INTERNATIONAL COMMISSION
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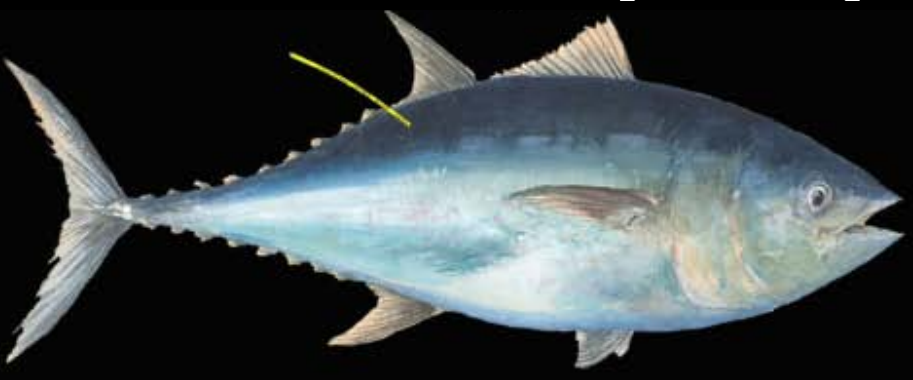
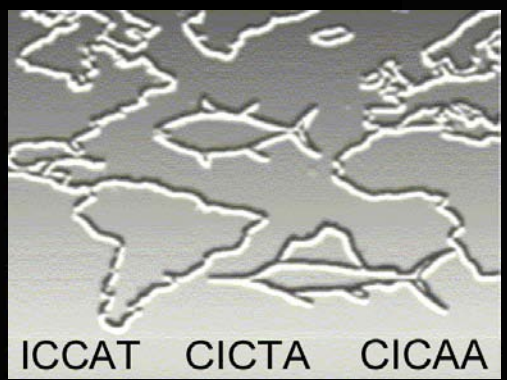
ATLANTIC TUNAS
(ICCAT)

TAGGING DESIGN
ATLANTIC-WIDE RESEARCH PROGRAMME FOR BLUEFIN TUNA (GBYP)





TAGGING DESIGN FOR THE ATLANTIC-WIDE RESEARCH PROGRAMME FOR BLUEFIN TUNA (ICCAT - GBYP)

written by:

Eduardo Belda[1], Vicente Estruch[1], José L. Cort[1]

[1] **Instituto de Investigación para la Gestión Integrada de Zonas Costeras (IGIC)**

Universidad Politécnica de Valencia, Spain

[2] **Instituto Español de Oceanografía (Centro Oceanográfico de Santander, Spain)**

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Disclaimer:

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TAGGING DESIGN REPORT

Summary

Multiple-year tagging experiments are a fundamental tool to estimating fishing and natural mortality rates and abundance in fisheries. The best approach to estimate natural and fishing mortalities is the use of multiyear tagging of a single cohort. The tagging experiment should be conducted on the same cohort in different years thus tagging of juveniles where age can be inferred from size more accurately is desired. We conducted simulations to explore the number of releases of different age or age groups needed to achieve precise and unbiased estimates of mortality in order to reduce uncertainty in future stock assessments.

Simulations consider tagging to be carried out in 2011, 2012 and 2013, and data gathered until 2023. Number of releases considered was at least 10,000 fish per year. We considered three different tagging strategies: *i)* tagging of a cohort, starting at age 1, during three years; *ii*) tagging of two cohorts thus in the first year to tag individuals of ages 1 and 2 years; *iii*) tagging every year three cohorts –individuals of 1, 2 and three years. Simulations (n = 500) were conducted using software MARK 6.0 (White *et al*. 1999). In order to measure precision we used the relative standard error (RSE). The different simulated scenarios were based in the expected change in fishing mortality rates due to the recovery plan for a constant quota of 11,900t. Models considered three cohorts and age and time dependent effects. These impose limitations to the numbers of parameters that can be estimated using the Brownie approach. In addition we also simulated a VPA analysis in which we incorporated tagging data and recovery data. We used a hypothetical scenario using projected Fs and Ns for a fixed quota of 11,900tn. We used catch at age data since 1975 until 2009 and scenario 13 (run13) conducted in the 2010 ABFT eastern stock assessment (ICCAT2010). For the period until 2023 we used the projected Fs and Ns to estimate catch at age data. We used VPA-2BOX 3.05. We compared how the estimates of this analyses changed by the use of *different* tagging strategies.

The simulations showed clearly that the use of tags recoveries may improve the precision of fishing mortalities even under the scenario of the low present quota. In general, estimates of mortality were quite precise and unbiased. However the improvement in precision seems to be asymptotic, i.e. increasing the number of releases did not yield a linear increase in precision but it increases linearly the costs. There was an inverse relationship between precision and reporting rates. A minimum of 2000 releases per age and year was needed to obtain a precision with RSE < 0.15. Integrating recovery data within a VPA also improved the estimates and precision of fishing mortalities even for $F_{10+.}$ Thus a better possibility to discriminate the trends in Fc expected in the rebuilding plan for the ABFT. In addition, models with tagging data had a more or less constant RSE through the period 2011-2023. In all the scenarios considered SSB increased as expected from the rebuilding target.

One of the assumptions that will be most likely violated by the experiment is the fact that the models assumed complete mixing. In order to reduce bias, tagged animals should be released in small batches in as many locations as possible rather than in large batches at a few locations. Tagging should take place in different areas and at least covering eastern Mediterranean and the western Mediterranean and Eastern Atlantic areas.

In order to estimate fishing and natural mortality we need to estimate tagging mortality, tag retention rates and tag reporting rates. This is usually undertaken through: *i*) the use of double tagging experiments. We recommend double tagging at least 500 tuna or 30% of tuna tagged per area and team; ii) and an observers programme (at least 30% of the catch should be checked for tags by observers). In addition, an appropriate programme to encourage the report of tags recovered should be implemented. Additionally it is important the use of high reward tags in at least all the years of the experiment. The use of high reward tags together with the reporting rate of the observer programme may be used to estimate reporting rates. This estimation is required in order to estimate natural and fishing mortality rates.

1. Introduction

1. Introduction

These are the main parameters needed in stock assessments. The use of appropriate tagging experiments and a framework for modelling such data has the potential to reduce uncertainty in stock assessments, and in particular those based on catch at age data (Polacheck *et al*. 2006).

Most of the statistical frameworks used to analyse this type of multiple year tagging studies are based on the so called "Brownie models" (Brownie *et al*. 1985, Hoening 1998). Recent development in the use of this models include incorporating catch at age data to estimate abundance (e.g. Polacheck *et al*. 2006, Evenson *et al*. 2007, 2009) and the use of telemetry data to combine data from dead and live returns (Pollock *et al*. 2004). This last approach has the advantage that natural and fishing mortalities can be estimated directly from the data, which is not possible with the so called Brownie models, which depend of independent estimation of reporting rates.

At present, regulations of the ABFT tuna fishery may imply that not enough recoveries are achieved even if large numbers of tunas are tagged. The mean recovery rate for the period 2007-2009 was estimated as 0.16 % (see Fig 1) The two main problems may arise due to a low harvest rates (present TAC for 2011 is 12,900 tonnes) and limitations in the harvest of juvenile tuna. An analysis of variation in recovery rates for the period 1954-2009 is shown in Fig. 1.

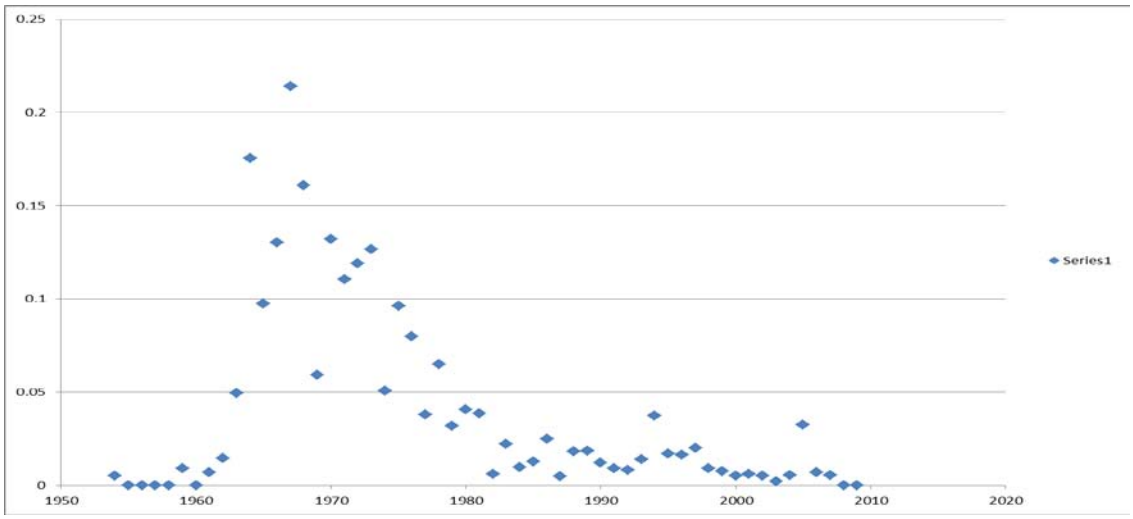


Fig. 1. Variation in recovery rates of tagged ABFT for the period 1954-2009. Mean recovery rate was 0.03 ± 0.07. Mean recovery rates period 2007-2009 was = 0.0016± 0.0017.

A preliminary step in the design of a tagging experiment is the use simulation studies to evaluate precision of parameter estimates. These simulations studies consist in simulate capture-recovery data assuming values for survival and recovery rates. Manipulating the number of releases, or the reporting rates, allow exploring whether the objectives can be met with the available resources and establish expectations for the study results. In addition particular questions about the tagging experiments can be tested, specifically the number of tag releases needed in order to obtain a given precision in estimates.

In summary, the aim of the simulations was to establish the number of releases of different age or age groups needed to achieve relative precise and unbiased estimates of mortality. We have also considered the potential use and benefits of electronic tags, even though it was not asked in the present call.

2. Simulation methods

In a preliminary step we reviewed the literature and previous design of experiments dealing with pelagic fisheries. The best approach to estimate natural and fishing mortalities is the use of multiyear tagging of a single cohort (Polacheck et al 2006a, 2006b). If individuals of known age are tagged, then long term studies may provide information of age specific mortality rates (e.g. Orell and Belda 2006).

An important question is the need for an adequate framework to modelling data provided by such experiments. In this sense Polacheck *et al*. (2006a) deal with the study of the southern bluefin tuna (*Thunnus maccoyii*). That approach is an excellent framework for the analysis of tag recovery studies as the one aimed by the GBYP programme (see also Polacheck *et al*. 2006b, 2010; Evenson et al. 2007; Evenson *et al*. 2009). The base of this framework is the so called "integrated Brownie-Petersen approach" (review in Polacheck *et al*. 2010). They provide estimates of abundance and mortality rates even when reporting rates are not known (through the estimation of recovery rates, see below). Information is required for obtaining independent reporting rate estimates.

A potential problem of this method is that estimates natural mortality rates indirectly because natural deaths are not observable. One potential solution is the use of combined information from dead recoveries and live recaptures obtained from telemetry studies. This approach will have the advantage of estimating directly fishing and natural mortalities (Pollock *et al*. 2004). The combined use of Pop-up archival tags (live recaptures and dead recoveries) and conventional tags (dead recoveries) is thus a promising approach that needs to be considered.

The "integrated Brownie-Petersen approach" provides also estimate of initial population abundance of the tagged cohorts (see review in Polacheck et al 2010).

At present we have focussed on estimation of mortality, thus we conducted simulations using the Brownie approach. In Brownie models the number of expected recoveries is modelled using the annual survival rates (S_i), and the recovery rate (f_i). The recovery rate depends on three parameters: tag shedding (tag retaining rate) and tagging mortality rates (φ_i); harvest rate (u_i); and reporting rate (λ_i).

$$S_i = \exp(-F_i,-M_i)$$

$$f_i = \varphi_i \, u_i \, \lambda_i$$

$$u_i = 1- \exp(-F_i)$$

harvesting rate type *I* fishery *sensu* Ricker 1975 -Amstrup et al 2005

Thus, the expected numbers of recoveries per year may be estimated as:

year marked	*number marked*	1	2	3	$l = 4$
1	N_1	$N_1 f_1$	$N_1 S_1 f_2$	$N_1 S_1 S_2 f_3$	$N_1 S_1 S_2 S_3 f_4$
2	N_2		$N_2 f_2$	$N_2 S_2 f_3$	$N_2 S_2 S_3 f_4$
3	N_3			$N_3 f_3$	$N_3 S_3 f_4$
$k = 4$	N_4				$N_4 f_4$

This model assumes that:

1. The tagged sample is representative of the target population or the target animals are mixed completely with the untagged ones (complete mixing assumption).
2. All marked fish alive on the study at time *i* have the same survival and recovery probability to the next time.
3. Survival rates are not affected by tagging and there is no tag loss (i.e. need to consider tag shedding experiments).

If ϕ_i and λ_i can be estimated (i.e. through double tagging experiments and observer programmes) then the recovery parameter can be used to estimate the exploitation rate, and thus instantaneous fishing mortality and natural mortality rates may be derived (Hoening et al 1998a). This implies that in the tagging design both double tagging experiments and the collection of tag recovery by observers should be implemented.

In addition, Archival and "Pop-up" archival tags may provide information where a fish has been between time of release and recovery. This has the potential of providing information on mixing of the population, which is an important assumption of tagging models. It also can be used for estimating reporting rates (Pollock *et al*. 2001) and to get simultaneously information on mixing of tagged and untagged individuals in addition to movements of tuna. We therefore considered the use of "high reward" option and use it to tag tunas with archival tags (pop-up archival tags were not considered here because of the high cost of this type of marks).

In many tagging experiments the number of tagging years (k) is less than the number of years in which recoveries are collected (l). This is because getting recoveries is relatively inexpensive when compared with tagging. However this imposes some restrictions in the number of estimable parameters using Brownie models. Basically, in models with time variation in the parameters it is not possible to estimate parameters for periods $l > k$. Thus for a three year tagging experiments only is possible to estimate parameters for the first and second years. Alternatively we need to impose constraints on recovery or survival rates in order to estimate any parameter for the third year or later. Thus a detailed search in the related bibliography suggest that a period of 5 years of tagging. At present the tagging recommendation from ICCAT only consider three years of tagging and recoveries to be collected from 2011 to 2023.

2.1 *Tagging strategies*

As suggested by the preliminary review of the literature we considered tagging at least three cohorts of individuals of different age. The tagging experiment should be conducted on the same cohort in different years thus tagging of juveniles where age can be inferred from size more accurately is desired. The model assumes that ages at tagging are known without error. Otherwise, bias may be introduced in the parameter estimates. For the ABFT, we consider the following age groups in which aging error are lower:

i) Age 1: 1 year old tuna

ii) Age 2: 2 year old tuna

iii) Age 3: year old tuna

We simulated different scenarios and strategies. In order to simulated different possible scenarios we considered the expected change in fishing mortality rates due to the recovery plan for a constant quota of 11,900t. Estimated values used for simulations are in Appendix 1. Models considered three cohorts and age and time dependent effects. These impose limitations to the numbers of parameters that can be estimated using the Brownie approach. Models with a

constrained recovery rate may provide estimation of more parameters but because in Brownie models fishing mortality is included in both terms, the survival and the recovery rate, these constrains will influence the precision of mortality rates. Appropriate methods to estimate tag shedding, tagging mortality and reporting rates are considered below.

Simulations consider tagging to be carried out in 2011, 2012 and 2013, and data gathered until 2023. Number of releases considered was at least 10,000 fish per year. Simulations were conducted using software MARK 6.0 (White *et al*. 1999).

In order to measure precision we used the relative standard error (RSE) estimated as the standard error of 500 simulations divided by the mean estimate (RSE= SE/estimate). Bias of the estimates was obtained from the difference between the mean estimate of survival and the real value of that parameter used to generate the 500 data sets used in simulations. We consider precise estimates if RSE < 0.15 and unbiased if Bias < 0.02.

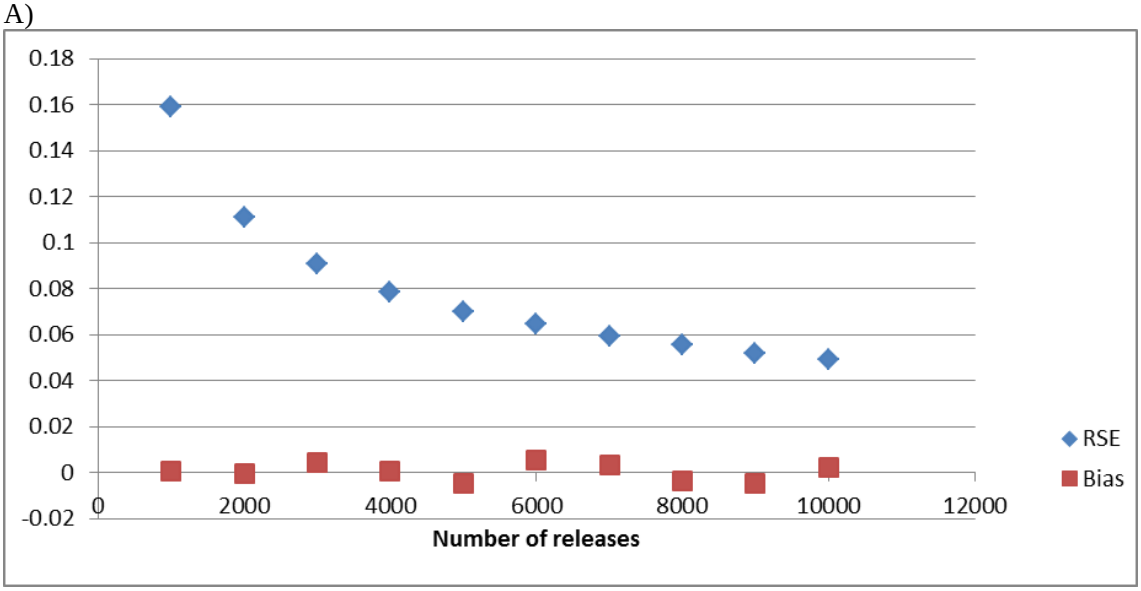
3. Main results of the simulations

3.1 *Effect of the number of releases on precision and bias of estimates.*

Precision on estimators and power of test depend not only on the number of animal marked and released but also on the numbers surviving and the number recovered. Lower survival (natural mortality) will imply lower number of recoveries. Thus we used the survival of one year old individuals (the one with the highest natural mortality) to check how the number of releases and reporting rates affected bias and precision.

First we considered a scenario with high reporting rates and low losses at tagging (either due to tag shedding or to tagging mortality $\varphi_i u_i = 0.57$). The values used are similar to those resented in Polacheck *et al* 2006 for the southern Bluefin tuna. As expected the precision and bias of the estimates increased as the number of releases increase (Fig. 2). In general, estimates are quite precise and unbiased. However the improvement in precision seems to be asymptotic, i.e. increasing the number of releases did not yield a linear increase in precision but it increases linearly the costs. An optimum relation is found between 3000 and 5000 releases per year and age class.

A)



B)

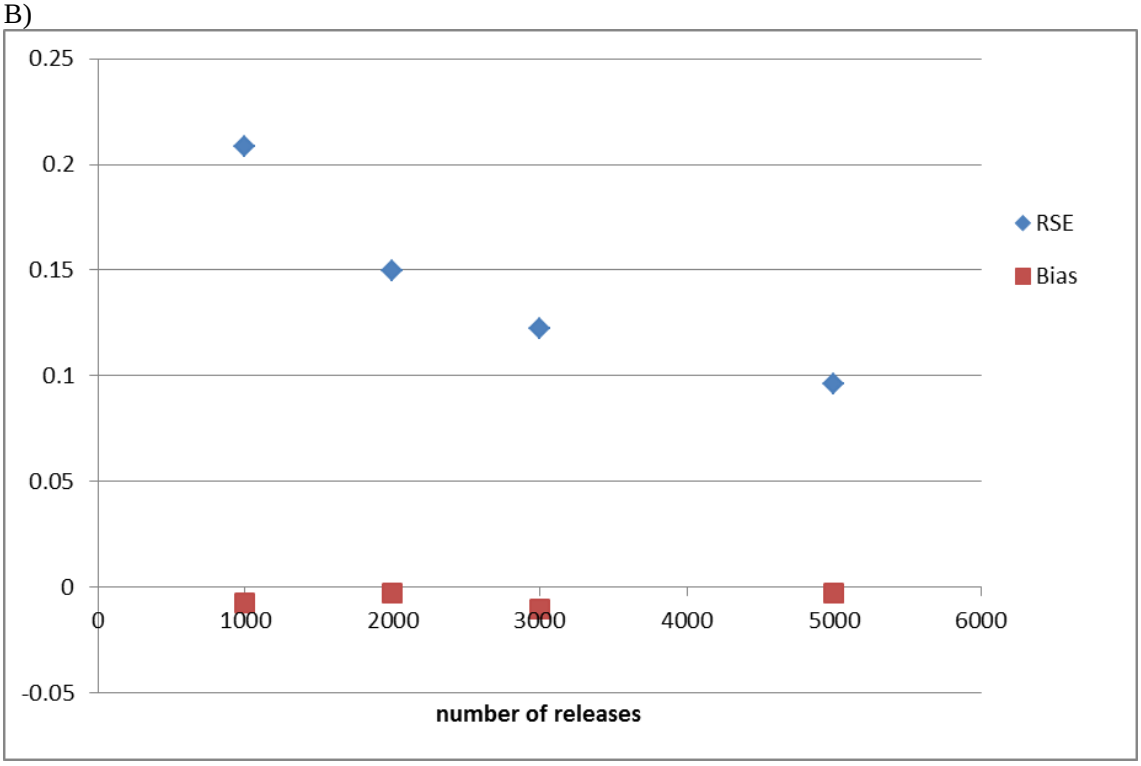


Fig. 2. Effect of the number of releases on precision (blue diamonds) and bias (red squares) of estimates of mortality in the ABFT. Presented data is for survival of age 1 tunnas (the lowest survival). Simulation considered total mortality (Appendix 1) with a reporting rate constant through time (60%) and tag shedding rate + tagging mortality of 5%. In Figure B a situation with low reporting rates = (30%) and higher tag shedding + tagging mortality (20%)60% and tag retaining rates+ tagging survival = .095.

We also considered a scenario with lower recovery rates due to either higher tagging mortality, low rate of tag retention or lower reporting rates ($\varphi_{i\ u_i}$ = 0.24). The bias of the estimates is similar to previous simulation but precision of the estimates is lower. More than 2000 releases are required to have a precision with RSE < 0.15, and 5000 for RSE < 0.1.

3.2 Integrating catch-at-age data with tag recovery data

Because of the limitations associated with a low number of years of tagging it is possible only to estimate parameters the parameters for two years for at best three cohorts (cohorts of 2009, 2010, 2011 see table X) if the Brownie approach is used. An alternative is to use catch at age data together with recovery data. There are different approaches for this type of analyses. One was presented by Polacheck *et al* 2006 (see also a review in Polacheck et al 2010). This approach also suffers from similar limitations as mentioned above. This so called Brownie-Petersen approach permits the estimation of natural and fishing mortality and initial population size. Thus we understand that in this case the estimation of population abundance will be limited to a few years and it will not be valid to evaluate how the tagging experiment may help to evaluate the achieving of the rebuilding target.

A second approach is to incorporate tagging d and recovery data within stock assessment. This provides the most rigorous method available so far (Anon. 2007).This can be done for example using softwareVPA-2BOX. Of course this approach also has some limitations. Among several problems this models are over-parameterised and several constraints must be impose to the data to estimate N and F. First it assumes that natural mortality is known and it is constant. However this is not the case for the ABFT, because natural mortality has not been estimated yet. Indeed estimation of natural mortality is one of the possible outputs from this tagging experiment. Second, it assumes that catch at age is known without error and therefore estimates obtained will be biased if this is not the case. Finally, some index of abundance is required to be able to estimate abundance (N) and fishing mortality (F) for each age and year. We did not have such index of abundance, though it is possible to estimate catch at age data from the projected Fs and Ns. We asked advice to ICCAT personal for such data (index of abundance) but we get not answer. Therefore we cannot estimate whether stock has recovered to the SSBF0.1 level by 2022 nor whether fishing mortality is consistent with achieving the 2022 rebuilding target. Data used for the VPA is in Appendix III.

Nonetheless, the main goal of incorporating tagging data within stock assessment is the improvement in Fs and Ns estimates. The solution we used was to build a hypothetical scenario using projected Fs and Ns for a fixed quota of 11,900tn. We used catch at age data since 1975 under scenario 13 (run13) conducted in the 2010 ABFT eastern stock assessment (ICCAT2010). We used VPA-2BOX vs 3.05. We compared how the estimates of this analyses changed by the use of different tagging strategies.

Coon et al (2009) proposed also an alternative method to estimate abundance and catch at age data using a Bayesian approach. This method differs in the fact that it does not use abundance indexes. We did not explore this methodology but it worth considering it as an alternative.

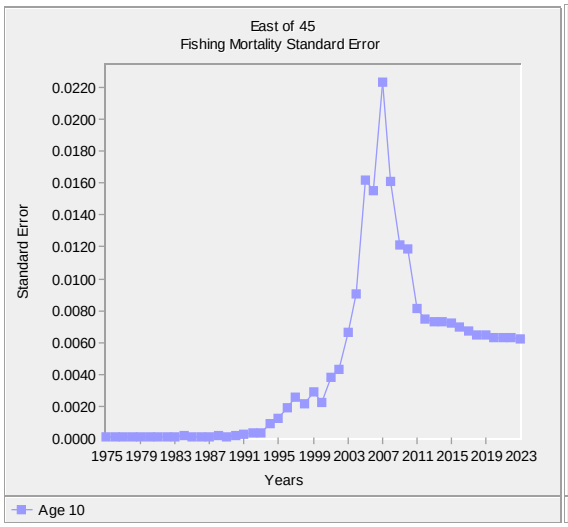
We consider different strategies for a multiyear tagging of a single cohort. In a three year experiment, between 1 to 3 different cohorts may be tagged in at least two different years (minimum requirement to obtain an estimate for survival for that cohort). This may be check in Table 1.

The simulations showed clearly that the use of tags recoveries may improve the precision of fishing mortalities (Figs 3, and 4). In Figure 4, it is showed not only the change in precision, but also the change in precision with time. For a VPA models without tagging data, RSE was higher than for any of the other scenarios. Thus a better possibility to discriminate the trends in Fc expected in the rebuilding plan for the ABFT. In addition, models with tagging data had a more or less constant RSE through the period 2011-2023.

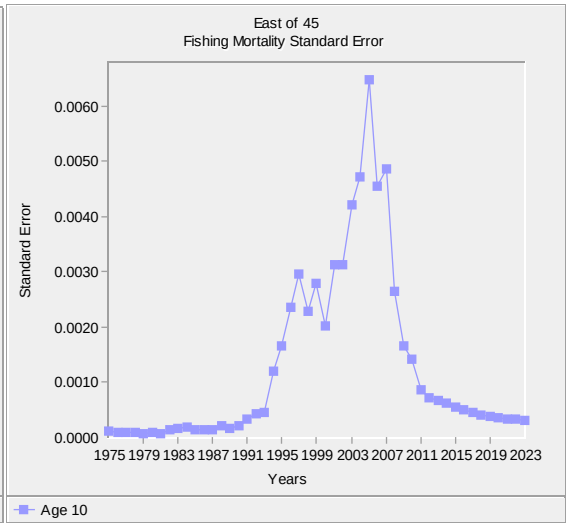
Cohort	tag year	age	Strategy1	Strategy2	Strategy3
2008	2011	3			4000
2009	2011	2		5000	3500
2010	2011	1	10000	5000	2500
2009	2012	3		3000	3500
2010	2012	2	5000	3000	3000
2011	2012	1	5000	4000	3500
2010	2013	3	5000	5000	2000
2011	2013	2	5000	5000	3000
2012	2013	1			5000

Table 1. Number of releases for a tagging experiment with tagging of a cohort in multiple years. The minimum number of total releases considered was 10000.

In Appendix III-VII the detailed results for each of the scenarios (strategies) considered is presented. In Fig. 4 we can see more clearly how all the models of the different tagging strategies provides more precise fishing mortalities than the base model without tagging data.

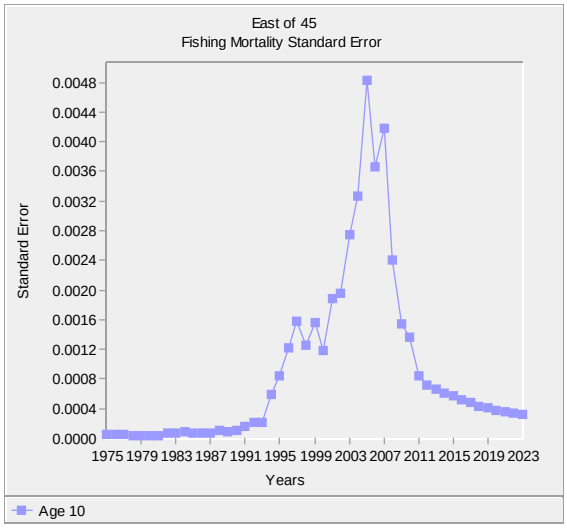


SE for F10 base model (no tag recoveries)



SE for F10 with Tagging strategy1

SE for F10 with Tagging strategy2



SE for F10 with Tagging strategy 3

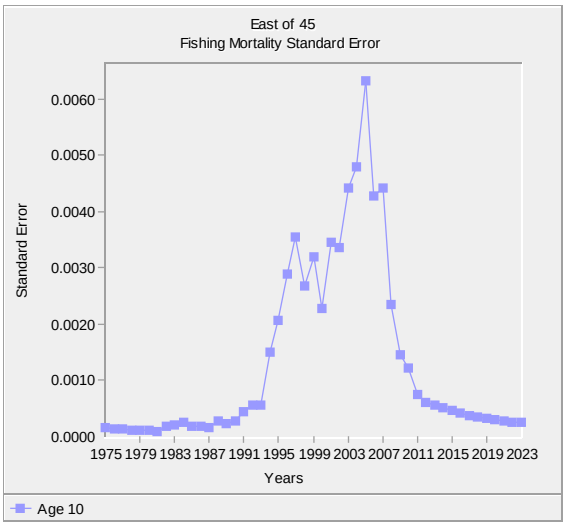


Fig. 3. Changes in RSE under different tagging strategies (Table1) and with a VPA model without tag recoveries. Presented data is for fishing instantaneous mortality at age 10.

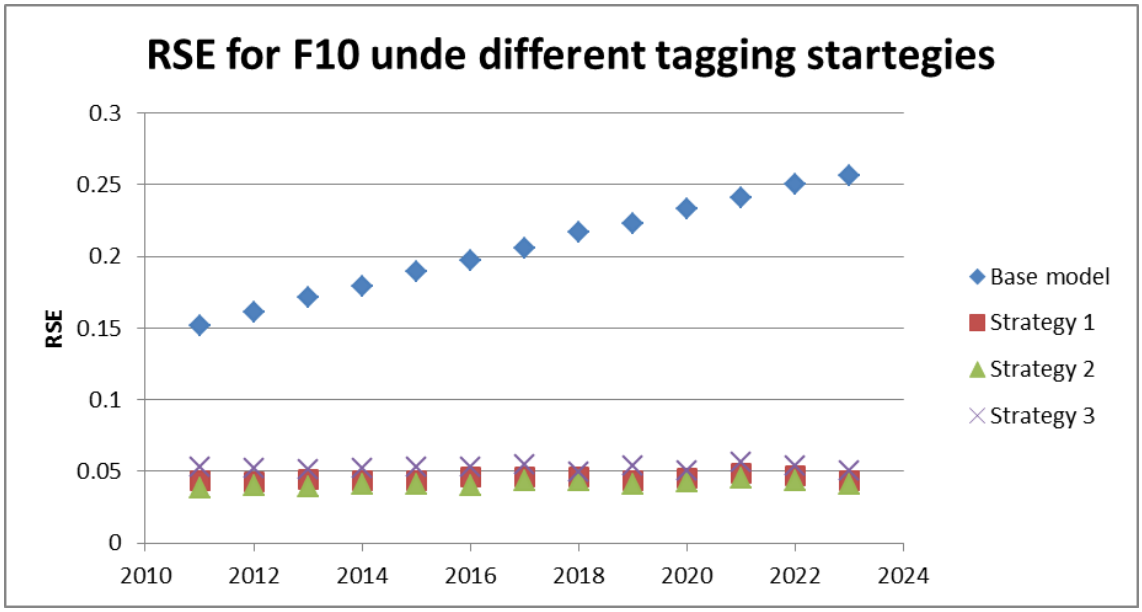


Fig. 4. RSE for F_{10} with different tagging strategies and without tagging data (base model).

3.3. *Spatial models*

It has been suggested that there are at least two subpopulations within the Mediterranean, may be even more (De Metrio *et al.* 2002; 2004; 2005). In a preliminary set of simulations considering constant fishing mortality and recovery rate, we suggested that more tags were needed to achieve similar precision in the mortality estimates in the case of the existence of two subpopulations. Models used to simulate this option were multistate models with dead recoveries (Barker *et al.* 2005). We used a transition probability between populations for juveniles of 30% and 20% for adults. In addition we considered differences in harvest rates between the two stocks (lower harvest rate in the eastern Mediterranean population). The main result from the simulations is that the precision of the estimates worsens (Fig. 5), and thus an increase in the number of tag releases needs to be considered.

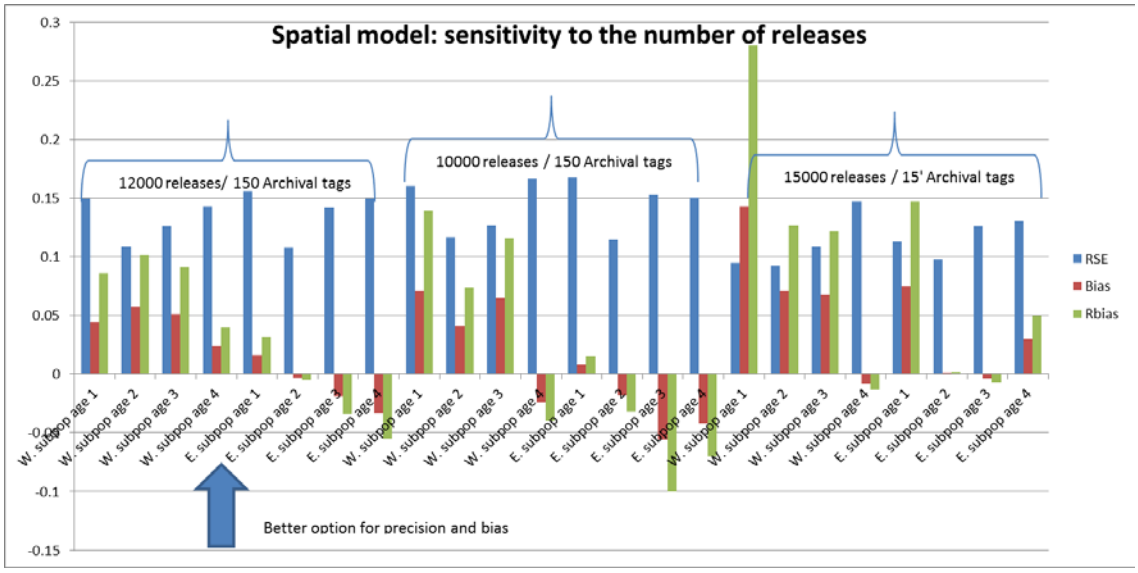


Fig. 5. Changes in RSE, Bias and RBias by age and subpopulation (western Mediterranean-W; eastern Mediterranean-E) with the number of releases. Archival tags are simulated as "high reward" tags with 100% reporting rate.

Against our expectation the model was not sensitive to changes in transition probabilities between population and ages (fig 6). Nonetheless many combinations were possible and we did not simulate all of them. Similarly, assuming differences in harvesting rates produced higher bias in the subpopulation with higher harvesting rates.

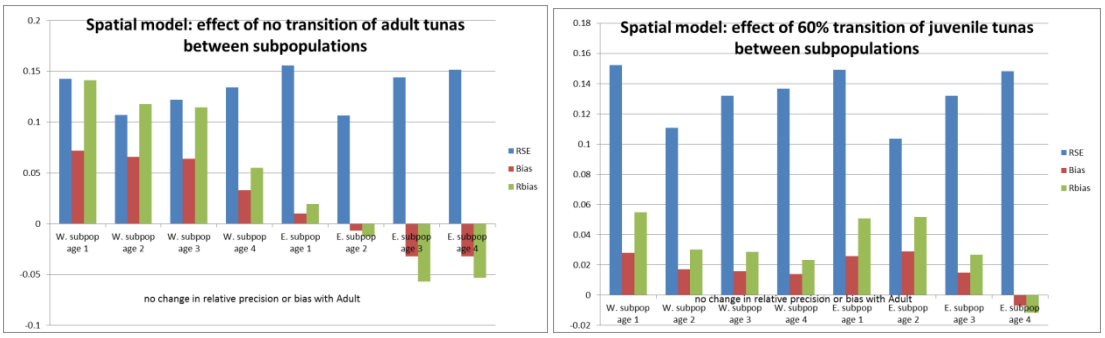


Fig 6. Sensitivity of survival RSE, Bias and RBias to changes in transition probabilities.

By increasing moderately the number of releases to 12,000 it is possible to improve the precision of survival estimates. Within the set of scenarios, which included either similar number of releases in each stratum or to tag more ABFT in one of the strata, we considered the best option was to divide the tags between the two subpopulations (western and eastern Mediterranean).

3.4. *Mixing*

One of the assumptions that will be most likely violated is the fact that Brownie based models assumed complete mixing. Williams et al (2002; Amstrup et al 2005) suggest that in order to cope and check for incomplete mixing 8or to the existence of different subpopulations) it is recommended to tag in different areas. Later models can be fit considering the effect of the area of release. These models can be compared with models without an area effect, which will support the idea of one population or that incomplete mixing is low.

Pollock *et* al. 2001 showed that tagged animals should be released in small batches in as many locations as possible rather than in large batches at a few locations. ABFT tuna should take place in different areas and at least covering eastern Mediterranean and the western Mediterranean and Eastern Atlantic areas.

3.5. *Tag shedding experiments*

In order to estimate fishing and natural mortality we need to estimate tagging mortality and tag retention rates. This is usually undertaken through the use of double tagging experiments (Williams *et al* 2002). A note should be considered because the loss of one tag may not necessarily be independent of the loss of both tags. Double tagging should be conducted for all tagging teams because of possible differences in tag retention rates.

The use of PIT tags has been considered as a possibility to increase the reporting rates through the use of the ICCAT Regional Observers Programme (ROP). There are no previous experiences in using this type of tags with this species. PIT tags can be used to estimate reporting rates and also as a substitute for double tagging experiments.

We recommend double tagging (or PIT + conventional tag) at least 500 tuna or 30% of tuna tagged per area. See the manual for further details.

3.6. *Tag reporting rates, the ICCAT Regional Observers Programme and the use of high reward tags*

The use of tag-recovery models allows the estimation of natural and fishing mortality if reporting rates are known (Hoening *et al*. 1998; Pollock *et al.* 2001, 2002). This is possible if tag shedding and tag reporting rates are known. A fraction of the catches can be checked by observers in order to estimate reporting rates (e.g. Williams et al 2002). In the case of the ABFT the ROP programme suits this aspect and can the reporting rates from the observers can be used to estimate reporting rates.

One of the main problems in tag-recovery studies is to achieve a sufficient number of recoveries. This dependent on fishing mortality, but also depends on reporting rates. An appropriate programme to encourage the report of tags recovered should be implemented. The use of rewards and the value of each can be explored using the approach presented by Pollock *et al.* (2001, 2002). Pollock et al (2002) showed that the combined used of both, observers and high reward tags improve the estimation of reporting rates. In this sense we recommend:

- A campaign to increase reporting rate should be implemented. Additionally it is important the use of high reward tags in at least all the years of the experiment. The value of high rewards tags used in other tuna studies is around 300 Euros (the objective is to obtain a reporting rate of 100% for the high reward tags). The number of high reward tags its constrained by the budget available for it in the first year. For the other two years, the ratio of high reward versus low reward tags should be adjusted considering estimated reporting rates during the first year (Pollock et al 2001 provides a method to estimate this ratio).
- Although most of the tags will be recovered during the first five years of the study, the simulations show that a number of recoveries can be obtained for a long period. Thus the budget for rewards must take this into account.
- High reward tags should be of a different colour than standard tags. If possible, the colour to be used for high reward tags should be similar to the colour used in other studies, thus the fisherman will identify the colour with a high reward.
- When high-reward tags did not produce a 100% reporting rate or when the observer component in a multiple component fishery did not have a 100% reporting rate, the combination of methods provided better estimates (Pollock *et al* 2002).
- In addition, PIT tags may also be used to estimate reporting rates.
- A fraction of the catch should be checked by observers carefully to obtain estimation of reporting rates (the fraction should be stated together with the observer programme) If reporting rate data are not independent of the tag-recovery and catch data, such as when observers are placed on a portion of fishing vessels, then the likelihoods for the tag-recovery and catch data need to be modified (see Eveson et al. 2007).
- We consider that a reward for all the tags reported of this tagging experiment should be given. This is because of the expected low recovery rates in the light of the rebuilding plan of the ABFT. If finally electronic tags are used, this should have a high reward. A high reward should be established for tuna with electronic tags (300-500 Euros; if it is 300 Euros, there is need at maximum 45,000 Euros only for this type of reward). A minimum of 100,000 Euros is available. Therefore, a reward of 30-45 Euros might be offered for each tag (conventional) reported.

4. Proposal for a tagging strategy

4.1. *Number of releases by area*

We have considered the different results of the simulations and we suggest to tag every year between 10,000 – 12,000 tunas of ages 1, 2 and 3 in each of the year of the experiment. The best scenario was obtained with the "strategy 2". Nonetheless considering that the tunas of 2-3 ages will tend to occur together we recommend the "strategy 3". The results also showed that a precise estimate is obtained releasing between 2000 - 3000 tags / year/ each class. The scheme propose for each of the year is of the three years is in Table 2.

Area	Methods to be decided	Age 1	Age2	Age3	Total
Bay of Biscay	Bait Boat	500-600	800	600	2000
Gibraltar/Atlantic	Bait Boat/Trap	500-600	800	600	2000
Balearic Islands/Gulf of Lions	PS	500-600	800	600	2000
Central Mediterranean	PS/Trap	800-900	1000	800-900	3000
Eastern Mediterranean	PS	800-900	1000	800-900	3000

Table 2. Number of releases per area and age proposed for a three years tagging experiment.

4.2. *Type of tags*

All the tagged animals should have a conventional tag. The colour will depend on the reward associated (see above). In addition, 2000 tunas of 2-3 years should be tagged with PIT tags in 2011 (see the tagging manual). The reporting rate of these should be evaluated before the 2012 season in order to determine the number of PIT tags to release during the rest of the experiment.[1]

4.3. *Cost evaluation*

An evaluation of the cost of tagging in different areas and gear is found in Appendix II. The cost of the tagging strategy proposed will vary between 200 -400 thousand euros /year.

If budget is available it worth's considering the use of electronic tags together associate to high rewards in order to get additional data on vertical and horizontal movements. Polacheck *et al*. (2006, 2010) considered that the possible gain in precision by the use of electronic tags do not compensate for the high costs of such tags. However recent developments that combine dead

[1] GBYP NOTE: After the delivery of the Tagging Design it was necessary to revise the possibility to use PITs in 2011. A note from Japan informed ICCAT that PITs are not allowed in fish entering into the Japanese market, according to the Japanese Food Health Regulation (Food Sanitation Act, Act no. 233 of December 24, 1947). Then it was decided to suspend the use of PITs in 2011, waiting for a definitive decision about the possibility to use a particular type of food-safe PITs in the future. ICCAT-GBYP also decided to use double tags (single barb and double barb anchors) on about 40% of the tagged fish in 2011, for defining the retention rate of the various types of tags and anchors in Atlantic bluefin tuna.

and live recoveries (from pop-up archival tags) may provide more accurate natural and fishing mortality estimates (e.g. Pollock et al 2004). However at present the sort time of life of this type of tags may be a handicap for its use in this sense.

4.4. *Monitoring of the experiment*

Once the 2011 fishery campaign finish, the reporting rate should be evaluated and the number of releases for 2012 revised. Depending on the results of the "reporting rate experiment", the number of releases, and the value for rewards may need to be re-evaluated. In addition we will have to analyse the results of the use of PIT tags.

After the 2012 fishing campaign, data should be analysed (number of expected returns, reporting rates, tag shedding rates, returns from archival tags and new knowledge got about the spatial movements of ABFT), and results from the PIT tagging experiment in order to consider possible changes in the strategy. After the third year, data should be analysed to consider possible changes in the tagging strategy.

We recommend that the tagging experiment should last at least five years.

4.5. *SWOT analysis to evaluate different tagging strategies*

In order to estimate fishing mortality form capture-recovery data, one important aspect to consider is non-mixing rates. Therefore, particular attention needs be put into spatial stratification of sampling areas and be focused on juvenile areas. Tagging should take place over as broad a spatial area as possible across the range for ages 1-3. Two different options or strategies were considered:

Two different options or strategies were considered:
Strategy 1: Use local purse seiners (and a bait boat in Bay of Biscay), with local captains and crew for spatially explicit sampling areas.
Strategy 2: Commission a bait boat from Bay of Biscay for use in the W. Med., and transit from area to area using the same crew and captain.

A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis is here presented to evaluate each of these two strategies. Strategy 1 seems to be most suitable. In addition, the high costs of strategy 2 (both option 2a and option 2b) suggest the first strategy as the best one (see Table 3).

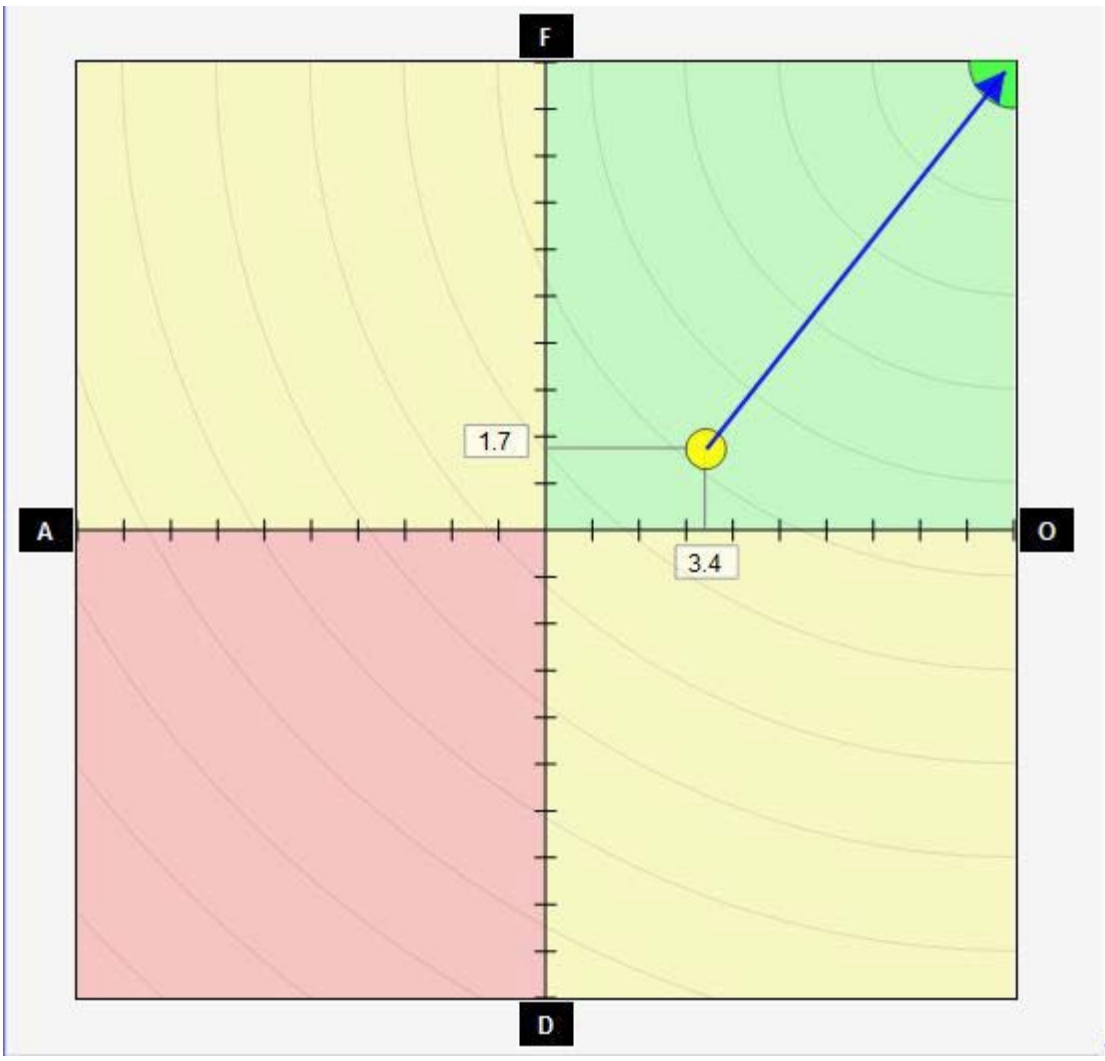
Strategy 1. Use local purse seiners (Bait boat in Bay of Biscay) with local captains and crew for spatially explicit sampling areas.

Fortalezas	Peso
Relationship between tagging team and vessel	2
Experience of tagging team	5
Cost of renting the vessel	5
Cost of traveling to different areas	5
Total	17

Debilidades	Peso
Difference in tag shedding and moratlity rates between operations	2
Handling of calls	2
Reduction of tagging mortality	1
Total	5

Oportunidades	Peso
Knowledge of local areas for fishing	9
Knowledge of sea conditions	9
Weather conditions	3
Need for local authorizations	3
Implication of local people	3
Effect on reporting rates	2
Total	29

Amenazas	Peso
Experience from other experiments	5
Total	5



Strategy 2: Commission a bait boat from Bay of Biscay for use in the W. Med., and transit from area to area using same crew and captain

Fortalezas	Peso
Experience of tagging team	10
Relationship between tagging team and vessel	5
Difference in tag shedding and moratlity rates between operations	5
Reduction of tagging mortality	4
Handling of calls	2
Total	26

Debilidades	Peso
Cost of renting the vessel	3
Cost of traveling to different areas	9
Total	12

Oportunidades	Peso
Experience from other experiments	2
Total	2

Amenazas	Peso
Knowledge of local areas for fishing	7
Weather conditions	5
Knowledge of sea conditions	3
Need for local authorizations	6
Implication of local people	1
Effect on reporting rates	1
Total	23

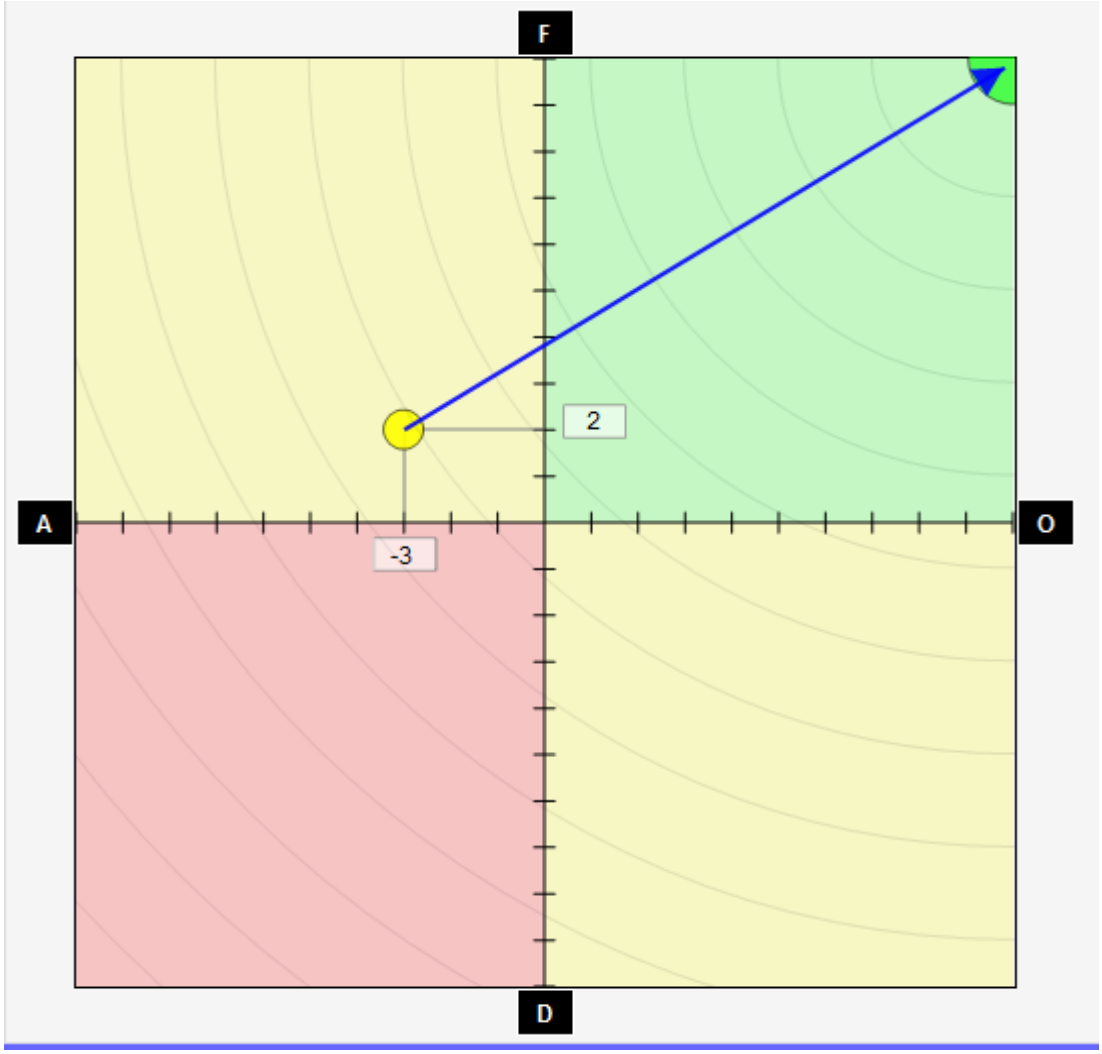


Table 3

		MARCADO CONVENCIONAL					
ZONA			SISTEMA DE PESCA	Nº MARCAS	Nº DÍAS	IMPORTE/DIA (€)	IMPORTE TOTAL
		OPCIÓN 1					
MAR CANTÁBRICO	Golfo de Vizcaya		CEBO VIVO	2000	21	8000	168000
MAR MEDITERRANEO OCCIDENTAL	Mar Catalán, G. León y G. Génova		CERQUERO 1	6000	45	5000	225000
MAR MEDITERRANEO CENTRAL	Mar Adriático y G. de Gabes		CERQUERO 2	4000	30	5000	150000
						TOTAL OPCION 1	543,000 €
		OPCIÓN 2 (A)					
MAR CANTÁBRICO	Golfo de Vizcaya		CEBO VIVO	2000	21	8000	168000
Viaje (2 barcos)			CEBO VIVO (DAKAR) *		15*2 (barcos)=30	4000	120000
MAR MEDITERRANEO OCCIDENTAL	Mar Catalán, G. León y G. Génova	Pesca	CEBO VIVO (DAKAR)	6000	30	8000	240000
MAR MEDITERRANEO CENTRAL	Mar Adriático y G. de Gabes	Pesca	CEBO VIVO (DAKAR)	4000	30	8000	240000
						TOTAL OPCION 2 (A)	768,000 €
		(B)					
MAR CANTÁBRICO	Golfo de Vizcaya		CEBO VIVO	2000	21	8000	168000
Viaje (2 barcos)			CEBO VIVO (DAKAR) *		15*2 (barcos)=30	3000	90000
MAR MEDITERRANEO OCCIDENTAL	Mar Catalán, G. León y G. Génova	Pesca	CEBO VIVO (DAKAR)	6000	30	7000	210000
MAR MEDITERRANEO CENTRAL	Mar Adriático, Golfo de Gabes	Pesca	CEBO VIVO (DAKAR)	4000	30	7000	210000
						TOTAL OPCIÓN 2 (B)	678,000 €

* Dos cañeros españoles con base en Dakar que hicieron la campaña de marcado convencional en el Océano Indico

References (not included in the Tagging Manual)

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Conn. P.B., White, G.C. and Laake, J.L. 2009. Simulation performance of Bayesian Estimators of Abundance Employing Age-at-harvest and Mark-Recovey-Data. In: Thomson et al (eds.) Modeling Demographic Processes in Marked Populations. Series: Environmental and Ecological Statistics. ISBN:978-0-387-38150-1.

APPENDIX I

F	instantaneus fishing mortality rates												
edad	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1	0.00197863	0.00178811	0.00165901	0.00156853	0.00147871	0.00139796	0.0012606	0.00114451	0.00105532	0.0009737	0.00091447	0.00085805	0.00081742
2	0.0805935	0.07302408	0.06726191	0.06406341	0.05977464	0.05659299	0.05086513	0.04656326	0.04230691	0.03934464	0.03691931	0.03435494	0.03266024
3	0.04205939	0.03833483	0.03569422	0.03346779	0.03169959	0.029559	0.02650122	0.02407115	0.02210982	0.02063813	0.0191207	0.01802234	0.01710251
4	0.07064103	0.06424975	0.05949734	0.05571709	0.05282229	0.04956133	0.04432909	0.04007022	0.03686873	0.03416992	0.0318303	0.02980661	0.02836585
5	0.03351703	0.0302324	0.02814012	0.02629629	0.0248334	0.02325668	0.02076995	0.01901571	0.01753104	0.01623816	0.01507598	0.01430704	0.01338916
6	0.02868192	0.02613011	0.02431056	0.02278877	0.02163701	0.02022099	0.01815145	0.01643698	0.01516987	0.01405866	0.01318805	0.01244365	0.01182412
7	0.04008484	0.03659	0.0340007	0.03238847	0.03041364	0.02815078	0.02536728	0.02330459	0.02146004	0.01984708	0.01854433	0.0174606	0.01671592
8	0.04168341	0.03752082	0.03494151	0.03315671	0.03099057	0.02879437	0.0259876	0.02370216	0.02192299	0.02011147	0.01910104	0.01789571	0.01710484
9	0.05411093	0.04861976	0.04483104	0.04296683	0.04021811	0.03750458	0.0338227	0.03070958	0.02827034	0.02620502	0.02456559	0.02314194	0.02193856
10	0.06493311	0.05834372	0.05379725	0.0515602	0.04826173	0.0450055	0.04058724	0.03685149	0.03392441	0.03144602	0.02947871	0.02777032	0.02632627
U	= 1-exp(-F); harvest rate type I fishery sensu Ricker 1975 -Amstrup et al 2005												
edad													
1	0.00197667	0.00178651	0.00165764	0.0015673	0.00147762	0.00139698	0.0012598	0.00114385	0.00105476	0.00097323	0.00091406	0.00085768	0.00081709
2	0.07743136	0.07042155	0.06504971	0.06205448	0.0580232	0.05502139	0.04959316	0.04549583	0.04142446	0.03858069	0.03624611	0.03377151	0.03213265
3	0.04118717	0.03760935	0.03506469	0.03291394	0.03120243	0.0291264	0.02615315	0.02378375	0.02186719	0.02042662	0.01893905	0.01786091	0.01695709
4	0.06820368	0.06222924	0.05776196	0.05419333	0.05145143	0.04835321	0.04336092	0.03927802	0.03619735	0.03359272	0.03132905	0.02936677	0.02796732
5	0.03296155	0.02977998	0.02774787	0.02595355	0.02452759	0.02298833	0.02055574	0.01883605	0.01737827	0.01610703	0.0149629	0.01420518	0.01329993
6	0.02827449	0.02579167	0.02401744	0.02253106	0.02140461	0.02001792	0.0179877	0.01630263	0.01505539	0.0139603	0.01310147	0.01236655	0.01175449
7	0.03929207	0.03592867	0.03342917	0.03186958	0.0299558	0.02775824	0.02504824	0.02303513	0.02123141	0.01965142	0.01837345	0.01730905	0.01657698
8	0.0408266	0.03682563	0.0343381	0.03261305	0.03051528	0.02838377	0.02565282	0.02342347	0.02168442	0.01991058	0.01891977	0.01773653	0.01695938
9	0.05267298	0.04745675	0.04384098	0.04205684	0.0394201	0.03681	0.03325711	0.03024283	0.02787448	0.02586464	0.02426631	0.02287621	0.02169966
10	0.06286986	0.05667434	0.05237578	0.05025353	0.04711565	0.04400777	0.03977461	0.03618074	0.03335543	0.03095673	0.02904845	0.02738827	0.02598275
M	instantaneus natural mortality rates from ICCAT												
1	0.49												
2	0.24												
3	0.24												
4	0.24												
5	0.24												
6	0.2												
7	0.175												
8	0.15												
9	0.125												
10	0.1												
S	Survival = exp(-F-M)												
1	0.6114	0.6115	0.6116	0.6117	0.6117	0.6118	0.6119	0.6119	0.6120	0.6120	0.6121	0.6121	0.6121
2	0.7257	0.7312	0.7355	0.7378	0.7410	0.7433	0.7476	0.7508	0.7540	0.7563	0.7581	0.7601	0.7614
3	0.7542	0.7570	0.7590	0.7607	0.7621	0.7637	0.7661	0.7679	0.7694	0.7706	0.7717	0.7726	0.7733
4	0.7330	0.7377	0.7412	0.7440	0.7462	0.7486	0.7525	0.7557	0.7582	0.7602	0.7620	0.7635	0.7646
5	0.7607	0.7632	0.7648	0.7662	0.7673	0.7685	0.7705	0.7718	0.7730	0.7740	0.7749	0.7755	0.7762
6	0.7956	0.7976	0.7991	0.8003	0.8012	0.8023	0.8040	0.8054	0.8064	0.8073	0.8080	0.8086	0.8091
7	0.8065	0.8093	0.8114	0.8127	0.8143	0.8162	0.8184	0.8201	0.8216	0.8230	0.8240	0.8249	0.8255
8	0.8256	0.8290	0.8312	0.8326	0.8344	0.8363	0.8386	0.8405	0.8420	0.8436	0.8444	0.8454	0.8461
9	0.8360	0.8406	0.8438	0.8454	0.8477	0.8500	0.8531	0.8558	0.8579	0.8597	0.8611	0.8623	0.8633
10	0.8480	0.8536	0.8574	0.8594	0.8622	0.8650	0.8688	0.8721	0.8747	0.8768	0.8786	0.8801	0.8813
f	recovery rate = tag rettaining rate*HARVEST RATE*tag reporting rate=øuλ; ø=(ø=							0.95	λ=	0.6			
1	0.0011	0.0010	0.0009	0.0009	0.0008	0.0008	0.0007	0.0007	0.0006	0.0006	0.0005	0.0005	0.0005
2	0.0441	0.0401	0.0371	0.0354	0.0331	0.0314	0.0283	0.0259	0.0236	0.0220	0.0207	0.0192	0.0183
3	0.0235	0.0214	0.0200	0.0188	0.0178	0.0166	0.0149	0.0136	0.0125	0.0116	0.0108	0.0102	0.0097
4	0.0389	0.0355	0.0329	0.0309	0.0293	0.0276	0.0247	0.0224	0.0206	0.0191	0.0179	0.0167	0.0159
5	0.0188	0.0170	0.0158	0.0148	0.0140	0.0131	0.0117	0.0107	0.0099	0.0092	0.0085	0.0081	0.0076
6	0.0161	0.0147	0.0137	0.0128	0.0122	0.0114	0.0103	0.0093	0.0086	0.0080	0.0075	0.0070	0.0067
7	0.0224	0.0205	0.0191	0.0182	0.0171	0.0158	0.0143	0.0131	0.0121	0.0112	0.0105	0.0099	0.0094
8	0.0233	0.0210	0.0196	0.0186	0.0174	0.0162	0.0146	0.0134	0.0124	0.0113	0.0108	0.0101	0.0097
9	0.0300	0.0271	0.0250	0.0240	0.0225	0.0210	0.0190	0.0172	0.0159	0.0147	0.0138	0.0130	0.0124
10	0.0358	0.0323	0.0299	0.0286	0.0269	0.0251	0.0227	0.0206	0.0190	0.0176	0.0166	0.0156	0.0148

Recovery rates values for a low reporting rate situation and higher tag sheeding rate.

f	recovery rate = tag rettaining rate*HARVEST RATE*tag reporting rate=øuλ; ø=(ø=							0.8	λ=	0.3			
1	0.0005	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
2	0.0186	0.0169	0.0156	0.0149	0.0139	0.0132	0.0119	0.0109	0.0099	0.0093	0.0087	0.0081	0.0077
3	0.0099	0.0090	0.0084	0.0079	0.0075	0.0070	0.0063	0.0057	0.0052	0.0049	0.0045	0.0043	0.0041
4	0.0164	0.0149	0.0139	0.0130	0.0123	0.0116	0.0104	0.0094	0.0087	0.0081	0.0075	0.0070	0.0067
5	0.0079	0.0071	0.0067	0.0062	0.0059	0.0055	0.0049	0.0045	0.0042	0.0039	0.0036	0.0034	0.0032
6	0.0068	0.0062	0.0058	0.0054	0.0051	0.0048	0.0043	0.0039	0.0036	0.0034	0.0031	0.0030	0.0028
7	0.0094	0.0086	0.0080	0.0076	0.0072	0.0067	0.0060	0.0055	0.0051	0.0047	0.0044	0.0042	0.0040
8	0.0098	0.0088	0.0082	0.0078	0.0073	0.0068	0.0062	0.0056	0.0052	0.0048	0.0045	0.0043	0.0041
9	0.0126	0.0114	0.0105	0.0101	0.0095	0.0088	0.0080	0.0073	0.0067	0.0062	0.0058	0.0055	0.0052
10	0.0151	0.0136	0.0126	0.0121	0.0113	0.0106	0.0095	0.0087	0.0080	0.0074	0.0070	0.0066	0.0062

APPENDIX II

Edad atún	Edad 1 a cuatro años < 30 kg	Edad > 4 años, 30+kg	Edad 1 a cuatro años < 30 kg	Edad > 4 años, 30+kg	Edad 1 a cuatro años < 30 kg			
	Almadraba, España	**Almadraba, España**	**Almadraba, Marruecos**	**Almadraba, Marruecos**	**Cebo vivo, estrecho de Gibraltar**	**Cebo vivo, golfo de Vizcaya**	**Cerco, Mediterráneo occidental**	Cerco, Mediterráneo oriental
Método								
Tipo marca	Convencional	Electrónica	convencional	electrónica	convencional	convencional	convencional	convencional
nº operaciones día	2	2	2	2	3	3	3	3
nº atunes operación	100	20	100	20	200	200	200	200
atunes /día	200	40	200	40	600	600	600	600
Precio/día	7030	7030	4700	4700	4000	6000	5000	15000
Precio marcar atún	35.15	175.75	23.5	117.5	6.66	12	8.33	25
Equipo marcado investigador/día (4 personas)	560	420	420	420	420	420	420	420
Precio investigador /atún marcado	2.8	10.5	2.1	10.5	0.7	0.7	0.7	0.7
Precio medio atún /día	37.95	186.25	25.6	128	7.36	12.7	9.03	25.7

APPENDIX III

VPA results for the Base model. VPA analysis for ABFT for the period 1975 – 2023. Data for 2011 – 2023 ws simulated using projected Fs and Ns from the 2010 stock assessment.

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*****************************************
                VPA-2BOX
  SUMMARY STATISTICS AND DIAGNOSTIC OUTPUT
  *****************************************

Basic model
22:12, 17  February 2011

=========================================================================
Total objective function =       25.72
     (with constants)   =      181.94
Number of parameters (P) =          17
Number of data points (D)=         170
AIC : 2*objective+2P     =      397.89
AICc: 2*objective+2P(...)=      401.91
BIC : 2*objective+Plog(D)=      451.20
Chi-square discrepancy   =      113.38

Loglikelihoods (deviance)=      -26.42 (      170.06)
  effort data          =      -26.42 (      170.06)

Log-posteriors          =        0.00
  catchability          =        0.00
  f-ratio               =        0.00
  natural mortality     =        0.00
  mixing coeff.         =        0.00

Constraints             =        0.69
  terminal F            =        0.00
  stock-rec./sex ratio  =        0.69

Out of bounds penalty   =        0.00
=========================================================================
```

TABLE 1. FISHING MORTALITY RATE FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	0.067	0.360	0.146	0.093	0.043	0.104	0.054	0.046	0.060	0.060
1976	0.009	0.269	0.470	0.122	0.098	0.031	0.067	0.031	0.048	0.048
1977	0.072	0.238	0.177	0.156	0.024	0.034	0.026	0.063	0.047	0.047
1978	0.136	0.356	0.179	0.085	0.041	0.011	0.025	0.013	0.037	0.037
1979	0.017	0.105	0.284	0.093	0.038	0.024	0.017	0.052	0.034	0.034
1980	0.112	0.243	0.412	0.190	0.031	0.035	0.030	0.016	0.036	0.036
1981	0.076	0.443	0.336	0.103	0.089	0.021	0.031	0.047	0.027	0.027
1982	0.244	0.395	0.487	0.175	0.068	0.042	0.022	0.078	0.055	0.055
1983	0.246	0.202	0.327	0.136	0.081	0.061	0.120	0.034	0.058	0.058
1984	0.110	0.456	0.124	0.133	0.132	0.096	0.087	0.119	0.064	0.064

1985	0.093	0.412	0.405	0.117	0.072	0.070	0.037	0.055	0.077	0.046
1986	0.279	0.322	0.248	0.152	0.033	0.047	0.042	0.033	0.073	0.044
1987	0.144	0.399	0.297	0.121	0.048	0.030	0.085	0.064	0.067	0.040
1988	0.344	0.215	0.393	0.166	0.059	0.042	0.050	0.077	0.101	0.061
1989	0.190	0.373	0.172	0.154	0.143	0.033	0.054	0.038	0.079	0.048
1990	0.175	0.247	0.321	0.132	0.167	0.056	0.055	0.076	0.095	0.057
1991	0.077	0.295	0.225	0.139	0.140	0.047	0.049	0.061	0.138	0.083
1992	0.079	0.291	0.363	0.091	0.072	0.063	0.106	0.131	0.161	0.097
1993	0.090	0.492	0.348	0.137	0.062	0.067	0.074	0.098	0.152	0.091
1994	0.121	0.280	0.206	0.087	0.124	0.095	0.189	0.210	0.356	0.213
1995	0.155	0.220	0.278	0.118	0.116	0.176	0.098	0.171	0.203	0.243
1996	0.177	0.459	0.359	0.267	0.131	0.066	0.113	0.088	0.235	0.282
1997	0.173	0.358	0.236	0.210	0.164	0.157	0.098	0.236	0.242	0.290
1998	0.125	0.551	0.399	0.284	0.134	0.297	0.047	0.053	0.160	0.192
1999	0.129	0.165	0.317	0.225	0.119	0.055	0.058	0.075	0.174	0.209
2000	0.342	0.313	0.178	0.196	0.218	0.161	0.064	0.100	0.116	0.139
2001	0.008	0.378	0.176	0.122	0.144	0.121	0.207	0.143	0.166	0.200
2002	0.031	0.429	0.297	0.127	0.059	0.133	0.084	0.140	0.154	0.185
2003	0.014	0.166	0.104	0.076	0.120	0.058	0.203	0.150	0.196	0.235
2004	0.050	0.166	0.195	0.067	0.039	0.086	0.090	0.127	0.209	0.251
2005	0.214	0.217	0.131	0.112	0.069	0.073	0.088	0.058	0.282	0.338
2006	0.223	0.197	0.208	0.066	0.031	0.102	0.053	0.072	0.202	0.243
2007	0.003	0.168	0.075	0.175	0.129	0.087	0.102	0.086	0.228	0.273
2008	0.000	0.174	0.105	0.170	0.094	0.077	0.088	0.111	0.132	0.159
2009	0.001	0.019	0.082	0.197	0.091	0.077	0.126	0.113	0.087	0.104
2010	0.001	0.018	0.022	0.326	0.138	0.160	0.109	0.096	0.077	0.093
2011	0.002	0.080	0.041	0.067	0.032	0.026	0.037	0.037	0.049	0.059
2012	0.002	0.073	0.038	0.062	0.028	0.024	0.033	0.034	0.042	0.051
2013	0.002	0.069	0.035	0.058	0.027	0.022	0.031	0.031	0.040	0.047
2014	0.002	0.065	0.034	0.055	0.025	0.021	0.029	0.030	0.038	0.045
2015	0.002	0.062	0.033	0.054	0.025	0.020	0.028	0.028	0.035	0.042
2016	0.001	0.061	0.031	0.051	0.024	0.020	0.026	0.026	0.033	0.039
2017	0.009	0.028	0.028	0.046	0.021	0.018	0.025	0.024	0.030	0.036
2018	0.006	0.349	0.013	0.043	0.020	0.017	0.023	0.023	0.028	0.033
2019	0.000	0.200	0.214	0.019	0.019	0.016	0.022	0.021	0.027	0.032
2020	0.001	0.003	0.110	0.438	0.008	0.015	0.020	0.020	0.025	0.030
2021	0.004	0.023	0.001	0.193	0.267	0.006	0.019	0.020	0.024	0.029
2022	0.002	0.138	0.011	0.002	0.099	0.279	0.008	0.018	0.023	0.028
2023	0.002	0.056	0.074	0.018	0.001	0.087	0.542	0.008	0.022	0.027

TABLE 2. ABUNDANCE AT THE BEGINNING OF THE YEAR [BY AREA] FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	1628424.	1299960.	681971.	303855.	314374.	88142.	97006.	81568.	81302.	985190.
1976	2408628.	932869.	713344.	463692.	217778.	236809.	65012.	77167.	67019.	906794.

1977 1231130. 1462029. 560547. 350763. 322824. 155250. 188021. 51013. 64393. 838565.
1978 972733. 702127. 906604. 369473. 236162. 248036. 122830. 153845. 41219. 778189.
1979 1203485. 519956. 386994. 596253. 267009. 178223. 200756. 100599. 130702. 713796.
1980 1824014. 724923. 368087. 229212. 427368. 202254. 142484. 165637. 82233. 736156.
1981 1575374. 999208. 447334. 191703. 149108. 326065. 159862. 116019. 140253. 712790.
1982 2512699. 894496. 504776. 251348. 136030. 107282. 261347. 130048. 95285. 748184.
1983 3831150. 1205456. 474012. 244094. 165979. 99935. 84234. 214546. 103565. 720041.
1984 1969982. 1835529. 774680. 268761. 167614. 120371. 77002. 62726. 178431. 701176.
1985 1783801. 1081252. 915265. 538308. 185051. 115504. 89506. 59250. 47930. 742756.
1986 3115214. 995275. 563405. 480143. 376725. 135457. 88190. 72380. 48258. 680980.
1987 2190808. 1444437. 567275. 345911. 324347. 286760. 105814. 70963. 60285. 629292.
1988 3378410. 1162013. 762640. 331556. 241095. 243189. 227758. 81574. 57306. 596844.
1989 3318804. 1467958. 737162. 405117. 220952. 178820. 190876. 181808. 65015. 553853.
1990 3416656. 1681599. 795260. 488289. 273277. 150722. 141582. 151876. 150631. 530829.
1991 4126509. 1756886. 1033369. 453722. 336591. 181993. 116677. 112509. 121125. 574673.
1992 3792756. 2340093. 1028458. 648966. 310725. 230133. 142176. 93245. 91129. 571641.
1993 4110883. 2146398. 1376397. 562951. 465981. 227558. 176991. 107380. 70371. 538035.
1994 3374614. 2301838. 1032740. 764552. 386264. 344492. 174212. 137955. 83802. 497657.
1995 3870433. 1832300. 1368740. 660873. 551326. 268426. 256570. 121073. 96272. 415622.
1996 3431902. 2029934. 1156986. 815723. 461997. 386312. 184347. 195183. 87837. 364202.
1997 2419486. 1760557. 1009450. 635687. 491516. 318715. 296077. 138243. 153825. 309704.
1998 3714981. 1246310. 968290. 627325. 405251. 328031. 222921. 225273. 93988. 316228.
1999 3013636. 2009375. 565102. 510970. 371487. 278748. 199483. 178474. 183905. 306855.
2000 3833458. 1622364. 1340156. 323728. 320923. 259375. 215974. 158035. 142505. 361679.
2001 2581545. 1668538. 933274. 881924. 209306. 203007. 180708. 170076. 123024. 396623.
2002 2444360. 1569144. 899797. 615613. 614254. 142625. 147297. 123272. 126831. 385905.
2003 2844553. 1451183. 803360. 525975. 426498. 455315. 102270. 113675. 92281. 386083.

2004 4131399. 1718610. 966559. 569631. 383585. 297626. 351624. 70087. 84217. 343182.
2005 2057916. 2408295. 1145617. 625632. 418843. 290316. 223660. 269878. 53148. 301772.
2006 1436687. 1018165. 1525273. 790324. 439794. 307583. 220913. 171930. 219227. 230082.
2007 724835. 704360. 657711. 974640. 581963. 335378. 227452. 175886. 137676. 321315.
2008 2208381. 442881. 468533. 480222. 643668. 402450. 251720. 172484. 138957. 318054.
2009 2355807. 1352323. 292729. 331691. 318634. 460761. 304981. 193586. 132804. 352893.
2010 2517216. 1442177. 1043766. 212169. 214323. 228949. 349448. 225782. 148832. 395110.
2011 2366007. 1541073. 1114448. 802935. 120423. 146916. 159695. 263102. 176540. 447469.
2012 2440010. 1446278. 1119380. 841558. 590786. 91788. 117181. 129224. 218162. 530024.
2013 2459089. 1491751. 1058046. 848121. 622236. 451882. 73366. 95179. 107541. 640342.
2014 2477361. 1503626. 1095651. 803481. 629554. 476499. 361861. 59720. 79416. 643740.
2015 2388404. 1514936. 1107815. 832750. 598075. 482773. 381907. 295013. 49905. 624309.
2016 4515929. 1460595. 1120218. 843446. 620390. 458955. 387248. 311749. 247021. 584061.
2017 384606. 2764182. 1081186. 854691. 630479. 476434. 368345. 316662. 261423. 719292.
2018 575545. 233462. 2115128. 826677. 642100. 485479. 383036. 301657. 266099. 851627.
2019 38234017. 350611. 129570. 1643015. 622921. 495135. 390926. 314235. 253803. 973573.
2020 3564951. 23421234. 225857. 82305. 1268570. 480818. 399072. 321182. 264748. 1071352.
2021 728419. 2182465. 18375960. 159084. 41771. 989987. 387873. 328236. 270970. 1168578.
2022 1432656. 444496. 1677061. 14437026. 103151. 25150. 805487. 319382. 277045. 1260775.
2023 1433324. 876252. 304538. 1304293. 11334972. 73525. 15579. 670722. 269881. 1347910.
2024 876735. 651859. 222517. 1007868. 8908846. 55199. 7609. 572832. 1420366.
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TABLE 3. CATCH OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 83784. 352022. 82482. 24055. 11863. 7932. 4665. 3441. 4480. 54950.

1976	17501.	196886.	239994.	47505.	18187.	6492.	3896.	2187.	2948.	40376.	
1977	67420.	276479.	81061.	45074.	6677.	4738.	4363.	2903.	2778.	36620.	
1978	98571.	188169.	132603.	26750.	8539.	2569.	2746.	1850.	1398.	26717.	
1979	15968.	46352.	85484.	47174.	8803.	3802.	3158.	4700.	4051.	22395.	
1980	153268.	139588.	111494.	35392.	11439.	6346.	3925.	2495.	2715.	24603.	
1981	91413.	320656.	114393.	16726.	11334.	6214.	4537.	4938.	3506.	18037.	
1982	435146.	261565.	174574.	35996.	8002.	3990.	5295.	9037.	4835.	38429.	
1983	666700.	196954.	118435.	27650.	11539.	5339.	8741.	6724.	5468.	38481.	
1984	162819.	602874.	80533.	29876.	18523.	10029.	5897.	6546.	10420.	41447.	
1985	126331.	327195.	273250.	52930.	11441.	7067.	3014.	2958.	3329.	31801.	
1986	605591.	245280.	110492.	60475.	10838.	5638.	3356.	2173.	3201.	27826.	
1987	233815.	425594.	130379.	35130.	13521.	7777.	7936.	4073.	3661.	23513.	
1988	787367.	200806.	221887.	45198.	12256.	9116.	10264.	5612.	5200.	33542.	
1989	457214.	409308.	103865.	51467.	26166.	5342.	9140.	6317.	4674.	24558.	
1990	436998.	328718.	195472.	53837.	37392.	7450.	6938.	10362.	12813.	27930.	
1991	243244.	401949.	186084.	52344.	39257.	7563.	5140.	6163.	14736.	43603.	
1992	229346.	527897.	280116.	50401.	19089.	12662.	13102.	10683.	12770.	50171.	
1993	280527.	748303.	362086.	64110.	24965.	13406.	11620.	9313.	9358.	44738.	
1994	304847.	502294.	171942.	56713.	40131.	28248.	27583.	24303.	23658.	91143.	
1995	443084.	322790.	296579.	65551.	53670.	39327.	22103.	17701.	16646.	85605.	
1996	444406.	669904.	312384.	170612.	50658.	22396.	18070.	15305.	17362.	85496.	
1997	306609.	474221.	189334.	107589.	66458.	42200.	25467.	27051.	31144.	74425.	
1998	345669.	474502.	285613.	138652.	45367.	76858.	9470.	10785.	13079.	52631.	
1999	290410.	272684.	137390.	91981.	37213.	13567.	10306.	11996.	27670.	55145.	
2000	889625.	389997.	195408.	51453.	56121.	35131.	12280.	14041.	14718.	44863.	
2001	15982.	469971.	134430.	90060.	24959.	20977.	31157.	21135.	17744.	68378.	
2002	59817.	491266.	206724.	65445.	31542.	16089.	10914.	14936.	17076.	62174.	

2003	31034.	198423.	70574.	34139.	42902.	23442.	17278.	14727.	15451.	77055.
2004	158681.	233924.	152822.	33095.	12919.	22189.	27680.	7756.	14995.	72743.
2005	315743.	419028.	125613.	59295.	24776.	18596.	17314.	14100.	12307.	82641.
2006	228908.	162488.	255561.	44959.	11960.	27029.	10456.	11129.	37839.	47308.
2007	1510.	96996.	42050.	139516.	62706.	25349.	20195.	13425.	26398.	73222.
2008	755.	63119.	41758.	67048.	51597.	27174.	19392.	16913.	16230.	44546.
2009	1350.	22619.	20491.	52868.	24566.	30804.	33104.	19219.	10408.	33310.
2010	1350.	22619.	20491.	52868.	24566.	30804.	33104.	19219.	10408.	33310.
2011	4138.	105125.	39701.	46206.	3325.	3438.	5285.	8951.	7954.	24372.
2012	3954.	90136.	36666.	44991.	14528.	1976.	3487.	3976.	8529.	25066.
2013	3706.	88052.	32583.	42548.	14664.	8980.	2041.	2705.	3922.	28258.
2014	3572.	84855.	32934.	38430.	14078.	9098.	9572.	1616.	2753.	27008.
2015	3367.	80876.	31654.	39230.	13011.	8875.	9671.	7446.	1625.	24609.
2016	3087.	76677.	29974.	37334.	13095.	8212.	9202.	7449.	7445.	21315.
2017	2785.	67016.	26931.	34188.	11842.	7790.	8258.	6966.	7282.	24267.
2018	2557.	61544.	23521.	30957.	11261.	7252.	7989.	6298.	6867.	26624.
2019	2416.	56673.	22267.	26995.	10388.	6986.	7633.	6170.	6276.	29168.
2020	1970.	54101.	21047.	26191.	8932.	6407.	7399.	5907.	6183.	30319.
2021	2261.	44913.	20328.	24947.	8758.	5588.	6798.	5902.	6089.	31823.
2022	1846.	51129.	16883.	24464.	8626.	5574.	5955.	5410.	6038.	33302.
2023	1752.	42345.	19288.	20493.	8543.	5541.	6024.	4816.	5594.	33865.

TABLE 4. SPAWNING STOCK FECUNDITY AND RECRUITMENT OF East of 45

year	spawning biomass	recruits from VPA
1975	293928.	1628424.
1976	291518.	2408628.
1977	281635.	1231130.

1978	269648.	972733.
1979	258181.	1203485.
1980	253967.	1824014.
1981	236345.	1575374.
1982	233983.	2512699.
1983	210591.	3831150.
1984	203143.	1969982.
1985	212903.	1783801.
1986	209334.	3115214.
1987	202809.	2190808.
1988	200718.	3378410.
1989	201538.	3318804.
1990	186849.	3416656.
1991	183590.	4126509.
1992	187137.	3792756.
1993	196232.	4110883.
1994	185904.	3374614.
1995	181845.	3870433.
1996	174610.	3431902.
1997	162849.	2419486.
1998	160236.	3714981.
1999	161198.	3013636.
2000	159621.	3833458.
2001	150675.	2581545.
2002	161752.	2444360.
2003	160632.	2844553.
2004	155306.	4131399.
2005	151224.	2057916.
2006	155131.	1436687.
2007	170212.	724835.
2008	182592.	2208381.
2009	182142.	2355807.
2010	177704.	2517216.
2011	184200.	2366007.
2012	208319.	2440010.
2013	235548.	2459089.
2014	255689.	2477361.
2015	261761.	2388404.
2016	294111.	4515929.
2017	324256.	384606.
2018	349448.	575545.
2019	374204.	38234017.
2020	408521.	3564951.
2021	407484.	728419.
2022	646476.	1432656.
2023	929311.	1433324.

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TABLE 5. FITS TO INDEX DATA FOR East of 45

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5.1 ESP

Lognormal dist.
average numbers
Ages 6 - 10
log-likelihood = 2.92
deviance = 14.16
Chi-sq. discrepancy= 8.14

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Chi-square Predicted	Discrepancy
1981	0.179	0.358	-0.179	0.708	0.415E-02	3145.860	3763.036	0.187
1982	0.457	0.346	0.111	0.708	0.415E-02	4151.930	3716.304	0.026
1983	0.515	0.313	0.202	0.708	0.415E-02	4402.080	3595.170	0.003
1984	0.613	0.273	0.340	0.708	0.415E-02	4854.680	3457.037	0.013
1985	0.223	0.218	0.005	0.708	0.415E-02	3288.160	3270.940	0.073
1986	-0.525	0.156	-0.680	0.708	0.415E-02	1556.120	3072.713	0.563
1987	-0.428	0.137	-0.566	0.708	0.415E-02	1713.630	3017.086	0.478
1988	0.426	0.123	0.303	0.708	0.415E-02	4026.800	2973.266	0.004
1989	-0.229	0.116	-0.345	0.708	0.415E-02	2091.120	2953.620	0.310
1990	-0.078	0.122	-0.200	0.708	0.415E-02	2433.100	2972.220	0.202
1991	0.088	0.114	-0.026	0.708	0.415E-02	2871.900	2946.981	0.090
1992	-0.739	0.078	-0.817	0.708	0.415E-02	1256.650	2844.527	0.661
1993	-0.757	0.037	-0.794	0.708	0.415E-02	1233.910	2729.200	0.645
1994	-0.652	-0.018	-0.634	0.708	0.415E-02	1370.230	2582.764	0.529
1995	-1.085	-0.120	-0.965	0.708	0.415E-02	888.940	2333.315	0.760
1996	-0.498	-0.157	-0.341	0.708	0.415E-02	1598.010	2247.574	0.306
1997	0.356	-0.189	0.544	0.708	0.415E-02	3754.010	2178.239	0.178
1998	0.407	-0.176	0.583	0.708	0.415E-02	3950.270	2205.350	0.238
1999	0.529	-0.139	0.668	0.708	0.415E-02	4463.560	2288.177	0.411
2000	0.260	-0.099	0.360	0.708	0.415E-02	3411.810	2381.186	0.020
2001	0.809	-0.116	0.925	0.708	0.415E-02	5907.800	2342.680	1.421
2002	0.478	-0.184	0.662	0.708	0.415E-02	4240.520	2187.422	0.397
2003	-0.084	-0.189	0.105	0.708	0.415E-02	2417.060	2177.223	0.028
2004	-0.690	-0.236	-0.454	0.708	0.415E-02	1319.610	2077.017	0.392
2005	-0.012	-0.258	0.246	0.708	0.415E-02	2598.590	2031.888	0.000
2006	-0.068	-0.218	0.150	0.708	0.415E-02	2456.740	2114.857	0.014
2007	0.339	-0.171	0.510	0.708	0.415E-02	3690.980	2217.144	0.134
2008	-0.069	-0.115	0.046	0.708	0.415E-02	2455.050	2344.513	0.053
2009	0.236	-0.005	0.241	0.708	0.415E-02	3330.170	2616.150	0.000

Selectivities by age

Year	6	7	8	9	10
1981	0.164	0.274	0.478	0.769	1.000
1982	0.164	0.274	0.478	0.769	1.000
1983	0.164	0.274	0.478	0.769	1.000
1984	0.164	0.274	0.478	0.769	1.000
1985	0.164	0.274	0.478	0.769	1.000
1986	0.164	0.274	0.478	0.769	1.000
1987	0.164	0.274	0.478	0.769	1.000
1988	0.164	0.274	0.478	0.769	1.000
1989	0.164	0.274	0.478	0.769	1.000

1990	0.164	0.274	0.478	0.769	1.000
1991	0.164	0.274	0.478	0.769	1.000
1992	0.164	0.274	0.478	0.769	1.000
1993	0.164	0.274	0.478	0.769	1.000
1994	0.164	0.274	0.478	0.769	1.000
1995	0.164	0.274	0.478	0.769	1.000
1996	0.164	0.274	0.478	0.769	1.000
1997	0.164	0.274	0.478	0.769	1.000
1998	0.164	0.274	0.478	0.769	1.000
1999	0.164	0.274	0.478	0.769	1.000
2000	0.164	0.274	0.478	0.769	1.000
2001	0.164	0.274	0.478	0.769	1.000
2002	0.164	0.274	0.478	0.769	1.000
2003	0.164	0.274	0.478	0.769	1.000
2004	0.164	0.274	0.478	0.769	1.000
2005	0.164	0.274	0.478	0.769	1.000
2006	0.164	0.274	0.478	0.769	1.000
2007	0.164	0.274	0.478	0.769	1.000
2008	0.164	0.274	0.478	0.769	1.000
2009	0.164	0.274	0.478	0.769	1.000

5.2 ESP1

Not used

5.3 ESP2

Lognormal dist.
average numbers
Ages 2 - 2
log-likelihood = -22.97
deviance = 68.69
Chi-sq. discrepancy= 36.15

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Predicted	Chi-square Discrepancy
1975	0.593	-0.069	0.661	0.708	0.113E-03	213.720	110.315	0.395
1976	0.214	-0.359	0.573	0.708	0.113E-03	146.320	82.494	0.222
1977	0.599	0.104	0.495	0.708	0.113E-03	215.130	131.170	0.117
1978	-0.453	-0.683	0.230	0.708	0.113E-03	75.110	59.702	0.001
1979	-1.226	-0.868	-0.358	0.708	0.113E-03	34.670	49.618	0.320
1980	-0.532	-0.599	0.067	0.708	0.113E-03	69.410	64.893	0.043
1981	-0.219	-0.369	0.150	0.708	0.113E-03	94.950	81.716	0.014
1982	0.081	-0.458	0.539	0.708	0.113E-03	128.090	74.728	0.171
1983	0.006	-0.072	0.078	0.708	0.113E-03	118.830	109.949	0.039
1984	1.413	0.234	1.180	0.708	0.113E-03	485.620	149.247	3.600
1985	1.174	-0.276	1.450	0.708	0.113E-03	382.160	89.652	8.236
1986	-0.302	-0.319	0.017	0.708	0.113E-03	87.360	85.920	0.067
1987	1.269	0.019	1.250	0.708	0.113E-03	420.300	120.473	4.511

1988	-0.825	-0.115	-0.710	0.708	0.113E-03	51.800	105.354	0.585
1989	1.419	0.047	1.371	0.708	0.113E-03	488.140	123.855	6.554
1990	-0.083	0.240	-0.323	0.708	0.113E-03	108.780	150.243	0.293
1991	0.370	0.262	0.108	0.708	0.113E-03	171.110	153.520	0.027
1992	0.768	0.551	0.217	0.708	0.113E-03	254.590	204.926	0.002
1993	1.297	0.374	0.923	0.708	0.113E-03	432.270	171.797	1.408
1994	-1.221	0.539	-1.760	0.708	0.113E-03	34.840	202.582	1.151
1995	0.500	0.339	0.161	0.708	0.113E-03	194.750	165.769	0.011
1996	0.349	0.333	0.016	0.708	0.113E-03	167.510	164.855	0.067
1997	0.075	0.236	-0.160	0.708	0.113E-03	127.410	149.555	0.174
1998	-0.620	-0.195	-0.425	0.708	0.113E-03	63.560	97.199	0.370
1999	-3.557	0.456	-4.013	0.708	0.113E-03	3.370	186.465	1.492
2000	-0.979	0.174	-1.153	0.708	0.113E-03	44.400	140.644	0.873
2001	1.047	0.173	0.874	0.708	0.113E-03	336.760	140.489	1.148
2002	1.114	0.088	1.025	0.708	0.113E-03	359.870	129.090	2.097
2003	-0.351	0.130	-0.481	0.708	0.113E-03	83.220	134.581	0.413
2004	-0.299	0.300	-0.598	0.708	0.113E-03	87.650	159.443	0.502
2005	0.129	0.613	-0.484	0.708	0.113E-03	134.470	218.183	0.416
2006	-0.119	-0.238	0.119	0.708	0.113E-03	104.880	93.089	0.023
2007	-1.631	-0.593	-1.038	0.708	0.113E-03	23.120	65.282	0.805

Selectivities by age

Year	2
1975	1.000
1976	1.000
1977	1.000
1978	1.000
1979	1.000
1980	1.000
1981	1.000
1982	1.000
1983	1.000
1984	1.000
1985	1.000
1986	1.000
1987	1.000
1988	1.000
1989	1.000
1990	1.000
1991	1.000
1992	1.000
1993	1.000
1994	1.000
1995	1.000
1996	1.000
1997	1.000
1998	1.000
1999	1.000
2000	1.000
2001	1.000
2002	1.000
2003	1.000
2004	1.000

2005 1.000
2006 1.000
2007 1.000

5.4 ESP3

Lognormal dist.
average numbers
Ages 3 - 3
log-likelihood = -20.17
deviance = 63.10
Chi-sq. discrepancy= 54.06

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Chi-square Predicted	Discrepancy
1975	0.331	-0.096	0.427	0.708	0.562E-04	48.740	31.789	0.057
1976	0.588	-0.199	0.787	0.708	0.562E-04	63.040	28.696	0.772
1977	1.056	-0.307	1.363	0.708	0.562E-04	100.630	25.753	6.388
1978	-0.870	0.173	-1.043	0.708	0.562E-04	14.670	41.609	0.808
1979	0.720	-0.727	1.447	0.708	0.562E-04	71.910	16.924	8.160
1980	-0.252	-0.835	0.583	0.708	0.562E-04	27.200	15.190	0.237
1981	-1.856	-0.606	-1.250	0.708	0.562E-04	5.470	19.100	0.927
1982	0.198	-0.552	0.750	0.708	0.562E-04	42.670	20.157	0.643
1983	-0.874	-0.544	-0.331	0.708	0.562E-04	14.600	20.322	0.298
1984	1.284	0.041	1.243	0.708	0.562E-04	126.380	36.480	4.411
1985	1.149	0.079	1.070	0.708	0.562E-04	110.430	37.892	2.466
1986	-0.364	-0.335	-0.030	0.708	0.562E-04	24.320	25.048	0.092
1987	-1.176	-0.350	-0.826	0.708	0.562E-04	10.800	24.659	0.667
1988	-1.614	-0.098	-1.516	0.708	0.562E-04	6.970	31.751	1.055
1989	-1.444	-0.031	-1.413	0.708	0.562E-04	8.260	33.945	1.008
1990	0.150	-0.023	0.174	0.708	0.562E-04	40.680	34.192	0.008
1991	-0.382	0.282	-0.665	0.708	0.562E-04	23.880	46.423	0.552
1992	-1.067	0.215	-1.282	0.708	0.562E-04	12.040	43.398	0.943
1993	1.670	0.513	1.157	0.708	0.562E-04	185.980	58.466	3.339
1994	0.250	0.290	-0.041	0.708	0.562E-04	44.930	46.800	0.098
1995	0.588	0.539	0.049	0.708	0.562E-04	63.030	60.028	0.051
1996	1.306	0.334	0.972	0.708	0.562E-04	129.240	48.904	1.712
1997	1.727	0.254	1.473	0.708	0.562E-04	196.790	45.130	8.786
1998	0.359	0.138	0.220	0.708	0.562E-04	50.100	40.194	0.001
1999	-0.974	-0.363	-0.611	0.708	0.562E-04	13.210	24.341	0.512
2000	-0.010	0.564	-0.574	0.708	0.562E-04	34.650	61.524	0.484
2001	0.610	0.203	0.407	0.708	0.562E-04	64.420	42.892	0.044
2002	1.481	0.111	1.370	0.708	0.562E-04	153.960	39.115	6.528
2003	-1.012	0.087	-1.099	0.708	0.562E-04	12.730	38.192	0.842
2004	-1.184	0.229	-1.414	0.708	0.562E-04	10.710	44.033	1.009
2005	0.609	0.429	0.180	0.708	0.562E-04	64.340	53.765	0.007
2006	-1.040	0.680	-1.720	0.708	0.562E-04	12.370	69.073	1.137
2007	0.045	-0.099	0.144	0.708	0.562E-04	36.620	31.704	0.016

Selectivities by age

Year	3
1975	1.000
1976	1.000
1977	1.000
1978	1.000
1979	1.000
1980	1.000
1981	1.000
1982	1.000
1983	1.000
1984	1.000
1985	1.000
1986	1.000
1987	1.000
1988	1.000
1989	1.000
1990	1.000
1991	1.000
1992	1.000
1993	1.000
1994	1.000
1995	1.000
1996	1.000
1997	1.000
1998	1.000
1999	1.000
2000	1.000
2001	1.000
2002	1.000
2003	1.000
2004	1.000
2005	1.000
2006	1.000
2007	1.000

5.5 ESP4

Not used

5.6 ESP5

Not used

5.7 JJL

Lognormal dist.
average numbers
Ages 6 - 10
log-likelihood = 7.29

deviance = 9.54
Chi-sq. discrepancy= 7.10

Year	Observed	Predicted	Residuals (Obs-pred)	Standard Deviation	Q	Untransfrmd Catchabil.	Untransfrmd Observed	Predicted	Chi-square Discrepancy
1975	0.361	0.388	-0.027	0.708		0.183E-05	1.900	1.952	0.090
1976	0.485	0.322	0.162	0.708		0.183E-05	2.150	1.828	0.011
1977	0.981	0.263	0.718	0.708		0.183E-05	3.530	1.722	0.543
1978	0.125	0.259	-0.134	0.708		0.183E-05	1.500	1.715	0.157
1979	0.713	0.240	0.472	0.708		0.183E-05	2.700	1.684	0.094
1980	0.244	0.257	-0.013	0.708		0.183E-05	1.690	1.712	0.083
1981	0.208	0.270	-0.062	0.708		0.183E-05	1.630	1.734	0.111
1982	0.919	0.266	0.653	0.708		0.183E-05	3.320	1.728	0.376
1983	0.471	0.248	0.222	0.708		0.183E-05	2.120	1.697	0.001
1984	0.202	0.170	0.032	0.708		0.183E-05	1.620	1.570	0.060
1985	0.279	0.112	0.167	0.708		0.183E-05	1.750	1.481	0.010
1986	-0.003	0.056	-0.059	0.708		0.183E-05	1.320	1.400	0.109
1987	0.489	0.038	0.452	0.708		0.183E-05	2.160	1.375	0.076
1988	0.019	0.036	-0.016	0.708		0.183E-05	1.350	1.372	0.084
1989	-0.232	0.060	-0.292	0.708		0.183E-05	1.050	1.407	0.270
1990	0.063	0.056	0.007	0.708		0.183E-05	1.410	1.400	0.072
1991	-0.090	0.032	-0.122	0.708		0.183E-05	1.210	1.368	0.149
1992	-0.251	-0.009	-0.242	0.708		0.183E-05	1.030	1.313	0.233
1993	-0.241	-0.041	-0.201	0.708		0.183E-05	1.040	1.271	0.202
1994	-0.167	-0.086	-0.081	0.708		0.183E-05	1.120	1.215	0.123
1995	0.070	-0.178	0.248	0.708		0.183E-05	1.420	1.108	0.000
1996	-0.974	-0.188	-0.786	0.708		0.183E-05	0.500	1.097	0.639
1997	-0.916	-0.231	-0.685	0.708		0.183E-05	0.530	1.051	0.567
1998	-0.623	-0.187	-0.437	0.708		0.183E-05	0.710	1.099	0.379
1999	-0.727	-0.171	-0.556	0.708		0.183E-05	0.640	1.116	0.470
2000	-0.582	-0.144	-0.438	0.708		0.183E-05	0.740	1.147	0.380
2001	-0.322	-0.160	-0.161	0.708		0.183E-05	0.960	1.128	0.175
2002	0.437	-0.243	0.680	0.708		0.183E-05	2.050	1.038	0.442
2003	0.250	-0.260	0.510	0.708		0.183E-05	1.700	1.020	0.135
2004	-0.479	-0.298	-0.181	0.708		0.183E-05	0.820	0.982	0.189
2005	-0.409	-0.242	-0.166	0.708		0.183E-05	0.880	1.039	0.178
2006	0.366	-0.242	0.608	0.708		0.183E-05	1.910	1.040	0.283
2007	-0.343	-0.202	-0.141	0.708		0.183E-05	0.940	1.082	0.161
2008	-0.082	-0.151	0.069	0.708		0.183E-05	1.220	1.138	0.042
2009	-0.241	-0.041	-0.201	0.708		0.183E-05	1.040	1.271	0.203

Selectivities by age

Year	6	7	8	9	10
1975	0.160	0.332	0.748	0.800	1.000
1976	0.160	0.332	0.748	0.800	1.000
1977	0.160	0.332	0.748	0.800	1.000
1978	0.160	0.332	0.748	0.800	1.000
1979	0.160	0.332	0.748	0.800	1.000
1980	0.160	0.332	0.748	0.800	1.000
1981	0.160	0.332	0.748	0.800	1.000
1982	0.160	0.332	0.748	0.800	1.000

1983	0.160	0.332	0.748	0.800	1.000
1984	0.160	0.332	0.748	0.800	1.000
1985	0.160	0.332	0.748	0.800	1.000
1986	0.160	0.332	0.748	0.800	1.000
1987	0.160	0.332	0.748	0.800	1.000
1988	0.160	0.332	0.748	0.800	1.000
1989	0.160	0.332	0.748	0.800	1.000
1990	0.160	0.332	0.748	0.800	1.000
1991	0.160	0.332	0.748	0.800	1.000
1992	0.160	0.332	0.748	0.800	1.000
1993	0.160	0.332	0.748	0.800	1.000
1994	0.160	0.332	0.748	0.800	1.000
1995	0.160	0.332	0.748	0.800	1.000
1996	0.160	0.332	0.748	0.800	1.000
1997	0.160	0.332	0.748	0.800	1.000
1998	0.160	0.332	0.748	0.800	1.000
1999	0.160	0.332	0.748	0.800	1.000
2000	0.160	0.332	0.748	0.800	1.000
2001	0.160	0.332	0.748	0.800	1.000
2002	0.160	0.332	0.748	0.800	1.000
2003	0.160	0.332	0.748	0.800	1.000
2004	0.160	0.332	0.748	0.800	1.000
2005	0.160	0.332	0.748	0.800	1.000
2006	0.160	0.332	0.748	0.800	1.000
2007	0.160	0.332	0.748	0.800	1.000
2008	0.160	0.332	0.748	0.800	1.000
2009	0.160	0.332	0.748	0.800	1.000

5.8 MAR

Not used

5.9 ESPT

Not used

5.10 ESPH

Lognormal dist.
average biomass
Ages 2 - 3
log-likelihood = 0.00
deviance = 0.00
Chi-sq. discrepancy= 0.00

Year	Observed	Predicted	Residuals (Obs-pred)	Standard Deviation	Q Untransfrmd Catchabil.	Untransfrmd Observed	Untransfrmd Predicted	Chi-square Discrepancy

Selectivities by age

Year	2	3

5.11 NOR

Lognormal dist.
average biomass
Ages 10 - 10
log-likelihood = -1.16
deviance = 6.46
Chi-sq. discrepancy= 2.54

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Chi-square Predicted	Discrepancy
1975	0.759	0.145	0.614	0.708	0.853E-07	38.000	20.570	0.294
1976	0.174	0.123	0.051	0.708	0.853E-07	21.160	20.111	0.050
1977	0.870	0.057	0.813	0.708	0.853E-07	42.444	18.829	0.872
1978	-0.371	-0.024	-0.346	0.708	0.853E-07	12.278	17.360	0.310
1979	-1.557	-0.142	-1.415	0.708	0.853E-07	3.750	15.436	1.009
1980	0.124	-0.159	0.284	0.708	0.853E-07	20.143	15.164	0.002

Selectivities by age

Year	10
1975	1.000
1976	1.000
1977	1.000
1978	1.000
1979	1.000
1980	1.000

5.12 JAP

Lognormal dist.
month 1 numbers
Ages 4 - 10
log-likelihood = 7.67
deviance = 8.10
Chi-sq. discrepancy= 5.40

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Chi-square Predicted	Discrepancy
1990	-1.363	-0.349	-1.014	0.708	0.132E-05	0.350	0.965	0.790
1991	-1.134	-0.390	-0.744	0.708	0.132E-05	0.440	0.926	0.610
1992	-0.574	-0.354	-0.220	0.708	0.132E-05	0.770	0.960	0.217

1993	-0.601	-0.334	-0.267	0.708	0.132E-05	0.750	0.979	0.250
1994	-0.418	-0.181	-0.237	0.708	0.132E-05	0.900	1.141	0.229
1995	-0.364	-0.205	-0.159	0.708	0.132E-05	0.950	1.114	0.174
1996	0.615	-0.119	0.734	0.708	0.132E-05	2.530	1.214	0.592
1997	0.170	-0.086	0.256	0.708	0.132E-05	1.620	1.254	0.000
1998	-0.475	-0.145	-0.330	0.708	0.132E-05	0.850	1.182	0.298
1999	-0.139	-0.162	0.023	0.708	0.132E-05	1.190	1.163	0.064
2000	-0.114	-0.220	0.106	0.708	0.132E-05	1.220	1.097	0.028
2001	0.052	-0.319	0.371	0.708	0.132E-05	1.440	0.994	0.025
2002	-0.209	-0.452	0.243	0.708	0.132E-05	1.110	0.870	0.000
2003	-0.182	-0.183	0.001	0.708	0.132E-05	1.140	1.138	0.075
2004	-0.283	-0.176	-0.108	0.708	0.132E-05	1.030	1.147	0.139
2005	-0.614	-0.196	-0.418	0.708	0.132E-05	0.740	1.124	0.365
2006	-0.452	-0.096	-0.356	0.708	0.132E-05	0.870	1.242	0.318
2007	-0.429	-0.096	-0.333	0.708	0.132E-05	0.890	1.242	0.300
2008	-0.255	-0.018	-0.237	0.708	0.132E-05	1.060	1.343	0.228
2009	0.119	0.071	0.048	0.708	0.132E-05	1.540	1.467	0.052
2010	0.157	-0.066	0.223	0.708	0.132E-05	1.600	1.280	0.001
2011	0.177	-0.240	0.417	0.708	0.132E-05	1.632	1.076	0.050
2012	0.235	-0.339	0.574	0.708	0.132E-05	1.730	0.974	0.224
2013	0.293	-0.083	0.376	0.708	0.132E-05	1.834	1.259	0.027
2014	0.352	0.122	0.229	0.708	0.132E-05	1.944	1.545	0.001
2015	0.410	0.242	0.168	0.708	0.132E-05	2.060	1.742	0.010
2016	0.468	0.367	0.101	0.708	0.132E-05	2.184	1.974	0.030
2017	0.526	0.410	0.116	0.708	0.132E-05	2.315	2.061	0.024
2018	0.585	0.449	0.136	0.708	0.132E-05	2.454	2.142	0.018
2019	0.643	0.494	0.149	0.708	0.132E-05	2.601	2.240	0.014
2020	0.701	0.522	0.179	0.708	0.132E-05	2.757	2.305	0.007
2021	0.699	0.745	-0.047	0.708	0.132E-05	2.750	2.881	0.102
2022	0.702	0.666	0.036	0.708	0.132E-05	2.760	2.662	0.057
2023	0.702	0.722	-0.019	0.708	0.132E-05	2.760	2.814	0.086

Selectivities by age

Year	4	5	6	7	8	9	10
1990	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1991	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1992	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1993	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1994	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1995	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1996	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1997	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1998	0.026	0.074	0.977	0.867	0.706	1.000	0.349
1999	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2000	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2001	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2002	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2003	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2004	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2005	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2006	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2007	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2008	0.026	0.074	0.977	0.867	0.706	1.000	0.349

2009	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2010	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2011	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2012	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2013	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2014	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2015	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2016	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2017	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2018	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2019	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2020	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2021	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2022	0.026	0.074	0.977	0.867	0.706	1.000	0.349
2023	0.026	0.074	0.977	0.867	0.706	1.000	0.349

==========

TOTAL NUMBER OF FUNCTION EVALUATIONS = 3654
TOTAL NUMBER OF FUNCTION EVALUATIONS = 3654
terminal age structure of population

0.0000D+00	0.1547D-02	0.5000D+01	1.0	0.4000D+01	1	
0.0000D+00	0.5582D-01	0.5000D+01	1.0	0.4000D+01	2	
0.0000D+00	0.7379D-01	0.5000D+01	1.0	0.4000D+01	3	3 *****
0.0000D+00	0.1782D-01	0.5000D+01	1.0	0.3000D+01	4	
0.0000D+00	0.8481D-03	0.5000D+01	1.0	0.3000D+01	5	
0.0000D+00	0.8668D-01	0.5000D+01	1.0	0.1000D+00	6	
0.0000D+00	0.5416D+00	0.3000D+01	1.0	0.6000D+01	7	
0.0000D+00	0.7762D-02	0.5000D+01	1.0	0.1000D+00	8	
0.0000D+00	0.2229D-01	0.3000D+01	1.0	0.8000D+01	9	

terminal-age f-ratios

0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	10
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	11
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	12
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	13
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	14
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	15
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	16
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	17
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	18
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	19
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	20
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	21
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	22
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	23
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	24
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	25
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	26
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	27
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	28
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	29
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	30
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	31

```
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   32
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   33
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   34
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   35
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   36
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   37
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   38
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   39
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   40
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   41
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   42
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   43
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   44
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   45
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   46
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   47
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   48
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   49
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   50
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   51
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   52
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   53
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   54
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   55
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   56
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   57
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   58
# natural mortality
 0.0000D+00  0.4900D+00  0.1000D+01     0.0  0.1000D+00   59
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   60
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   61
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   62
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   63
 0.0000D+00  0.2000D+00  0.1000D+01     0.0  0.1000D+00   64
 0.0000D+00  0.1750D+00  0.1000D+01     0.0  0.1000D+00   65
 0.0000D+00  0.1500D+00  0.1000D+01     0.0  0.1000D+00   66
 0.0000D+00  0.1250D+00  0.1000D+01     0.0  0.1000D+00   67
 0.0000D+00  0.1000D+00  0.1000D+01     0.0  0.1000D+00   68
# transfer coefficients
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   69
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   70
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   71
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   72
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   73
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   74
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   75
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   76
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   77
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   78
# Stock recruitment relationship
 0.0000D+00  0.2507D+06  0.1000D+21     0.0  0.4000D+00   79
 0.0000D+00  0.1660D+05  0.1000D+21     0.0  0.0000D+00   80
 0.0000D+00  0.1580D+00  0.9000D+00     0.0  0.0000D+00   81
 0.0000D+00  0.1000D+01  0.2000D+01     0.0  0.0000D+00   82
```

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  0.0000D+00   0.1000D+01   0.2000D+01      0.0   0.0000D+00    83
# Variance scaling parameters
  0.0000D+00   0.8509D+00   0.1000D+21      1.0   0.4000D+00    84
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    85
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    86
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    87
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    88
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    89
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    90
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    91
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    92
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    93
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    94
  0.0000D+00   0.8509D+00   0.1000D+21     -0.1   0.4000D+00    95
# Number of parameters =          95
        ****************************************
                    VPA-2BOX
            BOOTSTRAP ESTIMATES OF BIAS AND VARIANCE
            ****************************************


Basic model
22:12, 17  February 2011


************************************************
BIAS AND STANDARD ERROR ESTIMATES
************************************************


TABLE 1A. BIAS OF FISHING MORTALITY RATE FOR East of 45
==========================================================================
     1    2    3    4    5    6    7    8    9   10
--------------------------------------------------------------------------
  1975  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1976  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1977  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1978  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1979  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1980  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1981  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1982  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1983  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1984  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1985  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1986  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1987  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1988  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1989  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1990  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1991  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1992  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1993  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  1994  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
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1995	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1996	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1997	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1998	0.000	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2001	0.000	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2002	0.000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001
2005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	-0.001
2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2009	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
2010	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.001	0.000	0.001
2011	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
2012	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
2013	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
2014	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001
2015	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001
2016	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001
2017	-0.003	0.044	0.001	0.001	0.000	0.000	0.001	0.000	0.001	0.001
2018	0.003	-0.123	0.026	0.001	0.001	0.000	0.001	0.001	0.001	0.001
2019	0.003	0.138	-0.079	0.052	0.001	0.000	0.001	0.001	0.001	0.001
2020	-0.007	0.123	0.099	-0.168	0.031	0.000	0.001	0.001	0.001	0.001
2021	0.005	-0.299	0.087	0.246	-0.101	0.032	0.001	0.001	0.001	0.001
2022	-0.001	0.251	-0.214	0.252	0.206	-0.091	0.063	0.001	0.001	0.001
2023	-0.001	-0.047	0.381	-0.178	0.881	0.413	0.311	0.256	0.001	0.001

TABLE 1B. STANDARD ERROR OF FISHING MORTALITY RATE FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	0.645E-04	0.272E-03	0.211E-03	0.130E-03	0.674E-04	0.149E-03	0.829E-04	0.688E-04	0.917E-04	0.917E-04
1976	0.106E-04	0.309E-03	0.536E-03	0.201E-03	0.152E-03	0.516E-04	0.105E-03	0.501E-04	0.767E-04	0.767E-04
1977	0.467E-04	0.313E-03	0.254E-03	0.242E-03	0.417E-04	0.570E-04	0.441E-04	0.105E-03	0.789E-04	0.789E-04
1978	0.125E-03	0.292E-03	0.290E-03	0.138E-03	0.724E-04	0.205E-04	0.419E-04	0.226E-04	0.641E-04	0.641E-04
1979	0.153E-04	0.108E-03	0.320E-03	0.172E-03	0.666E-04	0.422E-04	0.314E-04	0.912E-04	0.602E-04	0.602E-04
1980	0.697E-04	0.252E-03	0.552E-03	0.271E-03	0.608E-04	0.642E-04	0.559E-04	0.302E-04	0.659E-04	0.659E-04
1981	0.660E-04	0.364E-03	0.465E-03	0.178E-03	0.146E-03	0.430E-04	0.590E-04	0.871E-04	0.513E-04	0.513E-04
1982	0.343E-03	0.428E-03	0.633E-03	0.312E-03	0.128E-03	0.740E-04	0.462E-04	0.153E-03	0.110E-03	0.110E-03

1983 0.193E-03 0.356E-03 0.507E-03 0.240E-03 0.165E-03 0.122E-03 0.228E-03 0.740E-04 0.122E-03 0.122E-03
1984 0.128E-03 0.510E-03 0.257E-03 0.259E-03 0.267E-03 0.213E-03 0.188E-03 0.254E-03 0.144E-03 0.144E-03
1985 0.102E-03 0.622E-03 0.693E-03 0.273E-03 0.155E-03 0.156E-03 0.889E-04 0.128E-03 0.181E-03 0.109E-03
1986 0.240E-03 0.433E-03 0.519E-03 0.343E-03 0.801E-04 0.107E-03 0.100E-03 0.812E-04 0.181E-03 0.108E-03
1987 0.258E-03 0.483E-03 0.543E-03 0.304E-03 0.121E-03 0.793E-04 0.208E-03 0.159E-03 0.172E-03 0.103E-03
1988 0.514E-03 0.463E-03 0.704E-03 0.382E-03 0.162E-03 0.109E-03 0.136E-03 0.204E-03 0.275E-03 0.165E-03
1989 0.617E-03 0.801E-03 0.448E-03 0.361E-03 0.383E-03 0.975E-04 0.147E-03 0.109E-03 0.228E-03 0.137E-03
1990 0.443E-03 0.100E-02 0.973E-03 0.401E-03 0.459E-03 0.166E-03 0.165E-03 0.222E-03 0.286E-03 0.172E-03
1991 0.364E-03 0.946E-03 0.115E-02 0.527E-03 0.487E-03 0.143E-03 0.154E-03 0.194E-03 0.449E-03 0.270E-03
1992 0.384E-03 0.164E-02 0.161E-02 0.547E-03 0.302E-03 0.241E-03 0.350E-03 0.449E-03 0.575E-03 0.345E-03
1993 0.402E-03 0.317E-02 0.270E-02 0.777E-03 0.402E-03 0.304E-03 0.306E-03 0.359E-03 0.600E-03 0.360E-03
1994 0.832E-03 0.150E-02 0.187E-02 0.837E-03 0.802E-03 0.663E-03 0.972E-03 0.995E-03 0.164E-02 0.981E-03
1995 0.835E-03 0.180E-02 0.196E-02 0.126E-02 0.123E-02 0.132E-02 0.759E-03 0.105E-02 0.118E-02 0.142E-02
1996 0.125E-02 0.335E-02 0.391E-02 0.247E-02 0.158E-02 0.769E-03 0.978E-03 0.745E-03 0.177E-02 0.213E-02
1997 0.141E-02 0.330E-02 0.242E-02 0.303E-02 0.189E-02 0.219E-02 0.124E-02 0.243E-02 0.241E-02 0.289E-02
1998 0.360E-02 0.644E-02 0.534E-02 0.377E-02 0.229E-02 0.429E-02 0.730E-03 0.721E-03 0.201E-02 0.241E-02
1999 0.368E-02 0.552E-02 0.566E-02 0.409E-02 0.193E-02 0.104E-02 0.996E-03 0.123E-02 0.266E-02 0.319E-02
2000 0.111E-01 0.111E-01 0.706E-02 0.450E-02 0.493E-02 0.301E-02 0.127E-02 0.187E-02 0.209E-02 0.251E-02
2001 0.356E-03 0.175E-01 0.793E-02 0.559E-02 0.390E-02 0.323E-02 0.464E-02 0.316E-02 0.353E-02 0.423E-02
2002 0.187E-02 0.240E-01 0.191E-01 0.665E-02 0.298E-02 0.413E-02 0.249E-02 0.371E-02 0.394E-02 0.473E-02
2003 0.911E-03 0.109E-01 0.755E-02 0.587E-02 0.708E-02 0.311E-02 0.745E-02 0.498E-02 0.613E-02 0.736E-02
2004 0.299E-02 0.118E-01 0.153E-01 0.535E-02 0.317E-02 0.561E-02 0.513E-02 0.547E-02 0.831E-02 0.997E-02
2005 0.144E-01 0.149E-01 0.109E-01 0.103E-01 0.583E-02 0.636E-02 0.628E-02 0.356E-02 0.149E-01 0.179E-01
2006 0.167E-01 0.164E-01 0.176E-01 0.605E-02 0.306E-02 0.940E-02 0.490E-02 0.558E-02 0.142E-01 0.170E-01
2007 0.233E-03 0.154E-01 0.710E-02 0.180E-01 0.130E-01 0.908E-02 0.104E-01 0.850E-02 0.204E-01 0.245E-01
2008 0.654E-04 0.167E-01 0.111E-01 0.184E-01 0.111E-01 0.869E-02 0.100E-01 0.127E-01 0.147E-01 0.176E-01
2009 0.114E-03 0.291E-02 0.898E-02 0.242E-01 0.112E-01 0.987E-02 0.157E-01 0.143E-01 0.110E-01 0.132E-01

2010 0.106E-03 0.282E-02 0.350E-02 0.442E-01 0.202E-01 0.226E-01 0.155E-01 0.135E-01 0.108E-01 0.130E-01
2011 0.361E-03 0.128E-01 0.667E-02 0.110E-01 0.518E-02 0.420E-02 0.575E-02 0.574E-02 0.745E-02 0.894E-02
2012 0.350E-03 0.123E-01 0.646E-02 0.107E-01 0.486E-02 0.407E-02 0.546E-02 0.549E-02 0.683E-02 0.820E-02
2013 0.343E-03 0.122E-01 0.635E-02 0.105E-01 0.489E-02 0.396E-02 0.538E-02 0.534E-02 0.671E-02 0.805E-02
2014 0.345E-03 0.122E-01 0.647E-02 0.105E-01 0.485E-02 0.398E-02 0.538E-02 0.535E-02 0.671E-02 0.805E-02
2015 0.352E-03 0.121E-01 0.645E-02 0.108E-01 0.493E-02 0.401E-02 0.539E-02 0.523E-02 0.661E-02 0.794E-02
2016 0.281E-02 0.124E-01 0.631E-02 0.106E-01 0.499E-02 0.407E-02 0.528E-02 0.518E-02 0.641E-02 0.769E-02
2017 0.395E-02 0.106E+00 0.613E-02 0.996E-02 0.463E-02 0.388E-02 0.519E-02 0.497E-02 0.618E-02 0.742E-02
2018 0.395E-02 0.157E+00 0.646E-01 0.970E-02 0.450E-02 0.369E-02 0.503E-02 0.491E-02 0.596E-02 0.715E-02
2019 0.469E-02 0.159E+00 0.105E+00 0.132E+00 0.444E-02 0.362E-02 0.489E-02 0.480E-02 0.594E-02 0.712E-02
2020 0.553E-02 0.193E+00 0.111E+00 0.246E+00 0.825E-01 0.355E-02 0.482E-02 0.467E-02 0.582E-02 0.699E-02
2021 0.723E-02 0.240E+00 0.145E+00 0.274E+00 0.181E+00 0.876E-01 0.473E-02 0.474E-02 0.581E-02 0.698E-02
2022 0.256E-02 0.362E+00 0.199E+00 0.459E+00 0.245E+00 0.238E+00 0.181E+00 0.463E-02 0.585E-02 0.702E-02
2023 0.243E-02 0.126E+00 0.748E+00 0.159E+01 0.184E+01 0.748E+00 0.126E+01 0.930E+00 0.576E-02 0.692E-02
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TABLE 1C. BIAS OF ABUNDANCE (BY AREA) OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 0.106E+03 0.804E+02 0.157E+02 0.247E+02 0.498E+02 0.108E+02 0.148E+02 0.161E+02 0.180E+02 0.218E+03
1976 0.280E+03 0.616E+02 0.598E+02 0.103E+02 0.188E+02 0.383E+02 0.877E+01 0.122E+02 0.136E+02 0.185E+03
1977 0.704E+02 0.172E+03 0.509E+02 0.465E+02 0.698E+01 0.146E+02 0.313E+02 0.719E+01 0.105E+02 0.137E+03
1978 0.922E+02 0.450E+02 0.133E+03 0.385E+02 0.367E+02 0.549E+01 0.119E+02 0.263E+02 0.624E+01 0.118E+03
1979 0.139E+03 0.579E+02 0.367E+02 0.103E+03 0.308E+02 0.289E+02 0.449E+01 0.100E+02 0.226E+02 0.124E+03
1980 0.137E+03 0.854E+02 0.445E+02 0.278E+02 0.811E+02 0.243E+02 0.237E+02 0.377E+01 0.871E+01 0.780E+02
1981 0.154E+03 0.811E+02 0.663E+02 0.355E+02 0.220E+02 0.638E+02 0.199E+02 0.199E+02 0.325E+01 0.165E+02
1982 0.323E+03 0.938E+02 0.622E+02 0.513E+02 0.277E+02 0.172E+02 0.522E+02 0.167E+02 0.167E+02 0.131E+03

1983 0.277E+03 0.203E+03 0.760E+02 0.472E+02 0.403E+02 0.218E+02 0.140E+02 0.438E+02 0.146E+02 0.101E+03
1984 0.233E+03 0.178E+03 0.161E+03 0.598E+02 0.364E+02 0.314E+02 0.179E+02 0.120E+02 0.377E+02 0.148E+03
1985 0.183E+03 0.142E+03 0.138E+03 0.125E+03 0.472E+02 0.287E+02 0.258E+02 0.151E+02 0.102E+02 0.161E+03
1986 0.232E+03 0.113E+03 0.108E+03 0.107E+03 0.982E+02 0.377E+02 0.233E+02 0.216E+02 0.129E+02 0.184E+03
1987 0.364E+03 0.140E+03 0.895E+02 0.841E+02 0.854E+02 0.765E+02 0.306E+02 0.195E+02 0.186E+02 0.197E+03
1988 0.419E+03 0.223E+03 0.114E+03 0.709E+02 0.665E+02 0.673E+02 0.626E+02 0.255E+02 0.165E+02 0.176E+03
1989 0.969E+03 0.262E+03 0.174E+03 0.885E+02 0.559E+02 0.527E+02 0.558E+02 0.525E+02 0.218E+02 0.189E+03
1990 0.767E+03 0.590E+03 0.205E+03 0.136E+03 0.697E+02 0.432E+02 0.431E+02 0.464E+02 0.451E+02 0.162E+03
1991 0.183E+04 0.473E+03 0.466E+03 0.162E+03 0.108E+03 0.550E+02 0.355E+02 0.363E+02 0.401E+02 0.195E+03
1992 0.172E+04 0.113E+04 0.373E+03 0.369E+03 0.127E+03 0.857E+02 0.457E+02 0.301E+02 0.312E+02 0.202E+03
1993 0.171E+04 0.104E+04 0.887E+03 0.290E+03 0.290E+03 0.101E+03 0.701E+02 0.384E+02 0.259E+02 0.204E+03
1994 0.212E+04 0.105E+04 0.825E+03 0.695E+03 0.228E+03 0.229E+03 0.832E+02 0.585E+02 0.329E+02 0.210E+03
1995 0.188E+04 0.130E+04 0.816E+03 0.650E+03 0.546E+03 0.179E+03 0.187E+03 0.694E+02 0.507E+02 0.214E+03
1996 0.213E+04 0.115E+04 0.102E+04 0.643E+03 0.512E+03 0.428E+03 0.147E+03 0.156E+03 0.594E+02 0.240E+03
1997 0.175E+04 0.131E+04 0.895E+03 0.799E+03 0.503E+03 0.402E+03 0.350E+03 0.124E+03 0.135E+03 0.264E+03
1998 0.990E+04 0.107E+04 0.103E+04 0.703E+03 0.630E+03 0.395E+03 0.329E+03 0.294E+03 0.106E+03 0.352E+03
1999 0.786E+04 0.606E+04 0.837E+03 0.808E+03 0.550E+03 0.497E+03 0.323E+03 0.276E+03 0.253E+03 0.415E+03
2000 0.103E+05 0.481E+04 0.477E+04 0.657E+03 0.636E+03 0.432E+03 0.407E+03 0.271E+03 0.238E+03 0.596E+03
2001 0.114E+05 0.629E+04 0.378E+04 0.375E+04 0.517E+03 0.499E+03 0.354E+03 0.341E+03 0.233E+03 0.739E+03
2002 0.141E+05 0.700E+04 0.494E+04 0.297E+04 0.295E+04 0.407E+03 0.409E+03 0.297E+03 0.293E+03 0.879E+03
2003 0.184E+05 0.865E+04 0.549E+04 0.388E+04 0.234E+04 0.232E+04 0.333E+03 0.343E+03 0.256E+03 0.105E+04
2004 0.241E+05 0.113E+05 0.681E+04 0.432E+04 0.306E+04 0.184E+04 0.190E+04 0.279E+03 0.294E+03 0.117E+04
2005 0.124E+05 0.148E+05 0.885E+04 0.535E+04 0.340E+04 0.240E+04 0.151E+04 0.159E+04 0.240E+03 0.133E+04
2006 0.962E+04 0.760E+04 0.116E+05 0.696E+04 0.421E+04 0.267E+04 0.197E+04 0.126E+04 0.137E+04 0.141E+04
2007 0.631E+04 0.589E+04 0.597E+04 0.913E+04 0.548E+04 0.331E+04 0.219E+04 0.165E+04 0.109E+04 0.248E+04
2008 0.325E+05 0.387E+04 0.463E+04 0.470E+04 0.719E+04 0.431E+04 0.271E+04 0.184E+04 0.142E+04 0.321E+04
2009 0.355E+05 0.199E+05 0.304E+04 0.364E+04 0.370E+04 0.565E+04 0.352E+04 0.228E+04 0.158E+04 0.417E+04

2010 0.376E+05 0.218E+05 0.157E+05 0.239E+04 0.287E+04 0.291E+04 0.463E+04 0.296E+04 0.196E+04 0.516E+04
2011 0.372E+05 0.230E+05 0.171E+05 0.123E+05 0.188E+04 0.226E+04 0.238E+04 0.389E+04 0.255E+04 0.643E+04
2012 0.399E+05 0.228E+05 0.181E+05 0.135E+05 0.969E+04 0.148E+04 0.185E+04 0.200E+04 0.334E+04 0.809E+04
2013 0.417E+05 0.244E+05 0.179E+05 0.142E+05 0.106E+05 0.762E+04 0.121E+04 0.155E+04 0.172E+04 0.102E+05
2014 0.435E+05 0.255E+05 0.192E+05 0.141E+05 0.112E+05 0.834E+04 0.624E+04 0.102E+04 0.133E+04 0.108E+05
2015 0.436E+05 0.266E+05 0.201E+05 0.151E+05 0.111E+05 0.881E+04 0.683E+04 0.524E+04 0.877E+03 0.109E+05
2016 0.285E+06 0.267E+05 0.210E+05 0.158E+05 0.119E+05 0.872E+04 0.721E+04 0.573E+04 0.451E+04 0.106E+05
2017 0.124E+07 0.174E+06 0.210E+05 0.165E+05 0.124E+05 0.935E+04 0.714E+04 0.605E+04 0.493E+04 0.135E+05
2018 0.216E+06 0.759E+06 0.137E+06 0.165E+05 0.130E+05 0.978E+04 0.766E+04 0.599E+04 0.521E+04 0.166E+05
2019 -0.348E+07 0.132E+06 0.597E+06 0.108E+06 0.130E+05 0.102E+05 0.801E+04 0.643E+04 0.516E+04 0.197E+05
2020 0.492E+08 -0.213E+07 0.104E+06 0.470E+06 0.850E+05 0.102E+05 0.835E+04 0.673E+04 0.553E+04 0.223E+05
2021 0.409E+10 0.301E+08 -0.167E+07 0.821E+05 0.369E+06 0.669E+05 0.838E+04 0.701E+04 0.579E+04 0.249E+05
2022 0.437E+09 0.251E+10 0.237E+08 -0.132E+07 0.647E+05 0.291E+06 0.547E+05 0.703E+04 0.604E+04 0.274E+05
2023 0.437E+09 0.268E+09 0.197E+10 0.186E+08 -0.104E+07 0.509E+05 0.238E+06 0.460E+05 0.605E+04 0.302E+05
2024 0.267E+09 0.211E+09 0.155E+10 0.147E+08 -0.815E+06 0.417E+05 0.200E+06 0.396E+05 0.326E+05
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TABLE 1D. STANDARD ERROR OF ABUNDANCE (BY AREA) OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 0.154E+04 0.823E+03 0.916E+03 0.408E+03 0.497E+03 0.120E+03 0.147E+03 0.122E+03 0.120E+03 0.145E+04
1976 0.281E+04 0.940E+03 0.646E+03 0.721E+03 0.321E+03 0.391E+03 0.979E+02 0.123E+03 0.105E+03 0.142E+04
1977 0.792E+03 0.172E+04 0.738E+03 0.506E+03 0.567E+03 0.252E+03 0.320E+03 0.822E+02 0.106E+03 0.138E+04
1978 0.834E+03 0.485E+03 0.135E+04 0.580E+03 0.398E+03 0.446E+03 0.207E+03 0.268E+03 0.707E+02 0.134E+04
1979 0.109E+04 0.511E+03 0.380E+03 0.106E+04 0.456E+03 0.313E+03 0.365E+03 0.173E+03 0.231E+03 0.126E+04
1980 0.107E+04 0.667E+03 0.402E+03 0.299E+03 0.834E+03 0.359E+03 0.256E+03 0.306E+03 0.149E+03 0.134E+04
1981 0.130E+04 0.658E+03 0.525E+03 0.315E+03 0.235E+03 0.656E+03 0.294E+03 0.215E+03 0.264E+03 0.134E+04

1982 0.315E+04 0.798E+03 0.516E+03 0.412E+03 0.248E+03 0.185E+03 0.537E+03 0.247E+03 0.185E+03 0.145E+04
1983 0.268E+04 0.192E+04 0.626E+03 0.404E+03 0.324E+03 0.195E+03 0.151E+03 0.451E+03 0.213E+03 0.148E+04
1984 0.218E+04 0.164E+04 0.151E+04 0.491E+03 0.318E+03 0.255E+03 0.160E+03 0.127E+03 0.388E+03 0.153E+04
1985 0.187E+04 0.134E+04 0.128E+04 0.119E+04 0.386E+03 0.250E+03 0.208E+03 0.134E+03 0.109E+03 0.172E+04
1986 0.236E+04 0.114E+04 0.105E+04 0.101E+04 0.935E+03 0.304E+03 0.205E+03 0.175E+03 0.115E+03 0.165E+04
1987 0.368E+04 0.144E+04 0.898E+03 0.823E+03 0.792E+03 0.735E+03 0.249E+03 0.172E+03 0.151E+03 0.159E+04
1988 0.431E+04 0.225E+04 0.113E+04 0.705E+03 0.647E+03 0.623E+03 0.602E+03 0.209E+03 0.148E+03 0.157E+04
1989 0.991E+04 0.263E+04 0.177E+04 0.885E+03 0.554E+03 0.509E+03 0.510E+03 0.505E+03 0.180E+03 0.155E+04
1990 0.798E+04 0.606E+04 0.206E+04 0.139E+04 0.696E+03 0.436E+03 0.417E+03 0.428E+03 0.435E+03 0.156E+04
1991 0.188E+05 0.488E+04 0.476E+04 0.162E+04 0.110E+04 0.547E+03 0.357E+03 0.350E+03 0.368E+03 0.180E+04
1992 0.178E+05 0.115E+05 0.383E+04 0.374E+04 0.127E+04 0.861E+03 0.448E+03 0.300E+03 0.301E+03 0.195E+04
1993 0.177E+05 0.109E+05 0.905E+04 0.301E+04 0.294E+04 0.100E+04 0.705E+03 0.376E+03 0.258E+03 0.203E+04
1994 0.221E+05 0.108E+05 0.852E+04 0.710E+04 0.237E+04 0.231E+04 0.820E+03 0.592E+03 0.323E+03 0.206E+04
1995 0.194E+05 0.135E+05 0.850E+04 0.670E+04 0.559E+04 0.186E+04 0.189E+04 0.688E+03 0.509E+03 0.215E+04
1996 0.224E+05 0.119E+05 0.106E+05 0.668E+04 0.527E+04 0.439E+04 0.152E+04 0.159E+04 0.592E+03 0.239E+04
1997 0.182E+05 0.137E+05 0.931E+04 0.834E+04 0.524E+04 0.414E+04 0.360E+04 0.128E+04 0.137E+04 0.269E+04
1998 0.103E+06 0.112E+05 0.107E+05 0.732E+04 0.656E+04 0.412E+04 0.339E+04 0.302E+04 0.110E+04 0.364E+04
1999 0.821E+05 0.632E+05 0.873E+04 0.842E+04 0.575E+04 0.515E+04 0.337E+04 0.285E+04 0.260E+04 0.426E+04
2000 0.108E+06 0.503E+05 0.497E+05 0.685E+04 0.662E+04 0.452E+04 0.422E+04 0.283E+04 0.245E+04 0.614E+04
2001 0.119E+06 0.656E+05 0.395E+05 0.390E+05 0.539E+04 0.520E+04 0.370E+04 0.354E+04 0.244E+04 0.772E+04
2002 0.147E+06 0.729E+05 0.515E+05 0.310E+05 0.307E+05 0.424E+04 0.426E+04 0.310E+04 0.305E+04 0.913E+04
2003 0.190E+06 0.901E+05 0.571E+05 0.404E+05 0.244E+05 0.242E+05 0.347E+04 0.357E+04 0.267E+04 0.109E+05
2004 0.249E+06 0.117E+06 0.709E+05 0.449E+05 0.318E+05 0.192E+05 0.198E+05 0.291E+04 0.307E+04 0.123E+05
2005 0.129E+06 0.153E+06 0.917E+05 0.557E+05 0.353E+05 0.250E+05 0.157E+05 0.166E+05 0.250E+04 0.138E+05
2006 0.100E+06 0.791E+05 0.120E+06 0.721E+05 0.438E+05 0.278E+05 0.205E+05 0.132E+05 0.143E+05 0.147E+05
2007 0.656E+05 0.612E+05 0.621E+05 0.944E+05 0.567E+05 0.345E+05 0.228E+05 0.172E+05 0.114E+05 0.259E+05
2008 0.338E+06 0.402E+05 0.481E+05 0.489E+05 0.742E+05 0.446E+05 0.282E+05 0.191E+05 0.148E+05 0.334E+05

2009 0.371E+06 0.207E+06 0.316E+05 0.378E+05 0.384E+05 0.584E+05 0.365E+05 0.237E+05 0.164E+05 0.433E+05
2010 0.391E+06 0.227E+06 0.163E+06 0.249E+05 0.297E+05 0.302E+05 0.478E+05 0.307E+05 0.204E+05 0.537E+05
2011 0.386E+06 0.240E+06 0.179E+06 0.128E+06 0.195E+05 0.234E+05 0.247E+05 0.401E+05 0.264E+05 0.665E+05
2012 0.415E+06 0.236E+06 0.189E+06 0.141E+06 0.101E+06 0.154E+05 0.191E+05 0.208E+05 0.345E+05 0.835E+05
2013 0.437E+06 0.254E+06 0.186E+06 0.148E+06 0.111E+06 0.792E+05 0.126E+05 0.161E+05 0.179E+05 0.106E+06
2014 0.460E+06 0.268E+06 0.200E+06 0.146E+06 0.117E+06 0.871E+05 0.649E+05 0.106E+05 0.138E+05 0.112E+06
2015 0.461E+06 0.282E+06 0.211E+06 0.157E+06 0.115E+06 0.918E+05 0.713E+05 0.545E+05 0.908E+04 0.113E+06
2016 0.291E+07 0.282E+06 0.222E+06 0.166E+06 0.124E+06 0.905E+05 0.752E+05 0.598E+05 0.469E+05 0.110E+06
2017 0.268E+07 0.178E+07 0.222E+06 0.174E+06 0.130E+06 0.973E+05 0.741E+05 0.631E+05 0.515E+05 0.141E+06
2018 0.178E+07 0.164E+07 0.140E+07 0.175E+06 0.137E+06 0.103E+06 0.797E+05 0.622E+05 0.543E+05 0.173E+06
2019 0.561E+08 0.109E+07 0.129E+07 0.110E+07 0.137E+06 0.108E+06 0.840E+05 0.669E+05 0.535E+05 0.205E+06
2020 0.843E+08 0.343E+08 0.858E+06 0.101E+07 0.868E+06 0.108E+06 0.883E+05 0.705E+05 0.576E+05 0.232E+06
2021 0.172E+11 0.516E+08 0.270E+08 0.675E+06 0.798E+06 0.683E+06 0.885E+05 0.742E+05 0.607E+05 0.261E+06
2022 0.414E+10 0.105E+11 0.406E+08 0.213E+08 0.531E+06 0.628E+06 0.559E+06 0.743E+05 0.638E+05 0.290E+06
2023 0.414E+10 0.254E+10 0.827E+10 0.320E+08 0.167E+08 0.418E+06 0.514E+06 0.469E+06 0.639E+05 0.319E+06
2024 0.253E+10 0.200E+10 0.650E+10 0.251E+08 0.132E+08 0.342E+06 0.431E+06 0.404E+06 0.345E+06
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TABLE 1E. PARAMETER ESTIMATES FOR East of 45
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TERMINAL AGE STRUCTURE OF POPULATION ABUNDANCE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
2	0.877E+06	0.268E+09	0.267E+09	0.253E+10	946.4
3	0.652E+06	0.211E+09	0.211E+09	0.200E+10	946.7
4	0.223E+06	0.155E+10	0.155E+10	0.650E+10	418.9
5	0.101E+07	0.147E+08	0.147E+08	0.251E+08	171.4
6	0.891E+07	0.942E+07	-0.815E+06	0.132E+08	139.6
7	0.552E+05	0.201E+06	0.417E+05	0.342E+06	169.8
8	0.761E+04	0.204E+06	0.200E+06	0.431E+06	211.3
9	0.573E+06	0.570E+06	0.396E+05	0.404E+06	70.8
10	0.142E+07	0.145E+07	0.326E+05	0.345E+06	23.7

TERMINAL AGE STRUCTURE OF FISHING MORTALITY RATE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.155E-02	0.212E-02	-0.137E-02	0.243E-02	114.5
2	0.558E-01	0.835E-01	-0.469E-01	0.126E+00	151.3
3	0.738E-01	0.409E+00	0.381E+00	0.748E+00	182.6
4	0.178E-01	0.867E+00	-0.178E+00	0.159E+01	183.9
5	0.848E-03	0.882E+00	0.881E+00	0.184E+01	208.2
6	0.867E-01	0.444E+00	0.413E+00	0.748E+00	168.4
7	0.542E+00	0.111E+01	0.311E+00	0.126E+01	113.0
8	0.776E-02	0.264E+00	0.256E+00	0.930E+00	351.7
9	0.223E-01	0.231E-01	0.774E-03	0.576E-02	25.0
10	0.267E-01	0.277E-01	0.929E-03	0.692E-02	25.0

RATIO OF FISHING MORTALITY RATE ON LAST TWO AGES (F-RATIO)

Year	MLE	Average of bootstraps	Bias	Std. Error	% CV
1975	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1976	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1977	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1978	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1979	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1980	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1981	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1982	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1983	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1984	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1985	0.600E+00	0.600E+00	0.000E+00	0.236E-07	0.0
1986	0.600E+00	0.600E+00	0.000E+00	0.246E-07	0.0
1987	0.600E+00	0.600E+00	0.000E+00	0.277E-07	0.0
1988	0.600E+00	0.600E+00	0.000E+00	0.166E-07	0.0
1989	0.600E+00	0.600E+00	0.000E+00	0.232E-07	0.0
1990	0.600E+00	0.600E+00	0.000E+00	0.192E-07	0.0
1991	0.600E+00	0.600E+00	0.000E+00	0.234E-07	0.0
1992	0.600E+00	0.600E+00	0.000E+00	0.221E-07	0.0
1993	0.600E+00	0.600E+00	0.000E+00	0.230E-07	0.0
1994	0.600E+00	0.600E+00	0.000E+00	0.186E-07	0.0
1995	0.120E+01	0.120E+01	0.000E+00	0.327E-07	0.0
1996	0.120E+01	0.120E+01	0.000E+00	0.440E-07	0.0
1997	0.120E+01	0.120E+01	0.000E+00	0.422E-07	0.0
1998	0.120E+01	0.120E+01	0.000E+00	0.436E-07	0.0
1999	0.120E+01	0.120E+01	0.000E+00	0.349E-07	0.0
2000	0.120E+01	0.120E+01	0.000E+00	0.423E-07	0.0
2001	0.120E+01	0.120E+01	0.000E+00	0.435E-07	0.0
2002	0.120E+01	0.120E+01	0.000E+00	0.447E-07	0.0
2003	0.120E+01	0.120E+01	0.000E+00	0.325E-07	0.0
2004	0.120E+01	0.120E+01	0.000E+00	0.390E-07	0.0
2005	0.120E+01	0.120E+01	0.000E+00	0.501E-07	0.0
2006	0.120E+01	0.120E+01	0.000E+00	0.427E-07	0.0
2007	0.120E+01	0.120E+01	0.000E+00	0.440E-07	0.0
2008	0.120E+01	0.120E+01	0.000E+00	0.474E-07	0.0
2009	0.120E+01	0.120E+01	0.000E+00	0.413E-07	0.0
2010	0.120E+01	0.120E+01	0.000E+00	0.415E-07	0.0

2011	0.120E+01	0.120E+01	0.000E+00	0.401E-07	0.0
2012	0.120E+01	0.120E+01	0.000E+00	0.437E-07	0.0
2013	0.120E+01	0.120E+01	0.000E+00	0.399E-07	0.0
2014	0.120E+01	0.120E+01	0.000E+00	0.401E-07	0.0
2015	0.120E+01	0.120E+01	0.000E+00	0.394E-07	0.0
2016	0.120E+01	0.120E+01	0.000E+00	0.427E-07	0.0
2017	0.120E+01	0.120E+01	0.000E+00	0.424E-07	0.0
2018	0.120E+01	0.120E+01	0.000E+00	0.438E-07	0.0
2019	0.120E+01	0.120E+01	0.000E+00	0.411E-07	0.0
2020	0.120E+01	0.120E+01	0.000E+00	0.382E-07	0.0
2021	0.120E+01	0.120E+01	0.000E+00	0.392E-07	0.0
2022	0.120E+01	0.120E+01	0.000E+00	0.443E-07	0.0
2023	0.120E+01	0.120E+01	0.000E+00	0.409E-07	0.0

NATURAL MORTALITY RATE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.490E+00	0.490E+00	0.000E+00	0.000E+00	0.0
2	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
3	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
4	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
5	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
6	0.200E+00	0.200E+00	0.000E+00	0.000E+00	0.0
7	0.175E+00	0.175E+00	0.000E+00	0.000E+00	0.0
8	0.150E+00	0.150E+00	0.000E+00	0.000E+00	0.0
9	0.125E+00	0.125E+00	0.000E+00	0.000E+00	0.0
10	0.100E+00	0.100E+00	0.000E+00	0.000E+00	0.0

TRANSFER COEFFICIENTS

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
7	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

VARIANCE SCALING PARAMETERS

Index	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
2	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
3	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
4	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
5	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5

6	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
7	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
8	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
9	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
10	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
11	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5
12	0.851E+00	0.836E+00	-0.152E-01	0.714E-01	8.5

CATCHABILITY COEFFICIENTS

Index	Year	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	1975	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1976	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1977	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1978	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1979	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1980	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1981	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1982	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1983	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1984	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1985	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1986	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1987	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1988	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1989	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1990	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1991	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1992	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1993	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1994	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1995	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1996	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1997	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1998	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	1999	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2000	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2001	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2002	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2003	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2004	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2005	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2006	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2007	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2008	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2009	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2010	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2011	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2012	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2013	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2014	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2015	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2016	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0

1	2017	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2018	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2019	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2020	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2021	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2022	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
1	2023	0.158E-05	0.161E-05	-0.194E-06	0.161E-06	10.0
2	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

2	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
3	1975	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1976	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1977	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1978	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1979	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1980	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1981	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1982	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1983	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1984	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1985	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1986	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1987	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1988	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1989	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1990	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1991	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1992	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1993	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1994	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1995	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1996	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1997	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1998	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	1999	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2000	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2001	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2002	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2003	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2004	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2005	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2006	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2007	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2008	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2009	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2010	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2011	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2012	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2013	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2014	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2015	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2016	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2017	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2018	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2019	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2020	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2021	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2022	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
3	2023	0.955E-06	0.988E-06	-0.391E-06	0.177E-06	18.0
4	1975	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1976	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1977	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5

4	1978	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1979	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1980	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1981	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1982	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1983	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1984	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1985	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1986	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1987	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1988	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1989	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1990	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1991	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1992	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1993	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1994	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1995	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1996	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1997	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1998	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	1999	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2000	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2001	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2002	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2003	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2004	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2005	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2006	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2007	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2008	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2009	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2010	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2011	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2012	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2013	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2014	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2015	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2016	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2017	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2018	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2019	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2020	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2021	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2022	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
4	2023	0.160E-05	0.165E-05	-0.863E-06	0.290E-06	17.5
5	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

5	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

6	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
7	1975	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1976	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1977	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1978	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1979	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1980	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1981	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1982	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1983	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1984	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1985	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1986	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1987	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1988	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1989	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1990	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1991	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1992	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8

7	1993	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1994	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1995	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1996	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1997	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1998	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	1999	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2000	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2001	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2002	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2003	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2004	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2005	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2006	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2007	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2008	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2009	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2010	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2011	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2012	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2013	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2014	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2015	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2016	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2017	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2018	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2019	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2020	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2021	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2022	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
7	2023	0.138E-05	0.139E-05	-0.103E-06	0.813E-07	5.8
8	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

8	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

9	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

10	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
11	1975	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1976	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1977	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1978	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1979	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1980	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1981	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1982	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1983	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1984	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1985	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1986	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1987	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1988	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1989	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1990	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1991	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1992	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1993	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1994	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1995	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1996	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1997	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1998	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	1999	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2000	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2001	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2002	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2003	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2004	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2005	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2006	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2007	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2008	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2009	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2010	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2011	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2012	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9

11	2013	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2014	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2015	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2016	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2017	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2018	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2019	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2020	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2021	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2022	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
11	2023	0.480E-08	0.513E-08	-0.105E-08	0.174E-08	33.9
12	1975	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1976	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1977	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1978	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1979	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1980	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1981	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1982	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1983	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1984	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1985	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1986	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1987	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1988	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1989	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1990	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1991	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1992	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1993	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1994	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1995	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1996	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1997	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1998	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	1999	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2000	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2001	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2002	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2003	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2004	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2005	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2006	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2007	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2008	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2009	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2010	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2011	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2012	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2013	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2014	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2015	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2016	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2017	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9

12	2018	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2019	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2020	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2021	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2022	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9
12	2023	0.963E-06	0.134E-05	0.342E-06	0.307E-06	22.9

****
CORRELATION AND COVARIANCE MATRICES OF PARAMETERS
****

TABLE 2A. CORRELATION MATRIX
==========

	1	2	3	4	5	6	7	8	9	10
1 :	1.0									
2 :	1.0	1.0								
3 :	0.0	0.0	1.0							
4 :	0.1	0.1	0.2	1.0						
5 :	-0.1	-0.1	0.3	0.1	1.0					
6 :	0.0	0.0	-0.1	-0.2	-0.1	1.0				
7 :	0.0	0.0	0.1	0.0	-0.2	0.2	1.0			
8 :	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	1.0		
9 :	-0.1	-0.1	-0.1	0.1	0.0	-0.1	0.1	-0.1	1.0	
10 :	-0.1	-0.1	-0.1	0.1	0.0	0.0	0.1	0.1	0.3	1.0

TABLE 2B. COVARIANCE MATRIX
==========

	1	2	3	4	5	6	7	8	9	10
1 :	0.5889D-05									
2 :	0.3012D-03	0.1594D-01								
3 :	0.1130D-04	0.4708D-02	0.5590D+00							
4 :	0.5127D-03	0.2837D-01	0.2131D+00	0.2540D+01						
5 :	-0.3803D-03	-0.1740D-01	0.3849D+00	0.2936D+00	0.3367D+01					
6 :	0.6105D-04	0.2144D-02	-0.5193D-01	-0.1914D+00	-0.2008D+00	0.5600D+00				
7 :	0.1062D-03	-0.2491D-03	0.8466D-01	0.9493D-01	-0.4466D+00	0.1449D+00	0.1580D+01			
8 :	-0.5606D-04	-0.2286D-02	-0.3674D-01	-0.1041D+00	-0.2140D+00	-0.6832D-01	-0.1483D+00	0.8642D+00		
9 :	-0.1622D-05	-0.8850D-04	-0.5182D-03	0.4669D-03	0.3425D-03	-0.2172D-03	0.1058D-02	-0.6684D-03	0.3321D-04	
10 :	-0.9489D-05	-0.6866D-03	-0.4450D-02	0.8867D-02	0.2670D-02	0.1685D-02	0.6558D-02	0.5209D-02	0.1041D-03	0.5097D-02

APPENDIX IV

VPA results for the strategy 1.. VPA analysis for ABFT for the period 1975 – 2023. Data for 2011 – 2023 ws simulated using projected Fs and Ns from the 2010 stock assessment

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****************************************
                    VPA-2BOX
          SUMMARY STATISTICS AND DIAGNOSTIC OUTPUT
          ****************************************

Strategy 1 Model        tagvpa1.co2
12:01, 17  February 2011

=========================================================================
Total objective function =      714.55
    (with constants)   =    -18339.85
Number of parameters (P) =         42
Number of data points (D)=        234
AIC : 2*objective+2P     =    -36595.71
AICc: 2*objective+2P(...)=    -36576.80
BIC : 2*objective+Plog(D)=    -36450.58
Chi-square discrepancy   =      107.60

Loglikelihoods (deviance)=     -750.77 (     682.95)
  effort data          =      -43.10 (     169.97)
  tagging data         =     -707.66 (     512.98)

Log-posteriors         =       35.53
  catchability         =        0.00
  f-ratio              =        0.00
  natural mortality    =        0.00
  mixing coeff.        =        0.00
  initial tag survival =        0.00
  tag shedding rate    =       17.00
  tag reporting rate   =       18.53
  tag nomixing factor  =        0.00

Constraints            =        0.69
  terminal F           =        0.00
  stock-rec./sex ratio =        0.69

Out of bounds penalty    =        0.00
=========================================================================


TABLE 1. FISHING MORTALITY RATE FOR East of 45
==============================================================================
       1     2     3     4     5     6     7     8     9    10
------------------------------------------------------------------------------
 1975  0.066 0.357 0.143 0.091 0.042 0.103 0.053 0.046 0.059 0.059
 1976  0.009 0.265 0.463 0.120 0.097 0.030 0.066 0.030 0.047 0.047
 1977  0.071 0.234 0.174 0.153 0.023 0.034 0.025 0.062 0.046 0.046
 1978  0.135 0.352 0.175 0.083 0.041 0.011 0.024 0.013 0.036 0.036
 1979  0.017 0.104 0.280 0.091 0.037 0.023 0.017 0.050 0.033 0.033
 1980  0.111 0.240 0.405 0.187 0.030 0.034 0.030 0.016 0.035 0.035
```

1981	0.075	0.438	0.331	0.101	0.087	0.021	0.031	0.046	0.026	0.026
1982	0.240	0.390	0.479	0.171	0.067	0.041	0.022	0.076	0.054	0.054
1983	0.243	0.198	0.321	0.133	0.079	0.059	0.117	0.033	0.056	0.056
1984	0.108	0.449	0.121	0.130	0.129	0.094	0.085	0.116	0.062	0.062
1985	0.092	0.404	0.397	0.114	0.070	0.068	0.036	0.054	0.074	0.045
1986	0.276	0.317	0.241	0.148	0.032	0.046	0.041	0.032	0.071	0.043
1987	0.141	0.393	0.290	0.117	0.047	0.029	0.083	0.062	0.065	0.039
1988	0.337	0.209	0.384	0.161	0.057	0.041	0.049	0.074	0.098	0.059
1989	0.182	0.363	0.166	0.149	0.138	0.032	0.052	0.037	0.077	0.046
1990	0.170	0.235	0.309	0.127	0.161	0.054	0.053	0.073	0.091	0.055
1991	0.073	0.284	0.211	0.132	0.134	0.045	0.047	0.058	0.133	0.080
1992	0.075	0.271	0.343	0.085	0.068	0.060	0.101	0.126	0.154	0.092
1993	0.085	0.454	0.317	0.127	0.057	0.063	0.070	0.094	0.145	0.087
1994	0.111	0.262	0.185	0.077	0.114	0.087	0.177	0.198	0.336	0.202
1995	0.145	0.199	0.255	0.104	0.102	0.160	0.090	0.158	0.189	0.227
1996	0.163	0.420	0.315	0.238	0.114	0.057	0.102	0.080	0.215	0.258
1997	0.157	0.320	0.208	0.177	0.143	0.134	0.085	0.208	0.215	0.257
1998	0.091	0.480	0.341	0.243	0.110	0.251	0.040	0.045	0.138	0.165
1999	0.095	0.115	0.258	0.183	0.099	0.044	0.047	0.062	0.146	0.175
2000	0.241	0.215	0.118	0.151	0.169	0.130	0.051	0.081	0.094	0.113
2001	0.005	0.236	0.111	0.076	0.106	0.090	0.161	0.112	0.131	0.157
2002	0.018	0.249	0.162	0.076	0.036	0.095	0.061	0.104	0.116	0.139
2003	0.007	0.090	0.053	0.038	0.068	0.035	0.138	0.105	0.139	0.167
2004	0.028	0.086	0.096	0.033	0.019	0.046	0.051	0.081	0.138	0.166
2005	0.114	0.114	0.063	0.051	0.033	0.034	0.046	0.032	0.167	0.201
2006	0.113	0.095	0.099	0.030	0.014	0.046	0.024	0.036	0.106	0.127
2007	0.001	0.076	0.033	0.075	0.056	0.037	0.044	0.037	0.105	0.126
2008	0.000	0.077	0.044	0.071	0.037	0.031	0.035	0.045	0.054	0.065
2009	0.000	0.006	0.034	0.076	0.035	0.029	0.048	0.043	0.033	0.040
2010	0.000	0.006	0.007	0.119	0.048	0.057	0.038	0.034	0.028	0.033
2011	0.001	0.026	0.013	0.022	0.010	0.009	0.012	0.013	0.017	0.020
2012	0.001	0.023	0.012	0.019	0.009	0.008	0.011	0.011	0.014	0.017
2013	0.001	0.021	0.011	0.018	0.008	0.007	0.010	0.010	0.013	0.015
2014	0.001	0.020	0.010	0.016	0.008	0.006	0.009	0.009	0.012	0.014
2015	0.001	0.018	0.009	0.016	0.007	0.006	0.008	0.008	0.011	0.013
2016	0.004	0.017	0.009	0.014	0.007	0.006	0.007	0.008	0.009	0.011
2017	0.004	0.144	0.008	0.013	0.006	0.005	0.007	0.007	0.008	0.010
2018	0.009	0.123	0.072	0.011	0.005	0.004	0.006	0.006	0.008	0.009
2019	0.000	0.360	0.062	0.114	0.005	0.004	0.006	0.006	0.007	0.009
2020	0.000	0.007	0.230	0.101	0.052	0.004	0.005	0.005	0.007	0.008
2021	0.001	0.002	0.003	0.489	0.046	0.043	0.005	0.005	0.006	0.007
2022	0.001	0.042	0.001	0.005	0.326	0.038	0.058	0.005	0.006	0.007
2023	0.001	0.024	0.021	0.001	0.002	0.369	0.052	0.059	0.006	0.007

==========

TABLE 2. ABUNDANCE AT THE BEGINNING OF THE YEAR [BY AREA] FOR East of 45

==========

	1	2	3	4	5	6	7	8	9	10

1975 1647812. 1310362. 693631. 309047. 320645. 89633. 98828. 83092. 82807. 1003416.
1976 2443979. 944741. 721506. 472859. 221860. 241742. 66233. 78697. 68331. 924544.
1977 1241120. 1483696. 569872. 357156. 330033. 158461. 192060. 52038. 65708. 855699.
1978 983314. 708249. 923623. 376803. 241189. 253709. 125459. 157236. 42101. 794834.
1979 1217362. 526436. 391801. 609632. 272775. 182176. 205399. 102806. 133620. 729730.
1980 1837705. 733423. 373182. 232987. 437890. 206790. 145721. 169534. 84132. 753154.
1981 1591899. 1007588. 454011. 195699. 152075. 334340. 163576. 118736. 143607. 729836.
1982 2552599. 904614. 511342. 256586. 139173. 109616. 268124. 133165. 97623. 766544.
1983 3865235. 1229850. 481948. 249235. 170097. 102406. 86144. 220234. 106247. 738686.
1984 1997715. 1856361. 793858. 274991. 171656. 123609. 79025. 64329. 183327. 720412.
1985 1807518. 1098235. 931582. 553387. 189950. 118682. 92157. 60949. 49310. 764461.
1986 3145123. 1009801. 576717. 492937. 388584. 139311. 90792. 74605. 49719. 701907.
1987 2237559. 1462705. 578678. 356368. 334407. 296089. 108969. 73148. 62200. 649543.
1988 3433153. 1190626. 776971. 340511. 249319. 251100. 235394. 84222. 59186. 616817.
1989 3444540. 1501343. 759646. 416355. 227992. 185290. 197354. 188218. 67293. 573569.
1990 3517900. 1758514. 821447. 505964. 282114. 156256. 146879. 157313. 156148. 550635.
1991 4365415. 1818844. 1093810. 474281. 350493. 188940. 121208. 116955. 125806. 597495.
1992 4018385. 2486427. 1077117. 696468. 326892. 241066. 147864. 97049. 94956. 596424.
1993 4335174. 2284576. 1491323. 601130. 503342. 240276. 185942. 112153. 73644. 563826.
1994 3655053. 2439210. 1140962. 854754. 416285. 373879. 184624. 145468. 87909. 523864.
1995 4116868. 2004008. 1476644. 745941. 622273. 292035. 280625. 129809. 102735. 442945.
1996 3715443. 2180759. 1291935. 900481. 528898. 442106. 203668. 215374. 95354. 394616.
1997 2650591. 1934065. 1127635. 741604. 558102. 371324. 341753. 154460. 171203. 343825.
1998 5024177. 1387728. 1104469. 720204. 488509. 380387. 265980. 263613. 107938. 362402.
1999 4054961. 2811062. 675767. 617805. 444446. 344223. 242295. 214618. 216902. 360939.
2000 5196280. 2259993. 1970542. 410640. 404894. 316752. 269580. 193972. 173613. 439704.
2001 4089991. 2500692. 1434176. 1377595. 277632. 269013. 227668. 215072. 153952. 494656.

2002 4311754. 2493256. 1553233. 1009485. 1004094. 196357. 201328. 162674. 165552. 501885.
2003 5262661. 2595171. 1528753. 1039495. 736272. 761963. 146253. 159029. 126189. 525147.
2004 7297551. 3200017. 1866180. 1140186. 787514. 541263. 602677. 106994. 123246. 498874.
2005 3698018. 4347831. 2310606. 1333034. 867641. 608056. 423120. 480611. 84909. 477042.
2006 2706476. 2021948. 3050228. 1706582. 996192. 660601. 481045. 339360. 400601. 416603.
2007 1558677. 1481475. 1447024. 2173726. 1302694. 773056. 516459. 394254. 281779. 650065.
2008 6505731. 953715. 1079677. 1101090. 1586662. 969319. 610041. 415077. 326900. 742573.
2009 7078303. 3984994. 694459. 812391. 806911. 1202490. 769080. 494367. 341593. 902892.
2010 7494309. 4335316. 3114686. 528161. 592342. 613015. 956701. 615337. 407703. 1077053.
2011 7272560. 4590171. 3390256. 2431963. 368801. 444235. 474094. 772833. 511818. 1293118.
2012 7718710. 4452177. 3517780. 2631752. 1872185. 287166. 360603. 393148. 656886. 1591380.
2013 8017440. 4725635. 3422507. 2734749. 2030415. 1459863. 233327. 299520. 334702. 1987602.
2014 8323548. 4908829. 3639436. 2663428. 2113590. 1584209. 1187127. 194001. 255291. 2064030.
2015 8245297. 5096457. 3786374. 2833737. 2061145. 1650152. 1288829. 987785. 165481. 2065084.
2016 920265. 5048675. 3937480. 2950474. 2194393. 1609845. 1343009. 1073067. 843292. 1989303.
2017 973817. 561389. 3903619. 3070810. 2287909. 1714591. 1310612. 1118974. 916690. 2516803.
2018 344976. 594428. 382480. 3046881. 2385346. 1789264. 1396748. 1092651. 956655. 3055534.
2019 15109971. 209361. 413274. 280088. 2369367. 1866424. 1458382. 1165202. 934617. 3578174.
2020 51198152. 9254901. 114903. 305416. 196495. 1854612. 1521784. 1217266. 997180. 4027814.
2021 2297106. 31363704. 7232303. 71849. 217121. 146674. 1512640. 1270705. 1042236. 4486675.
2022 3252433. 1405514. 24631759. 5671120. 34658. 163052. 115043. 1263581. 1088231. 4943655.
2023 3252262. 1991105. 1060411. 19361008. 4439434. 19680. 128463. 91129. 1082557. 5397732.
2024 1991064. 1528810. 817090. 15211776. 3484624. 11138. 102331. 73975. 5801974.
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TABLE 3. CATCH OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 83784. 352022. 82482. 24055. 11863. 7932. 4665. 3441.
4480. 54950.
1976 17501. 196886. 239994. 47505. 18187. 6492. 3896. 2187.
2948. 40376.
1977 67420. 276479. 81061. 45074. 6677. 4738. 4363. 2903.
2778. 36620.
1978 98571. 188169. 132603. 26750. 8539. 2569. 2746. 1850.
1398. 26717.
1979 15968. 46352. 85484. 47174. 8803. 3802. 3158. 4700. 4051.
22395.
1980 153268. 139588. 111494. 35392. 11439. 6346. 3925. 2495.
2715. 24603.
1981 91413. 320656. 114393. 16726. 11334. 6214. 4537. 4938.
3506. 18037.
1982 435146. 261565. 174574. 35996. 8002. 3990. 5295. 9037.
4835. 38429.
1983 666700. 196954. 118435. 27650. 11539. 5339. 8741. 6724.
5468. 38481.
1984 162819. 602874. 80533. 29876. 18523. 10029. 5897. 6546.
10420. 41447.
1985 126331. 327195. 273250. 52930. 11441. 7067. 3014. 2958.
3329. 31801.
1986 605591. 245280. 110492. 60475. 10838. 5638. 3356. 2173.
3201. 27826.
1987 233815. 425594. 130379. 35130. 13521. 7777. 7936. 4073.
3661. 23513.
1988 787367. 200806. 221887. 45198. 12256. 9116. 10264. 5612.
5200. 33542.
1989 457214. 409308. 103865. 51467. 26166. 5342. 9140. 6317.
4674. 24558.
1990 436998. 328718. 195472. 53837. 37392. 7450. 6938. 10362.
12813. 27930.
1991 243244. 401949. 186084. 52344. 39257. 7563. 5140. 6163.
14736. 43603.
1992 229346. 527897. 280116. 50401. 19089. 12662. 13102. 10683.
12770. 50171.
1993 280527. 748303. 362086. 64110. 24965. 13406. 11620. 9313.
9358. 44738.
1994 304847. 502294. 171942. 56713. 40131. 28248. 27583. 24303.
23658. 91143.
1995 443084. 322790. 296579. 65551. 53670. 39327. 22103. 17701.
16646. 85605.
1996 444406. 669904. 312384. 170612. 50658. 22396. 18070. 15305.
17362. 85496.
1997 306609. 474221. 189334. 107589. 66458. 42200. 25467. 27051.
31144. 74425.
1998 345669. 474502. 285613. 138652. 45367. 76858. 9470. 10785.
13079. 52631.
1999 290410. 272684. 137390. 91981. 37213. 13567. 10306. 11996.
27670. 55145.
2000 889625. 389997. 195408. 51453. 56121. 35131. 12280. 14041.
14718. 44863.

2001	15982.	469971.	134430.	90060.	24959.	20977.	31157.	21135.	17744.	68378.
2002	59817.	491266.	206724.	65445.	31542.	16089.	10914.	14936.	17076.	62174.
2003	31034.	198423.	70574.	34139.	42902.	23442.	17278.	14727.	15451.	77055.
2004	158681.	233924.	152822.	33095.	12919.	22189.	27680.	7756.	14995.	72743.
2005	315743.	419028.	125613.	59295.	24776.	18596.	17314.	14100.	12307.	82641.
2006	228908.	162488.	255561.	44959.	11960.	27029.	10456.	11129.	37839.	47308.
2007	1510.	96996.	42050.	139516.	62706.	25349.	20195.	13425.	26398.	73222.
2008	755.	63119.	41758.	67048.	51597.	27174.	19392.	16913.	16230.	44546.
2009	1350.	22619.	20491.	52868.	24566.	30804.	33104.	19219.	10408.	33310.
2010	1350.	22619.	20491.	52868.	24566.	30804.	33104.	19219.	10408.	33310.
2011	4138.	105125.	39701.	46206.	3325.	3438.	5285.	8951.	7954.	24372.
2012	3954.	90136.	36666.	44991.	14528.	1976.	3487.	3976.	8529.	25066.
2013	3706.	88052.	32583.	42548.	14664.	8980.	2041.	2705.	3922.	28258.
2014	3572.	84855.	32934.	38430.	14078.	9098.	9572.	1616.	2753.	27008.
2015	3367.	80876.	31654.	39230.	13011.	8875.	9671.	7446.	1625.	24609.
2016	3087.	76677.	29974.	37334.	13095.	8212.	9202.	7449.	7445.	21315.
2017	2785.	67016.	26931.	34188.	11842.	7790.	8258.	6966.	7282.	24267.
2018	2557.	61544.	23521.	30957.	11261.	7252.	7989.	6298.	6867.	26624.
2019	2416.	56673.	22267.	26995.	10388.	6986.	7633.	6170.	6276.	29168.
2020	1970.	54101.	21047.	26191.	8932.	6407.	7399.	5907.	6183.	30319.
2021	2261.	44913.	20328.	24947.	8758.	5588.	6798.	5902.	6089.	31823.
2022	1846.	51129.	16883.	24464.	8626.	5574.	5955.	5410.	6038.	33302.
2023	1752.	42345.	19288.	20493.	8543.	5541.	6024.	4816.	5594.	33865.

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TABLE 4. SPAWNING STOCK FECUNDITY AND RECRUITMENT OF East of 45

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year	spawning biomass	recruits from VPA

1975	299539.	1647812.
1976	297378.	2443979.
1977	287558.	1241120.
1978	275539.	983314.
1979	264044.	1217362.
1980	259938.	1837705.
1981	242061.	1591899.
1982	239864.	2552599.
1983	216162.	3865235.
1984	208847.	1997715.
1985	219233.	1807518.
1986	215868.	3145123.
1987	209425.	2237559.
1988	207591.	3433153.
1989	208794.	3444540.
1990	193957.	3517900.
1991	191223.	4365415.
1992	196050.	4018385.
1993	207063.	4335174.
1994	198723.	3655053.
1995	198397.	4116868.
1996	194544.	3715443.
1997	186384.	2650591.
1998	188519.	5024177.
1999	194718.	4054961.
2000	198373.	5196280.
2001	197478.	4089991.
2002	228786.	4311754.
2003	247385.	5262661.
2004	262940.	7297551.
2005	284287.	3698018.
2006	319970.	2706476.
2007	384507.	1558677.
2008	450468.	6505731.
2009	480514.	7078303.
2010	500062.	7494309.
2011	547690.	7272560.
2012	642998.	7718710.
2013	752109.	8017440.
2014	842760.	8323548.
2015	888222.	8245297.
2016	1024852.	920265.
2017	1158627.	973817.
2018	1278026.	344976.
2019	1320222.	15109971.
2020	1348637.	51198152.
2021	1344218.	2297106.
2022	1491450.	3252433.
2023	1788569.	3252262.

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TABLE 5. FITS TO INDEX DATA FOR East of 45

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5.1 ESP

Lognormal dist.
average numbers
Ages 6 - 10
log-likelihood = 1.53
deviance = 11.23
Chi-sq. discrepancy= 6.56

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Chi-square Predicted	Discrepancy
1981	0.179	0.145	0.034	0.782	0.320E-02	3145.860	3040.714	0.067
1982	0.457	0.131	0.325	0.782	0.320E-02	4151.930	2999.426	0.000
1983	0.515	0.099	0.416	0.782	0.320E-02	4402.080	2904.627	0.016
1984	0.613	0.060	0.553	0.782	0.320E-02	4854.680	2793.243	0.093
1985	0.223	0.000	0.224	0.782	0.320E-02	3288.160	2629.473	0.007
1986	-0.525	-0.060	-0.465	0.782	0.320E-02	1556.120	2477.611	0.343
1987	-0.428	-0.073	-0.356	0.782	0.320E-02	1713.630	2445.758	0.278
1988	0.426	-0.082	0.508	0.782	0.320E-02	4026.800	2422.915	0.060
1989	-0.229	-0.083	-0.146	0.782	0.320E-02	2091.120	2419.728	0.157
1990	-0.078	-0.074	-0.004	0.782	0.320E-02	2433.100	2443.677	0.084
1991	0.088	-0.083	0.171	0.782	0.320E-02	2871.900	2420.024	0.019
1992	-0.739	-0.116	-0.623	0.782	0.320E-02	1256.650	2343.112	0.434
1993	-0.757	-0.151	-0.606	0.782	0.320E-02	1233.910	2262.325	0.425
1994	-0.652	-0.190	-0.462	0.782	0.320E-02	1370.230	2174.009	0.341
1995	-1.085	-0.271	-0.814	0.782	0.320E-02	888.940	2005.731	0.539
1996	-0.498	-0.279	-0.219	0.782	0.320E-02	1598.010	1989.088	0.198
1997	0.356	-0.277	0.633	0.782	0.320E-02	3754.010	1993.909	0.178
1998	0.407	-0.238	0.645	0.782	0.320E-02	3950.270	2072.408	0.194
1999	0.529	-0.171	0.700	0.782	0.320E-02	4463.560	2216.081	0.278
2000	0.260	-0.111	0.372	0.782	0.320E-02	3411.810	2352.977	0.006
2001	0.809	-0.096	0.905	0.782	0.320E-02	5907.800	2389.117	0.802
2002	0.478	-0.123	0.601	0.782	0.320E-02	4240.520	2325.798	0.140
2003	-0.084	-0.046	-0.038	0.782	0.320E-02	2417.060	2510.673	0.100
2004	-0.690	0.004	-0.694	0.782	0.320E-02	1319.610	2640.255	0.474
2005	-0.012	0.104	-0.116	0.782	0.320E-02	2598.590	2917.900	0.140
2006	-0.068	0.258	-0.326	0.782	0.320E-02	2456.740	3404.351	0.260
2007	0.339	0.410	-0.071	0.782	0.320E-02	3690.980	3963.524	0.117
2008	-0.069	0.566	-0.635	0.782	0.320E-02	2455.050	4630.953	0.441
2009	0.236	0.748	-0.512	0.782	0.320E-02	3330.170	5555.789	0.370

Selectivities by age

Year	6	7	8	9	10
1981	0.178	0.300	0.517	0.822	1.000
1982	0.178	0.300	0.517	0.822	1.000
1983	0.178	0.300	0.517	0.822	1.000
1984	0.178	0.300	0.517	0.822	1.000
1985	0.178	0.300	0.517	0.822	1.000

1986	0.178	0.300	0.517	0.822	1.000
1987	0.178	0.300	0.517	0.822	1.000
1988	0.178	0.300	0.517	0.822	1.000
1989	0.178	0.300	0.517	0.822	1.000
1990	0.178	0.300	0.517	0.822	1.000
1991	0.178	0.300	0.517	0.822	1.000
1992	0.178	0.300	0.517	0.822	1.000
1993	0.178	0.300	0.517	0.822	1.000
1994	0.178	0.300	0.517	0.822	1.000
1995	0.178	0.300	0.517	0.822	1.000
1996	0.178	0.300	0.517	0.822	1.000
1997	0.178	0.300	0.517	0.822	1.000
1998	0.178	0.300	0.517	0.822	1.000
1999	0.178	0.300	0.517	0.822	1.000
2000	0.178	0.300	0.517	0.822	1.000
2001	0.178	0.300	0.517	0.822	1.000
2002	0.178	0.300	0.517	0.822	1.000
2003	0.178	0.300	0.517	0.822	1.000
2004	0.178	0.300	0.517	0.822	1.000
2005	0.178	0.300	0.517	0.822	1.000
2006	0.178	0.300	0.517	0.822	1.000
2007	0.178	0.300	0.517	0.822	1.000
2008	0.178	0.300	0.517	0.822	1.000
2009	0.178	0.300	0.517	0.822	1.000

5.2 ESP1

Not used

5.3 ESP2

Lognormal dist.
average numbers
Ages 2 - 2
log-likelihood = -26.08
deviance = 68.42
Chi-sq. discrepancy= 34.97

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Predicted	Chi-square Discrepancy
1975	0.593	-0.246	0.839	0.782	0.936E-04	213.720	92.379	0.589
1976	0.214	-0.532	0.746	0.782	0.936E-04	146.320	69.421	0.363
1977	0.599	-0.066	0.665	0.782	0.936E-04	215.130	110.615	0.223
1978	-0.453	-0.859	0.406	0.782	0.936E-04	75.110	50.036	0.013
1979	-1.226	-1.042	-0.185	0.782	0.936E-04	34.670	41.697	0.178
1980	-0.532	-0.773	0.241	0.782	0.936E-04	69.410	54.538	0.005
1981	-0.219	-0.545	0.327	0.782	0.936E-04	94.950	68.490	0.001
1982	0.081	-0.631	0.712	0.782	0.936E-04	128.090	62.837	0.299
1983	0.006	-0.237	0.243	0.782	0.936E-04	118.830	93.238	0.004

1984	1.413	0.061	1.353	0.782	0.936E-04	485.620	125.558	4.062
1985	1.174	-0.444	1.618	0.782	0.936E-04	382.160	75.796	8.751
1986	-0.302	-0.489	0.187	0.782	0.936E-04	87.360	72.488	0.015
1987	1.269	-0.152	1.421	0.782	0.936E-04	420.300	101.469	4.999
1988	-0.825	-0.275	-0.550	0.782	0.936E-04	51.800	89.779	0.392
1989	1.419	-0.113	1.531	0.782	0.936E-04	488.140	105.542	6.883
1990	-0.083	0.104	-0.186	0.782	0.936E-04	108.780	131.054	0.179
1991	0.370	0.115	0.255	0.782	0.936E-04	171.110	132.532	0.003
1992	0.768	0.433	0.334	0.782	0.936E-04	254.590	182.233	0.001
1993	1.297	0.266	1.031	0.782	0.936E-04	432.270	154.192	1.348
1994	-1.221	0.418	-1.640	0.782	0.936E-04	34.840	179.534	0.872
1995	0.500	0.251	0.249	0.782	0.936E-04	194.750	151.840	0.004
1996	0.349	0.235	0.114	0.782	0.936E-04	167.510	149.474	0.036
1997	0.075	0.160	-0.084	0.782	0.936E-04	127.410	138.616	0.124
1998	-0.620	-0.243	-0.377	0.782	0.936E-04	63.560	92.622	0.290
1999	-3.557	0.628	-4.185	0.782	0.936E-04	3.370	221.485	1.161
2000	-0.979	0.364	-1.343	0.782	0.936E-04	44.400	169.991	0.774
2001	1.047	0.455	0.592	0.782	0.936E-04	336.760	186.243	0.131
2002	1.114	0.446	0.668	0.782	0.936E-04	359.870	184.590	0.226
2003	-0.351	0.560	-0.911	0.782	0.936E-04	83.220	206.948	0.588
2004	-0.299	0.772	-1.071	0.782	0.936E-04	87.650	255.677	0.663
2005	0.129	1.065	-0.936	0.782	0.936E-04	134.470	342.695	0.600
2006	-0.119	0.309	-0.428	0.782	0.936E-04	104.880	160.872	0.321
2007	-1.631	0.006	-1.637	0.782	0.936E-04	23.120	118.888	0.871

Selectivities by age

Year	2
1975	1.000
1976	1.000
1977	1.000
1978	1.000
1979	1.000
1980	1.000
1981	1.000
1982	1.000
1983	1.000
1984	1.000
1985	1.000
1986	1.000
1987	1.000
1988	1.000
1989	1.000
1990	1.000
1991	1.000
1992	1.000
1993	1.000
1994	1.000
1995	1.000
1996	1.000
1997	1.000
1998	1.000
1999	1.000
2000	1.000

2001	1.000
2002	1.000
2003	1.000
2004	1.000
2005	1.000
2006	1.000
2007	1.000

5.4 ESP3

Lognormal dist.
average numbers
Ages 3 - 3
log-likelihood = -22.55
deviance = 61.37
Chi-sq. discrepancy= 47.98

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Predicted	Chi-square Discrepancy
1975	0.331	-0.275	0.606	0.782	0.461E-04	48.740	26.577	0.146
1976	0.588	-0.382	0.970	0.782	0.461E-04	63.040	23.899	1.057
1977	1.056	-0.486	1.542	0.782	0.461E-04	100.630	21.526	7.094
1978	-0.870	-0.004	-0.866	0.782	0.461E-04	14.670	34.859	0.565
1979	0.720	-0.910	1.630	0.782	0.461E-04	71.910	14.093	9.042
1980	-0.252	-1.015	0.763	0.782	0.461E-04	27.200	12.682	0.400
1981	-1.856	-0.786	-1.071	0.782	0.461E-04	5.470	15.957	0.663
1982	0.198	-0.733	0.931	0.782	0.461E-04	42.670	16.822	0.896
1983	-0.874	-0.722	-0.153	0.782	0.461E-04	14.600	17.012	0.161
1984	1.284	-0.130	1.414	0.782	0.461E-04	126.380	30.737	4.890
1985	1.149	-0.096	1.245	0.782	0.461E-04	110.430	31.786	2.888
1986	-0.364	-0.506	0.141	0.782	0.461E-04	24.320	21.112	0.027
1987	-1.176	-0.525	-0.651	0.782	0.461E-04	10.800	20.715	0.450
1988	-1.614	-0.272	-1.342	0.782	0.461E-04	6.970	26.661	0.774
1989	-1.444	-0.195	-1.249	0.782	0.461E-04	8.260	28.792	0.738
1990	0.150	-0.183	0.333	0.782	0.461E-04	40.680	29.152	0.001
1991	-0.382	0.148	-0.531	0.782	0.461E-04	23.880	40.599	0.381
1992	-1.067	0.073	-1.140	0.782	0.461E-04	12.040	37.642	0.694
1993	1.670	0.410	1.260	0.782	0.461E-04	185.980	52.749	3.031
1994	0.250	0.203	0.047	0.782	0.461E-04	44.930	42.871	0.062
1995	0.588	0.428	0.160	0.782	0.461E-04	63.030	53.729	0.022
1996	1.306	0.267	1.039	0.782	0.461E-04	129.240	45.728	1.391
1997	1.727	0.180	1.547	0.782	0.461E-04	196.790	41.914	7.181
1998	0.359	0.099	0.260	0.782	0.461E-04	50.100	38.638	0.002
1999	-0.974	-0.355	-0.620	0.782	0.461E-04	13.210	24.549	0.433
2000	-0.010	0.781	-0.791	0.782	0.461E-04	34.650	76.399	0.526
2001	0.610	0.466	0.144	0.782	0.461E-04	64.420	55.782	0.026
2002	1.481	0.522	0.959	0.782	0.461E-04	153.960	59.001	1.011
2003	-1.012	0.557	-1.569	0.782	0.461E-04	12.730	61.112	0.851
2004	-1.184	0.736	-1.921	0.782	0.461E-04	10.710	73.090	0.945
2005	0.609	0.966	-0.357	0.782	0.461E-04	64.340	91.940	0.279

2006	-1.040	1.226	-2.267	0.782	0.461E-04	12.370	119.333	1.013
2007	0.045	0.512	-0.467	0.782	0.461E-04	36.620	58.400	0.344

Selectivities by age

Year	3
1975	1.000
1976	1.000
1977	1.000
1978	1.000
1979	1.000
1980	1.000
1981	1.000
1982	1.000
1983	1.000
1984	1.000
1985	1.000
1986	1.000
1987	1.000
1988	1.000
1989	1.000
1990	1.000
1991	1.000
1992	1.000
1993	1.000
1994	1.000
1995	1.000
1996	1.000
1997	1.000
1998	1.000
1999	1.000
2000	1.000
2001	1.000
2002	1.000
2003	1.000
2004	1.000
2005	1.000
2006	1.000
2007	1.000

5.5 ESP4

Not used

5.6 ESP5

Not used

5.7 JJL

Lognormal dist.
average numbers
Ages 6 - 10
log-likelihood = 2.36
deviance = 12.52
Chi-sq. discrepancy= 7.13

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Predicted	Chi-square Discrepancy
1975	0.361	0.199	0.162	0.782	0.147E-05	1.900	1.615	0.021
1976	0.485	0.135	0.350	0.782	0.147E-05	2.150	1.515	0.002
1977	0.981	0.077	0.904	0.782	0.147E-05	3.530	1.430	0.797
1978	0.125	0.078	0.047	0.782	0.147E-05	1.500	1.432	0.062
1979	0.713	0.062	0.650	0.782	0.147E-05	2.700	1.409	0.201
1980	0.244	0.080	0.164	0.782	0.147E-05	1.690	1.434	0.021
1981	0.208	0.095	0.113	0.782	0.147E-05	1.630	1.456	0.037
1982	0.919	0.091	0.829	0.782	0.147E-05	3.320	1.450	0.561
1983	0.471	0.076	0.395	0.782	0.147E-05	2.120	1.428	0.010
1984	0.202	-0.004	0.206	0.782	0.147E-05	1.620	1.318	0.011
1985	0.279	-0.067	0.345	0.782	0.147E-05	1.750	1.239	0.002
1986	-0.003	-0.120	0.117	0.782	0.147E-05	1.320	1.174	0.035
1987	0.489	-0.133	0.623	0.782	0.147E-05	2.160	1.159	0.166
1988	0.019	-0.131	0.151	0.782	0.147E-05	1.350	1.161	0.024
1989	-0.232	-0.100	-0.132	0.782	0.147E-05	1.050	1.198	0.149
1990	0.063	-0.101	0.164	0.782	0.147E-05	1.410	1.196	0.021
1991	-0.090	-0.126	0.036	0.782	0.147E-05	1.210	1.168	0.066
1992	-0.251	-0.164	-0.087	0.782	0.147E-05	1.030	1.124	0.125
1993	-0.241	-0.190	-0.051	0.782	0.147E-05	1.040	1.095	0.107
1994	-0.167	-0.220	0.053	0.782	0.147E-05	1.120	1.062	0.059
1995	0.070	-0.292	0.362	0.782	0.147E-05	1.420	0.989	0.004
1996	-0.974	-0.273	-0.701	0.782	0.147E-05	0.500	1.008	0.478
1997	-0.916	-0.284	-0.631	0.782	0.147E-05	0.530	0.996	0.439
1998	-0.623	-0.211	-0.412	0.782	0.147E-05	0.710	1.072	0.311
1999	-0.727	-0.167	-0.560	0.782	0.147E-05	0.640	1.121	0.398
2000	-0.582	-0.119	-0.463	0.782	0.147E-05	0.740	1.176	0.342
2001	-0.322	-0.102	-0.219	0.782	0.147E-05	0.960	1.195	0.198
2002	0.437	-0.144	0.581	0.782	0.147E-05	2.050	1.147	0.119
2003	0.250	-0.082	0.332	0.782	0.147E-05	1.700	1.220	0.001
2004	-0.479	-0.023	-0.456	0.782	0.147E-05	0.820	1.294	0.338
2005	-0.409	0.159	-0.567	0.782	0.147E-05	0.880	1.552	0.402
2006	0.366	0.271	0.096	0.782	0.147E-05	1.910	1.736	0.043
2007	-0.343	0.418	-0.760	0.782	0.147E-05	0.940	2.011	0.510
2008	-0.082	0.566	-0.648	0.782	0.147E-05	1.220	2.332	0.448
2009	-0.241	0.748	-0.989	0.782	0.147E-05	1.040	2.796	0.626

Selectivities by age

Year	6	7	8	9	10
1975	0.172	0.351	0.802	0.849	1.000
1976	0.172	0.351	0.802	0.849	1.000
1977	0.172	0.351	0.802	0.849	1.000
1978	0.172	0.351	0.802	0.849	1.000

1979	0.172	0.351	0.802	0.849	1.000
1980	0.172	0.351	0.802	0.849	1.000
1981	0.172	0.351	0.802	0.849	1.000
1982	0.172	0.351	0.802	0.849	1.000
1983	0.172	0.351	0.802	0.849	1.000
1984	0.172	0.351	0.802	0.849	1.000
1985	0.172	0.351	0.802	0.849	1.000
1986	0.172	0.351	0.802	0.849	1.000
1987	0.172	0.351	0.802	0.849	1.000
1988	0.172	0.351	0.802	0.849	1.000
1989	0.172	0.351	0.802	0.849	1.000
1990	0.172	0.351	0.802	0.849	1.000
1991	0.172	0.351	0.802	0.849	1.000
1992	0.172	0.351	0.802	0.849	1.000
1993	0.172	0.351	0.802	0.849	1.000
1994	0.172	0.351	0.802	0.849	1.000
1995	0.172	0.351	0.802	0.849	1.000
1996	0.172	0.351	0.802	0.849	1.000
1997	0.172	0.351	0.802	0.849	1.000
1998	0.172	0.351	0.802	0.849	1.000
1999	0.172	0.351	0.802	0.849	1.000
2000	0.172	0.351	0.802	0.849	1.000
2001	0.172	0.351	0.802	0.849	1.000
2002	0.172	0.351	0.802	0.849	1.000
2003	0.172	0.351	0.802	0.849	1.000
2004	0.172	0.351	0.802	0.849	1.000
2005	0.172	0.351	0.802	0.849	1.000
2006	0.172	0.351	0.802	0.849	1.000
2007	0.172	0.351	0.802	0.849	1.000
2008	0.172	0.351	0.802	0.849	1.000
2009	0.172	0.351	0.802	0.849	1.000

5.8 MAR

Not used

5.9 ESPT

Not used

5.10 ESPH

Lognormal dist.
average biomass
Ages 2 - 3
log-likelihood = 0.00
deviance = 0.00
Chi-sq. discrepancy= 0.00

	Residuals	Standard	Q	Untransfrmd	Untransfrmd	Chi-square

Year Observed Predicted (Obs-pred) Deviation Catchabil. Observed Predicted Discrepancy

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Selectivities by age

Year	2	3

5.11 NOR

Lognormal dist.

average biomass

Ages 10 - 10

log-likelihood = -1.18

deviance = 5.32

Chi-sq. discrepancy= 1.81

Year	Observed	Residuals Predicted	Standard (Obs-pred)	Q Deviation	Untransfrmd Catchabil.	Untransfrmd Observed	Predicted	Chi-square Discrepancy
1975	0.759	0.143	0.616	0.782	0.835E-07	38.000	20.524	0.157
1976	0.174	0.122	0.052	0.782	0.835E-07	21.160	20.085	0.059
1977	0.870	0.057	0.813	0.782	0.835E-07	42.444	18.821	0.520
1978	-0.371	-0.024	-0.347	0.782	0.835E-07	12.278	17.368	0.273
1979	-1.557	-0.140	-1.416	0.782	0.835E-07	3.750	15.457	0.801
1980	0.124	-0.157	0.282	0.782	0.835E-07	20.143	15.197	0.001

Selectivities by age

Year	10
1975	1.000
1976	1.000
1977	1.000
1978	1.000
1979	1.000
1980	1.000

5.12 JAP

Lognormal dist.

month 1 numbers

Ages 4 - 10

log-likelihood = 2.82

deviance = 11.12

Chi-sq. discrepancy= 9.14

Year Observed Residuals Predicted Standard (Obs-pred) Q Deviation Untransfrmd Catchabil. Untransfrmd Observed Predicted Chi-square Discrepancy

1990	-1.363	-0.971	-0.392	0.782	0.844E-06	0.350	0.518	0.299
1991	-1.134	-0.982	-0.152	0.782	0.844E-06	0.440	0.512	0.160
1992	-0.574	-0.932	0.358	0.782	0.844E-06	0.770	0.538	0.003
1993	-0.601	-0.918	0.318	0.782	0.844E-06	0.750	0.546	0.000
1994	-0.418	-0.720	0.302	0.782	0.844E-06	0.900	0.666	0.000
1995	-0.364	-0.784	0.420	0.782	0.844E-06	0.950	0.624	0.017
1996	0.615	-0.611	1.226	0.782	0.844E-06	2.530	0.743	2.709
1997	0.170	-0.618	0.788	0.782	0.844E-06	1.620	0.737	0.456
1998	-0.475	-0.630	0.155	0.782	0.844E-06	0.850	0.728	0.023
1999	-0.139	-0.621	0.482	0.782	0.844E-06	1.190	0.735	0.044
2000	-0.114	-0.672	0.558	0.782	0.844E-06	1.220	0.698	0.098
2001	0.052	-0.722	0.773	0.782	0.844E-06	1.440	0.665	0.422
2002	-0.209	-0.800	0.591	0.782	0.844E-06	1.110	0.615	0.130
2003	-0.182	-0.286	0.104	0.782	0.844E-06	1.140	1.028	0.040
2004	-0.283	-0.327	0.044	0.782	0.844E-06	1.030	0.986	0.063
2005	-0.614	-0.192	-0.422	0.782	0.844E-06	0.740	1.128	0.317
2006	-0.452	-0.033	-0.419	0.782	0.844E-06	0.870	1.323	0.315
2007	-0.429	0.069	-0.498	0.782	0.844E-06	0.890	1.465	0.362
2008	-0.255	0.230	-0.485	0.782	0.844E-06	1.060	1.722	0.354
2009	0.119	0.386	-0.268	0.782	0.844E-06	1.540	2.013	0.226
2010	0.157	0.228	-0.071	0.782	0.844E-06	1.600	1.718	0.117
2011	0.177	0.169	0.008	0.782	0.844E-06	1.632	1.619	0.079
2012	0.235	0.108	0.127	0.782	0.844E-06	1.730	1.524	0.032
2013	0.293	0.527	-0.233	0.782	0.844E-06	1.834	2.315	0.206
2014	0.352	0.679	-0.327	0.782	0.844E-06	1.944	2.695	0.261
2015	0.410	0.820	-0.410	0.782	0.844E-06	2.060	3.104	0.310
2016	0.468	0.953	-0.484	0.782	0.844E-06	2.184	3.545	0.354
2017	0.526	1.030	-0.503	0.782	0.844E-06	2.315	3.829	0.365
2018	0.585	1.093	-0.508	0.782	0.844E-06	2.454	4.078	0.368
2019	0.643	1.138	-0.495	0.782	0.844E-06	2.601	4.267	0.360
2020	0.701	1.155	-0.453	0.782	0.844E-06	2.757	4.338	0.336
2021	0.699	0.813	-0.115	0.782	0.844E-06	2.750	3.084	0.140
2022	0.702	0.721	-0.019	0.782	0.844E-06	2.760	2.813	0.091
2023	0.702	0.701	0.002	0.782	0.844E-06	2.760	2.755	0.081

Selectivities by age

Year	4	5	6	7	8	9	10
1990	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1991	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1992	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1993	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1994	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1995	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1996	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1997	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1998	0.022	0.067	1.000	0.446	0.562	0.751	0.304
1999	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2000	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2001	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2002	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2003	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2004	0.022	0.067	1.000	0.446	0.562	0.751	0.304

2005	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2006	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2007	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2008	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2009	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2010	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2011	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2012	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2013	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2014	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2015	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2016	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2017	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2018	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2019	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2020	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2021	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2022	0.022	0.067	1.000	0.446	0.562	0.751	0.304
2023	0.022	0.067	1.000	0.446	0.562	0.751	0.304

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TABLE 6. FITS TO TAGS RELEASED IN HOME RANGE OF East of 45
Multinomial dist.
log-likelihood = -707.66
deviance = 512.98

Release Year	Age	Recapture Area	Type	Recaptures by year following release 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
2011	1	1	obsd	0.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																																				
			pred	0.49	15.50	4.37	4.24	1.64	0.67	0.54	0.33	0.27	0.21	0.18	0.10	0.07																																				
2012	1	1	obsd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00																																							
			pred	0.18	6.99	2.15	2.93	0.63	0.30	0.25	0.15	0.12	0.12	0.07	0.05																																							
2012	2	1	obsd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00																																							
			pred	6.88	4.25	4.28	1.72	0.73	0.61	0.39	0.32	0.26	0.23	0.13	0.10																																							
2013	2	1	obsd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00																																							
			pred	6.20	4.18	5.91	1.33	0.66	0.56	0.36	0.30	0.31	0.18	0.14																																							
2013	3	1	obsd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00																																							
			pred	3.12	6.38	2.44	0.99	0.79	0.48	0.38	0.29	0.25	0.13	0.10																																							

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TOTAL NUMBER OF FUNCTION EVALUATIONS = 71014

terminal age structure of population

0.0000D+00	0.6816D-03	0.5000D+01	1.0	0.4000D+01	1
0.0000D+00	0.2420D-01	0.5000D+01	1.0	0.4000D+01	2
0.0000D+00	0.2066D-01	0.5000D+01	1.0	0.4000D+01	3
0.0000D+00	0.1191D-02	0.5000D+01	1.0	0.3000D+01	4
0.0000D+00	0.2167D-02	0.5000D+01	1.0	0.3000D+01	5
0.0000D+00	0.3692D+00	0.5000D+01	1.0	0.1000D+00	6
0.0000D+00	0.5243D-01	0.3000D+01	1.0	0.6000D+01	7
0.0000D+00	0.5855D-01	0.5000D+01	1.0	0.1000D+00	8
0.0000D+00	0.5512D-02	0.3000D+01	1.0	0.8000D+01	9

terminal-age f-ratios

0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	10
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	11
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	12
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	13
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	14
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	15
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	16
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	17
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	18
0.1000D+00	0.1000D+01	0.5000D+01	0.0	0.2000D+00	19
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	20
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	21
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	22
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	23
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	24
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	25
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	26
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	27
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	28
0.1000D+00	0.6000D+00	0.5000D+01	0.0	0.2000D+00	29
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	30
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	31
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	32
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	33
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	34
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	35
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	36
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	37
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	38
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	39
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	40
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	41
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	42
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	43
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	44
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	45
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	46
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	47
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	48
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	49
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	50
0.1000D+00	0.1200D+01	0.5000D+01	0.0	0.2000D+00	51

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 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   52
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   53
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   54
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   55
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   56
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   57
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   58
# natural mortality
 0.0000D+00  0.4900D+00  0.1000D+01     0.0  0.1000D+00   59
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   60
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   61
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   62
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   63
 0.0000D+00  0.2000D+00  0.1000D+01     0.0  0.1000D+00   64
 0.0000D+00  0.1750D+00  0.1000D+01     0.0  0.1000D+00   65
 0.0000D+00  0.1500D+00  0.1000D+01     0.0  0.1000D+00   66
 0.0000D+00  0.1250D+00  0.1000D+01     0.0  0.1000D+00   67
 0.0000D+00  0.1000D+00  0.1000D+01     0.0  0.1000D+00   68
# transfer coefficients
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   69
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   70
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   71
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   72
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   73
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   74
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   75
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   76
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   77
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   78
# Stock recruitment relationship
 0.0000D+00  0.2507D+06  0.1000D+21     0.0  0.4000D+00   79
 0.0000D+00  0.1660D+05  0.1000D+21     0.0  0.0000D+00   80
 0.0000D+00  0.1580D+00  0.9000D+00     0.0  0.0000D+00   81
 0.0000D+00  0.1000D+01  0.2000D+01     0.0  0.0000D+00   82
 0.0000D+00  0.1000D+01  0.2000D+01     0.0  0.0000D+00   83
# Variance scaling parameters
 0.0000D+00  0.9388D+00  0.1000D+21     1.0  0.4000D+00   84
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   85
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   86
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   87
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   88
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   89
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   90
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   91
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   92
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   93
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   94
 0.0000D+00  0.9388D+00  0.1000D+21    -0.1  0.4000D+00   95
# fraction surviving the intial tagging process
 0.0000D+00  0.8000D+00  0.1000D+01     0.0  0.1000D+00   96
 0.0000D+00  0.8000D+00  0.1000D+01     0.0  0.1000D+00   97
 0.0000D+00  0.8000D+00  0.1000D+01     0.0  0.1000D+00   98
 0.0000D+00  0.8000D+00  0.1000D+01     0.0  0.1000D+00   99
 0.0000D+00  0.8000D+00  0.1000D+01     0.0  0.1000D+00  100
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 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  101
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  102
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  103
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  104
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  105
# tag shedding rate
 0.0000D+00  0.2282D+00  0.1000D+01    2.0  0.1000D+00  106
 0.0000D+00  0.1908D+00  0.1000D+01    2.0  0.1000D+00  107
 0.0000D+00  0.2382D+00  0.1000D+01    2.0  0.1000D+00  108
 0.0000D+00  0.2600D+00  0.1000D+01    2.0  0.1000D+00  109
 0.0000D+00  0.2600D+00  0.1000D+01    2.0  0.1000D+00  110
 0.0000D+00  0.2600D+00  0.1000D+01    2.0  0.1000D+00  111
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  112
 0.0000D+00  0.2600D+00  0.1000D+01    2.0  0.1000D+00  113
 0.0000D+00  0.2600D+00  0.1000D+01    2.0  0.1000D+00  114
 0.0000D+00  0.2600D+00  0.1000D+01    2.0  0.1000D+00  115
# tag reporting rate
 0.0000D+00  0.2533D+00  0.1000D+01    1.0  0.1000D+00  116
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  117
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  118
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  119
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  120
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  121
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  122
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  123
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  124
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  125
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  126
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  127
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  128
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  129
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  130
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  131
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  132
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  133
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  134
 0.0000D+00  0.2533D+00  0.1000D+01   -0.1  0.1000D+00  135
 0.0000D+00  0.3179D+00  0.1000D+01    1.0  0.1000D+00  136  22 *****
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  137
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  138
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  139
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  140
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  141
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  142
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  143
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  144
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  145
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  146
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  147
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  148
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  149
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  150
 0.0000D+00  0.3179D+00  0.1000D+01   -0.1  0.1000D+00  151
 0.0000D+00  0.1991D+00  0.1000D+01    2.0  0.1000D+00  152
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 0.0000D+00  0.1620D+00  0.1000D+01    2.0  0.1000D+00  153
 0.0000D+00  0.1588D+00  0.1000D+01    2.0  0.1000D+00  154
 0.0000D+00  0.1643D+00  0.1000D+01    2.0  0.1000D+00  155
 0.0000D+00  0.2358D+00  0.1000D+01    2.0  0.1000D+00  156
 0.0000D+00  0.1921D+00  0.1000D+01    2.0  0.1000D+00  157
 0.0000D+00  0.1947D+00  0.1000D+01    2.0  0.1000D+00  158
 0.0000D+00  0.1963D+00  0.1000D+01    2.0  0.1000D+00  159
 0.0000D+00  0.1973D+00  0.1000D+01    2.0  0.1000D+00  160
 0.0000D+00  0.1978D+00  0.1000D+01    2.0  0.1000D+00  161
 0.0000D+00  0.2492D+00  0.1000D+01    2.0  0.1000D+00  162
 0.0000D+00  0.1989D+00  0.1000D+01    2.0  0.1000D+00  163
 0.0000D+00  0.2245D+00  0.1000D+01    2.0  0.1000D+00  164
# tag nonmixing factor for first year
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  165 1975   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  166 1975   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  167 1975   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  168 1975   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  169 1975   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  170 1975   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  171 1975   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  172 1975   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  173 1975   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  174 1975  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  175 1976   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  176 1976   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  177 1976   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  178 1976   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  179 1976   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  180 1976   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  181 1976   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  182 1976   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  183 1976   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  184 1976  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  185 1977   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  186 1977   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  187 1977   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  188 1977   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  189 1977   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  190 1977   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  191 1977   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  192 1977   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  193 1977   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  194 1977  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  195 1978   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  196 1978   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  197 1978   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  198 1978   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  199 1978   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  200 1978   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  201 1978   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  202 1978   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  203 1978   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  204 1978  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  205 1979   1
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	206	1979	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	207	1979	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	208	1979	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	209	1979	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	210	1979	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	211	1979	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	212	1979	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	213	1979	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	214	1979	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	215	1980	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	216	1980	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	217	1980	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	218	1980	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	219	1980	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	220	1980	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	221	1980	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	222	1980	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	223	1980	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	224	1980	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	225	1981	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	226	1981	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	227	1981	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	228	1981	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	229	1981	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	230	1981	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	231	1981	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	232	1981	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	233	1981	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	234	1981	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	235	1982	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	236	1982	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	237	1982	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	238	1982	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	239	1982	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	240	1982	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	241	1982	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	242	1982	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	243	1982	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	244	1982	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	245	1983	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	246	1983	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	247	1983	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	248	1983	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	249	1983	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	250	1983	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	251	1983	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	252	1983	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	253	1983	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	254	1983	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	255	1984	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	256	1984	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	257	1984	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	258	1984	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	259	1984	5

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	260	1984	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	261	1984	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	262	1984	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	263	1984	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	264	1984	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	265	1985	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	266	1985	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	267	1985	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	268	1985	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	269	1985	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	270	1985	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	271	1985	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	272	1985	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	273	1985	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	274	1985	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	275	1986	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	276	1986	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	277	1986	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	278	1986	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	279	1986	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	280	1986	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	281	1986	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	282	1986	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	283	1986	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	284	1986	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	285	1987	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	286	1987	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	287	1987	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	288	1987	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	289	1987	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	290	1987	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	291	1987	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	292	1987	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	293	1987	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	294	1987	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	295	1988	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	296	1988	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	297	1988	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	298	1988	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	299	1988	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	300	1988	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	301	1988	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	302	1988	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	303	1988	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	304	1988	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	305	1989	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	306	1989	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	307	1989	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	308	1989	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	309	1989	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	310	1989	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	311	1989	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	312	1989	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	313	1989	9

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	314	1989	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	315	1990	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	316	1990	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	317	1990	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	318	1990	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	319	1990	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	320	1990	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	321	1990	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	322	1990	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	323	1990	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	324	1990	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	325	1991	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	326	1991	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	327	1991	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	328	1991	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	329	1991	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	330	1991	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	331	1991	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	332	1991	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	333	1991	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	334	1991	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	335	1992	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	336	1992	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	337	1992	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	338	1992	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	339	1992	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	340	1992	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	341	1992	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	342	1992	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	343	1992	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	344	1992	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	345	1993	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	346	1993	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	347	1993	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	348	1993	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	349	1993	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	350	1993	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	351	1993	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	352	1993	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	353	1993	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	354	1993	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	355	1994	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	356	1994	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	357	1994	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	358	1994	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	359	1994	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	360	1994	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	361	1994	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	362	1994	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	363	1994	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	364	1994	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	365	1995	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	366	1995	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	367	1995	3

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	368	1995	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	369	1995	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	370	1995	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	371	1995	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	372	1995	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	373	1995	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	374	1995	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	375	1996	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	376	1996	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	377	1996	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	378	1996	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	379	1996	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	380	1996	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	381	1996	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	382	1996	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	383	1996	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	384	1996	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	385	1997	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	386	1997	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	387	1997	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	388	1997	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	389	1997	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	390	1997	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	391	1997	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	392	1997	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	393	1997	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	394	1997	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	395	1998	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	396	1998	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	397	1998	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	398	1998	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	399	1998	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	400	1998	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	401	1998	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	402	1998	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	403	1998	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	404	1998	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	405	1999	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	406	1999	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	407	1999	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	408	1999	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	409	1999	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	410	1999	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	411	1999	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	412	1999	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	413	1999	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	414	1999	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	415	2000	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	416	2000	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	417	2000	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	418	2000	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	419	2000	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	420	2000	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	421	2000	7

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	422 2000	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	423 2000	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	424 2000	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	425 2001	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	426 2001	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	427 2001	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	428 2001	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	429 2001	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	430 2001	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	431 2001	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	432 2001	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	433 2001	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	434 2001	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	435 2002	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	436 2002	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	437 2002	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	438 2002	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	439 2002	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	440 2002	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	441 2002	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	442 2002	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	443 2002	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	444 2002	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	445 2003	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	446 2003	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	447 2003	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	448 2003	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	449 2003	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	450 2003	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	451 2003	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	452 2003	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	453 2003	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	454 2003	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	455 2004	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	456 2004	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	457 2004	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	458 2004	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	459 2004	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	460 2004	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	461 2004	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	462 2004	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	463 2004	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	464 2004	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	465 2005	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	466 2005	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	467 2005	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	468 2005	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	469 2005	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	470 2005	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	471 2005	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	472 2005	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	473 2005	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	474 2005	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	475 2006	1

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	476	2006	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	477	2006	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	478	2006	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	479	2006	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	480	2006	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	481	2006	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	482	2006	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	483	2006	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	484	2006	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	485	2007	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	486	2007	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	487	2007	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	488	2007	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	489	2007	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	490	2007	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	491	2007	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	492	2007	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	493	2007	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	494	2007	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	495	2008	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	496	2008	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	497	2008	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	498	2008	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	499	2008	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	500	2008	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	501	2008	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	502	2008	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	503	2008	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	504	2008	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	505	2009	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	506	2009	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	507	2009	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	508	2009	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	509	2009	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	510	2009	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	511	2009	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	512	2009	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	513	2009	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	514	2009	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	515	2010	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	516	2010	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	517	2010	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	518	2010	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	519	2010	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	520	2010	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	521	2010	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	522	2010	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	523	2010	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	524	2010	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	525	2011	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	526	2011	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	527	2011	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	528	2011	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	529	2011	5

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	530	2011	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	531	2011	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	532	2011	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	533	2011	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	534	2011	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	535	2012	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	536	2012	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	537	2012	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	538	2012	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	539	2012	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	540	2012	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	541	2012	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	542	2012	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	543	2012	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	544	2012	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	545	2013	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	546	2013	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	547	2013	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	548	2013	4
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	551	2013	7
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	556	2014	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	557	2014	3
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	559	2014	5
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	571	2015	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	572	2015	8
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	574	2015	10
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	578	2016	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	579	2016	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	580	2016	6
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	583	2016	9

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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	585	2017	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	586	2017	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	587	2017	3
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	589	2017	5
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	591	2017	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	592	2017	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	593	2017	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	594	2017	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	595	2018	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	596	2018	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	597	2018	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	598	2018	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	599	2018	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	600	2018	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	601	2018	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	602	2018	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	603	2018	9
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	605	2019	1
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	608	2019	4
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	610	2019	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	611	2019	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	612	2019	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	613	2019	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	614	2019	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	615	2020	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	616	2020	2
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	618	2020	4
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	627	2021	3
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	629	2021	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	630	2021	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	631	2021	7
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	633	2021	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	634	2021	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	635	2022	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	636	2022	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	637	2022	3

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 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  638 2022   4
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 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  640 2022   6
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 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  642 2022   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  643 2022   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  644 2022  10
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 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  649 2023   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  650 2023   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  651 2023   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  652 2023   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  653 2023   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  654 2023  10
# tag nonmixing factor for second year
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  655 2024   1
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  656 2024   2
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  657 2024   3
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  658 2024   4
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  659 2024   5
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 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  661 2024   7
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  662 2024   8
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 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  665 2025   1
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  666 2025   2
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  667 2025   3
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  668 2025   4
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  669 2025   5
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  670 2025   6
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  671 2025   7
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  672 2025   8
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  673 2025   9
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  674 2025  10
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  675 2026   1
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  676 2026   2
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  677 2026   3
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  678 2026   4
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  679 2026   5
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  680 2026   6
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  681 2026   7
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  682 2026   8
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  683 2026   9
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  684 2026  10
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  685 2027   1
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  686 2027   2
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  687 2027   3
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  688 2027   4
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  689 2027   5
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  690 2027   6
```

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	691	2027	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	692	2027	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	693	2027	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	694	2027	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	695	2028	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	696	2028	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	697	2028	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	698	2028	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	699	2028	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	700	2028	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	701	2028	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	702	2028	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	703	2028	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	704	2028	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	705	2029	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	706	2029	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	707	2029	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	708	2029	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	709	2029	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	710	2029	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	711	2029	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	712	2029	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	713	2029	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	714	2029	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	715	2030	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	716	2030	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	717	2030	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	718	2030	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	719	2030	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	720	2030	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	721	2030	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	722	2030	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	723	2030	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	724	2030	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	725	2031	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	726	2031	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	727	2031	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	728	2031	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	729	2031	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	730	2031	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	731	2031	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	732	2031	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	733	2031	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	734	2031	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	735	2032	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	736	2032	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	737	2032	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	738	2032	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	739	2032	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	740	2032	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	741	2032	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	742	2032	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	743	2032	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	744	2032	10

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	745	2033	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	746	2033	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	747	2033	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	748	2033	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	749	2033	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	750	2033	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	751	2033	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	752	2033	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	753	2033	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	754	2033	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	755	2034	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	756	2034	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	757	2034	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	758	2034	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	759	2034	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	760	2034	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	761	2034	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	762	2034	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	763	2034	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	764	2034	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	765	2035	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	766	2035	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	767	2035	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	768	2035	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	769	2035	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	770	2035	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	771	2035	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	772	2035	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	773	2035	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	774	2035	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	775	2036	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	776	2036	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	777	2036	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	778	2036	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	779	2036	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	780	2036	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	781	2036	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	782	2036	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	783	2036	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	784	2036	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	785	2037	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	786	2037	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	787	2037	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	788	2037	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	789	2037	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	790	2037	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	791	2037	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	792	2037	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	793	2037	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	794	2037	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	795	2038	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	796	2038	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	797	2038	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	798	2038	4

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	799	2038	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	800	2038	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	801	2038	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	802	2038	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	803	2038	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	804	2038	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	805	2039	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	806	2039	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	807	2039	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	808	2039	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	809	2039	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	810	2039	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	811	2039	7
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	813	2039	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	814	2039	10
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	817	2040	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	818	2040	4
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	820	2040	6
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	833	2041	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	834	2041	10
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	836	2042	2
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	838	2042	4
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	840	2042	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	841	2042	7
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	843	2042	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	844	2042	10
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	852	2043	8

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	853	2043	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	854	2043	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	855	2044	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	856	2044	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	857	2044	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	858	2044	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	859	2044	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	860	2044	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	861	2044	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	862	2044	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	863	2044	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	864	2044	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	865	2045	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	866	2045	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	867	2045	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	868	2045	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	869	2045	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	870	2045	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	871	2045	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	872	2045	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	873	2045	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	874	2045	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	875	2046	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	876	2046	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	877	2046	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	878	2046	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	879	2046	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	880	2046	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	881	2046	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	882	2046	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	883	2046	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	884	2046	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	885	2047	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	886	2047	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	887	2047	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	888	2047	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	889	2047	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	890	2047	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	891	2047	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	892	2047	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	893	2047	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	894	2047	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	895	2048	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	896	2048	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	897	2048	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	898	2048	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	899	2048	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	900	2048	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	901	2048	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	902	2048	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	903	2048	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	904	2048	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	905	2049	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	906	2049	2

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	907	2049	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	908	2049	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	909	2049	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	910	2049	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	911	2049	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	912	2049	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	913	2049	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	914	2049	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	915	2050	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	916	2050	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	917	2050	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	918	2050	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	919	2050	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	920	2050	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	921	2050	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	922	2050	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	923	2050	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	924	2050	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	925	2051	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	926	2051	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	927	2051	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	928	2051	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	929	2051	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	930	2051	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	931	2051	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	932	2051	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	933	2051	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	934	2051	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	935	2052	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	936	2052	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	937	2052	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	938	2052	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	939	2052	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	940	2052	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	941	2052	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	942	2052	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	943	2052	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	944	2052	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	945	2053	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	946	2053	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	947	2053	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	948	2053	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	949	2053	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	950	2053	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	951	2053	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	952	2053	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	953	2053	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	954	2053	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	955	2054	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	956	2054	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	957	2054	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	958	2054	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	959	2054	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	960	2054	6

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	961	2054	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	962	2054	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	963	2054	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	964	2054	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	965	2055	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	966	2055	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	967	2055	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	968	2055	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	969	2055	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	970	2055	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	971	2055	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	972	2055	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	973	2055	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	974	2055	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	975	2056	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	976	2056	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	977	2056	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	978	2056	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	979	2056	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	980	2056	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	981	2056	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	982	2056	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	983	2056	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	984	2056	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	985	2057	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	986	2057	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	987	2057	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	988	2057	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	989	2057	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	990	2057	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	991	2057	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	992	2057	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	993	2057	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	994	2057	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	995	2058	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	996	2058	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	997	2058	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	998	2058	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	999	2058	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1000	2058	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1001	2058	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1002	2058	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1003	2058	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1004	2058	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1005	2059	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1006	2059	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1007	2059	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1008	2059	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1009	2059	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1010	2059	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1011	2059	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1012	2059	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1013	2059	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1014	2059	10

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1015	2060	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1016	2060	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1017	2060	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1018	2060	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1019	2060	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1020	2060	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1021	2060	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1022	2060	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1023	2060	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1024	2060	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1025	2061	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1026	2061	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1027	2061	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1028	2061	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1029	2061	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1030	2061	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1031	2061	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1032	2061	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1033	2061	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1034	2061	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1035	2062	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1036	2062	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1037	2062	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1038	2062	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1039	2062	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1040	2062	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1041	2062	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1042	2062	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1043	2062	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1044	2062	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1045	2063	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1046	2063	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1047	2063	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1048	2063	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1049	2063	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1050	2063	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1051	2063	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1052	2063	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1053	2063	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1054	2063	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1055	2064	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1056	2064	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1057	2064	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1058	2064	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1059	2064	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1060	2064	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1061	2064	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1062	2064	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1063	2064	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1064	2064	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1065	2065	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1066	2065	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1067	2065	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1068	2065	4

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1069	2065	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1070	2065	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1071	2065	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1072	2065	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1073	2065	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1074	2065	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1075	2066	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1076	2066	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1077	2066	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1078	2066	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1079	2066	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1080	2066	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1081	2066	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1082	2066	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1083	2066	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1084	2066	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1085	2067	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1086	2067	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1087	2067	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1088	2067	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1089	2067	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1090	2067	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1091	2067	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1092	2067	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1093	2067	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1094	2067	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1095	2068	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1096	2068	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1097	2068	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1098	2068	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1099	2068	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1100	2068	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1101	2068	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1102	2068	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1103	2068	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1104	2068	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1105	2069	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1106	2069	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1107	2069	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1108	2069	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1109	2069	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1110	2069	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1111	2069	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1112	2069	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1113	2069	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1114	2069	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1115	2070	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1116	2070	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1117	2070	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1118	2070	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1119	2070	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1120	2070	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1121	2070	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1122	2070	8

```
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1123 2070   9
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1124 2070  10
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1125 2071   1
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1126 2071   2
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1127 2071   3
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1128 2071   4
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1129 2071   5
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1130 2071   6
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1131 2071   7
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1132 2071   8
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1133 2071   9
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1134 2071  10
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1135 2072   1
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1136 2072   2
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1137 2072   3
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1138 2072   4
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1139 2072   5
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1140 2072   6
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1141 2072   7
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1142 2072   8
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1143 2072   9
 0.0000D+00  0.1000D+01  0.5000D+01     0.0  0.1000D+00  1144 2072  10
# Number of parameters =        1144
 ****************************************
                    VPA-2BOX
          BOOTSTRAP ESTIMATES OF BIAS AND VARIANCE
          ****************************************


Basic model
12:01, 17  February 2011


************************************************
BIAS AND STANDARD ERROR ESTIMATES
************************************************


TABLE 1A. BIAS OF FISHING MORTALITY RATE FOR East of 45
==============================================================================
     1     2     3     4     5     6     7     8     9    10
------------------------------------------------------------------------------
 1975  0.000 -0.002 -0.001 -0.001  0.000 -0.001  0.000  0.000  0.000  0.000
 1976  0.000 -0.002 -0.003 -0.001 -0.001  0.000 -0.001  0.000  0.000  0.000
 1977  0.000 -0.002 -0.001 -0.001  0.000  0.000  0.000 -0.001  0.000  0.000
 1978 -0.001 -0.002 -0.002 -0.001  0.000  0.000  0.000  0.000  0.000  0.000
 1979  0.000 -0.001 -0.002 -0.001  0.000  0.000  0.000 -0.001  0.000  0.000
 1980  0.000 -0.001 -0.003 -0.002  0.000  0.000  0.000  0.000  0.000  0.000
 1981  0.000 -0.002 -0.003 -0.001 -0.001  0.000  0.000  0.000  0.000  0.000
 1982 -0.002 -0.002 -0.004 -0.002 -0.001  0.000  0.000 -0.001 -0.001 -0.001
 1983 -0.001 -0.002 -0.003 -0.001 -0.001 -0.001 -0.001  0.000 -0.001 -0.001
 1984 -0.001 -0.003 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001
 1985 -0.001 -0.004 -0.004 -0.002 -0.001 -0.001  0.000 -0.001 -0.001 -0.001
 1986 -0.001 -0.002 -0.003 -0.002  0.000 -0.001 -0.001  0.000 -0.001 -0.001
```

1987	-0.001	-0.003	-0.003	-0.002	-0.001	0.000	-0.001	-0.001	-0.001	-0.001
1988	-0.003	-0.003	-0.004	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
1989	-0.003	-0.004	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001
1990	-0.002	-0.005	-0.005	-0.002	-0.003	-0.001	-0.001	-0.001	-0.002	-0.001
1991	-0.002	-0.005	-0.006	-0.003	-0.003	-0.001	-0.001	-0.001	-0.002	-0.001
1992	-0.002	-0.008	-0.008	-0.003	-0.002	-0.001	-0.002	-0.002	-0.003	-0.002
1993	-0.002	-0.015	-0.013	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.002
1994	-0.004	-0.008	-0.009	-0.004	-0.004	-0.003	-0.005	-0.005	-0.008	-0.005
1995	-0.004	-0.008	-0.009	-0.006	-0.005	-0.006	-0.004	-0.005	-0.006	-0.007
1996	-0.006	-0.016	-0.017	-0.011	-0.007	-0.003	-0.005	-0.003	-0.008	-0.010
1997	-0.007	-0.015	-0.011	-0.012	-0.008	-0.009	-0.005	-0.011	-0.011	-0.013
1998	-0.010	-0.027	-0.022	-0.015	-0.009	-0.017	-0.003	-0.003	-0.008	-0.010
1999	-0.011	-0.014	-0.021	-0.015	-0.007	-0.004	-0.004	-0.005	-0.010	-0.012
2000	-0.029	-0.027	-0.016	-0.015	-0.016	-0.011	-0.004	-0.007	-0.008	-0.009
2001	-0.001	-0.035	-0.016	-0.011	-0.011	-0.010	-0.015	-0.010	-0.012	-0.014
2002	-0.003	-0.041	-0.028	-0.012	-0.006	-0.011	-0.007	-0.011	-0.012	-0.014
2003	-0.001	-0.016	-0.010	-0.007	-0.011	-0.006	-0.018	-0.013	-0.016	-0.020
2004	-0.005	-0.016	-0.018	-0.006	-0.004	-0.008	-0.009	-0.012	-0.019	-0.023
2005	-0.020	-0.021	-0.012	-0.010	-0.006	-0.007	-0.008	-0.006	-0.027	-0.032
2006	-0.021	-0.018	-0.019	-0.006	-0.003	-0.009	-0.005	-0.007	-0.019	-0.023
2007	0.000	-0.015	-0.007	-0.016	-0.012	-0.008	-0.009	-0.008	-0.021	-0.025
2008	0.000	-0.016	-0.009	-0.015	-0.008	-0.007	-0.008	-0.010	-0.012	-0.014
2009	0.000	-0.002	-0.007	-0.017	-0.008	-0.006	-0.011	-0.010	-0.007	-0.009
2010	0.000	-0.001	-0.002	-0.027	-0.011	-0.013	-0.009	-0.008	-0.006	-0.008
2011	0.000	-0.006	-0.003	-0.005	-0.002	-0.002	-0.003	-0.003	-0.004	-0.005
2012	0.000	-0.006	-0.003	-0.005	-0.002	-0.002	-0.003	-0.003	-0.003	-0.004
2013	0.000	-0.005	-0.003	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.004
2014	0.000	-0.005	-0.003	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003
2015	0.000	-0.005	-0.002	-0.004	-0.002	-0.001	-0.002	-0.002	-0.003	-0.003
2016	-0.003	-0.004	-0.002	-0.004	-0.002	-0.001	-0.002	-0.002	-0.002	-0.003
2017	0.003	-0.116	-0.002	-0.003	-0.001	-0.001	-0.002	-0.002	-0.002	-0.003
2018	-0.001	0.118	-0.067	-0.003	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002
2019	0.003	-0.036	0.076	-0.121	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002
2020	0.002	0.119	-0.015	0.167	-0.060	-0.001	-0.001	-0.001	-0.002	-0.002
2021	0.000	0.076	0.083	0.011	0.114	-0.048	-0.001	-0.001	-0.002	-0.002
2022	0.000	0.005	0.056	0.232	0.083	0.137	-0.042	-0.001	-0.002	-0.002
2023	0.000	-0.008	0.004	0.277	0.742	0.441	0.552	0.490	-0.001	-0.002

TABLE 1B. STANDARD ERROR OF FISHING MORTALITY RATE FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	0.907E-04	0.377E-03	0.284E-03	0.179E-03	0.963E-04	0.204E-03	0.114E-03	0.967E-04	0.127E-03	0.127E-03
1976	0.145E-04	0.426E-03	0.733E-03	0.270E-03	0.208E-03	0.698E-04	0.143E-03	0.688E-04	0.105E-03	0.105E-03
1977	0.658E-04	0.428E-03	0.346E-03	0.324E-03	0.557E-04	0.777E-04	0.595E-04	0.141E-03	0.108E-03	0.108E-03
1978	0.173E-03	0.408E-03	0.391E-03	0.188E-03	0.951E-04	0.273E-04	0.570E-04	0.304E-04	0.867E-04	0.867E-04

1979 0.213E-04 0.151E-03 0.441E-03 0.231E-03 0.864E-04 0.563E-04 0.448E-04 0.124E-03 0.810E-04 0.810E-04
1980 0.981E-04 0.349E-03 0.754E-03 0.371E-03 0.810E-04 0.864E-04 0.744E-04 0.432E-04 0.893E-04 0.893E-04
1981 0.908E-04 0.508E-03 0.636E-03 0.240E-03 0.198E-03 0.571E-04 0.792E-04 0.119E-03 0.685E-04 0.685E-04
1982 0.469E-03 0.590E-03 0.871E-03 0.421E-03 0.173E-03 0.969E-04 0.613E-04 0.205E-03 0.147E-03 0.147E-03
1983 0.270E-03 0.480E-03 0.688E-03 0.326E-03 0.221E-03 0.163E-03 0.306E-03 0.979E-04 0.162E-03 0.162E-03
1984 0.176E-03 0.703E-03 0.344E-03 0.348E-03 0.359E-03 0.284E-03 0.250E-03 0.339E-03 0.190E-03 0.190E-03
1985 0.141E-03 0.846E-03 0.937E-03 0.362E-03 0.207E-03 0.209E-03 0.118E-03 0.170E-03 0.239E-03 0.143E-03
1986 0.335E-03 0.592E-03 0.692E-03 0.454E-03 0.108E-03 0.144E-03 0.131E-03 0.107E-03 0.238E-03 0.143E-03
1987 0.349E-03 0.665E-03 0.731E-03 0.399E-03 0.157E-03 0.104E-03 0.274E-03 0.210E-03 0.226E-03 0.136E-03
1988 0.699E-03 0.616E-03 0.949E-03 0.504E-03 0.211E-03 0.146E-03 0.178E-03 0.268E-03 0.360E-03 0.216E-03
1989 0.790E-03 0.107E-02 0.586E-03 0.478E-03 0.498E-03 0.126E-03 0.191E-03 0.140E-03 0.296E-03 0.178E-03
1990 0.581E-03 0.125E-02 0.125E-02 0.516E-03 0.597E-03 0.215E-03 0.213E-03 0.289E-03 0.370E-03 0.222E-03
1991 0.442E-03 0.121E-02 0.138E-02 0.663E-03 0.619E-03 0.185E-03 0.198E-03 0.249E-03 0.575E-03 0.345E-03
1992 0.466E-03 0.194E-02 0.197E-02 0.638E-03 0.375E-03 0.301E-03 0.448E-03 0.571E-03 0.727E-03 0.436E-03
1993 0.493E-03 0.362E-02 0.296E-02 0.914E-03 0.461E-03 0.373E-03 0.378E-03 0.453E-03 0.748E-03 0.449E-03
1994 0.940E-03 0.179E-02 0.197E-02 0.868E-03 0.920E-03 0.747E-03 0.117E-02 0.121E-02 0.200E-02 0.120E-02
1995 0.991E-03 0.195E-02 0.221E-02 0.126E-02 0.124E-02 0.146E-02 0.836E-03 0.122E-02 0.138E-02 0.166E-02
1996 0.140E-02 0.372E-02 0.388E-02 0.258E-02 0.152E-02 0.748E-03 0.105E-02 0.802E-03 0.196E-02 0.236E-02
1997 0.152E-02 0.344E-02 0.245E-02 0.271E-02 0.184E-02 0.199E-02 0.117E-02 0.246E-02 0.247E-02 0.296E-02
1998 0.218E-02 0.620E-02 0.491E-02 0.348E-02 0.190E-02 0.383E-02 0.636E-03 0.661E-03 0.190E-02 0.228E-02
1999 0.225E-02 0.300E-02 0.457E-02 0.328E-02 0.164E-02 0.818E-03 0.823E-03 0.104E-02 0.232E-02 0.278E-02
2000 0.615E-02 0.575E-02 0.335E-02 0.317E-02 0.350E-02 0.238E-02 0.974E-03 0.148E-02 0.169E-02 0.203E-02
2001 0.150E-03 0.717E-02 0.335E-02 0.232E-02 0.247E-02 0.207E-02 0.332E-02 0.229E-02 0.261E-02 0.313E-02
2002 0.597E-03 0.818E-02 0.561E-02 0.243E-02 0.114E-02 0.237E-02 0.149E-02 0.238E-02 0.260E-02 0.312E-02
2003 0.263E-03 0.314E-02 0.193E-02 0.139E-02 0.228E-02 0.112E-02 0.376E-02 0.272E-02 0.351E-02 0.421E-02
2004 0.946E-03 0.309E-02 0.358E-02 0.124E-02 0.702E-03 0.162E-02 0.171E-02 0.240E-02 0.393E-02 0.472E-02
2005 0.401E-02 0.406E-02 0.238E-02 0.199E-02 0.124E-02 0.131E-02 0.165E-02 0.110E-02 0.539E-02 0.646E-02

2006 0.412E-02 0.357E-02 0.375E-02 0.117E-02 0.538E-03 0.180E-02 0.935E-03 0.133E-02 0.379E-02 0.455E-02
2007 0.458E-04 0.296E-02 0.130E-02 0.299E-02 0.221E-02 0.148E-02 0.174E-02 0.148E-02 0.405E-02 0.486E-02
2008 0.617E-05 0.303E-02 0.179E-02 0.286E-02 0.154E-02 0.128E-02 0.145E-02 0.184E-02 0.221E-02 0.265E-02
2009 0.102E-04 0.277E-03 0.137E-02 0.316E-02 0.145E-02 0.120E-02 0.201E-02 0.179E-02 0.138E-02 0.166E-02
2010 0.959E-05 0.255E-03 0.322E-03 0.504E-02 0.205E-02 0.243E-02 0.165E-02 0.146E-02 0.118E-02 0.141E-02
2011 0.306E-04 0.113E-02 0.579E-03 0.944E-03 0.447E-03 0.375E-03 0.532E-03 0.544E-03 0.722E-03 0.866E-03
2012 0.277E-04 0.101E-02 0.518E-03 0.854E-03 0.386E-03 0.335E-03 0.465E-03 0.479E-03 0.608E-03 0.729E-03
2013 0.252E-04 0.936E-03 0.477E-03 0.782E-03 0.361E-03 0.301E-03 0.423E-03 0.432E-03 0.552E-03 0.663E-03
2014 0.235E-04 0.874E-03 0.456E-03 0.729E-03 0.335E-03 0.283E-03 0.392E-03 0.400E-03 0.512E-03 0.614E-03
2015 0.251E-04 0.806E-03 0.423E-03 0.704E-03 0.320E-03 0.266E-03 0.367E-03 0.363E-03 0.469E-03 0.562E-03
2016 0.343E-02 0.774E-03 0.387E-03 0.646E-03 0.303E-03 0.254E-03 0.336E-03 0.336E-03 0.423E-03 0.508E-03
2017 0.393E-02 0.132E+00 0.353E-03 0.570E-03 0.265E-03 0.227E-03 0.310E-03 0.304E-03 0.382E-03 0.458E-03
2018 0.365E-02 0.153E+00 0.831E-01 0.521E-03 0.243E-03 0.204E-03 0.283E-03 0.282E-03 0.346E-03 0.416E-03
2019 0.447E-02 0.149E+00 0.995E-01 0.176E+00 0.226E-03 0.189E-03 0.261E-03 0.260E-03 0.326E-03 0.391E-03
2020 0.407E-02 0.184E+00 0.107E+00 0.225E+00 0.113E+00 0.175E-03 0.243E-03 0.239E-03 0.302E-03 0.362E-03
2021 0.138E-02 0.173E+00 0.138E+00 0.278E+00 0.160E+00 0.123E+00 0.225E-03 0.230E-03 0.286E-03 0.343E-03
2022 0.907E-04 0.534E-01 0.137E+00 0.429E+00 0.266E+00 0.205E+00 0.262E+00 0.212E-03 0.272E-03 0.326E-03
2023 0.851E-04 0.307E-02 0.351E-01 0.885E+00 0.170E+01 0.837E+00 0.101E+01 0.154E+01 0.254E-03 0.305E-03
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TABLE 1C. BIAS OF ABUNDANCE (BY AREA) OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 0.893E+04 0.478E+04 0.541E+04 0.241E+04 0.290E+04 0.698E+03 0.843E+03 0.698E+03 0.679E+03 0.822E+04
1976 0.164E+05 0.547E+04 0.375E+04 0.426E+04 0.189E+04 0.228E+04 0.571E+03 0.708E+03 0.601E+03 0.813E+04
1977 0.466E+04 0.100E+05 0.430E+04 0.294E+04 0.335E+04 0.149E+04 0.187E+04 0.480E+03 0.610E+03 0.794E+04
1978 0.490E+04 0.285E+04 0.789E+04 0.338E+04 0.231E+04 0.263E+04 0.122E+04 0.157E+04 0.413E+03 0.779E+04

1979 0.640E+04 0.300E+04 0.224E+04 0.621E+04 0.266E+04 0.182E+04 0.216E+04 0.102E+04 0.135E+04 0.737E+04
1980 0.635E+04 0.392E+04 0.236E+04 0.176E+04 0.488E+04 0.209E+04 0.149E+04 0.181E+04 0.881E+03 0.789E+04
1981 0.766E+04 0.389E+04 0.308E+04 0.185E+04 0.138E+04 0.384E+04 0.171E+04 0.125E+04 0.156E+04 0.792E+04
1982 0.186E+05 0.470E+04 0.305E+04 0.242E+04 0.145E+04 0.109E+04 0.314E+04 0.144E+04 0.108E+04 0.844E+04
1983 0.159E+05 0.114E+05 0.368E+04 0.239E+04 0.190E+04 0.114E+04 0.891E+03 0.264E+04 0.124E+04 0.860E+04
1984 0.129E+05 0.972E+04 0.894E+04 0.289E+04 0.188E+04 0.150E+04 0.937E+03 0.748E+03 0.227E+04 0.893E+04
1985 0.111E+05 0.792E+04 0.762E+04 0.704E+04 0.227E+04 0.148E+04 0.122E+04 0.786E+03 0.643E+03 0.101E+05
1986 0.140E+05 0.678E+04 0.621E+04 0.597E+04 0.553E+04 0.179E+04 0.121E+04 0.103E+04 0.677E+03 0.968E+04
1987 0.218E+05 0.854E+04 0.533E+04 0.488E+04 0.470E+04 0.435E+04 0.146E+04 0.101E+04 0.885E+03 0.936E+04
1988 0.255E+05 0.134E+05 0.670E+04 0.418E+04 0.384E+04 0.369E+04 0.356E+04 0.123E+04 0.874E+03 0.928E+04
1989 0.587E+05 0.156E+05 0.105E+05 0.525E+04 0.329E+04 0.302E+04 0.302E+04 0.299E+04 0.106E+04 0.915E+04
1990 0.472E+05 0.359E+05 0.122E+05 0.826E+04 0.413E+04 0.259E+04 0.247E+04 0.254E+04 0.257E+04 0.924E+04
1991 0.111E+06 0.289E+05 0.282E+05 0.959E+04 0.649E+04 0.324E+04 0.212E+04 0.207E+04 0.218E+04 0.106E+05
1992 0.105E+06 0.682E+05 0.227E+05 0.222E+05 0.754E+04 0.510E+04 0.266E+04 0.178E+04 0.179E+04 0.116E+05
1993 0.105E+06 0.645E+05 0.536E+05 0.178E+05 0.174E+05 0.593E+04 0.418E+04 0.223E+04 0.153E+04 0.120E+05
1994 0.131E+06 0.641E+05 0.505E+05 0.421E+05 0.140E+05 0.137E+05 0.486E+04 0.351E+04 0.192E+04 0.122E+05
1995 0.115E+06 0.801E+05 0.503E+05 0.397E+05 0.331E+05 0.110E+05 0.112E+05 0.408E+04 0.302E+04 0.128E+05
1996 0.132E+06 0.703E+05 0.630E+05 0.395E+05 0.312E+05 0.260E+05 0.902E+04 0.942E+04 0.351E+04 0.142E+05
1997 0.108E+06 0.809E+05 0.551E+05 0.494E+05 0.311E+05 0.246E+05 0.213E+05 0.757E+04 0.811E+04 0.159E+05
1998 0.611E+06 0.659E+05 0.635E+05 0.433E+05 0.389E+05 0.244E+05 0.201E+05 0.179E+05 0.651E+04 0.216E+05
1999 0.485E+06 0.374E+06 0.516E+05 0.498E+05 0.340E+05 0.306E+05 0.200E+05 0.169E+05 0.154E+05 0.252E+05
2000 0.635E+06 0.297E+06 0.294E+06 0.405E+05 0.392E+05 0.268E+05 0.250E+05 0.168E+05 0.145E+05 0.364E+05
2001 0.703E+06 0.388E+06 0.234E+06 0.231E+06 0.319E+05 0.308E+05 0.219E+05 0.210E+05 0.144E+05 0.458E+05
2002 0.871E+06 0.431E+06 0.305E+06 0.184E+06 0.182E+06 0.251E+05 0.252E+05 0.184E+05 0.181E+05 0.542E+05
2003 0.113E+07 0.533E+06 0.339E+06 0.240E+06 0.145E+06 0.143E+06 0.205E+05 0.212E+05 0.158E+05 0.649E+05
2004 0.147E+07 0.690E+06 0.420E+06 0.266E+06 0.189E+06 0.114E+06 0.117E+06 0.172E+05 0.182E+05 0.727E+05
2005 0.764E+06 0.903E+06 0.543E+06 0.330E+06 0.209E+06 0.148E+06 0.931E+05 0.984E+05 0.148E+05 0.819E+05

2006 0.592E+06 0.468E+06 0.710E+06 0.427E+06 0.260E+06 0.165E+06 0.121E+06 0.782E+05 0.847E+05 0.871E+05
2007 0.389E+06 0.362E+06 0.368E+06 0.558E+06 0.336E+06 0.204E+06 0.135E+06 0.102E+06 0.673E+05 0.154E+06
2008 0.201E+07 0.238E+06 0.285E+06 0.289E+06 0.439E+06 0.264E+06 0.167E+06 0.113E+06 0.878E+05 0.198E+06
2009 0.221E+07 0.123E+07 0.187E+06 0.224E+06 0.228E+06 0.346E+06 0.216E+06 0.140E+06 0.975E+05 0.257E+06
2010 0.233E+07 0.135E+07 0.967E+06 0.147E+06 0.176E+06 0.179E+06 0.283E+06 0.182E+06 0.121E+06 0.318E+06
2011 0.230E+07 0.143E+07 0.106E+07 0.761E+06 0.116E+06 0.139E+06 0.147E+06 0.237E+06 0.156E+06 0.394E+06
2012 0.248E+07 0.141E+07 0.112E+07 0.837E+06 0.598E+06 0.911E+05 0.114E+06 0.123E+06 0.204E+06 0.494E+06
2013 0.261E+07 0.152E+07 0.111E+07 0.885E+06 0.659E+06 0.471E+06 0.746E+05 0.953E+05 0.106E+06 0.628E+06
2014 0.274E+07 0.160E+07 0.120E+07 0.872E+06 0.696E+06 0.518E+06 0.385E+06 0.626E+05 0.820E+05 0.662E+06
2015 0.274E+07 0.168E+07 0.126E+07 0.940E+06 0.686E+06 0.547E+06 0.424E+06 0.323E+06 0.539E+05 0.672E+06
2016 0.156E+07 0.168E+07 0.132E+07 0.988E+06 0.740E+06 0.540E+06 0.448E+06 0.356E+06 0.278E+06 0.656E+06
2017 0.281E+07 0.958E+06 0.132E+07 0.104E+07 0.777E+06 0.582E+06 0.442E+06 0.376E+06 0.306E+06 0.841E+06
2018 0.381E+06 0.172E+07 0.753E+06 0.104E+07 0.817E+06 0.611E+06 0.476E+06 0.371E+06 0.324E+06 0.103E+07
2019 0.478E+08 0.233E+06 0.136E+07 0.592E+06 0.817E+06 0.642E+06 0.500E+06 0.400E+06 0.319E+06 0.122E+07
2020 0.203E+09 0.293E+08 0.183E+06 0.107E+07 0.466E+06 0.643E+06 0.526E+06 0.420E+06 0.344E+06 0.139E+07
2021 0.853E+07 0.125E+09 0.231E+08 0.144E+06 0.840E+06 0.367E+06 0.526E+06 0.442E+06 0.362E+06 0.156E+07
2022 0.749E+06 0.523E+07 0.980E+08 0.181E+08 0.113E+06 0.660E+06 0.300E+06 0.442E+06 0.380E+06 0.173E+07
2023 0.767E+06 0.459E+06 0.411E+07 0.771E+08 0.143E+08 0.893E+05 0.541E+06 0.252E+06 0.380E+06 0.189E+07
2024 0.470E+06 0.361E+06 0.324E+07 0.606E+08 0.112E+08 0.731E+05 0.454E+06 0.217E+06 0.205E+07
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TABLE 1D. STANDARD ERROR OF ABUNDANCE (BY AREA) OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 0.221E+04 0.117E+04 0.131E+04 0.590E+03 0.713E+03 0.172E+03 0.212E+03 0.177E+03 0.175E+03 0.212E+04
1976 0.402E+04 0.135E+04 0.920E+03 0.103E+04 0.464E+03 0.561E+03 0.141E+03 0.178E+03 0.152E+03 0.206E+04
1977 0.114E+04 0.246E+04 0.106E+04 0.721E+03 0.809E+03 0.365E+03 0.460E+03 0.118E+03 0.153E+03 0.200E+04

1978 0.120E+04 0.697E+03 0.193E+04 0.835E+03 0.566E+03 0.637E+03 0.299E+03 0.386E+03 0.102E+03 0.192E+04
1979 0.157E+04 0.735E+03 0.547E+03 0.152E+04 0.657E+03 0.446E+03 0.521E+03 0.251E+03 0.332E+03 0.181E+04
1980 0.155E+04 0.963E+03 0.578E+03 0.429E+03 0.119E+04 0.516E+03 0.365E+03 0.438E+03 0.216E+03 0.193E+04
1981 0.187E+04 0.952E+03 0.757E+03 0.453E+03 0.338E+03 0.940E+03 0.423E+03 0.306E+03 0.377E+03 0.192E+04
1982 0.454E+04 0.115E+04 0.746E+03 0.594E+03 0.356E+03 0.266E+03 0.770E+03 0.355E+03 0.264E+03 0.207E+04
1983 0.385E+04 0.277E+04 0.899E+03 0.584E+03 0.467E+03 0.280E+03 0.217E+03 0.646E+03 0.306E+03 0.212E+04
1984 0.314E+04 0.236E+04 0.218E+04 0.706E+03 0.459E+03 0.367E+03 0.230E+03 0.182E+03 0.556E+03 0.218E+04
1985 0.268E+04 0.192E+04 0.185E+04 0.171E+04 0.555E+03 0.361E+03 0.301E+03 0.193E+03 0.157E+03 0.247E+04
1986 0.339E+04 0.164E+04 0.151E+04 0.145E+04 0.135E+04 0.437E+03 0.296E+03 0.252E+03 0.166E+03 0.237E+04
1987 0.530E+04 0.207E+04 0.129E+04 0.118E+04 0.114E+04 0.106E+04 0.358E+03 0.248E+03 0.217E+03 0.230E+04
1988 0.620E+04 0.324E+04 0.162E+04 0.101E+04 0.930E+03 0.896E+03 0.868E+03 0.300E+03 0.214E+03 0.227E+04
1989 0.143E+05 0.378E+04 0.255E+04 0.127E+04 0.797E+03 0.731E+03 0.734E+03 0.729E+03 0.259E+03 0.224E+04
1990 0.115E+05 0.872E+04 0.297E+04 0.200E+04 0.100E+04 0.626E+03 0.599E+03 0.616E+03 0.627E+03 0.225E+04
1991 0.271E+05 0.703E+04 0.685E+04 0.233E+04 0.158E+04 0.788E+03 0.513E+03 0.503E+03 0.530E+03 0.258E+04
1992 0.256E+05 0.166E+05 0.552E+04 0.539E+04 0.183E+04 0.124E+04 0.645E+03 0.431E+03 0.433E+03 0.280E+04
1993 0.254E+05 0.157E+05 0.130E+05 0.433E+04 0.424E+04 0.144E+04 0.101E+04 0.541E+03 0.370E+03 0.292E+04
1994 0.318E+05 0.156E+05 0.123E+05 0.102E+05 0.341E+04 0.333E+04 0.118E+04 0.852E+03 0.466E+03 0.297E+04
1995 0.279E+05 0.195E+05 0.122E+05 0.965E+04 0.805E+04 0.268E+04 0.273E+04 0.990E+03 0.733E+03 0.310E+04
1996 0.321E+05 0.171E+05 0.153E+05 0.961E+04 0.759E+04 0.633E+04 0.219E+04 0.229E+04 0.852E+03 0.345E+04
1997 0.261E+05 0.196E+05 0.134E+05 0.120E+05 0.755E+04 0.597E+04 0.518E+04 0.184E+04 0.197E+04 0.387E+04
1998 0.148E+06 0.160E+05 0.154E+05 0.105E+05 0.945E+04 0.594E+04 0.489E+04 0.435E+04 0.158E+04 0.524E+04
1999 0.118E+06 0.909E+05 0.125E+05 0.121E+05 0.827E+04 0.743E+04 0.486E+04 0.410E+04 0.374E+04 0.614E+04
2000 0.154E+06 0.723E+05 0.715E+05 0.985E+04 0.952E+04 0.651E+04 0.608E+04 0.408E+04 0.353E+04 0.885E+04
2001 0.171E+06 0.943E+05 0.568E+05 0.562E+05 0.774E+04 0.749E+04 0.533E+04 0.510E+04 0.351E+04 0.111E+05
2002 0.212E+06 0.105E+06 0.741E+05 0.447E+05 0.442E+05 0.609E+04 0.613E+04 0.447E+04 0.439E+04 0.132E+05
2003 0.274E+06 0.130E+06 0.823E+05 0.583E+05 0.351E+05 0.348E+05 0.499E+04 0.515E+04 0.385E+04 0.158E+05
2004 0.358E+06 0.168E+06 0.102E+06 0.647E+05 0.458E+05 0.276E+05 0.285E+05 0.418E+04 0.443E+04 0.177E+05

2005 0.186E+06 0.220E+06 0.132E+06 0.802E+05 0.509E+05 0.361E+05 0.226E+05 0.239E+05 0.360E+04 0.199E+05
2006 0.144E+06 0.114E+06 0.173E+06 0.104E+06 0.631E+05 0.401E+05 0.295E+05 0.190E+05 0.206E+05 0.212E+05
2007 0.942E+05 0.879E+05 0.894E+05 0.136E+06 0.817E+05 0.496E+05 0.328E+05 0.248E+05 0.163E+05 0.373E+05
2008 0.486E+06 0.577E+05 0.691E+05 0.703E+05 0.107E+06 0.643E+05 0.406E+05 0.275E+05 0.213E+05 0.482E+05
2009 0.533E+06 0.297E+06 0.454E+05 0.544E+05 0.553E+05 0.840E+05 0.526E+05 0.341E+05 0.237E+05 0.624E+05
2010 0.562E+06 0.327E+06 0.234E+06 0.357E+05 0.428E+05 0.435E+05 0.688E+05 0.442E+05 0.294E+05 0.774E+05
2011 0.555E+06 0.344E+06 0.257E+06 0.184E+06 0.281E+05 0.336E+05 0.356E+05 0.578E+05 0.380E+05 0.959E+05
2012 0.597E+06 0.340E+06 0.271E+06 0.202E+06 0.145E+06 0.221E+05 0.275E+05 0.299E+05 0.497E+05 0.120E+06
2013 0.631E+06 0.366E+06 0.267E+06 0.213E+06 0.159E+06 0.114E+06 0.181E+05 0.231E+05 0.257E+05 0.153E+06
2014 0.662E+06 0.386E+06 0.288E+06 0.210E+06 0.168E+06 0.125E+06 0.933E+05 0.152E+05 0.199E+05 0.161E+06
2015 0.662E+06 0.405E+06 0.304E+06 0.226E+06 0.165E+06 0.132E+06 0.102E+06 0.783E+05 0.131E+05 0.163E+06
2016 0.289E+07 0.406E+06 0.319E+06 0.239E+06 0.178E+06 0.130E+06 0.108E+06 0.860E+05 0.674E+05 0.159E+06
2017 0.808E+07 0.177E+07 0.319E+06 0.251E+06 0.188E+06 0.140E+06 0.107E+06 0.906E+05 0.740E+05 0.203E+06
2018 0.904E+06 0.495E+07 0.139E+07 0.251E+06 0.197E+06 0.148E+06 0.115E+06 0.894E+05 0.780E+05 0.249E+06
2019 0.150E+09 0.554E+06 0.389E+07 0.110E+07 0.198E+06 0.155E+06 0.121E+06 0.963E+05 0.770E+05 0.295E+06
2020 0.457E+09 0.918E+08 0.435E+06 0.306E+07 0.862E+06 0.155E+06 0.127E+06 0.102E+06 0.829E+05 0.334E+06
2021 0.677E+08 0.280E+09 0.722E+08 0.342E+06 0.241E+07 0.678E+06 0.127E+06 0.107E+06 0.875E+05 0.376E+06
2022 0.365E+06 0.415E+08 0.220E+09 0.568E+08 0.269E+06 0.189E+07 0.555E+06 0.107E+06 0.918E+05 0.417E+06
2023 0.365E+06 0.223E+06 0.326E+08 0.173E+09 0.447E+08 0.212E+06 0.155E+07 0.466E+06 0.919E+05 0.458E+06
2024 0.224E+06 0.176E+06 0.257E+08 0.136E+09 0.352E+08 0.173E+06 0.130E+07 0.401E+06 0.496E+06
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TABLE 1E. PARAMETER ESTIMATES FOR East of 45
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TERMINAL AGE STRUCTURE OF POPULATION ABUNDANCE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
2	0.199E+07	0.191E+07	0.470E+06	0.224E+06	11.7
3	0.153E+07	0.146E+07	0.361E+06	0.176E+06	12.0
4	0.817E+06	0.394E+07	0.324E+07	0.257E+08	652.5

5	0.152E+08	0.897E+08	0.606E+08	0.136E+09	151.9
6	0.348E+07	0.167E+08	0.112E+08	0.352E+08	210.2
7	0.111E+05	0.857E+05	0.731E+05	0.173E+06	202.3
8	0.102E+06	0.761E+06	0.454E+06	0.130E+07	171.0
9	0.740E+05	0.229E+06	0.217E+06	0.401E+06	175.0
10	0.580E+07	0.780E+07	0.205E+07	0.496E+06	6.4

TERMINAL AGE STRUCTURE OF FISHING MORTALITY RATE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.682E-03	0.721E-03	-0.223E-03	0.851E-04	11.8
2	0.242E-01	0.256E-01	-0.779E-02	0.307E-02	12.0
3	0.207E-01	0.281E-01	0.402E-02	0.351E-01	124.9
4	0.119E-02	0.278E+00	0.277E+00	0.885E+00	318.5
5	0.217E-02	0.744E+00	0.742E+00	0.170E+01	228.8
6	0.369E+00	0.774E+00	0.441E+00	0.837E+00	108.2
7	0.524E-01	0.570E+00	0.552E+00	0.101E+01	176.8
8	0.586E-01	0.799E+00	0.490E+00	0.154E+01	192.2
9	0.551E-02	0.412E-02	-0.144E-02	0.254E-03	6.2
10	0.661E-02	0.494E-02	-0.173E-02	0.305E-03	6.2

RATIO OF FISHING MORTALITY RATE ON LAST TWO AGES (F-RATIO)

Year	MLE	Average of bootstraps	Bias	Std. Error	% CV
1975	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1976	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1977	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1978	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1979	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1980	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1981	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1982	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1983	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1984	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1985	0.600E+00	0.600E+00	0.000E+00	0.211E-07	0.0
1986	0.600E+00	0.600E+00	0.000E+00	0.245E-07	0.0
1987	0.600E+00	0.600E+00	0.000E+00	0.225E-07	0.0
1988	0.600E+00	0.600E+00	0.000E+00	0.185E-07	0.0
1989	0.600E+00	0.600E+00	0.000E+00	0.216E-07	0.0
1990	0.600E+00	0.600E+00	0.000E+00	0.203E-07	0.0
1991	0.600E+00	0.600E+00	0.000E+00	0.247E-07	0.0
1992	0.600E+00	0.600E+00	0.000E+00	0.211E-07	0.0
1993	0.600E+00	0.600E+00	0.000E+00	0.228E-07	0.0
1994	0.600E+00	0.600E+00	0.000E+00	0.215E-07	0.0
1995	0.120E+01	0.120E+01	0.000E+00	0.352E-07	0.0
1996	0.120E+01	0.120E+01	0.000E+00	0.332E-07	0.0
1997	0.120E+01	0.120E+01	0.000E+00	0.315E-07	0.0
1998	0.120E+01	0.120E+01	0.000E+00	0.524E-07	0.0
1999	0.120E+01	0.120E+01	0.000E+00	0.449E-07	0.0
2000	0.120E+01	0.120E+01	0.000E+00	0.388E-07	0.0
2001	0.120E+01	0.120E+01	0.000E+00	0.415E-07	0.0
2002	0.120E+01	0.120E+01	0.000E+00	0.442E-07	0.0

2003	0.120E+01	0.120E+01	0.000E+00	0.417E-07	0.0
2004	0.120E+01	0.120E+01	0.000E+00	0.403E-07	0.0
2005	0.120E+01	0.120E+01	0.000E+00	0.476E-07	0.0
2006	0.120E+01	0.120E+01	0.000E+00	0.380E-07	0.0
2007	0.120E+01	0.120E+01	0.000E+00	0.396E-07	0.0
2008	0.120E+01	0.120E+01	0.000E+00	0.409E-07	0.0
2009	0.120E+01	0.120E+01	0.000E+00	0.402E-07	0.0
2010	0.120E+01	0.120E+01	0.000E+00	0.392E-07	0.0
2011	0.120E+01	0.120E+01	0.000E+00	0.391E-07	0.0
2012	0.120E+01	0.120E+01	0.000E+00	0.353E-07	0.0
2013	0.120E+01	0.120E+01	0.000E+00	0.408E-07	0.0
2014	0.120E+01	0.120E+01	0.000E+00	0.490E-07	0.0
2015	0.120E+01	0.120E+01	0.000E+00	0.440E-07	0.0
2016	0.120E+01	0.120E+01	0.000E+00	0.376E-07	0.0
2017	0.120E+01	0.120E+01	0.000E+00	0.399E-07	0.0
2018	0.120E+01	0.120E+01	0.000E+00	0.356E-07	0.0
2019	0.120E+01	0.120E+01	0.000E+00	0.388E-07	0.0
2020	0.120E+01	0.120E+01	0.000E+00	0.418E-07	0.0
2021	0.120E+01	0.120E+01	0.000E+00	0.456E-07	0.0
2022	0.120E+01	0.120E+01	0.000E+00	0.415E-07	0.0
2023	0.120E+01	0.120E+01	0.000E+00	0.417E-07	0.0

NATURAL MORTALITY RATE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.490E+00	0.490E+00	0.000E+00	0.000E+00	0.0
2	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
3	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
4	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
5	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
6	0.200E+00	0.200E+00	0.000E+00	0.000E+00	0.0
7	0.175E+00	0.175E+00	0.000E+00	0.000E+00	0.0
8	0.150E+00	0.150E+00	0.000E+00	0.000E+00	0.0
9	0.125E+00	0.125E+00	0.000E+00	0.000E+00	0.0
10	0.100E+00	0.100E+00	0.000E+00	0.000E+00	0.0

TRANSFER COEFFICIENTS

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
7	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

VARIANCE SCALING PARAMETERS

Index	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
2	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
3	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
4	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
5	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
6	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
7	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
8	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
9	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
10	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
11	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2
12	0.939E+00	0.917E+00	-0.214E-01	0.755E-01	8.2

CATCHABILITY COEFFICIENTS

Index	Year	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	1975	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1976	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1977	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1978	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1979	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1980	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1981	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1982	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1983	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1984	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1985	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1986	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1987	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1988	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1989	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1990	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1991	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1992	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1993	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1994	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1995	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1996	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1997	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1998	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	1999	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2000	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2001	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2002	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2003	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2004	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2005	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2006	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2007	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2008	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0

1	2009	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2010	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2011	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2012	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2013	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2014	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2015	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2016	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2017	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2018	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2019	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2020	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2021	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2022	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
1	2023	0.122E-05	0.112E-05	-0.248E-06	0.101E-06	9.0
2	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

2	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
3	1975	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1976	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1977	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1978	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1979	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1980	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1981	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1982	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1983	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1984	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1985	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1986	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1987	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1988	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1989	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1990	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1991	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1992	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1993	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1994	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1995	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1996	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1997	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1998	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	1999	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2000	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2001	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2002	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2003	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2004	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2005	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2006	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2007	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2008	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2009	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2010	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2011	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2012	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2013	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2014	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2015	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2016	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2017	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2018	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0

3	2019	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2020	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2021	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2022	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
3	2023	0.792E-06	0.777E-06	-0.441E-06	0.148E-06	19.0
4	1975	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1976	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1977	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1978	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1979	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1980	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1981	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1982	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1983	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1984	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1985	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1986	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1987	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1988	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1989	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1990	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1991	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1992	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1993	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1994	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1995	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1996	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1997	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1998	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	1999	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2000	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2001	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2002	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2003	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2004	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2005	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2006	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2007	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2008	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2009	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2010	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2011	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2012	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2013	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2014	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2015	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2016	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2017	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2018	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2019	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2020	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2021	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2022	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7
4	2023	0.132E-05	0.129E-05	-0.941E-06	0.253E-06	19.7

5	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

6	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
7	1975	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1976	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1977	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1978	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1979	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1980	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1981	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1982	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1983	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1984	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6

7	1985	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1986	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1987	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1988	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1989	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1990	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1991	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1992	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1993	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1994	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1995	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1996	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1997	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1998	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	1999	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2000	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2001	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2002	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2003	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2004	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2005	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2006	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2007	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2008	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2009	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2010	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2011	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2012	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2013	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2014	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2015	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2016	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2017	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2018	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2019	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2020	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2021	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2022	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
7	2023	0.111E-05	0.104E-05	-0.198E-06	0.787E-07	7.6
8	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

8	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

9	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

10	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
11	1975	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1976	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1977	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1978	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1979	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1980	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1981	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1982	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1983	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1984	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1985	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1986	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1987	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1988	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1989	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1990	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1991	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1992	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1993	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1994	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1995	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1996	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1997	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1998	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	1999	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2000	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2001	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2002	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2003	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2004	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3

11	2005	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2006	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2007	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2008	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2009	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2010	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2011	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2012	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2013	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2014	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2015	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2016	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2017	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2018	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2019	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2020	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2021	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2022	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
11	2023	0.470E-08	0.499E-08	-0.112E-08	0.151E-08	30.3
12	1975	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1976	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1977	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1978	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1979	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1980	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1981	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1982	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1983	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1984	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1985	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1986	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1987	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1988	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1989	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1990	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1991	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1992	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1993	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1994	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1995	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1996	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1997	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1998	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	1999	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2000	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2001	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2002	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2003	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2004	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2005	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2006	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2007	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2008	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2009	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9

12	2010	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2011	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2012	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2013	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2014	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2015	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2016	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2017	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2018	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2019	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2020	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2021	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2022	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9
12	2023	0.617E-06	0.700E-06	0.242E-07	0.202E-06	28.9

****
CORRELATION AND COVARIANCE MATRICES OF PARAMETERS
****

TABLE 2A. CORRELATION MATRIX
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==========

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 :	1.0																			
2 :	1.0	1.0																		
3 :	0.1	0.1	1.0																	
4 :	0.1	0.1	-0.1	1.0																
5 :	0.1	0.1	0.0	0.3	1.0															
6 :	0.0	0.0	0.1	-0.1	-0.2	1.0														
7 :	0.1	0.1	0.1	-0.1	0.0	-0.1	1.0													
8 :	0.1	0.1	0.2	-0.1	-0.2	0.0	0.1	1.0												
9 :	-0.1	-0.1	-0.1	0.0	0.1	-0.1	0.0	0.0	1.0											
10 :	0.1	0.1	0.2	0.1	0.0	0.0	0.0	-0.1	-0.2	1.0										
11 :	-0.1	-0.1	-0.1	0.0	0.1	-0.1	0.0	0.0	1.0	-0.2	1.0									
12 :	-0.1	-0.1	-0.1	0.0	0.1	-0.1	0.0	0.0	1.0	-0.2	1.0	1.0								
13 :	-0.1	-0.1	-0.1	0.0	0.1	-0.1	0.0	0.0	1.0	-0.2	1.0	1.0	1.0							
14 :	0.0	0.0	0.1	0.0	0.0	-0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	1.0						
15 :	0.0	0.0	0.1	0.1	0.0	0.0	-0.3	0.1	0.2	-0.2	0.2	0.2	0.2	0.2	1.0					
16 :	0.0	0.0	0.0	0.0	0.0	-0.2	0.1	-0.1	0.3	0.0	0.3	0.3	0.3	0.1	0.1	1.0				
17 :	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.2	0.0	0.1	1.0			
18 :	0.1	0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.2	0.0	0.2	0.2	0.2	-0.2	-0.1	0.1	0.0	1.0		
19 :	0.0	0.0	-0.1	0.1	0.0	-0.1	0.1	-0.1	0.0	0.1	0.0	0.0	0.0	0.1	-0.1	0.1	-0.2	-0.1	1.0	
20 :	0.1	0.1	-0.1	0.1	0.0	0.1	-0.3	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	0.3	0.0	0.0	0.2	-0.1	1.0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21 :	0.0	0.0	-0.1	-0.1	0.2	-0.1	-0.1	-0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.1	-0.2	0.0	0.0	0.0
22 :	-0.1	-0.1	-0.1	0.0	0.1	-0.2	0.1	0.0	-0.1	0.1	-0.1	-0.1	-0.1	0.1	-0.1	0.1	0.0	-0.1	0.2	-0.1
23 :	0.1	0.1	0.0	-0.1	-0.2	0.1	0.3	0.1	-0.5	0.2	-0.5	-0.5	-0.5	0.0	-0.3	-0.1	0.0	0.0	0.1	-0.2
24 :	0.1	0.1	0.1	0.0	-0.1	0.1	0.0	0.0	-1.0	0.2	-1.0	-1.0	-1.0	-0.1	-0.2	-0.3	0.1	-0.2	0.0	-0.1

25 :	0.1	0.1	0.1	0.0	-0.1	0.1	0.0	0.0	-1.0	0.2	-1.0	-1.0	-1.0	-0.1	-0.2	-0.3	0.1	-0.2	0.0	-0.1
26 :	0.1	0.1	0.1	0.0	-0.1	0.1	0.0	0.0	-1.0	0.2	-1.0	-1.0	-1.0	-0.1	-0.2	-0.3	0.1	-0.2	0.0	-0.1
27 :	0.1	0.1	0.1	0.0	-0.1	0.1	0.0	0.0	-1.0	0.2	-1.0	-1.0	-1.0	-0.1	-0.2	-0.3	0.1	-0.2	0.0	-0.1
28 :	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	-1.0	0.2	-1.0	-1.0	-1.0	0.0	-0.2	-0.3	0.1	-0.2	0.0	-0.1
29 :	0.1	0.1	0.1	0.0	-0.1	0.1	0.0	0.0	-0.9	0.2	-0.9	-0.9	-0.9	-0.1	-0.2	-0.3	0.1	-0.2	0.0	-0.1
30 :	0.1	0.1	0.1	-0.1	-0.1	0.1	0.0	0.0	-0.9	0.2	-0.9	-0.9	-0.8	-0.1	-0.2	-0.3	0.1	-0.1	0.1	-0.2
31 :	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	-0.8	0.2	-0.8	-0.8	-0.8	-0.1	-0.2	-0.3	0.1	0.0	-0.1	-0.1
32 :	0.0	0.0	0.1	-0.1	-0.1	0.0	0.0	0.0	-0.7	0.1	-0.7	-0.7	-0.7	0.0	-0.1	-0.2	0.0	-0.1	0.2	-0.1
33 :	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	-0.6	0.0	-0.6	-0.6	-0.6	0.1	-0.2	-0.2	0.0	-0.1	-0.1	0.0
34 :	0.0	0.0	0.0	0.1	0.1	0.1	-0.1	0.0	-0.4	0.0	-0.4	-0.4	-0.4	-0.2	-0.1	-0.2	-0.2	0.1	0.1	0.1
35 :	-0.1	-0.1	-0.1	0.0	0.1	-0.1	0.0	-0.2	-0.4	0.1	-0.4	-0.4	-0.4	0.1	0.0	-0.1	-0.1	-0.2	0.1	-0.1

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
21 :	1.0														
22 :	0.0	1.0													
23 :	-0.1	0.1	1.0												
24 :	0.0	0.1	0.5	1.0											
25 :	0.0	0.1	0.5	1.0	1.0										
26 :	0.0	0.1	0.5	1.0	1.0	1.0									
27 :	0.0	0.1	0.5	1.0	1.0	1.0	1.0								
28 :	0.0	0.1	0.5	1.0	1.0	1.0	1.0	1.0							
29 :	0.0	0.1	0.5	0.9	0.9	0.9	0.9	0.9	1.0						
30 :	0.0	0.0	0.5	0.9	0.9	0.9	0.9	0.8	0.8	1.0					
31 :	0.0	0.1	0.3	0.8	0.8	0.8	0.8	0.7	0.7	0.7	1.0				
32 :	-0.1	0.1	0.3	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.5	1.0			
33 :	0.1	0.1	0.3	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.3	1.0		
34 :	0.1	-0.1	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	1.0	
35 :	-0.1	0.1	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	1.0

TABLE 2B. COVARIANCE MATRIX

==========

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 :	0.7241D-08																			
2 :	0.2614D-06	0.9437D-05																		
3 :	0.3431D-06	0.1236D-04	0.1232D-02																	
4 :	0.8101D-05	0.2866D-03	-0.1599D-02	0.7834D+00																
5 :	0.9899D-05	0.3371D-03	-0.1348D-02	0.4278D+00	0.2894D+01															
6 :	0.2241D-05	0.7845D-04	0.2578D-02	-0.8209D-01	-0.3124D+00	0.7010D+00														
7 :	0.1069D-04	0.3769D-03	0.5175D-02	-0.8878D-01	0.2282D-01	-0.1208D+00	0.1015D+01													
8 :	0.1478D-04	0.5522D-03	0.9487D-02	-0.1352D+00	-0.4473D+00	0.3656D-01	0.7859D-01	0.2361D+01												
9 :	-0.1507D-08	-0.5524D-07	-0.9352D-06	0.4380D-05	0.3114D-04	-0.1973D-04	0.5860D-05	-0.7298D-05	0.6448D-07											
10 :	0.3400D-06	0.1230D-04	0.4437D-03	0.7011D-02	0.1110D-02	-0.9159D-03	0.2369D-02	-0.1630D-01	-0.4314D-05	0.5700D-02										
11 :	-0.8711D-08	-0.3187D-06	-0.5184D-05	0.2297D-04	0.1946D-03	-0.1110D-03	0.2809D-04	-0.5033D-04	0.3509D-06	-0.2275D-04	0.1918D-05									
12 :	-0.4415D-08	-0.1621D-06	-0.2660D-05	0.1659D-04	0.7422D-04	-0.5581D-04	0.6001D-05	-0.3650D-04	0.1842D-06	-0.1205D-04	0.1003D-05	0.5315D-06								

13 : -0.3670D-08 -0.1337D-06 -0.2666D-05 0.9041D-05 0.5101D-04 -0.4018D-04 0.1291D-05 -0.1108D-04 0.1443D-06 -0.1014D-04 0.7873D-06 0.4135D-06 0.3343D-06
14 : -0.3600D-09 -0.1341D-07 0.2702D-06 -0.8942D-06 -0.2017D-05 -0.1103D-04 0.5710D-05 -0.3987D-05 0.1759D-08 0.5929D-06 0.9705D-08 0.4892D-08 0.4157D-08 0.9512D-08
15 : -0.4596D-09 -0.1494D-07 0.2441D-06 0.1064D-04 -0.4745D-05 0.7220D-06 -0.4227D-04 0.1785D-04 0.5796D-08 -0.1974D-05 0.3240D-07 0.1553D-07 0.1337D-07 0.1985D-08 0.1795D-07
16 : -0.1882D-10 -0.5498D-09 -0.1737D-06 0.1975D-05 0.9979D-05 -0.1667D-04 0.6735D-05 -0.1232D-04 0.8910D-08 -0.4350D-06 0.4942D-07 0.2555D-07 0.2058D-07 0.1682D-08 0.1053D-08 0.1423D-07
17 : 0.4905D-09 0.1740D-07 0.3228D-06 -0.3397D-05 -0.9463D-05 0.2214D-04 -0.7757D-06 0.2582D-04 -0.1537D-08 0.1096D-05 -0.9606D-08 -0.5495D-08 -0.5115D-08 0.1710D-08 0.2765D-09 0.9927D-09 0.1340D-07
18 : 0.9967D-09 0.3530D-07 0.6174D-07 0.2660D-04 0.8115D-05 0.1171D-05 0.8177D-05 0.2555D-05 0.5700D-08 -0.3342D-06 0.2994D-07 0.1752D-07 0.1325D-07 -0.2601D-08 -0.8948D-09 0.9513D-09 -0.6822D-09 0.1451D-07
19 : 0.5006D-10 0.2611D-08 -0.5419D-06 0.7341D-05 0.8506D-05 -0.1087D-04 0.1157D-04 -0.1352D-04 -0.5043D-09 0.4509D-06 -0.4026D-08 -0.2961D-08 -0.1507D-08 0.9030D-09 -0.1502D-08 0.1109D-08 -0.2274D-08 -0.9463D-09 0.1348D-07
20 : 0.1133D-08 0.4157D-07 -0.4451D-06 0.1158D-04 0.1289D-04 0.8540D-05 -0.4609D-04 0.2246D-04 0.3770D-08 -0.7415D-06 0.1966D-07 0.1251D-07 0.8593D-08 -0.9011D-09 0.5341D-08 0.2678D-09 -0.7653D-09 0.2833D-08 -0.2421D-08 0.2436D-07

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
21 : -0.2618D-06 -0.6865D-05 -0.6788D-03 -0.9202D-02 0.4988D-01 -0.1562D-01 -0.9716D-02 -0.3008D-01 0.1467D-05 0.1252D-02 0.9426D-05 0.4276D-05 0.3728D-05 0.2437D-05 0.3017D-06 0.1450D-05 -0.3148D-05 -0.7494D-06 -0.1875D-06 0.1154D-05
22 : -0.1779D-05 -0.6553D-04 -0.4389D-03 -0.2843D-02 0.4125D-01 -0.3107D-01 0.1404D-01 -0.3450D-02 -0.5269D-05 0.1683D-02 -0.2716D-04 -0.1672D-04 -0.1274D-04 0.9158D-06 -0.3601D-05 0.1811D-05 0.2889D-06 -0.2818D-05 0.3636D-05 -0.2238D-05
23 : 0.1077D-08 0.3883D-07 -0.1132D-06 -0.6005D-05 -0.3809D-04 0.1077D-04 0.3235D-04 0.1126D-04 -0.1455D-07 0.1247D-05 -0.8020D-07 -0.4183D-07 -0.3218D-07 -0.1328D-09 -0.4004D-08 -0.1457D-08 0.1425D-09 -0.6298D-09 0.9005D-09 -0.3102D-08
24 : 0.7262D-08 0.2674D-06 0.4626D-05 -0.2279D-04 -0.1669D-03 0.1173D-03 -0.4308D-04 0.2209D-04 -0.3506D-06 0.2182D-04 -0.1910D-05 -0.1003D-05 -0.7864D-06 -0.1039D-07 -0.3228D-07 -0.4900D-07 0.9281D-08 -0.3082D-07 0.3981D-08 -0.2010D-07
25 : 0.7702D-08 0.2830D-06 0.5156D-05 -0.3602D-04 -0.1911D-03 0.1197D-03 -0.3081D-04 0.3906D-04 -0.3769D-06 0.2379D-04 -0.2052D-05 -0.1078D-05 -0.8439D-06 -0.1106D-07 -0.3419D-07 -0.5497D-07 0.9178D-08 -0.3470D-07 0.2376D-08 -0.2513D-07
26 : 0.7758D-08 0.2836D-06 0.4443D-05 -0.2575D-04 -0.1451D-03 0.1071D-03 -0.1065D-04 -0.5032D-05 -0.3338D-06 0.2211D-04 -0.1818D-05 -0.9545D-06 -0.7493D-06 -0.9640D-08 -0.3047D-07 -0.4746D-07 0.8266D-08 -0.3061D-07 0.1549D-08 -0.1842D-07
27 : 0.6695D-08 0.2456D-06 0.4088D-05 -0.1985D-04 -0.1588D-03 0.1083D-03 -0.4311D-04 0.1650D-04 -0.3283D-06 0.2144D-04 -0.1788D-05 -0.9400D-06 -0.7364D-06 -0.9128D-08 -0.2921D-07 -0.4716D-07 0.1088D-07 -0.3059D-07 0.2993D-08 -0.2169D-07
28 : 0.1926D-08 0.7073D-07 0.1191D-05 -0.2419D-05 -0.7059D-05 0.2807D-04 -0.1250D-04 -0.1527D-04 -0.8105D-07 0.5539D-05 -0.4420D-06 -0.2332D-06 -0.1823D-06 -0.9059D-09 -0.7831D-08 -0.1128D-07 0.4899D-08 -0.6441D-08 0.8918D-09 -0.5559D-08

29 : 0.1261D-08 0.4578D-07 0.8651D-06 -0.8419D-05 -0.3891D-04 0.2622D-04 0.1965D-05 -0.1928D-06 -0.5703D-07 0.3676D-05 -0.3099D-06 -0.1620D-06 -0.1275D-06 -0.2014D-08 -0.7167D-08 -0.7675D-08 0.2500D-08 -0.6961D-08 -0.8036D-09 -0.3656D-08
30 : 0.1335D-08 0.4941D-07 0.5783D-06 -0.1679D-04 -0.3750D-04 0.1834D-04 -0.1099D-05 0.1159D-04 -0.3840D-07 0.2307D-05 -0.2095D-06 -0.1109D-06 -0.8474D-07 -0.1379D-08 -0.3874D-08 -0.6323D-08 0.1034D-08 -0.2727D-08 0.1149D-08 -0.5103D-08
31 : 0.1059D-08 0.3840D-07 0.9071D-07 0.1477D-05 -0.3604D-05 0.8758D-05 0.2211D-05 -0.3100D-05 -0.3001D-07 0.2707D-05 -0.1621D-06 -0.8548D-07 -0.6887D-07 -0.8811D-09 -0.4281D-08 -0.5625D-08 0.1563D-08 0.4080D-09 -0.1379D-08 -0.1427D-08
32 : -0.2252D-09 -0.7724D-08 0.4313D-06 -0.9323D-05 -0.3023D-04 -0.3929D-06 -0.6658D-05 0.1612D-05 -0.2461D-07 0.1087D-05 -0.1359D-06 -0.7040D-07 -0.5569D-07 -0.2576D-09 -0.1241D-08 -0.3162D-08 0.2803D-09 -0.1941D-08 0.2998D-08 -0.1647D-08
33 : 0.7507D-09 0.2620D-07 -0.1516D-06 -0.6363D-06 0.1342D-04 0.2225D-04 0.9520D-06 0.2988D-05 -0.2193D-07 0.3563D-07 -0.1182D-06 -0.6169D-07 -0.4770D-07 0.8351D-09 -0.4150D-08 -0.3192D-08 -0.5287D-09 -0.9387D-09 -0.1218D-08 -0.8755D-09
34 : -0.2443D-09 -0.8938D-08 0.1516D-06 0.1266D-04 0.2775D-04 0.7328D-05 -0.1292D-04 0.6649D-05 -0.1088D-07 0.6982D-08 -0.6061D-07 -0.2929D-07 -0.2334D-07 -0.1670D-08 -0.1673D-08 -0.2702D-08 -0.2184D-08 0.8194D-09 0.1523D-08 0.2311D-08
35 : -0.1132D-08 -0.4172D-07 -0.3930D-06 -0.4381D-05 0.1738D-04 -0.9367D-05 -0.8893D-07 -0.3862D-04 -0.1108D-07 0.1222D-05 -0.5877D-07 -0.3050D-07 -0.2473D-07 0.5904D-09 0.2929D-09 -0.9921D-09 -0.9811D-09 -0.3028D-08 0.1123D-08 -0.1126D-08

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
21 : 0.2556D-01
22 : -0.8888D-03 0.3434D-01
23 : -0.1688D-05 0.1756D-05 0.1195D-07
24 : -0.6395D-05 0.2831D-04 0.7881D-07 0.1914D-05
25 : -0.8654D-05 0.2988D-04 0.8554D-07 0.2052D-05 0.2210D-05
26 : -0.7321D-05 0.2761D-04 0.7503D-07 0.1817D-05 0.1954D-05 0.1736D-05
27 : -0.9208D-05 0.2890D-04 0.7351D-07 0.1789D-05 0.1922D-05 0.1702D-05 0.1685D-05
28 : 0.1163D-05 0.5558D-05 0.1679D-07 0.4428D-06 0.4748D-06 0.4208D-06 0.4146D-06 0.1094D-06
29 : -0.9303D-06 0.3180D-05 0.1392D-07 0.3104D-06 0.3341D-06 0.2969D-06 0.2909D-06 0.7102D-07 0.5708D-07
30 : 0.5028D-06 0.6158D-06 0.9732D-08 0.2096D-06 0.2254D-06 0.1988D-06 0.1976D-06 0.4940D-07 0.3355D-07 0.3117D-07
31 : 0.2484D-06 0.3427D-05 0.5400D-08 0.1633D-06 0.1743D-06 0.1553D-06 0.1541D-06 0.3839D-07 0.2629D-07 0.1810D-07 0.2399D-07
32 : -0.3213D-05 0.2012D-05 0.3963D-08 0.1344D-06 0.1452D-06 0.1283D-06 0.1269D-06 0.3130D-07 0.2158D-07 0.1436D-07 0.1126D-07 0.2011D-07
33 : 0.2371D-05 0.2115D-05 0.4667D-08 0.1198D-06 0.1277D-06 0.1134D-06 0.1129D-06 0.2834D-07 0.2071D-07 0.1276D-07 0.1165D-07 0.6924D-08 0.2100D-07
34 : 0.1042D-05 -0.1719D-05 0.1152D-08 0.5938D-07 0.6293D-07 0.5550D-07 0.5340D-07 0.1460D-07 0.8948D-08 0.4914D-08 0.5114D-08 0.6123D-08 0.4855D-08 0.1202D-07
35 : -0.1477D-05 0.2387D-05 0.1841D-08 0.5872D-07 0.6464D-07 0.5864D-07 0.5519D-07 0.1399D-07 0.1048D-07 0.5956D-08 0.4641D-08 0.2644D-08 0.4103D-08 0.1974D-08 0.1365D-07

APPENDIX V

VPA results for the strategy 2.. VPA analysis for ABFT for the period 1975 – 2023. Data for 2011 – 2023 ws simulated using projected Fs and Ns from the 2010 stock assessment

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  ****************************************
                    VPA-2BOX
          SUMMARY STATISTICS AND DIAGNOSTIC OUTPUT
          ****************************************

Model for strategy 2
14:40, 17  February 2011

=========================================================================
Total objective function =      982.47
    (with constants)   =    -19846.30
Number of parameters (P) =          42
Number of data points (D)=         261
AIC : 2*objective+2P     =    -39608.60
AICc: 2*objective+2P(...)=    -39592.03
BIC : 2*objective+Plog(D)=    -39458.89
Chi-square discrepancy   =       112.79

Loglikelihoods (deviance)=      -989.71 (      758.44)
  effort data          =      -36.17 (      170.01)
  tagging data         =     -953.53 (      588.43)

Log-posteriors          =        6.54
  catchability          =        0.00
  f-ratio               =        0.00
  natural mortality     =        0.00
  mixing coeff.         =        0.00
  initial tag survival  =        0.00
  tag shedding rate     =       17.18
  tag reporting rate    =      -10.64
  tag nomixing factor   =        0.00

Constraints             =        0.69
  terminal F            =        0.00
  stock-rec./sex ratio  =        0.69

Out of bounds penalty   =        0.00
=========================================================================
```

TABLE 1. FISHING MORTALITY RATE FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	0.067	0.358	0.144	0.092	0.043	0.103	0.053	0.046	0.060	0.060
1976	0.009	0.267	0.466	0.121	0.097	0.030	0.067	0.031	0.047	0.047
1977	0.071	0.235	0.175	0.154	0.023	0.034	0.025	0.062	0.046	0.046
1978	0.135	0.353	0.177	0.084	0.041	0.011	0.024	0.013	0.036	0.036
1979	0.017	0.105	0.281	0.092	0.037	0.023	0.017	0.051	0.033	0.033
1980	0.111	0.241	0.408	0.188	0.030	0.035	0.030	0.016	0.035	0.035

1981	0.075	0.440	0.333	0.102	0.088	0.021	0.031	0.046	0.027	0.027
1982	0.242	0.392	0.481	0.172	0.067	0.041	0.022	0.076	0.055	0.055
1983	0.244	0.199	0.323	0.134	0.080	0.060	0.118	0.034	0.057	0.057
1984	0.109	0.452	0.122	0.131	0.130	0.095	0.086	0.117	0.063	0.063
1985	0.093	0.407	0.400	0.115	0.071	0.069	0.037	0.054	0.075	0.045
1986	0.277	0.319	0.244	0.149	0.032	0.046	0.042	0.032	0.072	0.043
1987	0.142	0.395	0.293	0.119	0.047	0.030	0.083	0.062	0.065	0.039
1988	0.339	0.211	0.387	0.163	0.058	0.041	0.049	0.075	0.099	0.060
1989	0.185	0.366	0.168	0.151	0.139	0.033	0.052	0.037	0.078	0.047
1990	0.172	0.239	0.313	0.129	0.163	0.055	0.054	0.074	0.092	0.055
1991	0.074	0.288	0.216	0.134	0.136	0.046	0.048	0.059	0.135	0.081
1992	0.076	0.278	0.350	0.087	0.069	0.061	0.103	0.128	0.157	0.094
1993	0.087	0.467	0.327	0.131	0.059	0.065	0.072	0.095	0.147	0.088
1994	0.114	0.268	0.192	0.081	0.118	0.090	0.181	0.202	0.343	0.206
1995	0.149	0.206	0.262	0.108	0.106	0.165	0.093	0.163	0.193	0.232
1996	0.168	0.433	0.329	0.248	0.119	0.060	0.105	0.082	0.222	0.266
1997	0.162	0.333	0.217	0.188	0.150	0.141	0.089	0.217	0.223	0.268
1998	0.100	0.502	0.359	0.256	0.118	0.266	0.042	0.048	0.145	0.174
1999	0.104	0.129	0.276	0.196	0.105	0.048	0.051	0.066	0.155	0.185
2000	0.269	0.241	0.134	0.165	0.183	0.140	0.055	0.087	0.101	0.121
2001	0.006	0.272	0.128	0.088	0.117	0.099	0.175	0.121	0.141	0.170
2002	0.021	0.292	0.193	0.088	0.042	0.105	0.067	0.114	0.127	0.153
2003	0.009	0.107	0.064	0.046	0.080	0.040	0.155	0.117	0.155	0.186
2004	0.033	0.103	0.117	0.040	0.023	0.055	0.060	0.093	0.157	0.189
2005	0.136	0.137	0.077	0.063	0.040	0.042	0.055	0.038	0.195	0.234
2006	0.136	0.116	0.121	0.037	0.017	0.057	0.030	0.044	0.127	0.153
2007	0.002	0.095	0.041	0.094	0.070	0.046	0.055	0.047	0.129	0.155
2008	0.000	0.096	0.056	0.089	0.047	0.040	0.045	0.057	0.069	0.082
2009	0.000	0.008	0.043	0.097	0.044	0.037	0.061	0.055	0.042	0.051
2010	0.000	0.008	0.010	0.154	0.062	0.074	0.050	0.044	0.036	0.043
2011	0.001	0.034	0.017	0.028	0.013	0.011	0.016	0.016	0.022	0.026
2012	0.001	0.030	0.016	0.026	0.012	0.010	0.014	0.014	0.018	0.022
2013	0.001	0.028	0.014	0.023	0.011	0.009	0.013	0.013	0.017	0.020
2014	0.001	0.026	0.014	0.022	0.010	0.008	0.012	0.012	0.015	0.018
2015	0.001	0.024	0.013	0.021	0.010	0.008	0.011	0.011	0.014	0.017
2016	0.004	0.023	0.012	0.019	0.009	0.008	0.010	0.010	0.013	0.015
2017	0.003	0.148	0.010	0.017	0.008	0.007	0.009	0.009	0.011	0.014
2018	0.009	0.098	0.074	0.016	0.007	0.006	0.008	0.008	0.010	0.012
2019	0.000	0.347	0.049	0.119	0.007	0.006	0.008	0.008	0.010	0.012
2020	0.000	0.007	0.219	0.077	0.055	0.005	0.007	0.007	0.009	0.011
2021	0.000	0.002	0.003	0.456	0.035	0.045	0.007	0.007	0.008	0.010
2022	0.001	0.002	0.001	0.005	0.294	0.029	0.061	0.006	0.008	0.010
2023	0.001	0.029	0.001	0.001	0.002	0.321	0.039	0.062	0.008	0.009

TABLE 2. ABUNDANCE AT THE BEGINNING OF THE YEAR [BY AREA] FOR East of 45

1	2	3	4	5	6	7	8	9	10

1975	1640896.	1306625.	689303.	307117.	318292.	89086.	98166.	82543.	82260.	996794.	
1976	2431348.	940503.	718572.	469456.	220342.	239889.	65785.	78141.	67858.	918149.	
1977	1237566.	1475945.	566546.	354855.	327355.	157267.	190543.	51662.	65230.	849472.	
1978	979553.	706073.	917541.	374188.	239380.	251600.	124483.	155962.	41777.	788727.	
1979	1212444.	524135.	390092.	604852.	270718.	180754.	203673.	101986.	132524.	723745.	
1980	1832896.	730410.	371372.	231644.	434129.	205171.	144556.	168085.	83427.	746842.	
1981	1586091.	1004646.	451645.	194279.	151020.	331385.	162250.	117759.	142360.	723498.	
1982	2538566.	901063.	509036.	254729.	138057.	108786.	265702.	132051.	96782.	759940.	
1983	3853210.	1221265.	479163.	247429.	168638.	101529.	85465.	218202.	105289.	732026.	
1984	1987913.	1849011.	787112.	272806.	170235.	122462.	78307.	63759.	181579.	713543.	
1985	1799123.	1092233.	925828.	548081.	188232.	117565.	91218.	60346.	48820.	756749.	
1986	3134562.	1004661.	572009.	488424.	384412.	137960.	89877.	73817.	49200.	694477.	
1987	2221038.	1456251.	574643.	352670.	330858.	292806.	107863.	72379.	61522.	642368.	
1988	3413817.	1180518.	771904.	337343.	246412.	248311.	232708.	83293.	58525.	609788.	
1989	3400145.	1489552.	751701.	412381.	225501.	183003.	195071.	185962.	66495.	566657.	
1990	3482179.	1731355.	812198.	499716.	278990.	154299.	145008.	155397.	154207.	543668.	
1991	4281074.	1796986.	1072467.	467020.	345580.	186484.	119606.	115384.	124157.	589453.	
1992	3938760.	2434779.	1059944.	679691.	321182.	237202.	145854.	95704.	93603.	587666.	
1993	4256001.	2235809.	1450757.	587656.	490148.	235784.	182779.	110467.	72487.	554704.	
1994	3556054.	2390714.	1102756.	822911.	405690.	363502.	180946.	142814.	86458.	514608.	
1995	4029891.	1943384.	1438533.	715904.	597227.	283702.	272131.	126723.	100452.	433290.	
1996	3615378.	2127524.	1244282.	870545.	505276.	422408.	196847.	208244.	92699.	383871.	
1997	2569068.	1872830.	1085912.	704196.	534583.	352748.	325628.	148736.	165066.	331775.	
1998	4561878.	1337838.	1056402.	687409.	459100.	361893.	250774.	250078.	103013.	346100.	
1999	3687476.	2527943.	636712.	580088.	418680.	321094.	227171.	201854.	205253.	341844.	
2000	4715563.	2034944.	1747900.	379959.	375247.	296489.	250642.	181276.	162627.	412147.	
2001	3557474.	2206961.	1257328.	1202515.	253511.	245706.	211083.	199176.	143026.	460018.	

2002 3651891. 2167014. 1322477. 870409. 866386. 177386. 182249. 148758. 151872. 460905.
2003 4408089. 2190931. 1272488. 858089. 626884. 653642. 130723. 143013. 114213. 476019.
2004 6178876. 2676477. 1548264. 938612. 644820. 455223. 513994. 93962. 109462. 443875.
2005 3119248. 3662526. 1898837. 1083007. 709079. 495810. 352680. 406170. 73693. 415118.
2006 2257945. 1667606. 2511315. 1382712. 799525. 535880. 389146. 280230. 336532. 350697.
2007 1263945. 1206871. 1168351. 1749892. 1047927. 618350. 414348. 317109. 230886. 533917.
2008 4986327. 773153. 863698. 881886. 1253298. 768922. 483382. 329363. 260502. 592577.
2009 5410170. 3054172. 552442. 642505. 634498. 940274. 605008. 388043. 267819. 708544.
2010 5737488. 3313379. 2382496. 416452. 458725. 477398. 742023. 477613. 316191. 835974.
2011 5539148. 3513901. 2586391. 1856007. 280958. 339137. 363066. 592626. 393283. 994140.
2012 5854092. 3390225. 2671188. 1999421. 1419129. 218069. 274557. 299943. 501784. 1216154.
2013 6057035. 3583303. 2587149. 2068793. 1533008. 1103472. 176755. 227288. 254479. 1511806.
2014 6259842. 3707815. 2740869. 2006307. 1589735. 1192930. 895339. 146511. 193122. 1561974.
2015 6177954. 3832195. 2841621. 2126921. 1544231. 1238079. 968475. 742839. 124605. 1555525.
2016 893583. 3782183. 2942977. 2207301. 1638396. 1203230. 1005633. 804149. 632468. 1492449.
2017 1208957. 545040. 2907372. 2288504. 1703301. 1277218. 977702. 835767. 685234. 1881875.
2018 355722. 738483. 369623. 2263196. 1769963. 1329394. 1038664. 813182. 712897. 2277578.
2019 14126115. 215943. 526564. 269976. 1752905. 1382342. 1081863. 864607. 694076. 2657929.
2020 52617549. 8652167. 120068. 394528. 188543. 1369697. 1125454. 901194. 738455. 2983467.
2021 37698713. 32233260. 6758170. 75908. 287209. 140419. 1115625. 938001. 770188. 3316284.
2022 2764770. 23093411. 25315748. 5298183. 37837. 218182. 109921. 930300. 801877. 3643567.
2023 2769575. 1692338. 18120668. 19899229. 4146060. 22176. 173599. 86830. 795704. 3968247.
2024 1695357. 1293795. 14237157. 15635156. 3253848. 13177. 140220. 70275. 4255376.
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TABLE 3. CATCH OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 83784. 352022. 82482. 24055. 11863. 7932. 4665. 3441.
4480. 54950.
1976 17501. 196886. 239994. 47505. 18187. 6492. 3896. 2187.
2948. 40376.
1977 67420. 276479. 81061. 45074. 6677. 4738. 4363. 2903.
2778. 36620.
1978 98571. 188169. 132603. 26750. 8539. 2569. 2746. 1850.
1398. 26717.
1979 15968. 46352. 85484. 47174. 8803. 3802. 3158. 4700. 4051.
22395.
1980 153268. 139588. 111494. 35392. 11439. 6346. 3925. 2495.
2715. 24603.
1981 91413. 320656. 114393. 16726. 11334. 6214. 4537. 4938.
3506. 18037.
1982 435146. 261565. 174574. 35996. 8002. 3990. 5295. 9037.
4835. 38429.
1983 666700. 196954. 118435. 27650. 11539. 5339. 8741. 6724.
5468. 38481.
1984 162819. 602874. 80533. 29876. 18523. 10029. 5897. 6546.
10420. 41447.
1985 126331. 327195. 273250. 52930. 11441. 7067. 3014. 2958.
3329. 31801.
1986 605591. 245280. 110492. 60475. 10838. 5638. 3356. 2173.
3201. 27826.
1987 233815. 425594. 130379. 35130. 13521. 7777. 7936. 4073.
3661. 23513.
1988 787367. 200806. 221887. 45198. 12256. 9116. 10264. 5612.
5200. 33542.
1989 457214. 409308. 103865. 51467. 26166. 5342. 9140. 6317.
4674. 24558.
1990 436998. 328718. 195472. 53837. 37392. 7450. 6938. 10362.
12813. 27930.
1991 243244. 401949. 186084. 52344. 39257. 7563. 5140. 6163.
14736. 43603.
1992 229346. 527897. 280116. 50401. 19089. 12662. 13102. 10683.
12770. 50171.
1993 280527. 748303. 362086. 64110. 24965. 13406. 11620. 9313.
9358. 44738.
1994 304847. 502294. 171942. 56713. 40131. 28248. 27583. 24303.
23658. 91143.
1995 443084. 322790. 296579. 65551. 53670. 39327. 22103. 17701.
16646. 85605.
1996 444406. 669904. 312384. 170612. 50658. 22396. 18070. 15305.
17362. 85496.
1997 306609. 474221. 189334. 107589. 66458. 42200. 25467. 27051.
31144. 74425.
1998 345669. 474502. 285613. 138652. 45367. 76858. 9470. 10785.
13079. 52631.
1999 290410. 272684. 137390. 91981. 37213. 13567. 10306. 11996.
27670. 55145.
2000 889625. 389997. 195408. 51453. 56121. 35131. 12280. 14041.
14718. 44863.

2001	15982.	469971.	134430.	90060.	24959.	20977.	31157.	21135.	17744.	68378.
2002	59817.	491266.	206724.	65445.	31542.	16089.	10914.	14936.	17076.	62174.
2003	31034.	198423.	70574.	34139.	42902.	23442.	17278.	14727.	15451.	77055.
2004	158681.	233924.	152822.	33095.	12919.	22189.	27680.	7756.	14995.	72743.
2005	315743.	419028.	125613.	59295.	24776.	18596.	17314.	14100.	12307.	82641.
2006	228908.	162488.	255561.	44959.	11960.	27029.	10456.	11129.	37839.	47308.
2007	1510.	96996.	42050.	139516.	62706.	25349.	20195.	13425.	26398.	73222.
2008	755.	63119.	41758.	67048.	51597.	27174.	19392.	16913.	16230.	44546.
2009	1350.	22619.	20491.	52868.	24566.	30804.	33104.	19219.	10408.	33310.
2010	1350.	22619.	20491.	52868.	24566.	30804.	33104.	19219.	10408.	33310.
2011	4138.	105125.	39701.	46206.	3325.	3438.	5285.	8951.	7954.	24372.
2012	3954.	90136.	36666.	44991.	14528.	1976.	3487.	3976.	8529.	25066.
2013	3706.	88052.	32583.	42548.	14664.	8980.	2041.	2705.	3922.	28258.
2014	3572.	84855.	32934.	38430.	14078.	9098.	9572.	1616.	2753.	27008.
2015	3367.	80876.	31654.	39230.	13011.	8875.	9671.	7446.	1625.	24609.
2016	3087.	76677.	29974.	37334.	13095.	8212.	9202.	7449.	7445.	21315.
2017	2785.	67016.	26931.	34188.	11842.	7790.	8258.	6966.	7282.	24267.
2018	2557.	61544.	23521.	30957.	11261.	7252.	7989.	6298.	6867.	26624.
2019	2416.	56673.	22267.	26995.	10388.	6986.	7633.	6170.	6276.	29168.
2020	1970.	54101.	21047.	26191.	8932.	6407.	7399.	5907.	6183.	30319.
2021	2261.	44913.	20328.	24947.	8758.	5588.	6798.	5902.	6089.	31823.
2022	1846.	51129.	16883.	24464.	8626.	5574.	5955.	5410.	6038.	33302.
2023	1752.	42345.	19288.	20493.	8543.	5541.	6024.	4816.	5594.	33865.

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TABLE 4. SPAWNING STOCK FECUNDITY AND RECRUITMENT OF East of 45

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year	spawning biomass	recruits from VPA

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 1975      297497.    1640896.
 1976      295256.    2431348.
 1977      285396.    1237566.
 1978      273375.     979553.
 1979      261857.    1212444.
 1980      257736.    1832896.
 1981      239955.    1586091.
 1982      237753.    2538566.
 1983      214174.    3853210.
 1984      206813.    1987913.
 1985      216987.    1799123.
 1986      213552.    3134562.
 1987      207085.    2221038.
 1988      205171.    3413817.
 1989      206246.    3400145.
 1990      191453.    3482179.
 1991      188531.    4281074.
 1992      192900.    3938760.
 1993      203235.    4256001.
 1994      194197.    3556054.
 1995      192552.    4029891.
 1996      187505.    3615378.
 1997      178075.    2569068.
 1998      178534.    4561878.
 1999      182883.    3687476.
 2000      184689.    4715563.
 2001      180949.    3557474.
 2002      205112.    3651891.
 2003      216752.    4408089.
 2004      224933.    6178876.

# terminal age structure of population
  0.0000D+00  0.8005D-03  0.5000D+01    1.0  0.4000D+01    1
  0.0000D+00  0.2853D-01  0.5000D+01    1.0  0.4000D+01    2
  0.0000D+00  0.1198D-02  0.5000D+01    1.0  0.4000D+01    3
  0.0000D+00  0.1159D-02  0.5000D+01    1.0  0.3000D+01    4
  0.0000D+00  0.2320D-02  0.5000D+01    1.0  0.3000D+01    5
  0.0000D+00  0.3205D+00  0.5000D+01    1.0  0.1000D+00    6
  0.0000D+00  0.3854D-01  0.3000D+01    1.0  0.6000D+01    7
  0.0000D+00  0.6154D-01  0.5000D+01    1.0  0.1000D+00    8
  0.0000D+00  0.7506D-02  0.3000D+01    1.0  0.8000D+01    9
# terminal-age f-ratios
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   10
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   11
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   12
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   13
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   14
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   15
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   16
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   17
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   18
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   19
  0.1000D+00  0.6000D+00  0.5000D+01    0.0  0.2000D+00   20
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 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   21
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   22
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   23
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   24
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   25
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   26
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   27
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   28
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   29
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   30
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   31
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   32
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   33
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   34
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   35
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   36
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   37
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   38
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   39
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   40
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   41
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   42
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   43
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   44
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   45
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   46
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   47
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   48
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   49
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   50
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   51
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   52
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   53
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   54
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   55
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   56
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   57
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   58
# natural mortality
 0.0000D+00  0.4900D+00  0.1000D+01     0.0  0.1000D+00   59
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   60
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   61
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   62
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   63
 0.0000D+00  0.2000D+00  0.1000D+01     0.0  0.1000D+00   64
 0.0000D+00  0.1750D+00  0.1000D+01     0.0  0.1000D+00   65
 0.0000D+00  0.1500D+00  0.1000D+01     0.0  0.1000D+00   66
 0.0000D+00  0.1250D+00  0.1000D+01     0.0  0.1000D+00   67
 0.0000D+00  0.1000D+00  0.1000D+01     0.0  0.1000D+00   68
# transfer coefficients
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   69
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   70
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   71
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   72
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 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   73
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   74
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   75
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   76
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   77
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   78
# Stock recruitment relationship
 0.0000D+00  0.2507D+06  0.1000D+21    0.0  0.4000D+00   79
 0.0000D+00  0.1660D+05  0.1000D+21    0.0  0.0000D+00   80
 0.0000D+00  0.1580D+00  0.9000D+00    0.0  0.0000D+00   81
 0.0000D+00  0.1000D+01  0.2000D+01    0.0  0.0000D+00   82
 0.0000D+00  0.1000D+01  0.2000D+01    0.0  0.0000D+00   83
# Variance scaling parameters
 0.0000D+00  0.9012D+00  0.1000D+21    1.0  0.4000D+00   84
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   85
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   86
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   87
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   88
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   89
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   90
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   91
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   92
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   93
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   94
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   95
# fraction surviving the intial tagging process
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00   96
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00   97
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00   98
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00   99
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  100
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  101
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  102
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  103
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  104
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  105
# tag shedding rate
 0.0000D+00  0.2335D+00  0.1000D+01    2.0  0.1000D+00  106
 0.0000D+00  0.1918D+00  0.1000D+01    2.0  0.1000D+00  107
 0.0000D+00  0.2322D+00  0.1000D+01    2.0  0.1000D+00  108
 0.0000D+00  0.2601D+00  0.1000D+01    2.0  0.1000D+00  109
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  110
 0.0000D+00  0.2603D+00  0.1000D+01    2.0  0.1000D+00  111
 0.0000D+00  0.2600D+00  0.1000D+01    2.0  0.1000D+00  112
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  113
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  114
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  115
# tag reporting rate
 0.0000D+00  0.8905D-01  0.1000D+01    1.0  0.1000D+00  116
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  117
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  118
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  119
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  120
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  121
```

```
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  122
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  123
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  124
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  125
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  126
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  127
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  128
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  129
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  130
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  131
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  132
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  133
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  134
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  135
 0.0000D+00  0.1802D+00  0.1000D+01    1.0  0.1000D+00  136  22  *****
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  137
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  138
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  139
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  140
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  141
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  142
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  143
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  144
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  145
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  146
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  147
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  148
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  149
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  150
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  151
 0.0000D+00  0.1775D+00  0.1000D+01    2.0  0.1000D+00  152
 0.0000D+00  0.1594D+00  0.1000D+01    2.0  0.1000D+00  153
 0.0000D+00  0.1458D+00  0.1000D+01    2.0  0.1000D+00  154
 0.0000D+00  0.1606D+00  0.1000D+01    2.0  0.1000D+00  155
 0.0000D+00  0.1767D+00  0.1000D+01    2.0  0.1000D+00  156
 0.0000D+00  0.4223D+00  0.1000D+01    2.0  0.1000D+00  157
 0.0000D+00  0.1930D+00  0.1000D+01    2.0  0.1000D+00  158
 0.0000D+00  0.1949D+00  0.1000D+01    2.0  0.1000D+00  159
 0.0000D+00  0.1962D+00  0.1000D+01    2.0  0.1000D+00  160
 0.0000D+00  0.1971D+00  0.1000D+01    2.0  0.1000D+00  161
 0.0000D+00  0.1980D+00  0.1000D+01    2.0  0.1000D+00  162
 0.0000D+00  0.1985D+00  0.1000D+01    2.0  0.1000D+00  163
 0.0000D+00  0.2309D+00  0.1000D+01    2.0  0.1000D+00  164
# tag nonmixing factor for first year
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  165 1975   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  166 1975   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  167 1975   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  168 1975   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  169 1975   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  170 1975   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  171 1975   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  172 1975   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  173 1975   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  174 1975  10
```

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	175	1976	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	176	1976	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	177	1976	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	178	1976	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	179	1976	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	180	1976	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	181	1976	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	182	1976	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	183	1976	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	184	1976	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	185	1977	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	186	1977	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	187	1977	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	188	1977	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	189	1977	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	190	1977	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	191	1977	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	192	1977	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	193	1977	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	194	1977	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	195	1978	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	196	1978	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	197	1978	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	198	1978	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	199	1978	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	200	1978	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	201	1978	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	202	1978	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	203	1978	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	204	1978	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	205	1979	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	206	1979	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	207	1979	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	208	1979	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	209	1979	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	210	1979	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	211	1979	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	212	1979	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	213	1979	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	214	1979	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	215	1980	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	216	1980	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	217	1980	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	218	1980	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	219	1980	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	220	1980	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	221	1980	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	222	1980	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	223	1980	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	224	1980	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	225	1981	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	226	1981	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	227	1981	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	228	1981	4

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	229	1981	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	230	1981	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	231	1981	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	232	1981	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	233	1981	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	234	1981	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	235	1982	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	236	1982	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	237	1982	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	238	1982	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	239	1982	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	240	1982	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	241	1982	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	242	1982	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	243	1982	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	244	1982	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	245	1983	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	246	1983	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	247	1983	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	248	1983	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	249	1983	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	250	1983	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	251	1983	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	252	1983	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	253	1983	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	254	1983	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	255	1984	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	256	1984	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	257	1984	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	258	1984	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	259	1984	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	260	1984	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	261	1984	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	262	1984	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	263	1984	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	264	1984	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	265	1985	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	266	1985	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	267	1985	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	268	1985	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	269	1985	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	270	1985	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	271	1985	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	272	1985	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	273	1985	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	274	1985	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	275	1986	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	276	1986	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	277	1986	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	278	1986	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	279	1986	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	280	1986	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	281	1986	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	282	1986	8

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	283	1986	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	284	1986	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	285	1987	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	286	1987	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	287	1987	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	288	1987	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	289	1987	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	290	1987	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	291	1987	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	292	1987	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	293	1987	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	294	1987	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	295	1988	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	296	1988	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	297	1988	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	298	1988	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	299	1988	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	300	1988	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	301	1988	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	302	1988	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	303	1988	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	304	1988	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	305	1989	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	306	1989	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	307	1989	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	308	1989	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	309	1989	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	310	1989	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	311	1989	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	312	1989	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	313	1989	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	314	1989	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	315	1990	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	316	1990	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	317	1990	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	318	1990	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	319	1990	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	320	1990	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	321	1990	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	322	1990	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	323	1990	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	324	1990	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	325	1991	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	326	1991	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	327	1991	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	328	1991	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	329	1991	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	330	1991	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	331	1991	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	332	1991	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	333	1991	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	334	1991	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	335	1992	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	336	1992	2

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	337	1992	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	338	1992	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	339	1992	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	340	1992	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	341	1992	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	342	1992	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	343	1992	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	344	1992	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	345	1993	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	346	1993	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	347	1993	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	348	1993	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	349	1993	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	350	1993	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	351	1993	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	352	1993	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	353	1993	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	354	1993	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	355	1994	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	356	1994	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	357	1994	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	358	1994	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	359	1994	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	360	1994	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	361	1994	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	362	1994	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	363	1994	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	364	1994	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	365	1995	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	366	1995	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	367	1995	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	368	1995	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	369	1995	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	370	1995	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	371	1995	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	372	1995	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	373	1995	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	374	1995	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	375	1996	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	376	1996	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	377	1996	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	378	1996	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	379	1996	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	380	1996	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	381	1996	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	382	1996	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	383	1996	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	384	1996	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	385	1997	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	386	1997	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	387	1997	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	388	1997	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	389	1997	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	390	1997	6

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	391	1997	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	392	1997	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	393	1997	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	394	1997	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	395	1998	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	396	1998	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	397	1998	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	398	1998	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	399	1998	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	400	1998	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	401	1998	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	402	1998	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	403	1998	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	404	1998	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	405	1999	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	406	1999	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	407	1999	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	408	1999	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	409	1999	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	410	1999	6
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	412	1999	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	413	1999	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	414	1999	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	415	2000	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	416	2000	2
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	418	2000	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	419	2000	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	420	2000	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	421	2000	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	422	2000	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	423	2000	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	424	2000	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	425	2001	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	426	2001	2
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	444	2002	10

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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	480	2006	6
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	483	2006	9
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	605	2019	1
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 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  610 2019   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  611 2019   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  612 2019   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  613 2019   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  614 2019  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  615 2020   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  616 2020   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  617 2020   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  618 2020   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  619 2020   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  620 2020   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  621 2020   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  622 2020   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  623 2020   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  624 2020  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  625 2021   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  626 2021   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  627 2021   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  628 2021   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  629 2021   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  630 2021   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  631 2021   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  632 2021   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  633 2021   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  634 2021  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  635 2022   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  636 2022   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  637 2022   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  638 2022   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  639 2022   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  640 2022   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  641 2022   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  642 2022   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  643 2022   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  644 2022  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  645 2023   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  646 2023   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  647 2023   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  648 2023   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  649 2023   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  650 2023   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  651 2023   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  652 2023   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  653 2023   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  654 2023  10
# tag nonmixing factor for second year
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  655 2024   1
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  656 2024   2
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  657 2024   3
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  658 2024   4
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  659 2024   5
```

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	660	2024	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	661	2024	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	662	2024	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	663	2024	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	664	2024	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	665	2025	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	666	2025	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	667	2025	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	668	2025	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	669	2025	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	670	2025	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	671	2025	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	672	2025	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	673	2025	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	674	2025	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	675	2026	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	676	2026	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	677	2026	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	678	2026	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	679	2026	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	680	2026	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	681	2026	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	682	2026	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	683	2026	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	684	2026	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	685	2027	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	686	2027	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	687	2027	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	688	2027	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	689	2027	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	690	2027	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	691	2027	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	692	2027	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	693	2027	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	694	2027	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	695	2028	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	696	2028	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	697	2028	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	698	2028	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	699	2028	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	700	2028	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	701	2028	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	702	2028	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	703	2028	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	704	2028	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	705	2029	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	706	2029	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	707	2029	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	708	2029	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	709	2029	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	710	2029	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	711	2029	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	712	2029	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	713	2029	9

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	714	2029	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	715	2030	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	716	2030	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	717	2030	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	718	2030	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	719	2030	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	720	2030	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	721	2030	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	722	2030	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	723	2030	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	724	2030	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	725	2031	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	726	2031	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	727	2031	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	728	2031	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	729	2031	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	730	2031	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	731	2031	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	732	2031	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	733	2031	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	734	2031	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	735	2032	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	736	2032	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	737	2032	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	738	2032	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	739	2032	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	740	2032	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	741	2032	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	742	2032	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	743	2032	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	744	2032	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	745	2033	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	746	2033	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	747	2033	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	748	2033	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	749	2033	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	750	2033	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	751	2033	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	752	2033	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	753	2033	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	754	2033	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	755	2034	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	756	2034	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	757	2034	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	758	2034	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	759	2034	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	760	2034	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	761	2034	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	762	2034	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	763	2034	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	764	2034	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	765	2035	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	766	2035	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	767	2035	3

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	768	2035	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	769	2035	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	770	2035	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	771	2035	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	772	2035	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	773	2035	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	774	2035	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	775	2036	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	776	2036	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	777	2036	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	778	2036	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	779	2036	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	780	2036	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	781	2036	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	782	2036	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	783	2036	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	784	2036	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	785	2037	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	786	2037	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	787	2037	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	788	2037	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	789	2037	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	790	2037	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	791	2037	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	792	2037	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	793	2037	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	794	2037	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	795	2038	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	796	2038	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	797	2038	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	798	2038	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	799	2038	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	800	2038	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	801	2038	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	802	2038	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	803	2038	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	804	2038	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	805	2039	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	806	2039	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	807	2039	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	808	2039	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	809	2039	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	810	2039	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	811	2039	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	812	2039	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	813	2039	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	814	2039	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	815	2040	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	816	2040	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	817	2040	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	818	2040	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	819	2040	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	820	2040	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	821	2040	7

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	822	2040	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	823	2040	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	824	2040	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	825	2041	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	826	2041	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	827	2041	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	828	2041	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	829	2041	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	830	2041	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	831	2041	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	832	2041	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	833	2041	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	834	2041	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	835	2042	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	836	2042	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	837	2042	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	838	2042	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	839	2042	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	840	2042	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	841	2042	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	842	2042	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	843	2042	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	844	2042	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	845	2043	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	846	2043	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	847	2043	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	848	2043	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	849	2043	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	850	2043	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	851	2043	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	852	2043	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	853	2043	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	854	2043	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	855	2044	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	856	2044	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	857	2044	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	858	2044	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	859	2044	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	860	2044	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	861	2044	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	862	2044	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	863	2044	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	864	2044	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	865	2045	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	866	2045	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	867	2045	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	868	2045	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	869	2045	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	870	2045	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	871	2045	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	872	2045	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	873	2045	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	874	2045	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	875	2046	1

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	876	2046	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	877	2046	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	878	2046	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	879	2046	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	880	2046	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	881	2046	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	882	2046	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	883	2046	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	884	2046	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	885	2047	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	886	2047	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	887	2047	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	888	2047	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	889	2047	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	890	2047	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	891	2047	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	892	2047	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	893	2047	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	894	2047	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	895	2048	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	896	2048	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	897	2048	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	898	2048	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	899	2048	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	900	2048	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	901	2048	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	902	2048	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	903	2048	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	904	2048	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	905	2049	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	906	2049	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	907	2049	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	908	2049	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	909	2049	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	910	2049	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	911	2049	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	912	2049	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	913	2049	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	914	2049	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	915	2050	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	916	2050	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	917	2050	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	918	2050	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	919	2050	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	920	2050	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	921	2050	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	922	2050	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	923	2050	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	924	2050	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	925	2051	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	926	2051	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	927	2051	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	928	2051	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	929	2051	5

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	930	2051	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	931	2051	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	932	2051	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	933	2051	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	934	2051	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	935	2052	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	936	2052	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	937	2052	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	938	2052	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	939	2052	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	940	2052	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	941	2052	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	942	2052	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	943	2052	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	944	2052	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	945	2053	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	946	2053	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	947	2053	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	948	2053	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	949	2053	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	950	2053	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	951	2053	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	952	2053	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	953	2053	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	954	2053	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	955	2054	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	956	2054	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	957	2054	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	958	2054	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	959	2054	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	960	2054	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	961	2054	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	962	2054	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	963	2054	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	964	2054	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	965	2055	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	966	2055	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	967	2055	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	968	2055	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	969	2055	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	970	2055	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	971	2055	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	972	2055	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	973	2055	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	974	2055	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	975	2056	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	976	2056	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	977	2056	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	978	2056	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	979	2056	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	980	2056	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	981	2056	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	982	2056	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	983	2056	9

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	984	2056	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	985	2057	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	986	2057	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	987	2057	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	988	2057	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	989	2057	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	990	2057	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	991	2057	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	992	2057	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	993	2057	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	994	2057	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	995	2058	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	996	2058	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	997	2058	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	998	2058	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	999	2058	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1000	2058	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1001	2058	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1002	2058	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1003	2058	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1004	2058	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1005	2059	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1006	2059	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1007	2059	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1008	2059	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1009	2059	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1010	2059	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1011	2059	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1012	2059	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1013	2059	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1014	2059	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1015	2060	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1016	2060	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1017	2060	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1018	2060	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1019	2060	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1020	2060	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1021	2060	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1022	2060	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1023	2060	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1024	2060	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1025	2061	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1026	2061	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1027	2061	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1028	2061	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1029	2061	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1030	2061	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1031	2061	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1032	2061	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1033	2061	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1034	2061	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1035	2062	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1036	2062	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1037	2062	3

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1038	2062	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1039	2062	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1040	2062	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1041	2062	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1042	2062	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1043	2062	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1044	2062	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1045	2063	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1046	2063	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1047	2063	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1048	2063	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1049	2063	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1050	2063	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1051	2063	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1052	2063	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1053	2063	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1054	2063	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1055	2064	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1056	2064	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1057	2064	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1058	2064	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1059	2064	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1060	2064	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1061	2064	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1062	2064	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1063	2064	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1064	2064	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1065	2065	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1066	2065	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1067	2065	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1068	2065	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1069	2065	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1070	2065	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1071	2065	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1072	2065	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1073	2065	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1074	2065	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1075	2066	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1076	2066	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1077	2066	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1078	2066	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1079	2066	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1080	2066	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1081	2066	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1082	2066	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1083	2066	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1084	2066	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1085	2067	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1086	2067	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1087	2067	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1088	2067	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1089	2067	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1090	2067	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1091	2067	7

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1092	2067	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1093	2067	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1094	2067	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1095	2068	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1096	2068	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1097	2068	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1098	2068	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1099	2068	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1100	2068	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1101	2068	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1102	2068	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1103	2068	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1104	2068	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1105	2069	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1106	2069	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1107	2069	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1108	2069	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1109	2069	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1110	2069	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1111	2069	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1112	2069	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1113	2069	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1114	2069	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1115	2070	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1116	2070	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1117	2070	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1118	2070	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1119	2070	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1120	2070	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1121	2070	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1122	2070	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1123	2070	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1124	2070	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1125	2071	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1126	2071	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1127	2071	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1128	2071	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1129	2071	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1130	2071	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1131	2071	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1132	2071	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1133	2071	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1134	2071	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1135	2072	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1136	2072	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1137	2072	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1138	2072	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1139	2072	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1140	2072	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1141	2072	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1142	2072	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1143	2072	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1144	2072	10

Number of parameters = 1144

VPA-2BOX
BOOTSTRAP ESTIMATES OF BIAS AND VARIANCE
****

Strategy 2
14:40, 17 February 2011

****
BIAS AND STANDARD ERROR ESTIMATES
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TABLE 1A. BIAS OF FISHING MORTALITY RATE FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	0.000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1976	0.000	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1977	0.000	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1978	0.000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1979	0.000	0.000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1980	0.000	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1981	0.000	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1982	-0.001	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1983	-0.001	-0.001	-0.002	-0.001	0.000	0.000	-0.001	0.000	0.000	0.000
1984	0.000	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000
1985	0.000	-0.002	-0.002	-0.001	0.000	0.000	0.000	0.000	-0.001	0.000
1986	-0.001	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000	-0.001	0.000
1987	-0.001	-0.001	-0.002	-0.001	0.000	0.000	-0.001	0.000	-0.001	0.000
1988	-0.002	-0.001	-0.002	-0.001	0.000	0.000	0.000	-0.001	-0.001	0.000
1989	-0.002	-0.002	-0.001	-0.001	-0.001	0.000	0.000	0.000	-0.001	0.000
1990	-0.001	-0.003	-0.003	-0.001	-0.001	0.000	0.000	-0.001	-0.001	-0.001
1991	-0.001	-0.003	-0.003	-0.002	-0.001	0.000	0.000	-0.001	-0.001	-0.001
1992	-0.001	-0.005	-0.005	-0.002	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
1993	-0.001	-0.009	-0.007	-0.002	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
1994	-0.002	-0.004	-0.005	-0.002	-0.002	-0.002	-0.003	-0.003	-0.005	-0.003
1995	-0.002	-0.005	-0.005	-0.003	-0.003	-0.004	-0.002	-0.003	-0.003	-0.004
1996	-0.003	-0.009	-0.010	-0.006	-0.004	-0.002	-0.003	-0.002	-0.005	-0.006
1997	-0.004	-0.009	-0.006	-0.007	-0.005	-0.005	-0.003	-0.006	-0.006	-0.008
1998	-0.007	-0.016	-0.013	-0.009	-0.005	-0.010	-0.002	-0.002	-0.005	-0.006
1999	-0.007	-0.010	-0.013	-0.009	-0.005	-0.002	-0.002	-0.003	-0.006	-0.008
2000	-0.020	-0.019	-0.012	-0.009	-0.010	-0.007	-0.003	-0.004	-0.005	-0.006
2001	-0.001	-0.026	-0.012	-0.008	-0.008	-0.006	-0.010	-0.007	-0.008	-0.009
2002	-0.002	-0.032	-0.023	-0.009	-0.004	-0.008	-0.005	-0.007	-0.008	-0.010
2003	-0.001	-0.013	-0.008	-0.006	-0.009	-0.004	-0.013	-0.009	-0.011	-0.014
2004	-0.004	-0.013	-0.016	-0.005	-0.003	-0.007	-0.007	-0.009	-0.014	-0.016
2005	-0.017	-0.017	-0.011	-0.009	-0.006	-0.006	-0.007	-0.004	-0.021	-0.025
2006	-0.018	-0.016	-0.017	-0.005	-0.003	-0.008	-0.004	-0.006	-0.016	-0.019
2007	0.000	-0.014	-0.006	-0.014	-0.011	-0.007	-0.008	-0.007	-0.019	-0.022
2008	0.000	-0.014	-0.009	-0.014	-0.008	-0.006	-0.007	-0.009	-0.011	-0.013
2009	0.000	-0.002	-0.007	-0.016	-0.007	-0.006	-0.010	-0.009	-0.007	-0.008

2010	0.000	-0.001	-0.002	-0.026	-0.011	-0.013	-0.009	-0.008	-0.006	-0.007
2011	0.000	-0.006	-0.003	-0.005	-0.002	-0.002	-0.003	-0.003	-0.004	-0.005
2012	0.000	-0.006	-0.003	-0.005	-0.002	-0.002	-0.003	-0.003	-0.003	-0.004
2013	0.000	-0.005	-0.003	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.004
2014	0.000	-0.005	-0.003	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003
2015	0.000	-0.005	-0.002	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003
2016	0.000	-0.005	-0.002	-0.004	-0.002	-0.001	-0.002	-0.002	-0.002	-0.003
2017	0.002	0.005	-0.002	-0.003	-0.002	-0.001	-0.002	-0.002	-0.002	-0.003
2018	-0.001	0.087	0.010	-0.003	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002
2019	0.004	-0.020	0.054	0.034	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002
2020	0.002	0.162	-0.008	0.112	0.030	-0.001	-0.001	-0.001	-0.002	-0.002
2021	0.000	0.084	0.113	0.010	0.070	0.037	-0.001	-0.001	-0.002	-0.002
2022	0.000	-0.010	0.061	0.323	0.056	0.076	0.088	-0.001	-0.002	-0.002
2023	0.000	-0.012	-0.005	0.315	1.111	0.256	0.200	0.491	-0.002	-0.002

TABLE 1B. STANDARD ERROR OF FISHING MORTALITY RATE FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	0.406E-04	0.178E-03	0.136E-03	0.857E-04	0.465E-04	0.948E-04	0.531E-04	0.459E-04	0.582E-04	0.582E-04
1976	0.789E-05	0.198E-03	0.347E-03	0.131E-03	0.987E-04	0.337E-04	0.665E-04	0.318E-04	0.489E-04	0.489E-04
1977	0.324E-04	0.201E-03	0.162E-03	0.155E-03	0.282E-04	0.372E-04	0.287E-04	0.653E-04	0.497E-04	0.497E-04
1978	0.813E-04	0.191E-03	0.185E-03	0.882E-04	0.455E-04	0.132E-04	0.273E-04	0.147E-04	0.404E-04	0.404E-04
1979	0.100E-04	0.714E-04	0.208E-03	0.110E-03	0.422E-04	0.269E-04	0.202E-04	0.599E-04	0.392E-04	0.392E-04
1980	0.471E-04	0.166E-03	0.358E-03	0.175E-03	0.350E-04	0.406E-04	0.356E-04	0.194E-04	0.428E-04	0.428E-04
1981	0.439E-04	0.241E-03	0.303E-03	0.115E-03	0.944E-04	0.277E-04	0.373E-04	0.566E-04	0.330E-04	0.330E-04
1982	0.225E-03	0.281E-03	0.415E-03	0.202E-03	0.833E-04	0.466E-04	0.291E-04	0.967E-04	0.703E-04	0.703E-04
1983	0.128E-03	0.231E-03	0.331E-03	0.156E-03	0.106E-03	0.775E-04	0.145E-03	0.451E-04	0.767E-04	0.767E-04
1984	0.842E-04	0.334E-03	0.165E-03	0.167E-03	0.173E-03	0.136E-03	0.120E-03	0.162E-03	0.903E-04	0.903E-04
1985	0.667E-04	0.403E-03	0.447E-03	0.175E-03	0.995E-04	0.997E-04	0.542E-04	0.809E-04	0.115E-03	0.688E-04
1986	0.158E-03	0.282E-03	0.334E-03	0.219E-03	0.533E-04	0.703E-04	0.650E-04	0.516E-04	0.115E-03	0.688E-04
1987	0.167E-03	0.314E-03	0.350E-03	0.194E-03	0.775E-04	0.477E-04	0.133E-03	0.101E-03	0.109E-03	0.655E-04
1988	0.332E-03	0.295E-03	0.452E-03	0.243E-03	0.102E-03	0.697E-04	0.852E-04	0.130E-03	0.175E-03	0.105E-03
1989	0.385E-03	0.511E-03	0.284E-03	0.230E-03	0.242E-03	0.604E-04	0.934E-04	0.680E-04	0.145E-03	0.868E-04
1990	0.280E-03	0.613E-03	0.610E-03	0.252E-03	0.289E-03	0.104E-03	0.104E-03	0.141E-03	0.181E-03	0.108E-03

1991 0.221E-03 0.592E-03 0.693E-03 0.326E-03 0.303E-03 0.919E-04 0.972E-04 0.122E-03 0.282E-03 0.169E-03
1992 0.231E-03 0.976E-03 0.980E-03 0.323E-03 0.185E-03 0.148E-03 0.219E-03 0.281E-03 0.358E-03 0.215E-03
1993 0.244E-03 0.185E-02 0.154E-02 0.461E-03 0.235E-03 0.185E-03 0.187E-03 0.223E-03 0.370E-03 0.222E-03
1994 0.482E-03 0.897E-03 0.104E-02 0.461E-03 0.468E-03 0.383E-03 0.584E-03 0.602E-03 0.994E-03 0.596E-03
1995 0.498E-03 0.101E-02 0.113E-02 0.677E-03 0.663E-03 0.756E-03 0.433E-03 0.619E-03 0.700E-03 0.840E-03
1996 0.721E-03 0.192E-02 0.209E-02 0.137E-02 0.829E-03 0.406E-03 0.548E-03 0.420E-03 0.102E-02 0.122E-02
1997 0.795E-03 0.182E-02 0.131E-02 0.152E-02 0.100E-02 0.111E-02 0.644E-03 0.132E-02 0.132E-02 0.158E-02
1998 0.140E-02 0.338E-02 0.272E-02 0.193E-02 0.109E-02 0.215E-02 0.360E-03 0.368E-03 0.104E-02 0.125E-02
1999 0.144E-02 0.199E-02 0.266E-02 0.191E-02 0.938E-03 0.480E-03 0.474E-03 0.595E-03 0.131E-02 0.157E-02
2000 0.404E-02 0.387E-02 0.231E-02 0.193E-02 0.213E-02 0.140E-02 0.578E-03 0.868E-03 0.983E-03 0.118E-02
2001 0.108E-03 0.516E-02 0.239E-02 0.167E-02 0.156E-02 0.130E-02 0.202E-02 0.138E-02 0.156E-02 0.188E-02
2002 0.462E-03 0.619E-02 0.441E-02 0.181E-02 0.837E-03 0.155E-02 0.958E-03 0.150E-02 0.162E-02 0.195E-02
2003 0.208E-03 0.249E-02 0.157E-02 0.115E-02 0.175E-02 0.837E-03 0.255E-02 0.180E-02 0.229E-02 0.275E-02
2004 0.732E-03 0.250E-02 0.297E-02 0.103E-02 0.590E-03 0.128E-02 0.130E-02 0.170E-02 0.272E-02 0.326E-02
2005 0.320E-02 0.325E-02 0.201E-02 0.172E-02 0.105E-02 0.112E-02 0.133E-02 0.855E-03 0.402E-02 0.482E-02
2006 0.337E-02 0.301E-02 0.318E-02 0.101E-02 0.474E-03 0.156E-02 0.811E-03 0.110E-02 0.305E-02 0.366E-02
2007 0.392E-04 0.256E-02 0.114E-02 0.266E-02 0.197E-02 0.133E-02 0.155E-02 0.131E-02 0.348E-02 0.418E-02
2008 0.603E-05 0.265E-02 0.160E-02 0.258E-02 0.142E-02 0.117E-02 0.132E-02 0.168E-02 0.201E-02 0.241E-02
2009 0.100E-04 0.271E-03 0.124E-02 0.293E-02 0.135E-02 0.114E-02 0.188E-02 0.168E-02 0.130E-02 0.155E-02
2010 0.940E-05 0.252E-03 0.316E-03 0.478E-02 0.199E-02 0.234E-02 0.159E-02 0.140E-02 0.113E-02 0.136E-02
2011 0.305E-04 0.112E-02 0.574E-03 0.940E-03 0.443E-03 0.370E-03 0.523E-03 0.535E-03 0.706E-03 0.847E-03
2012 0.315E-04 0.101E-02 0.520E-03 0.858E-03 0.388E-03 0.335E-03 0.461E-03 0.475E-03 0.602E-03 0.722E-03
2013 0.261E-04 0.946E-03 0.482E-03 0.792E-03 0.367E-03 0.303E-03 0.425E-03 0.432E-03 0.553E-03 0.663E-03
2014 0.240E-04 0.887E-03 0.465E-03 0.743E-03 0.343E-03 0.288E-03 0.398E-03 0.404E-03 0.516E-03 0.619E-03
2015 0.231E-04 0.826E-03 0.435E-03 0.725E-03 0.328E-03 0.274E-03 0.376E-03 0.372E-03 0.477E-03 0.573E-03
2016 0.313E-02 0.798E-03 0.401E-03 0.670E-03 0.315E-03 0.263E-03 0.348E-03 0.347E-03 0.435E-03 0.522E-03
2017 0.331E-02 0.120E+00 0.366E-03 0.595E-03 0.276E-03 0.237E-03 0.323E-03 0.315E-03 0.397E-03 0.476E-03

2018 0.280E-02 0.127E+00 0.744E-01 0.547E-03 0.255E-03 0.214E-03 0.298E-03 0.294E-03 0.362E-03 0.434E-03
2019 0.484E-02 0.115E+00 0.797E-01 0.155E+00 0.238E-03 0.199E-03 0.275E-03 0.274E-03 0.341E-03 0.410E-03
2020 0.412E-02 0.200E+00 0.839E-01 0.171E+00 0.990E-01 0.184E-03 0.258E-03 0.253E-03 0.319E-03 0.383E-03
2021 0.628E-04 0.175E+00 0.152E+00 0.221E+00 0.114E+00 0.107E+00 0.239E-03 0.244E-03 0.303E-03 0.364E-03
2022 0.832E-04 0.211E-02 0.139E+00 0.484E+00 0.211E+00 0.136E+00 0.227E+00 0.226E-03 0.290E-03 0.348E-03
2023 0.808E-04 0.290E-02 0.102E-02 0.964E+00 0.201E+01 0.579E+00 0.480E+00 0.130E+01 0.272E-03 0.326E-03
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TABLE 1C. BIAS OF ABUNDANCE (BY AREA) OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 0.467E+04 0.252E+04 0.283E+04 0.126E+04 0.154E+04 0.377E+03 0.467E+03 0.396E+03 0.389E+03 0.471E+04
1976 0.848E+04 0.286E+04 0.197E+04 0.223E+04 0.994E+03 0.122E+04 0.309E+03 0.392E+03 0.341E+03 0.462E+04
1977 0.241E+04 0.520E+04 0.225E+04 0.155E+04 0.175E+04 0.781E+03 0.996E+03 0.259E+03 0.338E+03 0.440E+04
1978 0.256E+04 0.147E+04 0.408E+04 0.177E+04 0.122E+04 0.138E+04 0.639E+03 0.836E+03 0.223E+03 0.421E+04
1979 0.338E+04 0.156E+04 0.116E+04 0.321E+04 0.139E+04 0.958E+03 0.113E+04 0.536E+03 0.719E+03 0.393E+04
1980 0.335E+04 0.207E+04 0.123E+04 0.910E+03 0.252E+04 0.110E+04 0.785E+03 0.947E+03 0.462E+03 0.413E+04
1981 0.407E+04 0.205E+04 0.163E+04 0.966E+03 0.715E+03 0.198E+04 0.898E+03 0.659E+03 0.815E+03 0.414E+04
1982 0.980E+04 0.249E+04 0.160E+04 0.128E+04 0.760E+03 0.562E+03 0.163E+04 0.754E+03 0.567E+03 0.445E+04
1983 0.838E+04 0.599E+04 0.195E+04 0.126E+04 0.100E+04 0.598E+03 0.460E+03 0.136E+04 0.649E+03 0.451E+04
1984 0.680E+04 0.511E+04 0.471E+04 0.153E+04 0.989E+03 0.788E+03 0.489E+03 0.386E+03 0.117E+04 0.462E+04
1985 0.579E+04 0.416E+04 0.400E+04 0.371E+04 0.121E+04 0.777E+03 0.645E+03 0.411E+03 0.332E+03 0.522E+04
1986 0.732E+04 0.355E+04 0.327E+04 0.314E+04 0.292E+04 0.948E+03 0.636E+03 0.542E+03 0.353E+03 0.506E+04
1987 0.114E+05 0.447E+04 0.279E+04 0.257E+04 0.247E+04 0.229E+04 0.776E+03 0.534E+03 0.466E+03 0.493E+04
1988 0.134E+05 0.699E+04 0.351E+04 0.219E+04 0.202E+04 0.194E+04 0.188E+04 0.652E+03 0.460E+03 0.489E+04
1989 0.307E+05 0.814E+04 0.549E+04 0.275E+04 0.172E+04 0.159E+04 0.159E+04 0.158E+04 0.561E+03 0.485E+04
1990 0.247E+05 0.188E+05 0.639E+04 0.432E+04 0.216E+04 0.135E+04 0.130E+04 0.133E+04 0.136E+04 0.487E+04

1991 0.583E+05 0.151E+05 0.148E+05 0.502E+04 0.339E+04 0.170E+04 0.111E+04 0.109E+04 0.115E+04 0.559E+04
1992 0.551E+05 0.357E+05 0.119E+05 0.116E+05 0.395E+04 0.267E+04 0.139E+04 0.930E+03 0.938E+03 0.608E+04
1993 0.547E+05 0.338E+05 0.281E+05 0.932E+04 0.912E+04 0.310E+04 0.219E+04 0.117E+04 0.801E+03 0.631E+04
1994 0.684E+05 0.335E+05 0.264E+05 0.220E+05 0.733E+04 0.717E+04 0.254E+04 0.183E+04 0.100E+04 0.640E+04
1995 0.601E+05 0.419E+05 0.263E+05 0.208E+05 0.173E+05 0.576E+04 0.587E+04 0.213E+04 0.158E+04 0.667E+04
1996 0.692E+05 0.368E+05 0.329E+05 0.207E+05 0.163E+05 0.136E+05 0.472E+04 0.493E+04 0.183E+04 0.743E+04
1997 0.563E+05 0.423E+05 0.288E+05 0.258E+05 0.163E+05 0.129E+05 0.112E+05 0.396E+04 0.424E+04 0.833E+04
1998 0.319E+06 0.345E+05 0.332E+05 0.227E+05 0.203E+05 0.128E+05 0.105E+05 0.936E+04 0.341E+04 0.113E+05
1999 0.254E+06 0.196E+06 0.270E+05 0.261E+05 0.178E+05 0.160E+05 0.105E+05 0.883E+04 0.806E+04 0.132E+05
2000 0.332E+06 0.156E+06 0.154E+06 0.212E+05 0.205E+05 0.140E+05 0.131E+05 0.878E+04 0.760E+04 0.191E+05
2001 0.368E+06 0.203E+06 0.122E+06 0.121E+06 0.167E+05 0.161E+05 0.115E+05 0.110E+05 0.755E+04 0.239E+05
2002 0.455E+06 0.225E+06 0.159E+06 0.961E+05 0.951E+05 0.131E+05 0.132E+05 0.962E+04 0.945E+04 0.283E+05
2003 0.589E+06 0.279E+06 0.177E+06 0.125E+06 0.756E+05 0.748E+05 0.107E+05 0.111E+05 0.828E+04 0.339E+05
2004 0.772E+06 0.361E+06 0.219E+06 0.139E+06 0.986E+05 0.594E+05 0.613E+05 0.900E+04 0.952E+04 0.380E+05
2005 0.400E+06 0.473E+06 0.284E+06 0.173E+06 0.110E+06 0.776E+05 0.487E+05 0.514E+05 0.775E+04 0.428E+05
2006 0.309E+06 0.245E+06 0.372E+06 0.223E+06 0.136E+06 0.861E+05 0.635E+05 0.409E+05 0.443E+05 0.455E+05
2007 0.203E+06 0.189E+06 0.193E+06 0.292E+06 0.176E+06 0.107E+06 0.705E+05 0.533E+05 0.352E+05 0.802E+05
2008 0.105E+07 0.124E+06 0.149E+06 0.151E+06 0.230E+06 0.138E+06 0.874E+05 0.592E+05 0.459E+05 0.104E+06
2009 0.115E+07 0.641E+06 0.978E+05 0.117E+06 0.119E+06 0.181E+06 0.113E+06 0.734E+05 0.510E+05 0.134E+06
2010 0.121E+07 0.705E+06 0.504E+06 0.769E+05 0.921E+05 0.937E+05 0.148E+06 0.950E+05 0.631E+05 0.166E+06
2011 0.120E+07 0.742E+06 0.555E+06 0.397E+06 0.605E+05 0.725E+05 0.767E+05 0.124E+06 0.817E+05 0.206E+06
2012 0.129E+07 0.733E+06 0.584E+06 0.436E+06 0.312E+06 0.476E+05 0.593E+05 0.644E+05 0.107E+06 0.259E+06
2013 0.136E+07 0.789E+06 0.576E+06 0.459E+06 0.343E+06 0.245E+06 0.389E+05 0.498E+05 0.554E+05 0.329E+06
2014 0.143E+07 0.833E+06 0.621E+06 0.453E+06 0.361E+06 0.270E+06 0.201E+06 0.327E+05 0.429E+05 0.346E+06
2015 0.143E+07 0.878E+06 0.655E+06 0.488E+06 0.357E+06 0.284E+06 0.221E+06 0.169E+06 0.281E+05 0.351E+06
2016 0.118E+07 0.878E+06 0.690E+06 0.515E+06 0.384E+06 0.281E+06 0.233E+06 0.186E+06 0.145E+06 0.342E+06
2017 0.117E+07 0.723E+06 0.690E+06 0.543E+06 0.405E+06 0.302E+06 0.230E+06 0.195E+06 0.160E+06 0.438E+06

2018 0.496E+06 0.716E+06 0.569E+06 0.543E+06 0.427E+06 0.319E+06 0.247E+06 0.193E+06 0.168E+06 0.536E+06
2019 0.104E+08 0.304E+06 0.563E+06 0.447E+06 0.427E+06 0.336E+06 0.261E+06 0.208E+06 0.166E+06 0.635E+06
2020 0.916E+08 0.637E+07 0.239E+06 0.443E+06 0.352E+06 0.336E+06 0.275E+06 0.219E+06 0.179E+06 0.722E+06
2021 0.125E+09 0.561E+08 0.501E+07 0.188E+06 0.349E+06 0.277E+06 0.275E+06 0.231E+06 0.189E+06 0.812E+06
2022 0.779E+06 0.763E+08 0.441E+08 0.394E+07 0.148E+06 0.274E+06 0.227E+06 0.231E+06 0.199E+06 0.902E+06
2023 0.776E+06 0.477E+06 0.600E+08 0.347E+08 0.310E+07 0.116E+06 0.225E+06 0.190E+06 0.199E+06 0.991E+06
2024 0.475E+06 0.375E+06 0.472E+08 0.273E+08 0.244E+07 0.952E+05 0.189E+06 0.164E+06 0.107E+07
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TABLE 1D. STANDARD ERROR OF ABUNDANCE (BY AREA) OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 0.101E+04 0.546E+03 0.612E+03 0.275E+03 0.335E+03 0.782E+02 0.955E+02 0.803E+02 0.786E+02 0.953E+03
1976 0.185E+04 0.618E+03 0.429E+03 0.481E+03 0.217E+03 0.264E+03 0.640E+02 0.802E+02 0.691E+02 0.935E+03
1977 0.525E+03 0.113E+04 0.485E+03 0.336E+03 0.379E+03 0.170E+03 0.216E+03 0.537E+02 0.690E+02 0.899E+03
1978 0.557E+03 0.323E+03 0.891E+03 0.382E+03 0.264E+03 0.298E+03 0.139E+03 0.181E+03 0.462E+02 0.872E+03
1979 0.731E+03 0.341E+03 0.253E+03 0.700E+03 0.300E+03 0.208E+03 0.244E+03 0.117E+03 0.156E+03 0.853E+03
1980 0.723E+03 0.447E+03 0.268E+03 0.199E+03 0.551E+03 0.236E+03 0.170E+03 0.205E+03 0.101E+03 0.902E+03
1981 0.876E+03 0.444E+03 0.352E+03 0.210E+03 0.156E+03 0.432E+03 0.193E+03 0.143E+03 0.176E+03 0.897E+03
1982 0.212E+04 0.537E+03 0.348E+03 0.276E+03 0.166E+03 0.123E+03 0.354E+03 0.162E+03 0.123E+03 0.964E+03
1983 0.179E+04 0.130E+04 0.421E+03 0.273E+03 0.217E+03 0.130E+03 0.101E+03 0.297E+03 0.140E+03 0.972E+03
1984 0.146E+04 0.110E+04 0.102E+04 0.331E+03 0.214E+03 0.171E+03 0.107E+03 0.843E+02 0.256E+03 0.100E+04
1985 0.125E+04 0.897E+03 0.861E+03 0.801E+03 0.260E+03 0.169E+03 0.140E+03 0.895E+02 0.726E+02 0.114E+04
1986 0.157E+04 0.765E+03 0.702E+03 0.674E+03 0.630E+03 0.204E+03 0.138E+03 0.117E+03 0.770E+02 0.110E+04
1987 0.246E+04 0.962E+03 0.601E+03 0.552E+03 0.530E+03 0.496E+03 0.168E+03 0.116E+03 0.101E+03 0.107E+04
1988 0.288E+04 0.151E+04 0.754E+03 0.472E+03 0.434E+03 0.417E+03 0.405E+03 0.141E+03 0.997E+02 0.106E+04
1989 0.661E+04 0.176E+04 0.118E+04 0.591E+03 0.371E+03 0.341E+03 0.342E+03 0.340E+03 0.121E+03 0.105E+04

1990 0.533E+04 0.405E+04 0.138E+04 0.931E+03 0.465E+03 0.292E+03 0.279E+03 0.287E+03 0.293E+03 0.105E+04
1991 0.126E+05 0.326E+04 0.318E+04 0.108E+04 0.732E+03 0.366E+03 0.239E+03 0.234E+03 0.247E+03 0.120E+04
1992 0.119E+05 0.769E+04 0.256E+04 0.250E+04 0.850E+03 0.576E+03 0.300E+03 0.200E+03 0.202E+03 0.131E+04
1993 0.118E+05 0.727E+04 0.604E+04 0.201E+04 0.197E+04 0.669E+03 0.471E+03 0.251E+03 0.173E+03 0.136E+04
1994 0.147E+05 0.723E+04 0.570E+04 0.474E+04 0.158E+04 0.155E+04 0.548E+03 0.395E+03 0.216E+03 0.138E+04
1995 0.130E+05 0.903E+04 0.567E+04 0.448E+04 0.373E+04 0.124E+04 0.127E+04 0.460E+03 0.340E+03 0.144E+04
1996 0.149E+05 0.793E+04 0.710E+04 0.446E+04 0.352E+04 0.293E+04 0.102E+04 0.106E+04 0.395E+03 0.160E+04
1997 0.121E+05 0.912E+04 0.622E+04 0.557E+04 0.350E+04 0.277E+04 0.240E+04 0.853E+03 0.914E+03 0.180E+04
1998 0.689E+05 0.743E+04 0.716E+04 0.489E+04 0.438E+04 0.275E+04 0.227E+04 0.202E+04 0.734E+03 0.243E+04
1999 0.548E+05 0.422E+05 0.582E+04 0.562E+04 0.384E+04 0.345E+04 0.225E+04 0.190E+04 0.174E+04 0.285E+04
2000 0.716E+05 0.335E+05 0.332E+05 0.457E+04 0.442E+04 0.302E+04 0.282E+04 0.189E+04 0.164E+04 0.411E+04
2001 0.793E+05 0.437E+05 0.264E+05 0.261E+05 0.359E+04 0.347E+04 0.247E+04 0.237E+04 0.163E+04 0.516E+04
2002 0.983E+05 0.486E+05 0.344E+05 0.207E+05 0.205E+05 0.283E+04 0.284E+04 0.207E+04 0.204E+04 0.610E+04
2003 0.127E+06 0.602E+05 0.382E+05 0.270E+05 0.163E+05 0.161E+05 0.231E+04 0.239E+04 0.178E+04 0.732E+04
2004 0.166E+06 0.780E+05 0.474E+05 0.300E+05 0.213E+05 0.128E+05 0.132E+05 0.194E+04 0.205E+04 0.820E+04
2005 0.861E+05 0.102E+06 0.613E+05 0.373E+05 0.236E+05 0.167E+05 0.105E+05 0.111E+05 0.167E+04 0.923E+04
2006 0.665E+05 0.527E+05 0.802E+05 0.482E+05 0.293E+05 0.186E+05 0.137E+05 0.881E+04 0.955E+04 0.982E+04
2007 0.436E+05 0.407E+05 0.415E+05 0.630E+05 0.379E+05 0.231E+05 0.152E+05 0.115E+05 0.758E+04 0.173E+05
2008 0.225E+06 0.267E+05 0.320E+05 0.326E+05 0.496E+05 0.298E+05 0.189E+05 0.128E+05 0.989E+04 0.223E+05
2009 0.247E+06 0.138E+06 0.210E+05 0.252E+05 0.257E+05 0.390E+05 0.244E+05 0.158E+05 0.110E+05 0.290E+05
2010 0.260E+06 0.152E+06 0.108E+06 0.165E+05 0.198E+05 0.202E+05 0.319E+05 0.205E+05 0.136E+05 0.359E+05
2011 0.256E+06 0.159E+06 0.119E+06 0.853E+05 0.130E+05 0.156E+05 0.165E+05 0.268E+05 0.176E+05 0.445E+05
2012 0.277E+06 0.157E+06 0.125E+06 0.938E+05 0.671E+05 0.102E+05 0.128E+05 0.139E+05 0.231E+05 0.558E+05
2013 0.291E+06 0.169E+06 0.123E+06 0.987E+05 0.738E+05 0.528E+05 0.837E+04 0.107E+05 0.119E+05 0.708E+05
2014 0.306E+06 0.178E+06 0.133E+06 0.971E+05 0.776E+05 0.580E+05 0.432E+05 0.703E+04 0.922E+04 0.744E+05
2015 0.305E+06 0.187E+06 0.140E+06 0.105E+06 0.764E+05 0.611E+05 0.475E+05 0.363E+05 0.605E+04 0.754E+05
2016 0.333E+07 0.187E+06 0.147E+06 0.110E+06 0.825E+05 0.601E+05 0.500E+05 0.399E+05 0.312E+05 0.736E+05

2017 0.459E+07 0.204E+07 0.147E+06 0.116E+06 0.868E+05 0.649E+05 0.492E+05 0.420E+05 0.343E+05 0.942E+05
2018 0.302E+07 0.281E+07 0.160E+07 0.116E+06 0.912E+05 0.683E+05 0.531E+05 0.413E+05 0.361E+05 0.115E+06
2019 0.577E+08 0.185E+07 0.221E+07 0.126E+07 0.910E+05 0.717E+05 0.559E+05 0.446E+05 0.355E+05 0.136E+06
2020 0.168E+09 0.353E+08 0.145E+07 0.174E+07 0.992E+06 0.716E+05 0.587E+05 0.469E+05 0.384E+05 0.155E+06
2021 0.673E+09 0.103E+09 0.278E+08 0.114E+07 0.137E+07 0.780E+06 0.586E+05 0.493E+05 0.404E+05 0.174E+06
2022 0.254E+06 0.412E+09 0.809E+08 0.219E+08 0.899E+06 0.108E+07 0.639E+06 0.492E+05 0.424E+05 0.193E+06
2023 0.255E+06 0.156E+06 0.324E+09 0.636E+08 0.172E+08 0.707E+06 0.882E+06 0.536E+06 0.424E+05 0.211E+06
2024 0.156E+06 0.122E+06 0.255E+09 0.501E+08 0.135E+08 0.579E+06 0.740E+06 0.462E+06 0.228E+06
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TABLE 1E. PARAMETER ESTIMATES FOR East of 45
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TERMINAL AGE STRUCTURE OF POPULATION ABUNDANCE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
2	0.170E+07	0.162E+07	0.475E+06	0.156E+06	9.6
3	0.129E+07	0.124E+07	0.375E+06	0.122E+06	9.9
4	0.142E+08	0.500E+08	0.472E+08	0.255E+09	510.0
5	0.156E+08	0.345E+08	0.273E+08	0.501E+08	144.9
6	0.325E+07	0.561E+07	0.244E+07	0.135E+08	241.1
7	0.132E+05	0.107E+06	0.952E+05	0.579E+06	542.5
8	0.140E+06	0.483E+06	0.189E+06	0.740E+06	153.2
9	0.703E+05	0.224E+06	0.164E+06	0.462E+06	206.4
10	0.426E+07	0.522E+07	0.107E+07	0.228E+06	4.4

TERMINAL AGE STRUCTURE OF FISHING MORTALITY RATE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.800E-03	0.843E-03	-0.337E-03	0.808E-04	9.6
2	0.285E-01	0.300E-01	-0.123E-01	0.290E-02	9.7
3	0.120E-02	0.135E-02	-0.470E-02	0.102E-02	75.9
4	0.116E-02	0.317E+00	0.315E+00	0.964E+00	303.9
5	0.232E-02	0.111E+01	0.111E+01	0.201E+01	180.5
6	0.321E+00	0.615E+00	0.256E+00	0.579E+00	94.2
7	0.385E-01	0.219E+00	0.200E+00	0.480E+00	219.3
8	0.615E-01	0.563E+00	0.491E+00	0.130E+01	231.1
9	0.751E-02	0.614E-02	-0.157E-02	0.272E-03	4.4
10	0.901E-02	0.737E-02	-0.188E-02	0.326E-03	4.4

RATIO OF FISHING MORTALITY RATE ON LAST TWO AGES (F-RATIO)
Average of Std.

Year	MLE	bootstraps	Bias	Error	% CV
1975	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1976	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1977	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1978	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1979	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1980	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1981	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1982	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1983	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1984	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1985	0.600E+00	0.600E+00	0.000E+00	0.243E-07	0.0
1986	0.600E+00	0.600E+00	0.000E+00	0.258E-07	0.0
1987	0.600E+00	0.600E+00	0.000E+00	0.256E-07	0.0
1988	0.600E+00	0.600E+00	0.000E+00	0.160E-07	0.0
1989	0.600E+00	0.600E+00	0.000E+00	0.226E-07	0.0
1990	0.600E+00	0.600E+00	0.000E+00	0.182E-07	0.0
1991	0.600E+00	0.600E+00	0.000E+00	0.247E-07	0.0
1992	0.600E+00	0.600E+00	0.000E+00	0.239E-07	0.0
1993	0.600E+00	0.600E+00	0.000E+00	0.216E-07	0.0
1994	0.600E+00	0.600E+00	0.000E+00	0.216E-07	0.0
1995	0.120E+01	0.120E+01	0.000E+00	0.352E-07	0.0
1996	0.120E+01	0.120E+01	0.000E+00	0.493E-07	0.0
1997	0.120E+01	0.120E+01	0.000E+00	0.441E-07	0.0
1998	0.120E+01	0.120E+01	0.000E+00	0.518E-07	0.0
1999	0.120E+01	0.120E+01	0.000E+00	0.450E-07	0.0
2000	0.120E+01	0.120E+01	0.000E+00	0.314E-07	0.0
2001	0.120E+01	0.120E+01	0.000E+00	0.514E-07	0.0
2002	0.120E+01	0.120E+01	0.000E+00	0.408E-07	0.0
2003	0.120E+01	0.120E+01	0.000E+00	0.481E-07	0.0
2004	0.120E+01	0.120E+01	0.000E+00	0.492E-07	0.0
2005	0.120E+01	0.120E+01	0.000E+00	0.393E-07	0.0
2006	0.120E+01	0.120E+01	0.000E+00	0.407E-07	0.0
2007	0.120E+01	0.120E+01	0.000E+00	0.425E-07	0.0
2008	0.120E+01	0.120E+01	0.000E+00	0.465E-07	0.0
2009	0.120E+01	0.120E+01	0.000E+00	0.447E-07	0.0
2010	0.120E+01	0.120E+01	0.000E+00	0.421E-07	0.0
2011	0.120E+01	0.120E+01	0.000E+00	0.516E-07	0.0
2012	0.120E+01	0.120E+01	0.000E+00	0.444E-07	0.0
2013	0.120E+01	0.120E+01	0.000E+00	0.450E-07	0.0
2014	0.120E+01	0.120E+01	0.000E+00	0.389E-07	0.0
2015	0.120E+01	0.120E+01	0.000E+00	0.352E-07	0.0
2016	0.120E+01	0.120E+01	0.000E+00	0.417E-07	0.0
2017	0.120E+01	0.120E+01	0.000E+00	0.482E-07	0.0
2018	0.120E+01	0.120E+01	0.000E+00	0.472E-07	0.0
2019	0.120E+01	0.120E+01	0.000E+00	0.479E-07	0.0
2020	0.120E+01	0.120E+01	0.000E+00	0.406E-07	0.0
2021	0.120E+01	0.120E+01	0.000E+00	0.469E-07	0.0
2022	0.120E+01	0.120E+01	0.000E+00	0.406E-07	0.0
2023	0.120E+01	0.120E+01	0.000E+00	0.338E-07	0.0

NATURAL MORTALITY RATE

Average of Std.

Age	MLE	bootstraps	Bias	Error	% CV
1	0.490E+00	0.490E+00	0.000E+00	0.000E+00	0.0
2	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
3	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
4	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
5	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
6	0.200E+00	0.200E+00	0.000E+00	0.000E+00	0.0
7	0.175E+00	0.175E+00	0.000E+00	0.000E+00	0.0
8	0.150E+00	0.150E+00	0.000E+00	0.000E+00	0.0
9	0.125E+00	0.125E+00	0.000E+00	0.000E+00	0.0
10	0.100E+00	0.100E+00	0.000E+00	0.000E+00	0.0

TRANSFER COEFFICIENTS

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
7	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

VARIANCE SCALING PARAMETERS

Index	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
2	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
3	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
4	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
5	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
6	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
7	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
8	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
9	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
10	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
11	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
12	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6

CATCHABILITY COEFFICIENTS

Index	Year	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	1975	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1976	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1977	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1978	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2

1	1979	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1980	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1981	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1982	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1983	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1984	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1985	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1986	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1987	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1988	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1989	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1990	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1991	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1992	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1993	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1994	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1995	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1996	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1997	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1998	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1999	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2000	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2001	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2002	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2003	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2004	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2005	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2006	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2007	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2008	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2009	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2010	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2011	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2012	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2013	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2014	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2015	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2016	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2017	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2018	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2019	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2020	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2021	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2022	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2023	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
2	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

2	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
3	1975	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1976	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1977	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1978	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1979	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1980	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1981	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1982	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1983	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1984	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1985	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1986	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1987	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1988	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0

3	1989	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1990	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1991	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1992	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1993	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1994	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1995	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1996	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1997	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1998	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1999	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2000	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2001	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2002	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2003	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2004	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2005	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2006	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2007	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2008	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2009	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2010	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2011	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2012	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2013	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2014	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2015	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2016	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2017	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2018	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2019	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2020	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2021	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2022	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2023	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
4	1975	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1976	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1977	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1978	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1979	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1980	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1981	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1982	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1983	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1984	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1985	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1986	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1987	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1988	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1989	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1990	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1991	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1992	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1993	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0

4	1994	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1995	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1996	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1997	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1998	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1999	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2000	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2001	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2002	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2003	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2004	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2005	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2006	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2007	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2008	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2009	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2010	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2011	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2012	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2013	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2014	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2015	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2016	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2017	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2018	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2019	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2020	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2021	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2022	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2023	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
5	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

5	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

6	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
7	1975	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1976	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1977	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1978	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1979	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1980	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1981	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1982	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1983	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1984	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1985	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1986	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1987	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1988	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1989	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1990	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1991	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1992	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1993	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1994	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1995	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1996	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1997	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1998	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1999	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2000	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2001	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2002	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2003	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2004	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2005	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2006	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2007	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2008	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1

7	2009	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2010	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2011	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2012	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2013	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2014	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2015	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2016	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2017	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2018	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2019	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2020	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2021	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2022	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2023	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
8	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

8	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

9	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

11	1975	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1976	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1977	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1978	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1979	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1980	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1981	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1982	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1983	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1984	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1985	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1986	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1987	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1988	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1989	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1990	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1991	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1992	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1993	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1994	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1995	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1996	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1997	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1998	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1999	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2000	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2001	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2002	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2003	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2004	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2005	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2006	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2007	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2008	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2009	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2010	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2011	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2012	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2013	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2014	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2015	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2016	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2017	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2018	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2019	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2020	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2021	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2022	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2023	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
12	1975	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1976	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1977	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1978	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1979	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5

12	1980	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1981	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1982	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1983	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1984	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1985	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1986	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1987	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1988	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1989	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1990	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1991	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1992	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1993	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1994	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1995	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1996	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1997	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1998	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1999	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2000	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2001	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2002	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2003	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2004	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2005	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2006	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2007	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2008	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2009	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2010	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2011	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2012	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2013	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2014	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2015	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2016	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2017	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2018	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2019	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2020	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2021	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2022	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2023	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5

****
CORRELATION AND COVARIANCE MATRICES OF PARAMETERS
****

TABLE 2A. CORRELATION MATRIX

==========
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 :	1.0																			
2 :	1.0	1.0																		
3 :	0.2	0.2	1.0																	
4 :	0.0	0.0	-0.2	1.0																
5 :	0.0	0.0	-0.1	0.3	1.0															
6 :	0.1	0.1	-0.1	-0.1	-0.2	1.0														
7 :	0.1	0.1	-0.1	-0.1	0.0	-0.2	1.0													
8 :	0.1	0.1	0.1	-0.1	-0.1	0.3	0.0	1.0												
9 :	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.1	0.1	1.0											
10 :	-0.1	-0.1	-0.1	0.1	0.0	0.1	-0.1	-0.2	0.0	1.0										
11 :	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.1	0.1	1.0	-0.1	1.0									
12 :	-0.1	-0.1	0.1	-0.1	-0.2	-0.1	0.1	0.1	1.0	-0.1	1.0	1.0								
13 :	-0.1	-0.1	0.1	-0.1	-0.2	-0.1	0.1	0.1	1.0	-0.1	1.0	1.0	1.0							
14 :	0.0	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1	-0.2	0.2	-0.2	-0.2	-0.2	1.0						
15 :	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.3	-0.2	0.3	0.3	0.3	-0.3	1.0					
16 :	0.0	0.0	0.1	-0.1	-0.2	0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0.1	1.0				
17 :	0.1	0.1	0.0	0.0	0.1	0.0	-0.2	0.1	-0.1	0.2	-0.1	-0.1	-0.1	0.3	-0.3	-0.1	1.0			
18 :	0.0	0.0	-0.1	-0.2	0.0	0.0	0.1	-0.1	0.2	0.0	0.2	0.2	0.2	-0.2	0.3	0.1	-0.2	1.0		
19 :	0.1	0.1	-0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	-0.1	0.0	0.1	1.0	
20 :	0.0	0.0	0.1	0.1	0.2	-0.2	0.1	-0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	-0.1	1.0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21 :	-0.1	-0.1	0.1	-0.1	0.1	0.1	-0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	-0.1	-0.1	0.0
22 :	0.2	0.2	-0.2	0.0	0.1	0.3	-0.1	0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	0.1	-0.2	0.1	0.2	-0.2
23 :	0.1	0.1	-0.1	0.1	0.2	0.1	-0.1	-0.1	-1.0	0.0	-1.0	-1.0	-1.0	0.3	-0.4	0.1	0.1	-0.2	0.0	-0.1
24 :	0.1	0.1	-0.1	0.1	0.2	0.1	-0.1	-0.1	-1.0	0.0	-1.0	-1.0	-1.0	0.2	-0.3	0.1	0.1	-0.2	0.0	-0.1
25 :	0.1	0.1	-0.1	0.1	0.2	0.1	-0.1	-0.1	-1.0	0.1	-1.0	-1.0	-1.0	0.2	-0.3	0.1	0.1	-0.2	0.0	-0.1
26 :	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.1	-1.0	0.0	-1.0	-1.0	-1.0	0.2	-0.3	0.2	0.0	-0.2	0.0	-0.1
27 :	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.1	-1.0	0.1	-1.0	-1.0	-1.0	0.2	-0.4	0.1	0.1	-0.2	0.0	-0.1
28 :	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.1	-1.0	0.0	-1.0	-1.0	-1.0	0.2	-0.3	0.1	0.1	-0.2	0.0	-0.1
29 :	0.1	0.1	-0.1	0.1	0.2	0.2	-0.1	-0.1	-0.9	0.0	-0.9	-0.9	-0.9	0.1	-0.2	0.1	0.0	-0.1	0.0	-0.1
30 :	0.1	0.1	-0.1	0.0	0.0	0.2	-0.1	0.0	-0.8	0.0	-0.8	-0.8	-0.8	0.0	-0.1	0.2	0.0	0.0	0.2	-0.2
31 :	0.0	0.0	-0.1	0.1	0.1	0.1	-0.1	-0.1	-0.8	0.0	-0.8	-0.8	-0.8	0.3	-0.3	0.0	0.1	-0.3	-0.1	-0.1
32 :	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.1	-0.7	0.2	-0.7	-0.7	-0.7	0.3	-0.3	0.0	0.1	-0.1	-0.1	0.0
33 :	0.1	0.1	-0.1	0.2	0.0	0.0	0.0	-0.1	-0.7	0.1	-0.7	-0.7	-0.7	0.1	-0.1	0.1	0.0	0.0	-0.1	-0.1
34 :	0.1	0.1	0.0	0.2	0.1	0.2	-0.1	0.0	-0.2	0.0	-0.3	-0.2	-0.2	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.2
35 :	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2	-0.4	-0.1	-0.3	-0.3	-0.3	0.1	-0.3	0.0	0.1	-0.2	-0.1	0.2

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
21 :	1.0														
22 :	-0.2	1.0													
23 :	-0.1	0.2	1.0												
24 :	-0.1	0.2	1.0	1.0											
25 :	-0.1	0.2	1.0	1.0	1.0										
26 :	-0.1	0.2	1.0	1.0	1.0	1.0									
27 :	-0.1	0.2	1.0	1.0	1.0	1.0	1.0								
28 :	-0.1	0.2	1.0	1.0	1.0	1.0	1.0	1.0							
29 :	-0.2	0.3	0.9	0.9	0.9	0.9	0.9	0.9	1.0						
30 :	-0.1	0.3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0					

31 : -0.1 0.1 0.8 0.8 0.8 0.8 0.8 0.8 0.7 0.6 1.0
32 : 0.0 0.1 0.7 0.7 0.7 0.7 0.7 0.7 0.6 0.5 0.6 1.0
33 : -0.2 0.2 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.6 0.4 0.6 1.0
34 : -0.1 0.2 0.2 0.2 0.2 0.3 0.3 0.3 0.3 0.3 0.2 0.2 0.2 1.0
35 : 0.0 -0.1 0.4 0.4 0.3 0.3 0.4 0.4 0.3 0.2 0.3 0.2 0.0 -0.2 1.0

TABLE 2B. COVARIANCE MATRIX

==========

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

1 : 0.6525D-08
2 : 0.2346D-06 0.8438D-05
3 : 0.1368D-07 0.4896D-06 0.1045D-05
4 : 0.1830D-06 0.2782D-05 -0.1970D-03 0.9284D+00
5 : 0.8884D-06 0.2029D-04 -0.1981D-03 0.6663D+00 0.4039D+01
6 : 0.4541D-05 0.1688D-03 -0.7324D-04 -0.5043D-01 -0.1971D+00 0.3355D+00
7 : 0.2084D-05 0.7300D-04 -0.5919D-04 -0.4486D-01 -0.3743D-01 -0.5593D-01 0.2305D+00
8 : 0.1401D-04 0.5063D-03 0.1526D-03 -0.1421D+00 -0.2575D+00 0.2176D+00 0.1581D-01 0.1694D+01
9 : -0.2445D-08 -0.9150D-07 0.3274D-07 -0.2255D-04 -0.8144D-04 -0.1759D-04 0.1326D-04 0.4128D-04 0.7383D-07
10 : -0.4437D-06 -0.1587D-04 -0.1306D-04 0.1090D-01 -0.1717D-02 0.3286D-02 -0.4792D-02 -0.1787D-01 -0.1078D-05 0.7310D-02
11 : -0.7269D-08 -0.2730D-06 0.8156D-07 -0.6508D-04 -0.2186D-03 -0.5002D-04 0.4570D-04 0.1456D-03 0.2282D-06 -0.4273D-05 0.7167D-06
12 : -0.8661D-08 -0.3244D-06 0.1096D-06 -0.6879D-04 -0.2893D-03 -0.5706D-04 0.4759D-04 0.1518D-03 0.2492D-06 -0.4624D-05 0.7728D-06 0.8495D-06
13 : -0.8091D-08 -0.3027D-06 0.1001D-06 -0.8354D-04 -0.2605D-03 -0.4670D-04 0.4206D-04 0.1132D-03 0.2304D-06 -0.3768D-05 0.7117D-06 0.7777D-06 0.7307D-06
14 : 0.1348D-09 0.7337D-08 -0.6601D-09 0.1177D-04 -0.1974D-05 0.3218D-05 -0.5564D-05 -0.1479D-04 -0.9858D-08 0.2571D-05 -0.3176D-07 -0.3425D-07 -0.2481D-07 0.2520D-07
15 : -0.9356D-09 -0.3510D-07 0.1261D-07 -0.1089D-04 -0.1579D-04 -0.6267D-05 -0.3748D-05 -0.1976D-04 0.1083D-07 -0.1899D-05 0.3419D-07 0.3735D-07 0.3085D-07 -0.6339D-08 0.1445D-07
16 : -0.1214D-09 -0.5830D-08 0.7132D-08 -0.1098D-04 -0.4995D-04 0.6682D-05 -0.8517D-06 -0.5299D-05 -0.4490D-08 -0.1118D-05 -0.1082D-07 -0.1312D-07 -0.1539D-07 -0.1932D-08 0.1211D-08 0.1240D-07
17 : 0.6447D-09 0.2310D-07 -0.4075D-08 0.6068D-05 0.2383D-04 0.2065D-05 -0.1194D-04 0.9703D-05 -0.2727D-08 0.1747D-05 -0.9880D-08 -0.1241D-07 -0.6279D-08 0.6211D-08 -0.4186D-08 -0.1464D-08 0.1694D-07
18 : 0.1261D-10 -0.6875D-09 -0.1962D-07 -0.2017D-04 0.9830D-05 0.3231D-05 0.5192D-05 -0.1383D-04 0.6457D-08 -0.4696D-06 0.2297D-07 0.2181D-07 0.2006D-07 -0.4517D-08 0.4447D-08 0.1831D-08 -0.4245D-08 0.1786D-07
19 : 0.1246D-08 0.4422D-07 -0.7851D-08 -0.5471D-05 0.5386D-04 -0.1247D-05 -0.1317D-05 0.1053D-04 0.8947D-09 -0.4852D-06 0.1522D-08 0.1210D-08 0.8492D-10 -0.3855D-08 -0.3757D-09 -0.1204D-08 0.8314D-09 0.1254D-08 0.1704D-07
20 : 0.6917D-10 0.2043D-08 0.1847D-07 0.1648D-04 0.4903D-04 -0.1577D-04 0.4037D-05 -0.1011D-04 0.3675D-08 0.2737D-06 0.1302D-07 0.1158D-07 0.1231D-07 0.8012D-09 -0.4992D-09 0.3591D-09 -0.2734D-09 0.9173D-09 -0.1565D-08 0.1457D-07

1 2 3 4 5 6 7 8 9 10 11 12
13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31
32 33 34 35
21 : -0.2797D-06 -0.9694D-05 0.5306D-05 -0.3132D-02 0.1339D-01 0.2403D-02 -0.4583D-02
0.2722D-02 0.1797D-05 0.5844D-03 0.5524D-05 0.4609D-05 0.5274D-05 0.7141D-07
0.1153D-06 -0.1504D-07 0.2021D-05 -0.9309D-06 -0.4997D-06 0.1576D-06
22 : 0.1881D-05 0.6862D-04 -0.2647D-04 -0.5901D-02 0.1522D-01 0.2270D-01 -0.3097D-02
0.1218D-01 -0.6842D-05 -0.2001D-02 -0.2070D-04 -0.2128D-04 -0.2036D-04 -0.2590D-05 -
0.2723D-06 0.1417D-05 -0.3171D-05 0.1137D-05 0.3662D-05 -0.2519D-05
23 : 0.5703D-08 0.2140D-06 -0.8005D-07 0.6427D-04 0.2181D-03 0.4632D-04 -0.3546D-04
-0.9389D-04 -0.1749D-06 0.2380D-05 -0.5413D-06 -0.5902D-06 -0.5441D-06 0.2712D-07 -
0.2768D-07 0.9643D-08 0.7908D-08 -0.1575D-07 -0.8826D-09 -0.8148D-08
24 : 0.9959D-08 0.3721D-06 -0.1238D-06 0.8278D-04 0.3166D-03 0.7378D-04 -0.4842D-04
-0.1458D-03 -0.2788D-06 0.3769D-05 -0.8630D-06 -0.9434D-06 -0.8719D-06 0.3521D-07 -
0.4153D-07 0.1664D-07 0.1044D-07 -0.2199D-07 -0.1125D-08 -0.1296D-07
25 : 0.1219D-07 0.4557D-06 -0.1520D-06 0.1052D-03 0.3869D-03 0.8666D-04 -0.6652D-04
-0.1832D-03 -0.3470D-06 0.5748D-05 -0.1074D-05 -0.1173D-05 -0.1086D-05 0.4579D-07 -
0.5077D-07 0.2062D-07 0.1320D-07 -0.2943D-07 -0.1141D-08 -0.1706D-07
26 : 0.1012D-07 0.3781D-06 -0.1131D-06 0.7827D-04 0.2867D-03 0.6879D-04 -0.5231D-04
-0.1460D-03 -0.2704D-06 0.4133D-05 -0.8372D-06 -0.9147D-06 -0.8492D-06 0.2909D-07 -
0.3633D-07 0.1808D-07 0.5820D-08 -0.2023D-07 0.7078D-09 -0.1608D-07
27 : 0.6724D-08 0.2508D-06 -0.8579D-07 0.5454D-04 0.1856D-03 0.4232D-04 -0.2448D-04
-0.9238D-04 -0.1741D-06 0.3120D-05 -0.5395D-06 -0.5880D-06 -0.5412D-06 0.2487D-07 -
0.2760D-07 0.1016D-07 0.7521D-08 -0.1513D-07 -0.1626D-08 -0.9020D-08
28 : 0.1620D-07 0.6029D-06 -0.1855D-06 0.1186D-03 0.4299D-03 0.1007D-03 -0.5864D-04
-0.2170D-03 -0.4013D-06 0.4931D-05 -0.1245D-05 -0.1357D-05 -0.1255D-05 0.4757D-07 -
0.5775D-07 0.2310D-07 0.1290D-07 -0.3337D-07 -0.1225D-08 -0.2277D-07
29 : 0.1839D-08 0.6889D-07 -0.1658D-07 0.1329D-04 0.7293D-04 0.2079D-04 -0.8850D-05
-0.2871D-04 -0.5177D-07 0.5196D-06 -0.1604D-06 -0.1747D-06 -0.1627D-06 0.4190D-08 -
0.4957D-08 0.2885D-08 0.8112D-09 -0.1678D-08 0.1029D-08 -0.2577D-08
30 : 0.1466D-08 0.5446D-07 -0.1174D-07 -0.3134D-06 0.8165D-05 0.2452D-04 -0.1077D-04
-0.7850D-05 -0.3763D-07 0.1439D-06 -0.1171D-06 -0.1273D-06 -0.1203D-06 -0.2035D-09 -
0.1918D-08 0.3659D-08 0.2742D-09 -0.4773D-09 0.4391D-08 -0.5337D-08
31 : -0.2638D-09 -0.7412D-08 -0.1327D-07 0.9333D-05 0.4667D-04 0.1082D-04 -0.7150D-05
-0.3153D-04 -0.3546D-07 0.6664D-06 -0.1096D-06 -0.1187D-06 -0.1086D-06 0.7774D-08 -
0.5857D-08 0.6973D-09 0.2148D-08 -0.5676D-08 -0.1114D-08 -0.1624D-08
32 : 0.1028D-08 0.3916D-07 -0.1747D-07 0.1550D-04 0.3121D-04 0.8752D-05 -0.6277D-05
-0.1506D-04 -0.2750D-07 0.2860D-05 -0.8665D-07 -0.9331D-07 -0.8471D-07 0.7168D-08 -
0.5599D-08 -0.7365D-09 0.1082D-08 -0.1544D-08 -0.2609D-08 0.7328D-09
33 : 0.1113D-08 0.4125D-07 -0.1984D-07 0.1976D-04 0.1336D-04 -0.7999D-06 -0.1216D-05
-0.2495D-04 -0.2503D-07 0.8271D-06 -0.7830D-07 -0.8431D-07 -0.7885D-07 0.2906D-08 -
0.1868D-08 0.1080D-08 -0.9466D-10 0.9946D-10 -0.1804D-08 -0.1760D-08
34 : 0.6433D-09 0.2349D-07 -0.1671D-08 0.2102D-04 0.2238D-04 0.1112D-04 -0.5088D-05
-0.5602D-05 -0.7727D-08 0.2171D-06 -0.2564D-07 -0.2515D-07 -0.2464D-07 0.2288D-09 -
0.8165D-09 -0.3996D-09 -0.8712D-09 -0.1839D-08 -0.1655D-08 -0.2913D-08
35 : 0.3704D-09 0.1404D-07 0.5987D-08 0.2983D-06 -0.8250D-05 0.7664D-05 -0.1890D-06
0.3168D-04 -0.1140D-07 -0.8341D-06 -0.3318D-07 -0.3617D-07 -0.3405D-07 0.1030D-08 -
0.4799D-08 0.2999D-09 0.1124D-08 -0.2564D-08 -0.1792D-08 0.2233D-08

21 22 23 24 25 26 27 28 29 30 31
32 33 34 35
21 : 0.3233D-02

22 : -0.1181D-02 0.1596D-01
23 : -0.4107D-05 0.1707D-04 0.4204D-06
24 : -0.6938D-05 0.2660D-04 0.6613D-06 0.1060D-05
25 : -0.8639D-05 0.3088D-04 0.8223D-06 0.1313D-05 0.1638D-05
26 : -0.7467D-05 0.2784D-04 0.6399D-06 0.1025D-05 0.1276D-05 0.1004D-05
27 : -0.4770D-05 0.1716D-04 0.4125D-06 0.6577D-06 0.8180D-06 0.6386D-06 0.4162D-06
28 : -0.1048D-04 0.4258D-04 0.9526D-06 0.1521D-05 0.1888D-05 0.1476D-05 0.9504D-06 0.2215D-05
29 : -0.2075D-05 0.6732D-05 0.1232D-06 0.1979D-06 0.2448D-06 0.1939D-06 0.1223D-06 0.2831D-06 0.4373D-07
30 : -0.1285D-05 0.7264D-05 0.8955D-07 0.1457D-06 0.1802D-06 0.1440D-06 0.8816D-07 0.2089D-06 0.2944D-07 0.3188D-07
31 : -0.9789D-06 0.1945D-05 0.8492D-07 0.1344D-06 0.1652D-06 0.1280D-06 0.8365D-07 0.1897D-06 0.2463D-07 0.1783D-07 0.2748D-07
32 : -0.1961D-06 0.2098D-05 0.6525D-07 0.1029D-06 0.1304D-06 0.9915D-07 0.6528D-07 0.1493D-06 0.1827D-07 0.1264D-07 0.1386D-07 0.2049D-07
33 : -0.1319D-05 0.3340D-05 0.5798D-07 0.9540D-07 0.1188D-06 0.9421D-07 0.5903D-07 0.1391D-06 0.1969D-07 0.1347D-07 0.9740D-08 0.1144D-07 0.1815D-07
34 : -0.6949D-06 0.2511D-05 0.1834D-07 0.2945D-07 0.3613D-07 0.3088D-07 0.1891D-07 0.4312D-07 0.6632D-08 0.6216D-08 0.4459D-08 0.2586D-08 0.3156D-08 0.1330D-07
35 : 0.1185D-07 -0.1479D-05 0.2795D-07 0.4208D-07 0.5176D-07 0.3765D-07 0.2711D-07 0.6279D-07 0.6406D-08 0.3653D-08 0.6327D-08 0.3257D-08 0.6118D-09 -0.2706D-08 0.1336D-07

APPENDIX VI

VPA results for the strategy 3.. VPA analysis for ABFT for the period 1975 – 2023. Data for 2011 – 2023 was simulated using projected Fs and Ns from the 2010 stock assessment

```
   ****************************************
                    VPA-2BOX
          SUMMARY STATISTICS AND DIAGNOSTIC OUTPUT
          ****************************************

Model for strategy 2
14:40, 17  February 2011

=========================================================================
Total objective function =      982.47
     (with constants)   =    -19846.30
Number of parameters (P) =          42
Number of data points (D)=         261
AIC : 2*objective+2P     =    -39608.60
AICc: 2*objective+2P(...)=    -39592.03
BIC : 2*objective+Plog(D)=    -39458.89
Chi-square discrepancy   =       112.79

Loglikelihoods (deviance)=      -989.71 (      758.44)
  effort data          =      -36.17 (      170.01)
  tagging data         =     -953.53 (      588.43)

Log-posteriors         =        6.54
  catchability         =        0.00
  f-ratio              =        0.00
  natural mortality    =        0.00
  mixing coeff.        =        0.00
  initial tag survival =        0.00
  tag shedding rate    =       17.18
  tag reporting rate   =      -10.64
  tag nomixing factor  =        0.00

Constraints            =        0.69
  terminal F           =        0.00
  stock-rec./sex ratio =        0.69

Out of bounds penalty    =        0.00
=========================================================================


TABLE 1. FISHING MORTALITY RATE FOR East of 45
==============================================================================
       1     2     3     4     5     6     7     8     9    10
------------------------------------------------------------------------------
 1975  0.067 0.358 0.144 0.092 0.043 0.103 0.053 0.046 0.060 0.060
 1976  0.009 0.267 0.466 0.121 0.097 0.030 0.067 0.031 0.047 0.047
 1977  0.071 0.235 0.175 0.154 0.023 0.034 0.025 0.062 0.046 0.046
 1978  0.135 0.353 0.177 0.084 0.041 0.011 0.024 0.013 0.036 0.036
 1979  0.017 0.105 0.281 0.092 0.037 0.023 0.017 0.051 0.033 0.033
 1980  0.111 0.241 0.408 0.188 0.030 0.035 0.030 0.016 0.035 0.035
```

1981	0.075	0.440	0.333	0.102	0.088	0.021	0.031	0.046	0.027	0.027
1982	0.242	0.392	0.481	0.172	0.067	0.041	0.022	0.076	0.055	0.055
1983	0.244	0.199	0.323	0.134	0.080	0.060	0.118	0.034	0.057	0.057
1984	0.109	0.452	0.122	0.131	0.130	0.095	0.086	0.117	0.063	0.063
1985	0.093	0.407	0.400	0.115	0.071	0.069	0.037	0.054	0.075	0.045
1986	0.277	0.319	0.244	0.149	0.032	0.046	0.042	0.032	0.072	0.043
1987	0.142	0.395	0.293	0.119	0.047	0.030	0.083	0.062	0.065	0.039
1988	0.339	0.211	0.387	0.163	0.058	0.041	0.049	0.075	0.099	0.060
1989	0.185	0.366	0.168	0.151	0.139	0.033	0.052	0.037	0.078	0.047
1990	0.172	0.239	0.313	0.129	0.163	0.055	0.054	0.074	0.092	0.055
1991	0.074	0.288	0.216	0.134	0.136	0.046	0.048	0.059	0.135	0.081
1992	0.076	0.278	0.350	0.087	0.069	0.061	0.103	0.128	0.157	0.094
1993	0.087	0.467	0.327	0.131	0.059	0.065	0.072	0.095	0.147	0.088
1994	0.114	0.268	0.192	0.081	0.118	0.090	0.181	0.202	0.343	0.206
1995	0.149	0.206	0.262	0.108	0.106	0.165	0.093	0.163	0.193	0.232
1996	0.168	0.433	0.329	0.248	0.119	0.060	0.105	0.082	0.222	0.266
1997	0.162	0.333	0.217	0.188	0.150	0.141	0.089	0.217	0.223	0.268
1998	0.100	0.502	0.359	0.256	0.118	0.266	0.042	0.048	0.145	0.174
1999	0.104	0.129	0.276	0.196	0.105	0.048	0.051	0.066	0.155	0.185
2000	0.269	0.241	0.134	0.165	0.183	0.140	0.055	0.087	0.101	0.121
2001	0.006	0.272	0.128	0.088	0.117	0.099	0.175	0.121	0.141	0.170
2002	0.021	0.292	0.193	0.088	0.042	0.105	0.067	0.114	0.127	0.153
2003	0.009	0.107	0.064	0.046	0.080	0.040	0.155	0.117	0.155	0.186
2004	0.033	0.103	0.117	0.040	0.023	0.055	0.060	0.093	0.157	0.189
2005	0.136	0.137	0.077	0.063	0.040	0.042	0.055	0.038	0.195	0.234
2006	0.136	0.116	0.121	0.037	0.017	0.057	0.030	0.044	0.127	0.153
2007	0.002	0.095	0.041	0.094	0.070	0.046	0.055	0.047	0.129	0.155
2008	0.000	0.096	0.056	0.089	0.047	0.040	0.045	0.057	0.069	0.082
2009	0.000	0.008	0.043	0.097	0.044	0.037	0.061	0.055	0.042	0.051
2010	0.000	0.008	0.010	0.154	0.062	0.074	0.050	0.044	0.036	0.043
2011	0.001	0.034	0.017	0.028	0.013	0.011	0.016	0.016	0.022	0.026
2012	0.001	0.030	0.016	0.026	0.012	0.010	0.014	0.014	0.018	0.022
2013	0.001	0.028	0.014	0.023	0.011	0.009	0.013	0.013	0.017	0.020
2014	0.001	0.026	0.014	0.022	0.010	0.008	0.012	0.012	0.015	0.018
2015	0.001	0.024	0.013	0.021	0.010	0.008	0.011	0.011	0.014	0.017
2016	0.004	0.023	0.012	0.019	0.009	0.008	0.010	0.010	0.013	0.015
2017	0.003	0.148	0.010	0.017	0.008	0.007	0.009	0.009	0.011	0.014
2018	0.009	0.098	0.074	0.016	0.007	0.006	0.008	0.008	0.010	0.012
2019	0.000	0.347	0.049	0.119	0.007	0.006	0.008	0.008	0.010	0.012
2020	0.000	0.007	0.219	0.077	0.055	0.005	0.007	0.007	0.009	0.011
2021	0.000	0.002	0.003	0.456	0.035	0.045	0.007	0.007	0.008	0.010
2022	0.001	0.002	0.001	0.005	0.294	0.029	0.061	0.006	0.008	0.010
2023	0.001	0.029	0.001	0.001	0.002	0.321	0.039	0.062	0.008	0.009

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TABLE 2. ABUNDANCE AT THE BEGINNING OF THE YEAR [BY AREA] FOR East of 45

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	1	2	3	4	5	6	7	8	9	10

1975	1640896.	1306625.	689303.	307117.	318292.	89086.	98166.	82543.	82260.	996794.	
1976	2431348.	940503.	718572.	469456.	220342.	239889.	65785.	78141.	67858.	918149.	
1977	1237566.	1475945.	566546.	354855.	327355.	157267.	190543.	51662.	65230.	849472.	
1978	979553.	706073.	917541.	374188.	239380.	251600.	124483.	155962.	41777.	788727.	
1979	1212444.	524135.	390092.	604852.	270718.	180754.	203673.	101986.	132524.	723745.	
1980	1832896.	730410.	371372.	231644.	434129.	205171.	144556.	168085.	83427.	746842.	
1981	1586091.	1004646.	451645.	194279.	151020.	331385.	162250.	117759.	142360.	723498.	
1982	2538566.	901063.	509036.	254729.	138057.	108786.	265702.	132051.	96782.	759940.	
1983	3853210.	1221265.	479163.	247429.	168638.	101529.	85465.	218202.	105289.	732026.	
1984	1987913.	1849011.	787112.	272806.	170235.	122462.	78307.	63759.	181579.	713543.	
1985	1799123.	1092233.	925828.	548081.	188232.	117565.	91218.	60346.	48820.	756749.	
1986	3134562.	1004661.	572009.	488424.	384412.	137960.	89877.	73817.	49200.	694477.	
1987	2221038.	1456251.	574643.	352670.	330858.	292806.	107863.	72379.	61522.	642368.	
1988	3413817.	1180518.	771904.	337343.	246412.	248311.	232708.	83293.	58525.	609788.	
1989	3400145.	1489552.	751701.	412381.	225501.	183003.	195071.	185962.	66495.	566657.	
1990	3482179.	1731355.	812198.	499716.	278990.	154299.	145008.	155397.	154207.	543668.	
1991	4281074.	1796986.	1072467.	467020.	345580.	186484.	119606.	115384.	124157.	589453.	
1992	3938760.	2434779.	1059944.	679691.	321182.	237202.	145854.	95704.	93603.	587666.	
1993	4256001.	2235809.	1450757.	587656.	490148.	235784.	182779.	110467.	72487.	554704.	
1994	3556054.	2390714.	1102756.	822911.	405690.	363502.	180946.	142814.	86458.	514608.	
1995	4029891.	1943384.	1438533.	715904.	597227.	283702.	272131.	126723.	100452.	433290.	
1996	3615378.	2127524.	1244282.	870545.	505276.	422408.	196847.	208244.	92699.	383871.	
1997	2569068.	1872830.	1085912.	704196.	534583.	352748.	325628.	148736.	165066.	331775.	
1998	4561878.	1337838.	1056402.	687409.	459100.	361893.	250774.	250078.	103013.	346100.	
1999	3687476.	2527943.	636712.	580088.	418680.	321094.	227171.	201854.	205253.	341844.	
2000	4715563.	2034944.	1747900.	379959.	375247.	296489.	250642.	181276.	162627.	412147.	
2001	3557474.	2206961.	1257328.	1202515.	253511.	245706.	211083.	199176.	143026.	460018.	

2002 3651891. 2167014. 1322477. 870409. 866386. 177386. 182249. 148758. 151872. 460905.
2003 4408089. 2190931. 1272488. 858089. 626884. 653642. 130723. 143013. 114213. 476019.
2004 6178876. 2676477. 1548264. 938612. 644820. 455223. 513994. 93962. 109462. 443875.
2005 3119248. 3662526. 1898837. 1083007. 709079. 495810. 352680. 406170. 73693. 415118.
2006 2257945. 1667606. 2511315. 1382712. 799525. 535880. 389146. 280230. 336532. 350697.
2007 1263945. 1206871. 1168351. 1749892. 1047927. 618350. 414348. 317109. 230886. 533917.
2008 4986327. 773153. 863698. 881886. 1253298. 768922. 483382. 329363. 260502. 592577.
2009 5410170. 3054172. 552442. 642505. 634498. 940274. 605008. 388043. 267819. 708544.
2010 5737488. 3313379. 2382496. 416452. 458725. 477398. 742023. 477613. 316191. 835974.
2011 5539148. 3513901. 2586391. 1856007. 280958. 339137. 363066. 592626. 393283. 994140.
2012 5854092. 3390225. 2671188. 1999421. 1419129. 218069. 274557. 299943. 501784. 1216154.
2013 6057035. 3583303. 2587149. 2068793. 1533008. 1103472. 176755. 227288. 254479. 1511806.
2014 6259842. 3707815. 2740869. 2006307. 1589735. 1192930. 895339. 146511. 193122. 1561974.
2015 6177954. 3832195. 2841621. 2126921. 1544231. 1238079. 968475. 742839. 124605. 1555525.
2016 893583. 3782183. 2942977. 2207301. 1638396. 1203230. 1005633. 804149. 632468. 1492449.
2017 1208957. 545040. 2907372. 2288504. 1703301. 1277218. 977702. 835767. 685234. 1881875.
2018 355722. 738483. 369623. 2263196. 1769963. 1329394. 1038664. 813182. 712897. 2277578.
2019 14126115. 215943. 526564. 269976. 1752905. 1382342. 1081863. 864607. 694076. 2657929.
2020 52617549. 8652167. 120068. 394528. 188543. 1369697. 1125454. 901194. 738455. 2983467.
2021 37698713. 32233260. 6758170. 75908. 287209. 140419. 1115625. 938001. 770188. 3316284.
2022 2764770. 23093411. 25315748. 5298183. 37837. 218182. 109921. 930300. 801877. 3643567.
2023 2769575. 1692338. 18120668. 19899229. 4146060. 22176. 173599. 86830. 795704. 3968247.
2024 1695357. 1293795. 14237157. 15635156. 3253848. 13177. 140220. 70275. 4255376.
==========

TABLE 3. CATCH OF East of 45
==========
1 2 3 4 5 6 7 8 9 10

1975 83784. 352022. 82482. 24055. 11863. 7932. 4665. 3441.
4480. 54950.
1976 17501. 196886. 239994. 47505. 18187. 6492. 3896. 2187.
2948. 40376.
1977 67420. 276479. 81061. 45074. 6677. 4738. 4363. 2903.
2778. 36620.
1978 98571. 188169. 132603. 26750. 8539. 2569. 2746. 1850.
1398. 26717.
1979 15968. 46352. 85484. 47174. 8803. 3802. 3158. 4700. 4051.
22395.
1980 153268. 139588. 111494. 35392. 11439. 6346. 3925. 2495.
2715. 24603.
1981 91413. 320656. 114393. 16726. 11334. 6214. 4537. 4938.
3506. 18037.
1982 435146. 261565. 174574. 35996. 8002. 3990. 5295. 9037.
4835. 38429.
1983 666700. 196954. 118435. 27650. 11539. 5339. 8741. 6724.
5468. 38481.
1984 162819. 602874. 80533. 29876. 18523. 10029. 5897. 6546.
10420. 41447.
1985 126331. 327195. 273250. 52930. 11441. 7067. 3014. 2958.
3329. 31801.
1986 605591. 245280. 110492. 60475. 10838. 5638. 3356. 2173.
3201. 27826.
1987 233815. 425594. 130379. 35130. 13521. 7777. 7936. 4073.
3661. 23513.
1988 787367. 200806. 221887. 45198. 12256. 9116. 10264. 5612.
5200. 33542.
1989 457214. 409308. 103865. 51467. 26166. 5342. 9140. 6317.
4674. 24558.
1990 436998. 328718. 195472. 53837. 37392. 7450. 6938. 10362.
12813. 27930.
1991 243244. 401949. 186084. 52344. 39257. 7563. 5140. 6163.
14736. 43603.
1992 229346. 527897. 280116. 50401. 19089. 12662. 13102. 10683.
12770. 50171.
1993 280527. 748303. 362086. 64110. 24965. 13406. 11620. 9313.
9358. 44738.
1994 304847. 502294. 171942. 56713. 40131. 28248. 27583. 24303.
23658. 91143.
1995 443084. 322790. 296579. 65551. 53670. 39327. 22103. 17701.
16646. 85605.
1996 444406. 669904. 312384. 170612. 50658. 22396. 18070. 15305.
17362. 85496.
1997 306609. 474221. 189334. 107589. 66458. 42200. 25467. 27051.
31144. 74425.
1998 345669. 474502. 285613. 138652. 45367. 76858. 9470. 10785.
13079. 52631.
1999 290410. 272684. 137390. 91981. 37213. 13567. 10306. 11996.
27670. 55145.
2000 889625. 389997. 195408. 51453. 56121. 35131. 12280. 14041.
14718. 44863.

2001	15982.	469971.	134430.	90060.	24959.	20977.	31157.	21135.	17744.	68378.
2002	59817.	491266.	206724.	65445.	31542.	16089.	10914.	14936.	17076.	62174.
2003	31034.	198423.	70574.	34139.	42902.	23442.	17278.	14727.	15451.	77055.
2004	158681.	233924.	152822.	33095.	12919.	22189.	27680.	7756.	14995.	72743.
2005	315743.	419028.	125613.	59295.	24776.	18596.	17314.	14100.	12307.	82641.
2006	228908.	162488.	255561.	44959.	11960.	27029.	10456.	11129.	37839.	47308.
2007	1510.	96996.	42050.	139516.	62706.	25349.	20195.	13425.	26398.	73222.
2008	755.	63119.	41758.	67048.	51597.	27174.	19392.	16913.	16230.	44546.
2009	1350.	22619.	20491.	52868.	24566.	30804.	33104.	19219.	10408.	33310.
2010	1350.	22619.	20491.	52868.	24566.	30804.	33104.	19219.	10408.	33310.
2011	4138.	105125.	39701.	46206.	3325.	3438.	5285.	8951.	7954.	24372.
2012	3954.	90136.	36666.	44991.	14528.	1976.	3487.	3976.	8529.	25066.
2013	3706.	88052.	32583.	42548.	14664.	8980.	2041.	2705.	3922.	28258.
2014	3572.	84855.	32934.	38430.	14078.	9098.	9572.	1616.	2753.	27008.
2015	3367.	80876.	31654.	39230.	13011.	8875.	9671.	7446.	1625.	24609.
2016	3087.	76677.	29974.	37334.	13095.	8212.	9202.	7449.	7445.	21315.
2017	2785.	67016.	26931.	34188.	11842.	7790.	8258.	6966.	7282.	24267.
2018	2557.	61544.	23521.	30957.	11261.	7252.	7989.	6298.	6867.	26624.
2019	2416.	56673.	22267.	26995.	10388.	6986.	7633.	6170.	6276.	29168.
2020	1970.	54101.	21047.	26191.	8932.	6407.	7399.	5907.	6183.	30319.
2021	2261.	44913.	20328.	24947.	8758.	5588.	6798.	5902.	6089.	31823.
2022	1846.	51129.	16883.	24464.	8626.	5574.	5955.	5410.	6038.	33302.
2023	1752.	42345.	19288.	20493.	8543.	5541.	6024.	4816.	5594.	33865.

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TABLE 4. SPAWNING STOCK FECUNDITY AND RECRUITMENT OF East of 45

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year	spawning biomass	recruits from VPA

```
--------------------------------
 1975      297497.    1640896.
 1976      295256.    2431348.
 1977      285396.    1237566.
 1978      273375.     979553.
 1979      261857.    1212444.
 1980      257736.    1832896.
 1981      239955.    1586091.
 1982      237753.    2538566.
 1983      214174.    3853210.
 1984      206813.    1987913.
 1985      216987.    1799123.
 1986      213552.    3134562.
 1987      207085.    2221038.
 1988      205171.    3413817.
 1989      206246.    3400145.
 1990      191453.    3482179.
 1991      188531.    4281074.
 1992      192900.    3938760.
 1993      203235.    4256001.
 1994      194197.    3556054.
 1995      192552.    4029891.
 1996      187505.    3615378.
 1997      178075.    2569068.
 1998      178534.    4561878.
 1999      182883.    3687476.
 2000      184689.    4715563.
 2001      180949.    3557474.
 2002      205112.    3651891.
 2003      216752.    4408089.
 2004      224933.    6178876.

# terminal age structure of population
  0.0000D+00  0.8005D-03  0.5000D+01    1.0  0.4000D+01    1
  0.0000D+00  0.2853D-01  0.5000D+01    1.0  0.4000D+01    2
  0.0000D+00  0.1198D-02  0.5000D+01    1.0  0.4000D+01    3
  0.0000D+00  0.1159D-02  0.5000D+01    1.0  0.3000D+01    4
  0.0000D+00  0.2320D-02  0.5000D+01    1.0  0.3000D+01    5
  0.0000D+00  0.3205D+00  0.5000D+01    1.0  0.1000D+00    6
  0.0000D+00  0.3854D-01  0.3000D+01    1.0  0.6000D+01    7
  0.0000D+00  0.6154D-01  0.5000D+01    1.0  0.1000D+00    8
  0.0000D+00  0.7506D-02  0.3000D+01    1.0  0.8000D+01    9
# terminal-age f-ratios
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   10
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   11
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   12
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   13
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   14
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   15
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   16
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   17
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   18
  0.1000D+00  0.1000D+01  0.5000D+01    0.0  0.2000D+00   19
  0.1000D+00  0.6000D+00  0.5000D+01    0.0  0.2000D+00   20
```

```
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   21
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   22
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   23
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   24
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   25
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   26
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   27
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   28
 0.1000D+00  0.6000D+00  0.5000D+01     0.0  0.2000D+00   29
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   30
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   31
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   32
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   33
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   34
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   35
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   36
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   37
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   38
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   39
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   40
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   41
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   42
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   43
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   44
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   45
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   46
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   47
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   48
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   49
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   50
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   51
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   52
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   53
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   54
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   55
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   56
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   57
 0.1000D+00  0.1200D+01  0.5000D+01     0.0  0.2000D+00   58
# natural mortality
 0.0000D+00  0.4900D+00  0.1000D+01     0.0  0.1000D+00   59
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   60
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   61
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   62
 0.0000D+00  0.2400D+00  0.1000D+01     0.0  0.1000D+00   63
 0.0000D+00  0.2000D+00  0.1000D+01     0.0  0.1000D+00   64
 0.0000D+00  0.1750D+00  0.1000D+01     0.0  0.1000D+00   65
 0.0000D+00  0.1500D+00  0.1000D+01     0.0  0.1000D+00   66
 0.0000D+00  0.1250D+00  0.1000D+01     0.0  0.1000D+00   67
 0.0000D+00  0.1000D+00  0.1000D+01     0.0  0.1000D+00   68
# transfer coefficients
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   69
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   70
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   71
 0.0000D+00  0.0000D+00  0.1000D+01     0.0  0.1000D+00   72
```

```
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   73
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   74
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   75
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   76
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   77
 0.0000D+00  0.0000D+00  0.1000D+01    0.0  0.1000D+00   78
# Stock recruitment relationship
 0.0000D+00  0.2507D+06  0.1000D+21    0.0  0.4000D+00   79
 0.0000D+00  0.1660D+05  0.1000D+21    0.0  0.0000D+00   80
 0.0000D+00  0.1580D+00  0.9000D+00    0.0  0.0000D+00   81
 0.0000D+00  0.1000D+01  0.2000D+01    0.0  0.0000D+00   82
 0.0000D+00  0.1000D+01  0.2000D+01    0.0  0.0000D+00   83
# Variance scaling parameters
 0.0000D+00  0.9012D+00  0.1000D+21    1.0  0.4000D+00   84
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   85
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   86
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   87
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   88
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   89
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   90
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   91
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   92
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   93
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   94
 0.0000D+00  0.9012D+00  0.1000D+21   -0.1  0.4000D+00   95
# fraction surviving the intial tagging process
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00   96
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00   97
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00   98
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00   99
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  100
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  101
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  102
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  103
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  104
 0.0000D+00  0.8000D+00  0.1000D+01    0.0  0.1000D+00  105
# tag shedding rate
 0.0000D+00  0.2335D+00  0.1000D+01    2.0  0.1000D+00  106
 0.0000D+00  0.1918D+00  0.1000D+01    2.0  0.1000D+00  107
 0.0000D+00  0.2322D+00  0.1000D+01    2.0  0.1000D+00  108
 0.0000D+00  0.2601D+00  0.1000D+01    2.0  0.1000D+00  109
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  110
 0.0000D+00  0.2603D+00  0.1000D+01    2.0  0.1000D+00  111
 0.0000D+00  0.2600D+00  0.1000D+01    2.0  0.1000D+00  112
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  113
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  114
 0.0000D+00  0.2599D+00  0.1000D+01    2.0  0.1000D+00  115
# tag reporting rate
 0.0000D+00  0.8905D-01  0.1000D+01    1.0  0.1000D+00  116
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  117
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  118
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  119
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  120
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  121
```

```
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  122
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  123
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  124
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  125
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  126
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  127
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  128
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  129
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  130
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  131
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  132
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  133
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  134
 0.0000D+00  0.8905D-01  0.1000D+01   -0.1  0.1000D+00  135
 0.0000D+00  0.1802D+00  0.1000D+01    1.0  0.1000D+00  136  22  *****
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  137
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  138
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  139
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  140
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  141
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  142
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  143
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  144
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  145
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  146
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  147
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  148
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  149
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  150
 0.0000D+00  0.1802D+00  0.1000D+01   -0.1  0.1000D+00  151
 0.0000D+00  0.1775D+00  0.1000D+01    2.0  0.1000D+00  152
 0.0000D+00  0.1594D+00  0.1000D+01    2.0  0.1000D+00  153
 0.0000D+00  0.1458D+00  0.1000D+01    2.0  0.1000D+00  154
 0.0000D+00  0.1606D+00  0.1000D+01    2.0  0.1000D+00  155
 0.0000D+00  0.1767D+00  0.1000D+01    2.0  0.1000D+00  156
 0.0000D+00  0.4223D+00  0.1000D+01    2.0  0.1000D+00  157
 0.0000D+00  0.1930D+00  0.1000D+01    2.0  0.1000D+00  158
 0.0000D+00  0.1949D+00  0.1000D+01    2.0  0.1000D+00  159
 0.0000D+00  0.1962D+00  0.1000D+01    2.0  0.1000D+00  160
 0.0000D+00  0.1971D+00  0.1000D+01    2.0  0.1000D+00  161
 0.0000D+00  0.1980D+00  0.1000D+01    2.0  0.1000D+00  162
 0.0000D+00  0.1985D+00  0.1000D+01    2.0  0.1000D+00  163
 0.0000D+00  0.2309D+00  0.1000D+01    2.0  0.1000D+00  164
# tag nonmixing factor for first year
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  165 1975   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  166 1975   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  167 1975   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  168 1975   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  169 1975   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  170 1975   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  171 1975   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  172 1975   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  173 1975   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  174 1975  10
```

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	175	1976	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	176	1976	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	177	1976	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	178	1976	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	179	1976	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	180	1976	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	181	1976	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	182	1976	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	183	1976	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	184	1976	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	185	1977	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	186	1977	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	187	1977	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	188	1977	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	189	1977	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	190	1977	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	191	1977	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	192	1977	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	193	1977	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	194	1977	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	195	1978	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	196	1978	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	197	1978	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	198	1978	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	199	1978	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	200	1978	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	201	1978	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	202	1978	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	203	1978	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	204	1978	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	205	1979	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	206	1979	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	207	1979	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	208	1979	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	209	1979	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	210	1979	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	211	1979	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	212	1979	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	213	1979	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	214	1979	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	215	1980	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	216	1980	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	217	1980	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	218	1980	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	219	1980	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	220	1980	6
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	222	1980	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	223	1980	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	224	1980	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	225	1981	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	226	1981	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	227	1981	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	228	1981	4

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	229	1981	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	230	1981	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	231	1981	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	232	1981	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	233	1981	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	234	1981	10
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	236	1982	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	237	1982	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	238	1982	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	239	1982	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	240	1982	6
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	249	1983	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	250	1983	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	251	1983	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	252	1983	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	253	1983	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	254	1983	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	255	1984	1
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	257	1984	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	258	1984	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	259	1984	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	260	1984	6
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	262	1984	8
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	310	1989	6
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	327	1991	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	328	1991	4
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	348	1993	4
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0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	356	1994	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	357	1994	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	358	1994	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	359	1994	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	360	1994	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	361	1994	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	362	1994	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	363	1994	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	364	1994	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	365	1995	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	366	1995	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	367	1995	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	368	1995	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	369	1995	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	370	1995	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	371	1995	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	372	1995	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	373	1995	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	374	1995	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	375	1996	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	376	1996	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	377	1996	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	378	1996	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	379	1996	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	380	1996	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	381	1996	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	382	1996	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	383	1996	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	384	1996	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	385	1997	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	386	1997	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	387	1997	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	388	1997	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	389	1997	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	390	1997	6

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	391	1997	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	392	1997	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	393	1997	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	394	1997	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	395	1998	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	396	1998	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	397	1998	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	398	1998	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	399	1998	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	400	1998	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	401	1998	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	402	1998	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	403	1998	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	404	1998	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	405	1999	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	406	1999	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	407	1999	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	408	1999	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	409	1999	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	410	1999	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	411	1999	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	412	1999	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	413	1999	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	414	1999	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	415	2000	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	416	2000	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	417	2000	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	418	2000	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	419	2000	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	420	2000	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	421	2000	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	422	2000	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	423	2000	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	424	2000	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	425	2001	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	426	2001	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	427	2001	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	428	2001	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	429	2001	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	430	2001	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	431	2001	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	432	2001	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	433	2001	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	434	2001	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	435	2002	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	436	2002	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	437	2002	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	438	2002	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	439	2002	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	440	2002	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	441	2002	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	442	2002	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	443	2002	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	444	2002	10

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	445	2003	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	446	2003	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	447	2003	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	448	2003	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	449	2003	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	450	2003	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	451	2003	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	452	2003	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	453	2003	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	454	2003	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	455	2004	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	456	2004	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	457	2004	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	458	2004	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	459	2004	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	460	2004	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	461	2004	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	462	2004	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	463	2004	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	464	2004	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	465	2005	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	466	2005	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	467	2005	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	468	2005	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	469	2005	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	470	2005	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	471	2005	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	472	2005	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	473	2005	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	474	2005	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	475	2006	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	476	2006	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	477	2006	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	478	2006	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	479	2006	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	480	2006	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	481	2006	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	482	2006	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	483	2006	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	484	2006	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	485	2007	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	486	2007	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	487	2007	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	488	2007	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	489	2007	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	490	2007	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	491	2007	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	492	2007	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	493	2007	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	494	2007	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	495	2008	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	496	2008	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	497	2008	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	498	2008	4

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	499	2008	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	500	2008	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	501	2008	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	502	2008	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	503	2008	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	504	2008	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	505	2009	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	506	2009	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	507	2009	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	508	2009	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	509	2009	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	510	2009	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	511	2009	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	512	2009	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	513	2009	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	514	2009	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	515	2010	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	516	2010	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	517	2010	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	518	2010	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	519	2010	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	520	2010	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	521	2010	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	522	2010	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	523	2010	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	524	2010	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	525	2011	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	526	2011	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	527	2011	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	528	2011	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	529	2011	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	530	2011	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	531	2011	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	532	2011	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	533	2011	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	534	2011	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	535	2012	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	536	2012	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	537	2012	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	538	2012	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	539	2012	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	540	2012	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	541	2012	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	542	2012	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	543	2012	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	544	2012	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	545	2013	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	546	2013	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	547	2013	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	548	2013	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	549	2013	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	550	2013	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	551	2013	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	552	2013	8

0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	553	2013	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	554	2013	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	555	2014	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	556	2014	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	557	2014	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	558	2014	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	559	2014	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	560	2014	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	561	2014	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	562	2014	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	563	2014	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	564	2014	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	565	2015	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	566	2015	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	567	2015	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	568	2015	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	569	2015	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	570	2015	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	571	2015	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	572	2015	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	573	2015	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	574	2015	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	575	2016	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	576	2016	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	577	2016	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	578	2016	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	579	2016	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	580	2016	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	581	2016	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	582	2016	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	583	2016	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	584	2016	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	585	2017	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	586	2017	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	587	2017	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	588	2017	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	589	2017	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	590	2017	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	591	2017	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	592	2017	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	593	2017	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	594	2017	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	595	2018	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	596	2018	2
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	597	2018	3
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	598	2018	4
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	599	2018	5
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	600	2018	6
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	601	2018	7
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	602	2018	8
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	603	2018	9
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	604	2018	10
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	605	2019	1
0.0000D+00	0.7863D+00	0.5000D+01	0.0	0.1000D+00	606	2019	2

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 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  607 2019   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  608 2019   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  609 2019   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  610 2019   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  611 2019   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  612 2019   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  613 2019   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  614 2019  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  615 2020   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  616 2020   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  617 2020   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  618 2020   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  619 2020   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  620 2020   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  621 2020   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  622 2020   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  623 2020   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  624 2020  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  625 2021   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  626 2021   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  627 2021   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  628 2021   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  629 2021   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  630 2021   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  631 2021   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  632 2021   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  633 2021   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  634 2021  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  635 2022   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  636 2022   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  637 2022   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  638 2022   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  639 2022   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  640 2022   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  641 2022   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  642 2022   8
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 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  644 2022  10
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  645 2023   1
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  646 2023   2
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  647 2023   3
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  648 2023   4
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  649 2023   5
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  650 2023   6
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  651 2023   7
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  652 2023   8
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  653 2023   9
 0.0000D+00  0.7863D+00  0.5000D+01    0.0  0.1000D+00  654 2023  10
# tag nonmixing factor for second year
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  655 2024   1
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  656 2024   2
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  657 2024   3
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  658 2024   4
 0.0000D+00  0.1000D+01  0.5000D+01    0.0  0.1000D+00  659 2024   5
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0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	660	2024	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	661	2024	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	662	2024	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	663	2024	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	664	2024	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	665	2025	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	666	2025	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	667	2025	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	668	2025	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	669	2025	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	670	2025	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	671	2025	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	672	2025	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	673	2025	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	674	2025	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	675	2026	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	676	2026	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	677	2026	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	678	2026	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	679	2026	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	680	2026	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	681	2026	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	682	2026	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	683	2026	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	684	2026	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	685	2027	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	686	2027	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	687	2027	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	688	2027	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	689	2027	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	690	2027	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	691	2027	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	692	2027	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	693	2027	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	694	2027	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	695	2028	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	696	2028	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	697	2028	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	698	2028	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	699	2028	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	700	2028	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	701	2028	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	702	2028	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	703	2028	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	704	2028	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	705	2029	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	706	2029	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	707	2029	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	708	2029	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	709	2029	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	710	2029	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	711	2029	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	712	2029	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	713	2029	9

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	714	2029	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	715	2030	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	716	2030	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	717	2030	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	718	2030	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	719	2030	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	720	2030	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	721	2030	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	722	2030	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	723	2030	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	724	2030	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	725	2031	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	726	2031	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	727	2031	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	728	2031	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	729	2031	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	730	2031	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	731	2031	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	732	2031	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	733	2031	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	734	2031	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	735	2032	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	736	2032	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	737	2032	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	738	2032	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	739	2032	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	740	2032	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	741	2032	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	742	2032	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	743	2032	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	744	2032	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	745	2033	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	746	2033	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	747	2033	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	748	2033	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	749	2033	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	750	2033	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	751	2033	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	752	2033	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	753	2033	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	754	2033	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	755	2034	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	756	2034	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	757	2034	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	758	2034	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	759	2034	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	760	2034	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	761	2034	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	762	2034	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	763	2034	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	764	2034	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	765	2035	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	766	2035	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	767	2035	3

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	768	2035	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	769	2035	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	770	2035	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	771	2035	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	772	2035	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	773	2035	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	774	2035	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	775	2036	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	776	2036	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	777	2036	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	778	2036	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	779	2036	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	780	2036	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	781	2036	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	782	2036	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	783	2036	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	784	2036	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	785	2037	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	786	2037	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	787	2037	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	788	2037	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	789	2037	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	790	2037	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	791	2037	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	792	2037	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	793	2037	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	794	2037	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	795	2038	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	796	2038	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	797	2038	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	798	2038	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	799	2038	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	800	2038	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	801	2038	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	802	2038	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	803	2038	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	804	2038	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	805	2039	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	806	2039	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	807	2039	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	808	2039	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	809	2039	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	810	2039	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	811	2039	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	812	2039	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	813	2039	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	814	2039	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	815	2040	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	816	2040	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	817	2040	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	818	2040	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	819	2040	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	820	2040	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	821	2040	7

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	822	2040	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	823	2040	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	824	2040	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	825	2041	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	826	2041	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	827	2041	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	828	2041	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	829	2041	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	830	2041	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	831	2041	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	832	2041	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	833	2041	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	834	2041	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	835	2042	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	836	2042	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	837	2042	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	838	2042	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	839	2042	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	840	2042	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	841	2042	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	842	2042	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	843	2042	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	844	2042	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	845	2043	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	846	2043	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	847	2043	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	848	2043	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	849	2043	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	850	2043	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	851	2043	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	852	2043	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	853	2043	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	854	2043	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	855	2044	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	856	2044	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	857	2044	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	858	2044	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	859	2044	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	860	2044	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	861	2044	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	862	2044	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	863	2044	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	864	2044	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	865	2045	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	866	2045	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	867	2045	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	868	2045	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	869	2045	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	870	2045	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	871	2045	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	872	2045	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	873	2045	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	874	2045	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	875	2046	1

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	876	2046	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	877	2046	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	878	2046	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	879	2046	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	880	2046	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	881	2046	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	882	2046	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	883	2046	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	884	2046	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	885	2047	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	886	2047	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	887	2047	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	888	2047	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	889	2047	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	890	2047	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	891	2047	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	892	2047	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	893	2047	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	894	2047	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	895	2048	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	896	2048	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	897	2048	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	898	2048	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	899	2048	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	900	2048	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	901	2048	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	902	2048	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	903	2048	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	904	2048	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	905	2049	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	906	2049	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	907	2049	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	908	2049	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	909	2049	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	910	2049	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	911	2049	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	912	2049	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	913	2049	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	914	2049	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	915	2050	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	916	2050	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	917	2050	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	918	2050	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	919	2050	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	920	2050	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	921	2050	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	922	2050	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	923	2050	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	924	2050	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	925	2051	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	926	2051	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	927	2051	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	928	2051	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	929	2051	5

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	930	2051	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	931	2051	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	932	2051	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	933	2051	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	934	2051	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	935	2052	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	936	2052	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	937	2052	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	938	2052	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	939	2052	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	940	2052	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	941	2052	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	942	2052	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	943	2052	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	944	2052	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	945	2053	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	946	2053	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	947	2053	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	948	2053	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	949	2053	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	950	2053	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	951	2053	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	952	2053	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	953	2053	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	954	2053	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	955	2054	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	956	2054	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	957	2054	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	958	2054	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	959	2054	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	960	2054	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	961	2054	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	962	2054	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	963	2054	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	964	2054	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	965	2055	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	966	2055	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	967	2055	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	968	2055	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	969	2055	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	970	2055	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	971	2055	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	972	2055	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	973	2055	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	974	2055	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	975	2056	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	976	2056	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	977	2056	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	978	2056	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	979	2056	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	980	2056	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	981	2056	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	982	2056	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	983	2056	9

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	984	2056	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	985	2057	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	986	2057	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	987	2057	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	988	2057	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	989	2057	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	990	2057	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	991	2057	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	992	2057	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	993	2057	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	994	2057	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	995	2058	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	996	2058	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	997	2058	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	998	2058	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	999	2058	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1000	2058	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1001	2058	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1002	2058	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1003	2058	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1004	2058	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1005	2059	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1006	2059	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1007	2059	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1008	2059	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1009	2059	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1010	2059	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1011	2059	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1012	2059	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1013	2059	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1014	2059	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1015	2060	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1016	2060	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1017	2060	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1018	2060	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1019	2060	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1020	2060	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1021	2060	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1022	2060	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1023	2060	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1024	2060	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1025	2061	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1026	2061	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1027	2061	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1028	2061	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1029	2061	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1030	2061	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1031	2061	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1032	2061	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1033	2061	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1034	2061	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1035	2062	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1036	2062	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1037	2062	3

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1038	2062	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1039	2062	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1040	2062	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1041	2062	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1042	2062	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1043	2062	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1044	2062	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1045	2063	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1046	2063	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1047	2063	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1048	2063	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1049	2063	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1050	2063	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1051	2063	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1052	2063	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1053	2063	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1054	2063	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1055	2064	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1056	2064	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1057	2064	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1058	2064	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1059	2064	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1060	2064	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1061	2064	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1062	2064	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1063	2064	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1064	2064	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1065	2065	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1066	2065	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1067	2065	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1068	2065	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1069	2065	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1070	2065	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1071	2065	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1072	2065	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1073	2065	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1074	2065	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1075	2066	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1076	2066	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1077	2066	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1078	2066	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1079	2066	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1080	2066	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1081	2066	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1082	2066	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1083	2066	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1084	2066	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1085	2067	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1086	2067	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1087	2067	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1088	2067	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1089	2067	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1090	2067	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1091	2067	7

0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1092	2067	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1093	2067	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1094	2067	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1095	2068	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1096	2068	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1097	2068	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1098	2068	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1099	2068	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1100	2068	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1101	2068	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1102	2068	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1103	2068	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1104	2068	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1105	2069	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1106	2069	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1107	2069	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1108	2069	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1109	2069	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1110	2069	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1111	2069	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1112	2069	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1113	2069	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1114	2069	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1115	2070	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1116	2070	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1117	2070	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1118	2070	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1119	2070	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1120	2070	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1121	2070	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1122	2070	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1123	2070	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1124	2070	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1125	2071	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1126	2071	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1127	2071	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1128	2071	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1129	2071	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1130	2071	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1131	2071	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1132	2071	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1133	2071	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1134	2071	10
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1135	2072	1
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1136	2072	2
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1137	2072	3
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1138	2072	4
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1139	2072	5
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1140	2072	6
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1141	2072	7
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1142	2072	8
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1143	2072	9
0.0000D+00	0.1000D+01	0.5000D+01	0.0	0.1000D+00	1144	2072	10

Number of parameters = 1144

VPA-2BOX
BOOTSTRAP ESTIMATES OF BIAS AND VARIANCE
****

Strategy 2
14:40, 17 February 2011

****
BIAS AND STANDARD ERROR ESTIMATES
****

TABLE 1A. BIAS OF FISHING MORTALITY RATE FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	0.000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1976	0.000	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1977	0.000	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1978	0.000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1979	0.000	0.000	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1980	0.000	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1981	0.000	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1982	-0.001	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000	0.000	0.000
1983	-0.001	-0.001	-0.002	-0.001	0.000	0.000	-0.001	0.000	0.000	0.000
1984	0.000	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000
1985	0.000	-0.002	-0.002	-0.001	0.000	0.000	0.000	0.000	-0.001	0.000
1986	-0.001	-0.001	-0.002	-0.001	0.000	0.000	0.000	0.000	-0.001	0.000
1987	-0.001	-0.001	-0.002	-0.001	0.000	0.000	-0.001	0.000	-0.001	0.000
1988	-0.002	-0.001	-0.002	-0.001	0.000	0.000	0.000	-0.001	-0.001	0.000
1989	-0.002	-0.002	-0.001	-0.001	-0.001	0.000	0.000	0.000	-0.001	0.000
1990	-0.001	-0.003	-0.003	-0.001	-0.001	0.000	0.000	-0.001	-0.001	-0.001
1991	-0.001	-0.003	-0.003	-0.002	-0.001	0.000	0.000	-0.001	-0.001	-0.001
1992	-0.001	-0.005	-0.005	-0.002	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
1993	-0.001	-0.009	-0.007	-0.002	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
1994	-0.002	-0.004	-0.005	-0.002	-0.002	-0.002	-0.003	-0.003	-0.005	-0.003
1995	-0.002	-0.005	-0.005	-0.003	-0.003	-0.004	-0.002	-0.003	-0.003	-0.004
1996	-0.003	-0.009	-0.010	-0.006	-0.004	-0.002	-0.003	-0.002	-0.005	-0.006
1997	-0.004	-0.009	-0.006	-0.007	-0.005	-0.005	-0.003	-0.006	-0.006	-0.008
1998	-0.007	-0.016	-0.013	-0.009	-0.005	-0.010	-0.002	-0.002	-0.005	-0.006
1999	-0.007	-0.010	-0.013	-0.009	-0.005	-0.002	-0.002	-0.003	-0.006	-0.008
2000	-0.020	-0.019	-0.012	-0.009	-0.010	-0.007	-0.003	-0.004	-0.005	-0.006
2001	-0.001	-0.026	-0.012	-0.008	-0.008	-0.006	-0.010	-0.007	-0.008	-0.009
2002	-0.002	-0.032	-0.023	-0.009	-0.004	-0.008	-0.005	-0.007	-0.008	-0.010
2003	-0.001	-0.013	-0.008	-0.006	-0.009	-0.004	-0.013	-0.009	-0.011	-0.014
2004	-0.004	-0.013	-0.016	-0.005	-0.003	-0.007	-0.007	-0.009	-0.014	-0.016
2005	-0.017	-0.017	-0.011	-0.009	-0.006	-0.006	-0.007	-0.004	-0.021	-0.025
2006	-0.018	-0.016	-0.017	-0.005	-0.003	-0.008	-0.004	-0.006	-0.016	-0.019
2007	0.000	-0.014	-0.006	-0.014	-0.011	-0.007	-0.008	-0.007	-0.019	-0.022
2008	0.000	-0.014	-0.009	-0.014	-0.008	-0.006	-0.007	-0.009	-0.011	-0.013
2009	0.000	-0.002	-0.007	-0.016	-0.007	-0.006	-0.010	-0.009	-0.007	-0.008

2010	0.000	-0.001	-0.002	-0.026	-0.011	-0.013	-0.009	-0.008	-0.006	-0.007
2011	0.000	-0.006	-0.003	-0.005	-0.002	-0.002	-0.003	-0.003	-0.004	-0.005
2012	0.000	-0.006	-0.003	-0.005	-0.002	-0.002	-0.003	-0.003	-0.003	-0.004
2013	0.000	-0.005	-0.003	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.004
2014	0.000	-0.005	-0.003	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003
2015	0.000	-0.005	-0.002	-0.004	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003
2016	0.000	-0.005	-0.002	-0.004	-0.002	-0.001	-0.002	-0.002	-0.002	-0.003
2017	0.002	0.005	-0.002	-0.003	-0.002	-0.001	-0.002	-0.002	-0.002	-0.003
2018	-0.001	0.087	0.010	-0.003	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002
2019	0.004	-0.020	0.054	0.034	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002
2020	0.002	0.162	-0.008	0.112	0.030	-0.001	-0.001	-0.001	-0.002	-0.002
2021	0.000	0.084	0.113	0.010	0.070	0.037	-0.001	-0.001	-0.002	-0.002
2022	0.000	-0.010	0.061	0.323	0.056	0.076	0.088	-0.001	-0.002	-0.002
2023	0.000	-0.012	-0.005	0.315	1.111	0.256	0.200	0.491	-0.002	-0.002

TABLE 1B. STANDARD ERROR OF FISHING MORTALITY RATE FOR East of 45

	1	2	3	4	5	6	7	8	9	10
1975	0.406E-04	0.178E-03	0.136E-03	0.857E-04	0.465E-04	0.948E-04	0.531E-04	0.459E-04	0.582E-04	0.582E-04
1976	0.789E-05	0.198E-03	0.347E-03	0.131E-03	0.987E-04	0.337E-04	0.665E-04	0.318E-04	0.489E-04	0.489E-04
1977	0.324E-04	0.201E-03	0.162E-03	0.155E-03	0.282E-04	0.372E-04	0.287E-04	0.653E-04	0.497E-04	0.497E-04
1978	0.813E-04	0.191E-03	0.185E-03	0.882E-04	0.455E-04	0.132E-04	0.273E-04	0.147E-04	0.404E-04	0.404E-04
1979	0.100E-04	0.714E-04	0.208E-03	0.110E-03	0.422E-04	0.269E-04	0.202E-04	0.599E-04	0.392E-04	0.392E-04
1980	0.471E-04	0.166E-03	0.358E-03	0.175E-03	0.350E-04	0.406E-04	0.356E-04	0.194E-04	0.428E-04	0.428E-04
1981	0.439E-04	0.241E-03	0.303E-03	0.115E-03	0.944E-04	0.277E-04	0.373E-04	0.566E-04	0.330E-04	0.330E-04
1982	0.225E-03	0.281E-03	0.415E-03	0.202E-03	0.833E-04	0.466E-04	0.291E-04	0.967E-04	0.703E-04	0.703E-04
1983	0.128E-03	0.231E-03	0.331E-03	0.156E-03	0.106E-03	0.775E-04	0.145E-03	0.451E-04	0.767E-04	0.767E-04
1984	0.842E-04	0.334E-03	0.165E-03	0.167E-03	0.173E-03	0.136E-03	0.120E-03	0.162E-03	0.903E-04	0.903E-04
1985	0.667E-04	0.403E-03	0.447E-03	0.175E-03	0.995E-04	0.997E-04	0.542E-04	0.809E-04	0.115E-03	0.688E-04
1986	0.158E-03	0.282E-03	0.334E-03	0.219E-03	0.533E-04	0.703E-04	0.650E-04	0.516E-04	0.115E-03	0.688E-04
1987	0.167E-03	0.314E-03	0.350E-03	0.194E-03	0.775E-04	0.477E-04	0.133E-03	0.101E-03	0.109E-03	0.655E-04
1988	0.332E-03	0.295E-03	0.452E-03	0.243E-03	0.102E-03	0.697E-04	0.852E-04	0.130E-03	0.175E-03	0.105E-03
1989	0.385E-03	0.511E-03	0.284E-03	0.230E-03	0.242E-03	0.604E-04	0.934E-04	0.680E-04	0.145E-03	0.868E-04
1990	0.280E-03	0.613E-03	0.610E-03	0.252E-03	0.289E-03	0.104E-03	0.104E-03	0.141E-03	0.181E-03	0.108E-03

1991 0.221E-03 0.592E-03 0.693E-03 0.326E-03 0.303E-03 0.919E-04 0.972E-04 0.122E-03 0.282E-03 0.169E-03
1992 0.231E-03 0.976E-03 0.980E-03 0.323E-03 0.185E-03 0.148E-03 0.219E-03 0.281E-03 0.358E-03 0.215E-03
1993 0.244E-03 0.185E-02 0.154E-02 0.461E-03 0.235E-03 0.185E-03 0.187E-03 0.223E-03 0.370E-03 0.222E-03
1994 0.482E-03 0.897E-03 0.104E-02 0.461E-03 0.468E-03 0.383E-03 0.584E-03 0.602E-03 0.994E-03 0.596E-03
1995 0.498E-03 0.101E-02 0.113E-02 0.677E-03 0.663E-03 0.756E-03 0.433E-03 0.619E-03 0.700E-03 0.840E-03
1996 0.721E-03 0.192E-02 0.209E-02 0.137E-02 0.829E-03 0.406E-03 0.548E-03 0.420E-03 0.102E-02 0.122E-02
1997 0.795E-03 0.182E-02 0.131E-02 0.152E-02 0.100E-02 0.111E-02 0.644E-03 0.132E-02 0.132E-02 0.158E-02
1998 0.140E-02 0.338E-02 0.272E-02 0.193E-02 0.109E-02 0.215E-02 0.360E-03 0.368E-03 0.104E-02 0.125E-02
1999 0.144E-02 0.199E-02 0.266E-02 0.191E-02 0.938E-03 0.480E-03 0.474E-03 0.595E-03 0.131E-02 0.157E-02
2000 0.404E-02 0.387E-02 0.231E-02 0.193E-02 0.213E-02 0.140E-02 0.578E-03 0.868E-03 0.983E-03 0.118E-02
2001 0.108E-03 0.516E-02 0.239E-02 0.167E-02 0.156E-02 0.130E-02 0.202E-02 0.138E-02 0.156E-02 0.188E-02
2002 0.462E-03 0.619E-02 0.441E-02 0.181E-02 0.837E-03 0.155E-02 0.958E-03 0.150E-02 0.162E-02 0.195E-02
2003 0.208E-03 0.249E-02 0.157E-02 0.115E-02 0.175E-02 0.837E-03 0.255E-02 0.180E-02 0.229E-02 0.275E-02
2004 0.732E-03 0.250E-02 0.297E-02 0.103E-02 0.590E-03 0.128E-02 0.130E-02 0.170E-02 0.272E-02 0.326E-02
2005 0.320E-02 0.325E-02 0.201E-02 0.172E-02 0.105E-02 0.112E-02 0.133E-02 0.855E-03 0.402E-02 0.482E-02
2006 0.337E-02 0.301E-02 0.318E-02 0.101E-02 0.474E-03 0.156E-02 0.811E-03 0.110E-02 0.305E-02 0.366E-02
2007 0.392E-04 0.256E-02 0.114E-02 0.266E-02 0.197E-02 0.133E-02 0.155E-02 0.131E-02 0.348E-02 0.418E-02
2008 0.603E-05 0.265E-02 0.160E-02 0.258E-02 0.142E-02 0.117E-02 0.132E-02 0.168E-02 0.201E-02 0.241E-02
2009 0.100E-04 0.271E-03 0.124E-02 0.293E-02 0.135E-02 0.114E-02 0.188E-02 0.168E-02 0.130E-02 0.155E-02
2010 0.940E-05 0.252E-03 0.316E-03 0.478E-02 0.199E-02 0.234E-02 0.159E-02 0.140E-02 0.113E-02 0.136E-02
2011 0.305E-04 0.112E-02 0.574E-03 0.940E-03 0.443E-03 0.370E-03 0.523E-03 0.535E-03 0.706E-03 0.847E-03
2012 0.315E-04 0.101E-02 0.520E-03 0.858E-03 0.388E-03 0.335E-03 0.461E-03 0.475E-03 0.602E-03 0.722E-03
2013 0.261E-04 0.946E-03 0.482E-03 0.792E-03 0.367E-03 0.303E-03 0.425E-03 0.432E-03 0.553E-03 0.663E-03
2014 0.240E-04 0.887E-03 0.465E-03 0.743E-03 0.343E-03 0.288E-03 0.398E-03 0.404E-03 0.516E-03 0.619E-03
2015 0.231E-04 0.826E-03 0.435E-03 0.725E-03 0.328E-03 0.274E-03 0.376E-03 0.372E-03 0.477E-03 0.573E-03
2016 0.313E-02 0.798E-03 0.401E-03 0.670E-03 0.315E-03 0.263E-03 0.348E-03 0.347E-03 0.435E-03 0.522E-03
2017 0.331E-02 0.120E+00 0.366E-03 0.595E-03 0.276E-03 0.237E-03 0.323E-03 0.315E-03 0.397E-03 0.476E-03

2018 0.280E-02 0.127E+00 0.744E-01 0.547E-03 0.255E-03 0.214E-03 0.298E-03 0.294E-03 0.362E-03 0.434E-03
2019 0.484E-02 0.115E+00 0.797E-01 0.155E+00 0.238E-03 0.199E-03 0.275E-03 0.274E-03 0.341E-03 0.410E-03
2020 0.412E-02 0.200E+00 0.839E-01 0.171E+00 0.990E-01 0.184E-03 0.258E-03 0.253E-03 0.319E-03 0.383E-03
2021 0.628E-04 0.175E+00 0.152E+00 0.221E+00 0.114E+00 0.107E+00 0.239E-03 0.244E-03 0.303E-03 0.364E-03
2022 0.832E-04 0.211E-02 0.139E+00 0.484E+00 0.211E+00 0.136E+00 0.227E+00 0.226E-03 0.290E-03 0.348E-03
2023 0.808E-04 0.290E-02 0.102E-02 0.964E+00 0.201E+01 0.579E+00 0.480E+00 0.130E+01 0.272E-03 0.326E-03
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TABLE 1C. BIAS OF ABUNDANCE (BY AREA) OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 0.467E+04 0.252E+04 0.283E+04 0.126E+04 0.154E+04 0.377E+03 0.467E+03 0.396E+03 0.389E+03 0.471E+04
1976 0.848E+04 0.286E+04 0.197E+04 0.223E+04 0.994E+03 0.122E+04 0.309E+03 0.392E+03 0.341E+03 0.462E+04
1977 0.241E+04 0.520E+04 0.225E+04 0.155E+04 0.175E+04 0.781E+03 0.996E+03 0.259E+03 0.338E+03 0.440E+04
1978 0.256E+04 0.147E+04 0.408E+04 0.177E+04 0.122E+04 0.138E+04 0.639E+03 0.836E+03 0.223E+03 0.421E+04
1979 0.338E+04 0.156E+04 0.116E+04 0.321E+04 0.139E+04 0.958E+03 0.113E+04 0.536E+03 0.719E+03 0.393E+04
1980 0.335E+04 0.207E+04 0.123E+04 0.910E+03 0.252E+04 0.110E+04 0.785E+03 0.947E+03 0.462E+03 0.413E+04
1981 0.407E+04 0.205E+04 0.163E+04 0.966E+03 0.715E+03 0.198E+04 0.898E+03 0.659E+03 0.815E+03 0.414E+04
1982 0.980E+04 0.249E+04 0.160E+04 0.128E+04 0.760E+03 0.562E+03 0.163E+04 0.754E+03 0.567E+03 0.445E+04
1983 0.838E+04 0.599E+04 0.195E+04 0.126E+04 0.100E+04 0.598E+03 0.460E+03 0.136E+04 0.649E+03 0.451E+04
1984 0.680E+04 0.511E+04 0.471E+04 0.153E+04 0.989E+03 0.788E+03 0.489E+03 0.386E+03 0.117E+04 0.462E+04
1985 0.579E+04 0.416E+04 0.400E+04 0.371E+04 0.121E+04 0.777E+03 0.645E+03 0.411E+03 0.332E+03 0.522E+04
1986 0.732E+04 0.355E+04 0.327E+04 0.314E+04 0.292E+04 0.948E+03 0.636E+03 0.542E+03 0.353E+03 0.506E+04
1987 0.114E+05 0.447E+04 0.279E+04 0.257E+04 0.247E+04 0.229E+04 0.776E+03 0.534E+03 0.466E+03 0.493E+04
1988 0.134E+05 0.699E+04 0.351E+04 0.219E+04 0.202E+04 0.194E+04 0.188E+04 0.652E+03 0.460E+03 0.489E+04
1989 0.307E+05 0.814E+04 0.549E+04 0.275E+04 0.172E+04 0.159E+04 0.159E+04 0.158E+04 0.561E+03 0.485E+04
1990 0.247E+05 0.188E+05 0.639E+04 0.432E+04 0.216E+04 0.135E+04 0.130E+04 0.133E+04 0.136E+04 0.487E+04

1991 0.583E+05 0.151E+05 0.148E+05 0.502E+04 0.339E+04 0.170E+04 0.111E+04 0.109E+04 0.115E+04 0.559E+04
1992 0.551E+05 0.357E+05 0.119E+05 0.116E+05 0.395E+04 0.267E+04 0.139E+04 0.930E+03 0.938E+03 0.608E+04
1993 0.547E+05 0.338E+05 0.281E+05 0.932E+04 0.912E+04 0.310E+04 0.219E+04 0.117E+04 0.801E+03 0.631E+04
1994 0.684E+05 0.335E+05 0.264E+05 0.220E+05 0.733E+04 0.717E+04 0.254E+04 0.183E+04 0.100E+04 0.640E+04
1995 0.601E+05 0.419E+05 0.263E+05 0.208E+05 0.173E+05 0.576E+04 0.587E+04 0.213E+04 0.158E+04 0.667E+04
1996 0.692E+05 0.368E+05 0.329E+05 0.207E+05 0.163E+05 0.136E+05 0.472E+04 0.493E+04 0.183E+04 0.743E+04
1997 0.563E+05 0.423E+05 0.288E+05 0.258E+05 0.163E+05 0.129E+05 0.112E+05 0.396E+04 0.424E+04 0.833E+04
1998 0.319E+06 0.345E+05 0.332E+05 0.227E+05 0.203E+05 0.128E+05 0.105E+05 0.936E+04 0.341E+04 0.113E+05
1999 0.254E+06 0.196E+06 0.270E+05 0.261E+05 0.178E+05 0.160E+05 0.105E+05 0.883E+04 0.806E+04 0.132E+05
2000 0.332E+06 0.156E+06 0.154E+06 0.212E+05 0.205E+05 0.140E+05 0.131E+05 0.878E+04 0.760E+04 0.191E+05
2001 0.368E+06 0.203E+06 0.122E+06 0.121E+06 0.167E+05 0.161E+05 0.115E+05 0.110E+05 0.755E+04 0.239E+05
2002 0.455E+06 0.225E+06 0.159E+06 0.961E+05 0.951E+05 0.131E+05 0.132E+05 0.962E+04 0.945E+04 0.283E+05
2003 0.589E+06 0.279E+06 0.177E+06 0.125E+06 0.756E+05 0.748E+05 0.107E+05 0.111E+05 0.828E+04 0.339E+05
2004 0.772E+06 0.361E+06 0.219E+06 0.139E+06 0.986E+05 0.594E+05 0.613E+05 0.900E+04 0.952E+04 0.380E+05
2005 0.400E+06 0.473E+06 0.284E+06 0.173E+06 0.110E+06 0.776E+05 0.487E+05 0.514E+05 0.775E+04 0.428E+05
2006 0.309E+06 0.245E+06 0.372E+06 0.223E+06 0.136E+06 0.861E+05 0.635E+05 0.409E+05 0.443E+05 0.455E+05
2007 0.203E+06 0.189E+06 0.193E+06 0.292E+06 0.176E+06 0.107E+06 0.705E+05 0.533E+05 0.352E+05 0.802E+05
2008 0.105E+07 0.124E+06 0.149E+06 0.151E+06 0.230E+06 0.138E+06 0.874E+05 0.592E+05 0.459E+05 0.104E+06
2009 0.115E+07 0.641E+06 0.978E+05 0.117E+06 0.119E+06 0.181E+06 0.113E+06 0.734E+05 0.510E+05 0.134E+06
2010 0.121E+07 0.705E+06 0.504E+06 0.769E+05 0.921E+05 0.937E+05 0.148E+06 0.950E+05 0.631E+05 0.166E+06
2011 0.120E+07 0.742E+06 0.555E+06 0.397E+06 0.605E+05 0.725E+05 0.767E+05 0.124E+06 0.817E+05 0.206E+06
2012 0.129E+07 0.733E+06 0.584E+06 0.436E+06 0.312E+06 0.476E+05 0.593E+05 0.644E+05 0.107E+06 0.259E+06
2013 0.136E+07 0.789E+06 0.576E+06 0.459E+06 0.343E+06 0.245E+06 0.389E+05 0.498E+05 0.554E+05 0.329E+06
2014 0.143E+07 0.833E+06 0.621E+06 0.453E+06 0.361E+06 0.270E+06 0.201E+06 0.327E+05 0.429E+05 0.346E+06
2015 0.143E+07 0.878E+06 0.655E+06 0.488E+06 0.357E+06 0.284E+06 0.221E+06 0.169E+06 0.281E+05 0.351E+06
2016 0.118E+07 0.878E+06 0.690E+06 0.515E+06 0.384E+06 0.281E+06 0.233E+06 0.186E+06 0.145E+06 0.342E+06
2017 0.117E+07 0.723E+06 0.690E+06 0.543E+06 0.405E+06 0.302E+06 0.230E+06 0.195E+06 0.160E+06 0.438E+06

2018 0.496E+06 0.716E+06 0.569E+06 0.543E+06 0.427E+06 0.319E+06 0.247E+06 0.193E+06 0.168E+06 0.536E+06
2019 0.104E+08 0.304E+06 0.563E+06 0.447E+06 0.427E+06 0.336E+06 0.261E+06 0.208E+06 0.166E+06 0.635E+06
2020 0.916E+08 0.637E+07 0.239E+06 0.443E+06 0.352E+06 0.336E+06 0.275E+06 0.219E+06 0.179E+06 0.722E+06
2021 0.125E+09 0.561E+08 0.501E+07 0.188E+06 0.349E+06 0.277E+06 0.275E+06 0.231E+06 0.189E+06 0.812E+06
2022 0.779E+06 0.763E+08 0.441E+08 0.394E+07 0.148E+06 0.274E+06 0.227E+06 0.231E+06 0.199E+06 0.902E+06
2023 0.776E+06 0.477E+06 0.600E+08 0.347E+08 0.310E+07 0.116E+06 0.225E+06 0.190E+06 0.199E+06 0.991E+06
2024 0.475E+06 0.375E+06 0.472E+08 0.273E+08 0.244E+07 0.952E+05 0.189E+06 0.164E+06 0.107E+07
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TABLE 1D. STANDARD ERROR OF ABUNDANCE (BY AREA) OF East of 45
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1 2 3 4 5 6 7 8 9 10

1975 0.101E+04 0.546E+03 0.612E+03 0.275E+03 0.335E+03 0.782E+02 0.955E+02 0.803E+02 0.786E+02 0.953E+03
1976 0.185E+04 0.618E+03 0.429E+03 0.481E+03 0.217E+03 0.264E+03 0.640E+02 0.802E+02 0.691E+02 0.935E+03
1977 0.525E+03 0.113E+04 0.485E+03 0.336E+03 0.379E+03 0.170E+03 0.216E+03 0.537E+02 0.690E+02 0.899E+03
1978 0.557E+03 0.323E+03 0.891E+03 0.382E+03 0.264E+03 0.298E+03 0.139E+03 0.181E+03 0.462E+02 0.872E+03
1979 0.731E+03 0.341E+03 0.253E+03 0.700E+03 0.300E+03 0.208E+03 0.244E+03 0.117E+03 0.156E+03 0.853E+03
1980 0.723E+03 0.447E+03 0.268E+03 0.199E+03 0.551E+03 0.236E+03 0.170E+03 0.205E+03 0.101E+03 0.902E+03
1981 0.876E+03 0.444E+03 0.352E+03 0.210E+03 0.156E+03 0.432E+03 0.193E+03 0.143E+03 0.176E+03 0.897E+03
1982 0.212E+04 0.537E+03 0.348E+03 0.276E+03 0.166E+03 0.123E+03 0.354E+03 0.162E+03 0.123E+03 0.964E+03
1983 0.179E+04 0.130E+04 0.421E+03 0.273E+03 0.217E+03 0.130E+03 0.101E+03 0.297E+03 0.140E+03 0.972E+03
1984 0.146E+04 0.110E+04 0.102E+04 0.331E+03 0.214E+03 0.171E+03 0.107E+03 0.843E+02 0.256E+03 0.100E+04
1985 0.125E+04 0.897E+03 0.861E+03 0.801E+03 0.260E+03 0.169E+03 0.140E+03 0.895E+02 0.726E+02 0.114E+04
1986 0.157E+04 0.765E+03 0.702E+03 0.674E+03 0.630E+03 0.204E+03 0.138E+03 0.117E+03 0.770E+02 0.110E+04
1987 0.246E+04 0.962E+03 0.601E+03 0.552E+03 0.530E+03 0.496E+03 0.168E+03 0.116E+03 0.101E+03 0.107E+04
1988 0.288E+04 0.151E+04 0.754E+03 0.472E+03 0.434E+03 0.417E+03 0.405E+03 0.141E+03 0.997E+02 0.106E+04
1989 0.661E+04 0.176E+04 0.118E+04 0.591E+03 0.371E+03 0.341E+03 0.342E+03 0.340E+03 0.121E+03 0.105E+04

1990 0.533E+04 0.405E+04 0.138E+04 0.931E+03 0.465E+03 0.292E+03 0.279E+03 0.287E+03 0.293E+03 0.105E+04
1991 0.126E+05 0.326E+04 0.318E+04 0.108E+04 0.732E+03 0.366E+03 0.239E+03 0.234E+03 0.247E+03 0.120E+04
1992 0.119E+05 0.769E+04 0.256E+04 0.250E+04 0.850E+03 0.576E+03 0.300E+03 0.200E+03 0.202E+03 0.131E+04
1993 0.118E+05 0.727E+04 0.604E+04 0.201E+04 0.197E+04 0.669E+03 0.471E+03 0.251E+03 0.173E+03 0.136E+04
1994 0.147E+05 0.723E+04 0.570E+04 0.474E+04 0.158E+04 0.155E+04 0.548E+03 0.395E+03 0.216E+03 0.138E+04
1995 0.130E+05 0.903E+04 0.567E+04 0.448E+04 0.373E+04 0.124E+04 0.127E+04 0.460E+03 0.340E+03 0.144E+04
1996 0.149E+05 0.793E+04 0.710E+04 0.446E+04 0.352E+04 0.293E+04 0.102E+04 0.106E+04 0.395E+03 0.160E+04
1997 0.121E+05 0.912E+04 0.622E+04 0.557E+04 0.350E+04 0.277E+04 0.240E+04 0.853E+03 0.914E+03 0.180E+04
1998 0.689E+05 0.743E+04 0.716E+04 0.489E+04 0.438E+04 0.275E+04 0.227E+04 0.202E+04 0.734E+03 0.243E+04
1999 0.548E+05 0.422E+05 0.582E+04 0.562E+04 0.384E+04 0.345E+04 0.225E+04 0.190E+04 0.174E+04 0.285E+04
2000 0.716E+05 0.335E+05 0.332E+05 0.457E+04 0.442E+04 0.302E+04 0.282E+04 0.189E+04 0.164E+04 0.411E+04
2001 0.793E+05 0.437E+05 0.264E+05 0.261E+05 0.359E+04 0.347E+04 0.247E+04 0.237E+04 0.163E+04 0.516E+04
2002 0.983E+05 0.486E+05 0.344E+05 0.207E+05 0.205E+05 0.283E+04 0.284E+04 0.207E+04 0.204E+04 0.610E+04
2003 0.127E+06 0.602E+05 0.382E+05 0.270E+05 0.163E+05 0.161E+05 0.231E+04 0.239E+04 0.178E+04 0.732E+04
2004 0.166E+06 0.780E+05 0.474E+05 0.300E+05 0.213E+05 0.128E+05 0.132E+05 0.194E+04 0.205E+04 0.820E+04
2005 0.861E+05 0.102E+06 0.613E+05 0.373E+05 0.236E+05 0.167E+05 0.105E+05 0.111E+05 0.167E+04 0.923E+04
2006 0.665E+05 0.527E+05 0.802E+05 0.482E+05 0.293E+05 0.186E+05 0.137E+05 0.881E+04 0.955E+04 0.982E+04
2007 0.436E+05 0.407E+05 0.415E+05 0.630E+05 0.379E+05 0.231E+05 0.152E+05 0.115E+05 0.758E+04 0.173E+05
2008 0.225E+06 0.267E+05 0.320E+05 0.326E+05 0.496E+05 0.298E+05 0.189E+05 0.128E+05 0.989E+04 0.223E+05
2009 0.247E+06 0.138E+06 0.210E+05 0.252E+05 0.257E+05 0.390E+05 0.244E+05 0.158E+05 0.110E+05 0.290E+05
2010 0.260E+06 0.152E+06 0.108E+06 0.165E+05 0.198E+05 0.202E+05 0.319E+05 0.205E+05 0.136E+05 0.359E+05
2011 0.256E+06 0.159E+06 0.119E+06 0.853E+05 0.130E+05 0.156E+05 0.165E+05 0.268E+05 0.176E+05 0.445E+05
2012 0.277E+06 0.157E+06 0.125E+06 0.938E+05 0.671E+05 0.102E+05 0.128E+05 0.139E+05 0.231E+05 0.558E+05
2013 0.291E+06 0.169E+06 0.123E+06 0.987E+05 0.738E+05 0.528E+05 0.837E+04 0.107E+05 0.119E+05 0.708E+05
2014 0.306E+06 0.178E+06 0.133E+06 0.971E+05 0.776E+05 0.580E+05 0.432E+05 0.703E+04 0.922E+04 0.744E+05
2015 0.305E+06 0.187E+06 0.140E+06 0.105E+06 0.764E+05 0.611E+05 0.475E+05 0.363E+05 0.605E+04 0.754E+05
2016 0.333E+07 0.187E+06 0.147E+06 0.110E+06 0.825E+05 0.601E+05 0.500E+05 0.399E+05 0.312E+05 0.736E+05

2017 0.459E+07 0.204E+07 0.147E+06 0.116E+06 0.868E+05 0.649E+05 0.492E+05 0.420E+05 0.343E+05 0.942E+05
2018 0.302E+07 0.281E+07 0.160E+07 0.116E+06 0.912E+05 0.683E+05 0.531E+05 0.413E+05 0.361E+05 0.115E+06
2019 0.577E+08 0.185E+07 0.221E+07 0.126E+07 0.910E+05 0.717E+05 0.559E+05 0.446E+05 0.355E+05 0.136E+06
2020 0.168E+09 0.353E+08 0.145E+07 0.174E+07 0.992E+06 0.716E+05 0.587E+05 0.469E+05 0.384E+05 0.155E+06
2021 0.673E+09 0.103E+09 0.278E+08 0.114E+07 0.137E+07 0.780E+06 0.586E+05 0.493E+05 0.404E+05 0.174E+06
2022 0.254E+06 0.412E+09 0.809E+08 0.219E+08 0.899E+06 0.108E+07 0.639E+06 0.492E+05 0.424E+05 0.193E+06
2023 0.255E+06 0.156E+06 0.324E+09 0.636E+08 0.172E+08 0.707E+06 0.882E+06 0.536E+06 0.424E+05 0.211E+06
2024 0.156E+06 0.122E+06 0.255E+09 0.501E+08 0.135E+08 0.579E+06 0.740E+06 0.462E+06 0.228E+06

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TABLE 1E. PARAMETER ESTIMATES FOR East of 45

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TERMINAL AGE STRUCTURE OF POPULATION ABUNDANCE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
2	0.170E+07	0.162E+07	0.475E+06	0.156E+06	9.6
3	0.129E+07	0.124E+07	0.375E+06	0.122E+06	9.9
4	0.142E+08	0.500E+08	0.472E+08	0.255E+09	510.0
5	0.156E+08	0.345E+08	0.273E+08	0.501E+08	144.9
6	0.325E+07	0.561E+07	0.244E+07	0.135E+08	241.1
7	0.132E+05	0.107E+06	0.952E+05	0.579E+06	542.5
8	0.140E+06	0.483E+06	0.189E+06	0.740E+06	153.2
9	0.703E+05	0.224E+06	0.164E+06	0.462E+06	206.4
10	0.426E+07	0.522E+07	0.107E+07	0.228E+06	4.4

TERMINAL AGE STRUCTURE OF FISHING MORTALITY RATE

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.800E-03	0.843E-03	-0.337E-03	0.808E-04	9.6
2	0.285E-01	0.300E-01	-0.123E-01	0.290E-02	9.7
3	0.120E-02	0.135E-02	-0.470E-02	0.102E-02	75.9
4	0.116E-02	0.317E+00	0.315E+00	0.964E+00	303.9
5	0.232E-02	0.111E+01	0.111E+01	0.201E+01	180.5
6	0.321E+00	0.615E+00	0.256E+00	0.579E+00	94.2
7	0.385E-01	0.219E+00	0.200E+00	0.480E+00	219.3
8	0.615E-01	0.563E+00	0.491E+00	0.130E+01	231.1
9	0.751E-02	0.614E-02	-0.157E-02	0.272E-03	4.4
10	0.901E-02	0.737E-02	-0.188E-02	0.326E-03	4.4

RATIO OF FISHING MORTALITY RATE ON LAST TWO AGES (F-RATIO)

Average of Std.

Year	MLE	bootstraps	Bias	Error	% CV
1975	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1976	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1977	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1978	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1979	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1980	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1981	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1982	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1983	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1984	0.100E+01	0.100E+01	0.000E+00	0.000E+00	0.0
1985	0.600E+00	0.600E+00	0.000E+00	0.243E-07	0.0
1986	0.600E+00	0.600E+00	0.000E+00	0.258E-07	0.0
1987	0.600E+00	0.600E+00	0.000E+00	0.256E-07	0.0
1988	0.600E+00	0.600E+00	0.000E+00	0.160E-07	0.0
1989	0.600E+00	0.600E+00	0.000E+00	0.226E-07	0.0
1990	0.600E+00	0.600E+00	0.000E+00	0.182E-07	0.0
1991	0.600E+00	0.600E+00	0.000E+00	0.247E-07	0.0
1992	0.600E+00	0.600E+00	0.000E+00	0.239E-07	0.0
1993	0.600E+00	0.600E+00	0.000E+00	0.216E-07	0.0
1994	0.600E+00	0.600E+00	0.000E+00	0.216E-07	0.0
1995	0.120E+01	0.120E+01	0.000E+00	0.352E-07	0.0
1996	0.120E+01	0.120E+01	0.000E+00	0.493E-07	0.0
1997	0.120E+01	0.120E+01	0.000E+00	0.441E-07	0.0
1998	0.120E+01	0.120E+01	0.000E+00	0.518E-07	0.0
1999	0.120E+01	0.120E+01	0.000E+00	0.450E-07	0.0
2000	0.120E+01	0.120E+01	0.000E+00	0.314E-07	0.0
2001	0.120E+01	0.120E+01	0.000E+00	0.514E-07	0.0
2002	0.120E+01	0.120E+01	0.000E+00	0.408E-07	0.0
2003	0.120E+01	0.120E+01	0.000E+00	0.481E-07	0.0
2004	0.120E+01	0.120E+01	0.000E+00	0.492E-07	0.0
2005	0.120E+01	0.120E+01	0.000E+00	0.393E-07	0.0
2006	0.120E+01	0.120E+01	0.000E+00	0.407E-07	0.0
2007	0.120E+01	0.120E+01	0.000E+00	0.425E-07	0.0
2008	0.120E+01	0.120E+01	0.000E+00	0.465E-07	0.0
2009	0.120E+01	0.120E+01	0.000E+00	0.447E-07	0.0
2010	0.120E+01	0.120E+01	0.000E+00	0.421E-07	0.0
2011	0.120E+01	0.120E+01	0.000E+00	0.516E-07	0.0
2012	0.120E+01	0.120E+01	0.000E+00	0.444E-07	0.0
2013	0.120E+01	0.120E+01	0.000E+00	0.450E-07	0.0
2014	0.120E+01	0.120E+01	0.000E+00	0.389E-07	0.0
2015	0.120E+01	0.120E+01	0.000E+00	0.352E-07	0.0
2016	0.120E+01	0.120E+01	0.000E+00	0.417E-07	0.0
2017	0.120E+01	0.120E+01	0.000E+00	0.482E-07	0.0
2018	0.120E+01	0.120E+01	0.000E+00	0.472E-07	0.0
2019	0.120E+01	0.120E+01	0.000E+00	0.479E-07	0.0
2020	0.120E+01	0.120E+01	0.000E+00	0.406E-07	0.0
2021	0.120E+01	0.120E+01	0.000E+00	0.469E-07	0.0
2022	0.120E+01	0.120E+01	0.000E+00	0.406E-07	0.0
2023	0.120E+01	0.120E+01	0.000E+00	0.338E-07	0.0

NATURAL MORTALITY RATE

Average of Std.

Age	MLE	bootstraps	Bias	Error	% CV
1	0.490E+00	0.490E+00	0.000E+00	0.000E+00	0.0
2	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
3	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
4	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
5	0.240E+00	0.240E+00	0.000E+00	0.000E+00	0.0
6	0.200E+00	0.200E+00	0.000E+00	0.000E+00	0.0
7	0.175E+00	0.175E+00	0.000E+00	0.000E+00	0.0
8	0.150E+00	0.150E+00	0.000E+00	0.000E+00	0.0
9	0.125E+00	0.125E+00	0.000E+00	0.000E+00	0.0
10	0.100E+00	0.100E+00	0.000E+00	0.000E+00	0.0

TRANSFER COEFFICIENTS

Age	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
7	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

VARIANCE SCALING PARAMETERS

Index	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
2	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
3	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
4	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
5	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
6	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
7	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
8	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
9	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
10	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
11	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6
12	0.901E+00	0.891E+00	-0.991E-02	0.855E-01	9.6

CATCHABILITY COEFFICIENTS

Index	Year	MLE	Average of bootstraps	Bias	Std. Error	% CV
1	1975	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1976	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1977	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1978	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2

1	1979	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1980	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1981	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1982	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1983	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1984	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1985	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1986	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1987	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1988	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1989	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1990	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1991	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1992	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1993	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1994	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1995	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1996	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1997	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1998	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	1999	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2000	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2001	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2002	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2003	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2004	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2005	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2006	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2007	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2008	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2009	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2010	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2011	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2012	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2013	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2014	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2015	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2016	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2017	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2018	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2019	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2020	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2021	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2022	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
1	2023	0.131E-05	0.126E-05	-0.226E-06	0.103E-06	8.2
2	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

2	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
2	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
3	1975	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1976	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1977	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1978	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1979	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1980	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1981	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1982	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1983	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1984	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1985	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1986	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1987	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1988	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0

3	1989	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1990	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1991	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1992	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1993	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1994	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1995	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1996	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1997	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1998	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	1999	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2000	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2001	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2002	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2003	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2004	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2005	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2006	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2007	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2008	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2009	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2010	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2011	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2012	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2013	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2014	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2015	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2016	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2017	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2018	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2019	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2020	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2021	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2022	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
3	2023	0.838E-06	0.809E-06	-0.430E-06	0.145E-06	18.0
4	1975	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1976	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1977	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1978	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1979	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1980	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1981	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1982	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1983	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1984	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1985	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1986	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1987	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1988	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1989	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1990	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1991	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1992	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1993	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0

4	1994	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1995	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1996	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1997	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1998	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	1999	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2000	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2001	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2002	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2003	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2004	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2005	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2006	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2007	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2008	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2009	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2010	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2011	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2012	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2013	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2014	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2015	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2016	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2017	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2018	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2019	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2020	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2021	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2022	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
4	2023	0.140E-05	0.135E-05	-0.901E-06	0.230E-06	17.0
5	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

5	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
5	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

6	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
6	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
7	1975	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1976	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1977	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1978	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1979	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1980	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1981	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1982	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1983	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1984	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1985	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1986	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1987	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1988	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1989	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1990	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1991	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1992	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1993	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1994	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1995	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1996	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1997	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1998	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	1999	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2000	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2001	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2002	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2003	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2004	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2005	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2006	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2007	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2008	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1

7	2009	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2010	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2011	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2012	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2013	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2014	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2015	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2016	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2017	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2018	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2019	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2020	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2021	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2022	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
7	2023	0.119E-05	0.115E-05	-0.160E-06	0.814E-07	7.1
8	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

8	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
8	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

9	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
9	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1975	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1976	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1977	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1978	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1979	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1980	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1981	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1982	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1983	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1984	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1985	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1986	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1987	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1988	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1989	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1990	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1991	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1992	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1993	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1994	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1995	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1996	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1997	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1998	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	1999	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2001	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2002	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2003	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2004	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2005	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2006	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2007	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2008	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2009	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2010	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2011	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2012	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2013	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2014	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2015	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2016	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2017	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2018	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2019	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2020	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2021	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2022	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0
10	2023	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.0

11	1975	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1976	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1977	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1978	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1979	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1980	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1981	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1982	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1983	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1984	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1985	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1986	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1987	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1988	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1989	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1990	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1991	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1992	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1993	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1994	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1995	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1996	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1997	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1998	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	1999	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2000	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2001	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2002	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2003	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2004	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2005	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2006	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2007	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2008	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2009	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2010	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2011	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2012	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2013	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2014	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2015	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2016	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2017	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2018	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2019	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2020	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2021	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2022	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
11	2023	0.473E-08	0.527E-08	-0.104E-08	0.171E-08	32.4
12	1975	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1976	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1977	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1978	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1979	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5

12	1980	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1981	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1982	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1983	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1984	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1985	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1986	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1987	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1988	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1989	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1990	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1991	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1992	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1993	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1994	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1995	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1996	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1997	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1998	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	1999	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2000	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2001	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2002	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2003	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2004	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2005	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2006	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2007	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2008	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2009	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2010	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2011	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2012	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2013	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2014	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2015	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2016	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2017	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2018	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2019	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2020	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2021	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2022	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5
12	2023	0.668E-06	0.767E-06	0.152E-07	0.188E-06	24.5

****
CORRELATION AND COVARIANCE MATRICES OF PARAMETERS
****

TABLE 2A. CORRELATION MATRIX

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 :	1.0																			
2 :	1.0	1.0																		
3 :	0.2	0.2	1.0																	
4 :	0.0	0.0	-0.2	1.0																
5 :	0.0	0.0	-0.1	0.3	1.0															
6 :	0.1	0.1	-0.1	-0.1	-0.2	1.0														
7 :	0.1	0.1	-0.1	-0.1	0.0	-0.2	1.0													
8 :	0.1	0.1	0.1	-0.1	-0.1	0.3	0.0	1.0												
9 :	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.1	0.1	1.0											
10 :	-0.1	-0.1	-0.1	0.1	0.0	0.1	-0.1	-0.2	0.0	1.0										
11 :	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.1	0.1	1.0	-0.1	1.0									
12 :	-0.1	-0.1	0.1	-0.1	-0.2	-0.1	0.1	0.1	1.0	-0.1	1.0	1.0								
13 :	-0.1	-0.1	0.1	-0.1	-0.2	-0.1	0.1	0.1	1.0	-0.1	1.0	1.0	1.0							
14 :	0.0	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1	-0.2	0.2	-0.2	-0.2	-0.2	1.0						
15 :	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.3	-0.2	0.3	0.3	0.3	-0.3	1.0					
16 :	0.0	0.0	0.1	-0.1	-0.2	0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0.1	1.0				
17 :	0.1	0.1	0.0	0.0	0.1	0.0	-0.2	0.1	-0.1	0.2	-0.1	-0.1	-0.1	0.3	-0.3	-0.1	1.0			
18 :	0.0	0.0	-0.1	-0.2	0.0	0.0	0.1	-0.1	0.2	0.0	0.2	0.2	0.2	-0.2	0.3	0.1	-0.2	1.0		
19 :	0.1	0.1	-0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	-0.1	0.0	0.1	1.0	
20 :	0.0	0.0	0.1	0.1	0.2	-0.2	0.1	-0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	-0.1	1.0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21 :	-0.1	-0.1	0.1	-0.1	0.1	0.1	-0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	-0.1	-0.1	0.0
22 :	0.2	0.2	-0.2	0.0	0.1	0.3	-0.1	0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	0.1	-0.2	0.1	0.2	-0.2
23 :	0.1	0.1	-0.1	0.1	0.2	0.1	-0.1	-0.1	-1.0	0.0	-1.0	-1.0	-1.0	0.3	-0.4	0.1	0.1	-0.2	0.0	-0.1
24 :	0.1	0.1	-0.1	0.1	0.2	0.1	-0.1	-0.1	-1.0	0.0	-1.0	-1.0	-1.0	0.2	-0.3	0.1	0.1	-0.2	0.0	-0.1
25 :	0.1	0.1	-0.1	0.1	0.2	0.1	-0.1	-0.1	-1.0	0.1	-1.0	-1.0	-1.0	0.2	-0.3	0.1	0.1	-0.2	0.0	-0.1
26 :	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.1	-1.0	0.0	-1.0	-1.0	-1.0	0.2	-0.3	0.2	0.0	-0.2	0.0	-0.1
27 :	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.1	-1.0	0.1	-1.0	-1.0	-1.0	0.2	-0.4	0.1	0.1	-0.2	0.0	-0.1
28 :	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.1	-1.0	0.0	-1.0	-1.0	-1.0	0.2	-0.3	0.1	0.1	-0.2	0.0	-0.1
29 :	0.1	0.1	-0.1	0.1	0.2	0.2	-0.1	-0.1	-0.9	0.0	-0.9	-0.9	-0.9	0.1	-0.2	0.1	0.0	-0.1	0.0	-0.1
30 :	0.1	0.1	-0.1	0.0	0.0	0.2	-0.1	0.0	-0.8	0.0	-0.8	-0.8	-0.8	0.0	-0.1	0.2	0.0	0.0	0.2	-0.2
31 :	0.0	0.0	-0.1	0.1	0.1	0.1	-0.1	-0.1	-0.8	0.0	-0.8	-0.8	-0.8	0.3	-0.3	0.0	0.1	-0.3	-0.1	-0.1
32 :	0.1	0.1	-0.1	0.1	0.1	0.1	-0.1	-0.1	-0.7	0.2	-0.7	-0.7	-0.7	0.3	-0.3	0.0	0.1	-0.1	-0.1	0.0
33 :	0.1	0.1	-0.1	0.2	0.0	0.0	0.0	-0.1	-0.7	0.1	-0.7	-0.7	-0.7	0.1	-0.1	0.1	0.0	0.0	-0.1	-0.1
34 :	0.1	0.1	0.0	0.2	0.1	0.2	-0.1	0.0	-0.2	0.0	-0.3	-0.2	-0.2	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.2
35 :	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2	-0.4	-0.1	-0.3	-0.3	-0.3	0.1	-0.3	0.0	0.1	-0.2	-0.1	0.2

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
21 :	1.0														
22 :	-0.2	1.0													
23 :	-0.1	0.2	1.0												
24 :	-0.1	0.2	1.0	1.0											
25 :	-0.1	0.2	1.0	1.0	1.0										
26 :	-0.1	0.2	1.0	1.0	1.0	1.0									
27 :	-0.1	0.2	1.0	1.0	1.0	1.0	1.0								
28 :	-0.1	0.2	1.0	1.0	1.0	1.0	1.0	1.0							
29 :	-0.2	0.3	0.9	0.9	0.9	0.9	0.9	0.9	1.0						
30 :	-0.1	0.3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0					

31 : -0.1 0.1 0.8 0.8 0.8 0.8 0.8 0.8 0.7 0.6 1.0
32 : 0.0 0.1 0.7 0.7 0.7 0.7 0.7 0.7 0.6 0.5 0.6 1.0
33 : -0.2 0.2 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.6 0.4 0.6 1.0
34 : -0.1 0.2 0.2 0.2 0.2 0.3 0.3 0.3 0.3 0.3 0.2 0.2 0.2 1.0
35 : 0.0 -0.1 0.4 0.4 0.3 0.3 0.4 0.4 0.3 0.2 0.3 0.2 0.0 -0.2 1.0

TABLE 2B. COVARIANCE MATRIX
==========
==========
==========
==========
1 2 3 4 5 6 7 8 9 10 11 12
13 14 15 16 17 18 19 20
1 : 0.6525D-08
2 : 0.2346D-06 0.8438D-05
3 : 0.1368D-07 0.4896D-06 0.1045D-05
4 : 0.1830D-06 0.2782D-05 -0.1970D-03 0.9284D+00
5 : 0.8884D-06 0.2029D-04 -0.1981D-03 0.6663D+00 0.4039D+01
6 : 0.4541D-05 0.1688D-03 -0.7324D-04 -0.5043D-01 -0.1971D+00 0.3355D+00
7 : 0.2084D-05 0.7300D-04 -0.5919D-04 -0.4486D-01 -0.3743D-01 -0.5593D-01 0.2305D+00
8 : 0.1401D-04 0.5063D-03 0.1526D-03 -0.1421D+00 -0.2575D+00 0.2176D+00 0.1581D-01
0.1694D+01
9 : -0.2445D-08 -0.9150D-07 0.3274D-07 -0.2255D-04 -0.8144D-04 -0.1759D-04 0.1326D-04
0.4128D-04 0.7383D-07
10 : -0.4437D-06 -0.1587D-04 -0.1306D-04 0.1090D-01 -0.1717D-02 0.3286D-02 -0.4792D-02
-0.1787D-01 -0.1078D-05 0.7310D-02
11 : -0.7269D-08 -0.2730D-06 0.8156D-07 -0.6508D-04 -0.2186D-03 -0.5002D-04 0.4570D-04
0.1456D-03 0.2282D-06 -0.4273D-05 0.7167D-06
12 : -0.8661D-08 -0.3244D-06 0.1096D-06 -0.6879D-04 -0.2893D-03 -0.5706D-04 0.4759D-04
0.1518D-03 0.2492D-06 -0.4624D-05 0.7728D-06 0.8495D-06
13 : -0.8091D-08 -0.3027D-06 0.1001D-06 -0.8354D-04 -0.2605D-03 -0.4670D-04 0.4206D-04
0.1132D-03 0.2304D-06 -0.3768D-05 0.7117D-06 0.7777D-06 0.7307D-06
14 : 0.1348D-09 0.7337D-08 -0.6601D-09 0.1177D-04 -0.1974D-05 0.3218D-05 -0.5564D-05
-0.1479D-04 -0.9858D-08 0.2571D-05 -0.3176D-07 -0.3425D-07 -0.2481D-07 0.2520D-07
15 : -0.9356D-09 -0.3510D-07 0.1261D-07 -0.1089D-04 -0.1579D-04 -0.6267D-05 -0.3748D-05
-0.1976D-04 0.1083D-07 -0.1899D-05 0.3419D-07 0.3735D-07 0.3085D-07 -0.6339D-08
0.1445D-07
16 : -0.1214D-09 -0.5830D-08 0.7132D-08 -0.1098D-04 -0.4995D-04 0.6682D-05 -0.8517D-06
-0.5299D-05 -0.4490D-08 -0.1118D-05 -0.1082D-07 -0.1312D-07 -0.1539D-07 -0.1932D-08
0.1211D-08 0.1240D-07
17 : 0.6447D-09 0.2310D-07 -0.4075D-08 0.6068D-05 0.2383D-04 0.2065D-05 -0.1194D-04
0.9703D-05 -0.2727D-08 0.1747D-05 -0.9880D-08 -0.1241D-07 -0.6279D-08 0.6211D-08 -
0.4186D-08 -0.1464D-08 0.1694D-07
18 : 0.1261D-10 -0.6875D-09 -0.1962D-07 -0.2017D-04 0.9830D-05 0.3231D-05 0.5192D-05
-0.1383D-04 0.6457D-08 -0.4696D-06 0.2297D-07 0.2181D-07 0.2006D-07 -0.4517D-08
0.4447D-08 0.1831D-08 -0.4245D-08 0.1786D-07
19 : 0.1246D-08 0.4422D-07 -0.7851D-08 -0.5471D-05 0.5386D-04 -0.1247D-05 -0.1317D-05
0.1053D-04 0.8947D-09 -0.4852D-06 0.1522D-08 0.1210D-08 0.8492D-10 -0.3855D-08 -
0.3757D-09 -0.1204D-08 0.8314D-09 0.1254D-08 0.1704D-07
20 : 0.6917D-10 0.2043D-08 0.1847D-07 0.1648D-04 0.4903D-04 -0.1577D-04 0.4037D-05
-0.1011D-04 0.3675D-08 0.2737D-06 0.1302D-07 0.1158D-07 0.1231D-07 0.8012D-09 -
0.4992D-09 0.3591D-09 -0.2734D-09 0.9173D-09 -0.1565D-08 0.1457D-07

1 2 3 4 5 6 7 8 9 10 11 12
13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31
32 33 34 35
21 : -0.2797D-06 -0.9694D-05 0.5306D-05 -0.3132D-02 0.1339D-01 0.2403D-02 -0.4583D-02
0.2722D-02 0.1797D-05 0.5844D-03 0.5524D-05 0.4609D-05 0.5274D-05 0.7141D-07
0.1153D-06 -0.1504D-07 0.2021D-05 -0.9309D-06 -0.4997D-06 0.1576D-06
22 : 0.1881D-05 0.6862D-04 -0.2647D-04 -0.5901D-02 0.1522D-01 0.2270D-01 -0.3097D-02
0.1218D-01 -0.6842D-05 -0.2001D-02 -0.2070D-04 -0.2128D-04 -0.2036D-04 -0.2590D-05 -
0.2723D-06 0.1417D-05 -0.3171D-05 0.1137D-05 0.3662D-05 -0.2519D-05
23 : 0.5703D-08 0.2140D-06 -0.8005D-07 0.6427D-04 0.2181D-03 0.4632D-04 -0.3546D-04
-0.9389D-04 -0.1749D-06 0.2380D-05 -0.5413D-06 -0.5902D-06 -0.5441D-06 0.2712D-07 -
0.2768D-07 0.9643D-08 0.7908D-08 -0.1575D-07 -0.8826D-09 -0.8148D-08
24 : 0.9959D-08 0.3721D-06 -0.1238D-06 0.8278D-04 0.3166D-03 0.7378D-04 -0.4842D-04
-0.1458D-03 -0.2788D-06 0.3769D-05 -0.8630D-06 -0.9434D-06 -0.8719D-06 0.3521D-07 -
0.4153D-07 0.1664D-07 0.1044D-07 -0.2199D-07 -0.1125D-08 -0.1296D-07
25 : 0.1219D-07 0.4557D-06 -0.1520D-06 0.1052D-03 0.3869D-03 0.8666D-04 -0.6652D-04
-0.1832D-03 -0.3470D-06 0.5748D-05 -0.1074D-05 -0.1173D-05 -0.1086D-05 0.4579D-07 -
0.5077D-07 0.2062D-07 0.1320D-07 -0.2943D-07 -0.1141D-08 -0.1706D-07
26 : 0.1012D-07 0.3781D-06 -0.1131D-06 0.7827D-04 0.2867D-03 0.6879D-04 -0.5231D-04
-0.1460D-03 -0.2704D-06 0.4133D-05 -0.8372D-06 -0.9147D-06 -0.8492D-06 0.2909D-07 -
0.3633D-07 0.1808D-07 0.5820D-08 -0.2023D-07 0.7078D-09 -0.1608D-07
27 : 0.6724D-08 0.2508D-06 -0.8579D-07 0.5454D-04 0.1856D-03 0.4232D-04 -0.2448D-04
-0.9238D-04 -0.1741D-06 0.3120D-05 -0.5395D-06 -0.5880D-06 -0.5412D-06 0.2487D-07 -
0.2760D-07 0.1016D-07 0.7521D-08 -0.1513D-07 -0.1626D-08 -0.9020D-08
28 : 0.1620D-07 0.6029D-06 -0.1855D-06 0.1186D-03 0.4299D-03 0.1007D-03 -0.5864D-04
-0.2170D-03 -0.4013D-06 0.4931D-05 -0.1245D-05 -0.1357D-05 -0.1255D-05 0.4757D-07 -
0.5775D-07 0.2310D-07 0.1290D-07 -0.3337D-07 -0.1225D-08 -0.2277D-07
29 : 0.1839D-08 0.6889D-07 -0.1658D-07 0.1329D-04 0.7293D-04 0.2079D-04 -0.8850D-05
-0.2871D-04 -0.5177D-07 0.5196D-06 -0.1604D-06 -0.1747D-06 -0.1627D-06 0.4190D-08 -
0.4957D-08 0.2885D-08 0.8112D-09 -0.1678D-08 0.1029D-08 -0.2577D-08
30 : 0.1466D-08 0.5446D-07 -0.1174D-07 -0.3134D-06 0.8165D-05 0.2452D-04 -0.1077D-04
-0.7850D-05 -0.3763D-07 0.1439D-06 -0.1171D-06 -0.1273D-06 -0.1203D-06 -0.2035D-09 -
0.1918D-08 0.3659D-08 0.2742D-09 -0.4773D-09 0.4391D-08 -0.5337D-08
31 : -0.2638D-09 -0.7412D-08 -0.1327D-07 0.9333D-05 0.4667D-04 0.1082D-04 -0.7150D-05
-0.3153D-04 -0.3546D-07 0.6664D-06 -0.1096D-06 -0.1187D-06 -0.1086D-06 0.7774D-08 -
0.5857D-08 0.6973D-09 0.2148D-08 -0.5676D-08 -0.1114D-08 -0.1624D-08
32 : 0.1028D-08 0.3916D-07 -0.1747D-07 0.1550D-04 0.3121D-04 0.8752D-05 -0.6277D-05
-0.1506D-04 -0.2750D-07 0.2860D-05 -0.8665D-07 -0.9331D-07 -0.8471D-07 0.7168D-08 -
0.5599D-08 -0.7365D-09 0.1082D-08 -0.1544D-08 -0.2609D-08 0.7328D-09
33 : 0.1113D-08 0.4125D-07 -0.1984D-07 0.1976D-04 0.1336D-04 -0.7999D-06 -0.1216D-05
-0.2495D-04 -0.2503D-07 0.8271D-06 -0.7830D-07 -0.8431D-07 -0.7885D-07 0.2906D-08 -
0.1868D-08 0.1080D-08 -0.9466D-10 0.9946D-10 -0.1804D-08 -0.1760D-08
34 : 0.6433D-09 0.2349D-07 -0.1671D-08 0.2102D-04 0.2238D-04 0.1112D-04 -0.5088D-05
-0.5602D-05 -0.7727D-08 0.2171D-06 -0.2564D-07 -0.2515D-07 -0.2464D-07 0.2288D-09 -
0.8165D-09 -0.3996D-09 -0.8712D-09 -0.1839D-08 -0.1655D-08 -0.2913D-08
35 : 0.3704D-09 0.1404D-07 0.5987D-08 0.2983D-06 -0.8250D-05 0.7664D-05 -0.1890D-06
0.3168D-04 -0.1140D-07 -0.8341D-06 -0.3318D-07 -0.3617D-07 -0.3405D-07 0.1030D-08 -
0.4799D-08 0.2999D-09 0.1124D-08 -0.2564D-08 -0.1792D-08 0.2233D-08

21 22 23 24 25 26 27 28 29 30 31
32 33 34 35
21 : 0.3233D-02

22 : -0.1181D-02 0.1596D-01
23 : -0.4107D-05 0.1707D-04 0.4204D-06
24 : -0.6938D-05 0.2660D-04 0.6613D-06 0.1060D-05
25 : -0.8639D-05 0.3088D-04 0.8223D-06 0.1313D-05 0.1638D-05
26 : -0.7467D-05 0.2784D-04 0.6399D-06 0.1025D-05 0.1276D-05 0.1004D-05
27 : -0.4770D-05 0.1716D-04 0.4125D-06 0.6577D-06 0.8180D-06 0.6386D-06 0.4162D-06
28 : -0.1048D-04 0.4258D-04 0.9526D-06 0.1521D-05 0.1888D-05 0.1476D-05 0.9504D-06 0.2215D-05
29 : -0.2075D-05 0.6732D-05 0.1232D-06 0.1979D-06 0.2448D-06 0.1939D-06 0.1223D-06 0.2831D-06 0.4373D-07
30 : -0.1285D-05 0.7264D-05 0.8955D-07 0.1457D-06 0.1802D-06 0.1440D-06 0.8816D-07 0.2089D-06 0.2944D-07 0.3188D-07
31 : -0.9789D-06 0.1945D-05 0.8492D-07 0.1344D-06 0.1652D-06 0.1280D-06 0.8365D-07 0.1897D-06 0.2463D-07 0.1783D-07 0.2748D-07
32 : -0.1961D-06 0.2098D-05 0.6525D-07 0.1029D-06 0.1304D-06 0.9915D-07 0.6528D-07 0.1493D-06 0.1827D-07 0.1264D-07 0.1386D-07 0.2049D-07
33 : -0.1319D-05 0.3340D-05 0.5798D-07 0.9540D-07 0.1188D-06 0.9421D-07 0.5903D-07 0.1391D-06 0.1969D-07 0.1347D-07 0.9740D-08 0.1144D-07 0.1815D-07
34 : -0.6949D-06 0.2511D-05 0.1834D-07 0.2945D-07 0.3613D-07 0.3088D-07 0.1891D-07 0.4312D-07 0.6632D-08 0.6216D-08 0.4459D-08 0.2586D-08 0.3156D-08 0.1330D-07
35 : 0.1185D-07 -0.1479D-05 0.2795D-07 0.4208D-07 0.5176D-07 0.3765D-07 0.2711D-07 0.6279D-07 0.6406D-08 0.3653D-08 0.6327D-08 0.3257D-08 0.6118D-09 -0.2706D-08 0.1336D-07

APPENDIX VII

Catch at age data used for simulations and Catch parameters

```
#
# Catch Data File Generated by VPA-2BOX GUI - Version 3.02
#
#  1st Year - Last Year
1975  2023
# 1st Age - Last Age - Plus Group
1  10  10
#
#   *** Zone 1 ***
#
# Number of Indices
12
# Spawntime
-1
# Maturity
0  0  0  0.5  1  1  1  1  1  1
# Zone Name
'East of 45'     0  0
# Catch At Age
1975      83784      352022      82482      24055      11863      7932      4665      3441
4480      54950
1976      17501      196886      239994      47505      18187      6492      3896      2187
2948      40376
1977      67420      276479      81061      45074      6677      4738      4363      2903
2778      36620
1978      98571      188169      132603      26750      8539      2569      2746      1850
1398      26717
1979      15968      46352      85484      47174      8803      3802      3158      4700
4051      22395
1980      153268      139588      111494      35392      11439      6346      3925      2495
2715      24603
1981      91413      320656      114393      16726      11334      6214      4537      4938
3506      18037
1982      435146      261565      174574      35996      8002      3990      5295      9037
4835      38429
1983      666700      196954      118435      27650      11539      5339      8741      6724
5468      38481
1984      162819      602874      80533      29876      18523      10029      5897      6546
10420      41447
1985      126331      327195      273250      52930      11441      7067      3014      2958
3329      31801
1986      605591      245280      110492      60475      10838      5638      3356      2173
3201      27826
1987      233815      425594      130379      35130      13521      7777      7936      4073
3661      23513
1988      787367      200806      221887      45198      12256      9116      10264      5612
5200      33542
1989      457214      409308      103865      51467      26166      5342      9140      6317
4674      24558
1990      436998      328718      195472      53837      37392      7450      6938      10362
12813      27930
```

1991	243244	401949	186084	52344	39257	7563	5140	6163	14736	43603
1992	229346	527897	280116	50401	19089	12662	13102	10683	12770	50171
1993	280527	748303	362086	64110	24965	13406	11620	9313	9358	44738
1994	304847	502294	171942	56713	40131	28248	27583	24303	23658	91143
1995	443084	322790	296579	65551	53670	39327	22103	17701	16646	85605
1996	444406	669904	312384	170612	50658	22396	18070	15305	17362	85496
1997	306609	474221	189334	107589	66458	42200	25467	27051	31144	74425
1998	345669	474502	285613	138652	45367	76858	9470	10785	13079	52631
1999	290410	272684	137390	91981	37213	13567	10306	11996	27670	55145
2000	889625	389997	195408	51453	56121	35131	12280	14041	14718	44863
2001	15982	469971	134430	90060	24959	20977	31157	21135	17744	68378
2002	59817	491266	206724	65445	31542	16089	10914	14936	17076	62174
2003	31034	198423	70574	34139	42902	23442	17278	14727	15451	77055
2004	158681	233924	152822	33095	12919	22189	27680	7756	14995	72743
2005	315743	419028	125613	59295	24776	18596	17314	14100	12307	82641
2006	228908	162488	255561	44959	11960	27029	10456	11129	37839	47308
2007	1510	96996	42050	139516	62706	25349	20195	13425	26398	73222
2008	755	63119	41758	67048	51597	27174	19392	16913	16230	44546
2009	1350	22619	20491	52868	24566	30804	33104	19219	10408	33310
2010	1350	22619	20491	52868	24566	30804	33104	19219	10408	33310
2011	4138	105125	39701	46206	3325	3438	5285	8951	7954	24372
2012	3954	90136	36666	44991	14528	1976	3487	3976	8529	25066
2013	3706	88052	32583	42548	14664	8980	2041	2705	3922	28258
2014	3572	84855	32934	38430	14078	9098	9572	1616	2753	27008
2015	3367	80876	31654	39230	13011	8875	9671	7446	1625	24609
2016	3087	76677	29974	37334	13095	8212	9202	7449	7445	21315
2017	2785	67016	26931	34188	11842	7790	8258	6966	7282	24267

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2018	2557	61544	23521	30957	11261	7252	7989	6298
6867	26624
2019	2416	56673	22267	26995	10388	6986	7633	6170
6276	29168
2020	1970	54101	21047	26191	8932	6407	7399	5907
6183	30319
2021	2261	44913	20328	24947	8758	5588	6798	5902
6089	31823
2022	1846	51129	16883	24464	8626	5574	5955	5410
6038	33302
2023	1752	42345	19288	20493	8543	5541	6024	4816
5594	33865
-1
# Index Specification
 1	1	1	4	-1	6	10	'ESP'
 2	0	1	1	-1	1	1	'ESP1'
 3	1	1	1	-1	2	2	'ESP2'
 4	1	1	1	-1	3	3	'ESP3'
 5	0	1	1	-1	4	4	'ESP4'
 6	0	1	1	-1	5	5	'ESP5'
 7	1	1	4	-1	6	10	'JJL'
 8	0	1	4	-1	6	10	'MAR'
 9	0	1	4	-1	6	10	'ESPT'
 10	1	2	4	-1	2	3	'ESPH'
 11	1	2	1	-1	10	10	'NOR'
 12	1	1	4	1	4	10	'JAP'
-1
# Index Data
1	1981	3145.86	58.40
1	1982	4151.93	33.70
1	1983	4402.08	33.70
1	1984	4854.68	33.70
1	1985	3288.16	33.71
1	1986	1556.12	27.05
1	1987	1713.63	27.04
1	1988	4026.80	27.02
1	1989	2091.12	25.09
1	1990	2433.10	22.46
1	1991	2871.90	21.50
1	1992	1256.65	22.48
1	1993	1233.91	21.53
1	1994	1370.23	22.48
1	1995	888.94	22.50
1	1996	1598.01	22.47
1	1997	3754.01	22.45
1	1998	3950.27	22.44
1	1999	4463.56	22.44
1	2000	3411.81	21.50
1	2001	5907.80	21.49
1	2002	4240.52	21.50
1	2003	2417.06	22.49
1	2004	1319.61	21.53
1	2005	2598.59	21.51
1	2006	2456.74	21.51
```

1	2007	3690.98	21.50
1	2008	2455.05	21.51
1	2009	3330.17	21.50
2	1975	19.5	0.301722594
2	1976	1.38	0.365184884
2	1977	1.5	0.344893461
2	1978	22.96	0.311574386
2	1979	0.04	1.25247235
2	1980	12.14	0.431465087
2	1981	50.51	0.367385406
2	1982	11.28	0.34197267
2	1983	93.97	0.315407628
2	1984	2.8	0.349590467
2	1985	9.6	0.331331843
2	1986	30.97	0.326149248
2	1987	16.38	0.314638074
2	1988	387.81	0.343953968
2	1989	194.33	0.300103539
2	1990	53.08	0.334979388
2	1991	55.19	0.326764189
2	1992	15.88	0.36882219
2	1993	7.61	0.365288759
2	1994	3.21	0.364660456
2	1995	85.55	0.29448168
2	1996	268	0.317598225
2	1997	120.19	0.321147241
2	1998	69.96	0.505632812
2	1999	8.94	0.703002896
2	2000	56.98	0.371009945
2	2001	4.9	0.388045946
2	2002	0.76	0.348518084
2	2003	1.58	0.810532296
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3	1986	87.36	0.323541413
3	1987	420.3	0.312510669
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3	1989	488.14	0.294750089
3	1990	108.78	0.317756717
3	1991	171.11	0.317696352
3	1992	254.59	0.329302453
3	1993	432.27	0.339253135

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# Parameter Data File Generated by VPA-2BOX GUI - Version 3.02
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 0.1000D+00   0.1200D+01   0.5000D+01          0   0.2000D+00
 0.1000D+00   0.1200D+01   0.5000D+01          0   0.2000D+00
 0.1000D+00   0.1200D+01   0.5000D+01          0   0.2000D+00
 0.1000D+00   0.1200D+01   0.5000D+01          0   0.2000D+00
 0.1000D+00   0.1200D+01   0.5000D+01          0   0.2000D+00
 0.1000D+00   0.1200D+01   0.5000D+01          0   0.2000D+00
 0.1000D+00   0.1200D+01   0.5000D+01          0   0.2000D+00
```

```
# Natural Mortality Parameters
 0.0000D+00  0.4900D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.2400D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.2400D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.2400D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.2400D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.2000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.1750D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.1500D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.1250D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.1000D+00  0.1000D+01        0  0.1000D+00
# Mixing Parameters
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
 0.0000D+00  0.0000D+00  0.1000D+01        0  0.1000D+00
# Stock Recruitment Parameters
 0.0000D+00  0.2507D+06  0.1000D+21        0  0.4000D+00
 0.0000D+00  0.1660D+05  0.1000D+21        0  0.0000D+00
 0.0000D+00  0.1580D+00  0.9000D+00        0  0.0000D+00
 0.0000D+00  0.1000D+01  0.2000D+01        0  0.0000D+00
 0.0000D+00  0.1000D+01  0.2000D+01        0  0.0000D+00
# Variance Scaling Parameters
 0.0000D+00  0.1000D+01  0.1000D+21        1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
 0.0000D+00  0.1000D+01  0.1000D+21     -0.1  0.4000D+00
# Tag Misapplication Parameters
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
        0       0.8       1       0       0.1
# Tag Shedding/Fouling Parameters
        0      0.26       1       2       0.1
```

```
0	0.26	1	2	0.1
0	0.26	1	2	0.1
0	0.26	1	2	0.1
0	0.26	1	2	0.1
0	0.26	1	2	0.1
0	0.26	1	2	0.1
0	0.26	1	2	0.1
0	0.26	1	2	0.1
0	0.26	1	2	0.1
# Tag Reporting Parameters
0	0.2331	1	1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
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0	0.2331	1	-0.1	0.1
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0	0.2331	1	-0.1	0.1
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0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2331	1	-0.1	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
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0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1
0	0.2	1	2	0.1

Tag Pre-Mix Year 1 Parameters

0	0.7863	5	0	0.1
0	0.7863	5	0	0.1
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Tag Pre-Mix Year 2 Parameters

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