curve fully selects the cohort born in 1999, but not the 2005 and 2006 year-classes. The selectivity patterns for both the U.S. and Canadian fisheries appear reasonable, tracking the entry of dominant cohorts in the late 1980s and especially the 1999 year class. U.S. fishery selectivity increased for younger aged fish as the dominant 1980 and 1984 year classes became vulnerable to exploitation during the late 1980s and early 1990s. As these cohorts grew into the older age structure and persisted in the fishable stock U.S. fishery selectivity increased on the older ages, seen as an increase in the descending limb. Canadian fishery selectivity curves also show targeting of stronger cohorts through time, the most pronounced being the 1999 year class which entered the fishery at a time of low overall biomass.

Given the volume of conditional age-at-length data being fit in this assessment, it is efficient to evaluate these fits via the implied fit to the aggregated marginal age compositions. In addition to being easier to inspect by eye, these plots are more familiar for those accustomed to diagnosing model fit from a variety of modeling platforms. For this reason, we plot the implied marginal fits for each data source: the U.S. fishery (Figure 40), Canadian fishery (Figures 41) and acoustic survey (Figure 42). The very large dominant cohorts present in the data from all sources are tracked closely by model predictions throughout. Unscaled residuals (there is no consistent way to approximate sample sizes, and therefore the relative scale of the residuals, for the implied marginal fits) are presented in Figures 43-45.

Model fits to all length-composition data are shown via observed and predicted length frequency distributions, and Pearson residual plots. Figures are divided by fleet: the U.S. fishery (Figures 46-47), Canadian fishery (Figures 48-49) and acoustic survey (Figures 50-51). In general, model predictions are consistent with the observed length compositions in terms of hitting the modes of the distribution and range of sizes exploited.

As was the case in the 2009 assessment, consistent patterns are present in the residuals to the fit to size composition data in this assessment. These are may be due to two (or more) factors: selectivity specifications that assume a smooth selectivity function across age, when cohort targeting is known to occur; and misspecification of growth/sex-ratio as the assessment model is single-sex, but significant dimorphic growth is known to occur. It will be important to re-evaluate these patterns when the underlying data and the trade-offs between growth and selectivity are revisited in future assessments. The model also underestimated the proportion of the most frequent length classes from the 1999 year class in 2004-2007, perhaps due to its inability to model the growth process for that cohort independently from the surrounding cohorts.

The model fit the Canadian fishery length composition data very poorly in 2001-2002, (check years). These two anomalous observations have been the source of considerable discussion during past assessments and remain a mystery. The model was also not able to accommodate well the catches of smaller hake in 1995-1998. This suggests that hake spawned in Canadian waters in 1994 and were exploited by the Canadian fleet as young fish. Benson et al. (2002) confirm this pattern of spawning in Canadian waters. This pattern has not been observed in the Canadian fishery during any other period.

Predicted lengths for the acoustic survey were also generally on the modes with the observed size compositions. But in a number of years (1980, 1995, and 2005) the model was unable to effectively reproduce the observed bi-modal structure (Figure 50-51). The 1999 year class in 2007 is fully selected and thus the model fits the modal structure of the size composition well. In contrast, the 2005 year class, evident as 31 cm fish in the 2007 size compositions, is not fit particularly well as these fish are not fully selected to the survey, and the model appears to be splitting the difference in an attempt to fit both the 2003 and 2005 year classes.

Figures 52-57 show the base model output time trajectories of spawning biomass, total biomass, 3+ biomass, recruitment, numbers-at-age, relative depletion, relative spawning potential ratio (1-SPR/1-SPR40%). Summary Pacific hake biomass (age 3+) before the beginning of the model or fishing (< 1960) is estimated to be 2.9 million mt. The base model indicates that the Pacific hake female spawning biomass declined rapidly after a peak in 1984 (3.78 million mt) until 2000 (0.55 million mt). This long period of decline was followed by a brief increase to a peak of 1.31 million mt in 2003 as the large 1999 year class matured (Table 17, Figure 52). In

2010 (beginning of year), spawning biomass is estimated to be the lowest in the time-series, 0.41 million mt, however this estimate is quite uncertain, with asymptotic 95% confidence intervals ranging from 0.22 to 0.59 million mt. This level equates to approximately 31% of the estimated unfished spawning biomass (SB_0). Estimates of uncertainty in current relative depletion range from 17%-45% of unfished biomass. The estimate of spawning biomass for 2009 is 0.48 million mt, higher than the estimate of 0.43 million mt from the 2009 assessment, reflecting an upward revision in the estimated absolute scale of the hake stock, largely attributable to an increase in the estimate of the 2005 year class (Figure 33). Unexploited equilibrium biomass decreased slightly from 1.37 million metric tons in the 2009 assessment to 1.33 this year, with an approximate 95% confidence interval from 1.15 to 1.50. The recent peak of spawning biomass in 2003 generated by the 1999 year class is now estimated to have reached 99% of the unexploited equilibrium whereas the estimate from the 2009 assessment was 102% of that equilibrium level. The trend in spawning biomass is similar to that for summary biomass (Figure 53, Table 17). Approximate asymptotic intervals about the MLE for spawning biomass and recruitment for the entire times series are given in Table 18.

Estimates of historical Pacific hake recruitment indicate a very large year class in 1980 (Table 17, 19, Figure 54). Secondary large recruitment events occurred in 1977, 1984 and 1999, with 1970, 1973, 1987, 1990 and 2005 being substantially larger than adjacent years. The 1999 year class was estimated to be the largest in 15 years (11.77 billion, 95% interval: 10.98 - 12.61 billion) and to have supported fishery catches from 2002 through 2007. Uncertainty in estimated recruitments is substantial, especially for recent years, as indicated by the asymptotic 95% confidence intervals (Figure 54). Recruitment to age 0 before 1962 is assumed to be equal to the long-term mean recruitment. Age-0 recruitment in 2005 appears slightly higher than was estimated in the 2009 assessment but despite a wide range of uncertainty is not of the same scale as the largest historical recruitments and will not be sufficient to support the fishery for as long as the 1999 cohort. The 2006 year class is estimated to be the third largest since the 1999 cohort (1.34 billion), but still well below the unexploited equilibrium level of 1.95 billion. With an estimated steepness value of 0.88, a large degree of recruitment variability, and a stock that has never been below 30% of unfished spawning biomass there is little discernable relationship between the spawning stock and the subsequent recruitment (Figure 58). Recruitments subsequent to 2008 are drawn exclusively from the stock-recruit curve, with correspondingly high levels of uncertainty (Figure 59).

3.5.4 Model uncertainty

Uncertainty is reported via asymptotic intervals for the maximum likelihood estimates, sensitivity and retrospective analyses. Further quantification of uncertainty is provided via MCMC integration of the base case assessment model for use in the decision table of forecast projections under alternative management actions. These methods still provide an underestimate of the true uncertainty in stock size and reference points because they cannot accommodate uncertainty in structural choices or the relative weighting of data sets in addition to other known contributors to assessment uncertainty.

Also not explicitly included in the uncertainty reported for this assessment are the potential effects of model misspecification visible through relatively poor residual patterns to the size data. These patterns have persisted (and possibly grown worse) since the Stock Synthesis model was constructed for the 2006 assessment. They are likely caused to the lack of treatment of dimorphic growth feeding back through estimation of growth and selectivity parameters. These patterns indicate a distinct need for re-analysis of the underlying data, and revision of the model. It is impossible to predict how such changes will alter our perception of stock status, but the effects may be large. As such, the results of this assessment, pending the proposed changes for 2011 should be interpreted as an underestimation of the true uncertainty in current stock status and the reference points reported below.

3.5.5 Reference points

Because of temporal changes in growth, there are two types of reference points reported in this assessment: those based on the assumed population parameters at the beginning of the modeled time period and those based on the most recent time period in a 'forward projection' mode of calculation. This distinction is important since temporal variability in growth and other parameters can result in different reference point calculations across alternative chronological periods. All strictly biological reference points (e.g., unexploited spawning biomass) are calculated based on the unexploited conditions at the start of the model, whereas management quantities (*MSY*, SB_{msy}, etc.) are based on the current growth and maturity schedules and are marked throughout this document with an asterisk (*).

Unexploited equilibrium Pacific hake spawning biomass (SB_0) is estimated to be 1.33 million mt (~ 95% confidence interval: 1.15-1.50 million mt), with a mean expected recruitment of 1.95 billion age-0 hake (~ 95% confidence interval: 1.72-2.22). The *MSY*-proxy target biomass ($SB_{40\%}$) is estimated to be 0.53 million mt and the minimum biomass threshold ($SB_{25\%}$) is 0.33 million mt. *MSY* is estimated to be 279,071* mt, produced by a female spawning biomass of 292,432* mt, and reflecting the high value (0.88) estimated for steepness of the stock-recruit curve. The equilibrium *MSY*-proxy harvest rate ($F_{40\%}$) yield under the base model is estimated to be 262,957* mt, occurring at a spawning biomass of 453,986* mt. The equilibrium yield at the biomass target ($SB_{40\%}$) is estimated to be 247,589* mt, occurring at a spawning biomass of 530,545* mt given current life history parameters.

The full exploitation history is portrayed graphically in Figure 60, which shows for each year (1966-2009) the calculated relative spawning potential ratio (1-SPR/1-SPR40%) and spawning biomass level (B) relative to their corresponding targets, F40% and B40%, respectively. As indicated in Figure 60 (and Table 17), the spawning potential ratio for Pacific hake has been below the proxy target of 40% for the history of this fishery, but the ratio is uncertain and estimated to have been very close to 1.0 in 2008 (0.96%). Pacific hake are presently in the precautionary zone with regard to biomass level (31% of unfished spawning biomass in 2010) and below, at 80% of (in 2009), the target SPR rate. The full exploitation history in terms of both the biomass and F targets is portrayed graphically via a phase-plot.

3.5.6 Model projections

Forecasts are generated applying the 40:10 control rule and coast-wide catch allocation of 73.88% and 26.12% to the U.S. and Canada, respectively to maximum likelihood results (Table 20). Extremely wide confidence intervals for forecast quantities reflect uncertainty in recent and future year-class strengths as well as current biomass levels. Stock biomass is projected to decline under the current harvest control rule.

As in previous assessments, alternative management actions are presented in a decision table based on MCMC integration of the posterior distribution for model quantities. The MCMC chain was run for 10,000,000 iterations with the first 10,000 discarded to eliminate 'burn-in' effects. Every 10,000th subsequent value was retained, resulting in 1,000 samples from the posterior distributions for model parameters and derived quantities. Stationarity of the posterior distribution for model parameters was assessed via a suite of standard diagnostic tests. The objective function, as well as growth, mortality, stock-recruit (including recruitment deviations), and catchability parameters all had maximum autocorrelation at lag-1 values < 11%, and correlation-corrected effective sample sizes ranged from 763-1000. Neither the Geweke nor the Hiedelberger and Welch statistics for these parameters exceeded critical values more frequently than expected via random chance. Selectivity parameters showed slightly less rapid mixing, with two parameters (U.S. peak fishery selectivity in 2005-2009 and U.S. ascending width of fishery selectivity in 2005-2009) exhibiting autocorrelation > 11% (33%, 36%) and correspondingly low correlation-corrected effective sample sizes (Figure 61). Trace plots of thinned samples from the posterior revealed that longer MCMC chains with additional thinning would correct these issues (Figure 62). This behavior is attributable to the high degree of correlation between the ascending limb and peak value for U.S. fishery selectivity where either parameter could be sufficient to represent strong targeting of very young fish. As has been the case in previous hake assessments, these selectivity parameters were uncorrelated with management-related quantities such as current status.

Time-series plots of the posterior distributions for female spawning biomass, age-0 recruitment, relative depletion and relative SPR are shown in Figures 63-66. Interval widths are generally quite similar to those based on the MLE values, although there is no imposed constraint on symmetry and so quantities like female spawning biomass tend to have a larger upper interval than lower. The median of the posterior distribution for current (2009) reference points is slightly more pessimistic than the MLE values; the median value of the 2009 relative depletion is 30%, compared to 31% from the MLE. The ~95% credibility interval for current depletion, 19-46%, is also quite close to the confidence interval based on the Hessian matrix of 17%-44%. Table 21 presents 3-year stochastic projections using the MLE-based OY catch-stream (40:10 correction applied to the $SPR_{MSY\text{-}proxy\ target=0.4}$ harvest rate accounting for the U.S. to Canadian catch allocation, 73.88%/26.12%) along with arbitrary constant catch levels from 50,000 to 200,000 mt, as well as the 2009 *status quo* catch level (184,000 mt). The results of the MCMC posterior sample were combined with the 2010-2012 catch streams and results summarized as posterior intervals of spawning biomass, relative depletion, and relative spawning potential ratio, 1-SPR/1-$SPR_{Target=0.4}$, where values greater than 1.0 denote overfishing. Spawning biomass has a 50% chance of decreasing slightly over the next three years if coast-wide catches are roughly 50,000 per year or more. When the projected OY is removed, forecasted spawning biomass has a 50% chance of declining from 0.39 million mt in 2010 to 0.31 million mt in 2011. This corresponds to spawning depletion declining, with a 50% probability, to 24%, just below the 25% minimum spawning biomass threshold relative to unfished conditions. The 50% probability of achieving values for relative spawning potential ratio very close to 1.0 reflect that the posterior interval for spawning biomass is slightly more pessimistic than the MLE estimate on which the OY is based.

3.5.7 Sensitivity and retrospective analyses

A number of sensitivity analyses and likelihood profiles were conducted to test the effect of select assumptions on the model results. These results, as well as retrospective analyses, (both within and among assessments) are presented below.

The first set of sensitivities evaluated the sensitivity of model results to the SE applied to the 2009 acoustic survey biomass index. The base case model applied a value of 0.5, reflecting the large uncertainty in delineating hake from Humboldt squid as well as the reduced survey coverage in Canadian waters. Use of values smaller than 0.5 (0.25, 0.3, and 0.4) forced the model to increase the 2009 population size in order to fit the data point better, but did not appreciably change other parameters (Table 22). This led to the estimate of current depletion being closely linked to the SE applied to the 2009 survey index with more precision resulting in a less depleted stock.

The next set of sensitivities included those that the STAT team felt were illustrative of issues that had been raised in past assessments:

1) Include bycatch index from the pink shrimp fishery (and iteratively re-weight this index)
2) Include pre-recruit index (and iteratively re-weight this index)
3) Estimate natural mortality (through age 13)
4) Use alternate cohort ageing error adjustment
5) No cohort ageing error adjustment
6) Add fishery selectivity blocks for 2008-2009
7) Iteratively re-weight all data components

The first two of these represent the use of two independent indices of recent year-class strength, the bycatch index from the shrimp fishery and the pre-recruit survey index. Neither had an appreciable effect on the results, due to the mismatch between both series and recent recruitments estimated from other sources (Table 23). When SEs were inflated to reflect the inconsistencies of the surveys, they both resulted in values greater than 1.75 (Table 16). The estimate of natural mortality (*M*) was very close to the fixed value used for the base case; therefore it also had little effect on model results. Changes to the approach to cohort ageing error (allowing the degree of reduction in mis-ageing of dominant cohorts to scale with the SD by age) or removing all cohort-specific ageing error also had little effect on model results, although the latter produced somewhat poorer fits to the age data. Because fishery selectivity (both U.S. and Canadian) has been allowed to vary among 4-year blocks, it seemed reasonable to evaluate combining 2008 and 2009 into an additional block (a single-year block is not generally reliably estimated); however this does truncate the previous block to three years. This alternative model did fit the data slightly better, but resulted in no change to current depletion. Finally, to explore the conflicting signal remaining in the length, age and survey data were iteratively re-weighted all data sources included in the model (this was done prior to the 2009 assessment, but the conclusion was reached that it should not be repeated until poor residual patterns had been addressed). This alternative model resulted in a reduction in current depletion to 25%, and a much degraded fit to the 2009 survey index.

The next set of sensitivities included those that had been suggested by Mark Maunder (Quantitative Resource Assessment LLC) following his review of the 2009 Pacific hake assessment (see section *3.2 Industry-contracted review of the 2009 assessment* above):

8) Split Acoustic index and acoustic survey trawl selectivity
9) Split male and female growth (and old M)
10) Split acoustic survey q into two periods (through 1992 and 1995-present)
11) Start model in (a) 1994 or (b) 1995

The results of these sensitivities are reported in Table 24. The most dramatic result was achieved by starting the modeled period in 1994 or 1995, resulting in 2010 depletion levels of 142% and 13% respectively. These alternative models illustrate the substantial uncertainty in a shortened time-series.

There was seemingly more information in the available data to inform the estimation of q over a range of reasonable values than in previous assessments (Figure 67). Further, the sensitivity of current status to the value estimated for survey catchability was reduced (Figure 68). By estimating the parameter, and integrating over it during MCMC, this source of uncertainty is captured in the model results, however, it should not be surprising if the estimated value is substantially updated in future assessments as model structure changes and the acoustic survey time-series becomes longer.

The profile over steepness shows a likelihood surface favoring higher values, but with no significant difference in model fit among a range of values from 0.7-1.0 (Figure 69). Although this had little impact on estimates of current status (Figure 70), it will have very large implications for the estimated MSY harvest levels, indicating that the estimate of this quantity (and perhaps the concept itself) has little value for a species with highly variable recruitment dynamics.

The profile over M (through age 13) shows a likelihood surface between $M = 0.17$ and $M = 0.29$, with less than a 10-point change in log-likelihood over that range (Figure 71). For that range, estimates of current spawning biomass range from 0.3 to 0.59 million mt and historical estimates ranged substantially over the period of peak biomass from the 1980 and 1984 cohorts (Figure 72). However, depletion estimates ranged only from 0.28 to 0.31.

The retrospective analysis was conducted by systematically removing the terminal years' data sequentially for five years. Results of this analysis do not show consistent trends in the estimate of 2009 spawning stock biomass (Figure 73), although they do illustrate the large amount of uncertainty in current stock status and abundance. As has been observed in previous assessments, the strength of the 1999 year class appears to have been somewhat revised downward through time by sequentially adding new data and this has an appreciable effect on spawning biomass estimates for recent years.

A comparison of the models put forward for management since 1991 clearly shows that there has been considerable uncertainty in the Pacific hake stock biomass and status (Figure 74). Model-to-model variability (especially in the early portion of the time-series) is larger than the uncertainty reported in any single model, and this pattern does not appear to dampen as subsequent assessments are developed.

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6. Tables

Table 1. Annual catches of Pacific hake (1000s mt) in U.S. and Canadian waters by foreign, joint venture (JV), and domestic at-sea, shore-based and tribal fisheries, 1966-2009.

	U.S						Canada				
Year	Foreign	JV	At-sea	Shore-based	Tribal	Total U.S.	Foreign	JV	Domestic	Total Canada	Total
1966	137.00	0.00	0.00	0.00	0.00	137.00	0.70	0.00	0.00	0.70	137.70
1967	168.70	0.00	0.00	8.96	0.00	177.66	36.71	0.00	0.00	36.71	214.38
1968	60.66	0.00	0.00	0.16	0.00	60.82	61.36	0.00	0.00	61.36	122.18
1969	86.19	0.00	0.00	0.09	0.00	86.28	93.85	0.00	0.00	93.85	180.13
1970	159.51	0.00	0.00	0.07	0.00	159.58	75.01	0.00	0.00	75.01	234.58
1971	126.49	0.00	0.00	1.43	0.00	127.91	26.70	0.00	0.00	26.70	154.61
1972	74.09	0.00	0.00	0.04	0.00	74.13	43.41	0.00	0.00	43.41	117.55
1973	147.44	0.00	0.00	0.07	0.00	147.51	15.13	0.00	0.00	15.13	162.64
1974	194.11	0.00	0.00	0.00	0.00	194.11	17.15	0.00	0.00	17.15	211.26
1975	205.65	0.00	0.00	0.00	0.00	205.66	15.70	0.00	0.00	15.70	221.36
1976	231.33	0.00	0.00	0.22	0.00	231.55	5.97	0.00	0.00	5.97	237.52
1977	127.01	0.00	0.00	0.49	0.00	127.50	5.19	0.00	0.00	5.19	132.69
1978	96.83	0.86	0.00	0.69	0.00	98.37	3.45	1.81	0.00	5.27	103.64
1979	114.91	8.83	0.00	0.94	0.00	124.68	7.90	4.23	0.30	12.44	137.12
1980	44.02	27.54	0.00	0.79	0.00	72.35	5.27	12.21	0.10	17.58	89.94
1981	70.37	43.56	0.00	0.84	0.00	114.76	3.92	17.16	3.28	24.36	139.12
1982	7.09	67.46	0.00	1.02	0.00	75.58	12.48	19.68	0.00	32.16	107.73
1983	0.00	72.10	0.00	1.05	0.00	73.15	13.12	27.66	0.00	40.77	113.92
1984	14.72	78.89	0.00	2.72	0.00	96.33	13.20	28.91	0.00	42.11	138.44
1985	49.85	31.69	0.00	3.89	0.00	85.44	10.53	13.24	1.19	24.96	110.40
1986	69.86	81.64	0.00	3.46	0.00	154.96	23.74	30.14	1.77	55.65	210.62
1987	49.66	106.00	0.00	4.80	0.00	160.45	21.45	48.08	4.17	73.70	234.15
1988	18.04	135.78	0.00	6.88	0.00	160.70	38.08	49.24	0.83	88.16	248.86
1989	0.00	203.58	0.00	7.42	0.00	211.00	29.75	62.62	2.56	94.93	305.93
1990	0.00	170.97	4.71	8.12	0.00	183.80	3.81	68.31	4.02	76.15	259.95
1991	0.00	0.00	196.91	20.60	0.00	217.51	5.61	68.13	16.18	89.92	307.42
1992	0.00	0.00	152.45	56.13	0.00	208.58	0.00	68.78	20.05	88.83	297.40
1993	0.00	0.00	99.10	42.12	0.00	141.22	0.00	46.42	12.36	58.78	200.00
1994	0.00	0.00	179.07	73.66	0.00	252.73	0.00	85.16	23.78	108.94	361.67
1995	0.00	0.00	102.62	74.97	0.00	177.59	0.00	26.19	46.19	72.38	249.97
1996	0.00	0.00	112.78	85.13	15.00	212.90	0.00	66.78	26.40	93.17	306.08
1997	0.00	0.00	121.17	87.41	24.84	233.42	0.00	42.57	49.23	91.79	325.22
1998	0.00	0.00	120.45	87.86	24.51	232.82	0.00	39.73	48.07	87.80	320.62
1999	0.00	0.00	115.26	83.42	25.84	224.52	0.00	17.20	70.13	87.33	311.86
2000	0.00	0.00	116.09	85.83	6.5	208.42	0.96	15.06	6.38	22.4	230.82
2001	0.00	0.00	102.13	73.47	6.77	182.38	0.00	21.65	31.94	53.59	235.96
2002	0.00	0.00	63.26	45.71	23.15	132.11	0.00	0.00	50.77	50.77	182.91
2003	0.00	0.00	67.47	51.26	24.76	143.49	0.00	0.00	62.09	62.09	205.58
2004	0.00	0.00	90.26	89.38	30.85	210.48	0.00	58.89	65.35	124.24	334.67
2005	0.00	0.00	150.4	74.15	35.3	259.84	0.00	15.18	85.28	100.46	360.68
2006	0.00	0.00	134	97.23	35.47	267	0.00	13.71	80.01	93.76	361
2007	0.00	0.00	121	73	29.85	225	0.00	6.78	65.80	72.57	297.10
2008	0.00	0.00	166	50	32	248	0.00	3.59	70.16	73.75	321.55
2009	0.00	0.00	58.71	40.68	21.72	121.11	0.00	0.00	55.62	55.62	176.73
Average:						164.52				56.17	220.69

Table 2. Recent trend in Pacific hake management performance.

Year	Total landings (mt)	Coast-wide (U.S. + Canada) OY (mt)	Coast-wide (U.S. + Canada) ABC (mt)
2000	230,820	290,000	290,000
2001	235,962	238,000	238,000
2002	182,911	162,000	208,000
2003	205,582	228,000	235,000
2004	334,672	501,073	514,441
2005	359,661	364,197	531,124
2006	360,683	364,842	661,680
2007	297,098	328,358	612,068
2008	321,547	364,842	400,000
2009	176,730	184,000	253,582

Table 3. U.S. fishery sampling information by sector showing the number of hauls or trips, lengths and ages sampled each year. Note that only the 2008 and 2009 values have been updated for this assessment.

	At-sea			Shore-based		
Year	Number of hauls with lengths	Number of lengths	Number of ages	Number of trips with lengths	Number of lengths	Number of ages
1975	13	486	332	NA	NA	NA
1976	249	48,433	4,077	NA	NA	NA
1977	1,071	140,338	7,693	NA	NA	NA
1978	1,135	122,531	5,926	NA	NA	NA
1979	1,539	170,951	3,132	NA	NA	NA
1980	811	101,528	4,442	NA	NA	NA
1981	1,093	135,333	4,273	NA	NA	NA
1982	1,142	169,525	4,601	NA	NA	NA
1983	1,069	163,992	3,219	NA	NA	NA
1984	2,035	237,004	3,300	NA	NA	NA
1985	2,061	259,583	2,450	NA	NA	NA
1986	3,878	467,932	3,136	NA	NA	NA
1987	3,406	428,732	3,185	NA	NA	NA
1988	3,035	412,277	3,214	NA	NA	NA
1989	2,581	354,890	3,041	NA	NA	NA
1990	2,039	260,998	3,112	NA	NA	NA
1991	817	94,685	1,333	17	1,273	934
1992	836	72,294	2,175	49	3,152	1,062
1993	442	31,887	1,196	36	1,919	845
1994	649	41,143	1,775	80	4,939	1,457
1995	470	29,035	690	57	3,388	1,441
1996	557	32,133	1,333	47	3,330	1,123
1997	681	47,863	1,147	67	4,272	1,759
1998	803	47,511	1,158	63	3,979	2,021
1999	2,268	49,192	1,047	92	4,280	1,452
2000	2,199	48,153	1,257	81	2,490	1,314
2001	2,239	48,426	2,111	106	4,290	1,983
2002	1,821	39,485	1,695	94	3,890	1,582
2003	1,915	37,772	1,761	101	3,866	1,561
2004	2,797	57,014	1,875	129	7,170	1,440
2005	3,064	62,944	2,451	108	6,166	1,160
2006	2,824	58,094	2,058	156	8,974	1,547
2007	2,810	57,817	2,094	126	7,035	1,398
2008	3,403	55,331	3,337	87	5,670	1,129
2009	1,738	27,029	1,667	95	6.934	1,419

Table 4. Canadian fishery sampling information by sector showing the number of hauls or trips, lengths and ages sampled each year. Note that 2008 values represent the sum of sampling for both sectors.

	Joint-venture			Domestic		
Year	Number of hauls with lengths	Number of lengths	Number of ages	Number of trips with lengths	Number of lengths	Number of ages
1988	129	75,767	1,557	NA	NA	NA
1989	157	56,202	1,353	NA	NA	NA
1990	152	33,312	1,024	NA	NA	NA
1991	567	97,205	1,057	NA	NA	NA
1992	429	60,391	1,786	NA	NA	NA
1993	500	70,522	1,228	NA	NA	NA
1994	875	122,871	2,196	NA	NA	NA
1995	183	20,552	1,747	NA	NA	NA
1996	813	99,228	1,526	10	449	0
1997	414	16,957	1,430	297	42,296	150
1998	468	45,117	1,113	265	29,850	454
1999	66	8,663	812	314	42,119	1,568
2000	352	45,946	1,536	23	2,151	0
2001	284	26,817	1,424	126	14,937	111
2002	NA	NA	NA	1890	13,611	1,831
2003	NA	NA	NA	338	24,898	1,386
2004	595	60,025	1,102	124	7,716	1,581
2005	58	5,206	292	267	17,252	1,415
2006	126	9,417	334	212	15,576	1,170
2007	47	4,050	0	172	8,991	965
2008	--	--	--	188	12,281	1,950
2009	NA	NA	NA	342	29,423	1,411

Table 5. U.S. fishery sampling information by sector and year. Note that only 2008 and 2009 values have been updated for this assessment.

	At-sea			Shore-based		
Year	Sampled weight (mt)	Total weight (mt)	Percent sampled	Sampled weight (mt)	Total weight (mt)	Percent sampled
1975	47	205,654	<0.1%	NA	NA	NA
1976	4,165	231,331	1.8%	NA	NA	NA
1977	4,239	127,013	3.3%	NA	NA	NA
1978	4,769	97,683	4.9%	NA	NA	NA
1979	6,797	123,743	5.5%	NA	NA	NA
1980	10,074	71,560	14.1%	NA	NA	NA
1981	9,846	113,921	8.6%	NA	NA	NA
1982	23,956	74,553	32.1%	NA	NA	NA
1983	27,110	72,100	37.6%	NA	NA	NA
1984	13,603	93,611	14.5%	NA	NA	NA
1985	11,842	81,545	14.5%	NA	NA	NA
1986	24,602	151,501	16.2%	NA	NA	NA
1987	22,349	155,653	14.4%	NA	NA	NA
1988	21,499	153,822	14.0%	NA	NA	NA
1989	20,560	203,578	10.1%	NA	NA	NA
1990	16,264	175,685	9.3%	NA	NA	NA
1991	15,833	196,905	8.0%	683	20,600	3.3%
1992	17,781	152,449	11.7%	1,964	56,127	3.5%
1993	11,306	99,103	11.4%	1,619	42,119	3.8%
1994	13,959	179,073	7.8%	4,461	73,656	6.1%
1995	9,833	102,624	9.6%	3,224	74,965	4.3%
1996	13,813	112,776	12.2%	3,036	85,127	3.6%
1997	17,264	121,173	14.2%	4,670	87,410	5.3%
1998	17,370	120,452	14.4%	4,231	87,856	4.8%
1999	47,541	115,259	41.2%	6,740	83,419	8.1%
2000	48,482	116,090	41.8%	7,735	85,828	9.0%
2001	43,459	102,129	42.6%	8,524	73,474	11.6%
2002	37,252	63,258	58.9%	7,089	45,708	15.5%
2003	38,067	67,473	56.4%	7,676	55,335	13.9%
2004	53,411	90,258	59.2%	10,918	96,229	11.3%
2005	66,356	150,400	44.1%	8,997	85,914	10.5%
2006	60,435	97,403	62.0%	13,646	115,980	11.8%
2007	64,230	107,489	59.8%	12,231	72,663	16.8%
2008	157,850	166,000	95.1%	17,202	50,000	34.4%
2009	29,523	58,718	50.3%	18,422	40,681	45.3%

Table 6. Canadian fishery sampling information by sector and year. Note that only 2009 values have been updated for this assessment.

	Joint-venture			Domestic		
Year	Sampled weight (mt)	Total weight (mt)	Percent sampled	Sampled weight (mt)	Total weight (mt)	Percent sampled
1988	2,210	49,243	4.49%	NA	NA	NA
1989	2,767	62,618	4.42%	NA	NA	NA
1990	3,078	68,313	4.51%	NA	NA	NA
1991	11,840	68,133	17.38%	NA	NA	NA
1992	8,901	68,779	12.94%	NA	NA	NA
1993	9,012	46,422	19.41%	NA	NA	NA
1994	15,490	85,162	18.19%	NA	NA	NA
1995	3,857	26,191	14.73%	NA	NA	NA
1996	14,891	66,779	22.30%	68	26,395	0.26%
1997	8,340	42,565	19.59%	267	49,227	0.54%
1998	9,638	39,728	24.26%	247	48,074	0.51%
1999	2,079	17,201	12.09%	426	70,132	0.61%
2000	6,811	15,059	45.23%	268	6,382	4.20%
2001	6,072	21,650	28.05%	5,625	31,935	17.61%
2002	NA	NA	NA	9,110	50,769	17.94%
2003	NA	NA	NA	14,968	62,090	24.11%
2004	15,563	58,892	26.43%	3,568	65,345	5.46%
2005	1,713	15,178	11.29%	7,467	85,284	8.76%
2006	2,811	13,715	20.50%	14,080	80,011	17.60%
2007	1,043	6,780	15.39%	4,678	65,803	7.11%
2008	697	3,592	19.40%	5,342	70,165	7.61%
2009	NA	NA	NA	16,626	55,562	29.92%

Table 7. U.S. fishery sample sizes for conditional age-at-length data. Values represent the number of hauls contributing from the at-sea sector and the number of trips from the shore-based fishery. Note: only the 2008 and 2009 values have been updated for this assessment.

Length (cm)	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
20			1		1	1	5					
21			1	2		3	9					
22		1		2		2	13					
23	1	1		4		1	23					
24	1	1		4		2	25	2				1
25	1	3		10	1	1	29	5				
26	2	1		10	2		40	11	1		1	
27	2	4		9	2	1	34	9		1		
28	1	5		14	4	1	22	12			1	
29	3	4		7	10	1	21	18	6		2	1
30	5	4		4	21	1	16	37	10		1	5
31	3	6	2	2	27		12	38	11	3	3	8
32	5	8			30	3	6	52	23	1	3	19
33	2	9	4		46	4	9	62	23	2	3	22
34	4	10	5		33	9	12	66	35	6	2	49
35	4	7	12		24	19	16	62	39	12	1	41
36	5	13	28	3	17	38	28	55	51	25	1	42
37	5	23	56	7	19	66	49	59	55	41	2	40
38	3	26	71	17	12	74	59	48	62	72	7	39
39	2	45	99	51	11	84	78	50	58	112	16	36
40	6	58	114	88	17	89	94	62	62	121	43	51
41	10	53	146	129	25	83	84	66	69	135	78	85
42	9	55	141	176	36	93	85	86	77	125	107	114
43	9	56	160	171	44	88	88	94	72	112	121	119
44	10	54	160	158	65	100	101	99	69	93	124	110
45	8	47	147	165	72	111	101	100	69	82	115	113
46	9	47	142	148	74	114	107	99	75	83	101	105
47	7	39	132	144	84	96	114	103	74	74	79	100
48	10	42	128	154	83	90	122	111	70	67	63	83
49	8	44	136	143	76	85	122	116	69	66	58	67
50	4	57	123	147	83	90	105	101	71	50	52	77
51	5	62	135	156	89	87	113	112	59	49	25	59
52	6	60	140	184	85	92	107	100	66	43	24	51
53		69	146	178	86	94	116	106	66	28	17	52
54	2	64	147	186	78	105	96	104	61	20	15	44
55	4	58	161	176	70	102	80	86	57	11	11	27
56		67	139	156	66	102	65	85	44	5	3	31
57	1	65	131	115	58	102	56	81	32	5	4	24
58	1	62	94	103	41	88	39	48	32	4	3	11
59	2	57	95	60	47	52	34	53	17	7		11
60	1	56	73	60	22	60	36	37	22	2	1	7
61		48	60	45	26	39	30	28	15		1	8
62		45	52	41	16	27	20	17	9	4		7
63		30	46	27	12	25	20	21	12	4		3
64		36	42	26	8	26	16	21	6	2		6
65		33	23	18	13	19	8	18	6	1		5
66		33	17	14	11	12	10	9	4			6
67		33	15	18	6	11	10	10	4	1		4
68	1	28	18	13	8	9	5	6	5	2	1	3
69	1	25	17	10	4	7	7	6	1	3		4
70		71	62	60	16	14	15	14	12	9		25

Table 7. Continued.

Length (cm)	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
20					2				1			
21					2							
22					1							
23					1							
24												
25												
26		1										
27						1						
28				2		2						
29		1	2	6		5						
30			3	5	1	6		1		1		
31		1	9	15	2	8	4			6		
32		2	15	22	5	5	1		1	9		2
33	3	2	15	24	13	3	5	1		17		4
34	6	3	8	45	23	4	5		1	23	1	1
35	16	3	10	51	32	3	17	3		30	1	5
36	29	3	13	76	33	6	31	9		30	7	13
37	60	15	9	84	39	22	42	19	2	23	16	17
38	79	56	17	94	37	23	45	42	4	27	32	30
39	88	101	40	98	46	58	49	64	2	33	47	36
40	97	129	79	104	50	66	44	70	6	38	59	50
41	104	141	120	95	55	78	38	66	18	35	77	56
42	112	141	129	96	59	84	50	73	31	36	83	73
43	121	145	125	93	58	82	57	81	33	50	84	97
44	117	153	127	91	54	81	64	99	38	65	70	102
45	113	152	125	82	53	81	65	99	37	73	71	90
46	106	150	130	88	53	81	63	98	36	74	57	77
47	102	137	133	82	47	84	58	95	39	72	53	51
48	92	123	118	84	48	84	62	90	38	64	41	43
49	83	81	98	73	44	82	46	91	37	59	28	25
50	59	68	74	72	36	73	30	63	33	47	27	17
51	40	45	49	74	18	59	22	34	25	30	21	7
52	31	34	40	58	9	39	9	25	23	29	11	3
53	18	22	35	43	6	35	4	15	13	10	11	3
54	14	15	27	34	6	26	7	13	10	12	5	2
55	8	14	14	20	7	20	6	8	8	7	1	4
56	5	8	15	15	2	15	1	4	6	4	3	1
57	5	13	8	14	3	15	2	5	4	1	1	
58	3	11	8	14	2	9		6	6	3	1	1
59	2	4	7	11	3	9	1	2	3	3	1	1
60	5	6	3	14		7		3	1	1	1	
61	3	5	6	15	3	5	2	1	1	2	1	
62	6	1		9	3	5		1	2	2		1
63	1		3	9	3	2		1	1	1	1	
64	2	4	1	8		3		1		1		
65	3	3	1	8	2	2		2		1		1
66	1	4	2	8	5	2					1	
67	2			6	2			1		1		
68	3	2	4	6	2	2		1				
69	1	3		7	1		1	1				
70	5	12	4	20	8	6	1	3	1	2	2	

Table 7. Continued.

Length (cm)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
20								1	4		
21								1			
22								1	1		1
23								2	1	1	1
24								4		3	2
25								6		2	2
26								7	1	6	
27			1					11	3	7	2
28		2						11	6	6	3
29	2	2						10	8	9	
30	8	3	6					9	11	8	1
31	8	3	7	1		1		7	17	17	
32	9	2	15					14	39	24	2
33	19	1	19				1	28	41	41	9
34	29	2	28	1			2	51	41	56	16
35	41	2	32	2			4	96	57	53	35
36	38	6	50	11	2			107	45	65	53
37	41	18	55	19	2	1	2	128	49	104	84
38	54	16	61	45	6	7	3	187	60	155	92
39	60	24	56	80	25	23	6	275	42	172	116
40	53	36	61	113	61	45	25	298	46	187	138
41	59	43	97	128	133	90	49	328	72	186	146
42	49	56	100	117	199	133	125	248	126	144	156
43	77	85	100	100	227	216	242	187	155	124	136
44	70	86	112	85	203	227	309	112	235	178	141
45	84	89	121	63	156	225	318	72	319	199	112
46	63	106	136	53	106	177	267	45	332	242	132
47	63	120	136	61	67	105	199	18	315	287	136
48	47	100	153	65	49	79	114	8	259	256	118
49	31	95	118	74	33	39	72	2	173	238	107
50	17	75	86	76	33	26	46	8	124	172	77
51	13	55	59	68	17	8	31	3	74	127	53
52	9	34	50	55	15	12	9	6	53	96	38
53	6	17	37	48	5	5	11	4	31	75	30
54	3	17	34	38	7	3	6	1	19	40	20
55		9	10	27	4	2	3	2	14	32	11
56		12	8	17	3	2	4	1	9	23	15
57	3	4	11	13		2	3	1	16	16	7
58	2	3	1	7		2	1	2	4	10	10
59		5	2	4	1	1	2	1	6	8	7
60	1	4	4	4		2		3	6	6	3
61	2	2	1	2			1	2	2	4	5
62	1	4		3		1		5	1	6	4
63		1		1					5	3	
64				2					1	1	3
65		2	1	1	1				1	1	1
66				1			1		1	3	1
67						1					
68							1			1	
69											1
70				1					4		1

Table 8. Canadian fishery sample sizes for conditional age-at-length data. Values represent the number of hauls contributing from the joint-venture sector and the number of trips from the domestic fishery.

Length (cm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
20										
21										
22										
23								1		
24								2		
25								2		
26								1		
27								1		
28								1		
29										
30										
31									2	
32									2	
33							1	1	3	
34						1			3	
35	1						1		4	
36						1	1		8	
37	1				1		1		9	
38	1		2		1				12	1
39	3		3	1	2				7	7
40	4	2	3	1	3	5			8	10
41	4	5	4	1	9	10	6	1	6	17
42	4	6	5	3	15	14	10	6	14	21
43	5	6	6	6	22	17	20	11	15	22
44	5	6	4	14	27	17	24	18	22	22
45	5	6	4	16	29	18	28	21	24	23
46	5	6	4	16	29	18	29	21	24	23
47	5	6	4	16	29	18	30	21	24	23
48	5	6	4	16	29	18	31	21	24	23
49	5	6	4	16	29	18	30	21	23	22
50	5	6	5	16	27	17	28	21	23	22
51	5	6	5	16	28	13	28	21	22	18
52	5	6	6	13	16	12	27	17	17	18
53	5	6	4	13	15	4	23	17	11	14
54	5	4	5	8	12	5	18	14	12	9
55	4	5	3	4	7	1	21	11	4	5
56	4	4	4	8	4		12	7	7	2
57	4	4	4	3	4		9	5	7	3
58	4	3	3	5	4	5	6	9	6	
59	3	2	4	3	1		8	6	1	1
60	3	2	3	2	3		6	4	4	1
61	2	1	2	2			5	4	4	
62	1	3	4	2	1		3	1	1	
63	1	3	4		2		2	2		
64	1	2	2	1			3	3		1
65	1	1	2				5	1	2	
66		1	1	1			1	1	1	
67		2	2					1		
68				1					1	1
69			1	1				1		
70	1	4	1	1	1		2	1		

Table 8. Continued.

Length (cm)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
20	1									1		
21		1										
22		1										
23		2									1	
24											1	
25											1	
26		2									1	
27											2	
28	1										2	
29		1					1				2	
30		1					1				2	
31		3	1	1							4	
32		5				2	1				6	1
33		10				2	1				7	
34	1	7	1				2			1	7	3
35		10	3				1			2	8	2
36	4	16	4			1	1				7	4
37	8	17	5		1		2				7	6
38	10	19	6				2	2		1	8	6
39	17	26	5				3		1	1	12	5
40	18	27	9			1	11	1	2	4	7	10
41	19	30	13	1		3	20	3	5	7	12	8
42	25	35	14	3		11	26	12	13	13	11	13
43	24	36	14	4	8	14	31	17	16	15	20	17
44	25	35	17	6	3	14	32	19	41	19	27	19
45	25	37	16	11	5	15	32	20	51	24	36	21
46	25	38	18	15	11	15	32	20	73	26	41	24
47	25	38	19	18	15	15	32	20	82	29	42	22
48	23	34	19	20	22	15	31	19	81	30	40	25
49	21	35	19	20	24	15	31	17	71	33	45	21
50	22	31	20	20	25	15	31	12	70	31	40	24
51	17	27	18	20	26	13	27	12	59	23	42	21
52	8	22	16	20	26	13	18	2	45	23	34	22
53	8	14	17	19	26	11	17	5	24	17	29	21
54	6	11	15	18	26	11	13	7	26	21	21	16
55	2	9	9	19	26	9	11	6	10	10	22	12
56	2	6	10	17	25	7	5	4	12	12	13	11
57	3	2	6	17	25	6	7	2	6	9	17	5
58	2	4	6	17	21	8	3	2	6	12	7	4
59	1	4	8	12	13	5	1	1	7	8	8	5
60		1	4	9	18	5	5		7	6	3	2
61		1	4	7	12	3	2	1	6	2	7	
62		1		4	12	1	1			4	3	2
63	1		2	2	7	1	2		1	2	1	
64		1	1	2	2	1		1	2	3	2	1
65				3	1	1	1	1	2	2		
66		2	1	1	2		1		1	2		
67			1	2	1						1	
68					1	1	1			3		
69							1			1		
70			1						1	2		

Table 9. Summary of the WCGOP coverage in the trawl fishery for pink shrimp, 2004-2008.

Year	Number of trips	Number of hauls	Number of vessels	Observed pink shrimp landings (mt)	Total pink shrimp landings (mt)	Coverage rate (%)
2004	52	912	20	661	6,534	10.1%
2005	38	509	23	369	8,020	4.6%
2007	63	951	30	665	9,418	7.1%
2008	55	840	31	586	12,521	4.7%

Table 10. Observed bycatch of hake (< 0.5 lbs mean individual weight) in the pink shrimp fishery, 2004-2008. SEs represent bootstrapped uncertainty associated only with the sampling frame.

Year	Observed hake discard (mt)	SD ln(value)
2004	11.67	0.32
2005	25.83	0.24
2007	116.58	0.13
2008	27.65	0.25

Table 11. Acoustic survey sampling information, 1977-2009.

Year	Inshore limit (m)	Offshore limit (m)	Northern limit (°N)	Number of hauls with hake biological samples	Number of lengths	Number of ages
1977	91	457	50.0	85	11,695	4,262
1980	55	457	50.0	49	8,296	2,952
1983	55	366	49.5	35	8,614	1,327
1986	55	366	49.5	43	12,702	2,074
1989	55	366	50.0	22	5,606	1,730
1992	55	366	51.7	43	15,852	2,184
1995	50	1,500	55.0	69	22,896	2,118
1998	50	1,500	55.0	84	33,347	2,417
2001	50	1,500	55.0	49	16,442	2,536
2003	50	1,500	55.0	71	19,357	3,007
2005	50	1,500	55.0	49	13,644	1,905
2007	50	1,500	55.0	130	15,756	2,915
2009	50[1]	1,500[2]	55.0	61	11,346	2,609

[1]Some transects were aborted at depths > 50m in Canadian waters.
[2]Some transects extended beyond 1,500m regardless of hake presence in Canadian waters.

Table 12. Acoustic survey sample sizes for conditional age-at-length data. Values represent the number of hauls.

Length (cm)	1977	1980	1983	1986	1989	1992	1995	1998	2001	2003	2005	2007	2009
20													
21													
22													
23													
24						2		1				3	
25						2		3		1		2	
26	1					2		2				4	
27					1	4		4	2			7	
28	1					2	2	10		1	1	8	
29	1	1		2		5	1	13			1	15	
30	1			3		7	2	16	3	2	4	17	2
31	2			6		7	4	20	8	2	6	18	1
32	3			8		8	9	23	14	4	7	17	2
33	4		2	8	1	8	13	23	17	4	10	20	4
34	3	4	4	9	3	8	15	31	20	8	8	20	13
35	9	7	3	9	4	7	21	31	20	8	10	16	16
36	14	9	5	11	6	6	20	30	20	8	9	15	32
37	16	10	7	8	8	6	17	36	17	9	10	13	43
38	14	12	8	10	7	5	14	39	13	14	8	11	42
39	17	10	9	5	9	8	6	50	10	14	10	10	46
40	20	12	13	6	10	7	11	44	17	29	6	16	45
41	22	11	11	12	15	10	15	55	14	43	22	14	46
42	24	10	11	21	20	24	26	62	18	56	28	27	42
43	29	12	9	21	20	28	40	66	22	55	36	36	43
44	34	13	13	20	20	36	45	64	17	59	41	38	41
45	40	16	12	21	20	38	49	57	29	61	42	43	40
46	41	18	13	21	20	39	53	49	29	53	41	44	33
47	45	19	12	17	18	37	50	51	30	55	39	54	31
48	48	21	13	18	16	34	47	46	30	43	32	49	26
49	48	24	12	16	16	30	38	31	28	41	27	46	27
50	45	22	12	16	10	22	27	22	27	32	23	37	28
51	47	22	11	16	8	18	17	9	25	28	12	30	21
52	46	21	10	11	9	14	14	5	26	24	12	22	16
53	44	19	9	13	6	6	10	6	24	19	9	22	12
54	40	18	8	8	5	3	7	4	25	12	5	12	9
55	38	17	6	9	2	4	5	2	18	12	3	12	9
56	31	19	5	4	2	5	6	2	13	7	5	6	8
57	33	16	7	4		4	3	3	10	6	2	6	7
58	27	11	2	3	3	3	5	5	10	5	1	7	7
59	19	14	3	3	2	1	2		7	3	1	5	5
60	18	7	1	4	2	1	2	1	8	6		6	4
61	16	4	2	3		1	1	2	5	2		3	2
62	11	3	2	2		2	4		3	5			1
63	11	2	1		1	3	2		2				1
64	10	2		3	1		1		4	2	1	4	1
65	8	3	1	1	1		2		3	2	1		1
66	8	2	1				2		2	2		2	
67	8	2		1			2		1	2			1
68	7	4		1					2		1		1
69	4	3	1	1	1		1	1	4	2	1		
70	7	3		1	2		3		4	6	6	2	1

Table 13. Acoustic survey biomass estimates (excluding fish of age-0 and age-1, and including all post-survey spatial expansion correction factors) and assumed SEs of the log-index, 1977-2009.

Year	Biomass estimate (1000s mt)	SE ln(value)
1977	1,915	0.50
1980	2,115	0.50
1983	1,647	0.50
1986	2,857	0.50
1989	1,238	0.50
1992	2,169	0.25
1995	1,385	0.25
1998	1,185	0.25
2001	737	0.25
2003	1,840	0.25
2005	1,265	0.25
2007	879	0.25
2009	1,462	0.50

Table 14. Pre-recruit survey relative estimates of numbers at age-0 and SEs of the log-index based on a jackknife variance estimation procedure.

Year	Numbers age-0	SE ln(value)
2001	770.38	0.42
2002	329.00	0.22
2003	735.90	0.31
2004	1531.60	0.27
2005	355.65	0.26
2006	192.34	0.17
2007	63.31	0.13
2008	128.28	0.17
2009	114.78	0.15

Table 15. Summary of model parameters in the base case assessment model.

Parameter	Number estimated	Bounds (low, high)	Prior (Mean, SD) (single value = fixed)	Value (MLE)
Stock and recruitment				
Ln(R_0)	1	(11,21)	uniform	14.485
Steepness (*h*)	1	(0.2,1.0)	~Beta(0.777,0.113)	0.877
Recruitment variability (σ_R)	1	(1.0,2.0)	uniform	1.29
Ln(Recruitment deviations): 1962-2009	48	(-7, 7)	~Ln(N(0, σ_r))	*
Ln(Forecast recruitment deviations: 2010-2012)	3	(-7, 7)	~Ln(N(0, σ_r))	0.0
Individual growth and mortality				
Natural mortality (*M*, to age 13)	-	NA	0.23	0.23
Natural mortality (*M*, ramp to value at age 15)	1	(0.2,0.8)	uniform	0.624
Length at age 2 (cm)	-	NA	32	32
von Bertalanffy *K*	1	(0.1,0.7)	uniform	0.301
Exponential offset to *K*, 1980-1986	1	(-2,2)	~N(0,0.01)	-0.134
Exponential offset to *K*, 1999-2008	1	(-2,2)	~N(0,0.01)	0.194
Length at age 12 (cm)	1	(30,70)	uniform	53.21
Exponential offset to length at age 12, 1984-2008	1	(-2,2)	~N(0,0.01)	-0.054
CV of length at age 2	-	NA	0.066	0.066
CV of length at age 12	-	NA	0.062	0.062
Weight-length slope	-	NA	0.000007	0.000007
Weight-length exponent	-	NA	2.9624	2.9624
Length at 50% maturity (cm)	-	NA	36.89	36.89
Logistic maturity slope	-	NA	-0.48	-0.48
Eggs produced per gram intercept	-	NA	1.0	1.0
Eggs produced per gram slope	-	NA	0.0	0.0
Catchability and selectivity (double normal)				
Acoustic survey:				
Ln(*Q*) - catchability	1	(-5,0.5)	uniform	-0.063
Time-invariant age-based selectivity	3	varied	uniform	**
U.S. Fishery:				
Time-invariant age-based selectivity	3	varied	uniform	**
Additive offsets to ascending, peak and final parameters	15	(-10,10)	uniform	**
Canadian Fishery:				
Time-invariant age-based selectivity	3	varied	uniform	**
Additive offsets to ascending, and peak parameters	10	(-10,10)	uniform	**

Total: 44 + 51 recruitment deviations = 95 estimated parameters.

* See tables below for recruitment estimates. ** Too many to report here, see Appendix B for all parameter estimates.

Table 16. Model tuning specifications by source.

Type of data	Source	Input adjustment	Average input after adjustment	Average effective N or RMSE
Survey	Acoustic	+0.0	0.37	0.59
	Pre-recruit (*removed from base*)	+1.53	1.76	1.77
	Shrimp bycatch (*removed from base*)	+1.84	2.07	2.08
Length	Acoustic	x 1.41	77.9	81.3
	U.S. fishery	x 0.09	158.0	153.9
	Canadian fishery	x 1.04	102.5	100.2
Age	Acoustic	x 3.27	48.0	49.1
	U.S. fishery	x 1.70	77.4	104.9
	Canadian fishery	x 1.78	21.0	39.2

Table 17. Time-series of population estimates from the base case model.

Year	Total biomass (millions mt)	Age 3+ biomass (millions mt)	Female spawning biomass (millions mt)	Depletion	Age-0 recruits (billions)	1-SPR / 1-SPR40%	SPR	Exploitation fraction
1960	3.14	2.79	1.33	100%	1.95	0.0	1.00	0.0
1961	3.14	2.79	1.33	100%	1.95	0.0	1.00	0.0
1962	3.13	2.79	1.33	100%	0.1	0.0	1.00	0.0
1963	3.05	2.79	1.33	100%	0.46	0.0	1.00	0.0
1964	2.83	2.79	1.31	99%	0.81	0.0	1.00	0.0
1965	2.58	2.48	1.22	92%	0.99	0.0	1.00	0.0
1966	2.36	2.21	1.09	82%	1.13	0.32	0.81	0.06
1967	2.05	1.87	0.91	69%	1.24	0.47	0.72	0.11
1968	1.76	1.55	0.74	56%	1.68	0.31	0.81	0.08
1969	1.64	1.40	0.67	50%	0.92	0.45	0.73	0.13
1970	1.55	1.27	0.60	45%	4.63	0.66	0.61	0.18
1971	1.53	1.20	0.54	41%	1.33	0.64	0.62	0.13
1972	1.78	1.13	0.56	42%	0.52	0.52	0.69	0.10
1973	1.92	1.70	0.71	53%	4.44	0.64	0.62	0.10
1974	2.00	1.74	0.79	59%	0.72	0.71	0.57	0.12
1975	2.15	1.54	0.77	58%	2.14	0.69	0.58	0.14
1976	2.13	1.94	0.83	63%	0.99	0.70	0.58	0.12
1977	2.15	1.76	0.84	63%	12.07	0.47	0.72	0.08
1978	2.52	1.87	0.86	65%	1.2	0.37	0.78	0.06
1979	3.42	1.80	0.95	72%	2.3	0.39	0.77	0.08
1980	3.97	3.53	1.39	105%	33.39	0.25	0.85	0.03
1981	5.30	3.58	1.64	123%	0.09	0.33	0.80	0.04
1982	7.89	3.59	1.96	148%	0.17	0.23	0.86	0.03
1983	8.59	8.57	3.11	235%	0.57	0.20	0.88	0.01
1984	8.68	8.53	3.87	291%	17.37	0.19	0.89	0.02
1985	8.44	7.62	3.65	275%	0.01	0.13	0.92	0.01
1986	8.90	6.66	3.39	256%	0.39	0.20	0.88	0.03
1987	8.20	8.16	3.40	256%	5.27	0.21	0.87	0.03
1988	7.53	7.24	3.35	253%	2.22	0.22	0.87	0.03
1989	6.99	6.22	3.04	229%	0.08	0.33	0.80	0.05
1990	6.20	5.89	2.74	207%	3.18	0.31	0.82	0.04
1991	5.40	5.25	2.46	185%	0.79	0.40	0.76	0.06
1992	4.67	4.23	2.08	157%	0.01	0.46	0.73	0.07
1993	3.89	3.77	1.76	133%	2.4	0.34	0.80	0.05
1994	3.29	3.17	1.50	113%	2.18	0.62	0.63	0.11
1995	2.68	2.27	1.13	85%	1.62	0.58	0.65	0.11
1996	2.32	1.96	0.91	68%	2.09	0.75	0.55	0.16
1997	2.02	1.72	0.77	58%	1.28	0.78	0.53	0.19
1998	1.81	1.47	0.66	50%	2.45	0.87	0.48	0.22
1999	1.68	1.34	0.58	44%	11.77	0.94	0.43	0.23
2000	2.02	1.16	0.55	41%	0.43	0.83	0.50	0.20
2001	2.83	1.29	0.67	50%	0.92	0.77	0.54	0.18
2002	3.05	2.95	1.10	83%	0.01	0.48	0.71	0.06
2003	3.00	2.87	1.31	99%	1.68	0.43	0.74	0.07
2004	2.72	2.65	1.25	94%	0.20	0.62	0.63	0.13
2005	2.30	2.06	1.02	77%	2.90	0.73	0.56	0.17
2006	1.88	1.72	0.80	61%	1.34	0.82	0.51	0.21
2007	1.64	1.21	0.61	46%	0.01	0.84	0.50	0.24
2008	1.43	1.25	0.55	41%	0.88	0.96	0.42	0.26
2009	1.13	1.08	0.48	36%	1.84	0.80	0.52	0.16
2010	1.04	0.84	0.41	31%	1.81	NA	NA	NA

Table 18. Time-series of ~95% confidence intervals for female spawning biomass, relative depletion estimates, age-0 recruits, relative spawning potential ratio (1-SPR/1-$SPR_{Target=0.4}$) and exploitation fraction (catch/3+biomass) from the base case model.

Year	Female spawning Biomass (millions mt)	Depletion	Age-0 recruits (billions)	(1-SPR) / (1-SPR_{target})	SPR	Exploitation fraction
1960	1.15 - 1.50	NA	1.72 - 2.22	NA	NA	NA
1961	1.15 - 1.50	NA	1.72 - 2.22	NA	NA	NA
1962	1.15 - 1.50	NA	0.02 - 0.43	NA	NA	NA
1963	1.15 - 1.50	NA	0.22 - 0.95	NA	NA	NA
1964	1.14 - 1.48	NA	0.52 - 1.25	NA	NA	NA
1965	1.06 - 1.37	NA	0.70 - 1.38	NA	NA	NA
1966	0.96 - 1.21	NA	0.91 - 1.40	0.29 - 0.36	0.79 - 0.83	0.06 - 0.07
1967	0.81 - 1.01	0.67-0.71	1.05 - 1.48	0.43 - 0.51	0.69 - 0.74	0.10 - 0.13
1968	0.67 - 0.82	0.54-0.58	1.50 - 1.88	0.28 - 0.34	0.79 - 0.83	0.07 - 0.09
1969	0.61 - 0.72	0.47-0.53	0.79 - 1.07	0.41 - 0.49	0.71 - 0.76	0.12 - 0.14
1970	0.56 - 0.64	0.41-0.49	4.26 - 5.04	0.61 - 0.70	0.58 - 0.63	0.17 - 0.20
1971	0.51 - 0.58	0.37-0.45	1.19 - 1.50	0.60 - 0.67	0.6 - 0.64	0.12 - 0.14
1972	0.52 - 0.59	0.37-0.47	0.44 - 0.63	0.49 - 0.55	0.67 - 0.71	0.10 - 0.11
1973	0.66 - 0.75	0.47-0.60	4.01 - 4.92	0.61 - 0.66	0.6 - 0.63	0.09 - 0.10
1974	0.73 - 0.85	0.52-0.67	0.62 - 0.84	0.68 - 0.74	0.56 - 0.59	0.11 - 0.13
1975	0.70 - 0.83	0.50-0.66	1.90 - 2.40	0.66 - 0.73	0.56 - 0.6	0.13 - 0.16
1976	0.75 - 0.91	0.54-0.71	0.85 - 1.15	0.66 - 0.74	0.56 - 0.6	0.11 - 0.13
1977	0.74 - 0.93	0.54-0.72	10.97 - 13.28	0.43 - 0.52	0.69 - 0.74	0.07 - 0.08
1978	0.76 - 0.96	0.55-0.74	1.02 - 1.40	0.34 - 0.41	0.75 - 0.8	0.05 - 0.06
1979	0.84 - 1.07	0.61-0.83	2.03 - 2.60	0.35 - 0.43	0.74 - 0.79	0.07 - 0.09
1980	1.23 - 1.54	0.89-1.20	31.28 - 35.63	0.23 - 0.28	0.83 - 0.86	0.02 - 0.03
1981	1.46 - 1.81	1.06-1.41	0.04 - 0.23	0.30 - 0.36	0.78 - 0.82	0.03 - 0.04
1982	1.76 - 2.15	1.27-1.68	0.11 - 0.25	0.20 - 0.25	0.85 - 0.88	0.03 - 0.03
1983	2.85 - 3.38	2.03-2.66	0.48 - 0.68	0.17 - 0.22	0.87 - 0.9	0.01 - 0.01
1984	3.56 - 4.17	2.53-3.30	16.77 - 17.99	0.17 - 0.21	0.87 - 0.9	0.01 - 0.02
1985	3.37 - 3.93	2.39-3.11	<0.01 - 0.03	0.11 - 0.14	0.92 - 0.93	0.01 - 0.02
1986	3.14 - 3.65	2.22-2.89	0.33 - 0.46	0.18 - 0.21	0.87 - 0.89	0.03 - 0.03
1987	3.17 - 3.63	2.23-2.90	5.08 - 5.47	0.20 - 0.23	0.86 - 0.88	0.03 - 0.03
1988	3.15 - 3.56	2.21-2.85	2.10 - 2.35	0.21 - 0.24	0.86 - 0.87	0.03 - 0.04
1989	2.87 - 3.22	2.00-2.59	0.05 - 0.12	0.32 - 0.35	0.79 - 0.81	0.05 - 0.05
1990	2.59 - 2.89	1.80-2.33	3.05 - 3.30	0.29 - 0.32	0.81 - 0.82	0.04 - 0.05
1991	2.33 - 2.59	1.62-2.09	0.72 - 0.86	0.38 - 0.41	0.75 - 0.77	0.06 - 0.06
1992	1.98 - 2.18	1.37-1.77	<0.01 - 0.05	0.44 - 0.47	0.72 - 0.73	0.07 - 0.07
1993	1.68 - 1.84	1.16-1.49	2.29 - 2.52	0.33 - 0.35	0.79 - 0.8	0.05 - 0.06
1994	1.44 - 1.57	0.99-1.28	2.06 - 2.30	0.60 - 0.64	0.61 - 0.64	0.11 - 0.12
1995	1.08 - 1.17	0.74-0.96	1.52 - 1.73	0.57 - 0.60	0.64 - 0.66	0.11 - 0.11
1996	0.87 - 0.94	0.60-0.77	1.96 - 2.22	0.73 - 0.77	0.54 - 0.56	0.15 - 0.16
1997	0.74 - 0.79	0.51-0.65	1.18 - 1.39	0.76 - 0.79	0.52 - 0.54	0.18 - 0.20
1998	0.64 - 0.69	0.44-0.56	2.29 - 2.61	0.85 - 0.89	0.47 - 0.49	0.21 - 0.23
1999	0.56 - 0.60	0.38-0.49	10.98 - 12.61	0.92 - 0.96	0.42 - 0.45	0.22 - 0.24
2000	0.52 - 0.58	0.36-0.47	0.38 - 0.50	0.81 - 0.85	0.49 - 0.51	0.19 - 0.21
2001	0.63 - 0.71	0.44-0.57	0.82 - 1.04	0.75 - 0.80	0.52 - 0.55	0.17 - 0.19
2002	1.02 - 1.17	0.71-0.94	<0.01 - 0.02	0.46 - 0.51	0.7 - 0.73	0.06 - 0.07
2003	1.22 - 1.41	0.85-1.13	1.38 - 2.04	0.40 - 0.46	0.72 - 0.76	0.07 - 0.08
2004	1.15 - 1.35	0.81-1.08	0.15 - 0.28	0.59 - 0.66	0.6 - 0.65	0.12 - 0.14
2005	0.93 - 1.12	0.66-0.88	2.09 - 4.02	0.68 - 0.79	0.53 - 0.59	0.16 - 0.19
2006	0.71 - 0.90	0.51-0.71	0.90 – 2.00	0.75 - 0.89	0.46 - 0.55	0.18 - 0.24
2007	0.50 - 0.71	0.37-0.55	0.01 - 0.02	0.75 - 0.93	0.44 - 0.55	0.20 - 0.29
2008	0.40 - 0.69	0.30-0.52	0.13 - 5.90	0.84 - 1.08	0.35 - 0.5	0.19 - 0.33
2009	0.30 - 0.65	0.22-0.49	0.26 - 12.80	0.64 - 0.96	0.42 - 0.62	0.10 - 0.23
2010	0.22 - 0.59	0.17-0.44	0.26 - 12.61	NA	NA	NA

Table 19. Estimated numbers at age (millions).

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15+
1960	1.95	1.55	1.23	0.98	0.78	0.62	0.49	0.39	0.31	0.25	0.20	0.16	0.12	0.10	0.08	0.11
1961	1.95	1.55	1.23	0.98	0.78	0.62	0.49	0.39	0.31	0.25	0.20	0.16	0.12	0.10	0.08	0.11
1962	0.10	1.55	1.23	0.98	0.78	0.62	0.49	0.39	0.31	0.25	0.20	0.16	0.12	0.10	0.08	0.11
1963	0.46	0.08	1.23	0.98	0.78	0.62	0.49	0.39	0.31	0.25	0.20	0.16	0.12	0.10	0.08	0.11
1964	0.81	0.37	0.06	0.98	0.78	0.62	0.49	0.39	0.31	0.25	0.20	0.16	0.12	0.10	0.08	0.11
1965	0.99	0.64	0.29	0.05	0.78	0.62	0.49	0.39	0.31	0.25	0.20	0.16	0.12	0.10	0.08	0.11
1966	1.13	0.78	0.51	0.23	0.04	0.62	0.49	0.39	0.31	0.25	0.20	0.16	0.12	0.10	0.08	0.11
1967	1.24	0.89	0.62	0.40	0.18	0.03	0.47	0.37	0.29	0.23	0.18	0.14	0.11	0.09	0.07	0.11
1968	1.68	0.99	0.71	0.49	0.31	0.14	0.02	0.35	0.26	0.20	0.15	0.11	0.09	0.07	0.06	0.09
1969	0.92	1.33	0.78	0.56	0.38	0.24	0.11	0.02	0.26	0.19	0.14	0.10	0.08	0.06	0.04	0.08
1970	4.63	0.73	1.06	0.62	0.44	0.29	0.18	0.08	0.01	0.18	0.13	0.09	0.06	0.04	0.03	0.06
1971	1.33	3.68	0.58	0.82	0.47	0.33	0.21	0.13	0.05	0.01	0.10	0.06	0.04	0.02	0.02	0.04
1972	0.52	1.06	2.92	0.45	0.62	0.35	0.23	0.15	0.08	0.03	0.00	0.05	0.03	0.02	0.01	0.03
1973	4.44	0.42	0.84	2.29	0.35	0.48	0.26	0.17	0.10	0.05	0.02	0.00	0.03	0.01	0.01	0.02
1974	0.72	3.53	0.33	0.65	1.74	0.26	0.34	0.18	0.11	0.06	0.03	0.01	0.00	0.01	0.01	0.01
1975	2.14	0.57	2.81	0.25	0.49	1.28	0.18	0.23	0.11	0.07	0.03	0.02	0.00	0.00	0.01	0.01
1976	0.99	1.70	0.46	2.16	0.19	0.36	0.91	0.12	0.15	0.07	0.04	0.02	0.01	0.00	0.00	0.01
1977	12.07	0.79	1.35	0.35	1.63	0.14	0.25	0.61	0.08	0.09	0.04	0.02	0.01	0.00	0.00	0.00
1978	1.20	9.59	0.62	1.05	0.27	1.24	0.11	0.19	0.43	0.05	0.06	0.02	0.01	0.01	0.00	0.00
1979	2.30	0.95	7.62	0.49	0.82	0.21	0.94	0.08	0.14	0.31	0.04	0.04	0.02	0.01	0.00	0.00
1980	33.39	1.83	0.76	5.98	0.38	0.63	0.16	0.70	0.06	0.10	0.21	0.03	0.03	0.01	0.01	0.00
1981	0.09	26.53	1.45	0.60	4.70	0.30	0.49	0.12	0.53	0.04	0.07	0.15	0.02	0.02	0.01	0.01
1982	0.17	0.07	21.08	1.15	0.47	3.67	0.23	0.37	0.09	0.38	0.03	0.05	0.10	0.01	0.01	0.01
1983	0.57	0.13	0.06	16.71	0.91	0.37	2.87	0.18	0.28	0.07	0.28	0.02	0.03	0.07	0.01	0.01
1984	17.37	0.45	0.11	0.05	13.22	0.72	0.29	2.23	0.14	0.21	0.05	0.20	0.02	0.02	0.05	0.01
1985	0.01	13.80	0.36	0.08	0.04	10.43	0.56	0.23	1.71	0.10	0.16	0.04	0.15	0.01	0.02	0.04
1986	0.39	0.01	10.96	0.28	0.07	0.03	8.18	0.44	0.18	1.33	0.08	0.12	0.03	0.11	0.01	0.03
1987	5.27	0.31	0.01	8.64	0.22	0.05	0.02	6.32	0.34	0.13	1.01	0.06	0.09	0.02	0.09	0.02
1988	2.22	4.19	0.25	0.01	6.78	0.17	0.04	0.02	4.83	0.26	0.10	0.76	0.05	0.07	0.02	0.07
1989	0.08	1.77	3.33	0.19	0.00	5.29	0.14	0.03	0.01	3.65	0.19	0.08	0.57	0.03	0.05	0.04
1990	3.18	0.06	1.40	2.62	0.15	0.00	4.00	0.10	0.02	0.01	2.74	0.14	0.06	0.43	0.03	0.06
1991	0.79	2.52	0.05	1.11	2.00	0.11	0.00	3.02	0.08	0.02	0.01	2.07	0.11	0.04	0.33	0.05
1992	0.01	0.63	2.00	0.04	0.83	1.50	0.08	0.00	2.24	0.06	0.01	0.01	1.54	0.08	0.03	0.23
1993	2.40	0.01	0.50	1.57	0.03	0.62	1.10	0.06	0.00	1.63	0.04	0.01	0.00	1.13	0.06	0.14
1994	2.18	1.91	0.01	0.39	1.22	0.02	0.47	0.82	0.05	0.00	1.21	0.03	0.01	0.00	0.85	0.11
1995	1.62	1.73	1.52	0.01	0.29	0.89	0.02	0.32	0.56	0.03	0.00	0.81	0.02	0.00	0.00	0.54
1996	2.09	1.29	1.37	1.16	0.01	0.21	0.64	0.01	0.22	0.38	0.02	0.00	0.56	0.01	0.00	0.26
1997	1.28	1.66	1.02	1.04	0.85	0.00	0.15	0.41	0.01	0.14	0.24	0.01	0.00	0.36	0.01	0.13
1998	2.45	1.02	1.32	0.78	0.77	0.61	0.00	0.09	0.25	0.00	0.07	0.13	0.01	0.00	0.20	0.06
1999	11.77	1.94	0.81	1.00	0.57	0.54	0.39	0.00	0.05	0.12	0.00	0.03	0.06	0.00	0.00	0.11
2000	0.43	9.35	1.54	0.61	0.72	0.39	0.33	0.22	0.00	0.02	0.05	0.00	0.01	0.02	0.00	0.04
2001	0.92	0.34	7.43	1.17	0.45	0.50	0.25	0.20	0.12	0.00	0.01	0.02	0.00	0.01	0.01	0.01
2002	0.01	0.73	0.27	5.79	0.83	0.30	0.32	0.16	0.13	0.08	0.00	0.01	0.01	0.00	0.00	0.01
2003	1.68	0.00	0.58	0.22	4.39	0.61	0.21	0.23	0.11	0.09	0.05	0.00	0.00	0.01	0.00	0.01
2004	0.20	1.33	0.00	0.46	0.16	3.25	0.44	0.15	0.17	0.08	0.07	0.04	0.00	0.00	0.01	0.00
2005	2.90	0.16	1.06	0.00	0.34	0.11	2.22	0.30	0.11	0.11	0.06	0.05	0.03	0.00	0.00	0.01
2006	1.34	2.31	0.13	0.80	0.00	0.24	0.08	1.46	0.19	0.06	0.07	0.03	0.03	0.02	0.00	0.00
2007	0.01	1.06	1.83	0.10	0.58	0.00	0.16	0.05	0.87	0.11	0.04	0.04	0.02	0.02	0.01	0.00
2008	0.88	0.01	0.84	1.36	0.07	0.40	0.00	0.10	0.03	0.50	0.06	0.02	0.02	0.01	0.01	0.01
2009	1.84	0.70	0.01	0.61	0.94	0.04	0.24	0.00	0.05	0.01	0.24	0.03	0.01	0.01	0.01	0.01
2010	1.81	1.46	0.55	0.00	0.45	0.66	0.03	0.15	0.00	0.03	0.01	0.13	0.02	0.01	0.01	0.01

Table 20. Three-year projections of maximum likelihood-based Pacific hake ABC, OY, spawning biomass and depletion for the base case model based on the 40:10 harvest control rule and the $F_{40\%}$ overfishing limit/target.

Year	ABC (mt)	OY (mt)	Female spawning biomass (millions mt)	~95% confidence interval	Estimated depletion	~95% confidence interval
2010	253,517	224,975	0.41	0.22 - 0.59	31%	17% - 44%
2011	226,067	181,462	0.34	0.12 - 0.55	25%	10% - 41%
2012	221,866	181,185	0.34	0.01 - 0.68	26%	1% - 51%

Table 21. Decision table with three year projections of posterior distributions for Pacific hake female spawning biomass, depletion (both of at the beginning of the year, before fishing takes place) and relative spawning potential ratio (1-SPR/1-$SPR_{Target=0.4}$; values greater than 1.0 denote overfishing). Catch alternatives are based on: 1) arbitrary constant catch levels of 50,000, 100,000, 150,000 and 200,000 mt (rows a, b, c, and e), 2) the status quo OY from 2009 (row d), and 3) the values estimated via the 40:10 harvest control rule and the $F_{40\%}$ overfishing limit/target for the base case MLE model (row f; from Table f above).

			States of nature														
Management Action			Female spawning biomass (millions mt) posterior interval					Estimated depletion posterior interval					Relative spawning potential ratio posterior interval				
	Year	Catch	5th	25th	50th	75th	95th	5th	25th	50th	75th	95th	5th	25th	50th	75th	95th
	2010	50,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.27	0.33	0.37	0.43	0.51
a	2011	50,000	0.25	0.33	0.40	0.47	0.63	19%	25%	30%	35%	46%	0.24	0.31	0.35	0.41	0.50
	2012	50,000	0.25	0.33	0.42	0.52	0.86	19%	25%	31%	39%	63%	0.20	0.28	0.34	0.40	0.51
	2010	100,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.47	0.56	0.62	0.69	0.80
b	2011	100,000	0.23	0.31	0.37	0.45	0.61	17%	23%	28%	34%	45%	0.43	0.54	0.62	0.70	0.83
	2012	100,000	0.21	0.29	0.37	0.48	0.81	15%	22%	28%	36%	60%	0.39	0.53	0.61	0.72	0.88
	2010	150,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.62	0.72	0.79	0.87	0.98
c	2011	150,000	0.21	0.29	0.35	0.43	0.59	16%	21%	26%	32%	43%	0.59	0.73	0.82	0.92	1.06
	2012	150,000	0.16	0.24	0.33	0.44	0.77	12%	19%	25%	32%	57%	0.55	0.73	0.84	0.97	1.16
	2010	184,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.70	0.81	0.88	0.96	1.07
d	2011	184,000	0.19	0.27	0.33	0.41	0.57	14%	20%	25%	31%	42%	0.69	0.84	0.93	1.03	1.18
	2012	184,000	0.13	0.22	0.30	0.41	0.74	10%	16%	22%	30%	54%	0.65	0.85	0.98	1.11	1.31
	2010	200,000	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.74	0.85	0.92	0.99	1.10
e	2011	200,000	0.18	0.26	0.33	0.40	0.56	14%	19%	25%	30%	41%	0.73	0.88	0.97	1.08	1.23
	2012	200,000	0.12	0.20	0.29	0.39	0.73	9%	15%	21%	29%	53%	0.69	0.90	1.03	1.17	1.38
	2010	224,975	0.27	0.34	0.39	0.46	0.58	20%	25%	30%	35%	43%	0.79	0.90	0.97	1.04	1.15
f	2011	181,462	0.17	0.25	0.31	0.39	0.55	13%	19%	24%	29%	40%	0.70	0.85	0.95	1.05	1.21
	2012	181,185	0.12	0.20	0.29	0.39	0.72	8%	15%	21%	29%	53%	0.66	0.86	0.99	1.14	1.35

Table 22. Select likelihoods, parameters and estimated quantities for sensitivity analyses to the precision of the 2009 acoustic biomass estimate. Likelihood values in italics are not comparable.

	Base (2009 SE log-space = 0.5)	SE log-space = 0.40	SE log-space = 0.30	SE log-space = 0.25
Change in negative log-likelihood				
Total	0.00	*0.90*	*2.40*	*3.60*
Survey data	0.00	*0.40*	*0.87*	*1.00*
Length data	0.00	-0.14	-0.52	-0.96
Age data	0.00	1.00	3.30	5.30
Parameters				
Number	95	95	95	95
Ln(R_0)	14.49	14.49	14.5	14.5
Steepness (*h*)	0.88	0.88	0.88	0.88
M (ages 0-13)	0.23	0.23	0.23	0.23
M (age 15+)	0.62	0.62	0.62	0.62
Acoustic catchability (*Q*)	0.94	0.95	0.95	0.95
Length at age 12	53.21	53.21	53.21	53.21
Von Bertalanffy *K*	0.30	0.30	0.30	0.30
Reference points				
SB_0 (million mt)	1.33	1.34	1.34	1.35
2010 Depletion	31%	33%	38%	43%

Table 23. Select likelihoods, parameters and estimated quantities for additional sensitivity analyses. Likelihood values in italics are not comparable.

	Base	Shrimp fishery bycatch index	Pre-recruit index	M estimated	Alt cohort age-error	No cohort age-error	Fishery sel. blocks 08-09	Iteratively reweight
Change in negative log-likelihood								
Total	0.00	*4.90*	*10.50*	-0.10	648.80	9,042	-42.10	*10,173*
Survey data	0.00	*4.79*	*9.77*	0.14	0.30	-0.05	-0.61	*1.40*
Length data	0.00	-0.19	0.01	-0.01	13.69	32.51	-6.39	*-1.65*
Age data	0.00	0.60	1.80	0.00	635.50	9,014	-33.80	*10,130*
Parameters								
Number	95	96	96	96	95	95	99	95
Ln(R_0)	14.49	14.49	14.48	14.55	14.48	14.50	14.50	14.48
Steepness (h)	0.88	0.88	0.88	0.88	0.87	0.85	0.88	0.88
M (ages 0-13)	0.23	0.23	0.23	0.24	0.23	0.23	0.23	0.23
M (age 15+)	0.62	0.62	0.62	0.63	0.58	0.64	0.63	0.62
Acoustic catchability (Q)	0.94	0.94	0.94	0.92	0.95	0.96	0.83	0.97
Length at age 12	53.21	53.21	53.20	53.20	53.20	53.18	53.18	53.21
Von Bertalanffy K	0.3	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Reference points								
SB_0 (million mt)	1.33	1.33	1.32	1.36	1.33	1.35	1.34	1.31
2010 Depletion	31%	31%	30%	30%	28%	29%	31%	25%

Table 24. Select likelihoods, parameters and estimated quantities for requested sensitivity analyses. Likelihood values in italics are not comparable.

	Base	Split-sex growth	Split sel. For acoutic / trawl	Split acoustic *Q* 92/95	Start in 1994	Start in 1995
Change in negative log-likelihood						
Total	0.00	640.90	-3.20	-2.80	*-16,646*	*-19,268*
Survey data	0.00	-0.69	-3.03	-2.35	*2.52*	*4.85*
Length data	0.00	-87.10	0.06	0.47	*-674.37*	*-744.36*
Age data	0.00	1,020	-0.40	-0.60	*-15,651*	*-18,191*
Parameters						
Number	95	91	97	96	43	42
Ln(R_0)	14.49	14.53	14.49	14.49	15.66	14.46
Steepness (*h*)	0.88	0.88	0.88	0.88	0.84	0.83
M (ages 0-13)	0.23	0.23	0.23	0.23	0.23	0.23
M (age 15+)	0.62	0.77-F 0.42-M	0.62	0.63	0.20	0.33
Acoustic catchability (*Q*)	0.94	0.89	0.75	0.67 1.08	0.43	0.79
Length at age 12	53.21	55-F 50-M	53.2	53.21	50.45	50.26
Von Bertalanffy *K*	0.3	0.28-F 0.40-M	0.30	0.30	0.35	0.36
Reference points						
SB_0 (million mt)	1.33	1.48	1.33	1.34	1.26	1.07
2010 Depletion	31%	30%	30%	27%	142%	13%

7. Figures

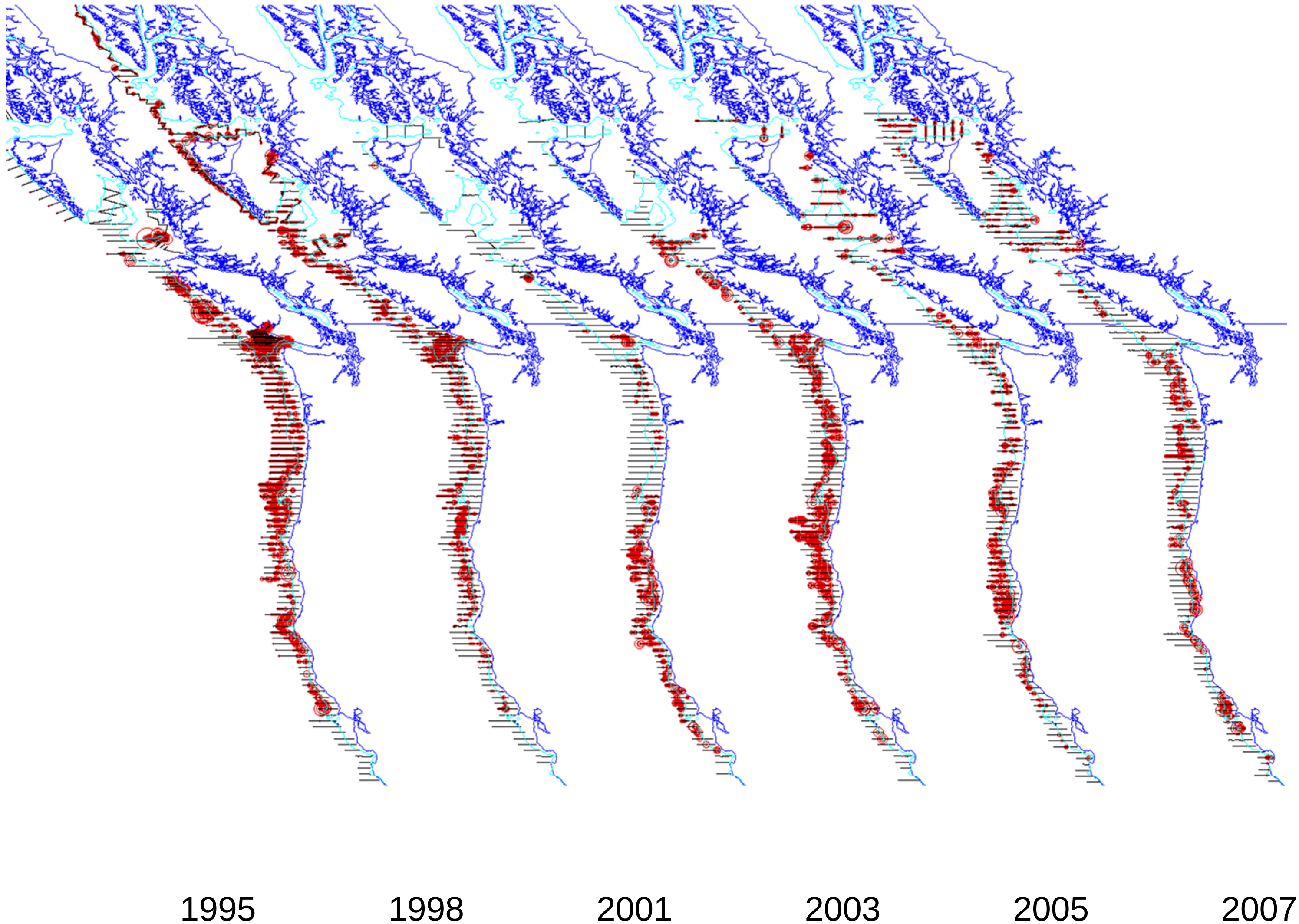


Figure 1. Occurrence of acoustic area backscattering attributable to Pacific hake in the last six (1995-2007) joint US-Canada acoustic surveys. Diameter of circles is proportional to measured backscatter levels.

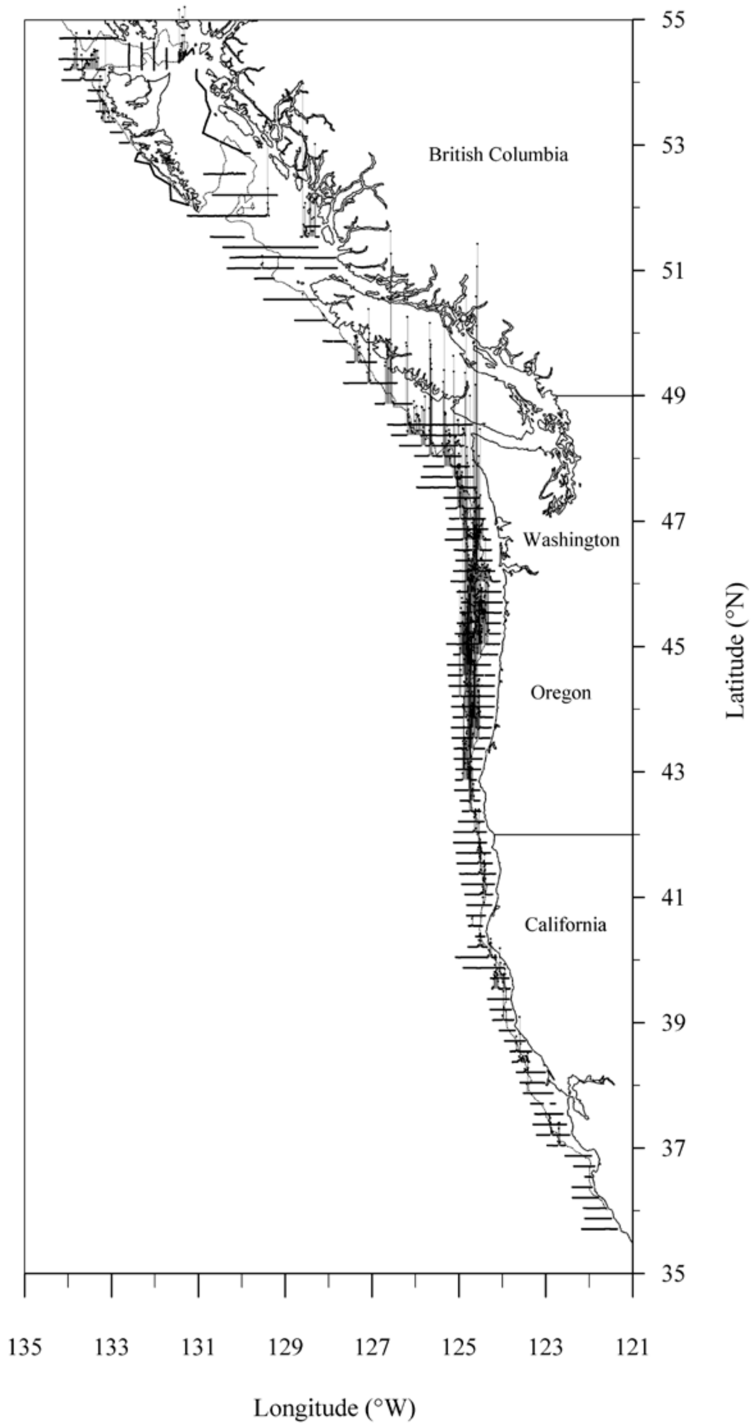


Figure 2. Distribution of acoustic backscattering attributed to Pacific hake along transects surveyed during the 2009 integrated acoustic and trawl survey. Thick lines represent transects, and the height of the light vertical lines is proportional to backscatter value.

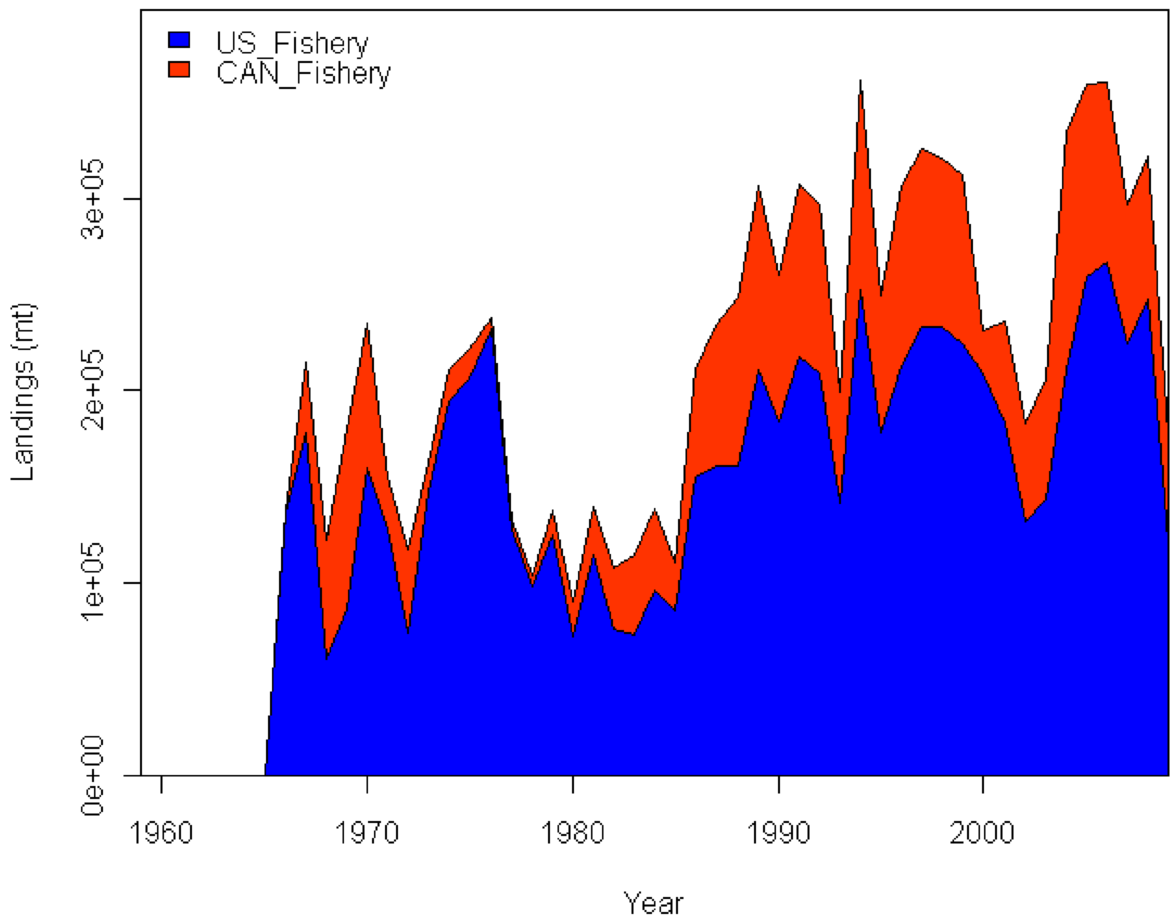


Figure 3. Total Pacific hake landings used in the assessment by nation, 1960-2009 (Canadian landings are represented by the lighter region above the darker U.S. values).

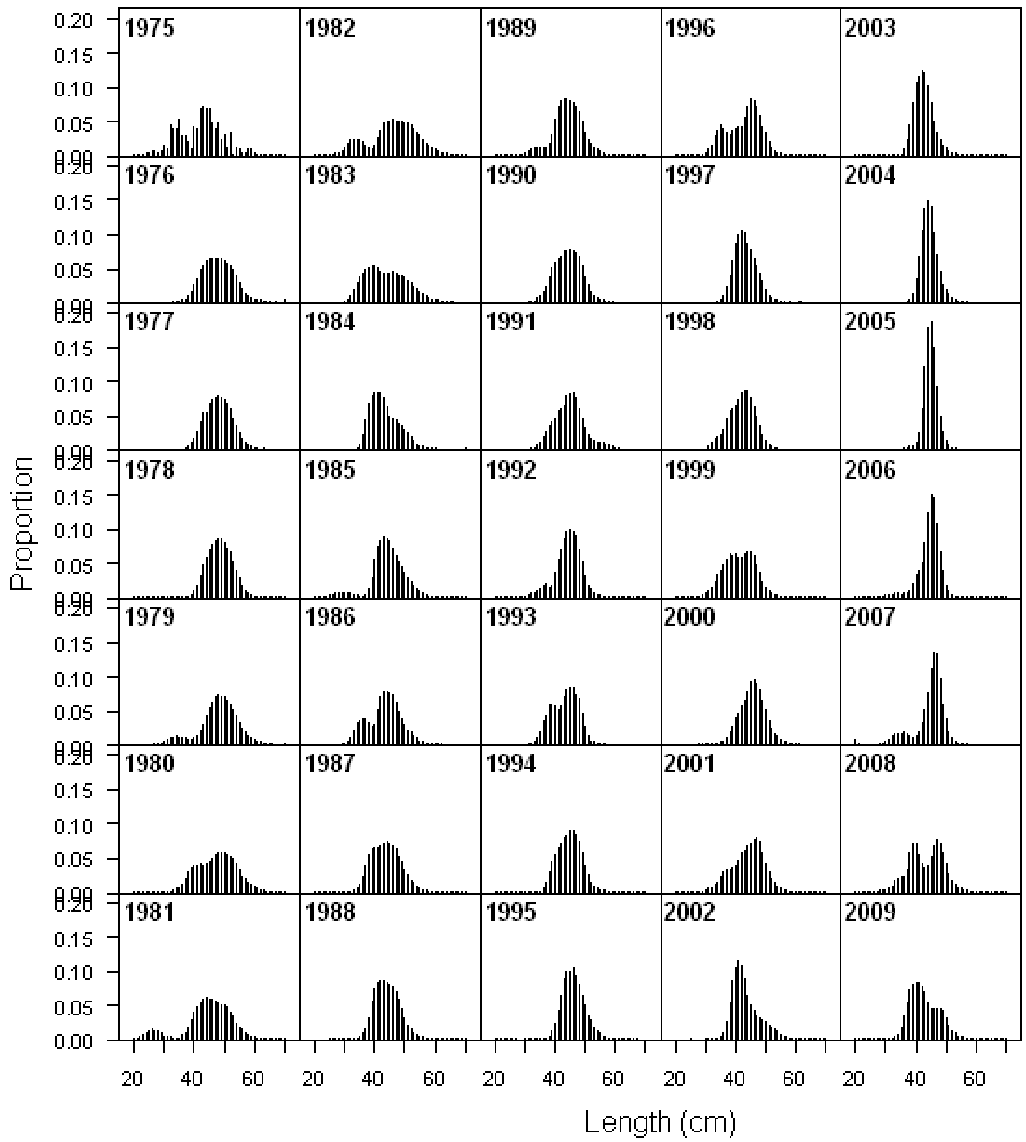


Figure 4. Plot of U.S. fishery (at-sea and shore-based combined) length compositions, 1975-2009.

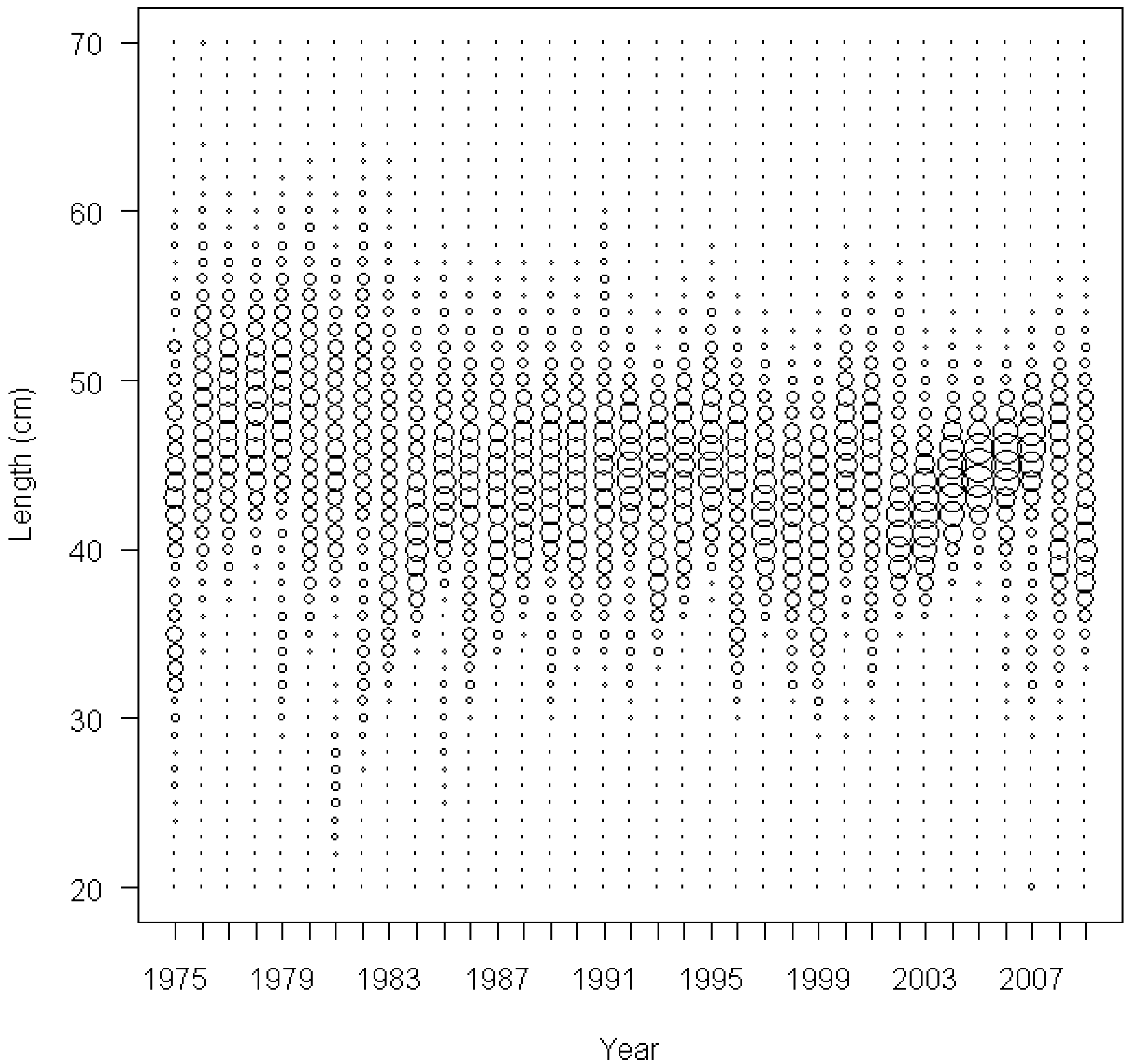


Figure 5. Plot of U.S. fishery (at-sea and shore-based combined) length compositions, 1975-2009. Diameter of circles is scaled to a maximum proportion of 0.19 and proportions sum to 1.0 in each year.

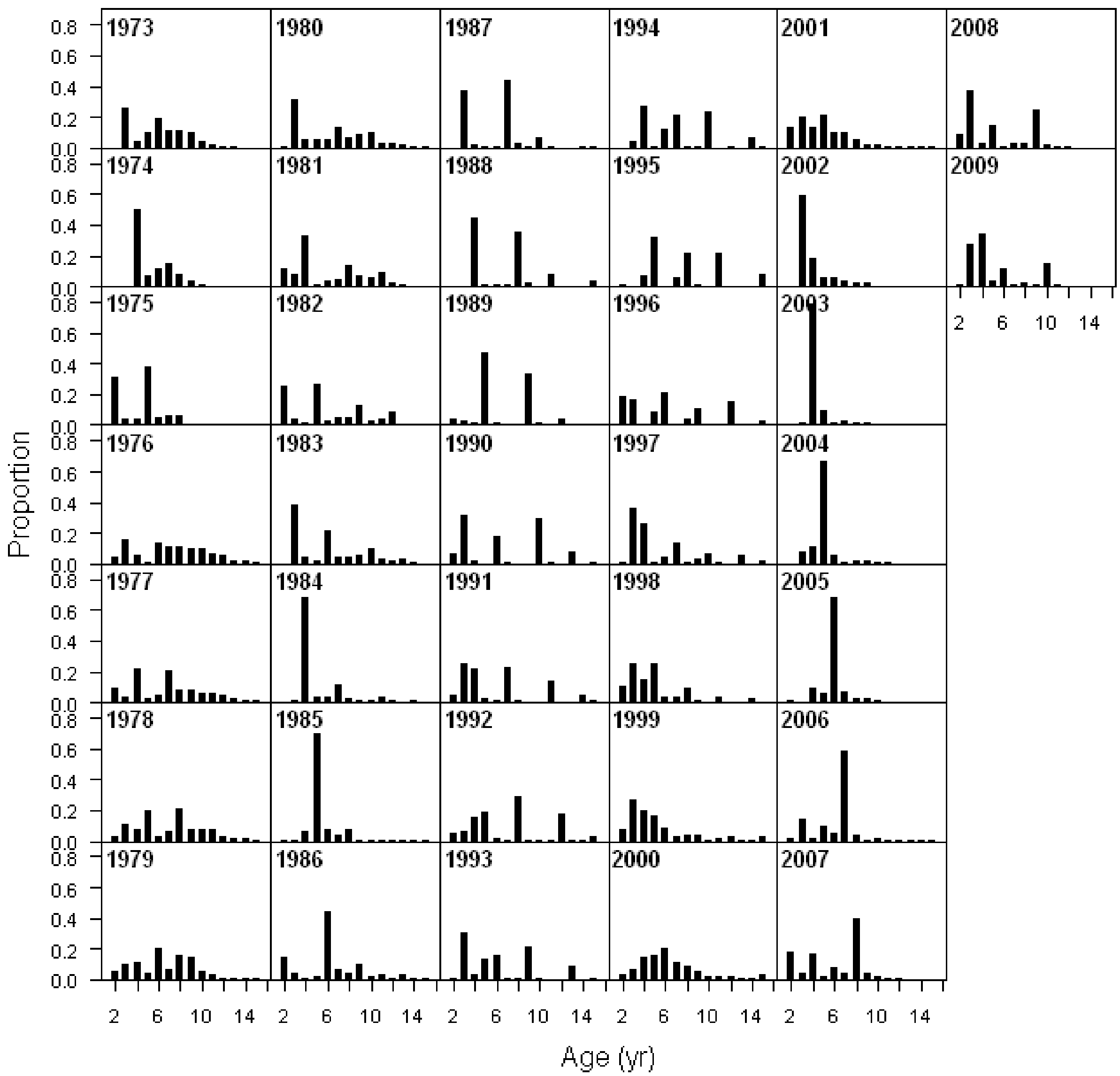


Figure 6. Plot of U.S. fishery (at-sea and shore-based combined) age compositions, 1973-2009.

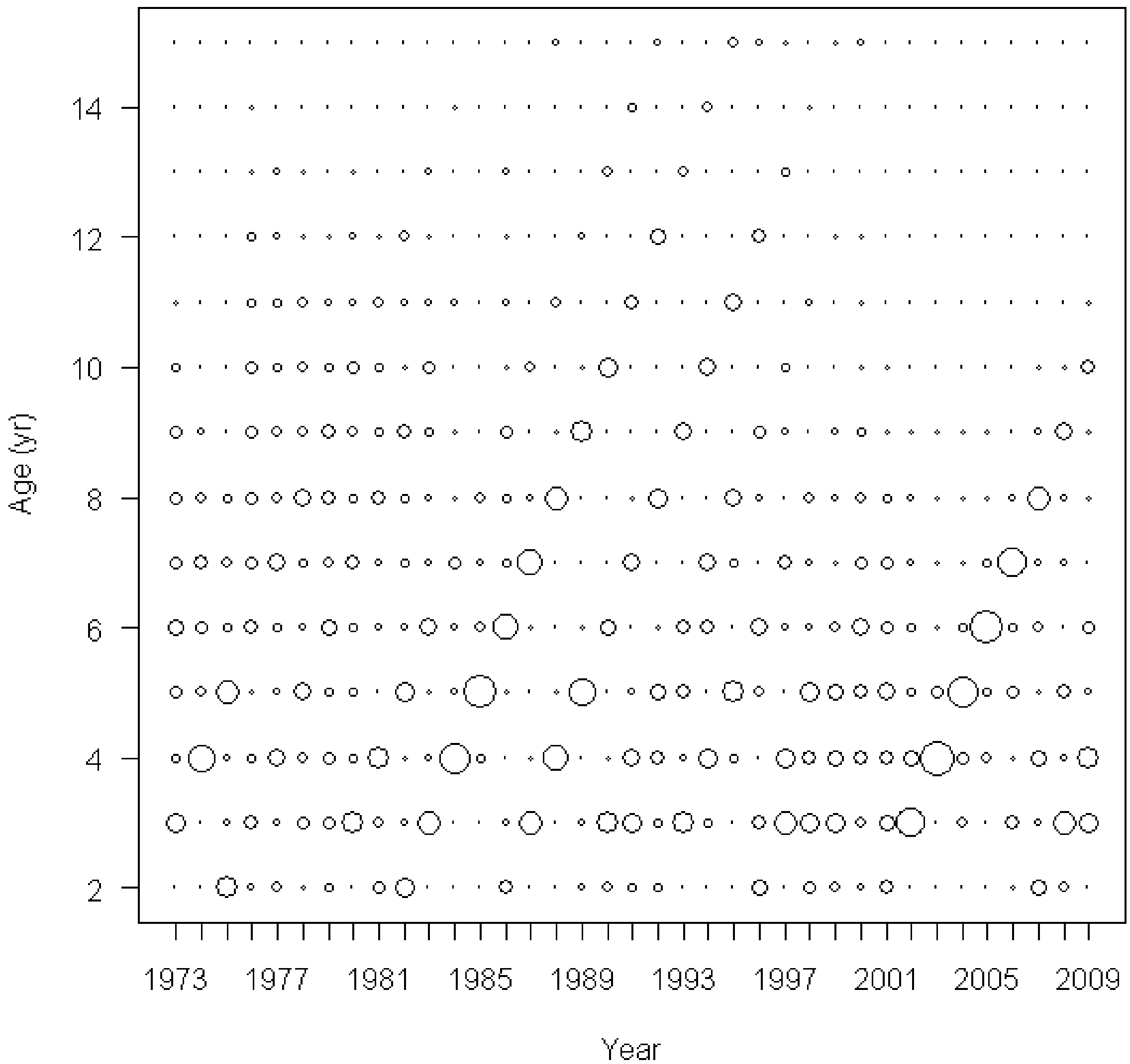


Figure 7. Plot of U.S. fishery (at-sea and shore-based combined) age compositions, 1973-2009. Diameter of circles is scaled to a maximum proportion of 0.78 and proportions sum to 1.0 in each year.

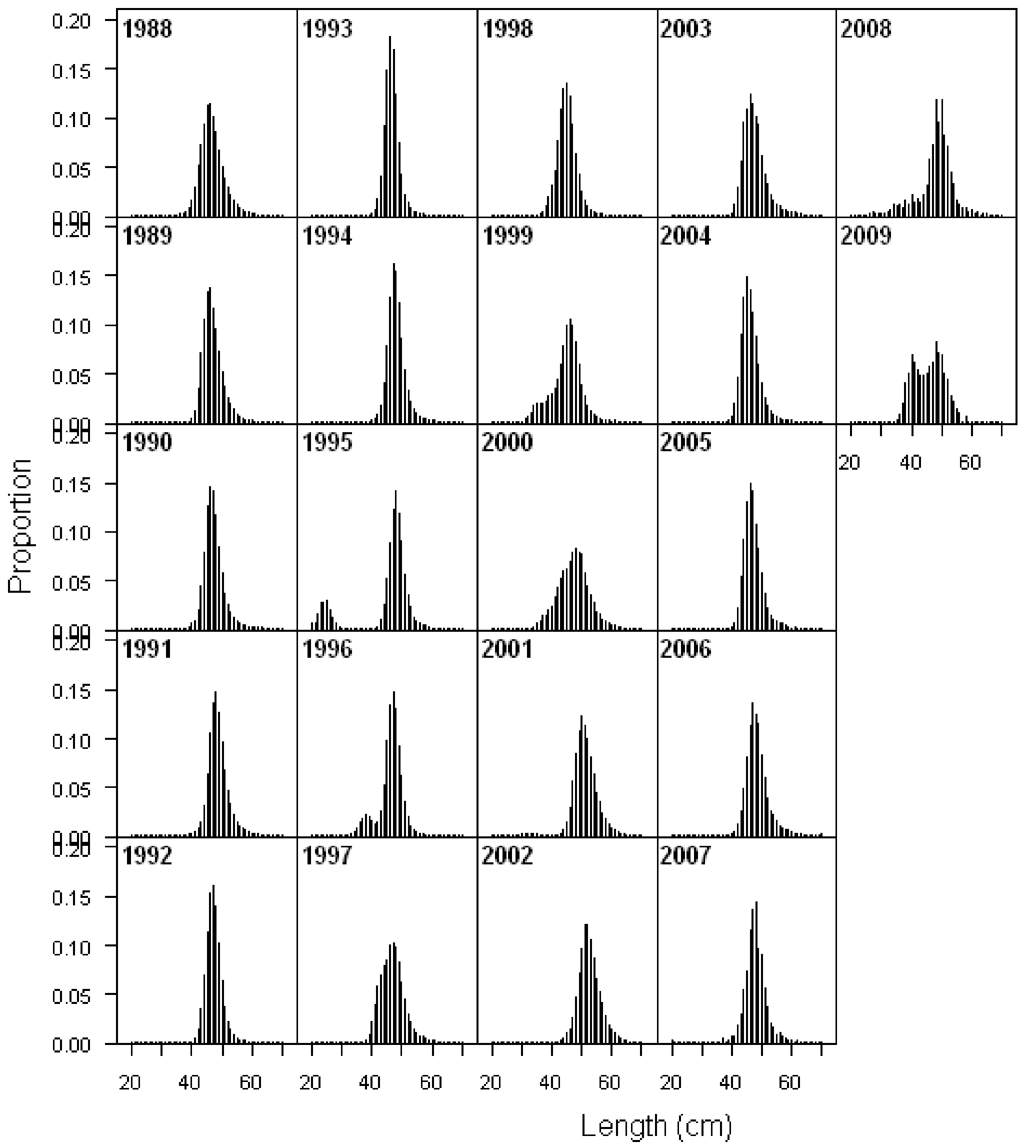


Figure 8. Plot of Canadian fishery (joint-venture and domestic combined) length compositions, 1988-2009.

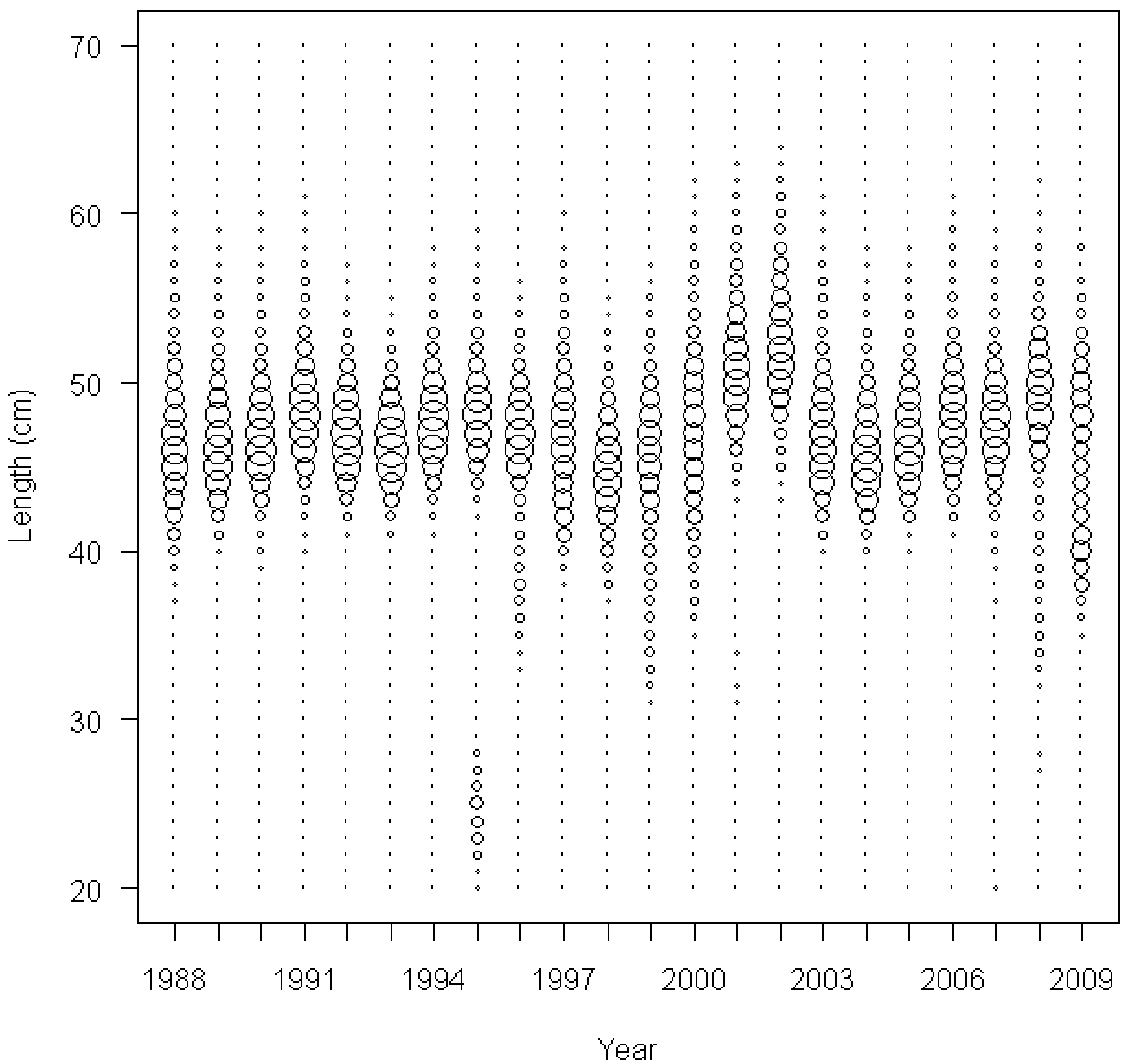


Figure 9. Plot of Canadian fishery (joint-venture and domestic combined) length compositions, 1988-2009. Diameter of circles is scaled to a maximum proportion of 0.18 and proportions sum to 1.0 in each year.

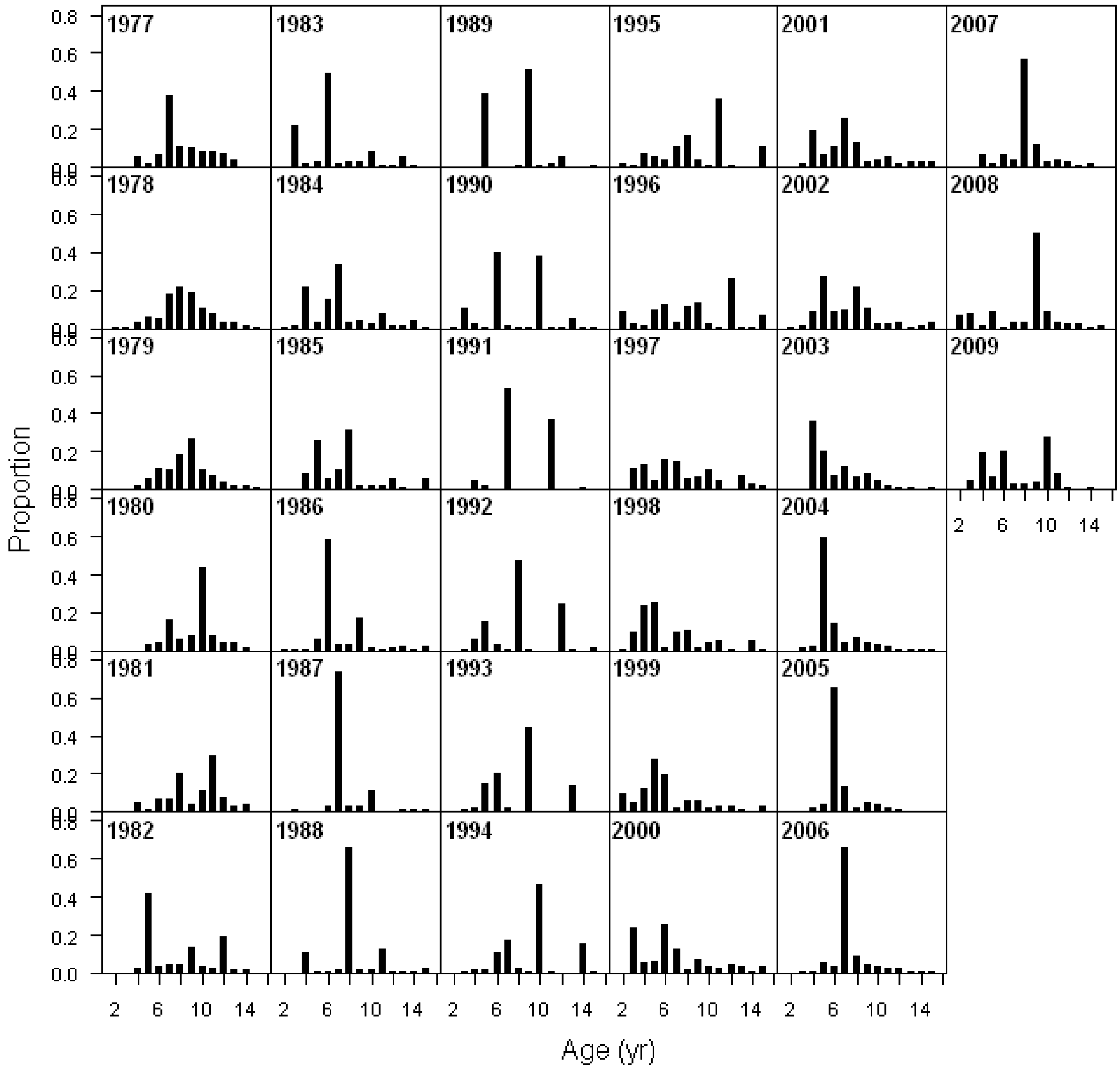


Figure 10. Plot of Canadian fishery (joint-venture and domestic combined) age compositions, 1977-2009.

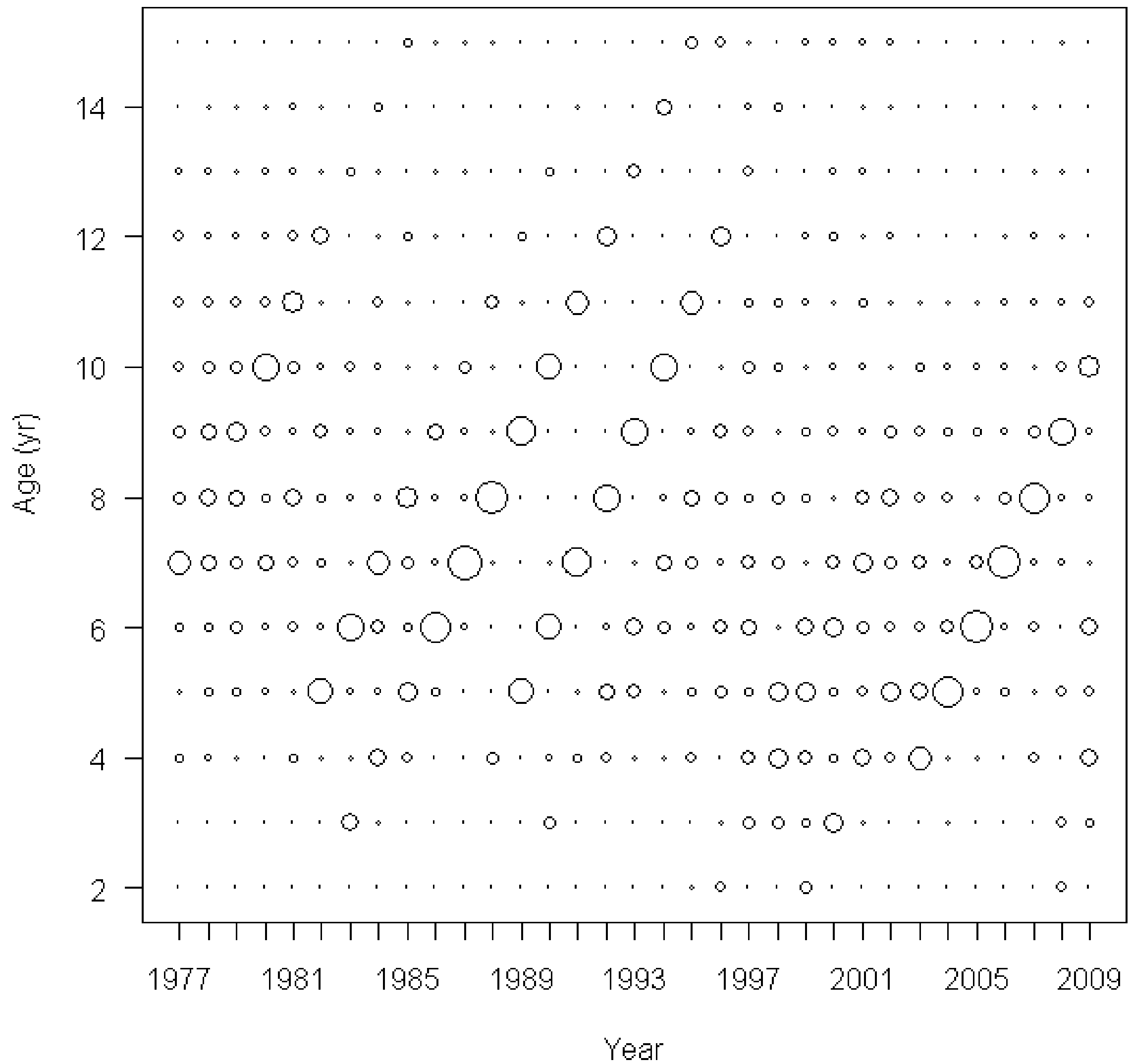


Figure 11. Plot of Canadian fishery (joint-venture and domestic combined) age compositions, 1988-2009. Diameter of circles is scaled to a maximum proportion of 0.73 and proportions sum to 1.0 in each year.

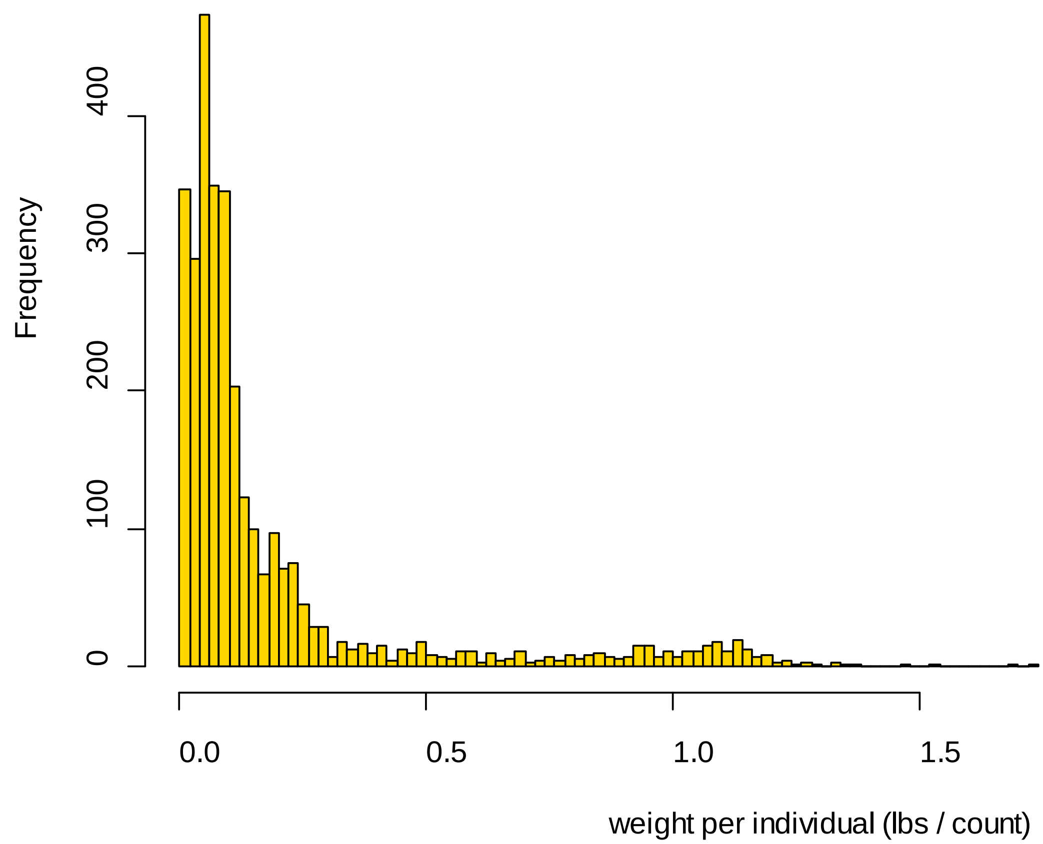


Figure 12. Distribution of average individual weight by haul for all hake sampled by WCGOP observer program 2004-2009.

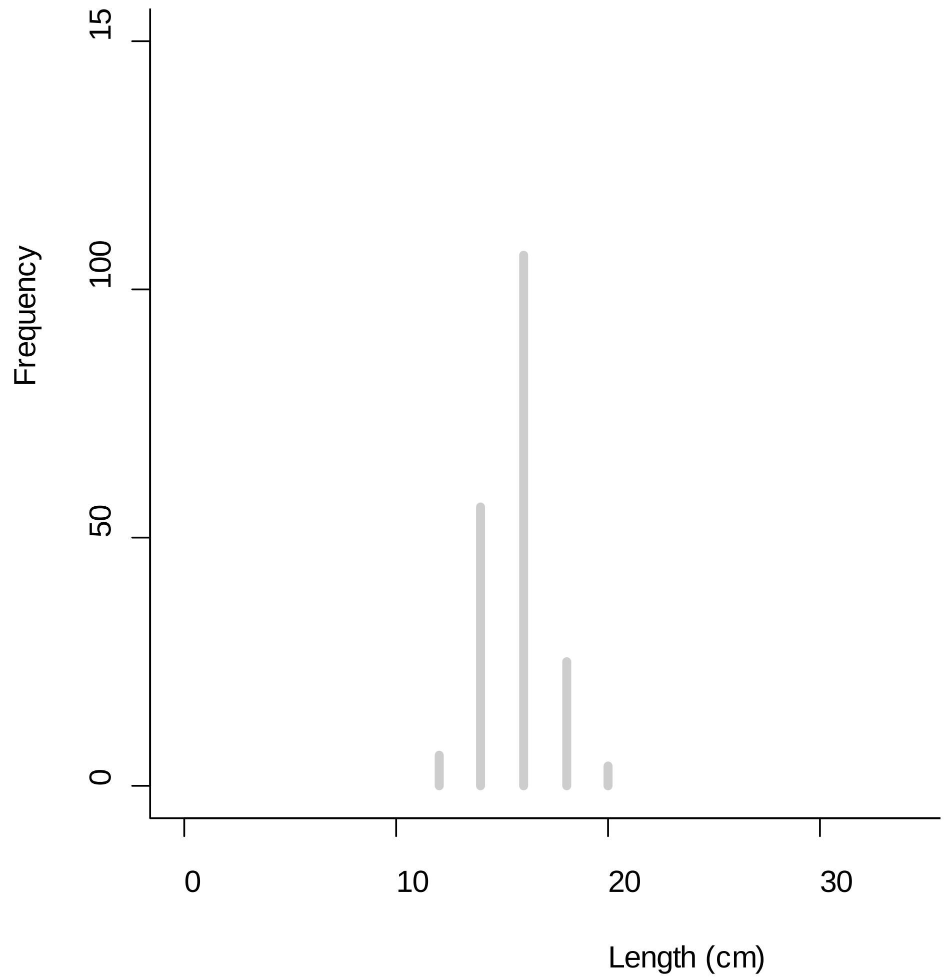


Figure 13. Length frequency distribution (unweighted) for hake measured by WCGOP observer program in January-April 2009 (N=198).

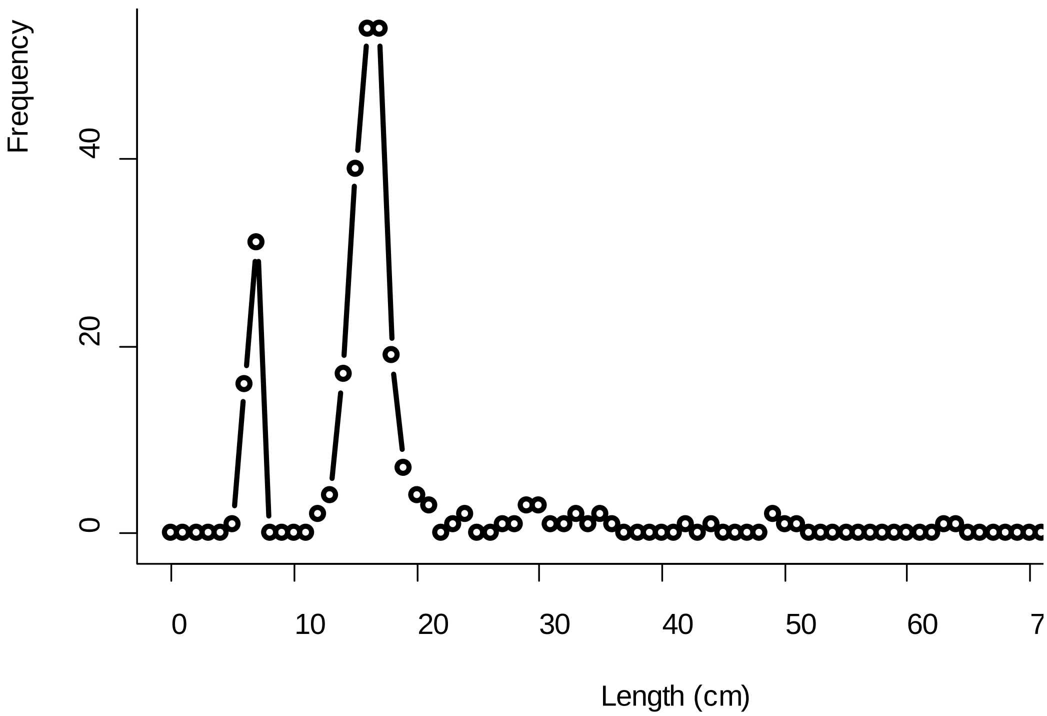


Figure 14. Length frequency distribution (unweighted) for hake, lingcod and sablefish measured by WCGOP observer program in January 2004 - April 2009 (N=278).

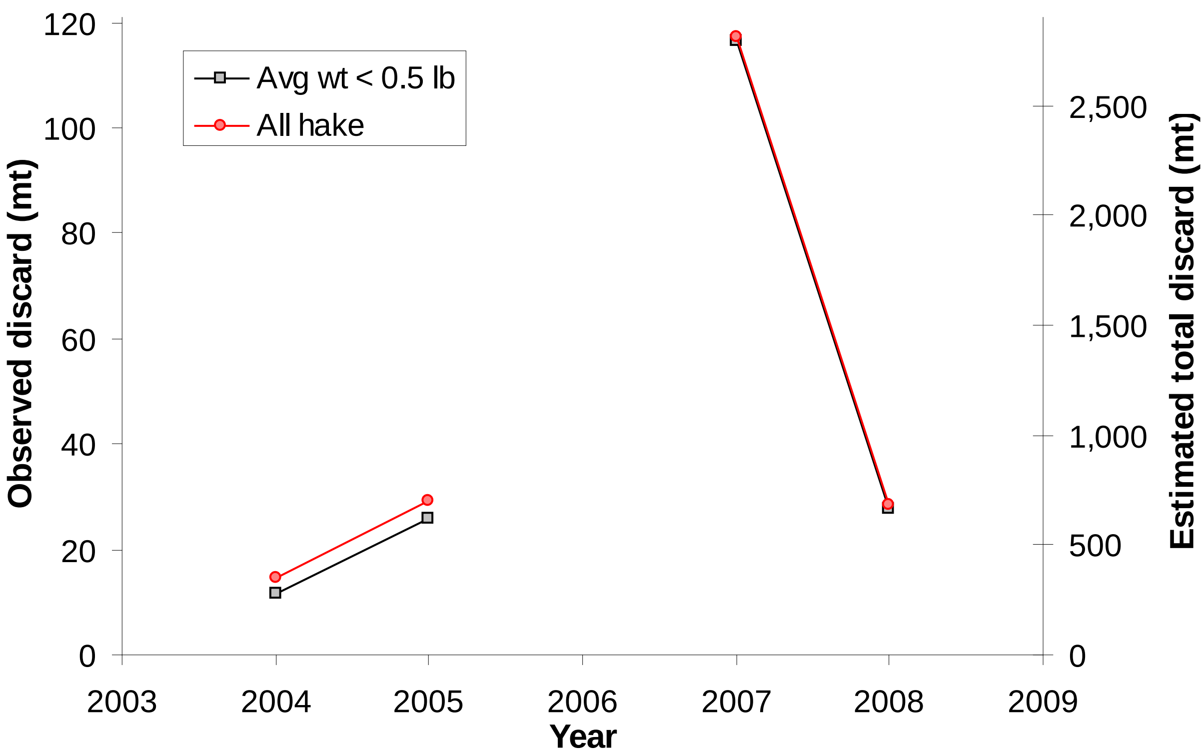


Figure 15. Time series of estimated discard of pink shrimp from WCGOP.

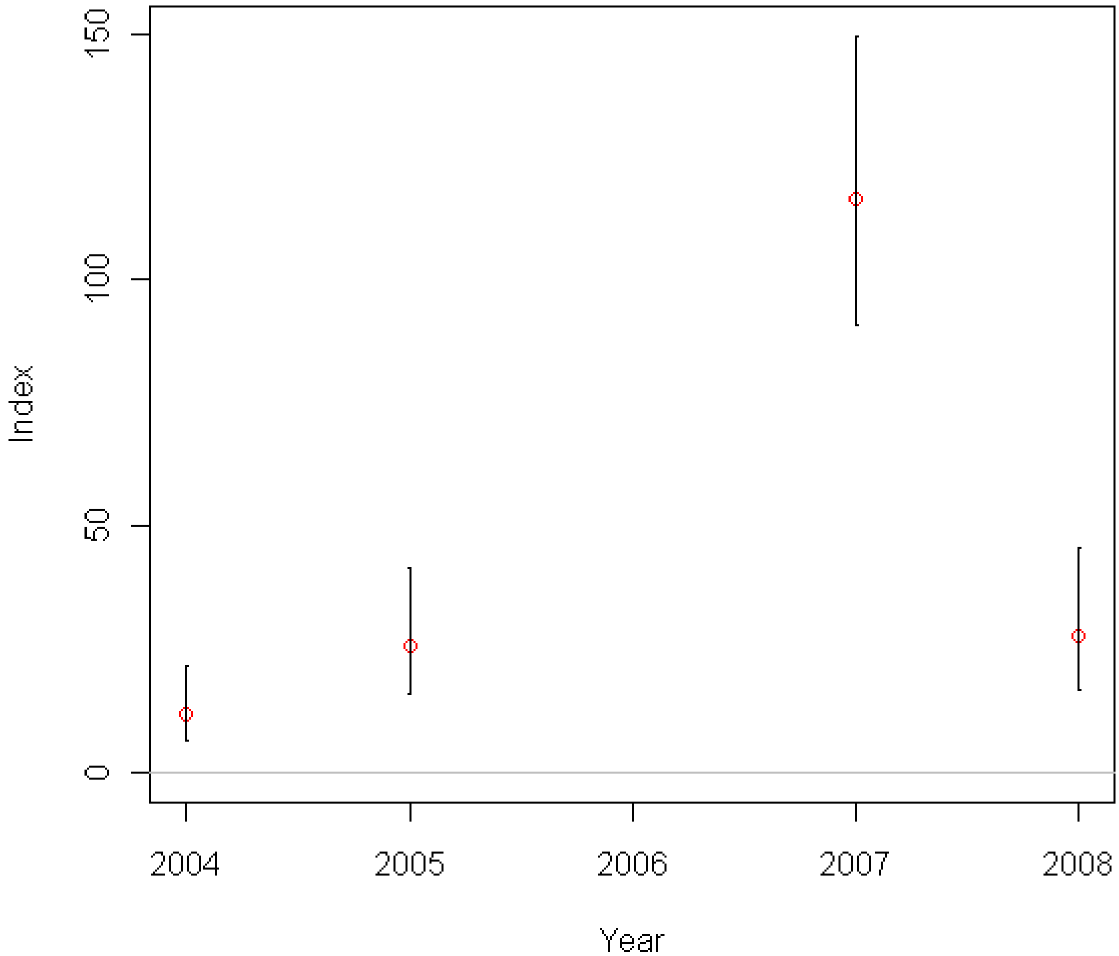


Figure 16. Index of juvenile hake abundance for evaluation in the stock assessment. Approximate 95% confidence intervals are based on an assumption of lognormal error and reflect only the sampling variance calculated directly from the observer data.

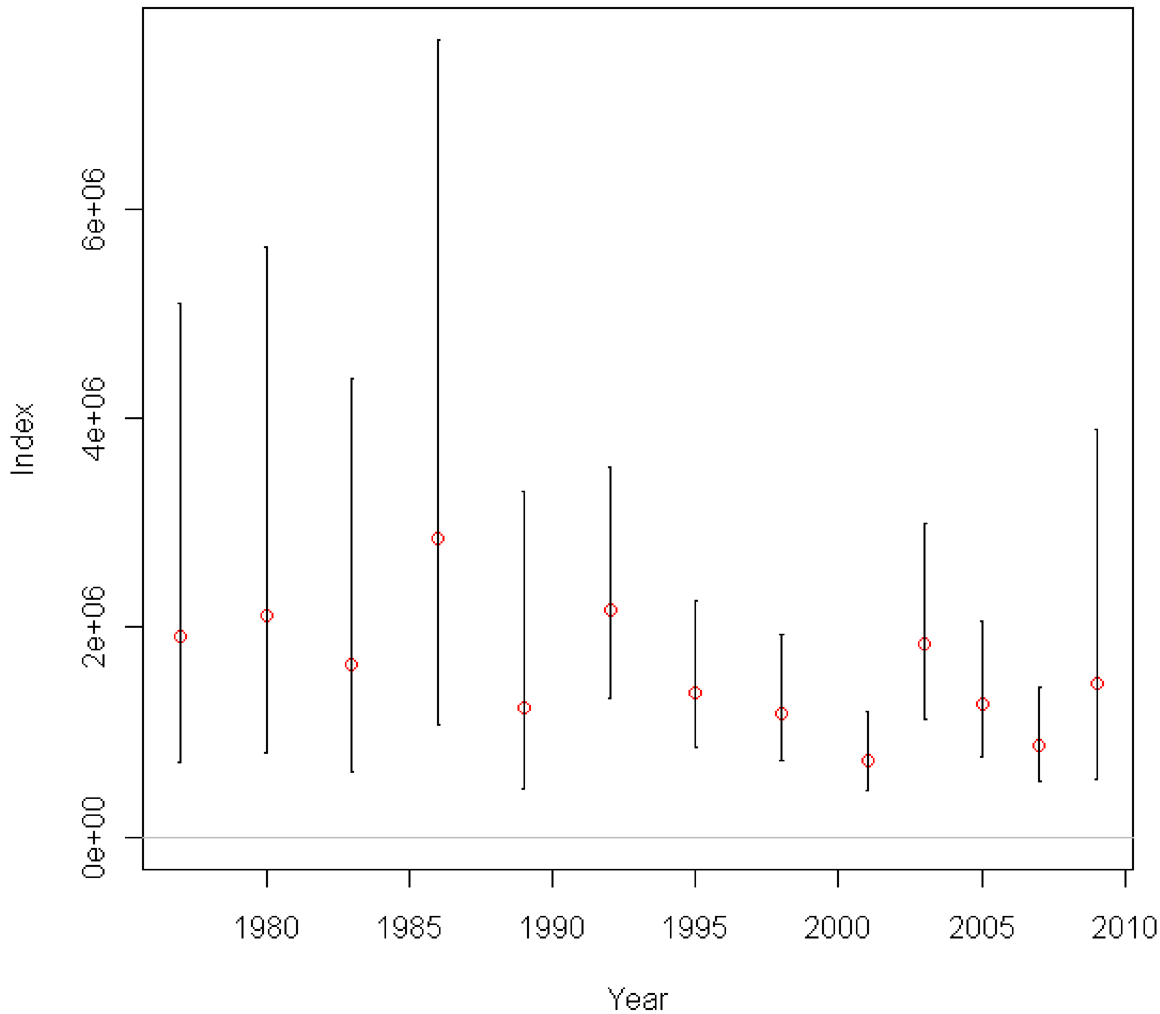


Figure 17. Time series of acoustic survey age 2+ biomass estimates, 1977-2009. Approximate 95% confidence intervals are based on an assumption of lognormal error and an assumed SE log(value) = 0.50: 1977-1989, 2009 and SE log(value) = 0.25: 1992-2007.

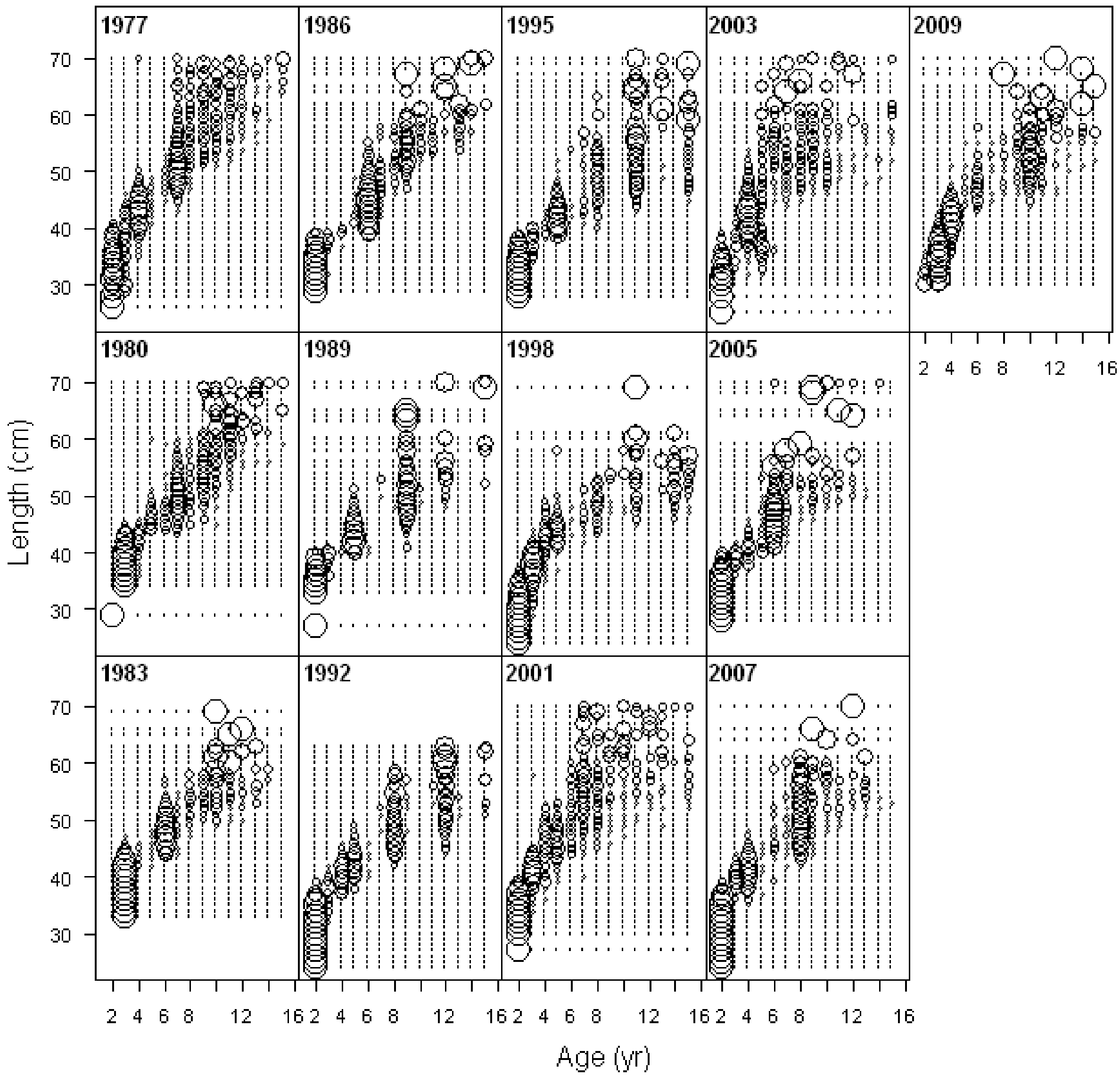


Figure 18. Conditional age-at-length compositions from the acoustic survey. Diameter of circles is scaled to a maximum proportion of 0.99 and proportions sum to 1.0 in each length.

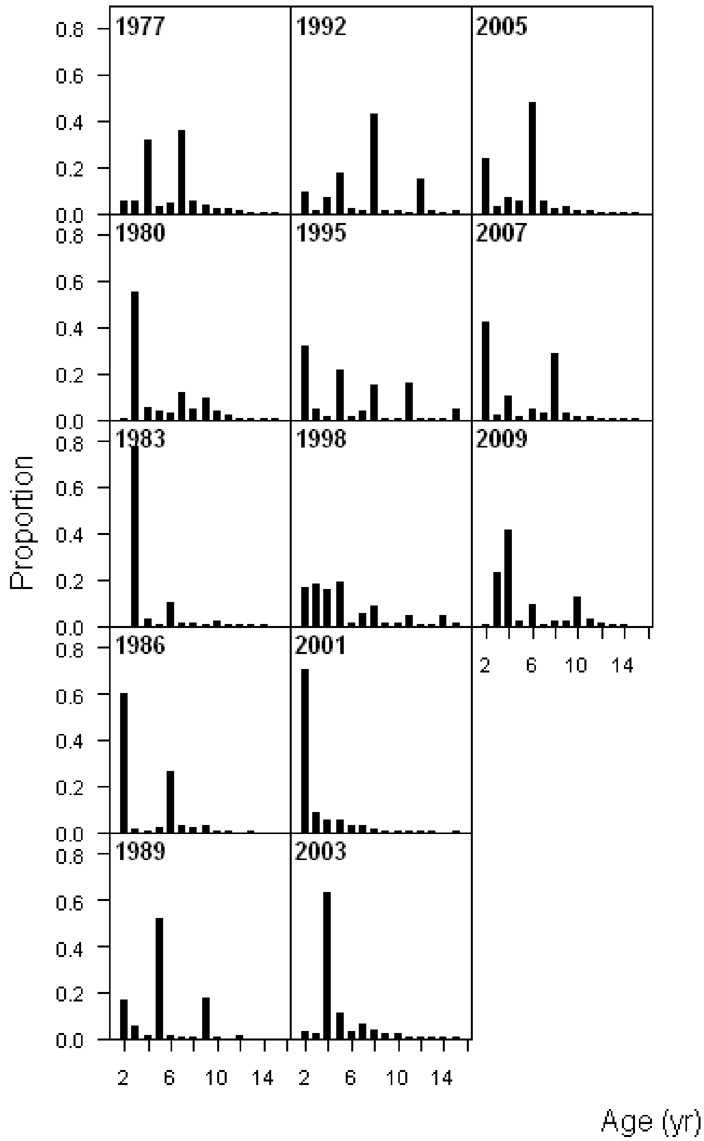


Figure 19. Plot of acoustic survey age compositions of Pacific hake off the west coast of the U.S and Canada, 1977-2009.

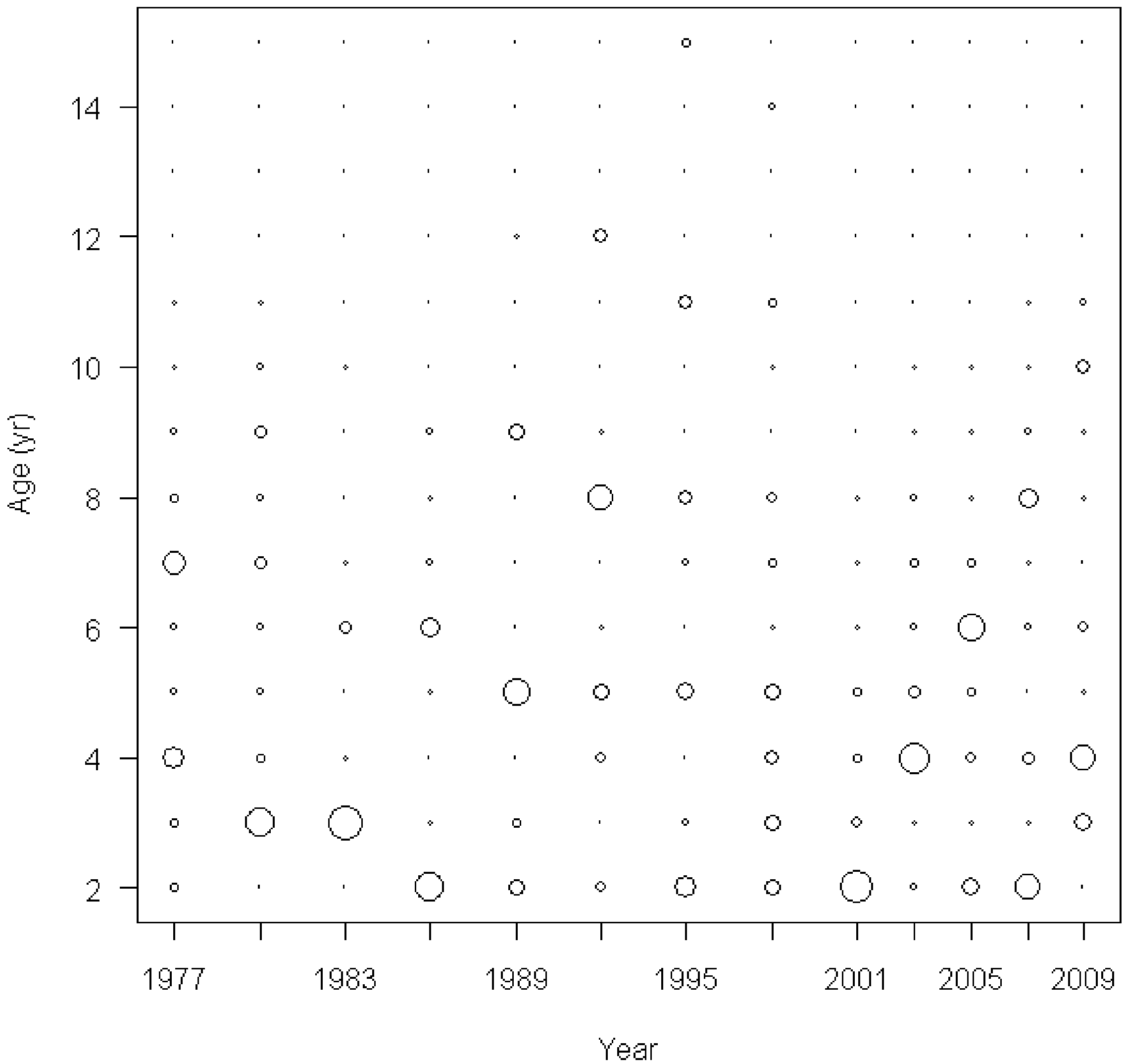


Figure 20. Plot of acoustic survey age compositions of coastal Pacific hake off the west coast of the U.S. and Canada, 1977-2009. Diameter of circles is scaled to a maximum proportion of 0.78 and proportions sum to 1.0 in each year.

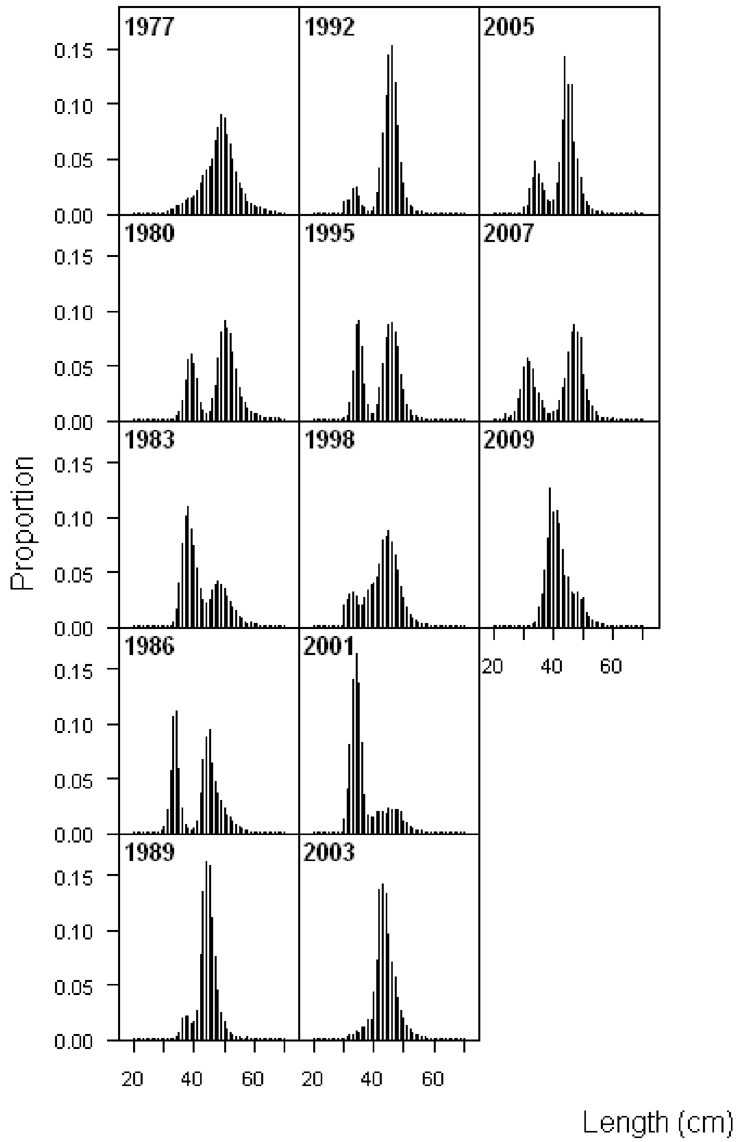


Figure 21. Plot of acoustic survey size compositions of coastal Pacific hake off the west coast of the U.S. and Canada, 1977-2009.

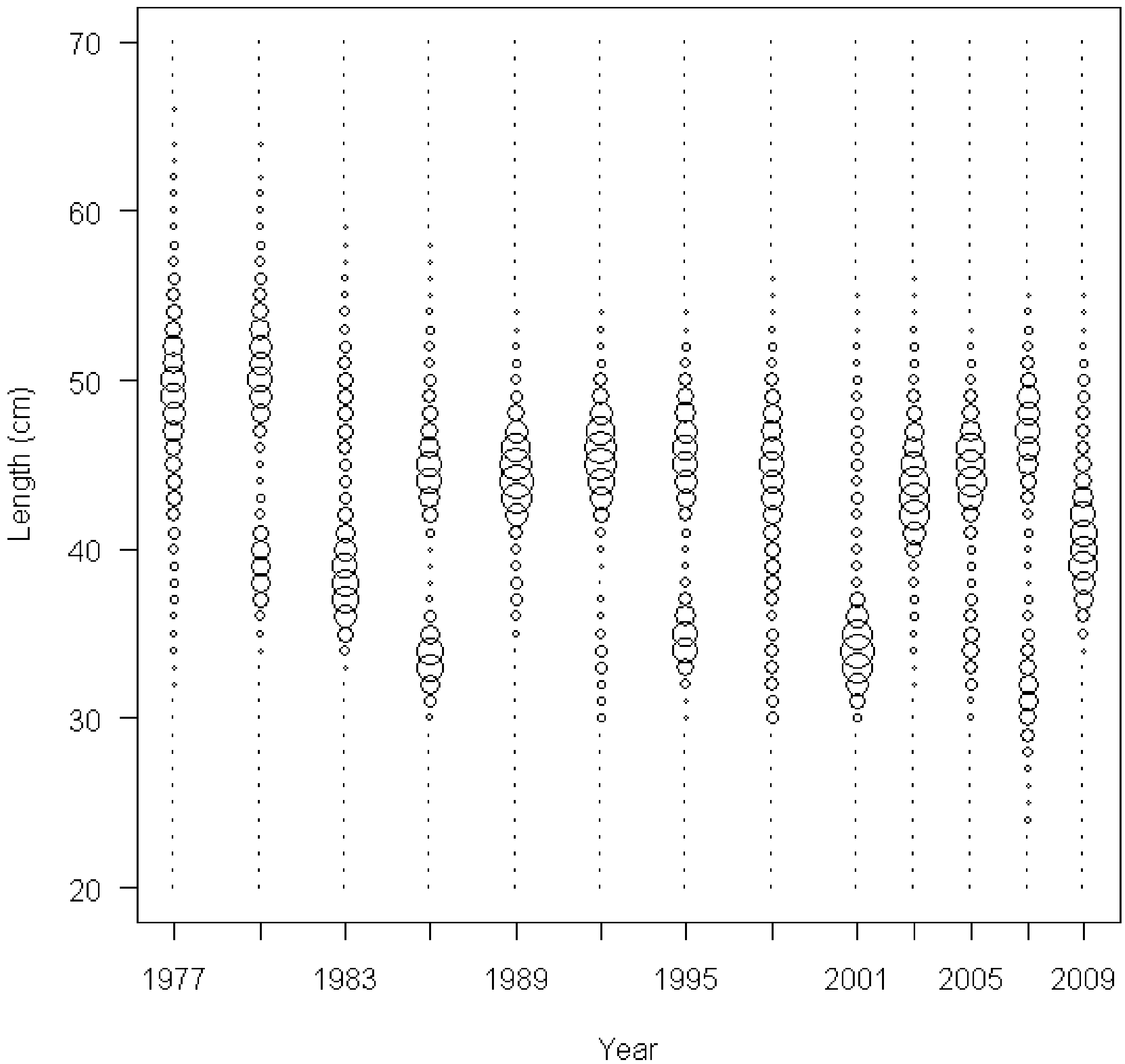


Figure 22. Plot of acoustic survey size compositions of coastal Pacific hake off the west coast of the U.S. and Canada, 1977-2009. Diameter of circles is scaled to a maximum proportion of 0.16 and proportions sum to 1.0 in each year.

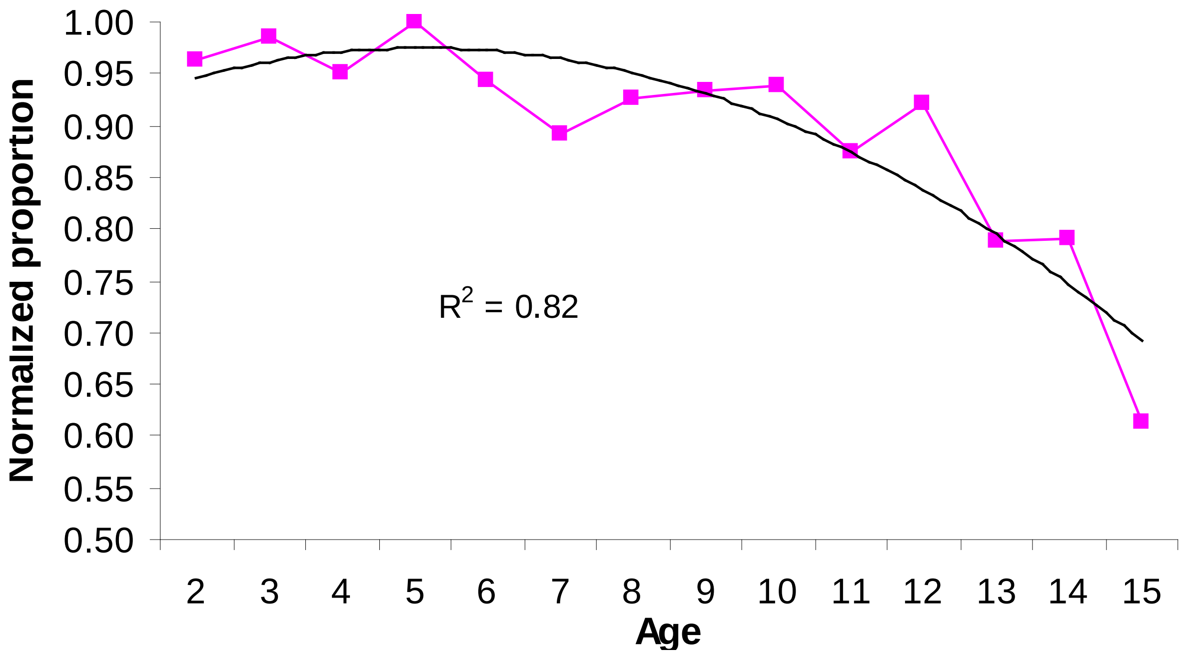


Figure 23. Plot of normalized (divided by maximum value) average (1977-2001) ratio of expanded acoustic survey numbers at age to the sum of acoustic survey and triennial bottom trawl survey expanded numbers at age. This analysis was conducted to explore empirical evidence for dome-shaped selectivity in the acoustic survey.

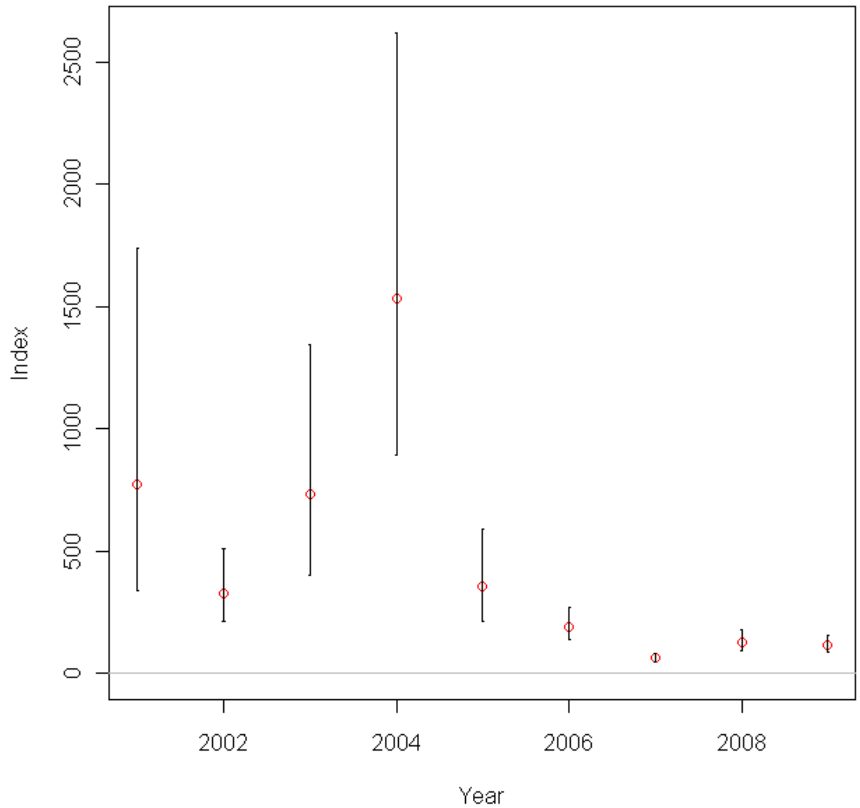


Figure 24. Time-series of the coast-wide Pacific hake pre-recruit survey indices based on data collected from SWFSC Santa Cruz and the joint PWCC-NMFS surveys.

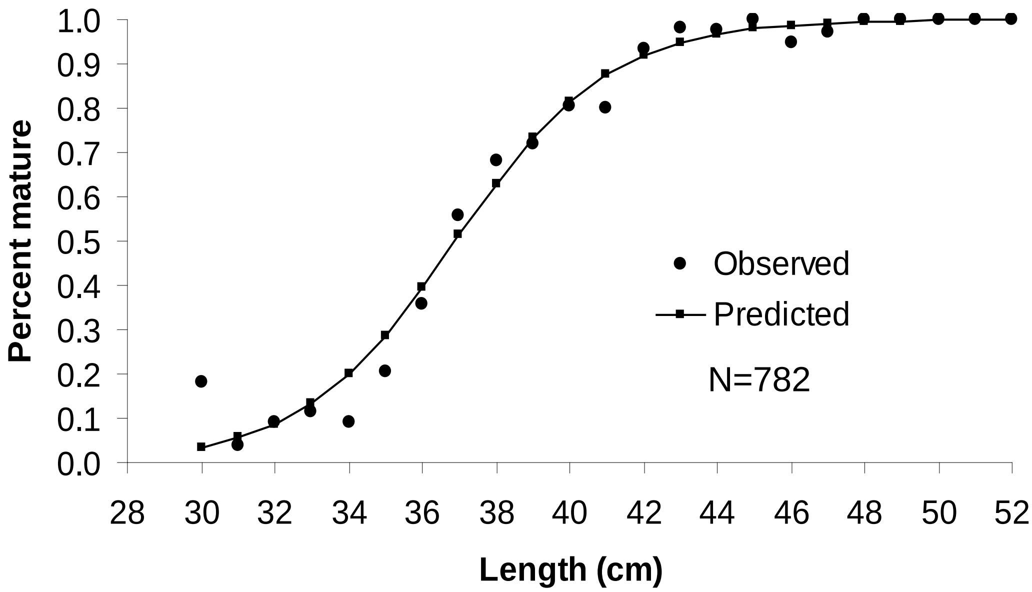


Figure 25. Observed and fitted values for percent mature at length.

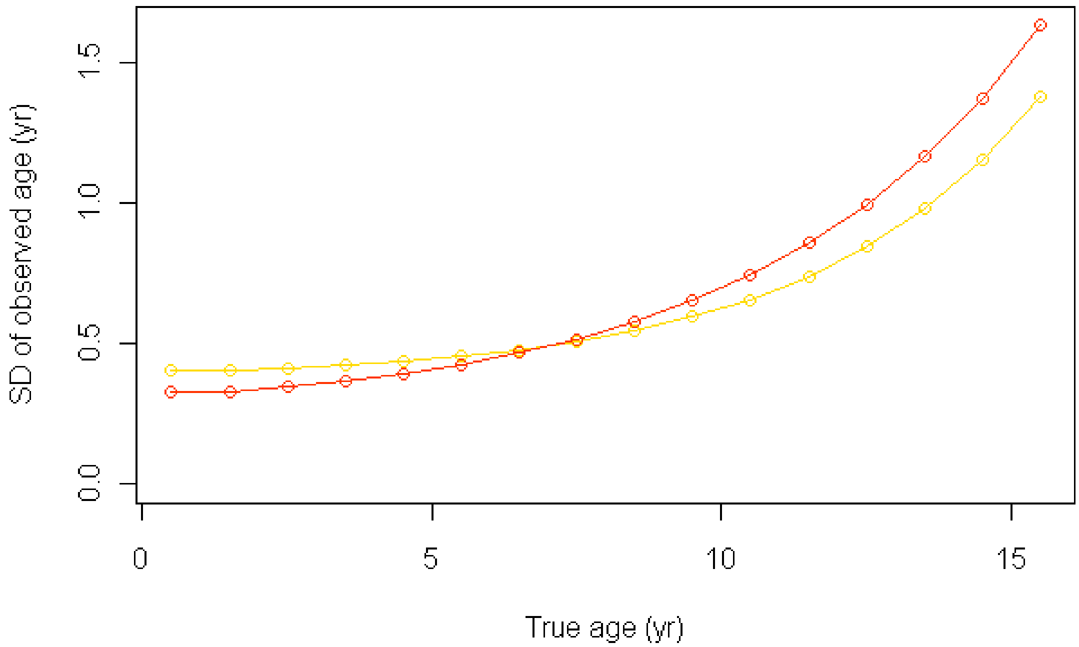


Figure 26. The estimated standard deviation of observed age as a function of true age for the pre-2001 AFSC ageing lab (upper line for younger ages and lower line for older ages) and the Cooperative Ageing Program and Department of Fisheries and Oceans Canada which have read all ages since 2001.

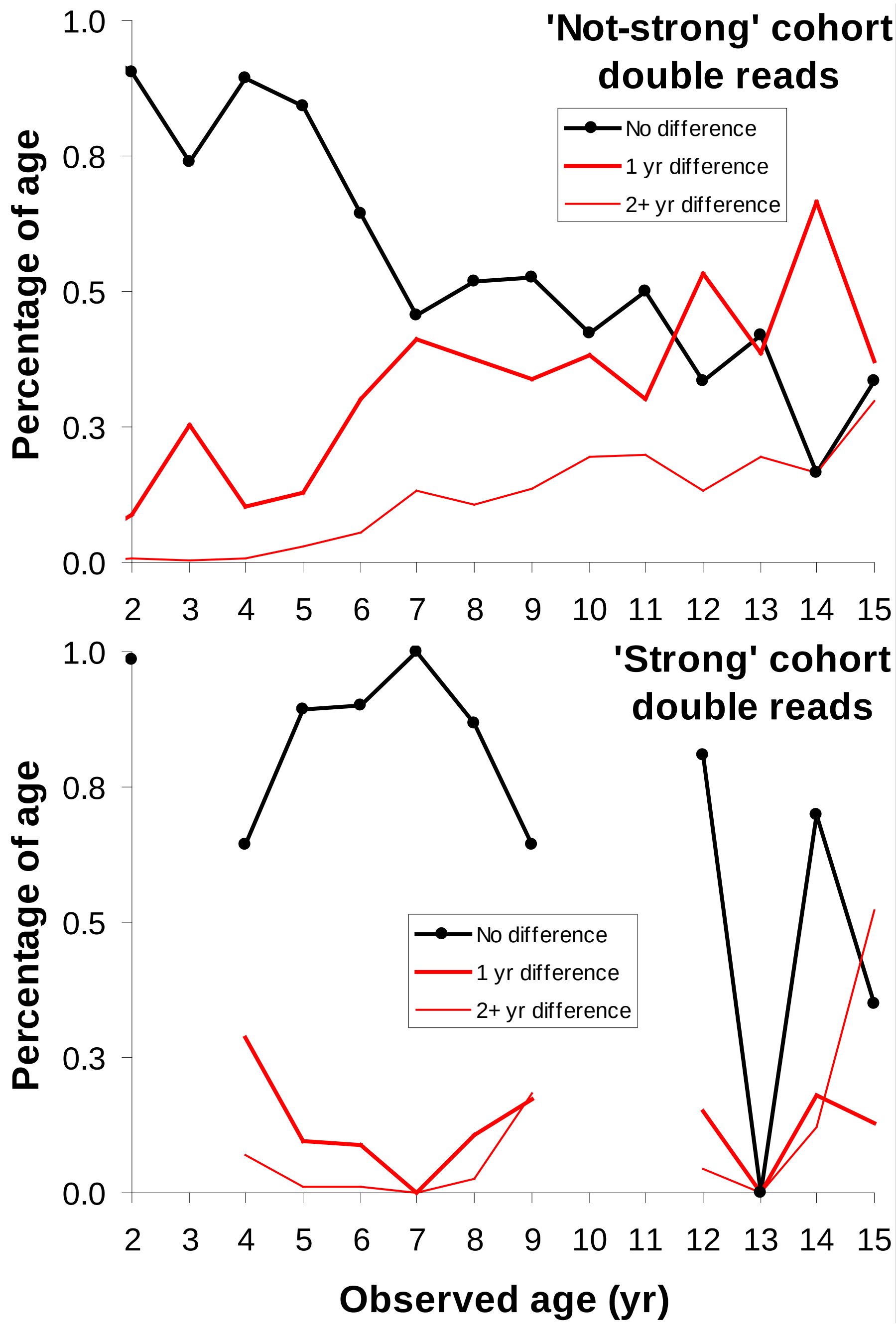


Figure 27. Comparison of age-reading agreement from 2,820 double-read otoliths collected between 1986 and 2008. 'Strong' cohorts included 1977, 1980, 1984 and 1999.

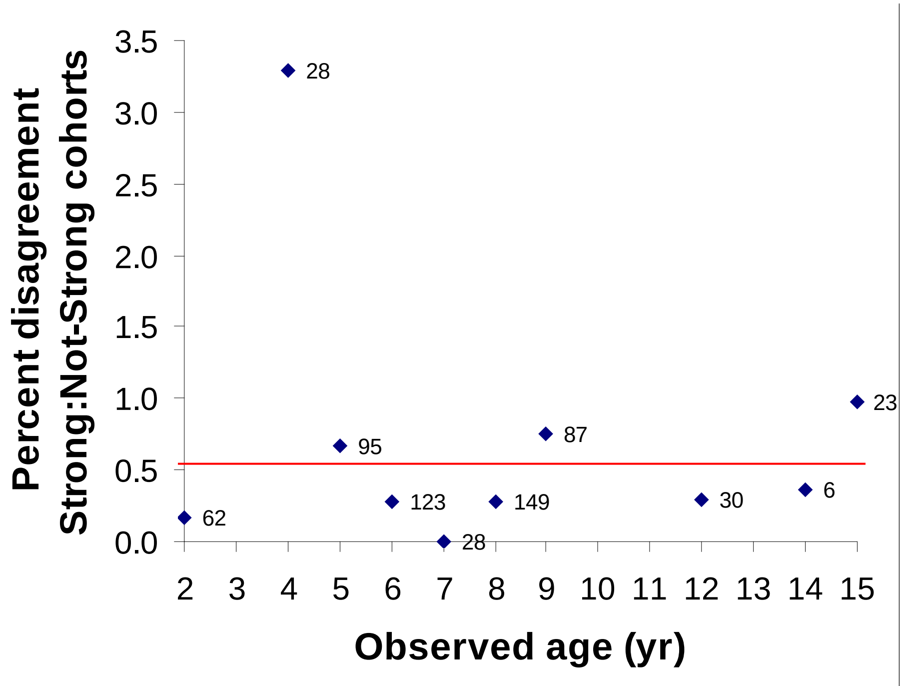


Figure 28. Comparison of age-reading percent disagreement for 'strong' cohorts (1977, 1980, 1984 and 1999) and weaker cohorts. Horizontal line indicates the weighted regression estimated using the minimum sample size (shown next to the points) between the two types of cohorts for each age.

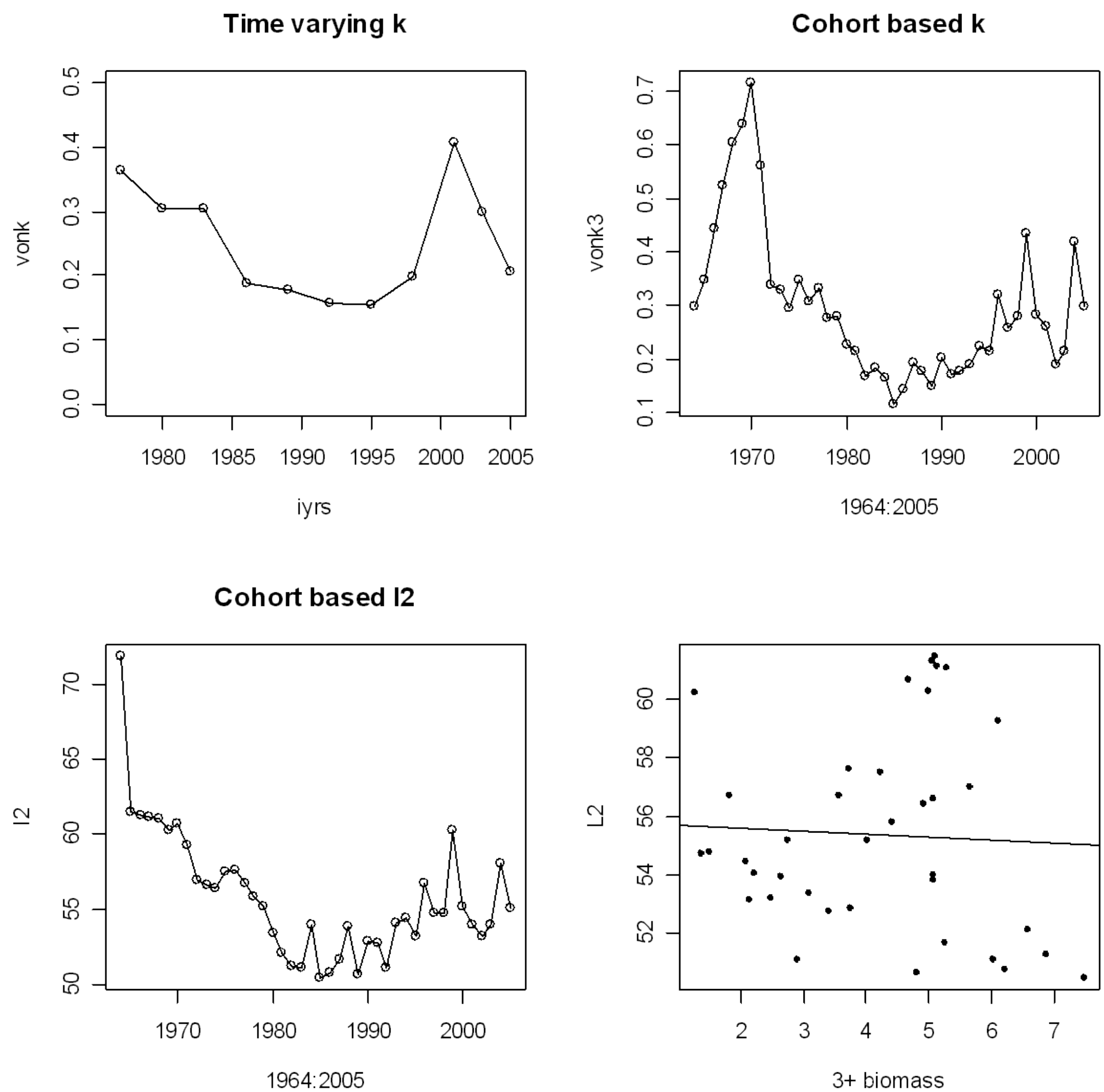


Figure 29. Time varying and cohort based fits (external to the assessment model) of the von Bertalanffy growth model to Pacific hake age data from the acoustic survey, 1977-2005. Analyses were conducted as part of the 2006 assessment.

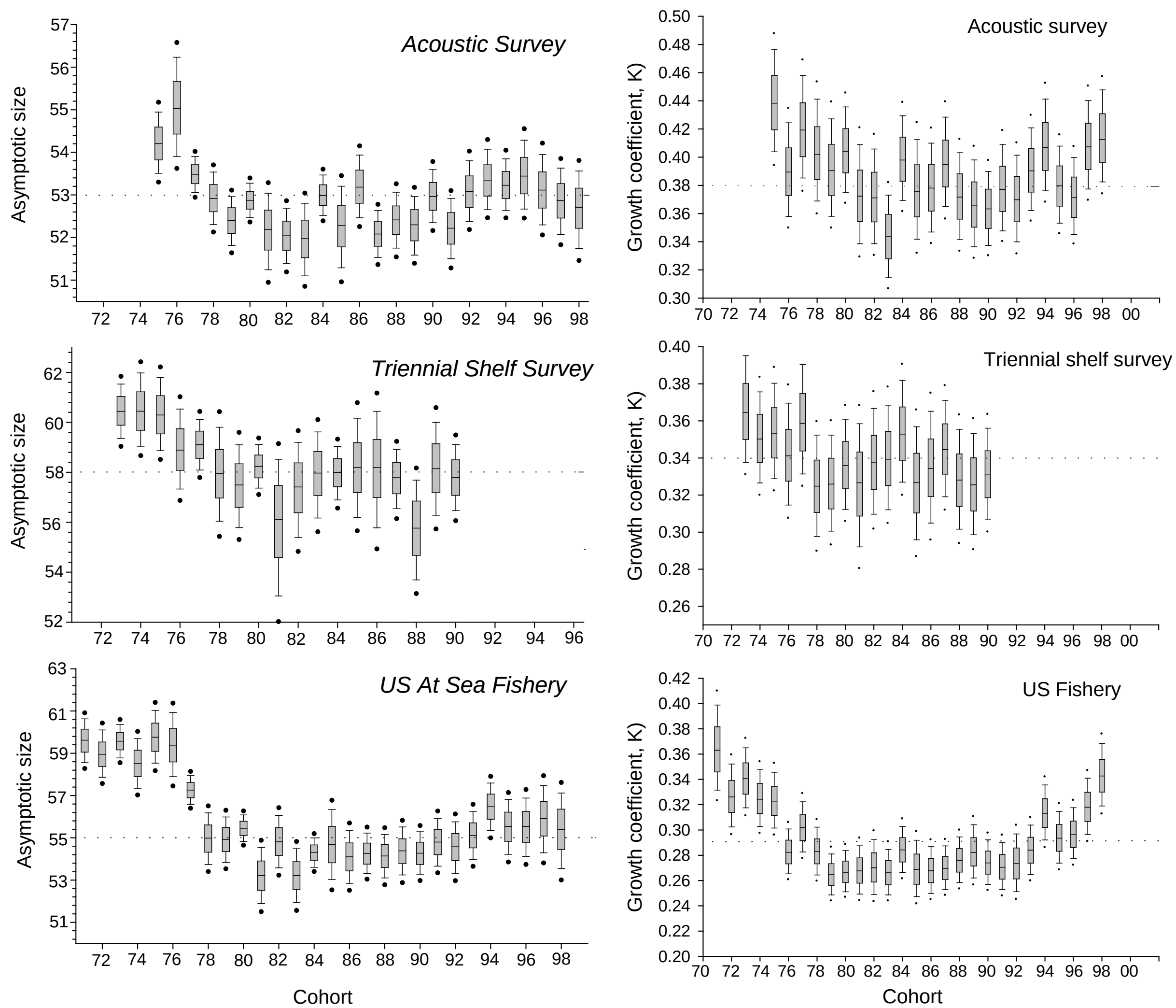


Figure 30. Results of a hierarchical von Bertalanffy growth model fit to three difference sources of Pacific hake growth data. A von Bertalanffy growth model was fit to each of the three data sources with age at length data combined and cohort treated as a random variable. The results show an early consistent decline in asymptotic size and instantaneous growth coefficient, k, in the early 1980s. Box whisker plots show the marginal posterior density of growth parameters, L_{max} and K, for each cohort and the dotted line gives the overall mean parameter estimate.

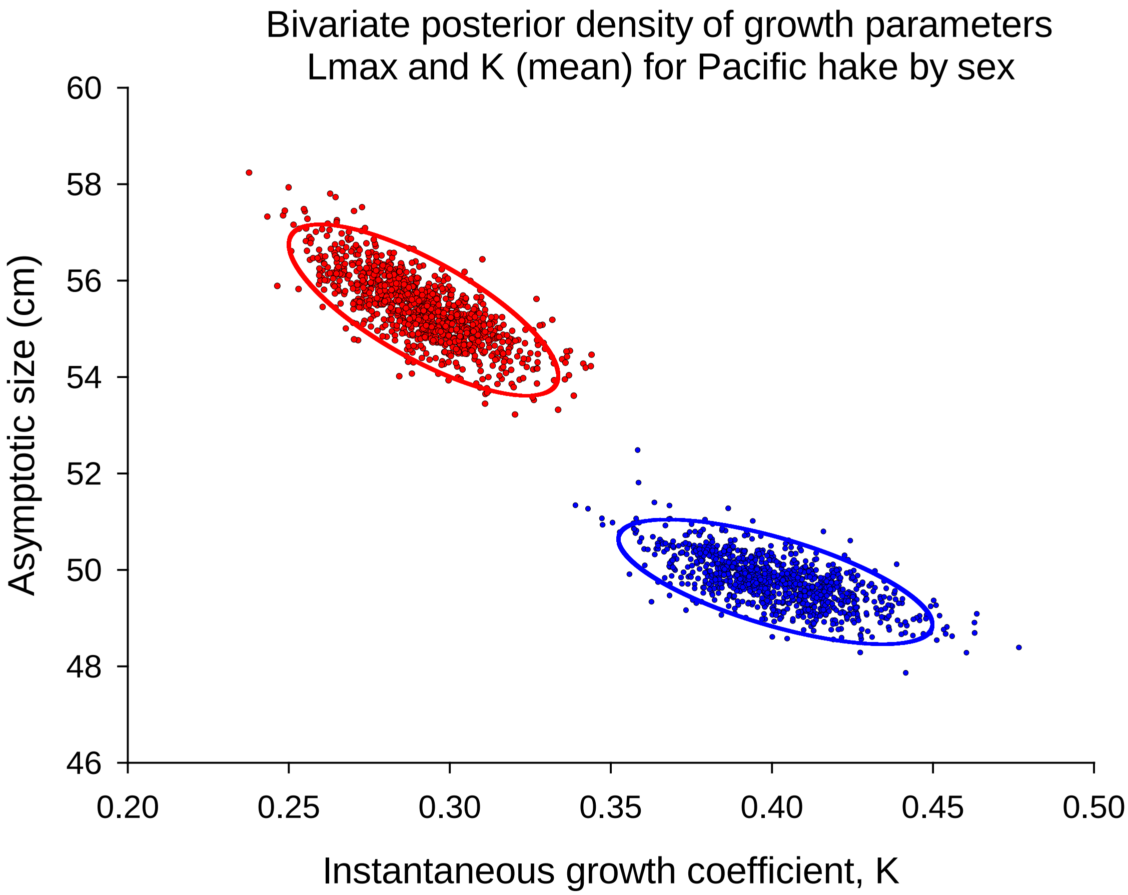


Figure 31. Results of a hierarchical von Bertalanffy growth model fit to Pacific hake growth data from the acoustic survey (all years, 1977-2007). A von Bertalanffy growth model was fit separately to each sex and cohort treated as a random variable. The results show that female pacific hake achieve a significantly larger size the males, but also growth at a slower rate. The dots show the bivariate distribution of L_{max} and K from a sample of 1,000 draws from the joint posterior density and the solid ellipses give the 95% posterior interval.

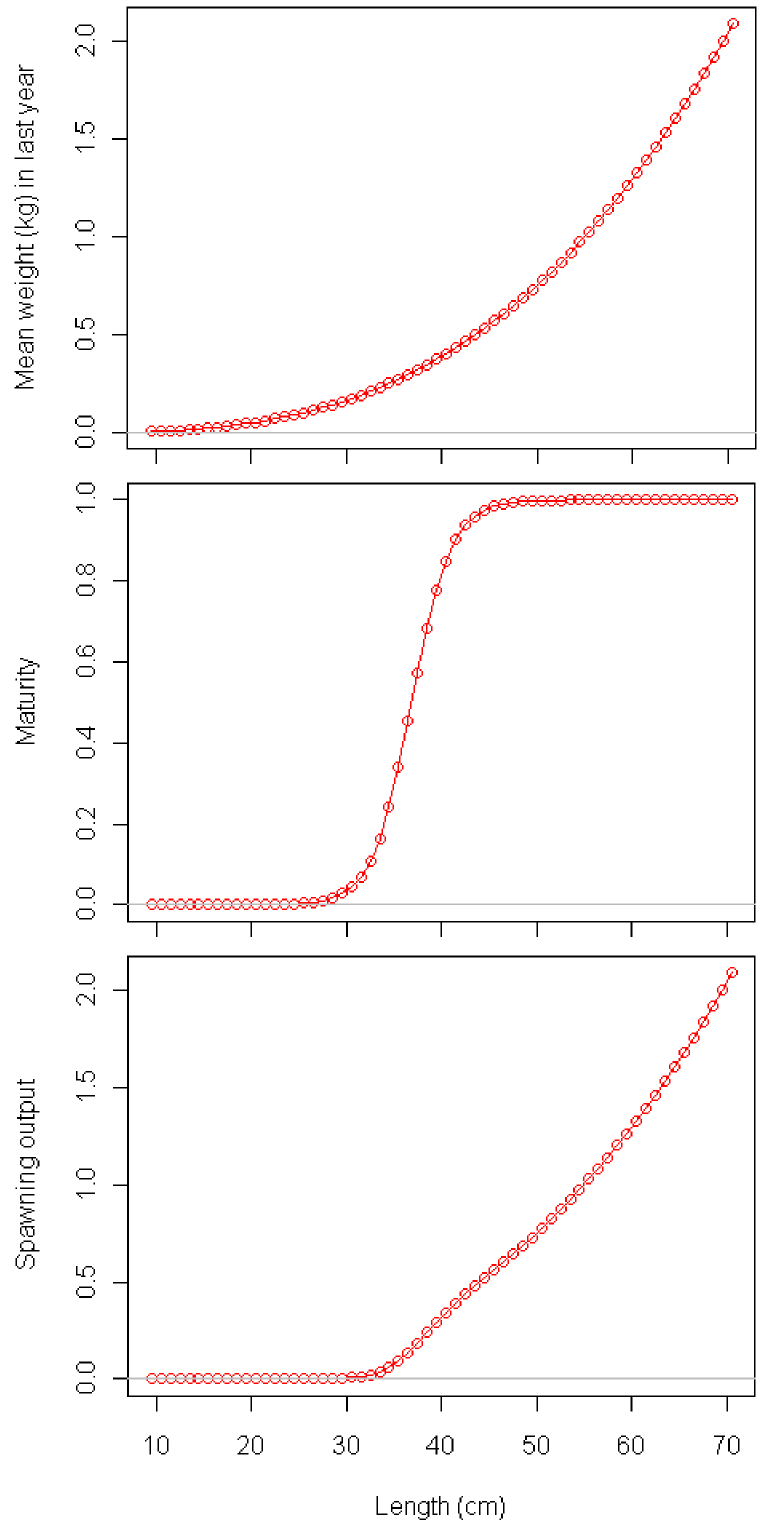


Figure 32. Biological relationships assumed in the hake model.

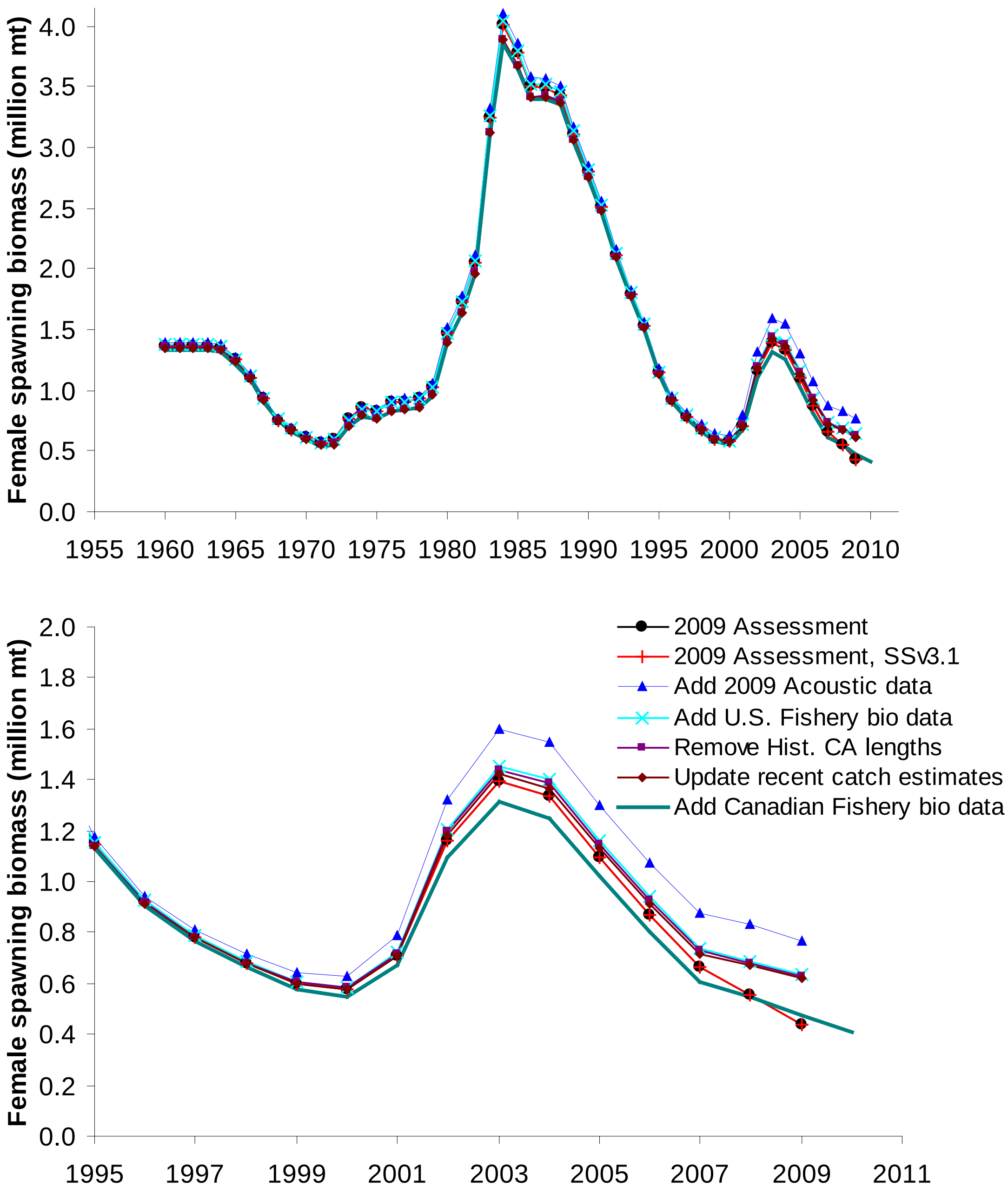


Figure 33. Bridge from 2009 to 2010 stock assessment model showing the full (upper panel) and most recent portion (lower panel) of the time-series.

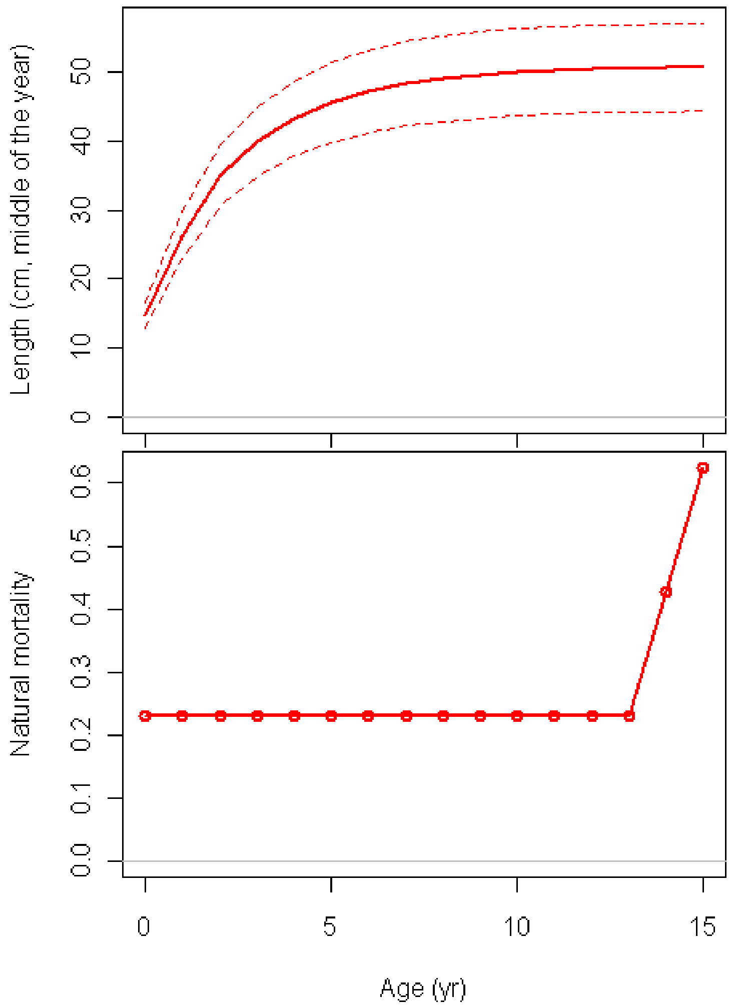


Figure 34. Current growth (2009) and mortality (time-invariant) relationships estimated in the hake model.

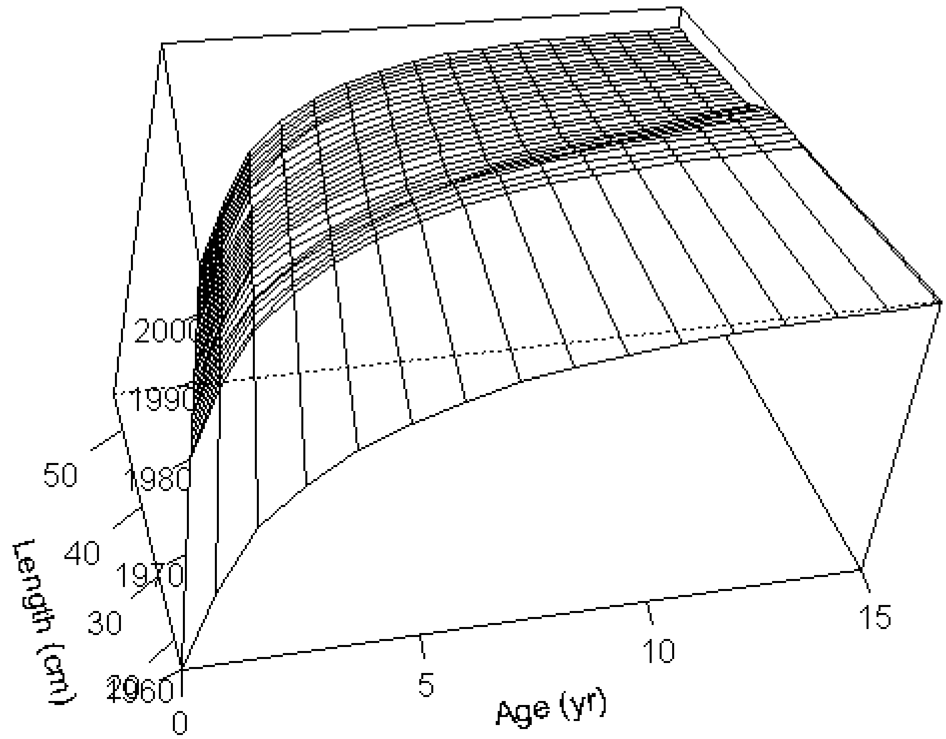


Figure 35. Time-varying growth estimated in the hake model.

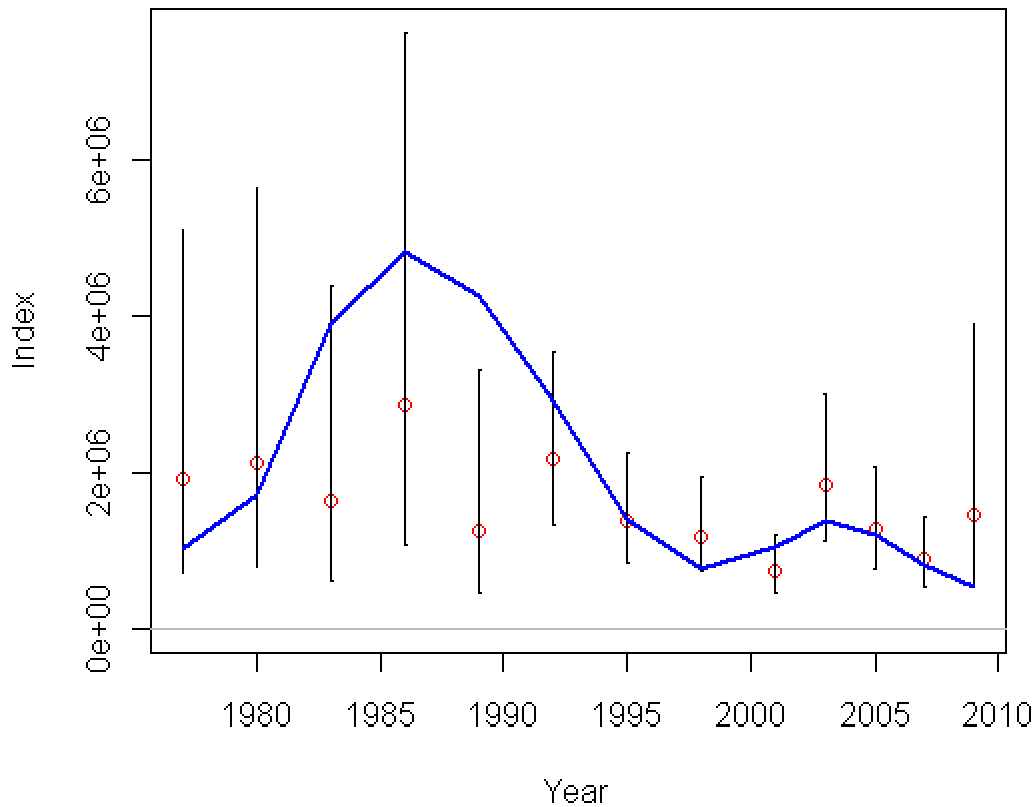


Figure 36. Predicted fit to the acoustic survey biomas index.

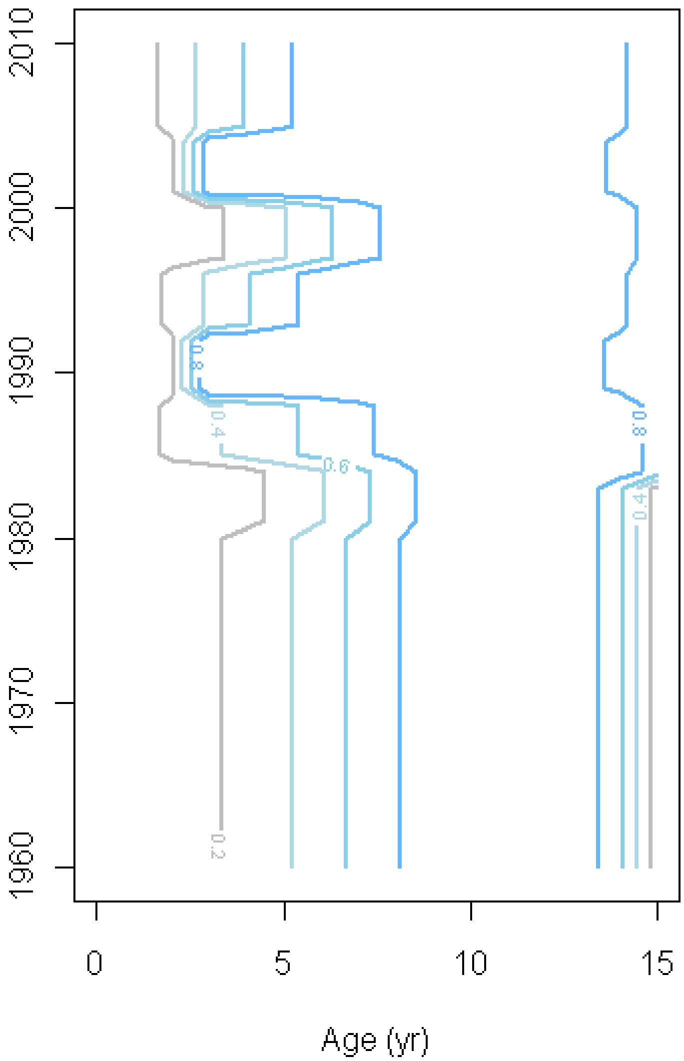


Figure 37. Estimated selectivity curves (contours indicate relative selectivity at age and year, each year has at least one age that is fully selected) for different time blocks in the U.S. fishery. Ascending width, peak, and final parameters were estimated, and ascending width, peak, and final parameters were allowed to vary among time-blocks.

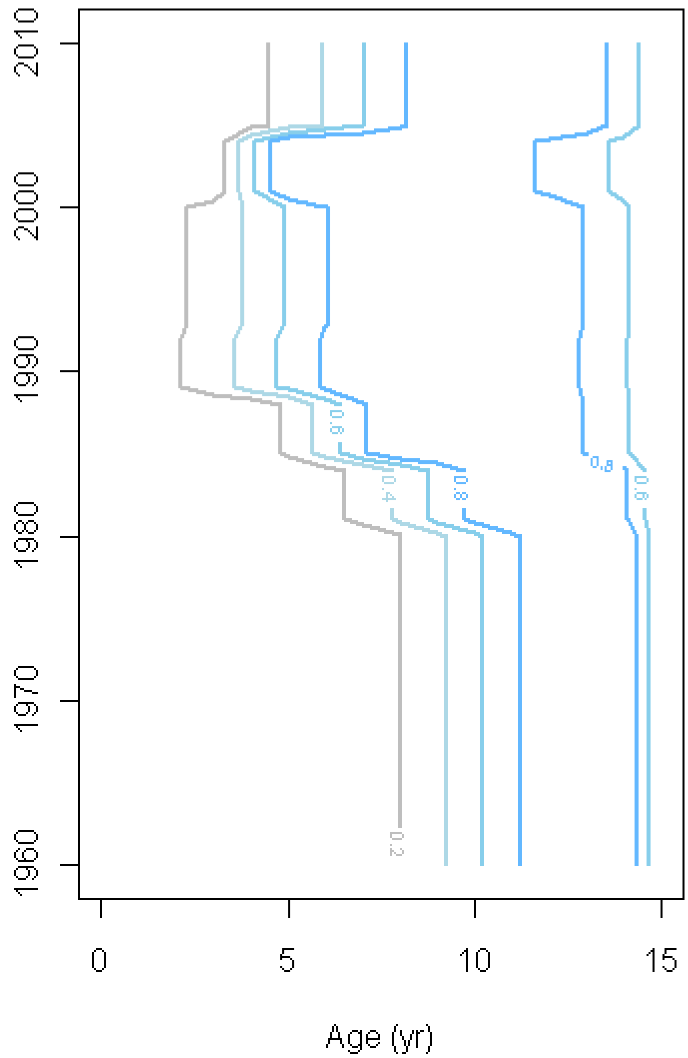


Figure 38. Estimated selectivity curves (contours indicate relative selectivity at age and year, each year has at least one age that is fully selected) for different time blocks in the Canadian fishery. Ascending width, peak, and final parameters were estimated, and ascending width, and peak parameters were allowed to vary among time-blocks.

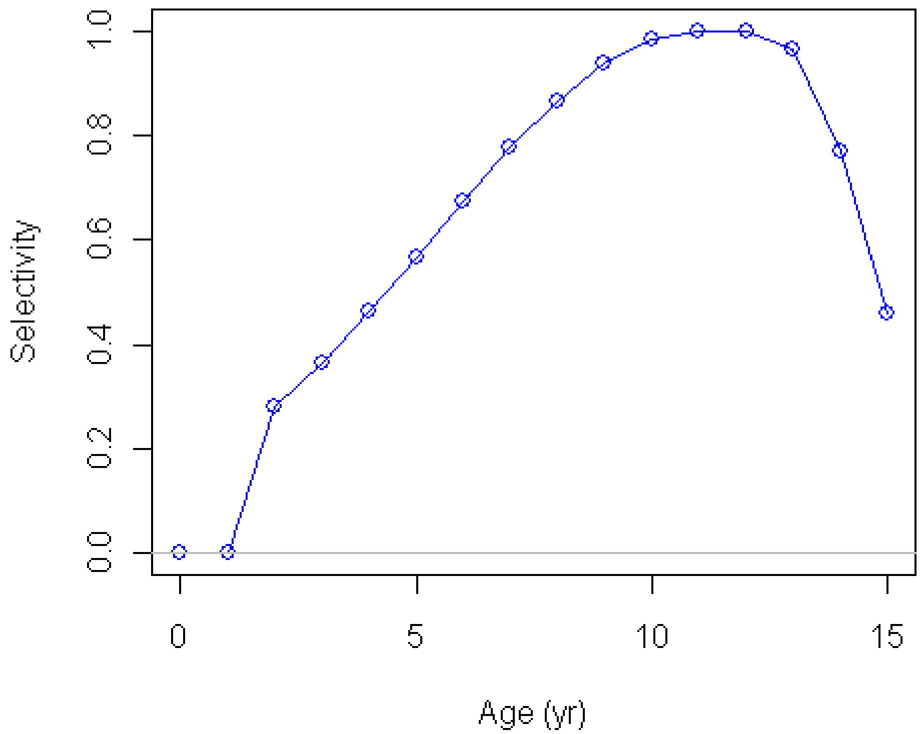


Figure 39. Estimated time-invariant selectivity curve for the acoustic survey. The ascending width, location of the peak and selectivity at age 15 were freely estimated.

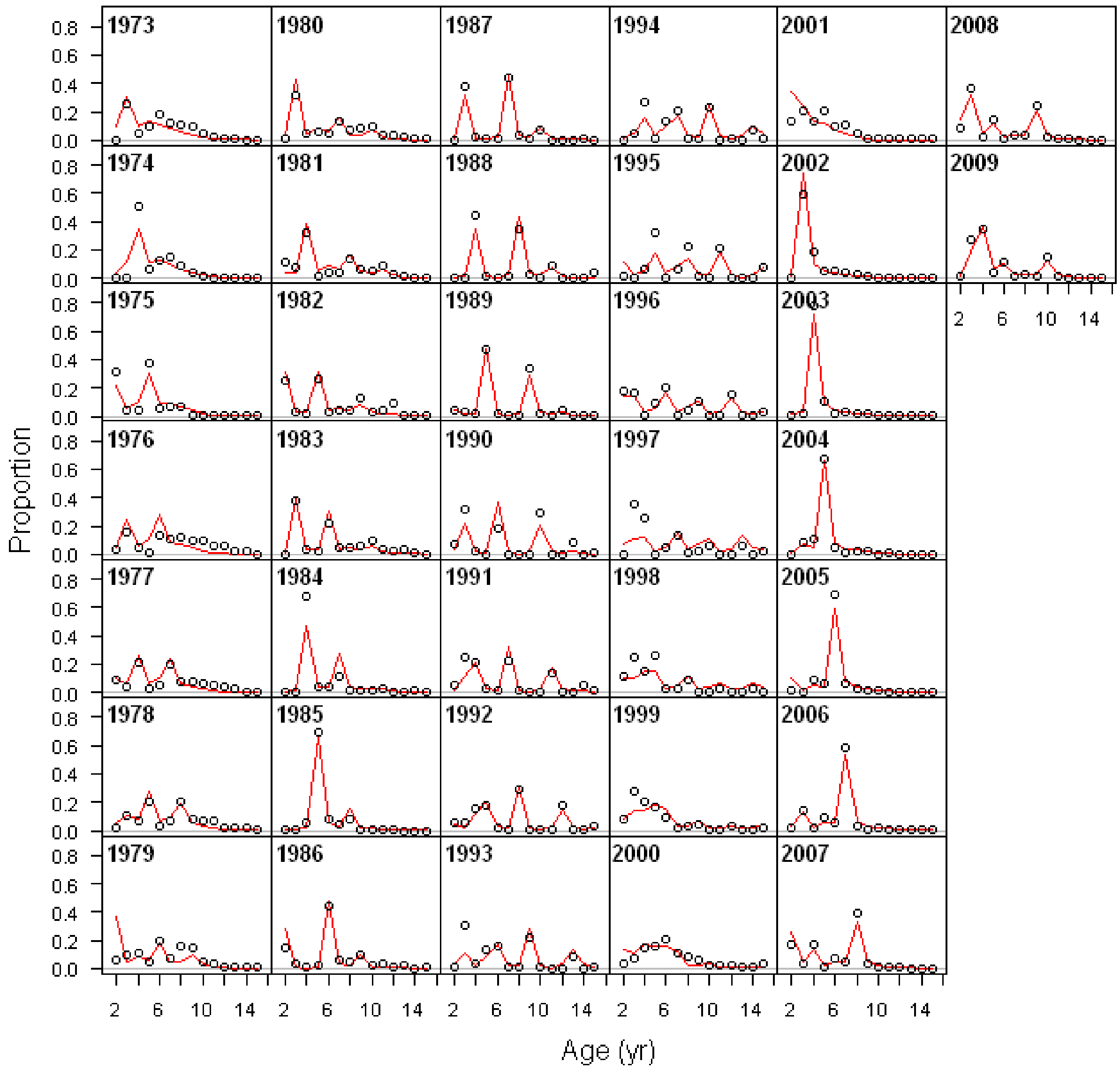


Figure 40. Predicted (implied, except for 1973-1974) fits to the observed U.S. fishery age composition data.

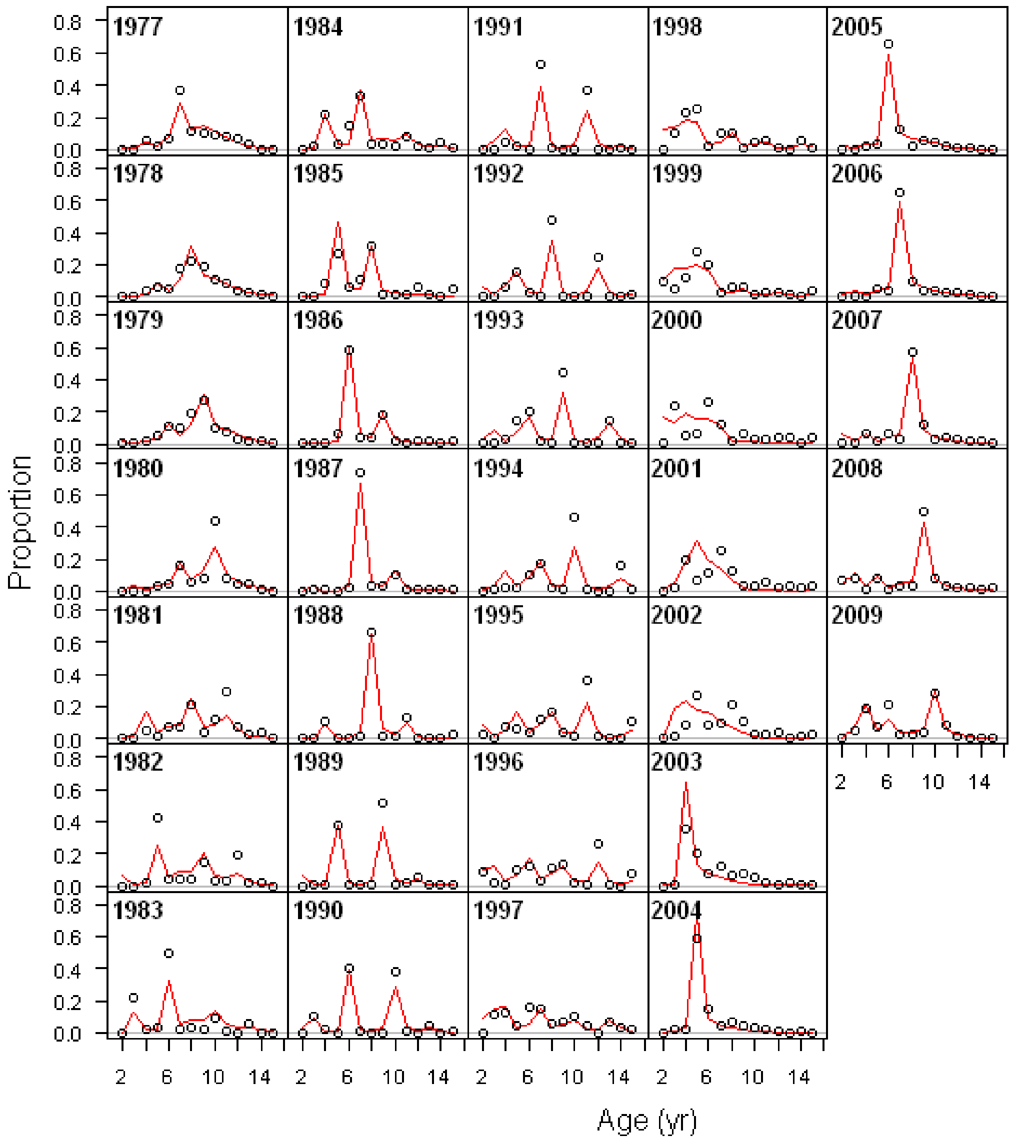


Figure 41. Predicted fits (1977-1987, implied 1988-2009) to the observed Canadian fishery age composition data.

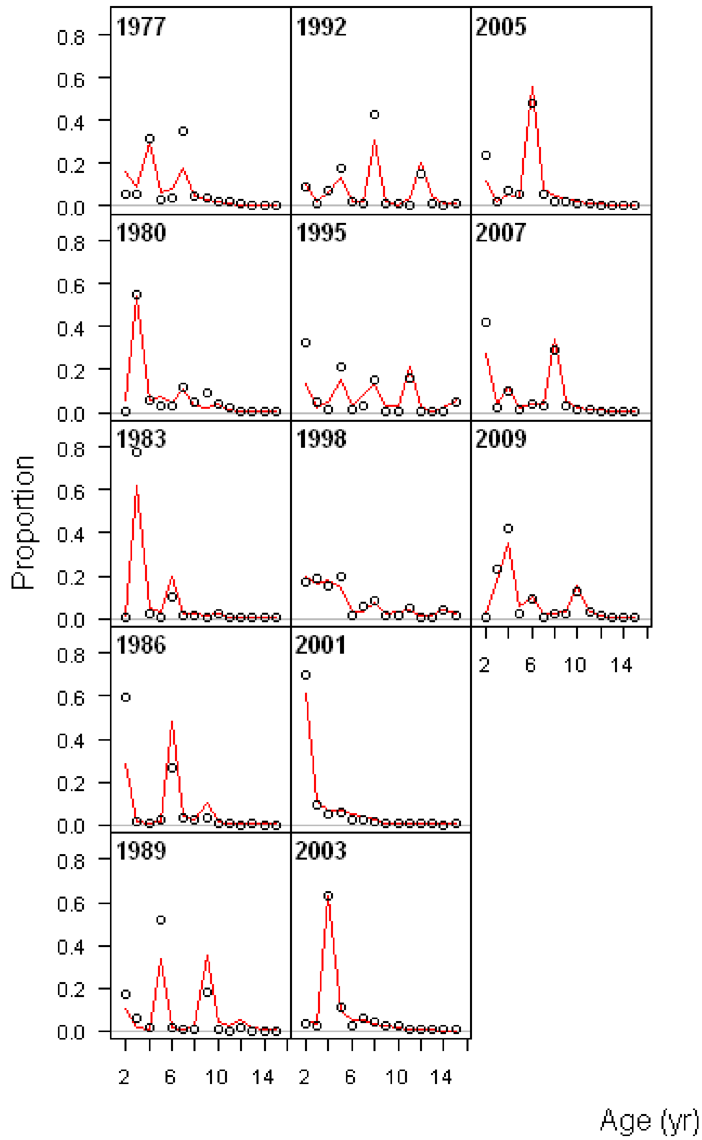


Figure 42. Predicted (implied) fits to the observed acoustic survey age composition data.

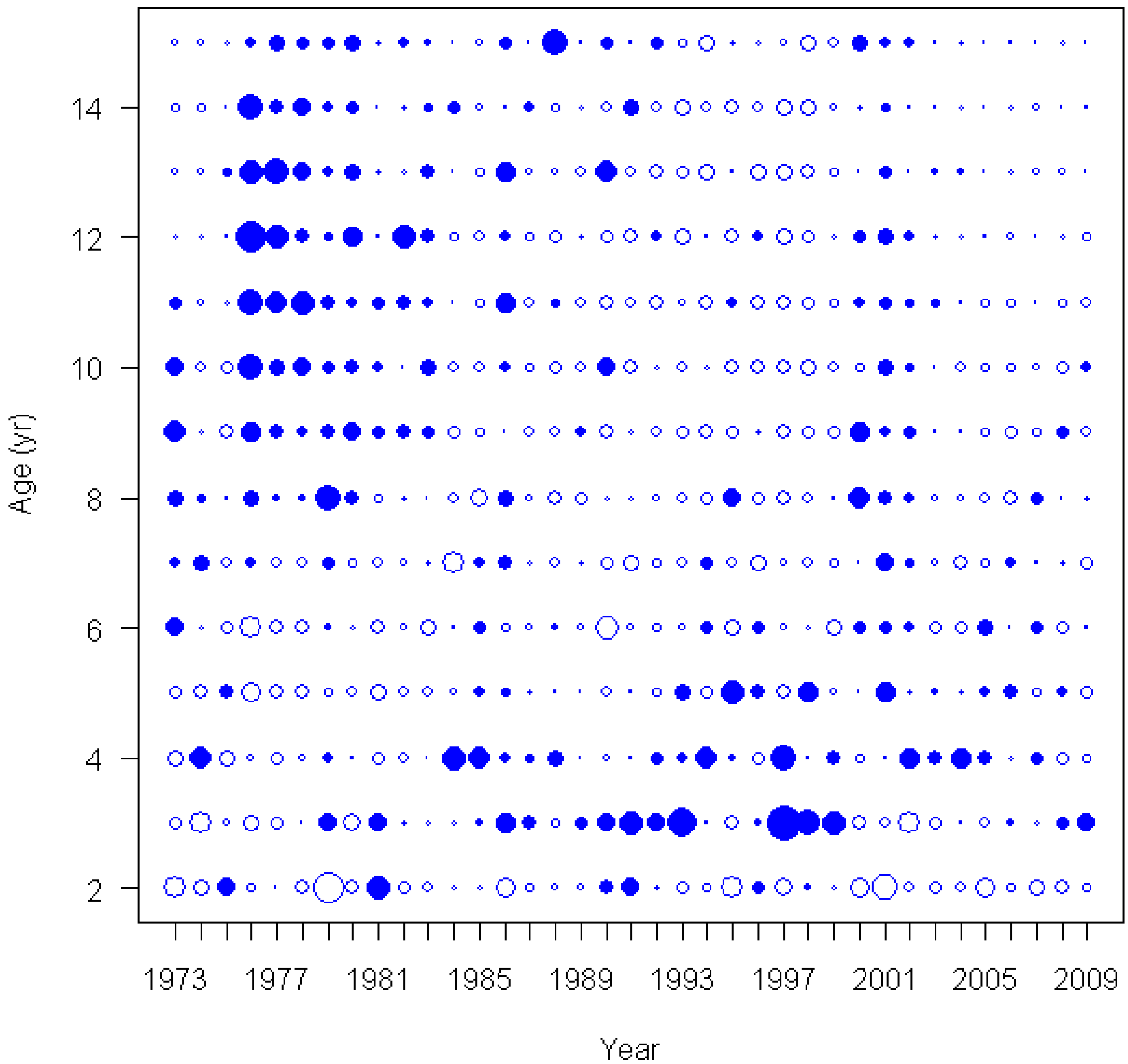


Figure 43. Unscaled residuals from the predicted (implied, except for 1973-1974) fits to the observed U.S. fishery age composition data.

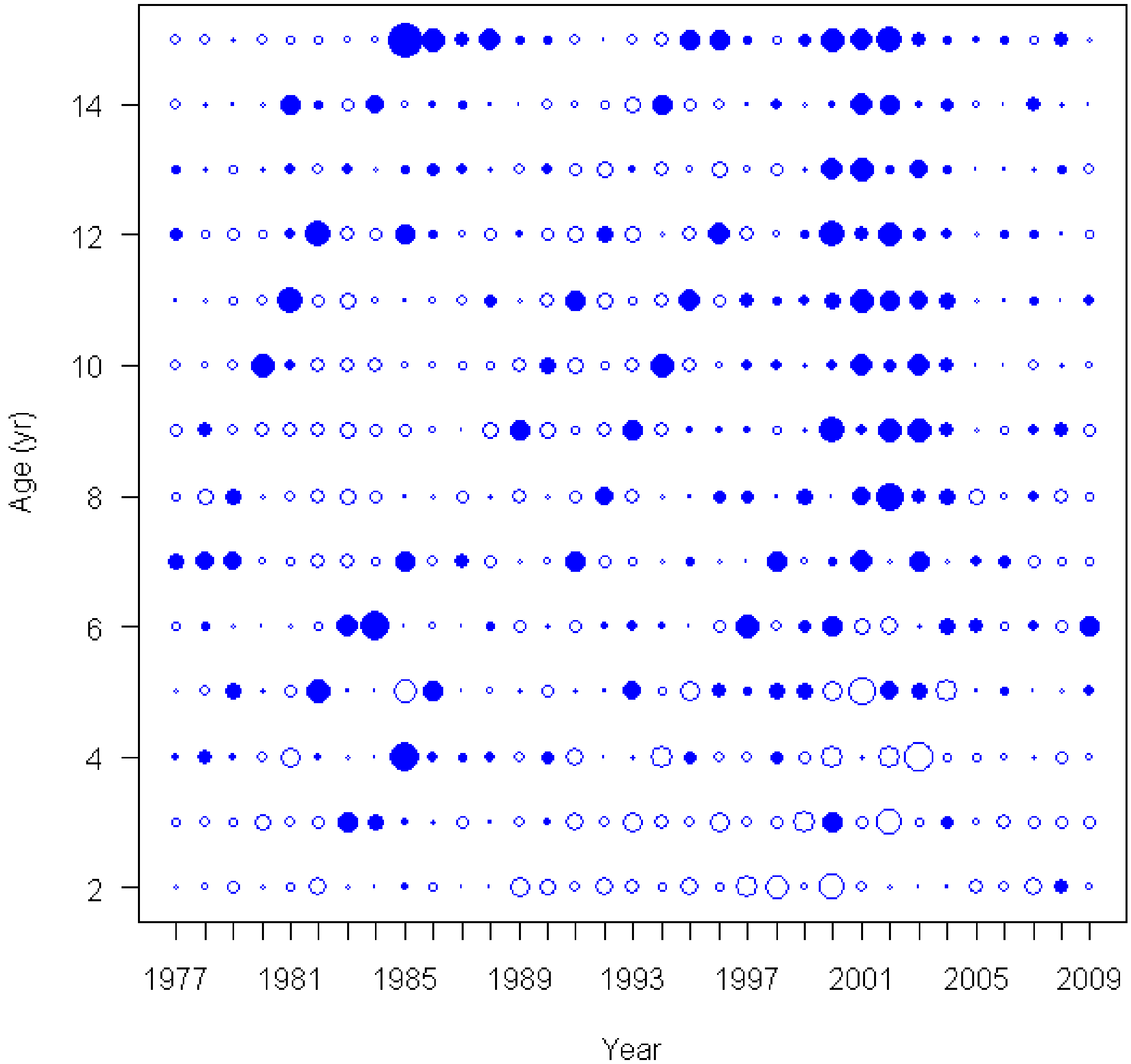


Figure 44. Unscaled residuals from the predicted fits (1977-1987, implied 1988-2009) to the observed Canadian fishery age composition data.

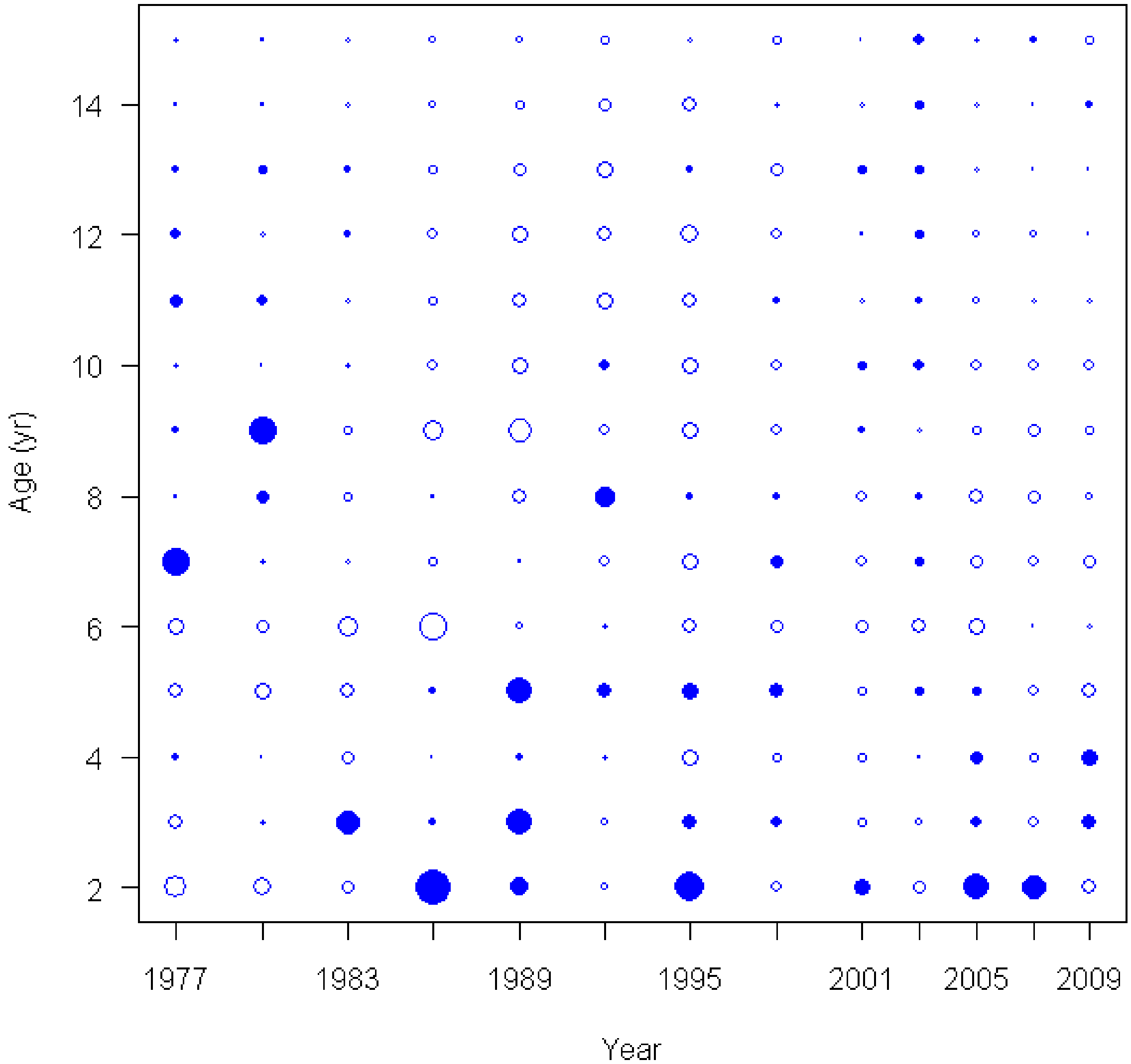


Figure 45. Unscaled residuals from the predicted (implied) fits to the observed acoustic survey age composition data.

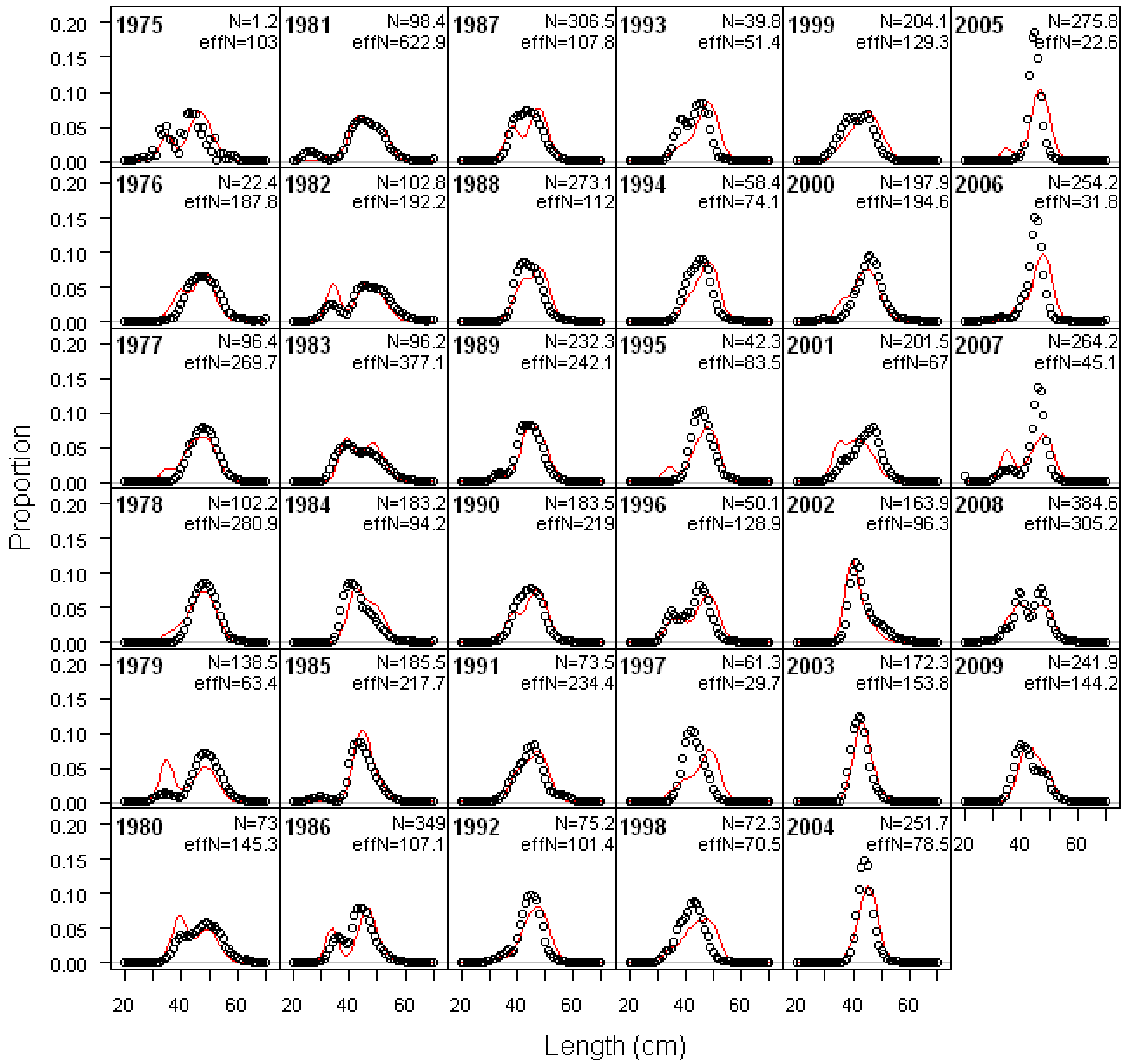


Figure 46. Predicted fits to the observed U.S. fishery length composition data.

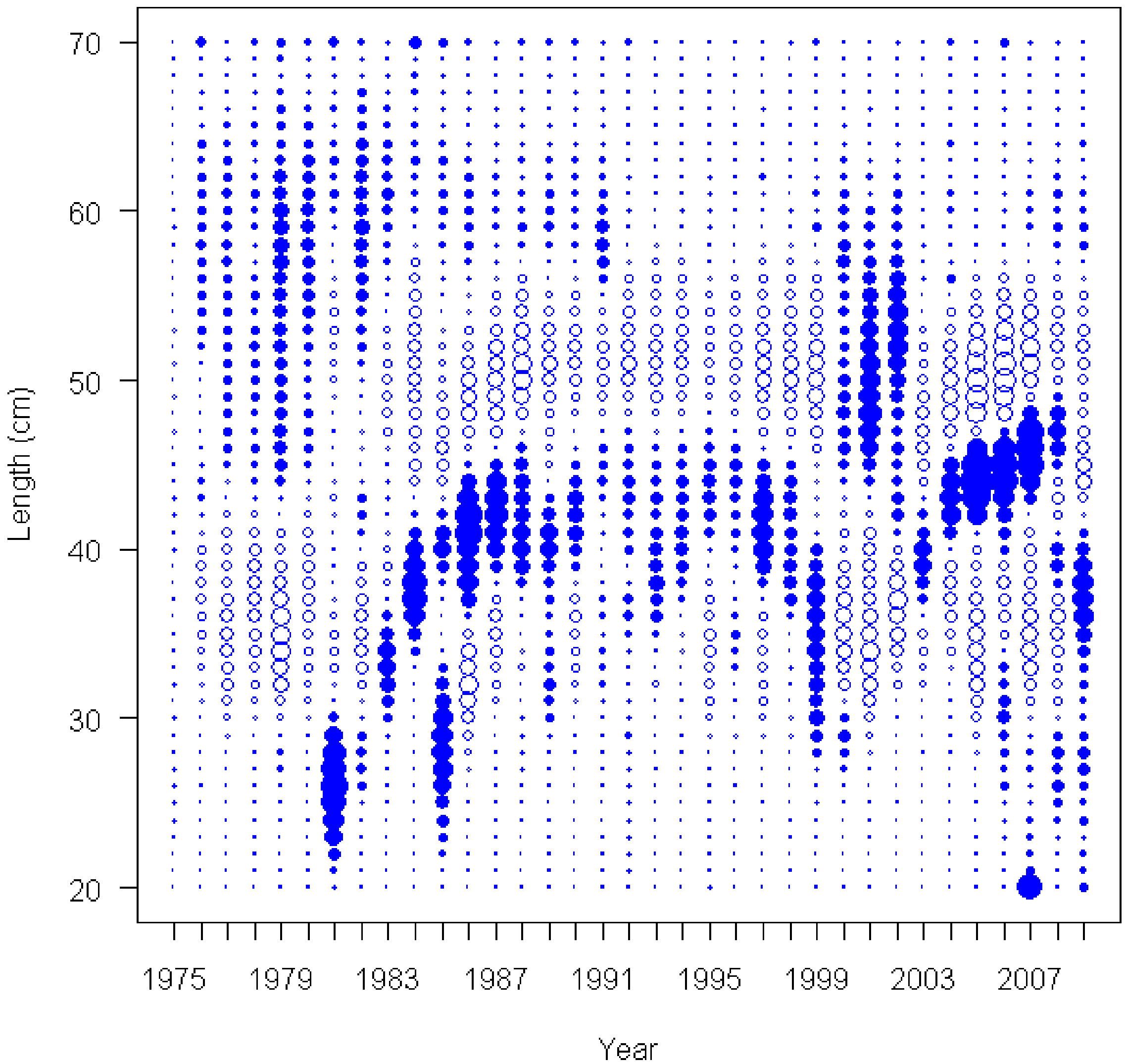


Figure 47. Pearson standardized residuals (observed - predicted) for model fits to the U.S. fishery length composition data. Maximum bubble size = 7.07; filled circles represent positive values.

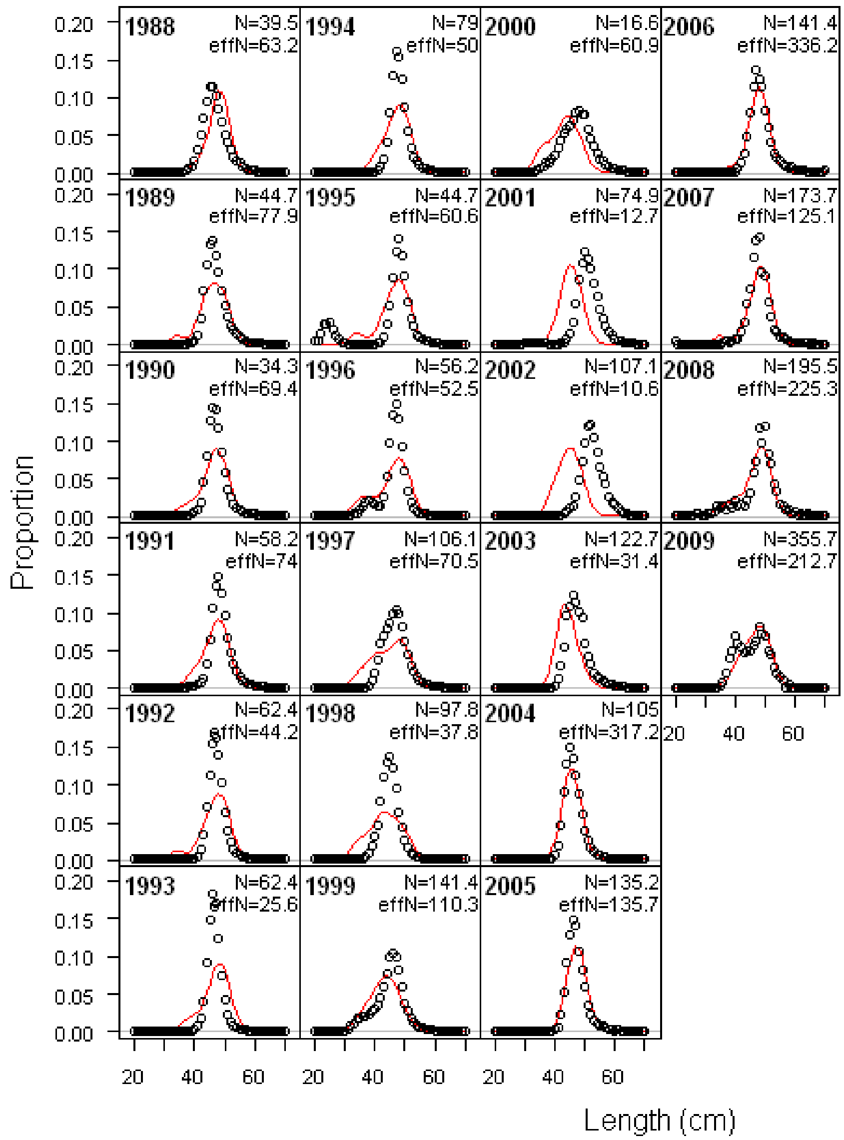


Figure 48. Predicted fits to the observed Canadian fishery length composition data.

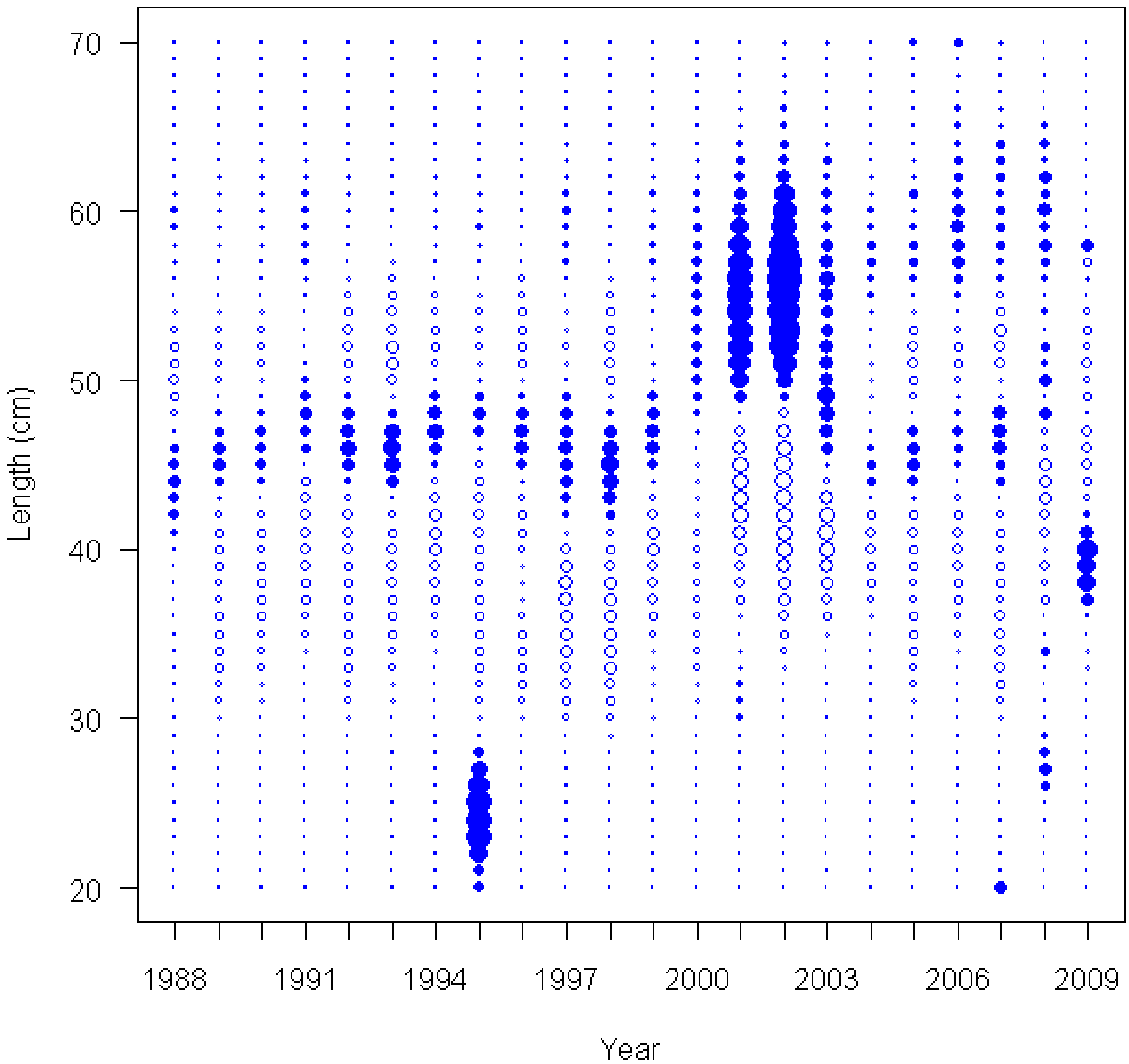


Figure 49. Pearson standardized residuals (observed - predicted) for model fits to the Canadian fishery length composition data. Maximum bubble size = 10.83; filled circles represent positive values.

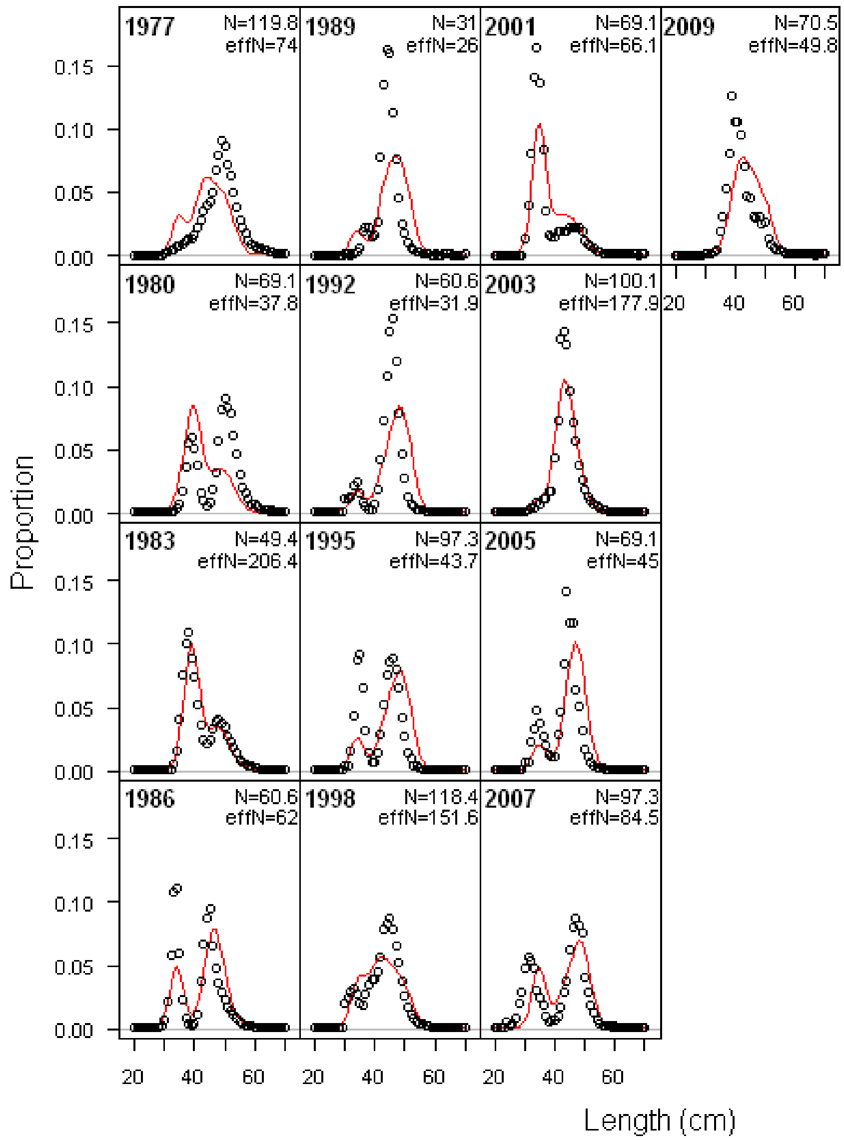


Figure 50. Predicted fits to the observed acoustic survey length composition data.

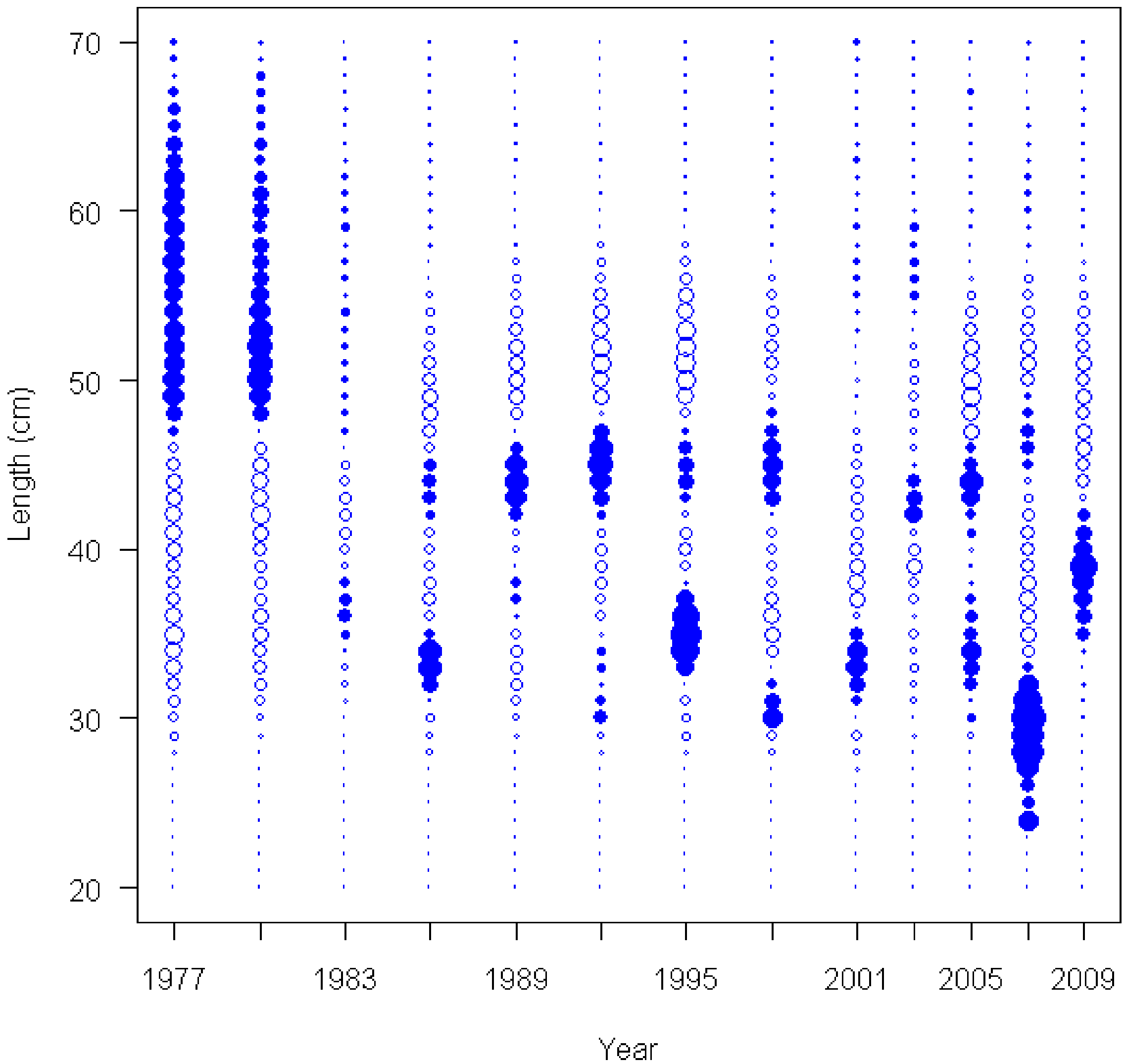


Figure 51. Pearson standardized residuals (observed - predicted) for model fits to the acoustic survey length composition data. Maximum bubble size = 4.8; filled circles represent positive values.

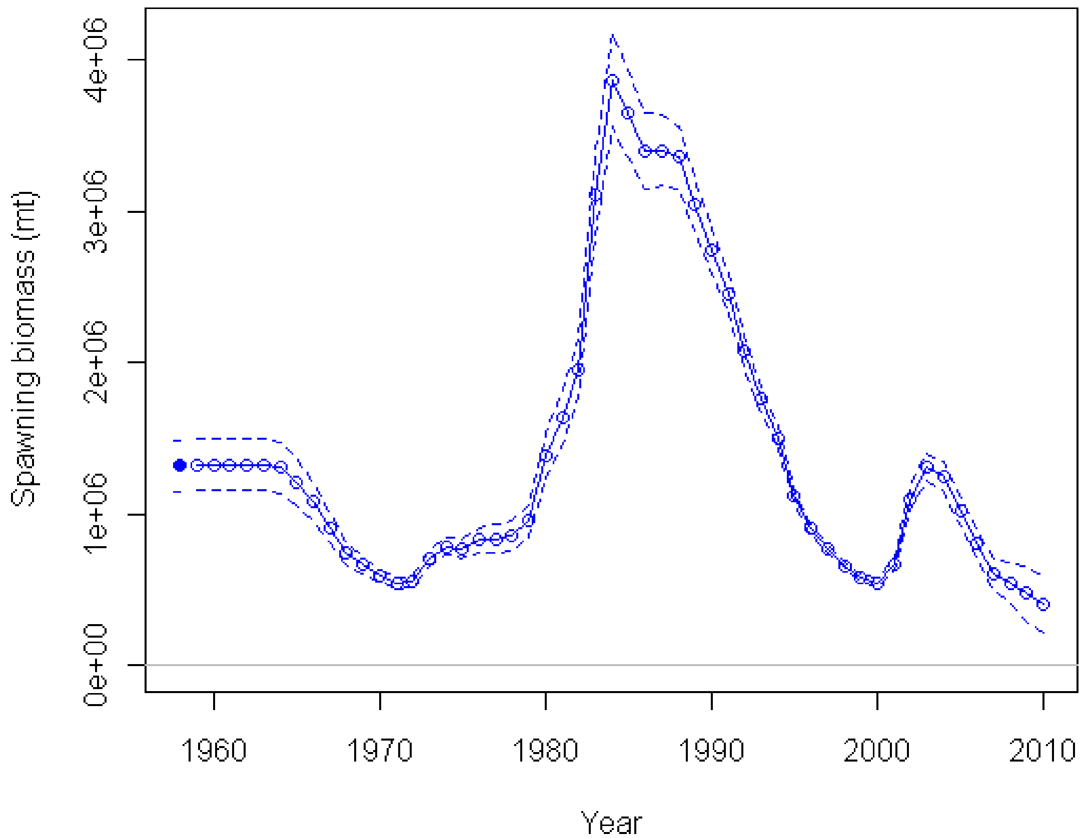


Figure 52. Estimated female spawning biomass time-series with approximate asymptotic 95% confidence intervals.

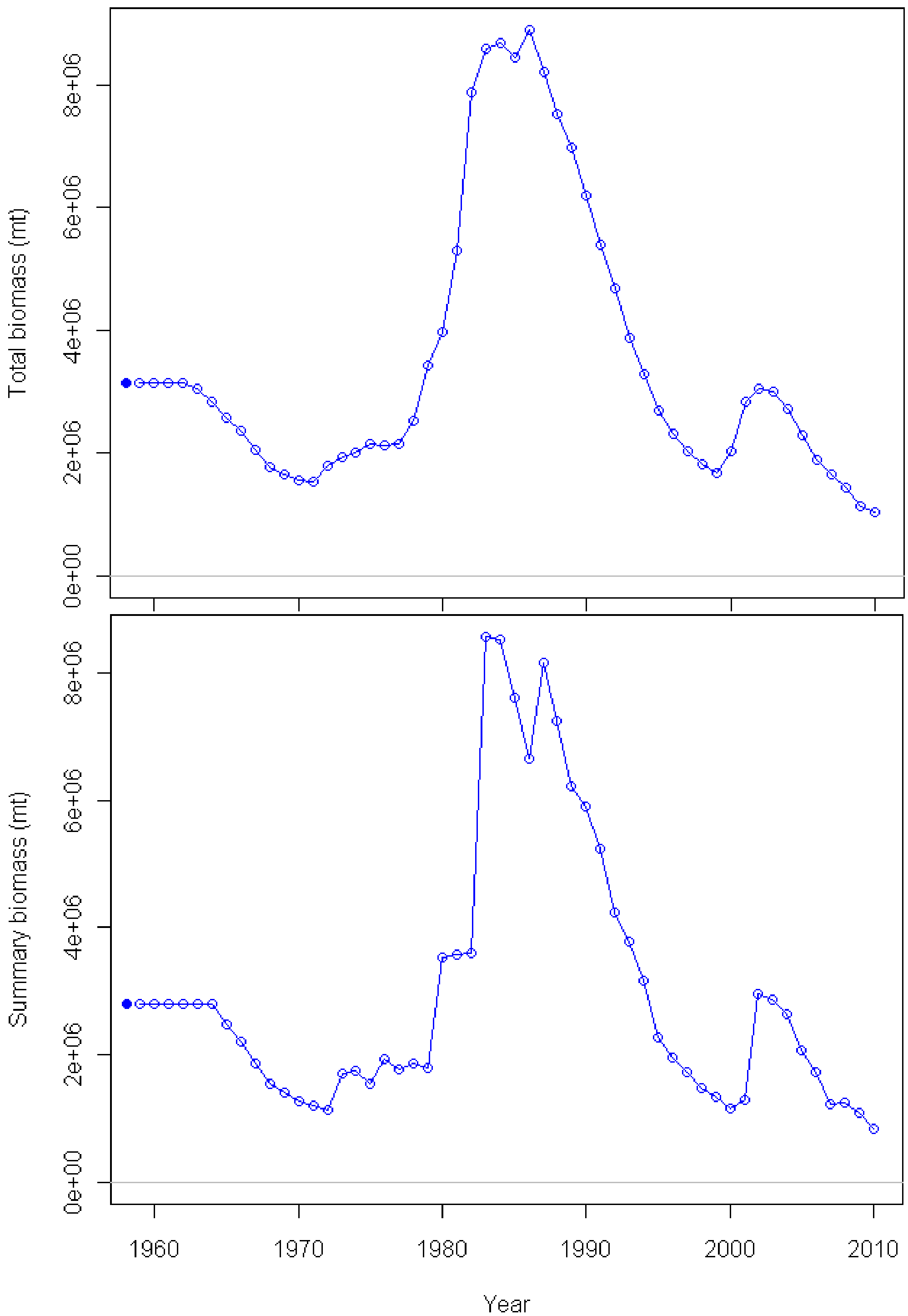


Figure 53. Estimated time-series of Pacific hake total (top panel) and summary biomass (age 3+; bottom panel).

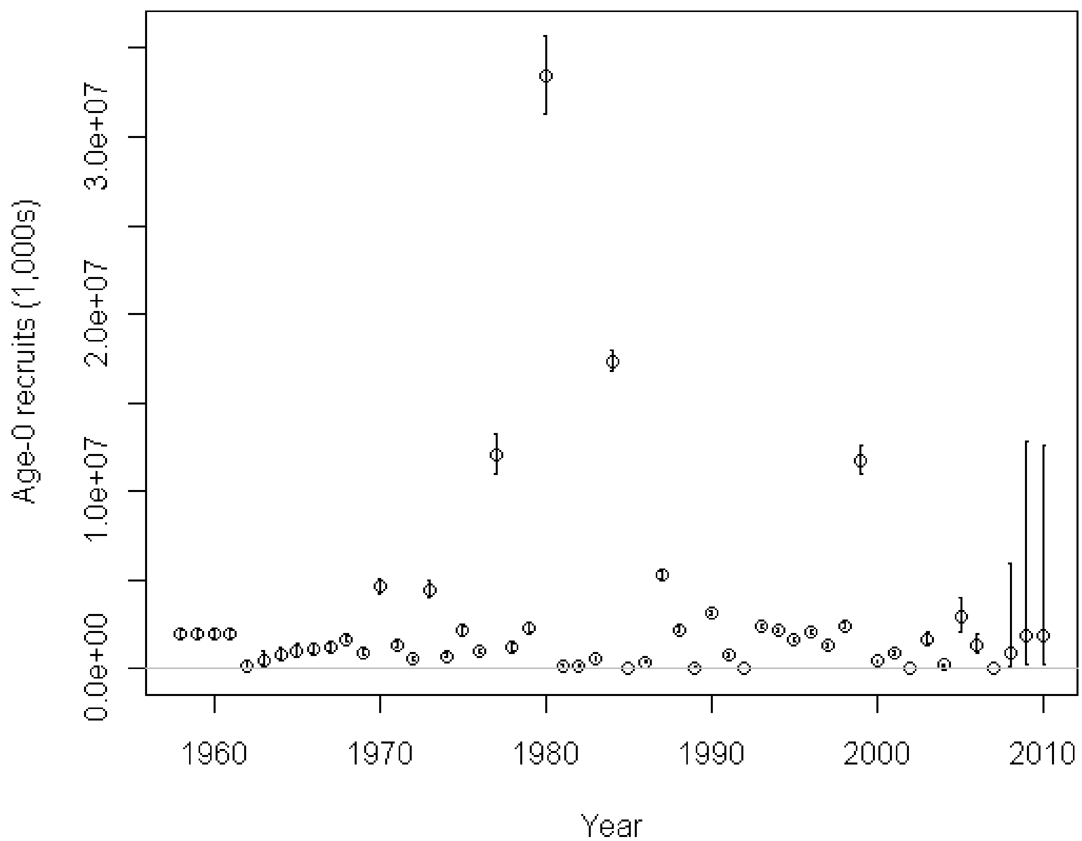


Figure 54. Estimated recruitment time-series with approximate asymptotic 95% confidence intervals.

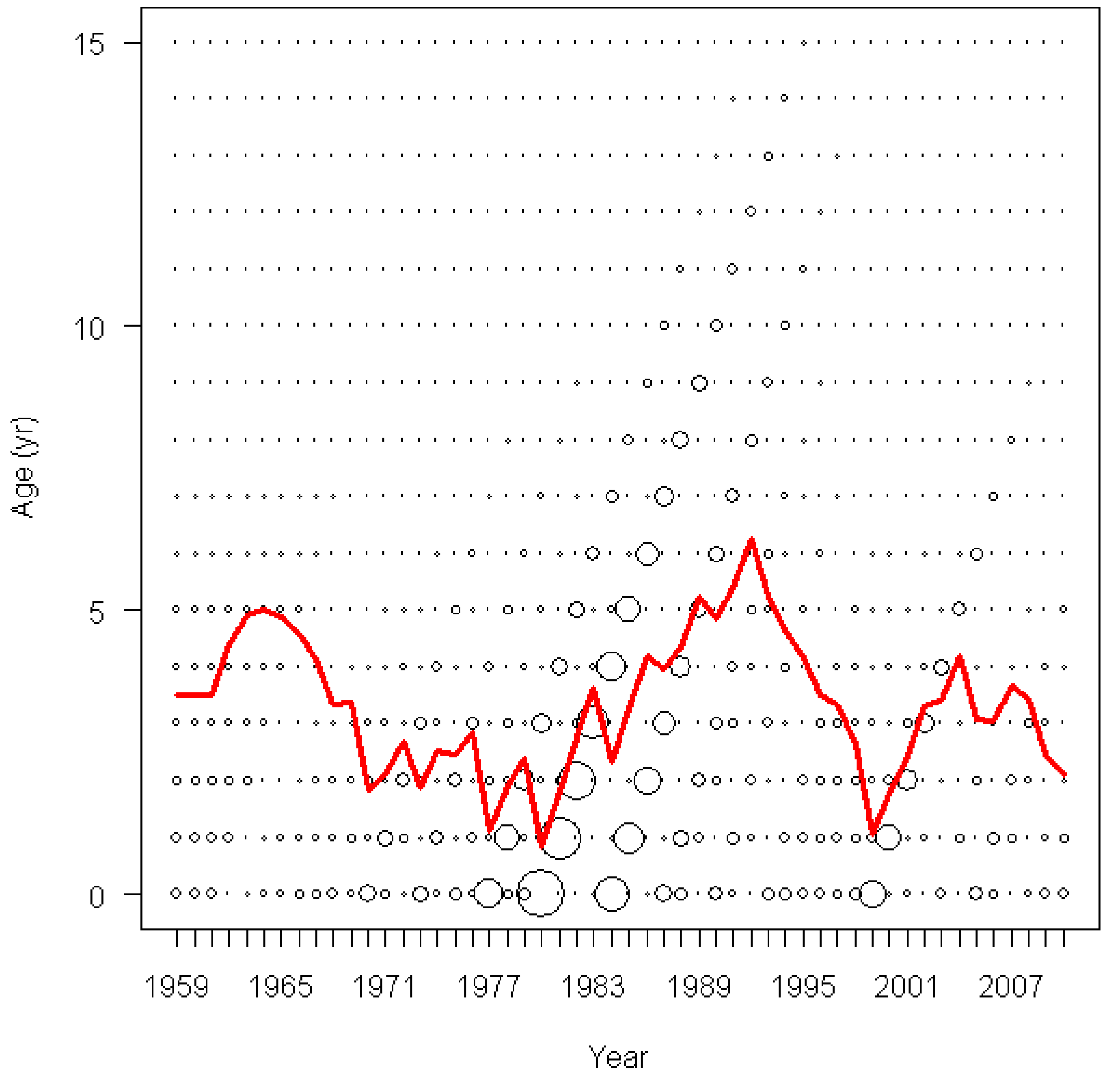


Figure 55. Estimated numbers at age time-series in the base case model. Maximum bubble size indicates 33.4 billion age-0 recruits in 1980, line represents the mean age in the population.

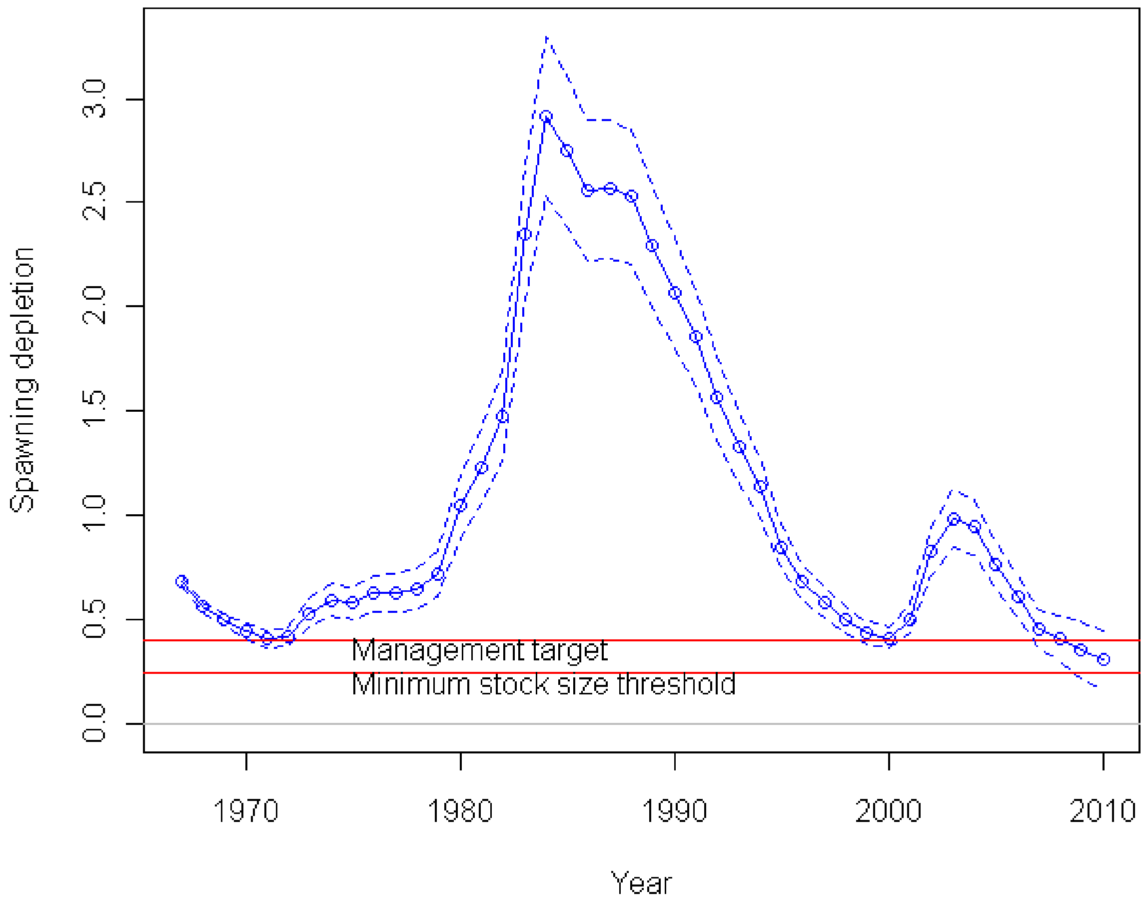


Figure 56. Time-series of estimated depletion, 1967-2010.

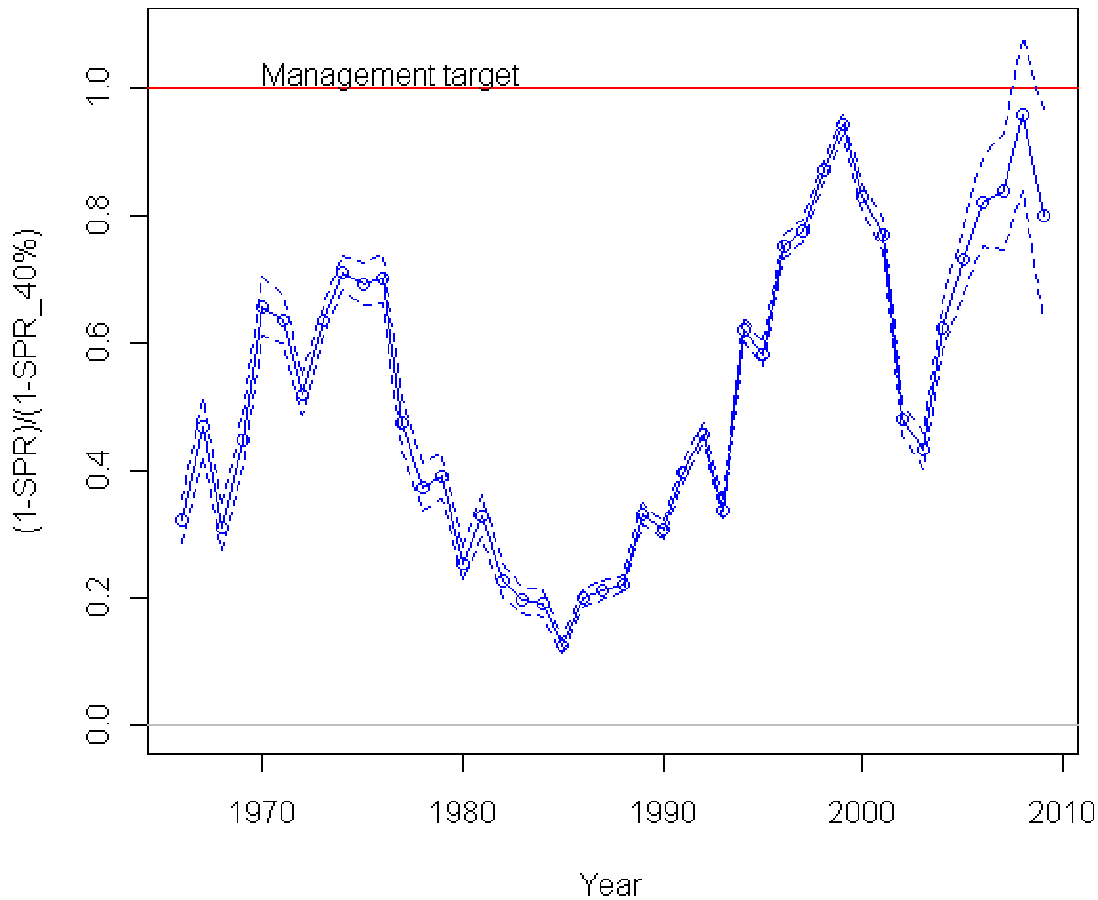


Figure 57. Time-series of relative spawning potential ratio (1-SPR/1-SPR$_{Target=0.4}$).

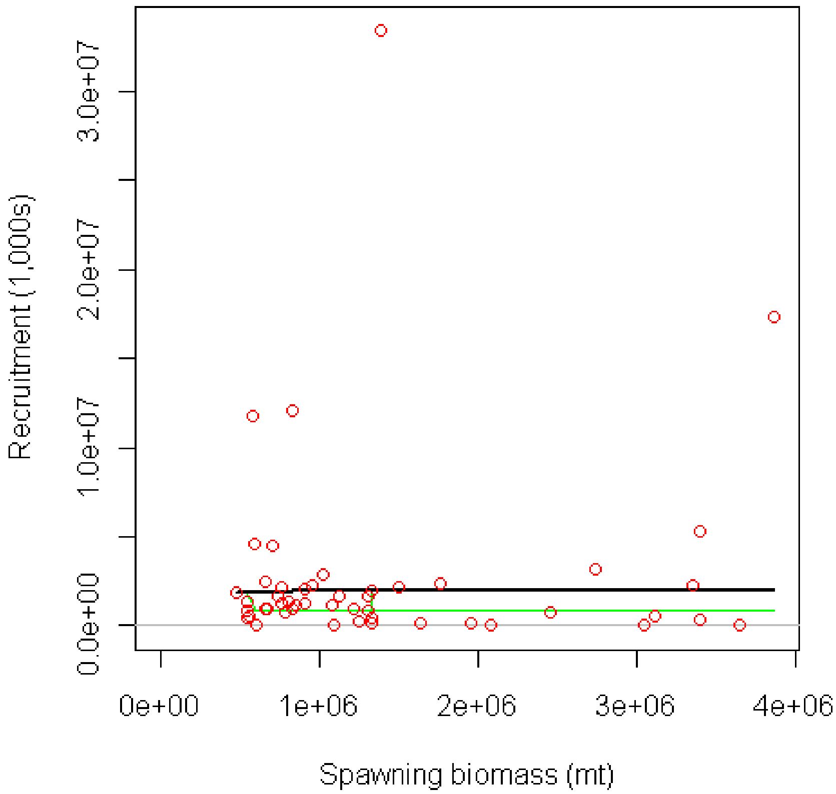


Figure 58. Estimated stock-recruit relationship. Lines represent the bias-corrected expectation (upper line) and median (lower line).

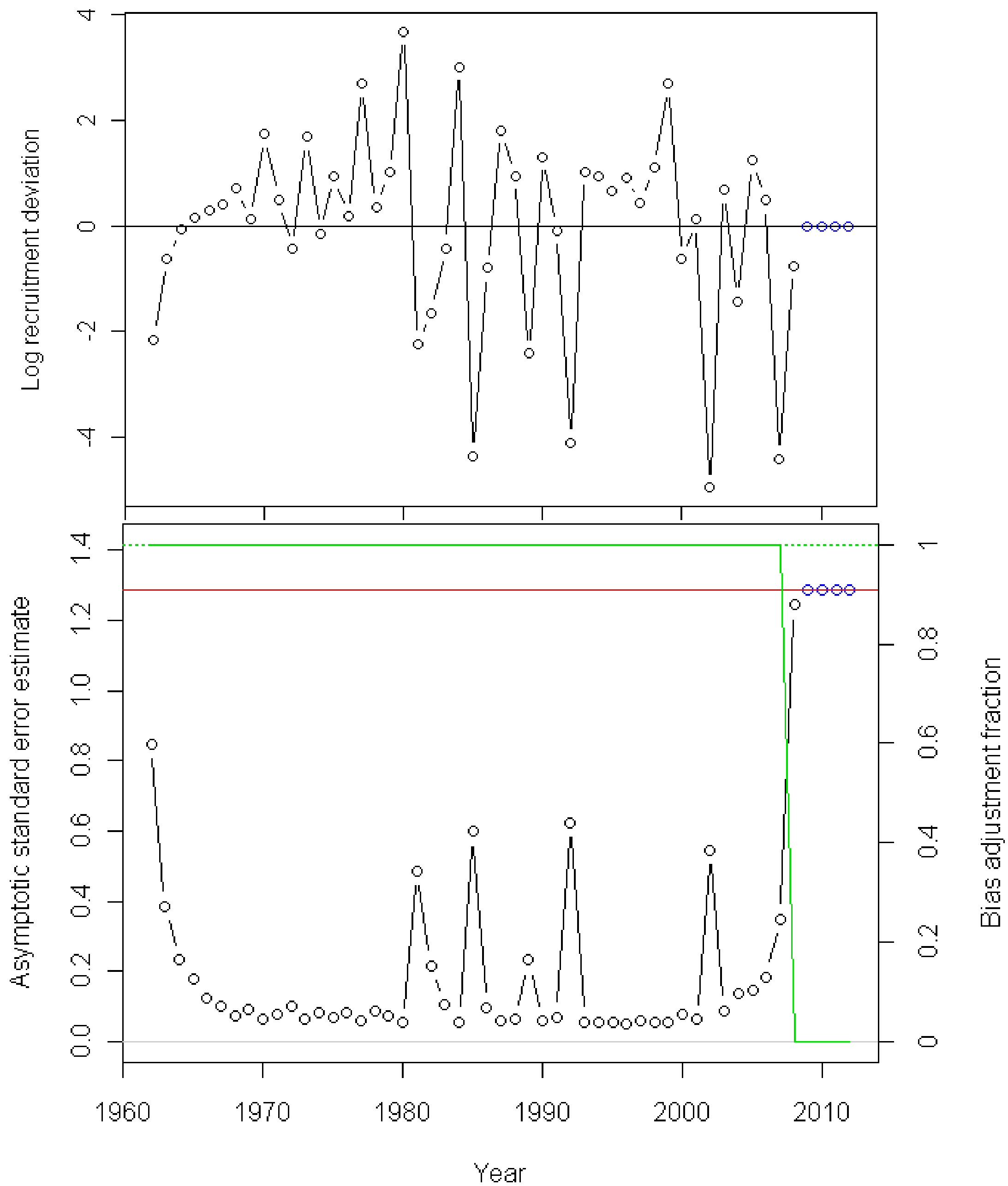


Figure 59. Estimates of Pacific hake recruitment deviations (top panel), and asymptotic standard errors for the deviations (bottom panel). Horizontal line in bottom panel indicates the estimate of the standard deviation of log recruitment deviations (σ_r).

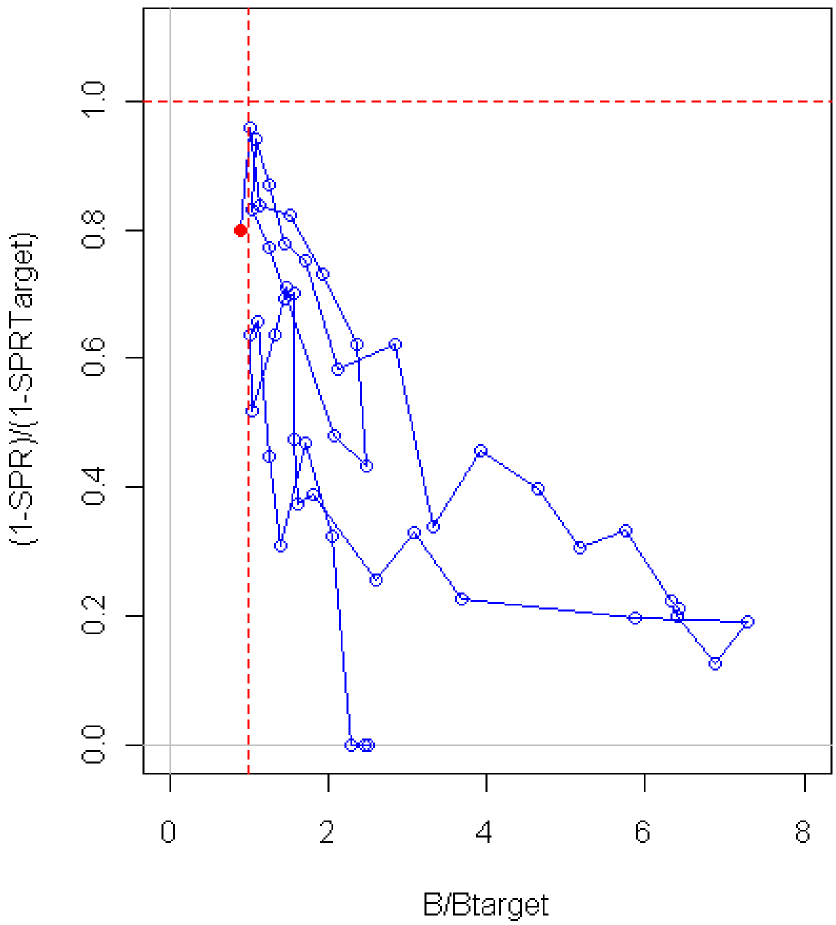


Figure 60. Temporal pattern (phase plot) of relative spawning potential ratio (1-SPR/1-$SPR_{Target=0.4}$) vs. estimated spawning biomass relative to the proxy 40% level, 1960-2009. Current (2009) performance relative to targets is shown as solid dot.

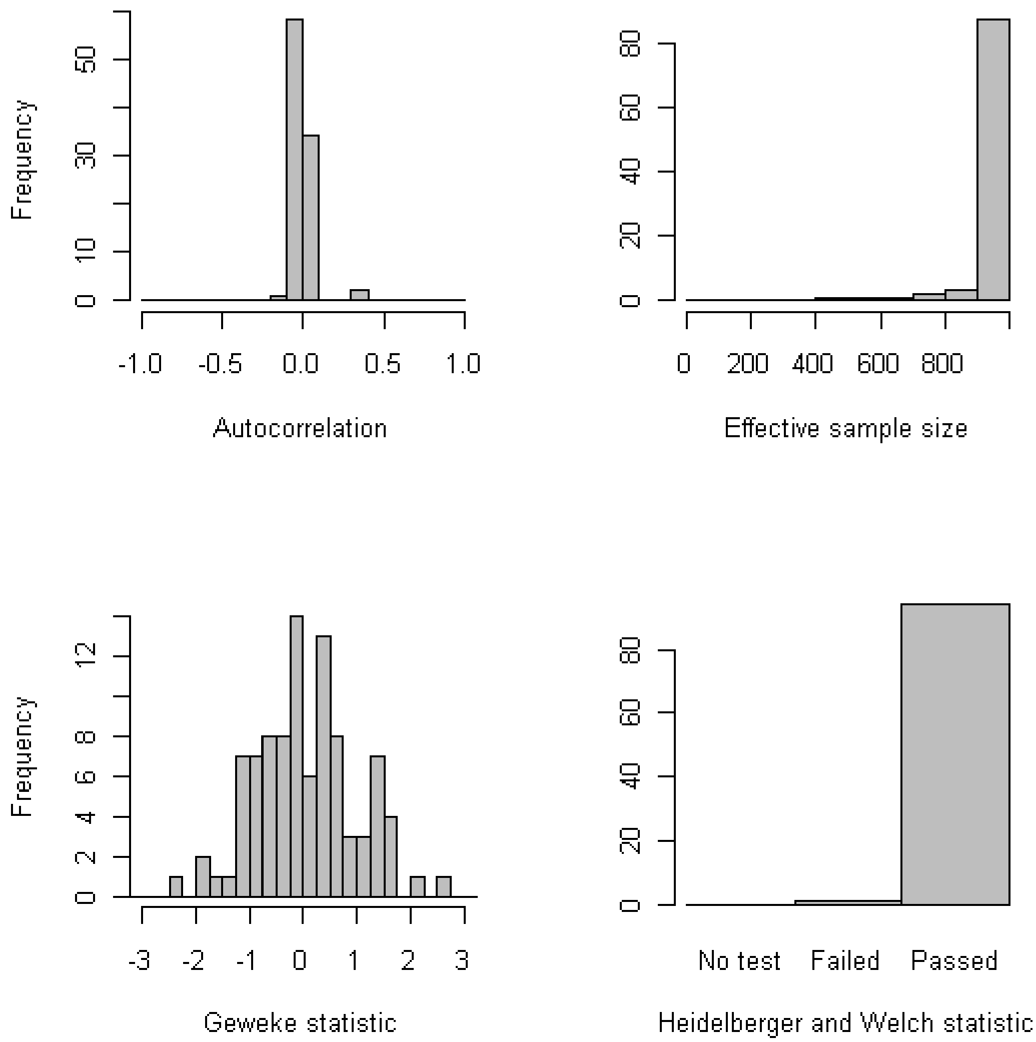
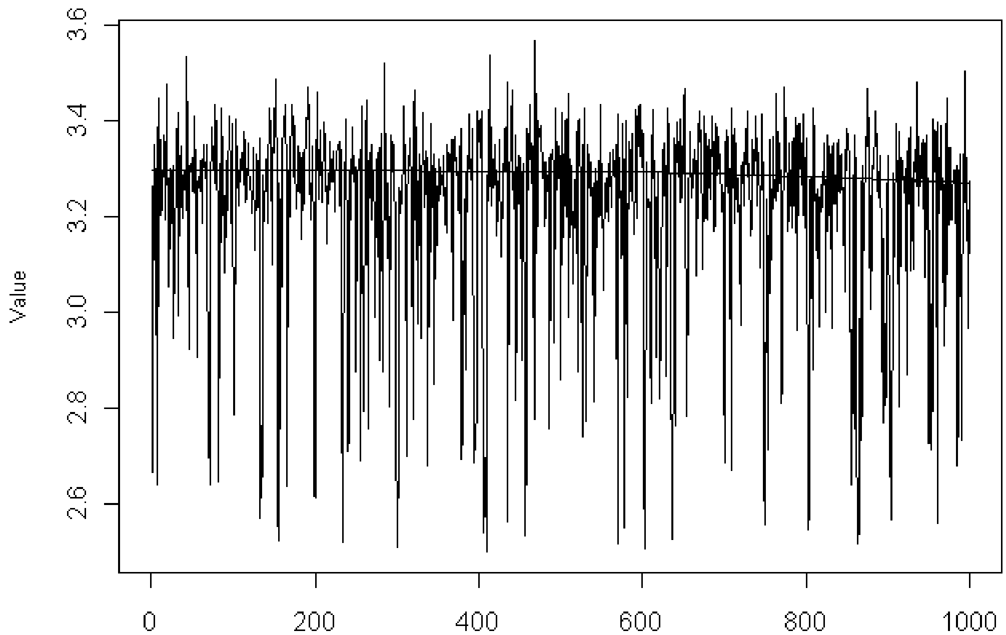


Figure 61. Summary of MCMC diagnostics for the objective function, as well as growth, mortality, stock-recruit (including recruitment deviations), catchability and selectivity parameters.



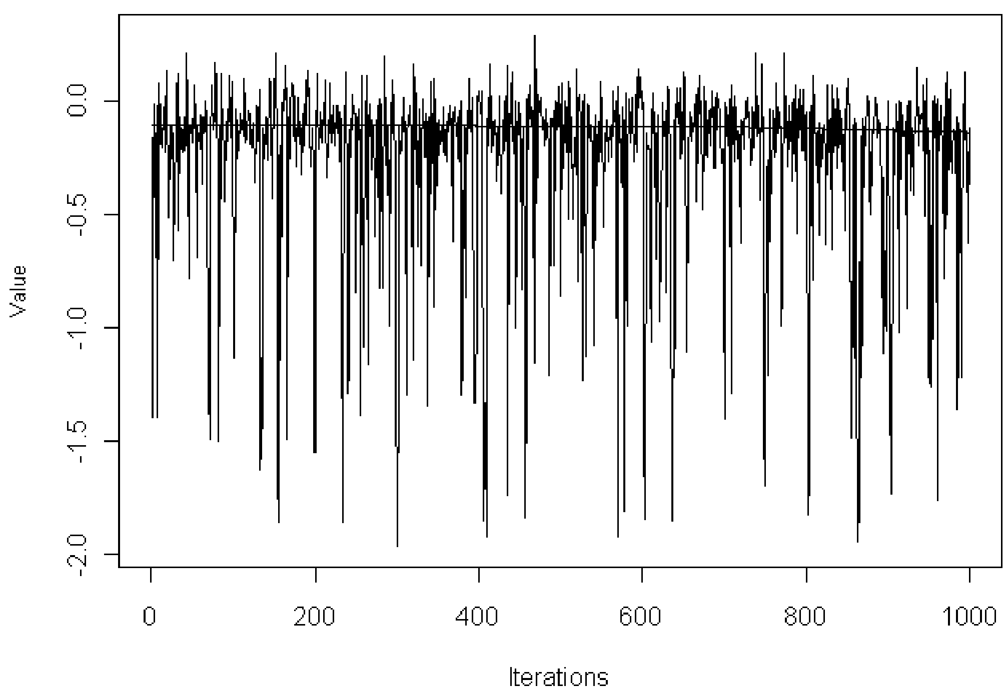


Figure 62. Trace plot for the two selectivity parameters with highest autocorrelation.

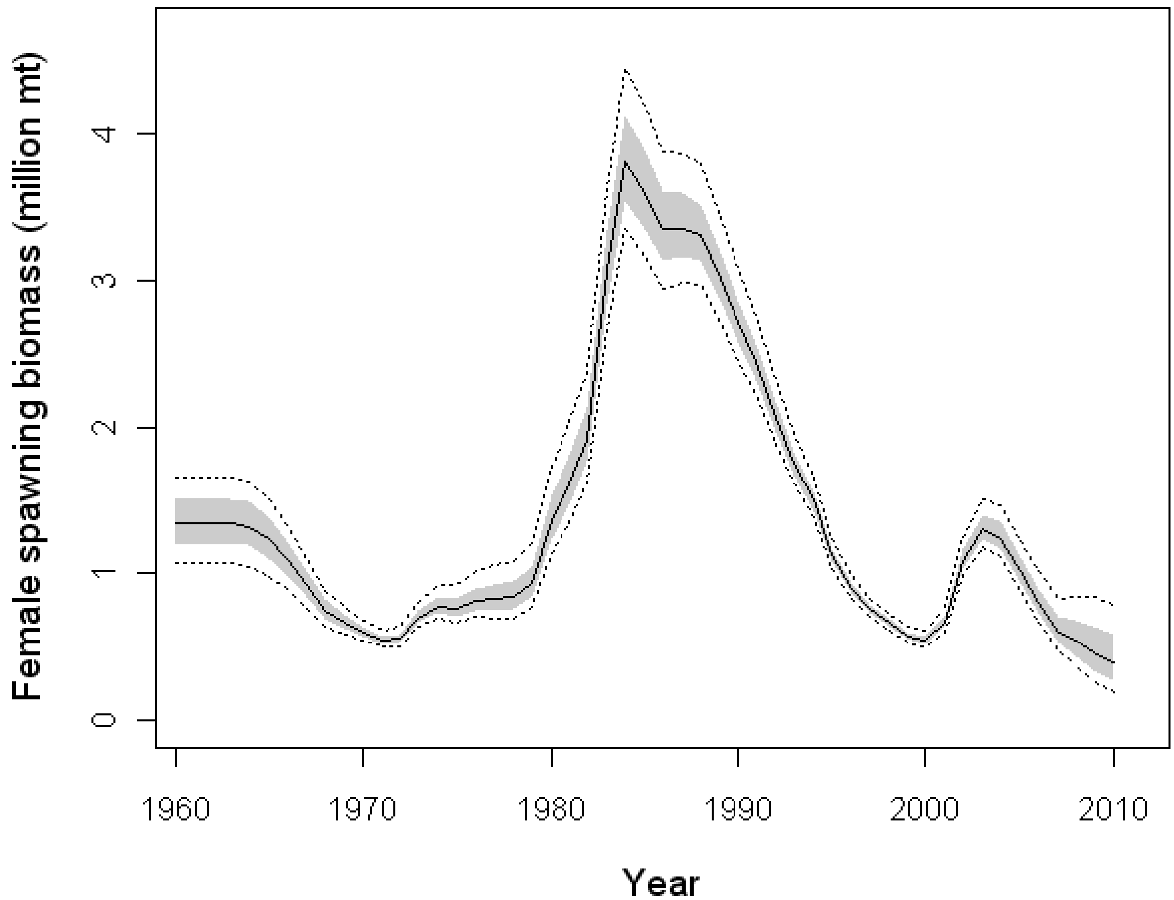


Figure 63. Time-series of posterior intervals for female spawning biomass; dark line indicates the median value, shaded region the ~95% credibility interval and dashed lines the minimum and maximum values present in the posterior distribution.

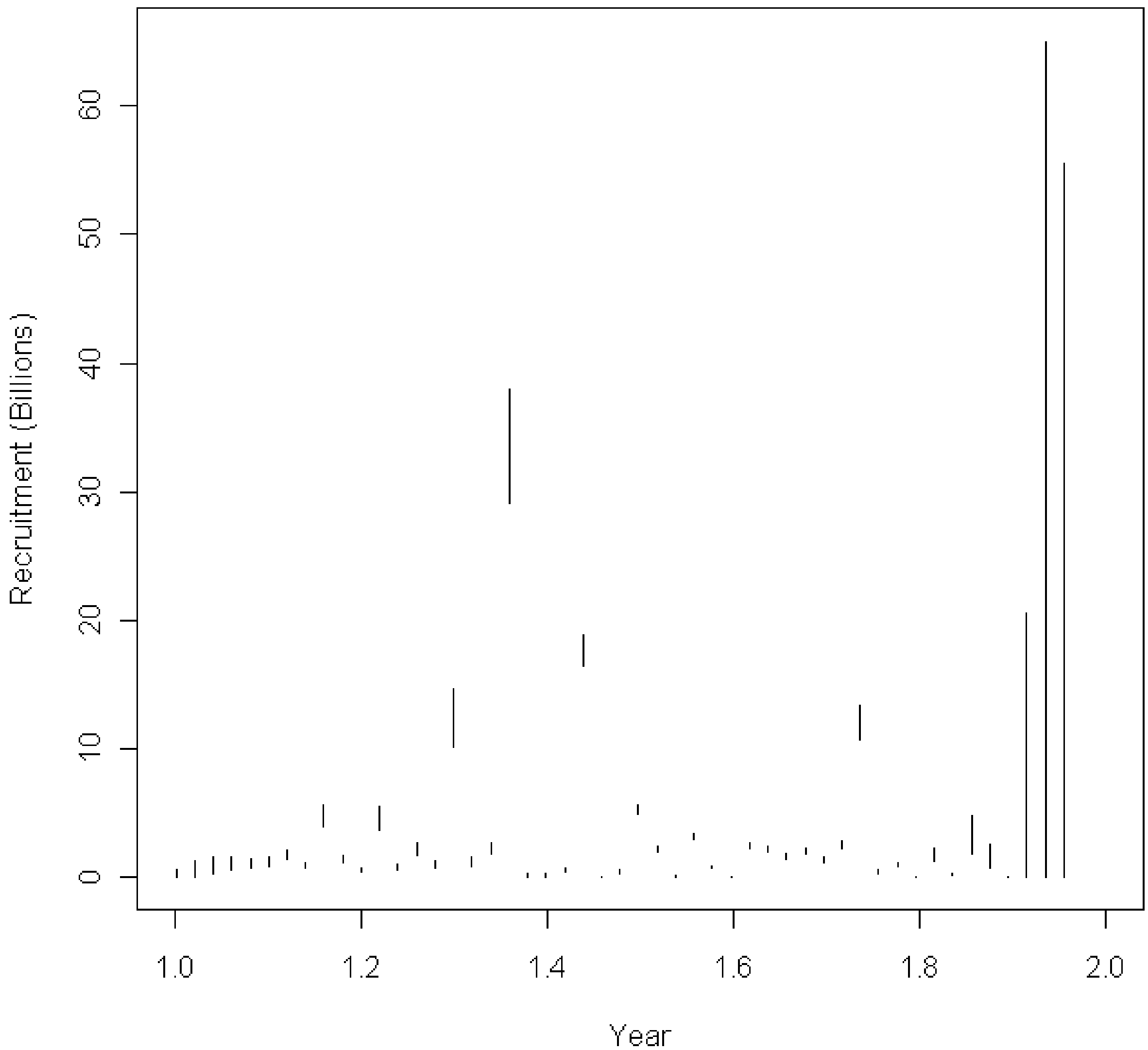


Figure 64. Time-series of posterior intervals (posterior range from minimum to maximum values) for age-0 recruitment.

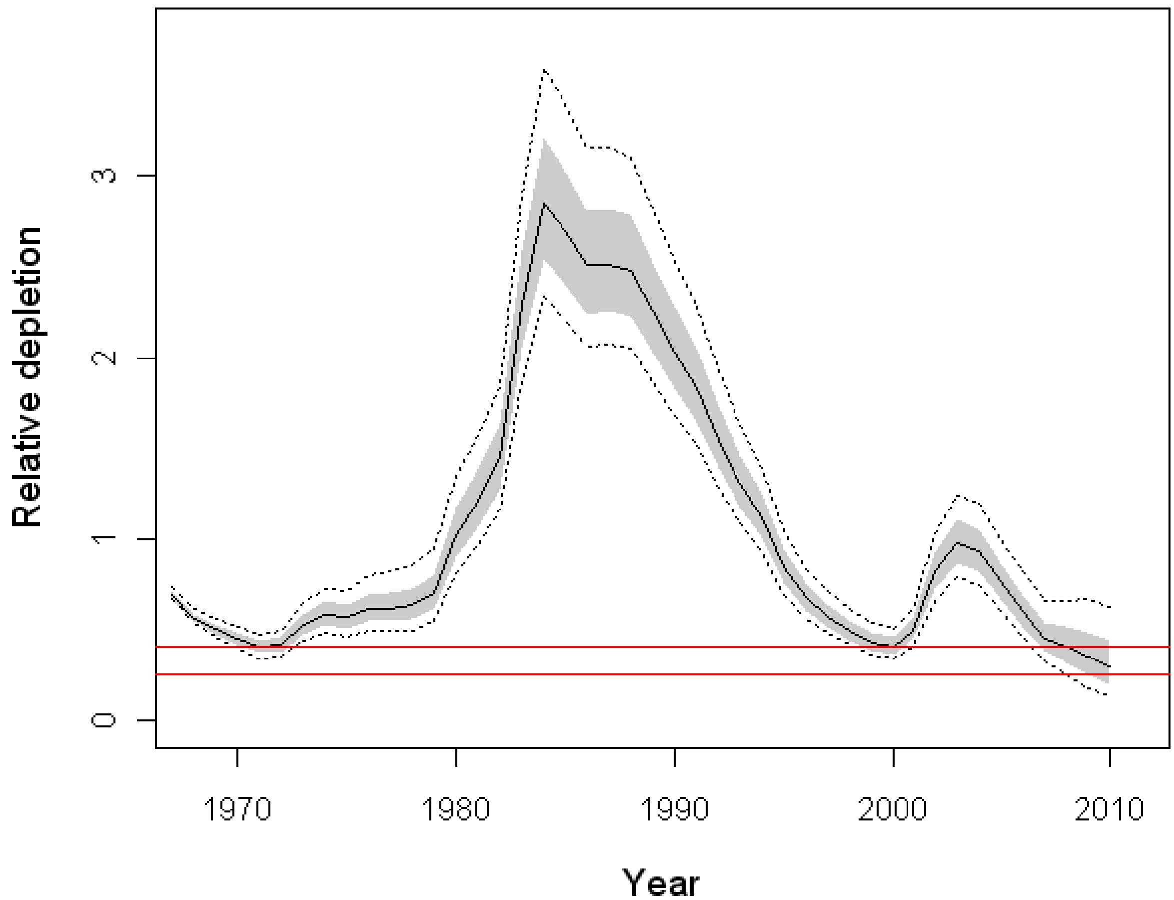


Figure 65. Time-series of posterior intervals for relative depletion; dark line indicates the median value, shaded region the ~95% credibility interval and dashed lines the minimum and maximum values present in the posterior distribution. Horizontal lines indicates the $SB_{40\%}$ biomass target and $SB_{25\%}$ biomass limit levels.

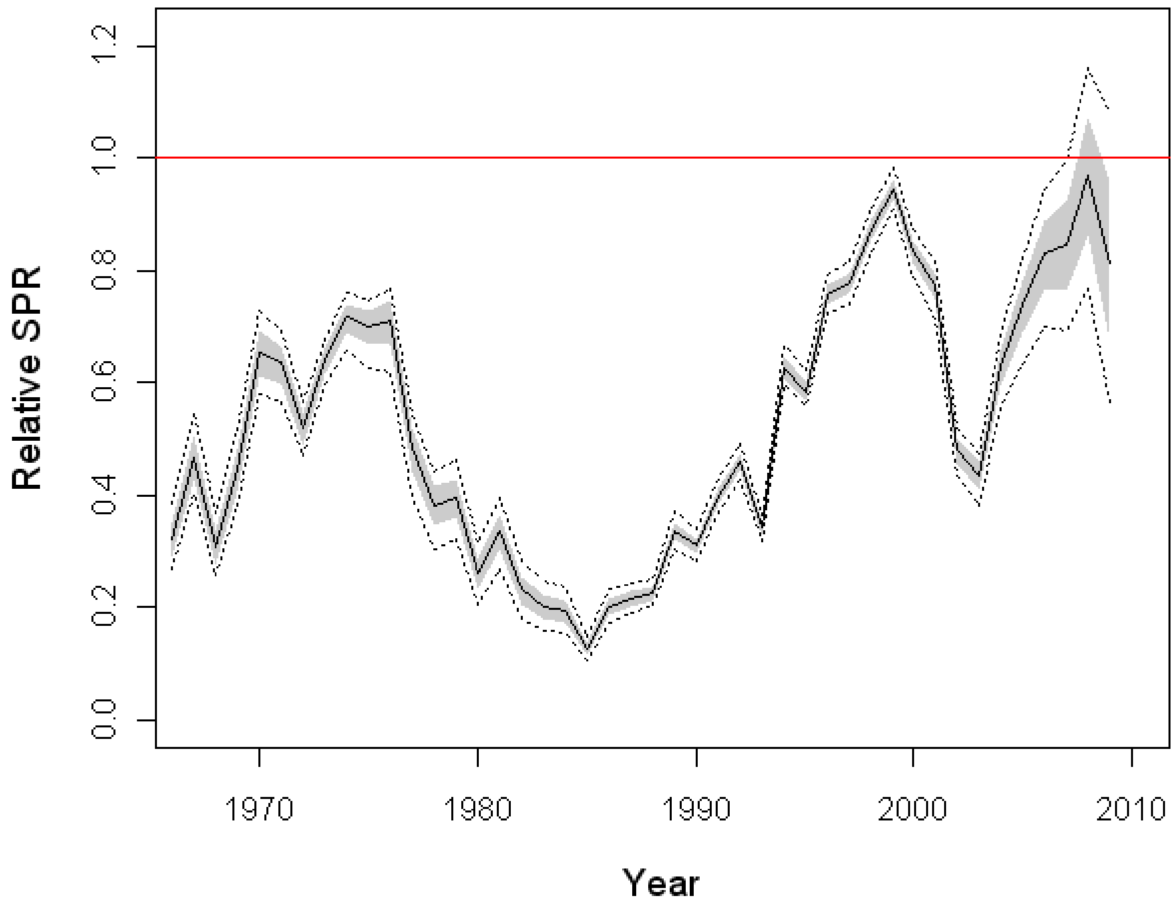


Figure 66. Time-series of posterior intervals for relative SPR, (1-SPR/1-$SPR_{Target=0.4}$); dark line indicates the median value, shaded region the ~95% credibility interval and dashed lines the minimum and maximum values present in the posterior distribution. Horizontal line indicates the overfishing threshold.

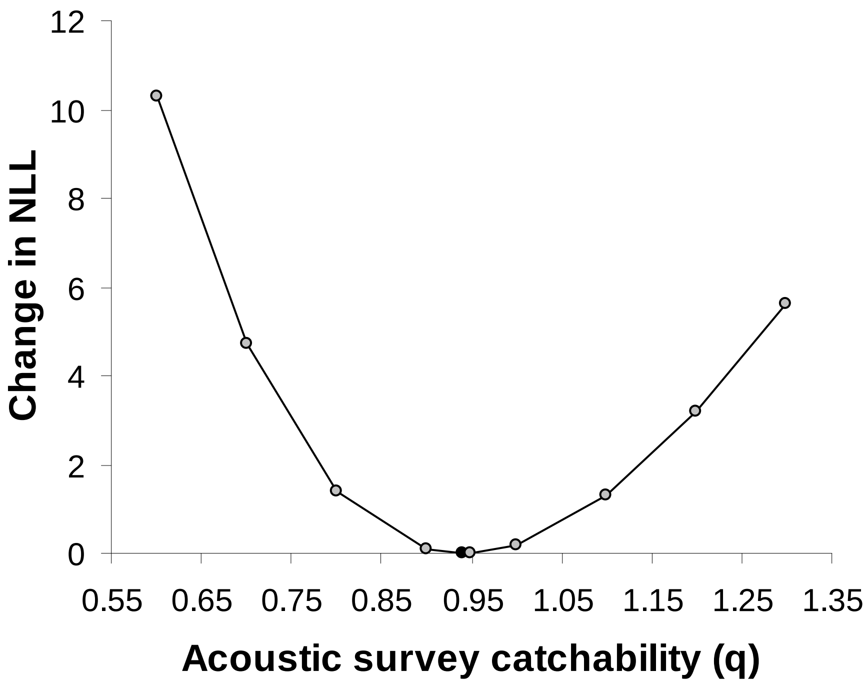


Figure 67. Likelihood profile for alternate values for acoustic survey catchability. Dark circle indicates the maximum likelihood estimate.

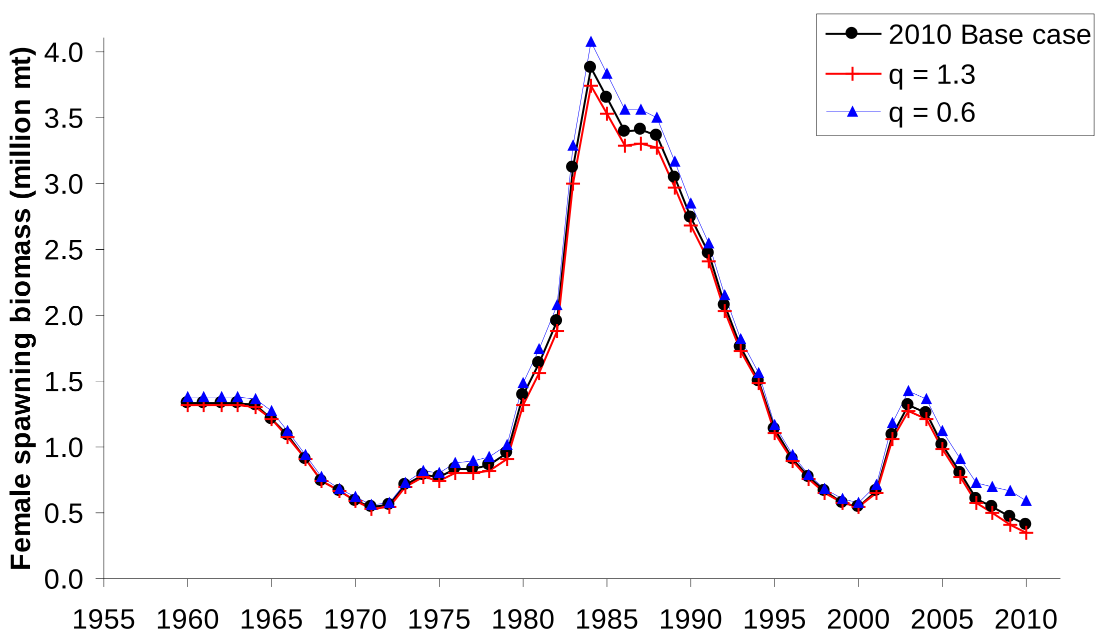


Figure 68. Results of sensitivity analysis to the estimated value for acoustic survey catchability (estimated value = 0.94).

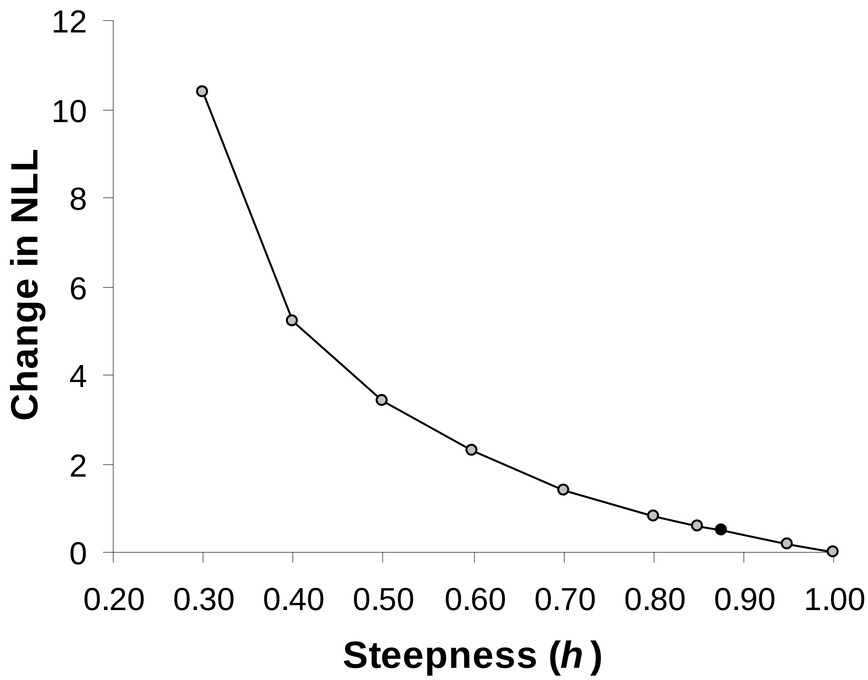


Figure 69. Likelihood profile for alternate values for the steepness (*h*) of the stock-recruitment function. Dark circle indicates the maximum likelihood estimate. The maximum likelihood estimate reflects the contribution of the prior probability distribution and therefore does not occur at the minimum value on this figure, which was calculated without the contribution of the prior.

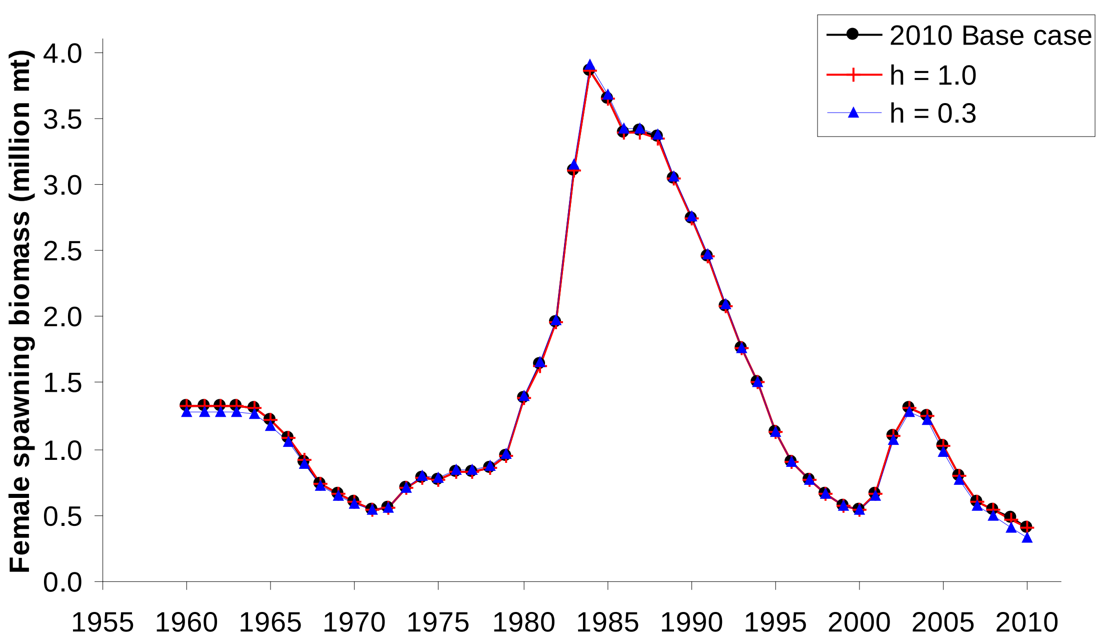


Figure 70. Results of sensitivity analysis to the estimated value for acoustic survey catchability (estimated value = 0.88).

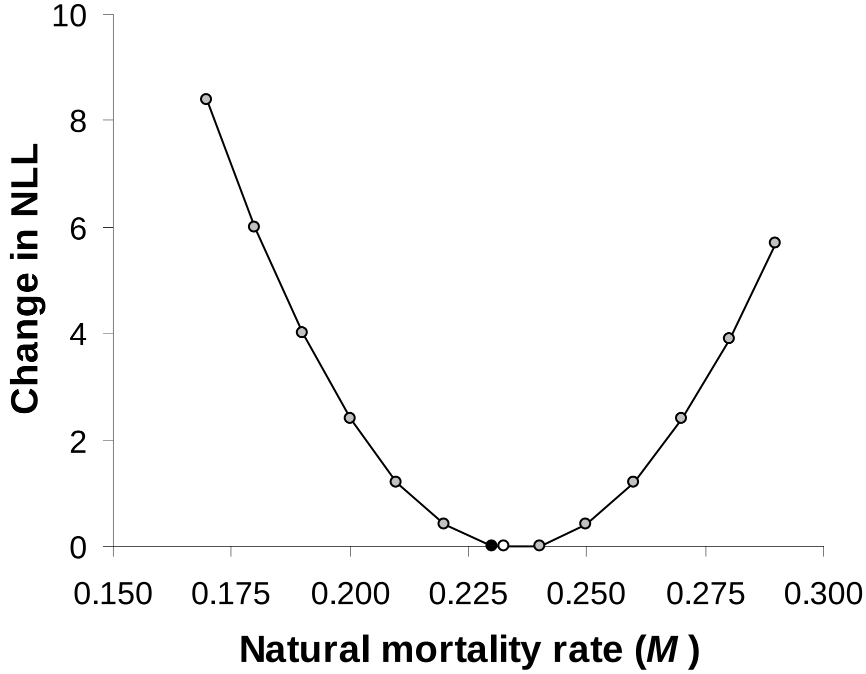


Figure 71. Likelihood profile for the natural mortality rate (*M*) through age 13. Dark circle indicates the fixed value used in the base case, and the open circle the maximum likelihood estimate.

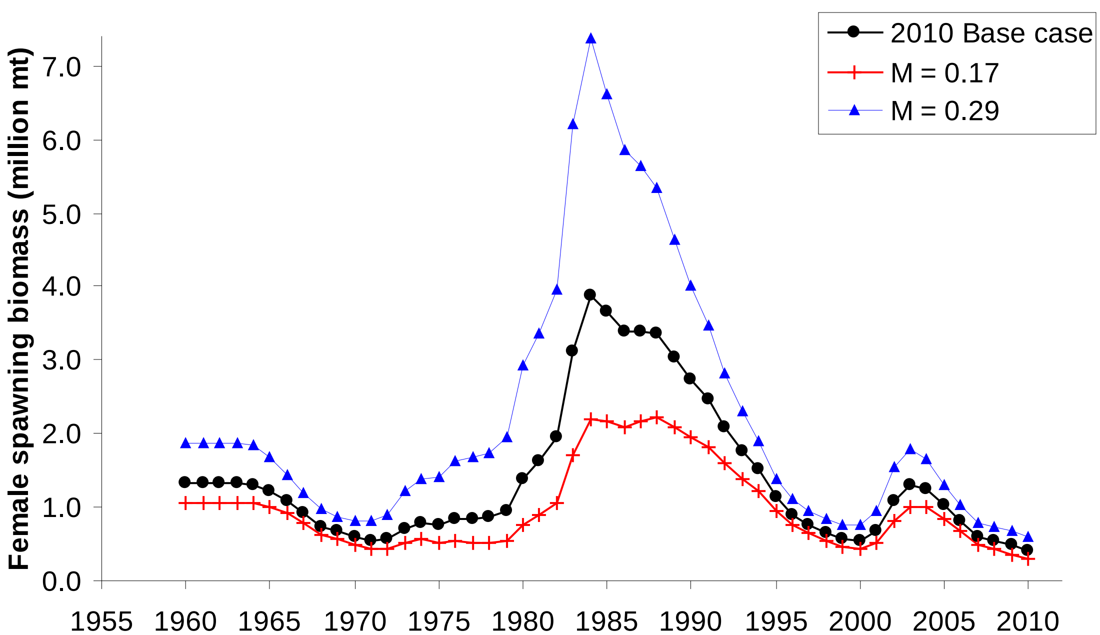


Figure 72. Results of sensitivity analysis to the fixed value for natural mortality rate (0.23).

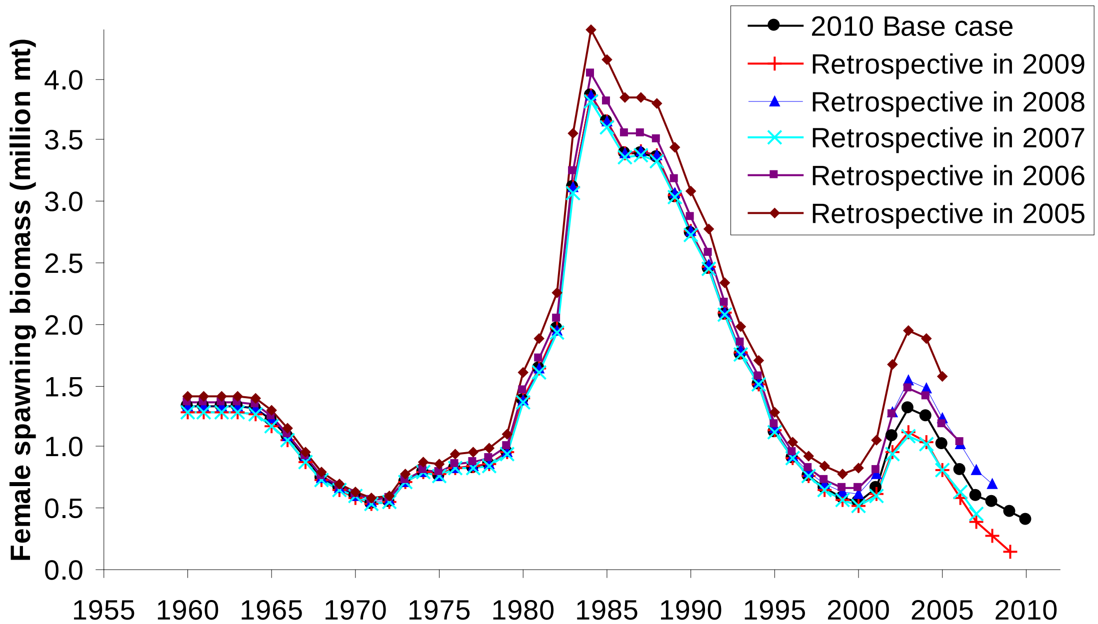


Figure 73. Retrospective pattern over the terminal years 2009 to 2005 as data from each terminal year are sequentially removed from the model.

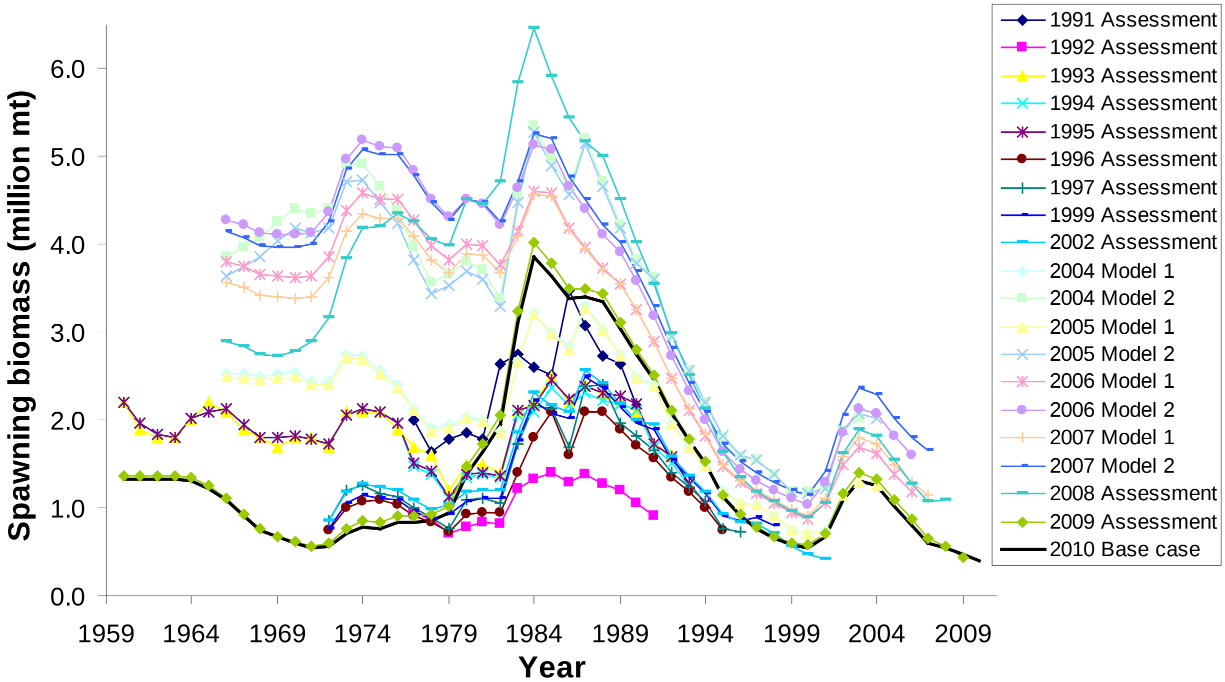


Figure 74. Retrospective comparing 2010 model results with previous stock assessments since 1991 (updates in 1998, 2000, 2001, 2003 are not included).

8. Appendix A. List of all estimated parameters

Parameter	Value
NatM_p_2_Fem_GP_1	0.62
L_at_Amax_Fem_GP_1	53.21
VonBert_K_Fem_GP_1	0.30
L_at_Amax_Fem_GP_1_BLK1mult_1984	-0.05
VonBert_K_Fem_GP_1_BLK2mult_1980	-0.13
VonBert_K_Fem_GP_1_BLK2mult_1999	0.19
SR_R0	14.49
SR_steep	0.88
SR_sigmaR	1.29
Main_RecrDev_1962	-2.19
Main_RecrDev_1963	-0.61
Main_RecrDev_1964	-0.06
Main_RecrDev_1965	0.15
Main_RecrDev_1966	0.29
Main_RecrDev_1967	0.39
Main_RecrDev_1968	0.70
Main_RecrDev_1969	0.11
Main_RecrDev_1970	1.73
Main_RecrDev_1971	0.50
Main_RecrDev_1972	-0.44
Main_RecrDev_1973	1.68
Main_RecrDev_1974	-0.14
Main_RecrDev_1975	0.94
Main_RecrDev_1976	0.17
Main_RecrDev_1977	2.67
Main_RecrDev_1978	0.36
Main_RecrDev_1979	1.01
Main_RecrDev_1980	3.67
Main_RecrDev_1981	-2.23
Main_RecrDev_1982	-1.64
Main_RecrDev_1983	-0.43
Main_RecrDev_1984	2.99
Main_RecrDev_1985	-4.36
Main_RecrDev_1986	-0.80
Main_RecrDev_1987	1.80
Main_RecrDev_1988	0.94
Main_RecrDev_1989	-2.42
Main_RecrDev_1990	1.30
Main_RecrDev_1991	-0.09
Main_RecrDev_1992	-4.09
Main_RecrDev_1993	1.03
Main_RecrDev_1994	0.93
Main_RecrDev_1995	0.65
Main_RecrDev_1996	0.91
Main_RecrDev_1997	0.43

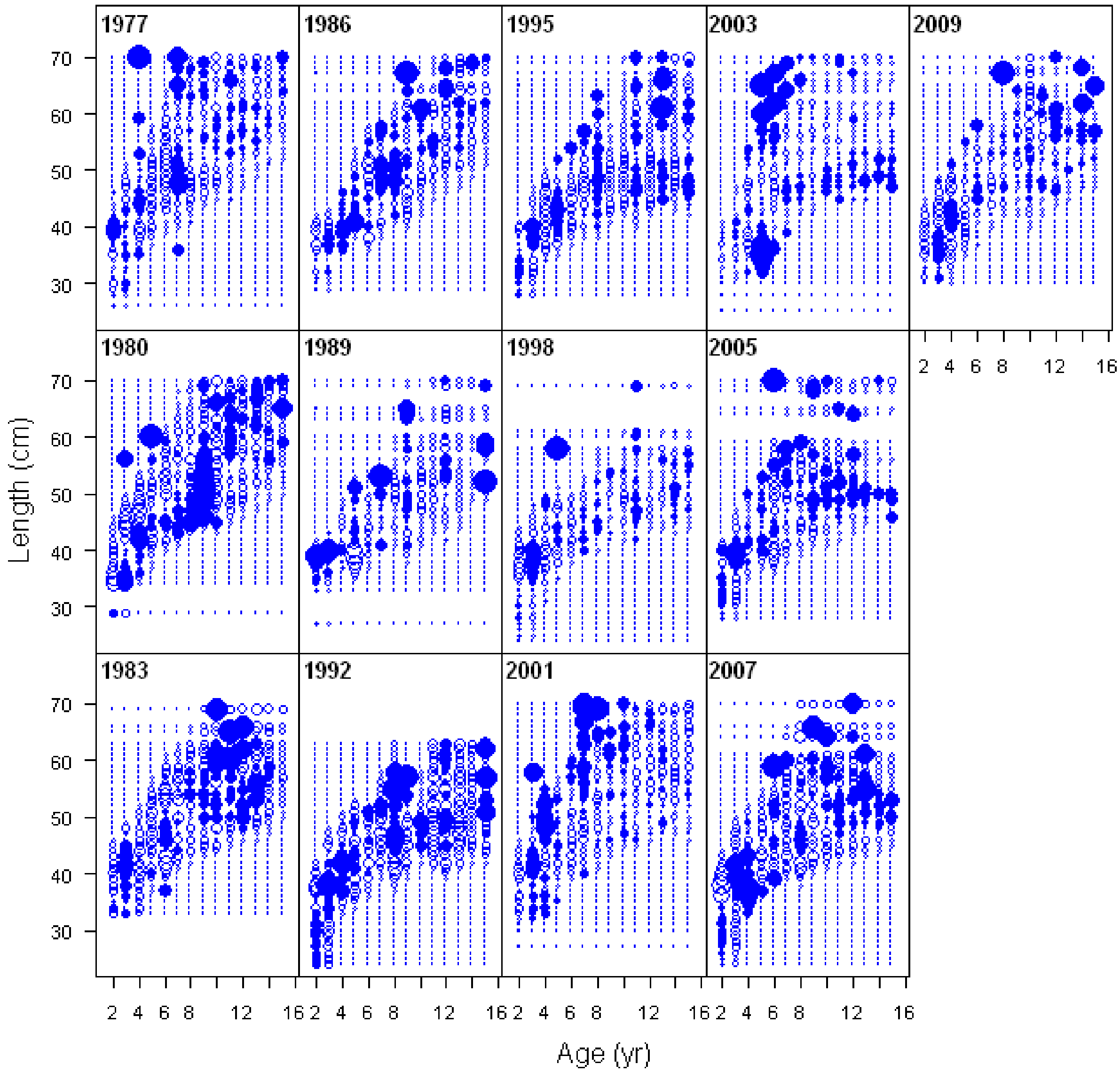
Main_RecrDev_1998	1.09
Main_RecrDev_1999	2.67
Main_RecrDev_2000	-0.63
Main_RecrDev_2001	0.11
Main_RecrDev_2002	-4.94
Main_RecrDev_2003	0.67
Main_RecrDev_2004	-1.43
Main_RecrDev_2005	1.23
Main_RecrDev_2006	0.46
Main_RecrDev_2007	-4.41
Main_RecrDev_2008	-0.68
Late_RecrDev_2009	0.00
ForeRecr_2010	0.00
ForeRecr_2011	0.00
ForeRecr_2012	0.00
Q_base_3_Acoustic_Survey	-0.06
AgeSel_1P_1_US_Fishery	10.93
AgeSel_1P_3_US_Fishery	-0.60
AgeSel_1P_6_US_Fishery	-2.21
AgeSel_2P_1_CAN_Fishery	13.06
AgeSel_2P_3_CAN_Fishery	2.05
AgeSel_2P_6_CAN_Fishery	-0.33
AgeSel_3P_1_Acoustic_Survey	11.03
AgeSel_3P_3_Acoustic_Survey	4.16
AgeSel_3P_6_Acoustic_Survey	-0.16
AgeSel_1P_1_US_Fishery_BLK3add_1981	0.00
AgeSel_1P_1_US_Fishery_BLK3add_1985	0.46
AgeSel_1P_1_US_Fishery_BLK3add_1989	-7.91
AgeSel_1P_1_US_Fishery_BLK3add_1993	-3.17
AgeSel_1P_1_US_Fishery_BLK3add_1997	-0.92
AgeSel_1P_1_US_Fishery_BLK3add_2001	-7.63
AgeSel_1P_1_US_Fishery_BLK3add_2005	-3.25
AgeSel_1P_3_US_Fishery_BLK4add_1960	4.17
AgeSel_1P_3_US_Fishery_BLK4add_1981	3.84
AgeSel_1P_3_US_Fishery_BLK4add_1985	4.85
AgeSel_1P_3_US_Fishery_BLK4add_1993	3.86
AgeSel_1P_3_US_Fishery_BLK4add_1997	3.89
AgeSel_1P_3_US_Fishery_BLK4add_2001	0.51
AgeSel_1P_3_US_Fishery_BLK4add_2005	3.92
AgeSel_1P_6_US_Fishery_BLK5add_1984	3.20
AgeSel_2P_1_CAN_Fishery_BLK6add_1981	-1.47
AgeSel_2P_1_CAN_Fishery_BLK6add_1985	-4.67
AgeSel_2P_1_CAN_Fishery_BLK6add_1989	-5.00
AgeSel_2P_1_CAN_Fishery_BLK6add_1993	-4.80
AgeSel_2P_1_CAN_Fishery_BLK6add_2001	-8.26
AgeSel_2P_1_CAN_Fishery_BLK6add_2005	-2.77
AgeSel_2P_3_CAN_Fishery_BLK7add_1960	0.70
AgeSel_2P_3_CAN_Fishery_BLK7add_1989	1.03

AgeSel_2P_3_CAN_Fishery_BLK7add_2001	-1.99
AgeSel_2P_3_CAN_Fishery_BLK7add_2005	0.97

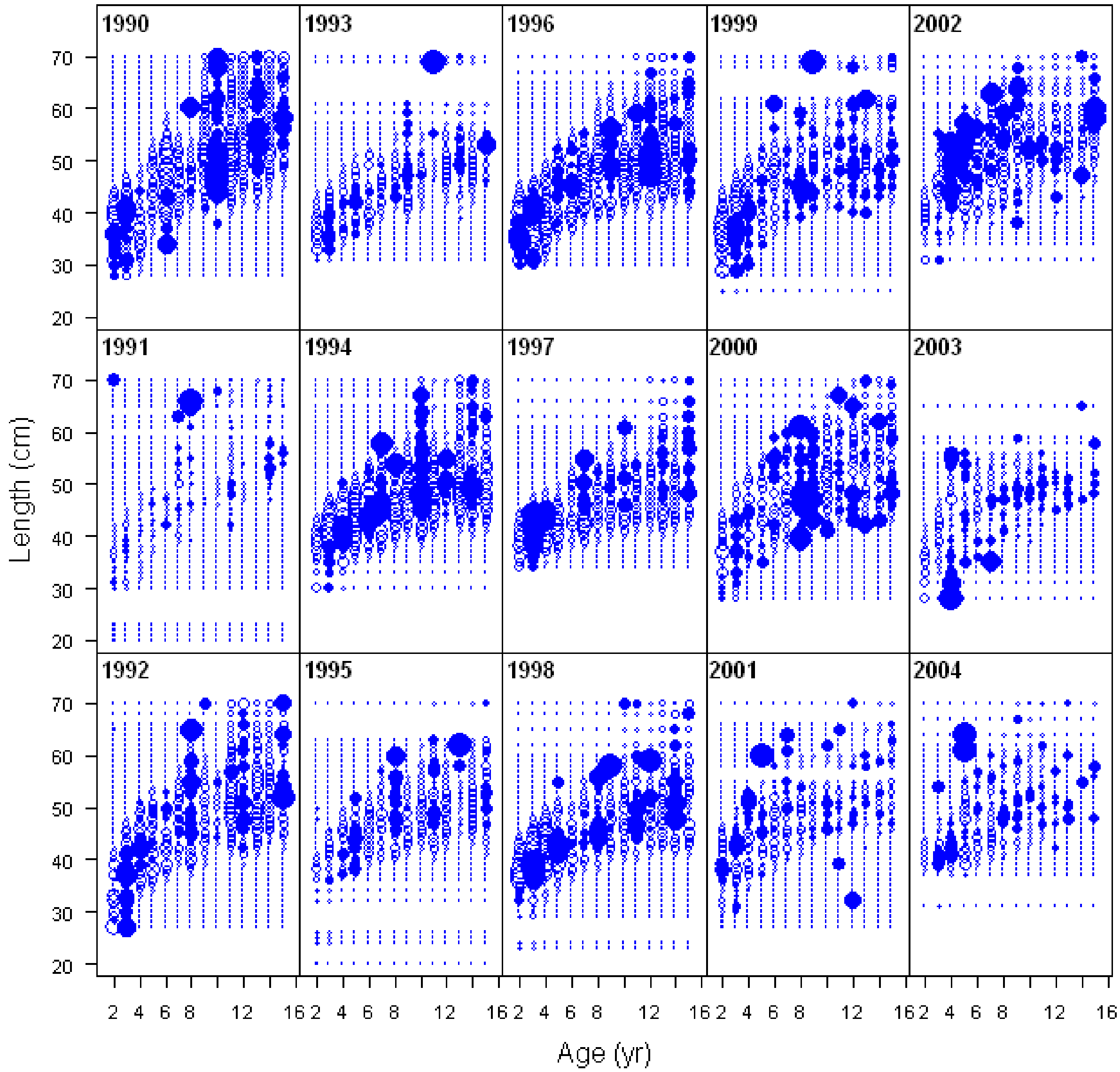
9. Appendix B. Residuals and diagnostics for conditional age-at-length data

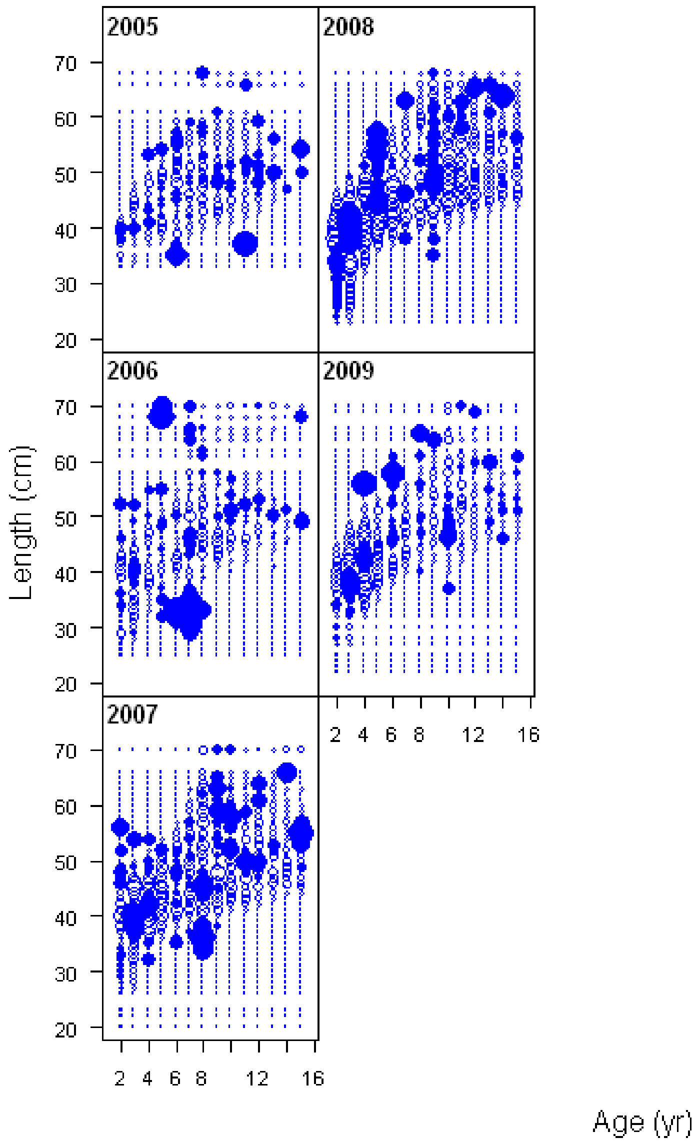
The following figures are intended to provide a more detailed look at the fit to the conditional age-at-length data by year and fleet. Both Pearson residuals (scaled by fleet across all years) and summary plots of the predicted and observed average age at size and SD of age at size are presented.

Acoustic survey residuals:

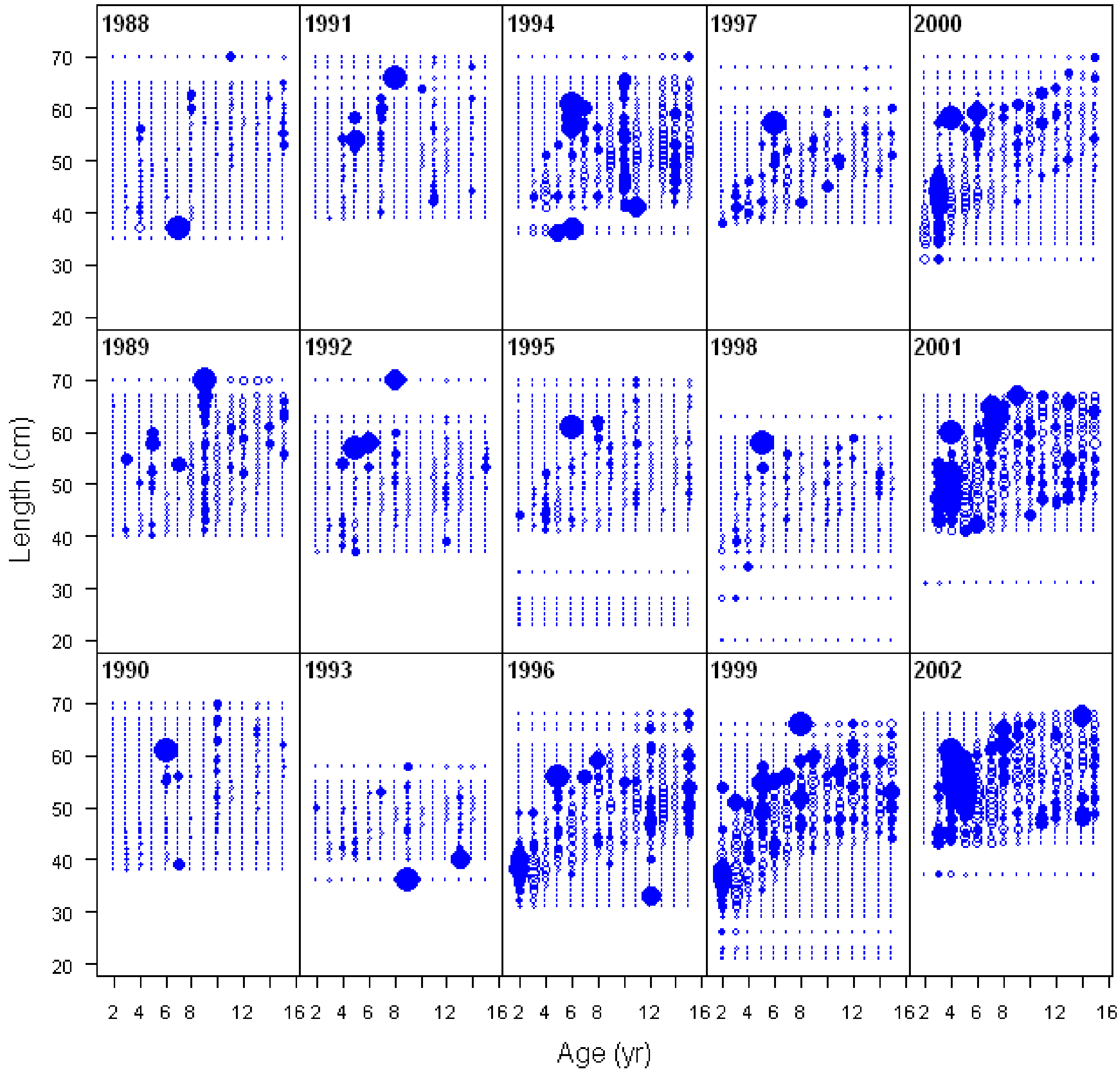


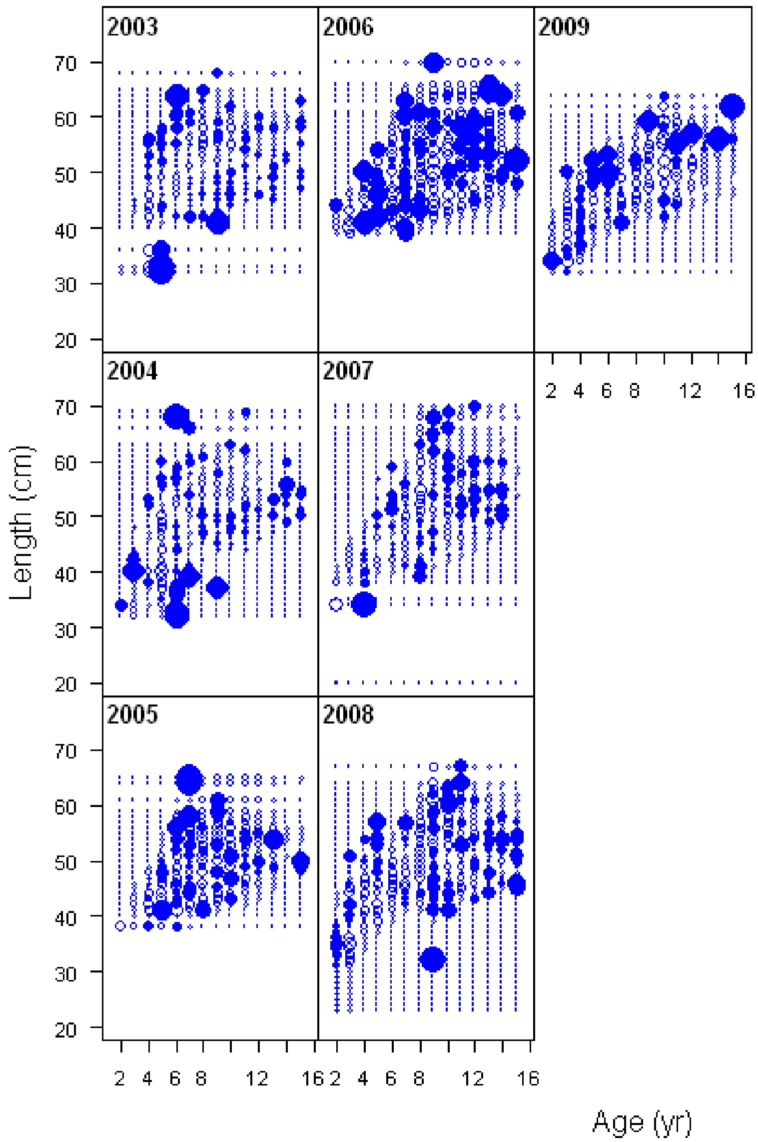
U.S. fishery residuals:



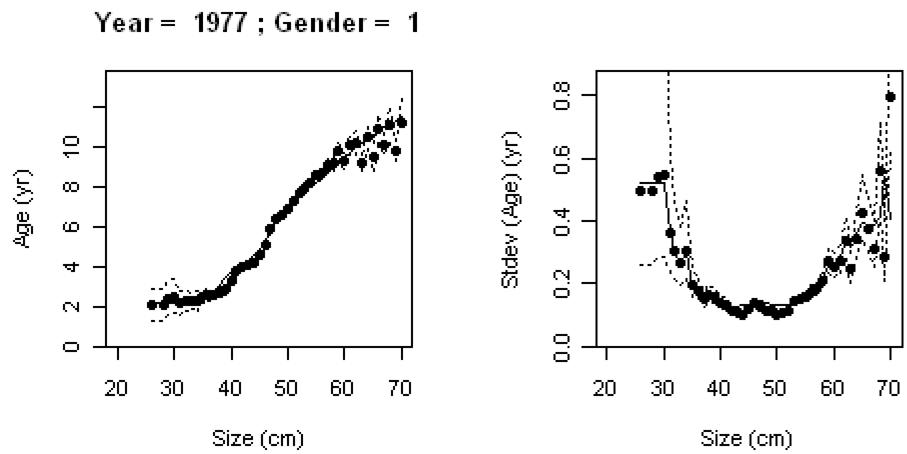

2005
2008
2006
2009
2007
Length (cm)
Age (yr)
20
30
40
50
60
70
2
4
6
8
12
16

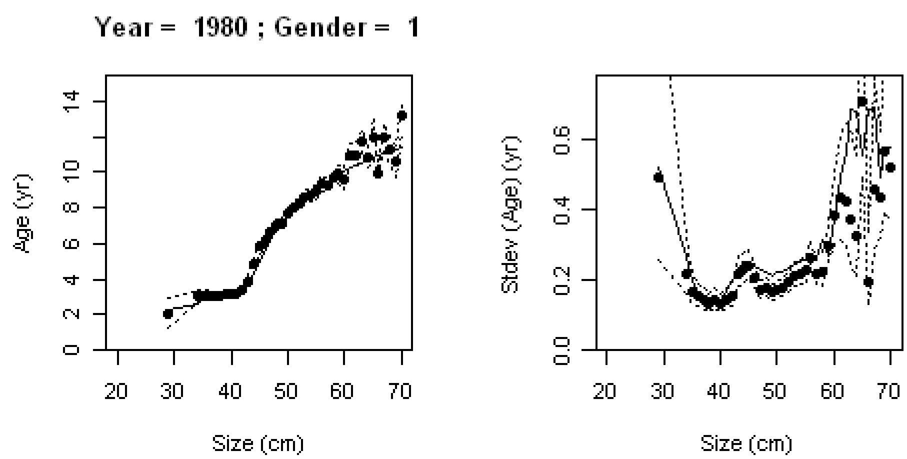
Canadian fishery residuals:

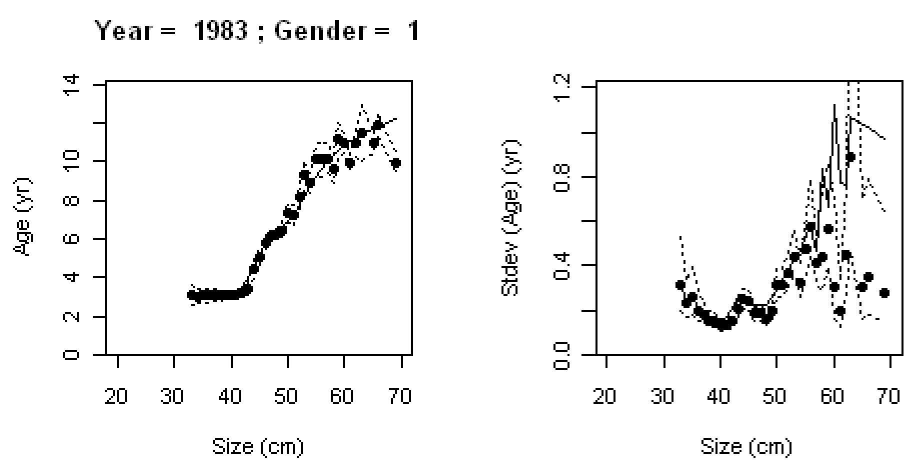


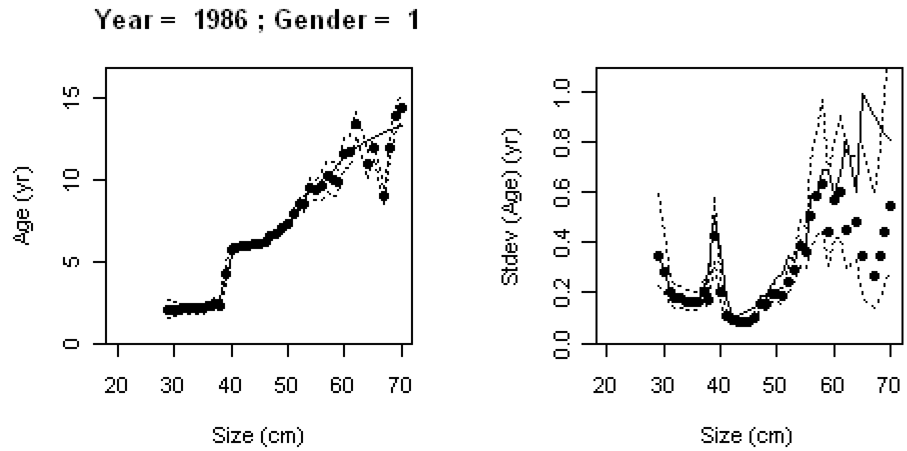

2003
2006
2009
2004
2007
2005
2008
Length (cm)
Age (yr)
70
60
50
40
30
20
2 4 6 8 12 16

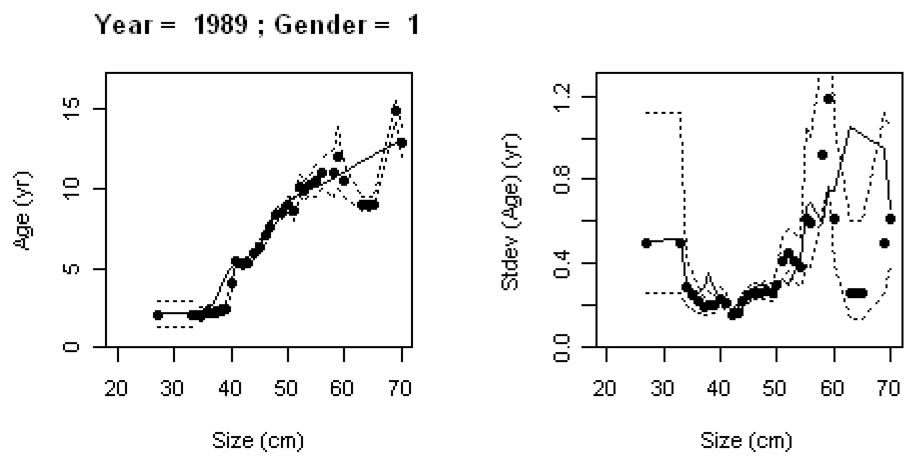
Acoustic survey summary plots:

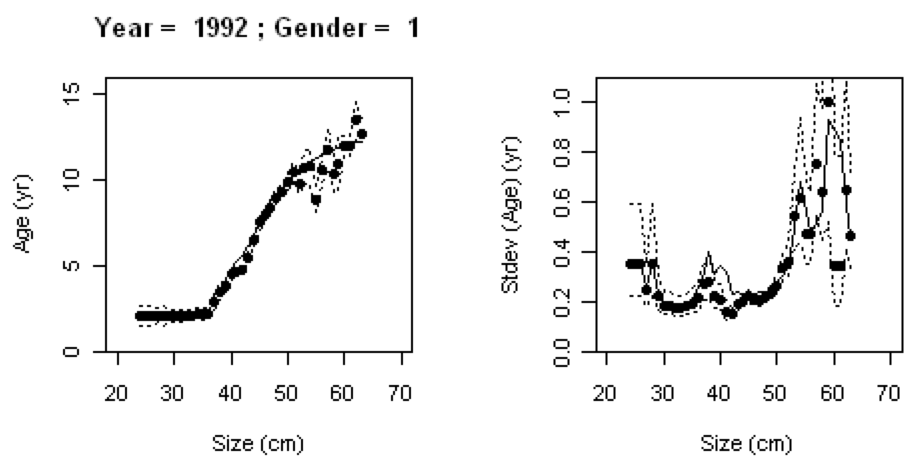


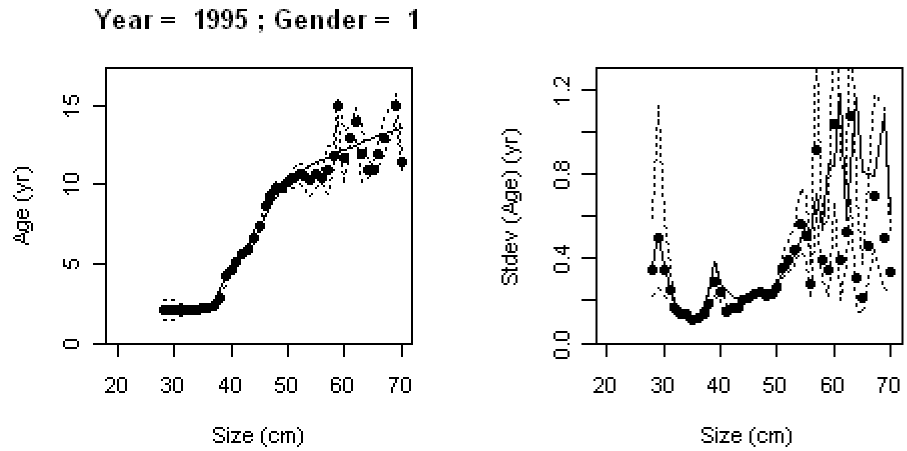


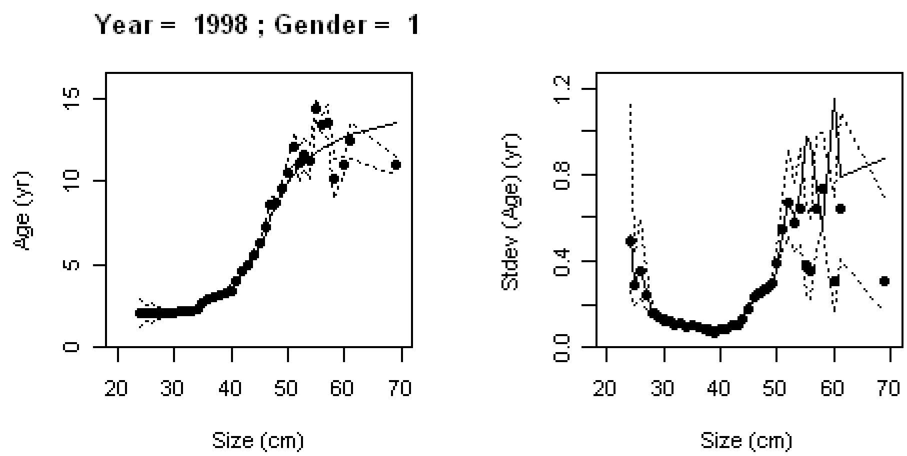


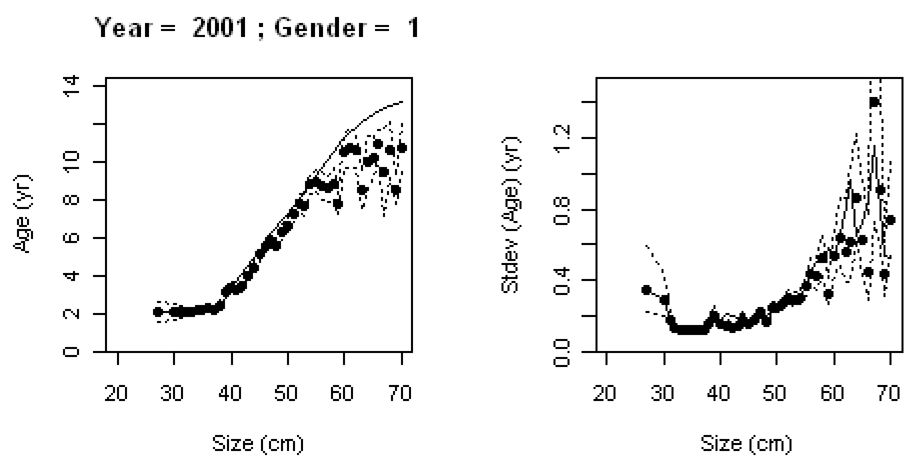

Year = 1986 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

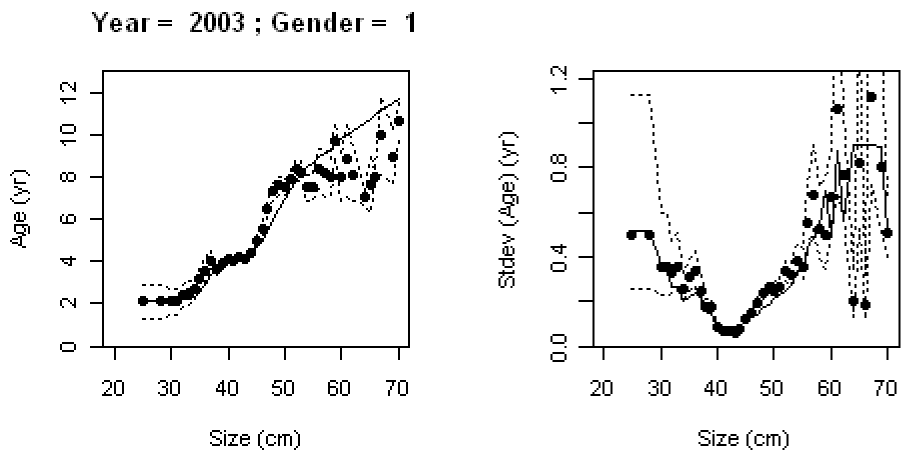

Year = 1989 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

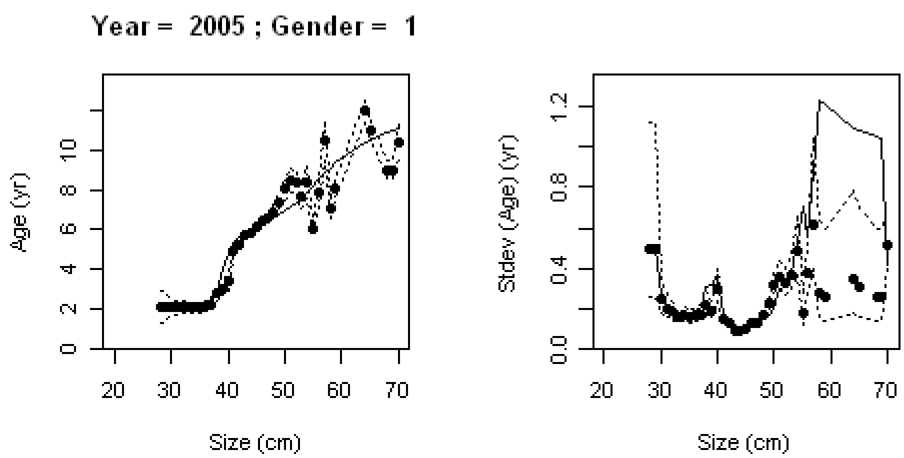

Year = 1992 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

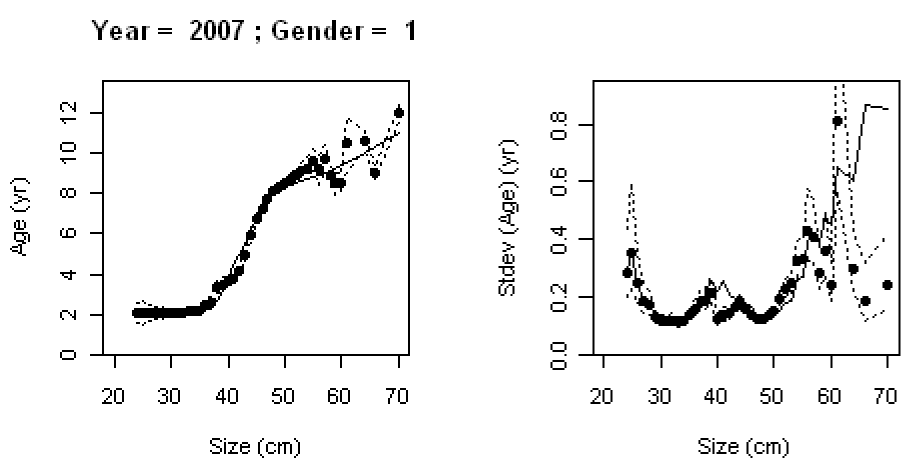

Year = 1995 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

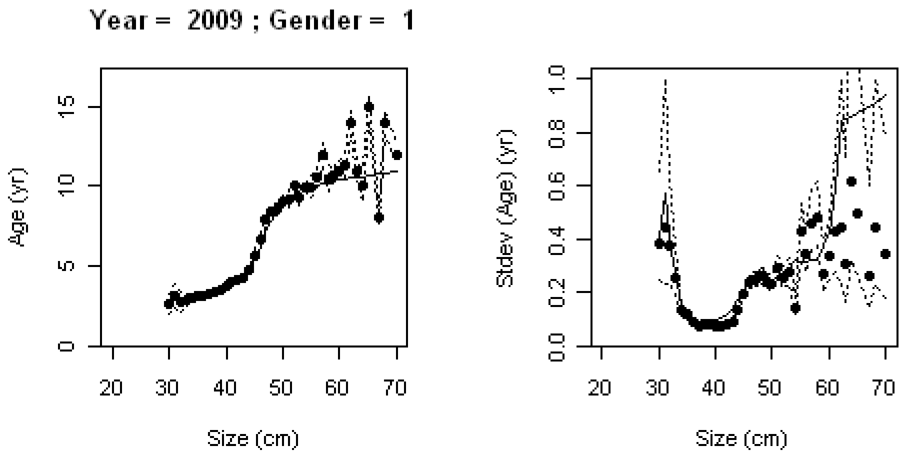

Year = 1998 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 2001 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

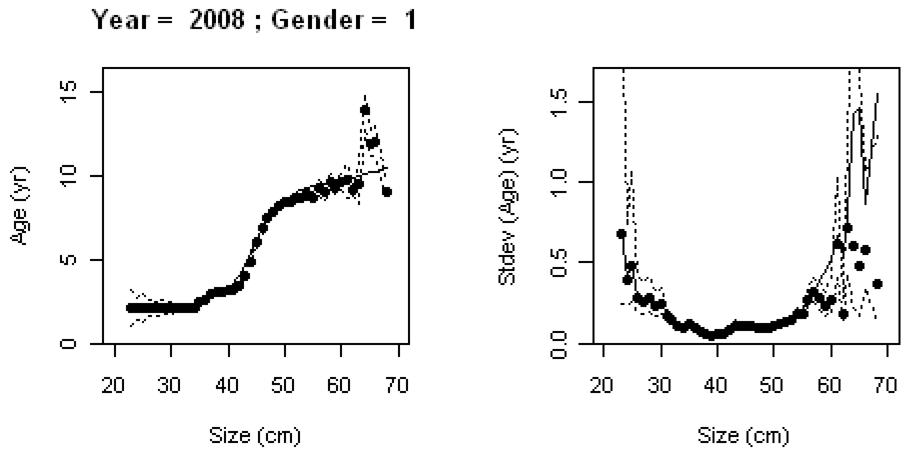

Year = 2003 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

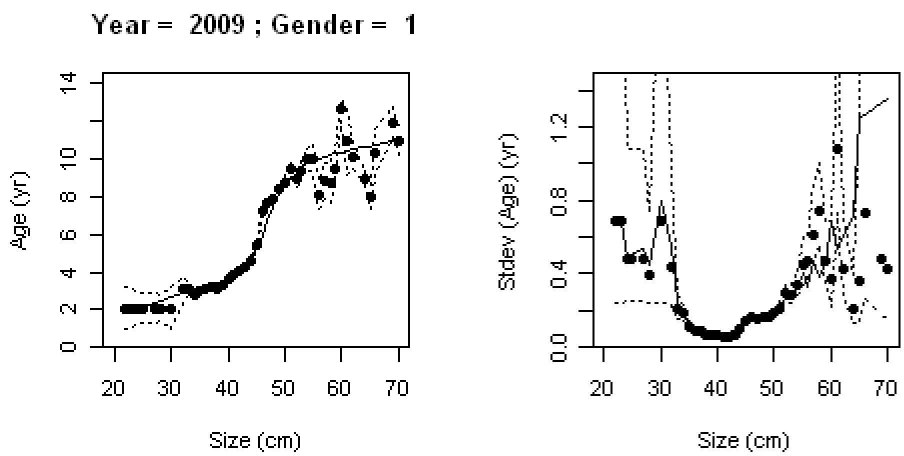

Year = 2005 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 2007 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 2009 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

U.S. fishery summary plots:


Year = 2008 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)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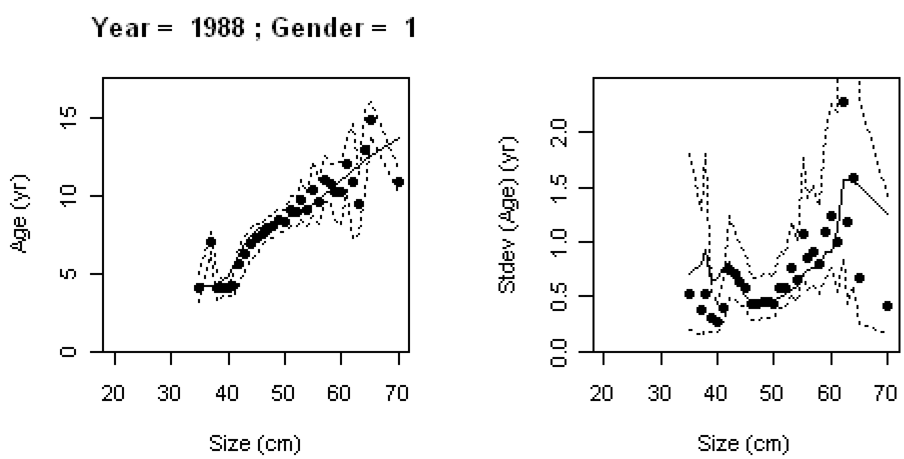
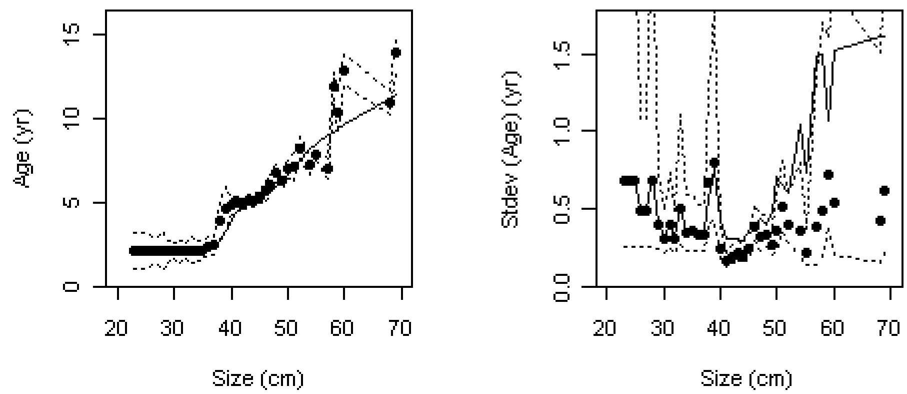
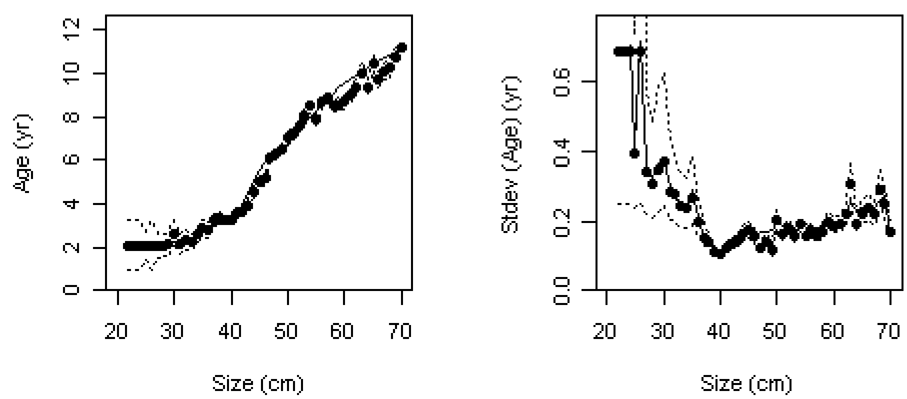
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 1988 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

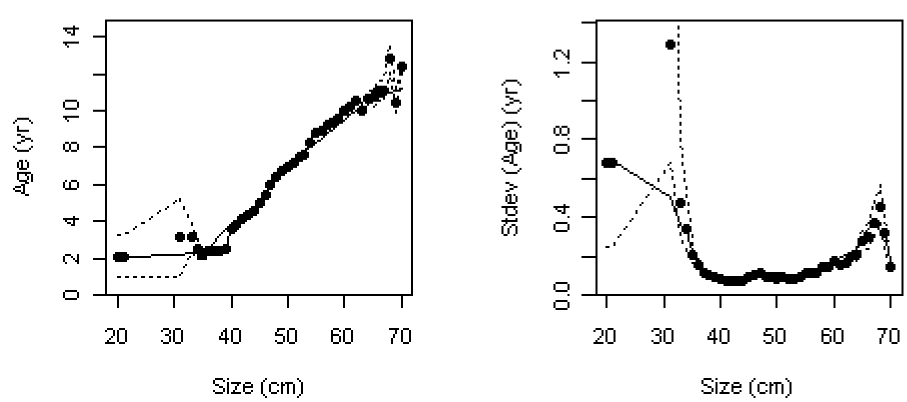
Year = 1975 ; Gender = 1



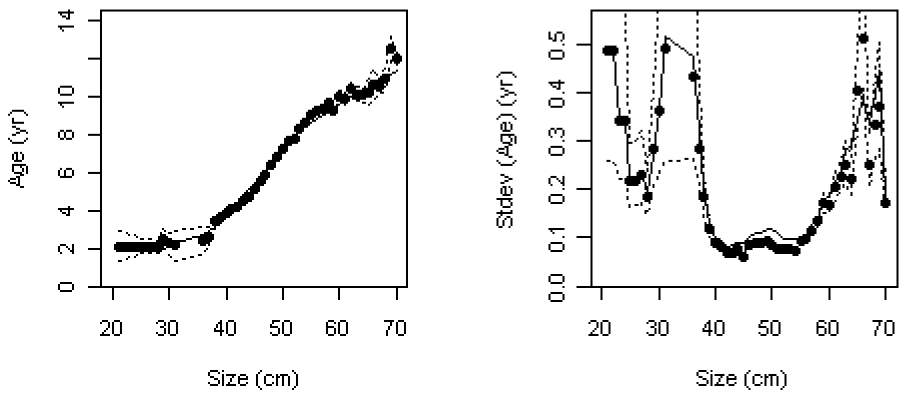
Year = 1976 ; Gender = 1



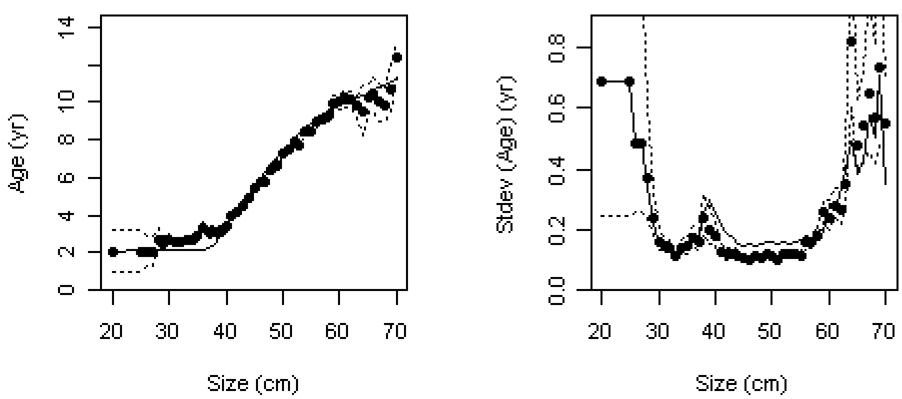
Year = 1977 ; Gender = 1



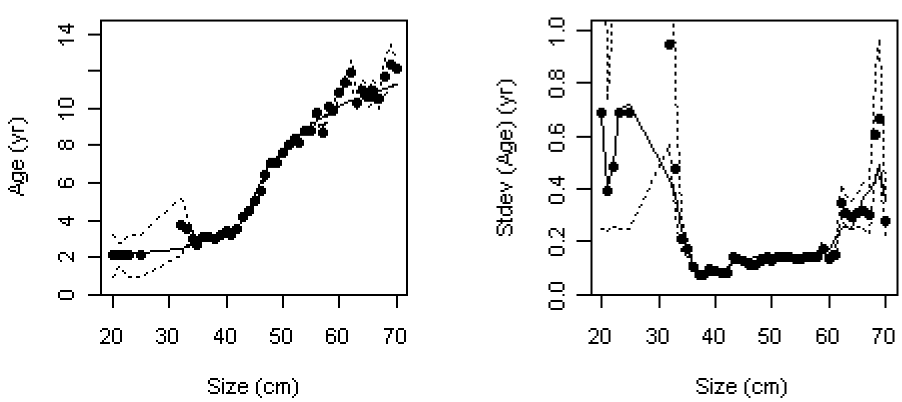
Year = 1978 ; Gender = 1

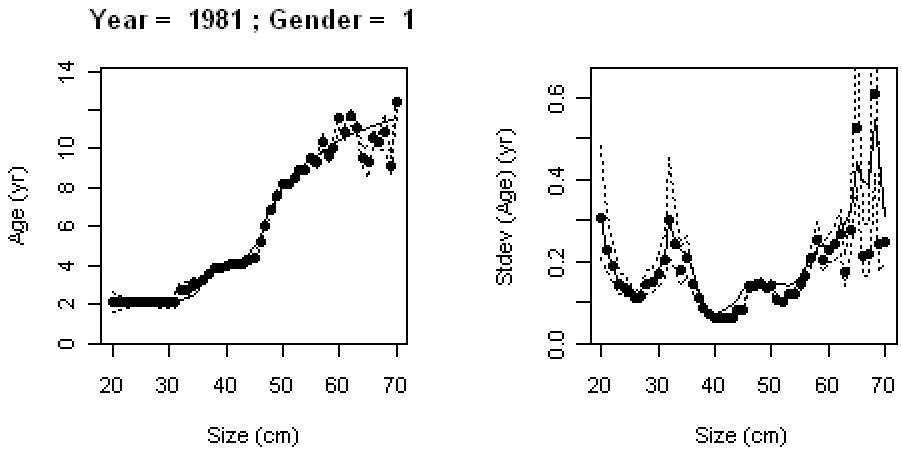


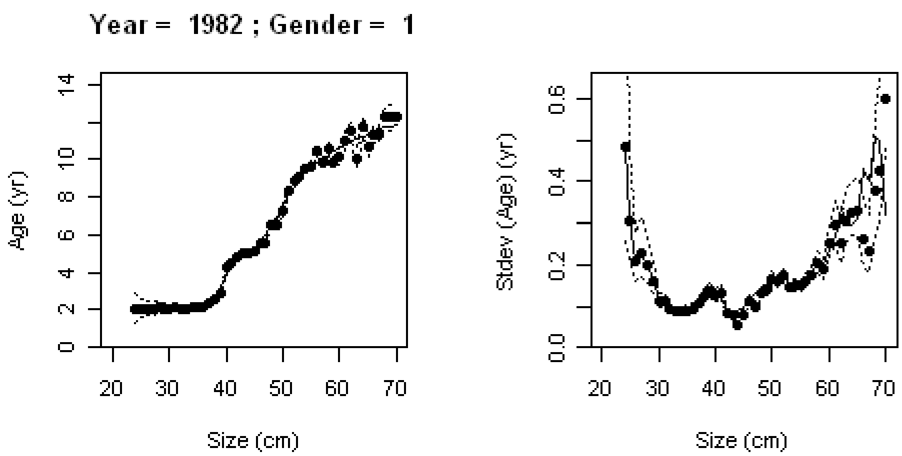
Year = 1979 ; Gender = 1



Year = 1980 ; Gender = 1




Year = 1981 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)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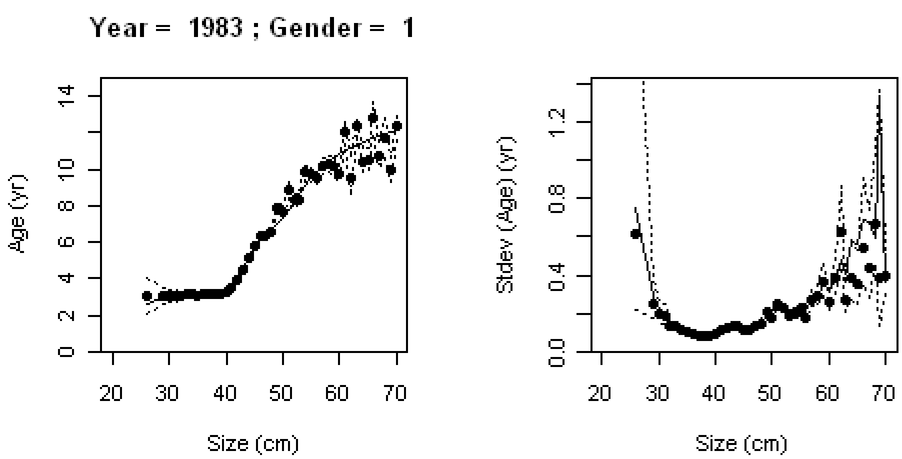
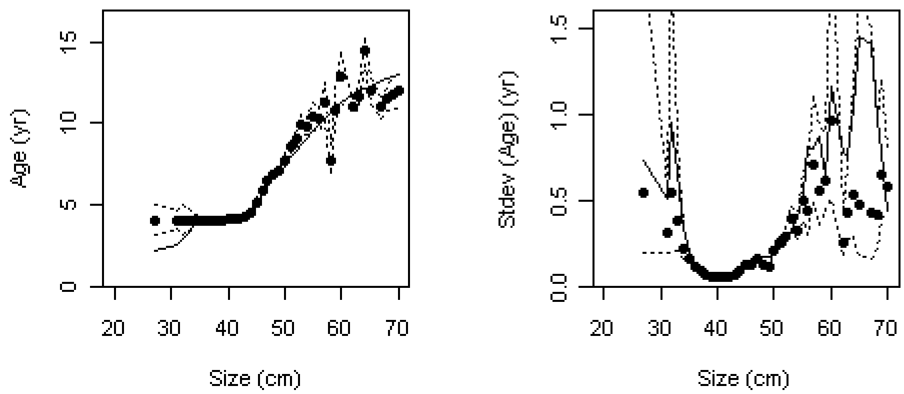
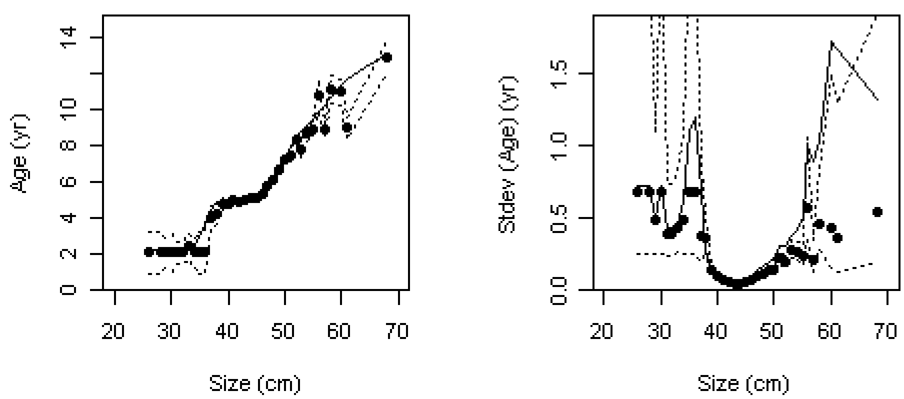
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 1983 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

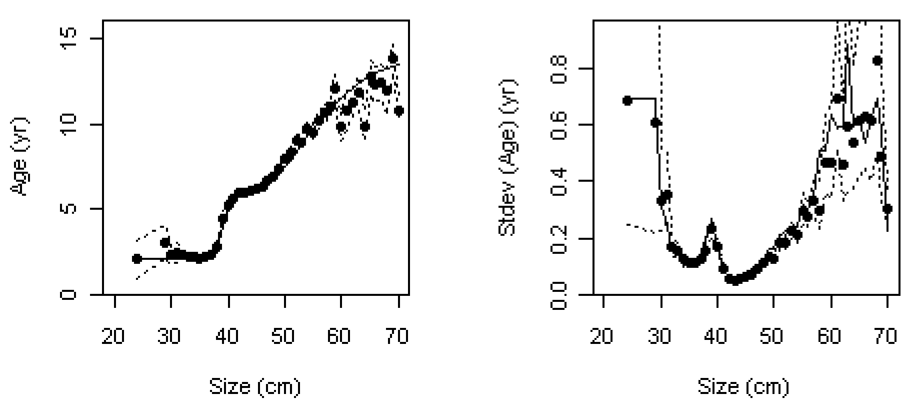
Year = 1984 ; Gender = 1

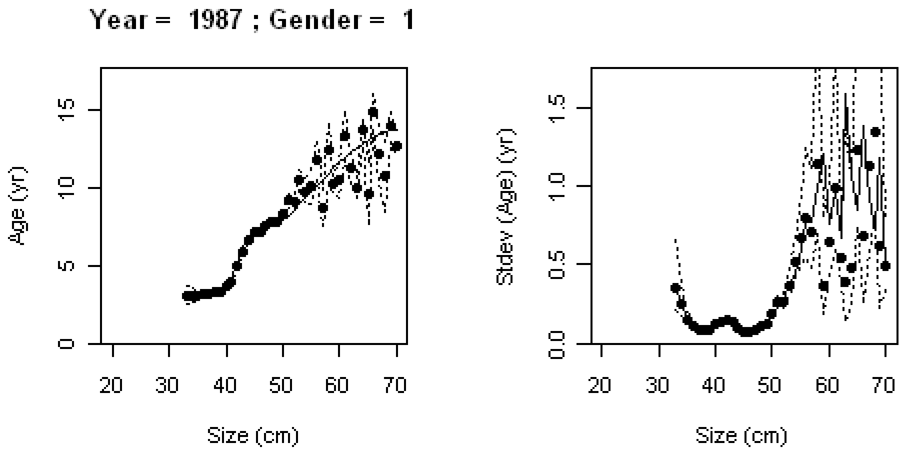


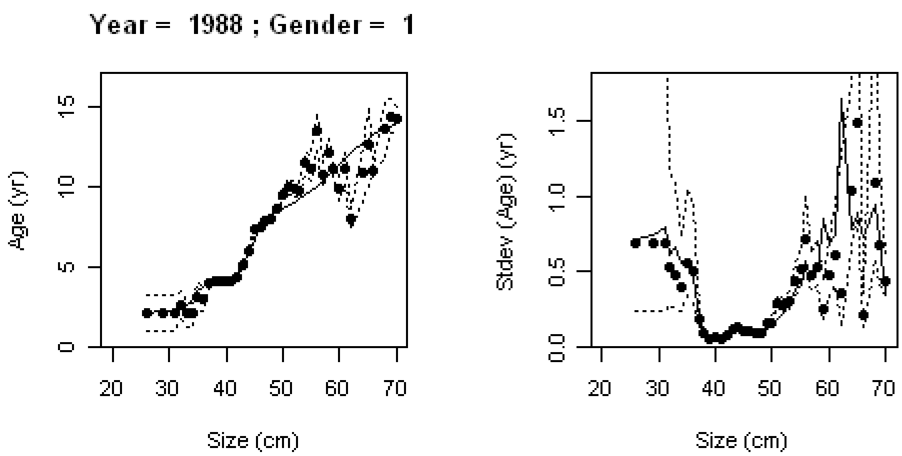
Year = 1985 ; Gender = 1

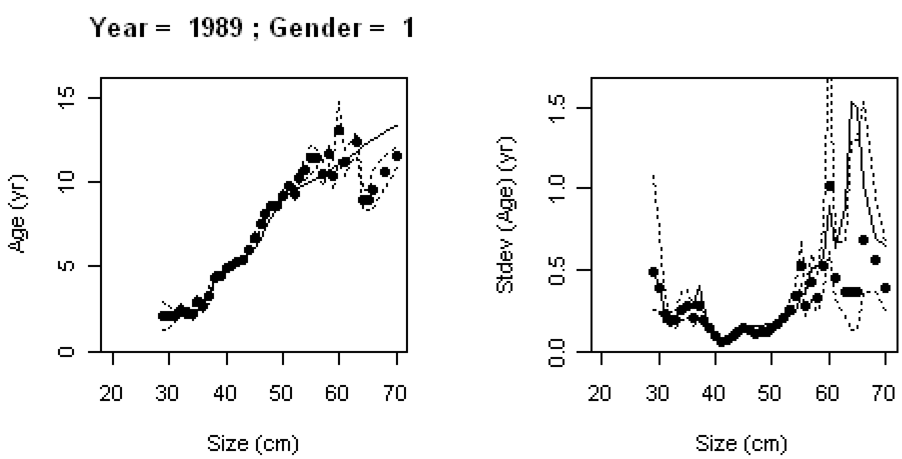


Year = 1986 ; Gender = 1

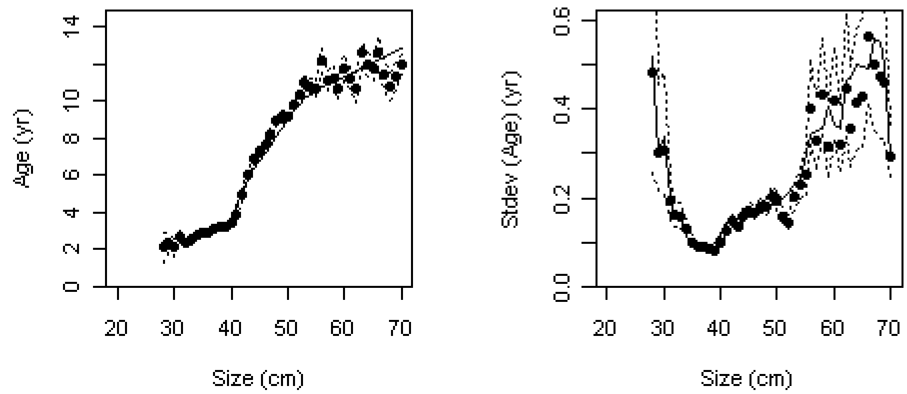



Year = 1987 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

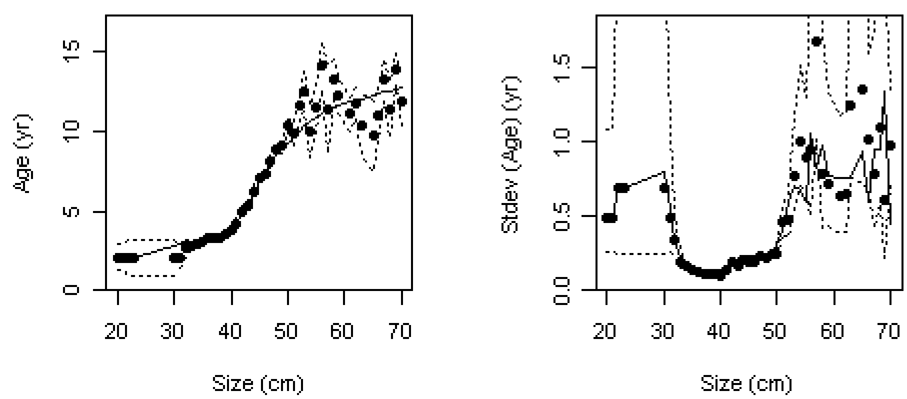

Year = 1988 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 1989 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

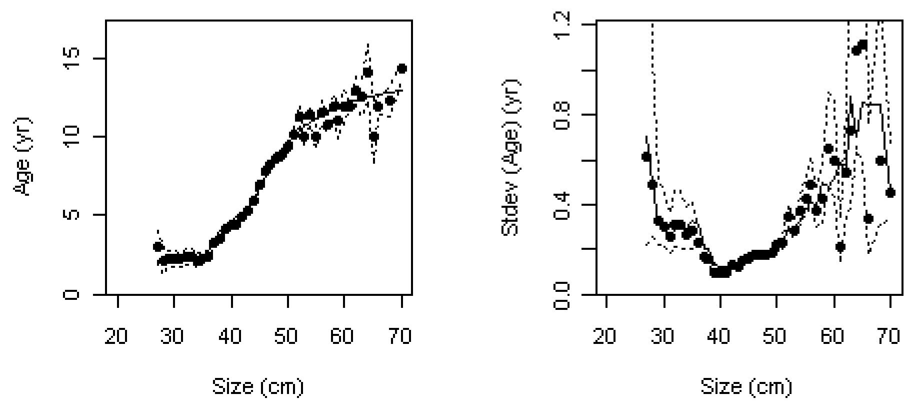
Year = 1990 ; Gender = 1



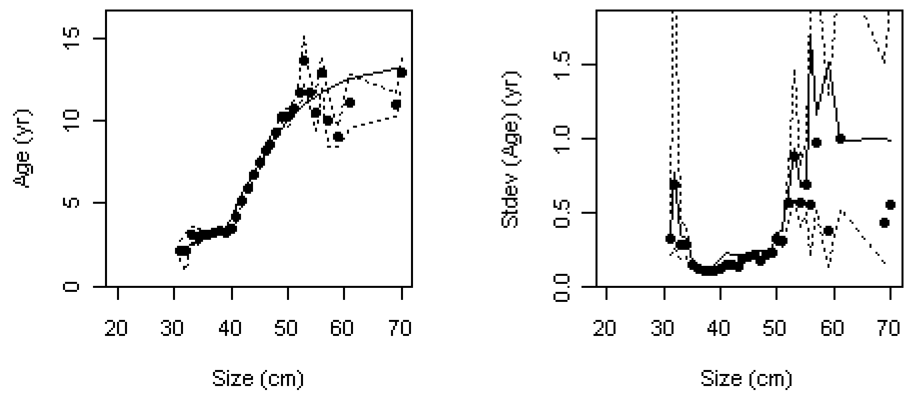
Year = 1991 ; Gender = 1



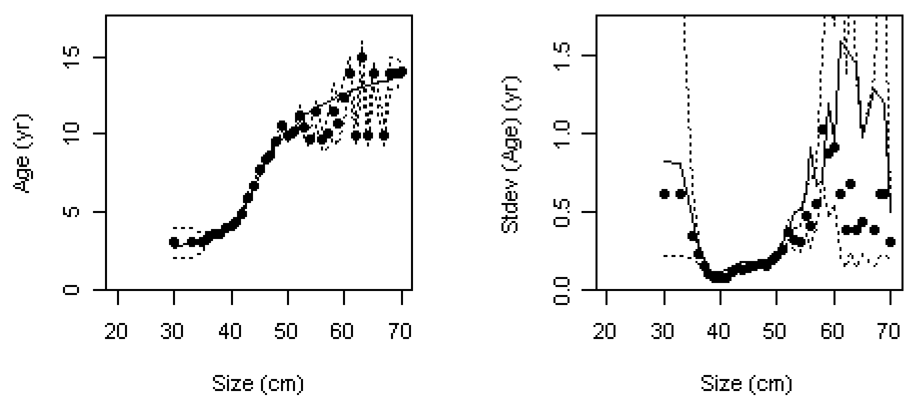
Year = 1992 ; Gender = 1



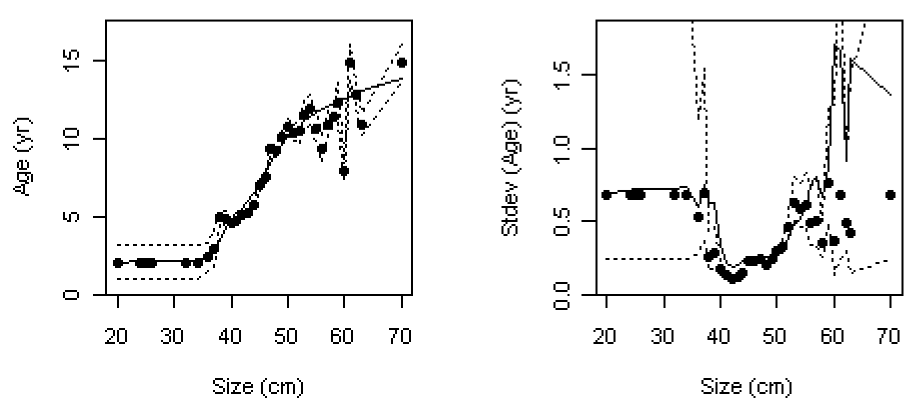
Year = 1993 ; Gender = 1

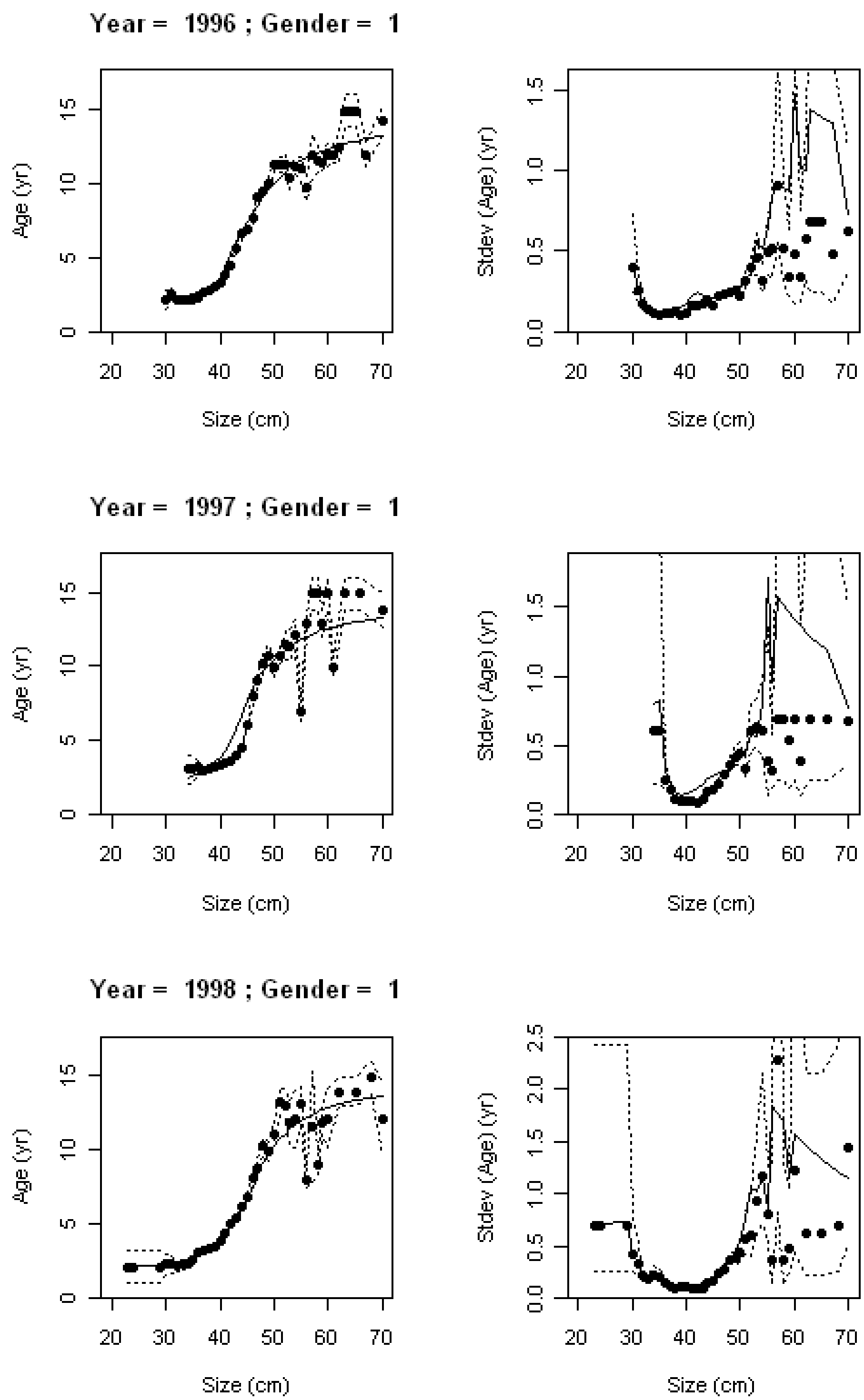


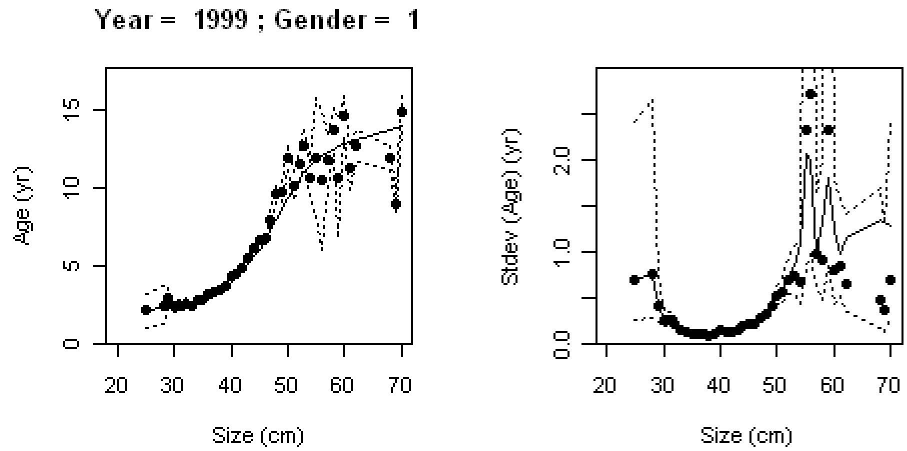
Year = 1994 ; Gender = 1

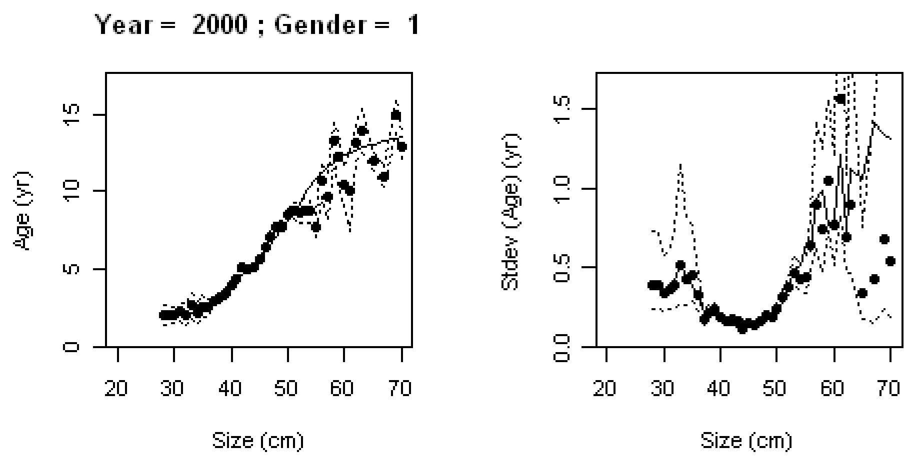


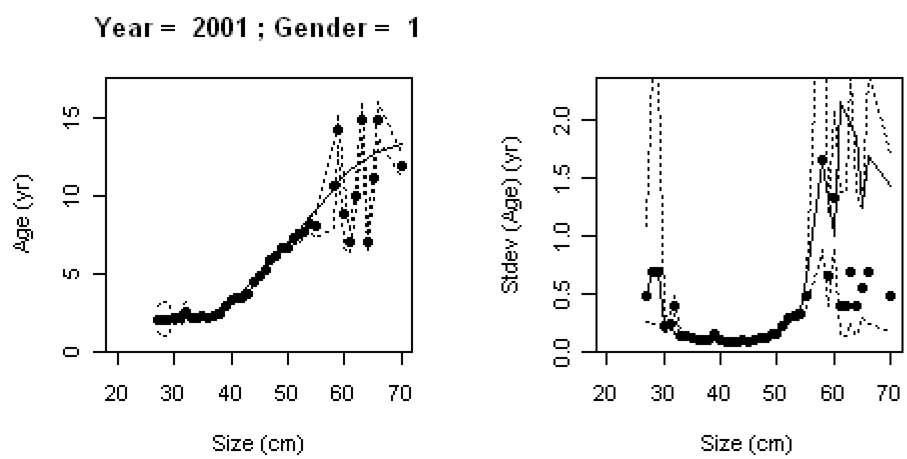
Year = 1995 ; Gender = 1

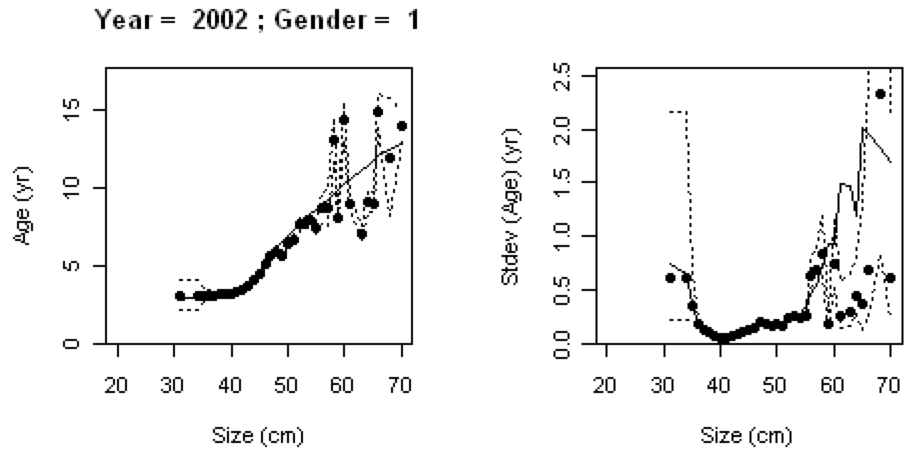


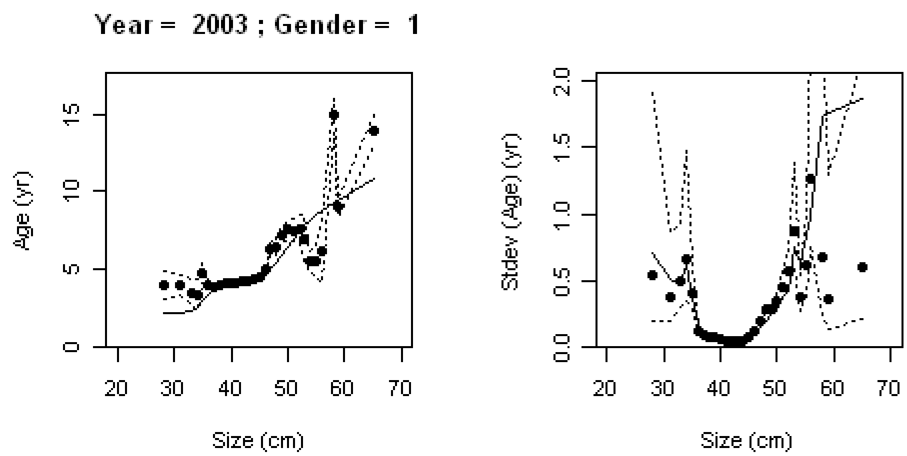

Year = 1996 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)
Year = 1997 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)
Year = 1998 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

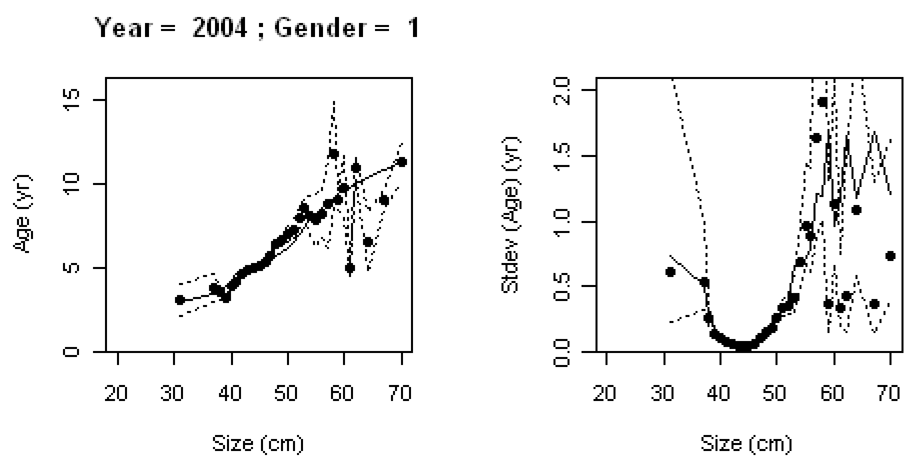

Year = 1999 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

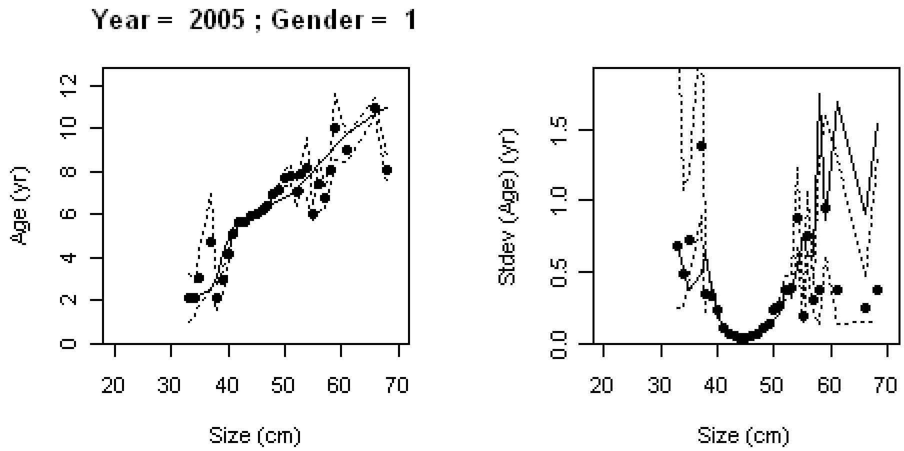

Year = 2000 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

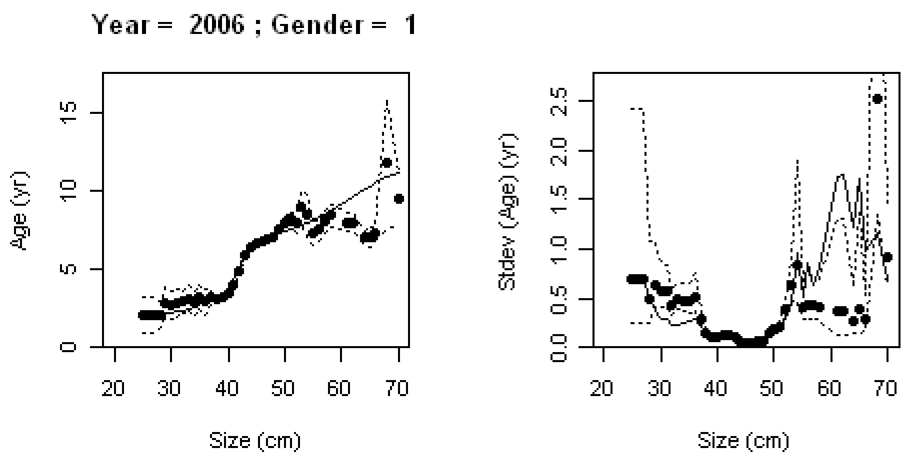

Year = 2001 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

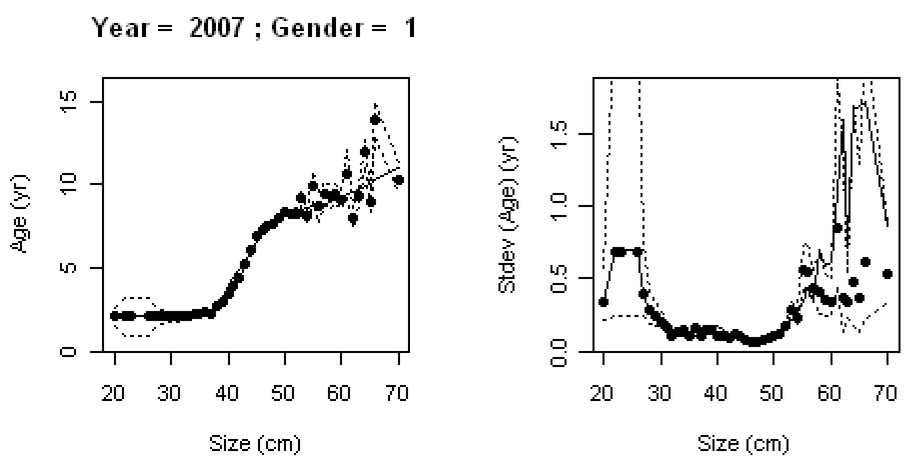

Year = 2002 ; Gender = 1
Age (yr)
0
5
10
15
Size (cm)
20
30
40
50
60
70
Stdev (Age) (yr)
0.0
0.5
1.0
1.5
2.0
2.5
Size (cm)


Year = 2003 ; Gender = 1
Age (yr)
0
5
10
15
Size (cm)
20
30
40
50
60
70
Stdev (Age) (yr)
0.0
0.5
1.0
1.5
2.0
Size (cm)

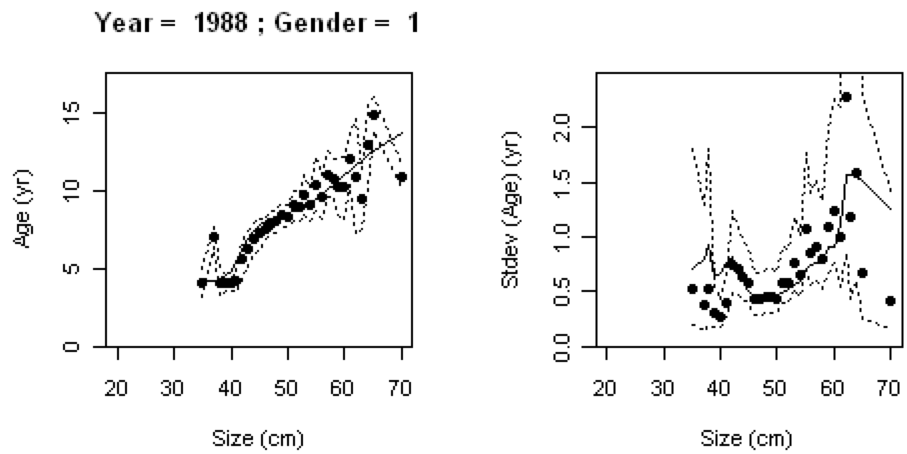

Year = 2004 ; Gender = 1
Age (yr)
0
5
10
15
Size (cm)
20
30
40
50
60
70
Stdev (Age) (yr)
0.0
0.5
1.0
1.5
2.0
Size (cm)


Year = 2005 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

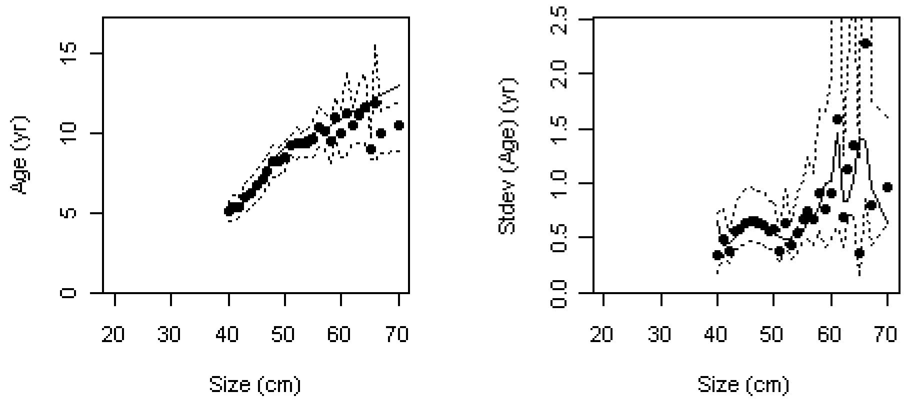

Year = 2006 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 2007 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

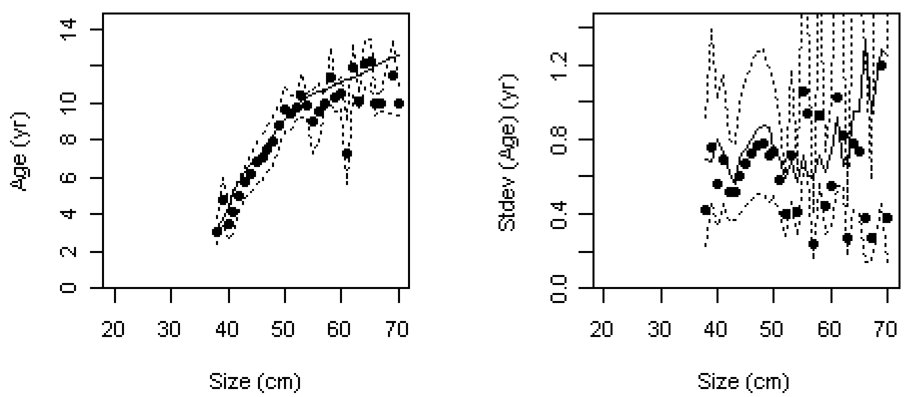
Canadian fishery summary plots:


Year = 1988 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

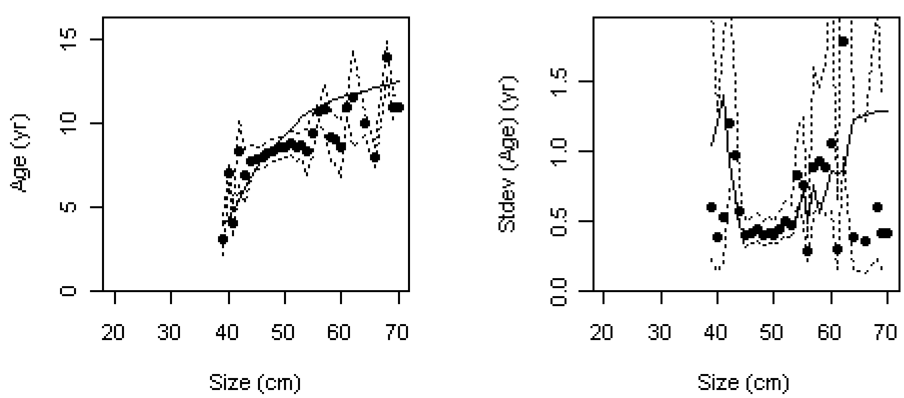
Year = 1989 ; Gender = 1



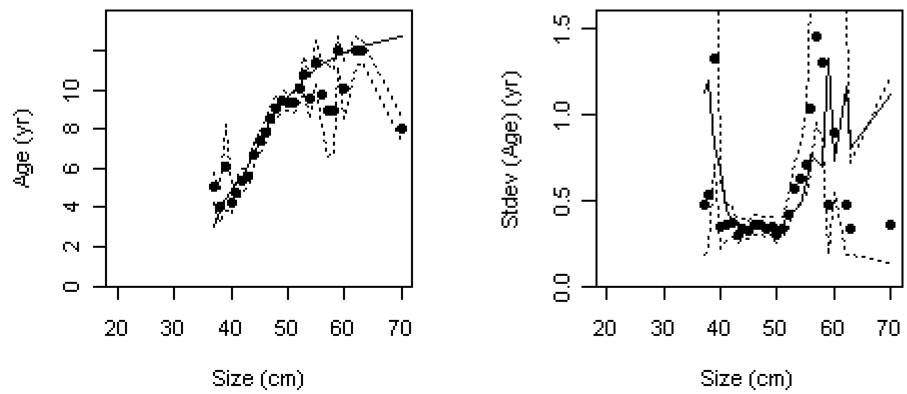
Year = 1990 ; Gender = 1



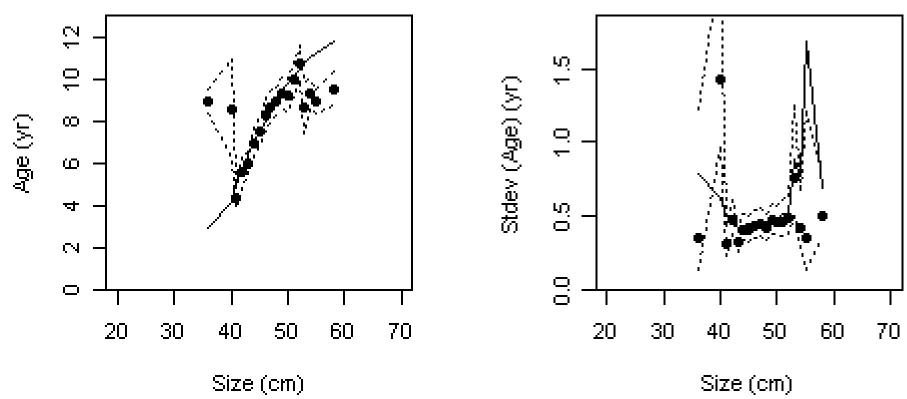
Year = 1991 ; Gender = 1



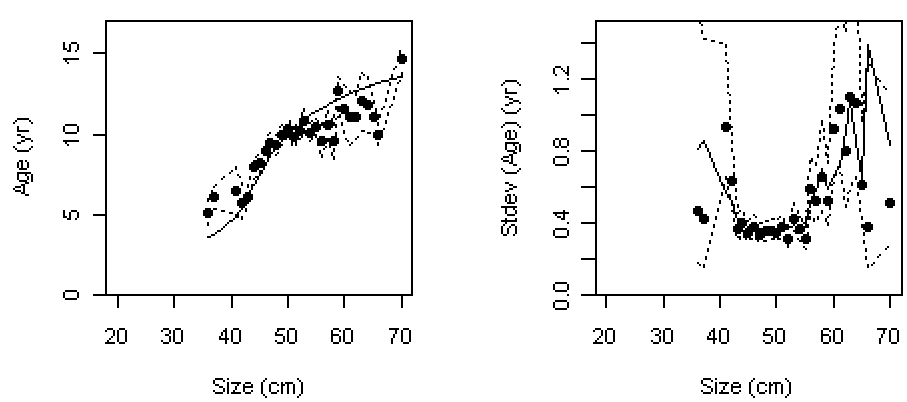
Year = 1992 ; Gender = 1



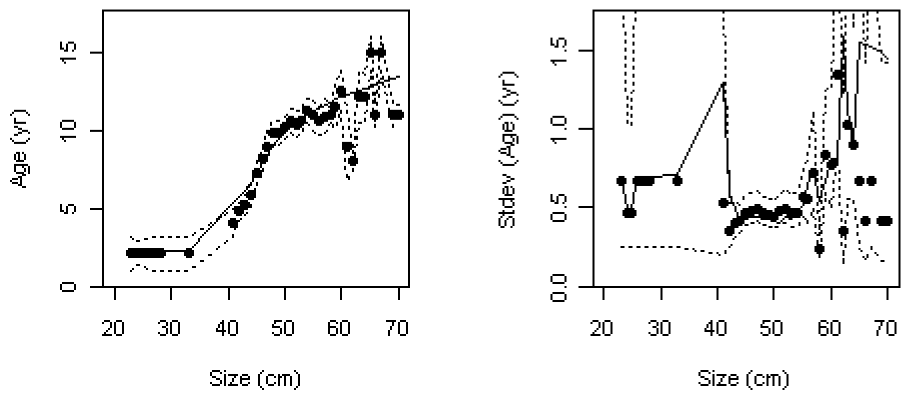
Year = 1993 ; Gender = 1



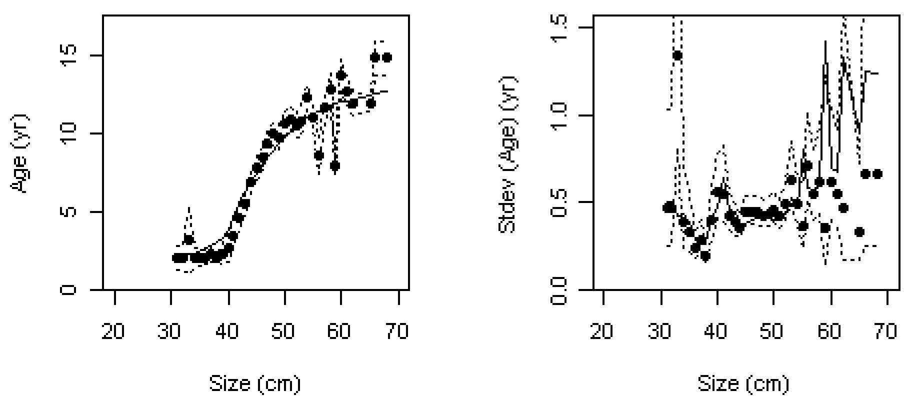
Year = 1994 ; Gender = 1



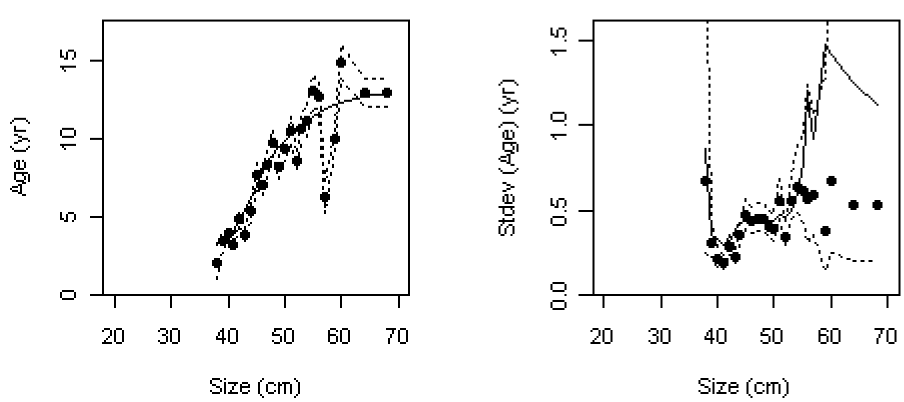
Year = 1995 ; Gender = 1

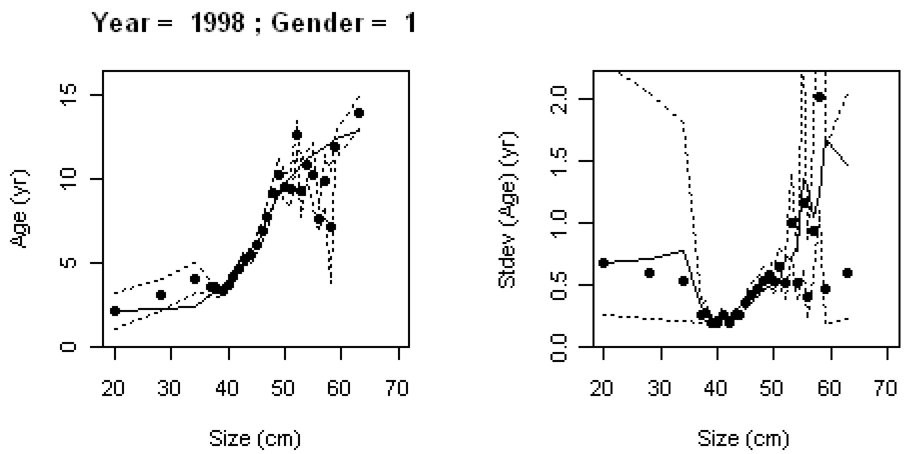


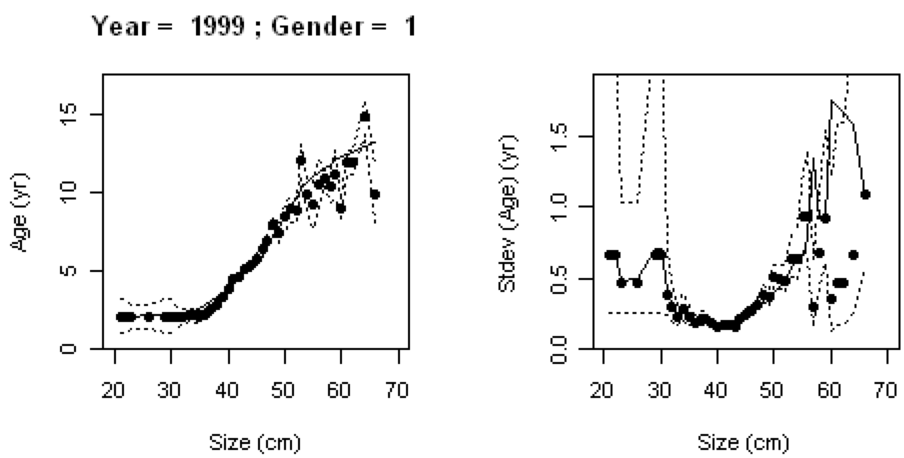
Year = 1996 ; Gender = 1

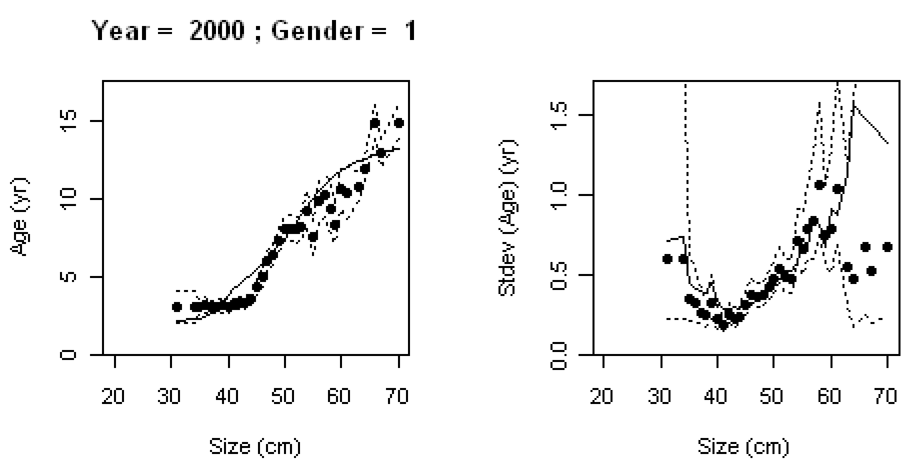


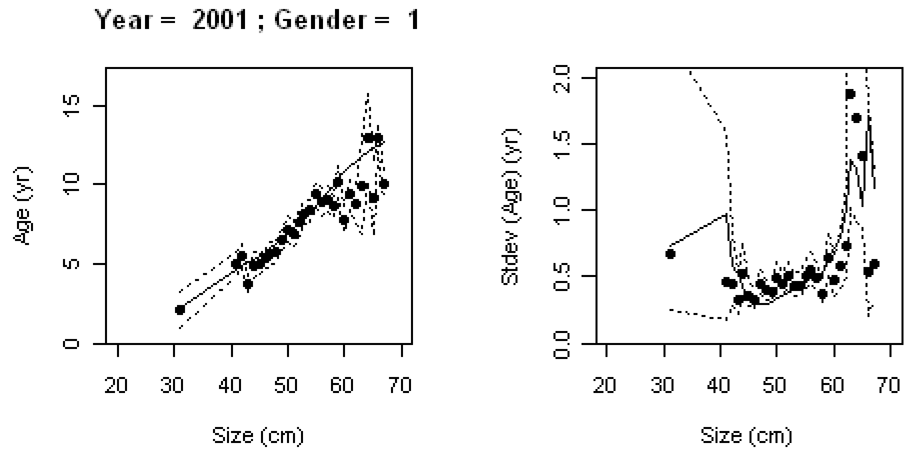
Year = 1997 ; Gender = 1

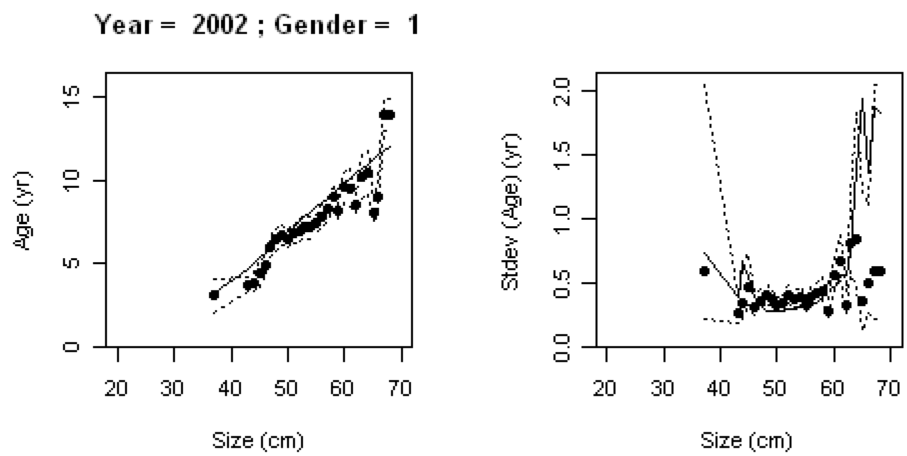


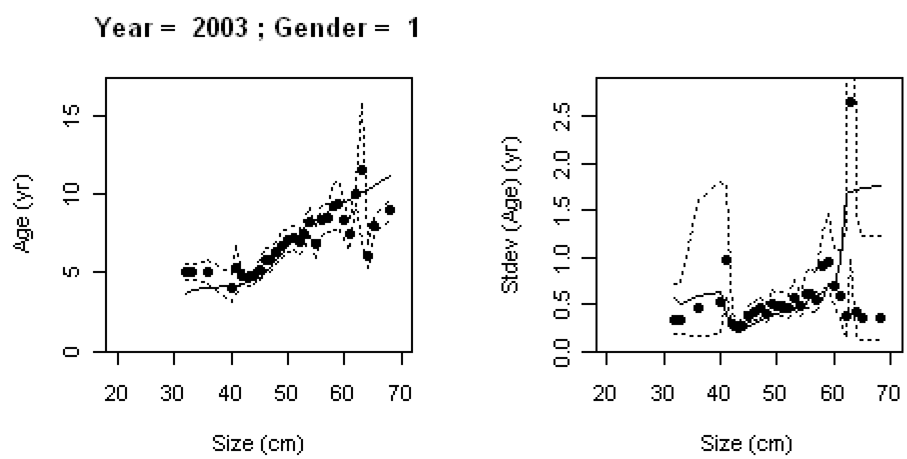

Year = 1998 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 1999 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

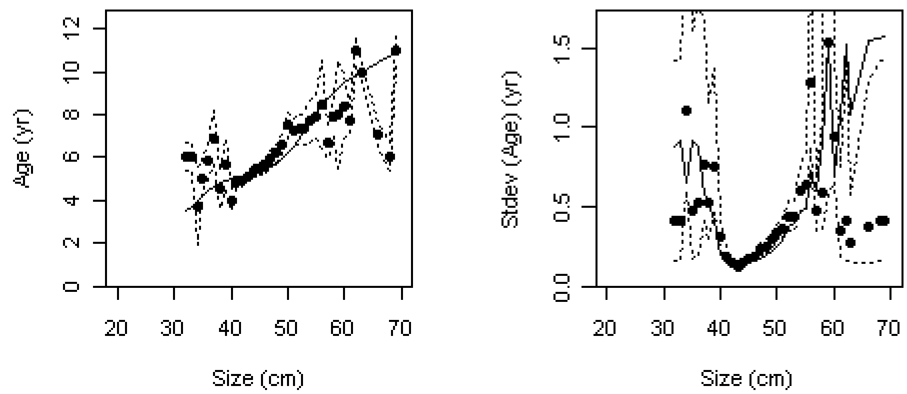

Year = 2000 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 2001 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

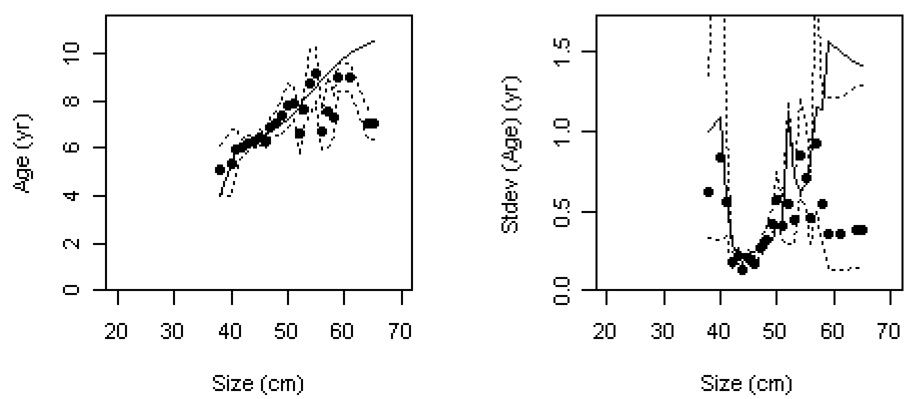

Year = 2002 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 2003 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

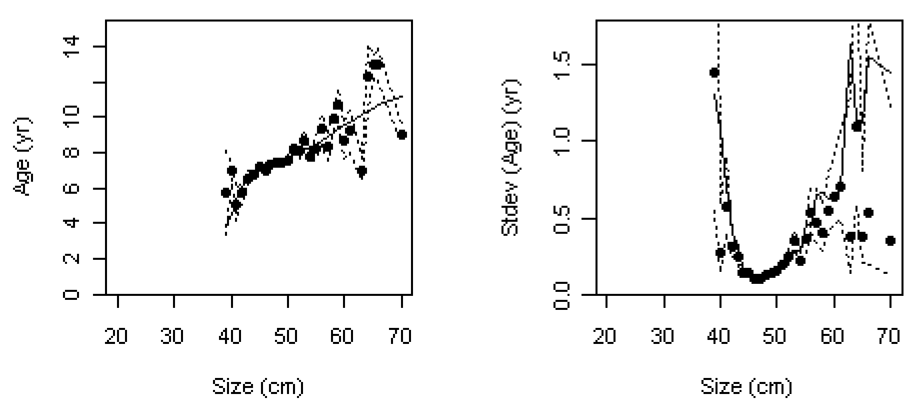
Year = 2004 ; Gender = 1

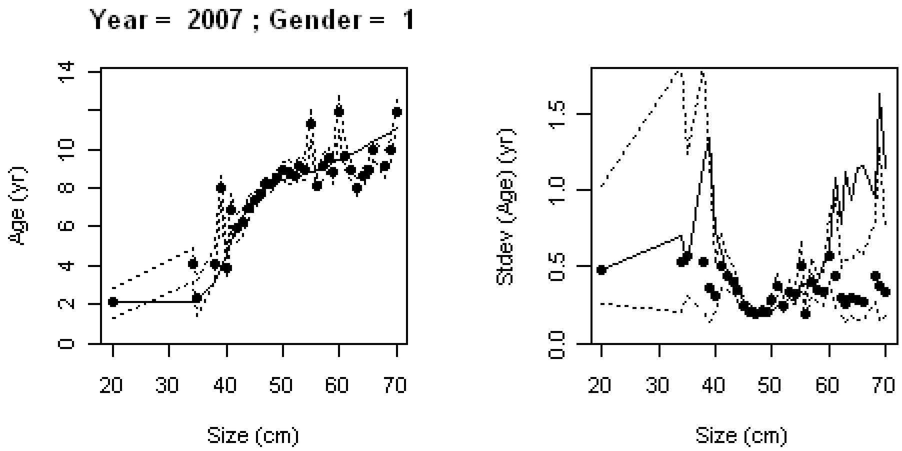


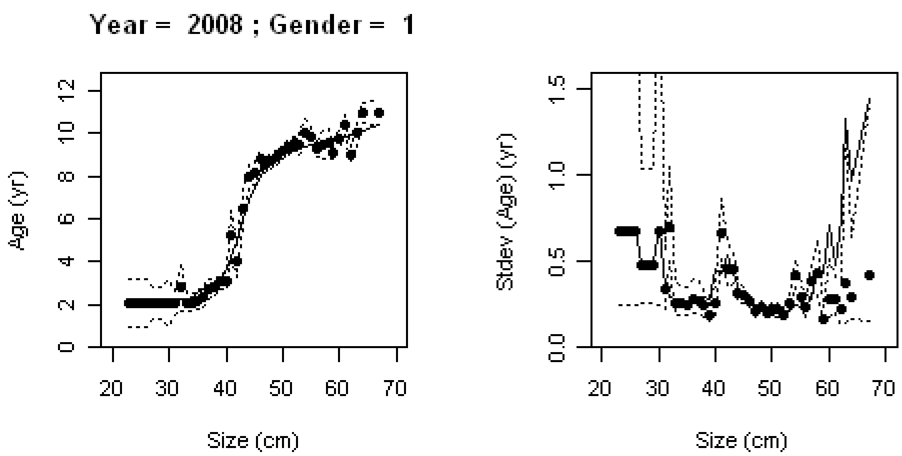
Year = 2005 ; Gender = 1

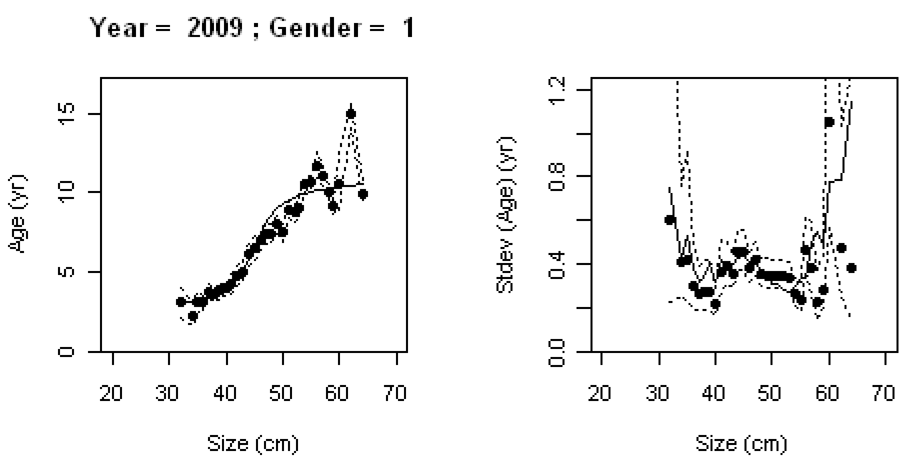


Year = 2006 ; Gender = 1




Year = 2007 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 2008 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)


Year = 2009 ; Gender = 1
Age (yr)
Size (cm)
Stdev (Age) (yr)
Size (cm)

10. Appendix C. Model input files

Stock synthesis model input files generating the base case assessment reported in this document.

Starter File:

```
# 2010 base case hake starter file

hake_data.SS           # Data file
hake_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 (neg val = endyr+1)
0          # N individual SD years
0.0000001 # Ending convergence criteria
0          # Retrospective year relative to end year
3          # 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); 3=rel(1-SPR_Btarget); 4=notrel
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
```

Forecast file:

```
# 2010 Base case hake forecast controls

1          # Forecast: 0=none;1=F(SPR);2=F(MSY)3=F(Btgt);4=F(endyr);5=Ave F(enter yrs); 6=read Fmult
2008       # First year for averaging selex used in 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)
0.4        # SPR target (e.g. 0.40)
0.4        # Biomass target (e.g. 0.40)
3          # 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)
0.4        # Control rule Biomass level for constant F (as frac of Bzero, e.g. 0.40)
0.1        # 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)
0 # basis for maxcatch
0          # Implementation error: 0=none, 1=add error to forecast (not coded yet)
0.1        # Placeholder: SD of log(realized F/target F) in forecast (not coded yet)
2          # fleet allocation (in terms of F) (1=use endyr pattern, no read; 2=read below)
0.62 0.38 # relative F for forecast when using F;  seasons; fleets within season
0          # Number of manual forecast catches to input
# basis for forecatch:  1=retained catch; 2=total dead catch (if line above > 0)
# Year Seas Fleet Catch
```

999 # End forecast file

Control file:
2010 base case hake control file

Morphs
1 # N growth patterns
1 # N sub morphs within patterns

Time block setup
7 # Number of block designs for time varying parameters

1 # Blocks in design 1: Length at age 12
2 # Blocks in design 2: VBK
7 # Blocks in design 3: US peak
7 # Blocks in design 4: US ascending width
1 # Blocks in design 5: US final
6 # Blocks in design 6: CAN peak
4 # Blocks in design 7: CAN ascending width

1984 2009 # Block design 1: Length at age 12
1980 1986 # Block design 2: VBK
1999 2009

1981 1984 # Block design 3: US peak
1985 1988
1989 1992
1993 1996
1997 2000
2001 2004
2005 2009
1960 1980 # Block design 4: US ascending width
1981 1984
1985 1988
1993 1996
1997 2000
2001 2004
2005 2009
1984 2009 # Block design 5: US final
1981 1984 # Block design 6: CAN peak
1985 1988
1989 1992
1993 2000
2001 2004
2005 2009
1960 1984 # Block design 7: CAN ascending width
1989 2000
2001 2004
2005 2009

Mortality and growth specifications
0.5 # Fraction female (birth)
1 # M setup: 0=single parameter,1=breakpoints,2=Lorenzen,3=age-specific;4=age-specific,seasonal interpolation
2 # Number of M breakpoints
13 15 # 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
2 # Age for growth Lmin
12 # Age for growth Lmax
0.0 # Constant added to SD of LAA (0.1 mimics SS2v1 for compatibility only)
0 # Variability of growth: 0=CV~f(LAA), 1=CV~f(A), 2=SD~f(LAA), 3=SD~f(A)
1 # Maturity option: 1=length logistic, 2=age logistic, 3=read vector of age-maturity
1 # First age allowed to mature
1 # Fecundity option
0 # Hermaphro_Option
1 # MG parm offset option: 1=none, 2= M,G,CV_G as offset from GP1, 3=like SS2v1
1 # MG parm adjust method 1=do V1.23 approach, 2=use logistic transform between bounds approach

# Lo # bnd	Hi bnd	Init value	Prior mean	Prior type	Prior SD	Param phase	Env var	Use dev	Dev minyr	Dev maxyr	Dev SD	Block design	block switch	
0.1	0.4	0.23	0.23	-1	99	-5	0	0	0	0	0	0	0	# M to age 13
0.2	0.8	0.63	0.23	-1	99	4	0	0	0	0	0	0	0	# M at age 15
20	40	32.0	32	-1	99	-5	0	0	0	0	0	0	0	# Length at age 2
40	65	53.0	50	-1	99	4	0	0	0	0	0	1	0	# Length at age 12
0.1	0.5	0.33	0.3	-1	99	4	0	0	0	0	0	2	0	# VBK
0.03	0.16	0.066	0.1	-1	99	-5	0	0	0	0	0	0	0	# CV of length at age 2
0.03	0.16	0.062	0.1	-1	99	-5	0	0	0	0	0	0	0	# CV of length at age 12

Add 2+2*gender lines to read the wt-Len and mat-Len parameters

-3	3	7.0E-06	7.0E-06	-1	99	-50	0	0	0	0	0	0	0	# W-L slope
-3	3	2.9624	2.9624	-1	99	-50	0	0	0	0	0	0	0	# W-L exponent
-3	43	36.89	36.89	-1	99	-50	0	0	0	0	0	0	0	# L at 50% maturity
-3	3	-0.48	-0.48	-1	99	-50	0	0	0	0	0	0	0	# Logistic maturity slope
-3	3	1.0	1.0	-1	99	-50	0	0	0	0	0	0	0	# Eggs/gm intercept
-3	3	0.0	0.0	-1	99	-50	0	0	0	0	0	0	0	# Eggs/gm slope

pop lines For the proportion assigned to each area

0	2	1	1	-1	99	-50	0	0	0	0	0	0	0	# placeholder only
0	2	1	1	-1	99	-50	0	0	0	0	0	0	0	# placeholder only
0	2	1	1	-1	99	-50	0	0	0	0	0	0	0	# placeholder only
0	2	1	1	-1	99	-50	0	0	0	0	0	0	0	# placeholder only

Block parameter setup
1 # 0=one par for all; 1= one par for each

# Lo # bnd	Hi bnd	Init value	Prior mean	Prior type	Prior SD	Param phase
# Length at age 12						
-1	1	-0.05	0	0	0.01	4
# VBK						
-1	1	-0.14	0	0	0.01	4
-1	1	0.10	0	0	0.01	4

Seasonal effects on biology parameters
0 0 0 0 0 0 0 0 0 0 # placeholder only

Spawner-recruit parameters
3 # S-R function: 1=B-H w/flat top, 2=Ricker, 3=standard B-H, 4=no steepness or bias adjustment

# Lo # bnd	Hi bnd	Init value	Prior mean	Prior type	Prior SD	Param phase	
12	18	15.4	15	-1	99	4	# Ln(R0)
0.2	1	0.85	0.777	2	0.113	4	# Steepness with Myers' prior
1.0	1.6	1.1	1.1	-1	99	6	# Sigma-R
-5	5	0	0	-1	99	-50	# Env link coefficient
-5	5	0	0	-1	99	-50	# Initial eqilibrium recruitment offset
0	2	0	1	-1	99	-50	# Autocorrelation in rec devs

```
0 # index of environmental variable to be used
0 # env target
1 # rec dev type

# Recruitment deviations
1962        # Start year standard recruitment devs
2008        # End year standard recruitment devs
1           # Rec Dev phase

1 # Read 11 advanced recruitment options: 0=no, 1=yes
0           # Start year for early rec devs
-9          # Phase for early rec devs
6           # Phase for forecast recruit deviations
1           # Lambda for forecast recr devs before endyr+1
1961        # Last recruit dev with no bias_adjustment
1962        # First year of full bias correction (linear ramp from year above)
2007        # Last year for full bias correction in_MPD
2008        # First_recent_yr_nobias_adj_in_MPD
1           #_prior_for_max_bias_adj_in_MPD
0           # period of cycle in recruitment
-7          # Lower bound rec devs
7           # Upper bound rec devs
0           # Read init values for rec devs

# Fishing mortality setup
0.1         # F ballpark for tuning early phases
1999        # F ballpark year
1           # F method:  1=Pope's; 2=Instan. F; 3=Hybrid
0.9         # Max F or harvest rate (depends on F_Method)
# Init F parameters by fleet
#LO    HI    INIT    PRIOR    PR_type    SD    PHASE
0      1     0.0     0.01     -1         99     -50
0      1     0.0     0.01     -1         99     -50

# Catchability 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
# Create one par for each entry > 0 by row in cols A-D
0    0    0    0    1    0  # US fishery
0    0    0    0    1    0  # Can Fishery
0    0    0    2    1    0  # Acoustic survey
0    0    0    2    0    0  # Juv survey
0    0    0    0    1    0  # CA 1
0    0    0    0    1    0  # CA 2
0    0    0    0    1    0  # CA 3
0    0    0    0    1    0  # CA 4
0    0    0    2    0    0  # shrimp bycatch

#LO    HI    INIT          PRIOR PR_type SD PHASE
-3     0.5   -0.3566749 0     -1      0.4    5   # Acoustic survey
-15    0     -8.0         0     -1      99     -5  # Pre-recruit survey
-15    0     -12.0        0     -1      99     -5  # shrimp bycatch

#_SELEX_&_RETENTION_PARAMETERS
# Size-based setup
# A=Selex option: 1-24
# B=Do_retention: 0=no, 1=yes
# C=Male offset to female: 0=no, 1=yes
# D=Mirror selex (#)
# A B C D
# Size selectivity
```

```
0	0	0	0	# US Fishery
0	0	0	0	# CAN Fishery
0	0	0	0	# Acoustic survey
32	0	0	0	# Pre-recruit survey - index density independent recruitment
0	0	0	0	# Hist CA fishery 1st quarter
0	0	0	0	# Hist CA fishery 2nd quarter
0	0	0	0	# Hist CA fishery 3rd quarter
0	0	0	0	# Hist CA fishery 4th quarter
0	0	0	0	# shrimp bycatch
# Age selectivity
20	0	0	0	# US Fishery
20	0	0	0	# CAN Fishery
20	0	0	0	# Acoustic survey
10	0	0	0	# Pre-recruit survey - index density independent recruitment
20	0	0	0	# Hist CA fishery 1st quarter
15	0	0	5	# Hist CA fishery 2nd quarter
15	0	0	5	# Hist CA fishery 3rd quarter
15	0	0	5	# Hist CA fishery 4th quarter
11	0	0	0	# shrimp bycatch

# Selectivity 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
# US Fishery Age-based double Normal selectivity
5.0	15	6.0	8.0	-1	99	2	0	0	0	0	0	3
	1	# Peak age
-9.0	3.0	-2.0	-1.5	-1	99	-5	0	0	0	0	0	0	0
	# Top (logistic)
-4.0	10.0	3.0	3.0	-1	99	2	0	0	0	0	0	4
	1	# Asc. width (exp)
-9.0	15.0	8.0 2.0	-1	99	-2	0	0	0	0	0	0	1	# Desc.
width (exp)
-2000	5.0	-1002	-1.0	-1	99	-50	0	0	0	0	0	0	0
	# Initial = 0.0 < age 2
-5.0	2.0	-1.0	.45	-1	99	2	0	0	0	0	0	5
	1	# Final (logistic)
# Canadian Fishery Age-based double Normal selectivity
5.0	15	8.0	8.0	-1	99	2	0	0	0	0	0	6
	1	# Peak age
-9.0	3.0	-2.0	-1.5	-1	99	-5	0	0	0	0	0	0
	0	# Top (logistic)
-2.0	15.0	3.0	3.0	-1	99	2	0	0	0	0	0	7
	1	# Asc. width (exp)
-9.0	15.0	8.0 2.0	-1	99	-2	0	0	0	0	0	0	1	# Desc.
width (exp)
-2000	5.0	-1002	-1.0	-1	99	-50	0	0	0	0	0	0	0
	# Initial = 0.0 < age 2
-5.0	5.0	-1.0	.45	-1	99	2	0	0	0	0	0	0
	1	# Final (logistic)
# Acoustic Survey Age-based double Normal selectivity
5.0	15	6.0	8.0	-1	99	2	0	0	0	0	0	0
	0	# Peak age
-9.0	3.0	-2.0	-1.5	-1	99	-5	0	0	0	0	0	0
	0	# Top (logistic)
-2.0	9.0	4.0	3.0	-1	99	2	0	0	0	0	0	0
	0	# Asc. width (exp)
-9.0	9.0	3.0 2.0	-1	99	-2	0	0	0	0	0	0	0
	# DESC WIDTH exp
-2000	5.0	-1002	-1.0	-1	99	-50	0	0	0	0	0	0
	0	# Initial = 0.0 < age 2
-5.0	5.0	-0.0	.45	-1	99	2	0	0	0	0	0	0
	0	# Final (logistic)
# Hist CA fishery 1st quarter Age-based Double Normal selectivity
1	15	5.0	8.0	-1	99	-5	0	0	0	0	0	0
	0	# Peak age
```

```
-9.0	3.0	-2.0	-1.5	-1	99	-5	0	0	0	0	0	0
	0	# Top (logistic)
-9.0	9.0	0	3.0	-1	99	-5	0	0	0	0	0	0
	0	# Asc. width (exp)
-9.0	9.0	3.0	2.0	-1	99	-5	0	0	0	0	0	0	0
	# Desc. width (exp)
-10	5.0	-8	-1.0	-1	99	-5	0	0	0	0	0	0	0
	# Initial = 0.0 < age 2
-5	5	4.99	0.45	-1	99	-5	0	0	0	0	0	0	0
	# Final (logistic)
# shrimp bycatch
0	2	1	1	-1	99	-50	0	0	0	0	0	0	0
	# minage
0	2	1	1	-1	99	-50	0	0	0	0	0	0	0
	# maxage

# Selectivity block parameter setup
0 # 0=one parameter for all; 1=one parameter for each
# Lo	Hi	Init	Prior	Prior	Prior	Param
# bnd	bnd	value	mean	type	SD	phase
  -10	10	0	0	-1	99	3

1 # Block adjust method: 1=standard; 2=logistic trans to keep in base parm bounds
0 # Tagging flag: 0=no tagging parameters,1=read tagging parameters

### Likelihood related quantities ###
1 # Do variance/sample size adjustments by fleet (1)
#US   CAN  Ac   Pre CA1  CA2  CA3  CA4  shp # Component
 0    0    0    0   0    0    0    0    0   # Constant added to index CV
 0    0    0    0   0    0    0    0    0   # Constant added to discard SD
 0    0    0    0   0    0    0    0    0   # Constant added to body weight SD
 0.09 1.04 1.41 0   0    0    0    0    0   # multiplicative scalar for length comps
 1.70 1.78 3.27 0   0    0    0    0    0   # multiplicative scalar for agecomps
 0    0    0    0   0    0    0    0    0   # multiplicative scalar for length at age obs

30	# Discard df
30	# Mean weight df
1	# Lambda phasing: 1=none, 2+=change beginning in phase 1
1	# Growth offset likelihood constant for Log(s): 1=include, 2=not

6 # 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 devs
#  13=Crash penalty
# Component fleet/survey  phase  value  wtfreq_method
 1 4 1 0.0 1 # Pre-recruit survey data fleet 4
 4 5 1 0.0 1 # CA hist lens
 4 6 1 0.0 1 # CA hist lens
 4 7 1 0.0 1 # CA hist lens
 4 8 1 0.0 1 # CA hist lens
 1 9 1 0.0 1 # shrimp bycatch

0 # SD reporting switch
999 # End control file
```

Data file:

```
# 2010 hake base case data file

### Global model specifications ###
1960	# Start year
2009	# End year
1	# Number of seasons/year
12	# Number of months/season
1	# Spawning occurs at beginning of season
```

```
2		# Number of fishing fleets
7		# Number of surveys
1		# Number of areas
US_Fishery%CAN_Fishery%Acoustic_Survey%Prerec_Survey%Hist_CA1%Hist_CA2%Hist_CA3%Hist_CA4%shrimp
0.5 0.5 0.5 0.0001 0.125 0.375 0.625 0.875 0.5 #_surveytiming_in_season
1 1 1 1 1 1 1 1		1 # Area of each fleet
1 1		# Units for catch by fishing fleet: 1=Biomass(mt),2=Numbers(1000s)
0.01 0.01 # SE of log(catch) by fleet for equilibrium and continuous options
1		#_Ngenders
15		#_Nages

### Catch section ###
# Initial equilibrium catch (landings + discard) by fishing fleet
0 0  #_init_equil_catch_for_each_fishery

44 # Number of lines catch data
# Landed catch (only) time series by fleet
# Catch(by fleet) YearSeason
# US	CAN
137000	700	1966	1
177662	36713	1967	1
60819	61361	1968	1
86280	93851	1969	1
159575	75009	1970	1
127913	26699	1971	1
74133	43413	1972	1
147513	15126	1973	1
194109	17150	1974	1
205656	15704	1975	1
231549	5972	1976	1
127502	5191	1977	1
98372	5267	1978	1
124680	12435	1979	1
72352	17584	1980	1
114760	24361	1981	1
75577	32157	1982	1
73150	40774	1983	1
96332	42109	1984	1
85439	24962	1985	1
154964	55653	1986	1
160448	73699	1987	1
160698	88106	1988	1
210996	94920	1989	1
183800	75992	1990	1
217505	89753	1991	1
208576	88334	1992	1
141222	58213	1993	1
252729	108800	1994	1
177589	72181	1995	1
212901	93174	1996	1
233423	91792	1997	1
232817	87802	1998	1
224522	87333	1999	1
208418	22402	2000	1
182377	53585	2001	1
132115	50796	2002	1
143492	62090	2003	1
210487	124185	2004	1
259199  100462	2005	1
266957  93726	2006  1
224529  72569	2007  1
247797  73750	2008  1
121110	55620	2009	1

26 #_N_cpue_and_surveyabundance_observations
# Year seas index obs se(log)
# Acoustic survey
```

1977 1 3 1915000 0.5
1980 1 3 2115000 0.5
1983 1 3 1647000 0.5
1986 1 3 2857000 0.5
1989 1 3 1238000 0.5
1992 1 3 2169000 0.25
1995 1 3 1385000 0.25
1998 1 3 1185000 0.25
2001 1 3 737000   0.25
2003 1 3 1840000 0.25
2005 1   3 1265000 0.25
2007 1 3 879000   0.25
2009 1 3 1462043 0.5

Pre-recruit index
2001 1 4 770.38 0.4158
2002 1 4 329.00 0.2237
2003 1 4 735.90 0.3070
2004 1 4 1531.60 0.2744
2005 1 4 355.65 0.2602
2006 1 4 192.34 0.1712
2007 1 4 63.31 0.1290
2008 1 4 128.28 0.1671
2009 1 4 114.78 0.1468

Shrimp bycatch index
2004 1 9 11.67 0.315
2005 1 9 25.83 0.243
2007 1 9 116.58 0.127
2008 1 9 27.65 0.254

2 #_discard_type
0 #_N_discard_obs
0 #_N_meanbodywt_obs

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
62 # Count of population bins
Lower edge of bins
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 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70

-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

51 #_N_LengthBins
Lower edge of bins
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70

95 #_N_Length_obs
#Yr Seas Flt/Svy Gender Part Nsamp datavector(female-male)
US fishery

1975	1	1	0	0	13	0.0000	0.0000	0.0000	0.1310	0.4138	0.4138	0.6101
	0.6101	0.3291	0.7411	1.5447	0.9566	4.6455	4.0107	4.1898	5.3717	3.0869	2.8926	2.0167
	1.0373	4.3164	4.0849	7.0859	7.4219	7.1653	7.1658	4.9095	4.0224	5.0698	2.3889	3.2625
	1.2916	3.4063	0.0000	1.1843	1.0342	0.3465	0.4138	0.8734	0.9032	0.3465	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.1310	0.1742	0.0000				
1976	1	1	0	0	249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016
	0.0000	0.0056	0.0033	0.0383	0.0461	0.0619	0.0983	0.2605	0.2710	0.4635	0.5851	0.9688
	1.7104	2.6494	3.7108	5.1325	5.6852	6.3574	6.5997	6.6614	6.7014	6.7809	6.7467	6.3412
	6.0203	5.7434	5.0318	4.0850	2.9869	2.1415	1.3175	1.1743	0.7971	0.5916	0.4178	0.3714
	0.2021	0.3217	0.1198	0.0626	0.1229	0.0766	0.0428	0.4921				

1977	1	1	0	0	1071	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0134	0.0376	0.0706	0.1661	0.4152	0.6903
	1.1624	1.8450	2.7529	4.3062	5.5899	5.8003	7.0414	7.6587	8.0144	8.2014	8.0120	7.8118
	7.2003	6.2315	4.7967	3.7873	2.7235	1.7045	1.2366	0.8199	0.5163	0.3222	0.2985	0.1799
	0.1885	0.1195	0.0886	0.0573	0.0324	0.0296	0.0462	0.0296				
1978	1	1	0	0	1135	0.0000	0.0137	0.0335	0.0204	0.0187	0.0129	0.0269
	0.0195	0.0268	0.0177	0.0119	0.0196	0.0000	0.0052	0.0068	0.0000	0.0232	0.0374	0.1341
	0.4019	1.1005	1.8736	3.2463	4.8921	6.2182	7.2486	8.1810	8.5122	8.8032	8.7842	8.3771
	7.6130	6.8721	5.5053	3.9908	2.9505	1.7999	1.1040	0.6053	0.4234	0.2603	0.2115	0.1333
	0.0826	0.1005	0.0837	0.0252	0.0539	0.0204	0.0118	0.0858				
1979	1	1	0	0	1539	0.0037	0.0097	0.0000	0.0000	0.0045	0.0116	0.0377
	0.1272	0.2419	0.3627	0.6064	0.9330	1.0785	1.2116	1.3609	1.1767	1.0738	0.9737	0.8697
	0.7638	1.0134	1.2884	2.1901	3.1243	4.4482	5.5505	6.5905	7.3083	7.4803	7.3508	7.1915
	6.8207	6.1776	5.2697	4.4570	3.4610	2.5085	1.9857	1.3847	1.0024	0.6851	0.4921	0.3971
	0.2037	0.1600	0.1547	0.1172	0.0869	0.0479	0.0772	0.1275				
1980	1	1	0	0	811	0.0091	0.0023	0.0015	0.0000	0.0073	0.0000	0.0000
	0.0087	0.0126	0.0458	0.0204	0.0433	0.1149	0.2228	0.5250	0.7315	1.2779	2.1458	3.0350
	3.7493	4.1531	4.0760	4.3104	4.0557	4.3473	4.6273	5.0774	5.6263	5.8858	6.0686	5.8665
	5.5856	5.4307	5.0389	4.3970	3.5729	2.4554	2.0179	1.4813	1.1084	0.7881	0.5016	0.3861
	0.4173	0.1653	0.1672	0.1005	0.0862	0.0783	0.0779	0.0960				
1981	1	1	0	0	1093	0.0800	0.1084	0.3599	0.7080	0.9938	1.3236	1.4714
	1.4205	1.1953	0.9210	0.5505	0.3604	0.3151	0.1801	0.1889	0.2756	0.5729	0.9527	1.7359
	2.9281	4.0255	5.0184	5.6197	6.0028	6.2402	6.2228	6.0960	5.8936	5.4876	5.3678	5.1780
	4.8316	4.1992	3.4228	2.5465	1.9163	1.4854	1.0655	0.5759	0.4974	0.3794	0.2661	0.1841
	0.1667	0.1191	0.0804	0.0909	0.0528	0.0518	0.0368	0.2368				
1982	1	1	0	0	1142	0.0012	0.0006	0.0006	0.0069	0.0278	0.0623	0.1581
	0.3195	0.4785	0.7517	1.1521	1.7236	2.2861	2.4465	2.4854	2.2689	2.0172	1.5572	1.1535
	1.1139	1.6668	2.6606	3.7590	4.8387	5.2255	5.3355	5.4254	5.3001	5.2641	5.1765	5.0040
	4.8301	4.5324	4.1043	3.5769	3.1039	2.2985	1.8991	1.4468	1.2094	0.8385	0.6099	0.4744
	0.3877	0.2877	0.1802	0.1433	0.1309	0.0730	0.0768	0.1282				
1983	1	1	0	0	1069	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0039
	0.0049	0.0079	0.0489	0.1747	0.4093	0.9641	1.9860	3.0671	3.7988	4.5641	5.0988	5.4378
	5.5811	5.4899	5.2058	4.8753	4.4715	4.3545	4.5081	4.6308	4.5736	4.3279	4.1003	3.7933
	3.3540	3.0048	2.5516	2.1759	1.7089	1.3795	0.9958	0.7211	0.5140	0.4447	0.4355	0.3254
	0.2806	0.1772	0.1214	0.0937	0.0720	0.0499	0.0400	0.0738				
1984	1	1	0	0	2035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0637	0.2676	0.8974	2.4412	4.6053	7.0343
	8.2610	8.8066	8.8926	8.7328	8.0202	6.4816	5.1629	4.8620	4.4832	4.1105	3.7143	3.0779
	2.4524	1.9414	1.4921	1.0246	0.7090	0.4861	0.3571	0.2395	0.2084	0.1822	0.1480	0.1098
	0.1142	0.0654	0.0783	0.0392	0.0748	0.0613	0.0518	0.2390				
1985	1	1	0	0	2061	0.0087	0.0274	0.0648	0.1319	0.2167	0.3147	0.4723
	0.5712	0.7749	0.8416	0.8311	0.7368	0.6614	0.4257	0.2871	0.2003	0.2466	0.5571	1.2729
	2.9829	5.8356	7.8579	8.7403	9.0648	8.9656	8.5779	7.5892	6.4114	5.4273	4.5509	3.8589
	2.9729	2.3139	1.7167	1.2206	0.8974	0.6230	0.3798	0.2779	0.1994	0.1635	0.1281	0.0756
	0.1044	0.0668	0.0528	0.0551	0.0356	0.0388	0.0281	0.1439				
1986	1	1	0	0	3878	0.0000	0.0016	0.0013	0.0000	0.0013	0.0028	0.0096
	0.0200	0.0693	0.1515	0.3138	0.5911	1.1404	2.1111	3.2822	3.7332	3.8731	3.7860	3.3537
	2.7946	3.0905	5.3259	7.2056	8.0638	8.2040	8.0180	7.5393	6.3690	4.9986	3.8386	3.0525
	2.3423	1.8172	1.3727	1.0227	0.6270	0.4857	0.3479	0.2423	0.1877	0.1401	0.1158	0.0973
	0.0599	0.0422	0.0187	0.0227	0.0287	0.0125	0.0215	0.0526				
1987	1	1	0	0	3406	0.0007	0.0003	0.0003	0.0034	0.0017	0.0011	0.0010
	0.0046	0.0057	0.0063	0.0188	0.0204	0.0694	0.2387	0.6284	1.1515	2.2635	4.1013	5.6298
	6.4771	6.8780	6.9840	7.1824	7.5291	7.5888	7.4579	7.1477	6.4886	5.4910	4.4749	3.4480
	2.5218	1.8452	1.3414	0.9380	0.5999	0.3987	0.3065	0.1802	0.1242	0.0990	0.0605	0.0629
	0.0346	0.0404	0.0319	0.0267	0.0229	0.0186	0.0088	0.0434				
1988	1	1	0	0	3035	0.0007	0.0000	0.0000	0.0000	0.0017	0.0093	0.0120
	0.0258	0.0340	0.0449	0.0486	0.0299	0.0550	0.0644	0.1627	0.3887	0.8553	1.5375	3.2362
	5.6799	7.6535	8.5678	8.8030	8.8150	8.6617	8.3324	8.0693	7.2917	6.1416	4.5565	3.2785
	2.2118	1.6226	1.0448	0.8112	0.4643	0.3538	0.2647	0.2094	0.1601	0.0876	0.0695	0.0400
	0.0650	0.0289	0.0369	0.0335	0.0233	0.0179	0.0229	0.0740				
1989	1	1	0	0	2581	0.0005	0.0067	0.0011	0.0040	0.0045	0.0000	0.0043
	0.0110	0.0275	0.1121	0.3024	0.6741	1.0166	1.2433	1.2873	1.1719	1.1842	1.3513	1.8609
	3.2026	5.4862	7.6096	8.4166	8.5480	8.5158	8.3558	8.1199	7.4837	6.5009	5.1206	3.5657
	2.4235	1.8394	1.2021	0.9268	0.6719	0.4551	0.2600	0.2193	0.2046	0.1429	0.0997	0.0843
	0.0574	0.0486	0.0286	0.0164	0.0259	0.0302	0.0163	0.0577				
1990	1	1	0	0	2039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0011	0.0165	0.0335	0.0560	0.1147	0.2150	0.3131	0.6847	1.0370	1.6040	2.5415	3.9025

	5.3464	6.1623	6.6671	7.1218	7.7462	7.9435	8.0196	7.9224	7.6186	6.9470	5.6783	3.7969
	2.7834	1.6893	1.1798	0.7962	0.5256	0.3690	0.2677	0.2133	0.1416	0.0824	0.0778	0.0709
	0.0621	0.0564	0.0224	0.0350	0.0320	0.0178	0.0174	0.0702				
1991	1	1	0	0	817	0.0253	0.0066	0.0046	0.0095	0.0000	0.0000	0.0037
	0.0188	0.0188	0.0064	0.0447	0.1253	0.2715	0.4231	0.8148	1.2033	2.0136	2.9728	3.5959
	4.2063	4.7795	5.9500	6.1653	6.8269	8.1632	8.4062	8.7522	7.8287	6.3656	4.8131	3.4933
	2.4196	1.6501	1.3979	1.2589	1.1846	1.1067	0.9981	0.8329	0.6915	0.3356	0.2210	0.1430
	0.1272	0.0789	0.0680	0.0615	0.0107	0.0326	0.0170	0.0554				
1992	1	1	0	0	836	0.0281	0.0667	0.0757	0.0833	0.0847	0.0681	0.0818
	0.0962	0.1170	0.1903	0.2537	0.4457	0.6030	0.7764	1.1068	1.3336	1.8384	2.0298	1.6095
	1.8875	3.7787	5.8426	7.3393	8.9692	10.0915	10.2542	9.9512	9.4832	7.3533	5.4802	3.2085
	1.8284	1.2047	0.7084	0.4253	0.3018	0.2260	0.1613	0.1262	0.0848	0.0840	0.0563	0.0546
	0.0267	0.0317	0.0166	0.0102	0.0082	0.0162	0.0065	0.0938				
1993	1	1	0	0	442	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0070	0.0000	0.0000	0.0082	0.1118	0.0949	0.4661	1.0299	1.9220	3.7253	4.5722	6.2424
	6.2361	5.8973	5.3501	5.8937	7.2187	8.3169	8.6226	8.8043	7.5067	7.1225	4.6537	2.7273
	1.3580	0.5706	0.4606	0.3049	0.2458	0.1720	0.1125	0.0270	0.0518	0.0266	0.0349	0.0235
	0.0061	0.0025	0.0025	0.0047	0.0000	0.0576	0.0000	0.0085				
1994	1	1	0	0	649	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0015	0.0141	0.0015	0.0170	0.0052	0.0191	0.0819	0.1821	0.6538	1.5734	3.1216
	4.4610	5.8132	6.9431	7.4792	8.1627	8.4792	9.3948	9.4855	8.9230	7.8291	5.9172	4.1409
	2.6141	1.4632	1.0154	0.6571	0.4624	0.2675	0.1930	0.1728	0.1298	0.1028	0.0608	0.0196
	0.0257	0.0226	0.0176	0.0132	0.0044	0.0019	0.0104	0.0457				
1995	1	1	0	0	470	0.1038	0.0228	0.0198	0.0284	0.0357	0.0357	0.0357
	0.0198	0.0000	0.0000	0.0091	0.0078	0.0571	0.0912	0.1238	0.1013	0.2443	0.2585	0.5044
	1.1955	2.3724	4.4641	6.6707	9.0914	10.4171	10.4798	10.8746	9.6864	8.4629	6.6830	5.2642
	3.6818	2.8972	1.8339	1.2249	0.8681	0.5701	0.5399	0.2679	0.2461	0.1648	0.1209	0.0787
	0.0556	0.0218	0.0338	0.0073	0.0208	0.0036	0.0000	0.0018				
1996	1	1	0	0	557	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0151
	0.0148	0.0575	0.0624	0.3453	0.9726	1.5831	3.0203	3.8219	4.7231	4.1074	3.4972	3.3323
	3.8879	4.0162	4.3223	4.5049	5.8851	7.4956	8.5752	8.2382	7.4850	6.1778	4.4124	3.4555
	2.1185	1.4007	0.7752	0.5304	0.3100	0.2074	0.2374	0.1246	0.0495	0.0525	0.0369	0.0385
	0.0192	0.0183	0.0234	0.0000	0.0000	0.0104	0.0000	0.0381				
1997	1	1	0	0	681	0.0000	0.0000	0.0000	0.0000	0.0000	0.0054	0.0000
	0.0000	0.0000	0.0000	0.0004	0.0129	0.0242	0.0621	0.1670	0.5697	1.1618	2.5034	4.2684
	6.5930	9.1337	10.3301	10.9611	10.6951	9.1385	8.2452	6.7816	5.6553	4.4197	3.4122	2.0201
	1.2148	0.7188	0.4538	0.3833	0.2249	0.2018	0.0783	0.1077	0.0375	0.0815	0.0931	0.1300
	0.0086	0.0097	0.0081	0.0552	0.0051	0.0000	0.0129	0.0138				
1998	1	1	0	0	803	0.0000	0.0019	0.0000	0.0356	0.0312	0.0000	0.0000
	0.0018	0.0050	0.0307	0.1578	0.5719	1.1926	1.8658	1.8962	2.1940	3.1873	4.9169	5.9828
	6.3878	6.7259	7.5506	8.9308	9.1918	8.9787	7.9720	6.5252	5.1066	3.8389	2.3801	1.5499
	0.8679	0.5270	0.3689	0.2026	0.1499	0.1612	0.1050	0.0570	0.0861	0.0879	0.0039	0.0120
	0.0034	0.0132	0.0171	0.0161	0.0014	0.0454	0.0000	0.0642				
1999	1	1	0	0	2268	0.0028	0.0000	0.0000	0.0030	0.0088	0.0298	0.0088
	0.0562	0.1532	0.3180	0.7684	1.1024	1.6890	2.4598	3.4549	4.0658	5.0615	5.8249	6.6752
	6.3233	6.6134	6.1512	6.1289	6.7057	6.9914	7.0649	6.3137	4.8892	3.6905	2.3132	1.5526
	1.0083	0.7842	0.4498	0.3077	0.1635	0.1629	0.1472	0.0544	0.1511	0.0529	0.0800	0.0497
	0.0106	0.0125	0.0187	0.0165	0.0089	0.0198	0.0152	0.0657				
2000	1	1	0	0	2199	0.0008	0.0000	0.0000	0.0000	0.0000	0.0049	0.0230
	0.0779	0.1520	0.3576	0.3585	0.3253	0.2198	0.2314	0.2139	0.3953	0.6127	1.1692	1.9467
	2.6461	4.1004	4.7630	5.8897	6.8340	8.3000	9.5471	9.8429	9.2381	8.5885	6.6670	5.2995
	3.7409	2.5171	1.7399	1.2479	0.7236	0.4943	0.5228	0.3619	0.2084	0.1557	0.1254	0.0844
	0.0832	0.0432	0.0291	0.0261	0.0251	0.0104	0.0289	0.0260				
2001	1	1	0	0	2239	0.0040	0.0047	0.0000	0.0142	0.0049	0.0144	0.0049
	0.0450	0.0368	0.1065	0.2524	0.5181	0.7379	1.0920	1.5401	2.4071	3.1572	3.3718	3.3389
	3.6980	4.1295	4.9045	5.9444	6.3796	6.9969	7.3855	8.0234	8.2212	7.5621	5.8676	4.3308
	3.3034	2.0719	1.5149	0.9362	0.6821	0.4124	0.2491	0.1603	0.1745	0.1023	0.0504	0.0731
	0.0517	0.0206	0.0268	0.0330	0.0073	0.0166	0.0030	0.0161				
2002	1	1	0	0	1821	0.0000	0.0000	0.0000	0.0000	0.0000	0.0153	0.0000
	0.0005	0.0005	0.0009	0.0349	0.0455	0.0237	0.0205	0.1192	0.3983	0.9800	2.6734	5.4078
	8.8163	10.7909	12.1021	11.2284	9.1867	6.7869	5.1606	4.4545	3.5139	3.1230	2.9931	2.6154
	2.2683	1.8634	1.5485	1.1389	0.7967	0.4894	0.3872	0.2213	0.1985	0.1627	0.1216	0.0636
	0.0584	0.0544	0.0301	0.0271	0.0061	0.0231	0.0117	0.0366				
2003	1	1	0	0	1915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0300	0.0000	0.0000	0.0387	0.0022	0.0769	0.0808	0.1733	0.9888	2.3873	4.6812
	8.0242	11.1703	11.9985	12.9450	12.6406	10.5481	8.0278	5.3379	3.5339	2.3350	1.6809	1.1599

	0.7129	0.4354	0.2866	0.2158	0.1281	0.1050	0.0474	0.0597	0.0310	0.0171	0.0142	0.0162
	0.0138	0.0066	0.0076	0.0093	0.0099	0.0000	0.0080	0.0143				
2004	1	1	0	0	2797	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0007	0.0016	0.0038	0.0089	0.0000	0.0000	0.0081	0.0131	0.0296	0.1831	0.6135
	1.4590	3.7500	7.0232	11.1220	14.3372	15.4579	14.7871	10.8375	7.4020	4.8577	2.7464	1.7989
	1.2653	0.6564	0.3878	0.2692	0.2233	0.2484	0.0934	0.0338	0.0283	0.0757	0.0703	0.0158
	0.0102	0.0581	0.0045	0.0151	0.0173	0.0045	0.0044	0.0767				
2005	1	1	0	0	3064	0.0039	0.0031	0.0026	0.0020	0.0000	0.0023	0.0000
	0.0000	0.0000	0.0030	0.0024	0.0063	0.0239	0.0509	0.0915	0.1204	0.1841	0.4387	0.5751
	0.6107	1.1091	2.4939	6.2652	12.8750	18.8037	19.4426	15.5383	9.6723	5.1798	2.7770	1.4521
	0.8477	0.4493	0.3130	0.1687	0.1364	0.0896	0.0711	0.0473	0.0281	0.0267	0.0180	0.0129
	0.0096	0.0076	0.0067	0.0072	0.0038	0.0045	0.0044	0.0175				
2006	1	1	0	0	2824	0.0080	0.0112	0.0136	0.0303	0.0380	0.0436	0.0995
	0.0849	0.1161	0.1820	0.3199	0.3412	0.4424	0.6127	0.5952	0.4830	0.5777	0.8092	1.1048
	1.9977	3.4644	4.1244	5.3737	8.2206	12.9583	15.6928	15.2216	11.1138	7.0618	4.1189	1.9392
	1.1155	0.5196	0.2754	0.1379	0.1278	0.0776	0.1017	0.0682	0.0344	0.0414	0.0425	0.0251
	0.0278	0.0354	0.0148	0.0260	0.0123	0.0161	0.0074	0.0926				
2007	1	1	0	0	2936	0.7915	0.0932	0.0502	0.0665	0.0725	0.0426	0.0384
	0.0898	0.1579	0.3023	0.4876	0.9153	1.3500	1.6763	1.7752	1.7866	1.8838	1.6279	1.4620
	1.1528	1.2516	1.9565	3.2215	5.2290	7.9868	11.5435	14.1474	13.7874	10.0416	6.2371	3.9688
	1.8856	0.9790	0.6219	0.3572	0.2097	0.1553	0.1589	0.0589	0.0893	0.0639	0.0571	0.0220
	0.0483	0.0184	0.0114	0.0112	0.0051	0.0046	0.0018	0.0469				
2008	1	1	0	0	4273	0.0061	0.0074	0.0055	0.0279	0.0600	0.0918	0.1468
	0.1316	0.2161	0.2467	0.2693	0.5193	0.9721	1.6845	2.0252	2.2063	2.4328	3.5896	6.0167
	7.4710	7.3298	5.8014	4.3301	3.5973	3.9889	5.4842	7.2089	8.0745	7.4183	5.9649	4.2933
	2.9103	1.8244	1.1920	0.7306	0.5419	0.3023	0.2480	0.1491	0.1294	0.0601	0.0725	0.0564
	0.0390	0.0284	0.0159	0.0279	0.0190	0.0036	0.0088	0.0219				
2009	1	1	0	0	2688	0.1078	0.0614	0.0666	0.0424	0.0852	0.0777	0.1023
	0.2075	0.1821	0.1066	0.0910	0.0874	0.1972	0.3630	0.8506	1.8340	3.4691	5.4386	7.5262
	8.3266	8.7696	8.6063	8.1010	7.1596	5.4270	4.7241	4.7582	4.6424	4.6286	4.3470	3.1284
	2.0618	1.3585	0.9298	0.5488	0.3675	0.2917	0.2110	0.1938	0.1540	0.0732	0.0815	0.0397
	0.0218	0.0575	0.0226	0.0210	0.0192	0.0070	0.0131	0.0109				
# Canadian fishery												
1988	1	2	0	0	38	0.0000	0.0000	0.0000	0.0015	0.0042	0.0013	0.0000
	0.0012	0.0000	0.0026	0.0047	0.0016	0.0109	0.0287	0.0347	0.1011	0.1622	0.2725	0.4999
	0.8217	1.6591	3.0254	5.2973	7.5743	9.8487	11.8018	11.9507	10.6459	8.8695	6.9198	5.2416
	4.0676	3.0620	2.1469	1.6566	1.2806	0.8882	0.6213	0.4338	0.3289	0.2480	0.1422	0.0926
	0.0926	0.0635	0.0281	0.0175	0.0131	0.0143	0.0048	0.0143				
1989	1	2	0	0	43	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0079	0.0039	0.0013	0.0116	0.0234	0.0729
	0.1029	0.3302	1.1841	3.6208	7.3076	11.0626	13.9101	14.3775	12.2475	10.0729	7.4976	5.3460
	3.8031	2.5146	1.9580	1.3638	0.8697	0.6090	0.4848	0.2969	0.2583	0.2076	0.1215	0.0985
	0.0644	0.0415	0.0313	0.0347	0.0133	0.0026	0.0093	0.0314				
1990	1	2	0	0	33	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0146	0.0089	0.0665	0.0878	0.1169
	0.2445	0.6916	0.8924	1.9520	4.6396	8.2469	13.1450	15.1195	14.6946	12.1628	8.7682	6.0184
	3.8082	2.6119	1.7409	1.1643	0.8935	0.7293	0.4191	0.3702	0.2793	0.2472	0.1841	0.1927
	0.1571	0.0847	0.0648	0.0653	0.0228	0.0194	0.0370	0.0351				
1991	1	2	0	0	56	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0031	0.0100	0.0000	0.0033	0.0073	0.0033	0.0288	0.0615	0.1335
	0.1961	0.2554	0.5079	0.7854	1.3650	3.2862	6.6629	11.0345	14.2636	15.4089	13.1927	9.9821
	7.0393	4.8797	3.3430	2.1798	1.4970	1.0171	0.7579	0.5609	0.3871	0.3152	0.2666	0.1598
	0.1119	0.0769	0.0668	0.0524	0.0185	0.0272	0.0168	0.0327				
1992	1	2	0	0	60	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0015	0.0000	0.0000	0.0000	0.0017	0.0017	0.0070	0.0113
	0.0170	0.1428	0.4641	1.4115	3.5680	7.2311	11.7795	16.0994	16.7776	14.5902	10.6207	6.6180
	3.9245	2.3324	1.3938	0.8834	0.5575	0.3640	0.2610	0.2263	0.1462	0.1277	0.1166	0.0871
	0.0495	0.0532	0.0353	0.0125	0.0261	0.0057	0.0117	0.0424				
1993	1	2	0	0	60	0.0102	0.0000	0.0000	0.0017	0.0000	0.0014	0.0000
	0.0014	0.0103	0.0061	0.0079	0.0053	0.0019	0.0014	0.0039	0.0054	0.0045	0.0070	0.0187
	0.0581	0.2378	0.6761	1.7934	4.2474	9.5096	15.5218	19.1337	17.8105	12.9661	7.8210	4.2887
	2.2775	1.3447	0.7572	0.4675	0.3220	0.2047	0.1464	0.1057	0.0596	0.0460	0.0213	0.0202
	0.0200	0.0028	0.0151	0.0076	0.0100	0.0072	0.0031	0.0103				
1994	1	2	0	0	76	0.0391	0.0037	0.0033	0.0034	0.0025	0.0051	0.0019
	0.0009	0.0027	0.0026	0.0015	0.0000	0.0017	0.0023	0.0013	0.0090	0.0121	0.0202	0.0211
	0.0403	0.1377	0.3263	0.7286	1.8425	4.1592	8.2000	13.3817	16.8869	16.0807	12.8616	9.0190

	5.6153	3.4957	2.2325	1.5106	0.9776	0.6701	0.4595	0.3314	0.2424	0.1778	0.1279	0.0899
	0.0687	0.0405	0.0392	0.0236	0.0318	0.0200	0.0084	0.0378				
1995	1	2	0	0	43	0.5433	0.5663	1.5444	2.8853	2.8406	3.0367	2.0194
	1.2639	0.6258	0.1966	0.0873	0.0440	0.0292	0.0483	0.0254	0.0278	0.0167	0.0000	0.0000
	0.0034	0.0068	0.0722	0.2495	0.9728	2.6665	5.3574	9.1578	12.8613	14.7039	12.3917	9.3775
	5.8628	3.5750	2.4331	1.2689	0.9287	0.6043	0.4867	0.3577	0.3214	0.1383	0.1170	0.0715
	0.0482	0.0518	0.0412	0.0355	0.0100	0.0000	0.0113	0.0151				
1996	1	2	0	0	54	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0069	0.0168	0.0622	0.1235	0.2794	0.4614	0.8566	1.3516	1.9391	2.2300
	2.0055	1.5635	1.2560	1.4221	2.7105	5.4517	10.2072	14.0882	15.4694	13.5617	9.5714	6.3589
	3.5570	2.0126	1.1256	0.7121	0.4531	0.2665	0.2264	0.1552	0.0981	0.0831	0.0799	0.0618
	0.0397	0.0297	0.0245	0.0246	0.0090	0.0115	0.0090	0.0244				
1997	1	2	0	0	102	0.0000	0.0000	0.0045	0.0045	0.0175	0.0095	0.0180
	0.0283	0.0240	0.0361	0.0300	0.0346	0.0303	0.0320	0.0191	0.0136	0.0307	0.1000	0.2532
	0.9009	2.1714	3.9752	6.0868	7.3180	8.2774	8.8846	10.3676	10.7128	10.2442	8.6087	6.4056
	4.5583	3.0897	2.2322	1.5336	1.0943	0.7586	0.6056	0.3728	0.2314	0.2456	0.1737	0.1118
	0.0810	0.0760	0.0483	0.0550	0.0183	0.0299	0.0052	0.0394				
1998	1	2	0	0	94	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0291	0.0055	0.0152	0.0201	0.0309	0.0786	0.2148	0.4806	0.9896
	1.9114	3.1067	4.6458	7.7507	10.9445	13.0675	13.7215	12.3742	9.4706	6.3908	4.2349	2.5262
	1.4915	0.9287	0.5946	0.3971	0.2716	0.2143	0.1214	0.1003	0.0878	0.0475	0.0406	0.0232
	0.0258	0.0235	0.0122	0.0057	0.0036	0.0029	0.0049	0.0093				
1999	1	2	0	0	136	0.0000	0.0140	0.0037	0.0090	0.0010	0.0034	0.0066
	0.0057	0.0316	0.0521	0.1189	0.3614	0.7028	1.1060	1.7214	1.9452	2.0639	2.0924	2.2368
	2.8403	3.0093	3.6328	4.6785	6.2507	8.1427	10.3291	10.9685	10.3095	8.5619	6.2326	3.9248
	2.8442	1.7230	1.1824	0.7861	0.5753	0.4115	0.2814	0.1936	0.1657	0.0846	0.1275	0.0871
	0.0396	0.0642	0.0204	0.0157	0.0201	0.0028	0.0078	0.0104				
2000	1	2	0	0	16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0002	0.0115	0.0269	0.0783	0.2229	0.5715	0.8796	1.3716	1.4679
	1.9613	2.4665	3.4212	4.4835	5.4263	6.1167	6.3849	7.2244	8.1919	8.6751	8.1729	7.9389
	6.0299	4.6940	3.5788	2.7613	1.9144	1.6095	1.1091	0.8607	0.6031	0.4619	0.4388	0.2513
	0.2007	0.1381	0.0794	0.0489	0.0472	0.0230	0.0196	0.0364				
2001	1	2	0	0	72	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0095	0.0067	0.0587	0.2057	0.2672	0.2541	0.2360	0.2768	0.1680	0.1071	0.0729	0.0268
	0.0359	0.0413	0.0228	0.1328	0.3029	0.7079	1.4757	3.0338	5.7325	8.9079	11.2086	12.8480
	11.8996	10.4744	8.4391	6.5580	4.7269	3.5529	2.5374	1.8422	1.1844	0.7793	0.5817	0.3953
	0.2782	0.2220	0.1321	0.1047	0.0273	0.0319	0.0287	0.0642				
2002	1	2	0	0	103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0116	0.0168	0.0046	0.0046	0.0049	0.0295	0.0076
	0.0620	0.0081	0.0366	0.1599	0.2942	0.4882	1.1396	1.3920	2.5956	4.8810	7.4663	10.1087
	12.5335	12.7077	11.0521	8.9671	6.8943	5.5104	4.3519	2.7694	1.8741	1.5376	1.1212	0.6999
	0.4071	0.2684	0.1780	0.1428	0.0868	0.0675	0.0483	0.0700				
2003	1	2	0	0	118	0.0000	0.0078	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0091	0.0000	0.0376	0.0168	0.0530	0.0391	0.0327	0.0427	0.0346
	0.0000	0.2505	1.1718	2.9946	5.7363	9.9890	11.3838	12.8838	11.9749	10.6071	9.6759	6.2904
	4.3829	3.3957	2.1501	1.5351	1.2581	1.0889	0.6767	0.5597	0.3709	0.3422	0.3288	0.1696
	0.2269	0.0750	0.0465	0.0194	0.0403	0.0334	0.0069	0.0614				
2004	1	2	0	0	101	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0022	0.0021	0.0056	0.0015	0.0062	0.0079	0.0102	0.0059	0.0287	0.0284	0.0883
	0.2258	0.6649	1.9245	4.8011	9.4218	13.3395	15.5264	14.0944	11.8361	9.0958	6.2083	4.1077
	2.6686	1.7630	1.1389	0.7698	0.6081	0.4042	0.3224	0.2523	0.1392	0.1278	0.0905	0.0712
	0.0548	0.0269	0.0236	0.0117	0.0218	0.0183	0.0096	0.0419				
2005	1	2	0	0	130	0.0000	0.0000	0.0000	0.0010	0.0000	0.0030	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0043	0.0021	0.0072	0.0201	0.0402
	0.0701	0.2991	0.5674	2.2474	5.5402	9.6405	13.5221	15.5204	14.7159	11.1222	8.5734	6.1017
	3.7296	2.3164	1.4919	1.1319	0.7689	0.6852	0.5564	0.3588	0.2161	0.1146	0.2099	0.0687
	0.0986	0.0455	0.0433	0.0322	0.0013	0.0181	0.0074	0.1072				
2006	1	2	0	0	136	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0430
	0.0006	0.0000	0.0204	0.0011	0.0000	0.0273	0.0364	0.0360	0.0025	0.0017	0.0435	0.0119
	0.1024	0.1601	0.5107	1.2618	2.7040	5.0533	8.4006	11.8521	14.1337	13.0027	11.9276	8.6126
	6.3217	4.1324	2.7241	2.1604	1.5860	1.0035	0.9456	0.6311	0.7092	0.4058	0.2925	0.2235
	0.1914	0.1281	0.1315	0.1141	0.0468	0.0870	0.0301	0.1892				
2007	1	2	0	0	167	0.0034	0.0002	0.0002	0.0002	0.0001	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0005	0.0005	0.0017	0.0038	0.0017
	0.0034	0.0063	0.0072	0.0181	0.0308	0.0567	0.0763	0.1203	0.1430	0.1501	0.1002	0.0946
	0.0594	0.0386	0.0210	0.0170	0.0097	0.0101	0.0059	0.0041	0.0029	0.0024	0.0016	0.0022
	0.0017	0.0017	0.0005	0.0009	0.0002	0.0003	0.0001	0.0005				

2008	1	2	0	0	188	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0015
	0.0034	0.0030	0.0016	0.0011	0.0022	0.0032	0.0059	0.0127	0.0108	0.0129	0.0081	0.0153
	0.0120	0.0212	0.0131	0.0172	0.0144	0.0217	0.0329	0.0602	0.0764	0.1226	0.1003	0.1239
	0.0854	0.0737	0.0451	0.0334	0.0168	0.0126	0.0075	0.0080	0.0042	0.0054	0.0017	0.0033
	0.0010	0.0022	0.0011	0.0000	0.0000	0.0004	0.0000	0.0000				
2009	1	2	0	0	342	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0009	0.0030	0.0074	0.0199	0.0412
	0.0516	0.0719	0.0630	0.0559	0.0495	0.0508	0.0515	0.0591	0.0637	0.0855	0.0740	0.0723
	0.0516	0.0457	0.0287	0.0217	0.0146	0.0093	0.0005	0.0060	0.0005	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
# Acoustic survey												
1977	1	3	0	0	85	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0762	0.1870	0.4156	0.4018	0.6304	0.6719	0.8313	1.2122	1.3716
	1.3716	1.5932	2.1543	2.7847	3.6021	4.1009	4.3918	5.1676	6.9825	8.2433	9.4417	8.9983
	7.4397	6.5738	5.2092	3.8930	2.7847	2.2582	1.7872	1.1153	0.8728	0.7551	0.5819	0.5611
	0.3671	0.3117	0.1940	0.2078	0.1316	0.0485	0.0554	0.0554				
1980	1	3	0	0	49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0241	0.0000	0.0241	0.0723	0.3135	0.6872	1.7483	3.7618	5.6909
	6.1249	5.2689	3.8582	1.5192	0.8922	0.5426	0.7596	1.9050	3.2433	5.8235	8.3193	9.2838
	8.5483	8.1022	6.2937	4.7263	3.0625	2.0979	1.5915	1.0851	0.6872	0.6028	0.4943	0.2773
	0.1688	0.2411	0.1206	0.1326	0.1206	0.1085	0.0603	0.0603				
1983	1	3	0	0	35	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0232	0.0116	0.0348	0.4295	1.6369	4.1560	7.8941	10.5410	11.4465
	9.2408	7.7084	5.4678	3.6568	2.4611	2.1477	2.4611	3.3666	4.0051	4.2141	3.8542	3.5407
	2.8326	2.2638	1.8923	1.4511	0.8591	0.7198	0.4644	0.2786	0.3367	0.1741	0.1393	0.0929
	0.0580	0.0116	0.0116	0.0580	0.0116	0.0116	0.0232	0.0000				
1986	1	3	0	0	43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
	0.0003	0.0003	0.0020	0.0064	0.0223	0.0598	0.1116	0.1155	0.0614	0.0239	0.0072	0.0033
	0.0023	0.0039	0.0113	0.0382	0.0693	0.0909	0.0990	0.0670	0.0486	0.0372	0.0298	0.0229
	0.0166	0.0139	0.0103	0.0072	0.0049	0.0035	0.0022	0.0021	0.0012	0.0007	0.0006	0.0005
	0.0006	0.0004	0.0002	0.0002	0.0001	0.0003	0.0001	0.0002				
1989	1	3	0	0	22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0534	0.0356	0.0000	0.0356	0.1956	0.5513	1.9029	2.2230	2.1697
	1.3694	1.5472	2.6143	7.9673	13.8182	16.6993	16.3258	11.4885	7.7361	4.6239	2.4898	1.6895
	0.9248	0.5513	0.3557	0.2668	0.1601	0.1067	0.0178	0.1423	0.0000	0.0178	0.0000	0.0000
	0.0178	0.0178	0.0356	0.0000	0.0000	0.0000	0.0000	0.0178				
1992	1	3	0	0	43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.9966	1.0747	1.1451	2.0523	2.2678	1.3747	0.7046	0.4705	0.1384
	0.2064	0.5554	1.7227	3.9070	6.9265	10.1668	13.5941	14.4537	11.2977	7.4794	4.4176	2.5313
	1.2286	0.5984	0.4789	0.2226	0.1257	0.1510	0.0318	0.0608	0.0354	0.0260	0.0126	0.0029
	0.0043	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
1995	1	3	0	0	69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.2414	0.3534	1.4379	4.0874	8.1213	8.5327	6.1473	2.9749	1.2684
	0.5451	0.5222	1.2059	2.6843	4.8278	6.9954	8.0774	8.3294	7.4855	6.1477	3.8777	2.5148
	1.2530	0.8335	0.3644	0.2652	0.1357	0.0966	0.0656	0.0532	0.0414	0.0348	0.0181	0.0073
	0.0056	0.0032	0.0024	0.0091	0.0226	0.0176	0.0037	0.0037				
1998	1	3	0	0	84	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	1.9111	2.3583	2.7987	2.9771	2.6344	1.9192	1.7780	2.5431	3.2512
	3.6925	3.7927	4.3047	5.4560	7.6075	8.0688	8.4396	7.5478	6.2551	4.9928	3.5322	2.5057
	1.6519	1.0415	0.7464	0.4515	0.3132	0.2538	0.1641	0.1156	0.0562	0.0557	0.0423	0.0236
	0.0210	0.0125	0.0035	0.0053	0.0059	0.0084	0.0061	0.0135				
2001	1	3	0	0	49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	1.3525	4.1216	8.3658	14.6019	16.9774	14.2018	8.5876	3.5231	1.6717
	1.4485	1.5298	1.9460	1.9285	1.9610	1.8787	2.2680	2.1509	2.2040	2.1926	1.9429	1.1800
	0.8779	0.6301	0.4768	0.3006	0.2136	0.1543	0.1206	0.0551	0.0789	0.0185	0.0621	0.0381
	0.0841	0.0565	0.0314	0.0243	0.0261	0.0014	0.0354	0.0687				
2003	1	3	0	0	71	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0944	0.1537	0.3314	0.4047	0.7614	0.6356	1.1926	1.0760	1.7630
	1.7640	4.4833	7.5862	14.3289	14.8713	13.9081	10.0821	7.4014	5.8903	3.9399	2.7178	1.9627
	1.3133	0.9244	0.6519	0.4871	0.3781	0.2422	0.1693	0.1103	0.1016	0.0309	0.0101	0.0184
	0.0231	0.0085	0.0160	0.0057	0.0028	0.0028	0.0046	0.0249				
2005	1	3	0	0	49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.5764	0.6518	2.2930	3.3930	4.9816	3.7852	2.8587	2.0472	1.2751
	1.0973	1.1591	2.8742	4.7100	8.8084	14.7650	12.1110	12.1030	6.6716	5.1654	3.3105	1.6901
	1.0512	0.6182	0.3690	0.1856	0.1908	0.1801	0.0734	0.0314	0.0457	0.0478	0.0314	0.0335
	0.0175	0.0161	0.0124	0.0118	0.0879	0.0000	0.0000	0.0131				

2007	1	3	0	0	69	0.0000	0.0000	0.0000	0.0000	0.0053	0.0021	0.0031
	0.0074	0.0194	0.0291	0.0496	0.0587	0.0550	0.0488	0.0311	0.0250	0.0187	0.0101	0.0048
	0.0056	0.0068	0.0096	0.0172	0.0300	0.0390	0.0641	0.0831	0.0914	0.0843	0.0781	0.0423
	0.0289	0.0183	0.0127	0.0068	0.0039	0.0018	0.0019	0.0015	0.0007	0.0010	0.0007	0.0007
	0.0003	0.0003	0.0004	0.0002	0.0000	0.0000	0.0001	0.0003				
2009	1	3	0	0	50	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	0.00000	0.00000	0.00000	0.00029	0.00053	0.00106	0.00158	0.00454	0.01849	0.03092	0.05423	0.08397
	0.13205	0.10945	0.11049	0.09887	0.07290	0.04825	0.04624	0.03160	0.03022	0.03156	0.02582	0.02638
	0.01333	0.00876	0.00484	0.00443	0.00318	0.00202	0.00117	0.00054	0.00039	0.00048	0.00012	0.00013
	0.00025	0.00005	0.00003	0.00037	0.00000	0.00022	0.00012	0.00014				

Historical CA fisheries

1963	1	5	0	0	13	0.0000	0.0000	0.0000	7.0000	5.0000	11.0000	11.0000
	10.0000	9.0000	5.0000	7.0000	10.0000	8.0000	6.0000	5.0000	2.0000	1.0000	1.0000	5.0000
	2.0000	1.0000	2.0000	3.0000	2.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000	2.0000
	0.0000	1.0000	0.0000	0.0000	2.0000	1.0000	0.0000	2.0000	1.0000	0.0000	2.0000	0.0000
	2.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
1964	1	5	0	0	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	4.0000	2.0000
	2.0000	2.0000	3.0000	3.0000	4.0000	2.0000	1.0000	3.0000	1.0000	2.0000	3.0000	2.0000
	3.0000	3.0000	1.0000	3.0000	2.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	0.0000	1.0000				
1966	1	5	0	0	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	2.0000	2.0000
	0.0000	1.0000	2.0000	0.0000	0.0000	1.0000	0.0000	0.0000				
1967	1	5	0	0	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
	1.0000	2.0000	3.0000	6.0000	4.0000	2.0000	0.0000	1.0000	2.0000	1.0000	1.0000	0.0000
	1.0000	2.0000	1.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	1.0000	1.0000	1.0000	0.0000	3.0000	0.0000	3.0000	2.0000	2.0000	2.0000	3.0000	3.0000
	2.0000	0.0000	0.0000	2.0000	0.0000	0.0000	1.0000	1.0000				
1968	1	5	0	0	18	3.0000	1.0000	0.0000	0.0000	1.0000	1.0000	6.0000
	10.0000	15.0000	11.0000	4.0000	5.0000	1.0000	2.0000	2.0000	1.0000	5.0000	1.0000	4.0000
	3.0000	2.0000	1.0000	1.0000	1.0000	3.0000	3.0000	1.0000	1.0000	1.0000	1.0000	2.0000
	0.0000	1.0000	6.0000	2.0000	4.0000	2.0000	5.0000	8.0000	6.0000	9.0000	8.0000	3.0000
	6.0000	6.0000	5.0000	3.0000	4.0000	2.0000	1.0000	6.0000				
1969	1	5	0	0	38	3.0000	0.0000	14.0000	33.0000	36.0000	37.0000	10.0000
	5.0000	3.0000	4.0000	2.0000	1.0000	3.0000	10.0000	5.0000	11.0000	5.0000	9.0000	14.0000
	11.0000	4.0000	9.0000	9.0000	1.0000	2.0000	5.0000	2.0000	1.0000	0.0000	1.0000	4.0000
	4.0000	1.0000	3.0000	4.0000	4.0000	6.0000	10.0000	4.0000	6.0000	12.0000	5.0000	10.0000
	11.0000	5.0000	10.0000	4.0000	4.0000	1.0000	6.0000	13.0000				
1970	1	5	0	0	39	4.0000	0.0000	9.0000	12.0000	21.0000	35.0000	24.0000
	19.0000	10.0000	13.0000	10.0000	11.0000	14.0000	10.0000	8.0000	10.0000	7.0000	13.0000	10.0000
	11.0000	7.0000	11.0000	10.0000	7.0000	8.0000	13.0000	6.0000	3.0000	3.0000	5.0000	4.0000
	1.0000	1.0000	3.0000	4.0000	3.0000	1.0000	1.0000	1.0000	4.0000	5.0000	2.0000	6.0000
	3.0000	4.0000	4.0000	1.0000	3.0000	1.0000	3.0000	10.0000				
1963	1	6	0	0	9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	2.0000	1.0000	6.0000	6.0000	8.0000	7.0000	12.0000	9.0000	8.0000	9.0000
	6.0000	3.0000	3.0000	1.0000	3.0000	2.0000	2.0000	1.0000	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000				
1966	1	6	0	0	14	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000
	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	2.0000	0.0000	1.0000	1.0000
	2.0000	0.0000	5.0000	3.0000	3.0000	7.0000	6.0000	9.0000	9.0000	11.0000	12.0000	9.0000
	8.0000	7.0000	10.0000	8.0000	9.0000	2.000	2.0000	8.0000				
1967	1	6	0	0	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000	0.0000	2.0000	0.0000	2.0000
	1.0000	1.0000	4.0000	1.0000	1.0000	0.0000	1.0000	2.0000				
1968	1	6	0	0	12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000
	0.0000	3.0000	2.0000	2.0000	2.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	4.0000
	1.0000	3.0000	1.0000	4.0000	1.0000	2.0000	4.0000	10.0000	4.0000	5.0000	12.0000	4.0000
	11.0000	7.0000	3.0000	6.0000	6.0000	8.0000	1.0000	10.0000				

1969	1	6	0	0	14	2.0000	0.0000	0.0000	1.0000	7.0000	10.0000	10.0000
	6.0000	8.0000	4.0000	9.0000	4.0000	0.0000	5.0000	3.0000	1.0000	4.0000	4.0000	3.0000
	1.0000	1.0000	2.0000	1.0000	2.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	1.0000	0.0000	0.0000	3.0000	1.0000	1.0000	1.0000	2.0000	2.0000	3.0000	4.0000	3.0000
	1.0000	3.0000	5.0000	3.0000	5.0000	1.0000	1.0000	6.0000				
1970	1	6	0	0	12	0.0000	0.0000	0.0000	0.0000	2.0000	1.0000	3.0000
	6.0000	2.0000	1.0000	7.0000	12.0000	14.0000	12.0000	8.0000	5.0000	0.0000	3.0000	2.0000
	5.0000	2.0000	2.0000	2.0000	2.0000	0.0000	3.0000	2.0000	2.0000	1.0000	2.0000	0.0000
	2.0000	1.0000	1.0000	1.0000	0.0000	2.0000	0.0000	1.0000	1.0000	0.0000	1.0000	3.0000
	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	1.0000				
1963	1	7	0	0	24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	3.0000	1.0000	2.0000	0.0000	1.0000	0.0000	2.0000	1.0000	3.0000	2.0000	6.0000
	6.0000	4.0000	8.0000	11.0000	9.0000	9.0000	13.0000	6.0000	8.0000	10.0000	15.0000	19.0000
	18.0000	12.0000	16.0000	5.0000	4.0000	7.0000	9.0000	8.0000	5.0000	2.0000	4.0000	1.0000
	4.0000	1.0000	1.0000	1.0000	0.0000	1.0000	0.0000	3.0000				
1966	1	7	0	0	22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	2.0000	5.0000	0.0000	2.0000	1.0000
	3.0000	3.0000	2.0000	4.0000	4.0000	5.0000	3.0000	3.0000	4.0000	4.0000	4.0000	16.0000
	11.0000	9.0000	6.0000	16.0000	7.0000	16.0000	10.0000	15.0000	14.0000	13.0000	10.0000	7.0000
	4.0000	6.0000	3.0000	1.0000	1.0000	1.0000	0.0000	2.0000				
1967	1	7	0	0	26	2.0000	0.0000	0.0000	0.0000	0.0000	2.0000	2.0000
	5.0000	2.0000	2.0000	3.0000	2.0000	6.0000	6.0000	0.0000	18.0000	17.0000	22.0000	14.0000
	3.0000	10.0000	5.0000	3.0000	4.0000	1.0000	2.0000	2.0000	4.0000	5.0000	2.0000	1.0000
	9.0000	11.0000	6.0000	7.0000	7.0000	8.0000	8.0000	8.0000	14.0000	10.0000	7.0000	1.0000
	3.0000	3.0000	4.0000	2.0000	2.0000	1.0000	1.0000	3.0000				
1968	1	7	0	0	31	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	1.0000
	0.0000	0.0000	2.0000	0.0000	2.0000	1.0000	2.0000	0.0000	3.0000	2.0000	1.0000	2.0000
	0.0000	2.0000	1.0000	1.0000	6.0000	4.0000	2.0000	4.0000	4.0000	7.0000	7.0000	12.0000
	11.0000	15.0000	16.0000	11.0000	21.0000	27.0000	24.0000	19.0000	21.0000	19.0000	22.0000	6.0000
	4.0000	7.0000	5.0000	4.0000	2.0000	1.0000	1.0000	5.0000				
1969	1	7	0	0	12	1.0000	1.0000	1.0000	0.0000	0.0000	0.0000	2.0000
	1.0000	5.0000	3.0000	5.0000	6.0000	5.0000	4.0000	9.0000	2.0000	2.0000	0.0000	1.0000
	1.0000	3.0000	2.0000	1.0000	3.0000	0.0000	2.0000	1.0000	0.0000	2.0000	1.0000	2.0000
	0.0000	2.0000	4.0000	3.0000	2.0000	3.0000	4.0000	6.0000	4.0000	3.0000	3.0000	2.0000
	5.0000	6.0000	1.0000	1.0000	1.0000	5.0000	1.0000	0.0000				
1963	1	8	0	0	7	5.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0000	0.0000	1.0000	1.0000	1.0000
	3.0000	1.0000	5.0000	5.0000	2.0000	2.0000	3.0000	3.0000	3.0000	2.0000	2.0000	2.0000
	1.0000	3.0000	1.0000	3.0000	2.0000	2.0000	2.0000	0.0000	0.0000	3.0000	1.0000	2.0000
	2.0000	1.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000				
1964	1	8	0	0	18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	3.0000	0.0000	1.0000	2.0000	0.0000	3.0000	1.0000	3.0000	8.0000	10.0000	5.0000
	9.0000	10.0000	6.0000	5.0000	8.0000	8.0000	10.0000	4.0000	6.0000	7.0000	6.0000	6.0000
	6.0000	14.0000	10.0000	6.0000	4.0000	7.0000	0.0000	5.0000	2.0000	3.0000	0.0000	0.0000
	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000				
1966	1	8	0	0	23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	3.0000	8.0000	7.0000	13.0000	9.0000	16.0000	12.0000	6.0000	8.0000	4.0000	3.0000	2.0000
	2.0000	1.0000	4.0000	4.0000	2.0000	2.0000	2.0000	3.0000	1.0000	5.0000	4.0000	4.0000
	2.0000	5.0000	8.0000	9.0000	6.0000	8.0000	4.0000	5.0000	8.0000	12.0000	4.0000	2.0000
	5.0000	7.0000	8.0000	2.0000	0.0000	1.0000	2.0000	2.0000				
1967	1	8	0	0	3	1.0000	0.0000	0.0000	0.0000	2.0000	2.0000	6.0000
	4.0000	3.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000
	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
	1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000
	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000	0.0000	2.0000				
1968	1	8	0	0	72	11.0000	9.0000	28.0000	55.0000	58.0000	63.0000	31.0000
	17.0000	10.0000	20.0000	12.0000	33.0000	44.0000	36.0000	20.0000	25.0000	27.0000	16.0000	16.0000
	11.0000	11.0000	14.0000	10.0000	11.0000	9.0000	10.0000	6.0000	6.0000	3.0000	6.0000	4.0000
	5.0000	5.0000	8.0000	0.0000	4.0000	3.0000	2.0000	8.0000	3.0000	8.0000	2.0000	9.0000
	7.0000	2.0000	4.0000	1.0000	5.0000	2.0000	1.0000	7.0000				
1969	1	8	0	0	29	0.0000	4.0000	13.0000	22.0000	37.0000	26.0000	17.0000
	10.0000	7.0000	6.0000	12.0000	4.0000	7.0000	7.0000	7.0000	8.0000	4.0000	6.0000	3.0000
	7.0000	6.0000	10.0000	9.0000	4.0000	6.0000	3.0000	9.0000	2.0000	2.0000	2.0000	1.0000
	3.0000	3.0000	4.0000	1.0000	1.0000	2.0000	2.0000	3.0000	2.0000	0.0000	1.0000	1.0000
	1.0000	3.0000	0.0000	2.0000	0.0000	1.0000	0.0000	0.0000				
1970	1	8	0	0	7	8.0000	1.0000	1.0000	0.0000	3.0000	4.0000	0.0000
	9.0000	4.0000	4.0000	3.0000	0.0000	3.0000	3.0000	0.0000	4.0000	4.0000	3.0000	3.0000

0.0000 1.0000 0.0000 0.0000 0.0000 0.0000 0.0000 2.0000 1.0000 0.0000 0.0000 1.0000
0.0000 0.0000 0.0000 1.0000 0.0000 1.0000 0.0000 0.0000 1.0000 0.0000 0.0000 1.0000
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 1.0000

14 #_N_age_bins
Age bins
2 3 4 5 6 7 8 9 10 11 12 13 14 15

37 #_N_ageerror_definitions
Cohort and lab-specific tuned to 1.0 for normal, 0.55 for strong cohorts (77,80,84,99) and 0.80 for moderate cohorts (70,73,87,90).
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
0.40439 0.40439 0.412684 0.3387032 0.437168 0.454948 0.477873 0.507433 0.545548 0.594694 0.658063 0.739771 0.845126
0.980971 1.15613 1.38198
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
0.40439 0.323512 0.412684 0.423379 0.3497344 0.454948 0.477873 0.507433 0.545548 0.594694 0.658063 0.739771 0.845126
0.980971 1.15613 1.38198
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
0.40439 0.40439 0.3301472 0.423379 0.437168 0.3639584 0.477873 0.507433 0.545548 0.594694 0.658063 0.739771 0.845126
0.980971 1.15613 1.38198
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
0.40439 0.40439 0.412684 0.3387032 0.437168 0.454948 0.3822984 0.507433 0.545548 0.594694 0.658063 0.739771 0.845126
0.980971 1.15613 1.38198
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
0.40439 0.40439 0.412684 0.423379 0.3497344 0.454948 0.477873 0.4059464 0.545548 0.594694 0.658063 0.739771 0.845126
0.980971 1.15613 1.38198
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
0.40439 0.2224145 0.412684 0.423379 0.437168 0.3639584 0.477873 0.507433 0.4364384 0.594694 0.658063 0.739771 0.845126
0.980971 1.15613 1.38198
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
0.40439 0.40439 0.2269762 0.423379 0.437168 0.454948 0.3822984 0.507433 0.545548 0.4757552 0.658063 0.739771 0.845126
0.980971 1.15613 1.38198
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
0.40439 0.40439 0.412684 0.23285845 0.437168 0.454948 0.477873 0.4059464 0.545548 0.594694 0.5264504 0.739771
0.845126 0.980971 1.15613 1.38198
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0.40439 0.2224145 0.412684 0.423379 0.2404424 0.454948 0.477873 0.507433 0.4364384 0.594694 0.658063 0.5918168 0.845126
0.980971 1.15613 1.38198
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13.5 14.5 15.5
0.40439 0.40439 0.2269762 0.423379 0.437168 0.2502214 0.477873 0.507433 0.545548 0.4757552 0.658063 0.739771 0.6761008
0.980971 1.15613 1.38198
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13.5 14.5 15.5
0.40439 0.40439 0.412684 0.23285845 0.437168 0.454948 0.26283015 0.507433 0.545548 0.594694 0.5264504
0.739771 0.845126 0.7847768 1.15613 1.38198
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0.845126 0.980971 0.924904 1.38198
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0.40439 0.40439 0.2269762 0.423379 0.437168 0.454948 0.26283015 0.507433 0.545548 0.3270817 0.658063 0.739771
0.845126 0.7847768 1.15613 1.38198

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
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0.36193465 0.739771 0.845126 0.980971 0.924904 1.38198
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0.40439 0.323512 0.412684 0.423379 0.2404424 0.454948 0.477873 0.507433 0.3000514 0.594694 0.658063 0.40687405
0.845126 0.980971 1.15613 1.105584
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0.980971 1.15613 1.38198
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13.5 14.5 15.5
0.40439 0.40439 0.412684 0.3387032 0.437168 0.454948 0.26283015 0.507433 0.545548 0.594694 0.36193465
0.739771 0.845126 0.53953405 1.15613 1.38198
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
0.40439 0.323512 0.412684 0.423379 0.3497344 0.454948 0.477873 0.27908815 0.545548 0.594694 0.658063
0.40687405 0.845126 0.980971 0.6358715 1.38198
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
0.40439 0.40439 0.3301472 0.423379 0.437168 0.3639584 0.477873 0.507433 0.3000514 0.594694 0.658063 0.739771 0.4648193
0.980971 1.15613 0.760089
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
0.40439 0.40439 0.412684 0.3387032 0.437168 0.454948 0.3822984 0.507433 0.545548 0.3270817 0.658063 0.739771 0.845126
0.53953405 1.15613 1.38198
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
0.40439 0.40439 0.412684 0.423379 0.3497344 0.454948 0.477873 0.4059464 0.545548 0.594694 0.36193465 0.739771
0.845126 0.980971 0.6358715 1.38198
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13.5 14.5 15.5
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13.5 14.5 15.5
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0.7847768 1.15613 1.38198
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
0.329242 0.329242 0.19080435 0.368632 0.395312 0.42809 0.468362 0.517841 0.57863 0.653316 0.745076 0.6862504
0.996322 1.1665 1.100456 1.305952
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
0.329242 0.329242 0.346917 0.2027476 0.395312 0.42809 0.468362 0.517841 0.57863 0.653316 0.745076 0.857813 0.7970576
1.1665 1.37557 1.63244
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
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0.329242 0.329242 0.346917 0.368632 0.2174216 0.42809 0.468362 0.517841 0.57863 0.653316 0.745076 0.857813 0.996322
0.9332 1.37557 1.63244
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
0.329242 0.329242 0.346917 0.368632 0.395312 0.2354495 0.468362 0.517841 0.57863 0.653316 0.745076 0.857813 0.996322
1.1665 1.100456 1.305952
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
0.329242 0.329242 0.346917 0.368632 0.395312 0.42809 0.2575991 0.517841 0.57863 0.653316 0.745076 0.857813 0.996322
1.1665 1.37557 1.63244
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
0.329242 0.2633936 0.346917 0.368632 0.395312 0.42809 0.468362 0.28481255 0.57863 0.653316 0.745076 0.857813
0.996322 1.1665 1.37557 1.63244
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
0.329242 0.329242 0.2775336 0.368632 0.395312 0.42809 0.468362 0.517841 0.3182465 0.653316 0.745076 0.857813 0.996322
1.1665 1.37557 1.63244
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13.5 14.5 15.5
0.329242 0.329242 0.346917 0.2949056 0.395312 0.42809 0.468362 0.517841 0.57863 0.3593238 0.745076 0.857813 0.996322
1.1665 1.37557 1.63244
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
0.329242 0.329242 0.346917 0.368632 0.3162496 0.42809 0.468362 0.517841 0.57863 0.653316 0.4097918 0.857813 0.996322
1.1665 1.37557 1.63244

2669 # Number of age comp observations using restricted length ranges
2 # Length bin refers to: 1=population length bin indices; 2=data length bin indices
0 #_combine males into females at or below this bin number

Yr Seas Flt/Svy Gender Part Ageerr Lbin_lo Lbin_hi Nsamp datavector(female-male)
US fishery
1973 1 1 0 0 1 1 51 60 0 0.26 0.045 0.101
0.187 0.117 0.107 0.1 0.048 0.021 0.009 0.005 0 0
1974 1 1 0 0 2 1 51 60 0.0044 0.0033 0.5066 0.0692
0.1198 0.1494 0.0868 0.0385 0.0121 0.0055 0.0033 0.0011 0 0
1975 1 1 0 0 3 4 4 1 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 5 5 1 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 6 6 1 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 7 7 2 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 8 8 2 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 9 9 1 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 10 10 3 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 11 11 5 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 12 12 3 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 13 13 5 1 0 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 14 14 2 0.9405 0.0595 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 15 15 4 0.9591 0.0409 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 16 16 4 0.9333 0.0667 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 17 17 5 0.7037 0.2963 0 0
0 0 0 0 0 0 0 0 0 0
1975 1 1 0 0 3 18 18 5 0.683 0.317 0 0
0 0 0 0 0 0 0 0 0 0

1975	1	1	0	0	3	19	19	3	0.2805	0.1569	0	0.5626
	0	0	0	0	0	0	0	0	0	0		
1975	1	1	0	0	3	20	20	2	0	0.372	0	0.5
	0	0.128	0	0	0	0	0	0	0	0		
1975	1	1	0	0	3	21	21	6	0	0	0.2381	0.7447
	0.0172	0	0	0	0	0	0	0	0	0		
1975	1	1	0	0	3	22	22	10	0	0	0	0.9467
	0.0533	0	0	0	0	0	0	0	0	0		
1975	1	1	0	0	3	23	23	9	0	0	0.1932	0.8068
	0	0	0	0	0	0	0	0	0	0		
1975	1	1	0	0	3	24	24	9	0	0	0.0928	0.8553
	0	0.0519	0	0	0	0	0	0	0	0		
1975	1	1	0	0	3	25	25	10	0	0	0.07	0.8487
	0.07	0	0.0112	0	0	0	0	0	0	0		
1975	1	1	0	0	3	26	26	8	0	0	0	0.7783
	0.1682	0.0268	0.0268	0	0	0	0	0	0	0		
1975	1	1	0	0	3	27	27	9	0	0	0.0701	0.7221
	0	0.0284	0.1094	0.0701	0	0	0	0	0	0		
1975	1	1	0	0	3	28	28	7	0	0	0	0.2813
	0.5318	0.0255	0.1614	0	0	0	0	0	0	0		
1975	1	1	0	0	3	29	29	10	0	0	0	0.3104
	0	0.4162	0.2145	0.0589	0	0	0	0	0	0		
1975	1	1	0	0	3	30	30	8	0	0	0	0.0482
	0.7822	0.1336	0	0	0.0361	0	0	0	0	0		
1975	1	1	0	0	3	31	31	4	0	0	0	0.0999
	0	0.7015	0.1987	0	0	0	0	0	0	0		
1975	1	1	0	0	3	32	32	5	0	0	0	0.2871
	0	0.0536	0.5823	0.077	0	0	0	0	0	0		
1975	1	1	0	0	3	33	33	6	0	0	0	0
	0	0.2769	0.4642	0.0426	0.1603	0.056	0	0	0	0		
1975	1	1	0	0	3	35	35	2	0	0	0	0
	0	0.7354	0.2646	0	0	0	0	0	0	0		
1975	1	1	0	0	3	36	36	4	0	0	0	0
	0	0.107	0.893	0	0	0	0	0	0	0		
1975	1	1	0	0	3	38	38	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
1975	1	1	0	0	3	39	39	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1975	1	1	0	0	3	40	40	2	0	0	0	0
	0	0	0.2149	0	0	0.7851	0	0	0	0		
1975	1	1	0	0	3	41	41	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1975	1	1	0	0	3	49	49	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1975	1	1	0	0	3	50	50	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1976	1	1	0	0	4	3	3	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	4	4	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	5	5	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	6	6	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	7	7	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	8	8	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	9	9	5	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	10	10	4	0.978	0.022	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	11	11	4	0.4381	0.5619	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	12	12	6	0.9558	0.0442	0	0
	0	0	0	0	0	0	0	0	0	0		

1976	1	1	0	0	4	13	13	8	0.7676	0.1848	0.0476	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	14	14	9	0.8393	0.1607	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	15	15	10	0.4683	0.5317	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	16	16	7	0.2113	0.7887	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	17	17	13	0.2865	0.7135	0	0
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	18	18	23	0.0739	0.6708	0.2445	0.0108
	0	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	19	19	26	0.0438	0.6345	0.3195	0
	0.0022	0	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	20	20	45	0.0606	0.7007	0.2234	0.011
	0.0017	0.0026	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	21	21	58	0.0574	0.7345	0.164	0.0225
	0.0202	0.0014	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	22	22	53	0.0024	0.6833	0.2001	0.0474
	0.0558	0.011	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	23	23	55	0.0032	0.7128	0.1398	0.0135
	0.1086	0.0221	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	24	24	56	0.0057	0.5527	0.221	0.0464
	0.1456	0.0213	0.0074	0	0	0	0	0	0	0		
1976	1	1	0	0	4	25	25	54	0	0.3929	0.1663	0.0789
	0.2949	0.067	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	26	26	47	0.0098	0.2632	0.122	0.056
	0.4639	0.0851	0	0	0	0	0	0	0	0		
1976	1	1	0	0	4	27	27	47	0	0.1093	0.2956	0.0532
	0.4177	0.1132	0.0111	0	0	0	0	0	0	0		
1976	1	1	0	0	4	28	28	39	0	0.0219	0.0193	0.0511
	0.7372	0.115	0.0415	0.0141	0	0	0	0	0	0		
1976	1	1	0	0	4	29	29	42	0	0.0203	0.0314	0.0486
	0.5862	0.2588	0.0348	0.008	0.0062	0	0.0029	0.0029	0	0		
1976	1	1	0	0	4	30	30	44	0	0	0.0107	0.0115
	0.638	0.2305	0.0698	0.0369	0.0026	0	0	0	0	0		
1976	1	1	0	0	4	31	31	57	0	0	0	0.0339
	0.5675	0.2176	0.0229	0.0597	0.0319	0.0148	0.0065	0	0.0452	0		
1976	1	1	0	0	4	32	32	62	0	0.0038	0	0.0206
	0.3736	0.2764	0.1116	0.1706	0.014	0.0001	0.0083	0.002	0.019	0		
1976	1	1	0	0	4	33	33	60	0	0	0.0077	0.0094
	0.2628	0.3862	0.1089	0.055	0.0827	0.0558	0.0024	0.0291	0	0		
1976	1	1	0	0	4	34	34	69	0	0	0	0.0339
	0.1473	0.1962	0.2986	0.1038	0.1643	0.0013	0.0547	0	0	0		
1976	1	1	0	0	4	35	35	64	0	0	0.0034	0
	0.1102	0.2184	0.2629	0.1766	0.0764	0.0424	0.0419	0.065	0.0029	0		
1976	1	1	0	0	4	36	36	58	0	0	0	0.0027
	0.13	0.3916	0.1777	0.1439	0.0839	0.0514	0.0152	0.0035	0	0		
1976	1	1	0	0	4	37	37	67	0	0	0	0.007
	0.1063	0.1894	0.1757	0.1725	0.1264	0.2008	0.0124	0.0048	0	0.0048		
1976	1	1	0	0	4	38	38	65	0	0	0	0
	0.0539	0.155	0.2507	0.1231	0.3253	0.0384	0.0305	0.0232	0	0		
1976	1	1	0	0	4	39	39	62	0	0	0	0
	0.0792	0.2445	0.2162	0.242	0.1218	0.0376	0.0079	0.0422	0.0085	0		
1976	1	1	0	0	4	40	40	57	0	0	0	0
	0.1455	0.1615	0.2425	0.1723	0.1519	0.056	0.0244	0.0273	0	0.0186		
1976	1	1	0	0	4	41	41	56	0	0	0	0.0037
	0.1479	0.1153	0.1514	0.3359	0.0721	0.0963	0.0707	0	0.0067	0		
1976	1	1	0	0	4	42	42	48	0	0	0	0
	0.0181	0.1664	0.2579	0.2624	0.1268	0.0807	0.0579	0.0027	0.0272	0		
1976	1	1	0	0	4	43	43	45	0	0	0	0
	0.0585	0.0121	0.3462	0.204	0.0525	0.1589	0.1108	0.0443	0.0126	0		
1976	1	1	0	0	4	44	44	30	0	0	0	0
	0.0468	0.0397	0.1537	0.2533	0.1572	0.0822	0.0756	0.1014	0.0901	0		
1976	1	1	0	0	4	45	45	36	0	0	0	0
	0	0.0591	0.2812	0.209	0.2408	0.1097	0.0811	0.0177	0.0014	0		

1976	1	1	0	0	4	46	46	33	0	0	0	0
	0	0.0379	0.0677	0.1629	0.2168	0.2329	0.1623	0.1106	0.0088	0		
1976	1	1	0	0	4	47	47	33	0	0	0	0
	0	0.0491	0.3136	0.0988	0.18	0.1342	0.1857	0.0385	0	0		
1976	1	1	0	0	4	48	48	33	0	0	0	0
	0	0.02	0.2074	0.0845	0.2476	0.2728	0.1106	0.0425	0.0085	0.006		
1976	1	1	0	0	4	49	49	28	0	0	0	0
	0	0.0137	0.1389	0.2733	0.2016	0.1612	0.0161	0.1125	0.0325	0.0503		
1976	1	1	0	0	4	50	50	25	0	0	0	0
	0	0	0.122	0.1008	0.153	0.1807	0.3805	0.0295	0.0336	0		
1976	1	1	0	0	4	51	51	71	0	0	0	0
	0.0061	0.001	0.0301	0.1087	0.2296	0.1739	0.2187	0.0755	0.1333	0.023		
1977	1	1	0	0	5	1	1	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	1	0	0	5	2	2	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	1	0	0	5	12	12	2	0.8299	0	0	0
	0	0	0.1701	0	0	0	0	0	0	0		
1977	1	1	0	0	5	14	14	4	0.4537	0.0691	0.4773	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	1	0	0	5	15	15	5	0.5662	0.4338	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	1	0	0	5	16	16	12	0.9224	0.0776	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	1	0	0	5	17	17	28	0.8125	0.1193	0.066	0
	0	0	0.0023	0	0	0	0	0	0	0		
1977	1	1	0	0	5	18	18	56	0.7772	0.1286	0.0941	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	1	0	0	5	19	19	71	0.8142	0.0567	0.1247	0
	0	0.0015	0.0029	0	0	0	0	0	0	0		
1977	1	1	0	0	5	20	20	99	0.7333	0.1031	0.1617	0.0011
	0.0007	0	0	0	0	0	0	0	0	0		
1977	1	1	0	0	5	21	21	114	0.1644	0.2215	0.5934	0.0173
	0	0.0016	0	0.0018	0	0	0	0	0	0		
1977	1	1	0	0	5	22	22	146	0.0923	0.159	0.6948	0.0264
	0.0077	0.0191	0.0007	0	0	0	0	0	0	0		
1977	1	1	0	0	5	23	23	141	0.0062	0.1476	0.7218	0.0577
	0.0316	0.035	0	0	0	0	0	0	0	0		
1977	1	1	0	0	5	24	24	160	0.0032	0.0716	0.7254	0.0942
	0.049	0.0501	0.0057	0	0	0.0008	0	0	0	0		
1977	1	1	0	0	5	25	25	160	0	0.0327	0.6877	0.1254
	0.0543	0.0915	0.0085	0	0	0	0	0	0	0		
1977	1	1	0	0	5	26	26	147	0	0.0484	0.5472	0.0594
	0.1153	0.2175	0.0086	0.0036	0	0	0	0	0	0		
1977	1	1	0	0	5	27	27	142	0	0.0025	0.4435	0.1097
	0.1106	0.2577	0.0615	0.0082	0.0064	0	0	0	0	0		
1977	1	1	0	0	5	28	28	132	0	0.006	0.314	0.0613
	0.1098	0.4411	0.0473	0.006	0.0032	0.0114	0	0	0	0		
1977	1	1	0	0	5	29	29	128	0	0.0023	0.142	0.0543
	0.1526	0.5996	0.0393	0.0043	0.0038	0.0017	0	0	0	0		
1977	1	1	0	0	5	30	30	136	0	0	0.0793	0.0593
	0.2159	0.4992	0.0777	0.0358	0.0273	0.0055	0	0	0	0		
1977	1	1	0	0	5	31	31	123	0	0	0.0414	0.0399
	0.1582	0.5998	0.0951	0.0486	0.0014	0.0081	0.0059	0.0016	0	0		
1977	1	1	0	0	5	32	32	135	0	0.0012	0.0281	0.0149
	0.1329	0.5877	0.1012	0.0655	0.0608	0.0035	0.0007	0.0033	0	0		
1977	1	1	0	0	5	33	33	140	0	0	0.0026	0.0275
	0.1081	0.4946	0.1841	0.1026	0.0622	0.0157	0.0011	0.0015	0	0		
1977	1	1	0	0	5	34	34	146	0	0	0.0099	0.0043
	0.07	0.478	0.2452	0.0972	0.0697	0.0189	0.0046	0.0021	0	0		
1977	1	1	0	0	5	35	35	147	0	0	0	0.0012
	0.0243	0.3832	0.1788	0.2209	0.1037	0.0553	0.0325	0	0	0		
1977	1	1	0	0	5	36	36	161	0.0019	0	0.0039	0.0022
	0.0421	0.2342	0.1925	0.2045	0.1375	0.1001	0.0465	0.0246	0.0101	0		
1977	1	1	0	0	5	37	37	139	0	0	0	0
	0.0303	0.2215	0.1949	0.2289	0.1368	0.1083	0.0669	0.0124	0	0		

1977	1	1	0	0	5	38	38	131	0	0	0	0
	0.0105	0.1675	0.21	0.1919	0.1204	0.2065	0.0814	0.0105	0	0.0014		
1977	1	1	0	0	5	39	39	94	0	0	0	0
	0.0127	0.0573	0.3377	0.1953	0.1128	0.1185	0.1161	0.0435	0.003	0.0031		
1977	1	1	0	0	5	40	40	95	0	0	0	0
	0.0027	0.1283	0.1146	0.2983	0.138	0.1317	0.1481	0.0287	0.0063	0.0033		
1977	1	1	0	0	5	41	41	73	0	0	0	0.0055
	0.0055	0.1773	0.0236	0.1405	0.1973	0.2013	0.1986	0.0418	0.0087	0		
1977	1	1	0	0	5	42	42	60	0	0	0	0
	0.0055	0.0499	0.0594	0.1587	0.2694	0.3643	0.0224	0.0492	0.0105	0.0106		
1977	1	1	0	0	5	43	43	52	0	0	0	0
	0	0.0242	0.0512	0.1418	0.2557	0.3208	0.0729	0.1249	0.0086	0		
1977	1	1	0	0	5	44	44	46	0	0	0	0
	0.0073	0.0537	0.0821	0.2441	0.2116	0.2037	0.1287	0.0615	0	0.0073		
1977	1	1	0	0	5	45	45	42	0	0	0	0
	0	0.0824	0.0222	0.0767	0.2262	0.3032	0.1929	0.0606	0.0359	0		
1977	1	1	0	0	5	46	46	23	0	0	0	0
	0	0.0105	0.1508	0.1211	0.0848	0.1563	0.3663	0.1102	0	0		
1977	1	1	0	0	5	47	47	17	0	0	0	0
	0	0	0.0114	0.237	0.0963	0.1037	0.3749	0.1767	0	0		
1977	1	1	0	0	5	48	48	15	0	0	0	0
	0	0	0.0365	0.2538	0.0771	0.1398	0.1929	0.2188	0.081	0		
1977	1	1	0	0	5	49	49	18	0	0	0.0025	0
	0	0	0	0.1157	0.2068	0.023	0	0.0788	0.1044	0.4688		
1977	1	1	0	0	5	50	50	17	0	0	0	0
	0	0.0159	0.0824	0.2843	0.1584	0.0198	0.3424	0.0968	0	0		
1977	1	1	0	0	5	51	51	62	0	0	0	0
	0	0	0	0.001	0.1218	0.1033	0.1904	0.3855	0.1219	0.0761		
1978	1	1	0	0	6	2	2	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	3	3	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	4	4	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	5	5	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	6	6	10	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	7	7	10	0.9898	0.0103	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	8	8	9	0.9835	0.0165	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	9	9	14	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	10	10	7	0.5882	0.4118	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	11	11	4	0.8627	0.1373	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	12	12	2	0.976	0.024	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	17	17	3	0.7052	0.2948	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	18	18	7	0.4619	0.5381	0	0
	0	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	19	19	17	0	0.7421	0.2307	0.0196
	0	0	0.0077	0	0	0	0	0	0	0		
1978	1	1	0	0	6	20	20	51	0	0.6089	0.2035	0.1859
	0.0016	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	21	21	88	0	0.5128	0.2425	0.2367
	0.008	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	22	22	129	0	0.4106	0.1932	0.341
	0.0551	0	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	23	23	176	0	0.3421	0.2019	0.4112
	0.0428	0.002	0	0	0	0	0	0	0	0		
1978	1	1	0	0	6	24	24	171	0	0.2003	0.2269	0.5104
	0.0451	0.006	0.0112	0	0	0	0	0	0	0		

1978	1	1	0	0	6	25	25	158	0	0.1438	0.1929	0.5646
	0.062	0.0236	0.0071	0	0	0.006	0	0	0	0		
1978	1	1	0	0	6	26	26	165	0	0.0429	0.1257	0.6614
	0.1228	0.0281	0.0192	0	0	0	0	0	0	0		
1978	1	1	0	0	6	27	27	148	0	0.0133	0.0857	0.623
	0.082	0.0933	0.0882	0.0042	0.0102	0	0	0	0	0		
1978	1	1	0	0	6	28	28	144	0	0.0064	0.0591	0.5178
	0.1041	0.122	0.1837	0.0068	0	0	0	0	0	0		
1978	1	1	0	0	6	29	29	154	0	0	0.0143	0.4216
	0.0813	0.2157	0.2633	0.0003	0.0017	0.0019	0	0	0	0		
1978	1	1	0	0	6	30	30	143	0	0	0.0074	0.3001
	0.0663	0.2068	0.3783	0.034	0.0071	0	0	0	0	0		
1978	1	1	0	0	6	31	31	147	0	0	0.0002	0.1778
	0.0518	0.2469	0.4317	0.0613	0.0302	0	0	0	0	0		
1978	1	1	0	0	6	32	32	156	0	0	0.0052	0.067
	0.0496	0.2608	0.5014	0.0854	0.0147	0.0104	0.0042	0.0013	0	0		
1978	1	1	0	0	6	33	33	184	0	0	0	0.0844
	0.0372	0.1948	0.4926	0.1311	0.0261	0.0275	0.0063	0	0	0		
1978	1	1	0	0	6	34	34	178	0	0	0	0.0211
	0.0124	0.1427	0.5319	0.127	0.0972	0.055	0.0105	0.0022	0	0		
1978	1	1	0	0	6	35	35	186	0	0	0	0.0065
	0.0124	0.1068	0.4222	0.1921	0.1965	0.0504	0.0122	0.0011	0	0		
1978	1	1	0	0	6	36	36	176	0	0	0	0
	0.0041	0.0583	0.4449	0.1516	0.1747	0.0774	0.0427	0.0461	0	0		
1978	1	1	0	0	6	37	37	156	0	0	0	0.001
	0.0074	0.0341	0.3783	0.2106	0.1838	0.1191	0.0224	0.0121	0.0312	0		
1978	1	1	0	0	6	38	38	115	0	0	0	0.0024
	0.008	0.0577	0.2728	0.228	0.1737	0.1715	0.0731	0.0016	0.0113	0		
1978	1	1	0	0	6	39	39	103	0	0	0	0
	0	0.0131	0.2922	0.253	0.1152	0.183	0.0585	0.0666	0.0024	0.0161		
1978	1	1	0	0	6	40	40	60	0	0	0	0
	0	0.1187	0.2963	0.2178	0.1354	0.0516	0.1689	0.0084	0.003	0		
1978	1	1	0	0	6	41	41	60	0	0	0	0
	0	0.0115	0.1997	0.1645	0.2698	0.2498	0.0265	0.0052	0.0677	0.0052		
1978	1	1	0	0	6	42	42	45	0	0	0	0
	0	0	0.3197	0.1521	0.14	0.1821	0.1273	0.0608	0.0179	0		
1978	1	1	0	0	6	43	43	41	0	0	0	0
	0	0	0.172	0.2205	0.1766	0.183	0.0247	0.1895	0.0336	0		
1978	1	1	0	0	6	44	44	27	0	0	0	0
	0	0	0.1623	0.2126	0.2836	0.1779	0.0319	0.0835	0.0482	0		
1978	1	1	0	0	6	45	45	26	0	0	0	0
	0	0	0.2144	0.0597	0.3865	0.1814	0.1132	0.0448	0	0		
1978	1	1	0	0	6	46	46	18	0	0	0	0
	0	0	0.3853	0.0306	0.0605	0.2906	0.1201	0.0175	0.007	0.0884		
1978	1	1	0	0	6	47	47	14	0	0	0	0
	0	0	0.2756	0.2195	0.0207	0.1161	0.1284	0.0956	0	0.1441		
1978	1	1	0	0	6	48	48	18	0	0	0	0
	0	0	0.1204	0.0599	0.1588	0.5282	0.1024	0	0.0302	0		
1978	1	1	0	0	6	49	49	13	0	0	0	0
	0	0	0.1328	0	0	0.7673	0.0098	0.0183	0.0313	0.0405		
1978	1	1	0	0	6	50	50	10	0	0	0	0
	0	0	0	0.0247	0.1125	0.0921	0.01	0.5684	0.1623	0.03		
1978	1	1	0	0	6	51	51	60	0	0	0	0
	0	0	0.011	0.0331	0.1176	0.3275	0.1213	0.1602	0.1593	0.0699		
1979	1	1	0	0	7	1	1	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	6	6	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	7	7	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	8	8	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	9	9	4	0.3745	0.6255	0	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	10	10	10	0.5643	0.4357	0	0
	0	0	0	0	0	0	0	0	0	0		

1979	1	1	0	0	7	11	11	21	0.3772	0.6228	0	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	12	12	27	0.5091	0.4805	0.0104	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	13	13	30	0.4863	0.503	0.0107	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	14	14	46	0.431	0.5633	0.0057	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	15	15	33	0.5063	0.4176	0.0761	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	16	16	24	0.2205	0.7455	0.034	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	17	17	17	0.0173	0.6694	0.3133	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	18	18	19	0.0986	0.7796	0.1218	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	19	19	12	0.2266	0.4975	0.2605	0.0154
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	20	20	11	0.0366	0.8589	0.1045	0
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	21	21	17	0.045	0.5406	0.4105	0.0039
	0	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	22	22	25	0	0.1521	0.8417	0
	0.0061	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	23	23	36	0	0.0681	0.8183	0.0487
	0.065	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	24	24	44	0	0.0389	0.695	0.085
	0.1811	0	0	0	0	0	0	0	0	0		
1979	1	1	0	0	7	25	25	65	0	0.0553	0.3856	0.2848
	0.2408	0.0133	0.0183	0	0	0.0018	0	0	0	0		
1979	1	1	0	0	7	26	26	72	0	0	0.264	0.2038
	0.4724	0.02	0.0398	0	0	0	0	0	0	0		
1979	1	1	0	0	7	27	27	74	0	0	0.147	0.1139
	0.6377	0.0373	0.0534	0.0108	0	0	0	0	0	0		
1979	1	1	0	0	7	28	28	84	0	0	0.1915	0.1386
	0.5158	0.0251	0.0968	0.0321	0	0	0	0	0	0		
1979	1	1	0	0	7	29	29	83	0	0	0.0447	0.1057
	0.5245	0.1043	0.1597	0.0595	0.0016	0	0	0	0	0		
1979	1	1	0	0	7	30	30	76	0	0	0.0406	0.0734
	0.5083	0.0754	0.2347	0.0647	0.003	0	0	0	0	0		
1979	1	1	0	0	7	31	31	83	0	0	0.0181	0.0046
	0.3197	0.2092	0.2893	0.1345	0.0247	0	0	0	0	0		
1979	1	1	0	0	7	32	32	89	0	0	0.0173	0.0004
	0.2528	0.1714	0.3883	0.1548	0.0103	0.0049	0	0	0	0		
1979	1	1	0	0	7	33	33	85	0	0	0	0.0147
	0.1925	0.1214	0.3134	0.2427	0.0975	0.0037	0.0141	0	0	0		
1979	1	1	0	0	7	34	34	86	0	0	0	0.0185
	0.245	0.1422	0.2931	0.2313	0.0531	0.0152	0.0015	0	0	0		
1979	1	1	0	0	7	35	35	78	0	0	0	0.0005
	0.0558	0.1054	0.3829	0.329	0.0372	0.0741	0.0016	0.0136	0	0		
1979	1	1	0	0	7	36	36	70	0	0	0	0
	0.064	0.1172	0.2945	0.4124	0.0622	0.0435	0	0.0062	0	0		
1979	1	1	0	0	7	37	37	66	0	0	0	0
	0.0741	0.0832	0.2487	0.2875	0.1394	0.1146	0.0307	0.0004	0.0213	0		
1979	1	1	0	0	7	38	38	58	0	0	0	0
	0.0263	0.1152	0.1075	0.4844	0.1269	0.0937	0.0214	0.0017	0	0.023		
1979	1	1	0	0	7	39	39	41	0	0	0	0
	0.0293	0.0639	0.0949	0.4903	0.2103	0.0288	0.0208	0.0617	0	0		
1979	1	1	0	0	7	40	40	47	0	0	0	0.0339
	0.0374	0.021	0.2147	0.1839	0.1026	0.0663	0.2244	0.0463	0.0695	0		
1979	1	1	0	0	7	41	41	22	0	0	0	0
	0.013	0	0.1209	0.2671	0.1739	0.2761	0.1238	0.0251	0	0		
1979	1	1	0	0	7	42	42	26	0	0	0	0.0264
	0	0	0.0409	0.322	0.1474	0.3139	0.0885	0.0031	0	0.0579		
1979	1	1	0	0	7	43	43	16	0	0	0	0
	0	0	0.0773	0.1778	0.4542	0.1656	0.0036	0.1215	0	0		

1979	1	1	0	0	7	44	44	12	0	0	0	0
	0	0	0.1625	0.4001	0.1203	0.1988	0	0.1183	0	0		
1979	1	1	0	0	7	45	45	8	0	0	0.171	0
	0	0	0	0.1966	0.4113	0	0.0534	0	0.1655	0.0023		
1979	1	1	0	0	7	46	46	13	0	0	0.0537	0
	0	0	0.096	0.1347	0.2569	0.1848	0.1147	0.1045	0.0547	0		
1979	1	1	0	0	7	47	47	11	0	0	0	0.1364
	0	0	0	0.022	0.0241	0.5934	0.095	0.1291	0	0		
1979	1	1	0	0	7	48	48	6	0	0	0	0
	0	0	0	0.6702	0.1933	0	0	0	0	0.1364		
1979	1	1	0	0	7	49	49	8	0	0	0.0795	0
	0	0	0	0.0563	0.6569	0.1455	0	0	0.0438	0.0179		
1979	1	1	0	0	7	50	50	4	0	0	0	0
	0	0	0	0.5	0	0	0.378	0	0.122	0		
1979	1	1	0	0	7	51	51	16	0	0	0.0648	0
	0	0	0.0011	0	0.0812	0.2059	0.0406	0.1659	0.1556	0.285		
1980	1	1	0	0	8	1	1	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	2	2	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	3	3	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	4	4	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
#1980	1	1	0	0	8	5	5	2	0.4863	0	0	0
	0	0	0	0	0	0.5137	0	0	0	0		
1980	1	1	0	0	8	6	6	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
#1980	1	1	0	0	8	8	8	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
#1980	1	1	0	0	8	9	9	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
#1980	1	1	0	0	8	10	10	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
#1980	1	1	0	0	8	11	11	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	13	13	3	0	0.909	0	0
	0	0	0	0	0.091	0	0	0	0	0		
1980	1	1	0	0	8	14	14	4	0	0.8527	0	0.0317
	0.1155	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	15	15	9	0.0509	0.9463	0.0028	0
	0	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	16	16	19	0.4221	0.5758	0.0021	0
	0	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	17	17	38	0.0024	0.9192	0.0785	0
	0	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	18	18	66	0	0.9863	0.0137	0
	0	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	19	19	74	0.0744	0.8963	0.0293	0
	0	0	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	20	20	84	0	0.9476	0.0447	0
	0	0	0	0	0	0	0.0077	0	0	0		
1980	1	1	0	0	8	21	21	89	0	0.8153	0.1396	0.0048
	0.0112	0.0291	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	22	22	83	0	0.8883	0.0728	0.0219
	0.0023	0.0147	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	23	23	93	0.0041	0.5766	0.3752	0.0313
	0.0016	0.0113	0	0	0	0	0	0	0	0		
1980	1	1	0	0	8	24	24	88	0	0.5549	0.161	0.0815
	0.0887	0.0759	0.0278	0	0.0104	0	0	0	0	0		
1980	1	1	0	0	8	25	25	100	0	0.445	0.1296	0.1898
	0.081	0.0991	0.0492	0.0035	0.0028	0	0	0	0	0		
1980	1	1	0	0	8	26	26	111	0	0.2791	0.0529	0.3384
	0.1374	0.1232	0.0335	0.0315	0.002	0.0018	0.0001	0	0	0		
1980	1	1	0	0	8	27	27	114	0	0.1255	0.0881	0.3068
	0.2127	0.1799	0.0541	0.0328	0	0	0	0	0	0		

1980	1	1	0	0	8	28	28	96	0	0.0184	0.0441	0.2277
	0.2229	0.364	0.036	0.0626	0.0237	0.0006	0	0	0	0		
1980	1	1	0	0	8	29	29	90	0	0	0.0344	0.0961
	0.1843	0.3925	0.1249	0.1054	0.0499	0.0098	0	0	0.0026	0		
1980	1	1	0	0	8	30	30	85	0	0.0046	0.0131	0.1713
	0.203	0.2465	0.1085	0.1814	0.0589	0.0125	0	0	0.0002	0		
1980	1	1	0	0	8	31	31	90	0	0	0	0.0591
	0.1336	0.3987	0.1223	0.1727	0.0894	0.0107	0.0027	0.0068	0.0039	0		
1980	1	1	0	0	8	32	32	87	0	0.0133	0	0.0288
	0.1104	0.2836	0.1182	0.2909	0.1176	0.0062	0.0188	0.0087	0.0035	0		
1980	1	1	0	0	8	33	33	92	0	0.0127	0.0142	0.0171
	0.0484	0.2109	0.2137	0.2668	0.1247	0.0518	0.0148	0.0204	0	0.0045		
1980	1	1	0	0	8	34	34	94	0	0.0083	0	0.0004
	0.038	0.4772	0.1363	0.1155	0.1517	0.0357	0.0092	0.0148	0	0.013		
1980	1	1	0	0	8	35	35	105	0	0	0	0.027
	0.0172	0.2123	0.1987	0.2037	0.2257	0.0585	0.0317	0.0106	0.005	0.0096		
1980	1	1	0	0	8	36	36	102	0	0	0	0.0127
	0.023	0.2748	0.0917	0.2384	0.213	0.0812	0.0316	0.0291	0.0012	0.0034		
1980	1	1	0	0	8	37	37	102	0	0	0	0
	0.0125	0.0754	0.097	0.3467	0.2105	0.1317	0.0288	0.0374	0.0235	0.0364		
1980	1	1	0	0	8	38	38	102	0	0	0	0
	0.0072	0.3501	0.1639	0.197	0.169	0.0124	0.032	0.0449	0.0102	0.0133		
1980	1	1	0	0	8	39	39	88	0	0	0	0
	0	0.0548	0.1385	0.0795	0.3968	0.1686	0.0737	0.0414	0.0208	0.0259		
1980	1	1	0	0	8	40	40	52	0	0	0	0
	0	0.0934	0.0695	0.1233	0.5689	0.0505	0.0286	0.0184	0.0222	0.0251		
1980	1	1	0	0	8	41	41	60	0	0	0	0
	0.0016	0.0083	0.0146	0.0673	0.346	0.2652	0.1995	0.0817	0	0.0158		
1980	1	1	0	0	8	42	42	39	0	0	0	0
	0	0.0001	0.0214	0.0188	0.2278	0.0762	0.5725	0.0817	0	0.0016		
1980	1	1	0	0	8	43	43	27	0	0	0	0
	0	0.015	0.059	0.0281	0.28	0.0801	0.0275	0.1861	0.1359	0.1883		
1980	1	1	0	0	8	44	44	25	0	0	0	0
	0	0	0.2895	0.0645	0.1704	0.209	0.1221	0.0382	0.0964	0.01		
1980	1	1	0	0	8	45	45	26	0	0	0	0
	0	0.0233	0.027	0.1892	0.191	0.2051	0.1251	0.1058	0.1015	0.0321		
1980	1	1	0	0	8	46	46	19	0	0	0	0
	0	0	0	0.4077	0.1657	0.0306	0.1422	0.2538	0	0		
1980	1	1	0	0	8	47	47	12	0	0	0	0
	0	0	0	0.024	0.5807	0	0.1564	0.2389	0	0		
1980	1	1	0	0	8	48	48	11	0	0	0	0
	0	0	0	0.1616	0.5095	0.0689	0.2206	0	0.0391	0.0003		
1980	1	1	0	0	8	49	49	9	0	0	0	0
	0	0.0508	0	0.1813	0.1811	0	0.1249	0.0301	0.4319	0		
1980	1	1	0	0	8	50	50	7	0	0	0	0
	0	0	0	0.0107	0.236	0.3512	0	0	0	0.4021		
1980	1	1	0	0	8	51	51	14	0	0	0	0
	0	0	0	0.0046	0	0.2813	0.5651	0	0.0274	0.1216		
1981	1	1	0	0	9	1	1	5	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	2	2	9	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	3	3	13	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	4	4	23	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	5	5	25	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	6	6	29	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	7	7	40	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	8	8	34	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	9	9	22	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		

1981	1	1	0	0	9	10	10	21	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	11	11	16	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	12	12	12	0.9415	0.0585	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	13	13	6	0.3822	0.6178	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	14	14	9	0.3386	0.6614	0	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	15	15	12	0.0173	0.9727	0.0099	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	16	16	16	0.2759	0.4697	0.2544	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	17	17	28	0.1289	0.5569	0.3109	0.0034
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	18	18	49	0.1088	0.2494	0.6418	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	19	19	59	0.0342	0.1586	0.8072	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	20	20	78	0.0089	0.1551	0.836	0
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	21	21	94	0.0012	0.0981	0.8935	0.0072
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	22	22	84	0	0.0364	0.9595	0.0041
	0	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	23	23	85	0	0.0108	0.9813	0.0063
	0.0016	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	24	24	88	0	0.007	0.9504	0.0193
	0.0233	0	0	0	0	0	0	0	0	0		
1981	1	1	0	0	9	25	25	101	0	0.009	0.9141	0.03
	0.0147	0.0127	0.0016	0.018	0	0	0	0	0	0		
1981	1	1	0	0	9	26	26	101	0	0	0.8382	0.0467
	0.0968	0.0014	0.017	0	0	0	0	0	0	0		
1981	1	1	0	0	9	27	27	107	0	0	0.616	0.0813
	0.0794	0.0325	0.1563	0.0027	0.0261	0.0057	0	0	0	0		
1981	1	1	0	0	9	28	28	114	0	0	0.3926	0.0444
	0.1459	0.1156	0.2385	0.0314	0.025	0.0067	0	0	0	0		
1981	1	1	0	0	9	29	29	122	0	0	0.2205	0.0658
	0.1481	0.1324	0.2675	0.0601	0.061	0.0416	0	0.003	0	0		
1981	1	1	0	0	9	30	30	122	0	0	0.1012	0.0637
	0.0808	0.1269	0.3446	0.1267	0.1041	0.052	0	0	0	0		
1981	1	1	0	0	9	31	31	105	0	0	0.0614	0.0033
	0.0963	0.1522	0.2796	0.1362	0.1635	0.1074	0	0	0	0		
1981	1	1	0	0	9	32	32	113	0	0	0.0019	0.0014
	0.1049	0.1483	0.4456	0.1015	0.1319	0.05	0.0137	0.0008	0	0		
1981	1	1	0	0	9	33	33	107	0	0	0	0.0052
	0.045	0.1154	0.4279	0.2109	0.0797	0.1071	0.0085	0.0004	0	0		
1981	1	1	0	0	9	34	34	116	0	0	0	0.0054
	0.0628	0.0783	0.3522	0.177	0.0699	0.2376	0.0044	0.0071	0.0054	0		
1981	1	1	0	0	9	35	35	96	0	0	0	0
	0.0105	0.1142	0.444	0.0989	0.139	0.1678	0.017	0	0.0012	0.0073		
1981	1	1	0	0	9	36	36	80	0	0	0	0
	0.0314	0.1338	0.1225	0.1555	0.1706	0.367	0.0072	0.0019	0.0102	0		
1981	1	1	0	0	9	37	37	65	0	0	0	0
	0.0915	0.0113	0.21	0.1806	0.3102	0.1563	0.0223	0.0022	0	0.0156		
1981	1	1	0	0	9	38	38	56	0	0	0	0
	0.1212	0	0.0622	0.0187	0.0703	0.49	0.1831	0.0435	0.0109	0.0002		
1981	1	1	0	0	9	39	39	39	0	0	0	0
	0.1161	0	0.1017	0.3391	0.0416	0.2684	0.0295	0.0651	0.036	0.0026		
1981	1	1	0	0	9	40	40	34	0	0	0	0
	0.0108	0.0061	0.2057	0.0974	0.0904	0.5382	0.0179	0.0292	0	0.0043		
1981	1	1	0	0	9	41	41	36	0	0	0	0
	0.0254	0	0.0471	0.0606	0.0253	0.1345	0.5426	0.09	0.0256	0.0488		
1981	1	1	0	0	9	42	42	30	0	0	0	0
	0	0	0.1345	0.0561	0.0886	0.5157	0.0676	0.0242	0.1118	0.0015		

1981	1	1	0	0	9	43	43	20	0	0	0	0
	0	0	0.0138	0.038	0.1907	0.2114	0.1532	0.3637	0	0.0291		
1981	1	1	0	0	9	44	44	20	0	0	0	0
	0	0	0.0299	0.0015	0	0.9054	0.0077	0.0241	0.0251	0.0063		
1981	1	1	0	0	9	45	45	16	0	0	0	0
	0	0	0.2465	0.3707	0.0996	0.1901	0.0778	0.0096	0	0.0057		
1981	1	1	0	0	9	46	46	8	0	0	0	0
	0	0	0.6455	0	0.0066	0.0268	0.3176	0.0002	0.0032	0		
1981	1	1	0	0	9	47	47	10	0	0	0	0
	0	0	0.0145	0.0137	0.4114	0.4966	0.0579	0.0059	0	0		
1981	1	1	0	0	9	48	48	10	0	0	0	0
	0	0	0	0	0.702	0.2296	0.031	0.0373	0	0		
1981	1	1	0	0	9	49	49	5	0	0	0	0
	0	0	0	0.2939	0	0.5966	0	0	0	0.1095		
1981	1	1	0	0	9	50	50	7	0	0	0	0
	0	0	0	0.9724	0	0.0041	0	0.0126	0.011	0		
1981	1	1	0	0	9	51	51	15	0	0	0	0
	0	0	0	0	0	0.1205	0.5252	0.2063	0.0537	0.0944		
1982	1	1	0	0	10	5	5	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	6	6	5	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	7	7	11	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	8	8	9	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	9	9	12	0.9799	0.0201	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	10	10	18	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	11	11	37	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	12	12	38	0.9899	0.0101	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	13	13	52	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	14	14	62	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	15	15	66	0.9857	0.0061	0.0082	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	16	16	62	0.984	0.0045	0.0115	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	17	17	55	0.9431	0.0569	0	0
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	18	18	59	0.7845	0.1801	0	0.0354
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	19	19	48	0.6234	0.3176	0.0201	0.0389
	0	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	20	20	50	0.4699	0.3738	0.0594	0.0801
	0.0168	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	21	21	62	0.0997	0.2371	0.0624	0.5878
	0.013	0	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	22	22	66	0.0223	0.2028	0.1748	0.556
	0.0377	0	0	0	0	0	0	0	0	0.0063		
1982	1	1	0	0	10	23	23	86	0.0058	0.0958	0.0551	0.787
	0.0495	0	0	0.0068	0	0	0	0	0	0		
1982	1	1	0	0	10	24	24	94	0	0.0524	0.0335	0.8529
	0.0393	0.0055	0	0.0164	0	0	0	0	0	0		
1982	1	1	0	0	10	25	25	99	0	0.0074	0.022	0.9265
	0.0381	0.006	0	0	0	0	0	0	0	0		
1982	1	1	0	0	10	26	26	100	0	0.0065	0.0322	0.8947
	0.0385	0.0082	0.0064	0.007	0	0.0038	0	0	0	0.0028		
1982	1	1	0	0	10	27	27	99	0	0	0.0075	0.8201
	0.0696	0.0255	0.0148	0.0456	0.0063	0	0.0039	0	0	0.0067		
1982	1	1	0	0	10	28	28	103	0	0	0.0038	0.7791
	0.0792	0.0368	0.0351	0.066	0	0	0	0	0	0		

1982	1	1	0	0	10	29	29	111	0	0	0	0.47
	0.1656	0.0825	0.0628	0.1689	0.0241	0.0262	0	0	0	0		
1982	1	1	0	0	10	30	30	116	0	0	0.0136	0.4788
	0.1026	0.0994	0.0955	0.1758	0.004	0.015	0.0092	0	0	0.0061		
1982	1	1	0	0	10	31	31	101	0	0	0	0.3477
	0.0746	0.1381	0.0766	0.234	0.0557	0.0124	0.061	0	0	0		
1982	1	1	0	0	10	32	32	112	0	0	0	0.1659
	0.0353	0.1522	0.1189	0.2767	0.0757	0.0545	0.1166	0.0041	0	0		
1982	1	1	0	0	10	33	33	100	0	0	0	0.1155
	0.0385	0.1061	0.137	0.2923	0.0601	0.0482	0.1845	0.0178	0	0		
1982	1	1	0	0	10	34	34	106	0	0	0	0.0441
	0.0055	0.1382	0.1737	0.3282	0.1074	0.0691	0.1056	0.0061	0.0053	0.0169		
1982	1	1	0	0	10	35	35	104	0	0	0	0.037
	0.0201	0.1159	0.0573	0.3434	0.1022	0.0803	0.2382	0	0	0.0057		
1982	1	1	0	0	10	36	36	86	0	0	0	0.0077
	0.0067	0.0507	0.2346	0.291	0.052	0.1404	0.196	0.017	0	0.004		
1982	1	1	0	0	10	37	37	85	0	0	0	0.0068
	0.013	0.0558	0.0809	0.2471	0.037	0.0572	0.4831	0.0086	0.0052	0.0053		
1982	1	1	0	0	10	38	38	81	0	0	0	0.006
	0.0359	0.1306	0.0427	0.2809	0.048	0.2033	0.1857	0.0508	0.0162	0		
1982	1	1	0	0	10	39	39	48	0	0	0	0
	0	0.0419	0.0534	0.257	0.0828	0.2633	0.2055	0.0528	0	0.0433		
1982	1	1	0	0	10	40	40	53	0	0	0	0
	0	0.0815	0.0872	0.3616	0.1213	0.0985	0.2189	0.0031	0.0162	0.0117		
1982	1	1	0	0	10	41	41	37	0	0	0	0
	0	0.1	0.0025	0.4418	0.0764	0.0496	0.2586	0	0.046	0.0253		
1982	1	1	0	0	10	42	42	28	0	0	0	0
	0	0.0156	0.0714	0.2493	0	0.1469	0.4179	0	0	0.099		
1982	1	1	0	0	10	43	43	17	0	0	0	0
	0	0	0	0.1702	0.0135	0.0298	0.6885	0.0979	0	0		
1982	1	1	0	0	10	44	44	21	0	0	0	0
	0	0.0159	0.023	0.6101	0.0312	0.0541	0.0758	0.1576	0.0323	0		
1982	1	1	0	0	10	45	45	21	0	0	0	0
	0	0.0178	0.0712	0.0926	0	0.0433	0.5293	0.046	0.1617	0.0381		
1982	1	1	0	0	10	46	46	18	0	0	0	0
	0	0.0665	0	0.3261	0	0.0454	0.4891	0.0729	0	0		
1982	1	1	0	0	10	47	47	9	0	0	0	0
	0	0	0	0.0228	0.0796	0.5035	0.3019	0.0922	0	0		
1982	1	1	0	0	10	48	48	10	0	0	0	0
	0	0	0	0.0624	0	0.4373	0.5003	0	0	0		
1982	1	1	0	0	10	49	49	6	0	0	0	0
	0	0	0	0.0162	0	0	0.8747	0	0	0.1091		
1982	1	1	0	0	10	50	50	6	0	0	0	0
	0	0	0	0	0	0.2581	0.5073	0	0.1633	0.0713		
1982	1	1	0	0	10	51	51	14	0.0568	0	0	0
	0	0	0	0	0.0122	0.0981	0.3928	0.0604	0.1741	0.2056		
1983	1	1	0	0	11	7	7	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	10	10	6	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	11	11	10	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	12	12	11	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	13	13	23	0	0.9755	0.0245	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	14	14	23	0	0.9599	0.0401	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	15	15	35	0	0.9482	0.0406	0
	0.0112	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	16	16	39	0	0.9928	0.0072	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	17	17	51	0	0.9579	0.0421	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	18	18	55	0	0.9268	0.0732	0
	0	0	0	0	0	0	0	0	0	0		

1983	1	1	0	0	11	19	19	62	0	0.9072	0.0841	0.0087
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	20	20	58	0	0.9052	0.082	0.0129
	0	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	21	21	62	0	0.8478	0.0971	0.029
	0.0261	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	22	22	69	0	0.764	0.12	0.0224
	0.0935	0	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	23	23	77	0	0.6015	0.1727	0.0122
	0.1938	0.016	0	0	0.0038	0	0	0	0	0		
1983	1	1	0	0	11	24	24	72	0	0.4101	0.1457	0.1051
	0.3239	0.0152	0	0	0	0	0	0	0	0		
1983	1	1	0	0	11	25	25	69	0	0.2321	0.0992	0.1061
	0.5097	0.0519	0	0.0004	0.0006	0	0	0	0	0		
1983	1	1	0	0	11	26	26	69	0	0.1105	0.0232	0.047
	0.7371	0.0326	0.043	0.0058	0.0003	0.0006	0	0	0	0		
1983	1	1	0	0	11	27	27	75	0	0.0154	0.0074	0.0333
	0.7902	0.047	0.0236	0.0322	0.042	0.0089	0	0	0	0		
1983	1	1	0	0	11	28	28	74	0	0.0255	0.0271	0.0414
	0.7211	0.097	0.023	0.0034	0.0418	0.0071	0.0073	0.0054	0	0		
1983	1	1	0	0	11	29	29	70	0	0.0278	0.0151	0.0359
	0.6431	0.1052	0.0377	0.0696	0.0379	0.012	0.0132	0.0026	0	0		
1983	1	1	0	0	11	30	30	69	0	0.0163	0	0.0186
	0.4169	0.0689	0.0581	0.1604	0.1637	0.0379	0.0284	0.0307	0	0		
1983	1	1	0	0	11	31	31	71	0	0	0	0.0118
	0.4593	0.0818	0.1149	0.1194	0.0982	0.0768	0.0351	0	0.0026	0		
1983	1	1	0	0	11	32	32	59	0	0	0	0.0038
	0.2531	0.1084	0.1153	0.1071	0.2304	0.0066	0.0082	0.1483	0.0047	0.0142		
1983	1	1	0	0	11	33	33	66	0	0	0	0.0068
	0.3616	0.1156	0.074	0.1563	0.1131	0.0559	0.0127	0.104	0	0		
1983	1	1	0	0	11	34	34	66	0	0	0	0.0087
	0.1687	0.2545	0.1399	0.1147	0.188	0.0744	0.0069	0.0441	0	0		
1983	1	1	0	0	11	35	35	61	0	0.0043	0	0.006
	0.058	0.0573	0.1012	0.1043	0.3515	0.0382	0.2221	0.0361	0.0208	0		
1983	1	1	0	0	11	36	36	57	0	0	0	0
	0.1278	0.0187	0.1506	0.0947	0.3021	0.0813	0.1135	0.0903	0	0.021		
1983	1	1	0	0	11	37	37	44	0	0	0	0
	0.0676	0.0133	0.1161	0.2286	0.3864	0.126	0.0547	0.0073	0	0		
1983	1	1	0	0	11	38	38	32	0	0	0	0
	0.053	0.0654	0.0446	0.1149	0.3563	0.1548	0.1043	0.0403	0.0438	0.0227		
1983	1	1	0	0	11	39	39	32	0	0	0	0
	0.0259	0.0354	0.1384	0.1751	0.2559	0.0719	0.0844	0.1292	0.0839	0		
1983	1	1	0	0	11	40	40	17	0	0	0	0
	0.0311	0	0.0868	0.2246	0.4008	0.0646	0.0309	0.0311	0.1302	0		
1983	1	1	0	0	11	41	41	22	0	0	0	0
	0.0181	0.0647	0.0877	0.2182	0.455	0.0473	0.0093	0.0988	0	0.0009		
1983	1	1	0	0	11	42	42	15	0	0	0	0
	0	0	0.073	0	0.1985	0.1158	0.0159	0.3428	0.2397	0.0143		
1983	1	1	0	0	11	43	43	9	0	0	0	0
	0.2783	0	0	0.04	0.2594	0.2181	0.1009	0.1034	0	0		
1983	1	1	0	0	11	44	44	12	0	0	0	0
	0	0	0	0	0.0769	0.0862	0.3018	0.4562	0.0789	0		
1983	1	1	0	0	11	45	45	6	0	0	0	0
	0	0	0.1094	0	0.3284	0.4994	0	0.0628	0	0		
1983	1	1	0	0	11	46	46	6	0	0	0	0
	0	0	0	0.0721	0.6149	0	0.3129	0	0	0		
1983	1	1	0	0	11	47	47	4	0	0	0	0
	0	0	0	0.0568	0	0.0662	0	0.7849	0	0.0922		
1983	1	1	0	0	11	48	48	4	0	0	0	0
	0	0	0	0	0.5491	0.2389	0.1051	0.1069	0	0		
1983	1	1	0	0	11	49	49	5	0	0	0	0
	0	0	0	0.1742	0.1527	0	0.3507	0.1929	0	0.1294		
1983	1	1	0	0	11	50	50	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1983	1	1	0	0	11	51	51	12	0	0	0	0
	0	0	0	0.0197	0.0998	0.3181	0.0397	0.0858	0.3651	0.0718		

1984	1	1	0	0	12	8	8	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	12	12	3	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	13	13	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	14	14	2	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	15	15	6	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	16	16	12	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	17	17	25	0	0.033	0.967	0
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	18	18	41	0	0.0196	0.9804	0
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	19	19	72	0	0.0161	0.9739	0.009
	0.001	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	20	20	112	0	0.0215	0.9565	0.022
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	21	21	121	0	0.0095	0.9473	0.0432
	0	0	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	22	22	135	0	0.0124	0.9366	0.0488
	0	0.0022	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	23	23	125	0	0	0.9463	0.0351
	0.0083	0.0102	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	24	24	112	0	0	0.8584	0.0882
	0.0217	0.0316	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	25	25	93	0	0	0.761	0.0755
	0.0802	0.0833	0	0	0	0	0	0	0	0		
1984	1	1	0	0	12	26	26	82	0	0	0.5885	0.0593
	0.0826	0.2473	0.0223	0	0	0	0	0	0	0		
1984	1	1	0	0	12	27	27	83	0	0	0.2856	0.1035
	0.1704	0.3995	0.0309	0	0.0102	0	0	0	0	0		
1984	1	1	0	0	12	28	28	74	0	0	0.1396	0.0978
	0.2141	0.4656	0.0289	0.0117	0	0.024	0	0	0.0183	0		
1984	1	1	0	0	12	29	29	67	0	0	0.0489	0.0248
	0.2297	0.5731	0.0728	0.014	0.0157	0.0211	0	0	0	0		
1984	1	1	0	0	12	30	30	66	0	0	0.0398	0.0014
	0.1021	0.7133	0.0641	0.0457	0.0114	0.0222	0	0	0	0		
1984	1	1	0	0	12	31	31	50	0	0	0.0219	0.0116
	0.137	0.4594	0.1591	0.0384	0.0623	0.0754	0	0.0348	0	0		
1984	1	1	0	0	12	32	32	49	0	0	0	0.0122
	0.0835	0.4197	0.0938	0.0734	0.0985	0.1193	0.0088	0.0194	0.0713	0		
1984	1	1	0	0	12	33	33	43	0	0	0	0.0051
	0.0421	0.4031	0.0911	0.0596	0.0495	0.1944	0	0.0989	0.0561	0		
1984	1	1	0	0	12	34	34	28	0	0	0	0
	0	0.2245	0.1708	0.1166	0.1265	0.1542	0	0	0.1134	0.094		
1984	1	1	0	0	12	35	35	20	0	0	0	0
	0	0.1729	0.0532	0.2592	0.0316	0.4179	0	0	0.0652	0		
1984	1	1	0	0	12	36	36	11	0	0	0	0
	0	0.0581	0.1757	0.2622	0.0108	0	0.2497	0.2436	0	0		
1984	1	1	0	0	12	37	37	5	0	0	0	0
	0	0	0.0865	0.0958	0.5069	0.0855	0.2253	0	0	0		
1984	1	1	0	0	12	38	38	5	0	0	0	0
	0	0.0729	0	0.0954	0.2953	0	0	0.5018	0.0346	0		
1984	1	1	0	0	12	39	39	4	0	0	0	0
	0	0.7069	0.1318	0	0.11	0	0.0512	0	0	0		
1984	1	1	0	0	12	40	40	7	0	0	0	0
	0	0	0.2563	0	0.0671	0.3585	0.124	0	0.1942	0		
1984	1	1	0	0	12	41	41	2	0	0	0	0
	0	0	0	0	0.1547	0.1547	0	0	0.6905	0		
1984	1	1	0	0	12	43	43	4	0	0	0	0
	0	0	0	0	0	0.9647	0	0.0353	0	0		
1984	1	1	0	0	12	44	44	4	0	0	0	0
	0	0	0	0	0	0.595	0.2895	0	0.1155	0		

1984	1	1	0	0	12	45	45	2	0	0	0	0
	0	0	0	0	0	0	0	0	0.4484	0.5516		
1984	1	1	0	0	12	46	46	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1984	1	1	0	0	12	48	48	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1984	1	1	0	0	12	49	49	2	0	0	0	0
	0	0	0	0	0	0.4713	0.5287	0	0	0		
1984	1	1	0	0	12	50	50	3	0	0	0	0
	0	0	0	0	0	0.7176	0	0	0.2824	0		
1984	1	1	0	0	12	51	51	9	0	0	0	0
	0	0	0.0739	0.1309	0	0.2935	0.0274	0.0346	0.3688	0.071		
1985	1	1	0	0	13	7	7	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	9	9	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	10	10	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	11	11	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	12	12	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	13	13	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	14	14	3	0.6433	0.3567	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	15	15	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	16	16	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	17	17	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	18	18	2	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	19	19	7	0.0491	0.3364	0	0.6145
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	20	20	16	0	0	0.2126	0.7874
	0	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	21	21	43	0.0063	0.0018	0.2711	0.6902
	0.0306	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	22	22	78	0	0	0.1444	0.7675
	0.0881	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	23	23	107	0	0	0.1295	0.8359
	0.0345	0	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	24	24	121	0	0	0.0855	0.886
	0.0257	0.0027	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	25	25	124	0	0	0.04	0.8974
	0.062	0.0007	0	0	0	0	0	0	0	0		
1985	1	1	0	0	13	26	26	115	0	0	0.0234	0.8869
	0.0646	0.0099	0.0152	0	0	0	0	0	0	0		
1985	1	1	0	0	13	27	27	101	0	0	0.0103	0.8008
	0.0993	0.0499	0.0397	0	0	0	0	0	0	0		
1985	1	1	0	0	13	28	28	79	0	0	0.0098	0.6165
	0.1039	0.1529	0.1169	0	0	0	0	0	0	0		
1985	1	1	0	0	13	29	29	63	0	0	0	0.415
	0.2415	0.1786	0.1615	0.0034	0	0	0	0	0	0		
1985	1	1	0	0	13	30	30	58	0	0	0	0.2954
	0.1652	0.1788	0.3415	0.0191	0	0	0	0	0	0		
1985	1	1	0	0	13	31	31	52	0	0	0	0.1511
	0.1357	0.1548	0.5076	0.047	0.0001	0	0.0036	0	0	0		
1985	1	1	0	0	13	32	32	25	0	0	0	0.0448
	0.2469	0.088	0.5438	0	0.0511	0	0.0255	0	0	0		
1985	1	1	0	0	13	33	33	24	0	0	0	0
	0	0.1586	0.6698	0.0131	0.0414	0.117	0	0	0	0		
1985	1	1	0	0	13	34	34	17	0	0	0	0
	0.1612	0.3	0.3874	0	0.0542	0.0973	0	0	0	0		

1985	1	1	0	0	13	35	35	15	0	0	0	0
	0	0.0902	0.5058	0.2053	0.1151	0	0.0836	0	0	0		
1985	1	1	0	0	13	36	36	11	0	0	0	0
	0	0	0.3983	0.3581	0.1833	0.0482	0.0122	0	0	0		
1985	1	1	0	0	13	37	37	3	0	0	0	0
	0	0	0.1405	0	0	0.6709	0.1885	0	0	0		
1985	1	1	0	0	13	38	38	4	0	0	0	0
	0	0	0.0668	0.9332	0	0	0	0	0	0		
1985	1	1	0	0	13	39	39	3	0	0	0	0
	0	0	0	0.1047	0	0.5112	0.3841	0	0	0		
1985	1	1	0	0	13	41	41	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1985	1	1	0	0	13	42	42	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1985	1	1	0	0	13	49	49	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1986	1	1	0	0	14	5	5	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	10	10	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	11	11	5	0.7986	0.2014	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	12	12	8	0.8369	0.0987	0	0
	0.0644	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	13	13	19	0.7475	0.2525	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	14	14	22	0.8952	0.1048	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	15	15	49	0.8924	0.1033	0	0
	0	0	0	0	0	0	0	0.0043	0	0		
1986	1	1	0	0	14	16	16	41	0.9315	0.0685	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	17	17	42	0.8993	0.1007	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	18	18	40	0.766	0.2022	0.0227	0
	0.0092	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	19	19	39	0.5346	0.3611	0.0434	0.0234
	0.0375	0	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	20	20	36	0.2168	0.2068	0.0794	0
	0.481	0.016	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	21	21	51	0.0967	0.1245	0	0.0415
	0.718	0.0192	0	0	0	0	0	0	0	0		
1986	1	1	0	0	14	22	22	85	0.0143	0.0569	0.0429	0.0963
	0.747	0.0408	0.002	0	0	0	0	0	0	0		
1986	1	1	0	0	14	23	23	114	0	0.0162	0.0138	0.0633
	0.8265	0.0746	0.0057	0	0	0	0	0	0	0		
1986	1	1	0	0	14	24	24	119	0	0	0.0132	0.0755
	0.8346	0.0737	0.003	0	0	0	0	0	0	0		
1986	1	1	0	0	14	25	25	110	0	0.0073	0	0.0385
	0.8688	0.0614	0.02	0.004	0	0	0	0	0	0		
1986	1	1	0	0	14	26	26	113	0	0	0.0064	0.0388
	0.7934	0.0999	0.0439	0.0176	0	0	0	0	0	0		
1986	1	1	0	0	14	27	27	105	0	0	0	0.0392
	0.7694	0.096	0.0467	0.0486	0	0	0	0	0	0		
1986	1	1	0	0	14	28	28	100	0	0	0	0.005
	0.6861	0.1173	0.0867	0.105	0	0	0	0	0	0		
1986	1	1	0	0	14	29	29	83	0	0	0.0087	0.0054
	0.5111	0.1732	0.1317	0.1536	0.007	0.0093	0	0	0	0		
1986	1	1	0	0	14	30	30	67	0	0	0	0
	0.4155	0.147	0.1706	0.2345	0.0185	0.0139	0	0	0	0		
1986	1	1	0	0	14	31	31	77	0	0	0	0
	0.2452	0.1266	0.1916	0.382	0.0345	0.013	0	0.0072	0	0		
1986	1	1	0	0	14	32	32	59	0	0	0	0
	0.2164	0.1501	0.0899	0.4173	0.0377	0.0364	0.0142	0.0246	0.0053	0.0083		
1986	1	1	0	0	14	33	33	51	0	0	0	0
	0.0868	0.064	0.1148	0.4276	0.1377	0.0808	0.0563	0.032	0	0		

1986	1	1	0	0	14	34	34	52	0	0	0	0
	0.1319	0.1375	0.1477	0.2997	0.0741	0.0378	0.0761	0.0952	0	0		
1986	1	1	0	0	14	35	35	44	0	0	0	0
	0.0563	0.032	0.0362	0.4116	0.1344	0.205	0.0359	0.0725	0	0.0161		
1986	1	1	0	0	14	36	36	27	0	0	0	0
	0.072	0.0969	0.1015	0.2885	0.1861	0.0792	0.0439	0.132	0	0		
1986	1	1	0	0	14	37	37	31	0	0	0	0
	0	0.0487	0.2645	0.0804	0.0804	0.2176	0.1997	0.0613	0.0474	0		
1986	1	1	0	0	14	38	38	24	0	0	0	0
	0.0332	0	0.1093	0.2359	0.1034	0.1553	0.0066	0.3261	0.0302	0		
1986	1	1	0	0	14	39	39	11	0	0	0	0
	0	0	0	0.1314	0.1022	0.5425	0.0448	0.1791	0	0		
1986	1	1	0	0	14	40	40	11	0	0	0	0
	0	0	0	0.1337	0.0675	0.2444	0	0.3673	0	0.1871		
1986	1	1	0	0	14	41	41	7	0	0	0	0
	0	0.1915	0	0	0.4505	0.3351	0	0	0.0228	0		
1986	1	1	0	0	14	42	42	8	0	0	0	0
	0	0	0	0.5975	0.0814	0	0	0.0984	0	0.2227		
1986	1	1	0	0	14	43	43	7	0	0	0	0
	0	0	0	0.1306	0.2845	0	0.2833	0.3017	0	0		
1986	1	1	0	0	14	44	44	3	0	0	0	0
	0	0	0	0	0.1447	0.3308	0	0.5245	0	0		
1986	1	1	0	0	14	45	45	6	0	0	0	0
	0	0	0.2829	0.1794	0.1415	0.2689	0	0.1273	0	0		
1986	1	1	0	0	14	46	46	5	0	0	0	0
	0	0	0	0	0	0.3841	0.0562	0.2535	0	0.3062		
1986	1	1	0	0	14	47	47	6	0	0	0	0
	0.0525	0	0	0	0.0525	0.1035	0.1563	0.5186	0	0.1167		
1986	1	1	0	0	14	48	48	4	0	0	0	0
	0	0	0	0	0.061	0.3475	0	0.1661	0.4254	0		
1986	1	1	0	0	14	49	49	3	0	0	0	0
	0	0	0.1424	0	0	0.1424	0	0.7153	0	0		
1986	1	1	0	0	14	50	50	4	0	0	0	0
	0	0	0	0	0	0	0	0.5429	0	0.4571		
1986	1	1	0	0	14	51	51	25	0	0	0	0
	0	0	0.0074	0.4041	0.0675	0.1412	0.1492	0.1325	0.0394	0.0587		
1987	1	1	0	0	15	14	14	3	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1987	1	1	0	0	15	15	15	6	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1987	1	1	0	0	15	16	16	16	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1987	1	1	0	0	15	17	17	29	0	0.9813	0.0187	0
	0	0	0	0	0	0	0	0	0	0		
1987	1	1	0	0	15	18	18	60	0	0.9612	0.0388	0
	0	0	0	0	0	0	0	0	0	0		
1987	1	1	0	0	15	19	19	79	0	0.9003	0.0737	0.0118
	0	0.0142	0	0	0	0	0	0	0	0		
1987	1	1	0	0	15	20	20	88	0	0.9119	0.0476	0
	0.0174	0.0231	0	0	0	0	0	0	0	0		
1987	1	1	0	0	15	21	21	97	0	0.8257	0.0207	0.0094
	0	0.1443	0	0	0	0	0	0	0	0		
1987	1	1	0	0	15	22	22	104	0	0.7603	0.0385	0
	0.0043	0.1829	0.0021	0.0119	0	0	0	0	0	0		
1987	1	1	0	0	15	23	23	112	0	0.5048	0.015	0.0082
	0.0319	0.4166	0.0235	0	0	0	0	0	0	0		
1987	1	1	0	0	15	24	24	121	0	0.2743	0.0201	0.0123
	0.0077	0.6558	0.0241	0	0.0058	0	0	0	0	0		
1987	1	1	0	0	15	25	25	117	0	0.0716	0.0417	0.0041
	0.0044	0.8268	0.0351	0	0.0163	0	0	0	0	0		
1987	1	1	0	0	15	26	26	113	0	0.0132	0.0031	0.0032
	0.0151	0.8578	0.0414	0.0247	0.0416	0	0	0	0	0		
1987	1	1	0	0	15	27	27	106	0	0.0014	0.0057	0.0127
	0.0733	0.7813	0.0718	0.0129	0.0398	0	0	0	0.001	0		
1987	1	1	0	0	15	28	28	102	0	0	0	0.0051
	0.0016	0.7359	0.1202	0.0172	0.12	0	0	0	0	0		

1987	1	1	0	0	15	29	29	92	0	0	0	0
	0.0021	0.7355	0.0337	0.0359	0.1823	0.0048	0	0	0	0.0057		
1987	1	1	0	0	15	30	30	83	0	0.004	0	0
	0.0121	0.6676	0.0823	0.0114	0.2101	0	0	0	0.0124	0		
1987	1	1	0	0	15	31	31	59	0	0	0	0
	0.0118	0.565	0.0427	0.0264	0.3118	0.0093	0	0	0.0331	0		
1987	1	1	0	0	15	32	32	40	0	0	0	0
	0	0.3497	0.0775	0.0662	0.3661	0.0357	0.0162	0	0.0886	0		
1987	1	1	0	0	15	33	33	31	0	0	0	0
	0	0.3648	0.0261	0.0091	0.505	0.0403	0	0	0.0546	0		
1987	1	1	0	0	15	34	34	18	0	0	0	0
	0	0.0779	0.0385	0.0169	0.6232	0	0.0454	0	0.1982	0		
1987	1	1	0	0	15	35	35	14	0	0	0	0
	0	0.3415	0	0	0.4553	0	0	0	0.2033	0		
1987	1	1	0	0	15	36	36	8	0	0	0	0
	0.1596	0.0351	0	0	0.5772	0	0	0.0924	0.1357	0		
1987	1	1	0	0	15	37	37	5	0	0	0	0
	0	0	0.0913	0	0.3026	0.1435	0	0.1373	0.1662	0.1591		
1987	1	1	0	0	15	38	38	5	0	0	0	0
	0.1127	0	0.6198	0	0	0.1729	0	0	0.0947	0		
1987	1	1	0	0	15	39	39	3	0	0	0	0
	0	0	0	0.2073	0.2023	0	0	0	0.2952	0.2952		
1987	1	1	0	0	15	40	40	2	0	0	0	0
	0	0	0	0	0.7793	0.2207	0	0	0	0		
1987	1	1	0	0	15	41	41	5	0	0	0	0
	0	0	0.1403	0	0.6712	0	0	0	0.1885	0		
1987	1	1	0	0	15	42	42	3	0	0	0	0
	0	0	0	0	0.2722	0	0	0	0.221	0.5069		
1987	1	1	0	0	15	43	43	6	0	0	0	0
	0	0	0	0	0.433	0.3544	0	0.0357	0.0869	0.0899		
1987	1	1	0	0	15	44	44	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1987	1	1	0	0	15	45	45	2	0	0	0	0
	0	0	0	0	0	0	0	0.243	0.757	0		
1987	1	1	0	0	15	46	46	3	0	0	0	0
	0	0.3506	0	0.3921	0	0	0	0	0.2574	0		
1987	1	1	0	0	15	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1987	1	1	0	0	15	48	48	2	0	0	0	0
	0	0	0	0	0.4349	0	0	0	0.5651	0		
1987	1	1	0	0	15	49	49	3	0	0	0	0
	0	0	0.2406	0.4317	0	0	0	0	0	0.3278		
1987	1	1	0	0	15	50	50	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1987	1	1	0	0	15	51	51	5	0	0	0	0
	0	0	0	0	0.1639	0	0	0.5995	0.2366	0		
1988	1	1	0	0	16	7	7	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	10	10	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	12	12	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	13	13	2	0.493	0.507	0	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	14	14	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	15	15	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	16	16	3	0.4793	0	0.5207	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	17	17	3	0.3398	0.3192	0.341	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	18	18	15	0.0679	0.0688	0.7531	0.1102
	0	0	0	0	0	0	0	0	0	0		
1988	1	1	0	0	16	19	19	56	0.0217	0.0239	0.9317	0
	0	0	0.0227	0	0	0	0	0	0	0		

1988	1	1	0	0	16	20	20	101	0.0042	0.0137	0.953	0.0232
	0	0	0.006	0	0	0	0	0	0	0		
1988	1	1	0	0	16	21	21	129	0	0.007	0.9307	0.0359
	0.0035	0.0044	0.0184	0	0	0	0	0	0	0		
1988	1	1	0	0	16	22	22	141	0	0.0038	0.9256	0.0419
	0.0064	0	0.0224	0	0	0	0	0	0	0		
1988	1	1	0	0	16	23	23	141	0	0.0017	0.9052	0.0287
	0.0019	0	0.057	0.0056	0	0	0	0	0	0		
1988	1	1	0	0	16	24	24	145	0	0	0.7042	0.0303
	0.004	0.0076	0.2446	0	0	0.0094	0	0	0	0		
1988	1	1	0	0	16	25	25	153	0	0	0.5065	0.0104
	0.0092	0.0084	0.4279	0.027	0	0.0106	0	0	0	0		
1988	1	1	0	0	16	26	26	152	0	0	0.1856	0.0125
	0.0041	0.0151	0.7179	0.0338	0.0035	0.0274	0	0	0	0		
1988	1	1	0	0	16	27	27	150	0	0	0.1435	0.0103
	0.0025	0.0274	0.7427	0.0301	0.0048	0.0387	0	0	0	0		
1988	1	1	0	0	16	28	28	137	0	0	0.0748	0.013
	0.0163	0.0132	0.7874	0.0347	0	0.0606	0	0	0	0		
1988	1	1	0	0	16	29	29	123	0	0	0.0476	0.0034
	0	0.0214	0.7797	0.0797	0.0117	0.0524	0	0.0041	0	0		
1988	1	1	0	0	16	30	30	81	0	0	0.0425	0
	0.0649	0.0038	0.556	0.0484	0.04	0.2235	0.0069	0	0	0.0142		
1988	1	1	0	0	16	31	31	68	0	0	0.0214	0
	0	0.0078	0.4008	0.0512	0.0244	0.477	0.0074	0	0	0.0101		
1988	1	1	0	0	16	32	32	45	0	0	0.0051	0
	0.0132	0.0234	0.455	0.0246	0	0.326	0	0	0	0.1527		
1988	1	1	0	0	16	33	33	34	0	0	0	0
	0	0	0.4361	0.0281	0.1075	0.3441	0	0	0	0.0842		
1988	1	1	0	0	16	34	34	22	0	0	0	0
	0	0	0.4126	0.0648	0	0.449	0.033	0	0	0.0405		
1988	1	1	0	0	16	35	35	15	0	0	0	0
	0	0	0.0713	0.1054	0	0.5877	0	0	0	0.2355		
1988	1	1	0	0	16	36	36	14	0	0	0	0
	0	0	0.0975	0.2658	0	0.3733	0	0	0	0.2635		
1988	1	1	0	0	16	37	37	8	0	0	0	0
	0	0	0.1291	0	0	0.1432	0	0	0	0.7277		
1988	1	1	0	0	16	38	38	13	0	0	0	0
	0	0	0.2178	0.097	0	0.5284	0	0	0	0.1568		
1988	1	1	0	0	16	39	39	11	0	0	0	0
	0	0	0.1278	0	0	0.3234	0	0.2868	0	0.262		
1988	1	1	0	0	16	40	40	4	0	0	0	0
	0	0	0	0	0	0.8301	0.1699	0	0	0		
1988	1	1	0	0	16	41	41	6	0	0	0	0
	0	0	0.3603	0	0	0.6397	0	0	0	0		
1988	1	1	0	0	16	42	42	5	0	0	0	0
	0	0	0.0971	0	0	0.7763	0	0	0	0.1266		
1988	1	1	0	0	16	43	43	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
1988	1	1	0	0	16	45	45	4	0	0	0	0
	0	0	0.3583	0	0	0.3987	0	0	0	0.243		
1988	1	1	0	0	16	46	46	3	0	0	0	0
	0	0	0.3319	0	0	0	0	0	0	0.6681		
1988	1	1	0	0	16	47	47	4	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1988	1	1	0	0	16	49	49	2	0	0	0	0
	0	0	0	0	0	0.3221	0	0	0	0.6779		
1988	1	1	0	0	16	50	50	3	0	0	0	0
	0	0	0	0	0	0.1183	0	0	0	0.8817		
1988	1	1	0	0	16	51	51	12	0	0	0	0
	0	0.0169	0.0123	0.0167	0	0.0927	0	0	0	0.8614		
1989	1	1	0	0	17	10	10	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	11	11	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	12	12	9	0.9742	0.0258	0	0
	0	0	0	0	0	0	0	0	0	0		

1989	1	1	0	0	17	13	13	15	0.641	0.359	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	14	14	15	0.8114	0.1886	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	15	15	8	0.8279	0.1721	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	16	16	10	0.3828	0.3312	0.286	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	17	17	13	0.3559	0.6441	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	18	18	9	0.1751	0.4883	0.2796	0.057
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	19	19	17	0	0.2413	0.1695	0.5892
	0	0	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	20	20	40	0	0.2682	0.0786	0.6242
	0.0113	0.0176	0	0	0	0	0	0	0	0		
1989	1	1	0	0	17	21	21	79	0	0.0973	0.0606	0.7924
	0.0304	0	0	0.0193	0	0	0	0	0	0		
1989	1	1	0	0	17	22	22	120	0	0.0336	0.025	0.8962
	0.0269	0.004	0.0016	0.0105	0.0021	0	0	0	0	0		
1989	1	1	0	0	17	23	23	129	0	0.006	0.007	0.8945
	0.0383	0	0	0.0523	0	0.0019	0	0	0	0		
1989	1	1	0	0	17	24	24	125	0	0.0053	0.0107	0.8874
	0.0034	0	0	0.0932	0	0	0	0	0	0		
1989	1	1	0	0	17	25	25	127	0	0	0.0024	0.7444
	0.0065	0.0079	0	0.2234	0.0131	0	0.0023	0	0	0		
1989	1	1	0	0	17	26	26	125	0	0	0	0.5785
	0.0067	0.009	0.0185	0.3573	0.0265	0.0035	0	0	0	0		
1989	1	1	0	0	17	27	27	130	0	0	0	0.3755
	0.0157	0.0129	0.0116	0.542	0.0351	0.003	0.0043	0	0	0		
1989	1	1	0	0	17	28	28	133	0	0	0	0.2074
	0.0231	0.0028	0.0106	0.7298	0.0253	0	0.001	0	0	0		
1989	1	1	0	0	17	29	29	118	0	0	0.0038	0.1147
	0.0213	0.0035	0.0208	0.7404	0.0276	0.0172	0.0506	0	0	0		
1989	1	1	0	0	17	30	30	98	0	0	0	0.1194
	0	0.0117	0.0123	0.7787	0.0395	0	0.0358	0	0.0025	0		
1989	1	1	0	0	17	31	31	74	0	0	0	0.0511
	0.0248	0.0163	0.0248	0.6789	0.0419	0.0157	0.1465	0	0	0		
1989	1	1	0	0	17	32	32	49	0	0	0	0
	0	0.0095	0	0.6874	0.0537	0.0117	0.212	0	0	0.0257		
1989	1	1	0	0	17	33	33	40	0	0	0	0.0594
	0	0	0.0229	0.7036	0.0144	0	0.1998	0	0	0		
1989	1	1	0	0	17	34	34	35	0	0	0	0.0219
	0	0	0	0.5424	0.0668	0	0.2825	0.0161	0.0312	0.039		
1989	1	1	0	0	17	35	35	27	0	0	0	0.0178
	0.0307	0	0	0.4036	0.0202	0.0171	0.3939	0	0	0.1167		
1989	1	1	0	0	17	36	36	14	0	0	0	0
	0	0	0	0.3857	0.1103	0.1229	0.0763	0	0	0.3047		
1989	1	1	0	0	17	37	37	15	0	0	0	0
	0	0	0	0.1716	0.0484	0.033	0.7197	0	0	0.0273		
1989	1	1	0	0	17	38	38	8	0	0	0	0
	0	0	0	0.5079	0	0	0.4921	0	0	0		
1989	1	1	0	0	17	39	39	8	0	0	0	0
	0	0	0	0.1266	0	0	0.8412	0	0.0323	0		
1989	1	1	0	0	17	40	40	7	0	0	0	0
	0	0	0	0.575	0	0	0.3398	0	0.0851	0		
1989	1	1	0	0	17	41	41	3	0	0	0	0
	0	0	0	0	0.28	0	0.1715	0	0	0.5485		
1989	1	1	0	0	17	42	42	6	0	0	0	0
	0	0	0	0.2687	0	0	0.7313	0	0	0		
1989	1	1	0	0	17	44	44	3	0	0	0	0
	0	0	0	0	0	0	0.6146	0.3854	0	0		
1989	1	1	0	0	17	45	45	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1989	1	1	0	0	17	46	46	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		

1989	1	1	0	0	17	47	47	2	0	0	0	0
	0	0	0	0.8107	0	0	0.1893	0	0	0		
1989	1	1	0	0	17	49	49	4	0	0	0	0
	0	0	0	0.3549	0.1515	0	0.4937	0	0	0		
1989	1	1	0	0	17	51	51	4	0	0	0	0
	0	0	0	0	0.2364	0	0.7636	0	0	0		
1990	1	1	0	0	18	9	9	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	10	10	6	0.7445	0.2555	0	0
	0	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	11	11	5	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	12	12	15	0.3977	0.6023	0	0
	0	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	13	13	22	0.6987	0.3013	0	0
	0	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	14	14	24	0.5851	0.4121	0	0
	0.0029	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	15	15	45	0.4253	0.543	0.0043	0
	0.0275	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	16	16	51	0.2285	0.7564	0.0151	0
	0	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	17	17	76	0.2853	0.6603	0.0499	0
	0.0045	0	0	0	0	0	0	0	0	0		
1990	1	1	0	0	18	18	18	84	0.0664	0.876	0.0203	0
	0.0363	0	0	0	0.0009	0	0	0	0	0		
1990	1	1	0	0	18	19	19	94	0.0812	0.8065	0.0856	0
	0.0225	0	0	0	0.0042	0	0	0	0	0		
1990	1	1	0	0	18	20	20	98	0.0174	0.8915	0.0588	0.0018
	0.0286	0	0	0	0.0018	0	0	0	0	0		
1990	1	1	0	0	18	21	21	104	0.0074	0.8394	0.0534	0
	0.0938	0	0	0	0.0061	0	0	0	0	0		
1990	1	1	0	0	18	22	22	95	0	0.7097	0.084	0.0097
	0.1758	0	0	0.0049	0.016	0	0	0	0	0		
1990	1	1	0	0	18	23	23	96	0	0.4045	0.0507	0.0212
	0.4732	0.0053	0	0	0.0451	0	0	0	0	0		
1990	1	1	0	0	18	24	24	93	0	0.1055	0.04	0
	0.7633	0.0055	0	0	0.0819	0	0	0.0037	0	0		
1990	1	1	0	0	18	25	25	91	0	0.0266	0.0439	0
	0.6759	0	0.0111	0	0.2425	0	0	0	0	0		
1990	1	1	0	0	18	26	26	82	0	0.0121	0.0132	0.0116
	0.6018	0.0254	0.0065	0.0124	0.3083	0.0054	0	0.0033	0	0		
1990	1	1	0	0	18	27	27	88	0	0	0.005	0.0099
	0.5591	0.0062	0	0	0.4197	0	0	0	0	0		
1990	1	1	0	0	18	28	28	82	0	0	0	0.0204
	0.4363	0.0112	0	0.0061	0.5086	0	0	0.0174	0	0		
1990	1	1	0	0	18	29	29	84	0	0	0	0
	0.3034	0.0121	0.0135	0	0.6126	0	0	0.0585	0	0		
1990	1	1	0	0	18	30	30	73	0	0	0	0
	0.2749	0.0121	0	0.0163	0.5863	0.0111	0	0.0896	0	0.0097		
1990	1	1	0	0	18	31	31	72	0	0	0	0
	0.2638	0.0101	0	0	0.6243	0.0226	0	0.0793	0	0		
1990	1	1	0	0	18	32	32	74	0	0	0	0
	0.1179	0	0	0	0.7839	0	0	0.0906	0	0.0077		
1990	1	1	0	0	18	33	33	58	0	0	0	0
	0.0338	0	0	0	0.7978	0.0142	0	0.1542	0	0		
1990	1	1	0	0	18	34	34	43	0	0	0	0
	0.0073	0	0	0	0.6572	0	0	0.2934	0	0.0422		
1990	1	1	0	0	18	35	35	34	0	0	0	0
	0.0275	0	0	0	0.677	0	0	0.2699	0	0.0256		
1990	1	1	0	0	18	36	36	20	0	0	0	0
	0.0096	0	0	0	0.7408	0	0	0.2496	0	0		
1990	1	1	0	0	18	37	37	15	0	0	0	0
	0.0289	0	0	0	0.2609	0	0	0.581	0	0.1291		
1990	1	1	0	0	18	38	38	14	0	0	0	0
	0	0	0	0	0.618	0.0543	0	0.2958	0	0.0319		

1990	1	1	0	0	18	39	39	14	0	0	0	0
	0	0	0	0	0.6941	0.0483	0	0.0441	0	0.2136		
1990	1	1	0	0	18	40	40	11	0	0	0	0
	0	0	0	0	0.7701	0	0	0.2299	0	0		
1990	1	1	0	0	18	41	41	14	0	0	0	0
	0	0	0.0458	0	0.3996	0	0	0.4244	0	0.1302		
1990	1	1	0	0	18	42	42	15	0	0	0	0
	0	0	0	0	0.5968	0	0	0.3866	0	0.0166		
1990	1	1	0	0	18	43	43	9	0	0	0	0
	0	0	0	0	0.8455	0	0	0.0331	0	0.1214		
1990	1	1	0	0	18	44	44	9	0	0	0	0
	0	0	0	0	0.1571	0	0	0.7827	0	0.0602		
1990	1	1	0	0	18	45	45	8	0	0	0	0
	0	0	0	0	0.3222	0	0	0.6778	0	0		
1990	1	1	0	0	18	46	46	8	0	0	0	0
	0	0	0	0	0.3974	0	0	0.6026	0	0		
1990	1	1	0	0	18	47	47	8	0	0	0	0
	0	0	0	0	0.3214	0	0	0.3795	0	0.2991		
1990	1	1	0	0	18	48	48	6	0	0	0	0
	0	0	0	0	0.5001	0	0	0.5	0	0		
1990	1	1	0	0	18	49	49	6	0	0	0	0
	0	0	0	0	0.7289	0	0	0.2515	0	0.0196		
1990	1	1	0	0	18	50	50	7	0	0	0	0
	0	0	0	0	0.5397	0	0	0.4603	0	0		
1990	1	1	0	0	18	51	51	20	0	0	0	0
	0	0	0	0	0.352	0	0.0139	0.5689	0	0.0653		
1991	1	1	0	0	19	1	1	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	2	2	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	3	3	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	4	4	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	11	11	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	12	12	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	13	13	5	0.4588	0.5412	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	14	14	13	0.2271	0.7729	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	15	15	23	0.2385	0.6414	0.1201	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	16	16	32	0.1485	0.7042	0.1339	0.0134
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	17	17	33	0	0.7138	0.2801	0.0062
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	18	18	39	0	0.7747	0.2253	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	19	19	38	0	0.7006	0.2994	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	20	20	47	0	0.5373	0.4347	0.026
	0	0	0.002	0	0	0	0	0	0	0		
1991	1	1	0	0	19	21	21	54	0.002	0.3492	0.5473	0.1015
	0	0	0	0	0	0	0	0	0	0		
1991	1	1	0	0	19	22	22	63	0	0.2337	0.6324	0.0313
	0	0.0943	0	0	0	0.0083	0	0	0	0		
1991	1	1	0	0	19	23	23	66	0	0.0701	0.6015	0.0715
	0.0702	0.1225	0	0	0	0.0642	0	0	0	0		
1991	1	1	0	0	19	24	24	66	0	0.0431	0.4777	0.0914
	0.0246	0.3299	0.0131	0	0	0.0202	0	0	0	0		
1991	1	1	0	0	19	25	25	62	0	0.0056	0.3264	0.0685
	0.0018	0.4967	0.0161	0.0023	0.0078	0.0655	0.0083	0	0.001	0		
1991	1	1	0	0	19	26	26	61	0	0.0018	0.1424	0.0368
	0	0.6786	0.001	0	0.002	0.1258	0.0116	0	0	0		

1991	1	1	0	0	19	27	27	61	0	0	0.0804	0.0649
	0.0038	0.619	0.0702	0.0101	0	0.1425	0.0092	0	0	0		
1991	1	1	0	0	19	28	28	55	0	0	0.0084	0.0234
	0.0685	0.5863	0.0198	0.0062	0.0084	0.2331	0.0064	0	0.0395	0		
1991	1	1	0	0	19	29	29	56	0	0	0.0039	0
	0	0.5328	0.02	0.002	0	0.4281	0	0	0.0132	0		
1991	1	1	0	0	19	30	30	49	0	0	0	0.0184
	0.0032	0.463	0.0173	0	0	0.4602	0.0049	0	0.033	0		
1991	1	1	0	0	19	31	31	40	0	0	0	0
	0	0.184	0.0518	0	0	0.6606	0.0249	0	0.0787	0		
1991	1	1	0	0	19	32	32	20	0	0	0	0
	0	0.4162	0	0	0	0.3907	0.0291	0	0.164	0		
1991	1	1	0	0	19	33	33	9	0	0	0	0
	0	0	0.0808	0	0	0.5974	0	0	0.3219	0		
1991	1	1	0	0	19	34	34	6	0	0	0	0
	0	0.1254	0	0	0	0.1853	0	0	0.6894	0		
1991	1	1	0	0	19	35	35	6	0	0	0	0
	0	0.4802	0	0	0	0.194	0.1194	0	0	0.2064		
1991	1	1	0	0	19	36	36	7	0	0	0	0
	0	0.2149	0.1044	0	0	0.1178	0	0	0.5629	0		
1991	1	1	0	0	19	37	37	2	0	0	0	0
	0	0	0	0	0	0.1803	0	0	0	0.8197		
1991	1	1	0	0	19	38	38	3	0	0	0	0
	0	0.4074	0	0	0	0.0403	0	0	0.145	0.4074		
1991	1	1	0	0	19	39	39	2	0	0	0	0
	0	0	0	0	0	0.222	0	0	0.778	0		
1991	1	1	0	0	19	40	40	3	0	0	0	0
	0	0	0	0	0	0.5654	0	0	0.4346	0		
1991	1	1	0	0	19	42	42	3	0	0	0	0
	0	0	0.0744	0	0	0.8062	0	0	0.1195	0		
1991	1	1	0	0	19	43	43	3	0	0	0	0
	0	0	0	0	0	0.7328	0	0	0.2672	0		
1991	1	1	0	0	19	44	44	3	0	0	0	0
	0	0.3544	0	0	0	0.3769	0	0	0.2687	0		
1991	1	1	0	0	19	46	46	2	0	0	0	0
	0	0	0.5682	0	0.1439	0.1439	0	0	0	0.1439		
1991	1	1	0	0	19	47	47	5	0	0	0	0
	0	0	0.4589	0	0	0.0556	0	0	0.4855	0		
1991	1	1	0	0	19	48	48	2	0	0	0	0
	0	0	0	0	0	0.2273	0	0	0.7727	0		
1991	1	1	0	0	19	49	49	2	0	0	0	0
	0	0	0	0	0.6351	0	0	0	0.3649	0		
1991	1	1	0	0	19	50	50	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1991	1	1	0	0	19	51	51	9	0.1062	0	0	0
	0	0	0	0	0	0.3296	0	0	0.3821	0.182		
1992	1	1	0	0	20	8	8	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	9	9	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	10	10	5	0.8005	0.1995	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	11	11	6	0.7807	0.2193	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	12	12	8	0.8747	0.1253	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	13	13	6	0.6588	0.3412	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	14	14	6	0.6584	0.3416	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	15	15	7	0.9204	0.0796	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	16	16	7	0.7743	0.2257	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	17	17	11	0.6443	0.3381	0.0177	0
	0	0	0	0	0	0	0	0	0	0		

1992	1	1	0	0	20	18	18	28	0.2198	0.4744	0.2227	0.0832
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	19	19	26	0.1265	0.3456	0.4738	0.0541
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	20	20	61	0.0019	0.1689	0.5579	0.2713
	0	0	0	0	0	0	0	0	0	0		
1992	1	1	0	0	20	21	21	75	0.0049	0.1298	0.4127	0.4204
	0.0293	0	0	0	0	0	0.0029	0	0	0		
1992	1	1	0	0	20	22	22	89	0	0.1443	0.4557	0.3399
	0.022	0	0.0381	0	0	0	0	0	0	0		
1992	1	1	0	0	20	23	23	105	0	0.0349	0.4786	0.3775
	0.0099	0	0.0668	0.0049	0	0	0.0275	0	0	0		
1992	1	1	0	0	20	24	24	108	0	0.0076	0.2871	0.4958
	0.0387	0.013	0.1411	0	0	0	0.0151	0	0.0017	0		
1992	1	1	0	0	20	25	25	108	0	0.0103	0.2371	0.3882
	0.0322	0.0162	0.271	0.0055	0.0039	0	0.0355	0	0	0		
1992	1	1	0	0	20	26	26	107	0	0.0032	0.0802	0.3392
	0.0221	0.0319	0.4342	0.0077	0.0034	0.0059	0.0722	0	0	0		
1992	1	1	0	0	20	27	27	107	0	0.0022	0.0181	0.2246
	0.039	0.0367	0.4697	0.024	0.0036	0.0141	0.1612	0	0	0.0068		
1992	1	1	0	0	20	28	28	111	0	0	0.021	0.1682
	0.0313	0.0075	0.5439	0.0126	0	0	0.2121	0	0	0.0034		
1992	1	1	0	0	20	29	29	103	0	0	0.0168	0.0881
	0.0321	0.0434	0.5233	0.0206	0.0058	0	0.27	0	0	0		
1992	1	1	0	0	20	30	30	93	0	0	0	0.1031
	0.0041	0.0103	0.5841	0.0212	0.0034	0	0.2542	0.0042	0	0.0154		
1992	1	1	0	0	20	31	31	78	0	0	0	0.0632
	0.0316	0.0177	0.4915	0.0231	0	0	0.3232	0.0136	0	0.0361		
1992	1	1	0	0	20	32	32	61	0	0	0.0079	0.0096
	0.0103	0	0.4328	0.0033	0	0	0.4861	0.0199	0	0.0301		
1992	1	1	0	0	20	33	33	41	0	0	0	0.0112
	0.0063	0	0.3404	0	0	0	0.3277	0.0602	0	0.2542		
1992	1	1	0	0	20	34	34	35	0	0	0	0
	0.0083	0	0.4815	0.0288	0	0.0045	0.4237	0.0309	0	0.0223		
1992	1	1	0	0	20	35	35	28	0	0	0	0
	0	0	0.308	0	0	0	0.475	0.0069	0.009	0.2011		
1992	1	1	0	0	20	36	36	20	0	0	0	0
	0	0	0.572	0	0.0203	0	0.3014	0	0	0.1063		
1992	1	1	0	0	20	37	37	16	0	0	0	0
	0	0	0.2744	0	0	0.0091	0.4954	0	0	0.2211		
1992	1	1	0	0	20	38	38	15	0	0	0	0
	0	0	0.2486	0	0	0.2769	0.4326	0	0	0.0419		
1992	1	1	0	0	20	39	39	9	0	0	0	0
	0	0	0.0906	0	0	0	0.7983	0	0	0.1111		
1992	1	1	0	0	20	40	40	9	0	0	0	0
	0	0	0.3644	0	0	0	0.4283	0.0668	0	0.1405		
1992	1	1	0	0	20	41	41	7	0	0	0	0
	0	0	0.1555	0	0	0	0.5592	0.1448	0	0.1405		
1992	1	1	0	0	20	42	42	5	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1992	1	1	0	0	20	43	43	5	0	0	0	0
	0	0	0	0	0	0	0.6621	0	0	0.338		
1992	1	1	0	0	20	44	44	2	0	0	0	0
	0	0	0	0	0	0	0.8135	0	0	0.1865		
1992	1	1	0	0	20	45	45	3	0	0	0	0
	0	0	0.1273	0	0	0	0	0	0	0.8727		
1992	1	1	0	0	20	46	46	2	0	0	0	0
	0	0	0.4922	0	0	0	0.5078	0	0	0		
1992	1	1	0	0	20	47	47	2	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1992	1	1	0	0	20	49	49	2	0	0	0	0
	0	0	0	0	0	0	0.8995	0	0	0.1005		
1992	1	1	0	0	20	51	51	7	0	0	0	0
	0	0	0	0.0224	0	0	0.1277	0.0642	0	0.7857		
1993	1	1	0	0	21	12	12	5	0.9268	0.0732	0	0
	0	0	0	0	0	0	0	0	0	0		

1993	1	1	0	0	21	13	13	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1993	1	1	0	0	21	14	14	5	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1993	1	1	0	0	21	15	15	6	0.1285	0.8715	0	0
	0	0	0	0	0	0	0	0	0	0		
1993	1	1	0	0	21	16	16	20	0.0187	0.9551	0.0262	0
	0	0	0	0	0	0	0	0	0	0		
1993	1	1	0	0	21	17	17	39	0.0233	0.9387	0.0042	0.0339
	0	0	0	0	0	0	0	0	0	0		
1993	1	1	0	0	21	18	18	50	0.0204	0.84	0.1331	0.0066
	0	0	0	0	0	0	0	0	0	0		
1993	1	1	0	0	21	19	19	59	0	0.8782	0.0301	0.0873
	0	0	0	0.0044	0	0	0	0	0	0		
1993	1	1	0	0	21	20	20	63	0	0.9206	0.0488	0.0258
	0	0	0	0	0	0	0	0.0048	0	0		
1993	1	1	0	0	21	21	21	59	0	0.7371	0.0944	0.1582
	0.0103	0	0	0	0	0	0	0	0	0		
1993	1	1	0	0	21	22	22	49	0	0.4832	0.1108	0.2635
	0.1426	0	0	0	0	0	0	0	0	0		
1993	1	1	0	0	21	23	23	67	0	0.1128	0.1183	0.4917
	0.2299	0	0	0.0374	0	0	0	0.01	0	0		
1993	1	1	0	0	21	24	24	77	0	0.0383	0.0619	0.3681
	0.3359	0.0667	0.0485	0.077	0	0	0	0.0036	0	0		
1993	1	1	0	0	21	25	25	86	0	0.0052	0.0084	0.2767
	0.4484	0.0259	0.0045	0.1732	0	0	0	0.0542	0	0.0036		
1993	1	1	0	0	21	26	26	87	0	0.0041	0.0126	0.2388
	0.279	0.0171	0.044	0.3175	0.0028	0	0.0009	0.0762	0	0.007		
1993	1	1	0	0	21	27	27	85	0	0	0	0.1193
	0.2858	0.0055	0.0104	0.4429	0.015	0.0056	0	0.0973	0	0.0182		
1993	1	1	0	0	21	28	28	79	0	0	0	0.0387
	0.2262	0.0068	0.0038	0.5628	0.0739	0	0	0.0879	0	0		
1993	1	1	0	0	21	29	29	78	0	0	0	0.0178
	0.1868	0.0226	0.0102	0.5324	0	0	0	0.2118	0	0.0184		
1993	1	1	0	0	21	30	30	59	0	0	0	0.013
	0.0265	0.0502	0	0.535	0.0115	0	0	0.3638	0	0		
1993	1	1	0	0	21	31	31	37	0	0	0	0.0162
	0.1039	0	0	0.4935	0	0	0	0.3603	0	0.0261		
1993	1	1	0	0	21	32	32	26	0	0	0	0
	0	0.0104	0	0.4913	0.0813	0	0	0.4043	0	0.0128		
1993	1	1	0	0	21	33	33	9	0	0	0	0
	0	0	0	0.3578	0	0	0	0.5449	0	0.0973		
1993	1	1	0	0	21	34	34	4	0	0	0	0
	0	0	0	0.1487	0	0	0.1008	0	0.0814	0.6692		
1993	1	1	0	0	21	35	35	7	0	0	0	0
	0	0	0	0.3014	0	0	0	0.6986	0	0		
1993	1	1	0	0	21	36	36	7	0	0	0	0
	0	0	0	0.6571	0	0.0769	0	0.1045	0	0.1616		
1993	1	1	0	0	21	37	37	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1993	1	1	0	0	21	38	38	2	0	0	0	0
	0	0	0	0.7583	0	0	0	0.2417	0	0		
1993	1	1	0	0	21	40	40	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1993	1	1	0	0	21	42	42	2	0	0	0	0
	0	0	0	0.3821	0	0	0.309	0.309	0	0		
1993	1	1	0	0	21	50	50	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1993	1	1	0	0	21	51	51	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1994	1	1	0	0	22	11	11	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1994	1	1	0	0	22	14	14	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1994	1	1	0	0	22	16	16	3	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		

1994	1	1	0	0	22	17	17	9	0	0.6707	0.3293	0
	0	0	0	0	0	0	0	0	0	0		
1994	1	1	0	0	22	18	18	20	0	0.4908	0.5092	0
	0	0	0	0	0	0	0	0	0	0		
1994	1	1	0	0	22	19	19	50	0.0187	0.4867	0.4708	0.0238
	0	0	0	0	0	0	0	0	0	0		
1994	1	1	0	0	22	20	20	78	0	0.1519	0.8022	0.0179
	0.0244	0.0036	0	0	0	0	0	0	0	0		
1994	1	1	0	0	22	21	21	92	0	0.0747	0.8142	0.0248
	0.0675	0.0188	0	0	0	0	0	0	0	0		
1994	1	1	0	0	22	22	22	101	0	0.0227	0.7964	0.0323
	0.126	0.0226	0	0	0	0	0	0	0	0		
1994	1	1	0	0	22	23	23	110	0	0.0019	0.6752	0.0042
	0.1751	0.1206	0	0	0.012	0	0	0	0.011	0		
1994	1	1	0	0	22	24	24	119	0	0.0071	0.347	0.0113
	0.3325	0.222	0	0	0.06	0	0	0	0.0201	0		
1994	1	1	0	0	22	25	25	137	0	0	0.1731	0.0157
	0.2967	0.3328	0	0	0.1697	0	0.0032	0	0.0048	0.004		
1994	1	1	0	0	22	26	26	137	0	0.003	0.046	0.0107
	0.2309	0.3704	0.0019	0.0174	0.2894	0	0.0008	0	0.0282	0.0014		
1994	1	1	0	0	22	27	27	137	0	0	0.0127	0.006
	0.2113	0.3476	0.0063	0.0086	0.3058	0.0041	0.0063	0	0.0897	0.0015		
1994	1	1	0	0	22	28	28	132	0	0	0.0316	0
	0.1186	0.364	0.0069	0.0021	0.3847	0.0024	0	0	0.082	0.0078		
1994	1	1	0	0	22	29	29	129	0	0	0	0
	0.0571	0.2445	0.024	0.0036	0.5425	0	0.0106	0	0.097	0.0208		
1994	1	1	0	0	22	30	30	119	0	0	0	0
	0.0037	0.2268	0.0093	0	0.4508	0	0.0026	0	0.2772	0.0297		
1994	1	1	0	0	22	31	31	81	0	0	0.0095	0
	0.0264	0.2434	0.042	0.0116	0.4346	0	0.0347	0.0066	0.1662	0.025		
1994	1	1	0	0	22	32	32	47	0	0	0	0
	0.0114	0.1968	0	0	0.5614	0	0.0363	0	0.1905	0.0035		
1994	1	1	0	0	22	33	33	30	0	0	0	0
	0.0689	0.0537	0	0	0.4776	0	0	0	0.3236	0.0762		
1994	1	1	0	0	22	34	34	16	0	0	0	0
	0	0.0447	0	0	0.8001	0	0	0.0176	0.1376	0		
1994	1	1	0	0	22	35	35	14	0	0	0	0
	0	0.0648	0.165	0	0.7079	0	0	0	0.0623	0		
1994	1	1	0	0	22	36	36	9	0	0	0	0
	0	0	0	0	0.575	0	0.1251	0	0.295	0.0049		
1994	1	1	0	0	22	37	37	4	0	0	0	0
	0	0.1206	0	0	0.8794	0	0	0	0	0		
1994	1	1	0	0	22	38	38	7	0	0	0	0
	0	0.1525	0	0	0.7208	0	0	0	0.1267	0		
1994	1	1	0	0	22	39	39	6	0	0	0	0
	0	0.2823	0	0	0.1497	0	0	0	0.4116	0.1564		
1994	1	1	0	0	22	40	40	2	0	0	0	0
	0	0	0	0	0.8201	0	0	0	0.1799	0		
1994	1	1	0	0	22	41	41	3	0	0	0	0
	0	0	0	0	0.4079	0	0	0	0.5921	0		
1994	1	1	0	0	22	42	42	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1994	1	1	0	0	22	43	43	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1994	1	1	0	0	22	44	44	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1994	1	1	0	0	22	45	45	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1994	1	1	0	0	22	46	46	2	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1994	1	1	0	0	22	48	48	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1994	1	1	0	0	22	49	49	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1994	1	1	0	0	22	50	50	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		

1994	1	1	0	0	22	51	51	5	0	0	0	0
	0	0	0	0	0	0	0	0	0.815	0.185		
1995	1	1	0	0	23	1	1	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	5	5	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	6	6	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	7	7	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	13	13	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	15	15	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	17	17	2	0.6345	0.3655	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	18	18	2	0.5539	0	0.4461	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	19	19	4	0	0	0.0595	0.9405
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	20	20	4	0	0	0.1828	0.8172
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	21	21	13	0	0	0.3854	0.6146
	0	0	0	0	0	0	0	0	0	0		
1995	1	1	0	0	23	22	22	35	0	0	0.448	0.5201
	0	0.0178	0.0055	0	0	0.0085	0	0	0	0		
1995	1	1	0	0	23	23	23	58	0	0	0.1944	0.6973
	0.01	0.0765	0.0159	0	0	0.0059	0	0	0	0		
1995	1	1	0	0	23	24	24	68	0	0	0.1602	0.689
	0.0058	0.0593	0.0792	0	0	0.0065	0	0	0	0		
1995	1	1	0	0	23	25	25	71	0	0	0.075	0.6708
	0.0073	0.1097	0.1006	0.0037	0	0.0298	0	0	0	0.0032		
1995	1	1	0	0	23	26	26	71	0	0	0.0121	0.4467
	0.0141	0.1186	0.2266	0.0189	0	0.1357	0	0	0	0.0275		
1995	1	1	0	0	23	27	27	71	0	0	0.0106	0.3652
	0.0141	0.0836	0.3069	0.0084	0	0.1752	0	0.0029	0	0.033		
1995	1	1	0	0	23	28	28	74	0	0	0.0047	0.1262
	0.0071	0.0692	0.2962	0.0043	0.0133	0.3627	0.0143	0.008	0	0.094		
1995	1	1	0	0	23	29	29	71	0.0016	0	0.0029	0.0441
	0	0.1049	0.4051	0.0354	0.0032	0.3418	0.0062	0	0	0.0547		
1995	1	1	0	0	23	30	30	64	0	0	0	0.051
	0	0.0252	0.2997	0.0027	0	0.4975	0	0.0035	0.005	0.1154		
1995	1	1	0	0	23	31	31	53	0.002	0	0	0.0038
	0	0.0844	0.2133	0.0587	0	0.3949	0.0078	0	0	0.2352		
1995	1	1	0	0	23	32	32	39	0	0	0	0
	0.004	0.0537	0.337	0.02	0	0.403	0	0	0	0.1822		
1995	1	1	0	0	23	33	33	28	0	0	0	0.0574
	0	0.0267	0.3903	0	0	0.2322	0	0.0195	0	0.2741		
1995	1	1	0	0	23	34	34	16	0	0	0	0
	0	0.0689	0.3139	0	0	0.1572	0	0.0218	0	0.4383		
1995	1	1	0	0	23	35	35	14	0	0	0	0
	0	0	0.2373	0	0	0.336	0	0	0	0.4267		
1995	1	1	0	0	23	36	36	10	0	0	0	0
	0	0	0.3489	0	0	0.4531	0	0	0	0.198		
1995	1	1	0	0	23	37	37	6	0	0	0	0
	0	0	0.5181	0	0	0.4819	0	0	0	0		
1995	1	1	0	0	23	38	38	5	0	0	0	0
	0	0.0587	0	0	0	0.8813	0	0	0	0.06		
1995	1	1	0	0	23	39	39	7	0	0	0	0
	0	0	0	0	0	0.799	0	0.1537	0	0.0473		
1995	1	1	0	0	23	40	40	4	0	0	0	0
	0	0	0	0	0	0.6533	0	0	0	0.3467		
1995	1	1	0	0	23	41	41	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
1995	1	1	0	0	23	42	42	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		

1995	1	1	0	0	23	43	43	3	0	0	0	0
	0	0	0	0	0	0.1247	0	0.807	0	0.0682		
1995	1	1	0	0	23	44	44	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1995	1	1	0	0	23	51	51	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1996	1	1	0	0	24	11	11	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	12	12	9	0.5951	0.4049	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	13	13	17	0.9462	0.0538	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	14	14	29	0.929	0.071	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	15	15	39	0.9436	0.0564	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	16	16	47	0.9228	0.0772	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	17	17	48	0.7796	0.2142	0.0063	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	18	18	40	0.4531	0.5469	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	19	19	43	0.4288	0.5264	0.008	0.0369
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	20	20	51	0.1549	0.794	0.0394	0.0117
	0	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	21	21	55	0.0125	0.8681	0.0324	0.0509
	0.0361	0	0	0	0	0	0	0	0	0		
1996	1	1	0	0	24	22	22	53	0	0.7291	0.0239	0.1053
	0.1361	0	0	0	0	0	0.0056	0	0	0		
1996	1	1	0	0	24	23	23	54	0.0032	0.4555	0.058	0.1888
	0.2654	0.0154	0.004	0.0098	0	0	0	0	0	0		
1996	1	1	0	0	24	24	24	71	0	0.167	0.0336	0.2595
	0.4036	0	0.0513	0.0685	0	0	0.0164	0	0	0		
1996	1	1	0	0	24	25	25	88	0	0.0627	0.0188	0.1977
	0.4801	0.0088	0.0516	0.0959	0.0018	0	0.0559	0	0	0.0266		
1996	1	1	0	0	24	26	26	95	0	0	0.0083	0.1608
	0.5233	0.0032	0.0946	0.1328	0.0035	0	0.0671	0	0	0.0063		
1996	1	1	0	0	24	27	27	96	0	0	0	0.1549
	0.4371	0.0016	0.0878	0.1325	0	0	0.1436	0	0	0.0424		
1996	1	1	0	0	24	28	28	92	0	0	0	0.0725
	0.2685	0	0.0601	0.2269	0.0059	0	0.3298	0	0	0.0363		
1996	1	1	0	0	24	29	29	86	0	0	0	0.0836
	0.1754	0.0033	0.093	0.2345	0	0	0.346	0	0	0.0642		
1996	1	1	0	0	24	30	30	71	0	0	0	0
	0.1901	0	0.0472	0.3405	0.0047	0	0.3139	0	0	0.1037		
1996	1	1	0	0	24	31	31	58	0	0	0	0.0096
	0.0168	0	0.0284	0.2778	0	0.0184	0.5201	0	0	0.129		
1996	1	1	0	0	24	32	32	35	0	0	0	0
	0.0898	0.011	0.0052	0.1424	0	0	0.6311	0	0.01	0.1105		
1996	1	1	0	0	24	33	33	32	0	0	0	0.0235
	0.1055	0	0.0364	0.1447	0	0.0127	0.4546	0	0.0155	0.207		
1996	1	1	0	0	24	34	34	11	0	0	0	0
	0.0577	0	0	0.4503	0	0	0.472	0	0	0.0199		
1996	1	1	0	0	24	35	35	12	0	0	0	0
	0	0	0	0.2533	0.0312	0	0.7154	0	0	0		
1996	1	1	0	0	24	36	36	7	0	0	0	0
	0	0.0484	0.0216	0.2223	0	0	0.7077	0	0	0		
1996	1	1	0	0	24	37	37	4	0	0	0	0
	0	0	0	0.776	0	0	0.224	0	0	0		
1996	1	1	0	0	24	38	38	3	0	0	0	0
	0	0	0	0.2731	0	0	0.3658	0	0.3611	0		
1996	1	1	0	0	24	39	39	3	0	0	0	0
	0	0	0	0.1303	0	0	0.8697	0	0	0		
1996	1	1	0	0	24	40	40	3	0	0	0	0
	0	0	0	0	0	0.5254	0.4746	0	0	0		

1996	1	1	0	0	24	41	41	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1996	1	1	0	0	24	42	42	2	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1996	1	1	0	0	24	43	43	2	0	0	0	0
	0	0	0	0	0	0	0.7645	0	0.2355	0		
1996	1	1	0	0	24	44	44	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1996	1	1	0	0	24	45	45	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1996	1	1	0	0	24	46	46	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1996	1	1	0	0	24	48	48	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1996	1	1	0	0	24	51	51	3	0	0	0	0
	0	0	0	0	0	0	0.1809	0	0.1809	0.6382		
1997	1	1	0	0	25	15	15	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	16	16	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	17	17	7	0	0.8878	0.1122	0
	0	0	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	18	18	16	0.1757	0.7282	0.0961	0
	0	0	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	19	19	32	0	0.9284	0.0716	0
	0	0	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	20	20	47	0	0.8497	0.1503	0
	0	0	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	21	21	59	0	0.7021	0.2832	0
	0.0148	0	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	22	22	77	0	0.6375	0.3157	0.0031
	0.0314	0	0.0123	0	0	0	0	0	0	0		
1997	1	1	0	0	25	23	23	83	0	0.5552	0.4197	0
	0.0149	0.0102	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	24	24	84	0	0.3006	0.6069	0
	0.0385	0.0433	0	0.0052	0	0	0	0.0055	0	0		
1997	1	1	0	0	25	25	25	70	0	0.3101	0.4229	0.0254
	0.0844	0.1039	0.0203	0.0258	0.0037	0	0	0.0036	0	0		
1997	1	1	0	0	25	26	26	71	0	0.035	0.346	0
	0.1126	0.3927	0.0158	0.0117	0.0756	0	0	0.0105	0	0		
1997	1	1	0	0	25	27	27	57	0	0	0.0657	0
	0.0898	0.473	0.0114	0.0476	0.2516	0	0	0.0425	0.0037	0.0148		
1997	1	1	0	0	25	28	28	53	0	0	0.0133	0.0064
	0.0732	0.4159	0.0251	0.0571	0.1446	0.0198	0.0034	0.2095	0	0.0317		
1997	1	1	0	0	25	29	29	41	0	0	0	0.0049
	0.0529	0.2773	0.0101	0.1113	0.1799	0	0	0.2138	0	0.1498		
1997	1	1	0	0	25	30	30	28	0	0	0	0
	0.091	0.0894	0	0.2568	0.0905	0	0	0.3434	0.0127	0.1163		
1997	1	1	0	0	25	31	31	27	0	0	0	0
	0.0121	0.418	0.0203	0.026	0.1185	0	0.042	0.2742	0	0.0889		
1997	1	1	0	0	25	32	32	21	0	0	0	0
	0	0.0109	0.0545	0.1783	0.4441	0	0.0147	0.2328	0	0.0647		
1997	1	1	0	0	25	33	33	11	0	0	0	0
	0	0.0763	0.1328	0	0.2552	0	0	0.3639	0	0.1718		
1997	1	1	0	0	25	34	34	11	0	0	0	0
	0	0.1681	0	0	0.2564	0.1565	0	0.194	0	0.225		
1997	1	1	0	0	25	35	35	5	0	0	0	0
	0	0.0768	0	0	0	0.1854	0	0.7378	0	0		
1997	1	1	0	0	25	36	36	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
1997	1	1	0	0	25	37	37	3	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1997	1	1	0	0	25	38	38	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1997	1	1	0	0	25	39	39	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		

1997	1	1	0	0	25	40	40	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1997	1	1	0	0	25	41	41	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1997	1	1	0	0	25	42	42	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1997	1	1	0	0	25	44	44	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1997	1	1	0	0	25	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1997	1	1	0	0	25	51	51	2	0	0	0	0
	0	0	0	0	0	0	0	0.5619	0	0.4381		
1998	1	1	0	0	26	4	4	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	5	5	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	10	10	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	11	11	3	0.8436	0.1564	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	12	12	5	0.8406	0.1594	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	13	13	11	0.9551	0.0449	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	14	14	18	0.8499	0.1501	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	15	15	11	0.8356	0.1471	0.0173	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	16	16	15	0.5409	0.3968	0.0623	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	17	17	28	0.176	0.6676	0.1376	0.0188
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	18	18	43	0.067	0.804	0.0998	0.0292
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	19	19	59	0.0003	0.8136	0.1323	0.0539
	0	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	20	20	62	0.0066	0.7215	0.2061	0.0469
	0.019	0	0	0	0	0	0	0	0	0		
1998	1	1	0	0	26	21	21	75	0	0.4705	0.3286	0.1907
	0	0	0.0102	0	0	0	0	0	0	0		
1998	1	1	0	0	26	22	22	87	0	0.1982	0.3269	0.4282
	0.0192	0.0133	0.0143	0	0	0	0	0	0	0		
1998	1	1	0	0	26	23	23	113	0	0.0398	0.2763	0.5346
	0.055	0.031	0.0572	0	0	0.0061	0	0	0	0		
1998	1	1	0	0	26	24	24	137	0	0.0165	0.194	0.5553
	0.0777	0.0557	0.0757	0.0065	0.0059	0.0128	0	0	0	0		
1998	1	1	0	0	26	25	25	142	0	0.0096	0.1635	0.4387
	0.0533	0.0516	0.1907	0.0179	0.011	0.0455	0.006	0	0.0098	0.0025		
1998	1	1	0	0	26	26	26	117	0	0.0001	0.0827	0.3781
	0.058	0.0919	0.2435	0.0252	0.0252	0.0668	0	0	0.0286	0		
1998	1	1	0	0	26	27	27	95	0	0.0019	0.0343	0.2349
	0.044	0.0862	0.3093	0.0329	0.013	0.1315	0.0124	0.0195	0.053	0.0272		
1998	1	1	0	0	26	28	28	63	0	0	0.0168	0.1554
	0.0236	0.0906	0.351	0.0275	0.0163	0.1796	0	0	0.1377	0.0015		
1998	1	1	0	0	26	29	29	50	0	0	0.0025	0.1039
	0.0354	0.0963	0.1955	0.0059	0.0315	0.1814	0.003	0.0008	0.2973	0.0465		
1998	1	1	0	0	26	30	30	27	0	0	0	0.0101
	0.011	0.1418	0.2622	0.0938	0.0837	0.2067	0.0082	0.0023	0.1027	0.0776		
1998	1	1	0	0	26	31	31	18	0	0	0	0
	0	0.0055	0.2643	0.0041	0	0.4444	0	0	0.2096	0.0722		
1998	1	1	0	0	26	32	32	8	0	0	0	0
	0	0	0.1199	0	0	0	0	0	0.8065	0.0737		
1998	1	1	0	0	26	33	33	4	0	0	0	0
	0	0	0.0374	0	0	0	0.3612	0	0.5663	0.0351		
1998	1	1	0	0	26	34	34	4	0	0	0	0
	0	0	0.1991	0.0162	0	0.2864	0	0	0.4983	0		

1998	1	1	0	0	26	35	35	3	0	0	0	0
	0	0	0.2512	0	0	0.1286	0	0	0.6202	0		
1998	1	1	0	0	26	36	36	5	0	0	0	0.0287
	0	0	0.0951	0	0	0	0	0	0.8762	0		
1998	1	1	0	0	26	37	37	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
1998	1	1	0	0	26	38	38	1	0	0	0	0
	0	0	0.3924	0	0	0	0	0	0.6076	0		
1998	1	1	0	0	26	39	39	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1998	1	1	0	0	26	40	40	2	0	0	0	0
	0	0	0.023	0	0	0	0.977	0	0	0		
1998	1	1	0	0	26	41	41	1	0	0	0	0
	0	0	0	0	0	0.6076	0	0	0.3924	0		
1998	1	1	0	0	26	43	43	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1998	1	1	0	0	26	46	46	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1998	1	1	0	0	26	49	49	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1998	1	1	0	0	26	51	51	1	0	0	0	0
	0	0	0	0	0.2708	0.2708	0	0	0.4583	0		
1999	1	1	0	0	27	6	6	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	9	9	1	0.6667	0.3333	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	10	10	3	0.1674	0.8326	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	11	11	10	0.7872	0.1497	0.0631	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	12	12	10	0.7382	0.2022	0.0595	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	13	13	12	0.5272	0.4728	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	14	14	25	0.6487	0.3513	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	15	15	40	0.4336	0.4679	0.0826	0.016
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	16	16	52	0.3422	0.581	0.0768	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	17	17	55	0.1512	0.6652	0.1836	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	18	18	59	0.0304	0.7128	0.2208	0.0361
	0	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	19	19	80	0.0144	0.6944	0.2345	0.0408
	0.0159	0	0	0	0	0	0	0	0	0		
1999	1	1	0	0	27	20	20	80	0	0.5813	0.3214	0.0627
	0.0141	0.0109	0.0096	0	0	0	0	0	0	0		
1999	1	1	0	0	27	21	21	73	0	0.2778	0.4704	0.1561
	0.0624	0.0169	0	0	0	0	0.0082	0.0082	0	0		
1999	1	1	0	0	27	22	22	78	0	0.1645	0.4986	0.2039
	0.0779	0.0188	0.0088	0.0175	0	0.0088	0.0012	0	0	0		
1999	1	1	0	0	27	23	23	66	0	0.0557	0.3676	0.3666
	0.1438	0.0379	0.0274	0.0011	0	0	0	0	0	0		
1999	1	1	0	0	27	24	24	94	0	0.013	0.3384	0.2889
	0.2139	0.0234	0.0573	0.0362	0	0	0.0096	0.0096	0.0096	0		
1999	1	1	0	0	27	25	25	90	0	0.0095	0.1571	0.369
	0.207	0.0298	0.0866	0.0791	0.0088	0.0078	0.0266	0.0109	0	0.0078		
1999	1	1	0	0	27	26	26	99	0	0	0.1099	0.3287
	0.2062	0.0576	0.1356	0.076	0	0.0005	0.0353	0	0.0208	0.0295		
1999	1	1	0	0	27	27	27	82	0	0	0.0232	0.4216
	0.2176	0.0876	0.0428	0.0826	0.0426	0.0183	0.0258	0	0.0172	0.0206		
1999	1	1	0	0	27	28	28	74	0	0	0.0208	0.2363
	0.2377	0.0419	0.1411	0.0983	0.0159	0.0234	0.079	0.0149	0.0298	0.0609		
1999	1	1	0	0	27	29	29	55	0	0	0	0.1019
	0.0962	0.0564	0.126	0.1987	0.021	0.0977	0.1507	0	0.0736	0.0779		

1999	1	1	0	0	27	30	30	36	0	0	0.0014	0.1442
	0.0444	0.0784	0.0492	0.2458	0.0517	0.0098	0.1957	0.001	0.0651	0.1133		
1999	1	1	0	0	27	31	31	20	0	0	0	0.0497
	0.0086	0.0146	0.0495	0.109	0.0446	0.1062	0.2138	0	0.0446	0.3594		
1999	1	1	0	0	27	32	32	16	0	0	0	0.0046
	0.1319	0.0615	0.0634	0.3199	0.0055	0.0526	0.1063	0.1038	0	0.1505		
1999	1	1	0	0	27	33	33	11	0	0	0	0.0768
	0	0.0768	0	0.0904	0	0.0914	0.2425	0.1839	0	0.2382		
1999	1	1	0	0	27	34	34	7	0	0	0	0
	0.0088	0	0.0144	0.122	0	0.3255	0.0151	0	0	0.5142		
1999	1	1	0	0	27	35	35	4	0	0	0	0
	0	0	0.1659	0.1659	0	0.2794	0.364	0	0	0.0249		
1999	1	1	0	0	27	36	36	1	0	0	0	0
	0	0	0	0.5	0	0	0	0	0	0.5		
1999	1	1	0	0	27	37	37	1	0	0	0	0
	0.2143	0	0	0.4286	0	0	0	0	0	0.3572		
1999	1	1	0	0	27	38	38	4	0	0	0	0
	0	0	0.209	0	0	0.2648	0.209	0	0.0493	0.2679		
1999	1	1	0	0	27	39	39	2	0	0	0	0
	0	0	0	0	0	0	0.4111	0	0	0.5889		
1999	1	1	0	0	27	40	40	1	0	0	0	0
	0	0	0.5	0	0	0.2087	0	0	0	0.2913		
1999	1	1	0	0	27	41	41	2	0	0	0	0
	0	0	0	0	0.0632	0	0	0	0	0.9368		
1999	1	1	0	0	27	42	42	3	0	0	0	0
	0.0973	0	0	0.0292	0	0	0.8735	0	0	0		
1999	1	1	0	0	27	43	43	2	0	0	0	0
	0	0	0	0.0609	0	0	0	0.9391	0	0		
1999	1	1	0	0	27	49	49	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1999	1	1	0	0	27	50	50	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1999	1	1	0	0	27	51	51	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
2000	1	1	0	0	28	9	9	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	10	10	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	11	11	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	12	12	4	0.7372	0.2628	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	13	13	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	14	14	2	0.3805	0.6195	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	15	15	3	0.8927	0.072	0.0353	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	16	16	4	0.632	0.2875	0	0.0805
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	17	17	7	0.6476	0.2101	0.1423	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	18	18	19	0.2218	0.644	0.1342	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	19	19	18	0.2636	0.4344	0.2139	0.0881
	0	0	0	0	0	0	0	0	0	0		
2000	1	1	0	0	28	20	20	28	0.3091	0.3001	0.2337	0.0986
	0.0055	0	0.0529	0	0	0	0	0	0	0		
2000	1	1	0	0	28	21	21	43	0.0626	0.449	0.2132	0.1566
	0.0297	0.0297	0.0593	0	0	0	0	0	0	0		
2000	1	1	0	0	28	22	22	53	0.0351	0.2583	0.3768	0.2096
	0.0452	0.025	0.025	0	0.025	0	0	0	0	0		
2000	1	1	0	0	28	23	23	66	0.0092	0.0782	0.3976	0.1475
	0.2501	0.0473	0.0241	0	0.023	0	0	0.023	0	0		
2000	1	1	0	0	28	24	24	99	0.0008	0.2061	0.329	0.1608
	0.1579	0.0438	0.0211	0.0466	0	0	0.0168	0	0.0168	0		

2000	1	1	0	0	28	25	25	105	0.0004	0.0697	0.3671	0.2289
	0.1677	0.0966	0.0296	0.0309	0.0089	0.0001	0	0	0	0		
2000	1	1	0	0	28	26	26	116	0.0004	0.0309	0.2671	0.2791
	0.1928	0.0745	0.0837	0.0168	0.0067	0.0153	0.0225	0.001	0	0.009		
2000	1	1	0	0	28	27	27	137	0.0004	0.0184	0.1218	0.1877
	0.29	0.1558	0.1352	0.0419	0.0068	0.0036	0.0166	0.0056	0	0.0162		
2000	1	1	0	0	28	28	28	147	0	0.0096	0.0541	0.203
	0.2789	0.1346	0.129	0.0852	0.001	0.0215	0.0316	0.0003	0.0205	0.0307		
2000	1	1	0	0	28	29	29	128	0	0.0003	0.0525	0.16
	0.2223	0.1578	0.1305	0.0671	0.0347	0.0148	0.0595	0.0118	0.0171	0.0716		
2000	1	1	0	0	28	30	30	115	0	0	0.0389	0.104
	0.2565	0.1737	0.1304	0.0987	0.0454	0.0436	0.0317	0.0163	0.0192	0.0419		
2000	1	1	0	0	28	31	31	88	0	0	0	0.0585
	0.2353	0.2276	0.0997	0.1159	0.0659	0.0174	0.0278	0.0481	0	0.1038		
2000	1	1	0	0	28	32	32	66	0	0	0	0.0515
	0.3254	0.1629	0.0386	0.0935	0.0198	0.0478	0.0498	0.0448	0.067	0.0988		
2000	1	1	0	0	28	33	33	40	0	0	0.0005	0.0569
	0.249	0.191	0.1156	0.1229	0.0046	0.1039	0.0016	0.0053	0.0247	0.1239		
2000	1	1	0	0	28	34	34	23	0	0	0	0.0523
	0.2118	0.198	0.0613	0.1534	0.058	0.0749	0.0553	0	0.0603	0.0749		
2000	1	1	0	0	28	35	35	20	0	0	0	0
	0.1871	0.2081	0.1102	0.1821	0.0828	0.1502	0	0	0	0.0795		
2000	1	1	0	0	28	36	36	12	0	0	0	0
	0.3523	0.1752	0.2405	0.0631	0.0558	0.0568	0.0002	0.0558	0.0002	0		
2000	1	1	0	0	28	37	37	13	0	0	0	0
	0.1754	0.0125	0	0.2325	0	0.1143	0.0303	0.2883	0	0.1467		
2000	1	1	0	0	28	38	38	5	0	0	0	0
	0	0.1942	0.1389	0.3302	0.1106	0.0062	0	0.0838	0	0.136		
2000	1	1	0	0	28	39	39	4	0	0	0	0
	0.0074	0	0.0148	0	0	0.1072	0.2832	0.1072	0	0.4803		
2000	1	1	0	0	28	40	40	6	0	0	0	0
	0.0761	0	0	0.3226	0	0.0188	0	0	0.0129	0.5695		
2000	1	1	0	0	28	41	41	5	0	0	0	0
	0	0.1412	0	0.3319	0.0232	0.1753	0	0.3165	0	0.012		
2000	1	1	0	0	28	42	42	2	0	0	0	0
	0	0	0.6508	0	0	0	0	0	0.3492	0		
2000	1	1	0	0	28	43	43	5	0	0	0	0
	0	0	0.1079	0	0	0	0.0832	0	0.8089	0		
2000	1	1	0	0	28	44	44	2	0	0	0	0
	0	0	0	0	0	0.0244	0.2942	0	0	0.6814		
2000	1	1	0	0	28	46	46	2	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
2000	1	1	0	0	28	48	48	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
2000	1	1	0	0	28	50	50	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
2000	1	1	0	0	28	51	51	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
2001	1	1	0	0	29	8	8	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	9	9	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	10	10	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	11	11	10	0.9598	0.0402	0	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	12	12	9	0.9352	0.0648	0	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	13	13	21	0.9294	0.0191	0	0
	0	0	0	0	0	0	0.0515	0	0	0		
2001	1	1	0	0	29	14	14	24	0.9578	0.0422	0	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	15	15	31	0.9091	0.0786	0.0123	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	16	16	36	0.851	0.1457	0.0033	0
	0	0	0	0	0	0	0	0	0	0		

2001	1	1	0	0	29	17	17	56	0.8824	0.089	0.0286	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	18	18	62	0.7742	0.2023	0	0.0235
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	19	19	68	0.7402	0.2353	0.0244	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	20	20	65	0.4637	0.4296	0.0244	0.062
	0	0	0	0	0	0.0202	0	0	0	0		
2001	1	1	0	0	29	21	21	70	0.1311	0.5606	0.2333	0.061
	0.0027	0.0113	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	22	22	109	0.0273	0.6504	0.2465	0.0591
	0	0.0168	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	23	23	119	0.0126	0.6949	0.1765	0.0865
	0.0287	0	0	0	0	0	0	0.0008	0	0		
2001	1	1	0	0	29	24	24	123	0.0007	0.6177	0.1605	0.1806
	0.0193	0.0211	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	25	25	142	0	0.3584	0.1398	0.3094
	0.1121	0.035	0.0325	0.0128	0	0	0	0	0	0		
2001	1	1	0	0	29	26	26	151	0.0009	0.1764	0.1418	0.4861
	0.1155	0.0511	0.0194	0.0045	0	0	0	0	0.0042	0		
2001	1	1	0	0	29	27	27	173	0	0.1065	0.2057	0.3721
	0.1624	0.067	0.0246	0.0229	0.0235	0.0117	0.0035	0	0	0		
2001	1	1	0	0	29	28	28	178	0	0.0513	0.1824	0.3118
	0.1551	0.1458	0.0909	0.0066	0.0126	0.0094	0.0155	0	0.0065	0.012		
2001	1	1	0	0	29	29	29	194	0.0002	0.023	0.1515	0.3059
	0.1895	0.1541	0.1037	0.0184	0.0121	0.0063	0.0122	0.0061	0.0067	0.0104		
2001	1	1	0	0	29	30	30	144	0	0.0055	0.1369	0.2987
	0.0936	0.2398	0.0862	0.0178	0.0316	0.0207	0.0255	0.0089	0.0226	0.0121		
2001	1	1	0	0	29	31	31	106	0	0.0117	0.075	0.2027
	0.1416	0.3807	0.0839	0.021	0.0038	0.0457	0.0199	0.0125	0.0007	0.0009		
2001	1	1	0	0	29	32	32	76	0	0	0.1558	0.0842
	0.2191	0.1384	0.1086	0.0781	0.0958	0.0593	0.0128	0.0354	0.0015	0.0109		
2001	1	1	0	0	29	33	33	60	0	0	0.1357	0.1356
	0.0705	0.3023	0.1264	0.0215	0.0513	0.0225	0.0466	0.0433	0.0009	0.0434		
2001	1	1	0	0	29	34	34	42	0	0	0.0607	0.0745
	0.1338	0.3196	0.1991	0.0405	0.0437	0.0093	0.0376	0	0.0767	0.0047		
2001	1	1	0	0	29	35	35	37	0	0	0.0072	0.0487
	0.1599	0.2445	0.3257	0.0031	0.0059	0.0702	0.0617	0.0015	0.0009	0.0707		
2001	1	1	0	0	29	36	36	12	0	0	0	0
	0.1341	0.4997	0.1372	0	0.0039	0.0799	0.0905	0.0547	0	0		
#2001	1	1	0	0	29	37	37	9	0	0	0.088	0
	0.0418	0.1283	0.149	0.4305	0.1623	0	0	0	0	0		
#2001	1	1	0	0	29	38	38	12	0	0.1931	0	0
	0.0138	0.2183	0.0109	0.2212	0.1931	0.0059	0	0.0148	0.1222	0.0068		
2001	1	1	0	0	29	39	39	2	0	0	0	0
	0.27	0.019	0	0	0	0	0.27	0.441	0	0		
2001	1	1	0	0	29	40	40	3	0	0	0	0
	0	0	0.0293	0	0	0	0	0	0.481	0.4897		
2001	1	1	0	0	29	41	41	5	0	0	0	0.447
	0	0.0745	0.0169	0	0	0	0.0145	0.447	0	0		
2001	1	1	0	0	29	42	42	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	43	43	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
2001	1	1	0	0	29	44	44	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
2001	1	1	0	0	29	45	45	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2001	1	1	0	0	29	46	46	2	0	0	0	0
	0	0	0	0	0	0.9538	0	0	0	0.0462		
2001	1	1	0	0	29	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
2001	1	1	0	0	29	51	51	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
2002	1	1	0	0	30	12	12	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		

2002	1	1	0	0	30	15	15	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2002	1	1	0	0	30	16	16	3	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2002	1	1	0	0	30	17	17	13	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2002	1	1	0	0	30	18	18	27	0.0212	0.9575	0.0212	0
	0	0	0	0	0	0	0	0	0	0		
2002	1	1	0	0	30	19	19	64	0	0.9536	0.0262	0.0087
	0.0014	0.0014	0	0.0087	0	0	0	0	0	0		
2002	1	1	0	0	30	20	20	113	0	0.9516	0.0479	0
	0.0005	0	0	0	0	0	0	0	0	0		
2002	1	1	0	0	30	21	21	153	0	0.92	0.0687	0.0103
	0	0	0	0.0004	0	0	0.0006	0	0	0		
2002	1	1	0	0	30	22	22	176	0	0.8539	0.1351	0.0009
	0.007	0	0.0031	0	0	0	0	0	0	0		
2002	1	1	0	0	30	23	23	156	0	0.7696	0.1876	0.0383
	0	0	0	0.0046	0	0	0	0	0	0		
2002	1	1	0	0	30	24	24	131	0	0.6197	0.3125	0.0152
	0.0326	0.0138	0	0	0	0	0.0054	0	0.0008	0		
2002	1	1	0	0	30	25	25	105	0	0.3903	0.4597	0.0576
	0.0474	0.0248	0.0067	0.0135	0	0	0	0	0	0		
2002	1	1	0	0	30	26	26	78	0	0.2787	0.4258	0.0796
	0.1445	0.0606	0.0014	0.0094	0	0	0	0	0	0		
2002	1	1	0	0	30	27	27	66	0	0.0833	0.3968	0.1322
	0.2763	0.0375	0.0575	0.0141	0.0023	0	0	0	0	0		
2002	1	1	0	0	30	28	28	67	0	0.027	0.2691	0.3369
	0.2088	0.0691	0.0135	0.0394	0.0046	0	0.0036	0.0012	0.0216	0.0052		
2002	1	1	0	0	30	29	29	72	0	0.0372	0.2939	0.1665
	0.1178	0.246	0.0386	0.0602	0.0184	0.0013	0.0166	0	0.0012	0.0023		
2002	1	1	0	0	30	30	30	79	0	0.0289	0.2717	0.2158
	0.2912	0.0453	0.0649	0.0687	0.0071	0.0017	0.0016	0	0.0013	0.0019		
2002	1	1	0	0	30	31	31	82	0	0.0066	0.1999	0.1397
	0.3033	0.084	0.1279	0.066	0.0048	0.0283	0.0345	0.0023	0	0.0026		
2002	1	1	0	0	30	32	32	72	0	0	0.0821	0.2383
	0.1397	0.2734	0.1195	0.1268	0.0061	0.0058	0.0053	0	0	0.0031		
2002	1	1	0	0	30	33	33	58	0	0.0037	0.0629	0.1679
	0.0987	0.1781	0.129	0.096	0.1642	0	0.0862	0.0064	0	0.007		
2002	1	1	0	0	30	34	34	50	0	0	0.1472	0.0996
	0.0224	0.1104	0.3308	0.0903	0.0759	0.0739	0.0494	0	0	0		
2002	1	1	0	0	30	35	35	41	0	0.0026	0	0.1863
	0.0145	0.0756	0.4734	0.1079	0.0326	0.0724	0.0326	0	0	0.0023		
2002	1	1	0	0	30	36	36	28	0	0.0078	0	0.1485
	0.1362	0.2861	0.1138	0.2598	0.0084	0.0195	0	0.0098	0.0101	0		
2002	1	1	0	0	30	37	37	18	0	0	0	0
	0.3278	0.3563	0.0455	0.0221	0	0	0.0119	0	0.0536	0.1828		
2002	1	1	0	0	30	38	38	14	0	0	0	0.1886
	0	0.1937	0.3789	0.0081	0.0129	0.0141	0	0.0077	0	0.196		
2002	1	1	0	0	30	39	39	8	0	0	0	0
	0.0413	0.0488	0.0213	0.1095	0.0358	0	0.0462	0	0	0.6971		
2002	1	1	0	0	30	40	40	5	0	0	0	0
	0	0	0.9383	0.0617	0	0	0	0	0	0		
2002	1	1	0	0	30	41	41	5	0	0	0	0.021
	0	0	0.0362	0	0	0.0357	0	0	0	0.907		
2002	1	1	0	0	30	42	42	2	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
#2002	1	1	0	0	30	43	43	3	0	0.7126	0	0
	0	0	0.2532	0	0	0	0	0	0	0.0342		
2002	1	1	0	0	30	44	44	2	0	0	0	0
	0	0.9624	0.0376	0	0	0	0	0	0	0		
2002	1	1	0	0	30	45	45	3	0	0	0	0
	0	0	0.0264	0.943	0	0	0	0	0.0306	0		
2002	1	1	0	0	30	46	46	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2002	1	1	0	0	30	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		

2002	1	1	0	0	30	49	49	1	0	0	0	0
	0	0	0	0.5	0	0	0	0	0	0.5		
2002	1	1	0	0	30	51	51	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
2003	1	1	0	0	31	9	9	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	1	0	0	31	12	12	2	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	1	0	0	31	14	14	3	0.2523	0	0.7477	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	1	0	0	31	15	15	2	0.3497	0	0.6503	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	1	0	0	31	16	16	6	0	0	0.6704	0.1418
	0	0.1878	0	0	0	0	0	0	0	0		
2003	1	1	0	0	31	17	17	29	0	0.1229	0.8322	0.0198
	0.0251	0	0	0	0	0	0	0	0	0		
2003	1	1	0	0	31	18	18	42	0.012	0.1288	0.8306	0.0287
	0	0	0	0	0	0	0	0	0	0		
2003	1	1	0	0	31	19	19	60	0.0223	0.077	0.8543	0.0419
	0.0046	0	0	0	0	0	0	0	0	0		
2003	1	1	0	0	31	20	20	92	0	0.0233	0.8959	0.0327
	0.0232	0.0188	0.0028	0	0.0032	0	0	0	0	0		
2003	1	1	0	0	31	21	21	133	0	0.0407	0.8958	0.0522
	0.0052	0	0.0023	0.0026	0.0011	0	0	0	0	0		
2003	1	1	0	0	31	22	22	205	0	0.0285	0.8839	0.0693
	0.0055	0.0042	0.0086	0	0	0	0	0	0	0		
2003	1	1	0	0	31	23	23	264	0	0.0041	0.8944	0.0668
	0.0145	0.0069	0.0069	0.0041	0.0013	0.001	0	0	0	0		
2003	1	1	0	0	31	24	24	283	0	0.0016	0.8602	0.1027
	0.011	0.0134	0.0056	0.0034	0.0021	0	0	0	0	0		
2003	1	1	0	0	31	25	25	246	0	0.0028	0.7977	0.1425
	0.0179	0.0207	0.016	0.0012	0.0012	0	0	0	0	0		
2003	1	1	0	0	31	26	26	181	0	0.0013	0.7751	0.131
	0.019	0.0367	0.0094	0.0109	0	0.0059	0.0076	0.0031	0	0		
2003	1	1	0	0	31	27	27	121	0	0.0021	0.6549	0.1207
	0.0338	0.0939	0.0296	0.0423	0.0088	0.0051	0	0.0088	0	0		
2003	1	1	0	0	31	28	28	77	0	0	0.3367	0.1165
	0.0608	0.2035	0.1417	0.0483	0.0542	0.0157	0.0005	0.0102	0.0119	0		
2003	1	1	0	0	31	29	29	57	0	0	0.3516	0.1979
	0.0524	0.0917	0.0554	0.0979	0.0742	0.0303	0	0.0263	0	0.0222		
2003	1	1	0	0	31	30	30	39	0	0	0.1948	0.1642
	0.0155	0.0711	0.1806	0.2315	0.0947	0.0202	0.0102	0.0172	0	0		
2003	1	1	0	0	31	31	31	38	0	0	0.1585	0.1644
	0.1092	0.0922	0.0709	0.1619	0.0686	0.1001	0.0247	0.023	0	0.0265		
2003	1	1	0	0	31	32	32	20	0	0	0.0423	0.3264
	0.0644	0.0903	0.1195	0.1637	0	0.0912	0.0412	0.061	0	0		
2003	1	1	0	0	31	33	33	16	0	0	0.0644	0.3435
	0.0541	0.0601	0.1103	0.0578	0.2012	0	0.053	0	0	0.0555		
2003	1	1	0	0	31	34	34	5	0	0	0.3322	0
	0	0.252	0.2176	0	0	0.1983	0	0	0	0		
2003	1	1	0	0	31	35	35	7	0	0	0.134	0.5138
	0.1414	0.1018	0.1089	0	0	0	0	0	0	0		
2003	1	1	0	0	31	36	36	4	0	0	0.3824	0.1644
	0.243	0	0.2102	0	0	0	0	0	0	0		
2003	1	1	0	0	31	37	37	3	0	0	0.3228	0.4274
	0	0	0	0	0	0.2498	0	0	0	0		
2003	1	1	0	0	31	39	39	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
2003	1	1	0	0	31	40	40	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2003	1	1	0	0	31	46	46	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
#2004	1	1	0	0	32	1	1	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
2004	1	1	0	0	32	12	12	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		

2004	1	1	0	0	32	18	18	3	0	0.6326	0	0.3674
	0	0	0	0	0	0	0	0	0	0		
2004	1	1	0	0	32	19	19	11	0	0.7737	0	0.2263
	0	0	0	0	0	0	0	0	0	0		
2004	1	1	0	0	32	20	20	29	0	0.9268	0.0225	0.0507
	0	0	0	0	0	0	0	0	0	0		
2004	1	1	0	0	32	21	21	73	0	0.5005	0.177	0.3173
	0	0	0.0052	0	0	0	0	0	0	0		
2004	1	1	0	0	32	22	22	138	0	0.324	0.2537	0.4
	0.0223	0	0	0	0	0	0	0	0	0		
2004	1	1	0	0	32	23	23	197	0	0.1389	0.1658	0.6729
	0.0116	0	0.0078	0	0	0	0.0031	0	0	0		
2004	1	1	0	0	32	24	24	284	0	0.0301	0.1207	0.8076
	0.0349	0.0047	0.002	0	0	0	0	0	0	0		
2004	1	1	0	0	32	25	25	298	0	0.0253	0.0914	0.8411
	0.0262	0.0026	0.0093	0.0034	0.0008	0	0	0	0	0		
2004	1	1	0	0	32	26	26	294	0	0.0143	0.0583	0.8355
	0.0554	0.0085	0.0152	0.0108	0.0019	0	0	0	0	0		
2004	1	1	0	0	32	27	27	244	0	0.0013	0.0297	0.8023
	0.0764	0.0248	0.0204	0.037	0.0024	0.0058	0	0	0	0		
2004	1	1	0	0	32	28	28	152	0	0	0.0402	0.6945
	0.1002	0.0285	0.0756	0.0264	0.0033	0.0223	0.009	0	0	0		
2004	1	1	0	0	32	29	29	119	0	0.0057	0.0264	0.5327
	0.098	0.0396	0.1565	0.074	0.0174	0.0167	0	0.018	0	0.015		
2004	1	1	0	0	32	30	30	60	0	0	0.0065	0.4137
	0.1909	0.0281	0.1921	0.0959	0.0405	0.0249	0.0074	0	0	0		
2004	1	1	0	0	32	31	31	42	0	0	0.0126	0.31
	0.2561	0.0566	0.1632	0.0423	0.0471	0.0804	0	0.0317	0	0		
2004	1	1	0	0	32	32	32	25	0	0	0	0.2405
	0.2211	0.1585	0.086	0.1898	0.0344	0	0.0344	0.0355	0	0		
2004	1	1	0	0	32	33	33	19	0	0	0	0.1649
	0.1188	0.0973	0.1768	0.2085	0.1837	0	0.05	0	0	0		
2004	1	1	0	0	32	34	34	7	0	0	0	0
	0.1523	0	0.3585	0.1579	0.3312	0	0	0	0	0		
2004	1	1	0	0	32	35	35	7	0	0.0555	0	0
	0.3404	0	0.1029	0.1029	0.2042	0.1942	0	0	0	0		
2004	1	1	0	0	32	36	36	6	0	0	0	0.3098
	0	0.3037	0.2113	0	0	0	0	0	0.1752	0		
2004	1	1	0	0	32	37	37	5	0	0	0	0
	0.2089	0.4178	0.1247	0	0.02	0.1468	0	0	0	0.0818		
2004	1	1	0	0	32	38	38	2	0	0	0	0
	0.532	0	0	0	0	0	0.468	0	0	0		
2004	1	1	0	0	32	39	39	2	0	0	0	0
	0	0	0.4609	0	0	0	0	0	0	0.5391		
2004	1	1	0	0	32	40	40	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2004	1	1	0	0	32	41	41	3	0	0	0	0
	0	0.3113	0	0.3345	0	0	0	0.3542	0	0		
2004	1	1	0	0	32	42	42	2	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
2004	1	1	0	0	32	43	43	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
2004	1	1	0	0	32	45	45	2	0	0	0	0.6249
	0	0	0	0.3751	0	0	0	0	0	0		
2004	1	1	0	0	32	48	48	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2004	1	1	0	0	32	51	51	2	0	0	0	0
	0	0	0	0	0.3186	0.3628	0	0.3186	0	0		
2005	1	1	0	0	33	14	14	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	1	0	0	33	15	15	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	1	0	0	33	16	16	4	0.7596	0	0	0
	0.2404	0	0	0	0	0	0	0	0	0		
2005	1	1	0	0	33	18	18	4	0.5915	0	0	0
	0.2043	0	0	0	0	0.2043	0	0	0	0		

2005	1	1	0	0	33	19	19	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	1	0	0	33	20	20	12	0.6044	0.1484	0.155	0
	0.0923	0	0	0	0	0	0	0	0	0		
2005	1	1	0	0	33	21	21	34	0.2282	0.155	0.2543	0
	0.3625	0	0	0	0	0	0	0	0	0		
2005	1	1	0	0	33	22	22	74	0	0.0415	0.4382	0.038
	0.4592	0.023	0	0	0	0	0	0	0	0		
2005	1	1	0	0	33	23	23	164	0	0.0109	0.1942	0.1051
	0.6086	0.0685	0.0126	0	0	0	0	0	0	0		
2005	1	1	0	0	33	24	24	295	0	0.0115	0.1855	0.0741
	0.6754	0.0458	0.0076	0	0	0	0	0	0	0		
2005	1	1	0	0	33	25	25	362	0	0.0016	0.1104	0.0772
	0.714	0.0724	0.0159	0.0038	0.0047	0	0	0	0	0		
2005	1	1	0	0	33	26	26	373	0	0	0.0629	0.0714
	0.7741	0.0621	0.0129	0.009	0.0027	0.0048	0	0	0	0		
2005	1	1	0	0	33	27	27	324	0	0	0.0271	0.0488
	0.7865	0.0548	0.042	0.0166	0.0149	0.0019	0.0074	0	0	0		
2005	1	1	0	0	33	28	28	246	0	0	0.0246	0.0597
	0.7312	0.0816	0.0164	0.0352	0.0332	0.0049	0.0085	0	0.0048	0		
2005	1	1	0	0	33	29	29	150	0	0	0	0.0544
	0.6082	0.1228	0.0249	0.0912	0.0477	0.0128	0.038	0	0	0		
2005	1	1	0	0	33	30	30	98	0	0	0	0
	0.5747	0.138	0.0975	0.1048	0.0311	0.0109	0.0242	0.0189	0	0		
2005	1	1	0	0	33	31	31	63	0	0	0	0
	0.5779	0.0912	0.0392	0.0857	0.0449	0.0507	0.0349	0.053	0	0.0224		
2005	1	1	0	0	33	32	32	42	0	0	0	0.0247
	0.5025	0.0552	0.0135	0.1295	0.1213	0.0641	0.0892	0	0	0		
2005	1	1	0	0	33	33	33	16	0	0	0	0
	0.7348	0.0889	0	0	0	0.1763	0	0	0	0		
2005	1	1	0	0	33	34	34	19	0	0	0.0427	0
	0.2822	0.1596	0.2031	0.1243	0	0.0816	0.1065	0	0	0		
2005	1	1	0	0	33	35	35	9	0	0	0	0.1827
	0.2983	0.1309	0.0977	0.1099	0	0	0	0	0	0.1804		
2005	1	1	0	0	33	36	36	5	0	0	0	0
	1	0	0	0	0	0	0	0	0	0		
2005	1	1	0	0	33	37	37	8	0	0	0	0
	0.8069	0	0	0	0	0	0	0.1931	0	0		
2005	1	1	0	0	33	38	38	8	0	0	0	0
	0.6253	0	0.3747	0	0	0	0	0	0	0		
2005	1	1	0	0	33	39	39	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2005	1	1	0	0	33	40	40	4	0	0	0	0
	0	0.3876	0	0	0	0	0.6124	0	0	0		
2005	1	1	0	0	33	42	42	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2005	1	1	0	0	33	47	47	3	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
2005	1	1	0	0	33	49	49	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2006	1	1	0	0	34	6	6	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	7	7	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	8	8	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	9	9	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	10	10	4	0.6142	0.2926	0	0
	0	0.0932	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	11	11	6	0.871	0	0	0
	0.0171	0.1119	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	12	12	7	0.8446	0	0	0
	0	0.1554	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	13	13	11	0.7909	0	0	0.0334
	0.1224	0.0533	0	0	0	0	0	0	0	0		

2006	1	1	0	0	34	14	14	11	0.7731	0	0	0
	0.1335	0.0331	0.0603	0	0	0	0	0	0	0		
2006	1	1	0	0	34	15	15	10	0.8494	0	0	0
	0	0.1506	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	16	16	9	0.5093	0.3036	0	0.0623
	0	0.1248	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	17	17	7	0.6496	0.2299	0	0
	0	0.1205	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	18	18	14	0.2079	0.6933	0	0.0432
	0	0.0556	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	19	19	28	0.1025	0.8754	0	0
	0	0.022	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	20	20	51	0.0136	0.9143	0.0163	0.0347
	0	0.0132	0.0079	0	0	0	0	0	0	0		
2006	1	1	0	0	34	21	21	96	0.0192	0.8386	0.0498	0.0285
	0	0.0511	0.0106	0	0.0021	0	0	0	0	0		
2006	1	1	0	0	34	22	22	107	0.0092	0.6934	0.0448	0.0698
	0.0054	0.1667	0.0073	0.0009	0	0	0	0.0024	0	0		
2006	1	1	0	0	34	23	23	128	0.0125	0.428	0.0547	0.1532
	0.0071	0.311	0.0335	0	0	0	0	0	0	0		
2006	1	1	0	0	34	24	24	187	0.0021	0.1592	0.0566	0.163
	0.035	0.5616	0.012	0	0.0064	0.0018	0.0024	0	0	0		
2006	1	1	0	0	34	25	25	275	0.0045	0.0446	0.0306	0.1604
	0.0888	0.612	0.0465	0.0029	0.0048	0.0023	0.0026	0	0	0		
2006	1	1	0	0	34	26	26	298	0.0009	0.0289	0.0098	0.1042
	0.0656	0.7374	0.0393	0.0024	0.0064	0.0012	0.0022	0	0.0018	0		
2006	1	1	0	0	34	27	27	328	0.0048	0.0064	0.0066	0.0934
	0.0597	0.7712	0.0379	0.0028	0.0034	0.0019	0.0078	0.0041	0	0		
2006	1	1	0	0	34	28	28	248	0.0011	0.0031	0	0.0738
	0.0671	0.7762	0.0379	0.0123	0.0102	0.0099	0.0011	0.0062	0.001	0		
2006	1	1	0	0	34	29	29	187	0	0	0.002	0.0889
	0.0608	0.7157	0.0615	0.0333	0.0222	0.0128	0	0.0027	0	0		
2006	1	1	0	0	34	30	30	112	0	0.0043	0.0049	0.0682
	0.0419	0.6553	0.0555	0.0351	0.0666	0.0289	0.0091	0	0	0.0302		
2006	1	1	0	0	34	31	31	72	0	0	0.0141	0.0124
	0.1107	0.4962	0.0936	0.1005	0.0498	0.0307	0.0187	0.0585	0	0.0146		
2006	1	1	0	0	34	32	32	45	0	0	0	0.0096
	0.0172	0.5782	0.061	0.0449	0.2078	0.0142	0.0382	0	0.0289	0		
2006	1	1	0	0	34	33	33	18	0.0317	0.0228	0	0.0225
	0	0.5419	0	0.0955	0.0783	0.2072	0	0	0	0		
2006	1	1	0	0	34	34	34	8	0	0	0	0
	0	0.5547	0	0.0776	0	0.0963	0.2333	0.0381	0	0		
2006	1	1	0	0	34	35	35	2	0	0	0	0
	0	0.5319	0	0	0.4681	0	0	0	0	0		
2006	1	1	0	0	34	36	36	8	0	0	0.0209	0.109
	0	0.67	0	0.0772	0.1229	0	0	0	0	0		
2006	1	1	0	0	34	37	37	3	0	0	0	0
	0	0.7188	0.0462	0.2349	0	0	0	0	0	0		
2006	1	1	0	0	34	38	38	6	0	0	0	0
	0	0.5267	0.181	0	0.2922	0	0	0	0	0		
2006	1	1	0	0	34	39	39	4	0	0	0	0
	0	0.197	0.3508	0.2902	0.162	0	0	0	0	0		
#2006	1	1	0	0	34	40	40	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
#2006	1	1	0	0	34	41	41	2	0	0.7817	0	0
	0	0	0.2183	0	0	0	0	0	0	0		
2006	1	1	0	0	34	42	42	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2006	1	1	0	0	34	43	43	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2006	1	1	0	0	34	45	45	2	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	46	46	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2006	1	1	0	0	34	47	47	3	0	0	0	0
	0	0.7668	0.2332	0	0	0	0	0	0	0		

2006	1	1	0	0	34	49	49	2	0	0	0	0.3178
	0	0	0	0	0	0	0	0	0	0.6822		
2006	1	1	0	0	34	51	51	5	0	0	0	0.1182
	0	0.2948	0	0	0	0.2307	0.3563	0	0	0		
2007	1	1	0	0	35	1	1	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	3	3	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	4	4	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	7	7	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	8	8	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	9	9	6	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	10	10	8	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	11	11	11	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	12	12	17	0.9923	0.0077	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	13	13	39	0.9844	0	0.0156	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	14	14	41	0.9862	0	0.0038	0
	0	0	0.0101	0	0	0	0	0	0	0		
2007	1	1	0	0	35	15	15	41	0.9732	0.0014	0.0045	0
	0	0	0.0208	0	0	0	0	0	0	0		
2007	1	1	0	0	35	16	16	57	0.9344	0.0271	0.0275	0
	0.011	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	17	17	45	0.9249	0.029	0.005	0
	0.0033	0	0.0378	0	0	0	0	0	0	0		
2007	1	1	0	0	35	18	18	49	0.7971	0.1966	0	0
	0	0.0029	0.0034	0	0	0	0	0	0	0		
2007	1	1	0	0	35	19	19	60	0.5815	0.3678	0.0107	0
	0	0	0.0368	0.0032	0	0	0	0	0	0		
2007	1	1	0	0	35	20	20	42	0.3778	0.4168	0.186	0
	0	0	0.0194	0	0	0	0	0	0	0		
2007	1	1	0	0	35	21	21	46	0.0136	0.5893	0.3929	0.0042
	0	0	0	0	0	0	0	0	0	0		
2007	1	1	0	0	35	22	22	72	0.0297	0.2207	0.6874	0.0353
	0	0	0.0268	0	0	0	0	0	0	0		
2007	1	1	0	0	35	23	23	126	0	0.1017	0.7274	0.0234
	0.0782	0.0174	0.0518	0	0	0	0	0	0	0		
2007	1	1	0	0	35	24	24	155	0.0006	0.067	0.5713	0.0269
	0.0497	0.0252	0.2532	0.0061	0	0	0	0	0	0		
2007	1	1	0	0	35	25	25	235	0	0.0298	0.3914	0.0335
	0.0988	0.0246	0.3901	0.0222	0.0066	0.0007	0.0023	0	0	0		
2007	1	1	0	0	35	26	26	319	0.0004	0.0049	0.2068	0.0205
	0.098	0.0539	0.5364	0.0643	0.0045	0.0059	0.0006	0.0026	0.0012	0		
2007	1	1	0	0	35	27	27	332	0.0041	0.0005	0.112	0.0306
	0.1035	0.0822	0.601	0.0328	0.0128	0.0133	0.0071	0	0	0		
2007	1	1	0	0	35	28	28	315	0.0026	0.0049	0.0604	0.0149
	0.1122	0.0863	0.6003	0.0755	0.0222	0.0051	0.0137	0.001	0.0007	0		
2007	1	1	0	0	35	29	29	259	0.0042	0.0043	0.0532	0.0087
	0.1211	0.0643	0.6378	0.0331	0.0378	0.0293	0.0039	0	0	0.0025		
2007	1	1	0	0	35	30	30	173	0.0024	0.0061	0.0332	0
	0.089	0.0499	0.6318	0.0821	0.0278	0.0247	0.0376	0.0072	0	0.0082		
2007	1	1	0	0	35	31	31	124	0	0	0.0209	0
	0.0707	0.0449	0.594	0.0983	0.0188	0.0876	0.0565	0.0083	0	0		
2007	1	1	0	0	35	32	32	74	0	0	0.0045	0
	0.0643	0.0957	0.5661	0.1267	0.0758	0.0591	0	0	0.0077	0		
2007	1	1	0	0	35	33	33	53	0.0086	0	0	0.0349
	0.0572	0.0744	0.5612	0.0283	0.1532	0.0478	0.0285	0	0	0.0059		
2007	1	1	0	0	35	34	34	31	0	0	0	0
	0	0.0744	0.4638	0.1615	0.147	0.0312	0	0.055	0.0087	0.0584		

2007	1	1	0	0	35	35	35	19	0	0.0208	0.0174	0
	0	0.1247	0.5505	0.2052	0.0815	0	0	0	0	0		
2007	1	1	0	0	35	36	36	14	0	0	0	0
	0	0	0.5045	0.1678	0.0805	0.0432	0	0	0	0.2041		
2007	1	1	0	0	35	37	37	9	0.0358	0	0	0
	0	0	0.6	0.0468	0.2686	0	0	0	0	0.0488		
2007	1	1	0	0	35	38	38	16	0	0	0	0
	0	0.1129	0.3285	0.2399	0.1147	0.0736	0	0.0289	0	0.1015		
2007	1	1	0	0	35	39	39	4	0	0	0	0
	0	0	0.3342	0	0.6658	0	0	0	0	0		
2007	1	1	0	0	35	40	40	6	0	0	0	0
	0	0	0.1221	0.5907	0	0.2873	0	0	0	0		
2007	1	1	0	0	35	41	41	6	0	0	0	0
	0	0	0.3024	0.355	0.2298	0.1129	0	0	0	0		
2007	1	1	0	0	35	42	42	2	0	0	0	0
	0	0	0	0.4418	0	0	0.5582	0	0	0		
2007	1	1	0	0	35	43	43	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2007	1	1	0	0	35	44	44	5	0	0	0	0
	0	0.0529	0	0.6491	0.1778	0.1203	0	0	0	0		
2007	1	1	0	0	35	45	45	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
2007	1	1	0	0	35	46	46	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2007	1	1	0	0	35	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
2007	1	1	0	0	35	51	51	4	0	0	0	0
	0	0	0	0.3215	0.3215	0.1045	0.1821	0.0702	0	0		
2008	1	1	0	0	36	4	4	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	5	5	3	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	6	6	2	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	7	7	6	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	8	8	7	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	9	9	6	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	10	10	9	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	11	11	8	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	12	12	17	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	13	13	24	0.9393	0.0607	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	14	14	41	0.9725	0.0275	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	15	15	56	0.9285	0.0715	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	16	16	53	0.7149	0.2773	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	17	17	65	0.5457	0.4543	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	18	18	104	0.1561	0.8439	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	19	19	155	0.0440	0.9349	0.0009	0.0074
	0.0000	0.0066	0.0000	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	20	20	172	0.0175	0.9725	0.0049	0.0052
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	21	21	187	0.0001	0.9782	0.0140	0.0000
	0.0000	0.0000	0.0000	0.0078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	22	22	186	0.0007	0.9120	0.0379	0.0445
	0.0011	0.0000	0.0000	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		

2008	1	1	0	0	36	23	23	144	0.0036	0.8307	0.0605	0.0737
	0.0022	0.0000	0.0000	0.0271	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	24	24	124	0.0000	0.5363	0.1230	0.2770
	0.0000	0.0201	0.0106	0.0330	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	25	25	178	0.0000	0.2448	0.1319	0.4865
	0.0242	0.0298	0.0059	0.0643	0.0033	0.0094	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	26	26	199	0.0000	0.0631	0.0772	0.5049
	0.0183	0.0600	0.0409	0.2327	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	27	27	242	0.0000	0.0321	0.0365	0.3639
	0.0219	0.1158	0.0594	0.3306	0.0399	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	28	28	287	0.0000	0.0089	0.0182	0.3015
	0.0093	0.0680	0.0865	0.4509	0.0346	0.0129	0.0073	0.0020	0.0000	0.0000		
2008	1	1	0	0	36	29	29	256	0.0000	0.0029	0.0192	0.2209
	0.0105	0.0763	0.0671	0.5475	0.0323	0.0019	0.0063	0.0030	0.0086	0.0037		
2008	1	1	0	0	36	30	30	238	0.0000	0.0035	0.0088	0.1401
	0.0373	0.0725	0.0545	0.6084	0.0296	0.0058	0.0259	0.0036	0.0096	0.0005		
2008	1	1	0	0	36	31	31	172	0.0000	0.0000	0.0122	0.1218
	0.0152	0.0491	0.0823	0.6246	0.0372	0.0222	0.0314	0.0042	0.0000	0.0000		
2008	1	1	0	0	36	32	32	127	0.0000	0.0000	0.0183	0.0870
	0.0313	0.0708	0.0858	0.6380	0.0267	0.0169	0.0119	0.0013	0.0000	0.0120		
2008	1	1	0	0	36	33	33	96	0.0000	0.0000	0.0055	0.0608
	0.0266	0.0656	0.1427	0.5859	0.0530	0.0062	0.0300	0.0146	0.0080	0.0009		
2008	1	1	0	0	36	34	34	75	0.0000	0.0000	0.0000	0.0929
	0.0137	0.0204	0.0864	0.6913	0.0171	0.0333	0.0334	0.0000	0.0115	0.0000		
2008	1	1	0	0	36	35	35	40	0.0000	0.0000	0.0000	0.0582
	0.0000	0.0459	0.0895	0.6313	0.1107	0.0438	0.0000	0.0023	0.0000	0.0183		
2008	1	1	0	0	36	36	36	32	0.0000	0.0000	0.0000	0.0736
	0.0000	0.0205	0.0784	0.7341	0.0797	0.0000	0.0000	0.0000	0.0136	0.0000		
2008	1	1	0	0	36	37	37	23	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0395	0.0778	0.8102	0.0000	0.0000	0.0000	0.0000	0.0051	0.0675		
2008	1	1	0	0	36	38	38	16	0.0000	0.0000	0.0000	0.0653
	0.0000	0.0000	0.0596	0.7649	0.0000	0.0632	0.0000	0.0000	0.0470	0.0000		
2008	1	1	0	0	36	39	39	10	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.1084	0.4531	0.1625	0.2522	0.0238	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	40	40	8	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.8733	0.0000	0.1161	0.0106	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	41	41	6	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.4803	0.3629	0.1567	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	42	42	4	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.8166	0.0000	0.0000	0.0000	0.1834	0.0000	0.0000		
2008	1	1	0	0	36	43	43	6	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.8545	0.1455	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	44	44	3	0.0000	0.0000	0.0000	0.0000
	0.0000	0.2037	0.0000	0.3208	0.0000	0.4755	0.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	45	45	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000		
2008	1	1	0	0	36	46	46	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000		
2008	1	1	0	0	36	47	47	3	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0998	0.0000	0.0000	0.4831	0.4171	0.0000	0.0000		
2008	1	1	0	0	36	49	49	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	3	3	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	4	4	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	5	5	2	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	6	6	2	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	8	8	2	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	9	9	3	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	11	11	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		

2009	1	1	0	0	37	13	13	2	0.0000	1.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	14	14	9	0.0000	1.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	15	15	16	0.3266	0.6734	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	16	16	35	0.1292	0.8555	0.0154	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	17	17	53	0.0106	0.9894	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	18	18	84	0.0102	0.9535	0.0234	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	19	19	92	0.0000	0.9305	0.0695	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	20	20	116	0.0000	0.7997	0.2003	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	21	21	138	0.0000	0.4877	0.5072	0.0000
	0.0000	0.0000	0.0051	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	22	22	146	0.0000	0.2254	0.7583	0.0087
	0.0076	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	23	23	156	0.0000	0.0747	0.8945	0.0083
	0.0166	0.0000	0.0000	0.0000	0.0057	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	24	24	136	0.0000	0.0329	0.8587	0.0371
	0.0577	0.0000	0.0000	0.0000	0.0136	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	25	25	141	0.0000	0.0152	0.7664	0.0462
	0.1122	0.0059	0.0022	0.0091	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	26	26	112	0.0000	0.0000	0.4506	0.1495
	0.2418	0.0339	0.0295	0.0004	0.0734	0.0209	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	27	27	132	0.0000	0.0000	0.1835	0.0638
	0.3203	0.0304	0.0391	0.0179	0.3115	0.0158	0.0000	0.0000	0.0175	0.0000		
2009	1	1	0	0	37	28	28	136	0.0000	0.0000	0.1142	0.0678
	0.2788	0.0265	0.0688	0.0263	0.3870	0.0305	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	29	29	118	0.0000	0.0000	0.0679	0.0995
	0.2762	0.0111	0.0595	0.0480	0.3799	0.0450	0.0007	0.0122	0.0000	0.0000		
2009	1	1	0	0	37	30	30	107	0.0000	0.0000	0.0383	0.0453
	0.2531	0.0267	0.0846	0.0206	0.4513	0.0464	0.0027	0.0311	0.0000	0.0000		
2009	1	1	0	0	37	31	31	77	0.0000	0.0000	0.0269	0.0435
	0.1820	0.0140	0.1110	0.0401	0.4883	0.0784	0.0020	0.0048	0.0091	0.0000		
2009	1	1	0	0	37	32	32	53	0.0000	0.0000	0.0000	0.0000
	0.1361	0.0263	0.0596	0.0918	0.6144	0.0017	0.0000	0.0000	0.0328	0.0373		
2009	1	1	0	0	37	33	33	38	0.0000	0.0000	0.0000	0.0296
	0.2547	0.0025	0.0421	0.1408	0.3851	0.0222	0.0481	0.0268	0.0342	0.0139		
2009	1	1	0	0	37	34	34	30	0.0000	0.0000	0.0000	0.0000
	0.1458	0.0464	0.0473	0.1208	0.5591	0.0000	0.0338	0.0002	0.0000	0.0465		
2009	1	1	0	0	37	35	35	20	0.0000	0.0000	0.0000	0.0134
	0.0952	0.0000	0.0000	0.0000	0.7150	0.0805	0.0000	0.0123	0.0562	0.0275		
2009	1	1	0	0	37	36	36	11	0.0000	0.0000	0.0000	0.0000
	0.0804	0.0000	0.1420	0.0000	0.4806	0.1239	0.0000	0.1731	0.0000	0.0000		
2009	1	1	0	0	37	37	37	15	0.0000	0.0000	0.1326	0.0000
	0.1992	0.0000	0.1879	0.0729	0.3646	0.0000	0.0000	0.0429	0.0000	0.0000		
2009	1	1	0	0	37	38	38	7	0.0000	0.0000	0.0000	0.0000
	0.3281	0.0000	0.0241	0.0000	0.4827	0.1202	0.0449	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	39	39	10	0.0000	0.0000	0.0000	0.0000
	0.5046	0.0000	0.0000	0.0000	0.1634	0.1807	0.0618	0.0000	0.0000	0.0895		
2009	1	1	0	0	37	40	40	7	0.0000	0.0000	0.0000	0.0000
	0.1387	0.0000	0.0000	0.1710	0.4399	0.2504	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	41	41	3	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3067	0.6900	0.0000	0.0033		
2009	1	1	0	0	37	42	42	5	0.0000	0.0000	0.0000	0.0000
	0.0728	0.0000	0.2197	0.0000	0.3658	0.0000	0.0000	0.0000	0.0000	0.3417		
2009	1	1	0	0	37	43	43	4	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.2203	0.5049	0.2129	0.0000	0.0618	0.0000	0.0000		
2009	1	1	0	0	37	45	45	3	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	46	46	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		

2009	1	1	0	0	37	47	47	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.8013	0.0000	0.1987	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	50	50	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000		
2009	1	1	0	0	37	51	51	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000		
# Ghost US fishery												
1973	1	1	0	0	1	1	51	-1	0	0.26	0.045	0.101
	0.187	0.117	0.107	0.1	0.048	0.021	0.009	0.005	0	0		
1974	1	1	0	0	2	1	51	-1	0.0044	0.0033	0.5066	0.0692
	0.1198	0.1494	0.0868	0.0385	0.0121	0.0055	0.0033	0.0011	0	0		
1975	1	1	0	0	3	1	51	-1	0.314	0.0417	0.0396	0.3841
	0.0553	0.0678	0.0655	0.0082	0.0059	0.0078	0.005	0.0043	0.0009	0		
1976	1	1	0	0	4	1	51	-1	0.0387	0.1588	0.0531	0.0142
	0.1407	0.1109	0.117	0.1021	0.0973	0.0655	0.0564	0.0224	0.0192	0.0038		
1977	1	1	0	0	5	1	51	-1	0.0947	0.0408	0.215	0.0289
	0.0528	0.2044	0.077	0.079	0.0627	0.0575	0.0426	0.0295	0.0079	0.0071		
1978	1	1	0	0	6	1	51	-1	0.0242	0.1074	0.0705	0.2066
	0.0326	0.0662	0.2077	0.079	0.0704	0.0726	0.0241	0.0205	0.013	0.0053		
1979	1	1	0	0	7	1	51	-1	0.0544	0.0986	0.1084	0.0457
	0.1995	0.0682	0.157	0.1473	0.0522	0.0344	0.0145	0.0091	0.0056	0.0053		
1980	1	1	0	0	8	1	51	-1	0.0116	0.3165	0.0524	0.0599
	0.0528	0.1392	0.0663	0.0902	0.1022	0.0369	0.0368	0.0187	0.0078	0.0088		
1981	1	1	0	0	9	1	51	-1	0.1106	0.0761	0.3302	0.0128
	0.0406	0.0436	0.1364	0.0673	0.0563	0.0893	0.0225	0.0089	0.003	0.0025		
1982	1	1	0	0	10	1	51	-1	0.2586	0.0369	0.0148	0.2731
	0.0315	0.0455	0.0451	0.1268	0.0255	0.0377	0.0883	0.0076	0.0034	0.0052		
1983	1	1	0	0	11	1	51	-1	0	0.3883	0.0384	0.0183
	0.2179	0.0425	0.0422	0.0546	0.0999	0.0312	0.0256	0.0292	0.0092	0.0026		
1984	1	1	0	0	12	1	51	-1	0	0.0071	0.6914	0.0387
	0.0384	0.1183	0.0197	0.0133	0.0096	0.0311	0.0071	0.0057	0.0163	0.0033		
1985	1	1	0	0	13	1	51	-1	0.0082	0.0076	0.0606	0.707
	0.0751	0.0437	0.0784	0.0102	0.0036	0.0039	0.0016	0.0001	0	0		
1986	1	1	0	0	14	1	51	-1	0.1509	0.0416	0.009	0.0245
	0.4486	0.0656	0.0465	0.1029	0.0241	0.033	0.0143	0.0284	0.0036	0.0071		
1987	1	1	0	0	15	1	51	-1	0	0.3819	0.0209	0.0049
	0.0138	0.4487	0.0333	0.0105	0.0678	0.0028	0.0005	0.0023	0.01	0.0026		
1988	1	1	0	0	16	1	51	-1	0.0045	0.0032	0.4458	0.0169
	0.0068	0.0086	0.3554	0.0242	0.0058	0.0862	0.0011	0.0026	0	0.0388		
1989	1	1	0	0	17	1	51	-1	0.0389	0.0321	0.0129	0.4824
	0.0145	0.0053	0.007	0.339	0.0184	0.0035	0.0406	0.0005	0.0009	0.0039		
1990	1	1	0	0	18	1	51	-1	0.0687	0.3184	0.0232	0.0028
	0.1864	0.0033	0.0014	0.0014	0.2986	0.0029	0.0003	0.0828	0	0.0098		
1991	1	1	0	0	19	1	51	-1	0.0491	0.2494	0.2193	0.0295
	0.0092	0.227	0.0156	0.0018	0.0017	0.1379	0.0047	0	0.0462	0.0087		
1992	1	1	0	0	20	1	51	-1	0.0501	0.0607	0.1531	0.1865
	0.0181	0.0092	0.2877	0.0077	0.0018	0.0052	0.1797	0.0065	0.0003	0.0335		
1993	1	1	0	0	21	1	51	-1	0.0101	0.3064	0.0357	0.1392
	0.1565	0.0128	0.0095	0.2204	0.0103	0.0015	0.0006	0.0893	0.0002	0.0075		
1994	1	1	0	0	22	1	51	-1	0.0006	0.0464	0.2699	0.0112
	0.1285	0.212	0.0071	0.0039	0.2367	0.0007	0.0049	0.0004	0.0702	0.0074		
1995	1	1	0	0	23	1	51	-1	0.0126	0	0.0645	0.3242
	0.0027	0.061	0.2202	0.0092	0.0011	0.2185	0	0.005	0	0.0809		
1996	1	1	0	0	24	1	51	-1	0.1851	0.1622	0.0071	0.0895
	0.2083	0.0017	0.0401	0.1087	0.0012	0.0029	0.1595	0	0.0017	0.032		
1997	1	1	0	0	25	1	51	-1	0.0038	0.3634	0.2641	0.0032
	0.0438	0.1342	0.0101	0.0271	0.061	0.0036	0.0017	0.0599	0.0006	0.0236		
1998	1	1	0	0	26	1	51	-1	0.108	0.2512	0.1541	0.2576
	0.0299	0.0324	0.0883	0.0079	0.0067	0.0329	0.0026	0.0011	0.0232	0.0041		
1999	1	1	0	0	27	1	51	-1	0.0783	0.2754	0.2037	0.1655
	0.0902	0.0244	0.0371	0.0416	0.0064	0.0124	0.0267	0.0056	0.0081	0.0247		
2000	1	1	0	0	28	1	51	-1	0.0344	0.0718	0.1511	0.1551
	0.2037	0.1161	0.0855	0.0577	0.0188	0.0203	0.0238	0.0126	0.0113	0.0377		
2001	1	1	0	0	29	1	51	-1	0.1317	0.2028	0.1327	0.2138
	0.0969	0.1034	0.0499	0.0145	0.0141	0.0116	0.0107	0.0062	0.0049	0.0068		
2002	1	1	0	0	30	1	51	-1	0.0005	0.6017	0.1863	0.0547
	0.0551	0.0347	0.0287	0.0194	0.0054	0.0031	0.0048	0.0003	0.0009	0.0045		

2003	1	1	0	0	31	1	51	-1	0.0008	0.0123	0.7937	0.1021
	0.0165	0.0256	0.0157	0.0146	0.0072	0.0053	0.0017	0.0024	0.0008	0.0012		
2004	1	1	0	0	32	1	51	-1	0	0.0812	0.1116	0.682
	0.0522	0.0139	0.0226	0.0206	0.0035	0.007	0.0012	0.0027	0	0.0015		
2005	1	1	0	0	33	1	51	-1	0.0121	0.006	0.0897	0.0629
	0.6939	0.0668	0.0216	0.0195	0.0121	0.0056	0.0067	0.0018	0.0005	0.0008		
2006	1	1	0	0	34	1	51	-1	0.0214	0.1454	0.0194	0.0986
	0.0521	0.5872	0.037	0.0102	0.0128	0.0063	0.0043	0.0029	0.0007	0.0017		
2007	1	1	0	0	35	1	51	-1	0.179	0.0402	0.1714	0.0155
	0.0729	0.0449	0.3989	0.0402	0.0164	0.0124	0.0075	0.0014	0.0004	0.002		
2008	1	1	0	0	36	1	51	-1	0.0903	0.3751	0.0268	0.1491
	0.0100	0.0361	0.0347	0.2458	0.0163	0.0055	0.0059	0.0014	0.0020	0.0011		
2009	1	1	0	0	37	1	51	-1	0.0090	0.2716	0.3466	0.0327
	0.1102	0.0094	0.0249	0.0152	0.1532	0.0148	0.0024	0.0047	0.0031	0.0023		
# Canadian Fishery												
1977	1	2	0	0	5	1	51	60	0.0021	0.0021	0.0516	0.0186
	0.0619	0.3772	0.1093	0.1031	0.0866	0.0825	0.0722	0.033	0	0		
1978	1	2	0	0	6	1	51	60	0	0	0.0339	0.0593
	0.0475	0.1797	0.222	0.1898	0.1051	0.0814	0.0356	0.0305	0.0153	0		
1979	1	2	0	0	7	1	51	60	0	0	0.0188	0.0554
	0.1162	0.1019	0.1877	0.2699	0.0983	0.0706	0.0331	0.0223	0.0152	0.0107		
1980	1	2	0	0	8	1	51	60	0	0	0	0.0311
	0.0411	0.1629	0.0609	0.0782	0.4463	0.0841	0.0411	0.0411	0.0133	0		
1981	1	2	0	0	9	1	51	60	0	0	0.0488	0.0131
	0.0682	0.0667	0.207	0.0411	0.1141	0.2988	0.0721	0.029	0.0411	0		
1982	1	2	0	0	10	1	51	60	0	0	0.0221	0.4268
	0.0352	0.046	0.0451	0.141	0.032	0.0249	0.1931	0.0189	0.015	0		
1983	1	2	0	0	11	1	51	60	0.0009	0.218	0.016	0.028
	0.4999	0.0201	0.0291	0.026	0.0869	0.012	0.004	0.053	0.004	0.002		
1984	1	2	0	0	12	1	51	60	0	0.018	0.215	0.028
	0.15	0.338	0.0331	0.0381	0.025	0.0779	0.0151	0.013	0.0429	0.006		
1985	1	2	0	0	13	1	51	60	0.002	0.002	0.0808	0.2648
	0.0544	0.1072	0.3173	0.0162	0.0181	0.0181	0.0544	0.0122	0	0.0524		
1986	1	2	0	0	14	1	51	60	0.0021	0.0021	0.0043	0.0608
	0.5877	0.0369	0.0369	0.1757	0.0196	0.0087	0.0152	0.0217	0.0066	0.0217		
1987	1	2	0	0	15	1	51	60	0	0.0094	0.0063	0.0016
	0.0268	0.7415	0.03	0.03	0.1088	0.0063	0.0047	0.0126	0.0094	0.0126		
1988	1	2	0	0	16	16	16	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	2	0	0	16	18	18	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
1988	1	2	0	0	16	19	19	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	2	0	0	16	20	20	3	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	2	0	0	16	21	21	4	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1988	1	2	0	0	16	22	22	4	0	0.063	0.8963	0
	0	0	0.0407	0	0	0	0	0	0	0		
1988	1	2	0	0	16	23	23	4	0	0	0.6076	0
	0	0.0239	0.3685	0	0	0	0	0	0	0		
1988	1	2	0	0	16	24	24	5	0	0.0157	0.4178	0
	0.0356	0.0154	0.5028	0	0	0.0127	0	0	0	0		
1988	1	2	0	0	16	25	25	5	0	0	0.2662	0.0129
	0.0098	0.01	0.6847	0	0.0065	0.0098	0	0	0	0		
1988	1	2	0	0	16	26	26	5	0	0.0116	0.1763	0.0094
	0.0094	0.0042	0.7612	0.013	0	0.0148	0	0	0	0		
1988	1	2	0	0	16	27	27	5	0	0	0.0915	0
	0.016	0.0218	0.8548	0.016	0	0	0	0	0	0		
1988	1	2	0	0	16	28	28	5	0	0	0.057	0.004
	0.0172	0.0121	0.853	0.011	0.004	0.0367	0.005	0	0	0		
1988	1	2	0	0	16	29	29	5	0	0	0.0431	0.0072
	0.0119	0.0191	0.7988	0.027	0.0144	0.0786	0	0	0	0		
1988	1	2	0	0	16	30	30	5	0	0	0.0084	0.0084
	0	0.0279	0.7414	0.0239	0.0169	0.1732	0	0	0	0		
1988	1	2	0	0	16	31	31	5	0	0	0.0133	0
	0.0052	0.008	0.8117	0.0133	0.0157	0.1275	0	0	0.0052	0		

1988	1	2	0	0	16	32	32	5	0	0	0	0
	0	0.0227	0.6203	0.0125	0.0554	0.2558	0	0	0.0166	0.0166		
1988	1	2	0	0	16	33	33	5	0	0	0	0
	0	0.0384	0.6474	0.0158	0	0.2545	0	0.0296	0.0064	0.0079		
1988	1	2	0	0	16	34	34	5	0	0	0	0
	0	0	0.5295	0.0107	0.0428	0.298	0	0.0268	0	0.0921		
1988	1	2	0	0	16	35	35	5	0	0	0.0255	0
	0	0	0.5594	0.0602	0.051	0.2405	0.0264	0	0.0107	0.0264		
1988	1	2	0	0	16	36	36	4	0	0	0	0
	0	0	0.4977	0	0.0383	0.1996	0	0.041	0	0.2234		
1988	1	2	0	0	16	37	37	4	0	0	0.0396	0
	0	0	0.4063	0.0132	0.0791	0.3634	0.0409	0	0	0.0574		
1988	1	2	0	0	16	38	38	4	0	0	0	0
	0	0	0.2085	0.07	0.0748	0.357	0	0.1013	0	0.1884		
1988	1	2	0	0	16	39	39	4	0	0	0	0
	0	0	0.2196	0.047	0.0773	0.4365	0	0.0908	0.038	0.0908		
1988	1	2	0	0	16	40	40	3	0	0	0	0
	0	0	0.462	0	0	0.3806	0	0	0	0.1574		
1988	1	2	0	0	16	41	41	3	0	0	0	0
	0	0	0.5654	0	0	0.1592	0.0581	0	0	0.2173		
1988	1	2	0	0	16	42	42	2	0	0	0	0
	0	0	0	0	0	0.7157	0	0	0	0.2843		
1988	1	2	0	0	16	43	43	1	0	0	0	0
	0	0	0.5	0	0	0	0	0	0.5	0		
1988	1	2	0	0	16	44	44	1	0	0	0	0
	0	0	0.5	0	0	0.5	0	0	0	0		
1988	1	2	0	0	16	45	45	1	0	0	0	0
	0	0	0	0	0	0.5	0	0	0	0.5		
1988	1	2	0	0	16	46	46	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1988	1	2	0	0	16	51	51	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1989	1	2	0	0	17	21	21	2	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
1989	1	2	0	0	17	22	22	5	0	0.0582	0	0.8415
	0	0	0	0.1004	0	0	0	0	0	0		
1989	1	2	0	0	17	23	23	6	0	0	0	0.9226
	0	0	0	0.0774	0	0	0	0	0	0		
1989	1	2	0	0	17	24	24	6	0	0	0	0.7568
	0	0	0	0.2415	0	0	0.0018	0	0	0		
1989	1	2	0	0	17	25	25	6	0	0	0	0.6973
	0	0	0	0.3027	0	0	0	0	0	0		
1989	1	2	0	0	17	26	26	6	0	0	0.0112	0.5641
	0	0	0	0.4185	0	0.0062	0	0	0	0		
1989	1	2	0	0	17	27	27	6	0	0	0.001	0.4773
	0	0	0.008	0.4922	0	0.016	0.0056	0	0	0		
1989	1	2	0	0	17	28	28	6	0	0	0	0.3428
	0.0073	0.0104	0	0.6163	0	0	0.0231	0	0	0		
1989	1	2	0	0	17	29	29	6	0	0	0	0.2365
	0	0	0.0101	0.6574	0.0302	0.0142	0.0374	0.0142	0	0		
1989	1	2	0	0	17	30	30	6	0	0	0	0.2081
	0	0	0.0197	0.715	0.0278	0	0.0197	0.0098	0	0		
1989	1	2	0	0	17	31	31	6	0	0	0.0153	0.1517
	0	0	0	0.7488	0	0.0173	0.0669	0	0	0		
1989	1	2	0	0	17	32	32	6	0	0	0	0.0167
	0	0	0	0.8686	0	0	0.1147	0	0	0		
1989	1	2	0	0	17	33	33	6	0	0	0	0.1111
	0	0	0.0224	0.5314	0.0408	0.0571	0.2371	0	0	0		
1989	1	2	0	0	17	34	34	6	0	0	0	0.0403
	0	0	0	0.7302	0.0388	0.0973	0.0934	0	0	0		
1989	1	2	0	0	17	35	35	4	0	0	0	0
	0	0.0851	0	0.6749	0.0289	0.0705	0.1347	0	0	0.006		
1989	1	2	0	0	17	36	36	5	0	0.0306	0	0
	0	0	0	0.7102	0	0.0422	0.1797	0	0	0.0373		
1989	1	2	0	0	17	37	37	4	0	0	0	0
	0	0	0	0.5935	0	0.0395	0.2795	0	0	0.0876		

1989	1	2	0	0	17	38	38	4	0	0	0	0
	0	0	0	0.6563	0	0	0.301	0	0	0.0427		
1989	1	2	0	0	17	39	39	3	0	0	0	0.0684
	0	0	0	0.7104	0	0	0.1245	0	0.0967	0		
1989	1	2	0	0	17	40	40	2	0	0	0	0
	0	0	0	0.2674	0.0891	0	0.6434	0	0	0		
1989	1	2	0	0	17	41	41	2	0	0	0	0.0406
	0	0	0	0.4797	0	0.2398	0.2398	0	0	0		
1989	1	2	0	0	17	42	42	1	0	0	0	0
	0	0	0	0.3333	0	0.3333	0	0	0.3333	0		
1989	1	2	0	0	17	43	43	3	0	0	0	0
	0	0	0	0.4939	0	0	0.5061	0	0	0		
1989	1	2	0	0	17	44	44	3	0	0	0	0
	0	0	0	0.5173	0	0	0.2176	0	0	0.2651		
1989	1	2	0	0	17	45	45	2	0	0	0	0
	0	0	0	0.4142	0	0	0.2929	0	0	0.2929		
1989	1	2	0	0	17	46	46	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1989	1	2	0	0	17	47	47	1	0	0	0	0
	0	0	0	0.5	0	0	0	0	0	0.5		
1989	1	2	0	0	17	48	48	2	0	0	0	0
	0	0	0	0.6455	0	0	0.3545	0	0	0		
1989	1	2	0	0	17	51	51	4	0	0	0	0
	0	0	0	0.7198	0	0	0.0479	0	0	0.2322		
1990	1	2	0	0	18	19	19	2	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1990	1	2	0	0	18	20	20	3	0	0.3572	0.2447	0
	0.1534	0.2447	0	0	0	0	0	0	0	0		
1990	1	2	0	0	18	21	21	3	0	0.8579	0	0
	0.1421	0	0	0	0	0	0	0	0	0		
1990	1	2	0	0	18	22	22	4	0	0.6056	0.1558	0
	0.1862	0.0111	0	0	0.0412	0	0	0	0	0		
1990	1	2	0	0	18	23	23	5	0	0.3327	0.0323	0
	0.635	0	0	0	0	0	0	0	0	0		
1990	1	2	0	0	18	24	24	6	0	0.1181	0.0678	0
	0.7562	0.0091	0	0	0.0316	0	0	0.0172	0	0		
1990	1	2	0	0	18	25	25	4	0	0.0561	0.0519	0.0151
	0.7626	0	0.0142	0	0.1001	0	0	0	0	0		
1990	1	2	0	0	18	26	26	4	0	0.0118	0.0146	0
	0.7622	0	0	0	0.2011	0.0103	0	0	0	0		
1990	1	2	0	0	18	27	27	4	0	0	0.0237	0
	0.6975	0.0203	0	0	0.2466	0	0	0.012	0	0		
1990	1	2	0	0	18	28	28	4	0	0	0.0199	0
	0.5867	0	0	0	0.3935	0	0	0	0	0		
1990	1	2	0	0	18	29	29	4	0	0	0	0
	0.5109	0.0123	0.0123	0	0.4408	0.0188	0	0.0048	0	0		
1990	1	2	0	0	18	30	30	4	0	0	0	0
	0.3016	0.0117	0	0	0.675	0.0117	0	0	0	0		
1990	1	2	0	0	18	31	31	5	0	0	0	0
	0.1982	0	0	0	0.6373	0	0	0.1645	0	0		
1990	1	2	0	0	18	32	32	5	0	0	0	0
	0.1635	0	0	0	0.7753	0.0157	0	0.0454	0	0		
1990	1	2	0	0	18	33	33	6	0	0	0	0
	0.0743	0	0	0	0.8912	0	0	0.0345	0	0		
1990	1	2	0	0	18	34	34	4	0	0	0	0
	0.0801	0	0	0	0.6645	0	0	0.2553	0	0		
1990	1	2	0	0	18	35	35	5	0	0	0	0
	0.0495	0.0181	0	0	0.8964	0	0	0.0361	0	0		
1990	1	2	0	0	18	36	36	3	0	0	0	0
	0.3641	0	0	0	0.3778	0.1821	0	0.0507	0.0254	0		
1990	1	2	0	0	18	37	37	4	0	0	0	0
	0.204	0.102	0.0142	0	0.4661	0	0	0.1995	0	0.0142		
1990	1	2	0	0	18	38	38	4	0	0	0	0
	0	0	0	0	0.9823	0	0	0.0177	0	0		
1990	1	2	0	0	18	39	39	3	0	0	0	0
	0.0449	0	0	0	0.4575	0	0	0.4126	0	0.085		

1990	1	2	0	0	18	40	40	4	0	0	0	0
	0	0	0	0	0.9151	0	0	0.0556	0	0.0294		
1990	1	2	0	0	18	41	41	3	0	0	0	0
	0	0	0	0	0.8113	0	0	0.1887	0	0		
1990	1	2	0	0	18	42	42	2	0	0	0	0
	0.6715	0	0	0	0.3285	0	0	0	0	0		
1990	1	2	0	0	18	43	43	4	0	0	0	0
	0	0	0	0	0.5143	0	0	0.2468	0	0.2389		
1990	1	2	0	0	18	44	44	4	0	0	0	0
	0	0	0	0	0.9708	0	0	0.0292	0	0		
1990	1	2	0	0	18	45	45	2	0	0	0	0
	0	0	0	0	0.2684	0	0	0.7316	0	0		
1990	1	2	0	0	18	46	46	2	0	0	0	0
	0	0	0	0	0.2179	0	0	0.7821	0	0		
1990	1	2	0	0	18	47	47	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1990	1	2	0	0	18	48	48	2	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1990	1	2	0	0	18	50	50	1	0	0	0	0
	0	0	0	0	0.5	0	0	0.5	0	0		
1990	1	2	0	0	18	51	51	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1991	1	2	0	0	19	20	20	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	2	0	0	19	21	21	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
1991	1	2	0	0	19	22	22	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1991	1	2	0	0	19	23	23	3	0	0	0.1924	0
	0	0.3336	0	0	0	0.4741	0	0	0	0		
1991	1	2	0	0	19	24	24	6	0	0	0.509	0
	0	0.1479	0	0	0	0.3431	0	0	0	0		
1991	1	2	0	0	19	25	25	14	0	0	0.1965	0.0662
	0	0.4044	0	0	0	0.294	0	0	0.0389	0		
1991	1	2	0	0	19	26	26	16	0	0	0.0568	0.0262
	0	0.639	0	0	0	0.278	0	0	0	0		
1991	1	2	0	0	19	27	27	16	0	0	0.0768	0.0101
	0	0.5971	0.0064	0	0	0.3096	0	0	0	0		
1991	1	2	0	0	19	28	28	16	0	0	0.0762	0.0101
	0.0057	0.5297	0.0033	0	0	0.3691	0.0033	0	0.0027	0		
1991	1	2	0	0	19	29	29	16	0	0	0.0242	0.0214
	0	0.5746	0	0	0	0.3798	0	0	0	0		
1991	1	2	0	0	19	30	30	16	0	0	0.0376	0.011
	0	0.5278	0.0105	0	0	0.4096	0	0	0.0035	0		
1991	1	2	0	0	19	31	31	16	0	0	0	0.0097
	0.0063	0.586	0	0	0	0.3796	0	0	0.0185	0		
1991	1	2	0	0	19	32	32	16	0	0	0.0147	0.0096
	0.0124	0.5178	0.0045	0	0	0.3892	0	0	0.0519	0		
1991	1	2	0	0	19	33	33	13	0	0	0	0.0522
	0	0.5666	0	0	0	0.3358	0	0	0.0278	0.0176		
1991	1	2	0	0	19	34	34	13	0	0	0.0123	0.048
	0	0.4702	0	0	0	0.4392	0.0303	0	0	0		
1991	1	2	0	0	19	35	35	8	0	0	0.0533	0.1965
	0	0.3819	0	0	0	0.2435	0	0	0.1248	0		
1991	1	2	0	0	19	36	36	4	0	0	0	0
	0	0.3992	0	0	0	0.6008	0	0	0	0		
1991	1	2	0	0	19	37	37	8	0	0	0	0
	0	0.0541	0	0	0	0.9459	0	0	0	0		
1991	1	2	0	0	19	38	38	3	0	0	0	0
	0	0.1559	0	0	0	0.6883	0	0	0.1559	0		
1991	1	2	0	0	19	39	39	5	0	0	0	0.1351
	0	0.3317	0	0	0	0.4364	0	0	0.0968	0		
1991	1	2	0	0	19	40	40	3	0	0	0	0
	0	0.4818	0	0	0	0.5182	0	0	0	0		
1991	1	2	0	0	19	41	41	2	0	0	0	0
	0	0.6147	0	0	0	0.3853	0	0	0	0		

1991	1	2	0	0	19	42	42	2	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1991	1	2	0	0	19	43	43	2	0	0	0	0
	0	0.3472	0	0	0	0	0	0	0.6528	0		
1991	1	2	0	0	19	45	45	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1991	1	2	0	0	19	47	47	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
1991	1	2	0	0	19	49	49	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1991	1	2	0	0	19	50	50	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1991	1	2	0	0	19	51	51	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1992	1	2	0	0	20	18	18	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
1992	1	2	0	0	20	19	19	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	2	0	0	20	20	20	2	0	0	0	0.8566
	0	0	0	0	0	0	0.1434	0	0	0		
1992	1	2	0	0	20	21	21	3	0	0	0.8034	0.1966
	0	0	0	0	0	0	0	0	0	0		
1992	1	2	0	0	20	22	22	9	0	0.0629	0.4474	0.3831
	0	0	0.1067	0	0	0	0	0	0	0		
1992	1	2	0	0	20	23	23	15	0	0.0707	0.4155	0.2003
	0.0291	0	0.2844	0	0	0	0	0	0	0		
1992	1	2	0	0	20	24	24	22	0	0.0457	0.3167	0.3246
	0.0375	0	0.2681	0	0	0	0.0075	0	0	0		
1992	1	2	0	0	20	25	25	27	0	0	0.1557	0.3182
	0.0334	0.011	0.4011	0	0	0	0.0806	0	0	0		
1992	1	2	0	0	20	26	26	29	0	0.0019	0.0722	0.2586
	0.0312	0	0.5154	0	0	0	0.1208	0	0	0		
1992	1	2	0	0	20	27	27	29	0	0.0033	0.0457	0.2214
	0.0545	0.0035	0.4628	0.0037	0	0.0035	0.2017	0	0	0		
1992	1	2	0	0	20	28	28	29	0	0	0.0257	0.1411
	0.0392	0.0026	0.5138	0.0023	0	0	0.2679	0	0	0.0074		
1992	1	2	0	0	20	29	29	29	0	0	0.0081	0.0788
	0.0295	0.0056	0.52	0.0081	0	0	0.3466	0	0	0.0033		
1992	1	2	0	0	20	30	30	29	0	0.0048	0	0.0651
	0.0118	0.0076	0.4998	0.0056	0	0	0.375	0.0126	0	0.0177		
1992	1	2	0	0	20	31	31	27	0	0	0	0.0178
	0.0063	0	0.6126	0	0	0.0052	0.3534	0	0	0.0046		
1992	1	2	0	0	20	32	32	28	0	0	0	0.046
	0.0102	0	0.5851	0	0	0	0.3213	0	0.0229	0.0145		
1992	1	2	0	0	20	33	33	16	0	0	0	0
	0	0	0.5088	0	0	0	0.4634	0	0	0.0278		
1992	1	2	0	0	20	34	34	15	0	0	0	0
	0.061	0	0.3594	0	0	0	0.3817	0	0	0.1978		
1992	1	2	0	0	20	35	35	12	0	0	0.0638	0
	0	0	0.5697	0	0	0	0.2556	0	0	0.1109		
1992	1	2	0	0	20	36	36	7	0	0	0	0
	0	0	0.287	0	0	0	0.5187	0	0	0.1943		
1992	1	2	0	0	20	37	37	4	0	0	0	0
	0	0	0.6682	0	0	0	0.1704	0	0	0.1614		
1992	1	2	0	0	20	38	38	4	0	0	0	0.3974
	0	0	0.2059	0	0	0	0.2173	0	0	0.1795		
1992	1	2	0	0	20	39	39	4	0	0	0	0.1344
	0.2934	0	0.1986	0	0	0	0.2392	0	0	0.1344		
1992	1	2	0	0	20	40	40	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1992	1	2	0	0	20	41	41	3	0	0	0	0
	0	0	0.4912	0	0	0	0.5088	0	0	0		
1992	1	2	0	0	20	43	43	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1992	1	2	0	0	20	44	44	2	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		

1992	1	2	0	0	20	51	51	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
#1993	1	2	0	0	21	15	15	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1993	1	2	0	0	21	17	17	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1993	1	2	0	0	21	21	21	5	0	0.2669	0	0
	0.1832	0	0	0.1037	0	0	0	0.4461	0	0		
1993	1	2	0	0	21	22	22	10	0	0.3785	0	0.4759
	0.1456	0	0	0	0	0	0	0	0	0		
1993	1	2	0	0	21	23	23	14	0	0.049	0.2204	0.3917
	0.2392	0	0	0.0279	0	0	0	0.0717	0	0		
1993	1	2	0	0	21	24	24	17	0	0.0065	0.0704	0.3988
	0.3301	0.04	0	0.1362	0	0	0	0.0181	0	0		
1993	1	2	0	0	21	25	25	17	0	0.0134	0.0481	0.282
	0.2498	0.016	0	0.3397	0.0084	0	0	0.0426	0	0		
1993	1	2	0	0	21	26	26	18	0	0.0083	0.0234	0.1825
	0.2647	0.0078	0.0016	0.4499	0	0	0	0.0618	0	0		
1993	1	2	0	0	21	27	27	18	0	0	0.0213	0.1381
	0.1638	0.0225	0.0043	0.5129	0	0	0	0.1371	0	0		
1993	1	2	0	0	21	28	28	18	0	0	0.0017	0.097
	0.2	0.0189	0.01	0.4795	0	0	0	0.1929	0	0		
1993	1	2	0	0	21	29	29	18	0	0	0	0.0401
	0.1918	0.0227	0	0.5464	0.0145	0	0	0.1802	0	0.0042		
1993	1	2	0	0	21	30	30	18	0	0	0.0048	0.0329
	0.1918	0.0107	0	0.4723	0	0	0	0.2711	0.0162	0		
1993	1	2	0	0	21	31	31	17	0.0148	0	0.0201	0.0515
	0.0594	0.0127	0	0.6059	0	0	0	0.2356	0	0		
1993	1	2	0	0	21	32	32	13	0	0	0	0
	0.0676	0.032	0	0.5675	0	0	0	0.3329	0	0		
1993	1	2	0	0	21	33	33	12	0	0	0	0
	0.0449	0	0	0.4602	0	0	0	0.4949	0	0		
1993	1	2	0	0	21	34	34	4	0	0	0	0
	0.1043	0.2424	0	0.5207	0	0	0	0.1326	0	0		
1993	1	2	0	0	21	35	35	5	0	0	0	0
	0	0	0	0.9022	0	0	0	0.0978	0	0		
1993	1	2	0	0	21	36	36	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1993	1	2	0	0	21	39	39	5	0	0	0	0
	0	0	0	0.8445	0	0	0	0.1555	0	0		
#1994	1	2	0	0	22	14	14	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
#1994	1	2	0	0	22	16	16	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1994	1	2	0	0	22	17	17	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
1994	1	2	0	0	22	18	18	1	0	0	0	0
	1	0	0	0	0	0	0	0	0	0		
1994	1	2	0	0	22	22	22	6	0	0.1446	0.32	0.0594
	0.0263	0.1446	0	0	0.1239	0.1813	0	0	0	0		
1994	1	2	0	0	22	23	23	10	0	0.0607	0.4747	0.0819
	0.0922	0.1228	0	0	0.1328	0	0	0	0.035	0		
1994	1	2	0	0	22	24	24	20	0	0.113	0.1242	0.1669
	0.2058	0.203	0.1052	0	0.0619	0	0	0	0.0199	0		
1994	1	2	0	0	22	25	25	24	0	0.0085	0.0636	0.0395
	0.2079	0.2954	0.0196	0.0188	0.2712	0	0	0	0.0754	0		
1994	1	2	0	0	22	26	26	28	0	0.0126	0.0364	0.0564
	0.1828	0.2228	0.0322	0.0046	0.3896	0.0084	0	0	0.0528	0.0014		
1994	1	2	0	0	22	27	27	29	0	0	0.0307	0.0239
	0.1444	0.2145	0.0177	0.0025	0.4255	0.0056	0	0	0.1331	0.0021		
1994	1	2	0	0	22	28	28	30	0	0	0.0037	0.0106
	0.0986	0.1857	0.0315	0.0133	0.5073	0.0052	0	0	0.1398	0.0043		
1994	1	2	0	0	22	29	29	31	0	0.0017	0.004	0.0171
	0.1292	0.1952	0.0276	0.015	0.4508	0.0067	0.0027	0	0.1462	0.0039		
1994	1	2	0	0	22	30	30	30	0	0	0.0062	0.0091
	0.0717	0.1661	0.0249	0	0.4854	0.011	0.0106	0	0.2096	0.0055		

1994	1	2	0	0	22	31	31	28	0	0	0	0.0063
	0.0497	0.1058	0.0234	0.0043	0.5769	0.0014	0	0	0.2161	0.0161		
1994	1	2	0	0	22	32	32	28	0	0	0.0128	0.0049
	0.0932	0.1607	0.0227	0	0.4916	0	0.0126	0	0.2015	0		
1994	1	2	0	0	22	33	33	27	0	0	0	0
	0.0438	0.0697	0.0653	0	0.6349	0.0072	0	0	0.1722	0.0069		
1994	1	2	0	0	22	34	34	23	0	0	0	0.0215
	0.0287	0.1084	0.0217	0.0122	0.4374	0.0126	0	0	0.3577	0		
1994	1	2	0	0	22	35	35	18	0	0	0	0
	0	0.1464	0.0182	0	0.6881	0	0	0	0.1205	0.0267		
1994	1	2	0	0	22	36	36	21	0	0	0	0
	0.0157	0.057	0	0	0.7723	0	0	0	0.1315	0.0235		
1994	1	2	0	0	22	37	37	12	0	0	0	0
	0.2011	0.0684	0.0678	0	0.5074	0	0	0	0.062	0.0933		
1994	1	2	0	0	22	38	38	9	0	0	0	0
	0	0.1112	0	0	0.6705	0	0	0	0.2183	0		
1994	1	2	0	0	22	39	39	6	0	0	0	0
	0.2052	0	0	0	0.71	0	0	0	0.0848	0		
1994	1	2	0	0	22	40	40	8	0	0	0	0
	0	0	0	0	0.3183	0	0	0	0.6817	0		
1994	1	2	0	0	22	41	41	6	0	0	0	0
	0	0.1747	0	0	0.3552	0	0	0	0.2124	0.2577		
1994	1	2	0	0	22	42	42	5	0	0	0	0
	0.1924	0	0	0	0.3477	0	0	0	0.4599	0		
1994	1	2	0	0	22	43	43	3	0	0	0	0
	0	0	0	0	0.7261	0	0	0	0.2739	0		
1994	1	2	0	0	22	44	44	2	0	0	0	0
	0	0	0	0	0.4851	0	0	0	0.5149	0		
1994	1	2	0	0	22	45	45	3	0	0	0	0
	0	0	0	0	0.6264	0	0	0	0	0.3736		
1994	1	2	0	0	22	46	46	5	0	0	0	0
	0	0	0	0	0.7399	0	0	0	0.2602	0		
1994	1	2	0	0	22	47	47	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1994	1	2	0	0	22	51	51	2	0	0	0	0
	0	0	0	0	0	0	0	0	0.2489	0.7511		
1995	1	2	0	0	23	4	4	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	5	5	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	6	6	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	7	7	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	8	8	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	9	9	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	14	14	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	22	22	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	23	23	6	0	0.1065	0.283	0.3988
	0.1744	0.0373	0	0	0	0	0	0	0	0		
1995	1	2	0	0	23	24	24	11	0	0	0.4603	0.2464
	0.1938	0.0114	0.0394	0	0	0.0487	0	0	0	0		
1995	1	2	0	0	23	25	25	18	0.0202	0.0175	0.3776	0.2152
	0.0365	0.1002	0.1023	0.0391	0	0.0916	0	0	0	0		
1995	1	2	0	0	23	26	26	21	0	0	0.2148	0.1523
	0.082	0.1676	0.1249	0.0541	0.019	0.132	0	0.0127	0	0.0406		
1995	1	2	0	0	23	27	27	21	0	0.0146	0.1317	0.1007
	0.0437	0.119	0.2029	0.0309	0	0.2953	0.0181	0	0	0.0431		
1995	1	2	0	0	23	28	28	21	0	0.0036	0.0753	0.0903
	0.0374	0.134	0.1723	0.0211	0	0.3675	0.0102	0	0	0.0883		
1995	1	2	0	0	23	29	29	21	0	0.0093	0.0337	0.0176
	0.0108	0.12	0.2076	0.0286	0.0117	0.4131	0.0152	0	0	0.1326		

1995	1	2	0	0	23	30	30	21	0	0.0063	0.0131	0.0145
	0.0448	0.1462	0.1765	0.0453	0	0.4209	0.0078	0	0	0.1247		
1995	1	2	0	0	23	31	31	21	0	0	0.0195	0.0171
	0.0056	0.1207	0.1918	0.0346	0.0198	0.4375	0.0031	0	0	0.1504		
1995	1	2	0	0	23	32	32	21	0	0	0.0122	0.0261
	0.0098	0.0707	0.185	0.0799	0.0115	0.3818	0	0	0	0.2231		
1995	1	2	0	0	23	33	33	17	0	0	0.0289	0
	0.048	0.0888	0.0905	0.0759	0.0194	0.4846	0.0056	0	0	0.1583		
1995	1	2	0	0	23	34	34	17	0	0	0	0.0281
	0.0458	0.0319	0.1026	0.0836	0.0266	0.5102	0.0066	0	0	0.1647		
1995	1	2	0	0	23	35	35	14	0	0	0	0
	0	0.0337	0.0961	0.0955	0	0.5536	0	0	0	0.2212		
1995	1	2	0	0	23	36	36	11	0	0	0	0
	0.0316	0.0316	0.1278	0.0896	0	0.518	0	0	0	0.2014		
1995	1	2	0	0	23	37	37	7	0	0	0	0
	0	0.112	0.057	0.0285	0	0.7172	0	0	0	0.0852		
1995	1	2	0	0	23	38	38	5	0	0	0	0
	0	0	0.1767	0.102	0	0.5726	0	0	0	0.1488		
1995	1	2	0	0	23	39	39	9	0	0	0	0
	0	0	0	0.0497	0	0.9238	0	0	0	0.0266		
1995	1	2	0	0	23	40	40	6	0	0	0	0
	0	0	0.2439	0	0.0714	0.3531	0	0	0	0.3317		
1995	1	2	0	0	23	41	41	4	0	0	0	0
	0	0	0	0	0	0.6004	0	0	0	0.3996		
1995	1	2	0	0	23	42	42	4	0	0	0	0
	0.4388	0	0.2477	0	0	0.081	0	0	0	0.2325		
1995	1	2	0	0	23	43	43	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
1995	1	2	0	0	23	44	44	2	0	0	0	0
	0	0	0	0	0	0.6925	0	0	0	0.3075		
1995	1	2	0	0	23	45	45	3	0	0	0	0
	0	0	0	0	0.1487	0.5283	0	0	0	0.323		
1995	1	2	0	0	23	46	46	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1995	1	2	0	0	23	47	47	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1995	1	2	0	0	23	48	48	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1995	1	2	0	0	23	50	50	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1995	1	2	0	0	23	51	51	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1996	1	2	0	0	24	12	12	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	2	0	0	24	13	13	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	2	0	0	24	14	14	3	0.7801	0.1176	0	0
	0	0	0	0	0	0	0.1023	0	0	0		
1996	1	2	0	0	24	15	15	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	2	0	0	24	16	16	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	2	0	0	24	17	17	8	0.9488	0.0512	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	2	0	0	24	18	18	9	0.8959	0.0671	0	0
	0.037	0	0	0	0	0	0	0	0	0		
1996	1	2	0	0	24	19	19	12	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1996	1	2	0	0	24	20	20	7	0.8573	0.1174	0	0
	0	0	0	0.0254	0	0	0	0	0	0		
1996	1	2	0	0	24	21	21	8	0.7235	0.1658	0.0723	0
	0	0	0	0	0	0	0.0384	0	0	0		
1996	1	2	0	0	24	22	22	6	0.3887	0.32	0	0
	0.2912	0	0	0	0	0	0	0	0	0		
1996	1	2	0	0	24	23	23	14	0.0907	0.3327	0.0359	0.3086
	0.1473	0.0245	0.0245	0	0	0	0.0359	0	0	0		

1996	1	2	0	0	24	24	24	15	0.0392	0.1847	0.0618	0.1652
	0.3377	0.0267	0.1308	0.0169	0.0369	0	0	0	0	0		
1996	1	2	0	0	24	25	25	22	0	0.034	0.0482	0.2096
	0.2696	0.0397	0.1635	0.1614	0	0	0.0738	0	0	0		
1996	1	2	0	0	24	26	26	24	0	0.023	0.0269	0.2128
	0.2057	0.0379	0.1245	0.1283	0.018	0.0258	0.1576	0.0053	0	0.0343		
1996	1	2	0	0	24	27	27	24	0	0	0.0029	0.1606
	0.2049	0.0486	0.1451	0.158	0.0025	0.0048	0.224	0	0	0.0486		
1996	1	2	0	0	24	28	28	24	0	0.0034	0.0087	0.0851
	0.1236	0.0488	0.1278	0.1765	0.0125	0	0.3444	0	0	0.0692		
1996	1	2	0	0	24	29	29	24	0	0	0	0.0625
	0.0884	0.0177	0.1411	0.175	0.0219	0.0285	0.3787	0	0	0.0861		
1996	1	2	0	0	24	30	30	23	0.0041	0.01	0	0.0417
	0.0931	0.0387	0.1383	0.2076	0.0452	0.0113	0.3233	0	0	0.0867		
1996	1	2	0	0	24	31	31	23	0	0	0	0.0783
	0.0253	0.0432	0.093	0.1054	0.0656	0	0.4234	0	0	0.1657		
1996	1	2	0	0	24	32	32	22	0	0	0	0.0205
	0.0492	0.02	0.1245	0.1063	0.0587	0	0.4658	0	0	0.155		
1996	1	2	0	0	24	33	33	17	0	0	0	0.0326
	0.0491	0.0466	0.1239	0.1604	0.0176	0	0.4493	0	0	0.1205		
1996	1	2	0	0	24	34	34	11	0	0	0	0.0415
	0.0813	0	0	0.2205	0.0931	0	0.3872	0	0	0.1764		
1996	1	2	0	0	24	35	35	12	0	0	0	0
	0	0	0	0.1756	0.0486	0	0.4268	0	0	0.349		
1996	1	2	0	0	24	36	36	4	0	0	0	0
	0	0	0	0	0.2724	0.3387	0.389	0	0	0		
1996	1	2	0	0	24	37	37	7	0	0	0	0.163
	0	0.1771	0.1908	0.172	0	0	0.2971	0	0	0		
1996	1	2	0	0	24	38	38	7	0	0	0	0
	0	0	0	0.2281	0	0	0.6124	0	0	0.1595		
1996	1	2	0	0	24	39	39	6	0	0	0	0
	0	0	0.0612	0	0	0	0.5364	0	0	0.4024		
1996	1	2	0	0	24	40	40	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
1996	1	2	0	0	24	41	41	4	0	0	0	0
	0	0	0	0	0	0	0.3943	0	0	0.6057		
1996	1	2	0	0	24	42	42	4	0	0	0	0
	0	0	0	0	0	0	0.7404	0	0	0.2596		
1996	1	2	0	0	24	43	43	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1996	1	2	0	0	24	46	46	2	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1996	1	2	0	0	24	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1996	1	2	0	0	24	49	49	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1997	1	2	0	0	25	19	19	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1997	1	2	0	0	25	20	20	7	0	0.8108	0	0.1892
	0	0	0	0	0	0	0	0	0	0		
1997	1	2	0	0	25	21	21	10	0	0.2011	0.775	0
	0.0238	0	0	0	0	0	0	0	0	0		
1997	1	2	0	0	25	22	22	17	0.0219	0.9294	0.0358	0.0047
	0	0.0054	0	0	0	0	0	0.0028	0	0		
1997	1	2	0	0	25	23	23	21	0.0034	0.2016	0.2805	0.335
	0.0032	0.0038	0.1705	0.0019	0	0	0	0	0	0		
1997	1	2	0	0	25	24	24	22	0.0026	0.4606	0.4345	0.0162
	0.0463	0.017	0.0072	0.0027	0.0122	0	0	0	0	0.0005		
1997	1	2	0	0	25	25	25	22	0.0061	0.1771	0.3724	0.011
	0.0726	0.2823	0.0049	0.0279	0.0241	0	0	0.0214	0	0		
1997	1	2	0	0	25	26	26	23	0	0.1097	0.1388	0.0091
	0.1102	0.1434	0.0205	0.0357	0.3632	0.0074	0	0.0516	0	0.0105		
1997	1	2	0	0	25	27	27	23	0	0.0152	0.2461	0.0072
	0.2723	0.0659	0.1072	0.0458	0.1539	0.0107	0.0048	0.0615	0.0034	0.0061		
1997	1	2	0	0	25	28	28	23	0	0.0114	0.0158	0.0721
	0.187	0.2453	0.075	0.096	0.1036	0.0089	0	0.11	0.0684	0.0066		

1997	1	2	0	0	25	29	29	23	0	0	0.0134	0.0079
	0.158	0.0589	0.1172	0.1515	0.1635	0.0178	0.0026	0.1813	0.1183	0.0095		
1997	1	2	0	0	25	30	30	22	0	0.0015	0.0052	0.0094
	0.3102	0.3247	0.0041	0.0255	0.0776	0.1429	0.0062	0.0696	0.003	0.0201		
1997	1	2	0	0	25	31	31	22	0	0	0	0.0037
	0.1864	0.1711	0.0086	0.017	0.1951	0.3268	0	0.0692	0.0111	0.0111		
1997	1	2	0	0	25	32	32	18	0	0	0	0
	0.1552	0.0496	0.0621	0.1722	0.1571	0	0	0.2149	0.0282	0.1607		
1997	1	2	0	0	25	33	33	18	0	0	0	0.0075
	0.0226	0.3958	0.0011	0.4241	0.0401	0.0169	0.0163	0.047	0.0099	0.0188		
1997	1	2	0	0	25	34	34	14	0	0	0	0.0335
	0.0949	0.0322	0	0.1832	0.2078	0.0322	0	0.3055	0.0574	0.0533		
1997	1	2	0	0	25	35	35	9	0	0	0	0
	0.0844	0	0	0.3349	0.0097	0	0	0.4746	0.0963	0		
1997	1	2	0	0	25	36	36	5	0	0	0	0
	0.0415	0	0	0	0	0	0	0.746	0	0.2125		
1997	1	2	0	0	25	37	37	2	0	0	0	0
	0	0	0	0	0.0839	0	0	0.9161	0	0		
1997	1	2	0	0	25	38	38	3	0	0	0	0
	0.9754	0	0	0	0	0	0	0.0029	0.0189	0.0029		
1997	1	2	0	0	25	40	40	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1997	1	2	0	0	25	41	41	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1997	1	2	0	0	25	45	45	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1997	1	2	0	0	25	49	49	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1998	1	2	0	0	26	1	1	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	2	0	0	26	9	9	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	2	0	0	26	15	15	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
#1998	1	2	0	0	26	17	17	4	0.0345	0	0.0189	0.3449
	0	0	0.2568	0	0.3449	0	0	0	0	0		
1998	1	2	0	0	26	18	18	8	0	0.5986	0.3749	0.0265
	0	0	0	0	0	0	0	0	0	0		
1998	1	2	0	0	26	19	19	10	0.1256	0.578	0.1778	0.1186
	0	0	0	0	0	0	0	0	0	0		
1998	1	2	0	0	26	20	20	17	0	0.8538	0.1205	0.0172
	0	0	0	0.0085	0	0	0	0	0	0		
1998	1	2	0	0	26	21	21	18	0	0.5139	0.381	0.0895
	0.0156	0	0	0	0	0	0	0	0	0		
1998	1	2	0	0	26	22	22	19	0	0.4461	0.2215	0.2761
	0.0064	0.0136	0.0331	0	0	0	0	0	0.0032	0		
1998	1	2	0	0	26	23	23	25	0	0.1167	0.3418	0.4663
	0.0253	0.0175	0.0243	0	0.0066	0.0014	0	0	0	0		
1998	1	2	0	0	26	24	24	24	0	0.0309	0.3833	0.3358
	0.0247	0.1375	0.05	0.0104	0.0261	0.0011	0	0	0	0		
1998	1	2	0	0	26	25	25	25	0	0	0.285	0.4765
	0.0312	0.0925	0.0626	0.0118	0.0175	0.0219	0	0	0.0008	0		
1998	1	2	0	0	26	26	26	25	0	0.0359	0.2319	0.3365
	0.0273	0.1013	0.151	0.0007	0.0293	0.0716	0.0126	0	0	0.0019		
1998	1	2	0	0	26	27	27	25	0	0.0022	0.2871	0.1884
	0.0021	0.0789	0.1817	0.0518	0.0777	0.0814	0.0199	0.0013	0.0222	0.0053		
1998	1	2	0	0	26	28	28	25	0	0.0141	0.172	0.1622
	0.0238	0.1393	0.1426	0.037	0.0989	0.1111	0.0223	0	0.0522	0.0246		
1998	1	2	0	0	26	29	29	23	0	0.0349	0.0549	0.0657
	0.0073	0.2123	0.1676	0.0018	0.0649	0.1436	0.021	0	0.212	0.0139		
1998	1	2	0	0	26	30	30	21	0	0	0.0199	0.0534
	0.0212	0.2403	0.1171	0.0033	0.0718	0.0995	0	0.007	0.2573	0.109		
1998	1	2	0	0	26	31	31	22	0	0	0.0494	0.1161
	0	0.0863	0.2201	0	0.2375	0.0238	0	0	0.2408	0.0259		
1998	1	2	0	0	26	32	32	17	0	0	0.0717	0.0464
	0.0388	0.2628	0.1504	0.0259	0.0168	0.075	0	0.0039	0.3023	0.0061		

1998	1	2	0	0	26	33	33	8	0	0	0	0
	0	0.0261	0.0261	0	0	0.2889	0	0.0742	0.5671	0.0175		
1998	1	2	0	0	26	34	34	8	0	0	0	0.2937
	0	0.1852	0.0291	0	0.0762	0.0818	0	0	0.334	0		
1998	1	2	0	0	26	35	35	6	0	0	0	0
	0	0	0.0338	0	0.4542	0.4	0	0	0	0.112		
1998	1	2	0	0	26	36	36	2	0	0	0	0
	0	0.2931	0	0	0	0.2931	0.4138	0	0	0		
1998	1	2	0	0	26	37	37	2	0	0	0	0
	0	0.4795	0.4795	0.0409	0	0	0	0	0	0		
1998	1	2	0	0	26	38	38	3	0	0	0	0.1498
	0	0	0	0	0.1924	0.6578	0	0	0	0		
1998	1	2	0	0	26	39	39	2	0	0	0	0.7682
	0	0	0	0	0	0	0	0	0.2318	0		
1998	1	2	0	0	26	40	40	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1998	1	2	0	0	26	44	44	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1999	1	2	0	0	27	2	2	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	3	3	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	4	4	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	7	7	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	10	10	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	11	11	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	12	12	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	13	13	5	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	14	14	10	0.9464	0.0111	0.0425	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	15	15	7	0.9785	0	0	0.0215
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	16	16	10	0.9707	0.0045	0.0248	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	17	17	16	0.8775	0.0674	0.0551	0
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	18	18	17	0.7131	0.177	0.0444	0.0655
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	19	19	19	0.4669	0.2718	0.226	0.0354
	0	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	20	20	26	0.228	0.3938	0.2863	0.0515
	0.0404	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	21	21	27	0.0037	0.3535	0.4644	0.1469
	0.0314	0	0	0	0	0	0	0	0	0		
1999	1	2	0	0	27	22	22	30	0	0.1846	0.4158	0.2226
	0.1713	0	0	0.0057	0	0	0	0	0	0		
1999	1	2	0	0	27	23	23	35	0.0174	0.1038	0.408	0.2263
	0.2274	0	0	0.0172	0	0	0	0	0	0		
1999	1	2	0	0	27	24	24	36	0	0.0244	0.34	0.2597
	0.3139	0.0437	0.0016	0.0167	0	0	0	0	0	0		
1999	1	2	0	0	27	25	25	35	0.0016	0.0288	0.2074	0.3925
	0.2757	0.0355	0.0298	0.0162	0	0	0	0	0	0.0124		
1999	1	2	0	0	27	26	26	37	0	0.0145	0.1105	0.4163
	0.3236	0.0378	0.0188	0.0183	0.011	0.022	0.0115	0	0.0074	0.0082		
1999	1	2	0	0	27	27	27	38	0.0063	0.0125	0.0228	0.3987
	0.2864	0.0314	0.0776	0.0889	0.0135	0.0211	0.0175	0	0.004	0.0193		
1999	1	2	0	0	27	28	28	38	0	0.0006	0.0318	0.3619
	0.2354	0.0306	0.1185	0.0935	0.0201	0.0348	0.0261	0.0181	0	0.0286		
1999	1	2	0	0	27	29	29	34	0	0	0.0184	0.2493
	0.2137	0.0408	0.1151	0.0814	0.0561	0.0781	0.067	0.0174	0.0087	0.0541		

1999	1	2	0	0	27	30	30	35	0	0	0.0195	0.3751
	0.1606	0.0085	0.076	0.1532	0.0376	0.0452	0.0681	0.01	0	0.0463		
1999	1	2	0	0	27	31	31	31	0	0	0.0588	0.3042
	0.1252	0	0.0588	0.1102	0.0334	0.0241	0.0901	0.0419	0	0.1532		
1999	1	2	0	0	27	32	32	27	0	0.0257	0.0294	0.1211
	0.0824	0.0704	0.2222	0.1073	0.0798	0.027	0.0299	0.0227	0.0386	0.1435		
1999	1	2	0	0	27	33	33	22	0	0	0	0.1122
	0.1733	0	0.2969	0.0951	0.044	0.1001	0	0.0662	0	0.1124		
1999	1	2	0	0	27	34	34	14	0	0	0	0.0679
	0	0.0069	0.036	0.1597	0.0434	0.0769	0.0883	0.0524	0.0671	0.4013		
1999	1	2	0	0	27	35	35	11	0.015	0	0	0.0647
	0.1004	0	0.1596	0.15	0	0	0.3853	0.1041	0	0.0209		
1999	1	2	0	0	27	36	36	9	0	0	0	0.226
	0.2449	0	0	0	0	0.2069	0.1502	0	0.0313	0.1407		
1999	1	2	0	0	27	37	37	6	0	0	0	0.0239
	0	0.1958	0.137	0	0.21	0.0239	0.0239	0.1916	0	0.1939		
1999	1	2	0	0	27	38	38	2	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1999	1	2	0	0	27	39	39	4	0	0	0	0.0527
	0	0	0	0.2476	0	0.3665	0.3332	0	0	0		
1999	1	2	0	0	27	40	40	4	0	0	0	0
	0	0	0.2948	0	0	0.2809	0.0687	0	0.3556	0		
1999	1	2	0	0	27	41	41	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1999	1	2	0	0	27	42	42	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1999	1	2	0	0	27	43	43	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1999	1	2	0	0	27	45	45	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1999	1	2	0	0	27	47	47	2	0	0	0	0
	0	0	0.5163	0	0	0	0.4837	0	0	0		
2000	1	2	0	0	28	12	12	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	15	15	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	16	16	3	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	17	17	4	0	0.8414	0.1586	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	18	18	5	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	19	19	6	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	20	20	5	0	0.907	0.0605	0
	0.0324	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	21	21	9	0.0285	0.9595	0	0
	0.012	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	22	22	13	0	0.8801	0.0958	0.0242
	0	0	0	0	0	0	0	0	0	0		
2000	1	2	0	0	28	23	23	14	0.0117	0.8847	0.0438	0.0239
	0.014	0	0	0.0218	0	0	0	0	0	0		
2000	1	2	0	0	28	24	24	14	0	0.8452	0.1116	0.0338
	0	0	0	0	0.0094	0	0	0	0	0		
2000	1	2	0	0	28	25	25	17	0.007	0.7126	0.1507	0.0359
	0.0625	0.0282	0	0	0.0031	0	0	0	0	0		
2000	1	2	0	0	28	26	26	16	0	0.459	0.1797	0.0828
	0.193	0.0692	0	0.0077	0.0086	0	0	0	0	0		
2000	1	2	0	0	28	27	27	18	0.0081	0.3412	0.1217	0.1624
	0.156	0.133	0.0201	0.0297	0.0133	0.0069	0	0	0	0.0077		
2000	1	2	0	0	28	28	28	19	0	0.1405	0.0814	0.102
	0.3552	0.197	0.0213	0.0301	0.0191	0.0366	0.0066	0.0103	0	0		
2000	1	2	0	0	28	29	29	19	0	0.0796	0.053	0.1444
	0.3267	0.2519	0.045	0.0298	0.0089	0.0074	0.0337	0.006	0	0.0136		
2000	1	2	0	0	28	30	30	19	0	0.018	0.0134	0.106
	0.3534	0.2389	0.0281	0.0795	0.0731	0.0068	0.031	0.0055	0.0085	0.0378		

2000	1	2	0	0	28	31	31	20	0	0.0091	0.0104	0.0371
	0.3035	0.2991	0.035	0.0699	0.0262	0.0134	0.0341	0.1282	0.016	0.018		
2000	1	2	0	0	28	32	32	18	0	0.0096	0.0215	0.0799
	0.3314	0.152	0.0212	0.1212	0.0646	0.043	0.007	0.0464	0.0399	0.0623		
2000	1	2	0	0	28	33	33	16	0	0	0	0.0822
	0.3165	0.1881	0.0116	0.127	0.1003	0.0706	0.0476	0.015	0	0.0412		
2000	1	2	0	0	28	34	34	17	0	0	0.0121	0.02
	0.3169	0.1977	0.0212	0.2137	0.0347	0.013	0.0414	0.1056	0.0136	0.0102		
2000	1	2	0	0	28	35	35	15	0	0	0	0.0048
	0.338	0.1936	0.0127	0.1296	0.0095	0.0048	0.026	0.0066	0.034	0.2404		
2000	1	2	0	0	28	36	36	9	0	0.0059	0	0
	0.6663	0.0822	0	0	0.0691	0	0.0943	0.0647	0.0059	0.0116		
2000	1	2	0	0	28	37	37	10	0	0	0	0.1152
	0.1592	0	0.0163	0.2656	0.0212	0.0172	0.1335	0.1266	0.0085	0.1367		
2000	1	2	0	0	28	38	38	6	0	0.0303	0	0
	0.1299	0.0526	0	0.0569	0	0.5781	0.0526	0	0	0.0995		
2000	1	2	0	0	28	39	39	6	0	0	0.2004	0
	0.0485	0	0.2004	0.0516	0.0197	0	0.2455	0.2004	0	0.0334		
2000	1	2	0	0	28	40	40	8	0	0	0	0
	0.5526	0	0.0491	0.0431	0	0	0.3285	0.0267	0	0		
2000	1	2	0	0	28	41	41	4	0	0	0	0
	0	0	0.1648	0	0.5544	0	0.1473	0	0	0.1334		
2000	1	2	0	0	28	42	42	4	0	0	0	0
	0.0681	0.0681	0	0.4687	0	0	0.2053	0	0	0.1898		
2000	1	2	0	0	28	44	44	2	0	0	0	0
	0.0316	0	0	0	0	0.9684	0	0	0	0		
2000	1	2	0	0	28	45	45	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
2000	1	2	0	0	28	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
2000	1	2	0	0	28	48	48	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
2000	1	2	0	0	28	51	51	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
2001	1	2	0	0	29	12	12	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	2	0	0	29	22	22	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
2001	1	2	0	0	29	23	23	3	0	0	0.2522	0
	0.7478	0	0	0	0	0	0	0	0	0		
2001	1	2	0	0	29	24	24	4	0	0.351	0.649	0
	0	0	0	0	0	0	0	0	0	0		
2001	1	2	0	0	29	25	25	6	0	0.1256	0.3869	0.293
	0.0818	0	0.0818	0	0.0309	0	0	0	0	0		
2001	1	2	0	0	29	26	26	11	0	0.1061	0.4791	0.0189
	0.1866	0.1727	0.0368	0	0	0	0	0	0	0		
2001	1	2	0	0	29	27	27	15	0	0	0.499	0.0653
	0.2659	0.0759	0.0544	0.0248	0	0	0.0146	0	0	0		
2001	1	2	0	0	29	28	28	18	0	0.0826	0.4287	0.1058
	0.0978	0.1043	0.0791	0.0129	0	0.0424	0.015	0.024	0.0074	0		
2001	1	2	0	0	29	29	29	20	0	0.0494	0.3783	0.1216
	0.1908	0.1078	0.0621	0.0235	0.0122	0.0233	0	0.0142	0.0071	0.0098		
2001	1	2	0	0	29	30	30	20	0	0.0162	0.2301	0.1
	0.1479	0.2316	0.1758	0.0194	0.0201	0.0211	0.0045	0.008	0.0201	0.0053		
2001	1	2	0	0	29	31	31	20	0	0.0162	0.2234	0.0569
	0.1229	0.3025	0.0535	0.0358	0.0313	0.0498	0.013	0.043	0.0284	0.0231		
2001	1	2	0	0	29	32	32	20	0	0.0074	0.2169	0.107
	0.089	0.2881	0.1235	0.0206	0.0526	0.0335	0.0022	0.0162	0.0258	0.0173		
2001	1	2	0	0	29	33	33	20	0	0.0176	0.1685	0.0482
	0.0773	0.3021	0.1377	0.0408	0.0334	0.0597	0.0205	0.0248	0.0238	0.0457		
2001	1	2	0	0	29	34	34	19	0	0	0.0661	0.0105
	0.0522	0.3786	0.2435	0.01	0.0493	0.074	0.047	0.0126	0.0377	0.0187		
2001	1	2	0	0	29	35	35	18	0	0.0149	0.0122	0.0094
	0.0633	0.379	0.2474	0.0437	0.068	0.0474	0	0.0466	0.0302	0.0379		
2001	1	2	0	0	29	36	36	19	0	0	0	0.0195
	0.0926	0.2545	0.1888	0.0642	0.0095	0.1033	0.0362	0.1267	0.0095	0.0953		

2001	1	2	0	0	29	37	37	17	0	0	0.0133	0.0328
	0.1014	0.3356	0.1206	0.0413	0.0673	0.1096	0	0.0154	0.0872	0.0755		
2001	1	2	0	0	29	38	38	17	0	0	0	0
	0.1143	0.2767	0.1861	0.0359	0.1095	0.0993	0.0256	0.0467	0.0339	0.072		
2001	1	2	0	0	29	39	39	17	0	0	0	0
	0.0545	0.3484	0.2062	0.1137	0.0702	0.0926	0.0507	0.0316	0.032	0		
2001	1	2	0	0	29	40	40	12	0	0	0	0
	0	0.3602	0.053	0	0.1103	0.1366	0.0999	0.0334	0.0772	0.1292		
2001	1	2	0	0	29	41	41	9	0	0	0.0686	0
	0.0716	0.4975	0	0.0686	0.2221	0.0716	0	0	0	0		
2001	1	2	0	0	29	42	42	7	0	0	0	0
	0.0693	0.2129	0.0537	0.1276	0.1804	0.1431	0.2129	0	0	0		
2001	1	2	0	0	29	43	43	4	0	0	0	0
	0	0.526	0	0	0.2361	0.1393	0.0987	0	0	0		
2001	1	2	0	0	29	44	44	2	0	0	0	0
	0	0.3367	0.3367	0	0	0	0	0	0	0.3267		
2001	1	2	0	0	29	45	45	2	0	0	0	0
	0	0	0.2827	0	0	0	0	0	0	0.7173		
2001	1	2	0	0	29	46	46	3	0	0	0	0
	0	0.4858	0.2796	0	0	0	0	0	0	0.2346		
2001	1	2	0	0	29	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
2001	1	2	0	0	29	48	48	2	0	0	0	0
	0	0	0	0.4892	0	0.5108	0	0	0	0		
2002	1	2	0	0	30	18	18	1	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
2002	1	2	0	0	30	24	24	8	0	0.4236	0.4519	0.1244
	0	0	0	0	0	0	0	0	0	0		
2002	1	2	0	0	30	25	25	3	0	0.171	0.829	0
	0	0	0	0	0	0	0	0	0	0		
2002	1	2	0	0	30	26	26	5	0	0.3356	0.1722	0.3875
	0	0.1047	0	0	0	0	0	0	0	0		
2002	1	2	0	0	30	27	27	11	0	0.1017	0.4274	0.0414
	0.3158	0.1137	0	0	0	0	0	0	0	0		
2002	1	2	0	0	30	28	28	15	0	0	0.2106	0.2685
	0.2485	0.0726	0.0837	0.0617	0.0206	0.0338	0	0	0	0		
2002	1	2	0	0	30	29	29	22	0	0.0107	0.2295	0.2895
	0.0831	0.0595	0.1515	0.0784	0.0102	0.0329	0.027	0	0.0278	0		
2002	1	2	0	0	30	30	30	24	0	0.0108	0.1042	0.3278
	0.1159	0.0861	0.1629	0.1356	0.0122	0	0	0	0.0288	0.0156		
2002	1	2	0	0	30	31	31	25	0	0	0.103	0.3927
	0.1028	0.0962	0.1307	0.0816	0.0292	0.0268	0.0277	0	0.0094	0		
2002	1	2	0	0	30	32	32	26	0	0	0.0896	0.311
	0.1478	0.0908	0.165	0.1105	0.017	0.0112	0.042	0	0	0.0151		
2002	1	2	0	0	30	33	33	26	0	0.0114	0.0595	0.4025
	0.0673	0.0631	0.2048	0.0819	0.0064	0.0155	0.0277	0	0.0306	0.0294		
2002	1	2	0	0	30	34	34	26	0	0	0.0482	0.3387
	0.0633	0.091	0.1846	0.1382	0.0399	0.0232	0.0415	0.0058	0	0.0256		
2002	1	2	0	0	30	35	35	26	0	0.0077	0.0894	0.3053
	0.0644	0.0863	0.1933	0.1325	0.0282	0.0153	0.021	0.0117	0.0082	0.0369		
2002	1	2	0	0	30	36	36	26	0	0	0.05	0.2033
	0.0759	0.1598	0.3031	0.1071	0.0113	0.0507	0.0072	0	0.0114	0.02		
2002	1	2	0	0	30	37	37	25	0	0	0.0339	0.1815
	0.0881	0.0913	0.3736	0.0985	0.0087	0.0194	0.0241	0.0139	0.0203	0.0467		
2002	1	2	0	0	30	38	38	25	0	0	0.0512	0.1371
	0.063	0.116	0.3027	0.1265	0.0399	0.0091	0.0713	0	0.029	0.0543		
2002	1	2	0	0	30	39	39	21	0	0	0	0.0997
	0.0216	0.0953	0.3534	0.1685	0.0246	0.0325	0.0858	0.0222	0	0.0965		
2002	1	2	0	0	30	40	40	13	0	0	0.037	0
	0.0313	0.1683	0.4097	0.2748	0.0335	0.0453	0	0	0	0		
2002	1	2	0	0	30	41	41	18	0	0	0.0408	0.036
	0.0872	0.1019	0.2444	0.0507	0.041	0.0844	0.1017	0.0837	0	0.1281		
2002	1	2	0	0	30	42	42	12	0	0	0.0553	0
	0	0.254	0.1736	0.1153	0.0791	0.0504	0.0894	0	0.0486	0.1344		
2002	1	2	0	0	30	43	43	12	0	0	0	0
	0	0.1192	0.6183	0.136	0	0.0628	0	0.0636	0	0		

2002	1	2	0	0	30	44	44	7	0	0	0	0
	0	0	0.4432	0.2129	0	0.1051	0	0	0	0.2388		
2002	1	2	0	0	30	45	45	2	0	0	0	0
	0	0	0	0.5032	0	0	0.4968	0	0	0		
2002	1	2	0	0	30	46	46	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2002	1	2	0	0	30	47	47	2	0	0	0	0
	0	0	0.3475	0.3049	0.3475	0	0	0	0	0		
2002	1	2	0	0	30	48	48	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
2002	1	2	0	0	30	49	49	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
2003	1	2	0	0	31	13	13	2	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
2003	1	2	0	0	31	14	14	2	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
2003	1	2	0	0	31	17	17	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
2003	1	2	0	0	31	21	21	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	2	0	0	31	22	22	3	0	0	0.752	0
	0	0	0	0.248	0	0	0	0	0	0		
2003	1	2	0	0	31	23	23	11	0	0	0.6801	0.1192
	0.0651	0.1015	0.0341	0	0	0	0	0	0	0		
2003	1	2	0	0	31	24	24	14	0	0	0.6859	0.2079
	0.0276	0.0395	0.0199	0.0191	0	0	0	0	0	0		
2003	1	2	0	0	31	25	25	14	0	0.0227	0.5618	0.2715
	0.0468	0.0584	0.0108	0.0091	0.0188	0	0	0	0	0		
2003	1	2	0	0	31	26	26	15	0	0.0183	0.5825	0.1592
	0.0548	0.0717	0.0316	0.0321	0.0283	0.0106	0	0.0108	0	0		
2003	1	2	0	0	31	27	27	15	0	0	0.3791	0.2562
	0.0417	0.112	0.0791	0.0472	0.0567	0.0071	0.0137	0.0073	0	0		
2003	1	2	0	0	31	28	28	15	0	0	0.4119	0.2477
	0.0311	0.1056	0.0556	0.0631	0.0467	0.0156	0	0.014	0	0.0087		
2003	1	2	0	0	31	29	29	15	0	0	0.2732	0.2013
	0.0813	0.1769	0.0849	0.1071	0.0553	0.02	0	0	0	0		
2003	1	2	0	0	31	30	30	15	0	0	0.2971	0.1168
	0.0582	0.2095	0.0773	0.1212	0.0388	0.0202	0.0147	0.0341	0	0.012		
2003	1	2	0	0	31	31	31	15	0	0	0.1271	0.2302
	0.1134	0.156	0.0723	0.1131	0.1345	0.0206	0	0.0177	0	0.0151		
2003	1	2	0	0	31	32	32	13	0	0	0.1499	0.1028
	0.1961	0.1156	0.1554	0.1255	0.0556	0.0619	0	0.0373	0	0		
2003	1	2	0	0	31	33	33	13	0	0	0.0516	0.2507
	0.1773	0.195	0.1347	0.0451	0.091	0.0231	0	0	0.0315	0		
2003	1	2	0	0	31	34	34	11	0	0	0.1028	0.1197
	0.1613	0.254	0.0667	0.113	0.0844	0	0.0373	0.0304	0.0304	0		
2003	1	2	0	0	31	35	35	11	0	0	0	0.1463
	0.0539	0.1878	0.1029	0.2507	0.072	0.1567	0	0.0299	0	0		
2003	1	2	0	0	31	36	36	9	0	0	0.0743	0.1868
	0.3167	0.2594	0	0.0619	0	0.0504	0	0	0	0.0504		
2003	1	2	0	0	31	37	37	7	0	0	0.0817	0.0844
	0.07	0.07	0	0.4607	0.07	0.1633	0	0	0	0		
2003	1	2	0	0	31	38	38	6	0	0	0	0.1396
	0	0.0984	0.1017	0.4465	0.075	0.1388	0	0	0	0		
2003	1	2	0	0	31	39	39	8	0	0	0	0.0889
	0.2559	0.1212	0	0.1836	0	0	0.1072	0.1148	0	0.1284		
2003	1	2	0	0	31	40	40	5	0	0	0	0
	0	0.3535	0	0.4653	0	0	0	0	0	0.1812		
2003	1	2	0	0	31	41	41	5	0	0	0	0
	0.3046	0	0.2984	0.1238	0.1238	0	0.1493	0	0	0		
2003	1	2	0	0	31	42	42	3	0	0	0	0
	0.3126	0.2999	0	0.3875	0	0	0	0	0	0		
2003	1	2	0	0	31	43	43	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
2003	1	2	0	0	31	44	44	1	0	0	0	0
	0	0	0.5	0	0	0	0	0	0	0.5		

2003	1	2	0	0	31	45	45	1	0	0	0	0
	1	0	0	0	0	0	0	0	0	0		
2003	1	2	0	0	31	46	46	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2003	1	2	0	0	31	49	49	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
#2004	1	2	0	0	32	10	10	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
#2004	1	2	0	0	32	11	11	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2004	1	2	0	0	32	13	13	1	0	0	0	0
	1	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	14	14	1	0	0	0	0
	1	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	15	15	2	0.5851	0	0	0
	0.4149	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	16	16	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	17	17	1	0	0	0	0.2
	0.8	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	18	18	2	0	0	0	0
	0.7035	0	0	0.2965	0	0	0	0	0	0		
2004	1	2	0	0	32	19	19	2	0	0	0.6976	0.1512
	0.1512	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	20	20	3	0	0.1859	0.1231	0.1231
	0	0.5679	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	21	21	11	0	0.5958	0	0.2823
	0.1219	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	22	22	20	0	0.1574	0.054	0.6835
	0.0602	0.045	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	23	23	26	0	0.1215	0.042	0.7519
	0.0708	0.0052	0.0086	0	0	0	0	0	0	0		
2004	1	2	0	0	32	24	24	31	0	0.034	0.0314	0.8306
	0.0749	0.0193	0.0051	0.0048	0	0	0	0	0	0		
2004	1	2	0	0	32	25	25	32	0	0.0048	0.0335	0.7386
	0.1683	0.0137	0.0105	0.0163	0.0078	0.0064	0	0	0	0		
2004	1	2	0	0	32	26	26	32	0	0.0015	0.016	0.7745
	0.1189	0.0157	0.0232	0.0296	0.014	0.0066	0	0	0	0		
2004	1	2	0	0	32	27	27	32	0	0	0.0105	0.7153
	0.1436	0.0379	0.0463	0.0229	0.0097	0.0083	0.0055	0	0	0		
2004	1	2	0	0	32	28	28	32	0	0	0.0036	0.6695
	0.1164	0.0168	0.0932	0.0328	0.0363	0.0245	0.005	0.0018	0	0		
2004	1	2	0	0	32	29	29	31	0	0.0061	0.0167	0.5282
	0.1843	0.0513	0.0903	0.0398	0.0538	0.0193	0.0064	0.0014	0.0024	0		
2004	1	2	0	0	32	30	30	31	0	0	0.0082	0.4812
	0.1592	0.0712	0.0713	0.0837	0.0604	0.0407	0.0094	0	0.0147	0		
2004	1	2	0	0	32	31	31	31	0	0	0.0133	0.2895
	0.127	0.0531	0.2178	0.1077	0.0919	0.0339	0.0172	0.0257	0	0.0229		
2004	1	2	0	0	32	32	32	27	0	0	0.0136	0.3805
	0.1248	0.0288	0.1834	0.0867	0.0527	0.0704	0.0381	0.0032	0	0.018		
2004	1	2	0	0	32	33	33	18	0	0	0.0504	0.3032
	0.0746	0.1446	0.1328	0.1013	0.0439	0.1245	0	0	0.0247	0		
2004	1	2	0	0	32	34	34	17	0	0	0.0474	0.2726
	0.0649	0.1653	0.1763	0.1458	0.0495	0	0	0.0782	0	0		
2004	1	2	0	0	32	35	35	13	0	0	0	0.1624
	0.2113	0.3775	0.064	0.0229	0	0.0354	0	0	0.0594	0.0671		
2004	1	2	0	0	32	36	36	11	0	0	0	0.1877
	0.1735	0.1673	0.2057	0.0985	0.0148	0	0.062	0	0.0284	0.062		
2004	1	2	0	0	32	37	37	5	0	0	0	0.3349
	0.2535	0	0	0	0.0699	0.0699	0	0	0.2718	0		
2004	1	2	0	0	32	38	38	7	0	0	0	0.2722
	0.3457	0.1025	0.0595	0.1606	0.0595	0	0	0	0	0		
2004	1	2	0	0	32	39	39	3	0	0	0	0
	0.2135	0.2327	0	0.5538	0	0	0	0	0	0		
2004	1	2	0	0	32	40	40	1	0	0	0	0
	0.5	0	0	0	0.5	0	0	0	0	0		

2004	1	2	0	0	32	41	41	5	0	0	0	0.1647
	0	0.3677	0.1519	0	0.1638	0	0	0	0.1519	0		
2004	1	2	0	0	32	42	42	2	0	0	0	0
	0	0.2744	0.7256	0	0	0	0	0	0	0		
2004	1	2	0	0	32	43	43	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
2004	1	2	0	0	32	44	44	2	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
#2004	1	2	0	0	32	46	46	1	0	0	0	1
	0	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	47	47	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	49	49	1	0	0	0	0
	1	0	0	0	0	0	0	0	0	0		
2004	1	2	0	0	32	50	50	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
2005	1	2	0	0	33	19	19	2	0	0	0.4816	0
	0.5184	0	0	0	0	0	0	0	0	0		
2005	1	2	0	0	33	21	21	1	0	0	0.3333	0
	0.6667	0	0	0	0	0	0	0	0	0		
2005	1	2	0	0	33	22	22	3	0	0	0	0.5498
	0.234	0	0.2162	0	0	0	0	0	0	0		
2005	1	2	0	0	33	23	23	12	0	0	0.0213	0.0969
	0.8138	0.0107	0.0574	0	0	0	0	0	0	0		
2005	1	2	0	0	33	24	24	17	0	0	0.0573	0.0073
	0.7845	0.1009	0	0	0.0501	0	0	0	0	0		
2005	1	2	0	0	33	25	25	19	0	0	0.0129	0.0043
	0.7532	0.2026	0.027	0	0	0	0	0	0	0		
2005	1	2	0	0	33	26	26	20	0	0	0.0294	0.0525
	0.6111	0.19	0.022	0.076	0.019	0	0	0	0	0		
2005	1	2	0	0	33	27	27	20	0	0	0.0273	0.0054
	0.782	0.1359	0.0006	0.0423	0.0065	0	0	0	0	0		
2005	1	2	0	0	33	28	28	20	0	0	0.0189	0.0074
	0.5929	0.1458	0.0592	0.0456	0.127	0.0004	0.0027	0	0	0		
2005	1	2	0	0	33	29	29	19	0	0	0	0.0789
	0.5674	0.0808	0.0172	0.1509	0.0505	0.0231	0.026	0	0	0.0053		
2005	1	2	0	0	33	30	30	17	0	0	0	0.056
	0.5103	0.1642	0.0562	0.0668	0	0.0716	0.0281	0.0244	0	0.0224		
2005	1	2	0	0	33	31	31	12	0	0	0	0.0358
	0.5092	0.1476	0	0.0168	0.1217	0.0474	0.0781	0	0	0.0434		
2005	1	2	0	0	33	32	32	12	0	0	0	0
	0.3592	0.2362	0.0137	0.0561	0.2593	0.0732	0.0023	0	0	0		
2005	1	2	0	0	33	33	33	2	0	0	0	0
	0.718	0	0.282	0	0	0	0	0	0	0		
2005	1	2	0	0	33	34	34	5	0	0	0	0
	0.2434	0.3445	0	0.4121	0	0	0	0	0	0		
2005	1	2	0	0	33	35	35	7	0	0	0	0
	0.5132	0.0118	0	0.0216	0	0.2492	0.0118	0.1924	0	0		
2005	1	2	0	0	33	36	36	6	0	0	0	0
	0.1941	0.2166	0	0	0.1989	0.2317	0.1588	0	0	0		
2005	1	2	0	0	33	37	37	4	0	0	0	0
	0.6923	0	0.2864	0	0	0.0213	0	0	0	0		
2005	1	2	0	0	33	38	38	2	0	0	0	0
	0.4052	0.2974	0	0	0.2974	0	0	0	0	0		
2005	1	2	0	0	33	39	39	2	0	0	0	0
	0	0.8969	0	0	0.1031	0	0	0	0	0		
2005	1	2	0	0	33	40	40	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2005	1	2	0	0	33	42	42	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2005	1	2	0	0	33	45	45	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2005	1	2	0	0	33	46	46	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2006	1	2	0	0	34	20	20	1	0	0.3176	0	0
	0	0.6824	0	0	0	0	0	0	0	0		

2006	1	2	0	0	34	21	21	2	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2006	1	2	0	0	34	22	22	5	0	0.1542	0.4545	0
	0	0.3913	0	0	0	0	0	0	0	0		
2006	1	2	0	0	34	23	23	13	0	0.1314	0	0.3893
	0	0.4793	0	0	0	0	0	0	0	0		
2006	1	2	0	0	34	24	24	16	0	0.0202	0	0.2148
	0.1668	0.364	0.2342	0	0	0	0	0	0	0		
2006	1	2	0	0	34	25	25	41	0.0176	0.0202	0.0218	0.0596
	0.0195	0.7992	0.0621	0	0	0	0	0	0	0		
2006	1	2	0	0	34	26	26	51	0	0.0113	0	0.0389
	0.0398	0.6975	0.1486	0.0051	0.02	0.0136	0.0251	0	0	0		
2006	1	2	0	0	34	27	27	73	0	0	0	0.1351
	0.0136	0.7032	0.0788	0.0514	0.0075	0.0066	0.0038	0	0	0		
2006	1	2	0	0	34	28	28	82	0	0	0.0094	0.0257
	0.0334	0.759	0.077	0.0369	0.0326	0.0193	0	0.003	0	0.0037		
2006	1	2	0	0	34	29	29	81	0	0	0	0.0633
	0.0503	0.6531	0.0845	0.0334	0.0506	0.0442	0.0131	0	0	0.0077		
2006	1	2	0	0	34	30	30	71	0	0	0	0.0381
	0.0432	0.7271	0.0646	0.0404	0.0136	0.0253	0.0135	0.0175	0.0167	0		
2006	1	2	0	0	34	31	31	70	0	0	0.0249	0.0238
	0.0178	0.6851	0.0817	0.0121	0.1092	0.004	0.0209	0	0.016	0.0046		
2006	1	2	0	0	34	32	32	59	0	0	0	0.0082
	0.0483	0.5428	0.0938	0.085	0.0416	0.0842	0.0617	0.0291	0.0053	0		
2006	1	2	0	0	34	33	33	45	0	0	0	0
	0.0419	0.6242	0.1012	0.0401	0.0677	0.0186	0.053	0	0	0.0532		
2006	1	2	0	0	34	34	34	24	0	0	0	0
	0	0.5707	0.0703	0.0678	0.023	0.0533	0.1225	0.0923	0	0		
2006	1	2	0	0	34	35	35	26	0	0	0	0.0307
	0	0.5945	0.2057	0.0278	0	0.1413	0	0	0	0		
2006	1	2	0	0	34	36	36	10	0	0	0	0
	0	0.4352	0.2936	0.0767	0	0.1944	0	0	0	0		
2006	1	2	0	0	34	37	37	12	0	0	0	0
	0	0.4892	0	0.0436	0.046	0.0921	0.2354	0.0938	0	0		
2006	1	2	0	0	34	38	38	6	0	0	0	0
	0	0.5044	0	0.254	0.1372	0.1044	0	0	0	0		
2006	1	2	0	0	34	39	39	6	0	0	0	0
	0	0.0678	0	0.404	0	0.5282	0	0	0	0		
2006	1	2	0	0	34	40	40	7	0	0	0	0
	0	0.1434	0	0.0526	0.2714	0	0.4197	0.1129	0	0		
2006	1	2	0	0	34	41	41	7	0	0	0	0
	0	0.6224	0	0	0.1142	0	0.2635	0	0	0		
2006	1	2	0	0	34	42	42	6	0	0	0	0
	0	0.0794	0.4332	0.2901	0.0754	0	0	0	0	0.1219		
2006	1	2	0	0	34	44	44	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2006	1	2	0	0	34	45	45	2	0	0	0	0
	0	0	0	0	0.4207	0	0	0	0.5793	0		
2006	1	2	0	0	34	46	46	2	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
2006	1	2	0	0	34	47	47	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
2006	1	2	0	0	34	51	51	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2007	1	2	0	0	35	1	1	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	2	0	0	35	15	15	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	2	0	0	35	16	16	2	0.8893	0	0.1107	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	2	0	0	35	19	19	1	0	0	1	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	2	0	0	35	20	20	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2007	1	2	0	0	35	21	21	4	0	0.2041	0.7959	0
	0	0	0	0	0	0	0	0	0	0		

2007	1	2	0	0	35	22	22	7	0	0	0.2574	0
	0	0.1044	0.6381	0	0	0	0	0	0	0		
2007	1	2	0	0	35	23	23	13	0	0	0.5275	0
	0	0	0.4348	0.0376	0	0	0	0	0	0		
2007	1	2	0	0	35	24	24	15	0	0	0.3889	0.0484
	0.1108	0.0336	0.326	0.0557	0.0367	0	0	0	0	0		
2007	1	2	0	0	35	25	25	19	0	0	0.2279	0.036
	0.114	0	0.4652	0.1152	0.0198	0.0218	0	0	0	0		
2007	1	2	0	0	35	26	26	24	0	0	0.1179	0.0172
	0.1106	0.0208	0.6283	0.0892	0.016	0	0	0	0	0		
2007	1	2	0	0	35	27	27	26	0	0	0.0674	0
	0.0573	0.0861	0.6751	0.0987	0	0	0	0.0154	0	0		
2007	1	2	0	0	35	28	28	29	0	0	0.0323	0.0131
	0.0343	0.0285	0.624	0.1946	0.0137	0.0318	0.0276	0	0	0		
2007	1	2	0	0	35	29	29	30	0	0	0.0007	0.0293
	0.0843	0.0338	0.6401	0.115	0.0174	0.0329	0.0305	0.0024	0.0136	0		
2007	1	2	0	0	35	30	30	33	0	0	0	0.0026
	0.0276	0.0167	0.7084	0.121	0.0234	0.0148	0.0267	0.0384	0.0205	0		
2007	1	2	0	0	35	31	31	31	0	0	0.0015	0.0432
	0.0283	0.0115	0.5761	0.0849	0.0232	0.1112	0.0446	0.0094	0.0662	0		
2007	1	2	0	0	35	32	32	23	0	0	0	0.0003
	0.1689	0.0326	0.4976	0.0629	0	0.0456	0.0789	0.04	0.0732	0		
2007	1	2	0	0	35	33	33	23	0	0	0	0
	0.0883	0.0797	0.4269	0.1145	0.1233	0.1667	0.0008	0	0	0		
2007	1	2	0	0	35	34	34	17	0	0	0	0.0081
	0.0623	0	0.4576	0.1547	0.0004	0.1711	0.1459	0	0	0		
2007	1	2	0	0	35	35	35	21	0	0	0	0
	0.0629	0.014	0.4663	0.2737	0.0113	0.0638	0	0.0574	0.0506	0		
2007	1	2	0	0	35	36	36	10	0	0	0	0
	0	0	0.1413	0.1067	0.1549	0.0113	0.2437	0.1865	0.1557	0		
2007	1	2	0	0	35	37	37	12	0	0	0	0
	0	0.1696	0.6031	0.1897	0.0365	0.0011	0	0	0	0		
2007	1	2	0	0	35	38	38	9	0	0	0	0.0078
	0	0.0435	0.4561	0.0715	0.3395	0.0023	0	0.0715	0.0078	0		
2007	1	2	0	0	35	39	39	12	0	0	0	0
	0	0.0024	0.386	0.186	0.0735	0.194	0.1581	0	0	0		
2007	1	2	0	0	35	40	40	8	0	0	0	0
	0.0529	0	0.492	0.0312	0.4212	0.0028	0	0	0	0		
2007	1	2	0	0	35	41	41	6	0	0	0	0
	0	0	0.1384	0.0094	0	0	0.4509	0.2629	0.1384	0		
2007	1	2	0	0	35	42	42	2	0	0	0	0
	0	0	0.1098	0.1098	0.7804	0	0	0	0	0		
2007	1	2	0	0	35	43	43	4	0	0	0	0
	0	0	0.2583	0.5772	0.1631	0.0014	0	0	0	0		
2007	1	2	0	0	35	44	44	2	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2007	1	2	0	0	35	45	45	3	0	0	0	0
	0	0	0.433	0.567	0	0	0	0	0	0		
2007	1	2	0	0	35	46	46	2	0	0	0	0
	0	0	0.0508	0.9492	0	0	0	0	0	0		
2007	1	2	0	0	35	47	47	2	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
2007	1	2	0	0	35	49	49	3	0	0	0	0
	0	0	0.0167	0.9333	0	0	0	0.05	0	0		
2007	1	2	0	0	35	50	50	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
2007	1	2	0	0	35	51	51	2	0	0	0	0
	0	0	0	0	0	0.0169	0.9831	0	0	0		
2008	1	2	0	0	36	4	4	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	5	5	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	6	6	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	7	7	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		

2008	1	2	0	0	36	8	8	2	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	9	9	2	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	10	10	2	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	11	11	1	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	12	12	4	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	13	13	6	0.8931	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.1069	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	14	14	7	0.9677	0.0323	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	15	15	7	1.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	16	16	8	0.9017	0.0983	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	17	17	7	0.7143	0.2857	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	18	18	7	0.3519	0.6481	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	19	19	8	0.2394	0.7606	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	20	20	12	0.0830	0.8471	0.0698	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	21	21	7	0.0352	0.9293	0.0000	0.0355
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	22	22	12	0.0301	0.5732	0.0172	0.0372
	0.0000	0.0000	0.0000	0.2301	0.1121	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	23	23	11	0.0000	0.7105	0.0975	0.0365
	0.0000	0.0680	0.0000	0.0876	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	24	24	20	0.0000	0.2117	0.0407	0.2492
	0.0154	0.0734	0.0132	0.2951	0.0747	0.0000	0.0266	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	25	25	27	0.0000	0.0211	0.0185	0.2026
	0.0000	0.0901	0.0987	0.3977	0.1272	0.0000	0.0000	0.0440	0.0000	0.0000		
2008	1	2	0	0	36	26	26	36	0.0000	0.0011	0.0441	0.2212
	0.0074	0.0061	0.0649	0.5547	0.0459	0.0001	0.0175	0.0000	0.0000	0.0371		
2008	1	2	0	0	36	27	27	41	0.0000	0.0236	0.0022	0.1057
	0.0157	0.0189	0.0793	0.5572	0.1175	0.0093	0.0000	0.0122	0.0123	0.0462		
2008	1	2	0	0	36	28	28	42	0.0000	0.0000	0.0037	0.1384
	0.0000	0.0625	0.0301	0.6551	0.0770	0.0128	0.0031	0.0000	0.0087	0.0085		
2008	1	2	0	0	36	29	29	40	0.0000	0.0014	0.0092	0.1455
	0.0000	0.0287	0.0288	0.5657	0.1130	0.0462	0.0118	0.0496	0.0000	0.0000		
2008	1	2	0	0	36	30	30	45	0.0000	0.0007	0.0019	0.0735
	0.0359	0.0374	0.0197	0.6579	0.0748	0.0225	0.0427	0.0168	0.0074	0.0089		
2008	1	2	0	0	36	31	31	40	0.0000	0.0000	0.0140	0.0665
	0.0000	0.0355	0.0144	0.6187	0.1062	0.0573	0.0479	0.0165	0.0000	0.0231		
2008	1	2	0	0	36	32	32	42	0.0000	0.0109	0.0069	0.0069
	0.0123	0.0327	0.0327	0.6637	0.1101	0.0221	0.0184	0.0260	0.0073	0.0498		
2008	1	2	0	0	36	33	33	34	0.0000	0.0000	0.0000	0.0005
	0.0000	0.0350	0.0028	0.6804	0.1380	0.0377	0.0330	0.0324	0.0403	0.0000		
2008	1	2	0	0	36	34	34	29	0.0000	0.0000	0.0008	0.0495
	0.0075	0.0519	0.0497	0.4746	0.0698	0.1864	0.0389	0.0564	0.0146	0.0000		
2008	1	2	0	0	36	35	35	21	0.0000	0.0000	0.0111	0.0410
	0.0000	0.0559	0.0446	0.4459	0.0866	0.0169	0.0930	0.0545	0.0960	0.0545		
2008	1	2	0	0	36	36	36	22	0.0000	0.0000	0.0000	0.0113
	0.0000	0.0000	0.0001	0.6357	0.1916	0.0240	0.0000	0.0708	0.0000	0.0665		
2008	1	2	0	0	36	37	37	13	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0172	0.0000	0.8737	0.0004	0.0612	0.0000	0.0474	0.0000	0.0000		
2008	1	2	0	0	36	38	38	17	0.0000	0.0000	0.0000	0.0426
	0.0000	0.1265	0.0000	0.5277	0.0335	0.1403	0.0165	0.0740	0.0000	0.0388		
2008	1	2	0	0	36	39	39	7	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.8762	0.0000	0.0307	0.0000	0.0005	0.0927	0.0000		
2008	1	2	0	0	36	40	40	8	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.8999	0.0672	0.0329	0.0000	0.0000	0.0000	0.0000		

2008	1	2	0	0	36	41	41	3	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.2354	0.7646	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	42	42	7	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0822	0.5378	0.2317	0.1469	0.0014	0.0000	0.0000		
2008	1	2	0	0	36	43	43	3	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.9938	0.0000	0.0062	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	44	44	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	45	45	2	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000		
2008	1	2	0	0	36	48	48	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	13	13	1	0.0000	1.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	15	15	3	0.8084	0.1916	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	16	16	2	0.0000	1.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	17	17	4	0.0000	1.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	18	18	6	0.0000	0.2804	0.7196	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	19	19	6	0.0000	0.4542	0.5458	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	20	20	5	0.0000	0.1915	0.8085	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	21	21	10	0.0000	0.2124	0.6794	0.1074
	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	22	22	8	0.0442	0.1074	0.7137	0.0000
	0.0000	0.1347	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	23	23	13	0.0000	0.0524	0.7206	0.0205
	0.1198	0.0000	0.0000	0.0000	0.0868	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	24	24	17	0.0000	0.0158	0.6412	0.0578
	0.1821	0.0008	0.0000	0.0000	0.1023	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	25	25	19	0.0000	0.0034	0.4794	0.0829
	0.1117	0.0800	0.0000	0.0000	0.1622	0.0804	0.0000	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	26	26	21	0.0000	0.0054	0.4580	0.0296
	0.1271	0.0002	0.0001	0.0288	0.3500	0.0000	0.0007	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	27	27	24	0.0000	0.0039	0.2390	0.0472
	0.2612	0.0799	0.0009	0.0616	0.2721	0.0230	0.0112	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	28	28	22	0.0000	0.0000	0.1993	0.0909
	0.1837	0.0582	0.0768	0.0015	0.2896	0.0923	0.0002	0.0062	0.0012	0.0000		
2009	1	2	0	0	37	29	29	25	0.0000	0.0000	0.0555	0.1607
	0.3330	0.0457	0.0164	0.0380	0.2772	0.0668	0.0014	0.0005	0.0008	0.0040		
2009	1	2	0	0	37	30	30	21	0.0000	0.0061	0.0050	0.0155
	0.4487	0.0016	0.0370	0.0446	0.4105	0.0049	0.0225	0.0007	0.0000	0.0030		
2009	1	2	0	0	37	31	31	24	0.0000	0.0242	0.0036	0.1180
	0.3978	0.0302	0.0073	0.0968	0.2740	0.0235	0.0184	0.0027	0.0035	0.0000		
2009	1	2	0	0	37	32	32	21	0.0000	0.0000	0.0055	0.0690
	0.2000	0.0082	0.0028	0.0114	0.5435	0.1552	0.0011	0.0016	0.0017	0.0000		
2009	1	2	0	0	37	33	33	22	0.0000	0.0000	0.0010	0.1172
	0.1231	0.0000	0.1789	0.0643	0.2908	0.2153	0.0026	0.0019	0.0047	0.0003		
2009	1	2	0	0	37	34	34	21	0.0000	0.0000	0.0000	0.0300
	0.2276	0.0000	0.0180	0.0301	0.5227	0.1150	0.0545	0.0015	0.0000	0.0006		
2009	1	2	0	0	37	35	35	16	0.0000	0.0000	0.0000	0.0000
	0.0253	0.0000	0.0058	0.0045	0.5199	0.3261	0.0403	0.0547	0.0000	0.0235		
2009	1	2	0	0	37	36	36	12	0.0000	0.0000	0.0000	0.0000
	0.0123	0.0000	0.0341	0.0000	0.2096	0.7050	0.0000	0.0341	0.0000	0.0048		
2009	1	2	0	0	37	37	37	11	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0177	0.0000	0.0863	0.1428	0.3759	0.0028	0.0070	0.3044	0.0633		
2009	1	2	0	0	37	38	38	5	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.4345	0.0000	0.5655	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	39	39	4	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.9736	0.0000	0.0264	0.0000	0.0000	0.0000		
2009	1	2	0	0	37	40	40	5	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.9698	0.0000	0.0083	0.0000	0.0071	0.0148	0.0000		

2009	1	2	0	0	37	41	41	2	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.1587	0.6826	0.0000	0.0000	0.0000	0.0000	0.1587		
2009	1	2	0	0	37	43	43	2	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000		
2009	1	2	0	0	37	45	45	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000		

Ghost marginals for Canadian fishery

1977	1	2	0	0	5	1	51	-1	0.0021	0.0021	0.0516	0.0186
	0.0619	0.3773	0.1093	0.1031	0.0866	0.0825	0.0722	0.033	0	0		
1978	1	2	0	0	6	1	51	-1	0	0	0.0339	0.0593
	0.0475	0.1797	0.222	0.1898	0.1051	0.0814	0.0356	0.0305	0.0153	0		
1979	1	2	0	0	7	1	51	-1	0	0	0.0188	0.0554
	0.1162	0.1019	0.1877	0.2699	0.0983	0.0706	0.0331	0.0223	0.0152	0.0107		
1980	1	2	0	0	8	1	51	-1	0	0	0	0.0311
	0.0411	0.1629	0.0609	0.0782	0.4464	0.0841	0.0411	0.0411	0.0133	0		
1981	1	2	0	0	9	1	51	-1	0	0	0.0488	0.0131
	0.0682	0.0667	0.207	0.0411	0.1141	0.2988	0.0721	0.029	0.0411	0		
1982	1	2	0	0	10	1	51	-1	0	0	0.0221	0.4268
	0.0352	0.046	0.0451	0.141	0.032	0.0249	0.1931	0.0189	0.015	0		
1983	1	2	0	0	11	1	51	-1	0.0009	0.218	0.016	0.028
	0.4999	0.0201	0.0291	0.026	0.0869	0.012	0.004	0.053	0.004	0.002		
1984	1	2	0	0	12	1	51	-1	0	0.018	0.215	0.028
	0.15	0.338	0.0331	0.0381	0.025	0.0779	0.0151	0.013	0.0429	0.006		
1985	1	2	0	0	13	1	51	-1	0.002	0.002	0.0808	0.2648
	0.0544	0.1072	0.3173	0.0162	0.0181	0.0181	0.0544	0.0122	0	0.0524		
1986	1	2	0	0	14	1	51	-1	0.0021	0.0021	0.0043	0.0608
	0.5878	0.0369	0.0369	0.1757	0.0196	0.0087	0.0152	0.0217	0.0066	0.0217		
1987	1	2	0	0	15	1	51	-1	0	0.0094	0.0063	0.0016
	0.0268	0.7414	0.03	0.03	0.1088	0.0063	0.0047	0.0126	0.0094	0.0126		
1988	1	2	0	0	16	1	51	-1	0	0.0023	0.106	0.0033
	0.0075	0.0148	0.6643	0.0161	0.0173	0.13	0.0035	0.007	0.0036	0.0247		
1989	1	2	0	0	17	1	51	-1	0	0.0013	0.0023	0.3852
	0.0008	0.0029	0.0042	0.5181	0.0083	0.014	0.0533	0.0018	0.0018	0.0061		
1990	1	2	0	0	18	1	51	-1	0	0.1036	0.0262	0.001
	0.4077	0.0145	0.0023	0	0.3852	0.0064	0	0.0473	0.0005	0.0054		
1991	1	2	0	0	19	1	51	-1	0	0.0013	0.0485	0.0212
	0.0026	0.5343	0.0036	0	0.0005	0.3715	0.0018	0	0.014	0.0007		
1992	1	2	0	0	20	1	51	-1	0	0.0052	0.064	0.157
	0.0305	0.0036	0.4791	0.0027	0	0.0009	0.2443	0.0014	0.0008	0.0105		
1993	1	2	0	0	21	1	51	-1	0.0006	0.0092	0.0234	0.1475
	0.2018	0.0179	0.0028	0.4509	0.0026	0	0	0.1417	0.0012	0.0005		
1994	1	2	0	0	22	1	51	-1	0	0.0045	0.0196	0.0199
	0.1063	0.1723	0.0269	0.0068	0.4704	0.0062	0.0023	0	0.1563	0.0085		
1995	1	2	0	0	23	1	51	-1	0.0215	0.0058	0.076	0.059
	0.0347	0.113	0.1659	0.0388	0.0079	0.3592	0.0082	0.0009	0	0.1093		
1996	1	2	0	0	24	1	51	-1	0.0869	0.0229	0.0099	0.0998
	0.1252	0.0334	0.1152	0.1381	0.0209	0.0091	0.2667	0.0005	0	0.0716		
1997	1	2	0	0	25	1	51	-1	0.0021	0.1134	0.1276	0.0455
	0.1611	0.1472	0.0575	0.0668	0.1049	0.0462	0.002	0.0739	0.0296	0.0223		
1998	1	2	0	0	26	1	51	-1	0.0021	0.1	0.2356	0.254
	0.0183	0.1014	0.1035	0.0143	0.0455	0.0553	0.0088	0.0011	0.0501	0.0099		
1999	1	2	0	0	27	1	51	-1	0.0903	0.0481	0.1228	0.2775
	0.2013	0.0249	0.0605	0.0569	0.0181	0.0257	0.0266	0.0096	0.0045	0.0335		
2000	1	2	0	0	28	1	51	-1	0.0017	0.2365	0.052	0.0591
	0.2582	0.1253	0.0204	0.0677	0.0319	0.0241	0.0427	0.0365	0.007	0.0369		
2001	1	2	0	0	29	1	51	-1	0.0003	0.0219	0.1964	0.0652
	0.1113	0.2588	0.1308	0.0307	0.0385	0.0507	0.0158	0.0274	0.024	0.0281		
2002	1	2	0	0	30	1	51	-1	0	0.01	0.0861	0.2747
	0.0865	0.0936	0.2133	0.1107	0.022	0.0229	0.0313	0.0054	0.0149	0.0286		
2003	1	2	0	0	31	1	51	-1	0	0.0043	0.3594	0.2008
	0.0747	0.1233	0.0639	0.0796	0.0473	0.0201	0.0061	0.0121	0.0019	0.0064		
2004	1	2	0	0	32	1	51	-1	0.001	0.0158	0.0212	0.5955
	0.1444	0.041	0.0679	0.0432	0.0296	0.0223	0.0068	0.0034	0.0047	0.0034		
2005	1	2	0	0	33	1	51	-1	0	0.0017	0.0207	0.0347
	0.6585	0.1288	0.0224	0.0512	0.0397	0.0229	0.0116	0.0046	0	0.0032		
2006	1	2	0	0	34	1	51	-1	0.0008	0.0066	0.0067	0.0502
	0.0335	0.6619	0.0892	0.04	0.0395	0.0299	0.0234	0.0098	0.0039	0.0046		

2007	1	2	0	0	35	1	51	-1	0.0016	0.0013	0.067	0.016
	0.0645	0.0332	0.5785	0.1178	0.0247	0.0377	0.0274	0.0131	0.0174	0		
2008	1	2	0	0	36	1	51	-1	0.0734	0.0814	0.0110	0.0848
	0.0076	0.0333	0.0287	0.5046	0.0850	0.0289	0.0189	0.0189	0.0078	0.0156		
###												
# Need to update to final 2009 Canadian												
2009	1	2	0	0	37	1	51	-1	0.0034	0.0481	0.1932	0.0701
	0.2071	0.0246	0.0283	0.0373	0.2813	0.0827	0.0107	0.0034	0.0055	0.0044		
# Acoustic survey												
1977	1	3	0	0	5	7	7	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	9	9	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	10	10	1	0.6667	0.3333	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	11	11	1	0.5714	0.4286	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	12	12	2	0.9286	0.0714	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	13	13	3	0.8571	0.1429	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	14	14	4	0.8293	0.1707	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	15	15	3	0.8	0.2	0	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	16	16	9	0.6724	0.2414	0.0862	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	17	17	14	0.6825	0.2063	0.0952	0
	0	0.0159	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	18	18	16	0.6061	0.303	0.0909	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	19	19	14	0.5352	0.2958	0.169	0
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	20	20	17	0.5	0.2639	0.2222	0.0139
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	21	21	20	0.2568	0.3108	0.4189	0.0135
	0	0	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	22	22	22	0.1	0.2231	0.6154	0.0462
	0.0077	0	0.0077	0	0	0	0	0	0	0		
1977	1	3	0	0	5	23	23	24	0.027	0.1689	0.7297	0.0473
	0.0203	0.0068	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	24	24	29	0	0.161	0.7561	0.0341
	0.0098	0.039	0	0	0	0	0	0	0	0		
1977	1	3	0	0	5	25	25	34	0	0.0625	0.825	0.05
	0.0125	0.0458	0.0042	0	0	0	0	0	0	0		
1977	1	3	0	0	5	26	26	40	0	0.0319	0.7211	0.0558
	0.0438	0.1394	0.004	0	0	0.004	0	0	0	0		
1977	1	3	0	0	5	27	27	41	0.0032	0.0354	0.5498	0.045
	0.0611	0.2958	0.0032	0	0.0032	0.0032	0	0	0	0		
1977	1	3	0	0	5	28	28	45	0	0.0023	0.3151	0.0708
	0.0913	0.4772	0.032	0.0114	0	0	0	0	0	0		
1977	1	3	0	0	5	29	29	48	0	0	0.1947	0.0302
	0.0851	0.6314	0.0416	0.0113	0.0019	0.0038	0	0	0	0		
1977	1	3	0	0	5	30	30	48	0	0.0017	0.1224	0.0448
	0.0914	0.6552	0.0552	0.0121	0.0086	0.0017	0.0069	0	0	0		
1977	1	3	0	0	5	31	31	45	0	0	0.0692	0.0242
	0.0725	0.6892	0.0918	0.0258	0.0209	0.0032	0.0032	0	0	0		
1977	1	3	0	0	5	32	32	47	0	0	0.0292	0.0117
	0.0585	0.6433	0.1248	0.0663	0.0409	0.0136	0.0097	0	0.0019	0		
1977	1	3	0	0	5	33	33	46	0	0	0.0139	0.0046
	0.0464	0.5592	0.1601	0.1044	0.0696	0.0302	0.007	0.0046	0	0		
1977	1	3	0	0	5	34	34	44	0	0	0.0259	0.0162
	0.0356	0.466	0.165	0.11	0.0777	0.0777	0.0227	0	0.0032	0		
1977	1	3	0	0	5	35	35	40	0	0	0.0042	0.0084
	0.0084	0.479	0.1555	0.1345	0.1134	0.0378	0.0378	0.0168	0.0042	0		
1977	1	3	0	0	5	36	36	38	0	0	0	0
	0.0291	0.3372	0.1686	0.186	0.1395	0.0756	0.0233	0.0407	0	0		

1977	1	3	0	0	5	37	37	31	0	0	0
	0.0216	0.3309	0.1439	0.223	0.1007	0.1079	0.0576	0.0144	0	0	
1977	1	3	0	0	5	38	38	33	0	0	0.007
	0	0.2183	0.1972	0.1761	0.169	0.0986	0.0915	0.0352	0.007	0	
1977	1	3	0	0	5	39	39	27	0	0	0
	0.0263	0.2237	0.1447	0.1711	0.2237	0.0789	0.0789	0.0263	0.0263	0	
1977	1	3	0	0	5	40	40	19	0	0	0.0182	0
	0	0.1455	0.0909	0.1636	0.2364	0.1636	0.0909	0.0364	0.0364	0.0182	
1977	1	3	0	0	5	41	41	18	0	0	0	0
	0.02	0.2	0.14	0.16	0.22	0.14	0.04	0.06	0.02	0	
1977	1	3	0	0	5	42	42	16	0	0	0	0
	0	0.1026	0.1282	0.2051	0.0513	0.2308	0.1538	0.1282	0	0	
1977	1	3	0	0	5	43	43	11	0	0	0	0
	0.0278	0.0556	0.1389	0.1111	0.1944	0.1944	0.1944	0.0278	0.0278	0.0278	
1977	1	3	0	0	5	44	44	11	0	0	0	0
	0	0.1379	0.1724	0.3103	0.2069	0.1034	0.069	0	0	0	
1977	1	3	0	0	5	45	45	10	0	0	0	0
	0	0	0.0476	0.3333	0.2381	0.1429	0.0952	0.0476	0	0.0952	
1977	1	3	0	0	5	46	46	8	0	0	0	0
	0	0.2778	0.1111	0.1111	0.1667	0.1667	0.0556	0.0556	0.0556	0	
1977	1	3	0	0	5	47	47	8	0	0	0	0
	0	0.1	0	0	0.1	0.6	0.1	0	0	0.1	
1977	1	3	0	0	5	48	48	8	0	0	0	0
	0	0	0.1111	0.3333	0.2222	0.1111	0.1111	0.1111	0	0	
1977	1	3	0	0	5	49	49	7	0	0	0	0
	0	0.125	0.125	0.125	0	0	0.25	0.25	0	0.125	
1977	1	3	0	0	5	50	50	4	0	0	0	0
	0	0	0	0.5	0.1667	0.3333	0	0	0	0	
1977	1	3	0	0	5	51	51	7	0	0	0.0909	0
	0	0.1818	0	0.0909	0	0.0909	0.0909	0	0.0909	0.3636	
1980	1	3	0	0	8	10	10	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	15	15	4	0	1	0	0
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	16	16	7	0	1	0	0
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	17	17	9	0.0208	0.9375	0.0417	0
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	18	18	10	0.0154	0.9538	0.0308	0
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	19	19	12	0.0112	0.9438	0.0449	0
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	20	20	10	0	0.933	0.067	0
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	21	21	12	0	0.9263	0.0684	0.0053
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	22	22	11	0	0.8611	0.1319	0.0069
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	23	23	10	0	0.7037	0.2963	0
	0	0	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	24	24	12	0	0.5588	0.3235	0
	0.0294	0.0882	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	25	25	13	0	0.2222	0.2222	0.2778
	0.1111	0.1667	0	0	0	0	0	0	0	0	
1980	1	3	0	0	8	26	26	16	0	0.087	0.087	0.3043
	0.2174	0.1304	0.1304	0	0.0435	0	0	0	0	0	
1980	1	3	0	0	8	27	27	18	0	0.0182	0.0545	0.3455
	0.1636	0.2727	0.0182	0.1091	0.0182	0	0	0	0	0	
1980	1	3	0	0	8	28	28	19	0	0	0	0.2533
	0.16	0.3867	0.12	0.0533	0.0267	0	0	0	0	0	
1980	1	3	0	0	8	29	29	21	0	0	0	0.1801
	0.1491	0.3665	0.0932	0.1801	0.0311	0	0	0	0	0	
1980	1	3	0	0	8	30	30	24	0	0	0.0044	0.136
	0.1316	0.4211	0.1272	0.1404	0.0263	0.0088	0	0.0044	0	0	
1980	1	3	0	0	8	31	31	22	0	0	0	0.0625
	0.0586	0.4297	0.1133	0.2539	0.0625	0.0156	0	0.0039	0	0	

1980	1	3	0	0	8	32	32	22	0	0	0	0.0404
	0.0448	0.3812	0.0807	0.3229	0.0762	0.0448	0.0045	0.0045	0	0		
1980	1	3	0	0	8	33	33	21	0	0	0	0.0264
	0.0529	0.3744	0.0529	0.304	0.1322	0.0396	0.0132	0	0	0.0044		
1980	1	3	0	0	8	34	34	19	0	0	0	0.0226
	0.0056	0.3051	0.1412	0.3164	0.0904	0.0791	0.0113	0.0169	0.0056	0.0056		
1980	1	3	0	0	8	35	35	18	0	0	0	0.0075
	0.0373	0.2761	0.0672	0.2985	0.194	0.0821	0.0224	0.0075	0	0.0075		
1980	1	3	0	0	8	36	36	17	0	0	0	0.0099
	0.0198	0.2376	0.099	0.3069	0.1683	0.0891	0.0396	0.0297	0	0		
1980	1	3	0	0	8	37	37	19	0	0.0137	0	0.0137
	0.0274	0.1507	0.0274	0.3151	0.2329	0.0822	0.0548	0.0411	0.0411	0		
1980	1	3	0	0	8	38	38	16	0	0	0	0
	0	0.2	0.08	0.3	0.16	0.22	0.02	0.02	0	0		
1980	1	3	0	0	8	39	39	11	0	0	0	0
	0	0.0938	0.0625	0.2188	0.3438	0.25	0.0313	0	0	0		
1980	1	3	0	0	8	40	40	14	0	0	0	0
	0.0455	0.0909	0.0455	0.2273	0.2273	0.2273	0.0455	0.0455	0	0.0455		
1980	1	3	0	0	8	41	41	7	0	0	0	0.0588
	0	0.0588	0.0588	0.2941	0.1176	0.2941	0.1176	0	0	0		
1980	1	3	0	0	8	42	42	4	0	0	0	0
	0	0	0	0.1818	0.1818	0.3636	0.0909	0.0909	0.0909	0		
1980	1	3	0	0	8	43	43	3	0	0	0	0
	0	0	0	0	0.5	0.25	0	0.25	0	0		
1980	1	3	0	0	8	44	44	2	0	0	0	0
	0	0	0	0	0	0.4	0.4	0.2	0	0		
1980	1	3	0	0	8	45	45	2	0	0	0	0
	0	0	0	0	0.2857	0.5714	0.1429	0	0	0		
1980	1	3	0	0	8	46	46	3	0	0	0	0
	0	0	0	0	0.3333	0.3333	0	0	0	0.3333		
1980	1	3	0	0	8	47	47	2	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1980	1	3	0	0	8	48	48	2	0	0	0	0
	0	0	0	0	0	0.5	0	0.5	0	0		
1980	1	3	0	0	8	49	49	4	0	0	0	0
	0	0	0	0.1429	0.2857	0	0.2857	0.2857	0	0		
1980	1	3	0	0	8	50	50	3	0	0	0	0
	0	0	0	0.3333	0.3333	0	0	0.3333	0	0		
1980	1	3	0	0	8	51	51	3	0	0	0	0
	0	0	0	0	0	0.25	0	0.25	0.25	0.25		
1983	1	3	0	0	11	14	14	2	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	15	15	4	0.0588	0.9412	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	16	16	3	0.0313	0.9688	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	17	17	5	0.0164	0.9836	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	18	18	7	0	0.9733	0.0133	0
	0.0133	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	19	19	8	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	20	20	9	0	0.9811	0.0189	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	21	21	13	0	0.963	0.0123	0.0247
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	22	22	11	0	1	0	0
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	23	23	11	0	0.9032	0.0645	0.0323
	0	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	24	24	9	0	0.8077	0.0962	0.0385
	0.0577	0	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	25	25	13	0	0.4906	0.0566	0.0566
	0.3585	0.0377	0	0	0	0	0	0	0	0		
1983	1	3	0	0	11	26	26	12	0	0.2759	0.069	0.0517
	0.5517	0.0345	0.0172	0	0	0	0	0	0	0		

1983	1	3	0	0	11	27	27	13	0	0.0725	0.0435	0.0435
	0.7971	0.0145	0.0145	0	0.0145	0	0	0	0	0		
1983	1	3	0	0	11	28	28	12	0	0.0319	0.0213	0.0319
	0.7872	0.0638	0.0319	0.0106	0.0213	0	0	0	0	0		
1983	1	3	0	0	11	29	29	13	0	0	0.0106	0.0426
	0.8191	0.0638	0.0319	0.0213	0	0	0.0106	0	0	0		
1983	1	3	0	0	11	30	30	12	0	0	0.0122	0.0244
	0.7439	0.0854	0.061	0.0244	0.0488	0	0	0	0	0		
1983	1	3	0	0	11	31	31	12	0	0	0	0.0141
	0.6056	0.0282	0.0704	0.0845	0.1127	0.0423	0.0423	0	0	0		
1983	1	3	0	0	11	32	32	11	0	0	0	0
	0.5818	0.0909	0.1091	0.0727	0.0727	0.0364	0.0182	0.0182	0	0		
1983	1	3	0	0	11	33	33	10	0	0	0	0
	0.3922	0.0784	0.0784	0.1176	0.2157	0.0392	0.0784	0	0	0		
1983	1	3	0	0	11	34	34	9	0	0	0	0
	0.2273	0.0227	0.1136	0.1364	0.2273	0.0909	0.0455	0.1136	0.0227	0		
1983	1	3	0	0	11	35	35	8	0	0	0	0
	0.1333	0.0333	0.2333	0.2	0.2667	0.1	0.0333	0	0	0		
1983	1	3	0	0	11	36	36	6	0	0	0	0
	0.0588	0.0588	0.1176	0.1176	0.2353	0.1176	0.1176	0.1765	0	0		
1983	1	3	0	0	11	37	37	5	0	0	0	0
	0.0909	0	0.1818	0.1818	0.0909	0.0909	0.0909	0.2727	0	0		
1983	1	3	0	0	11	38	38	7	0	0	0	0
	0.0909	0	0	0.1818	0.3636	0.1818	0.0909	0	0.0909	0		
1983	1	3	0	0	11	39	39	2	0	0	0	0
	0	0	0.2	0.2	0.4	0.2	0	0	0	0		
1983	1	3	0	0	11	40	40	3	0	0	0	0
	0	0	0	0	0.6667	0	0	0.1667	0.1667	0		
1983	1	3	0	0	11	41	41	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1983	1	3	0	0	11	42	42	2	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1983	1	3	0	0	11	43	43	2	0	0	0	0
	0	0	0	0	0.5	0	0.5	0	0	0		
1983	1	3	0	0	11	44	44	1	0	0	0	0
	0	0	0	0	0.5	0	0	0.5	0	0		
1983	1	3	0	0	11	46	46	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1983	1	3	0	0	11	47	47	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1983	1	3	0	0	11	50	50	1	0	0	0	0
	0	0	0	0	1	0	0	0	0	0		
1986	1	3	0	0	14	10	10	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	11	11	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	12	12	6	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	13	13	8	0.9639	0.0361	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	14	14	8	0.9762	0.0238	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	15	15	9	0.9816	0.0184	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	16	16	9	0.9765	0.0235	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	17	17	11	0.8913	0.087	0.0217	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	18	18	8	0.7647	0.1765	0.0588	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	19	19	10	0.7778	0.2222	0	0
	0	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	20	20	5	0.2	0.2	0.2	0
	0.4	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	21	21	6	0	0	0.1429	0
	0.8571	0	0	0	0	0	0	0	0	0		

1986	1	3	0	0	14	22	22	12	0	0	0	0.2
	0.8	0	0	0	0	0	0	0	0	0		
1986	1	3	0	0	14	23	23	21	0	0	0.0208	0.0729
	0.8438	0.0417	0.0208	0	0	0	0	0	0	0		
1986	1	3	0	0	14	24	24	21	0	0	0.0136	0.0544
	0.8844	0.034	0.0136	0	0	0	0	0	0	0		
1986	1	3	0	0	14	25	25	20	0	0	0.0095	0.0571
	0.8667	0.0619	0.0048	0	0	0	0	0	0	0		
1986	1	3	0	0	14	26	26	21	0	0	0.0047	0.0234
	0.9019	0.0467	0.0187	0.0047	0	0	0	0	0	0		
1986	1	3	0	0	14	27	27	21	0	0	0.006	0.0476
	0.7976	0.1012	0.0417	0.006	0	0	0	0	0	0		
1986	1	3	0	0	14	28	28	17	0	0	0	0.0244
	0.6748	0.1301	0.0488	0.122	0	0	0	0	0	0		
1986	1	3	0	0	14	29	29	18	0	0	0	0.0215
	0.6129	0.129	0.1398	0.0968	0	0	0	0	0	0		
1986	1	3	0	0	14	30	30	16	0	0	0	0.0411
	0.4658	0.1781	0.0959	0.2055	0	0.0137	0	0	0	0		
1986	1	3	0	0	14	31	31	16	0	0	0	0
	0.4211	0.1228	0.1579	0.2807	0.0175	0	0	0	0	0		
1986	1	3	0	0	14	32	32	16	0	0	0	0
	0.18	0.18	0.18	0.42	0.02	0.02	0	0	0	0		
1986	1	3	0	0	14	33	33	11	0	0	0	0
	0.122	0.0976	0.122	0.561	0.0488	0.0244	0	0.0244	0	0		
1986	1	3	0	0	14	34	34	13	0	0	0	0
	0.2571	0.0286	0.1429	0.3429	0.0857	0.0857	0.0286	0.0286	0	0		
1986	1	3	0	0	14	35	35	8	0	0	0	0
	0.1304	0	0.0435	0.4348	0.1304	0.1304	0	0.1304	0	0		
1986	1	3	0	0	14	36	36	9	0	0	0	0
	0.15	0	0.05	0.4	0.1	0.2	0	0.1	0	0		
1986	1	3	0	0	14	37	37	4	0	0	0	0
	0	0.0769	0.1538	0.3846	0.0769	0.1538	0	0.1538	0	0		
1986	1	3	0	0	14	38	38	4	0	0	0	0
	0	0.0769	0.0769	0.3077	0.1538	0.0769	0.0769	0.1538	0.0769	0		
1986	1	3	0	0	14	39	39	3	0	0	0	0
	0	0.0833	0.0833	0.3333	0.1667	0.0833	0	0.25	0	0		
1986	1	3	0	0	14	40	40	3	0	0	0	0
	0	0	0	0.5556	0.2222	0.1111	0	0.1111	0	0		
1986	1	3	0	0	14	41	41	4	0	0	0	0
	0	0	0	0.3333	0	0	0.1667	0.3333	0.1667	0		
1986	1	3	0	0	14	42	42	3	0	0	0	0
	0	0	0	0	0.5	0	0	0.25	0.25	0		
1986	1	3	0	0	14	43	43	2	0	0	0	0
	0	0	0	0	0	0	0	0.75	0	0.25		
1986	1	3	0	0	14	45	45	3	0	0	0	0
	0	0	0	0.3333	0	0	0.6667	0	0	0		
1986	1	3	0	0	14	46	46	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1986	1	3	0	0	14	48	48	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1986	1	3	0	0	14	49	49	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1986	1	3	0	0	14	50	50	1	0	0	0	0
	0	0	0	0	0	0	0	0	1	0		
1986	1	3	0	0	14	51	51	1	0	0	0	0
	0	0	0	0	0	0	0	0	0.5	0.5		
1989	1	3	0	0	17	8	8	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	3	0	0	17	14	14	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	3	0	0	17	15	15	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	3	0	0	17	16	16	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	3	0	0	17	17	17	6	0.7778	0.2222	0	0
	0	0	0	0	0	0	0	0	0	0		

1989	1	3	0	0	17	18	18	8	0.8857	0.0857	0.0286	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	3	0	0	17	19	19	7	0.8205	0.1538	0.0256	0
	0	0	0	0	0	0	0	0	0	0		
1989	1	3	0	0	17	20	20	9	0.7105	0.2368	0.0263	0.0263
	0	0	0	0	0	0	0	0	0	0		
1989	1	3	0	0	17	21	21	10	0.0833	0.375	0.0833	0.4167
	0.0417	0	0	0	0	0	0	0	0	0		
1989	1	3	0	0	17	22	22	15	0	0.0769	0	0.7436
	0.0513	0.0256	0	0.1026	0	0	0	0	0	0		
1989	1	3	0	0	17	23	23	20	0	0.0167	0.0167	0.9
	0.0083	0	0	0.05	0	0	0.0083	0	0	0		
1989	1	3	0	0	17	24	24	20	0	0.0085	0.0169	0.8686
	0.0169	0.0042	0.0042	0.072	0.0042	0	0.0042	0	0	0		
1989	1	3	0	0	17	25	25	20	0	0	0.0036	0.7607
	0.0036	0.0107	0.0036	0.2	0.0107	0	0.0071	0	0	0		
1989	1	3	0	0	17	26	26	20	0	0	0	0.6541
	0.0171	0	0.0171	0.2842	0.0171	0.0034	0.0068	0	0	0		
1989	1	3	0	0	17	27	27	20	0	0	0	0.4868
	0.0106	0.0106	0.0159	0.4339	0.0265	0	0.0159	0	0	0		
1989	1	3	0	0	17	28	28	18	0	0	0.0082	0.3279
	0.0082	0.0082	0.0246	0.5984	0.0082	0	0.0164	0	0	0		
1989	1	3	0	0	17	29	29	16	0	0	0	0.1957
	0.0217	0.0109	0.0326	0.6413	0.0217	0.0217	0.0543	0	0	0		
1989	1	3	0	0	17	30	30	16	0	0	0	0.1818
	0	0	0	0.7045	0.0455	0	0.0682	0	0	0		
1989	1	3	0	0	17	31	31	10	0	0	0	0.0833
	0	0.0417	0	0.75	0	0	0.125	0	0	0		
1989	1	3	0	0	17	32	32	8	0	0	0	0.2
	0	0	0	0.6	0.0667	0	0.1333	0	0	0		
1989	1	3	0	0	17	33	33	9	0	0	0	0
	0	0	0	0.8	0	0	0	0	0	0.2		
1989	1	3	0	0	17	34	34	6	0	0	0	0
	0	0.125	0	0.5	0	0	0.375	0	0	0		
1989	1	3	0	0	17	35	35	5	0	0	0	0
	0	0	0	0.5714	0	0	0.4286	0	0	0		
1989	1	3	0	0	17	36	36	2	0	0	0	0
	0	0	0	0.5	0	0	0.5	0	0	0		
1989	1	3	0	0	17	37	37	2	0	0	0	0
	0	0	0	0.3333	0	0	0.6667	0	0	0		
1989	1	3	0	0	17	39	39	3	0	0	0	0
	0	0	0	0.6667	0	0	0	0	0	0.3333		
1989	1	3	0	0	17	40	40	2	0	0	0	0
	0	0	0	0.5	0	0	0	0	0	0.5		
1989	1	3	0	0	17	41	41	2	0	0	0	0
	0	0	0	0.5	0	0	0.5	0	0	0		
1989	1	3	0	0	17	44	44	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1989	1	3	0	0	17	45	45	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1989	1	3	0	0	17	46	46	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
1989	1	3	0	0	17	50	50	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1989	1	3	0	0	17	51	51	2	0	0	0	0
	0	0	0	0	0	0	0.6667	0	0	0.3333		
1992	1	3	0	0	20	5	5	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	6	6	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	7	7	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	8	8	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	9	9	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		

1992	1	3	0	0	20	10	10	5	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	11	11	7	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	12	12	7	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	13	13	8	0.9615	0.0385	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	14	14	8	0.9661	0.0339	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	15	15	8	0.8627	0.1373	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	16	16	7	0.898	0.102	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	17	17	6	0.875	0.125	0	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	18	18	6	0.5	0.1667	0.3333	0
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	19	19	5	0.125	0.5	0.25	0.125
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	20	20	8	0.1	0.2	0.5	0.2
	0	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	21	21	7	0	0.1111	0.3889	0.4444
	0.0556	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	22	22	10	0	0.0385	0.3846	0.5385
	0.0385	0	0	0	0	0	0	0	0	0		
1992	1	3	0	0	20	23	23	24	0	0.0526	0.4737	0.3684
	0.0175	0	0.0877	0	0	0	0	0	0	0		
1992	1	3	0	0	20	24	24	28	0	0.0263	0.2632	0.4825
	0.0526	0.0088	0.1316	0.0088	0	0	0.0263	0	0	0		
1992	1	3	0	0	20	25	25	36	0	0.0207	0.1295	0.3731
	0.0311	0.0104	0.3679	0.0155	0	0	0.0466	0.0052	0	0		
1992	1	3	0	0	20	26	26	38	0	0	0.0952	0.2381
	0.022	0.0073	0.4689	0.0073	0.011	0.0037	0.1465	0	0	0		
1992	1	3	0	0	20	27	27	39	0	0	0.0386	0.1544
	0.0421	0.007	0.5684	0.014	0.007	0.007	0.1404	0.014	0	0.007		
1992	1	3	0	0	20	28	28	37	0	0	0.0127	0.135
	0.0211	0.0042	0.6076	0.0211	0.0127	0	0.1646	0.0042	0	0.0169		
1992	1	3	0	0	20	29	29	34	0	0	0.006	0.0904
	0.012	0.0301	0.506	0.0301	0.006	0	0.3012	0.012	0	0.006		
1992	1	3	0	0	20	30	30	30	0	0	0.0095	0.0667
	0	0.0095	0.5048	0.0095	0.0286	0.0095	0.3333	0.019	0	0.0095		
1992	1	3	0	0	20	31	31	22	0	0	0	0.0147
	0.0147	0	0.4706	0.0147	0.0147	0.0147	0.4265	0.0147	0	0.0147		
1992	1	3	0	0	20	32	32	18	0	0	0	0
	0.0233	0.0465	0.3488	0.0233	0	0.0233	0.3953	0.0465	0	0.093		
1992	1	3	0	0	20	33	33	14	0	0	0	0
	0	0.0667	0.5	0.0333	0	0	0.3	0.0333	0	0.0667		
1992	1	3	0	0	20	34	34	6	0	0	0	0
	0	0	0.3529	0.0588	0	0.0588	0.4118	0	0	0.1176		
1992	1	3	0	0	20	35	35	3	0	0	0	0
	0	0	0.25	0.0833	0	0	0.5833	0.0833	0	0		
1992	1	3	0	0	20	36	36	4	0	0	0	0
	0	0	0.7778	0	0	0	0.2222	0	0	0		
1992	1	3	0	0	20	37	37	5	0	0	0	0
	0	0	0.3333	0	0	0.1111	0.5556	0	0	0		
1992	1	3	0	0	20	38	38	4	0	0	0	0
	0	0	0.1667	0.1667	0	0	0.3333	0	0	0.3333		
1992	1	3	0	0	20	39	39	3	0	0	0	0
	0	0	0.4	0	0	0	0.6	0	0	0		
1992	1	3	0	0	20	40	40	1	0	0	0	0
	0	0	0.25	0	0	0	0.75	0	0	0		
1992	1	3	0	0	20	41	41	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
1992	1	3	0	0	20	42	42	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		

1992	1	3	0	0	20	43	43	2	0	0	0	0
	0	0	0	0	0	0	0.5	0	0	0.5		
1992	1	3	0	0	20	44	44	3	0	0	0	0
	0	0	0	0	0	0	0.75	0	0	0.25		
1995	1	3	0	0	23	9	9	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	10	10	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	11	11	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	12	12	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	13	13	9	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	14	14	13	0.9792	0.0208	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	15	15	15	0.954	0.0345	0.0115	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	16	16	21	0.8934	0.1066	0	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	17	17	20	0.8571	0.131	0	0.0119
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	18	18	17	0.7358	0.2453	0.0189	0
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	19	19	14	0.5185	0.3333	0.037	0.1111
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	20	20	6	0.1111	0.2222	0.1111	0.5556
	0	0	0	0	0	0	0	0	0	0		
1995	1	3	0	0	23	21	21	11	0	0.2857	0.0714	0.5714
	0	0	0.0714	0	0	0	0	0	0	0		
1995	1	3	0	0	23	22	22	15	0	0.0345	0.069	0.8276
	0	0.0345	0.0345	0	0	0	0	0	0	0		
1995	1	3	0	0	23	23	23	26	0	0.0192	0.0577	0.6538
	0.0385	0.0769	0.1346	0	0	0.0192	0	0	0	0		
1995	1	3	0	0	23	24	24	40	0	0.0101	0.0505	0.6768
	0.0202	0.101	0.0808	0	0	0.0505	0	0	0	0.0101		
1995	1	3	0	0	23	25	25	45	0	0	0.027	0.5608
	0.0405	0.0541	0.1689	0.0068	0	0.1216	0	0	0	0.0203		
1995	1	3	0	0	23	26	26	49	0	0	0.0152	0.4112
	0	0.1015	0.2589	0.0152	0	0.1472	0	0.0152	0	0.0355		
1995	1	3	0	0	23	27	27	53	0	0	0	0.2837
	0.0093	0.0465	0.2698	0	0	0.3023	0	0.0093	0	0.0791		
1995	1	3	0	0	23	28	28	50	0	0	0.0047	0.1721
	0.0186	0.0419	0.2651	0.0093	0	0.3581	0.0047	0.014	0	0.1116		
1995	1	3	0	0	23	29	29	47	0	0	0	0.0795
	0.017	0.0398	0.3466	0.0057	0	0.3693	0	0.0114	0	0.1307		
1995	1	3	0	0	23	30	30	38	0	0	0	0.0526
	0.015	0.0526	0.3459	0	0	0.3985	0	0.0301	0	0.1053		
1995	1	3	0	0	23	31	31	27	0	0	0	0.0319
	0.0213	0.0426	0.2766	0	0	0.5106	0	0.0213	0	0.0957		
1995	1	3	0	0	23	32	32	17	0	0	0	0.0192
	0.0192	0.0769	0.25	0	0	0.4423	0	0.0385	0	0.1538		
1995	1	3	0	0	23	33	33	14	0	0	0	0.0333
	0	0	0.3	0	0	0.4667	0	0	0	0.2		
1995	1	3	0	0	23	34	34	10	0	0	0	0
	0	0.0588	0.2941	0	0	0.4706	0	0	0	0.1765		
1995	1	3	0	0	23	35	35	7	0	0	0	0
	0.0833	0	0.3333	0	0	0.4167	0	0	0	0.1667		
1995	1	3	0	0	23	36	36	5	0	0	0	0
	0	0.1	0.1	0	0	0.7	0	0	0	0.1		
1995	1	3	0	0	23	37	37	6	0	0	0	0
	0	0	0.1667	0	0	0.8333	0	0	0	0		
1995	1	3	0	0	23	38	38	3	0	0	0	0
	0	0.25	0	0	0	0.5	0	0	0	0.25		
1995	1	3	0	0	23	39	39	5	0	0	0	0
	0	0	0	0	0	0.7143	0	0.1429	0	0.1429		

1995	1	3	0	0	23	40	40	2	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1995	1	3	0	0	23	41	41	2	0	0	0	0
	0	0	0.25	0	0	0.25	0	0.25	0	0.25		
1995	1	3	0	0	23	42	42	1	0	0	0	0
	0	0	0	0	0	0	0	1	0	0		
1995	1	3	0	0	23	43	43	4	0	0	0	0
	0	0	0	0	0	0.25	0	0	0	0.75		
1995	1	3	0	0	23	44	44	2	0	0	0	0
	0	0	0.2	0	0	0.4	0	0	0	0.4		
1995	1	3	0	0	23	45	45	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1995	1	3	0	0	23	46	46	2	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
1995	1	3	0	0	23	47	47	2	0	0	0	0
	0	0	0	0	0	0.5	0	0.5	0	0		
1995	1	3	0	0	23	48	48	2	0	0	0	0
	0	0	0	0	0	0.3333	0	0.3333	0	0.3333		
1995	1	3	0	0	23	50	50	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	1		
1995	1	3	0	0	23	51	51	3	0	0	0	0
	0	0	0	0	0	0.75	0	0.25	0	0		
1998	1	3	0	0	26	5	5	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	6	6	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	7	7	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	8	8	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	9	9	10	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	10	10	13	0.9524	0.0476	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	11	11	16	0.9516	0.0484	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	12	12	20	0.8621	0.1264	0.0115	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	13	13	23	0.8947	0.1053	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	14	14	23	0.8406	0.1594	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	15	15	31	0.7368	0.2632	0	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	16	16	31	0.5238	0.4286	0.0317	0.0159
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	17	17	30	0.2273	0.7273	0.0303	0.0152
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	18	18	36	0.1111	0.7889	0.0667	0.0333
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	19	19	39	0.0194	0.9223	0.0583	0
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	20	20	50	0.0083	0.8083	0.1667	0.0167
	0	0	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	21	21	44	0	0.7895	0.1368	0.0526
	0	0.0211	0	0	0	0	0	0	0	0		
1998	1	3	0	0	26	22	22	55	0	0.3923	0.3154	0.2692
	0.0077	0.0077	0.0077	0	0	0	0	0	0	0		
1998	1	3	0	0	26	23	23	62	0	0.2013	0.327	0.3774
	0.0063	0.0503	0.0189	0.0063	0	0.0126	0	0	0	0		
1998	1	3	0	0	26	24	24	66	0	0.0417	0.3981	0.3889
	0.037	0.0509	0.0648	0.0139	0	0.0046	0	0	0	0		
1998	1	3	0	0	26	25	25	64	0	0.0326	0.2233	0.4977
	0.0279	0.0465	0.1163	0.014	0.0093	0.0233	0	0	0.0093	0		
1998	1	3	0	0	26	26	26	57	0	0.0118	0.2071	0.3728
	0.0237	0.0651	0.2012	0.0237	0.0059	0.0592	0	0	0.0296	0		

1998	1	3	0	0	26	27	27	49	0	0	0.1406	0.3047
	0.0313	0.1172	0.1719	0.0156	0.0234	0.1094	0	0.0078	0.0703	0.0078	
1998	1	3	0	0	26	28	28	51	0	0	0.1271	0.1102
	0.0254	0.1271	0.1864	0.0508	0.0339	0.1949	0	0.0169	0.0763	0.0508	
1998	1	3	0	0	26	29	29	46	0	0.0108	0.1075	0.086
	0.0538	0.0645	0.2796	0.043	0.0323	0.129	0.0108	0.0108	0.1183	0.0538	
1998	1	3	0	0	26	30	30	31	0	0	0.0769	0.0577
	0	0.0385	0.2885	0.0577	0.0192	0.2692	0	0	0.1731	0.0192	
1998	1	3	0	0	26	31	31	22	0	0	0.0294	0.0882
	0	0.0294	0.2353	0	0	0.2353	0.0294	0	0.2647	0.0882	
1998	1	3	0	0	26	32	32	9	0	0	0	0
	0	0.1	0.2	0	0	0	0	0.1	0.5	0.1	
1998	1	3	0	0	26	33	33	5	0	0	0	0
	0	0	0.3333	0	0	0.3333	0	0	0.1667	0.1667	
1998	1	3	0	0	26	34	34	6	0	0	0	0
	0	0	0.1429	0.1429	0	0.2857	0	0	0.2857	0.1429	
1998	1	3	0	0	26	35	35	4	0	0	0	0
	0	0	0	0.25	0.25	0.25	0	0	0	0.25	
1998	1	3	0	0	26	36	36	2	0	0	0	0
	0	0	0	0	0	0	0	0	0.5	0.5	
1998	1	3	0	0	26	37	37	2	0	0	0	0
	0	0	0	0	0	0	0	0.5	0.5	0	
1998	1	3	0	0	26	38	38	3	0	0	0	0
	0	0	0	0	0	0.3333	0	0	0	0.6667	
1998	1	3	0	0	26	39	39	5	0	0	0	0.2
	0	0	0	0	0.2	0.4	0	0	0.2	0	
1998	1	3	0	0	26	41	41	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0	
1998	1	3	0	0	26	42	42	2	0	0	0	0
	0	0	0	0	0	0.5	0	0	0.5	0	
1998	1	3	0	0	26	50	50	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0	
2001	1	3	0	0	29	8	8	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	11	11	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	12	12	8	1	0	0	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	13	13	14	0.9811	0.0189	0	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	14	14	17	0.9615	0.0288	0.0096	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	15	15	20	0.9394	0.0424	0.0182	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	16	16	20	0.9416	0.039	0.013	0.0065
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	17	17	20	0.8675	0.0964	0.0361	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	18	18	17	0.9048	0.0952	0	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	19	19	13	0.697	0.2727	0.0303	0
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	20	20	10	0.2941	0.4118	0.2353	0.0588
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	21	21	17	0.0303	0.7576	0.1515	0.0303
	0	0.0303	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	22	22	14	0	0.871	0.0323	0.0968
	0	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	23	23	18	0.0204	0.7347	0.1429	0.0816
	0.0204	0	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	24	24	22	0	0.5	0.1591	0.2955
	0.0227	0.0227	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	25	25	17	0	0.3333	0.1818	0.3333
	0.1212	0.0303	0	0	0	0	0	0	0	0	
2001	1	3	0	0	29	26	26	29	0	0.1111	0.2222	0.375
	0.125	0.0972	0.0694	0	0	0	0	0	0	0	

2001	1	3	0	0	29	27	27	29	0	0.0215	0.2796	0.3333
	0.1398	0.0645	0.0968	0.0323	0.0108	0.0215	0	0	0	0		
2001	1	3	0	0	29	28	28	30	0	0.0253	0.2595	0.2911
	0.1519	0.0886	0.0886	0.019	0.0316	0.019	0.0127	0.0063	0	0.0063		
2001	1	3	0	0	29	29	29	30	0	0.006	0.3155	0.2381
	0.1845	0.1429	0.0595	0.0298	0.0179	0.006	0	0	0	0		
2001	1	3	0	0	29	30	30	28	0	0.01	0.2139	0.2338
	0.1891	0.1144	0.1095	0.0299	0.0299	0.0199	0.01	0.0299	0.005	0.005		
2001	1	3	0	0	29	31	31	27	0	0.012	0.1856	0.1796
	0.1617	0.1916	0.1198	0.0299	0.0479	0.0299	0.018	0.018	0	0.006		
2001	1	3	0	0	29	32	32	25	0	0	0.1045	0.1119
	0.1194	0.3284	0.1418	0.0522	0.0448	0.0299	0.0224	0.0149	0.0075	0.0224		
2001	1	3	0	0	29	33	33	26	0	0	0.1008	0.0756
	0.1513	0.2437	0.1597	0.0504	0.0504	0.0252	0.0504	0.0336	0.0168	0.042		
2001	1	3	0	0	29	34	34	24	0	0	0.0562	0.1348
	0.1461	0.2921	0.1124	0.0674	0.0449	0.0562	0.0337	0.0112	0	0.0449		
2001	1	3	0	0	29	35	35	25	0	0	0.0154	0.0154
	0.0923	0.3077	0.1385	0.1231	0.0923	0.0462	0.0615	0	0.0154	0.0923		
2001	1	3	0	0	29	36	36	18	0	0	0.0244	0
	0.0732	0.3171	0.1951	0.0488	0.0488	0.122	0	0.0732	0.0244	0.0732		
2001	1	3	0	0	29	37	37	13	0	0	0	0
	0.125	0.375	0.2083	0.0417	0.0417	0.0417	0	0.0417	0	0.125		
2001	1	3	0	0	29	38	38	10	0	0	0	0
	0.15	0.35	0.1	0.1	0.05	0.1	0.1	0	0	0.05		
2001	1	3	0	0	29	39	39	10	0	0.05	0	0
	0.05	0.4	0.1	0	0.15	0.05	0.1	0	0	0.1		
2001	1	3	0	0	29	40	40	7	0	0	0	0
	0.125	0.5	0.125	0.125	0	0.125	0	0	0	0		
2001	1	3	0	0	29	41	41	8	0	0	0	0
	0.0714	0.1429	0.0714	0	0.2143	0.1429	0	0.2143	0.0714	0.0714		
2001	1	3	0	0	29	42	42	5	0	0	0	0
	0	0.1429	0	0.2857	0.1429	0	0.1429	0.1429	0	0.1429		
2001	1	3	0	0	29	43	43	3	0	0	0	0
	0	0	0	0.3333	0.3333	0	0	0.3333	0	0		
2001	1	3	0	0	29	44	44	2	0	0	0	0
	0	0.5	0	0	0.5	0	0	0	0	0		
2001	1	3	0	0	29	45	45	4	0	0	0	0
	0	0.25	0.25	0	0.25	0	0	0	0	0.25		
2001	1	3	0	0	29	46	46	3	0	0	0	0
	0	0	0.25	0.25	0	0.25	0	0.25	0	0		
2001	1	3	0	0	29	47	47	2	0	0	0	0
	0	0	0	0	0.5	0	0.5	0	0	0		
2001	1	3	0	0	29	48	48	1	0	0	0	0
	0	0.5	0	0	0	0	0.5	0	0	0		
2001	1	3	0	0	29	49	49	2	0	0	0	0
	0	0.1667	0.1667	0	0	0	0.5	0.1667	0	0		
2001	1	3	0	0	29	50	50	4	0	0	0	0
	0	0.25	0.5	0	0	0.25	0	0	0	0		
2001	1	3	0	0	29	51	51	4	0	0	0	0
	0	0.2222	0	0	0.3333	0.1111	0	0.1111	0.1111	0.1111		
2003	1	3	0	0	31	6	6	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	9	9	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	11	11	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	12	12	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	13	13	4	0.8824	0	0.0588	0.0588
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	14	14	4	0.8148	0.0741	0	0.1111
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	15	15	8	0.68	0.16	0.04	0.12
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	16	16	8	0.6087	0	0.087	0.3043
	0	0	0	0	0	0	0	0	0	0		

2003	1	3	0	0	31	17	17	8	0.5122	0	0.0732	0.3415
	0.0732	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	18	18	9	0.1304	0.2174	0.2174	0.3913
	0.0435	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	19	19	14	0.1875	0.1875	0.4688	0.1563
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	20	20	14	0.0833	0.1667	0.5833	0.1389
	0	0.0278	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	21	21	29	0	0.0462	0.8308	0.1231
	0	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	22	22	43	0	0.0866	0.8504	0.0551
	0.0079	0	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	23	23	56	0	0.0145	0.8836	0.0727
	0.0145	0.0036	0.0073	0.0036	0	0	0	0	0	0		
2003	1	3	0	0	31	24	24	55	0	0.0144	0.9078	0.0634
	0.0058	0.0086	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	25	25	59	0	0.0093	0.8037	0.1184
	0.0125	0.0343	0.0156	0.0031	0.0031	0	0	0	0	0		
2003	1	3	0	0	31	26	26	61	0	0.0099	0.6414	0.1382
	0.0362	0.0822	0.0461	0.0197	0.0066	0.0132	0.0033	0.0033	0	0		
2003	1	3	0	0	31	27	27	53	0	0	0.5112	0.1418
	0.0299	0.1642	0.0634	0.0373	0.0485	0	0	0.0037	0	0		
2003	1	3	0	0	31	28	28	55	0	0	0.3223	0.1488
	0.0413	0.1612	0.1446	0.0496	0.0702	0.0207	0.0124	0.0083	0	0.0207		
2003	1	3	0	0	31	29	29	43	0	0	0.2159	0.1023
	0.0795	0.1875	0.125	0.0739	0.1023	0.0284	0.0114	0.0455	0.0114	0.017		
2003	1	3	0	0	31	30	30	41	0	0	0.2215	0.1007
	0.0201	0.2013	0.1678	0.0336	0.1007	0.0403	0.0201	0.0201	0.047	0.0268		
2003	1	3	0	0	31	31	31	32	0	0	0.134	0.134
	0.0825	0.1753	0.134	0.1134	0.134	0.0309	0.0309	0	0.0103	0.0206		
2003	1	3	0	0	31	32	32	28	0	0	0.1149	0.046
	0.1034	0.2184	0.1609	0.1149	0.1034	0.046	0.0575	0	0.023	0.0115		
2003	1	3	0	0	31	33	33	24	0	0	0.08	0.1
	0.1	0.14	0.14	0.16	0.1	0.04	0.02	0	0.08	0.04		
2003	1	3	0	0	31	34	34	19	0	0	0.0526	0.0702
	0.193	0.1053	0.1053	0.2105	0.0877	0.0526	0.0526	0.0526	0.0175	0		
2003	1	3	0	0	31	35	35	12	0	0	0.0588	0.1176
	0.2059	0.1765	0.1765	0.1176	0.0588	0.0294	0	0.0294	0	0.0294		
2003	1	3	0	0	31	36	36	12	0	0	0	0.125
	0.2813	0.1563	0.125	0.2188	0.0313	0	0	0.0313	0	0.0313		
2003	1	3	0	0	31	37	37	7	0	0	0	0.0556
	0.3333	0.0556	0	0.3333	0.0556	0.0556	0	0.0556	0	0.0556		
2003	1	3	0	0	31	38	38	6	0	0	0	0.2
	0.2667	0	0.1333	0.0667	0.1333	0.0667	0	0.0667	0	0.0667		
2003	1	3	0	0	31	39	39	5	0	0	0	0.0714
	0.2143	0.1429	0.2143	0.2143	0	0.0714	0	0.0714	0	0		
2003	1	3	0	0	31	40	40	3	0	0	0	0
	0	0	0.25	0.25	0.25	0	0.25	0	0	0		
2003	1	3	0	0	31	41	41	6	0	0	0	0.3
	0.1	0	0.2	0.2	0.1	0	0	0	0	0.1		
2003	1	3	0	0	31	42	42	2	0	0	0	0
	0.1429	0.1429	0.2857	0.2857	0	0	0	0	0	0.1429		
2003	1	3	0	0	31	43	43	5	0	0	0	0
	0.625	0	0	0	0.25	0	0	0	0	0.125		
2003	1	3	0	0	31	45	45	2	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2003	1	3	0	0	31	46	46	2	0	0	0	0.3333
	0	0	0.3333	0	0.3333	0	0	0	0	0		
2003	1	3	0	0	31	47	47	2	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2003	1	3	0	0	31	48	48	2	0	0	0	0
	0.3333	0	0	0	0	0	0.6667	0	0	0		
2003	1	3	0	0	31	50	50	2	0	0	0	0
	0	0.5	0	0	0	0.5	0	0	0	0		
2003	1	3	0	0	31	51	51	6	0	0	0	0
	0	0	0.1429	0.2857	0	0.2857	0.1429	0	0	0.1429		

2005	1	3	0	0	33	9	9	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	10	10	1	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	11	11	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	12	12	6	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	13	13	7	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	14	14	10	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	15	15	8	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	16	16	10	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	17	17	9	0.9189	0.0811	0	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	18	18	10	0.8696	0.087	0.0435	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	19	19	8	0.5	0.2857	0.2143	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	20	20	10	0.3333	0.4	0.2667	0
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	21	21	6	0.25	0.375	0.125	0.25
	0	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	22	22	22	0	0.0909	0.3636	0.1212
	0.4242	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	23	23	28	0	0.0519	0.2597	0.1558
	0.4805	0.039	0.013	0	0	0	0	0	0	0		
2005	1	3	0	0	33	24	24	36	0	0.0112	0.1229	0.0726
	0.7318	0.0503	0.0112	0	0	0	0	0	0	0		
2005	1	3	0	0	33	25	25	41	0	0	0.123	0.0714
	0.7381	0.0516	0.0079	0.004	0	0.004	0	0	0	0		
2005	1	3	0	0	33	26	26	42	0	0	0.0515	0.0588
	0.7537	0.0809	0.0147	0.0184	0.011	0.011	0	0	0	0		
2005	1	3	0	0	33	27	27	41	0	0	0.0327	0.0531
	0.6939	0.0857	0.049	0.0449	0.0122	0.0163	0	0.0041	0	0.0082		
2005	1	3	0	0	33	28	28	39	0	0	0.016	0.0745
	0.6543	0.1064	0.0372	0.0638	0.0213	0.0213	0.0053	0	0	0		
2005	1	3	0	0	33	29	29	32	0	0	0.0083	0.0167
	0.6667	0.1	0.0333	0.0667	0.05	0.025	0.025	0.0083	0	0		
2005	1	3	0	0	33	30	30	27	0	0	0	0.0448
	0.5522	0.0597	0.0149	0.1493	0.0896	0.0597	0	0.0149	0	0.0149		
2005	1	3	0	0	33	31	31	23	0	0	0.0213	0.0426
	0.4468	0.0638	0.0426	0.1064	0.0851	0.0213	0.0851	0.0426	0.0213	0.0213		
2005	1	3	0	0	33	32	32	12	0	0	0	0
	0.3333	0.0952	0.0952	0.0952	0.1905	0.0952	0.0476	0.0476	0	0		
2005	1	3	0	0	33	33	33	12	0	0	0	0
	0.2	0.2667	0.1333	0.1333	0	0.2	0.0667	0	0	0		
2005	1	3	0	0	33	34	34	9	0	0	0	0.0833
	0.25	0.25	0.0833	0.1667	0.0833	0	0.0833	0	0	0		
2005	1	3	0	0	33	35	35	5	0	0	0	0
	0.25	0.25	0	0	0.375	0.125	0	0	0	0		
2005	1	3	0	0	33	36	36	3	0	0	0	0
	1	0	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	37	37	5	0	0	0	0
	0.2	0.4	0	0.2	0.2	0	0	0	0	0		
2005	1	3	0	0	33	38	38	2	0	0	0	0
	0	0	0	0.5	0	0	0.5	0	0	0		
2005	1	3	0	0	33	39	39	1	0	0	0	0
	0	1	0	0	0	0	0	0	0	0		
2005	1	3	0	0	33	40	40	1	0	0	0	0
	0	0	1	0	0	0	0	0	0	0		
2005	1	3	0	0	33	45	45	1	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		

2005	1	3	0	0	33	46	46	1	0	0	0	0
	0	0	0	0	0	1	0	0	0	0		
2005	1	3	0	0	33	49	49	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2005	1	3	0	0	33	50	50	1	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2005	1	3	0	0	33	51	51	6	0	0	0	0
	0.1429	0	0	0	0.4286	0.1429	0.1429	0	0.1429	0		
2007	1	3	0	0	35	5	5	3	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	6	6	2	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	7	7	4	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	8	8	7	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	9	9	8	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	10	10	15	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	11	11	17	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	12	12	18	1	0	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	13	13	17	0.9929	0.0071	0	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	14	14	20	0.9688	0.0208	0.0104	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	15	15	20	0.9762	0.0119	0.0119	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	16	16	16	0.9302	0.0233	0.0465	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	17	17	15	0.7561	0.0976	0.1463	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	18	18	13	0.7692	0.0385	0.1538	0.0385
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	19	19	11	0.2353	0.2353	0.5294	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	20	20	10	0.1429	0.4286	0.3571	0
	0.0714	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	21	21	16	0	0.3684	0.6316	0
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	22	22	14	0	0.4	0.55	0.05
	0	0	0	0	0	0	0	0	0	0		
2007	1	3	0	0	35	23	23	27	0	0.2593	0.5926	0.0556
	0.0185	0.037	0.037	0	0	0	0	0	0	0		
2007	1	3	0	0	35	24	24	36	0	0.0822	0.6438	0.0137
	0.0411	0	0.2192	0	0	0	0	0	0	0		
2007	1	3	0	0	35	25	25	38	0	0.0413	0.4132	0.0331
	0.0661	0.0331	0.3636	0.0496	0	0	0	0	0	0		
2007	1	3	0	0	35	26	26	43	0	0.0089	0.2133	0.0444
	0.1244	0.0533	0.5067	0.0311	0.0089	0.0044	0	0.0044	0	0		
2007	1	3	0	0	35	27	27	44	0	0.0037	0.1157	0.0373
	0.1269	0.0522	0.6045	0.0373	0.0075	0.0112	0.0037	0	0	0		
2007	1	3	0	0	35	28	28	54	0	0	0.0787	0.0131
	0.0787	0.0623	0.6328	0.0754	0.0131	0.0295	0.0066	0.0066	0.0033	0		
2007	1	3	0	0	35	29	29	49	0	0	0.0319	0.0064
	0.0703	0.0479	0.6613	0.0863	0.0383	0.0192	0.0192	0.0096	0.0096	0		
2007	1	3	0	0	35	30	30	46	0	0	0.028	0.008
	0.056	0.052	0.648	0.052	0.044	0.056	0.028	0.016	0.012	0		
2007	1	3	0	0	35	31	31	37	0	0	0.007	0
	0.0282	0.0845	0.6408	0.0775	0.0563	0.0493	0.0282	0.007	0	0.0211		
2007	1	3	0	0	35	32	32	30	0	0	0	0
	0.0769	0.0481	0.5673	0.0962	0.0481	0.0673	0.0288	0.0385	0.0192	0.0096		
2007	1	3	0	0	35	33	33	22	0	0	0	0
	0.0833	0.0333	0.5167	0.05	0.1167	0.1	0.0333	0.0333	0.0333	0		

2007	1	3	0	0	35	34	34	22	0	0	0	0
	0	0.0204	0.6327	0.1224	0.0204	0.0204	0.0816	0.0408	0.0204	0.0408		
2007	1	3	0	0	35	35	35	12	0	0	0	0
	0	0.08	0.48	0.16	0.04	0.08	0	0.12	0.04	0		
2007	1	3	0	0	35	36	36	12	0	0	0	0
	0	0	0.5333	0.0667	0.0667	0.0667	0.0667	0.2	0	0		
2007	1	3	0	0	35	37	37	6	0	0	0	0
	0	0	0.6667	0	0.1667	0	0	0.1667	0	0		
2007	1	3	0	0	35	38	38	6	0	0	0	0
	0	0	0.4286	0	0.2857	0.1429	0	0.1429	0	0		
2007	1	3	0	0	35	39	39	7	0	0	0	0
	0	0	0.5556	0.2222	0.1111	0	0.1111	0	0	0		
2007	1	3	0	0	35	40	40	5	0	0	0	0
	0.1667	0	0.3333	0.1667	0.3333	0	0	0	0	0		
2007	1	3	0	0	35	41	41	6	0	0	0	0
	0	0.1667	0.3333	0.3333	0.1667	0	0	0	0	0		
2007	1	3	0	0	35	42	42	3	0	0	0	0
	0	0	0.5	0	0	0	0	0.5	0	0		
2007	1	3	0	0	35	45	45	4	0	0	0	0
	0	0	0	0	0.6667	0	0.3333	0	0	0		
2007	1	3	0	0	35	47	47	2	0	0	0	0
	0	0	0	1	0	0	0	0	0	0		
2007	1	3	0	0	35	51	51	2	0	0	0	0
	0	0	0	0	0	0	1	0	0	0		
2009	1	3	0	0	37	11	11	2	0.5000	0.5000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	12	12	1	0.0000	1.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	13	13	2	0.3333	0.6667	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	14	14	4	0.2500	0.7500	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	15	15	13	0.0952	0.9048	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	16	16	16	0.0000	0.9487	0.0513	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	17	17	32	0.0364	0.8636	0.1000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	18	18	43	0.0188	0.8500	0.1250	0.0000
	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	19	19	42	0.0000	0.7771	0.2171	0.0000
	0.0057	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	20	20	46	0.0000	0.5859	0.4023	0.0000
	0.0117	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	21	21	45	0.0000	0.3496	0.6391	0.0000
	0.0113	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	22	22	46	0.0000	0.1728	0.8106	0.0000
	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	23	23	42	0.0000	0.0874	0.8579	0.0164
	0.0273	0.0109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	24	24	43	0.0000	0.0368	0.8405	0.0184
	0.0859	0.0123	0.0000	0.0000	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	25	25	41	0.0000	0.0000	0.7373	0.0932
	0.1186	0.0000	0.0000	0.0085	0.0339	0.0085	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	26	26	40	0.0000	0.0213	0.4681	0.0426
	0.2660	0.0319	0.0213	0.0106	0.1277	0.0106	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	27	27	33	0.0000	0.0000	0.2558	0.0930
	0.2907	0.0581	0.0349	0.0349	0.1628	0.0349	0.0349	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	28	28	31	0.0000	0.0000	0.0778	0.0778
	0.3000	0.0111	0.0889	0.0333	0.2778	0.0889	0.0333	0.0000	0.0111	0.0000		
2009	1	3	0	0	37	29	29	26	0.0000	0.0286	0.0429	0.0286
	0.2429	0.0000	0.0714	0.0857	0.3429	0.1429	0.0000	0.0000	0.0143	0.0000		
2009	1	3	0	0	37	30	30	27	0.0000	0.0000	0.0189	0.0660
	0.2453	0.0189	0.0189	0.0943	0.4151	0.0943	0.0094	0.0094	0.0094	0.0000		
2009	1	3	0	0	37	31	31	28	0.0000	0.0000	0.0194	0.0291
	0.1650	0.0388	0.0583	0.0971	0.4369	0.0777	0.0194	0.0485	0.0097	0.0000		

2009	1	3	0	0	37	32	32	21	0.0000	0.0000	0.0462	0.0462
	0.1231	0.0308	0.0462	0.0154	0.4923	0.0923	0.0615	0.0154	0.0308	0.0000		
2009	1	3	0	0	37	33	33	16	0.0000	0.0000	0.0172	0.0172
	0.0172	0.0000	0.0517	0.0345	0.6379	0.1379	0.0172	0.0172	0.0172	0.0345		
2009	1	3	0	0	37	34	34	12	0.0000	0.0000	0.0000	0.0000
	0.1034	0.0690	0.1034	0.1724	0.3793	0.1379	0.0000	0.0345	0.0000	0.0000		
2009	1	3	0	0	37	35	35	9	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.1613	0.7742	0.0323	0.0323	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	36	36	9	0.0000	0.0000	0.0000	0.0400
	0.0400	0.0400	0.0800	0.1200	0.4400	0.0800	0.0000	0.0400	0.0800	0.0400		
2009	1	3	0	0	37	37	37	8	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0909	0.1818	0.3636	0.0000	0.2727	0.0000	0.0909	0.0000		
2009	1	3	0	0	37	38	38	7	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.4444	0.1111	0.0000	0.1111	0.1111	0.2222		
2009	1	3	0	0	37	39	39	7	0.0000	0.0000	0.0000	0.0000
	0.1250	0.0000	0.0000	0.1250	0.2500	0.1250	0.2500	0.0000	0.1250	0.0000		
2009	1	3	0	0	37	40	40	5	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.6667	0.0000	0.3333	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	41	41	4	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.2000	0.0000	0.4000	0.4000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	42	42	2	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.3333	0.0000	0.6667	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	43	43	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000		
2009	1	3	0	0	37	44	44	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	45	45	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.5000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	46	46	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000		
2009	1	3	0	0	37	48	48	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2009	1	3	0	0	37	49	49	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000		
2009	1	3	0	0	37	51	51	1	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000		

Ghost acoustic survey revised for 2010

1977	1	3	0	0	5	1	51	-1	151.94	144.57	902.04	82.60
	115.79	1001.86	138.13	102.08	58.53	54.82	28.54	10.61	2.79	3.46		
1980	1	3	0	0	8	1	51	-1	16.18	1971.21	190.90	115.65
	94.42	417.83	154.83	333.21	133.62	78.76	13.26	22.81	4.75	3.49		
1983	1	3	0	0	11	1	51	-1	1.10	3254.35	107.83	32.62
	428.59	68.59	47.27	33.71	92.68	21.86	25.80	26.90	4.32	0.00		
1986	1	3	0	0	14	1	51	-1	4555.66	119.65	21.04	148.80
	2004.57	215.71	171.63	225.45	27.33	28.72	2.08	10.85	3.49	0.00		
1989	1	3	0	0	17	1	51	-1	411.82	141.76	31.19	1276.32
	28.43	10.08	18.30	435.18	22.95	1.75	43.08	0.00	0.00	1.76		
1992	1	3	0	0	20	1	51	-1	318.37	42.50	246.38	630.74
	77.96	31.61	1541.82	46.68	28.08	14.14	533.23	27.13	0.00	28.42		
1995	1	3	0	0	23	1	51	-1	880.52	117.80	32.62	575.90
	26.58	88.78	403.38	5.90	0.00	429.34	0.96	17.42	0.00	130.39		
1998	1	3	0	0	26	1	51	-1	414.33	460.41	386.81	481.76
	34.52	135.59	215.61	26.41	39.14	120.27	7.68	4.92	104.47	29.19		
2001	1	3	0	0	29	1	51	-1	1471.36	185.56	109.35	117.25
	54.26	54.03	29.41	17.11	12.03	5.07	4.48	8.73	0.83	3.10		
2003	1	3	0	0	31	1	51	-1	99.78	84.88	2146.50	366.87
	92.55	201.22	133.09	73.54	74.67	24.06	14.18	14.63	10.33	14.12		
2005	1	3	0	0	33	1	51	-1	601.86	61.02	180.86	129.98
	1210.46	132.12	45.07	61.09	34.83	28.17	11.90	6.11	0.81	4.35		
2007	1	3	0	0	35	1	51	-1	849.10	48.34	202.04	22.86
	81.75	51.65	575.01	59.95	26.72	26.16	14.25	12.07	5.51	7.79		
2009	1	3	0	0	37	1	51	-1	0.001881487		0.229516308	
	0.423131165		0.024860506		0.091878204		0.00785628		0.018073704		0.024434	
	0.128612757		0.029027282		0.009417396		0.005566288		0.005401788		0.000342836	

0 # No Mean size-at-age data
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 data file