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Long-term safety of strike limits for large whales off West Greenland

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ABSTRACT
Seven *ad hoc* Strike Limit Algorithms (SLA) - like 1% of the lower 90% confidence limit of the last abundance estimate - were applied to trial simulation for fin whales, humpback whales and bowhead whales off West Greenland. The trial structure was chosen to be conservative relative to the stock status of current assessments and abundance estimates, and nearly all trials incorporated demographic stochasticity to account for random processes at low abundance. It is shown that the SLAs provide a fair job of satisfying small needs of 20 fin whales, 10 humpback whales, and 5 to 25 bowhead whales per year, while at the same time they impose almost no risk that stocks below the Maximal Sustainable Yield Level (msyl) would not continue to increase to levels above the msyl.

INTRODUCTION

The management advise by the Scientific Committee (SC) of the International Whaling Commission (IWC) for the hunt of large whales in Greenland has recently been based on an approach where strike limits have been calculated from the lower percentiles of the available abundance estimates. At the SC meeting in 2007, this approach was criticised by some as being too *ad hoc* in order to guarantee that the suggested catch limits were safe on the longer time-scale of hundred years, which is the usual period applied by IWC when evaluating the risk of quota systems on large whales.

In this paper I apply such *ad hoc* Strike Limit Algorithms (SLA) to trial simulations for large whales off West Greenland in order to show that while these procedures may not be optimal in terms of allocating the largest catches to the fisheries, they can indeed be safe when it comes to securing that stocks below the maximum sustainable yield level (msyl) should continue to increase to levels above the msyl.

The main purpose of this study is to illustrate the long-term safety associated with a continued *ad hoc*-like management of the hunt of large whales off West Greenland. By this I do not argue that the long-term management of the hunt is best done one of the proposed SLAs, but only that such management, as it has been performed also in the past by IWC for large whales off West Greenland, can be safe and thus be applied with no risk until more final SLAs have been developed and adopted for these fisheries.

An issue of potential concern to several stocks of large whales off West Greenland is that of allocating strikes to stocks that might be so small that the risk of harvest is increased by the random effects of demographic stochasticity. As the population dynamic uncertainty caused by random demographic effects tend to apply only to populations that number in the low hundreds (Lande et al. 2003), and as the point estimates of most recent abundance estimates lie in the low thousands (e.g., Larsen 1995; Heide-Jørgensen et al. 2007; Heide-Jørgensen 2008; Heide-Jørgensen et al. 2008), it is likely that the population dynamic effects of demographic uncertainty are negligible for most stocks of large whales off West Greenland. But as the precision of abundance estimates often is low, with lower confidence limits for West Greenland stocks often in the range of hundreds, demographic stochasticity remains an issue of potential importance to the management of large whales in Greenland. Most of the trials in this paper are thus iterated with demographic stochasticity on the age-structured survival rates of females and males, the age-structured reproductive rates of females, and the age-structured catch of females and males.

A second essential issue when it comes to the risk evaluation of the simulated trials is not only the evaluation of the performance of the SLA on the individual trials, but also the integration of risk across all trials where it is important that the performance on a trial is weighted in accordance to the probability of the trial given the available data. The performance on unlikely trials should be given a relatively low weight, while it is especially important that an SLA performs well on the likely trials. I use Bayes factors of the different trials given agreed abundance data to evaluate the relative probabilities of the trials. This allows me to calculate the overall expectation that stocks below the msyl will indeed continue to increase towards the msyl.

The overall performance across all trials, let it be un-weighted or weighted by the relative probabilities of the different trials given the data, will always depend on the set of trials and, thus, it will never reflect the true performance given the dynamics of the stock. The estimated probabilities will thus be biased by the bias of the trial set, and given precautionary management the chosen trial sets should be pessimistic in relation to stock status so that the true performance of a SLA is more safe than indicated by the simulated trials. In order to secure this I have chose trial sets with a negatively biased stock status relative to the stock status that is estimated by Bayesian assessments of the involved stocks (Witting 2007; Witting 2008a,b).

POPULATION DYNAMIC MODEL

An age- and sex-structured model was applied with the number of animals in age classes larger than zero being

$$\begin{array}{ll} N^g_{t+1,a+1} = (N^g_{t,a} - C^g_{t,a})s^g_{t,a} & 0 \leq a \leq x-2 \\ N^g_{t+1,x} = (N^g_{t,x} - C^g_{t,x})s^g_{t,x} + (N^g_{t,x-1} - C^g_{t,x-1})s^g_{t,x-1} & \end{array} \tag{1}$$

where gender (g) is either male (m) or female (f), $s^g_{t,a}$ is age, gender, and year specific annual survival, $N^g_{t,a}$ is the number of males/females of age a at the start of year t, $C^g_{t,a}$ is the catch of males/females of age a during year t, and x is a lumped age-class.

For years with sex specific historical catches, the catch of gender g from age class a in year t is

$$C^g_{t,a} = \frac{G^g_a N^g_{t,a} C^g_t}{\sum_{a=0}^{x} G_a N^g_{t,a}} \tag{2}$$

where C^g_t is the total catch of that gender in year t, and $0 \leq G^g_a \leq 1$ is the gender specific age composition of the catch relative to the gender specific age composition of the population.

The expected annual survival rate $\bar{s}_a$ of animals of age a is

$$\bar{s}_a = \begin{cases} \bar{s_{juv}}\bar{s_{ad}} & \text{if } a = 0 \\ \bar{s_{juv}} & \text{if } 1 \leq a \leq a_{ad} \\ \bar{s_{ad}} & \text{if } a > a_{ad} \end{cases} \tag{3}$$

where $\bar{s_{juv}}$ is the expected survival of ‘juveniles’, $\bar{s_{ad}}$ the expected survival of adults, and $a_{ad} = 1$ is the greatest age at which the ‘juvenile’ survival rate applies.

The number of births at the start of year t, B_t, is

$$B_t = \sum_{a=a_m}^{x} B_{t,a} \tag{4}$$

where a_m is age of reproductive maturity, and $B_{t,a}$, the number of births from females in age class a, is

$$B_{t,a} = b_{t,a} M_{t,a}^f \tag{5}$$

where $b_{t,a}$ is the fecundity rate for mature females of age a in year t, and $M_{t,a}^f$ is the number of mature females in age class a at the start of year t, defined as

$$M_{t,a}^f = \begin{cases} 0 & \text{if } a_m > a \\ N_{t,a}^f & \text{if } a_m \leq a \end{cases} \tag{6}$$

The component of the population that imposes density-regulation is assumed to be the one plus component

$$N^{1+} = \sum_{a=1}^{x} N_a^f + N_a^m \tag{7}$$

with the expected birth rate $\bar{b}_t$ in year t being given by a Pella-Tomlinson form of density-regulation

$$\bar{b}_t = \bar{b_k} + [\bar{b}_{max} - \bar{b_k}][1 - (N_t^{1+}/K^{1+})^z] \tag{8}$$

where $\bar{b_k}$ is the expected birth rate at carrying capacity K, $\bar{b}_{max}$ the expected maximal birth rate, and z the strength of density dependence.

Although not explicit parameters of the model, the maximum sustainable yield level (msyl) and the maximum sustainable yield rate (msyr) were treated as parameters in the analysis, with both parameters relating to the one plus component of the population. The msyl depends mainly on the compensation parameter z, with the relationship between z and the msyl being solved numerically.

Demographic stochasticity

Demographic stochasticity was incorporated by random sampling of the birth process, the death process, and the gender and age distribution of the individuals in catches. Given an expected annual survival rate of $\bar{s}_a$ for age-class a, the realised survival rate of gender g in that age-class in year t was given as

$$s_{t,a}^g = z/n_{t,a}^g \tag{9}$$

with z being a random draw from a binominal distribution $\mathrm{Bin}(n_{t,a}^g, \bar{s}_a)$ where $n_{t,a}^g = N_{t,a}^g - C_{t,a}^g$ is the number of individuals of gender g in age-class a in year t that does not get caught in that year.

Having obtained an expected birth rate ($\bar{b}_t$) for mature females in year t from Eq. (8), the actual birth rate $b_{t,a}$ for age-class a in Eq. (5) is based on the demographic variability of the binominal birth process

$$b_{t,a} = z/M_{t,a}^f \tag{10}$$

with z being a random draw from a binominal distribution $\mathrm{Bin}(M_{t,a}^f, \bar{b}_t)$ where $M_{t,a}^f$ is the number of mature females in age-class a in year t.

For future simulated catches, defined by a SLA as the total number of strikes in a given year, and for historical catches with no sex information, the total catch of the two gender in a given year was given as

$$
\begin{aligned}
C_t^f &= z \\
C_t^m &= C_t - C_t^f
\end{aligned}
\tag{11}
$$

where z is a random draw from the binominal distribution $\mathrm{Bin}(C_t, N_t^{f,c}/N_t^c)$, where N_t^c is the number of individuals recruited to the fishery in year t, given as

$$
N_t^{g,c} = \sum_{a=0}^{x} G_a^g N_{t,a}^g \tag{12}
$$

for gender g. As this random harvest resembles sampling with replacement, it is assumed here that the total catch in any given year is relatively small compared with the total number of individuals available for the catch. Should there for a given year be allocated more catches to a gender than the number of individuals of that gender in that year, the excessive catches were reallocated to the other gender if there were room for more catches of that gender, and discarded otherwise.

The distribution of the catches among the different age classes was also given by a random demographic process. A random number z_i drawn form a uniform distribution between zero and one was associated with each of the C_t^g catches of gender g in year t, and the catch of gender g whales from age class a in year t was then given as

$$
\begin{aligned}
C_{t,a}^g &= \sum_{i=1}^{C_t^g} f(i) \\
f(i) &= \begin{cases} 0 & \text{if} \quad z_i \leq z_{\tilde{a}-1} \\ 1 & \text{if} \quad z_{\tilde{a}-1} < z_i \leq z_{\tilde{a}} \\ 0 & \text{if} \quad z_i > z_{\tilde{a}} \end{cases}
\end{aligned}
\tag{13}
$$

where

$$
z_{\tilde{a}} = \frac{1}{N_t^{g,c}} \sum_{a=0}^{\tilde{a}} G_a^g N_{t,a}^g \tag{14}
$$

Should there for gender g by chance be allocated more catches to an age class than the number of gender g individuals in that age class, these excessive individuals were redistributed to the other age classes starting from age class x and working towards age class zero.

Initial condition

In simulations of large whales it is often assumed that the population is in population dynamic equilibrium prior to the first documented catches. In this study it is assumed only that the population passes through a specified abundance in a specified year, that it has a specified depletion level in the initial year t_0 of an iteration, and that the age-structure in that year can be given as a perturbation of the equilibrium age-structure given the exponential growth rate r_{t_0}. Let this equilibrium age-structure $\mathbf{A}_{t_0}^*$ be

$$
A_{t_0,a}^* = \frac{L_a e^{-r_{t_0} a}}{\sum_{a=0}^{x} L_a e^{-r_{t_0} a}} \tag{15}
$$

where $L_a = \prod_{i=0}^{a-1} \bar{s}_i$. The initial sex specific age-structure $\mathbf{A^g_{t_0}}$ of an iteration was then given as

$$\begin{aligned} A^g_{t_0,a} &= \frac{d^g_a A^*_{t_0,a}}{\sum_{g=f}^m \sum_{a=0}^x d^g_a A^*_{t_0,a}} \\ d^g_a &= d_a e^{\sigma_g z^g_a} \\ d_a &= d_{a-1} e^{\sigma_a z_a} \end{aligned} \tag{16}$$

with $d_0 = 1$, z^g_a being an age and gender specific random draw from a standard normal distribution, z_a being an age specific random draw from a standard normal distribution, and the standard deviations (σ) being adjusted by visual inspection of the age-structures to $\sigma_g = 0.20$ and $\sigma_a = 0.15$, with examples of the resulting initial age-structures being shown in Fig. 1 to 3.

SLA SIMULATIONS

The SLA simulations for a stock were carried out over a set of trials that specified the population dynamics to be investigated for the stock, with each trial in the set being represented by fifty iterations that differed in the biological parameters that were left unspecified by the trial specifications. Historically documented catches were subtracted from the dynamics until 2007, where after the catches that were taken from the stock were specified by a SLA, with the number of catches being set to the number of strikes allowed by the SLA. These simulations were run for seven SLAs, and in order to facilitate the interpretation of the results Bayes factors were calculated for each trial so that the risk performance of a SLA across all trials could be integrated to a single measure of overall performance (the expected probability of fulfilling the risk objective given the specified trial set with equal prior weight to all trials).

During the iteration of a trial, simulated abundance estimates were provided to the SLA. Following the procedure of IWC (2003, p. 174) these estimates were generated from the abundance of the trial, the expected (cv_E) and true (cv_T) error coefficient of variation (cv) of the estimate given a depletion ratio of 0.6. The point estimate of a simulated abundance estimate in year t for the jth iteration of a trial was given as

$$\widehat{N}_{j,t} = N_{j,t} z w / \mu \tag{17}$$

where $N_{j,t}$ is the abundance for the trial in year t, z is a random draw from a log normal distribution $z \sim e^{\phi}$ where $\phi \sim N[0, \sigma^2_\phi]$ and $\sigma^2_\phi = \ln(1 + \alpha^2)$, and w a random draw from a Poisson distribution with mean and variance equal to $\mu = (N_{j,t}/K_j)/\beta^2$ (for parameterization of α and β from cv_E and cv_T see IWC, 2003). The cv of a simulated abundance estimate (cv_n) for year t was given as

$$\widehat{cv}_{n,t} = \sigma \sqrt{\chi^2_n / n} \tag{18}$$

where the expectation of the square of the estimate cv is $\sigma^2 = \ln[1 + \theta(a^2 + b^2/(w\beta^2))]$, and χ^2_n is a random draw from a Chi-square distribution with $n = 19$ degrees of freedom (for parameterization of a, b, and θ see IWC, 2003). For the historical period of the trial, abundance estimates were given for years with agreed abundance estimates, with the point estimate of the estimate given by Eq. (17) and the cv of the estimate being set to the cv of the original estimate.

Given an assumed annual need of Q whales, future catches were allocated every five year by a simple SLA that applied the following "back of the envelope" like calculation

$$q = \min\left(Q, \frac{r}{n} \sum_{i=x-n+1}^{x} e^{\ln N_i - cv_i p}\right) \tag{19}$$

where q is the annual number of strikes, r an annual growth rate, n the number of abundance estimates applied in the running mean calculation of the SLA, x the latest abundance estimate, $\bar{N}_i$ the point estimate of the ith abundance estimate, cv_i the cv_n of the ith estimate, and p a parameter that determines the lower bound of the abundance estimates used for the running mean assuming log normally distributed estimates.

The following six tunings of the SLA in Eq. (19) were applied:

$$\begin{array}{ll} 1: & r = 0.01;\ p = 1.65;\ n = 1 \\ 2: & r = 0.02;\ p = 1.96;\ n = 1 \\ 3: & r = 0.01;\ p = 1.65;\ n = 3 \\ 4: & r = 0.02;\ p = 1.96;\ n = 3 \\ 5: & r = 0.01;\ p = 1.65;\ n = 5 \\ 6: & r = 0.02;\ p = 1.96;\ n = 5 \end{array} \tag{20}$$

representing 1% of the lower 90% confidence limit, and 2% of the lower 95% confidence limit, of the most recent abundance estimates, or the running means over the last three or five estimates. A final SLA, denoted by SLA number zero, was simply "catch equals to need".

Bayes factors

Given n sets of agreed abundance estimates, the likelihood L_j of the jth iteration of a trial was calculated under the assumption that the observation errors were log-normally distributed

$$\ln L_j = \sum_i \sum_t -\frac{[\ln(\widehat{N_{i,t}}/\beta_i^* N_{j,t})]^2}{2cv_{i,t}^2} - \ln cv_{i,t} \tag{21}$$

where $N_{j,t}$ is the projected abundance in year t of the jth trial iteration, $\widehat{N_{i,t}}$ the point estimate of an abundance estimate in year t from the ith set of abundance estimates, $cv_{i,t}$ the coefficient of variation of that abundance estimate, and β_i^* the Maximum Likelihood Estimate of a bias factor given that abundance set and the jth trial iteration (β is assumed to be one for some sets).

As the conditioning of all the trials for a given stock are based on the same priors on the biological parameters, the relative likelihoods of the different trials can be compared by Bayes factor (Reckhow 1990; Kass and Raftery 1995; Ellison 1996). With equal prior weight to all trials, the weight of a trial (p) was calculated from the average likelihood over all iterations of that trial. The relative weight, or probability, of a trial was then given by the likelihood with the sum of likelihoods across all trials being normalised to a sum of one.

Whale stocks off West Greenland

Fin whale

The West Greenland population of fin whales was projected from 1970 to 2108, with the first allocation of strikes by an SLA starting in 2008. Simulated abundance estimates were given to the SLA every 10 year, with the first estimate given in 2013. The average cv of the simulated abundance estimates was 0.41 with the true cv of the abundance estimates being 0.41.

The abundance estimates that were used to estimate the Bayes factors of the trials include aerial survey from 1988 [1096; cv:0.35], 2005 [3218; cv:0.43] and 2007 [4656; cv:0.46] (IWC 1992; Heide-Jørgensen et al. 2007; Heide-Jørgensen 2008).

Conditioning

Each trial was iterated 100 times with the conditioning of each iteration being based on random draws from uniform priors on the demographic parameters. No significant new information on biological parameters in North Atlantic fin whales appears to have been published since Lockyer and Sigurjonssón's (1992) study on biological parameters in fin whales caught southeast of Iceland (see review by Lockyer 2006). Their analysis suggested a total annual mortality rate in mature females between 0.088 and 0.013, with fishing mortality between 0.002 and 0.09 and mortality rates of males being slightly smaller. For the present study I applied a uniform prior from 0.90 to 0.99 to adult annual survival, with juvenile survival being solved to match the msyr ($0.50 < s_{juv} < 0.95$ or $0.50 < s_{juv} < s_{ad}$ if $s_{ad} < 0.95$).

The study of Lockyer and Sigurjonssón's (1992) showed an age of sexual maturity in females that had varied between six and ten years, indicating an age of reproductive maturity (first reproductive event) between seven and eleven years. A two-year oscillation in the apparent pregnancy rate indicated a biannual reproductive cycle, suggesting a maximal birth rate between 0.5 (reproduction every second year) and 0.33 (reproduction every third year).

The age and gender specific selectivity on fin whales was set to resemble that of the 1992 assessment for North Atlantic fin whales (IWC 1992), resulting in the following selectivity vectors

a	0	1	2	3	4	5	6	7	8^+
G_a^m	0	0	0	.05	.28	.5	.73	.95	1
G_a^f	0	0	0	.05	.5	.95	1	1	1

Humpback whale

The West Greenland population of humpback whales was projected from 1970 to 2108, with the first allocation of strikes by an SLA starting in 2008. Simulated abundance estimates were given to the SLA every 10 year, with the first estimate given in 2013. The average *cv* of the simulated abundance estimates was 0.56 with the true *cv* of the abundance estimates being 0.56.

The abundance estimates that were used to estimate the Bayes factors of the trials include uncorrected aerial surveys from 1987 [158; cv:0.65], 1988 [143; cv:0.76], 1989 [195; cv:0.77], 1993 [735; cv:0.48], 2005 [1158; cv:0.35] and 2007 [1020; cv:0.35] (Heide-Jørgensen et al. 2008; optimised for bias from 0.34 to 0.46). And uncorrected capture recapture estimates from 1988 [357; cv:0.16], 1989 [355; cv:0.12], 1991 [376; cv:0.19] and 1992 [348; cv:0.12] (Larsen and Hammond 2004; optimised for bias from 0.10 to 1.00).

Conditioning

Each trial was iterated 100 times with the conditioning of each iteration being based on random draws from uniform priors on the demographic parameters. Larsen and Hammond (2004) estimated an annual survival rate of 0.957 (SE=0.028) for humpback whales off West Greenland. This is similar to estimates of 0.951 (SE=0.010) and 0.960 (SE=0.008) for the Gulf of Maine feeding aggregation of humpbacks (Buckland 1990; Barlow and Clapham 1997), and an estimate of 0.963 (95% CI:0.944-0.978) for humpbacks in the central North pacific (Mizroch et al. 2004). To capture this range, I applied a uniform prior from 0.90 to 0.99 to adult annual survival.

First-year mortality was estimated by Gabriele et al. (2001) to 18.2% (95% CI:2.3 – 51.8%) for humpback whales in the eastern and central North Pacific. I applied a juvenile survival between 0.5 and 0.95, with the survival rate for juveniles being solved numerically to match the msyr given the other life-history parameter and the constraint that $s_{juv} < s_{ad}$.

Clapham (1992), Barlow and Clapham (1997), and Robbins and Mattila (2002) found an average age of reproductive maturity (first reproductive event) of six years in females humpback whales in the Gulf of Maine. Following this and IWC 2002 I applied a uniform prior from five to eight years for the average age of first reproduction. The apparent average birth rate in mature females in the Gulf of Maine was found to lie between 0.29 and 0.47 (Robbins and Mattila 2002). I applied a uniform prior from 0.33 to 0.5 for the population average for the maximal rate of reproduction, assuming reproduction every second or third year.

The age and gender specific selectivity (G_a^g) on humpback whales was set somewhat arbitrary to include all animals except those from age class zero and one, i.e.,

a	0	1	2^+
G_a^m	0	0	1
G_a^f	0	0	1

Bowhead whale

The West Greenland population of bowhead whales was projected from 1970 to 2108, with the first allocation of strikes by an SLA starting in 2008. Simulated abundance estimates were given to the SLA every 10 year, with the first estimate given in 2012. The average *cv* of the simulated abundance estimates was 0.47 with the true *cv* of the abundance estimates being 0.47. The abundance estimate that was used to estimate the Bayes factors of the trials is the aerial survey from 2006 [1229; cv:0.47] (Heide-Jørgensen et al. 2007).

While the above estimate is likely to be a solid estimate of the number of bowhead whales in West Greenland during the survey period, all evidence point in the direction that this concentration is only a subcomponent of a much larger single population that inhabits the Eastern Canadian Arctic and West Greenland waters (Heide-Jørgensen and Laidre 2007; Cosens et al. 2006; Postma et al. 2006; Heide-J{o et al. esenCosensDueck2008iwc:sc:60:brg20). A separate set of trials for the bowhead whale was therefore run on the whole Eastern Canadian Arctic and West Greenland area. The abundance estimate that was used to estimate the Bayes factors of these trials is the Eastern Canadian Arctic aerial survey from 2002 [14400; cv:0.61] (Dueck et al. 2008).

Conditioning

Each trial was iterated 100 times with the conditioning of each iteration being based on random draws from uniform priors on the demographic parameters. The uniform priors on the biological parameters for the conditioning of the trials on bowhead whales were based on those used in the SLA trials for the B-C-B stock of bowhead whales (IWC 2003). This suggested an annual adult survival between 0.94 and 0.995, a maximal annual birth rate between 0.25 and 0.50, indicating birth intervals between two and four years, and an age of first reproduction between 14 and 26 years. Juvenile survival was solved to match the msyr ($0.60 < s_{juv} < 0.98$ or $0.60 < s_{juv} < s_{ad}$ if $s_{ad} < 0.98$).

The age and gender specific selectivity on bowhead whales was set somewhat arbitrary to resemble that for fin whales.

a	0	1	2	3	4	5	6	7	8^+
G_a^m	0	0	0	.05	.28	.5	.73	.95	1
G_a^f	0	0	0	.05	.5	.95	1	1	1

TRIALS

Fin whale

A fully corrected aerial line transect estimate found $4,660$ (95% CI:$1,980 - 10,950$) fin whales off West Greenland in 2008 (Heide-Jørgensen 2008). This is somewhat higher than a best assessment estimate of the abundance in 2008 of $2,900$ (90% CI:$1,900 - 4,300$) whales applying a short-term version of density regulated dynamics, and a corresponding estimate of $3,100$ (90% CI:$2,000 - 5,000$) whales based on long-term simulations with inertia dynamics (Witting 2008). For the fin whale trials in this paper I applied a 2008 abundance of $2,900$ whales, $1,900$ whales and 800 whales, representing respectively the point estimate and the lower 90% credibility limit of the density regulated assessment result, and the lower 95% confidence limit of the uncorrected abundance estimate from the aerial survey in 2005 (Heide-Jørgensen et al. 2007).

The best assessment model based on density regulated dynamics suggested a current depletion ratio below 63% (Witting 2008). In order to capture a wide range of uncertainty in this parameter, I applied 1970 depletion levels of 0.15, 0.50 and 0.85 in the trails.

The msyr was set either to the point estimate (0.02) or the lower 90% credibility estimate (0.01) for the density regulated model of the updated assessment. Given all possible combinations this gave 18 trials that had a msyl of 0.6, an even female fraction at birth, and a need level of 20 fin whales per year.

Twelve additional trials were constructed to allow the female fraction at birth to be 0.4 and 0.6, the msyl to be 0.5 and 0.8, the need to be 40 whales per year, and the carrying capacity to double, or half, linearly from 2008 to 2108, or to change in a sinus curve with a maximum, or minimum, of $1.5K$ or $0.5K$ in 2048. These changes were mainly applied with a 2007 abundance of $2,900$ whales, a msyr of 0.02, and a 1970 depletion ratio of 0.5, although some of these trials had a 2007 abundance of $1,900$ whales. All trials are listed in Table 1.

Humpback whale

A fully corrected aerial line transect estimate found $3,040$ (95% CI:$1,310 - 7,050$) humpback whales off West Greenland in 2008 (Heide-Jørgensen et al. 2008). This is somewhat higher than an assessment estimate of the abundance in 2008 of $2,500$ (90% CI:$1,500-4,700$) whales applying a short-term version of density regulated dynamics, and a more conservative assessment result of $2,300$ (90% CI:$1,300 - 4,000$) whales based on long-term simulations with inertia dynamics (Witting 2008). For the humpback trials in this paper I applied a 2008 abundance of $2,500$ whales, $1,300$ whales and 600 whales, representing respectively the point estimate of the best assessment result, the lower 90% credibility limit of the conservative assessment result, and the lower 90% confidence limit of the uncorrected line transect estimate for the aerial survey in 2007.

The assessment model based on density regulated dynamics suggested a current depletion ratio below 62% (Witting 2008). In order to capture a wide range of uncertainty in this parameter, I applied 1970 depletion levels of 0.15, 0.50 and 0.85 in the trails.

The msyr was set either the point estimate (0.04) or the lower 90% credibility estimate (0.02) for the best fitting density regulated model of the assessment. Given all possible combinations this gave 18 trials that had a msyl of 0.6, an even female fraction at birth, and a need level of 10 humpback whales per year.

Twelve additional trials were constructed to allow the female fraction at birth to be 0.4 and 0.6, the msyl to be 0.5 and 0.8, the need to be 20 whales per year, and the carrying capacity to double, or half, linearly from 2008 to 2108, or to change in a sinus curve with a maximum, or minimum, of $1.5K$ or $0.5K$ in 2048. These changes were mainly applied with a 2007 abundance of $2,500$ whales, a msyr of 0.04, and a 1970 depletion ratio of 0.5, although some of these trials had a 2007 abundance of $1,300$ whales. All trials are listed in Table 4.

Bowhead whale

Relating to the abundance estimate from the aerial survey in 2006 (Heide-Jørgensen et al. 2007), the West Greenland abundance in 2006 was set to $1,230$, 570 or 495 bowhead whales. This corresponds to the point estimate, and the lower 90% and 95% confidence limits of the estimate. The abundance for the whole Eastern Canadian Arctic / West Greenland for 2002 was set to $14,000$, $4,800$ and $1,500$ to correspond to the point and the lower 95% confidence limit estimate of the fully corrected estimate, and the lower 95% confidence limit of an uncorrected double-platform estimate (Dueck et al. 2008). Owing to the high abundance estimate for bowhead whales in the whole area were the trials for Eastern Canadian Arctic / West Greenland bowheads run without demographic stochasticity.

The population of bowhead whales in Eastern Canadian Arctic and West Greenland waters is most likely still depleted to some unknown degree, and thus the depletion ratio in the initial year of the iterations (1970) was set to cover a relatively wide range from 0.10, over 0.30 to 0.50.

The msyr was set to be 0.02 or 0.01, somewhat more conservative than the SLA trials for the B-C-B bowheads (IWC 2003), where the msyr was set to 0.025, 0.01 and 0.04. Given all possible combinations this gave 18 trials that had a msyl of 0.6, an even female fraction at birth, a yearly need of 5 bowhead whales for West Greenland, and a yearly need of 25 bowhead whales for the whole Eastern Canadian Arctic / West Greenland area.

Twelve additional trials were constructed for each area to allow the female fraction at birth to be 0.4 and 0.6, the msyl to be 0.5 and 0.8, the need to be 10 whales per year for West Greenland and 50 whales per year for the whole area, and the carrying capacity to double, or half, linearly from 2008 to 2108, or to change in a sinus curve with a maximum, or minimum, of $1.5K$ or $0.5K$ in 2048. These changes were mainly applied with a 2006 abundance of $1,230$ whales, a msyr of 0.02, and a 1970 depletion ratio of 0.3, although some of these trials had a 2006 abundance of 570 whales. All trials are listed in Table 7 and 10.

RESULTS

The Bayes factors of the different trials are given in Tables 2, 5, 8 and 11 for fin, humpback and bowhead whales, together with the probabilities of fulfilling the objective that stocks below the msyl should be increasing in numbers. The latter probabilities are given for each trial, for each trial when weighted by the Bayes weight of the trial, and Bayes factor weight integrated over all trials. Given the trial set with equal prior weight to all trials, the latter estimate is the overall probability that stocks below the msyl will increase in size.

The estimated average need satisfaction

$$S = \frac{1}{T} \sum_{t \in T} c_t / \mathrm{need}_t \tag{22}$$

and the average downstep

$$D = \sum_{t \in T} |\min(c_t - c_{t-1}, 0)| / \sum_{t \in T} c_t \tag{23}$$

over the SLA simulation period (T) are given for each trial in Tables 3, 6, 9, and 12 for the fin, humpback and bowhead whale, together with the Bayes-factor-weighted average over all trials.

For all SLAs applied to all trials, the 5^{th}, median, and 95^{th} percentiles of final depletion (N_{2108}/K), rescaled final depletion ($N_{2108}/\dot{N}_{2108}$, with $\dot{N}_{2108}$ being N_{2008} with no harvest from

2008), relative increase (N_{2108}/N_{2008}), average need satisfaction and mean downstep are given in Tables 13 to 16 for fin, humpback, West Greenland bowhead and Eastern Arctic bowhead whales.

Fin whale

Table 2 shows that there is only a small risk to applying the six SLAs to fin whales off West Greenland. The trial integrated Bayes-factor-weighted risk of not fulfilling the objective that stocks below the msyl should increase in size is only 2% for the three SLAs that apply a strike limit of 1% of the 90% lower confidence limit. The integrated risk is somewhat higher, between 8 and 10%, for the three SLAs that apply a strike limit of 2% of the 95% lower confidence limit, and it is 18% for "catch equals to need".

The risk on isolated trials is higher for some trials. For the 1% of 90% SLAs the risk on a trial is up to 26%. But as all trials with a risk above zero have a probability below 5%, it turns out that all "risky" trials are very unlikely and, thus, the overall risk to the population remains very close to zero.

The performance of the SLAs in terms of the Bayes-factor-weighted need satisfaction and downstep (Table 3) is always best for 2% of the lower 95% confidence limit, compared with 1% of the lower 90% limit. There is also a tendency for performance to improve slightly, both in terms of increased need satisfaction and less variability, with an increase in the number of abundance estimates in the running mean. Thus, the choice of SLA seems to be between SLA five and six that uses five abundance estimates, unless it is foreseen that a chosen SLA would be used for quota allocation only for a single or a couple of five-year block periods. In this case a SLA that uses only a single abundance estimate is likely to be optimal because it uses only the latest, and thus highest abundance estimate, in the strike calculation, while at the same time the risk of the different SLAs is basically independent of the number of years used in the strike limit calculation.

The integrated statistics of Tables 2 and 3 might hide undesirable performance on some of the iterations of a trial. More detailed statistics is thus given for each trial in Table 13. Focussing on risk, the basic idea behind AWMP management is that stocks below the msyl should increase to levels above the msyl. Hence, we may used Table 13 to check in more detail if this is the case for the different SLAs. Hence, let us check if there are populations that fail to meet this objective. That is, populations that decline over the SLA period (2008-2108) and end at an abundance that is below the msyl.

Let us define a population that is declining over the SLA period (2008-2108) as a population that either has a median relative increase below one or a 5^{th} percentile relative increase below 0.90. Let for relatively likely trials, defined there as trials with Bayes weights above 0.05, such populations fail to meet the risk objective if the 5^{th} percentile final depletion is below the msyl. And let for unlikely trials, defined there as trials with Bayes weights below 0.05, such populations fail to meet the risk objective if the median final depletion is below the msyl.

Checking across all the trials in Table 13, we find that SLA two, four and six (2% of the lower 95% confidence limit of one, three and five abundance estimates) generally fail to meet this risk objective on trials 10 to 12, and trials 16 to 17, i.e., the trials with low production (msyr of 0.01) and a median (1900) and low (800) abundance in 2007. In comparison none of SLA one, three and five fail to meet the risk objective on any trial. Hence, the best choice of SLA for fin whales off West Greenland seems to be 1% of the lower 90% confidence limit, taken on one, three of five abundance estimates dependent upon the length of the time for which the SLA is expected to operate. The trajectories of the trials with SLA five are shown in Figure 4 and 5, and the corresponding strike limits in Figure 6 and 7.

Humpback whale

Table 5 shows that there is basically no risk by applying the seven SLAs to humpback whales off West Greenland. The trial integrated Bayes-factor-weighted risk is zero for all SLAs, and the risk on isolated trials is either zero, 0.01 (three cases), or 0.03 (one case) on all trials for SLA one to six. For SLA "catch equals to need" (SLA zero), the risk is 99% on trial 18, 80% on trial 17, 3% on trial 16, and zero on all other trials [i.e., risk on trials with low production (msyr of 0.02) and low abundance (2008 abundance of 800)].

Again 2% of 95% is performing better than 1% of 90% in terms of need satisfaction and downstep variation (Table 6). The Bayes-factor-weighted need satisfaction is between 76 and 82% for 1% of 90%, while it is between 92 and 98% for 2% of 95%.

Checking across all trials in Table 14, it is only "catch equals to need" that fail to meet the above defined risk objective on some trials. This is on trial 17 and 18, i.e., for a msyr of 0.02, a 2008 abundance of 800, and a 1970 depletion ratio of 0.5 or 0.8. However, as these two trials have zero Bayes weight, it may be concluded that even "catch equals to need" imposes no threats to humpback whales off West Greenland. Hence, if not "catch equals to need", the best SLA choice for the humpback whale is 2% of the lower 95% confidence limit (SLA two, four or six) taken on one, three or five abundance estimates dependent upon the length of the time for which the SLA is expected to operate. The trajectories of the trials with SLA six are shown in Figure 8 and 9, and the corresponding strike limits in Figure 10 and 11.

Bowhead whale

As for the humpback whale there is basically no risk by applying the seven SLAs to bowhead whales off West Greenland and the whole eastern arctic (Tables 8 and 11). The trial integrated Bayes-factor-weighted risk is zero for all SLAs when applied to the whole eastern arctic, and for West Greenland risk is zero for SLAs one, three and five, 1% for SLAs two, four and six, and 4% for "catch equals to need".

Again 2% of 95% is performing better than 1% of 90% in terms of need satisfaction and downstep variation (Tables 9 and 12). On average the Bayes-factor-weighted need satisfaction is 90% for 1% of 90%, and 97% for 2% of 95% for West Greenland, and 97% for 1% of 90%, and 99% for 2% of 95% for the whole eastern arctic.

Checking across all trials in Table 15 for West Greenland, apart from "catch equals to need", the failures to meet the risk objective (as defined under fin whales above) is restricted to SLA four and six on trial 17, i.e., with a low 2006 abundance of 495 whales, a low msyr of 0.01, and a 1970 depletion ratio of 0.30. Checking across all trials in Table 16 for the whole eastern arctic, apart from "catch equals to need", the failures to meet the risk objective is restricted to SLA six on trial 17, i.e., with a low 2002 abundance of 1500 whales, a low msyr of 0.01, and a 1970 depletion ratio of 0.30. But as trial 17 has a Bayes weight of zero for the whole eastern arctic, and a weight of only 1% for West Greenland in isolation, this failure is hardly reflecting any real risk.

The choice of management for the bowhead whale depends on the stock structure conclusions from this IWC SC meeting. If a single stock scenario for the whole eastern Canadian Arctic and West Greenland is seen to be most realistic, management is best performed by a SLA that allocates strikes to the whole area, let it be 2% of the 95% lower limit of a single abundance estimate if this management is expected to runs only for a short time period, or 1% of the 90%

lower limit of up to five abundance estimates is this form of management is seen as being more permanent.

The trajectories of the trials with SLA five are shown for West Greenland in Figure 12 and 13 (with the corresponding strike limits in Figure 14 and 15), and for the whole area in Figure 16 and 17 (with the corresponding strike limits in Figure 18 and 19).

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Table 1: Trials for West Greenland fin whales, with the abundance (N) given for 2007, and depletion ratio (d) for 1970.

Trial	N	d	msyr	msyl	ϑ	need	K_t
01	2900	0.20	0.02	0.60	0.50	20	$-$
02	2900	0.50	0.02	0.60	0.50	20	$-$
03	2900	0.80	0.02	0.60	0.50	20	$-$
04	2900	0.20	0.01	0.60	0.50	20	$-$
05	2900	0.50	0.01	0.60	0.50	20	$-$
06	2900	0.80	0.01	0.60	0.50	20	$-$
07	1900	0.20	0.02	0.60	0.50	20	$-$
08	1900	0.50	0.02	0.60	0.50	20	$-$
09	1900	0.80	0.02	0.60	0.50	20	$-$
10	1900	0.20	0.01	0.60	0.50	20	$-$
11	1900	0.50	0.01	0.60	0.50	20	$-$
12	1900	0.80	0.01	0.60	0.50	20	$-$
13	800	0.20	0.02	0.60	0.50	20	$-$
14	800	0.50	0.02	0.60	0.50	20	$-$
15	800	0.80	0.02	0.60	0.50	20	$-$
16	800	0.20	0.01	0.60	0.50	20	$-$
17	800	0.50	0.01	0.60	0.50	20	$-$
18	800	0.80	0.01	0.60	0.50	20	$-$
19	2900	0.50	0.02	0.60	0.60	20	$-$
20	2900	0.50	0.02	0.60	0.40	20	$-$
21	1900	0.50	0.02	0.60	0.40	20	$-$
22	2900	0.50	0.02	0.50	0.50	20	$-$
23	2900	0.50	0.02	0.80	0.50	20	$-$
24	1900	0.50	0.02	0.80	0.50	20	$-$
25	2900	0.50	0.02	0.60	0.50	40	$-$
26	1900	0.50	0.02	0.60	0.50	40	$-$
27	2900	0.50	0.02	0.60	0.50	20	$\vec{2.0}$
28	2900	0.50	0.02	0.60	0.50	20	$\vec{0.5}$
29	2900	0.50	0.02	0.60	0.50	20	$\tilde{1.5}^{40}$
30	2900	0.50	0.02	0.60	0.50	20	$\tilde{0.5}^{40}$

ϑ: Female fraction at birth. K_t: $-$: stable K. $\vec{c}$: carrying capacity increasing, or declining, to cK over SLA period. $\tilde{c}^i$: carrying capacity sinus-cyclic over the SLA period; starting from K at the beginning of the period to cK i years after.

Table 2: The Bayes factor (B) of the different trials for the West Greenland fin whale (normalised to a sum of one), and the probability (P) of fulfilling the risk objective. This probability is calculated for the different SLAs (SLA number i given by superscript); given the trial (P^i), given the Bayes weight of the trial ($P^i_B = 1 - (1 - P^i)B$), and Bayes weight integrated over all trials $\bar{P}^i_B = 1 - \sum_{j=1}^{30}(1 - P^i_j)B_j$ with j denoting trial.

Trial	B	P^0	P^0_B	P^1	P^1_B	P^2	P^2_B	P^3	P^3_B	P^4	P^4_B	P^5	P^5_B	P^6	P^6_B
1	0.126	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	0.046	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3	0.017	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4	0.032	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.99	1.00	0.96	1.00
5	0.022	0.65	0.99	0.95	1.00	0.77	0.99	0.84	1.00	0.71	0.99	0.83	1.00	0.73	0.99
6	0.012	0.61	1.00	0.96	1.00	0.73	1.00	0.91	1.00	0.69	1.00	0.89	1.00	0.57	0.99
7	0.057	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
8	0.040	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00
9	0.025	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	0.031	0.39	0.98	1.00	1.00	0.93	1.00	1.00	1.00	0.84	1.00	0.99	1.00	0.86	1.00
11	0.026	0.00	0.97	0.93	1.00	0.37	0.98	0.90	1.00	0.19	0.98	0.92	1.00	0.20	0.98
12	0.020	0.00	0.98	0.91	1.00	0.27	0.99	0.92	1.00	0.17	0.98	0.87	1.00	0.14	0.98
13	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
14	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	0.98	1.00
15	0.000	0.00	1.00	1.00	1.00	0.96	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.71	1.00
16	0.000	0.00	1.00	0.98	1.00	0.81	1.00	1.00	1.00	0.66	1.00	0.96	1.00	0.43	1.00
17	0.000	0.00	1.00	0.95	1.00	0.42	1.00	0.96	1.00	0.35	1.00	0.96	1.00	0.06	1.00
18	0.047	0.00	0.95	0.77	0.99	0.15	0.96	0.78	0.99	0.15	0.96	0.83	0.99	1.00	1.00
19	0.042	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	0.037	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
21	0.036	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
22	0.070	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
23	0.045	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	0.045	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25	0.040	0.68	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00
26	0.045	0.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
27	0.046	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
28	0.045	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
29	0.047	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.13	0.96
30	0.000	0.07	1.00	0.84	1.00	0.27	1.00	0.87	1.00	0.22	1.00	0.74	1.00	1.00	1.00
$\bar{P}^i_B$			0.82		0.98		0.92		0.98		0.91		0.98		0.90

Table 3: The average need satisfaction (S) and average downstep (D) of the different trials for the West Greenland fin whale when applying the different SLAs (indicated by superscript), together with the Bayes factor weighted average ($\bar{X_B}$) across all trials.

Trial	S^0	D^0	S^1	D^1	S^2	D^2	S^3	D^3	S^4	D^4	S^5	D^5	S^6	D^6
1	1.00	0.00	0.90	0.03	0.97	0.01	0.91	0.01	0.99	0.00	0.90	0.00	1.00	0.00
2	1.00	0.00	0.81	0.06	0.96	0.02	0.85	0.02	1.00	0.00	0.85	0.01	1.00	0.00
3	1.00	0.00	0.75	0.08	0.93	0.03	0.79	0.03	0.99	0.00	0.80	0.02	1.00	0.00
4	1.00	0.00	0.75	0.08	0.89	0.05	0.81	0.02	0.97	0.01	0.81	0.02	0.99	0.00
5	1.00	0.00	0.78	0.07	0.93	0.03	0.81	0.03	0.98	0.01	0.81	0.02	0.99	0.00
6	1.00	0.00	0.72	0.09	0.90	0.05	0.76	0.03	0.98	0.01	0.77	0.02	0.99	0.00
7	1.00	0.00	0.76	0.06	0.90	0.03	0.76	0.02	0.93	0.01	0.73	0.01	0.93	0.00
8	1.00	0.00	0.60	0.10	0.85	0.05	0.60	0.04	0.90	0.02	0.59	0.03	0.91	0.01
9	1.00	0.00	0.54	0.12	0.79	0.08	0.54	0.04	0.84	0.03	0.53	0.03	0.87	0.01
10	1.00	0.00	0.57	0.12	0.74	0.10	0.58	0.04	0.78	0.04	0.57	0.03	0.82	0.02
11	1.00	0.00	0.54	0.12	0.76	0.09	0.55	0.04	0.80	0.04	0.55	0.03	0.82	0.02
12	1.00	0.00	0.51	0.13	0.73	0.09	0.51	0.05	0.77	0.04	0.51	0.03	0.79	0.03
13	1.00	0.00	0.42	0.15	0.60	0.11	0.40	0.07	0.57	0.04	0.36	0.06	0.45	0.04
14	1.00	0.00	0.30	0.17	0.48	0.14	0.29	0.09	0.46	0.05	0.27	0.08	0.41	0.04
15	1.00	0.00	0.26	0.18	0.42	0.14	0.25	0.11	0.41	0.06	0.25	0.09	0.33	0.07
16	1.00	0.00	0.24	0.23	0.34	0.20	0.23	0.13	0.35	0.09	0.23	0.10	0.35	0.06
17	1.00	0.00	0.25	0.20	0.34	0.18	0.24	0.11	0.35	0.08	0.23	0.10	0.34	0.06
18	1.00	0.00	0.22	0.21	0.34	0.17	0.22	0.12	0.34	0.08	0.22	0.10	1.00	0.00
19	1.00	0.00	0.79	0.07	0.96	0.02	0.83	0.02	1.00	0.00	0.83	0.01	1.00	0.00
20	1.00	0.00	0.81	0.06	0.96	0.02	0.85	0.02	1.00	0.00	0.84	0.01	0.91	0.01
21	1.00	0.00	0.61	0.11	0.85	0.06	0.60	0.04	0.91	0.02	0.59	0.03	1.00	0.00
22	1.00	0.00	0.80	0.06	0.95	0.02	0.83	0.02	0.99	0.00	0.83	0.01	1.00	0.00
23	1.00	0.00	0.83	0.06	0.96	0.02	0.85	0.02	1.00	0.00	0.85	0.01	0.93	0.01
24	1.00	0.00	0.63	0.10	0.89	0.04	0.63	0.04	0.93	0.01	0.60	0.02	0.72	0.02
25	1.00	0.00	0.45	0.11	0.70	0.08	0.45	0.03	0.71	0.03	0.44	0.01	0.49	0.02
26	1.00	0.00	0.30	0.11	0.49	0.11	0.29	0.04	0.49	0.03	0.29	0.03	1.00	0.00
27	1.00	0.00	0.89	0.03	0.98	0.01	0.90	0.01	1.00	0.00	0.89	0.00	0.99	0.00
28	1.00	0.00	0.71	0.10	0.90	0.05	0.74	0.04	0.98	0.01	0.76	0.02	1.00	0.00
29	1.00	0.00	0.87	0.05	0.97	0.01	0.89	0.01	1.00	0.00	0.90	0.00	0.95	0.01
30	1.00	0.00	0.62	0.10	0.85	0.06	0.63	0.04	0.90	0.02	0.66	0.03	0.56	0.03
$\bar{X_B}$	1.00	0.00	0.70	0.08	0.86	0.04	0.71	0.03	0.90	0.01	0.71	0.02	0.93	0.01

Table 4: Trials for West Greenland humpback whales, with the abundance (N) given for 2008, and depletion ratio (d) for 1970.

Trial	N	d	msyr	msyl	ϑ	need	K_t
01	2500	0.20	0.04	0.60	0.50	10	–
02	2500	0.50	0.04	0.60	0.50	10	–
03	2500	0.80	0.04	0.60	0.50	10	–
04	2500	0.20	0.02	0.60	0.50	10	–
05	2500	0.50	0.02	0.60	0.50	10	–
06	2500	0.80	0.02	0.60	0.50	10	–
07	1300	0.20	0.04	0.60	0.50	10	–
08	1300	0.50	0.04	0.60	0.50	10	–
09	1300	0.80	0.04	0.60	0.50	10	–
10	1300	0.20	0.02	0.60	0.50	10	–
11	1300	0.50	0.02	0.60	0.50	10	–
12	1300	0.80	0.02	0.60	0.50	10	–
13	600	0.20	0.04	0.60	0.50	10	–
14	600	0.50	0.04	0.60	0.50	10	–
15	600	0.80	0.04	0.60	0.50	10	–
16	600	0.20	0.02	0.60	0.50	10	–
17	600	0.50	0.02	0.60	0.50	10	–
18	600	0.80	0.02	0.60	0.50	10	–
19	2500	0.50	0.04	0.60	0.60	10	–
20	2500	0.50	0.04	0.60	0.40	10	–
21	1300	0.50	0.04	0.60	0.40	10	–
22	2500	0.50	0.04	0.50	0.50	10	–
23	2500	0.50	0.04	0.80	0.50	10	–
24	1300	0.50	0.04	0.80	0.50	10	–
25	2500	0.50	0.04	0.60	0.50	20	–
26	1300	0.50	0.04	0.60	0.50	20	–
27	2500	0.50	0.04	0.60	0.50	10	$\vec{2.0}$
28	2500	0.50	0.04	0.60	0.50	10	$\vec{0.5}$
29	2500	0.50	0.04	0.60	0.50	10	$\tilde{1.5}^{40}$
30	2500	0.50	0.04	0.60	0.50	10	$\tilde{0.5}^{40}$

ϑ: Female fraction at birth. K_t: $-$: stable K. $\vec{c}$: carrying capacity increasing, or declining, to cK over SLA period. $\tilde{c}^i$: carrying capacity sinus-cyclic over the SLA period; starting from K at the beginning of the period to cK i years after.

Table 5: The Bayes factor (B) of the different trials for the West Greenland humpback whale (normalised to a sum of one), and the probability (P) of fulfilling the risk objective. This probability is calculated for the different SLAs (SLA number i given by superscript); given the trial (P^i), given the Bayes weight of the trial ($P_B^i = 1-(1-P^i)B$), and Bayes weight integrated over all trials $\bar{P}_B^i = 1 - \sum_{j=1}^{30}(1-P_j^i)B_j$ with j denoting trial.

Trial	B	P^0	P_B^0	P^1	P_B^1	P^2	P_B^2	P^3	P_B^3	P^4	P_B^4	P^5	P_B^5	P^6	P_B^6
1	0.243	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
6	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
7	0.746	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
8	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	0.004	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
14	0.003	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	0.002	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
17	0.000	0.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00
18	0.000	0.01	1.00	1.00	1.00	0.99	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.99	1.00
19	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
21	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
22	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
23	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
26	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
27	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
28	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
29	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$\bar{P}_B^i$			1.00		1.00		1.00		1.00		1.00		1.00		1.00

Table 6: The average need satisfaction (S) and average downstep (D) of the different trials for the West Greenland humpback whale when applying the different SLAs (indicated by superscript), together with the Bayes factor weighted average ($\bar{X_B}$) across all trials.

Trial	S^0	D^0	S^1	D^1	S^2	D^2	S^3	D^3	S^4	D^4	S^5	D^5	S^6	D^6
1	1.00	0.00	0.92	0.04	0.99	0.01	0.98	0.00	1.00	0.00	0.99	0.00	1.00	0.00
2	1.00	0.00	0.88	0.05	0.96	0.02	0.96	0.01	1.00	0.00	0.99	0.00	1.00	0.00
3	1.00	0.00	0.88	0.05	0.96	0.02	0.95	0.01	1.00	0.00	0.98	0.00	1.00	0.00
4	1.00	0.00	0.93	0.03	0.98	0.01	0.98	0.00	1.00	0.00	0.99	0.00	1.00	0.00
5	1.00	0.00	0.89	0.05	0.98	0.01	0.97	0.01	1.00	0.00	0.99	0.00	1.00	0.00
6	1.00	0.00	0.88	0.06	0.97	0.02	0.95	0.01	1.00	0.00	0.98	0.01	1.00	0.00
7	1.00	0.00	0.71	0.09	0.90	0.04	0.77	0.03	0.97	0.01	0.77	0.02	0.98	0.00
8	1.00	0.00	0.61	0.12	0.83	0.07	0.66	0.04	0.94	0.02	0.67	0.03	0.95	0.01
9	1.00	0.00	0.61	0.13	0.84	0.07	0.65	0.05	0.93	0.02	0.68	0.03	0.97	0.01
10	1.00	0.00	0.78	0.07	0.91	0.04	0.83	0.02	0.97	0.01	0.83	0.01	0.98	0.00
11	1.00	0.00	0.68	0.11	0.87	0.06	0.72	0.04	0.95	0.01	0.72	0.03	0.97	0.01
12	1.00	0.00	0.62	0.12	0.82	0.08	0.65	0.05	0.92	0.02	0.68	0.03	0.95	0.01
13	1.00	0.00	0.48	0.13	0.70	0.10	0.46	0.04	0.74	0.03	0.45	0.02	0.73	0.01
14	1.00	0.00	0.33	0.14	0.52	0.14	0.31	0.04	0.55	0.04	0.33	0.03	0.57	0.03
15	1.00	0.00	0.31	0.15	0.51	0.14	0.32	0.04	0.53	0.05	0.32	0.03	0.54	0.03
16	1.00	0.00	0.50	0.12	0.67	0.09	0.50	0.03	0.70	0.03	0.47	0.01	0.67	0.02
17	1.00	0.00	0.37	0.14	0.57	0.13	0.37	0.04	0.58	0.04	0.36	0.02	0.58	0.03
18	1.00	0.00	0.32	0.14	0.51	0.14	0.33	0.05	0.52	0.05	0.33	0.03	0.51	0.04
19	1.00	0.00	0.87	0.06	0.97	0.02	0.96	0.01	1.00	0.00	0.98	0.01	1.00	0.00
20	1.00	0.00	0.87	0.06	0.96	0.02	0.96	0.01	1.00	0.00	0.98	0.01	1.00	0.00
21	1.00	0.00	0.63	0.12	0.83	0.07	0.67	0.04	0.94	0.02	0.69	0.03	0.97	0.01
22	1.00	0.00	0.86	0.06	0.97	0.02	0.96	0.01	1.00	0.00	0.99	0.00	1.00	0.00
23	1.00	0.00	0.88	0.05	0.97	0.02	0.97	0.01	1.00	0.00	0.98	0.00	1.00	0.00
24	1.00	0.00	0.61	0.12	0.84	0.07	0.66	0.04	0.93	0.02	0.67	0.03	0.97	0.01
25	1.00	0.00	0.60	0.12	0.80	0.08	0.63	0.04	0.93	0.02	0.67	0.03	0.95	0.01
26	1.00	0.00	0.33	0.15	0.54	0.13	0.33	0.05	0.57	0.05	0.34	0.03	0.60	0.04
27	1.00	0.00	0.94	0.02	0.99	0.01	0.99	0.00	1.00	0.00	0.99	0.00	1.00	0.00
28	1.00	0.00	0.78	0.09	0.92	0.05	0.88	0.03	0.98	0.01	0.94	0.02	1.00	0.00
29	1.00	0.00	0.93	0.04	0.99	0.01	0.99	0.01	1.00	0.00	1.00	0.00	1.00	0.00
30	1.00	0.00	0.72	0.10	0.85	0.06	0.80	0.04	0.96	0.01	0.85	0.03	0.98	0.00
$\bar{X_B}$	1.00	0.00	0.76	0.08	0.92	0.03	0.82	0.02	0.98	0.01	0.82	0.01	0.98	0.00

Table 7: Trials for West Greenland bowhead whales, with the abundance (N) given for 2006, and depletion ratio (d) for 1970.

Trial	N	d	msyr	msyl	ϑ	need	K_t
01	1230	0.10	0.02	0.60	0.50	5	–
02	1230	0.30	0.02	0.60	0.50	5	–
03	1230	0.50	0.02	0.60	0.50	5	–
04	1230	0.10	0.01	0.60	0.50	5	–
05	1230	0.30	0.01	0.60	0.50	5	–
06	1230	0.50	0.01	0.60	0.50	5	–
07	570	0.10	0.02	0.60	0.50	5	–
08	570	0.30	0.02	0.60	0.50	5	–
09	570	0.50	0.02	0.60	0.50	5	–
10	570	0.10	0.01	0.60	0.50	5	–
11	570	0.30	0.01	0.60	0.50	5	–
12	570	0.50	0.01	0.60	0.50	5	–
13	495	0.10	0.02	0.60	0.50	5	–
14	495	0.30	0.02	0.60	0.50	5	–
15	495	0.50	0.02	0.60	0.50	5	–
16	495	0.10	0.01	0.60	0.50	5	–
17	495	0.30	0.01	0.60	0.50	5	–
18	495	0.50	0.01	0.60	0.50	5	–
19	1230	0.30	0.02	0.60	0.60	5	–
20	1230	0.30	0.02	0.60	0.40	5	–
21	570	0.30	0.02	0.60	0.40	5	–
22	1230	0.30	0.02	0.50	0.50	5	–
23	1230	0.30	0.02	0.80	0.50	5	–
24	570	0.30	0.02	0.80	0.50	5	–
25	1230	0.30	0.02	0.60	0.50	10	–
26	570	0.30	0.02	0.60	0.50	10	–
27	1230	0.30	0.02	0.60	0.50	5	$\vec{2.0}$
28	1230	0.30	0.02	0.60	0.50	5	$\vec{0.5}$
29	1230	0.30	0.02	0.60	0.50	5	$\tilde{1.5}^{40}$
30	1230	0.30	0.02	0.60	0.50	5	$\tilde{0.5}^{40}$

ϑ: Female fraction at birth. K_t: $-$: stable K. $\vec{c}$: carrying capacity increasing, or declining, to cK over SLA period. $\tilde{c}^i$: carrying capacity sinus-cyclic over the SLA period; starting from K at the beginning of the period to cK i years after.

Table 8: The Bayes factor (B) of the different trials for the West Greenland bowhead whale (normalised to a sum of one), and the probability (P) of fulfilling the risk objective. This probability is calculated for the different SLAs (SLA number i given by superscript); given the trial (P^i), given the Bayes weight of the trial ($P_B^i = 1-(1-P^i)B$), and Bayes weight integrated over all trials $\bar{P}_B^i = 1 - \sum_{j=1}^{30}(1-P_j^i)B_j$ with j denoting trial.

Trial	B	P^0	P_B^0	P^1	P_B^1	P^2	P_B^2	P^3	P_B^3	P^4	P_B^4	P^5	P_B^5	P^6	P_B^6
1	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
6	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
7	0.014	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
8	0.014	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	0.014	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	0.014	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	0.014	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	0.93	1.00
12	0.014	0.30	0.99	1.00	1.00	0.79	1.00	0.98	1.00	0.64	0.99	0.97	1.00	0.59	0.99
13	0.008	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
14	0.008	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	0.008	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	0.008	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
17	0.008	0.36	0.99	1.00	1.00	0.99	1.00	0.99	1.00	0.87	1.00	0.99	1.00	0.83	1.00
18	0.008	0.06	0.99	0.98	1.00	0.72	1.00	0.97	1.00	0.58	1.00	1.00	1.00	0.53	1.00
19	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
21	0.014	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
22	0.055	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
23	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	0.014	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
26	0.014	0.33	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
27	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
28	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
29	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	0.055	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$\bar{P}_B^i$			0.96		1.00		0.99		1.00		0.99		1.00		0.99

Table 9: The average need satisfaction (S) and average downstep (D) of the different trials for the West Greenland bowhead whale when applying the different SLAs (indicated by superscript), together with the Bayes factor weighted average ($\bar{X_B}$) across all trials.

Trial	S^0	D^0	S^1	D^1	S^2	D^2	S^3	D^3	S^4	D^4	S^5	D^5	S^6	D^6
1	1.00	0.00	0.96	0.02	0.99	0.01	0.98	0.00	1.00	0.00	0.99	0.00	1.00	0.00
2	1.00	0.00	0.96	0.02	0.99	0.00	0.99	0.00	1.00	0.00	0.99	0.00	1.00	0.00
3	1.00	0.00	0.93	0.03	0.99	0.01	0.98	0.00	1.00	0.00	0.99	0.00	1.00	0.00
4	1.00	0.00	0.86	0.06	0.94	0.03	0.95	0.01	0.99	0.00	0.97	0.01	1.00	0.00
5	1.00	0.00	0.94	0.03	0.98	0.01	0.98	0.00	1.00	0.00	0.99	0.00	1.00	0.00
6	1.00	0.00	0.93	0.03	0.99	0.01	0.98	0.01	1.00	0.00	0.98	0.00	1.00	0.00
7	1.00	0.00	0.85	0.04	0.93	0.02	0.86	0.01	0.97	0.01	0.84	0.01	0.97	0.00
8	1.00	0.00	0.72	0.09	0.91	0.04	0.73	0.03	0.96	0.01	0.74	0.02	0.97	0.00
9	1.00	0.00	0.63	0.11	0.86	0.06	0.63	0.03	0.94	0.01	0.64	0.02	0.95	0.01
10	1.00	0.00	0.65	0.12	0.78	0.09	0.68	0.04	0.86	0.03	0.65	0.03	0.89	0.02
11	1.00	0.00	0.67	0.10	0.84	0.06	0.69	0.03	0.92	0.02	0.67	0.02	0.92	0.01
12	1.00	0.00	0.62	0.10	0.82	0.07	0.63	0.04	0.89	0.02	0.65	0.03	0.91	0.02
13	1.00	0.00	0.80	0.05	0.92	0.03	0.81	0.01	0.94	0.01	0.79	0.01	0.95	0.01
14	1.00	0.00	0.65	0.10	0.87	0.05	0.67	0.03	0.93	0.01	0.64	0.02	0.93	0.01
15	1.00	0.00	0.57	0.10	0.81	0.07	0.57	0.04	0.86	0.03	0.55	0.03	0.86	0.02
16	1.00	0.00	0.59	0.12	0.73	0.11	0.62	0.04	0.82	0.04	0.59	0.03	0.83	0.03
17	1.00	0.00	0.59	0.11	0.77	0.09	0.60	0.03	0.85	0.03	0.60	0.02	0.87	0.02
18	1.00	0.00	0.55	0.12	0.75	0.09	0.57	0.04	0.80	0.03	0.55	0.03	0.83	0.02
19	1.00	0.00	0.96	0.02	0.99	0.00	0.99	0.00	1.00	0.00	0.99	0.00	1.00	0.00
20	1.00	0.00	0.96	0.02	1.00	0.00	0.99	0.00	1.00	0.00	0.99	0.00	1.00	0.00
21	1.00	0.00	0.72	0.08	0.91	0.04	0.74	0.03	0.96	0.01	0.74	0.02	0.97	0.00
22	1.00	0.00	0.95	0.02	0.99	0.00	0.99	0.00	1.00	0.00	0.99	0.00	1.00	0.00
23	1.00	0.00	0.97	0.01	1.00	0.00	1.00	0.00	1.00	0.00	0.99	0.00	1.00	0.00
24	1.00	0.00	0.75	0.07	0.93	0.02	0.79	0.02	0.97	0.00	0.78	0.01	0.97	0.00
25	1.00	0.00	0.75	0.08	0.93	0.03	0.79	0.02	0.98	0.00	0.78	0.02	0.97	0.00
26	1.00	0.00	0.40	0.12	0.61	0.10	0.36	0.03	0.61	0.03	0.37	0.02	0.63	0.02
27	1.00	0.00	0.97	0.01	1.00	0.00	0.99	0.00	1.00	0.00	0.99	0.00	1.00	0.00
28	1.00	0.00	0.92	0.04	0.98	0.01	0.98	0.01	1.00	0.00	0.99	0.00	1.00	0.00
29	1.00	0.00	0.98	0.01	1.00	0.00	0.99	0.00	1.00	0.00	0.99	0.00	1.00	0.00
30	1.00	0.00	0.88	0.05	0.95	0.02	0.94	0.01	1.00	0.00	0.96	0.01	1.00	0.00
$\bar{X_B}$	1.00	0.00	0.88	0.04	0.95	0.02	0.91	0.01	0.98	0.00	0.92	0.01	0.98	0.00

Table 10: Trials for Eastern Arctic bowhead whales, with the abundance (N) given for 2002, and depletion ratio (d) for 1970.

Trial	N	d	msyr	msyl	ϑ	need	K_t
01	14000	0.10	0.02	0.60	0.50	25	$-$
02	14000	0.30	0.02	0.60	0.50	25	$-$
03	14000	0.50	0.02	0.60	0.50	25	$-$
04	14000	0.10	0.01	0.60	0.50	25	$-$
05	14000	0.30	0.01	0.60	0.50	25	$-$
06	14000	0.50	0.01	0.60	0.50	25	$-$
07	4800	0.10	0.02	0.60	0.50	25	$-$
08	4800	0.30	0.02	0.60	0.50	25	$-$
09	4800	0.50	0.02	0.60	0.50	25	$-$
10	4800	0.10	0.01	0.60	0.50	25	$-$
11	4800	0.30	0.01	0.60	0.50	25	$-$
12	4800	0.50	0.01	0.60	0.50	25	$-$
13	1500	0.10	0.02	0.60	0.50	25	$-$
14	1500	0.30	0.02	0.60	0.50	25	$-$
15	1500	0.50	0.02	0.60	0.50	25	$-$
16	1500	0.10	0.01	0.60	0.50	25	$-$
17	1500	0.30	0.01	0.60	0.50	25	$-$
18	1500	0.50	0.01	0.60	0.50	25	$-$
19	14000	0.30	0.02	0.60	0.60	25	$-$
20	14000	0.30	0.02	0.60	0.40	25	$-$
21	4800	0.30	0.02	0.60	0.40	25	$-$
22	14000	0.30	0.02	0.50	0.50	25	$-$
23	14000	0.30	0.02	0.80	0.50	25	$-$
24	4800	0.30	0.02	0.80	0.50	25	$-$
25	14000	0.30	0.02	0.60	0.50	50	$-$
26	4800	0.30	0.02	0.60	0.50	50	$-$
27	14000	0.30	0.02	0.60	0.50	25	$\vec{2.0}$
28	14000	0.30	0.02	0.60	0.50	25	$\vec{0.5}$
29	14000	0.30	0.02	0.60	0.50	25	$\tilde{1.5}^{40}$
30	14000	0.30	0.02	0.60	0.50	25	$\tilde{0.5}^{40}$

ϑ: Female fraction at birth. K_t: $-$: stable K. $\vec{c}$: carrying capacity increasing, or declining, to cK over SLA period. $\tilde{c}^i$: carrying capacity sinus-cyclic over the SLA period; starting from K at the beginning of the period to cK i years after.

Table 11: The Bayes factor (B) of the different trials for the Eastern Arctic bowhead whale (normalised to a sum of one), and the probability (P) of fulfilling the risk objective. This probability is calculated for the different SLAs (SLA number i given by superscript); given the trial (P^i), given the Bayes weight of the trial ($P_B^i = 1-(1-P^i)B$), and Bayes weight integrated over all trials $\bar{P}_B^i = 1 - \sum_{j=1}^{30}(1-P_j^i)B_j$ with j denoting trial.

Trial	B	P^0	P_B^0	P^1	P_B^1	P^2	P_B^2	P^3	P_B^3	P^4	P_B^4	P^5	P_B^5	P^6	P_B^6
1	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
6	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
7	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
8	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	0.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
14	0.000	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	0.000	0.02	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	0.000	0.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00
17	0.000	0.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.90	1.00	1.00	1.00	0.89	1.00
18	0.000	0.00	1.00	1.00	1.00	0.77	1.00	1.00	1.00	0.71	1.00	1.00	1.00	0.71	1.00
19	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
21	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
22	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
23	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
26	0.012	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
27	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
28	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
29	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	0.060	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$\bar{P}_B^i$			1.00		1.00		1.00		1.00		1.00		1.00		1.00

Table 12: The average need satisfaction (S) and average downstep (D) of the different trials for the Eastern Arctic bowhead whale when applying the different SLAs (indicated by superscript), together with the Bayes factor weighted average ($\bar{X_B}$) across all trials.

Trial	S^0	D^0	S^1	D^1	S^2	D^2	S^3	D^3	S^4	D^4	S^5	D^5	S^6	D^6
1	1.00	0.00	0.98	0.01	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
2	1.00	0.00	0.98	0.01	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
3	1.00	0.00	0.98	0.01	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
4	1.00	0.00	0.96	0.02	0.99	0.01	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
5	1.00	0.00	0.97	0.01	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
6	1.00	0.00	0.98	0.01	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
7	1.00	0.00	0.91	0.03	0.96	0.02	0.94	0.01	0.99	0.00	0.93	0.01	0.99	0.00
8	1.00	0.00	0.84	0.06	0.94	0.03	0.92	0.01	0.99	0.00	0.92	0.01	0.99	0.00
9	1.00	0.00	0.77	0.08	0.92	0.04	0.85	0.03	0.98	0.00	0.87	0.01	0.98	0.00
10	1.00	0.00	0.79	0.08	0.88	0.05	0.85	0.02	0.96	0.01	0.88	0.01	0.97	0.01
11	1.00	0.00	0.81	0.07	0.90	0.04	0.88	0.02	0.98	0.01	0.88	0.01	0.98	0.00
12	1.00	0.00	0.77	0.09	0.90	0.04	0.85	0.03	0.97	0.01	0.86	0.02	0.98	0.00
13	1.00	0.00	0.58	0.10	0.74	0.07	0.59	0.03	0.76	0.02	0.55	0.02	0.75	0.01
14	1.00	0.00	0.38	0.15	0.57	0.13	0.39	0.04	0.60	0.04	0.36	0.03	0.58	0.02
15	1.00	0.00	0.31	0.15	0.49	0.14	0.31	0.05	0.50	0.05	0.31	0.03	0.49	0.03
16	1.00	0.00	0.39	0.17	0.53	0.16	0.38	0.05	0.55	0.05	0.38	0.03	0.55	0.03
17	1.00	0.00	0.36	0.15	0.48	0.16	0.35	0.05	0.53	0.05	0.34	0.03	0.51	0.03
18	1.00	0.00	0.31	0.16	0.45	0.16	0.31	0.05	0.45	0.06	0.31	0.03	0.45	0.04
19	1.00	0.00	0.99	0.01	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
20	1.00	0.00	0.99	0.01	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
21	1.00	0.00	0.83	0.07	0.94	0.03	0.91	0.02	0.99	0.00	0.92	0.01	0.99	0.00
22	1.00	0.00	0.99	0.01	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
23	1.00	0.00	0.99	0.00	1.00	0.00	1.00	0.00	0.99	0.00	1.00	0.00	1.00	0.00
24	1.00	0.00	0.87	0.05	0.95	0.02	0.93	0.01	1.00	0.00	0.94	0.01	0.99	0.00
25	1.00	0.00	0.94	0.03	0.98	0.01	0.98	0.00	0.85	0.02	0.98	0.00	1.00	0.00
26	1.00	0.00	0.57	0.12	0.77	0.08	0.60	0.04	1.00	0.00	0.57	0.02	0.85	0.01
27	1.00	0.00	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
28	1.00	0.00	0.96	0.02	0.99	0.01	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
29	1.00	0.00	0.99	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
30	1.00	0.00	0.95	0.02	0.98	0.01	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
$\bar{X_B}$	1.00	0.00	0.96	0.02	0.98	0.01	0.98	0.00	0.99	0.00	0.98	0.00	1.00	0.00

Table 13: Trial performace statistics for West Greenland fin whale. 5^{th}, median and 95^{th} percentiles of rescaled final depletion (D9), relative increase (D10), average need satisfaction (N9), mean downstep (N12), and final depletion (D1) for the different SLA candidates (For statistics definitions see IWC, 2003).

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
fin01: N=2900; dr=0.20; msyr=0.02; need=20; Bayes factor= 0.13															
SLA0	.842	.928	.969	2.02	2.24	2.51	1.00	1.00	1.00	1.00	.000	.000	.834	.920	.942
SLA1	.868	.937	.980	2.00	2.27	2.57	.806	.903	.970	1.00	.023	.063	.855	.924	.948
SLA2	.860	.934	.976	1.93	2.24	2.54	.911	.985	1.00	1.00	.005	.033	.846	.923	.943
SLA3	.865	.939	.978	1.97	2.21	2.57	.822	.908	.970	1.00	.003	.018	.856	.927	.949
SLA4	.869	.934	.983	1.98	2.23	2.50	.970	1.00	1.00	1.00	.000	.010	.836	.918	.944
SLA5	.874	.936	.979	1.89	2.26	2.52	.821	.901	.960	1.00	.003	.009	.870	.924	.946
SLA6	.848	.932	.987	1.95	2.19	2.51	.970	1.00	1.00	1.00	.000	.002	.837	.921	.944
fin02: N=2900; dr=0.50; msyr=0.02; need=20; Bayes factor= 0.05															
SLA0	.807	.887	.941	1.03	1.14	1.25	1.00	1.00	1.00	1.00	.000	.000	.804	.878	.910
SLA1	.859	.912	.961	1.08	1.18	1.27	.726	.807	.883	.036	.062	.102	.855	.904	.933
SLA2	.822	.894	.948	1.08	1.16	1.25	.896	.955	1.00	1.00	.020	.044	.824	.885	.917
SLA3	.845	.904	.964	1.07	1.17	1.26	.734	.856	.946	.003	.020	.037	.842	.893	.929
SLA4	.817	.887	.945	1.05	1.14	1.24	.970	1.00	1.00	1.00	.000	.007	.809	.874	.912
SLA5	.833	.905	.959	1.08	1.17	1.28	.732	.850	.939	1.00	.011	.024	.831	.893	.930
SLA6	.835	.897	.934	1.04	1.15	1.24	.985	1.00	1.00	1.00	.000	.000	.828	.883	.913
fin03: N=2900; dr=0.80; msyr=0.02; need=20; Bayes factor= 0.02															
SLA0	.772	.866	.923	.902	.957	1.01	1.00	1.00	1.00	1.00	.000	.000	.772	.856	.890
SLA1	.827	.897	.971	.944	.999	1.06	.644	.759	.847	.036	.080	.114	.834	.888	.933
SLA2	.778	.882	.942	.890	.968	1.03	.855	.936	1.00	1.00	.028	.061	.789	.870	.917
SLA3	.811	.894	.945	.933	.995	1.06	.656	.794	.895	.009	.027	.044	.813	.881	.920
SLA4	.775	.862	.915	.882	.960	1.01	.960	1.00	1.00	1.00	.000	.015	.763	.852	.895
SLA5	.824	.896	.952	.939	.990	1.05	.655	.797	.915	.003	.017	.028	.809	.882	.931
SLA6	.777	.865	.918	.906	.969	1.02	.975	1.00	1.00	1.00	.000	.007	.782	.859	.900
fin04: N=2900; dr=0.20; msyr=0.01; need=20; Bayes factor= 0.03															
SLA0	.347	.657	.962	1.00	1.71	2.00	1.00	1.00	1.00	1.00	.000	.000	.247	.453	.543
SLA1	.395	.707	1.01	1.33	1.92	2.22	.626	.757	.865	.033	.075	.148	.304	.497	.613
SLA2	.400	.690	1.05	1.19	1.86	2.14	.777	.901	.985	.002	.042	.101	.288	.482	.604
SLA3	.449	.720	1.00	1.31	1.91	2.34	.629	.819	.922	1.00	.024	.051	.313	.510	.615
SLA4	.379	.606	.966	.970	1.65	2.05	.891	.980	1.00	1.00	.007	.027	.215	.443	.579
SLA5	.421	.691	.994	1.20	1.84	2.22	.667	.810	.936	.003	.013	.036	.269	.490	.600
SLA6	.333	.623	.897	1.07	1.66	2.00	.936	1.00	1.00	1.00	.000	.018	.244	.433	.557
fin05: N=2900; dr=0.50; msyr=0.01; need=20; Bayes factor= 0.02															
SLA0	.402	.686	.826	.736	1.03	1.22	1.00	1.00	1.00	1.00	.000	.000	.396	.631	.723
SLA1	.632	.804	.951	.982	1.20	1.39	.670	.775	.875	.030	.074	.124	.556	.737	.802
SLA2	.452	.715	.877	.778	1.10	1.30	.817	.938	1.00	1.00	.029	.075	.416	.656	.735
SLA3	.501	.753	.989	.884	1.15	1.30	.661	.822	.911	.008	.025	.048	.476	.703	.800
SLA4	.480	.686	.898	.826	1.06	1.25	.925	.993	1.00	1.00	.005	.021	.448	.625	.732
SLA5	.478	.733	.938	.840	1.14	1.30	.667	.817	.939	.006	.017	.031	.460	.669	.790
SLA6	.511	.681	.869	.769	1.05	1.21	.955	1.00	1.00	1.00	.000	.010	.446	.629	.726
fin06: N=2900; dr=0.80; msyr=0.01; need=20; Bayes factor= 0.01															
SLA0	.440	.654	.824	.539	.775	.926	1.00	1.00	1.00	1.00	.000	.000	.425	.623	.741
SLA1	.617	.790	.949	.780	.943	1.04	.609	.715	.817	.050	.090	.138	.612	.755	.834
SLA2	.517	.692	.830	.628	.827	.936	.782	.911	.980	.012	.038	.098	.465	.660	.755
SLA3	.589	.781	.915	.756	.935	1.03	.621	.758	.868	.013	.032	.053	.549	.756	.824
SLA4	.420	.678	.813	.575	.797	.911	.926	.991	1.00	1.00	.007	.030	.407	.650	.720
SLA5	.550	.753	.895	.706	.897	1.01	.630	.775	.882	.007	.020	.039	.536	.723	.806
SLA6	.450	.653	.795	.571	.770	.932	.933	.999	1.00	1.00	.002	.018	.434	.627	.724

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
fin07: N=1900; dr=0.20; msyr=0.02; need=20; Bayes factor= 0.06															
SLA0	.761	.884	.934	1.97	2.33	2.68	1.00	1.00	1.00	1.00	.000	.000	.763	.872	.908
SLA1	.822	.906	.957	2.07	2.43	2.71	.663	.762	.861	.020	.054	.115	.814	.896	.932
SLA2	.768	.890	.954	1.99	2.39	2.69	.817	.901	.970	1.00	.028	.056	.769	.875	.918
SLA3	.814	.908	.951	2.06	2.37	2.74	.663	.757	.851	.009	.020	.037	.806	.896	.923
SLA4	.778	.886	.941	2.06	2.35	2.79	.851	.941	.990	1.00	.005	.018	.761	.870	.908
SLA5	.822	.911	.950	2.08	2.39	2.80	.579	.735	.832	.003	.013	.023	.794	.896	.927
SLA6	.768	.892	.949	2.08	2.37	2.75	.866	.936	.995	1.00	.003	.013	.732	.880	.912
fin08: N=1900; dr=0.50; msyr=0.02; need=20; Bayes factor= 0.04															
SLA0	.673	.800	.876	.943	1.11	1.21	1.00	1.00	1.00	1.00	.000	.000	.665	.792	.843
SLA1	.835	.906	.957	1.10	1.22	1.34	.498	.600	.695	.053	.106	.147	.821	.887	.936
SLA2	.758	.850	.904	1.04	1.18	1.28	.746	.856	.936	.021	.052	.089	.753	.838	.880
SLA3	.829	.893	.973	1.12	1.24	1.36	.480	.594	.700	.017	.037	.058	.807	.880	.927
SLA4	.738	.827	.896	1.03	1.12	1.24	.807	.907	.976	.002	.017	.032	.740	.813	.869
SLA5	.828	.900	.973	1.11	1.22	1.37	.491	.581	.686	.012	.025	.039	.818	.888	.932
SLA6	.742	.827	.886	1.03	1.12	1.27	.792	.910	.999	1.00	.009	.023	.721	.819	.860
fin09: N=1900; dr=0.80; msyr=0.02; need=20; Bayes factor= 0.03															
SLA0	.620	.748	.809	.745	.861	.929	1.00	1.00	1.00	1.00	.000	.000	.616	.735	.786
SLA1	.818	.906	.967	.942	1.03	1.11	.441	.532	.638	.068	.114	.167	.803	.890	.940
SLA2	.750	.825	.894	.858	.951	1.03	.693	.799	.881	.038	.074	.122	.736	.814	.867
SLA3	.806	.902	.960	.961	1.04	1.11	.450	.534	.641	.021	.041	.068	.796	.889	.930
SLA4	.719	.806	.899	.833	.938	1.02	.716	.853	.939	.013	.027	.046	.709	.796	.859
SLA5	.816	.905	.958	.948	1.04	1.12	.461	.531	.625	.013	.026	.040	.815	.889	.926
SLA6	.691	.796	.886	.827	.928	1.00	.762	.866	.982	.002	.015	.029	.676	.783	.852
fin10: N=1900; dr=0.20; msyr=0.01; need=20; Bayes factor= 0.03															
SLA0	.081	.331	.566	.281	.917	1.30	1.00	1.00	1.00	1.00	.000	.000	.059	.213	.333
SLA1	.396	.684	1.02	1.36	1.87	2.22	.426	.562	.718	.047	.109	.189	.274	.459	.585
SLA2	.300	.533	.853	.960	1.49	1.91	.581	.744	.851	.036	.096	.158	.206	.365	.474
SLA3	.383	.635	.973	1.22	1.78	2.22	.406	.569	.733	.020	.040	.078	.260	.416	.558
SLA4	.242	.488	.808	.785	1.36	1.75	.653	.767	.910	.008	.042	.070	.164	.303	.447
SLA5	.414	.727	1.15	1.30	1.89	2.31	.426	.569	.705	.013	.027	.052	.282	.456	.604
SLA6	.202	.471	.709	.666	1.32	1.76	.668	.827	.940	.003	.021	.047	.140	.308	.436
fin11: N=1900; dr=0.50; msyr=0.01; need=20; Bayes factor= 0.03															
SLA0	.142	.366	.540	.231	.602	.862	1.00	1.00	1.00	1.00	.000	.000	.125	.338	.462
SLA1	.554	.755	.976	.967	1.23	1.43	.450	.536	.625	.061	.115	.187	.511	.676	.794
SLA2	.387	.581	.727	.697	.942	1.15	.638	.759	.861	.036	.082	.140	.348	.517	.623
SLA3	.528	.720	.931	.916	1.19	1.37	.454	.549	.660	.025	.045	.064	.451	.633	.790
SLA4	.339	.519	.762	.579	.847	1.12	.619	.805	.928	.013	.035	.060	.293	.468	.610
SLA5	.539	.743	.905	.948	1.19	1.45	.442	.545	.655	.014	.027	.043	.477	.664	.785
SLA6	.329	.524	.758	.563	.876	1.18	.688	.826	.941	.006	.023	.043	.288	.475	.643
fin12: N=1900; dr=0.80; msyr=0.01; need=20; Bayes factor= 0.02															
SLA0	.034	.316	.473	.041	.390	.592	1.00	1.00	1.00	1.00	.000	.000	.032	.291	.432
SLA1	.598	.771	.945	.802	.970	1.10	.404	.509	.599	.081	.121	.177	.582	.722	.839
SLA2	.430	.588	.767	.586	.741	.894	.644	.731	.817	.054	.088	.134	.420	.553	.675
SLA3	.603	.758	.922	.766	.936	1.07	.401	.504	.599	.027	.045	.068	.576	.723	.814
SLA4	.331	.531	.745	.477	.676	.888	.664	.770	.867	.023	.044	.063	.323	.506	.660
SLA5	.566	.767	.921	.757	.950	1.11	.422	.509	.600	.018	.029	.045	.540	.723	.839
SLA6	.323	.560	.724	.426	.683	.827	.668	.792	.908	.015	.027	.044	.295	.524	.647

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
fin13: N=800; dr=0.20; msyr=0.02; need=20; Bayes factor= 0.00															
SLA0	1.00	.000	.000	1.00	.000	.001	1.00	1.00	1.00	1.00	.000	.000	1.00	.000	.000
SLA1	.780	.876	.978	2.66	3.10	3.51	.327	.420	.514	.084	.142	.195	.710	.851	.895
SLA2	.571	.778	.895	2.23	2.74	3.23	.495	.596	.713	.062	.102	.164	.567	.742	.828
SLA3	.752	.884	.950	2.75	3.14	3.66	.313	.398	.499	.046	.069	.090	.740	.851	.899
SLA4	.556	.788	.899	2.21	2.80	3.38	.432	.579	.688	.021	.038	.069	.546	.763	.836
SLA5	.764	.896	.982	2.81	3.17	3.67	.278	.353	.440	.043	.058	.077	.754	.871	.911
SLA6	.652	.806	.892	2.39	2.83	3.36	.446	.561	.683	.018	.028	.041	.630	.776	.846
fin14: N=800; dr=0.50; msyr=0.02; need=20; Bayes factor= 0.00															
SLA0	1.00	.000	.001	1.00	.000	.001	1.00	1.00	1.00	1.00	.000	.000	1.00	.000	.001
SLA1	.775	.877	.961	1.29	1.50	1.78	.240	.300	.363	.102	.166	.222	.774	.862	.928
SLA2	.654	.767	.886	1.17	1.38	1.55	.377	.473	.562	.080	.133	.214	.654	.759	.857
SLA3	.812	.897	.980	1.35	1.56	1.76	.230	.286	.351	.066	.093	.124	.817	.884	.934
SLA4	.613	.785	.908	1.13	1.37	1.61	.361	.463	.547	.033	.053	.076	.605	.768	.853
SLA5	.813	.905	.978	1.37	1.56	1.75	.221	.271	.326	.063	.079	.105	.800	.890	.941
SLA6	.699	.802	.882	1.16	1.40	1.60	.380	.439	.530	.029	.040	.056	.659	.787	.868
fin15: N=800; dr=0.80; msyr=0.02; need=20; Bayes factor= 0.00															
SLA0	1.00	.000	.001	1.00	.000	.001	1.00	1.00	1.00	1.00	.000	.000	1.00	.000	.001
SLA1	.781	.897	.983	1.08	1.23	1.37	.205	.256	.308	.128	.173	.234	.788	.881	.952
SLA2	.659	.778	.901	.884	1.07	1.25	.334	.420	.480	.083	.141	.194	.630	.771	.870
SLA3	.812	.904	.995	1.13	1.23	1.35	.195	.251	.301	.076	.106	.134	.800	.880	.935
SLA4	.661	.796	.885	.918	1.08	1.23	.311	.403	.489	.034	.058	.096	.668	.782	.848
SLA5	.804	.908	1.00	1.13	1.23	1.38	.206	.245	.290	.067	.087	.112	.801	.880	.955
SLA6	.674	.792	.893	.900	1.07	1.24	.330	.415	.485	.027	.045	.061	.650	.775	.865
fin16: N=800; dr=0.20; msyr=0.01; need=20; Bayes factor= 0.00															
SLA0	1.00	.000	.000	1.00	.000	.001	1.00	1.00	1.00	1.00	.000	.000	1.00	.000	.000
SLA1	.333	.698	1.14	1.14	1.86	2.46	.168	.241	.304	.144	.227	.350	.180	.329	.472
SLA2	.210	.476	.827	.670	1.27	1.93	.263	.345	.427	.116	.196	.276	.105	.234	.355
SLA3	.342	.651	1.17	1.17	1.85	2.59	.150	.227	.310	.089	.124	.184	.200	.323	.481
SLA4	.217	.414	.828	.654	1.12	1.79	.270	.336	.445	.060	.091	.125	.114	.199	.353
SLA5	.383	.693	1.20	1.03	1.98	2.65	.166	.230	.304	.072	.098	.149	.176	.363	.516
SLA6	.193	.448	.846	.631	1.26	1.88	.240	.328	.436	.045	.067	.100	.112	.219	.333
fin17: N=800; dr=0.50; msyr=0.01; need=20; Bayes factor= 0.00															
SLA0	1.00	.000	.001	1.00	.000	.001	1.00	1.00	1.00	1.00	.000	.000	1.00	.000	.000
SLA1	.458	.722	1.02	.984	1.37	1.69	.175	.241	.309	.131	.195	.265	.403	.582	.714
SLA2	.277	.475	.704	.569	.929	1.25	.253	.338	.428	.113	.179	.256	.228	.390	.538
SLA3	.454	.710	1.04	1.02	1.43	1.69	.170	.236	.294	.081	.108	.160	.394	.591	.725
SLA4	.228	.451	.735	.469	.900	1.23	.274	.344	.431	.057	.082	.114	.183	.369	.536
SLA5	.416	.743	1.18	.993	1.44	1.78	.175	.225	.280	.073	.101	.138	.370	.625	.752
SLA6	.204	.486	.757	.418	.940	1.27	.250	.352	.436	.039	.058	.093	.157	.393	.579
fin18: N=800; dr=0.80; msyr=0.01; need=20; Bayes factor= 0.05															
SLA0	1.00	.000	.001	1.00	.000	.001	1.00	1.00	1.00	1.00	.000	.000	1.00	.000	.001
SLA1	.481	.705	.934	.784	1.08	1.32	.175	.221	.269	.146	.205	.288	.459	.643	.766
SLA2	.349	.529	.777	.540	.791	1.01	.262	.332	.407	.110	.173	.255	.318	.486	.633
SLA3	.531	.748	.953	.834	1.15	1.33	.170	.216	.264	.090	.122	.156	.473	.676	.810
SLA4	.244	.496	.724	.425	.729	1.06	.274	.336	.411	.052	.081	.115	.234	.451	.638
SLA5	.508	.750	.931	.837	1.13	1.33	.180	.225	.265	.077	.100	.138	.469	.677	.805
SLA6	.245	.458	.679	.372	.706	1.00	.284	.340	.400	.046	.061	.085	.213	.420	.591

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
fin19: N=2900; dr=0.50; msyr=0.02; ϑ=0.60; need=20; Bayes factor= 0.04															
SLA0	.794	.881	.940	1.01	1.13	1.21	1.00	1.00	1.00	1.00	.000	.000	.788	.871	.903
SLA1	.822	.909	.962	1.07	1.16	1.26	.654	.786	.881	.035	.073	.116	.814	.891	.936
SLA2	.787	.893	.969	1.05	1.14	1.26	.876	.956	1.00	1.00	.019	.057	.778	.878	.920
SLA3	.828	.904	.987	1.06	1.16	1.26	.703	.836	.939	1.00	.021	.039	.812	.890	.933
SLA4	.796	.892	.952	1.05	1.13	1.23	.970	1.00	1.00	1.00	.000	.010	.790	.875	.907
SLA5	.827	.899	.974	1.06	1.16	1.26	.688	.825	.946	.003	.011	.027	.817	.890	.925
SLA6	.784	.886	.965	1.03	1.13	1.24	.995	1.00	1.00	1.00	.000	.000	.769	.878	.902
fin20: N=2900; dr=0.50; msyr=0.02; ϑ=0.40; need=20; Bayes factor= 0.04															
SLA0	.841	.895	.943	1.07	1.18	1.27	1.00	1.00	1.00	1.00	.000	.000	.833	.885	.913
SLA1	.855	.915	.969	1.10	1.19	1.30	.707	.802	.901	.026	.062	.103	.848	.903	.939
SLA2	.842	.899	.945	1.08	1.17	1.26	.896	.970	1.00	1.00	.017	.045	.834	.889	.917
SLA3	.858	.908	.967	1.08	1.17	1.27	.742	.853	.946	.003	.021	.036	.843	.899	.931
SLA4	.839	.898	.951	1.08	1.18	1.29	.975	1.00	1.00	1.00	.000	.005	.830	.883	.913
SLA5	.858	.911	.965	1.08	1.17	1.30	.727	.847	.931	.003	.009	.023	.853	.900	.931
SLA6	.838	.899	.943	1.07	1.16	1.28	.990	1.00	1.00	1.00	.000	.002	.838	.888	.916
fin21: N=1900; dr=0.50; msyr=0.02; ϑ=0.40; need=20; Bayes factor= 0.04															
SLA0	.706	.808	.867	1.01	1.11	1.27	1.00	1.00	1.00	1.00	.000	.000	.703	.797	.838
SLA1	.828	.897	.968	1.13	1.26	1.38	.494	.615	.742	.056	.104	.158	.832	.887	.927
SLA2	.766	.848	.905	1.04	1.17	1.29	.748	.841	.955	.010	.053	.095	.759	.834	.877
SLA3	.852	.897	.946	1.15	1.26	1.39	.491	.598	.708	.020	.040	.060	.829	.887	.927
SLA4	.745	.823	.889	1.06	1.15	1.28	.797	.921	.975	1.00	.013	.034	.728	.815	.862
SLA5	.852	.906	.980	1.15	1.27	1.41	.491	.575	.705	.012	.026	.041	.844	.897	.932
SLA6	.760	.835	.889	1.07	1.17	1.25	.802	.921	.989	1.00	.008	.023	.768	.827	.856
fin22: N=2900; dr=0.50; msyr=0.02; msyl=0.50; need=20; Bayes factor= 0.07															
SLA0	.743	.822	.881	1.04	1.14	1.24	1.00	1.00	1.00	1.00	.000	.000	.724	.801	.843
SLA1	.786	.862	.913	1.10	1.19	1.26	.713	.792	.895	.020	.061	.110	.769	.840	.879
SLA2	.773	.839	.897	1.07	1.15	1.23	.866	.955	1.00	1.00	.020	.048	.745	.817	.861
SLA3	.777	.862	.914	1.11	1.18	1.29	.723	.843	.936	.003	.022	.042	.770	.833	.883
SLA4	.775	.828	.879	1.04	1.15	1.24	.975	1.00	1.00	1.00	.000	.010	.763	.807	.840
SLA5	.806	.855	.925	1.10	1.20	1.27	.687	.846	.950	.003	.011	.021	.787	.833	.870
SLA6	.719	.830	.892	1.02	1.14	1.22	.975	1.00	1.00	1.00	.000	.005	.719	.806	.844
fin23: N=2900; dr=0.50; msyr=0.02; msyl=0.80; need=20; Bayes factor= 0.05															
SLA0	.944	.968	.998	1.04	1.15	1.37	1.00	1.00	1.00	1.00	.000	.000	.941	.962	.978
SLA1	.946	.975	.996	1.05	1.16	1.38	.728	.838	.911	.024	.055	.097	.945	.967	.984
SLA2	.945	.970	.991	1.03	1.15	1.33	.906	.965	1.00	1.00	.014	.038	.943	.964	.984
SLA3	.929	.970	1.00	1.05	1.15	1.31	.715	.863	.950	.002	.017	.036	.931	.964	.982
SLA4	.938	.967	.991	1.04	1.17	1.29	.980	1.00	1.00	1.00	.000	.007	.937	.960	.974
SLA5	.944	.971	.996	1.04	1.17	1.35	.711	.856	.955	1.00	.010	.023	.941	.964	.985
SLA6	.947	.968	.991	1.05	1.16	1.32	.985	1.00	1.00	1.00	.000	.000	.946	.962	.975
fin24: N=1900; dr=0.50; msyr=0.02; msyl=0.80; need=20; Bayes factor= 0.04															
SLA0	.869	.944	.975	1.07	1.21	1.44	1.00	1.00	1.00	1.00	.000	.000	.869	.940	.965
SLA1	.936	.963	.996	1.13	1.26	1.48	.541	.629	.737	.051	.093	.141	.931	.964	.980
SLA2	.892	.950	.976	1.07	1.25	1.48	.792	.893	.965	.005	.037	.076	.888	.946	.969
SLA3	.927	.966	.994	1.08	1.28	1.50	.495	.622	.769	.014	.034	.057	.927	.962	.985
SLA4	.896	.943	.977	1.06	1.24	1.51	.837	.937	.990	1.00	.009	.025	.893	.940	.964
SLA5	.940	.971	.994	1.09	1.25	1.45	.501	.595	.716	.011	.025	.038	.934	.968	.987
SLA6	.894	.941	.974	1.06	1.22	1.48	.812	.949	.995	1.00	.005	.018	.887	.939	.965

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
fin25: N=2900; dr=0.50; msyr=0.02; need=40; Bayes factor= 0.04															
SLA0	.498	.641	.731	.663	.845	.968	1.00	1.00	1.00	1.00	.000	.000	.477	.630	.705
SLA1	.820	.902	.968	1.07	1.15	1.29	.363	.448	.525	.058	.102	.166	.813	.889	.932
SLA2	.734	.802	.871	.951	1.04	1.17	.601	.693	.795	.042	.080	.130	.725	.791	.848
SLA3	.825	.895	.968	1.05	1.15	1.25	.366	.447	.540	.012	.028	.042	.814	.882	.914
SLA4	.685	.800	.892	.915	1.04	1.13	.613	.709	.832	.013	.028	.044	.681	.783	.852
SLA5	.814	.901	.969	1.08	1.15	1.25	.358	.434	.509	.003	.013	.027	.803	.888	.927
SLA6	.681	.797	.874	.904	1.05	1.13	.600	.719	.824	.005	.018	.031	.669	.785	.844
fin26: N=1900; dr=0.50; msyr=0.02; need=40; Bayes factor= 0.04															
SLA0	1.00	.000	.000	1.00	.000	.000	1.00	1.00	1.00	1.00	.000	.000	1.00	.000	.000
SLA1	.801	.897	.967	1.09	1.22	1.38	.243	.301	.350	.057	.110	.172	.774	.874	.936
SLA2	.677	.795	.870	.916	1.10	1.25	.410	.490	.577	.052	.115	.166	.677	.786	.848
SLA3	.818	.897	.966	1.12	1.24	1.36	.231	.290	.357	.025	.040	.059	.813	.883	.925
SLA4	.660	.804	.869	.916	1.09	1.21	.409	.494	.576	.013	.034	.054	.662	.786	.857
SLA5	.838	.906	.982	1.13	1.23	1.36	.244	.288	.335	.011	.024	.039	.826	.894	.938
SLA6	.660	.806	.887	.950	1.09	1.24	.404	.484	.568	.005	.015	.032	.655	.794	.864
fin27: N=2900; dr=0.50; msyr=0.02; need=20; $K_t = \vec{2.0}$; Bayes factor= 0.05															
SLA0	.773	.898	.988	1.91	2.08	2.29	1.00	1.00	1.00	1.00	.000	.000	.678	.805	.839
SLA1	.804	.909	1.01	1.97	2.13	2.30	.822	.891	.950	.010	.030	.060	.730	.817	.845
SLA2	.805	.907	.983	1.93	2.10	2.30	.926	.985	1.00	1.00	.002	.025	.734	.809	.841
SLA3	.813	.912	.985	1.91	2.14	2.31	.822	.903	.960	1.00	.005	.018	.725	.815	.848
SLA4	.781	.893	.951	1.94	2.12	2.29	.980	1.00	1.00	1.00	.000	.007	.706	.803	.841
SLA5	.812	.904	.987	1.94	2.10	2.31	.787	.896	.960	1.00	.003	.013	.716	.814	.842
SLA6	.799	.891	.956	1.98	2.11	2.30	.970	1.00	1.00	1.00	.000	.002	.725	.794	.834
fin28: N=2900; dr=0.50; msyr=0.02; need=20; $K_t = \vec{0.5}$; Bayes factor= 0.05															
SLA0	.813	.870	.904	.568	.625	.697	1.00	1.00	1.00	1.00	.000	.000	.902	.966	.995
SLA1	.882	.934	.967	.612	.659	.738	.589	.714	.821	.054	.093	.141	.989	1.03	1.07
SLA2	.834	.890	.952	.595	.655	.720	.811	.906	.978	.012	.040	.095	.930	.990	1.04
SLA3	.866	.919	.958	.611	.657	.721	.601	.739	.862	.020	.038	.057	.967	1.02	1.06
SLA4	.827	.872	.918	.563	.633	.702	.921	.989	1.00	1.00	.007	.028	.919	.973	1.02
SLA5	.860	.913	.957	.612	.657	.710	.629	.747	.888	.009	.022	.036	.961	1.01	1.06
SLA6	.835	.870	.906	.584	.626	.677	.952	1.00	1.00	1.00	.000	.015	.926	.969	1.01
fin29: N=2900; dr=0.50; msyr=0.02; need=20; $K_t = \tilde{1.5}^{40}$; Bayes factor= 0.05															
SLA0	.858	.941	.971	.881	.950	1.02	1.00	1.00	1.00	1.00	.000	.000	1.13	1.17	1.20
SLA1	.862	.953	.993	.865	.960	1.04	.769	.866	.954	.012	.044	.091	1.15	1.18	1.21
SLA2	.865	.940	.971	.884	.957	1.07	.921	.980	1.00	1.00	.007	.039	1.14	1.17	1.19
SLA3	.864	.947	.973	.877	.952	1.03	.807	.893	.960	1.00	.010	.027	1.14	1.17	1.20
SLA4	.852	.940	.970	.869	.950	1.06	.980	1.00	1.00	1.00	.000	.002	1.14	1.17	1.19
SLA5	.858	.944	.977	.873	.956	1.05	.797	.896	.965	1.00	.003	.015	1.14	1.17	1.20
SLA6	.847	.943	.974	.874	.954	1.05	.995	1.00	1.00	1.00	.000	.000	1.14	1.17	1.19
fin30: N=2900; dr=0.50; msyr=0.02; need=20; $K_t = \tilde{0.5}^{40}$; Bayes factor= 0.00															
SLA0	.549	.690	.779	.692	.886	1.02	1.00	1.00	1.00	1.00	.000	.000	.383	.482	.532
SLA1	.712	.842	.946	.951	1.08	1.21	.519	.613	.746	.061	.102	.147	.507	.594	.653
SLA2	.647	.760	.850	.823	.955	1.08	.752	.847	.936	.028	.058	.105	.458	.532	.578
SLA3	.761	.853	.982	.982	1.08	1.16	.515	.622	.752	.024	.041	.066	.541	.599	.649
SLA4	.615	.749	.867	.799	.955	1.09	.801	.906	.980	.007	.022	.038	.438	.525	.578
SLA5	.691	.833	.968	.928	1.07	1.18	.514	.655	.807	.014	.029	.040	.499	.589	.638
SLA6	.599	.731	.852	.793	.930	1.04	.846	.959	1.00	1.00	.012	.029	.426	.508	.575

Table 14: Trial performace statistics for West Greenland humpback whale. 5^{th}, median and 95^{th} percentiles of rescaled final depletion (D9), relative increase (D10), average need satisfaction (N9), mean downstep (N12), and final depletion (D1) for the different SLA candidates (For statistics definitions see IWC, 2003).

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
hum01: N=2500; dr=0.20; msyr=0.04; need=10; Bayes factor= 0.24															
SLA0	.949	.975	.997	1.13	1.23	1.37	1.00	1.00	1.00	1.00	.000	.000	.950	.970	.991
SLA1	.952	.977	.993	1.15	1.24	1.37	.842	.921	.980	.005	.036	.080	.951	.974	.985
SLA2	.951	.974	1.00	1.14	1.23	1.39	.941	1.00	1.00	1.00	.000	.030	.952	.970	.985
SLA3	.953	.975	1.00	1.14	1.23	1.37	.931	.990	1.00	1.00	.000	.020	.955	.973	.994
SLA4	.956	.976	.998	1.13	1.23	1.36	1.00	1.00	1.00	1.00	.000	.000	.956	.973	.986
SLA5	.944	.976	1.00	1.14	1.24	1.40	.921	1.00	1.00	1.00	.000	.015	.945	.972	.989
SLA6	.947	.973	.998	1.15	1.23	1.35	1.00	1.00	1.00	1.00	.000	.000	.948	.971	.987
hum02: N=2500; dr=0.50; msyr=0.04; need=10; Bayes factor= 0.00															
SLA0	.947	.972	1.00	.965	1.00	1.03	1.00	1.00	1.00	1.00	.000	.000	.942	.965	.983
SLA1	.947	.974	.995	.979	1.01	1.03	.762	.883	.970	.015	.051	.090	.944	.969	.985
SLA2	.939	.968	1.00	.978	1.00	1.03	.871	.980	1.00	1.00	.012	.060	.942	.961	.984
SLA3	.941	.972	1.00	.966	1.00	1.03	.868	.979	1.00	1.00	.010	.032	.938	.966	.984
SLA4	.945	.971	1.01	.974	1.00	1.03	.990	1.00	1.00	1.00	.000	.005	.942	.966	.984
SLA5	.946	.973	.999	.971	1.00	1.03	.940	1.00	1.00	1.00	.000	.016	.939	.968	.985
SLA6	.945	.969	.997	.967	.999	1.03	1.00	1.00	1.00	1.00	.000	.000	.941	.965	.984
hum03: N=2500; dr=0.80; msyr=0.04; need=10; Bayes factor= 0.00															
SLA0	.937	.970	.986	.953	.982	1.01	1.00	1.00	1.00	1.00	.000	.000	.933	.965	.980
SLA1	.947	.971	.999	.962	.987	1.01	.781	.890	.960	.015	.054	.103	.947	.966	.986
SLA2	.936	.966	.992	.952	.981	1.01	.861	.980	1.00	1.00	.010	.051	.936	.962	.981
SLA3	.942	.971	.997	.964	.984	1.01	.851	.970	1.00	1.00	.010	.033	.946	.968	.983
SLA4	.941	.969	.993	.956	.982	1.00	.980	1.00	1.00	1.00	.000	.010	.942	.964	.980
SLA5	.942	.970	.991	.956	.979	1.01	.911	1.00	1.00	1.00	.000	.017	.940	.964	.985
SLA6	.943	.966	.997	.956	.984	1.01	1.00	1.00	1.00	1.00	.000	.000	.939	.965	.981
hum04: N=2500; dr=0.20; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.857	.956	1.01	1.94	2.18	2.56	1.00	1.00	1.00	1.00	.000	.000	.848	.942	.977
SLA1	.854	.965	1.02	1.93	2.25	2.58	.832	.931	1.00	1.00	.030	.082	.852	.952	.976
SLA2	.861	.958	1.01	1.98	2.25	2.55	.911	1.00	1.00	1.00	.000	.041	.844	.951	.979
SLA3	.840	.957	1.04	1.96	2.19	2.61	.911	.990	1.00	1.00	.000	.021	.845	.947	.979
SLA4	.866	.959	1.03	1.94	2.23	2.55	1.00	1.00	1.00	1.00	.000	.000	.859	.950	.986
SLA5	.878	.967	1.04	2.01	2.20	2.51	.960	1.00	1.00	1.00	.000	.010	.864	.955	.982
SLA6	.874	.957	1.03	1.92	2.26	2.60	1.00	1.00	1.00	1.00	.000	.000	.856	.947	.976
hum05: N=2500; dr=0.50; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.835	.932	.997	1.09	1.17	1.27	1.00	1.00	1.00	1.00	.000	.000	.831	.926	.967
SLA1	.852	.949	1.01	1.07	1.16	1.27	.771	.901	.990	.005	.041	.099	.857	.933	.978
SLA2	.846	.931	.985	1.08	1.17	1.28	.911	.990	1.00	1.00	.005	.041	.841	.920	.972
SLA3	.853	.945	1.01	1.06	1.17	1.26	.901	.990	1.00	1.00	.005	.021	.859	.933	.976
SLA4	.865	.942	.999	1.07	1.16	1.27	1.00	1.00	1.00	1.00	.000	.000	.859	.932	.970
SLA5	.845	.935	.994	1.08	1.16	1.28	.931	1.00	1.00	1.00	.000	.015	.847	.925	.975
SLA6	.853	.929	.985	1.07	1.16	1.25	1.00	1.00	1.00	1.00	.000	.000	.846	.916	.959
hum06: N=2500; dr=0.80; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.849	.933	1.01	.925	.986	1.04	1.00	1.00	1.00	1.00	.000	.000	.831	.917	.954
SLA1	.862	.934	1.04	.939	.997	1.06	.777	.891	.960	.015	.053	.105	.852	.926	.968
SLA2	.845	.935	1.02	.939	.991	1.04	.881	.980	1.00	1.00	.010	.052	.845	.922	.962
SLA3	.856	.942	1.03	.949	.993	1.05	.812	.974	1.00	1.00	.010	.033	.841	.923	.960
SLA4	.820	.933	1.01	.912	.983	1.05	1.00	1.00	1.00	1.00	.000	.000	.810	.915	.953
SLA5	.843	.935	1.02	.927	.987	1.05	.901	1.00	1.00	1.00	.000	.020	.847	.919	.957
SLA6	.854	.930	1.01	.930	.988	1.03	1.00	1.00	1.00	1.00	.000	.000	.849	.918	.958

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
hum07: N=1300; dr=0.20; msyr=0.04; need=10; Bayes factor= 0.75															
SLA0	.927	.955	.994	1.19	1.36	1.55	1.00	1.00	1.00	1.00	.000	.000	.927	.952	.978
SLA1	.930	.969	1.00	1.23	1.37	1.53	.570	.718	.838	.048	.088	.142	.935	.962	.994
SLA2	.928	.961	.993	1.24	1.35	1.59	.812	.911	.980	1.00	.036	.094	.927	.953	.978
SLA3	.925	.966	.999	1.20	1.38	1.54	.553	.782	.901	.006	.025	.054	.930	.959	.983
SLA4	.927	.959	.991	1.22	1.37	1.54	.881	.990	1.00	1.00	.005	.026	.929	.952	.977
SLA5	.934	.969	1.00	1.21	1.38	1.59	.610	.764	.931	1.00	.017	.032	.934	.964	.984
SLA6	.921	.956	.990	1.23	1.35	1.58	.881	1.00	1.00	1.00	.000	.020	.922	.952	.975
hum08: N=1300; dr=0.50; msyr=0.04; need=10; Bayes factor= 0.00															
SLA0	.902	.941	.971	.941	.988	1.03	1.00	1.00	1.00	1.00	.000	.000	.901	.934	.962
SLA1	.926	.965	1.01	.962	1.01	1.07	.485	.600	.746	.063	.125	.189	.922	.962	.990
SLA2	.916	.952	1.00	.963	.999	1.04	.716	.835	.931	.025	.067	.122	.914	.946	.983
SLA3	.923	.964	1.00	.975	1.01	1.05	.511	.667	.829	.017	.045	.070	.924	.958	.983
SLA4	.909	.941	.977	.948	.993	1.03	.801	.950	1.00	1.00	.016	.040	.908	.938	.961
SLA5	.919	.961	1.00	.967	1.01	1.06	.528	.666	.841	.007	.031	.055	.913	.958	.989
SLA6	.907	.945	.982	.948	.994	1.03	.832	.989	1.00	1.00	.007	.028	.907	.940	.969
hum09: N=1300; dr=0.80; msyr=0.04; need=10; Bayes factor= 0.00															
SLA0	.890	.937	.980	.924	.961	.991	1.00	1.00	1.00	1.00	.000	.000	.895	.931	.954
SLA1	.923	.965	1.01	.943	.987	1.02	.459	.602	.736	.067	.128	.190	.930	.958	.982
SLA2	.912	.951	.986	.936	.970	1.01	.750	.834	.938	.035	.072	.113	.910	.943	.972
SLA3	.926	.964	1.00	.946	.982	1.02	.479	.645	.797	.021	.043	.071	.924	.958	.985
SLA4	.902	.943	.983	.923	.965	.999	.812	.947	1.00	1.00	.020	.043	.899	.939	.962
SLA5	.921	.960	1.00	.943	.980	1.01	.529	.680	.828	.016	.033	.050	.926	.955	.984
SLA6	.905	.939	.981	.929	.965	1.00	.871	.990	1.00	1.00	.005	.025	.904	.934	.956
hum10: N=1300; dr=0.20; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.775	.919	1.02	2.13	2.45	2.91	1.00	1.00	1.00	1.00	.000	.000	.752	.907	.952
SLA1	.828	.938	1.01	2.12	2.44	2.86	.682	.778	.891	.022	.064	.134	.817	.918	.955
SLA2	.820	.931	1.03	2.15	2.44	2.84	.802	.925	.990	1.00	.035	.074	.818	.912	.954
SLA3	.804	.926	1.03	2.15	2.50	2.98	.693	.832	.950	1.00	.012	.043	.786	.914	.963
SLA4	.788	.920	1.02	2.11	2.40	2.75	.901	.985	1.00	1.00	.000	.026	.758	.912	.953
SLA5	.800	.921	1.05	2.04	2.50	2.86	.693	.832	.941	1.00	.011	.022	.783	.915	.958
SLA6	.741	.918	1.03	2.07	2.43	2.75	.901	1.00	1.00	1.00	.000	.016	.738	.905	.955
hum11: N=1300; dr=0.50; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.770	.876	.986	1.03	1.14	1.35	1.00	1.00	1.00	1.00	.000	.000	.773	.864	.913
SLA1	.827	.934	1.00	1.10	1.23	1.42	.532	.684	.822	.052	.104	.164	.818	.905	.957
SLA2	.794	.888	.997	1.04	1.17	1.29	.758	.884	.960	.015	.056	.102	.766	.869	.938
SLA3	.813	.919	1.01	1.10	1.21	1.34	.550	.727	.858	.013	.038	.066	.785	.896	.951
SLA4	.792	.887	.977	1.05	1.17	1.27	.851	.960	1.00	1.00	.015	.032	.757	.872	.924
SLA5	.824	.919	1.00	1.09	1.20	1.33	.580	.701	.880	.010	.026	.043	.823	.904	.959
SLA6	.786	.876	.977	1.05	1.15	1.33	.888	.990	1.00	1.00	.005	.028	.790	.863	.925
hum12: N=1300; dr=0.80; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.751	.851	.938	.810	.943	1.04	1.00	1.00	1.00	1.00	.000	.000	.721	.837	.896
SLA1	.823	.913	1.01	.919	.997	1.08	.501	.622	.747	.065	.117	.176	.813	.897	.957
SLA2	.766	.876	.957	.838	.963	1.05	.693	.813	.926	.030	.075	.125	.736	.862	.921
SLA3	.807	.905	1.00	.912	.999	1.09	.530	.654	.786	.025	.047	.074	.809	.890	.955
SLA4	.742	.854	.969	.828	.951	1.04	.802	.930	1.00	1.00	.025	.045	.728	.846	.905
SLA5	.822	.914	.987	.911	.997	1.06	.513	.686	.836	.012	.032	.052	.802	.892	.953
SLA6	.760	.856	.959	.868	.955	1.06	.802	.960	1.00	1.00	.010	.032	.750	.843	.908

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
hum13: N=600; dr=0.20; msyr=0.04; need=10; Bayes factor= 0.00															
SLA0	.894	.926	.960	1.54	1.78	2.08	1.00	1.00	1.00	1.00	.000	.000	.894	.919	.953
SLA1	.933	.965	1.00	1.59	1.86	2.14	.350	.475	.614	.075	.122	.189	.930	.962	.989
SLA2	.908	.954	.992	1.54	1.79	2.07	.549	.700	.842	.029	.095	.167	.904	.943	.977
SLA3	.915	.966	1.00	1.62	1.88	2.19	.321	.441	.609	.011	.033	.059	.916	.961	.991
SLA4	.894	.938	.983	1.56	1.79	2.13	.571	.740	.861	.006	.028	.050	.895	.935	.964
SLA5	.924	.965	.999	1.59	1.87	2.21	.341	.440	.561	1.00	.013	.034	.917	.959	.983
SLA6	.897	.935	.973	1.55	1.83	2.10	.592	.733	.870	1.00	.011	.026	.896	.929	.959
hum14: N=600; dr=0.50; msyr=0.04; need=10; Bayes factor= 0.00															
SLA0	.777	.843	.890	.880	.969	1.04	1.00	1.00	1.00	1.00	.000	.000	.777	.840	.876
SLA1	.896	.963	1.01	1.00	1.07	1.16	.241	.320	.439	.074	.137	.200	.911	.960	.999
SLA2	.866	.926	.992	.974	1.04	1.13	.400	.512	.649	.071	.140	.210	.871	.924	.966
SLA3	.923	.961	1.01	.994	1.07	1.17	.250	.319	.379	.016	.042	.069	.917	.959	.999
SLA4	.854	.925	.986	.962	1.03	1.13	.412	.546	.680	.016	.045	.068	.860	.923	.973
SLA5	.915	.957	1.01	1.02	1.08	1.18	.259	.330	.430	1.00	.026	.051	.915	.955	.993
SLA6	.871	.926	.984	.967	1.04	1.14	.431	.569	.730	.013	.032	.049	.864	.924	.966
hum15: N=600; dr=0.80; msyr=0.04; need=10; Bayes factor= 0.00															
SLA0	.740	.829	.877	.788	.884	.944	1.00	1.00	1.00	1.00	.000	.000	.750	.821	.867
SLA1	.889	.951	1.01	.922	1.00	1.07	.240	.302	.379	.063	.152	.231	.891	.955	.993
SLA2	.840	.930	.996	.887	.987	1.03	.399	.511	.627	.086	.133	.213	.851	.930	.974
SLA3	.899	.959	1.02	.945	.999	1.05	.231	.311	.439	.014	.040	.079	.908	.950	.995
SLA4	.848	.933	.985	.908	.980	1.03	.409	.525	.649	.023	.050	.074	.852	.925	.971
SLA5	.909	.960	1.01	.940	1.01	1.05	.241	.330	.409	1.00	.032	.058	.913	.955	.989
SLA6	.872	.932	.981	.907	.974	1.04	.421	.536	.657	.017	.033	.057	.882	.922	.966
hum16: N=600; dr=0.20; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.270	.718	.860	1.12	2.30	2.92	1.00	1.00	1.00	1.00	.000	.000	.261	.672	.829
SLA1	.761	.920	1.08	2.56	3.14	3.60	.375	.495	.624	.059	.118	.205	.756	.884	.952
SLA2	.625	.855	1.03	2.42	2.86	3.53	.525	.683	.792	.031	.096	.161	.622	.824	.898
SLA3	.735	.922	1.07	2.54	3.00	3.50	.343	.503	.620	1.00	.026	.061	.684	.878	.927
SLA4	.622	.874	1.01	2.24	2.89	3.36	.539	.713	.842	.006	.026	.065	.611	.834	.900
SLA5	.815	.930	1.06	2.57	3.10	3.62	.353	.473	.614	1.00	.011	.036	.766	.898	.941
SLA6	.712	.879	1.01	2.39	2.89	3.42	.502	.663	.812	1.00	.017	.045	.687	.830	.894
hum17: N=600; dr=0.50; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.236	.510	.725	.383	.794	1.20	1.00	1.00	1.00	1.00	.000	.000	.239	.490	.735
SLA1	.784	.916	1.00	1.24	1.43	1.63	.270	.371	.458	.079	.139	.216	.774	.897	.972
SLA2	.679	.825	.935	1.07	1.32	1.52	.459	.572	.682	.070	.126	.188	.646	.815	.919
SLA3	.805	.909	1.02	1.23	1.43	1.61	.290	.361	.444	.013	.042	.078	.786	.890	.963
SLA4	.654	.833	.953	1.07	1.30	1.52	.429	.573	.738	.016	.042	.072	.655	.811	.906
SLA5	.769	.910	1.02	1.23	1.43	1.65	.281	.360	.443	1.00	.025	.046	.762	.893	.963
SLA6	.658	.833	.941	1.07	1.33	1.54	.431	.580	.728	.008	.028	.049	.643	.815	.900
hum18: N=600; dr=0.80; msyr=0.02; need=10; Bayes factor= 0.00															
SLA0	.000	.277	.557	.000	.367	.721	1.00	1.00	1.00	1.00	.000	.000	.000	.276	.542
SLA1	.777	.904	1.01	.965	1.09	1.27	.213	.319	.429	.077	.143	.221	.745	.896	.968
SLA2	.647	.827	.929	.842	1.00	1.17	.406	.509	.649	.075	.139	.206	.663	.821	.908
SLA3	.800	.893	1.02	.942	1.10	1.24	.250	.330	.399	.022	.046	.075	.799	.884	.975
SLA4	.639	.807	.931	.776	1.01	1.14	.392	.511	.649	.023	.049	.083	.630	.791	.895
SLA5	.806	.903	.991	.980	1.10	1.21	.259	.329	.410	.014	.032	.056	.794	.900	.955
SLA6	.681	.836	.956	.860	1.02	1.15	.399	.511	.641	.019	.038	.063	.686	.828	.927

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
hum19: N=2500; dr=0.50; msyr=0.04; ϑ=0.60; need=10; Bayes factor= 0.00															
SLA0	.940	.968	.992	.974	1.00	1.02	1.00	1.00	1.00	1.00	.000	.000	.943	.965	.985
SLA1	.935	.970	.999	.976	1.00	1.03	.752	.880	.950	.020	.056	.103	.936	.968	.988
SLA2	.921	.965	.992	.977	.998	1.03	.871	.980	1.00	1.00	.010	.053	.929	.963	.981
SLA3	.934	.965	.996	.971	1.00	1.03	.837	.974	1.00	1.00	.010	.033	.933	.965	.984
SLA4	.937	.966	.993	.973	.999	1.03	.990	1.00	1.00	1.00	.000	.005	.940	.965	.985
SLA5	.924	.968	.995	.969	1.00	1.03	.901	1.00	1.00	1.00	.000	.021	.931	.965	.985
SLA6	.934	.963	.990	.967	.997	1.03	1.00	1.00	1.00	1.00	.000	.000	.934	.962	.980
hum20: N=2500; dr=0.50; msyr=0.04; ϑ=0.40; need=10; Bayes factor= 0.00															
SLA0	.944	.968	.993	.983	1.00	1.03	1.00	1.00	1.00	1.00	.000	.000	.941	.966	.983
SLA1	.949	.974	1.00	.980	1.01	1.03	.772	.871	.960	.020	.054	.097	.947	.970	.987
SLA2	.943	.969	1.00	.972	1.01	1.03	.871	.960	1.00	1.00	.020	.059	.943	.966	.986
SLA3	.953	.971	1.01	.978	1.00	1.03	.858	.970	1.00	1.00	.010	.034	.951	.967	.983
SLA4	.945	.972	.998	.978	1.01	1.03	.980	1.00	1.00	1.00	.000	.010	.946	.969	.982
SLA5	.943	.969	1.00	.975	1.00	1.03	.888	1.00	1.00	1.00	.000	.021	.947	.966	.980
SLA6	.944	.971	.994	.977	1.01	1.04	1.00	1.00	1.00	1.00	.000	.000	.944	.966	.983
hum21: N=1300; dr=0.50; msyr=0.04; ϑ=0.40; need=10; Bayes factor= 0.00															
SLA0	.904	.937	.967	.954	1.00	1.03	1.00	1.00	1.00	1.00	.000	.000	.909	.933	.956
SLA1	.933	.959	1.00	.980	1.02	1.07	.495	.631	.758	.057	.114	.169	.935	.959	.989
SLA2	.913	.949	.982	.970	1.00	1.04	.731	.842	.921	.027	.071	.125	.918	.947	.972
SLA3	.924	.962	.999	.972	1.02	1.07	.461	.656	.837	.015	.041	.069	.927	.958	.990
SLA4	.908	.944	.976	.964	.996	1.05	.832	.950	1.00	1.00	.015	.037	.919	.940	.965
SLA5	.916	.960	.999	.976	1.01	1.05	.540	.675	.868	.014	.028	.052	.923	.956	.989
SLA6	.907	.943	.976	.956	.998	1.03	.849	.999	1.00	1.00	.005	.027	.913	.938	.961
hum22: N=2500; dr=0.50; msyr=0.04; msyl=0.50; need=10; Bayes factor= 0.00															
SLA0	.913	.951	.979	1.00	1.03	1.08	1.00	1.00	1.00	1.00	.000	.000	.914	.947	.971
SLA1	.927	.958	.989	1.00	1.04	1.07	.752	.871	.977	.015	.056	.114	.932	.953	.975
SLA2	.923	.953	.982	.999	1.03	1.07	.891	.980	1.00	1.00	.015	.048	.923	.950	.968
SLA3	.925	.952	.991	1.00	1.03	1.08	.891	.980	1.00	1.00	.010	.037	.924	.947	.968
SLA4	.926	.948	.982	1.00	1.03	1.07	.990	1.00	1.00	1.00	.000	.005	.924	.946	.962
SLA5	.923	.950	.977	1.00	1.04	1.07	.921	1.00	1.00	1.00	.000	.015	.923	.947	.965
SLA6	.920	.949	.985	.999	1.03	1.06	1.00	1.00	1.00	1.00	.000	.000	.925	.947	.965
hum23: N=2500; dr=0.50; msyr=0.04; msyl=0.80; need=10; Bayes factor= 0.00															
SLA0	.972	.993	1.01	.986	1.00	1.01	1.00	1.00	1.00	1.00	.000	.000	.977	.990	1.00
SLA1	.977	.993	1.01	.985	.999	1.01	.772	.878	.970	.015	.051	.110	.978	.990	.999
SLA2	.976	.992	1.01	.985	.998	1.01	.887	.970	1.00	1.00	.015	.048	.977	.990	1.00
SLA3	.975	.990	1.01	.984	.998	1.01	.870	.980	1.00	1.00	.010	.026	.975	.990	1.00
SLA4	.975	.990	1.01	.986	.998	1.01	1.00	1.00	1.00	1.00	.000	.000	.979	.989	.996
SLA5	.976	.991	1.01	.987	.998	1.01	.911	1.00	1.00	1.00	.000	.021	.974	.990	1.00
SLA6	.976	.991	1.01	.985	1.00	1.01	1.00	1.00	1.00	1.00	.000	.000	.976	.990	1.00
hum24: N=1300; dr=0.50; msyr=0.04; msyl=0.80; need=10; Bayes factor= 0.00															
SLA0	.956	.983	1.00	.977	.997	1.02	1.00	1.00	1.00	1.00	.000	.000	.955	.980	1.00
SLA1	.963	.992	1.01	.982	.999	1.02	.472	.622	.717	.072	.124	.172	.968	.990	1.00
SLA2	.961	.983	1.00	.981	.999	1.02	.707	.840	.941	.020	.066	.110	.960	.981	1.00
SLA3	.965	.988	1.01	.983	1.00	1.02	.524	.660	.809	.018	.042	.065	.968	.987	1.00
SLA4	.955	.983	1.01	.979	.998	1.02	.799	.950	1.00	1.00	.015	.041	.958	.980	1.00
SLA5	.970	.990	1.01	.981	.998	1.02	.489	.669	.827	.013	.033	.052	.968	.988	1.00
SLA6	.957	.982	1.00	.982	.998	1.02	.851	.984	1.00	1.00	.005	.023	.959	.981	.994

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
hum25: N=2500; dr=0.50; msyr=0.04; need=20; Bayes factor= 0.00															
SLA0	.896	.936	.961	.939	.971	.996	1.00	1.00	1.00	1.00	.000	.000	.899	.929	.956
SLA1	.921	.967	.993	.968	.998	1.03	.460	.602	.727	.066	.115	.184	.928	.959	.984
SLA2	.911	.949	.985	.949	.984	1.02	.699	.810	.896	.041	.071	.140	.915	.943	.974
SLA3	.931	.963	.996	.961	.995	1.03	.491	.631	.776	.019	.044	.072	.930	.958	.987
SLA4	.908	.937	.974	.937	.973	1.00	.797	.948	1.00	1.00	.018	.041	.907	.932	.957
SLA5	.927	.961	.989	.969	.996	1.03	.504	.667	.844	.016	.033	.048	.925	.955	.980
SLA6	.909	.940	.972	.946	.972	1.00	.802	.966	1.00	1.00	.010	.029	.911	.936	.955
hum26: N=1300; dr=0.50; msyr=0.04; need=20; Bayes factor= 0.00															
SLA0	.792	.850	.892	.838	.911	.954	1.00	1.00	1.00	1.00	.000	.000	.781	.846	.882
SLA1	.909	.969	1.00	.960	1.02	1.06	.251	.333	.434	.083	.144	.203	.913	.961	.992
SLA2	.889	.941	.984	.942	.988	1.03	.393	.536	.673	.076	.132	.186	.887	.935	.976
SLA3	.912	.962	1.01	.967	1.01	1.06	.240	.324	.441	.021	.047	.075	.903	.958	.988
SLA4	.862	.927	.976	.927	.981	1.04	.409	.564	.688	.023	.047	.070	.866	.921	.963
SLA5	.932	.965	1.00	.972	1.01	1.04	.255	.339	.429	.013	.031	.049	.931	.961	.985
SLA6	.875	.933	.978	.938	.982	1.02	.489	.597	.715	.015	.035	.056	.870	.927	.967
hum27: N=2500; dr=0.50; msyr=0.04; need=10; $K_t = \vec{2.0}$; Bayes factor= 0.00															
SLA0	.945	.979	1.00	1.91	1.96	2.00	1.00	1.00	1.00	1.00	.000	.000	.917	.939	.952
SLA1	.951	.982	1.01	1.90	1.96	2.00	.861	.941	1.00	1.00	.020	.048	.913	.939	.951
SLA2	.956	.981	1.02	1.92	1.96	2.00	.921	1.00	1.00	1.00	.000	.030	.918	.939	.955
SLA3	.957	.978	.998	1.91	1.95	2.00	.941	1.00	1.00	1.00	.000	.015	.916	.938	.951
SLA4	.956	.981	1.01	1.91	1.95	2.00	1.00	1.00	1.00	1.00	.000	.000	.914	.939	.952
SLA5	.951	.980	1.01	1.92	1.96	1.99	.970	1.00	1.00	1.00	.000	.010	.919	.939	.955
SLA6	.954	.978	1.01	1.91	1.96	2.01	1.00	1.00	1.00	1.00	.000	.000	.917	.939	.952
hum28: N=2500; dr=0.50; msyr=0.04; need=10; $K_t = \vec{0.5}$; Bayes factor= 0.00															
SLA0	.926	.952	.976	.503	.520	.535	1.00	1.00	1.00	1.00	.000	.000	.992	1.01	1.03
SLA1	.939	.971	1.00	.511	.529	.552	.663	.778	.872	.047	.091	.160	1.00	1.03	1.06
SLA2	.924	.960	.990	.508	.523	.539	.819	.931	.998	.005	.038	.092	.982	1.02	1.05
SLA3	.937	.970	.993	.510	.525	.544	.720	.888	.985	.010	.033	.058	.997	1.03	1.05
SLA4	.926	.957	.987	.506	.522	.538	.910	.999	1.00	1.00	.005	.026	.989	1.02	1.04
SLA5	.930	.961	.989	.506	.521	.542	.825	.949	1.00	1.00	.020	.034	.991	1.02	1.04
SLA6	.928	.953	.979	.506	.518	.537	.967	1.00	1.00	1.00	.000	.015	.985	1.01	1.03
hum29: N=2500; dr=0.50; msyr=0.04; need=10; $K_t = \tilde{1.5}^{40}$; Bayes factor= 0.00															
SLA0	.786	.975	1.10	.703	.725	.814	1.00	1.00	1.00	1.00	.000	.000	1.09	1.11	1.26
SLA1	.796	.978	1.04	.706	.725	.794	.851	.934	.996	.005	.036	.069	1.09	1.11	1.24
SLA2	.793	.975	1.08	.704	.727	.797	.937	1.00	1.00	1.00	.000	.036	1.09	1.11	1.22
SLA3	.803	.978	1.08	.704	.724	.804	.940	.997	1.00	1.00	.005	.024	1.09	1.11	1.23
SLA4	.789	.976	1.05	.704	.724	.771	1.00	1.00	1.00	1.00	.000	.000	1.09	1.11	1.19
SLA5	.803	.973	1.00	.703	.722	.765	.970	1.00	1.00	1.00	.000	.005	1.09	1.11	1.15
SLA6	.808	.973	1.06	.700	.725	.788	1.00	1.00	1.00	1.00	.000	.000	1.09	1.11	1.22
hum30: N=2500; dr=0.50; msyr=0.04; need=10; $K_t = \tilde{0.5}^{40}$; Bayes factor= 0.00															
SLA0	.892	.937	.985	1.13	1.17	1.21	1.00	1.00	1.00	1.00	.000	.000	.779	.819	.846
SLA1	.911	.949	.999	1.14	1.20	1.24	.584	.722	.822	.049	.091	.145	.794	.832	.861
SLA2	.910	.949	1.00	1.13	1.19	1.23	.733	.851	.970	.010	.057	.099	.780	.832	.861
SLA3	.913	.958	1.01	1.14	1.20	1.23	.630	.792	.968	.015	.037	.063	.788	.838	.865
SLA4	.881	.946	.994	1.12	1.18	1.22	.861	.980	1.00	1.00	.007	.033	.779	.825	.852
SLA5	.884	.956	1.01	1.13	1.20	1.24	.729	.840	1.00	1.00	.028	.046	.780	.835	.861
SLA6	.884	.938	1.00	1.12	1.18	1.22	.881	1.00	1.00	1.00	.000	.022	.773	.823	.844

Table 15: Trial performace statistics for West Greenland bowhead whale. 5^{th}, median and 95^{th} percentiles of rescaled final depletion (D9), relative increase (D10), average need satisfaction (N9), mean downstep (N12), and final depletion (D1) for the different SLA candidates (For statistics definitions see IWC, 2003).

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bow01: N=1230; dr=0.10; msyr=0.02; need=5; Bayes factor= 0.05															
SLA0	.945	.975	1.00	2.79	3.21	3.86	1.00	1.00	1.00	1.00	.000	.000	.921	.954	.970
SLA1	.936	.974	1.00	2.85	3.35	3.98	.861	.980	1.00	1.00	.010	.053	.919	.950	.970
SLA2	.934	.975	1.01	2.89	3.32	4.04	.921	1.00	1.00	1.00	.000	.030	.923	.953	.970
SLA3	.942	.973	1.01	2.95	3.35	3.96	.931	1.00	1.00	1.00	.000	.011	.928	.952	.971
SLA4	.936	.974	1.01	2.81	3.31	3.93	1.00	1.00	1.00	1.00	.000	.000	.921	.947	.970
SLA5	.936	.976	1.01	2.85	3.37	4.00	.941	1.00	1.00	1.00	.000	.020	.912	.955	.971
SLA6	.949	.977	1.02	2.74	3.24	4.02	1.00	1.00	1.00	1.00	.000	.000	.929	.957	.972
bow02: N=1230; dr=0.30; msyr=0.02; need=5; Bayes factor= 0.05															
SLA0	.922	.957	.988	1.27	1.41	1.60	1.00	1.00	1.00	1.00	.000	.000	.914	.954	.972
SLA1	.930	.958	.993	1.30	1.43	1.60	.901	.973	1.00	1.00	.010	.053	.929	.954	.977
SLA2	.929	.961	.991	1.28	1.44	1.59	.941	1.00	1.00	1.00	.000	.030	.928	.955	.977
SLA3	.934	.960	.987	1.29	1.43	1.61	.950	1.00	1.00	1.00	.000	.010	.932	.955	.970
SLA4	.926	.958	.997	1.29	1.43	1.61	1.00	1.00	1.00	1.00	.000	.000	.928	.955	.976
SLA5	.930	.956	.984	1.29	1.43	1.59	.960	1.00	1.00	1.00	.000	.010	.927	.951	.974
SLA6	.929	.960	.988	1.30	1.44	1.63	1.00	1.00	1.00	1.00	.000	.000	.927	.953	.974
bow03: N=1230; dr=0.50; msyr=0.02; need=5; Bayes factor= 0.05															
SLA0	.906	.945	.977	1.03	1.11	1.21	1.00	1.00	1.00	1.00	.000	.000	.914	.945	.968
SLA1	.916	.955	.985	1.05	1.12	1.23	.842	.937	1.00	1.00	.030	.067	.921	.951	.972
SLA2	.910	.941	.984	1.03	1.10	1.22	.941	1.00	1.00	1.00	.000	.020	.908	.943	.967
SLA3	.914	.944	.981	1.03	1.11	1.19	.921	1.00	1.00	1.00	.000	.020	.915	.941	.967
SLA4	.907	.945	.970	1.03	1.10	1.19	1.00	1.00	1.00	1.00	.000	.000	.909	.942	.964
SLA5	.910	.946	.989	1.05	1.11	1.20	.941	1.00	1.00	1.00	.000	.010	.914	.945	.973
SLA6	.912	.943	.980	1.05	1.11	1.20	1.00	1.00	1.00	1.00	.000	.000	.915	.944	.974
bow04: N=1230; dr=0.10; msyr=0.01; need=5; Bayes factor= 0.05															
SLA0	.557	.807	1.12	2.16	2.66	2.97	1.00	1.00	1.00	1.00	.000	.000	.309	.433	.537
SLA1	.600	.848	1.14	2.38	2.79	3.19	.743	.866	.960	.010	.055	.108	.360	.450	.538
SLA2	.590	.783	1.03	2.15	2.69	3.10	.822	.941	1.00	1.00	.030	.069	.332	.437	.523
SLA3	.601	.811	1.08	2.26	2.77	3.11	.802	.970	1.00	1.00	.010	.042	.349	.434	.519
SLA4	.542	.805	1.07	2.26	2.68	3.04	.960	1.00	1.00	1.00	.000	.020	.327	.430	.542
SLA5	.594	.799	1.06	2.27	2.66	3.10	.861	.985	1.00	1.00	.000	.022	.341	.426	.526
SLA6	.564	.783	1.05	2.24	2.70	3.12	.980	1.00	1.00	1.00	.000	.010	.316	.422	.526
bow05: N=1230; dr=0.30; msyr=0.01; need=5; Bayes factor= 0.05															
SLA0	.753	.874	1.01	1.40	1.66	1.92	1.00	1.00	1.00	1.00	.000	.000	.652	.762	.835
SLA1	.765	.895	1.06	1.44	1.70	1.88	.861	.941	1.00	1.00	.021	.066	.679	.784	.860
SLA2	.750	.885	1.02	1.43	1.65	1.88	.921	.980	1.00	1.00	.010	.041	.655	.776	.850
SLA3	.776	.891	1.01	1.43	1.68	1.92	.931	1.00	1.00	1.00	.000	.011	.681	.780	.843
SLA4	.765	.868	1.02	1.46	1.70	1.93	.990	1.00	1.00	1.00	.000	.000	.660	.762	.831
SLA5	.731	.869	1.02	1.48	1.66	1.94	.921	1.00	1.00	1.00	.000	.020	.648	.762	.846
SLA6	.740	.883	1.02	1.45	1.65	1.90	1.00	1.00	1.00	1.00	.000	.000	.657	.765	.838
bow06: N=1230; dr=0.50; msyr=0.01; need=5; Bayes factor= 0.05															
SLA0	.772	.870	.992	1.05	1.21	1.47	1.00	1.00	1.00	1.00	.000	.000	.716	.823	.895
SLA1	.774	.899	.997	1.07	1.23	1.38	.851	.934	1.00	1.00	.026	.065	.753	.847	.907
SLA2	.762	.872	.992	1.02	1.21	1.37	.941	1.00	1.00	1.00	.000	.030	.731	.822	.889
SLA3	.771	.881	.977	1.01	1.19	1.37	.921	1.00	1.00	1.00	.000	.021	.729	.825	.890
SLA4	.750	.882	.990	1.06	1.23	1.37	1.00	1.00	1.00	1.00	.000	.000	.728	.827	.901
SLA5	.780	.888	.984	1.08	1.20	1.37	.911	1.00	1.00	1.00	.000	.010	.739	.836	.897
SLA6	.751	.879	.984	1.04	1.23	1.39	1.00	1.00	1.00	1.00	.000	.000	.727	.825	.896

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bow07: N=570; dr=0.10; msyr=0.02; need=5; Bayes factor= 0.01															
SLA0	.867	.930	.976	2.64	3.19	4.07	1.00	1.00	1.00	1.00	.000	.000	.849	.910	.940
SLA1	.888	.939	.985	2.75	3.29	3.94	.762	.842	.931	.010	.033	.082	.874	.918	.949
SLA2	.894	.939	.982	2.57	3.21	3.99	.842	.941	1.00	1.00	.021	.065	.885	.916	.943
SLA3	.893	.943	.988	2.80	3.25	3.77	.733	.866	.970	1.00	.011	.031	.879	.922	.951
SLA4	.892	.935	.985	2.71	3.22	3.90	.891	.980	1.00	1.00	.000	.021	.871	.913	.945
SLA5	.885	.943	.988	2.71	3.32	4.00	.693	.861	.941	1.00	.011	.023	.880	.922	.948
SLA6	.877	.936	.982	2.71	3.27	4.09	.891	.985	1.00	1.00	.000	.021	.863	.917	.943
bow08: N=570; dr=0.30; msyr=0.02; need=5; Bayes factor= 0.01															
SLA0	.821	.889	.940	1.19	1.34	1.55	1.00	1.00	1.00	1.00	.000	.000	.816	.888	.924
SLA1	.866	.922	.970	1.21	1.42	1.57	.604	.725	.820	.043	.086	.140	.874	.919	.955
SLA2	.843	.895	.944	1.16	1.36	1.60	.822	.908	.980	1.00	.032	.080	.840	.892	.930
SLA3	.866	.920	.967	1.22	1.42	1.58	.560	.727	.859	.011	.026	.057	.866	.919	.953
SLA4	.829	.893	.942	1.14	1.36	1.58	.871	.970	1.00	1.00	.000	.021	.837	.890	.921
SLA5	.859	.919	.963	1.22	1.40	1.65	.570	.740	.921	1.00	.015	.040	.872	.916	.949
SLA6	.841	.894	.946	1.18	1.36	1.60	.861	.980	1.00	1.00	.000	.011	.834	.891	.924
bow09: N=570; dr=0.50; msyr=0.02; need=5; Bayes factor= 0.01															
SLA0	.785	.843	.887	.890	1.01	1.17	1.00	1.00	1.00	1.00	.000	.000	.788	.847	.893
SLA1	.861	.911	.959	1.01	1.09	1.18	.509	.631	.747	.057	.106	.167	.874	.916	.958
SLA2	.810	.872	.921	.953	1.04	1.13	.752	.867	.960	.020	.053	.096	.816	.878	.922
SLA3	.853	.902	.964	.996	1.08	1.20	.471	.630	.758	.013	.034	.057	.860	.910	.958
SLA4	.780	.850	.913	.893	1.03	1.14	.832	.950	1.00	1.00	.010	.035	.787	.857	.908
SLA5	.855	.907	.968	.970	1.09	1.17	.471	.650	.782	1.00	.023	.049	.863	.911	.957
SLA6	.793	.855	.892	.902	1.03	1.13	.822	.970	1.00	1.00	.010	.023	.780	.857	.896
bow10: N=570; dr=0.10; msyr=0.01; need=5; Bayes factor= 0.01															
SLA0	.271	.507	.699	1.07	1.72	2.17	1.00	1.00	1.00	1.00	.000	.000	.147	.271	.389
SLA1	.460	.681	.927	1.81	2.35	2.89	.513	.643	.772	.047	.113	.190	.279	.373	.471
SLA2	.386	.609	.894	1.56	2.14	2.60	.648	.781	.911	.033	.091	.153	.216	.336	.425
SLA3	.449	.693	.979	1.79	2.29	2.91	.501	.693	.822	1.00	.036	.063	.263	.371	.520
SLA4	.337	.581	.796	1.45	1.92	2.44	.683	.861	.990	1.00	.026	.060	.201	.315	.406
SLA5	.443	.664	.982	1.73	2.35	2.83	.453	.663	.822	1.00	.026	.061	.244	.369	.497
SLA6	.337	.538	.830	1.29	2.00	2.54	.741	.901	1.00	1.00	.021	.045	.188	.309	.404
bow11: N=570; dr=0.30; msyr=0.01; need=5; Bayes factor= 0.01															
SLA0	.405	.612	.769	.818	1.19	1.45	1.00	1.00	1.00	1.00	.000	.000	.350	.537	.666
SLA1	.599	.777	.961	1.26	1.50	1.83	.511	.677	.792	.042	.089	.152	.550	.688	.812
SLA2	.546	.702	.888	1.13	1.39	1.64	.713	.842	.950	.020	.063	.118	.495	.635	.745
SLA3	.562	.751	.927	1.13	1.48	1.73	.560	.687	.822	1.00	.031	.065	.524	.670	.779
SLA4	.478	.638	.806	.901	1.27	1.54	.810	.931	1.00	1.00	.016	.044	.430	.581	.699
SLA5	.619	.779	.955	1.20	1.48	1.77	.501	.681	.790	1.00	.023	.056	.548	.695	.794
SLA6	.494	.643	.808	.955	1.25	1.51	.792	.941	1.00	1.00	.010	.035	.451	.566	.680
bow12: N=570; dr=0.50; msyr=0.01; need=5; Bayes factor= 0.01															
SLA0	.409	.570	.706	.584	.824	1.04	1.00	1.00	1.00	1.00	.000	.000	.400	.554	.659
SLA1	.688	.783	.906	.963	1.13	1.35	.479	.625	.729	.054	.104	.146	.670	.754	.871
SLA2	.506	.676	.814	.756	.956	1.13	.707	.826	.911	.021	.068	.129	.498	.665	.755
SLA3	.639	.784	.893	.924	1.11	1.28	.481	.634	.762	.013	.039	.067	.614	.758	.846
SLA4	.500	.650	.805	.730	.934	1.20	.729	.897	.990	1.00	.022	.045	.487	.636	.761
SLA5	.641	.765	.903	.908	1.09	1.32	.489	.649	.810	1.00	.028	.054	.630	.751	.855
SLA6	.497	.628	.785	.703	.920	1.16	.772	.921	1.00	1.00	.011	.034	.505	.609	.740

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bow13: N=495; dr=0.10; msyr=0.02; need=5; Bayes factor= 0.01															
SLA0	.856	.914	.969	2.66	3.21	3.77	1.00	1.00	1.00	1.00	.000	.000	.840	.896	.928
SLA1	.881	.940	.990	2.64	3.27	3.87	.673	.802	.891	.011	.047	.092	.857	.915	.944
SLA2	.871	.921	.979	2.79	3.25	3.82	.812	.921	.980	1.00	.022	.056	.848	.900	.936
SLA3	.885	.941	.982	2.68	3.35	3.86	.693	.812	.901	1.00	.011	.034	.867	.913	.941
SLA4	.855	.930	.979	2.54	3.22	3.86	.842	.960	1.00	1.00	.010	.030	.846	.905	.938
SLA5	.891	.938	.990	2.63	3.25	3.95	.653	.792	.911	1.00	.011	.025	.875	.916	.941
SLA6	.858	.922	.971	2.67	3.24	3.91	.822	.970	1.00	1.00	.000	.023	.837	.900	.933
bow14: N=495; dr=0.30; msyr=0.02; need=5; Bayes factor= 0.01															
SLA0	.801	.855	.903	1.13	1.31	1.54	1.00	1.00	1.00	1.00	.000	.000	.799	.859	.890
SLA1	.866	.914	.959	1.21	1.42	1.63	.535	.655	.802	.048	.098	.153	.869	.916	.957
SLA2	.821	.883	.938	1.17	1.38	1.67	.747	.870	.950	.010	.053	.110	.834	.883	.924
SLA3	.848	.915	.957	1.22	1.37	1.57	.531	.661	.840	1.00	.029	.057	.861	.915	.957
SLA4	.802	.867	.914	1.15	1.34	1.55	.822	.941	1.00	1.00	.010	.034	.810	.870	.909
SLA5	.841	.910	.958	1.22	1.38	1.59	.483	.630	.800	1.00	.015	.048	.848	.910	.951
SLA6	.795	.860	.914	1.15	1.31	1.53	.782	.954	1.00	1.00	.010	.024	.806	.866	.909
bow15: N=495; dr=0.50; msyr=0.02; need=5; Bayes factor= 0.01															
SLA0	.729	.810	.858	.849	.976	1.09	1.00	1.00	1.00	1.00	.000	.000	.739	.812	.858
SLA1	.830	.905	.948	.972	1.08	1.17	.438	.565	.669	.033	.103	.159	.843	.911	.959
SLA2	.743	.861	.915	.874	1.04	1.11	.693	.810	.901	.031	.067	.127	.769	.864	.917
SLA3	.847	.898	.958	.991	1.08	1.18	.444	.571	.689	.012	.034	.063	.848	.909	.960
SLA4	.775	.842	.905	.918	1.02	1.12	.713	.879	.970	.010	.024	.047	.791	.850	.901
SLA5	.846	.905	.961	1.00	1.08	1.19	.420	.540	.689	1.00	.021	.052	.855	.910	.963
SLA6	.751	.838	.893	.870	.998	1.11	.711	.871	.988	1.00	.020	.035	.761	.842	.900
bow16: N=495; dr=0.10; msyr=0.01; need=5; Bayes factor= 0.01															
SLA0	.183	.418	.638	.688	1.43	1.97	1.00	1.00	1.00	1.00	.000	.000	.096	.226	.313
SLA1	.460	.687	.988	1.74	2.37	2.96	.453	.604	.733	.043	.125	.197	.248	.387	.495
SLA2	.372	.581	.825	1.43	2.03	2.52	.574	.744	.830	.034	.110	.167	.222	.307	.417
SLA3	.429	.670	.949	1.77	2.26	2.84	.444	.634	.782	.012	.039	.075	.262	.360	.478
SLA4	.303	.520	.806	1.16	1.81	2.37	.653	.822	.950	1.00	.034	.065	.172	.292	.412
SLA5	.403	.643	.970	1.72	2.32	2.79	.392	.607	.772	1.00	.025	.058	.245	.360	.462
SLA6	.314	.539	.807	1.20	1.91	2.42	.673	.847	.960	1.00	.022	.052	.181	.308	.405
bow17: N=495; dr=0.30; msyr=0.01; need=5; Bayes factor= 0.01															
SLA0	.307	.483	.702	.618	.942	1.40	1.00	1.00	1.00	1.00	.000	.000	.273	.432	.642
SLA1	.594	.757	.881	1.20	1.50	1.85	.469	.596	.697	.052	.113	.196	.559	.670	.787
SLA2	.491	.664	.848	1.05	1.32	1.64	.640	.766	.881	.032	.091	.140	.452	.598	.688
SLA3	.561	.746	.885	1.16	1.47	1.83	.455	.593	.741	1.00	.032	.071	.498	.677	.788
SLA4	.444	.617	.784	.814	1.22	1.57	.741	.854	.960	.010	.025	.056	.379	.560	.679
SLA5	.586	.769	.939	1.17	1.51	1.76	.451	.599	.772	1.00	.019	.054	.538	.699	.799
SLA6	.420	.623	.782	.823	1.19	1.61	.701	.881	.990	1.00	.018	.036	.388	.551	.685
bow18: N=495; dr=0.50; msyr=0.01; need=5; Bayes factor= 0.01															
SLA0	.238	.454	.629	.296	.654	.877	1.00	1.00	1.00	1.00	.000	.000	.207	.444	.608
SLA1	.621	.766	.912	.887	1.10	1.40	.434	.539	.657	.056	.119	.175	.625	.757	.857
SLA2	.529	.659	.794	.734	.921	1.13	.644	.757	.851	.045	.090	.137	.515	.641	.757
SLA3	.624	.753	.872	.879	1.10	1.30	.440	.560	.689	1.00	.040	.072	.615	.734	.846
SLA4	.452	.635	.735	.645	.888	1.09	.657	.806	.937	.011	.034	.065	.459	.609	.735
SLA5	.664	.765	.891	.901	1.10	1.27	.442	.550	.679	1.00	.020	.061	.624	.747	.848
SLA6	.457	.603	.764	.607	.860	1.10	.677	.826	.960	1.00	.023	.045	.445	.602	.724

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bow19: N=1230; dr=0.30; msyr=0.02; ϑ=0.60; need=5; Bayes factor= 0.05															
SLA0	.919	.962	.995	1.30	1.42	1.63	1.00	1.00	1.00	1.00	.000	.000	.923	.951	.970
SLA1	.920	.959	1.00	1.31	1.43	1.61	.861	.960	1.00	1.00	.020	.054	.920	.954	.969
SLA2	.929	.963	.996	1.25	1.44	1.61	.960	1.00	1.00	1.00	.000	.020	.924	.954	.974
SLA3	.925	.963	.997	1.28	1.44	1.62	.921	1.00	1.00	1.00	.000	.010	.926	.952	.971
SLA4	.916	.958	.992	1.31	1.44	1.64	1.00	1.00	1.00	1.00	.000	.000	.919	.949	.972
SLA5	.925	.958	1.00	1.28	1.44	1.67	.941	1.00	1.00	1.00	.000	.010	.918	.953	.977
SLA6	.917	.958	.999	1.29	1.45	1.62	1.00	1.00	1.00	1.00	.000	.000	.917	.950	.970
bow20: N=1230; dr=0.30; msyr=0.02; ϑ=0.40; need=5; Bayes factor= 0.05															
SLA0	.932	.967	.983	1.26	1.43	1.57	1.00	1.00	1.00	1.00	.000	.000	.936	.959	.973
SLA1	.925	.962	.994	1.28	1.43	1.57	.891	.970	1.00	1.00	.010	.053	.933	.955	.977
SLA2	.935	.961	.992	1.24	1.43	1.56	.960	1.00	1.00	1.00	.000	.020	.934	.956	.975
SLA3	.937	.963	.997	1.27	1.44	1.61	.960	1.00	1.00	1.00	.000	.010	.937	.958	.975
SLA4	.931	.960	.995	1.30	1.43	1.60	1.00	1.00	1.00	1.00	.000	.000	.934	.957	.978
SLA5	.932	.960	.988	1.27	1.42	1.56	.950	1.00	1.00	1.00	.000	.010	.929	.955	.972
SLA6	.929	.963	.997	1.27	1.43	1.60	1.00	1.00	1.00	1.00	.000	.000	.934	.960	.980
bow21: N=570; dr=0.30; msyr=0.02; ϑ=0.40; need=5; Bayes factor= 0.01															
SLA0	.833	.895	.934	1.16	1.35	1.52	1.00	1.00	1.00	1.00	.000	.000	.827	.892	.919
SLA1	.876	.925	.962	1.25	1.37	1.57	.572	.717	.842	.028	.080	.125	.885	.923	.953
SLA2	.851	.905	.948	1.18	1.37	1.61	.802	.911	.980	1.00	.032	.080	.859	.899	.938
SLA3	.869	.922	.970	1.25	1.39	1.59	.580	.746	.889	1.00	.027	.049	.870	.919	.946
SLA4	.836	.890	.932	1.18	1.33	1.55	.871	.970	1.00	1.00	.010	.021	.836	.887	.919
SLA5	.863	.925	.970	1.22	1.39	1.60	.570	.736	.881	1.00	.016	.045	.864	.924	.953
SLA6	.843	.893	.932	1.18	1.35	1.53	.881	.980	1.00	1.00	.000	.020	.848	.892	.923
bow22: N=1230; dr=0.30; msyr=0.02; msyl=0.50; need=5; Bayes factor= 0.05															
SLA0	.885	.925	.975	1.35	1.45	1.57	1.00	1.00	1.00	1.00	.000	.000	.871	.915	.936
SLA1	.887	.930	.965	1.35	1.45	1.63	.881	.960	1.00	1.00	.010	.043	.876	.918	.944
SLA2	.881	.927	.958	1.35	1.45	1.59	.960	1.00	1.00	1.00	.000	.020	.869	.916	.938
SLA3	.886	.923	.962	1.33	1.45	1.56	.941	1.00	1.00	1.00	.000	.010	.869	.911	.938
SLA4	.881	.926	.968	1.35	1.46	1.58	.990	1.00	1.00	1.00	.000	.000	.874	.913	.941
SLA5	.889	.927	.962	1.35	1.46	1.58	.941	1.00	1.00	1.00	.000	.010	.873	.913	.937
SLA6	.894	.927	.968	1.33	1.46	1.58	1.00	1.00	1.00	1.00	.000	.000	.880	.916	.943
bow23: N=1230; dr=0.30; msyr=0.02; msyl=0.80; need=5; Bayes factor= 0.05															
SLA0	.975	.992	1.01	1.27	1.53	1.81	1.00	1.00	1.00	1.00	.000	.000	.974	.990	.999
SLA1	.976	.991	1.01	1.20	1.55	1.88	.921	.980	1.00	1.00	.010	.031	.974	.988	.999
SLA2	.974	.991	1.01	1.30	1.54	1.92	.980	1.00	1.00	1.00	.000	.010	.974	.989	.998
SLA3	.969	.991	1.01	1.25	1.49	1.91	.980	1.00	1.00	1.00	.000	.010	.971	.989	1.00
SLA4	.974	.990	1.01	1.22	1.52	1.81	1.00	1.00	1.00	1.00	.000	.000	.976	.988	.999
SLA5	.972	.990	1.01	1.25	1.49	1.76	.941	1.00	1.00	1.00	.000	.010	.976	.988	1.00
SLA6	.975	.992	1.01	1.29	1.50	1.84	1.00	1.00	1.00	1.00	.000	.000	.977	.989	1.00
bow24: N=570; dr=0.30; msyr=0.02; msyl=0.80; need=5; Bayes factor= 0.01															
SLA0	.941	.974	1.00	1.26	1.49	1.84	1.00	1.00	1.00	1.00	.000	.000	.940	.973	.989
SLA1	.954	.981	1.01	1.27	1.50	1.90	.570	.752	.855	.025	.068	.122	.957	.977	1.00
SLA2	.953	.976	1.00	1.20	1.55	1.91	.851	.941	.990	1.00	.020	.066	.947	.973	.990
SLA3	.957	.976	1.01	1.22	1.55	1.82	.624	.791	.921	1.00	.024	.055	.954	.975	.995
SLA4	.949	.975	.997	1.25	1.57	1.96	.901	.990	1.00	1.00	.000	.020	.946	.973	.988
SLA5	.949	.980	1.01	1.26	1.56	1.87	.610	.787	.950	1.00	.012	.038	.948	.978	.995
SLA6	.942	.971	.998	1.23	1.53	1.92	.901	.990	1.00	1.00	.000	.011	.943	.971	.990

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bow25: N=1230; dr=0.30; msyr=0.02; need=10; Bayes factor= 0.05															
SLA0	.848	.897	.932	1.13	1.34	1.53	1.00	1.00	1.00	1.00	.000	.000	.853	.896	.918
SLA1	.888	.927	.961	1.24	1.39	1.59	.634	.750	.852	.039	.074	.133	.888	.923	.948
SLA2	.868	.905	.941	1.21	1.36	1.54	.822	.938	.995	1.00	.026	.069	.868	.902	.930
SLA3	.884	.920	.955	1.23	1.38	1.53	.639	.787	.931	.005	.023	.040	.879	.917	.939
SLA4	.871	.905	.941	1.18	1.33	1.51	.911	.989	1.00	1.00	.000	.015	.863	.899	.923
SLA5	.885	.923	.953	1.25	1.37	1.59	.618	.790	.915	1.00	.014	.037	.886	.917	.947
SLA6	.842	.898	.928	1.20	1.36	1.52	.890	.988	1.00	1.00	.000	.015	.838	.896	.919
bow26: N=570; dr=0.30; msyr=0.02; need=10; Bayes factor= 0.01															
SLA0	.343	.559	.683	.524	.852	1.11	1.00	1.00	1.00	1.00	.000	.000	.346	.561	.679
SLA1	.847	.906	.951	1.24	1.37	1.56	.300	.395	.500	.061	.118	.197	.855	.905	.944
SLA2	.760	.836	.916	1.12	1.30	1.48	.498	.614	.726	.050	.104	.155	.764	.836	.902
SLA3	.848	.918	.964	1.24	1.40	1.61	.280	.367	.460	.010	.031	.056	.864	.919	.956
SLA4	.746	.837	.894	1.06	1.27	1.48	.487	.599	.728	.013	.033	.059	.753	.838	.899
SLA5	.855	.910	.961	1.23	1.38	1.55	.286	.366	.447	1.00	.023	.045	.846	.913	.947
SLA6	.743	.827	.897	1.09	1.25	1.46	.487	.616	.769	1.00	.020	.045	.723	.826	.888
bow27: N=1230; dr=0.30; msyr=0.02; need=5; $K_t = 2.0$; Bayes factor= 0.05															
SLA0	.921	.958	1.00	2.36	2.60	2.95	1.00	1.00	1.00	1.00	.000	.000	.840	.865	.885
SLA1	.922	.961	.994	2.32	2.63	3.05	.911	.980	1.00	1.00	.010	.041	.836	.867	.889
SLA2	.924	.960	.997	2.35	2.60	2.93	.960	1.00	1.00	1.00	.000	.020	.833	.867	.886
SLA3	.922	.962	1.00	2.36	2.58	2.90	.950	1.00	1.00	1.00	.000	.010	.837	.870	.890
SLA4	.921	.961	.997	2.40	2.62	2.94	1.00	1.00	1.00	1.00	.000	.000	.838	.868	.885
SLA5	.924	.960	.989	2.35	2.62	2.98	.950	1.00	1.00	1.00	.000	.010	.837	.869	.887
SLA6	.927	.964	1.00	2.38	2.63	3.00	1.00	1.00	1.00	1.00	.000	.000	.845	.871	.895
bow28: N=1230; dr=0.30; msyr=0.02; need=5; $K_t = 0.5$; Bayes factor= 0.05															
SLA0	.895	.947	.981	.691	.785	.896	1.00	1.00	1.00	1.00	.000	.000	1.02	1.05	1.07
SLA1	.901	.955	.998	.714	.786	.903	.822	.934	1.00	1.00	.031	.080	1.03	1.06	1.09
SLA2	.897	.952	.973	.687	.787	.877	.921	1.00	1.00	1.00	.000	.041	1.03	1.05	1.07
SLA3	.899	.953	.984	.710	.793	.886	.907	.990	1.00	1.00	.000	.021	1.03	1.05	1.08
SLA4	.904	.950	.981	.698	.781	.914	1.00	1.00	1.00	1.00	.000	.000	1.02	1.05	1.08
SLA5	.910	.949	.979	.705	.777	.898	.917	1.00	1.00	1.00	.000	.010	1.02	1.05	1.07
SLA6	.901	.948	.978	.687	.776	.888	1.00	1.00	1.00	1.00	.000	.000	1.03	1.05	1.07
bow29: N=1230; dr=0.30; msyr=0.02; need=5; $K_t = 1.5$[40]; Bayes factor= 0.05															
SLA0	.720	.969	1.16	1.02	1.16	1.38	1.00	1.00	1.00	1.00	.000	.000	1.16	1.20	1.47
SLA1	.734	.970	1.18	.999	1.16	1.38	.929	.988	1.00	1.00	.000	.031	1.16	1.19	1.45
SLA2	.770	.981	1.17	1.05	1.17	1.42	.980	1.00	1.00	1.00	.000	.010	1.17	1.20	1.50
SLA3	.784	.976	1.13	1.00	1.17	1.40	.950	1.00	1.00	1.00	.000	.010	1.16	1.21	1.47
SLA4	.787	.981	1.13	1.03	1.15	1.39	1.00	1.00	1.00	1.00	.000	.000	1.16	1.20	1.45
SLA5	.757	.975	1.17	1.01	1.17	1.38	.941	1.00	1.00	1.00	.000	.010	1.16	1.20	1.48
SLA6	.771	.969	1.19	1.02	1.17	1.36	1.00	1.00	1.00	1.00	.000	.000	1.16	1.20	1.48
bow30: N=1230; dr=0.30; msyr=0.02; need=5; $K_t = 0.5$[40]; Bayes factor= 0.05															
SLA0	.794	.881	.954	1.17	1.38	1.52	1.00	1.00	1.00	1.00	.000	.000	.603	.651	.686
SLA1	.832	.908	.985	1.23	1.39	1.54	.782	.881	.960	.010	.044	.098	.611	.664	.699
SLA2	.836	.891	.960	1.20	1.37	1.51	.861	.960	1.00	1.00	.020	.054	.621	.657	.687
SLA3	.830	.895	.963	1.21	1.37	1.56	.822	.960	1.00	1.00	.010	.035	.611	.659	.685
SLA4	.822	.891	.957	1.19	1.34	1.55	.980	1.00	1.00	1.00	.000	.010	.606	.653	.685
SLA5	.833	.891	.960	1.21	1.35	1.54	.832	.980	1.00	1.00	.010	.033	.613	.653	.690
SLA6	.829	.890	.949	1.19	1.36	1.50	1.00	1.00	1.00	1.00	.000	.000	.617	.650	.680

Table 16: Trial performace statistics for Eastern Arctic bowhead whale. 5^{th}, median and 95^{th} percentiles of rescaled final depletion (D9), relative increase (D10), average need satisfaction (N9), mean downstep (N12), and final depletion (D1) for the different SLA candidates (For statistics definitions see IWC, 2003).

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bowt01: N=14000; dr=0.10; msyr=0.02; need=25; Bayes factor= 0.06															
SLA0	.968	.990	1.01	2.92	3.32	3.99	1.00	1.00	1.00	1.00	.000	.000	.954	.975	.983
SLA1	.968	.991	1.01	2.80	3.29	3.75	.921	1.00	1.00	1.00	.000	.036	.955	.976	.982
SLA2	.973	.992	1.01	2.66	3.25	3.89	.960	1.00	1.00	1.00	.000	.020	.957	.977	.983
SLA3	.967	.991	1.01	2.84	3.30	3.74	.998	1.00	1.00	1.00	.000	.000	.955	.975	.984
SLA4	.966	.989	1.01	2.83	3.32	3.84	1.00	1.00	1.00	1.00	.000	.000	.954	.975	.982
SLA5	.968	.990	1.01	2.90	3.29	3.84	1.00	1.00	1.00	1.00	.000	.000	.951	.975	.982
SLA6	.967	.990	1.01	2.78	3.28	3.81	1.00	1.00	1.00	1.00	.000	.000	.953	.976	.982
bowt02: N=14000; dr=0.30; msyr=0.02; need=25; Bayes factor= 0.06															
SLA0	.971	.984	.995	1.33	1.45	1.57	1.00	1.00	1.00	1.00	.000	.000	.970	.981	.984
SLA1	.971	.984	.995	1.31	1.43	1.58	.925	1.00	1.00	1.00	.000	.039	.970	.981	.984
SLA2	.970	.983	.996	1.33	1.45	1.61	.945	1.00	1.00	1.00	.000	.028	.965	.981	.984
SLA3	.973	.984	.996	1.34	1.43	1.58	.992	1.00	1.00	1.00	.000	.000	.971	.981	.984
SLA4	.972	.983	.995	1.32	1.46	1.58	1.00	1.00	1.00	1.00	.000	.000	.970	.981	.983
SLA5	.973	.984	.995	1.31	1.42	1.59	.998	1.00	1.00	1.00	.000	.000	.972	.981	.983
SLA6	.971	.984	.997	1.29	1.43	1.57	1.00	1.00	1.00	1.00	.000	.000	.970	.981	.984
bowt03: N=14000; dr=0.50; msyr=0.02; need=25; Bayes factor= 0.06															
SLA0	.968	.978	.989	1.08	1.14	1.21	1.00	1.00	1.00	1.00	.000	.000	.964	.977	.980
SLA1	.966	.978	.989	1.08	1.13	1.21	.909	1.00	1.00	1.00	.000	.043	.966	.977	.980
SLA2	.967	.978	.988	1.08	1.13	1.19	.960	1.00	1.00	1.00	.000	.018	.965	.977	.980
SLA3	.968	.979	.988	1.08	1.14	1.21	.994	1.00	1.00	1.00	.000	.000	.966	.977	.980
SLA4	.968	.978	.986	1.08	1.14	1.22	1.00	1.00	1.00	1.00	.000	.000	.966	.976	.980
SLA5	.969	.978	.988	1.08	1.13	1.21	1.00	1.00	1.00	1.00	.000	.000	.967	.977	.980
SLA6	.970	.978	.988	1.08	1.13	1.23	1.00	1.00	1.00	1.00	.000	.000	.968	.977	.980
bowt04: N=14000; dr=0.10; msyr=0.01; need=25; Bayes factor= 0.06															
SLA0	.702	.907	1.12	2.74	3.12	3.35	1.00	1.00	1.00	1.00	.000	.000	.411	.502	.592
SLA1	.665	.930	1.17	2.80	3.15	3.35	.889	.966	1.00	1.00	.017	.048	.417	.516	.606
SLA2	.722	.914	1.17	2.77	3.10	3.36	.949	1.00	1.00	1.00	.000	.026	.411	.517	.596
SLA3	.703	.902	1.19	2.74	3.13	3.35	.996	1.00	1.00	1.00	.000	.000	.423	.511	.585
SLA4	.690	.935	1.10	2.68	3.13	3.33	1.00	1.00	1.00	1.00	.000	.000	.393	.509	.591
SLA5	.672	.920	1.16	2.74	3.13	3.35	.998	1.00	1.00	1.00	.000	.000	.412	.515	.591
SLA6	.678	.920	1.14	2.72	3.09	3.36	1.00	1.00	1.00	1.00	.000	.000	.416	.504	.583
bowt05: N=14000; dr=0.30; msyr=0.01; need=25; Bayes factor= 0.06															
SLA0	.856	.942	1.02	1.68	1.86	2.05	1.00	1.00	1.00	1.00	.000	.000	.784	.850	.892
SLA1	.842	.952	1.05	1.65	1.85	2.03	.917	.977	1.00	1.00	.012	.042	.780	.855	.894
SLA2	.862	.946	1.05	1.63	1.85	2.06	.952	1.00	1.00	1.00	.000	.024	.790	.851	.896
SLA3	.877	.950	1.06	1.59	1.85	2.03	1.00	1.00	1.00	1.00	.000	.000	.785	.855	.901
SLA4	.863	.942	1.03	1.61	1.83	2.00	1.00	1.00	1.00	1.00	.000	.000	.771	.857	.899
SLA5	.860	.946	1.04	1.63	1.85	2.09	1.00	1.00	1.00	1.00	.000	.000	.781	.847	.896
SLA6	.843	.960	1.03	1.63	1.82	2.05	1.00	1.00	1.00	1.00	.000	.000	.784	.857	.898
bowt06: N=14000; dr=0.50; msyr=0.01; need=25; Bayes factor= 0.06															
SLA0	.885	.944	.988	1.20	1.32	1.45	1.00	1.00	1.00	1.00	.000	.000	.868	.915	.933
SLA1	.903	.950	1.00	1.17	1.30	1.41	.921	.990	1.00	1.00	.004	.039	.872	.922	.939
SLA2	.890	.946	.991	1.19	1.33	1.44	.941	1.00	1.00	1.00	.000	.028	.869	.917	.936
SLA3	.883	.947	.990	1.17	1.31	1.42	.980	1.00	1.00	1.00	.000	.000	.859	.914	.935
SLA4	.890	.948	.989	1.20	1.32	1.41	1.00	1.00	1.00	1.00	.000	.000	.872	.919	.936
SLA5	.891	.947	.990	1.18	1.30	1.45	.986	1.00	1.00	1.00	.000	.000	.860	.917	.934
SLA6	.887	.947	.991	1.18	1.31	1.44	1.00	1.00	1.00	1.00	.000	.000	.864	.915	.937

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bowt07: N=4800; dr=0.10; msyr=0.02; need=25; Bayes factor= 0.01															
SLA0	.937	.968	.994	2.78	3.26	3.82	1.00	1.00	1.00	1.00	.000	.000	.925	.952	.961
SLA1	.948	.971	.992	2.72	3.20	3.82	.810	.917	.988	1.00	.030	.076	.929	.958	.966
SLA2	.941	.971	.995	2.80	3.23	3.69	.848	.972	1.00	1.00	.008	.050	.927	.955	.964
SLA3	.943	.971	.992	2.83	3.23	3.76	.846	.959	.998	1.00	.003	.023	.930	.956	.963
SLA4	.947	.970	.991	2.80	3.19	3.75	.945	1.00	1.00	1.00	.000	.012	.931	.954	.964
SLA5	.946	.972	.995	2.79	3.26	3.76	.798	.960	1.00	1.00	.004	.019	.929	.956	.965
SLA6	.940	.968	.989	2.80	3.29	3.85	.949	1.00	1.00	1.00	.000	.012	.924	.952	.962
bowt08: N=4800; dr=0.30; msyr=0.02; need=25; Bayes factor= 0.01															
SLA0	.931	.946	.955	1.28	1.38	1.56	1.00	1.00	1.00	1.00	.000	.000	.927	.943	.950
SLA1	.941	.953	.967	1.26	1.39	1.56	.719	.841	.938	.018	.057	.107	.939	.950	.960
SLA2	.937	.950	.959	1.31	1.42	1.61	.860	.950	1.00	1.00	.020	.075	.935	.946	.955
SLA3	.934	.949	.959	1.25	1.38	1.57	.811	.929	.987	1.00	.013	.036	.929	.946	.954
SLA4	.929	.947	.957	1.26	1.40	1.56	.949	1.00	1.00	1.00	.000	.014	.926	.943	.951
SLA5	.935	.949	.958	1.28	1.39	1.52	.764	.949	1.00	1.00	.008	.028	.934	.946	.952
SLA6	.930	.947	.956	1.28	1.39	1.53	.949	1.00	1.00	1.00	.000	.012	.927	.943	.949
bowt09: N=4800; dr=0.50; msyr=0.02; need=25; Bayes factor= 0.01															
SLA0	.911	.927	.938	1.03	1.08	1.15	1.00	1.00	1.00	1.00	.000	.000	.909	.925	.934
SLA1	.924	.945	.958	1.04	1.10	1.16	.651	.780	.885	.034	.084	.141	.924	.944	.957
SLA2	.914	.933	.945	1.04	1.09	1.17	.830	.925	.993	1.00	.037	.077	.915	.931	.945
SLA3	.916	.935	.952	1.03	1.08	1.17	.713	.853	.960	.002	.023	.050	.913	.933	.952
SLA4	.910	.927	.938	1.02	1.08	1.17	.910	.994	1.00	1.00	.000	.019	.909	.926	.934
SLA5	.917	.933	.949	1.03	1.09	1.16	.679	.899	.988	1.00	.012	.037	.917	.932	.949
SLA6	.911	.926	.940	1.03	1.08	1.13	.917	.996	1.00	1.00	.000	.014	.911	.925	.936
bowt10: N=4800; dr=0.10; msyr=0.01; need=25; Bayes factor= 0.01															
SLA0	.551	.733	.928	2.14	2.49	2.76	1.00	1.00	1.00	1.00	.000	.000	.324	.405	.478
SLA1	.565	.810	.993	2.44	2.74	3.02	.642	.793	.915	.020	.075	.153	.344	.437	.526
SLA2	.547	.801	1.01	2.28	2.69	2.85	.764	.879	.976	.004	.050	.112	.332	.447	.511
SLA3	.568	.789	1.02	2.23	2.63	2.91	.685	.865	.972	.002	.021	.053	.321	.438	.523
SLA4	.554	.761	1.02	2.22	2.54	2.76	.850	.976	1.00	1.00	.008	.031	.329	.413	.514
SLA5	.609	.788	1.04	2.29	2.63	2.97	.667	.907	1.00	1.00	.011	.032	.344	.444	.524
SLA6	.578	.741	1.03	2.15	2.57	2.77	.857	.996	1.00	1.00	.000	.022	.334	.413	.498
bowt11: N=4800; dr=0.30; msyr=0.01; need=25; Bayes factor= 0.01															
SLA0	.718	.809	.888	1.45	1.58	1.80	1.00	1.00	1.00	1.00	.000	.000	.649	.734	.780
SLA1	.757	.850	.941	1.44	1.66	1.88	.699	.811	.925	.016	.063	.134	.681	.772	.832
SLA2	.728	.831	.940	1.42	1.62	1.87	.768	.901	1.00	1.00	.039	.104	.669	.750	.809
SLA3	.755	.842	.934	1.48	1.63	1.82	.697	.890	.972	1.00	.016	.051	.684	.761	.813
SLA4	.709	.824	.904	1.44	1.60	1.75	.901	.992	1.00	1.00	.000	.025	.646	.741	.784
SLA5	.752	.849	.930	1.45	1.62	1.78	.719	.890	.992	1.00	.010	.030	.677	.760	.815
SLA6	.722	.818	.911	1.38	1.58	1.77	.915	.992	1.00	1.00	.000	.018	.657	.731	.794
bowt12: N=4800; dr=0.50; msyr=0.01; need=25; Bayes factor= 0.01															
SLA0	.759	.827	.865	1.02	1.12	1.28	1.00	1.00	1.00	1.00	.000	.000	.734	.795	.826
SLA1	.806	.869	.912	1.10	1.22	1.34	.647	.767	.877	.035	.085	.141	.780	.839	.870
SLA2	.779	.847	.886	1.04	1.16	1.27	.774	.909	.988	.002	.042	.090	.743	.814	.845
SLA3	.787	.845	.895	1.06	1.18	1.31	.723	.854	.964	.002	.025	.049	.745	.815	.857
SLA4	.754	.824	.868	1.00	1.15	1.26	.865	.980	1.00	1.00	.002	.020	.722	.797	.823
SLA5	.790	.847	.899	1.06	1.17	1.32	.725	.862	.978	1.00	.014	.034	.762	.816	.858
SLA6	.730	.828	.872	1.04	1.15	1.25	.911	.995	1.00	1.00	.000	.012	.713	.798	.828

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bowt13: N=1500; dr=0.10; msyr=0.02; need=25; Bayes factor= 0.00															
SLA0	.756	.838	.867	2.45	2.83	3.15	1.00	1.00	1.00	1.00	.000	.000	.747	.820	.848
SLA1	.886	.926	.956	2.71	3.14	3.70	.467	.584	.702	.029	.097	.166	.868	.910	.935
SLA2	.863	.900	.934	2.59	3.02	3.44	.602	.741	.859	.019	.062	.137	.850	.885	.910
SLA3	.877	.924	.949	2.72	3.20	3.62	.426	.597	.749	.003	.024	.060	.862	.906	.931
SLA4	.840	.891	.923	2.67	3.05	3.56	.596	.784	.883	1.00	.014	.050	.821	.874	.904
SLA5	.879	.926	.957	2.64	3.17	3.66	.392	.539	.727	.003	.013	.033	.868	.910	.937
SLA6	.849	.899	.925	2.63	3.06	3.58	.582	.749	.895	1.00	.010	.028	.838	.881	.906
bowt14: N=1500; dr=0.30; msyr=0.02; need=25; Bayes factor= 0.00															
SLA0	.597	.684	.728	.864	1.04	1.18	1.00	1.00	1.00	1.00	.000	.000	.595	.681	.727
SLA1	.882	.928	.956	1.24	1.37	1.53	.285	.368	.503	.077	.144	.225	.875	.925	.954
SLA2	.823	.872	.917	1.17	1.31	1.50	.414	.574	.693	.067	.121	.197	.819	.868	.914
SLA3	.877	.922	.949	1.25	1.38	1.56	.296	.376	.543	.013	.039	.074	.868	.920	.942
SLA4	.770	.858	.915	1.13	1.27	1.42	.459	.586	.746	.014	.040	.072	.769	.857	.911
SLA5	.891	.929	.950	1.24	1.37	1.54	.289	.359	.439	.005	.024	.054	.890	.926	.947
SLA6	.788	.866	.904	1.12	1.28	1.44	.409	.582	.734	.004	.022	.044	.785	.860	.903
bowt15: N=1500; dr=0.50; msyr=0.02; need=25; Bayes factor= 0.00															
SLA0	.361	.501	.580	.439	.598	.724	1.00	1.00	1.00	1.00	.000	.000	.361	.500	.580
SLA1	.875	.929	.957	1.02	1.08	1.14	.233	.308	.417	.072	.140	.230	.875	.927	.951
SLA2	.789	.873	.929	.934	1.02	1.09	.340	.489	.604	.072	.145	.208	.788	.872	.928
SLA3	.867	.923	.962	1.03	1.08	1.14	.222	.302	.425	.013	.047	.080	.865	.922	.959
SLA4	.796	.863	.923	.924	1.02	1.10	.384	.490	.643	.020	.045	.075	.792	.860	.920
SLA5	.886	.925	.951	1.02	1.09	1.16	.232	.307	.433	.008	.028	.062	.886	.924	.949
SLA6	.776	.863	.903	.899	1.01	1.08	.362	.484	.638	.009	.029	.063	.775	.861	.902
bowt16: N=1500; dr=0.10; msyr=0.01; need=25; Bayes factor= 0.00															
SLA0	.000	.032	.115	.000	.113	.347	1.00	1.00	1.00	1.00	.000	.000	.000	.018	.059
SLA1	.475	.673	.928	1.93	2.34	2.84	.264	.394	.501	.085	.165	.284	.294	.368	.474
SLA2	.373	.521	.756	1.33	1.86	2.34	.392	.537	.648	.079	.153	.250	.203	.307	.403
SLA3	.468	.707	.904	1.80	2.43	2.74	.254	.371	.535	.010	.045	.089	.261	.393	.476
SLA4	.317	.525	.740	1.13	1.76	2.39	.389	.554	.693	.015	.055	.093	.184	.285	.393
SLA5	.435	.698	.922	1.69	2.39	2.91	.235	.363	.562	.006	.026	.059	.252	.392	.486
SLA6	.326	.499	.802	1.14	1.86	2.52	.367	.558	.728	.003	.032	.065	.180	.288	.414
bowt17: N=1500; dr=0.30; msyr=0.01; need=25; Bayes factor= 0.00															
SLA0	.000	.000	.028	.000	.000	.052	1.00	1.00	1.00	1.00	.000	.000	.000	.000	.025
SLA1	.627	.782	.885	1.26	1.54	1.75	.255	.355	.471	.059	.151	.234	.573	.697	.789
SLA2	.501	.647	.769	1.01	1.31	1.50	.377	.490	.603	.093	.151	.236	.453	.578	.697
SLA3	.662	.786	.913	1.31	1.54	1.73	.231	.338	.472	.012	.045	.078	.594	.706	.801
SLA4	.469	.625	.753	.926	1.24	1.48	.405	.520	.651	.021	.054	.090	.428	.566	.661
SLA5	.660	.790	.912	1.29	1.56	1.77	.229	.337	.447	.006	.028	.058	.596	.711	.798
SLA6	.449	.633	.782	.809	1.22	1.55	.324	.511	.673	.008	.031	.071	.407	.576	.710
bowt18: N=1500; dr=0.50; msyr=0.01; need=25; Bayes factor= 0.00															
SLA0	1.00	.000	.000	1.00	.000	.000	1.00	1.00	1.00	1.00	.000	.000	1.00	.000	.000
SLA1	.730	.818	.905	1.00	1.14	1.31	.207	.315	.389	.079	.153	.249	.703	.781	.853
SLA2	.545	.692	.783	.758	.968	1.13	.360	.445	.552	.098	.153	.217	.529	.666	.749
SLA3	.691	.807	.902	.963	1.14	1.31	.216	.302	.433	.021	.046	.080	.658	.779	.858
SLA4	.488	.683	.806	.673	.965	1.18	.346	.435	.583	.027	.051	.092	.467	.664	.760
SLA5	.705	.814	.896	.979	1.16	1.29	.225	.302	.408	.006	.027	.056	.669	.784	.850
SLA6	.490	.682	.807	.704	.964	1.15	.328	.444	.585	.010	.034	.064	.448	.659	.778

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bowt19: N=14000; dr=0.30; msyr=0.02; ϑ=0.60; need=25; Bayes factor= 0.06															
SLA0	.966	.983	.996	1.33	1.46	1.62	1.00	1.00	1.00	1.00	.000	.000	.964	.980	.984
SLA1	.968	.983	.994	1.34	1.46	1.62	.937	1.00	1.00	1.00	.000	.032	.965	.980	.984
SLA2	.970	.983	.995	1.32	1.44	1.65	.945	1.00	1.00	1.00	.000	.028	.967	.980	.984
SLA3	.970	.983	.995	1.32	1.43	1.57	1.00	1.00	1.00	1.00	.000	.000	.965	.980	.983
SLA4	.971	.983	.995	1.30	1.43	1.57	1.00	1.00	1.00	1.00	.000	.000	.968	.981	.984
SLA5	.970	.983	.997	1.30	1.44	1.63	1.00	1.00	1.00	1.00	.000	.000	.969	.980	.983
SLA6	.972	.983	.996	1.30	1.47	1.63	1.00	1.00	1.00	1.00	.000	.000	.968	.981	.983
bowt20: N=14000; dr=0.30; msyr=0.02; ϑ=0.40; need=25; Bayes factor= 0.06															
SLA0	.975	.984	.988	1.32	1.43	1.57	1.00	1.00	1.00	1.00	.000	.000	.973	.982	.984
SLA1	.973	.983	.989	1.31	1.44	1.58	.925	1.00	1.00	1.00	.000	.039	.972	.981	.984
SLA2	.976	.984	.990	1.32	1.44	1.54	.945	1.00	1.00	1.00	.000	.026	.974	.982	.984
SLA3	.976	.983	.988	1.31	1.43	1.59	.996	1.00	1.00	1.00	.000	.000	.974	.981	.984
SLA4	.974	.983	.988	1.33	1.45	1.59	1.00	1.00	1.00	1.00	.000	.000	.973	.981	.984
SLA5	.977	.983	.988	1.32	1.45	1.63	1.00	1.00	1.00	1.00	.000	.000	.973	.981	.984
SLA6	.974	.984	.988	1.31	1.42	1.52	1.00	1.00	1.00	1.00	.000	.000	.972	.982	.984
bowt21: N=4800; dr=0.30; msyr=0.02; ϑ=0.40; need=25; Bayes factor= 0.01															
SLA0	.935	.948	.956	1.26	1.40	1.53	1.00	1.00	1.00	1.00	.000	.000	.931	.945	.951
SLA1	.941	.954	.967	1.28	1.40	1.51	.686	.845	.931	.014	.064	.118	.939	.952	.962
SLA2	.939	.950	.958	1.27	1.40	1.54	.842	.950	1.00	1.00	.022	.069	.936	.947	.955
SLA3	.937	.950	.962	1.29	1.38	1.53	.790	.927	.990	1.00	.014	.037	.934	.947	.957
SLA4	.935	.947	.955	1.26	1.38	1.51	.952	1.00	1.00	1.00	.000	.014	.930	.945	.951
SLA5	.938	.949	.959	1.27	1.40	1.53	.776	.944	1.00	1.00	.006	.024	.935	.946	.954
SLA6	.937	.948	.957	1.26	1.40	1.55	.958	1.00	1.00	1.00	.000	.008	.934	.945	.951
bowt22: N=14000; dr=0.30; msyr=0.02; msyl=0.50; need=25; Bayes factor= 0.06															
SLA0	.952	.972	.989	1.40	1.50	1.61	1.00	1.00	1.00	1.00	.000	.000	.942	.959	.966
SLA1	.958	.970	.989	1.42	1.50	1.60	.937	1.00	1.00	1.00	.000	.032	.944	.959	.967
SLA2	.957	.971	.990	1.41	1.50	1.61	.960	1.00	1.00	1.00	.000	.020	.943	.959	.967
SLA3	.953	.971	.988	1.42	1.50	1.57	.994	1.00	1.00	1.00	.000	.000	.941	.959	.968
SLA4	.950	.972	.989	1.41	1.50	1.60	1.00	1.00	1.00	1.00	.000	.000	.942	.959	.966
SLA5	.949	.970	.990	1.42	1.51	1.60	.992	1.00	1.00	1.00	.000	.000	.940	.958	.966
SLA6	.950	.971	.987	1.42	1.51	1.60	1.00	1.00	1.00	1.00	.000	.000	.942	.958	.967
bowt23: N=14000; dr=0.30; msyr=0.02; msyl=0.80; need=25; Bayes factor= 0.06															
SLA0	.992	.996	.999	1.26	1.48	1.78	1.00	1.00	1.00	1.00	.000	.000	.991	.995	.996
SLA1	.993	.996	.999	1.26	1.48	1.84	.937	1.00	1.00	1.00	.000	.028	.992	.995	.997
SLA2	.992	.996	.999	1.27	1.55	1.75	.972	1.00	1.00	1.00	.000	.014	.991	.995	.996
SLA3	.992	.996	.999	1.28	1.50	1.75	1.00	1.00	1.00	1.00	.000	.000	.992	.995	.996
SLA4	.991	.996	.998	1.33	1.52	1.74	1.00	1.00	1.00	1.00	.000	.000	.991	.995	.996
SLA5	.992	.996	.999	1.26	1.47	1.79	.994	1.00	1.00	1.00	.000	.000	.991	.995	.996
SLA6	.992	.995	.999	1.31	1.50	1.82	1.00	1.00	1.00	1.00	.000	.000	.991	.995	.996
bowt24: N=4800; dr=0.30; msyr=0.02; msyl=0.80; need=25; Bayes factor= 0.01															
SLA0	.982	.987	.991	1.27	1.48	1.71	1.00	1.00	1.00	1.00	.000	.000	.982	.986	.989
SLA1	.983	.988	.993	1.28	1.50	1.80	.737	.878	.970	.004	.042	.099	.983	.988	.992
SLA2	.983	.987	.991	1.30	1.50	1.78	.865	.960	1.00	1.00	.018	.057	.981	.986	.989
SLA3	.980	.987	.991	1.25	1.51	1.83	.792	.950	1.00	1.00	.006	.025	.979	.986	.989
SLA4	.979	.987	.991	1.27	1.49	1.77	.960	1.00	1.00	1.00	.000	.008	.979	.986	.989
SLA5	.980	.987	.992	1.24	1.48	1.86	.850	.962	1.00	1.00	.002	.020	.980	.986	.990
SLA6	.978	.986	.991	1.28	1.50	1.80	.947	1.00	1.00	1.00	.000	.008	.978	.986	.989

SLA	D9: Re. Final D			D10: Rel. Incr			N9: Need satfn			N12: Down step			D1: Final D		
	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%	5%	Med	95%
bowt25: N=14000; dr=0.30; msyr=0.02; need=50; Bayes factor= 0.06															
SLA0	.953	.965	.973	1.29	1.40	1.56	1.00	1.00	1.00	1.00	.000	.000	.948	.962	.967
SLA1	.957	.967	.978	1.33	1.44	1.58	.857	.946	.998	1.00	.022	.066	.953	.964	.971
SLA2	.951	.965	.975	1.29	1.42	1.56	.903	.990	1.00	1.00	.004	.042	.949	.962	.968
SLA3	.951	.965	.974	1.30	1.42	1.57	.924	.990	1.00	1.00	.000	.013	.951	.962	.967
SLA4	.948	.965	.974	1.28	1.40	1.55	.980	1.00	1.00	1.00	.000	.005	.944	.963	.967
SLA5	.952	.965	.974	1.28	1.42	1.54	.917	.995	1.00	1.00	.000	.012	.948	.962	.967
SLA6	.952	.965	.972	1.31	1.42	1.54	.987	1.00	1.00	1.00	.000	.000	.950	.962	.966
bowt26: N=4800; dr=0.30; msyr=0.02; need=50; Bayes factor= 0.01															
SLA0	.841	.868	.883	1.16	1.28	1.46	1.00	1.00	1.00	1.00	.000	.000	.838	.864	.881
SLA1	.900	.932	.954	1.23	1.37	1.53	.464	.572	.679	.058	.126	.178	.896	.927	.951
SLA2	.873	.901	.928	1.21	1.32	1.49	.656	.757	.879	.036	.081	.143	.871	.897	.924
SLA3	.886	.928	.954	1.24	1.37	1.53	.435	.601	.754	.018	.040	.075	.883	.923	.950
SLA4	.860	.883	.914	1.16	1.32	1.47	.687	.859	.949	1.00	.021	.048	.856	.880	.904
SLA5	.888	.928	.958	1.25	1.36	1.51	.416	.572	.724	.003	.021	.048	.882	.926	.949
SLA6	.854	.885	.912	1.19	1.30	1.47	.673	.868	.977	1.00	.014	.038	.848	.882	.907
bowt27: N=14000; dr=0.30; msyr=0.02; need=25; $K_t = \vec{2.0}$; Bayes factor= 0.06															
SLA0	.961	.984	1.00	2.45	2.64	2.89	1.00	1.00	1.00	1.00	.000	.000	.875	.895	.903
SLA1	.964	.984	1.01	2.41	2.64	2.89	.960	1.00	1.00	1.00	.000	.018	.878	.895	.901
SLA2	.958	.984	1.00	2.43	2.63	2.86	.984	1.00	1.00	1.00	.000	.006	.874	.895	.903
SLA3	.960	.985	1.00	2.40	2.62	2.90	1.00	1.00	1.00	1.00	.000	.000	.876	.896	.901
SLA4	.962	.982	1.01	2.44	2.64	3.06	1.00	1.00	1.00	1.00	.000	.000	.875	.894	.901
SLA5	.959	.983	1.00	2.43	2.64	2.94	.996	1.00	1.00	1.00	.000	.000	.874	.895	.901
SLA6	.961	.983	1.00	2.44	2.66	2.95	1.00	1.00	1.00	1.00	.000	.000	.875	.895	.902
bowt28: N=14000; dr=0.30; msyr=0.02; need=25; $K_t = \vec{0.5}$; Bayes factor= 0.06															
SLA0	.920	.980	.992	.725	.794	.891	1.00	1.00	1.00	1.00	.000	.000	1.08	1.08	1.09
SLA1	.921	.983	.993	.724	.788	.865	.893	.972	1.00	1.00	.015	.053	1.08	1.08	1.09
SLA2	.925	.981	.990	.725	.785	.864	.917	1.00	1.00	1.00	.000	.037	1.08	1.08	1.09
SLA3	.920	.982	.989	.727	.784	.862	.992	1.00	1.00	1.00	.000	.004	1.08	1.08	1.09
SLA4	.924	.980	.988	.698	.779	.870	1.00	1.00	1.00	1.00	.000	.000	1.08	1.08	1.09
SLA5	.917	.982	.991	.714	.798	.886	.994	1.00	1.00	1.00	.000	.000	1.08	1.08	1.09
SLA6	.920	.981	.989	.719	.797	.873	1.00	1.00	1.00	1.00	.000	.000	1.08	1.08	1.09
bowt29: N=14000; dr=0.30; msyr=0.02; need=25; $K_t = \tilde{1.5}^{40}$; Bayes factor= 0.06															
SLA0	.761	.982	1.28	1.03	1.17	1.48	1.00	1.00	1.00	1.00	.000	.000	1.19	1.21	1.58
SLA1	.754	.991	1.23	1.04	1.17	1.42	.949	1.00	1.00	1.00	.000	.026	1.19	1.23	1.55
SLA2	.806	.983	1.21	1.03	1.17	1.47	.996	1.00	1.00	1.00	.000	.000	1.18	1.22	1.60
SLA3	.777	.988	1.32	1.00	1.18	1.52	1.00	1.00	1.00	1.00	.000	.000	1.19	1.23	1.61
SLA4	.742	.994	1.27	1.04	1.19	1.48	1.00	1.00	1.00	1.00	.000	.000	1.18	1.23	1.58
SLA5	.730	.992	1.23	1.03	1.18	1.46	1.00	1.00	1.00	1.00	.000	.000	1.19	1.22	1.59
SLA6	.789	.993	1.33	1.03	1.18	1.53	1.00	1.00	1.00	1.00	.000	.000	1.18	1.21	1.64
bowt30: N=14000; dr=0.30; msyr=0.02; need=25; $K_t = \tilde{0.5}^{40}$; Bayes factor= 0.06															
SLA0	.923	.951	.985	1.31	1.43	1.60	1.00	1.00	1.00	1.00	.000	.000	.683	.704	.721
SLA1	.915	.952	.990	1.31	1.43	1.58	.850	.974	1.00	1.00	.012	.084	.683	.704	.723
SLA2	.915	.954	.989	1.32	1.43	1.59	.909	1.00	1.00	1.00	.000	.039	.680	.706	.724
SLA3	.914	.956	.992	1.31	1.44	1.58	.972	1.00	1.00	1.00	.000	.010	.683	.704	.721
SLA4	.913	.951	.983	1.31	1.44	1.59	1.00	1.00	1.00	1.00	.000	.000	.678	.703	.724
SLA5	.915	.952	.989	1.30	1.42	1.57	.996	1.00	1.00	1.00	.000	.000	.681	.704	.717
SLA6	.916	.955	.982	1.31	1.44	1.56	1.00	1.00	1.00	1.00	.000	.000	.682	.704	.720

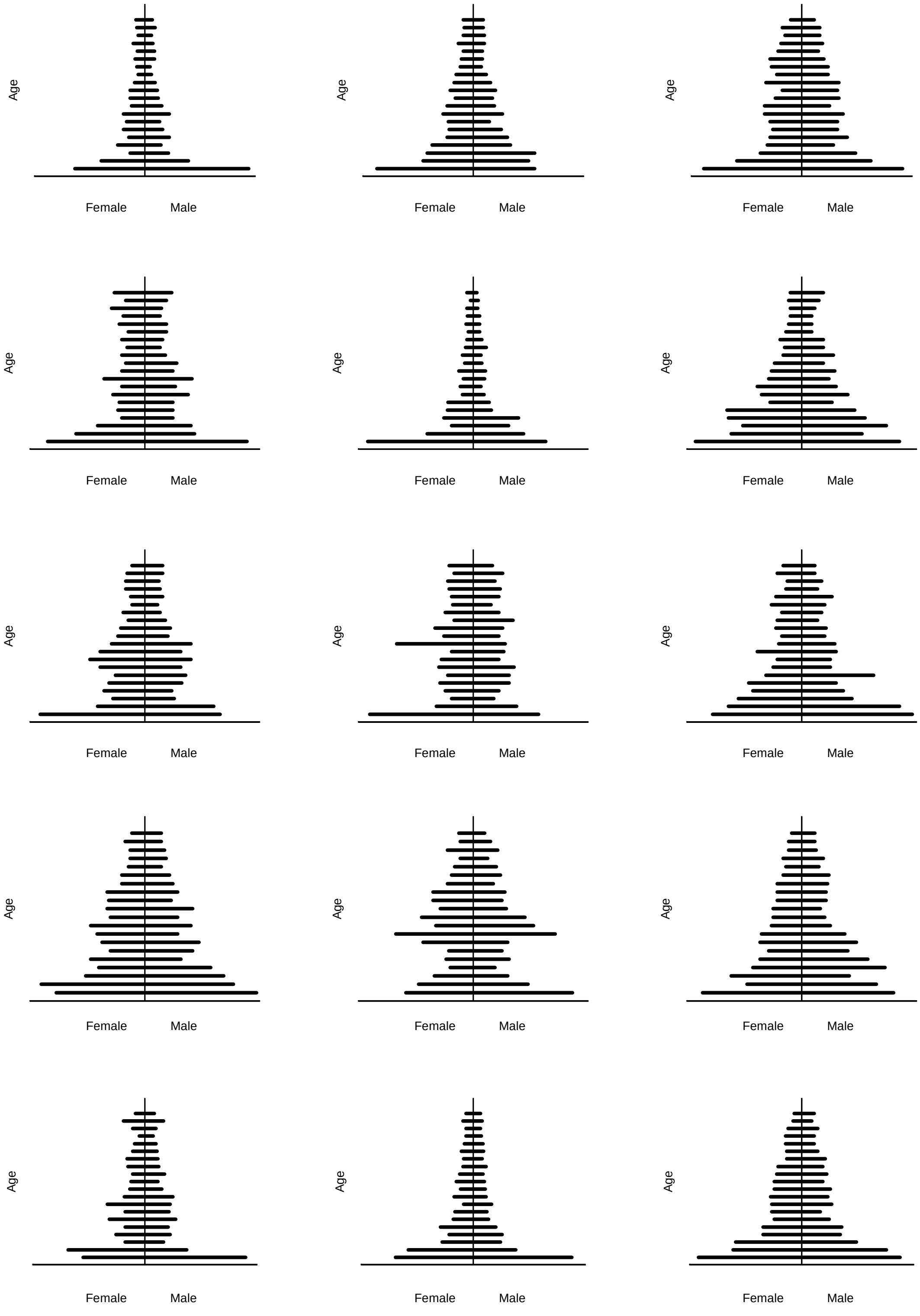

Figure 1: A sample of 15 initial age distributions for trial one for fin whales, excluding the lumped age-class $x = 20$.

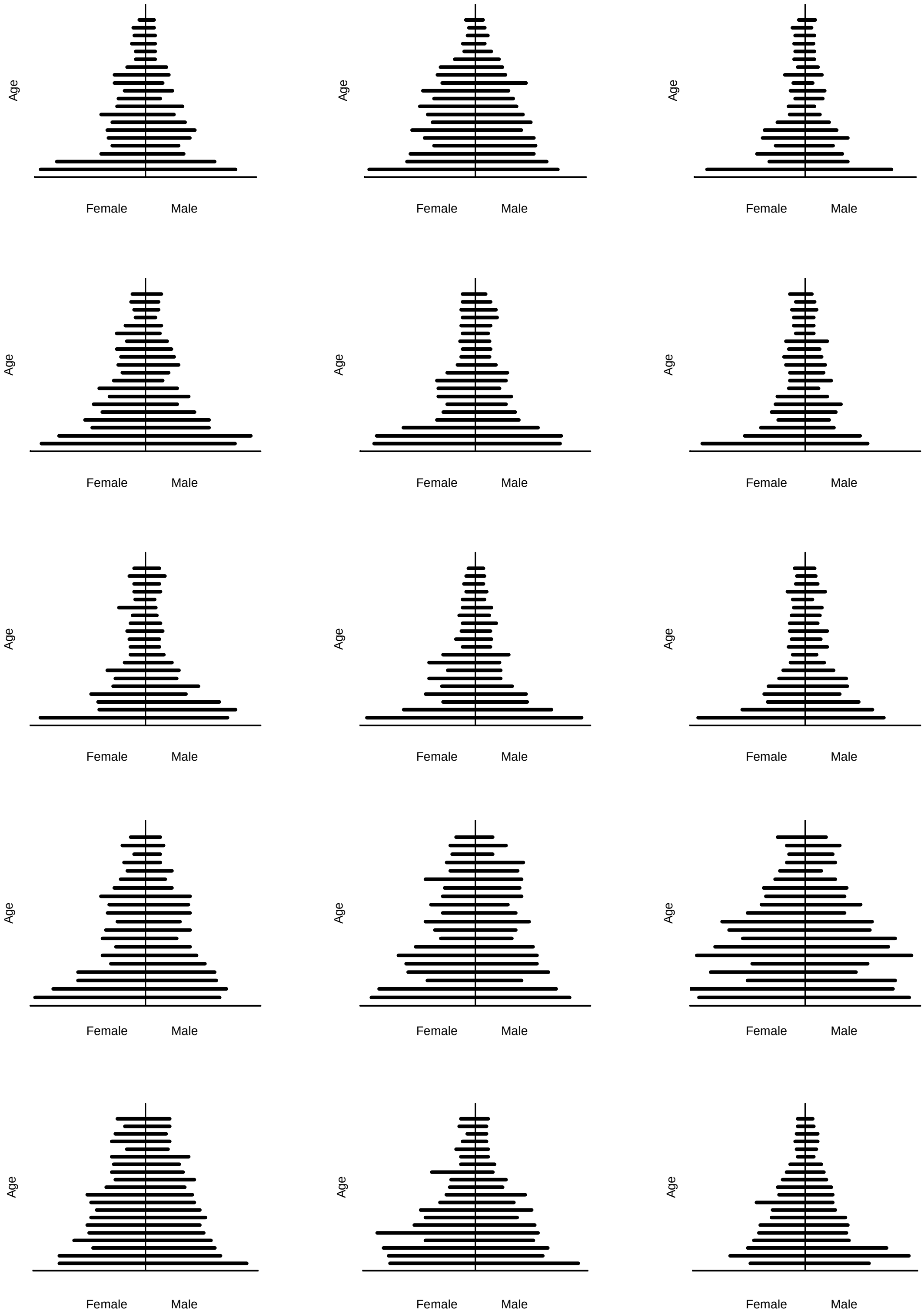

Figure 2: A sample of 15 initial age distributions for trial one for humpback whales, excluding the lumped age-class $x = 20$.

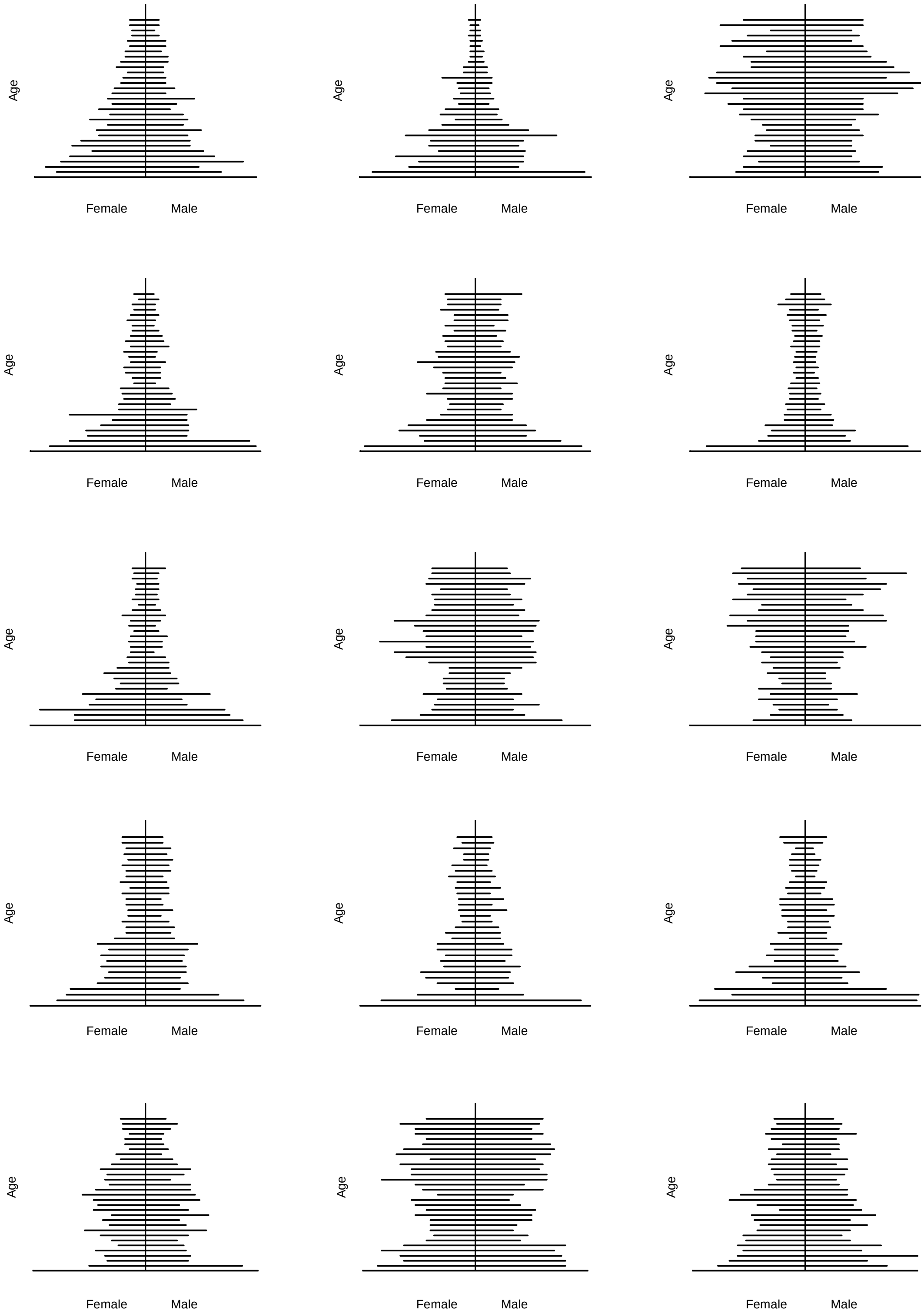

Figure 3: A sample of 15 initial age distributions for trial one for bowhead whales, excluding the lumped age-class $x = 30$.

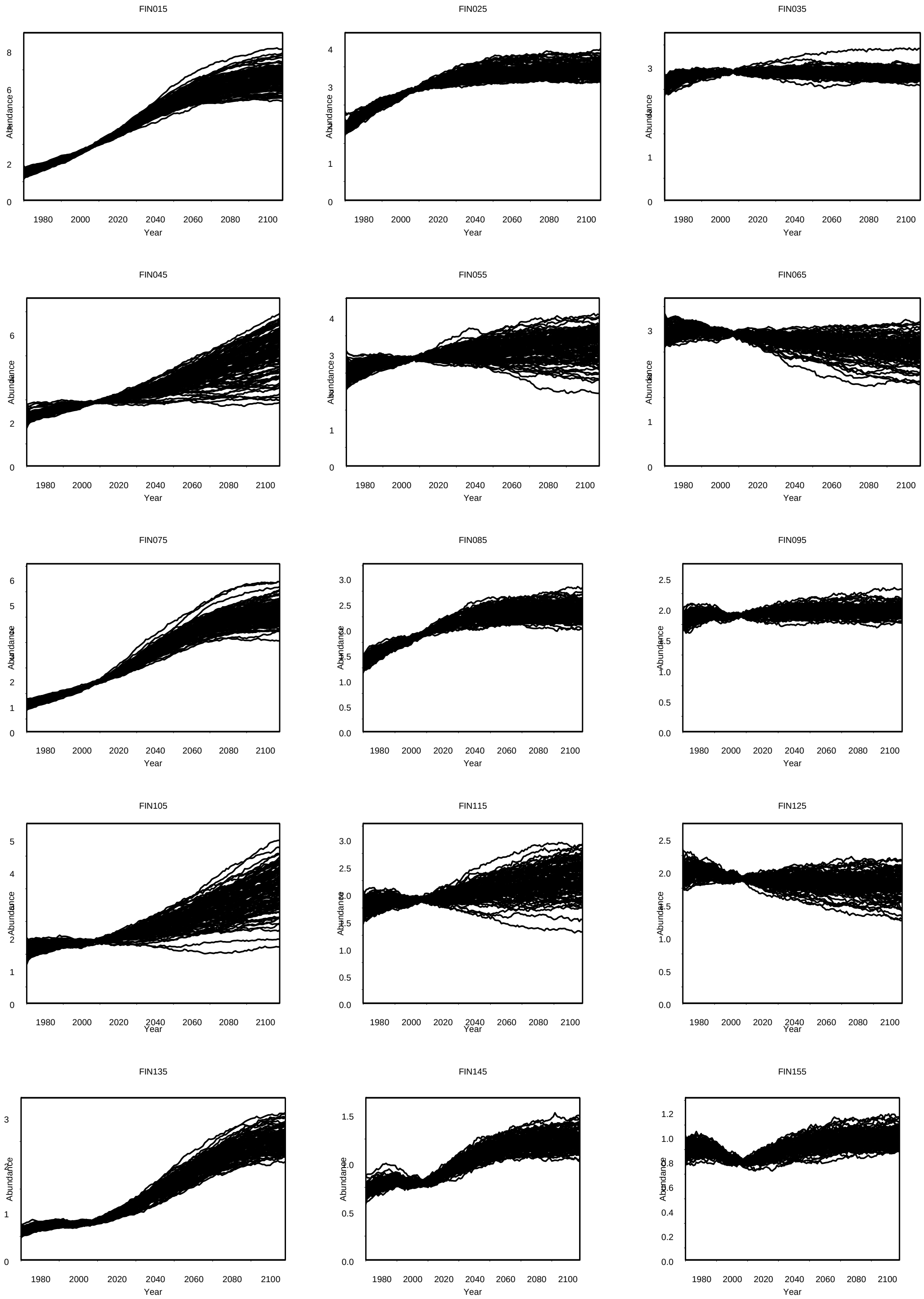

Figure 4: Fin whale trajectories for trial one to 15 given SLA five.

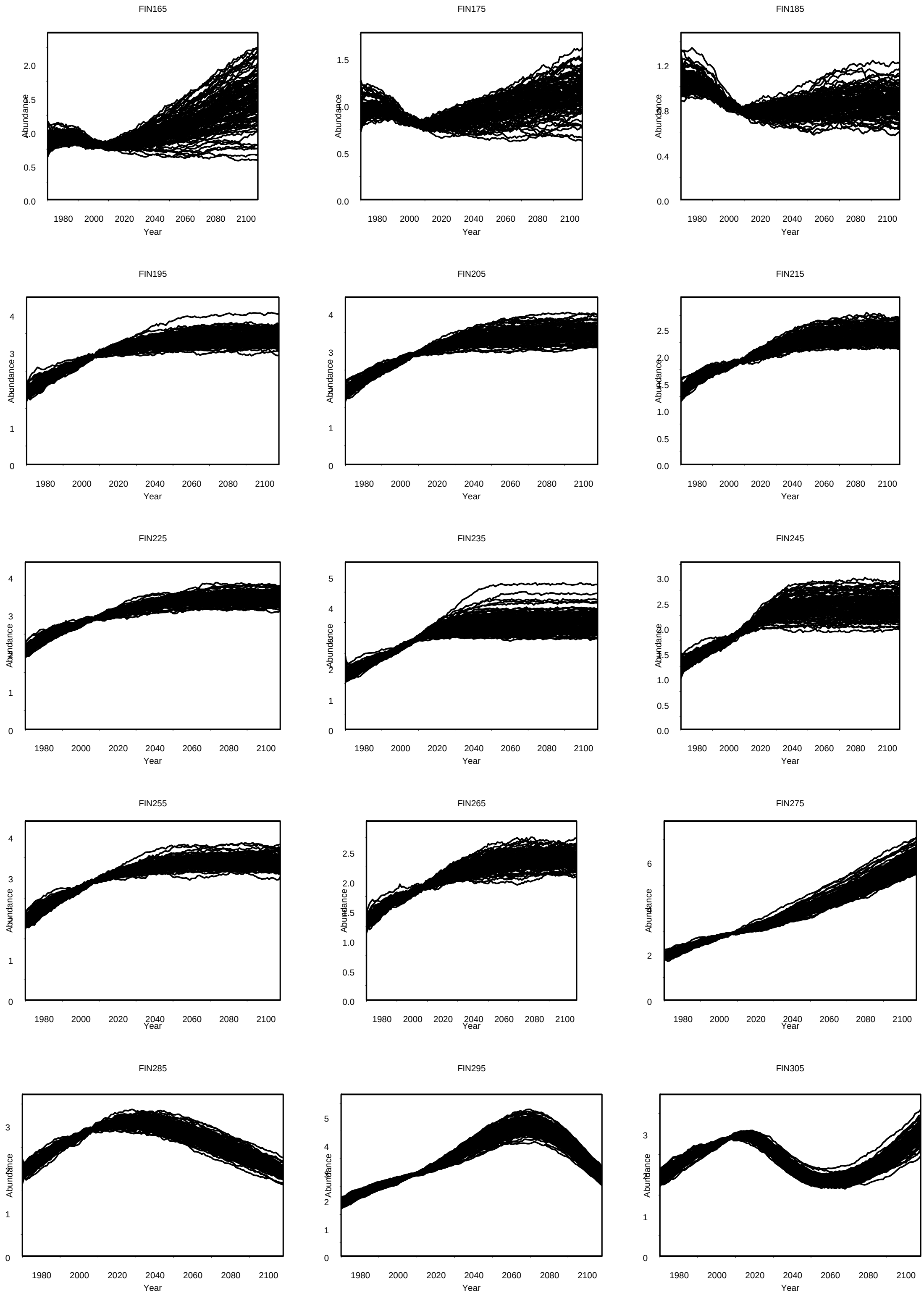

Figure 5: Fin whale trajectories for trial 16 to 30 given SLA five.

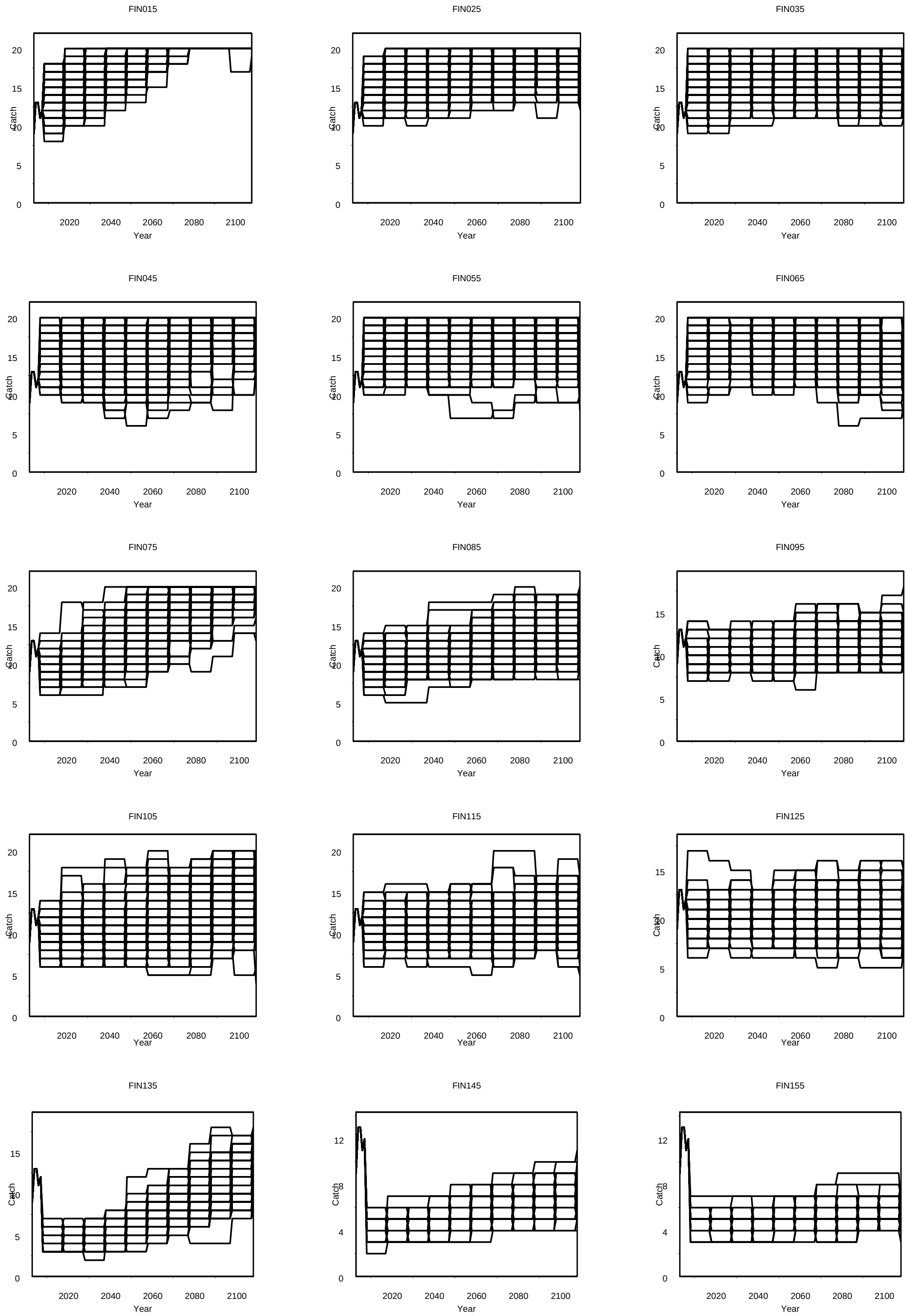

Figure 6: Strike limits for fin whale trial one to 15 given SLA five.

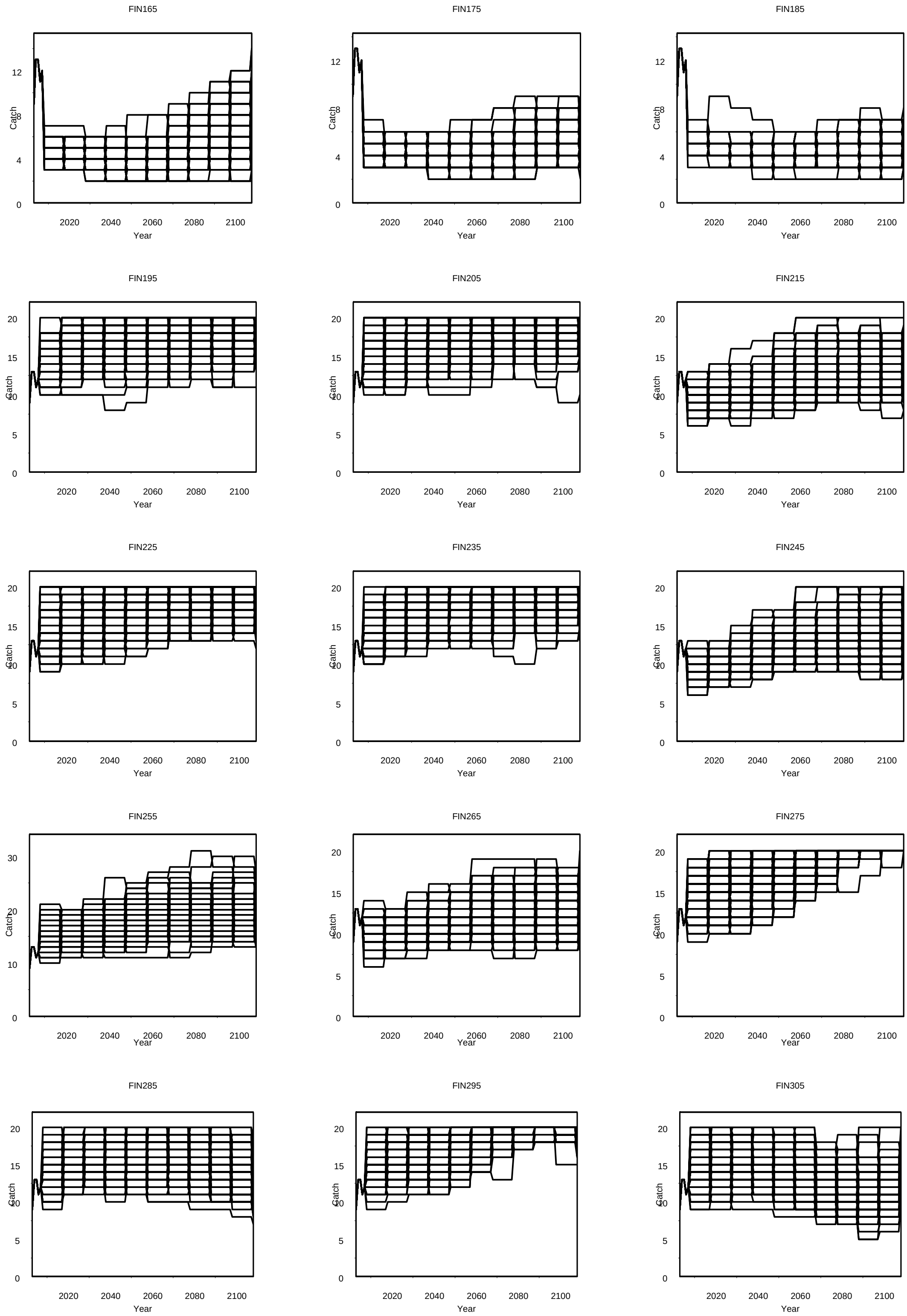

Figure 7: Strike limits for fin whale trial 16 to 30 given SLA five.

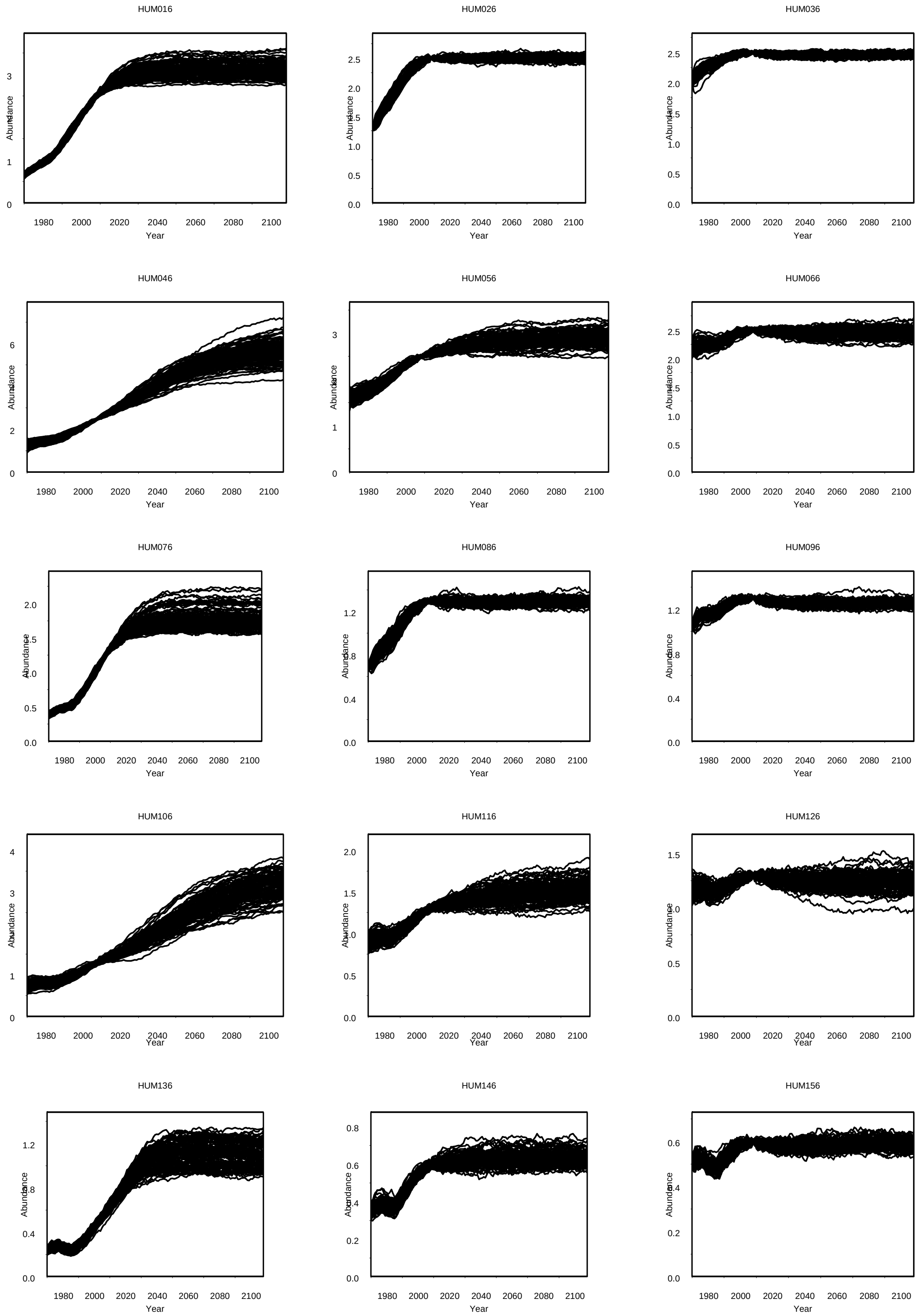

Figure 8: Humpback whale trajectories for trial one to 15 given SLA six.

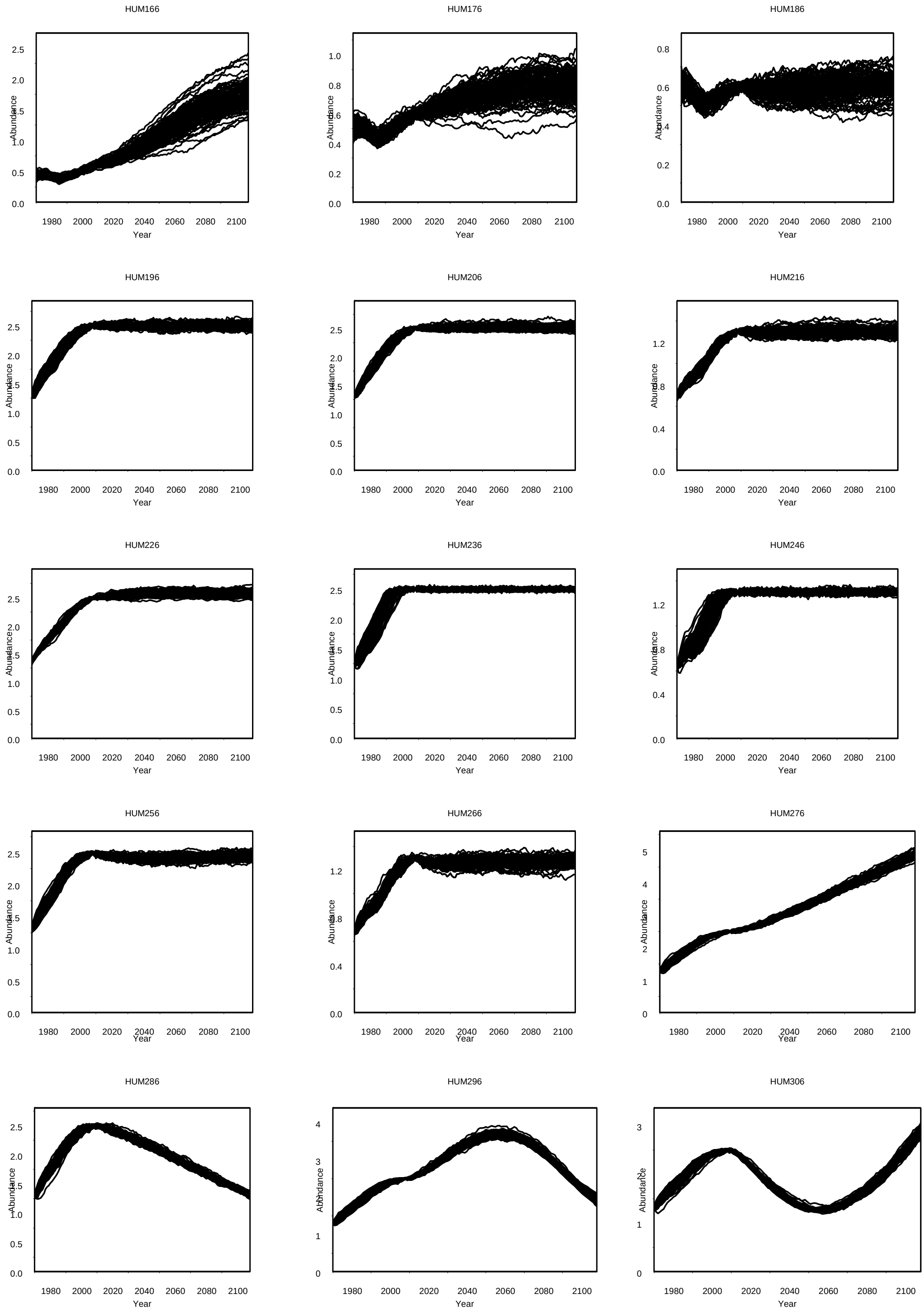

Figure 9: Humpback whale trajectories for trial 16 to 30 given SLA six.

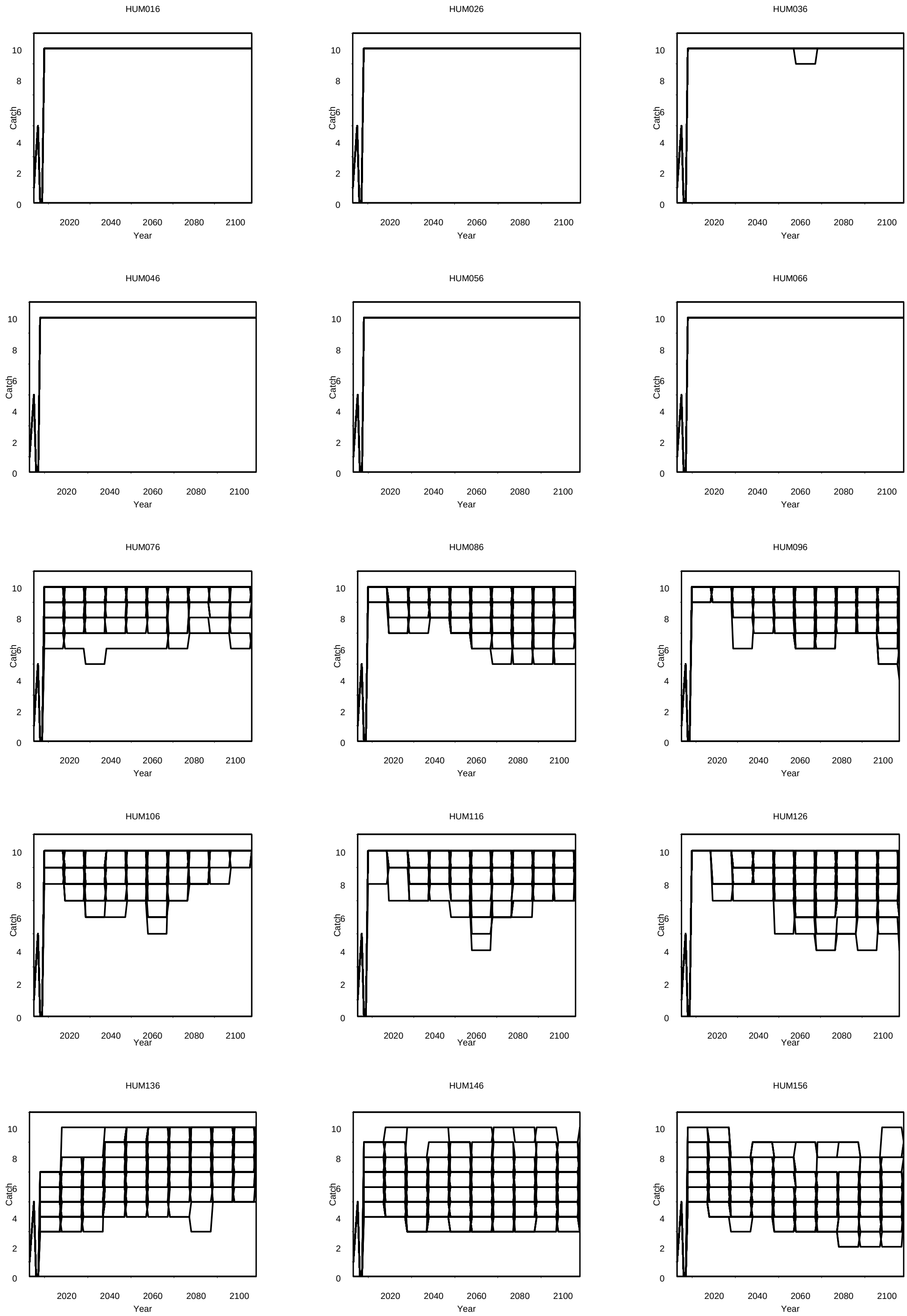

Figure 10: Strike limits for humpback whale trial one to 15 given SLA six.

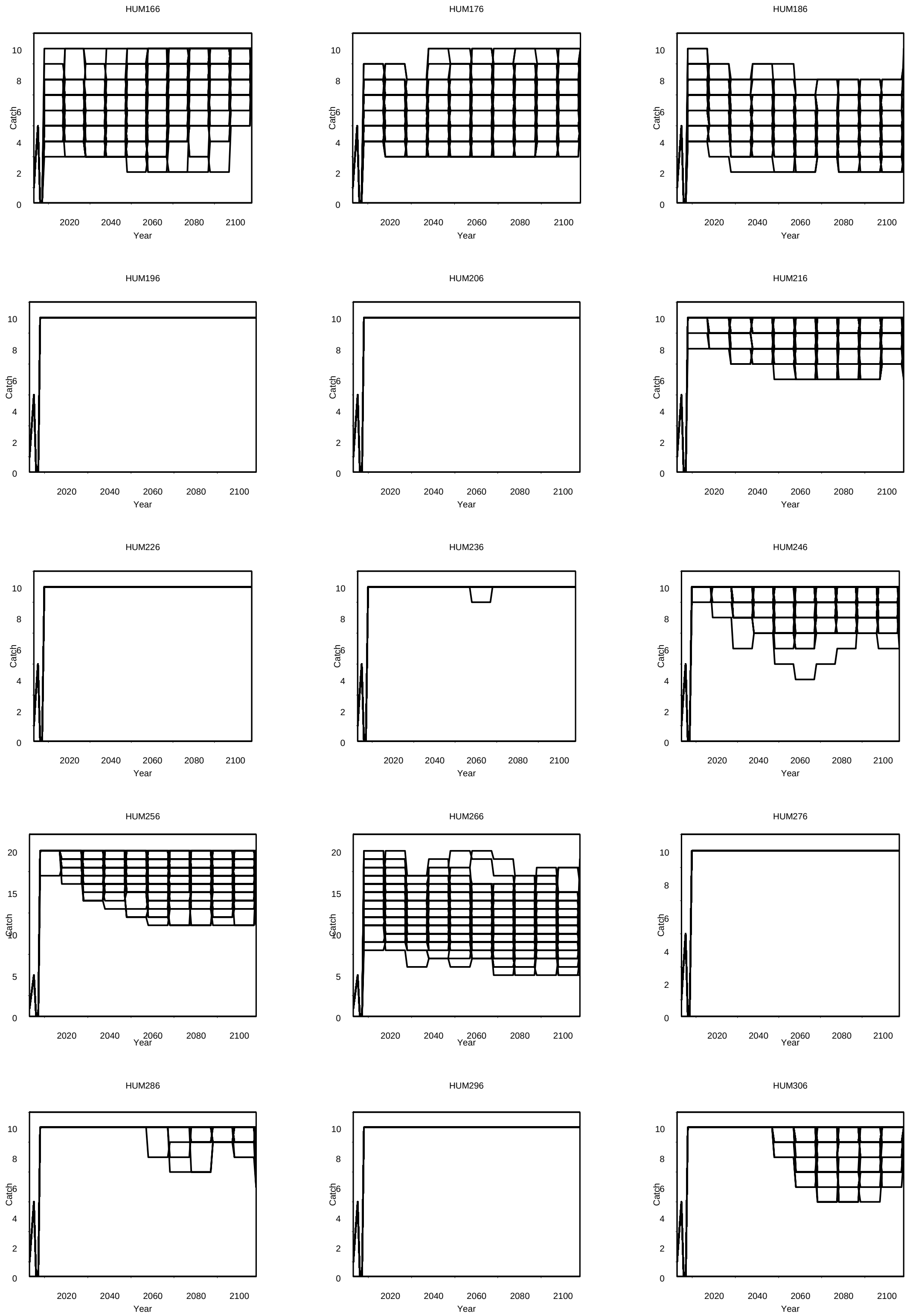

Figure 11: Strike limits for humpback whale trial 16 to 30 given SLA six.

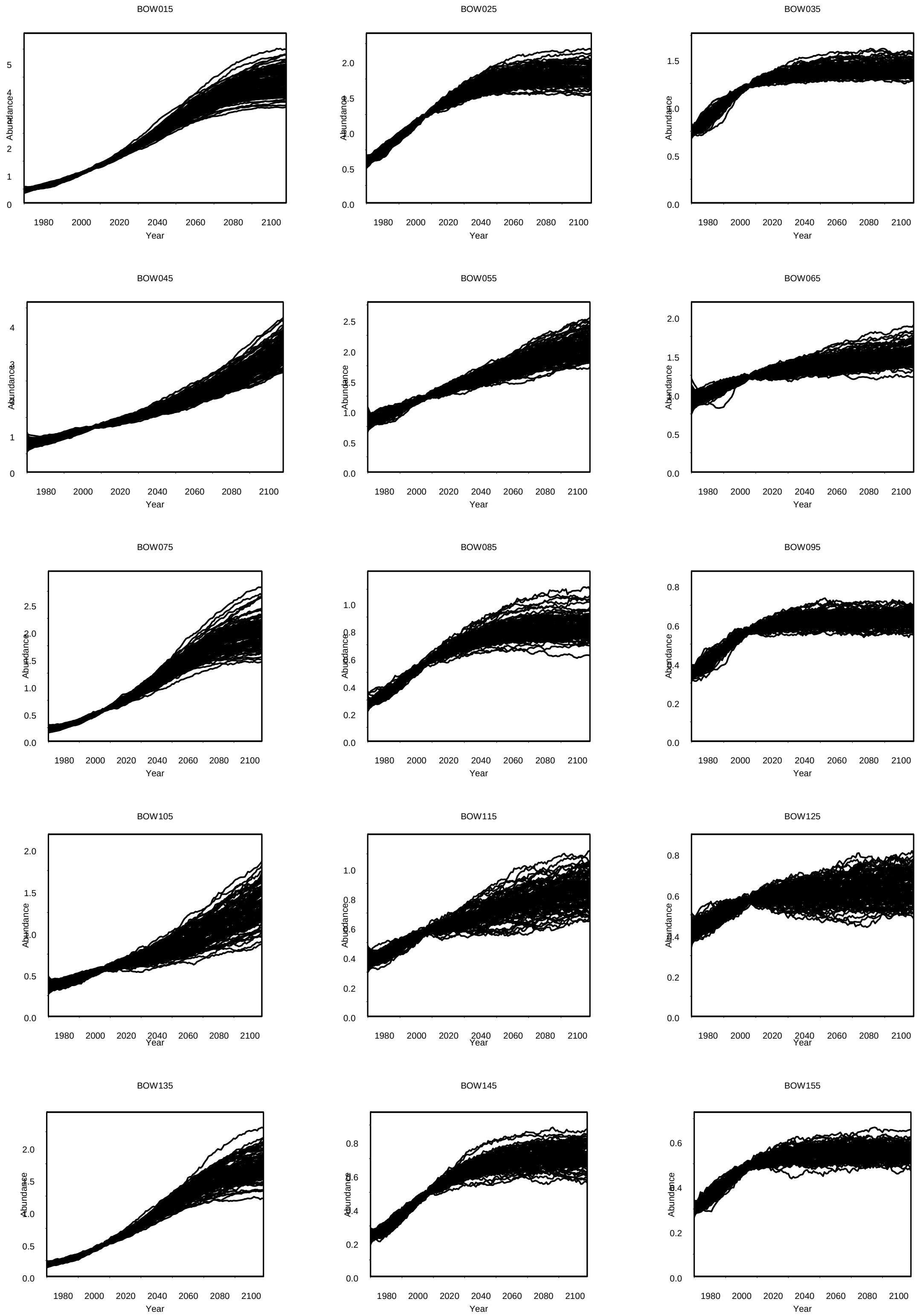

Figure 12: Trajectories for West Greenland bowhead whales given SLA five.

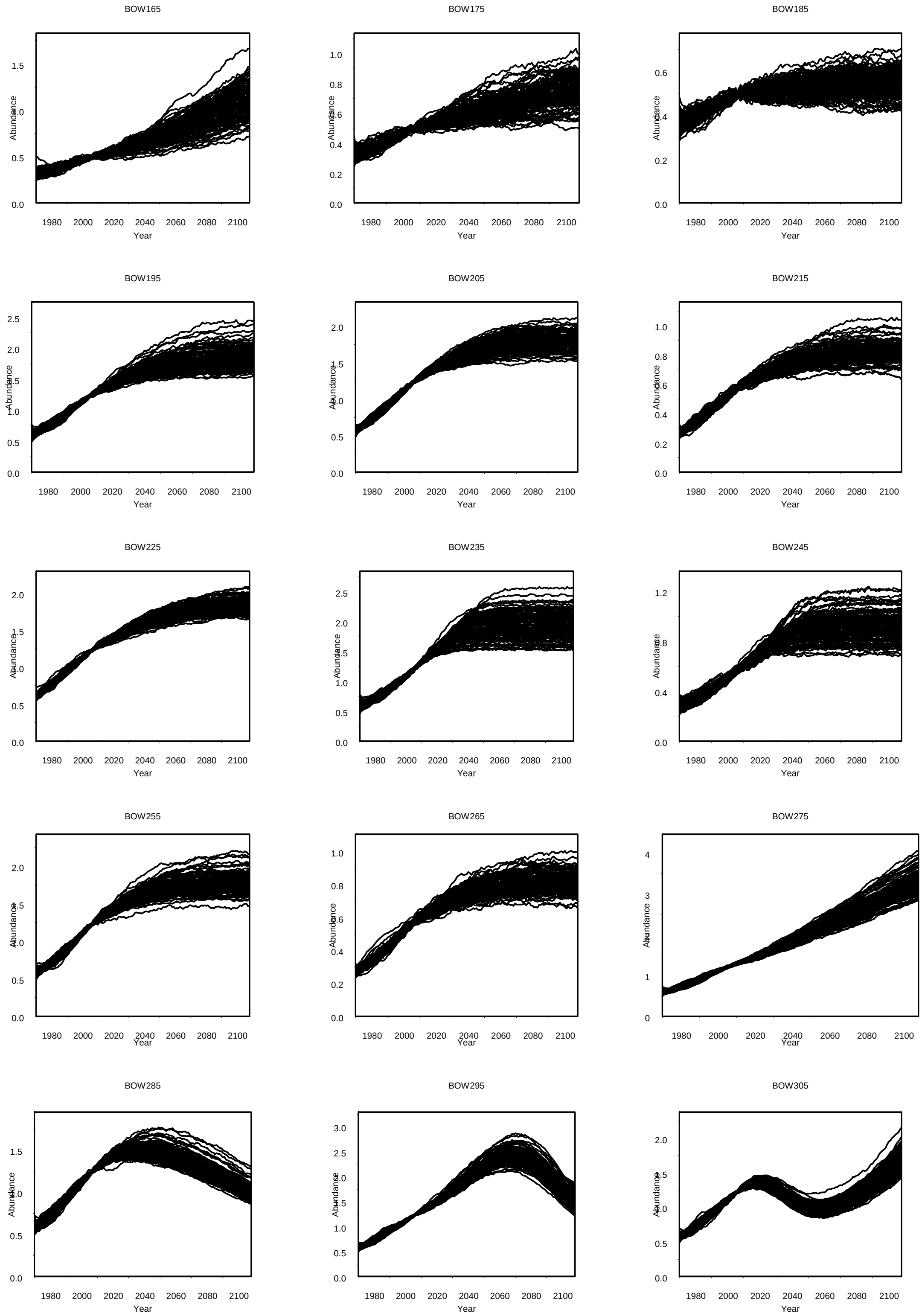

Figure 13: Trajectories for West Greenland bowhead whales given SLA five.

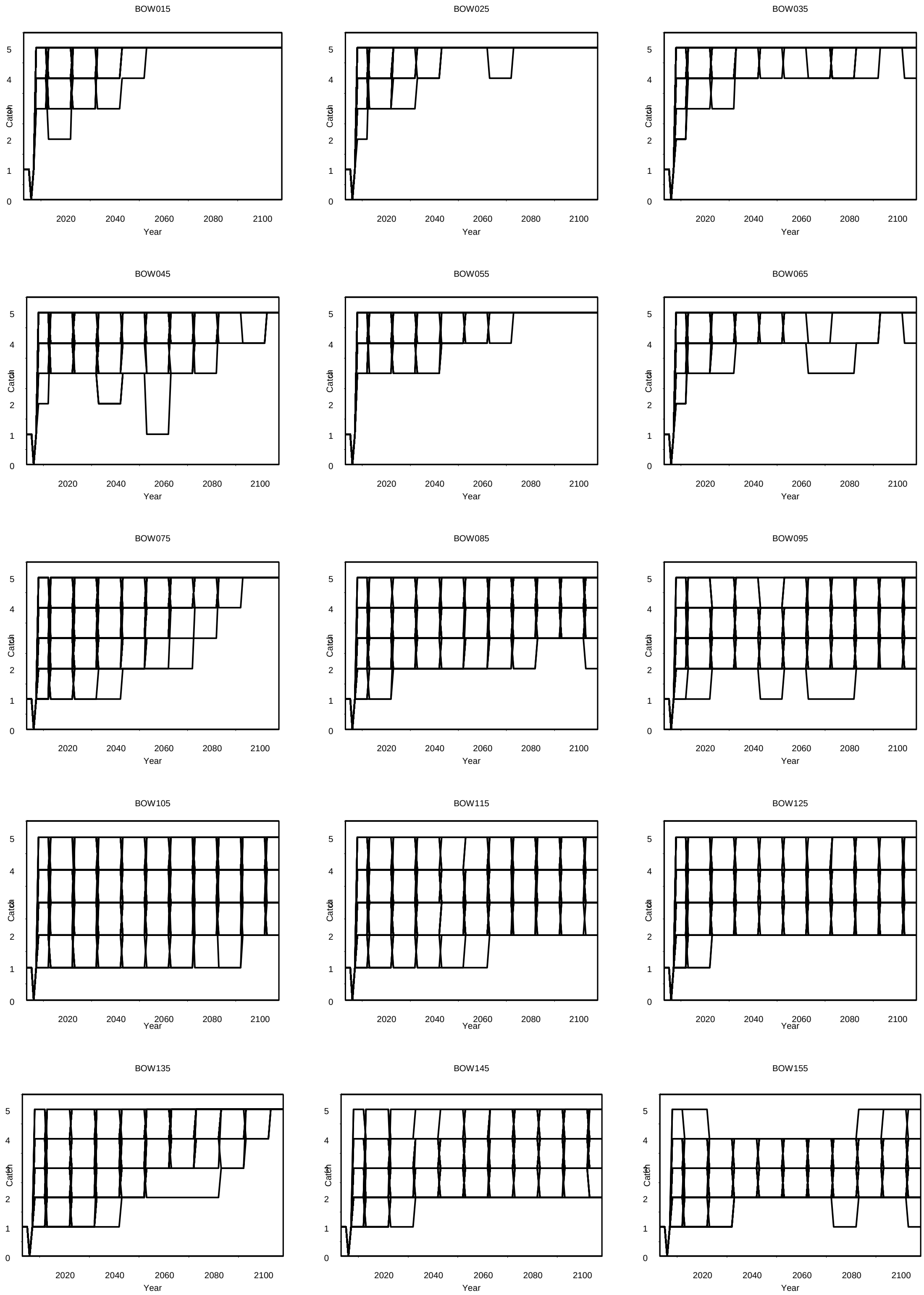

Figure 14: Strike limits for West Greenland bowhead whales given SLA five.

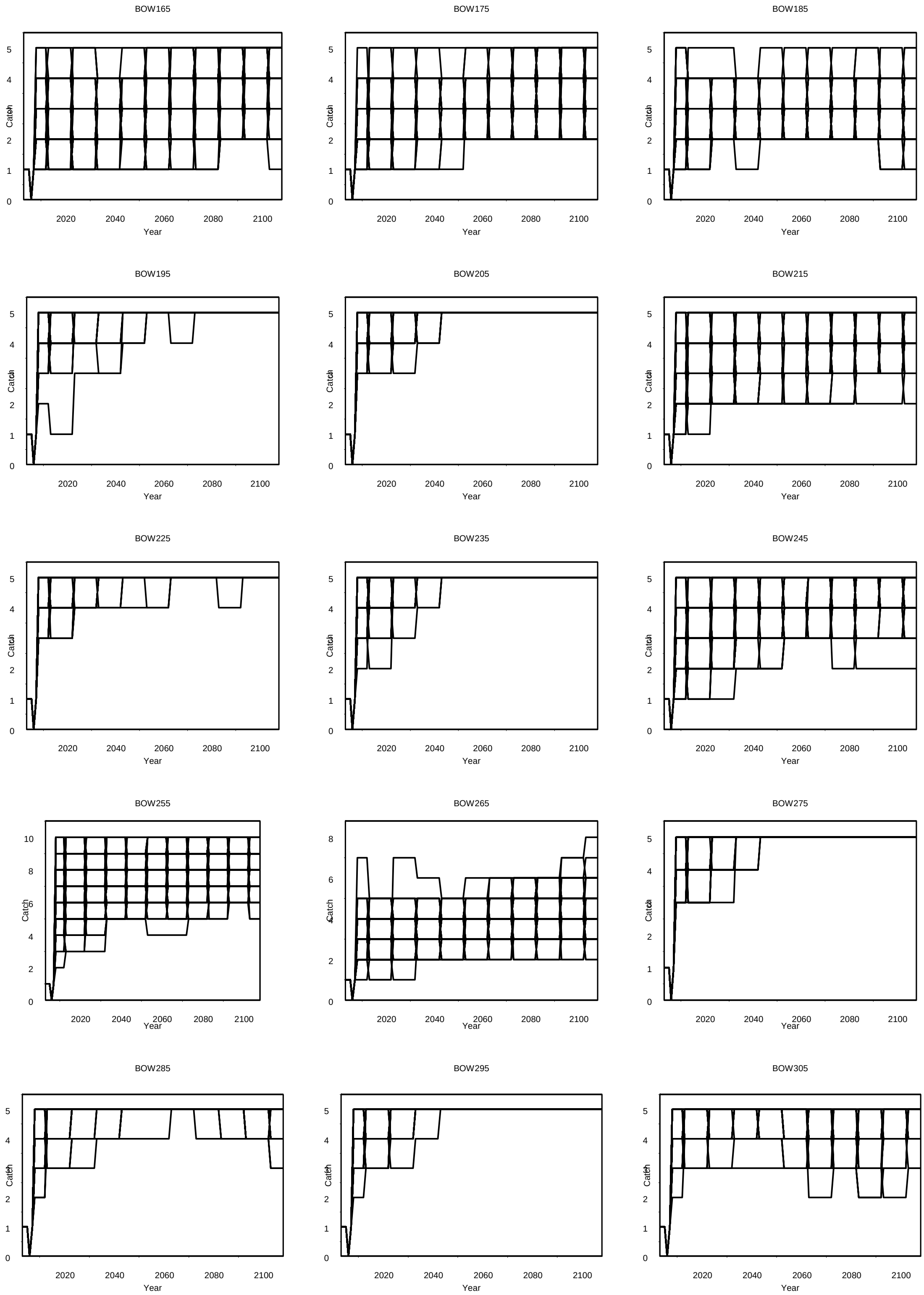

Figure 15: Strike limits for West Greenland bowhead whales given SLA five.

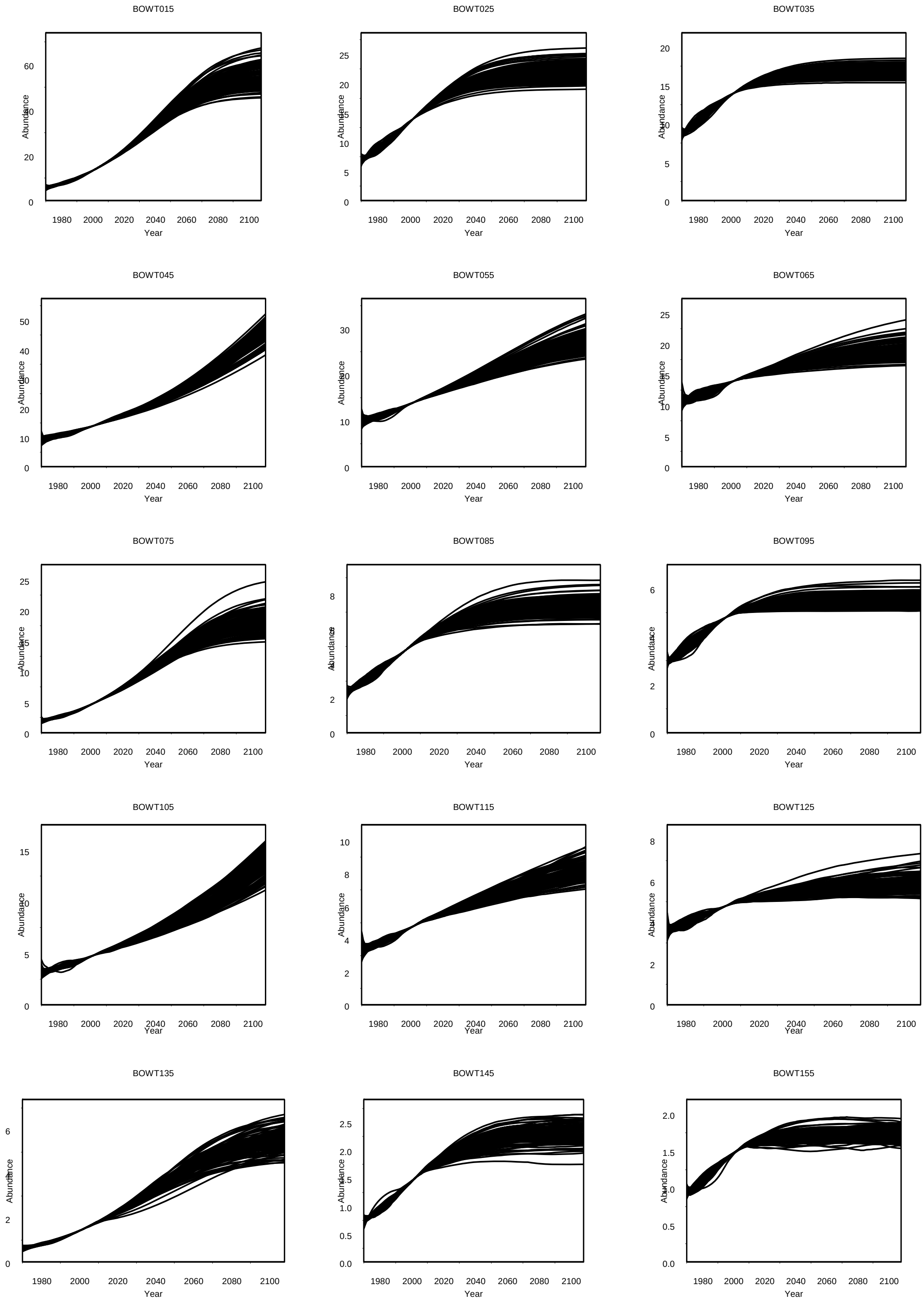

Figure 16: Trajectories for Eastern Arctic Bowhead whales given SLA five.

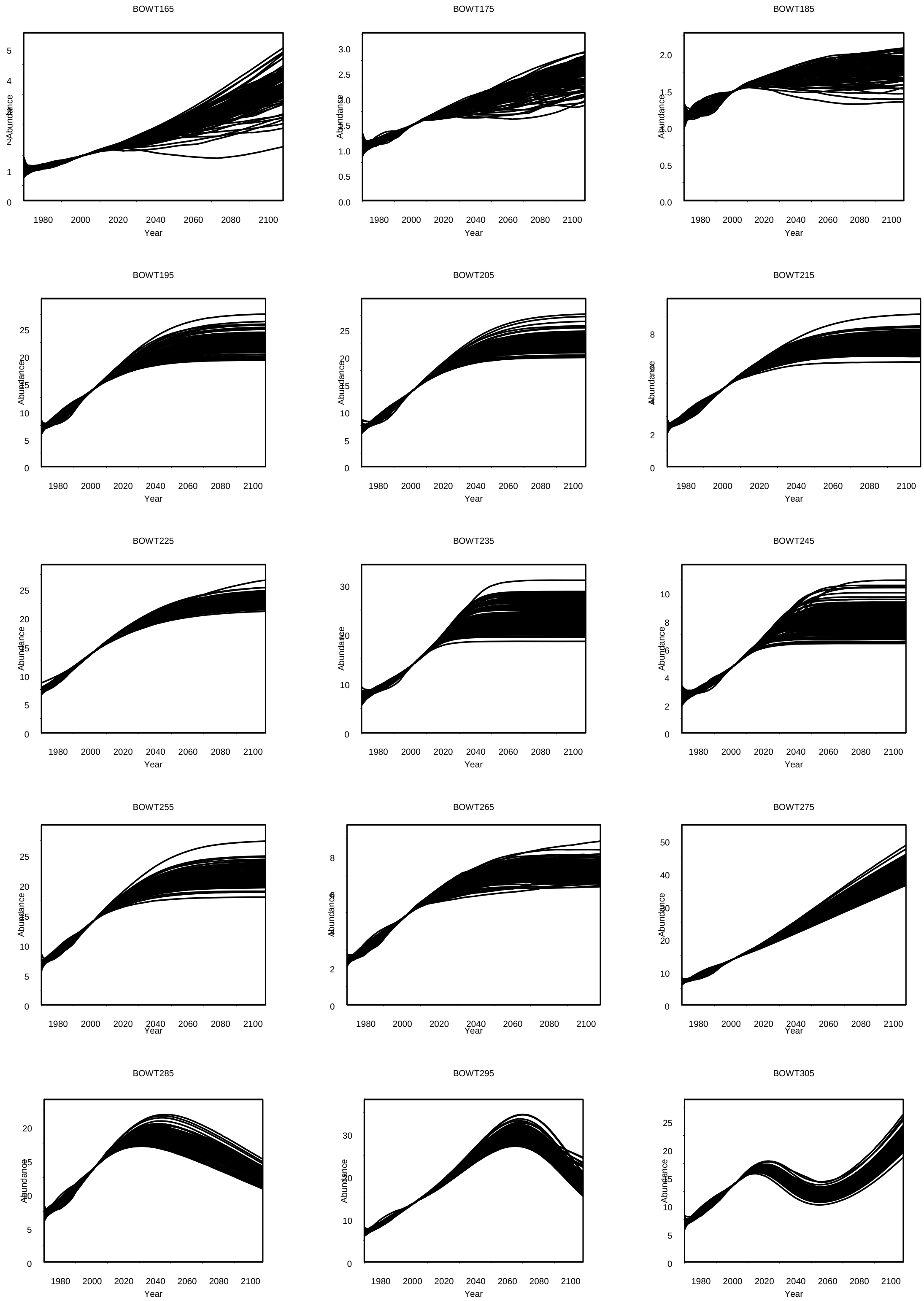

Figure 17: Trajectories for Eastern Arctic bowhead whales given SLA five.

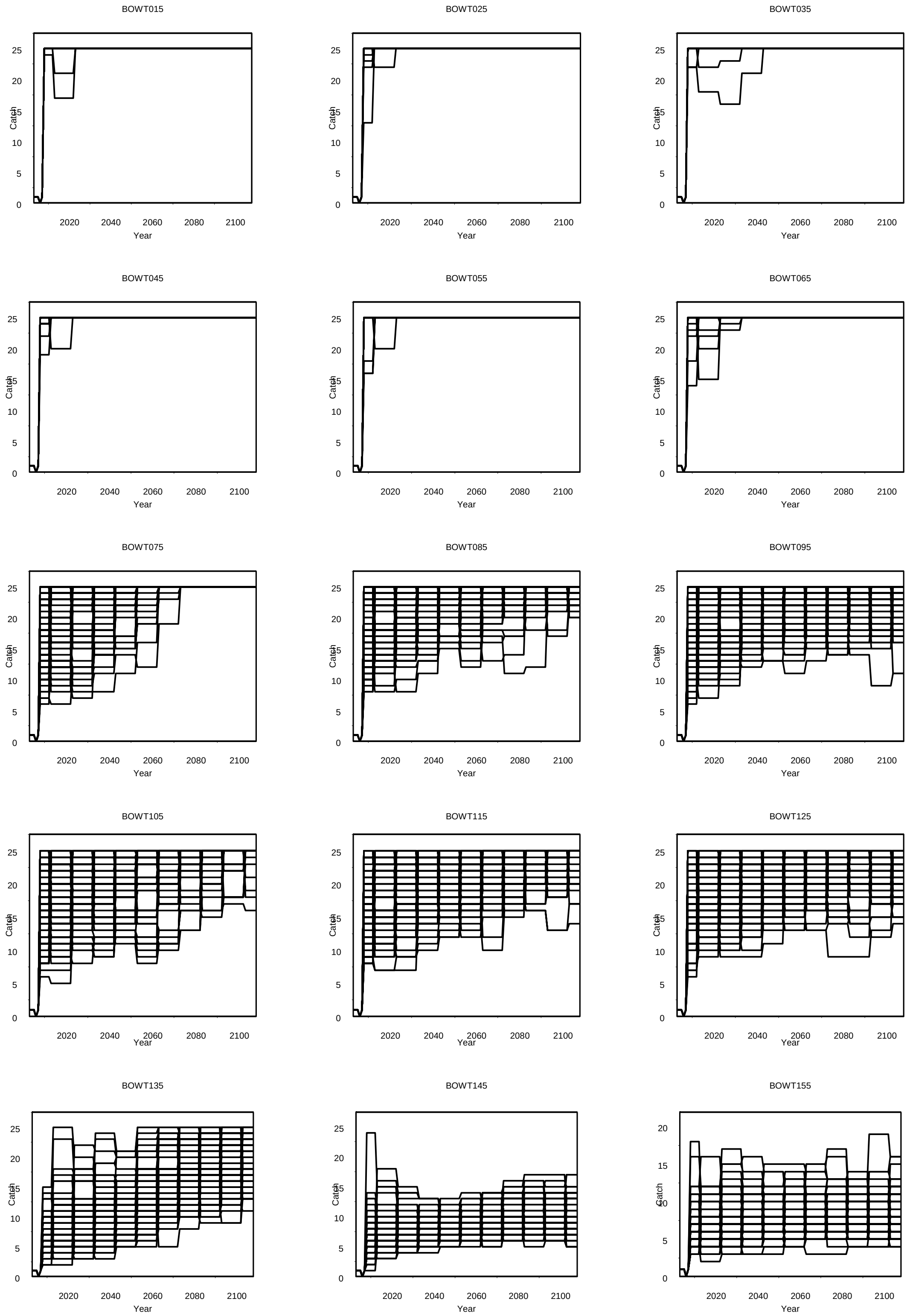

Figure 18: Strike limits for Eastern Arctic bowhead whales given SLA five.

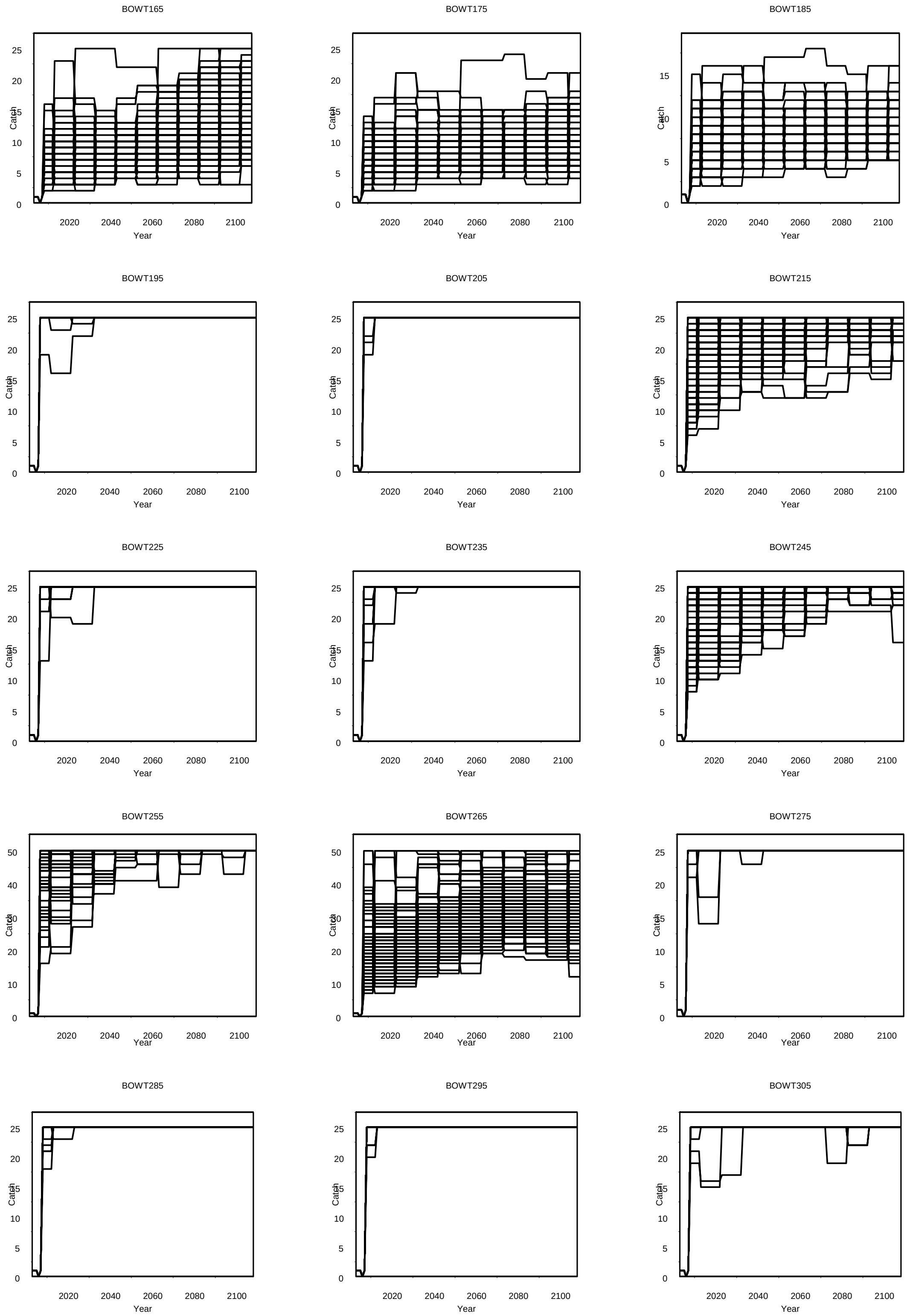

Figure 19: Strike limits for Eastern Arctic bowhead whales given SLA five.