REPORT OF THE 2013 ICCAT NORTH AND SOUTH ATLANTIC ALBACORE DATA PREPARATORY MEETING

(Madrid, Spain - April 22 to 26, 2013)

1. Opening, adoption of agenda and meeting arrangements

The meeting was held at the ICCAT Secretariat in Madrid from April 22 to 26, 2013. Dr. Pilar Pallarés, on behalf of the ICCAT Executive Secretary, opened the meeting and welcomed participants ("the Group").

Dr. Haritz Arrizabalaga (EC-Spain), the Albacore Species Group Rapporteur, chaired the meeting. Dr. Arrizabalaga welcomed meeting participants and highlighted that the Atlantic albacore stock assessment process, including this data preparatory meeting, will be peer reviewed. He then welcomed Dr. Adam Langley, participating at the meeting as peer reviewer. Dr. Arrizabalaga proceeded to review the Agenda which was adopted without any changes (**Appendix 1**).

The List of Participants is included in **Appendix 2**. The List of Documents presented at the meeting is attached as **Appendix 3**. The following participants served as Rapporteurs:

P. Pallarés	Items 1and 12
J.M. Ortiz de Urbina and M. Pons	Item 2
M. Ortiz and C. Palma	Items 3, 4 and 5
G. Diaz	Item 6
P. de Bruyn	Items 7
P. de Bruyn, G. Diaz, M. Schrripa, G. Merino	Item 8
L. Kell and G. Merino and P. de Bruyn	Item 9
R. Cosgrove	Item 10
H. Arrizabalaga	Items 11

2. Review of historical and new information on biology, including tagging information

As far as 2013 North and South albacore 2013 stock assessment is concerned, no new relevant information on biology was made available to the Group. Thus, the biological parameters for both stocks remain the same as in previous assessments.

Table 1 reports the currently assumed biological parameters for the northern stock. Modeling growth for the North Atlantic albacore stock is based on the growth parameters estimated by Bard (1981): $L_\infty = 124.74; k = 0.23; t_o = -0.9892$. Conversion factors for length-weight relationships, parameters to be applied in the assessment are those estimated by Santiago (1993), and included in the Chapter 2 of the *ICCAT Manual* for Atlantic albacore (http://www.iccat.int/en/ICCATManual.htm). The assumed maturity vector is 50% mature at age 5 and completly mature onwards (Bard, 1981). As for the natural mortality, it is assumed to be equal to 0.3 for all age classes. In addition, based on analyses conducted during the last stock assessment session, an age-varying natural mortality vector for ages 1 to 15 is also available (Anon., 2010).

Additionally, it is assumed that there is a 1:1 sex ratio before sexual maturity is reached; this has been observed for several albacore stocks including the North Pacific (Foreman, 1980) and North Atlantic (Bard, 1981; Santiago, 2004). However, a higher proportion of males in the larger length classes have been reported: as size increases, the proportion of males also increases up to a size where almost no females are found, which might be due to differential growth and/or mortality. After reaching sexual maturity, the percentage of females per size class sharply decreases and males prevail among individuals larger than 85 cm (**Figure 1**).

During the 2009 North Atlantic stock assessment session, a comprehensive revision of the historical tagging information was conducted by national scientists and ICCAT Secretariat (Anon. 2010). This information was considered in some of the sensitivity MFCL runs. Tagging intensity varied considerably between years. During 1989 and 1991, albacore research tagging cruises were conducted. In this period, a relatively high number of releases occurred. The Group considered that further use of tagging data in the MFCL model might be restricted to this homogeneous period of time, instead of considering the full period.

Table 2 shows the currently assumed biological parameters for the southern stock. South Atlantic albacore growth parameters are based on a comprehensive study by Lee and Yeh (2007): $L_\infty = 147.5$; $k = 0.126$; $t_o=-1.89$. Conversion factors for length-weight relationships, parameters to be used in the assessment, are those estimated by Penney (1994) which are described in Chapter 2 of the *ICCAT Manual* for Atlantic albacore. Assumed maturity is 50% mature at age 5 and completely mature thereafter (Bard, 1981). For natural mortality, it is assumed to be equal to 0.3 for all age classes.

A compilation of the information available in the literature with regard to albacore maturity for different albacore stocks was presented to the Group. These studies provided some support for the assumption of 50% maturity at age 5 in the Atlantic. However, some studies suggested the possibility of less steep maturity ogives than those assumed for Atlantic stocks. Furthermore, the Group was informed of the results of a broad-scale sampling program addressing albacore maturity and growth in the South Pacific Ocean (Williams et al. 2012; Farley et al. 2013).

In the ensuing discussion, the Group agreed that many of the critical biological parameters for Atlantic albacore are poorly known. Knowledge of the biology of the albacore stocks underpins the advice of the SCRS since biological parameters are a critical input in the stock assessment models currently used by the Group. Hence, substantially more biological research is required to improve the quality of the scientific advice and to reduce the uncertainty associated with it.

3. Review of basic fishery statistics

The Secretariat presented the most up-to-date Task I and Task II (catch & effort and size samples) information for the northern (ALB-N) and southern (ALB-S) albacore stocks for the period 1950 up to 2011. For a consolidated view of the available statistics, the respective catalogues (ALB-N in **Table 3** and ALB-S in **Table 4**) covering the period 1980-2011 were also presented. Fisheries are ranked according to their importance (average weight of 2/3 of the time series shown on the table) in Task I. If required, this information is also available with greater detail upon a request to the Secretariat. One of the objectives of the Group was the preparation of the MFCL input files for the northern albacore stock. For this purpose, the Group increased the number of fisheries considered in the 2009 assessment from 10 to 12 after considering that a change in catchability in the Chinese Taipei LL fishery likely occurred (SCRS/2013/069). Based on this, the Group decided to split this fishery into three different time periods (year<1987, 1987≤year≤1998, year≥1999).

3.1 Task I (catches)

The Task I albacore summary table (which contains the catches of the three albacore stocks) is presented in **Table 5**. The Secretariat has also updated the CATDIS estimations (Task-I catch distribution by trimester and 5 by 5 degree squares of each major fishery-fleet/gear combinations) for the entire period 1950-2011. The maps of albacore catches by decade and major gear in the ICCAT Convention area are presented in **Figure 2**.

3.1.1 North Atlantic

The Group reviewed in detail the albacore northern stock (ALB-N) catch distribution by country, gear and year. Various revisions were made by the Group to Task I. Carryovers (average of two previous years) were applied to 2011 missing longline catches of Panama, Grenada, Trinidad and Tobago and Côte d'Ivoire. In addition, taking into account the spatial distribution (5 by 5 degree squares) of Task II catch and effort data of some longline fleets (Panama 2009, Philippines 2010 and 2011, Korea 2010 and 2011) with a high (≥80%) Task-II coverage ratio, the Group agreed to adopt the Secretariat Stock (ALB-N and ALB-S) reallocation criteria (catch and effort - per stock - ratios in weight). Finally, Task I missing catches (Guatemala PS 2010) with information on Task II catch and effort were included in Task I. The corresponding CATDIS was updated accordingly.

The overall ALB-N catch in the last decade maintains a decreasing trend with some punctual peaks as the nearly 37,000 t reached in 2006. Since 2006, the decline in catches was mostly due to the decrease in the catches of the baitboat (~60% reduction in weight) and troll (~65% reduction) fisheries mainly in the Cantabrian Sea (Spanish fleet). The catch of longline fisheries (mostly associated with Chinese Taipei and Japanese fleets) have also shown a reduction of about 25% in weight. Task I nominal catch trends are shown in **Figure 3.**

To prepare the MFCL input files, the northern Atlantic albacore stock catch series (either Task I or CATDIS) were classified into 12 major fisheries (details in **Table 6).** The Task I nominal catch by fishery and year are presented in **Table 7.** The overall nominal catches by fishery and year are shown in **Figure 4**.

3.1.2 South Atlantic

The ALB-S Task I catch series were also reviewed by the Group. As for the ALB-N stock, the Group did some corrections to the southern stock catch statistics. Carryovers (average of two previous years) were applied to 2011 missing catches of Côte d'Ivoire (LL) and Argentina (PS). South African baitboat catches for 2009, 2010 and 2011, were split into baitboat and rod & reel (BB: 62%, RR: 38%) using the Task I average of 2007/08, without affecting the overall figures reported. The Uruguayan LL catch figure for 2009 was reduced from 685 t to 97 t, because the different of 588 t was already reported as part of the Japanese 2009 catches (the original Uruguayan catches included catches of Japanese vessels that operated with a fishing agreement with Uruguay). With effects on both stock, the stock breakdown of the longline catches of Panama 2009, Philippines 2010 and 2011, Korea 2010 and 2011 was carried out (explained in section 3.1.1) Guatemala PS catches of 56 t for 2010 (from Task II catch and effort) were included in Task I. The CATDIS for the ALB-S was also adjusted accordingly.

The Group noted that overall Task I nominal catch have oscillated around 24,000 t between 2006 and 2011. The catches of the major fisheries (LL: Chinese Taipei, Japan, and Brazil; BB: South Africa, Namibia, and Brazil) have shown a similar trends when compared to the overall catch. The total cumulative catches by major gear and year are shown in **Figure 5**.

Since MFCL will not be used in the assessment of the southern ALB stock, no MFCL input files were created for this region.

3.2 Task II catch-effort

The available Task II catch and effort (T2CE) data (per stock, year, major gear and flag) for the major fisheries, are presented in the respective catalogs (ALB-N: **Table 3,** ALB-S: **Table 4**) with the "a" character within each Task II row (field DSet="t2").

3.2.1 North Atlantic

The ALB-N catalog shows that the five most important northern stock fisheries have the T2CE series almost complete for the last ten years. Recent submissions by Spain (BB and TR from 2009 onwards) and France (TW and TR for 2007 and 2011) completed the T2CE statistics. There are, however, some missing T2CE datasets for the earlier time periods and for some minor fisheries. These missing datasets should be considered by national scientists attending the meeting and, when possible, reported to the Secretariat. For ICCAT CPCs with no scientific representation at the meeting, the Secretariat should request the corresponding missing datasets.

As in the 2009 assessment, the Group worked on a Task II catch and effort dataset (1950 to 2011) for the ALB-N stock, aiming its use on the CPUE analyses (MFCL and VPA). The same approach was adopted to eliminate duplicates or dubious series: (a) select detailed information of all available series with effort reported (having units well identified), and, in which its ALB total catch (accumulated on the series, weather in number or weight) was larger than zero; (b) drop from the dataset obtained in (a), subsets with duplicated effort ("double" reporting the same effort in different datasets with partial species catch composition), or subsets without enough time (by year) or space (ICCAT sampling areas, rectangles of type: 20x20, 10x20, 10x10) resolution.

The filtered dataset was then classified into the 12 major ALB-N fisheries considered in Multifan-CL, retaining its original structure (fishery, year, flag, fleet, gear group, quarter, month, effort, effort type, catch unit [number/kg], ALB catch, other tuna catch, ALB ratio, ALB nominal CPUE).

3.2.2 South Atlantic

The ALB-S catalog shows that the five most important southern stock fisheries also have almost complete T2CE series (with exception of Namibia BB in 2003) in the last ten years. No recent submissions were received. There are also some missing T2CE datasets for the earlier time periods and for some minor fisheries. As for ALB-N, these missing datasets should be considered by national scientists present at the meeting and, when possible, reported to the Secretariat. For ICCAT CPCs with no scientific representation at the meeting, the Secretariat should request the missing datasets identified.

No specific dataset was prepared (as in ALB-N) by the Secretariat for CPUE standardization studies.

3.3 Size frequency data

Task II size data (T2SZ: size frequencies reported; CAS: catch-at-size reported) availability (per stock, year, major gear and flag) for the major fisheries are identified on the respective catalogs (ALB-N: **Table 3,** ALB-S: **Table 4**) with the characters "b" identifying T2SZ, and "c" identifying CAS available data (field DSet="t2").

For both stocks, Japan presented an important revision of its longline fishery CAS data for the period 1992 to 2011 which included the extent and nature of the changes. This dataset was incomplete in the ICCAT database since 2008. After a straightforward comparison of the new series against the one currently available in ICCAT (used on the 2009 assessment), no major differences were found except in some particular years. The Group decided to entirely replace the Japanese CAS series that was available at ICCAT with the newly reported CAS.

3.3.1 North Atlantic

The ALB-N catalog shows that the five most important northern stock fisheries have almost complete T2SZ/CAS series (exception to Portugal BB in 2006) for the last ten years. This was possible due to recent submissions/revisions by France (TW in 2007 and 2009) and Spain (2011, BB and TR). For earlier time series and some minor fisheries there are important gaps that should be, whenever possible, filled.

In order to be used by MFCL, all the size frequencies information was classified into the 12 MFCL fisheries (**Table 6**).

The MFCL uses as much as possible observed size samples (T2SZ). However, the Group noted that in many cases CPCs only reported CAS and no information on the size samples used to estimate CAS was made available. This is the case for Spanish BB and TR fisheries. In the 2009 assessment, the Spanish size samples used as input in the MFCL, were created (inverse process of building up the CAS) using the ratio of the fish sampled per strata (for Spain: gear/month/10x10 grid) and its corresponding number in the CAS (both elements are reported and stored in the ICCAT database) as a multiplier of the number of fish in each size class bin. The output T2SZ series was produced only for the assessment and were not permanently incorporated in the ICCAT-DB system. However, the Group considered this an important dataset for MFCL and that it should be available whenever necessary to the SCRS. The Secretariat proposed its integration in the ICCAT database bookmarked as reference dataset (for MFCL use mainly, but also used when no corresponding official data exists). It appears in the ALB-N catalog (as "b") since 1980.

3.3.2 South Atlantic

Prior to the meeting, the Secretariat identified the missing size information bits for the major fishing fleets. The Chair circulated a special petition and only a few CPCs responded positively. With the submissions by South Africa (BB, 2008 to 2011), Brazil (BB & LL, 2007 to 2011), and Japan (LL, since 1992) the ALB-S catalog in relation to T2SZ/CAS became almost (except Namibia BB 2003) complete for the five most important southern stock fisheries. For earlier time periods and some minor fisheries there are important gaps that should be, whenever possible, filled.

The Group noted the decreasing number of fish sampled by the Japanese fleet in the southern stock since 2008. Japanese size samples since 2009 are very poor (reaching less than 5 fish sampled in 2011). Estimating size compositions of the catch (CAS) for the Japanese fleet (with an average Task I catch of about 1000 t in recent years) can be very problematic.

General discussion

In general, the Group noted that, although the catalogues show that information is available for the main fleets, the quality of the T2SZ data can be substantially improved (in cases similar to Japan), which would facilitate the work of the Group. The Group reiterated that CPCs should comply with ICCAT data reporting requirements and submit both the size sampling and the CAS data for all main tuna fisheries every year.

With regard to the selection of size frequency samples to be used as input for the MFCL model, the Secretariat presented the size frequency data that was available prior to the meeting (SCRS/2013/064). The document reported only size data submitted by CPCs. Size distributions, annual trends of median size, histograms by major fishing gear and stock, and preliminary analysis of sample representativeness were discussed. The document evaluated some size distribution indicators (number of measurements, variance of mean size as function of size sample, asymmetry and relative proportion of samples per fishery compare to proportion of the catch per fishery) as proxies to evaluate if a given size sample could be considered to be representative of the fishery catch. It was commented that some of the higher moments of the size sample distributions may not be good indicators of size sampling quality.

The MFCL size frequencies file creation process passes through two major and independent filtering phases. The first one selects from the ICCAT database only the size information (both categories: measured size samples and CAS reported) datasets suitable to be used in MFCL and harmonizes its internal structure (downscaling the CAS datasets, selected only in cases where there are "missing" size samples but the sample is size is available). The second one consists of a screening process aimed to discard uninformative (or ambiguous) size frequency cases.

In phase 1, appropriate (with enough detail to be used in MFCL) datasets are selected only when they are characterized by:

a) Only 1 or 2 cm size class bins (any limit: lower, central point, upper limit, "unknown"),
b) Frequencies of type: fork length (FL), total length (TL), curved fork length (CFL) or any dataset converted from a weight bin class (only 1 kg, total weight) structure to a FL equivalent (1 cm, lower limit),
c) Time detail: at least by month or quarter
d) Geographical detail: at least by ALB biological sampling areas (31, 32, 33, 34)

From the selected datasets, all the size frequencies outside the length range [30 cm, 150 cm] are automatically discarded. Only then, each CAS dataset is downscaled to quantities nearby a proper scale of observed sample datasets. In past assessments, the Group used downscale ratios (fish sampled / fish caught) in number ranging from 0.05% to 1.5%. These ratios were calculated (per fleet/gear/year/quarter) only when the CAS datasets reported to ICCAT every year contained the number of fish sampled on each stratum (time/area combinations). This is the case for very few datasets (e.g., Spain BB and TR). In some datasets, the number of the catch (or wrongly, the weight of the sample) is reported instead. In summary, using this highly "error prone" piece of information could result in poorly CAS downscale estimations. In consequence, replicating those estimations in the future can be very difficult and time consuming.

For the reasons stated above, the Secretariat could not entirely replicate the creation of the size frequencies used in the 2009 assessment. However, using a unique CAS downscale ratio of 1% in number on all CAS datasets used, the resulting overall size frequency matrix (by fishery and year) was a good approximation. Overall, except in a few particular cases (fisheries [years]: ALB01 [83], ALB02 (78, 80, 83); ALB03 (78, 80); ALB04 [80, >=04]; ALB07 (93); ALB10 [00]; ALB12 [91, 94, 98, 00, 05]), there are no big differences between the 2009 and the current size matrix. All those problematic series were obtained from CAS datasets whenever no size sampling is available. All these problematic series could be simply solved by reporting the proper size samples.

For the phase 2 (size sample screening), the Group considers the current screening criteria (adopted during the 2009 assessment, Anon. 2010) appropriate and recommended its use. The criteria used for discarding the size frequency samples strata (fishery/year/quarter combinations) for the MFCL are any (mutually exclusive) of the following:

a) Less than 50 fish measured;
b) Less than 10 size class bins (2 cm classes, within [30, 150] range); and
c) Skewness > 5.

The screening criteria can only be applied after merging the size samples of various fleets (as described in **Table 6**) into totals per strata (fishery/year/quarter).

The results of applying those two major filtering techniques to produce the MFCL size frequencies input files are summarized in **Table 8**. From a total of 820 usable size frequency series, 142 series (17%) were discarded (65 with < 50 fish; 77 with less than 10 size bins, 0 with Skewness > 5). The rejection by fishery was more heterogeneous. Fisheries 1, 2, 3, 8, 9, 10 had more than 90% positive cases (acceptable size frequency series).

Fisheries 6 and 11 had at least 80% acceptable cases. With larger discarded cases (more than 25% of the size frequency series) were identified fisheries 5, 7 and 12.

Figures 6 and **7** show (before and after screening cases, respectively) indicators of centrality and dispersion (means of number of fish, and size class bin percentiles: 10%, median, 90%) in size frequency series across years for each fishery.

The size composition of albacore landings is sensitive to latitudinal changes, i.e., smaller individuals are caught at higher latitudes while tropical landings are composed of larger fish. **Figure 8** compares the geographical distribution of size samples and the catches in two longline fleets, Japanese and Chinese Taipei. Figure suggests that for the Chinese Taipei longline fleet, the spatial distribution of size samples is concordant with the relative distribution of the catches; whereas for the Japanese longline fleet size samples may not be that representative (**Figures 9** and **10**). Those figures also suggest that some temporal variability exists in the latitudinal origin of the size samples available for these fisheries, and this should be considered in future modeling applications (e.g., spatial modeling approaches).

4. Catch-at-size (CAS), catch-at-age (CAA)

4.1 CAS

At the beginning of the meeting the Secretariat presented a preliminary version of the updated albacore catch-at-size (CAS) for the North and South Atlantic stocks for the period 1975 to 2011. The same methodology used to estimate the CAS for the 2009 assessment was used. The previous CAS datasets for both stocks were adjusted to match Task I figures (allowed a ±1% divergence in weigh per dataset). Year 2007 (provisional in the 2009 assessment) was completely rebuilt. The standard ALB substitutions rules of both stocks were applied and the same screening criteria applied (eliminate from the CAS estimations all size datasets with the number of samples less than 20 fish sampled).

The Group discussed the methodology used (substitution rules, screening criteria) and adopted the substitutions tables. The final CAS estimations took into account the changes made to Task I and revised CAS series of the Japanese longline fleet (section 3.1). The substitutions tables used to revise the CAS estimations and to create the updated CAS files are available in **Appendix 5**

For future references, the revised Japanese CAS series was estimated by raising the size data in each year, quarter, and area (ICCAT albacore sampling areas) stratum to the total catch in number using a raised catch and effort data of the Japanese LL fleet. If the number of size samples in a stratum was less than 100 fish, size samples were substituted from those of other strata until the number of samples was ≥100. The process of substituting size samples from other strata were conducted following the rules described below in hierarchical order:

1) Data for the same quarter and area in the previous year
2) Data for the sum of Q1-Q4 of the same year and area
3) Data for the sum of Q1-Q4 of the same area in year (n-1)
4) Data for the same area and quarter in year (n-2)
5) Data for the same area and sum of Q1-Q4 in year (n-2)

The final CAS matrices (in 2cm lower limit classes) obtained for the northern and southern albacore stocks are presented in **Table 9** and **Table 10**, respectively (graphical representation in **Figures 11-12).**

Figures 13-14 shows the mean weights (overall and by major gear) obtained from the CAS. Catch at size was also plotted to evaluate changes in the ICCAT database between the 2009 and 2013 assessments for the northern stock and between 2011 and 2013 assessments for the southern stock.

In overall, no major differences were found (in neither stock) on the CAS matrices when compared to the ones estimated in 2009. The differences, appearing only since 1992, reflects two major changes: (a) the Japanese series revision with larger changes from 2004 onwards; (b) a reduction of 1,000 t in the Task I catch by Venezuela for year 2000 (equivalent number of fish eliminated from the partial CAS of Venezuela in 2000). The significant differences identified in the Japanese revision (ALB-N: from 2005 to 2007; ALB-S: from 2004 to 2006) could be related to improvements in the CAS estimations (e.g., more samples available to produce the

CAS which will reduce the substitution ratios) or even a change in the Japanese Task I catch (preliminary estimations on the 2009 assessment).

The CAS substitutions ratio (the amount of Task I catches without any size information) for albaacore are presented in **Table 11**. For the southern stock, these substitution ratios have oscillated between 5% and 30% in the last two decades with an increase to 35% in 2009 (expected in recent years). When looking at the size information available, the majority is based on size samples and, in some cases (e.g., Japan), CPCs report both types of size data (size samples and CAS estimations). For the northern stock, these substitution ratios have oscillated between 5% and 32%.

4.2 CAA

Document SCRS/2013/055 presented the results of applying age-length keys obtained from direct readings of spine sections of albacore collected from commercial catches carried out by bait boat and troll vessels operating in the Bay of Biscay and North Eastern Atlantic fishing grounds. The study period comprised the years 2009, 2010 and 2011. The catch at-size data (CAS) from these fleets and the ALKs derived were used to obtain the age composition of catches (CAA) from this fishery for the described period.

As in previous assessments, the Secretariat estimated CAA for both stocks by applying the Kimura-Chikuni algorithm (Kimura and Chikuni, 1987). The quarterly age-length keys were derived from normal length at age distributions for ages 0 to 15. Catch at age estimates were then grouped into ages 1 to 8+. The Group had no time to revise the updated CAA in depth. A preliminary comparison with the CAA used in the 2009 assessment showed some significant differences that were not easily explained. Thus, the Group concluded that additional work needs to be conducted in the CAS to CAA conversion. Only after the Group can revise and adopt the new CAA, this can be considered for the VPA modeling efforts. The Group agreed to address this task after the data preparatory meeting, so preliminary runs with the VPA models can be conducted prior to the assessment meeting.

5. Review of available indices of relative abundance by fleet and estimation of combined indices

The Albacore Species Group Rapporteur reminded participants that advice and guidelines for the presentation of CPUE series, as well as the basic information required in the CPUE working documents presented at ICCAT working groups, had been developed in 2012 by the Working Group on Stock Assessment Methods (Anon. 2013). The Rapporteur briefly reviewed the guidelines provided and encouraged scientists to adhere to these guidelines when presenting CPUE series to the Group.

5.1 North Atlantic

Document SCRS/2013/052 presented nominal catch in number of fish per unit effort (CPUEs) of North Atlantic albacore (*Thunnus alalunga*) caught by the Spanish baitboat fleet in the northeastern Atlantic, collected by individual trip for the period 1981-2011. This was standardised by generalized linear model (GLM). The year and quarter interaction factor was included to obtain year-quarterly CPUE´s series to use in Multifan-CL model fit. The model had a log-normal error distribution with constant variance.

The Group noted that the CPUE trends between quarters 3 and 4 were very different. This strong difference in signal between these quarters would be problematic in the model fitting if these series were treated as one as they would provide contradictory information. In the past, MFCL has used time varying catchability to deal with this issue, but this would effectively disregard the signals from either CPUE series. The Group discussed that to avoid these contradictions in the data, it may be worthwhile to disregard or down-weight one of the quarters, if the catch during that quarter is a relatively small fraction of the total catch for the fishery. It was discussed, that generally, quarter 4 accounts for far less fishing activity and catch than quarter 3 and thus quarter 4 was not considered. The Group was urged to consider whether there had been a change in q over time or whether the CPUE index should be treated as a genuine index of abundance with a constant q over time. It was generally accepted by the Group that although q may have changed over time for the other quarters (e.g., environmental influence on the timing of the migration to and from the feeding area), it is most likely fairly constant for quarter 3 and so this quarter may potentially represent an actual index of abundance.

Document SCRS/2013/053 presented nominal catch per unit effort (CPUE s) of North Atlantic albacore caught by the Spanish troll in the northeastern Atlantic, collected by individual trip for the period 1981-2011. This was standardised by a generalized linear model (GLM). The year and quarter interaction factor was included to obtain year-quarterly CPUE series to use in Multifan-CL model fit. The model had a log-normal error distribution with constant variance.

As with the BB fishery, the majority of fishing activity occurs in quarter 3 although there is activity in quarters 2 and 4 as well. It was noted that at the start of the season (quarter 2) trips are generally long but require significant time to locate fish which may have impacts on the CPUE series. This may render quarter 2 less reliable for tracking abundance than quarter 3. Also, only larger vessels generally operate during quarter 2. Unlike for the BB fishery the underlying pattern between the 3 quarters is reasonably consistent for this fishery, making it more appropriate for inclusion in the integrated statistical models.

Document SCRS/2013/054 estimated trends in relative abundance indices by age group of albacore caught by the Spanish troll fleet in the northeastern Atlantic using catch in number of fish and effort data from trips collected for the period 1981-2011. Standardized CPUE´S in number of fish per fishing day for age groups 2 and 3 years old albacore were estimated separately through the General Linear Modelling approach by applying the lognormal error distribution model with a constant variance.

The Group noted that the trend in the CPUEs for age class 2 and 3 was different. It was suggested that this may be due to bias in the method used to split size into age groups which is fixed over time. The possibility of running a single model including age as a factor was discussed. Concern was expressed about adding both age classes to a single model unless sufficient interaction terms are included to account for the different fluctuations in the age classes over time (i.e., there are temporal trends in the age classes). It was proposed to run the same GLM as presented in this paper but combining the CPUE series for ages 2 and 3. This news series was largely driven by age 2, implying age 3s may not be fully selected by the fishery. It was agreed that this CPUE series could be used in the VPA assessment model provided it is applied only to ages 2 and 3.

Document SCRS/2013/060 presented relative indices of abundance of albacore from the Irish mid water pair trawl fishery for the years 2003-2012 in the format requested by the Working Group on Stock Assessment Methods. National landings logbook data were used to estimate nominal catch rates in biomass. A standardised catch per unit effort index was produced using a Delta- lognormal model.

It was suggested that a vessel effect characterised by a vessel categorical variable (as opposed to just a vessel size, although this will account for changes in the composition of the fleet over time) may provide more explanatory power by explaining skipper experience/skill and how this may change over time and between skippers. It was noted that the first years of the series were excluded to account for a learning experience/curve at the onset of the fishery. It was questioned as to whether the length/duration of tows has changed over time and how this would affect effective effort which is measured in days at sea. It was explained that tow length has changed, as has the number of tows per trip, but it is not clear how this affects the response variable. The high variability in the series may be due to the fleet fishing on the northern extremity of the stock and thus fish availability (natural fluctuations in fish presence in the area) rather than clear trends in abundance. It was mentioned, however, that there is coordination between fishers and they quickly congregate in areas where the fish are sighted. This would therefore imply that the fleets adapt to inter-annual changes in migration as it is a highly mobile fleet. Data were consistently available for Q3 when most fishing effort occurred but gaps occurred in relation to Q4 for a number of years in the time series. The group agreed that Q3 should be used in subsequent analyses.

In document SCRS/2013/061, catch per unit effort (CPUEs) of albacore caught by the Japanese longline (JPN LL) in the North Atlantic Ocean were standardized in three periods (1959-1969 as the target period, 1969-1975 as the transition period, and 1975-2011 as the by-catch period). Standardized CPUEs were estimated by two different generalized linear models (log-normal and negative binomial) only in the by-catch period with data updated (1975-2011) because there have not been any data changes in other two periods after the last stock assessment. However, standardized CPUE by the negative binomial model was recommended in previous stock assessments. Hence, CPUE by the negative model should be used for the stock assessment. CPUEs in the by-catch period decreased moderately from 1975 to 1985 and remained at the same level until 1999. CPUE from 1999 to 2002 increased and then decreased until 2008. CPUE after 2008 shows some increases.

In document SCRS/2013/066, catch and effort data from the U.S. pelagic longline fishery operating in the Atlantic Ocean were analyzed to estimate annual indices of abundance for two periods, 1987 to 2004 and 2005 to 2011. The two periods were modeled separately to account for a fleet-wide change in gear configuration in response to regulatory requirements for the use of circle hooks beginning August 2004. A delta-lognormal, generalized linear mixed model was used to evaluate multiple factors for each period, including year, season, and area, as well as gear characteristics (hook configuration and number of lightsticks). Significant factors included season and fishing area in the binomial (logit link) regressions of the proportion of sets that captured albacore for both periods. Significant factors in the Gaussian (identity link) regressions of the loge-transformed positive catch rates included year, area, season and their interactions. Additionally, the number of lightsticks was determined to be a significant factor in the positive catch rate model for the period 2005 to 2011. Standardized abundance indices are presented along with estimates of uncertainty for both periods. A continuous time series model is also included for comparison, which assumes no change in catchability associated with the switch from J hooks to circle hooks beginning August 2004. Albacore is a by-catch in this fishery and not a target species.

The Group requested clarification as to why the model included two separate time periods. It was explained that this was due to the change in gear, specifically the overnight change from the use of J to circle hooks and the fact that this may affect catchability. There was no overlap between the periods of circle and J hooks that would allow the GLM to account for this internally. There was concern expressed that this CPUE series shows a strong increasing trend in its final years, which is potentially conflicting with the other series. It was explained that this could be due to this fishery operating in a different spatial area (northwest Atlantic) and using a different gear than the other LL fisheries. As the stock assessment models used are not spatially structured, this may cause conflicts within the model. The change in CPUE between the two time periods appeared to be slight and thus it was suggested that these two series could be used as a single series. It was, however, noted that studies in Uruguay (Domingo et al. 2012) indicated that hook type had potentially significant impacts on catch rates of albacore tuna and that this should be further investigated. It was acknowledged that the hook size and bait type in that study differed from the US fleet and so there are potentially confounding effects. As the CPUE series was only used in the VPA, it was decided to keep the series joined for the immediate future.

Document SCRS/2013/069 presented the fact that the Chinese Taipei longline fisheries have been one of the major fleets operating in the North Atlantic for albacore resource since the mid-1960s. Catch statistics of North Atlantic albacore compiled from Chinese Taipei longline fisheries from 1967 to 2012 were thus investigated in an attempt to elucidate the abundance fluctuations of this resource. The Chinese Taipei longline CPUE was separately standardized into three periods (1967~1987, 1987~1999 and 1999~2012). The generalized linear model (GLM) with log-normal error distribution was adopted for the standardization of both yearly and quarterly catch per unit effort (CPUE) trends. Factors of year, quarter, subarea and by-catch effects of bigeye tuna, yellowfin tuna and swordfish were constructed into the model for obtaining the yearly standardized abundance trend. Factors of quarter-series, subarea, and the by-catch effects of bigeye tuna, yellowfin tuna and swordfish were constructed into the model to obtain the quarterly standardized abundance trend. The results show that the yearly standardized CPUE highly fluctuated before the mid-1980s, and then continuously declined up to the mid-1990s. Thereafter, it remained relative stable up to the present date. Similar trends were also obtained for the quarterly standardized CPUE series.

The author clarified that although the CPUE was presented as a single series, it is in fact three separate series, spilt according to changes in fishing operation over time. In the early part of the fishery, mainly traditional boats were operating. There was a subsequent shift towards deeper longline, requiring a split in the time series at this time. In recent years the fleet composition has stabilised and has been accompanied by improved data collection, requiring a final split in the CPUE series to differentiate these changes. It was discussed that in order to understand these changes it would be useful to look at the changes in species composition in catches over time. The author responded that the area factor was in fact the most important in the model, more so than species compositions. It was generally agreed that due to the separation of the series, the fisheries would need to be separated in the MFCL model.

Document SCRS/2013/062 summarised status of effort, albacore catch, CPUE and body size for the Japanese longline fishery operating in the Atlantic Ocean, including recent trends. Japanese longline vessels targeted albacore around the 1960s and became a non-target species after that, but the proportion of albacore is increasing slightly in recent years. Fishing effort fluctuated and it is decreasing in recent years. Albacore catches were high in the mid-1960s, sharply decreased during late 1960s and early 1970s, and remained at a low level after that. In the early period, effort was deployed mainly in the tropical area, and then expanded to the subtropical and temperate areas. During the 1960s, albacore was the main component of the catch in the subtropical and temperate areas. Size data of albacore have been collected from on-board measurement and the observer program. Changes in fish size by season and area were observed, and the fish in the tropical and subtropical areas were usually larger than those in the temperate area.

The Group noted that there appeared to be latitudinal differences in size compositions implying that different latitudinal bands may have different selectivities. If these are combined, the differences will not be captured in the assessment models. This issue could be picked up in any trends in size frequency data over time. Although there was no apparent significant change in the modes of the sizes frequencies over time, it was acknowledged that although the general trend may be constant, the variability may be adding noise to the series. To address this issue, it would be necessary to redefine the fleets in the MFCL model so that the CPUE and corresponding size frequencies are complimentary as using potentially incorrect selectivities for important CPUE series will have significant impacts on key parameters required for management. The model fits to the length data in the previous MFCL model showed strong residual patterns which would tend to indicate that this problem has affected the assessment in the past. The MFCL model appeared to fit very poorly to the size information which raises concerns about the use of the current model in its current configuration. The question was raised as to whether the fit can be improved, or whether the data is just not sufficiently informative to fit the model. Concern was expressed that a comprehensive restructuring of the MFCL model, requiring the additional splitting of the data may require more time and effort than is possible during the current assessment schedule. It was proposed that a method of profiling how different datasets affect key management parameters (Piner plots) may be a useful exercise to determine which components require more attention thus need to be focused on.

5.2 South Atlantic

Document SCRS/2013/070 discussed that Chinese Taipei longline fisheries have been one of the major fleets operating in the South Atlantic for albacore resource since the mid-1960s. Catch statistics of South Atlantic albacore compiled from Chinese Taipei longline fisheries from 1967 to 2012 were thus investigated in an attempt to elucidate the abundance fluctuations of this resource. The generalized linear model (GLM) with log-normal error distribution was adopted for the standardization of both yearly and quarterly catch per unit effort (CPUE) trends. Factors of year, quarter, subarea and by-catch effects of bigeye tuna, yellowfin tuna and swordfish were constructed into the model for obtaining yearly standardized abundance trend. Factors of quarter-series, subarea, and by-catch effects of bigeye tuna, yellowfin tuna and swordfish were constructed into the model for obtaining quarterly standardized abundance trend. The results show that the yearly standardized CPUE decreased substantially during the 1970s and 1980s, while it remained relative stable till the present date. Similar trends were also obtained for the quarterly standardized CPUE series.

Traditional longline has always concentrated in the southern region and as such there was no need to split the series in this region as was done in the North. It was agreed this CPUE series would again be used for the ASPIC and BSP models in the south Atlantic.

Document SCRS/2013/043 presented an update of the standardized catch rate of albacore caught by the Uruguayan longline fleet in the southwestern Atlantic using information from logbooks between 1983 and 2012. Because of the large proportion of zeros catches (30%) the CPUE (catch per unit of effort in weight) was standardized by Generalized Linear Mixed Models (GLMMs) using a Delta Lognormal approach. The independent variables included in the models as main factors and first-order interactions were: year, quarter, area, sea surface temperature and vessels categories. A total of 18,142 sets were analyzed. The standardized CPUE series of albacore caught by the Uruguayan longline fleet show a slightly decrease in their relative abundance from 1983 to 2005 and became constant in the last seven years.

As the model included year interactions, it was questioned how the year effect is taken into account, as if it not, these interactions may mask some important processes. The year factor was treated as a random effect in this case. It was acknowledged that this issue is important to consider in all CPUE standardisations for inclusion in assessment models. The Group agreed that this CPUE series will again be used in the ASPIC and BSP models for the South Atlantic.

Document SCRS/2013/063 presented CPUEs of South Atlantic albacore caught by the Japanese longline fishery which were separately standardized into three periods (1959-69, 1969-75 and 1975-2011) using negative binominal model, as with previous studies. Effects of quarter, area, fishing gear (number of hooks between floats) and several interactions were incorporated, although effect of gear can be used only from 1975. The effect of area was greatest for all three period. Standardized CPUE declined during the 1960s and early 1970s, after that the CPUE fluctuated and showed no clear trend.

It was noted that this index is similar to that presented before and can be used for the ASPIC and BSP models for the South Atlantic.

In document SCRS/2013/068, catch and effort data from 88,423 sets done by the Brazilian tuna longline fleet (national and chartered), in the equatorial and southwestern Atlantic Ocean, from 1978 to 2011 (35 years), were analyzed. The CPUE of albacore was standardized by a GLM, assuming a delta lognormal distribution. The factors used in the model were: quarter, year, area, and fishing strategy. The standardized CPUE series obtained for albacore was not much different from the one done in 2010, except for one peak in 1993 that was apparent in 2010 but it's no longer apparent. The standardized CPUE series show a significant oscillation over time, with a general increasing trend from the early 1980s to the mid-1990s, then a sharp decrease until 2003, remaining low until 2010, and then increasing again in the two last years of the series (2011 and 2012).

It was noted that the trend in this series is very different from other CPUE series and had very high inter-annual variability. In the past, this series was down-weighted in the surplus production models as the model could not resolve strong differences in the series trends. It was pointed out that the Brazilian longline series has been problematic for other species and the standardisation techniques may not account for the very heterogeneous fleet of Brazil. Other species groups have discussed this series at length and have not agreed on a consistent way to deal with the series although the group agreed that if the trends are strongly conflicting with other CPUE series available for the region, it should be excluded from the surplus production models.

In document SCRS/2013/072 it was noted that albacore is the main target of the South African tuna pole (baitboat) fleet operating along the west and south west coast of South Africa and the South African catch is the second largest in the region with annual landings of around 5,000 t. A standardization of the CPUE of the South African baitboat fleet for the time series 1999-2011 was conducted using a lognormal GLM on including dataset that included all baitboat vessels in the fleet. The explanatory variables included year, month, area, distance offshore and target. Total deviance explained by the model was 46.8%. The inclusion of the effect of targeting other species of tuna, yellowfin in particular, caused the greatest improvement in explanatory power. The standardized CPUE is similar to the nominal CPUE with no overall significant upward or downward trends. The analyses indicate that the CPUE for the South African baitboat fishery for albacore has been stable over the last decade.

There was concern expressed about using the target factor as a continuous variable and it should rather be used as a categorical variable. The group requested this change from the authors. New estimates showed very similar trends of the standardised CPUE (SCRS/2013/072**),** which did not move too far from the nominal series.

The table developed by the Working Group on Stock Assessment Methods (WGSAM) in 2012 to evaluate the presented CPUE series (Anon. 2013) was completed for each CPUE series by the Working Group Chair and the secretariat and presented to this Group. The Group then revised and modified the values (**Table 12**). It was acknowledged that this work is rather subjective and that it is only an indication as to the nature of the CPUE series and how it could be effectively used in the assessments. The Group was informed that this table should be completed prior to the applicable working group meeting by the Chair of that working group, the author of the CPUE document and the Secretariat, as this would significantly streamline the process of evaluating the CPUE series. In 2012, the table had been completed and discussed during the assessment meetings which required a significant amount of time. It was proposed that this process should include less subjective methods to rate the CPUEs (i.e., using developed routines to investigate the information). This table could then be useful for weighting the CPUEs in the assessments. It was proposed that the WGSAM should revisit this table in 2014 and clarify/modify several of the criteria and update it based on the feedback of the Species Groups that have used it, as suggested in the 2012 WGSAM report.

The various CPUE series presented in the documents above as well as any other historical series that were not updated in this meeting are presented in **Tables 13** and **14** for the North and South Atlantic, respectively. In order to visualise the yearly trends in the series, they are also presented in **Figures 15a** and **b** and **Figure 16** for the North and South Atlantic, respectively. For the North Atlantic, the BB and Troll fleet CPUE indices appear to have fairly similar trends, especially prior to 2010. For the surface fleets, there was no reason to think that catchability might have increased over time (i.e., due to incorporation of technological devices). Instead, their trends might reflect the overall trend of population abundance plus observation error, and allowing for time varying q in the assessment model may result in a loss of signal from these series. The Group noted that the Chinese Taipei and U.S. LL CPUE showed a similar increase in CPUE in 2011 as the Irish Trawl CPUE which is not reflected by the Japanese LL series. This could well reflect a change in distribution of the fish during this period, with a northern shift in the abundance rather than an absolute change in abundance. Further conflicts in signal were noted between LL series in the North Atlantic which require careful consideration when included these different series in the assessment models. **Table 15** shows the standardized quarterly North Atlantic CPUE series.

+For the South Atlantic, the group proposed that the Brazilian longline series not be included in the assessment due to the conflicting trend and problems with the standardisation procedures. It was also proposed to remove the baitboat indices from the surplus production models as they are believed to represent just a few age groups, which would violate the assumptions of these models.

It was proposed to plot the CPUE series against a GAM fitted to all the series together, to look for correlations and therefore what series provide similar or conflicting information. This could then be used to inform what series should be used in the assessments. These correlation plots are provided in **Figure 17a** and **b** and **Figure 18a** and **b** for the North and South Atlantic, respectively. For **Figure 17**, the surface fisheries are compared against the LL fisheries with a lag of 2 years in an attempt to account for the different selectivities of the fleets.

For the North, these figures indicated that the Spanish BB and Troll showed reasonably consistent trends with the Japanese LL. The Japanese LL transition series was viewed to be problematic due to its strong declining trend This series covers a period when a change in targeting had occurred which may not have been fully captured in the CPUE standardisation procedure and thus the trend in this series may not be reflective of a true biomass change in the population, thus it was decided that this series should not be included in the assessment models. The correlations often appeared over short periods, but not over the entire time period. The Group acknowledged that these plots are an exploratory tool and should not be used to make absolute decisions about what data should be excluded but may inform how the data should be used. It was recommended that a factorial exercise be conducted using different grouping of similar CPUEs and looking at the model fits to these separate scenarios.

For the South, the Group generally agreed that the Brazilian CPUE series should not be included in the surplus production models due to the previously discussed issues with the series. The BB series were also considered to be inappropriate for further use in surplus production models due to the fact they only track specific cohorts in the population which violate the assumptions of the models. As with the North, the Japanese LL transition period CPUE was proposed to be excluded from the assessment models. This trend differed from the other CPUE series and it was decided not to include this series in the assessment models.

6. Identification of data inputs for the different assessment models and advice framework

The Group recognized that the suite of assessment models being considered require different configurations of the input data. The model and data requirements of each are outlined in the tables below. Life history parameters required to run the statistical catch-at-age models (i.e., length-weight equation, growth, fecundity, etc.) are those described in section 2. The fishery data were those prepared during the meeting (see details in sections 3, 4, 5 and 6). The various CPUE time series were taken from the various papers presented during the meeting (see CPUE section and **Tables 13-15**).

North

DATA	*MFCL*	*VPA*	*SS3*
Life history	√		√
Landings	√	√	√
CPUE	√	√	√
Catch at size	√		√
Catch at age		√	

South

DATA	*ASPIC*	*BSP*
Life history		
Landings	√	√
CPUE	√	√
Catch at size		
Catch at age		

Document SCRS/2009/148 described a method that was previously presented at the 2009 Species Group meeting but that was not included it in the northern albacore assessment model. The document described the construction of a two sex model to be used in the absence of sex specific landings. The methodology was reviewed by the Group who agreed to use it in the upcoming northern albacore assessment. The Group also discussed how the

Stock Synthesis modeling framework could be best used in the 2013 assessment in light that the previous assessment used MFCL to develop the management advice. Several ideas were discussed ranging from using the SS model for hypothesis testing to using it to provide a less complex model for consideration. Much of the discussion on hypothesis testing was centered on how changes in catchability and/or oceanographic variables might help explain some of the more radical changes in estimates of CPUE, namely the Irish mid-water trawl fleet. Ultimately, the Group decided that the assessment scientist charged with running the model should use his best judgment and provide the best model specification possible without due consideration of how the MFCL model was being configured or parameterized. However, it was further noted that decisions regarding such things as fleet structure and seasonality should likely be carried forward without change.

Explanation of lack of fit to the Spanish baitboat length compositions

In an effort to help determine if there were "first principal" reasons for the use of time varying selectivity, the Group review a bubble plot of the residuals of the fit of the Spanish baitboat fisheries length compositions from the 2009 assessment (Anon. 2010). There appeared to be four apparent blocks evident in the residual patterns: a baseline period of 1981-1991, 1992-1995, 1996-2003, and back to the original baseline period starting in 2004. The 1992-1995 residual pattern was explained by the fleet moving into the area of the Azores and targeting larger fish, while there was no clear explanation for the 1996-2003 block. As a consequence, it was determined that time varying selectivity for this fishery via blocking was appropriate. Furthermore, based on the selectivity pattern, the fish landed by this fleet in the Azores were recognized to be more properly placed in Fishery number 4 from the Integrated Assessment Model fleet list.

7. Limit Reference Points

The Secretariat presented the Operating Models, the associated reference points and the Management Procedure models being currently developed in order to design a Management Strategy Evaluation Framework for the northern Albacore stock. For the OMs, alternative hypotheses about albacore biology were tested and their associated biological reference points were shown. During the presentation, several issues were discussed on how the different scenarios currently considered could be a starting point for creating more exhaustive new scenarios. The OMs, in this case Multifan-CL scenarios, could be used as simulation data generators.

In addition, a set of alternatives for the Management Procedure models were discussed. Constraints on regulating fishing mortality, including limited reductions on catch and effort were investigated through preliminary runs with the Management Strategy Evaluation Framework.

Documents SCRS/2013/033, SCRS/2013/034 and SCRS/2013/035 detailed the work conducted to create a Management Strategy Evaluation (MSE) Framework (Kell et al., 2006) to develop a limit reference points (LRP) for North Atlantic albacore. This work was presented at the meeting of the Working Group of Stock Assessment Methods and the ISSF meeting on harvest control rules (HCRs). SCRS/2013/033 describes a Management Procedure (MP) based on a biomass dynamic model, SCRS/2013/34 the conditioning of an Operating Model (OM) based on Multifan-CL (Fournier) and SCRS/2013/035 provides an example of conducting an MSE where bio-economic performance measures are used to evaluate the performance of LRP used as part of a HCR with respect to management objectives. The documents do not provide a LRP, this still requires further work, i.e., where candidate LRPs are evaluated for a range of OMs that reflect uncertainty about stock and fleet dynamics.

The LRP will be evaluated as part of a HCR using MSE, the choice of scenarios for use in the evaluation trials will be critical. SCRS/2013/035 details the approaches that can be used. The choice of trials should reflect uncertainty about population and fishery dynamics and the potential impacts on the risks of not achieving management objectives.

This doesn't mean that all uncertainty needs to be modeled in the trials since, in some cases a particular source of uncertainty may have no impact, e.g.:

- Conversion of catch-at-size to catch-at-age if the MP is based upon a biomass dynamic model, or
- The slope at the origin of the stock recruitment relationship if a trial is assumed to have failed if the SSB falls below MBal (Minimum Biological Acceptable Level, (Serchuk and Grainger, 1992) a spawning biomass level below which, observed spawning biomasses over a period of years, are considered unsatisfactory and the associated recruitments are smaller than the mean or median recruitment).

There are various schemes for running simulation trials (e.g., Kell et al. 2006, ICES 2007), the actual choice will depend on scientific, technical and institutional considerations. For the albacore MSE the intention is to use a hierarchical factorial design; in the first instance trails will be based on the main effects (e.g. i) biological hypotheses, ii) catch-at-size assumption, iii) stock abundance proxies (i.e.. CPUE series), ...), then interactions will be evaluated later (Kell et al. 1999).

The Group revisited Recommendation 11-04, according to which, "in advance of the next assessment of northern Atlantic albacore, the SCRS shall develop a Limit Reference Point (LRP) for this stock. Future decisions on the management of this stock shall include a measure that would trigger a rebuilding plan, should the biomass decrease to a level approaching the defined LRP as established by the SCRS." The Group noted that the process requires substantial interaction with the Commission and decisions that need be taken by managers (e.g., to set the desired risk levels). The Group recalled that the WGSAM provided some generic HCRs that could be used by the Albacore Species Group. In essence, the WGSAM suggested that those HCRs could be parameterized for each species by inspecting different levels of F_{target} and B_{thresh} (which could be considered a LRP), and comparing them according to performance measures (e.g., the probability of being in the green zone). The MSE framework developed so far allows providing advice to the Commission according to a range of levels of F_{target} and B_{thresh}. In response to Rec. [11-04], the aim is that in the 2013 assessment, management advice will be provided according to a range of plausible F_{target} and B_{thresh} values. However, the group is aware that full development of this work will require a longer timeframe than the one available before the assessment (e.g., to consider additional sources of uncertainty), as well as an interactive dialogue with the Commission that might take a few years.

8. Recommendations

The biological parameters used in the assessment should be reviewed. Accurate biological parameters are very important for stock assessment purposes and for the process of estimating limit reference points for albacore stocks. Albacore biological parameters are in many cases based on old studies and it is important to assess whether these parameters have changed over time or if current observations are consistent with estimates from old studies. Studies on biological parameters should include comparisons with those of different areas and consider the methods used, to facilitate development of alternative biological scenarios for stock assessment. The group noted that a major effort aiming to update biological parameters is currently being undertaken in the Pacific and a major opportunity exists to carry out comparative work and build on the methodologies employed in the Pacific for Atlantic stocks. Evaluation of biological parameters is one of the pillars of the Albacore Research Program recently recommended by the SCRS. The Group believes this Research Program should be given serious consideration under the SCRS strategic plan for 2015-2020 and in the framework of the Resolution on Best Science [Res. 11-17].

The Group recommended that further elaboration of the MSE framework be developed for albacore tuna. Among other things, work should be promoted towards including a more complete range of uncertainties, including observation, process model, and implementation errors. This would permit better characterization of uncertainty in current and future stock condition. Moreover, such a framework would help establish priorities between the main components of the Albacore Research Program (biological parameters, fishery data, models). The MSE framework would also help the Albacore Species Group simplify the process of updating management advice (e.g., through the use of simpler models).

In order to better understand the potential biases and uncertainty associated with the CAA, the Group continues to recommend further analyses on the methodology used to compute CAA. A simulation framework including the sampling process, substitutions and a range of alternative methods to convert CAS into CAA is suggested. This simulation framework can be integrated into the MSE framework in the future, and would allow for a better identification and ranking of the different sources of uncertainty (sampling vs. modeling) with respect to the management advice.

The Group recognized the advantage of having the table to score the CPUE series by the start of the meeting. The Group recommended that the working group on stock assessment methods should examine ways of developing, automating and ultimately improving the objectivity of criteria used in this table.

The Group noted that recent changes in the availability of albacore tuna in the northeast foraging areas might have affected the CPUE trends of different surface fisheries. Thus, it is recommended to investigate the effect of environmental variables on those CPUE trends, in order to better interpret them.

When submitting CAS as Task II size information, the Group reiterated the SCRS requirement to report CAS together with the size samples.

The Group encouraged that participants in charge of the modeling tasks make progress on refining the stock assessment models both in and out of the assessment session, including work during years where no assessment is scheduled. For instance, the group felt that it might be worth revisiting the current definition of the MFCL fisheries.

First estimates of albacore tuna discards in Uruguayan longline fisheries were made available during the data preparatory meeting (SCRS/2013/067). The Group recommended extending these studies to other longline fisheries to obtain estimates of the amount of albacore tuna being discarded. It was also recommended that CPUE series be constructed using data from both retained and discarded albacore tuna.

Several countries with important albacore fisheries were not represented in the data preparatory meeting. This limited the ability of the Group to properly revise the basic fishery data and some standardized CPUEs that were submitted electronically. This resulted in unquantified uncertainties and negatively affected the successfully for achieving the objective of the meeting. To overcome this, the Group recommends that CPCs make additional efforts and be made aware of capacity building funds available for participation in and contributing to working group meetings.

9. Other matters

No other matters were discussed.

10. Adoption of the report and closure

The report was adopted and the meeting adjourned.

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Table 1. Biological parameters and conversion factors of the North Atlantic albacore stock.

North Stock	*Parameters*	*Source*
Growth	L∞ = 124.74 cm; k = 0.23; t_0 = - 0.9892	Bard (1981)
Length-weight relationship	a=1.339x 10^{-5} b=3.1066	Santiago (1993)
Maturity	50% of mature fish at 90 cm (age 5)	Bard (1981)
Natural mortality	*M* = 0.3 per year	
M at age (1 to 15)	0.63; 0.46; 0.38; 0.34; 0.31; 0.29; 0.31; 0.34; 0.38; 0.44; 0.55; 0.55; 0.55; 0.55; 0.55	Anon (2009)

Table 2. Biological parameters and conversion factors of the South Atlantic albacore stock.

South Stock	*Parameters*	*Source*
Growth	L∞ = 147.5 cm; k = 0.126; and t_0 = - 1.89	Lee and Yeh (2007)
Length-weight relationship	a=1.3718x 10^{-5} b=3.0973	Penney (1994)
Maturity	50% of mature fish at 90 cm (age 5)	Bard (1981)
Natural mortality	*M* = 0.3 per year	

Table 3. Catalogue of ALB-N statistics available by fishery (flag/gear combination, ranked in descending by order of importance) and year, from 1980 to 2011. Only the 31 most important fisheries (representing 99% of Task I catch) are shown. For each data series, Task I (DSet= “t1”, in tonnes) is visualised against its equivalent Task II availability (DSet= “t2”) scheme. The Task-II colour scheme, combined with a concatenation of characters (“a”= T2CE exists; “b”= T2SZ exists; “c”= CAS exists) represents the Task-II data availability (in ICCAT-DB). The colour scheme pattern, starts with red (“-1” = no Task II available) and ends with dark green (“abc”= all Task II datasets available).

Stock	Status	FlagName	GearGrp	DSet	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Rank
ATN	CP	EU.España	BB	t1	15743	12578	15342	18958	7413	11777	14620	18196	15762	14918	15442	8267	10814	12277	11041	9953	9640	9401	7346	8448	10774	4929	4712	7325	7893	10067	14182	8375	7403	4940	5841	4676	1
				t2	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	1
ATN	CP	EU.España	TR	t1	9459	8241	10136	10596	8242	8894	9767	10010	10966	10479	10342	8955	7347	6094	5952	10225	6649	7864	5834	6829	5013	4245	3976	5193	7477	10165	10277	6089	5233	4437	7009	3564	2
				t2	ac	abc	abc	ac	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	2
ATN	NCC	Chinese Taipei	LL	t1	7090	6584	10500	14254	14923	14899	19646	6636	2117	1294	1651	4318	2209	6300	6409	3977	3905	3330	3098	5785	5299	4399	4330	4557	4278	2540	2357	1297	1107	863	1587	1367	3
				t2	ab	ab	ab	ab	ab	ab	ab	ab	a	ab	ab	ab	ab	ab	ab	ab	ab	ac	abc	abc	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	3
ATN	CP	EU.France	TW	t1								262	1693	2240	1032	463	2459	1706	1967	2904	2570	2874	1178	4723	3466	4740	4275	3252	2194	6743	5878	2842	2806	773	1216	3249	4
				t2								-1	-1	abc	abc	bc	ab	-1	ab	c	c	c	-1	ac	ac	ac	ac	ab	abc	abc	abc	abc	abc	abc	ab	ab	4
ATN	CP	EU.France	GN	t1								88	753	1450	2268	3660	4465	4587	3967	2400	2048	1717	2393	1723	1864	1150	13								2	1	5
				t2								-1	-1	abc	abc	bc	ab	ab	ab	c	c	c	-1	ac	ac	ac	a								-1	-1	5
ATN	CP	EU.Portugal	BB	t1	79	442	305	1778	762	632	450	430	171	166	3182	700	1622	3369	926	6458	1622	393	76	281	255	1137	1913	516	224	391	21	80	517	54	179	855	6
				t2	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	abc	ab	abc	abc	abc	abc	abc	abc	ab	abc	abc	abc	ab	abc	abc	abc	a	abc	abc	abc	ab	abc	6
ATN	CP	Japan	LL	t1	1036	1740	781	1156	576	844	470	494	723	764	737	691	466	485	505	386	466	414	446	425	688	1126	711	680	893	1336	781	288	402	288	525	494	7
				t2	ab	ab	ab	ab	ab	ab	ab	abc	abc	ab	ab	ab	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	7
ATN	CP	EU.Ireland	GN	t1											40	60	451	1946	2534	918	874	1913	3639	4523	3374	1430											8
				t2											-1	-1	-1	ab	-1	-1	c	c	c	bc	ab	ab											8
ATN	CP	EU.France	TR	t1	3600	2537	2695	2192	2787	1760	1070	1441	359	70	325										0	0		9	14	9		4	0	1	0	10	9
				t2	a	a	ab	ac	a	a	a	-1	-1	abc	a		a	a							a	a		a	a	a	a	a	a	abc	a	a	9
ATN	CP	EU.Ireland	TW	t1																			57	319	80	634	1100	594	172	258	505	586	1514	1997	785	3595	10
				t2																			-1	b	a	a	abc	abc	abc	ac	abc	abc	abc	abc	abc	abc	10
ATN	CP	U.S.A.	RR	t1		398	667	322	2176	75	190	230	214	133	175	251	103	224	324	23	309	335	601	90	251	122	323	334	500	356	284	394	125	23	150	171	11
				t2		-1	-1	-1	-1	ab	ab	ab	ab	a	ab	ab	ab	ab	ab	ab	b	ab	ab	ab	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	bc	11
ATN	CP	Panama	LL	t1	193	177	494	357	2551	601	525	44					29	60	103	73	11	5									96	298	113	45	154	103	12
				t2	-1	-1	-1	-1	-1	-1	-1	-1					-1	-1	-1	-1	-1	-1									a	a	a	a	-1	-1	12
ATN	CP	St. Vincent and Grenadines	LL	t1																					703	1370	300	1555	82	802	76	263	130	134	174	329	13
				t2																					-1	-1	a	a	a	-1	a	a	a	a	a	ab	13
ATN	CP	Korea Rep.	LL	t1	797	938	1326	478	967	390	373	18	16	53	34	1	0	8	0	2	2	1								59	45	12	59	82	110	60	14
				t2	ab	ab	ab	ab	ab	ab	ab	a	ab	ab	a	a	a	a	a	a	a	a								a	a	a	a	a	a	-1	14
ATN	CP	Venezuela	PS	t1			80	364	555	59	22		97	12	1	221	139	228	278	278	263	26	91	55	191	260	93	211	341	63	162	198	70	84	16		15
				t2			a	a	a	a	a		a	ab	a	b	-1	ab	ab	ab	b	a	ab	a	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab		15
ATN	CP	Venezuela	LL	t1	300	331	7	296	403	328	148	26	40	29	93	75	51	18	0	0	52	49	16	36	106	35	67	135	116	111	155	146	138	290	242	247	16
				t2	-1	-1	a	a	a	a	a	ab	b	b	b	b	ab	ab	ab	ab	ab	b	ab	ab	ab	b	-1	a	a	a	a	a	a	a	a	a	16
ATN	CP	U.S.A.	LL	t1	4	1	16	13	25	12	38	42	56	61	148	201	116	192	230	373	123	184	179	192	146	191	146	106	120	108	103	127	127	158	160	268	17
				t2	-1	-1	-1	-1	-1	-1	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	17
ATN	CP	EU.France	BB	t1	355	392	160	199	10	100	130	130		290							76	27	140	51	43	5	13		11		70	15	7				18
				t2	-1	-1	-1	-1	-1	-1	-1	-1		-1							-1	-1	-1	-1	-1	-1	-1		-1		-1	-1	-1				18
ATN	NCO	Cuba	LL	t1	31	48	82	38	69	20	31	15	4	1	2												1	322	435	424	527						19
				t2	a	a	a	a	a	a	a	a	a	a	a												ab	-1	-1	-1	-1						19
ATN	CP	EU.España	LL	t1				3	1	1			10	27	8	11	13	8	5	19	35	30	105	86	214		264	12	10	216	80	118	89	240	111	117	20
				t2				-1	-1	-1			ab	ab	ab	ab	ab	ab	ab	ab	ab	-1	-1	-1	-1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	20
ATN	CP	Vanuatu	LL	t1																									414	507	235	95	20	140	187	196	21
				t2																									a	a	a	-1	-1	-1	a	ab	21
ATN	CP	EU.United Kingdom	GN	t1													59	499	613	196	49	33	36	42	14					5	0	0			0	0	22
				t2													-1	-1	-1	a	a	a	-1	-1	-1					-1	a	a			a	-1	22
ATN	NCC	Chinese Taipei	GN	t1											1354																						23
				t2											-1																						23
ATN	CP	EU.France	LL	t1																				76	4	26	16	90	176	253	309	229	128	4	17	3	24
				t2																				a	a	a	a	a	a	a	a	abc	abc	abc	a	a	24
ATN	CP	Trinidad and Tobago	LL	t1				268	194	318					4		247					2	1	1	2	11	9	12	12	9	12	18	32	17	17	17	25
				t2				-1	-1	-1					-1		-1					-1	-1	-1	-1	-1	-1	a	a	a	a	a	a	a	a	-1	25
ATN	CP	China P.R.	LL	t1															14	8	20			21	16	57	196	155	32	112	202	59	24	27	142	101	26
				t2															-1	-1	-1			a	a	a	a	a	a	a	a	a	a	ab	ab	ab	26
ATN	CP	EU.France	UN	t1																				301	273	4	1	54	10	6	4	2	1	341	2	48	27
				t2																				a	a	a	a	a	a	a	a	a	a	-1	-1	-1	27
ATN	CP	EU.Portugal	LL	t1												2			0	0	2		3	39	22		9	37	287	165	98	104	91	53	13	87	28
				t2					a							a			a	a	a		a	a	-1		a	a	a	ab	a	a	ab	a	ab	ab	28
ATN	CP	EU.France	HL	t1																				13	68	80	2	50	36	218	297	86	67	4	57	12	29
				t2																				a	a	a	a	a	a	a	a	a	a	a	ab	a	29
ATN	CP	Belize	LL	t1																												22	26	39	366	351	30
				t2																												a	a	ab	ab	ab	30
ATN	CP	Canada	LL	t1							1	21	47		6	5	1	9	32	11	14	27	20	26	103	42	99	32	23	40	12	20	22	8	14	22	31
				t2							-1	b	b	b	b	-1	a	a	a	a	a	a	a	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	abc	31

Table 4. Catalogue of ALB-S statistics available by fishery (flag/gear combination, ranked in descending by order of importance) and year, from 1980 to 2011. Only the 20 most important fisheries (representing 99% of Task I catch) are shown. For each data series, Task I (DSet= "t1", in tonnes) is visualised against its equivalent Task II availability (DSet= "t2") scheme. The Task-II colour scheme, combined with a concatenation of characters ("a"= T2CE exists; "b"= T2SZ exists; "c"= CAS exists) represents the Task-II data availability (in ICCAT-DB). The colour scheme pattern, starts with red ("-1" = no Task II available) and ends with dark green ("abc"= all Task II datasets available).

Stock	Status	FlagName	GearGrp	DSet	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Rank
ATS	NCC	Chinese Taipei	LL	t1	18710	18187	22800	9502	7889	19643	27592	28790	20746	18386	20442	19883	23063	19400	22573	18351	18956	18165	16106	17377	17221	15833	17321	17351	13288	10730	12293	13146	9966	8678	10975	13032	1
				t2	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ac	abc	abc	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	1
ATS	CP	South Africa	BB	t1	1233	1721	2523	1741	3184	6463	5787	7217	6526	6834	5220	3355	6306	6845	6842	5204	5425	6581	8401	5010	3463	6715	6057	3323	4153	2856	3365	2024	2334	2967	2446	2029	2
				t2	ab	a	abc	a	a	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	b	ab	abc	ab	abc	abc	abc	abc	ab	ab	ab	a	a	ab	2
ATS	CP	Namibia	BB	t1															915	950	982	1192	1422	1072	2240	2969	2858	2432	3079	2031	2426	1058	1856	4936	1263	3711	3
				t2															abc	abc	-1	-1	-1	abc	c	ab	ac	-1	abc	abc	abc	abc	abc	abc	abc	abc	3
ATS	CP	Brasil	LL	t1	390	256	729	678	469	293	501	322	395	433	485	1095	2710	3600	835	723	807	589	3013	1478	3758	6240	2865	1844	285	359	267	222	233	150	207	920	4
				t2	ab	ab	ab	ab	ab	ab	ab	ab	a	a	a	a	ab	ab	ab	ab	a	ab	ab	ab	ab	a	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	4
ATS	CP	Japan	LL	t1	333	558	569	162	224	623	739	357	405	450	587	654	583	467	651	389	435	424	418	601	554	341	231	322	509	312	316	238	1370	921	973	1194	5
				t2	ab	ab	ab	ab	ab	ab	ab	abc	abc	ab	ab	ab	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	abc	ac	abc	abc	abc	abc	abc	abc	5
ATS	CP	EU.Portugal	BB	t1					724	1357	1029	899	1153	557	732	81	184	483	1185	655	494	256	124	232	486	40	433	415	9								6
				t2					-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	a	a	a	a								6
ATS	CP	South Africa	RR	t1																								82	201	288	324	1696	1028	1855	1529	1268	7
				t2					a	a	a	a	a	a	a	a	a	a			a							-1	-1	a	a	a	a	-1	-1	-1	7
ATS	CP	EU.España	LL	t1											0	1	127	135	149	202	180	190	20	871	282	573	829	183	81	261	358	758	908	997	266	250	8
				t2											ab	ab	ab	-1	ab	ab	ab	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	8
ATS	CP	EU.España	PS	t1		889	106	295	307	155	200	807	185			279	1816	648	682	255	4	66	173	156	7		7	193		24	9		25	64	28	64	9
				t2		-1	-1	-1	-1	-1	-1	-1	-1			ac	ac	abc	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac		ac	ac		abc	ac	ac	ac	9
ATS	CP	St. Vincent and Grenadines	LL	t1																					2116	4292	44				65	160	71	51	31	94	10
				t2																					-1	-1	a		a		a	a	a	a	a	a	10
ATS	CP	EU.France	PS	t1	457	912	947	372	7	18	35	100				50	449	564	129	82	190	38	40	13	23	11	18	63	16	478	347	12	50	60	109	53	11
				t2	-1	-1	-1	-1	-1	-1	-1	-1				ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	ac	11
ATS	CP	Namibia	LL	t1															196			7	7	90	178	450	105	721	250	313	2674	138	102	0	57	80	12
				t2															a			-1	-1	a	-1	ab	ac	-1	ab	ab	ab	ab	a	ab	ab	abc	12
ATS	CP	Korea Rep.	LL	t1	690	682	563	599	348	511	321	383	180	54	19	31	5	20	3	3	18	4	7	14	18	1		5	37	42	66	56	88	374	130	70	13
				t2	ab	ab	ab	ab	ab	ab	ab	a	ab	ab	a	a	a	a	a	a	a	a	a	a	a	-1		-1	a	a	a	a	a	a	a	-1	13
ATS	CP	Brasil	BB	t1			52	53	258	89	13	65	17	2	29	18		13		200	12	63	405	394	627	619	363	803	235	197	85	293	156	18	34	198	14
				t2			a	a	a	a	ab	a	a	a	a	a		a		a	a	a	a	a	-1	a	a	a	a	a	a	ab	a	a	a	a	14
ATS	CP	Uruguay	LL	t1		23	235	373	526	1531	262	178	100	83	55	34	31	28	16	49	75	56	110	90	90	135	111	108	120	32	93	34	53	97	24	37	15
				t2		a	a	b	b	b	b	b	b	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	ab	ab	ab	ab	ab	ab	15
ATS	CP	Panama	LL	t1	167	129	210				280	924				161	353	150	260	216	358	53	58									69	5	6			16
				t2	-1	-1	-1				-1	-1				-1	-1	-1	-1	-1	-1	-1	-1								a	a	a	a			16
ATS	CP	South Africa	LL	t1	350	536	120	591	311	44	96		66	0									11	18	89	144	127	64	52	55	46	78	107	125	83	82	17
				t2	a	a	a	a	a	a	a		a	-1									a	ab	ab	ab	abc	ab	ab	ab	ab	ab	ab	ab	ab	ab	17
ATS	CP	South Africa	SP	t1	260	62	456	422	11	181	38	58	44	56	60	55	54	36	89	10	209	127		73	58	377	323										18
				t2	a	a	a	a	-1	-1	-1	-1	-1	-1	-1	-1	-1	a	a	-1	-1	a		-1	-1	-1	-1										18
ATS	CP	Vanuatu	LL	t1																									0	684	1400	96	131	64	104	85	19
				t2																									a	a	a	-1	-1	-1	a	ab	19
ATS	NCO	Argentina	UN	t1			7	55	209	153	356	469	344	354	151	60	306		2																		20
				t2			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-1																		20
ATS	NCO	NEI (Flag related)	LL	t1												149	262	146	123	102	169	47	42	38													21
				t2												-1	-1	-1	-1	-1	-1	-1	-1	-1													21
ATS	CP	Belize	LL	t1																2				8	2						54	32	31	213	303	335	22
				t2													a	a	a	a	a			-1	a						a	a	a	ab	ab	ab	22

Table 5. ALB Task-I (1980-2011). Estimated catches (t) of albacore (*Thunnus alalunga*) by area, gear and flag (as of 2013-04-23).

			1980	*1981*	*1982*	*1983*	*1984*	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*
TOTAL			62137	60071	73617	67643	59850	76052	88554	82741	67295	63342	67491	56326	69615	73086	71812	67517	60379	59585	59039	67058	70088	69915	60094	61462	53378	57728	67389	48827	42310	41647	40825	49000
	ATN		38691	34531	42673	51490	41800	40826	47554	38115	33059	32071	36881	27931	30851	38135	35163	38377	28803	29023	25746	34551	33124	26253	22741	25567	25960	35318	36989	21991	20483	15380	19509	20218
	ATS		22946	24040	29672	14918	14599	31097	37288	40630	30173	27212	28714	26016	36562	32813	35300	27552	28426	28022	30595	27656	31387	38796	31746	28002	22543	18881	24453	20269	18857	22246	19192	24122
	MED		500	1500	1272	1235	3451	4129	3712	3996	4063	4060	1896	2379	2202	2138	1349	1587	3150	2541	2698	4851	5577	4866	5608	7893	4874	3529	5947	6566	2970	4021	2124	4660
Landings	ATN	Bait boat	16177	13412	15857	21108	8313	12589	15202	18756	15933	15374	18624	8968	12436	15646	11967	16411	11338	9821	7562	8780	11072	6103	6638	7840	8128	10458	14273	8496	7931	4994	6026	5530
		Longline	9451	9819	13206	16863	19709	17413	21232	7296	3013	2239	2683	5315	3152	7093	7309	4859	4641	4051	4035	6710	7321	7372	6180	7699	6917	6911	5223	3237	2647	2619	3913	3847
		Other surf.	3	521	694	367	2194	108	213	343	994	1652	3865	3999	5173	7279	7506	3555	3337	4378	6846	6817	5971	2828	422	551	697	624	625	525	274	427	324	411
		Purse seine	0	0	84	364	555	59	60	1	97	12	1	222	139	229	292	278	263	26	91	56	191	264	118	211	348	99	188	198	70	89	74	
		Trawl	0	1	0	0	0	2	0	262	1693	2240	1033	469	2603	1779	2131	3049	2571	2877	1318	5343	3547	5374	5376	3846	2369	7001	6385	3429	4321	2811	2026	6852
		Troll	13059	10778	12831	12788	11029	10654	10847	11457	11329	10554	10675	8959	7348	6109	5959	10226	6652	7870	5894	6845	5023	4312	4007	5419	7501	10224	10296	6105	5239	4440	7146	3578
	ATS	Bait boat	1346	1721	2575	1794	4166	7909	6829	8181	7696	7393	5981	3454	6490	7379	8947	7091	6960	8110	10353	6709	6873	10355	9712	6973	7475	5084	5876	3374	4346	7922	3743	5938
		Longline	20671	20426	25255	11941	9834	22672	29815	30964	21894	19407	21590	22008	27162	23947	24806	20040	21000	19547	19799	20640	24398	28039	21671	20626	14735	12977	17740	15087	13218	12113	13471	16445
		Other surf.	449	89	493	484	234	334	400	537	398	411	1139	137	393	39	483	10	209	127	0	73	58	377	323	82	299	288	395	1762	1219	2066	1651	1538
		Purse seine	480	1804	1349	699	365	182	244	948	185	0	4	416	2517	1448	1064	412	257	117	434	183	58	25	39	309	16	533	441	45	75	145	328	201
		Trawl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	9	52	0	0	0	12	18	0	0	0	0	0	0	
	MED	Bait boat	0	900	539	535	1331	243	0	0	0	0	83	499	171	231	81	163	205	0	33	96	88	77	29	0	0	0	0	0	0	0	0	
		Longline	0	0	0	0	226	375	324	164	168	165	624	524	442	410	350	87	391	348	194	417	2800	2597	3706	4248	2345	2012	3010	4119	2695	1580	1719	2356
		Other surf.	500	600	700	700	1753	2973	3068	3782	3879	3879	1098	1198	1533	879	766	1031	2435	1991	2426	4265	2689	2193	1755	3166	2176	1200	134	1401	250	2414	404	2245
		Purse seine	0	0	0	0	141	274	10	50	16	16	91	110	6	559	23	0	0	0	0	0	0	0	1	478	353	317	2803	1046	24	25	0	34
		Trawl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Troll	0	0	33	0	0	264	310	0	0	0	0	48	50	59	129	306	119	202	45	73	0	0	117	0	0	0	0	0	0	1	1	
Discards	ATS	Longline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MED	Longline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
Landings	ATN	Barbados	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	2	5	8	10	13	9	7	7	4	6	4
		Belize	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	26	39	416	351
		Brasil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	
		Canada	0	0	0	0	0	0	1	21	47	22	6	5	1	9	32	12	24	31	23	38	122	51	113	56	27	52	27	25	33	11	14	28
		Cape Verde	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	
		China P.R.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	8	20	0	0	21	16	57	196	155	32	112	202	59	24	27	142	101
		Chinese Taipei	7090	6584	10500	14254	14923	14899	19646	6636	2117	1294	3005	4318	2209	6300	6409	3977	3905	3330	3098	5785	5299	4399	4330	4557	4278	2540	2357	1297	1107	863	1587	1367
		Cuba	31	48	82	38	69	20	31	15	4	1	2	0	0	0	0	0	0	0	0	0	0	0	1	322	435	424	527	0	0	0	0	
		Côte D'Ivoire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	53	39
		Dominican Republic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	323	121	73	95	0	0	0	0	0	0	0	0	0	0	
		EU.España	25202	20819	25478	29557	15656	20672	24387	28206	26738	25424	25792	17233	18175	18380	16998	20197	16324	17295	13285	15363	16000	9177	8952	12530	15379	20447	24538	14582	12725	9617	12961	8357
		EU.France	3955	2929	2855	2391	2797	1860	1200	1921	2805	4050	3625	4123	6924	6293	5934	5304	4694	4618	3711	6888	5718	6006	4345	3456	2448	7266	6585	3179	3009	1122	1298	3348
		EU.Ireland	0	0	0	0	0	0	0	0	0	0	40	60	451	1946	2534	918	874	1913	3750	4858	3464	2093	1100	755	175	306	521	596	1517	1997	788	3597
		EU.Netherlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
		EU.Portugal	79	442	321	1778	775	657	498	433	184	169	3185	709	1638	3385	974	6470	1634	395	91	324	278	1175	1953	553	513	556	119	184	614	108	202	1046
		EU.United Kingdom	0	0	0	0	0	0	0	0	0	0	0	0	59	499	613	196	49	33	117	343	15	0	0	0	0	6	19	30	50	67	118	57
		FR.St Pierre et Miquelon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	7	2	0	3	0	0	0	
		Grenada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	6	7	6	12	21	23	46	25	29	19	20	15	18	18	18
		Guatemala	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
		Iceland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Japan	1036	1740	781	1156	576	844	470	494	723	764	737	691	466	485	505	386	466	414	446	425	688	1126	711	680	893	1336	781	288	402	288	525	494
		Korea Rep.	797	938	1326	478	967	390	373	18	16	53	34	1	0	8	0	2	2	1	0	0	0	0	0	0	0	59	45	12	59	82	110	60
		Maroc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	81	120	178	98	96	99	130	0	0
		Mexico	2	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		NEI (Flag related)	0	0	0	0	0	0	0	0	0	0	0	11	19	13	10	8	11	3	8	12	0	0	0	0	0	0	0	0	0	0	0	
		Panama	193	177	494	357	2551	601	525	44	0	0	0	0	29	60	117	73	11	5	0	0	0	0	0	0	0	0	96	298	113	45	154	103
		Philippines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	151	4	0	0	0	0	0	9	0	8	19	54	0	
		Sierra Leone	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	91	0	0	0	0	0	0	0	0	0	
		St. Vincent and Grenadines	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	704	1370	300	1555	89	802	76	263	130	135	177	329
		Sta. Lucia	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0	1	3	2	10	0	2	2	2	2	0	130	2
		Suriname	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Trinidad and Tobago	0	0	0	268	194	318	0	0	0	0	4	0	247	0	0	0	0	2	1	1	2	11	9	12	12	9	12	18	32	17	17	17
		U.S.A.	6	472	699	347	2206	98	251	301	288	243	357	479	438	509	741	545	472	577	829	315	406	322	480	444	646	488	400	532	257	189	315	449
		U.S.S.R.	0	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		UK.Bermuda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	2	2	0	0	1	1	0	0	0	0	0	1
		Vanuatu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	414	507	235	95	20	140	187	196
		Venezuela	300	331	137	823	1076	467	172	26	137	41	94	302	193	246	282	279	315	75	107	91	299	348	162	346	457	175	321	375	222	398	288	247
	ATS	Argentina	4	2	7	55	209	153	356	469	344	354	151	60	306	0	2	0	0	120	9	52	0	0	0	12	18	0	0	0	0	0	130	43
		Belize	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	8	2	0	0	0	0	0	54	32	31	213	303	365
		Brasil	476	276	800	731	732	382	520	395	421	435	514	1113	2710	3613	1227	923	819	652	3418	1872	4411	6862	3228	2647	522	556	361	535	487	202	271	1269
		Cambodia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	
		Cape Verde	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	46	15	0	0	0	5
		China P.R.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	89	26	30	26	112	95	100	35	25	89	97	80
		Chinese Taipei	18710	18187	22800	9502	7889	19643	27592	28790	20746	18386	21369	19883	23063	19400	22573	18351	18956	18165	16106	17377	17221	15833	17321	17351	13288	10730	12293	13146	9966	8678	10975	13032

		Cuba	27	53	29	36	67	27	24	10	2	1	2	17	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Curaçao	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	192	0	2	0	0	0	0	0	0	0	0	21	4	4
		Côte D'Ivoire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	43	45
		EU.España	0	889	106	295	307	155	200	807	185	0	0	280	1943	783	831	457	184	256	193	1027	288	573	836	376	81	285	367	758	933	1061	294	314
		EU.France	457	912	947	372	7	18	35	100	0	0	0	50	449	564	129	82	190	38	40	13	23	11	18	63	16	478	347	12	50	60	109	53
		EU.Portugal	0	0	0	0	741	1357	1029	899	1153	557	732	81	184	483	1185	655	494	256	124	232	486	41	433	415	9	43	8	13	49	254	84	44
		EU.United Kingdom	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
		Guatemala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	56	
		Honduras	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	2	0	7	1	6	0	0	0	0	0	0	0	0	0	0	0	
		Japan	333	558	569	188	224	623	739	357	405	450	587	654	583	467	651	389	435	424	418	601	554	341	231	322	509	312	316	238	1370	921	973	1194
		Korea Rep.	803	682	563	599	348	511	321	383	180	54	19	31	5	20	3	3	18	4	7	14	18	1	0	5	37	42	66	56	88	374	130	70
		Maroc	0	0	113	0	0	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		NEI (ETRO)	0	0	0	0	0	0	0	0	0	0	4	8	122	68	55	63	41	5	27	0	0	10	14	53	0	7	0	0	0	0	0	
		NEI (Flag related)	0	0	0	0	0	0	0	0	0	0	0	149	262	146	123	102	169	47	42	38	0	0	0	0	0	0	0	0	0	0	0	
		Namibia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1111	950	982	1199	1429	1162	2418	3419	2962	3152	3328	2344	5100	1196	1958	4936	1320	3791
		Panama	167	129	210	0	0	0	280	924	0	0	0	240	482	318	458	228	380	53	60	14	0	0	0	0	0	17	0	87	5	6	1	
		Philippines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4	0	0	0	0	0	52	0	13	79	45	95	96
		Seychelles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		South Africa	1850	2320	3180	2760	3540	6697	5930	7275	6636	6890	5280	3410	6360	6881	6931	5214	5634	6708	8412	5101	3610	7236	6507	3469	4502	3198	3735	3797	3468	5043	4147	3380
		St. Vincent and Grenadines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2116	4292	44	0	0	0	65	160	71	51	31	94
		U.S.A.	16	2	102	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	1	1	2	8	2	1	0	0	0	0	0	0	
		U.S.S.R.	99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		UK.Sta Helena	4	7	11	7	9	0	0	2	1	1	1	5	28	38	5	82	47	18	1	1	58	12	2	0	0	0	62	46	94	81	3	120
		Uruguay	0	23	235	373	526	1531	262	178	100	83	55	34	31	28	16	49	75	56	110	90	90	135	111	108	120	32	93	34	53	97	24	37
		Vanuatu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	684	1400	96	131	64	104	85
	MED	Croatia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7
		EU.Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	12	30	255	425	507	712	209	223	206	222
		EU.España	0	900	572	535	1368	531	0	3	3	0	84	548	227	298	218	475	429	380	126	284	152	200	209	1	138	189	382	516	238	204	277	343
		EU.France	0	0	0	0	141	250	20	60	31	31	121	140	11	64	23	3	0	5	5	0	0	0	1	0	0	0	0	2	1	0	1	2
		EU.Greece	0	0	0	0	0	0	484	500	500	500	500	500	500	1	1	0	952	741	1152	2005	1786	1840	1352	950	773	623	402	448	191	116	125	165
		EU.Italy	500	600	700	700	1942	3348	3208	3433	3529	3529	1191	1191	1464	1275	1107	1109	1769	1414	1414	2561	3630	2826	4032	6912	3671	2248	4584	4017	2104	2724	1109	2494
		EU.Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	4	0	2	0	10	15	0	1	5	1	2	5
		EU.Portugal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Japan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Korea Rep.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	
		Maroc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	0	
		NEI (MED)	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Syria Rep.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	14	0	0	
		Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	30	73	852	208	631	402	1396
		Yugoslavia Fed.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Discards	ATS	Korea Rep.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MED	EU.Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25

Table 6. ALB-N definition of the 12 major fisheries to be used on the MFCL analysis.

				Major gear(s)/fleets(s) (defining the Fishery)		*Associated gear(s)/fleet(s) (merged to obtain combined: Task-I/CATDIS and size samples)*	
Fishery ID	*Acronym*	*Description*	*Time Period*	*Major Gear*	*Main Fleets*	*List of gear codes*	*List of fleet codes*
ALBN01	BB(ES)rec	BB Cantabric (ESP) recent years	year ≥ 1981	BB	EU.ESP-ES-CANT_ALB	TRAW, MWT, MWTD	EU.FRA, EU.IRL, EU.NLD, EU.UK, USA, USA-Com
ALBN02	TR(ES+FR)all	TR Cantabric (ESP+FRA) all series	year ≥ 1930	TR	EU.ESP-ES-CANT_ALB, EU.FRA, EU.FRA-FR	GILL	EU.IRL, EU.UK, MIX.FR+ES
ALBN03	BB(ES+FR)old	BB (ES+FR) early years	year ≤ 1980	BB	EU.ESP-ES-CANT_ALB, EU.FRA, EU.FRA-FR	none	none
ALBN04	BB(PT+ES)islds	BB (PT+ES) Islands (Azores, Madeira, Canary)	year >= 1958	BB	EU.ESP-ES-CANARY, EU.PRT-PT-AZORES, EU.PRT-PT-MADEIRA	none	EU.ESP-CANT_AZS_ALB, EU.ESP-CANT_CDZ_ALB
ALBN05	LL(JP)targ	JPN LL (ALB) targeting period	year ≤ 1969	LL	JPN	none	none
ALBN06	LL(JP)trans	JPN LL (ALB) transition period	1970 ≤ year ≤ 1975	LL	JPN	none	none
ALBN07	LL(JP)byca	JPN LL (ALB) bycatch period	>= 1976	LL	JPN	none	none
ALBN08	LL(TW)old	TAI LL old fleet (traditional longline)	year ≤ 1986	LL	TAI	LL (all types)	BRA-JPN, CAN-JPN, EU.ESP-ES-SWO, TTO, USA, USR, VEN, VEN-FOR.FLTS (excludes CUB + PAN + KOR)
ALBN09	LL(TW)tran	TAI LL transition fleet (moving towards deep longline)	1987 ≤ year ≤ 1998	LL	TAI	LL (all types)	BRB, CAN, CAN-JPN, CHN, EU.ESP-ES-SWO, EU.PRT-PT-MADEIRA, EU.PRT-PT-MAINLND, GRD, NEI.071, NEI.134, PHL, SLE, TTO, USA, VEN, VEN-FOR.FLTS (excludes CUB + PAN + KOR)
ALBN10	LL(TW)rec	TAI LL recent fleet (stable deep longline)	year ≥ 1999	LL	TAI	LL (all types)	MAR, BLZ-ESP, BLZ-TTO, BRA-ESP, BRA-GNQ, BRA-JPN, BRA-PAN, BRA-TAI, BRA-URY, BRA-USA, BRA-VCT, BRB, CAN, CHN, CIV-CIV-KOREA, CUB, EU.ESP-ES-SWO, EU.FRA, EU.IRL, EU.PRT-PT-AZORES, EU.PRT-PT-MADEIRA, EU.PRT-PT-MAINLND, EU.UK, FR.SPM-CAN, GRD, ISL, MEX, NEI.071, NEI.134, PHL, PHL-PHL-MANILA, SLE, TTO, TTO-TTO-TRINID, UK.BMU, USA, USA-Com, VCT, VEN, VEN.INDUSTRIAL, VUT (excludes CUB + PAN + KOR)
ALBN11	LL(KR+PA+CU)	LL (KOR + PAN) all series + LL CUB (1964-93)	year ≥ 1964	LL	KOR, PAN, CUB	LL (all types)	CUB, KOR, PAN, PAN-PAN-TTO
ALBN12	SU_other	Other SURF fisheries (including UNCL)	year ≥ 1978	SU	Various (other surface)	all SURF gears (including UNCL) not in Fisheries [1-11]	MAR, BRB, CAN, CPV, CPV-ETRO, DOM, EU.ESP, EU.ESP-CANT_CDZ_ALB, EU.ESP-ES-ETRO, EU.FRA, EU.FRA-FR-ETRO, EU.IRL, EU.PRT, EU.PRT-PT-MADEIRA, EU.PRT-PT-MAINLND, EU.UK, GRD, GTM.ETRO, LCA, MEX, PAN, TAI, UK.BMU, USA, USA-Com, USA-Rec, USR, VCT, VEN, VEN.ARTISANAL, VEN.INDUSTRIAL, VEN-FOR.FLTS

Table 7. ALB-N total catch (t) by MFCL fishery and year (1950 to 2011), using the updated CATDIS estimations (CATDIS totals have in all years less than 1% difference when compared to Task I statistics).

	ALB-N fisheries													*Difference*
Year	*ALBN01*	*ALBN02*	*ALBN03*	*ALBN04*	*ALBN05*	*ALBN06*	*ALBN07*	*ALBN08*	*ALBN09*	*ALBN10*	*ALBN11*	*ALBN12*	*TOTAL*	*with Task I (%)*
1950		39623											39623	0.0%
1951		34149											34149	0.0%
1952		32397											32397	0.0%
1953		26242	3875										30117	0.0%
1954		32729	7250										39979	0.0%
1955		28299	3125										31424	0.0%
1956		35398	5500		2								40900	0.0%
1957		30028	11959		135								42122	0.0%
1958		33945	17258	300	945								52448	0.0%
1959		30796	17947	570	599								49912	0.0%
1960		33072	17539	600	1131			527					52869	0.0%
1961		20907	20520	600	380			323					42730	0.0%
1962		30943	20849	620	5716			659					58787	0.0%
1963		24625	19769	970	14633			343					60340	0.0%
1964		28058	19928	500	15713			383			52		64634	0.0%
1965		25544	19029	1083	14325			385			292		60658	0.0%
1966		22791	16130	627	5860			333			1622		47363	0.0%
1967		30669	17293	1056	4771			1336			4017		59142	0.0%
1968		23993	13478	458	3306			2052			1933		45220	0.0%
1969		17923	13690	879	4717			2596			6925		46730	0.0%
1970		15706	13938	450		5875		4915			5011		45895	0.0%
1971		24029	14977	700		6472		2936			7707		56821	0.0%
1972		26517	7037	1159		1319		4551			8198		48781	0.0%
1973		18712	7468	1365		1467		9515			7172		45700	0.0%
1974		20958	11707	2279		2059		9563			3040		49606	0.0%
1975		9491	9694	9993		1331		8223			3156		41888	0.0%
1976		13918	13461	6766			1345	15054			6691		57235	0.0%
1977		17391	9878	5681			825	14037			6219		54031	0.0%
1978		23931	10713	1245			531	9727			3905	69	50121	0.0%
1979		23332	15014	750			1219	7566			3429	62	51372	0.0%
1980		13059	15580	597			1036	7394			1021	4	38691	0.0%
1981	11962	10778		1451			1740	6916			1163	521	34531	0.0%
1982	14983	12831		824			781	10523			1902	828	42673	0.0%
1983	18389	12788		2546			1156	14835			873	904	51491	0.0%
1984	6438	11029		1747			576	15546			3587	2877	41800	0.0%
1985	10409	10654		2102			844	15558			1011	247	40826	0.0%
1986	14307	10837		893			470	19833			929	285	47554	0.0%
1987	18407	11539		611			494		6725		77	262	38115	0.0%
1988	17175	12078		451			723		2270		20	342	33059	0.0%
1989	17307	11999		307			764		1421		54	219	32071	0.0%
1990	15056	12975		4601			737		1910		36	1567	36882	0.0%
1991	8029	12675		1407			691		4623		1	506	27931	0.0%
1992	11925	12275		3114			466		2656		30	385	30851	0.0%
1993	10957	13126		6468			485		6540		68	491	38135	0.0%
1994	10754	13066		3344			505		6700		104	691	35163	0.0%
1995	11811	13739		7649			386		4398		75	320	38377	0.0%
1996	10991	9620		2918			466		4163		13	632	28803	0.0%
1997	11252	11527		1446			414		3632		6	746	29023	0.0%
1998	8441	11902		439			446		3589			929	25746	0.0%
1999	11829	13117		2294			425			6285		601	34551	0.0%
2000	14088	10265		530			688			6633		920	33124	0.0%
2001	8800	6826		2645			1126			6246		611	26254	0.0%
2002	8980	3989		3034			711			5468		558	22741	0.0%
2003	9854	5202		1833			680			7019		979	25567	0.0%
2004	9527	7491		970			893			6024		1055	25960	0.0%
2005	16326	10179		1133			1336			5516	59	769	35318	0.0%
2006	20312	10277		347			781			4301	141	831	36989	0.0%
2007	11564	6093		336			288			2761	187	762	21992	0.0%
2008	11000	5234		1248			402			2178	67	359	20486	0.0%
2009	7701	4439		104			288			2249	82	533	15396	0.1%
2010	7458	7011		587			525			3124	264	487	19457	-0.3%
2011	11197	3575		1185			494			3220	162	416	20250	0.2%

Table 8. Results of the size frequency screening.

	Fishery											
SzFrqSamp	**ALBN01**	**ALBN02**	**ALBN03**	**ALBN04**	**ALBN05**	**ALBN06**	**ALBN07**	**ALBN08**	**ALBN09**	**ALBN10**	**ALBN11**	**ALBN12**
OK	67	122	17	97	15	16	102	48	48	52	46	48
N<50	1	1		17	1	1	18				3	23
Nbin<10	1			14	6	1	16				7	32
Skw>5											0	
Total	**69**	**123**	**17**	**128**	**22**	**18**	**136**	**48**	**48**	**52**	**56**	**103**
% Rejected	3%	1%	0%	24%	32%	11%	25%	0%	0%	0%	18%	53%

Table 9. ALB-N catch-at-size matrix by year and 2 cm length classes including all size data available in the ICCAT ALB data bases (first and last classes plus groups).

Li (cm)	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
40	1962	1712		19	13955	4461	1453	2875	12857	16018	3784	991	116	2005	323	19	4357	2773	1307	1420	621	16	10337	1490	605	1331	2009	2500	718	1762	3349	1976	2356	1410	6265	8783	437
42	2820	8914		1542	5277	257	3575		33	310	124	991	13	189	108	3465	374	216	814	75	2516	1098	16878	1230	9849	3695	2075	3645	3771	3230	4018	6924	2866	7863	7736	10050	1498
44	10777	26691	1562	7813	28009	2893	7956	3724	10302	14036	5122	5001	64	3540	749	19436	8911	4696	4354	954	9262	3969	25841	2425	16439	4547	4920	7072	7196	10785	9652	15189	2592	16638	12190	15693	4724
46	24501	89034	18298	37038	19040	39488	25724	4602	12099	21859	11410	16683	650	6144	3225	20893	36459	12779	7800	3853	30003	19642	54201	17863	18042	6650	17398	31664	100625	34147	43055	21193	5620	32726	18945	20880	14628
48	20678	84377	33020	317929	56687	156630	84497	27255	50640	69461	53105	51413	1614	22867	12728	68803	134878	73407	23775	6194	69021	44277	147243	194902	203723	95023	96152	158431	394878	117351	143308	57782	19845	71168	30826	30579	47475
50	27101	87144	75846	691414	59515	322838	223801	25205	144448	73482	210861	187938	12720	245390	79318	236789	248766	247516	118451	50349	237639	135012	357051	558734	393004	209920	175247	280197	573556	170385	237106	160341	47087	100270	46425	65186	126635
52	78461	138138	105910	399413	119200	308367	195491	34632	241768	145106	254303	182781	46989	421252	187002	324368	308328	341692	282986	123503	338054	249084	374973	493421	422309	223168	113650	190140	387794	125244	254504	239831	66354	151351	40768	103205	185861
54	129251	243156	55966	230131	173392	269656	165789	46575	215768	133452	277114	147807	102584	392845	284972	247242	265492	236110	307347	160791	349058	320583	245428	224607	297444	192905	44232	87816	145226	72537	222071	235367	58561	115449	27818	92189	229062
56	94207	208095	85800	136811	122356	201411	215295	59155	191110	136329	192248	137174	94527	358656	325729	141655	140365	177749	188856	176812	145332	241189	235466	172868	228238	139017	28830	53488	44242	82008	146252	183945	51167	114776	27617	96545	194402
58	108587	294365	198306	293522	197344	316480	248295	77801	153423	80572	70506	130135	83627	124554	197553	106812	170718	162451	176679	240101	133735	305655	267683	251101	250281	121724	27588	69993	87107	183748	211399	328848	67541	97046	48806	136426	178216
60	140464	488137	441358	842569	514277	411705	276923	221338	148806	209331	179149	344732	251119	250557	229943	268254	437629	321572	265686	381566	285764	546520	462721	516084	267600	249189	51658	110688	200823	400718	400645	512914	129958	121062	87825	250969	152571
62	200762	596659	612245	849410	638942	257798	193378	266735	209937	281901	228244	380366	452449	427189	309184	502076	534880	447205	369396	527157	472457	670543	407299	528841	282019	309537	104344	111595	218245	408298	429400	506074	184066	171591	121325	353222	171462
64	262449	451851	415831	382693	468213	179578	188339	286230	287827	277107	273524	280683	432279	468253	357793	555238	498116	386343	450198	521915	557075	596269	320263	331808	222001	315329	165951	81528	138385	298900	306747	398654	206244	234486	149882	266066	142848
66	237382	224488	308415	198885	256681	152403	231043	237152	258344	149994	224666	190922	381253	376502	285990	427100	264847	266750	302061	331113	362466	260870	199748	163472	199936	258743	175801	48386	46201	112425	186965	257286	151503	226609	126417	181433	87661
68	200608	140026	205292	99825	171760	191179	265111	259424	293942	94155	195538	160378	387447	277544	237725	310082	156590	184252	209689	231098	208827	106029	130082	116106	196018	244444	158540	39386	25077	57660	135470	138327	138153	157544	99031	91663	67425
70	287782	101818	184842	138077	182484	306461	302041	330751	335979	127623	226659	152818	370131	241102	224519	246329	113868	185051	250308	212613	170205	83883	136441	114704	239083	220692	147567	20776	38522	87779	161954	119566	190550	87783	68940	64120	97515
72	416963	135004	272983	202474	241163	360366	237839	273130	276447	181868	198161	205091	327283	207978	233564	209072	109431	183209	288237	168425	214555	105300	166847	125192	204405	228551	145109	20566	54577	120830	202016	174796	220295	71100	81695	74412	154673
74	389921	173677	250795	274711	425781	325390	193778	308811	287685	195391	228124	236176	366120	190996	254927	184451	127201	168952	287351	165721	219299	73895	164033	84894	232100	211208	165342	29161	70935	148578	221455	210088	234176	74824	111763	84082	201102
76	280436	212978	290702	226397	454242	259959	160068	230401	304880	204212	200035	248590	307197	206712	267356	156509	110802	160854	246032	139956	239948	85250	155291	90091	180627	185077	150210	45910	77801	122390	233500	221375	197852	104880	128710	92546	179914
78	243107	220624	255152	212512	336751	189495	162832	251269	258115	198242	184434	267758	295549	237118	262118	130070	98293	151945	181844	144930	159068	56247	133286	73225	154520	174368	123019	63965	84439	108559	208555	266003	153283	115440	111489	82434	120631
80	171457	226918	217623	192087	232699	142307	153825	255253	270839	117544	141562	189465	111504	136028	193883	119430	79130	112753	194610	133142	107127	44748	95329	81300	136839	152237	115002	83561	96562	83342	184377	249169	101158	133145	93572	72245	59504
82	131470	211176	157627	131910	152662	102115	114773	223949	232952	108349	98833	166140	83043	93509	132322	105432	70004	87500	116359	88944	64610	42906	64035	69898	125833	91909	87242	94909	87332	66049	146967	200635	60788	122971	74053	55734	31169
84	113279	198808	109680	106336	118501	99941	103606	166923	192716	96250	82354	129208	119630	62808	77304	89846	51893	50230	99224	61384	51355	37761	56052	43046	108005	58286	83223	85799	74078	49424	94926	119501	40949	73914	52016	48607	23672
86	107736	185125	105454	60276	175309	75801	69708	109945	144448	63307	60522	81719	42569	26151	40627	68622	56271	24704	51962	48018	38832	29712	45820	47114	108694	37282	69771	68661	48434	38439	54805	60091	24158	43323	35759	44729	20961
88	95779	164994	69767	74083	135386	54838	48516	67613	111286	58784	55446	59750	37611	19600	24938	47937	33010	16268	45781	33449	34940	22245	27145	20756	63879	30211	57409	60911	42691	30449	38580	33111	23387	16428	20737	31419	23773
90	72642	155324	100521	84177	123731	74263	39351	55323	113829	90512	66908	84760	26744	21471	26840	50052	43144	23020	45327	20773	32996	23963	26076	22615	56293	18398	37232	54553	45620	31492	39948	24024	18685	11081	15376	21111	21212
92	52846	151870	119409	95244	70052	32362	34733	41749	94804	72981	75615	80604	16176	18632	23769	44700	62867	13882	33247	26222	34519	26371	19326	10807	32634	11830	30676	48254	41721	47913	41549	26430	14987	10874	7757	14743	18759
94	49824	134229	137668	61203	100237	57199	27405	40453	78972	87460	80571	74369	21042	14369	22468	51326	43282	12170	33088	34685	58544	28400	16874	11431	25838	13520	31904	57362	38682	40306	47495	27173	15172	13944	9331	11676	16488
96	40653	124307	121080	66372	44291	25470	31149	35571	76713	86009	76488	67802	20598	12356	20800	43765	30271	13135	16589	24849	47541	37475	17131	9223	21127	23937	30669	73025	52643	37406	51902	28013	19286	11544	13668	12235	15812
98	46036	118623	121490	96409	49558	22922	25819	36589	59392	74415	65839	62806	16943	13136	11324	30827	22270	16906	21735	20448	45419	34784	15979	9927	22727	36524	39523	64927	56972	29932	39411	24259	20461	14894	8568	10316	14487
100	44719	93027	98602	73630	39825	50385	29613	39517	71746	73339	61059	78426	15880	10348	7745	29366	9239	45134	61968	31040	38129	29832	25486	12293	24868	70315	69929	62921	66697	36755	31395	25089	17603	15830	9405	14253	14517
102	50733	85686	96699	62408	28796	35194	31743	37803	50297	84311	56000	76594	19861	10335	6013	22280	7225	34674	29224	17908	39525	20674	17158	10790	18069	95967	81679	46422	54317	39016	35867	24010	19455	13251	10541	20033	19332
104	38543	59712	69043	53848	28649	34755	31289	36483	39119	79022	50934	68911	24822	11444	5807	19354	3667	12041	33239	22174	40354	24604	21282	14188	21083	57374	50974	39463	34003	23022	20958	17462	15926	11362	9062	22059	25970
106	32104	47109	45617	29640	13002	7051	19871	31088	29243	53681	29884	37816	16750	8565	3958	17157	2886	16070	18432	14383	40167	17989	15585	10391	16423	17454	15193	28588	23913	19810	16499	16463	12941	11351	5673	20480	15446
108	29093	32336	29707	17312	11324	8320	17285	30731	37892	41307	26803	31111	10502	7081	4713	15880	3288	20050	16009	22664	31762	16483	14007	10679	15330	6336	8048	17238	15152	16231	12999	11586	10798	8464	5365	11298	7550
110	23461	24127	22667	10064	13735	6878	14796	16645	17428	23895	21879	37407	12796	5846	2654	10635	2859	27630	9363	17371	21496	10950	7891	6827	10784	4347	3786	8815	6546	8309	3994	5123	2447	5427	4429	5655	4985
112	10372	9220	9527	7710	10879	5359	8746	14919	14581	19791	24547	56052	9417	5725	3327	7938	1718	21225	6707	6225	16071	6297	5002	4908	7926	1825	1399	5017	5984	6936	3892	5550	3523	3261	7332	3543	6136
114	10049	6733	7839	4212	7565	4784	13564	12305	10000	17888	26813	33343	15342	6020	2034	3261	516	10823	5471	3259	6483	1878	3160	2616	5180	804	1345	2200	3217	4621	1936	1882	1519	2418	6151	5273	5678
116	5037	4139	2932	1996	5251	1618	4146	10773	8963	10770	14769	10018	7584	3054	999	1119	365	770	5129	3163	2809	2293	1020	429	500	388	787	1314	942	3774	1433	1720	761	3675	5881	8530	3290
118	4303	3011	1513	1651	3505	1376	3896	9690	5738	7221	7980	5104	4611	1555	326	1379	591	109	1581	1578	733	1036	777	403	447	433	813	1007	668	2331	782	697	537	4393	4930	1572	2190
120	1579	577	1292	1222	3728	3427	9969	8966	4109	8354	6534	5694	1720	589	68	1968	307	42	2439	8754	1298	1363	682	520	322	602	199	897	375	504	195	478	829	4498	1238	652	1100
122	697	261	21	1101	1654	178	1104	5632	1253	3980	1288	141	125	56	11	779		10	107	17522	39	761	192	139	49	67	111	298	223	427	340	310	372	2444	143	85	948
124	468	9	913	431	964	779	3179	3641	1174	5287	1833	484	573	207	16	779			399	14999	4	282	71	226	37	470	45	292	124	352	259	152	372	474	12	38	675
126		173	420	200	313	6	441	2303	346	3864	739	185	26	13	5	100		98	565	8857	1	6	142	76	40	101	90	267	110	105	37	77	463	399	149	22	340
128	417		5	430	313	6	175	640	72	1316	105	104	13	13		68		50	7	4170	2	76	72	4	26	50	53	92	49	80	42	48	338	310	86	15	162
130	340				470	49	1812	1135	55	819	149	250	15	10				10	201	2102	142	135	111	58	29	59	51	184	53	64	43	28	275	250	85	15	28
132					470	0	182	230	24	75	26	13	13	10				2	112	1611		76	194	3	8	8	7	1	26	24	30		192	298	23	9	23
134					235		300	48	8	106	81	10		8				19	67	40	53	117	180	333	26	9	7	137	25	137	40	20	181	233	35	11	75
136							24	101	1	60	19	10		4					2	50		69				1	19	90	0	22	14		160	197	1	30	111
138							6	5	1	23	13	31		4					2	1043	2	5	6	4	8	4	27	136	10	20	176		118	160			111
140					124	25	53	80	41	28	186	707		3						1042		212	1	2	4	5	3	91	2	14	12	3	175	185		4	3
142	209						10	11	1	5	6			3						521	116					1	4		1	108	14		87	76	1		
144		84						5	8	23	0			3						521							1		16	4	2		47	45		4	
146									1	5	0			3							19	2	4	3	4	3	3		0	4	1		39	20		7	
148									1	14	0			3						1042								45	8	11	2		15	9		4	
150	417	84	154			123	643	1100	552	3718	182	104	39	60					220	1562	423	4	7	7	8	12		45	0	11	7	3	642	542	5	26	
tot	4292483	5964547	5459591	6777136	5858299	5104348	4224959	4244284	5363014	3904964	4353079	4767566	4549678	4950416	4366778	4942665	4295105	4274848	4812337	4284060	4960417	4368839	4507910	4464074	4841279	4125885	2716866	2364429	3497313	3284777	4632349	4959586	2558914	2615706	1755857	2556919	2713249

Table 10. ALB-S catch-at-size matrix by year and 2 cm length classes including all size data available in the ICCAT ALB data bases (first and last classes plus groups).

Li (cm)	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
40			206		2119	38284	1765	3319	1981	359	4750	5778	7240	6		55		90	402	300	89	411	469	4	6967			882	237	385	229	3861	12	4	9	44	115
42	6		206		1059	15444	272	953	283	52	3877	1781	1218	412					121	200	201	771	1140	26	225			1424	382	306	173	194	23		19		3
44	10	2		340		12534	472	511	660	130	5554	3772	2351	409	75					367	205	4523	1378	27	28			2723	703	57		89	19	284	8	4	7
46			412		424	14653	629	885	906	26	5816	3788	3483	209	487	1212			603	1125	659	5089	1959	27	28			4391	1175	634	307	540	493				28
48	16	129	206	719	212	7443	1765	1794	711	470	7386	7657	3080	406	1460	3086	155	180	3781	981	2927	12850	2131	55	56	17		3322	901	164	101	280	497	8		13	37
50	6	381	698	1362		17909	5331	1306	1100	202	7064	10168	4846	3	8650	3692	312		1922	8398	28335	11794	3998	929	1175		40	5204	1607	128	16	197	483	860	24	96	118
52		254		1021	424	11211	6775	1896	1119	607	5361	6878	3579	203	8613	2645	936	180	4505	12663	12714	11411	3429	330	337	33		2602	704	135	48	321	1172	897	31	588	346
54	380	383	1030	1416	636	10839	11749	4375	2710	718	5378	12610	5941	206	4980	1819	626	90	2029	37616	47099	37831	4566	5036	4831	70	393	3698	1368	503	289	714	1056	1079	393	1701	389
56	20	385	1854	3405	1271	10280	9762	4445	1377	1244	6636	11216	9163	212	6715	497	778	180	8296	50829	39306	48576	6501	7317	6645	168	56	3885	2572	2116	1707	2281	3961	2282	746	1910	1526
58	515	1679	1442	3853	705	11211	7390	7820	1578	3763	11868	19287	13118	1188	3613	1874	1090	180	13347	65826	58636	43076	9434	10577	9845	789	2374	2154	9468	3140	4690	5339	9256	3444	987	2486	3083
60	1211	4084	5562	12258	847	24056	8207	8175	1365	6646	22480	27900	30634	6085	11403	3751	2339	2159	25110	84798	85715	74142	15124	15710	17508	6065	5880	39263	12133	7784	5995	11031	20355	7178	2283	3536	4728
62	2314	7638	8034	14695	3178	22350	8162	9378	2195	10449	31451	28256	50277	7649	9700	5019	7460	4050	55212	92084	89783	61565	16629	10903	14126	2185	10923	36310	10299	12253	11942	16858	12460	11636	2997	2108	13002
64	1667	7521	14374	17079	4307	32723	11294	11103	5433	12714	47890	46766	51195	14131	16145	7721	16166	4325	42094	72808	39079	62501	14092	16532	19899	7823	13371	65568	7363	15833	15180	16223	12456	12507	4163	3810	12248
66	5530	8664	15450	18046	6350	25231	12607	14586	11189	10184	38587	35796	40275	21013	15384	9209	15278	5493	43361	43777	28256	49149	15429	11468	21589	13862	18610	46851	3596	27100	12912	14831	16697	13776	4618	2159	9410
68	4929	11008	14525	23208	11356	34562	22724	33957	20242	14325	48858	50995	50263	18336	28135	35887	68329	9962	55271	78439	44902	60959	33763	18147	29826	23732	22268	24613	3854	27794	15297	10024	41904	29277	9859	6407	14817
70	6928	12691	19032	51202	9313	49487	48463	75029	25888	26076	76308	70949	72165	19805	25758	31882	125861	22343	63358	111638	48760	64955	56523	33172	47820	38098	42409	27152	4290	28925	37388	28078	53056	28446	12070	11350	17299
72	18001	26784	33329	57331	22875	46768	53507	87386	30297	36820	89179	63434	64186	26859	37845	43514	91883	48698	73051	128454	60917	73254	60530	33509	45975	44970	62895	19230	6929	20316	53818	38272	60279	30567	14726	15426	23336
74	33229	37089	45845	63675	17757	41803	60526	103245	42276	37242	110384	110098	71396	46877	65696	93047	77423	66774	96616	133964	75816	96485	64526	58020	62206	44135	83188	26395	5095	27316	71439	74508	54694	52133	26629	38482	43945
76	34687	42894	61042	50810	63780	56514	47059	85085	45614	35979	108898	90553	72650	77887	54926	92857	49624	77473	106319	118970	72031	63376	58888	59219	61100	83146	93302	51157	11089	29268	77933	96694	55287	62063	37191	48247	54189
78	53167	47971	63500	60073	54401	76449	67054	130489	54016	40752	121754	122537	95689	101723	106322	126021	55682	85943	157251	143474	66241	88567	75242	88517	84035	76611	109623	51514	23035	44221	87881	83367	68628	72548	61373	59743	77892
80	55175	51177	71050	88418	88768	89741	82270	150848	68839	49606	158995	170749	170322	135860	144355	135692	86843	155407	180070	149749	90085	124841	102200	117325	93751	82717	140628	80196	63582	68854	75289	91036	86455	63920	68214	60151	76251
82	89439	71641	94649	101835	56944	67139	73861	126947	59996	61024	148880	143407	215143	135192	140982	153587	84618	177473	171493	139551	87703	110545	105695	134339	95052	80586	130441	124584	81178	94437	56951	60479	88729	60547	65775	59030	71021
84	117486	88660	117945	101025	70244	92517	91176	134491	74501	69905	171135	190006	228193	118171	141068	159462	101100	171597	185127	132850	116195	166827	104295	144002	80304	78184	112085	104086	82212	100022	50885	91420	64393	80087	97995	86834	98242
86	111231	81502	131565	75319	63834	104606	82487	118552	59110	52539	149845	149859	252746	163295	165388	138892	176066	226053	163533	157767	129022	139124	100325	108895	69850	62558	85655	109347	61223	104119	43452	71741	72442	92976	109871	93785	111406
88	75348	67439	100313	68807	126719	85165	65415	84257	46084	38043	114588	116477	176159	160307	101822	140871	69597	133674	101625	102997	103210	118420	104042	89419	61336	48864	55152	87241	55912	89826	42876	62796	65360	77299	120082	83426	113648
90	50030	61463	105622	57577	57720	71322	64149	68963	32420	32747	126639	123252	198613	127244	145189	194560	32529	117655	92919	85984	85434	105121	89849	77274	62654	66621	26180	77204	55510	81941	41765	63212	77240	70305	126709	74642	97109
92	40109	47297	71980	58421	46397	53792	53021	61754	29271	23448	94084	96945	141827	100482	106977	144433	25675	114441	108449	96062	62392	97408	65624	64690	55789	54007	21854	64773	64536	66260	41387	65720	59073	58892	87651	58838	78003
94	37729	40412	61355	45097	52648	44806	49068	53119	31177	28154	75845	93027	114398	67627	80825	80575	15492	85556	82243	62857	58268	76864	68174	61423	61265	39408	17961	57407	72277	58647	38802	75068	52170	54751	73699	55247	65685
96	33359	45958	58543	61211	45655	58286	42417	50125	30058	24402	57589	66190	80978	64500	52113	46645	7294	88493	68133	60566	42430	26570	53071	50717	51805	42160	70094	82362	99021	57007	44845	62503	38465	48929	69046	40884	42499
98	39988	41363	62765	75277	36060	53968	42795	47221	28747	26150	46341	61062	60716	50936	42725	41829	5077	82471	48390	46185	36026	15570	51444	62154	61889	44593	120749	101136	71292	52490	46789	67146	29960	40267	59267	34546	37200
100	32829	47527	51589	93412	58229	48193	63098	59368	33117	31920	53880	63309	63437	34287	43623	34033	8694	76299	49563	31700	47915	31595	33517	73879	71565	30926	146632	81849	57713	54676	37276	52211	32228	28329	41510	30174	35851
102	38344	50663	51563	87064	35389	50343	49244	66736	29596	27737	43556	47579	48737	37807	45632	39716	7274	89149	55599	48409	34726	31143	41951	97672	94202	43935	60146	49608	80011	51191	45706	51485	28925	26105	42739	34557	39601
104	35033	49296	38137	66604	50394	50903	51836	72464	28415	27508	45556	51924	54285	43461	68152	24329	7125	60638	63131	53214	52906	70461	47856	53572	55240	79630	68881	58203	114474	42600	39676	59914	27619	22747	35983	37110	34793
106	28826	44922	25257	26856	65489	35328	41847	57644	19187	20532	36626	42198	44298	42484	48889	12046	22987	56969	57837	72378	30296	38527	48125	52076	51296	66938	67004	57178	57664	39404	40179	38046	26671	23493	29295	30450	27937
108	26772	37672	21726	24688	54269	32760	36569	42884	19120	17138	33824	51965	43763	46128	43148	16046	83340	55074	45754	74458	39314	44969	63372	34989	32577	80321	69806	61967	43653	32839	35123	41527	31548	22885	24089	25481	26760
110	28976	35394	15668	25777	61569	20270	41723	33234	17374	15408	27734	54980	46669	20099	19574	7912	92913	57022	25617	64138	49145	36719	29645	47863	44871	61650	103268	51959	48823	24155	24525	38065	26792	19255	14947	20576	26817
112	20204	20118	8076	10789	24402	21042	34111	28402	15483	9646	16882	33945	33522	19224	10014	53442	61485	51856	18223	19704	39558	17170	36258	39809	37697	77588	97503	41858	39427	27638	27153	23111	24273	16836	12189	17890	22515
114	12009	18028	7357	5831	13289	12723	33267	21285	10158	9313	18442	33626	22076	28045	4226	29425	59527	30942	13731	17340	28971	10022	31172	30269	28695	82667	73444	35618	51983	18597	15628	15029	14588	13586	8513	13941	21977
116	9150	9011	2299	2470	13372	12867	15522	15554	12693	7058	14676	26766	20843	49138	1080	4737	72772	11533	10150	19694	17872	6817	22180	25605	25466	61992	46661	12268	42055	14219	11814	11195	9706	9249	4924	7922	16786
118	5584	4692	879	1980	6382	5713	9188	11534	7677	5185	10570	25464	12944	26461	1011	1264	21933	4444	3640	10333	13259	6733	15649	20900	20617	42371	36034	11859	27461	9215	7110	7284	5734	4583	3864	6732	18749
120	2607	1348	893	3036	13541	12969	11954	10496	9154	5683	7042	25835	9759	8880	382	612	1439	2894	4076	7226	7116	3773	8500	23523	23227	13211	26770	16061	6036	2973	2844	9556	5861	2570	3337	8364	12223
122	419	65	160	947	2316	805	5057	3632	3280	3987	1136	7200	4246	2332	28	240	730	486	383	1010	2043	2056	9245	2931	2876	7201	1604	5643	951	2646	2047	3605	2743	2278	2183	4487	8839
124	140	65		1175	1790	2107	4458	2685	2051	6744	809	4026	4768	1513	111	166	34	969	685	731	383	1388	3288	629	628	3508	2779	10980	887	1396	708	6544	2627	1376	2004	2045	9941
126		65		407	837	565	1674	1150	1466	6608	245	2589	1509	378		55	5	450	402	243	138	1285	1505	1335	1369	264	2603	11161	449	741	445	2153	1826	1363	1327	1665	5593
128			206	432	837	186	1494	517	786	6151	136	703	1099		138	55			123	129	201	771	4617	372	316	226	765	3042	638	536	448	1095	1194	966	1114	3805	2647
130	280	65	286	681	454	558	908	644	1188	7553	48	4326	1211			110	38	180	402	100	1119	771	1477	662	577	138	1278	5549	447	48	210	468	3843	4200	5416	3477	3770
132			80		30	140	172	376	434	3385	19	90	56		37	0	3	90	40		112	206	2299	112	17	17	439	1815	201	95	230	326	3702	4098	5268	3361	2074
134					30	140	243	349	314	4207		15	37			0	9	2	40	33	45	51	235	24	13	18	326	1172	121	15	239	155	2110	2128	2753	1994	1471
136					30		43	60	151	933		15		189		0	1	0			45	103	959			17	80	605	80	30	98	101	442	383	538	1023	593
138					30		36		138	496		15				0	3	91	40		112	103	1259				120	491	3	24	27	35	267	298	421	509	544
140						93	107	7	396	111	29	30		63		55	6	91	80	100	380	51	401	70	20	36	166	265		21	28	45	837	1056	1307	590	677
142										7	10				37	0	2	0	40		26	90	87	110	25	36	126	567	77	21	152	31	808	1015	1295	402	275
144						47	21		13							111	5	1			4	34				17	80	151		11	3	16	437	555	713	100	144
146																110	1	0				10					40	265	39	5	11		77	90	283	15	58
148															37	110	1	0				104				17	40	151	39	11	13		76	98	469	4	28
150		65				186	21	60	25		39	105	112		75	1049	155	180	442	133	451	412					40	189		426	651	39	40	9	21	564	229
Total	1053682	1125464	1386711	1465631	1248680	1589028	1434764	1911096	923361	862089	2214680	2417896	2705214	1827721	1813545	1925959	1558717	2180303	2304633	2642353	1978575	2157941	1694066	1786169	1619211	1594128	2052766	1827149	1386776	1345512	1172730	1476862	1302047	1186514	1302938	1102729	1388471

Table 11. The ALB CAS substitutions ratios (Task I catches (t) with no size information versus Task I total catch) per stock **.**

	ATN	*ATS*
2007	0.068343	0.163454
2008	0.126853	0.160792
2009	0.105492	0.311571
2010	0.087242	0.264755
2011	0.071347	0.133441

Table 12. Evaluation of the CPUE series on North and South Atlantic albacore stock presented to the Group. The evaluation was made using the protocol established by the WGSAM in 2012 to evaluate CPUE series.

North Atlantic Stock

	Paper *Index*	*SCRS/2012/061* *Japan LL*	*SCRS/2013/060* *Irish trawl*	*SCRS/2013/066* *US pelagic LL*	*SCRS/2013/052* *Spain BB*	*SCR/-2013/053* *Spain Trol*	*SCRS/2013/054* *Spain Trol by age*	*SCRS/2013/069* *Chinese Taipei LL*
1	Diagnostics	4	4	4	4	4	4	4
2	Appropriateness of data exclusions and classifications (e.g. to identify targeted trips).	5 (data exclusion are identified and justified, model explicitly covers targetting)	4 (data exclusions are clearly identified and justified)	4 (data exclusions are clearly identified and justified)	4 (apparently no need to exclude any data)	3 (no apparent data exclussion, but some very low cpues included)	2 (aging bias?)	3 (not much explanation)
3	Geographical Coverage	4 (extensive coverage and distribution areas provided in a map, but actual effort and catches in those areas are not)	2 (limited to north eastern Atlantic. Good distribution of effort maps provided)	3 (Large area of operation by only in northwest Atlantic)	3	2	3	4
4	Catch Fraction	2	2	1	3	4	3	2
5	Length of Time Series relative to the history of exploitation.	5 (series runs from 1959)	2 (time-series only available from 2003)	3 (time series form 1987)	3 (since 1981)	3 (since 1981)	3 (since 1981)	4 (1967-2012)
6	Are other indices available for the same time period?	4	3	3	3	3	3	4

7	Does the index standardization account for Known factors that influence catchability/selectivity?	4 (gear, area, hooks and other factors that may influence catchability and selecitvity are included, as are interaction terms)	3 (the model includes few factors, althoguh including vessesl may address aspects of catchability or selectivity)	3 (operating procedure, gear configuration)	2 (only year, quarter, area are included)	2 (only year, quarter, area are included)	2 (only year, quarter, area are included)	4 (year, quarter, area, other species)
9	Is the interannual variability within plausible bounds (e.g., SCRS/2012/039)	4	3	4	3	3	3	4
10	Are biologically implausible interannual deviations severe? (e.g., SCRS/2012/039)	5	3	5	3	3	3	5
11	Assessment of data quality and adequacy of data for standardization purpose (e.g. sampling design, sample size, factors considered)	4 (the sampling design is relatively good, as well as the sample size and factors considered).	3 (data quality is explicitly addressed, model includes interactions to obtain more info from the data and model structured yo account for possible changes. Size data for portion of population covered by this cpue is not provided)	3 (nº observations per variable factor category not shown)	3 (sampling design and size appropriate, not many factors included)	3 (sampling design and size appropriate, not many factors included)	2 (aggregated index suggested)	3 (no. observations per variable factor category not shown)
12	Is this CPUE time series continuous?	3	4	4	4	4	4	3

South Atlantic Stock

	Paper / *Index*	*SCRS/2013/063* *Japan LL*	*SCRS-13-043* *Uruguay LL*	*SCRS-13-068* *Brasil LL*	*SCRS-13-070* *Chinese Taipei LL*	*SCRS-13-072* *South African LL*
1	Diagnostics	4	4	2 (residual trend)	4	4
2	Appropriateness of data exclusions and classifications (e.g. to identify targeted trips).	5 (data exclusion are identified and justified, model explicitly covers targetting)	5 (data exclusions are clearly identified and justified, vessel tagetting also covered)	1 (targeting and fishing strategy addressed, but named "preliminary". The fleet is very heterogeneous and no clear guidance on how the procedure helps get ALB abundance index. No explanation about national-foreign vessel regimes, the sporadic peaks on catch...)	3 (not much explanation)	3 (target?)
3	Geographical Coverage	4 (extensive coverage and distribution areas provided in a map)	3 (limited to south western Atlantic. Good distribution of effort maps provided)	3 (maps for the entire Brasilian fleet are provided, but no clue of the geographical distribution of ALB sets/fisheries)	4	3
4	Catch Fraction	2	1	2	5	4
5	Length of Time Series relative to the history of exploitation.	5 (series runs from 1959)	3 (series runs from 1983)	3 (since 1978)	4 (1967-2012)	3 (since 1999, but there is an older one that remains the same)
6	Are other indices available for the same time period?	5	3	3	4	3

7	Does the index standardization account for Known factors that influence catchability/selectivity?	4 (gear, area, hooks and other factors that may influence catchability and selecitvity are included, as are interaction terms)	4(analysis includes many factors that could affect fishing efficiency/selectivity. Multiple interactions included)	2 (just time, area, and fishing strategy are considered, but the latter is unclear)	4 (year, quarter, area, other species)	4 (year, quarter, area, distance from shore, vessel type, target)
8	Are there conflicts between the catch history and the CPUE response?	4 (catch and effort trends in another document)	2 (difficult to say. CPUE and observations of catch are presented, but not total catch)	2 (catch not presented), but peaks on catch seem to correspond to valleys or cpue, difficult to understand without series of effort...?	3	3
9	Is the interannual variability within plausible bounds (e.g. SCRS/2012/039)	4	4	1 (high fluctuations)	4	4
10	Are biologically implausible interannual deviations severe? (e.g. SCRS/2012/039)	5	5	1	5	5
11	Assessment of data quality and adequacy of data for standardization purpose (e.g. sampling design, sample size, factors considered)	4 (the sampling design is relatively good, as well as the sample size and factors considered).	4 (information includes length frequencies of catches in recent years. Multiple factors and interactions included. Sample design takes into account effort distribution although proportion of effort covered is not explicitly discussed)	1 (very heterogeneous dataset, and just a preliminary strategy to account for this. Only 13% of boats with "mostly ALB" strategy)	3 (nº observations per variable factor category not shown)	3 (nº observations per variable factor category not shown)
12	Is this CPUE time series continuous?	3	4	4	3	4

Table 13. Standardised annual CPUEs for North Atlantic albacore.

	Japan LL early	*Japan LL transition*	*Japan LL by-catch*	*Chinese Taipei _LL first period*	*Chinese Taipei _LL second period*	*Chinese Taipei _LL third period*	*Irish_MWT Q3*	*US continuous*	*Spanish_Trol Age 2+3*	*France TR*	*Spanish_BB Q3*
Age Range	3-8+	3-8+	3-8+	2-8+	2-8+	2-8+	2-3	3-8	2-3	2-3	1-4
Catch Units	Number	Number	Number	Number	Number	Number	Weight	Number	Number	Number	Number
Effort Units	1000 hooks	1000 hooks	1000 hooks	1000 hooks	1000 hooks	1000 hooks	days at sea	1000 hooks	fishing days	1000 hooks	fishing days
Selectivity	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch
Model	Neg. Binomial	Neg. Binomial	Neg. Binomial	LogNormal	LogNormal	LogNormal	Delta log-normal	Delta log-normal	LogNormal	Delta log-normal	LogNormal
Use in assess	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year											
1959	27.46										
1960	23.33										
1961	19.19										
1962	28.38										
1963	14.99										
1964	14.92										
1965	11.04										
1966	10.36										
1967	10.92			7.05							
1968	11.14			12.18							
1969	9.14	10.66		10.52							
1970		10.50		9.34							
1971		5.95		6.71							
1972		3.00		7.07							
1973		4.14		8.75							
1974		3.60		7.98							
1975		3.08	2.60	6.77						1.36	
1976			2.19	9.36						0.95	
1977			1.44	9.12						1.23	
1978			1.21	8.70						1.46	
1979			1.47	8.56						1.27	
1980			1.41	8.83						1.46	

1981	1.46	8.71					3.67	1.55	189.61
1982	1.31	9.54					3.93	1.55	184.87
1983	1.19	9.54					3.92	0.86	268.47
1984	1.03	8.31					3.50	0.47	151.61
1985	1.14	7.18					3.27	1.7	211.92
1986	0.65	5.89					3.69	0.37	179.12
1987	0.47	5.56	4.30			0.91	3.69	0.62	286.62
1988	0.77		6.99			0.76	3.81		258.36
1989	0.73		5.26			0.72	3.39		209.27
1990	0.56		3.86			1.06	3.59		434.59
1991	0.66		5.27			0.98	3.91		303.43
1992	0.52		4.45			0.81	3.82		306.57
1993	0.51		4.44			1.26	3.81		341.60
1994	0.68		3.23			1.56	4.01		360.12
1995	0.44		3.35			1.37	3.89		322.45
1996	0.39		2.20			1.20	3.85		342.18
1997	0.53		2.66			1.37	3.59		362.23
1998	0.85		2.66			1.16	3.52		411.10
1999	0.49		2.02	2.12		1.04	3.28		374.65
2000	0.80			2.04		1.20	3.00		500.68
2001	1.10			2.19		1.49	3.21		180.64
2002	1.17			2.29		1.06	2.85		182.52
2003	0.83			4.12	495.48	0.68	2.98		369.34
2004	0.62			3.13	411.17	0.67	3.64		342.14
2005	0.85			3.65	1151.74	0.69	3.70		322.45
2006	0.73			3.91	2948.40	0.55	3.86		742.74
2007	0.43			2.67	683.32	0.65	3.72		437.80
2008	0.45			2.39	2655.88	0.55	3.96		356.01
2009	0.67			2.39	1419.13	0.93	3.54		335.45
2010	1.02			3.26	248.99	0.97	3.97		339.69
2011	0.68			3.40	3824.67	1.37	3.08		328.50

Table 14. Standardised annual CPUE's for South Atlantic albacore.

	Uruguay LL	*Brazil LL*	*Taiwan LL*	*Japan LL early*	*Japan LL transition*	*Japan LL by-catch*	*South Africa BB early*	*South Africa BB late*
Age Range	3-8+	3-8+	3-8+	3-8+	3-8+	3-8+	2-3	2-3
Catch Units	Weight	Number	Number	Number	Number	Number	Weight	Weight
Effort Units	1000 hooks	1000 hooks	1000 hooks	1000 hooks	1000 hooks	1000 hooks	fishing days	fishing days
Selectivity	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch	Partial catch
Model	Delta log-normal	Delta log-normal	LogNormal	Neg. Binomial	Neg. Binomial	Neg. Binomial	LogNormal	LogNormal
Use in assess	Yes	No	Yes	Yes	No	Yes		
Year								
1959				40.39				
1960				38.09				
1961				30.60				
1962				21.93				
1963				21.23				
1964				21.31				
1965				14.36				
1966				13.05				
1967			18.17	13.87				
1968			18.67	12.80				
1969			19.88	7.75	8.53			
1970			14.98		4.10			
1971			15.12		6.49			
1972			10.40		3.48			
1973			9.04		2.34			
1974			10.25		1.38			
1975			12.03		0.83	0.94		
1976			12.61			1.10		
1977			13.81			0.70		
1978		4.64	12.29			1.28		
1979		6.76	11.41			0.52		

1980		2.74	10.46	0.77		
1981		1.85	8.36	1.59		
1982		1.82	8.33	1.26		
1983	138.50	3.07	8.17	1.00		
1984	119.60	4.94	9.19	1.03		
1985	125.10	2.66	8.68	1.71	735.42	
1986	123.70	4.76	8.54	1.99	661.58	
1987	115.70	9.44	7.63	0.82	799.78	
1988	120.30	4.76	5.48	0.59	636.29	
1989	143.80	9.44	4.88	0.73	584.27	
1990	94.10	7.87	5.22	1.00	576.40	
1991	109.30	4.18	5.87	1.16	542.31	
1992	72.50	5.31	6.97	0.64	655.47	
1993	126.70	2.40	5.98	0.55	602.80	
1994	56.60	13.90	7.60	0.79	632.83	
1995	90.40	6.25	7.58	0.51	652.88	
1996	123.90	16.36	8.06	0.55	681.66	
1997	91.00	12.26	7.62	0.73	826.70	
1998	125.60	11.41	6.59	0.72	841.63	
1999	99.80	9.42	5.52	0.75		1820.5
2000	79.50	11.62	5.09	1.29		1872.4
2001	46.20	9.30	6.17	1.33		2200.4
2002	37.30	3.87	4.98	0.86		1755.3
2003	26.00	1.52	4.67	0.90		1947.7
2004	18.80	2.78	5.68	0.96		1604.3
2005	11.90	2.40	6.57	0.74		2488.8
2006	46.00	2.45	5.02	0.40		2008.1
2007	57.90	2.12	5.72	0.30		2044.7
2008	43.50	1.56	5.94	0.62		1415
2009	55.00	2.23	5.77	0.76		1993.8
2010	48.30	2.02	6.55	0.94		1862.6
2011	30.40	4.26	5.87	0.84		1653.4

Table 15. Standardised quarterly CPUEs for North Atlantic albacore.

Year	*Quarter*	*Japan LL early*	*Japan LL transition*	*Japan LL by-catch*	*Spanish_Trol*	*Chinese Taipei_LL first period*	*Chinese Taipei _LL second period*	*Chinese Taipei _LL third period*
1959	1	34.43						
1959	2	48.03						
1959	3	10.30						
1959	4	33.38						
1960	1	29.51						
1960	2	13.51						
1960	3	13.82						
1960	4	53.77						
1961	1	77.18						
1961	2	4.79						
1961	3	9.91						
1961	4	36.96						
1962	1	153.10						
1962	2	17.87						
1962	3	14.92						
1962	4	15.89						
1963	1	19.18						
1963	2	12.86						
1963	3	10.92						
1963	4	18.76						
1964	1	22.90						
1964	2	9.67						
1964	3	9.55						
1964	4	23.42						
1965	1	24.54						
1965	2	7.50						
1965	3	6.41						
1965	4	12.61						

Year	*Quarter*	*Japan LL early*	*Japan LL transition*	*Japan LL by-catch*	*Spanish_Trol*	*Chinese Taipei_LL first period*	*Chinese Taipei _LL second period*	*Chinese Taipei _LL third period*
1966	1	18.49						
1966	2	7.02						
1966	3	7.01						
1966	4	12.66						
1967	1	12.25						
1967	2	9.22						
1967	3	9.01				6.02		
1967	4	13.98				7.29		
1968	1	12.79				13.95		
1968	2	8.83				12.42		
1968	3	9.81				11.32		
1968	4	13.92				10.56		
1969	1	11.73	13.82			10.87		
1969	2	8.32	10.62			7.56		
1969	3	7.67	7.14			10.05		
1969	4	9.31	12.30			13.87		
1970	1		12.86			12.37		
1970	2		12.66			9.94		
1970	3		5.86			8.34		
1970	4		12.74			6.94		
1971	1		8.84			8.80		
1971	2		6.73			6.52		
1971	3		3.85			4.94		
1971	4		5.45			7.08		
1972	1		5.65			11.50		
1972	2		3.43			4.61		
1972	3		1.78			5.17		
1972	4		2.34			8.89		
1973	1		6.47			11.32		

Year	*Quarter*	*Japan LL early*	*Japan LL transition*	*Japan LL by-catch*	*Spanish_Trol*	*Chinese Taipei_LL first period*	*Chinese Taipei _LL second period*	*Chinese Taipei _LL third period*
1973	2		4.74			6.55		
1973	3		2.40			8.61		
1973	4		3.98			9.68		
1974	1		6.57			9.75		
1974	2		4.28			7.33		
1974	3		1.88			6.37		
1974	4		3.18			9.16		
1975	1		4.91	3.43		9.36		
1975	2		3.76	3.52		5.08		
1975	3		1.65	1.17		4.96		
1975	4		2.94	3.22		10.04		
1976	1			3.34		14.06		
1976	2			1.63		9.02		
1976	3			2.13		4.56		
1976	4			1.97		11.12		
1977	1			1.85		8.96		
1977	2			1.28		11.60		
1977	3			1.08		8.32		
1977	4			1.67		8.94		
1978	1			1.36		12.25		
1978	2			1.18		6.92		
1978	3			0.73		7.43		
1978	4			1.85		8.56		
1979	1			0.99		14.95		
1979	2			2.16		7.60		
1979	3			1.21		5.01		
1979	4			1.78		9.40		
1980	1			1.45		13.89		
1980	2			4.05		7.52		

Year	Quarter	Japan LL early	Japan LL transition	Japan LL by-catch	Spanish_Trol	Chinese Taipei_LL first period	Chinese Taipei _LL second period	Chinese Taipei _LL third period
1980	3			0.57		5.71		
1980	4			1.21		9.99		
1981	1			1.86		10.13		
1981	2			1.36	245.64	8.03		
1981	3			1.14	96.94	7.77		
1981	4			1.56		9.26		
1982	1			1.84		11.70		
1982	2			2.20		9.71		
1982	3			0.74	89.51	7.17		
1982	4			0.99		10.43		
1983	1			2.31		9.03		
1983	2			1.26		9.25		
1983	3			0.50	88.03	8.62		
1983	4			1.36	49.86	13.55		
1984	1			1.11		11.77		
1984	2			1.38		8.33		
1984	3			0.52	80.78	6.62		
1984	4			1.37		7.20		
1985	1			1.80		8.96		
1985	2			1.05	95.25	8.03		
1985	3			0.92	58.57	4.77		
1985	4			0.97	110.68	7.99		
1986	1			0.83		7.00		
1986	2			0.41	229.67	5.29		
1986	3			0.87	91.36	5.62		
1986	4			0.60	101.30	5.61		
1987	1			1.32		6.10	4.08	
1987	2			0.29		4.50	2.85	
1987	3			0.50	70.09	6.02	5.50	

Year	Quarter	Japan LL early	Japan LL transition	Japan LL by-catch	Spanish_Trol	Chinese Taipei_LL first period	Chinese Taipei _LL second period	Chinese Taipei _LL third period
1987	4			0.26	123.41	7.19	4.76	
1988	1			0.90			7.55	
1988	2			1.10	70.73		5.65	
1988	3			0.36	89.83		8.78	
1988	4			0.97	112.71		5.82	
1989	1			1.25			6.78	
1989	2			0.59	66.86		3.58	
1989	3			0.42	61.72		5.07	
1989	4			0.91	59.92		4.67	
1990	1			0.99			5.34	
1990	2			0.32	63.65		3.58	
1990	3			0.40	87.59		2.43	
1990	4			0.79	90.23		3.35	
1991	1			0.97			5.32	
1991	2			0.54	253.02		5.48	
1991	3			0.39	134.29		3.67	
1991	4			0.94	196.09		4.96	
1992	1			0.60			4.35	
1992	2			0.48	222.45		4.58	
1992	3			0.33	112.71		2.96	
1992	4			0.77	216.62		4.12	
1993	1			0.63			2.44	
1993	2			0.32	93.21		4.15	
1993	3			0.43	119.70		4.94	
1993	4			0.76	133.39		3.21	
1994	1			0.48			2.65	
1994	2			0.28	65.18		1.87	
1994	3			0.59	131.68		3.82	
1994	4			2.66	60.45		2.82	

Year	*Quarter*	*Japan LL early*	*Japan LL transition*	*Japan LL by-catch*	*Spanish_Trol*	*Chinese Taipei_LL first period*	*Chinese Taipei _LL second period*	*Chinese Taipei _LL third period*
1995	1			0.87			2.80	
1995	2			0.10	148.45		2.80	
1995	3			0.48	132.90		4.52	
1995	4			0.88	270.86		2.17	
1996	1			0.47			2.68	
1996	2			0.33	72.79		1.84	
1996	3			0.15	135.50		1.57	
1996	4			0.96	169.13		1.08	
1997	1			2.13			3.36	
1997	2			0.25	107.06		2.18	
1997	3			0.13	134.61		1.63	
1997	4			1.20	269.05		1.82	
1998	1			4.11			2.38	
1998	2			0.70	121.98		2.00	
1998	3			0.48	103.72		2.19	
1998	4			0.37	41.46		2.42	
1999	1			0.95			3.09	3.45
1999	2			0.61	140.30		1.19	1.70
1999	3			0.15	110.08		1.29	1.79
1999	4			0.66	51.27		1.24	1.82
2000	1			0.90				2.78
2000	2			0.41	48.96			2.20
2000	3			0.45	53.86			1.66
2000	4			2.53	18.03			1.29
2001	1			2.61				2.61
2001	2			0.74	77.79			1.92
2001	3			0.57	67.73			2.09
2001	4			1.30	8.79			2.37
2002	1			2.23				3.53

Year	*Quarter*	*Japan LL early*	*Japan LL transition*	*Japan LL by-catch*	*Spanish_Trol*	*Chinese Taipei_LL first period*	*Chinese Taipei _LL second period*	*Chinese Taipei _LL third period*
2002	2			2.31	49.02			1.84
2002	3			0.33	76.33			1.79
2002	4			1.09	51.04			2.15
2003	1			1.63				4.53
2003	2			1.19	34.73			3.84
2003	3			0.33	105.13			3.76
2003	4			0.74	48.92			5.03
2004	1			1.61				2.72
2004	2			0.37	87.04			2.90
2004	3			0.28	117.51			2.79
2004	4			0.88	76.22			4.20
2005	1			1.90				5.95
2005	2			0.31	133.30			3.51
2005	3			0.56	137.87			2.15
2005	4			1.55	141.87			3.96
2006	1			1.23				5.65
2006	2			0.60	84.72			3.00
2006	3			0.34	170.46			3.35
2006	4			1.13	172.39			4.00
2007	1			0.77				2.76
2007	2			0.40	94.61			2.83
2007	3			0.21	104.06			2.66
2007	4			0.56	46.16			1.99
2008	1			0.57				2.71
2008	2			0.35	152.91			2.23
2008	3			0.22	150.70			1.98
2008	4			0.92	44.83			2.83
2009	1			0.97				2.97
2009	2			0.44	117.47			2.40

Year	*Quarter*	*Japan LL early*	*Japan LL transition*	*Japan LL by-catch*	*Spanish_Trol*	*Chinese Taipei_LL first period*	*Chinese Taipei _LL second period*	*Chinese Taipei _LL third period*
2009	3			0.28	98.65			2.49
2009	4			1.67	91.35			1.55
2010	1			1.25				3.63
2010	2			0.64	65.35			2.85
2010	3			0.79	122.21			2.79
2010	4			1.73	35.57			4.18
2011	1			1.53				3.08
2011	2			0.35	103.66			2.75
2011	3			0.32	73.58			4.05
2011	4			1.30	25.45			3.71
2012	1							3.16
2012	2							1.27
2012	3							1.05
2012	4							1.86

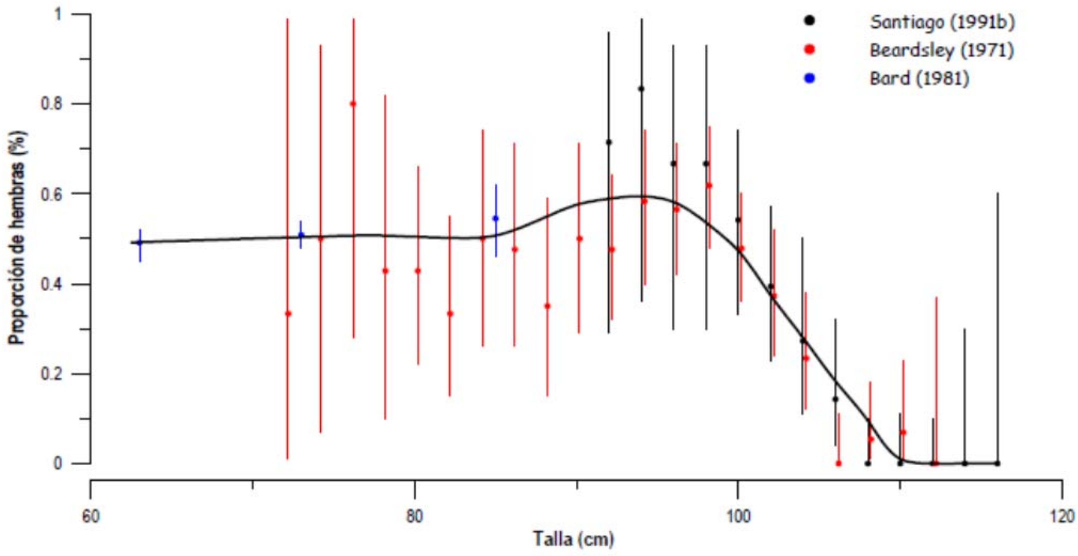


Figure 1. North Atlantic albacore sex ratio by size interval estimated from Beardsley (1971), Bard (1981) and Santiago (2004). Bars represent the 95% confident limits. Continue line shows loess function (weighted by the number of observations by size intervals) reflecting the sex ratio by size.

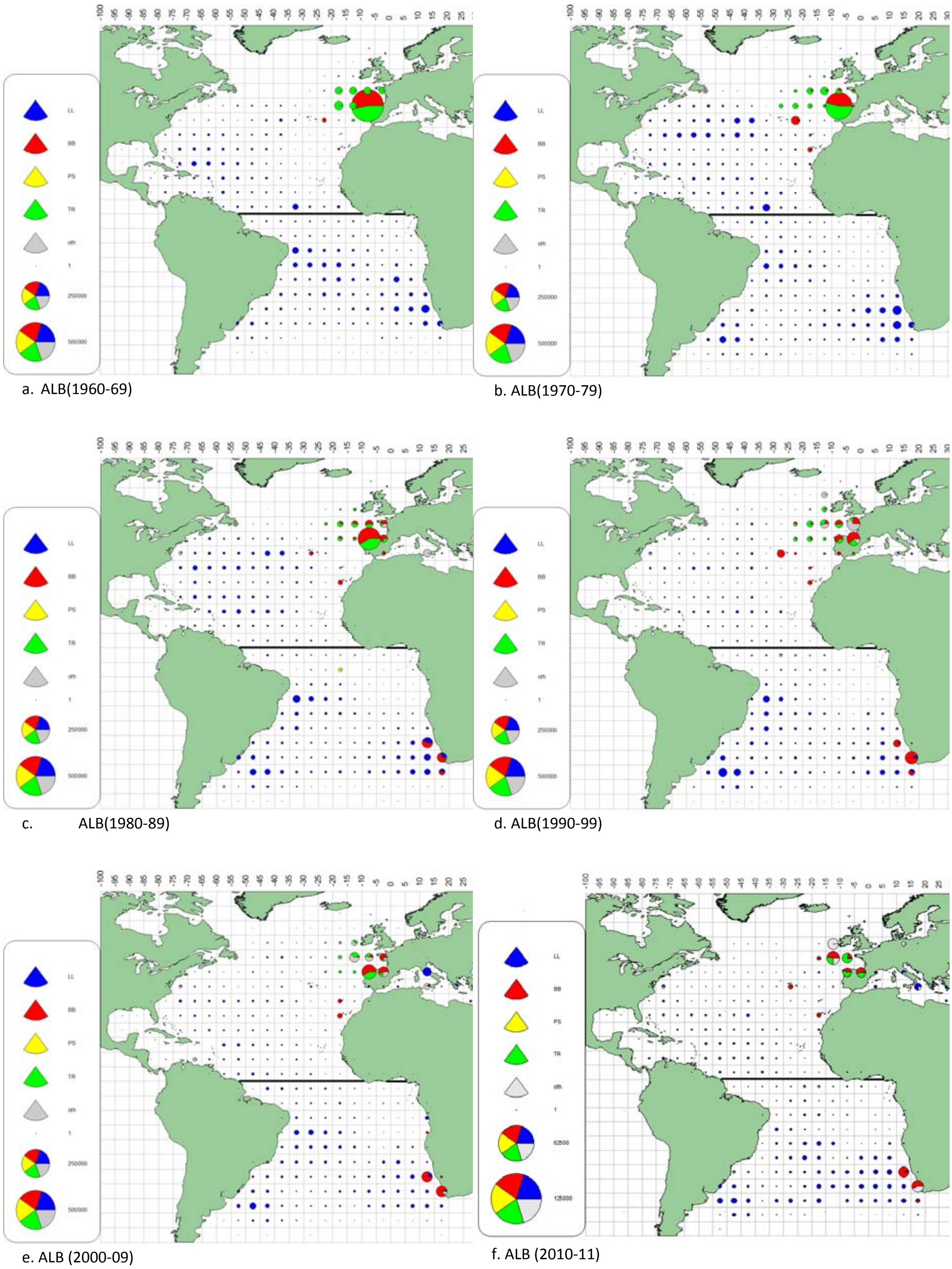


Figure 2. Geographical distribution of cumulative albacore catches by main gears and decade (Source: CATDIS). For relative comparisons, map “f (2010-11)” was differently scaled (1/5 of others scales) because it only with two years in the decade.

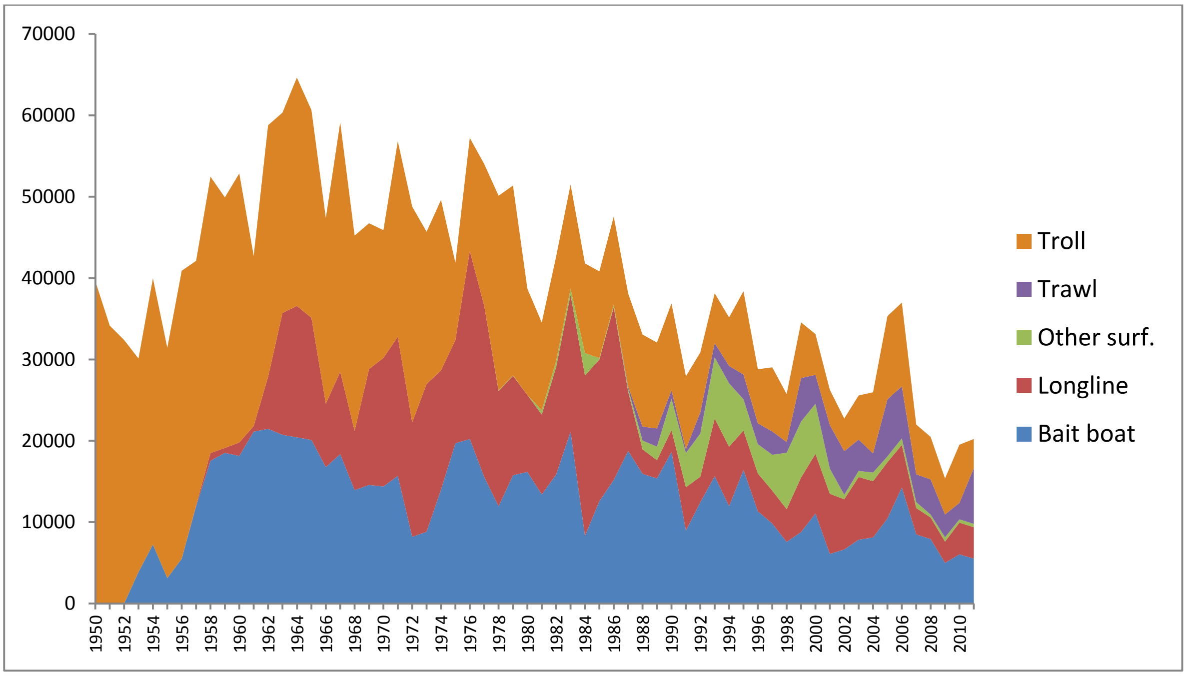


Figure 3. Northern albacore Task I catches by major gear and year.

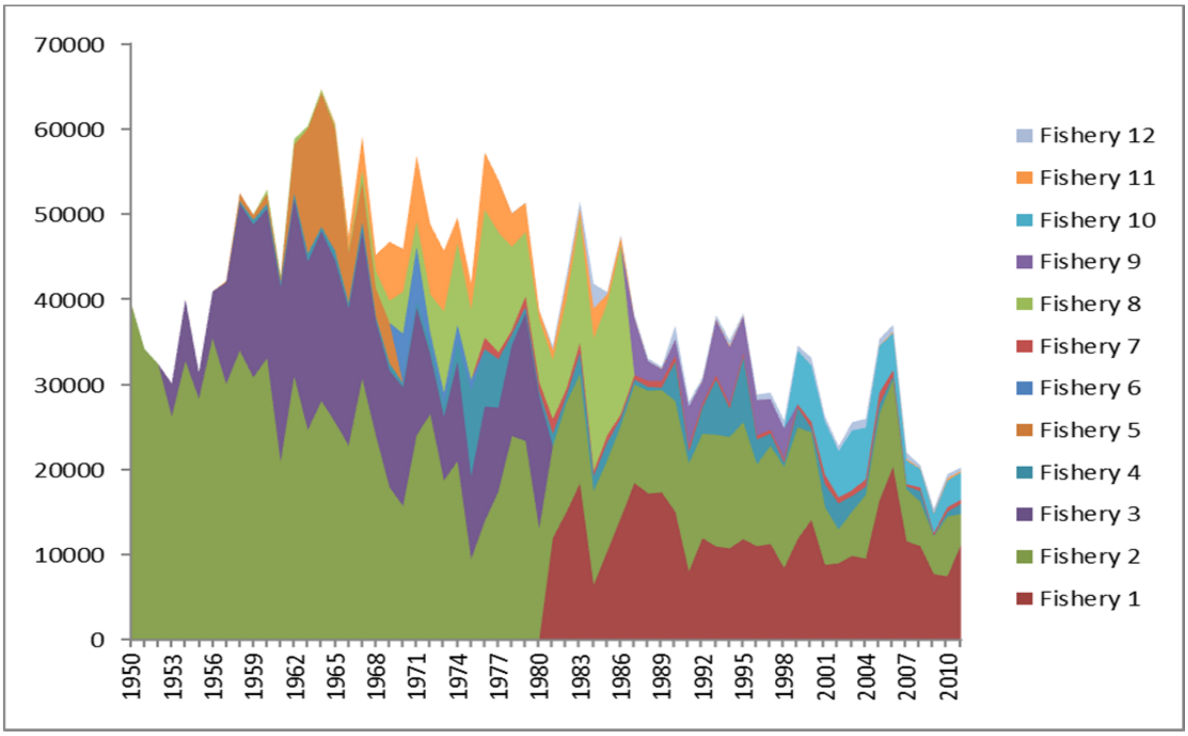


Figure 4. The accumulated nominal catches by fishery and year used for MFCL.

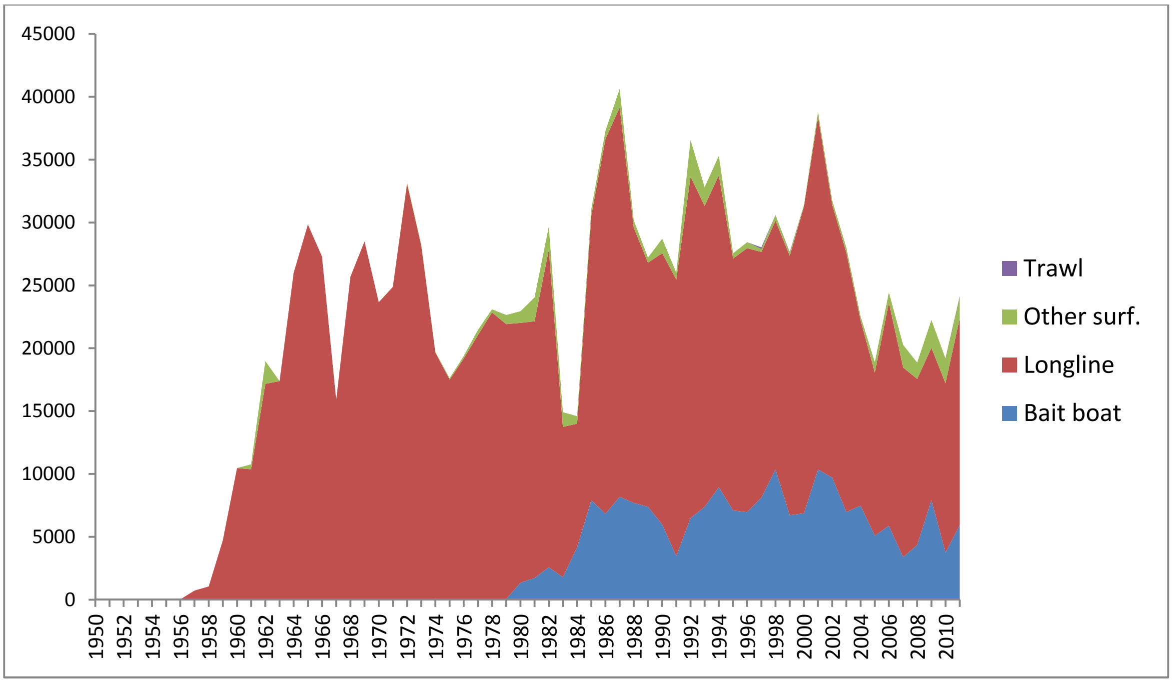


Figure 5. Southern albacore Task I catches by major gear and year.

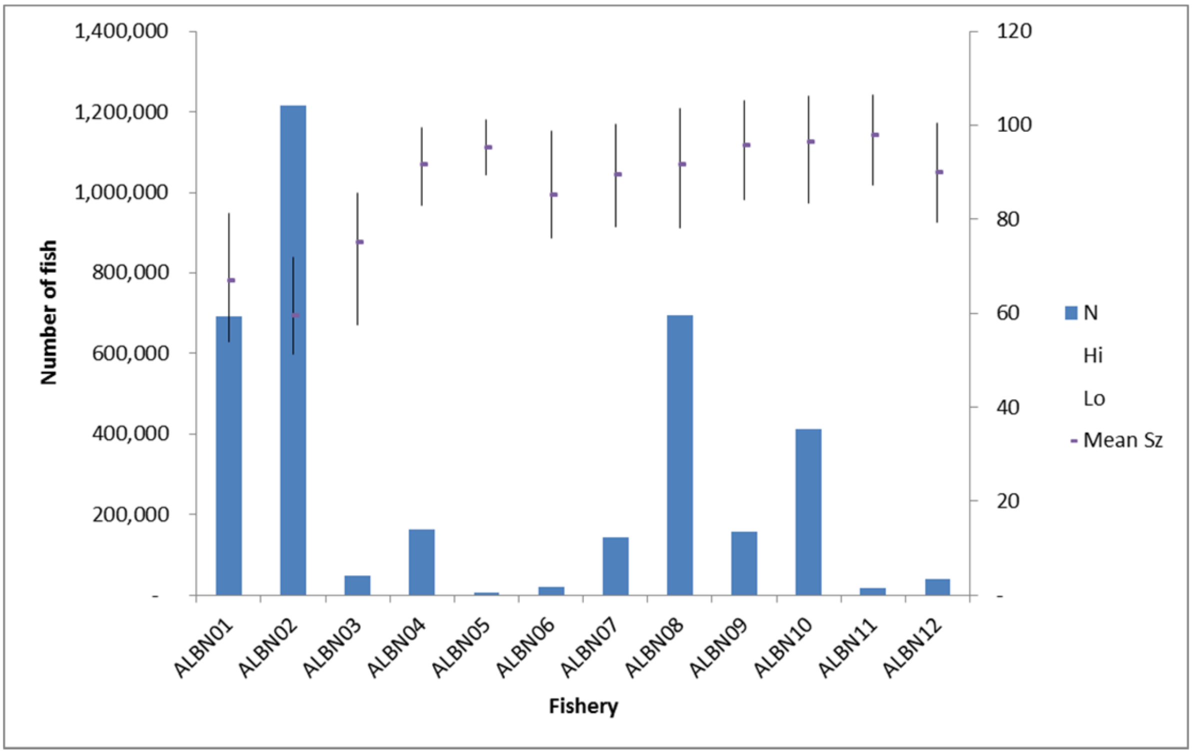


Figure 6. Before screening indicators of centrality and dispersion (means of number of fish, and size class bin percentiles: 10%, median, 90%) in size frequency series across years for each fishery.

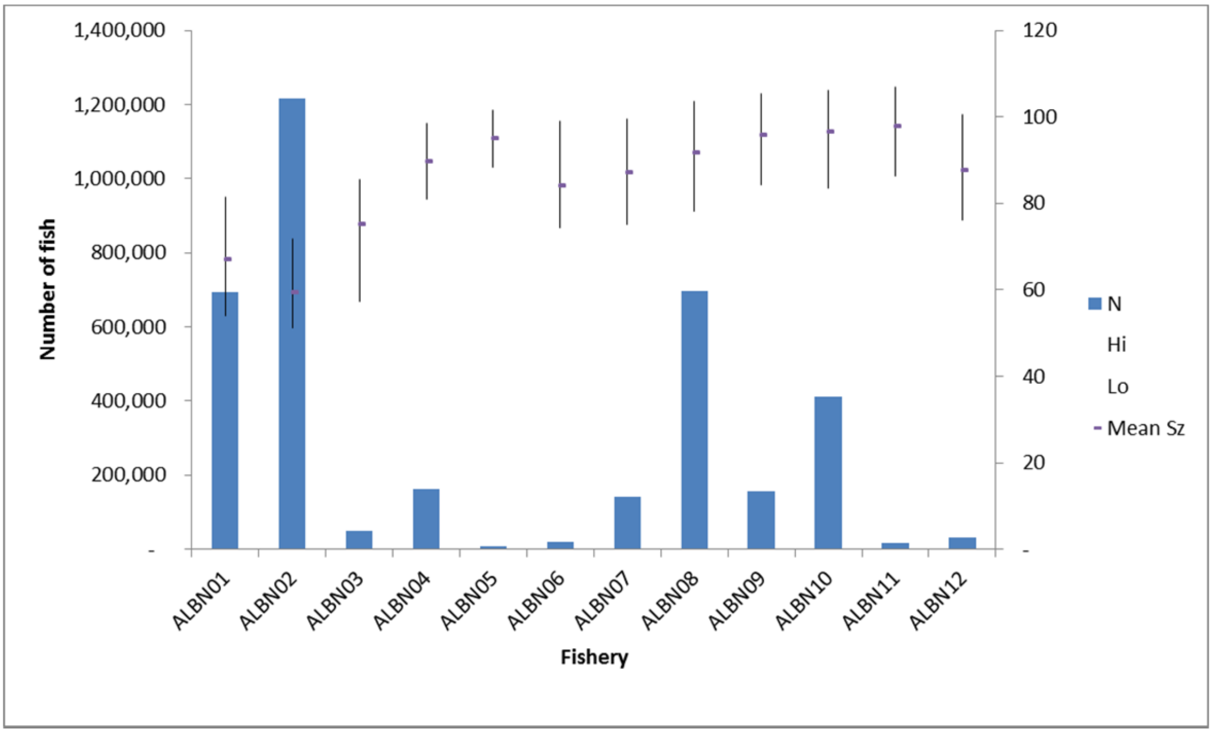


Figure 7. After screening indicators of centrality and dispersion (means of number of fish, and size class bin percentiles: 10%, median, 90%) in size frequency series across years for each fishery.

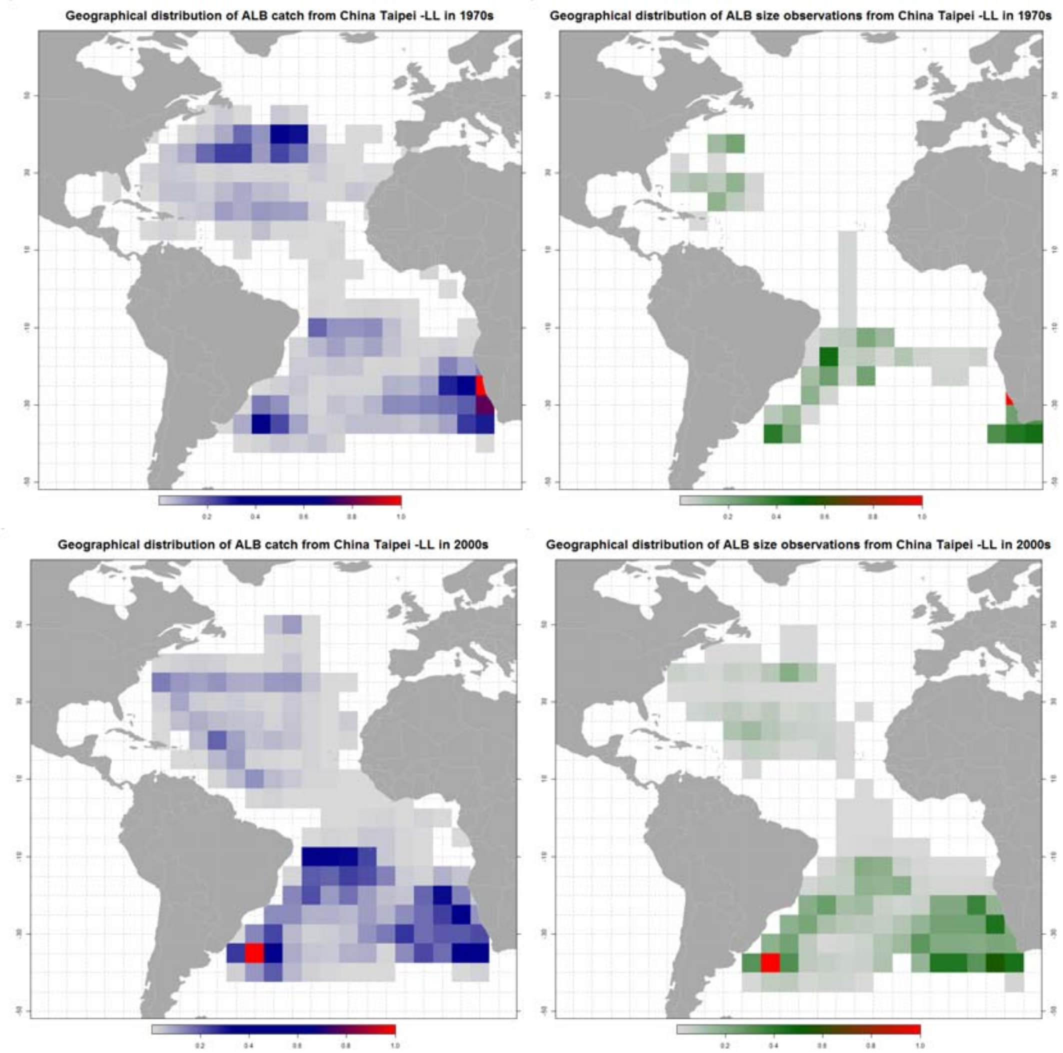


Figure 8. Catch and size observations distribution for the Chinese Taipei longline fleet in the 1970s and 2000s.

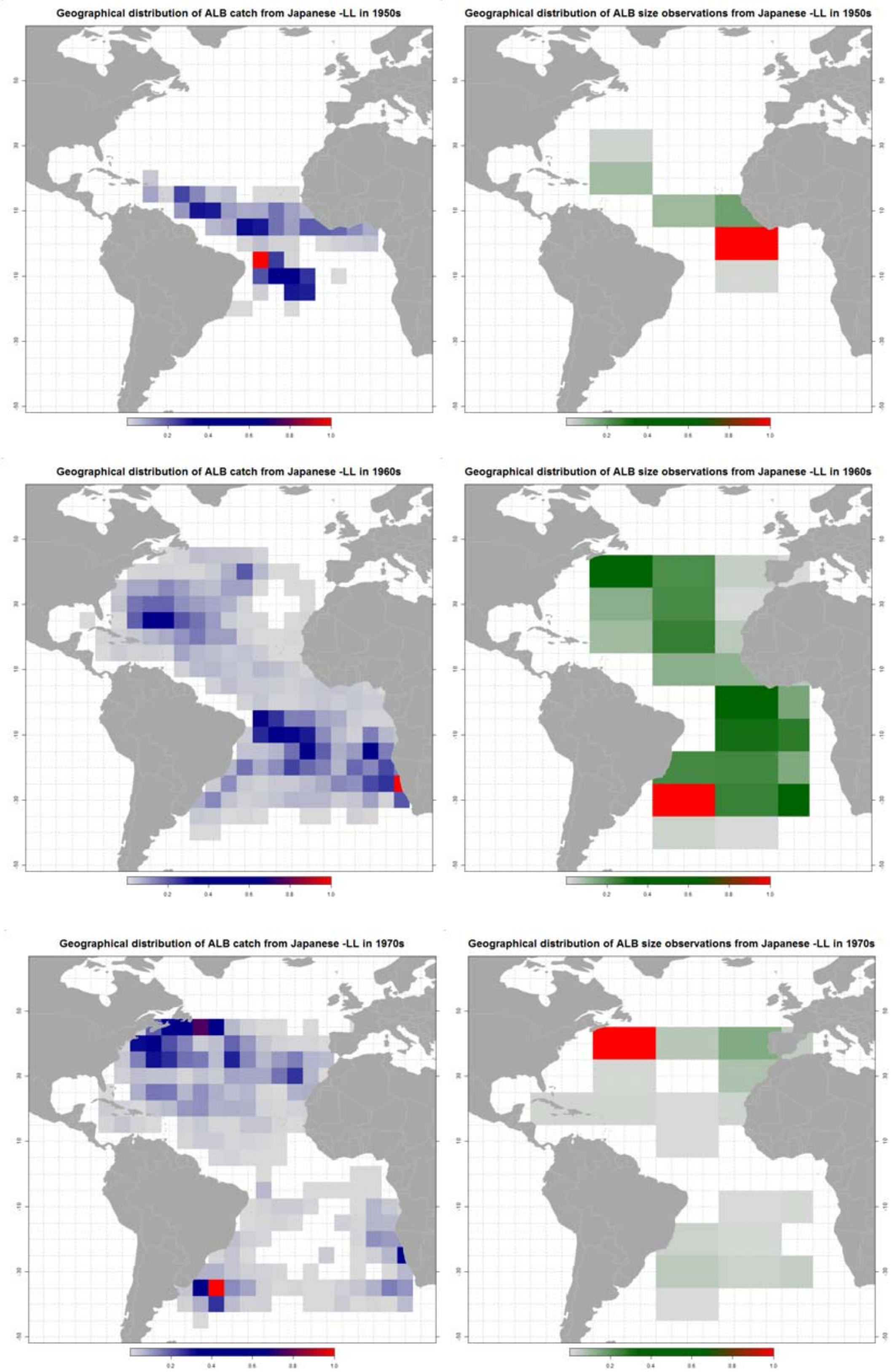


Figure 9. Catch and size observations distribution for the Japanese longline fleet in the 1950s, 1960s and 1970s.

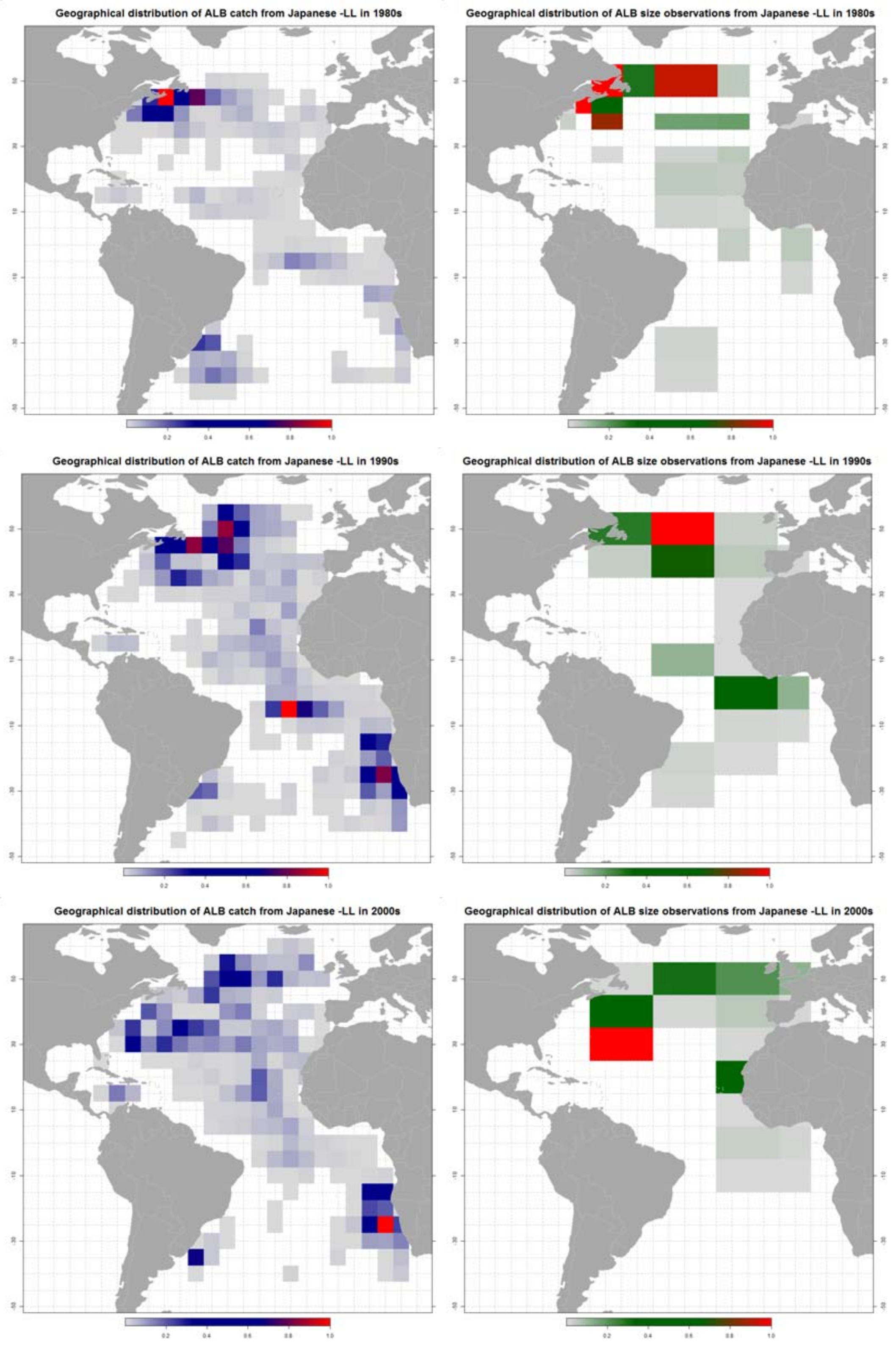


Figure 10. Catch and size observations distribution for the Japanese longline fleet in the 1980s, 1990s and 2000s.

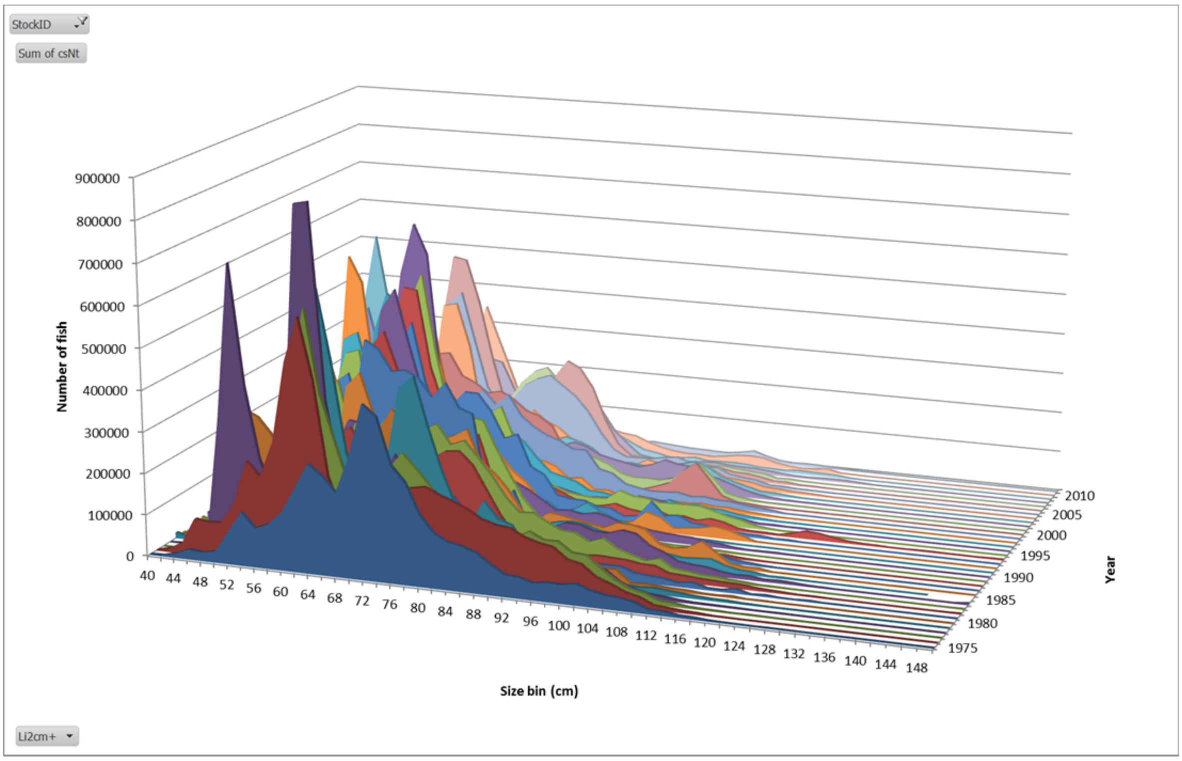


Figure 11. CAS (in 2cm lower limit classes) obtained for the northern ALB stock.

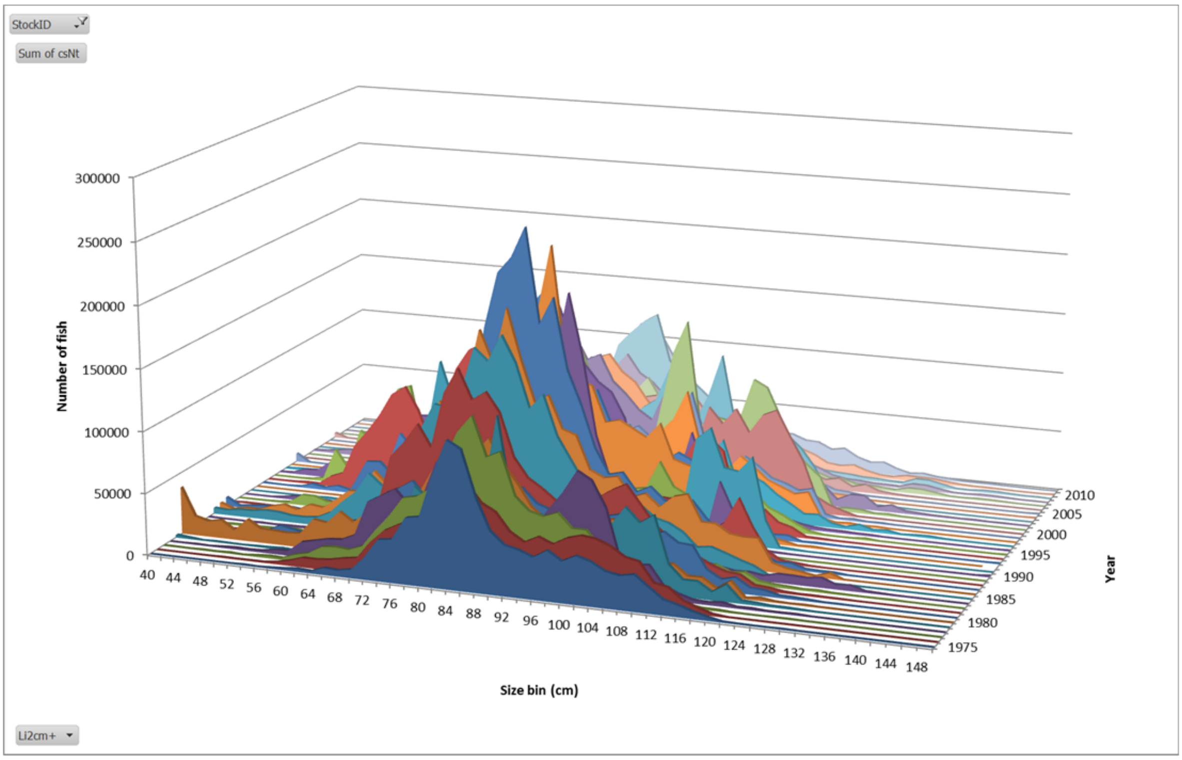
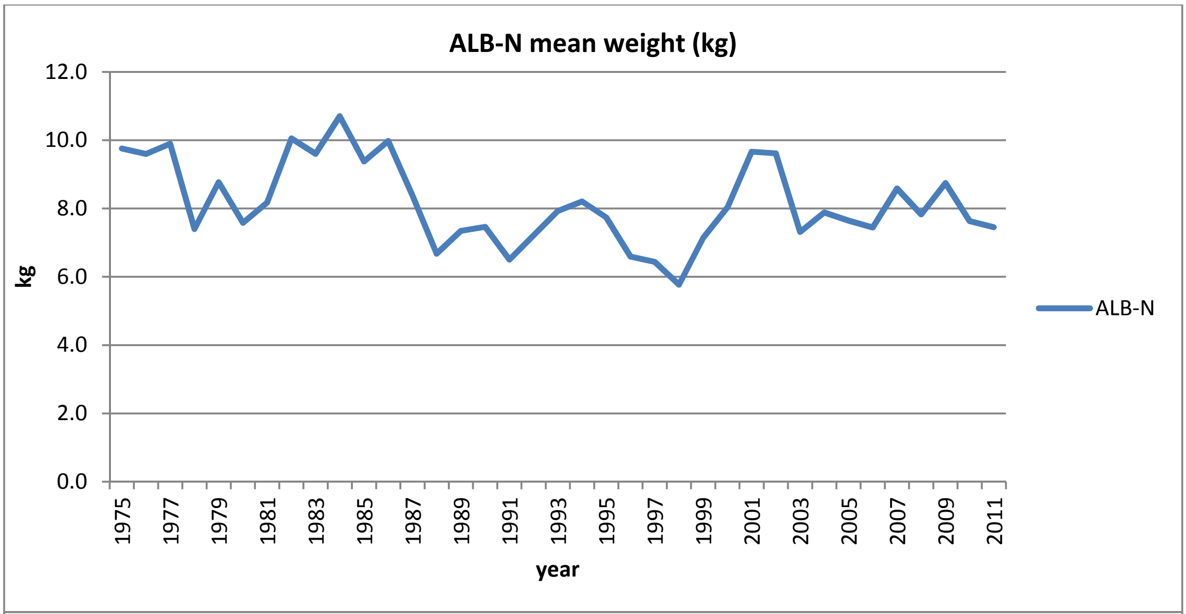


Figure 12. CAS (in 2cm lower limit classes) obtained for the southern ALB stock.



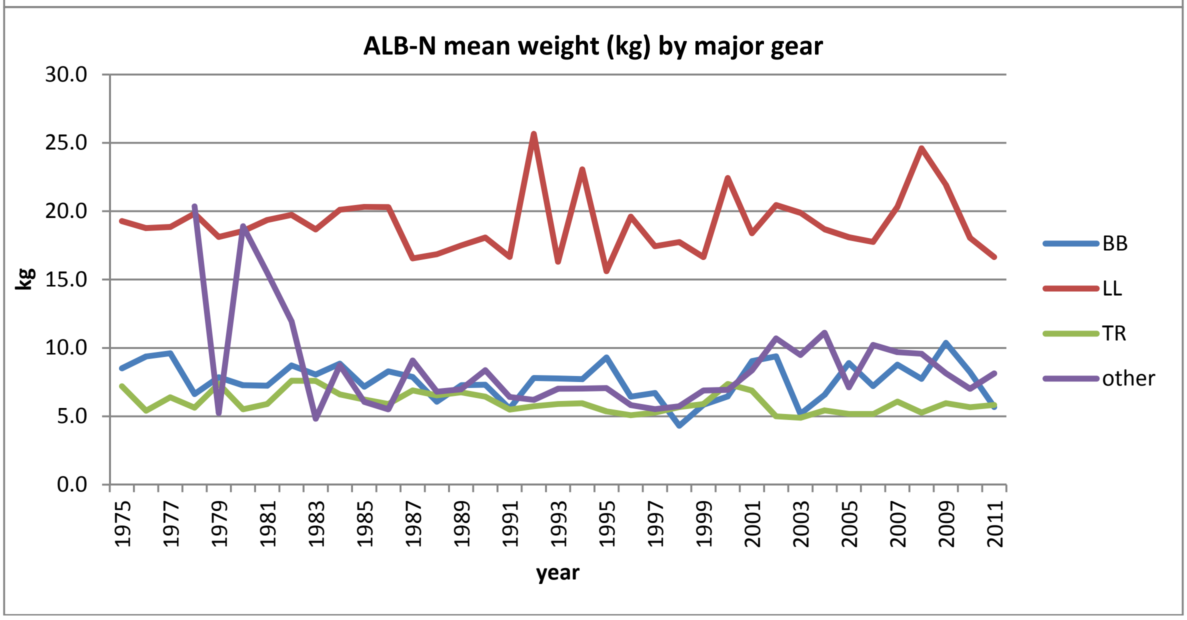


Figure 13. North Atlantic albacore mean weights (overall and by major gear) obtained from the CAS.

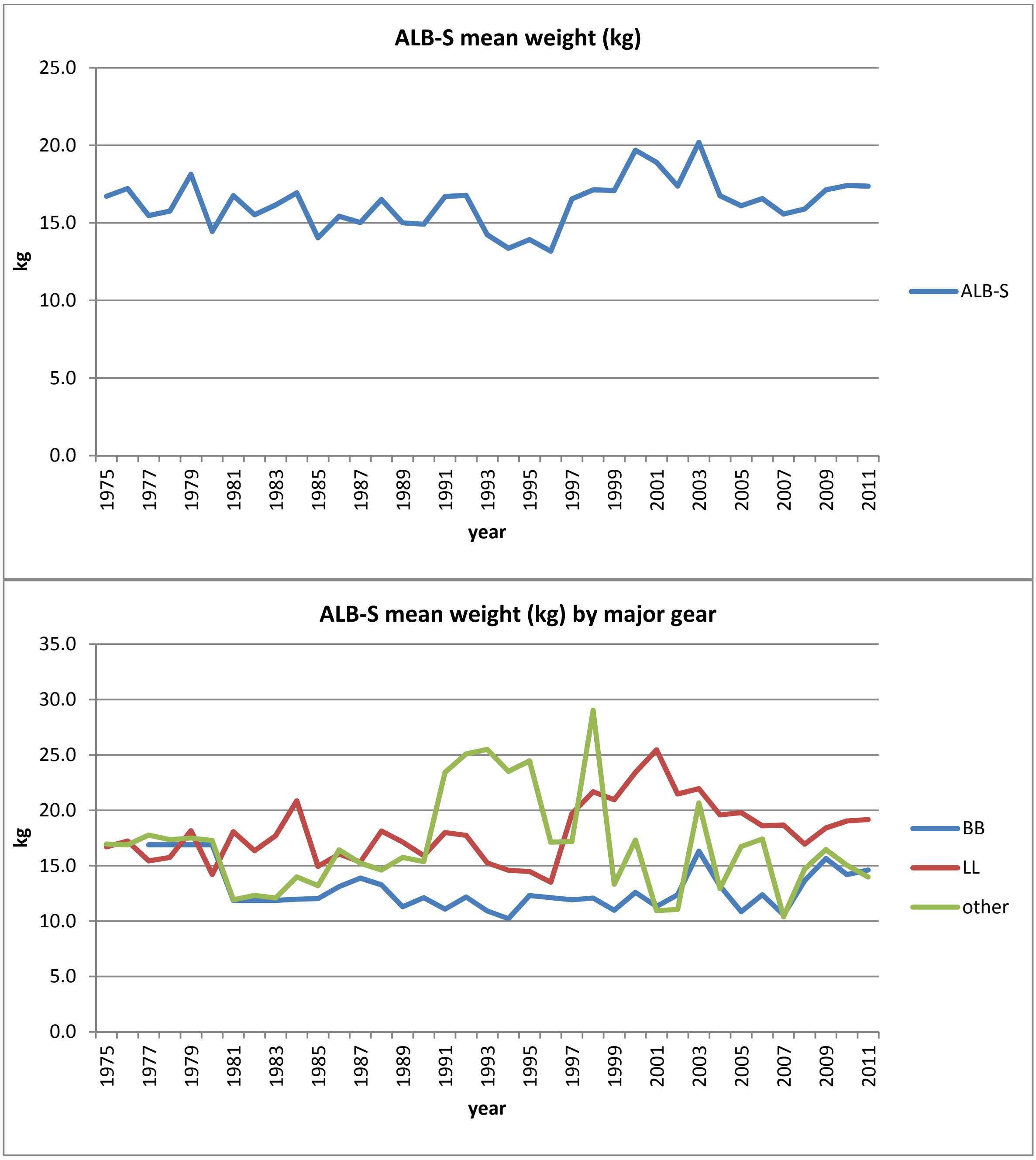


Figure 14. South Atlantic albacore mean weights (overall and by major gear) obtained from the CAS.

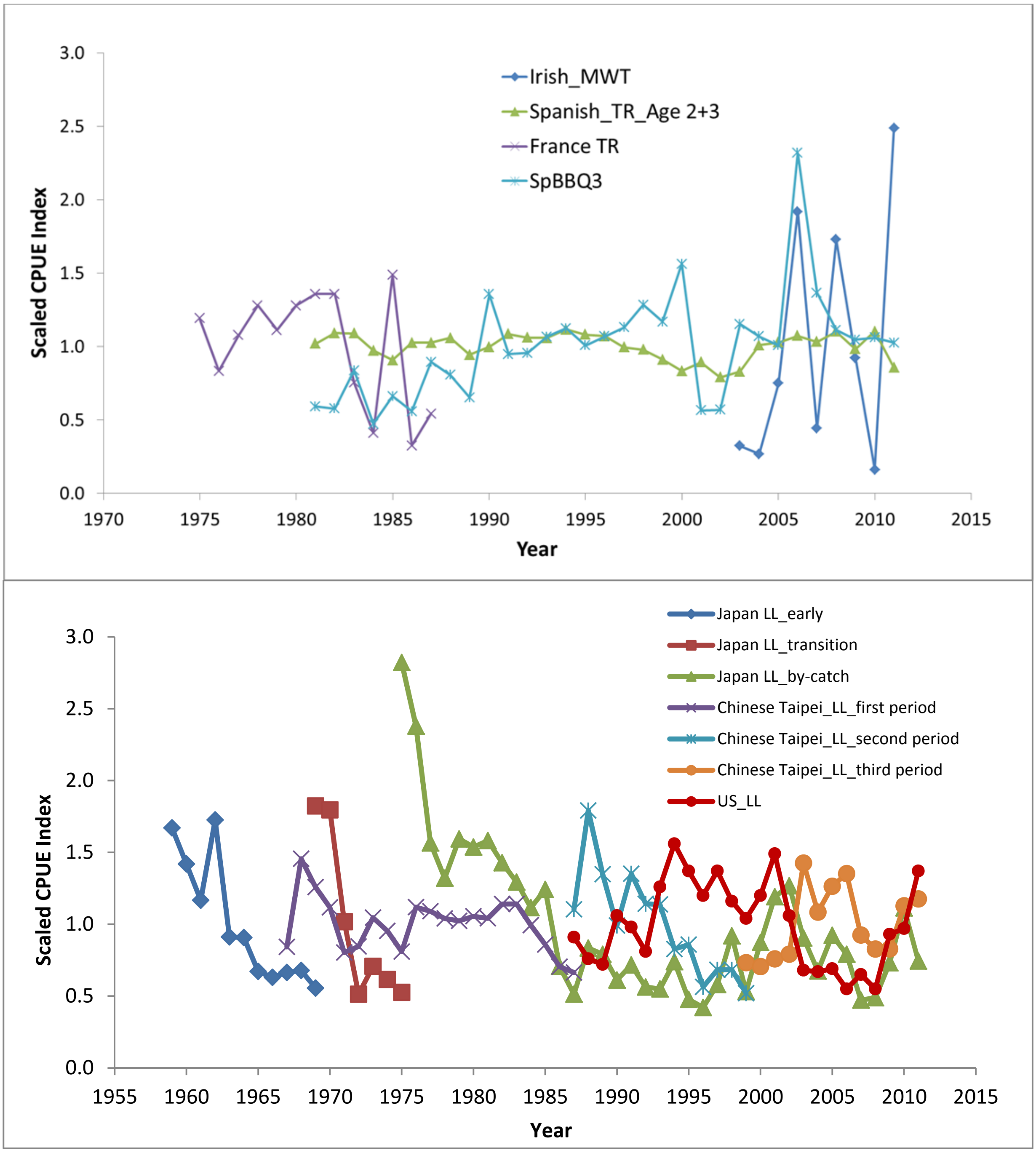


Figure 15 Standardized CPUE's for surface (upper panel) and longline (lower panel) fleets targeting North Atlantic albacore.

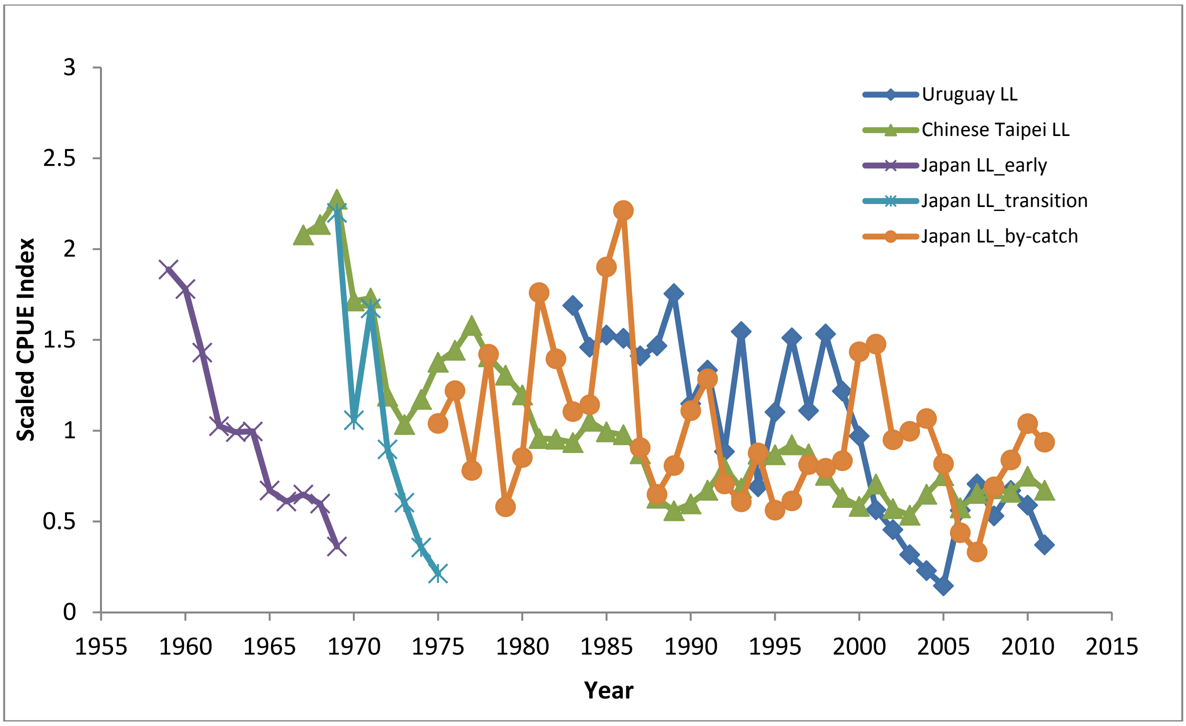
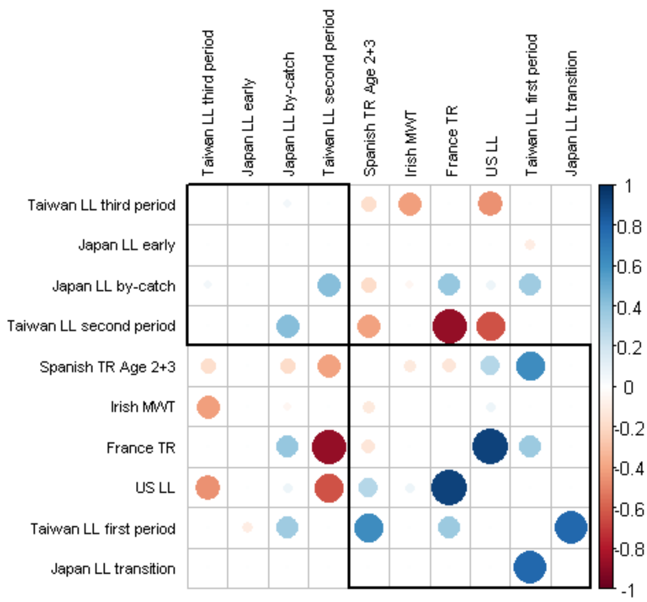


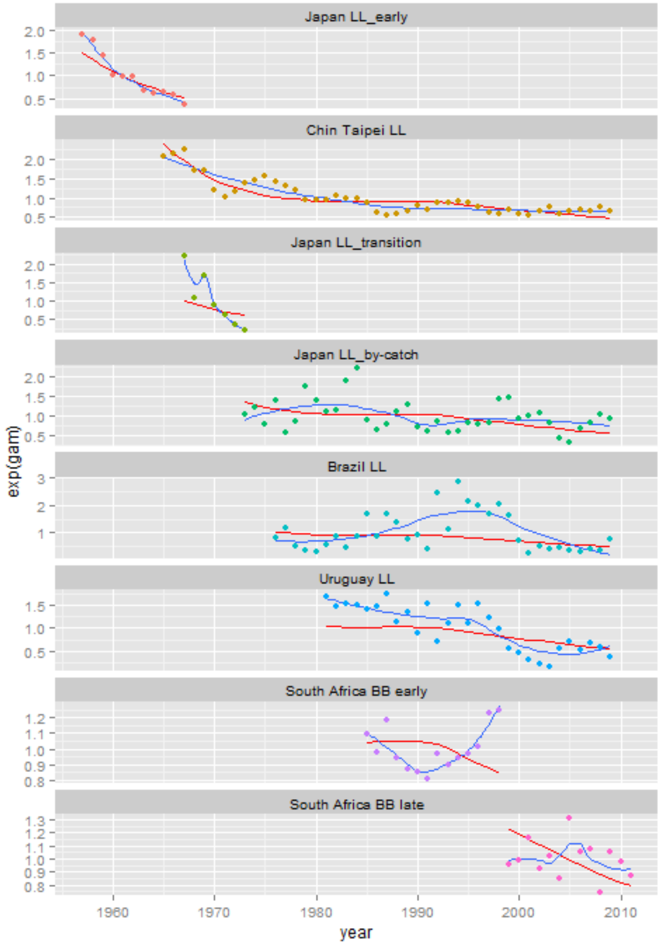
Figure 16. Standardized CPUE's for South Atlantic albacore.

a)

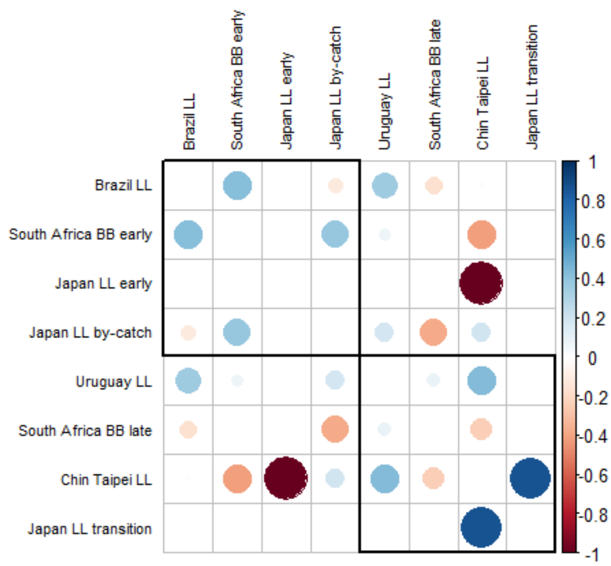


b)

Figure 17. Correlation plots for fleets fishing in the North Atlantic (a) shows individual fleet observations plotted against a GAM fitted to all series (red line) as well as a Loess smoother fitted to each individual series (blue line). (b) shows the individual correlation matrix between fleets. Longline fleets show a delay of 2 years to make them comparable with the surface fleets targeting smaller age classes.



a)



b)

Figure 18. Correlation plots for fleets fishing in the South Atlantic (a) shows individual fleet observations plotted against a GAM fitted to all series (red line) as well as a Loess smoother fitted to each individual series (blue line). (b) shows the individual correlation matrix between fleets. Longline fleets show a delay of 2 years to make them comparable with the surface fleets targeting smaller age classes.

Appendix 1

AGENDA

1. Opening, adoption of agenda and meeting arrangements
2. Review of historical and new information on biology, including tagging
3. Review of fishery statistics
   3.1 Task I (catches) data
   3.2 Task II catch/effort
   3.3 Task II size data
6. Review of CAS, CAA and WAA
7. Review of available indices of relative abundance by fleet and estimation of combined indices
8. Identification of data inputs for the different assessment models and advice framework
   NORTH:
   - MFCL
   - VPA2-box
   - SS3
   - Others

   SOUTH:
   - ASPIC
   - BSP
   - Others
9. Limit Reference Points for albacore
10. Recommendations
11. Other matters
12. Adoption of the report and closure

Appendix 2

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Appendix 3

LIST OF DOCUMENTS

SCRS/2013/043	Update of standardized CPUE of albacore tuna, *Thunnus alalunga*, caught by Uruguayan longliners in the southwestern Atlantic Ocean (1983-2012). Pons, M.
SCRS/2013/052	Standardized north East Atlantic albacore (*Thunnus alalunga*) CPUEs from the Spanish baitboat fleet by quarter, for the period 1981-2011. Ortiz de Zárate, V., Ortiz de Urbina, J.M. and B. Pérez, B.
SCRS/2013/053	Standardized north East Atlantic albacore (*Thunnus alalunga*) CPUEs from the Spanish troll fleet by quarter, for the period 1981-2012. Ortiz de Zárate, V. and Ortiz de Urbina, J.M.
SCRS/2013/054	Updated standardized age specific catch rates for albacore (*Thunnus alalunga*), from the Spanish troll fishery in the northeast Atlantic: 1981-2011. Ortiz de Zárate, V., Ortiz de Urbina, J.M. and B. Pérez B.
SCRS/2013/055	Use of age-length keys to estimate catch-at-age of albacore (*Thunnus alalunga*) from the Spanish surface fishery in North East Atlantic, years 2009 to 2011. Victoria Ortiz de Zárate V., Quelle P., Ruiz M. and Pérez B.
SCRS/2013/056	A preliminary stock assessment of the albacore tuna (*Thunnus alalunga*) stock in the northern Atlantic Ocean using a non-equilibrium production model. Merino, G., de Bruyn, P. and Kell, L.T.
SCRS/2013/057	A preliminary stock assessment of the albacore tuna (*Thunnus alalunga*) stock in the southern Atlantic Ocean using a non-equilibrium production model. Merino, G., de Bruyn, P. and Kell, L.T.
SCRS/2013/058	A preliminary stock assessment of the albacore tuna (*Thunnus alalunga*) stock in the northern Atlantic Ocean using Multifan-CL. Merino, G., de Bruyn, P. and Kell, L.T.
SCRS/2013/060	Standardised catch rates of albacore tuna (*Thunnus alalunga*) from the Irish mid water paired trawl fleet 2003-2012. Cosgrove, R., Minto, C., Sheridan, M. and Officer, R.
SCRS/2013/061	Standardized CPUE for North Atlantic albacore caught by the Japanese longline fishery. Kiyofuji, H.
SCRS/2013/062	Review of Japanese longline fishery and its albacore catch in the Atlantic Ocean. Matsumoto, T.
SCRS/2013/063	Standardized CPUE for South Atlantic albacore by the Japanese longline fishery. Matsumoto, T.
SCRS/2013/064	Review and preliminary analyses of size frequency samples of North and South Atlantic albacore tuna (*Thunnus alalunga*). Ortiz, M.
SCRS/2013/066	Standardized catch indices of albacore tuna, *Thunnus alalunga*, from the U.S. pelagic longline fishery. Lauretta, M.V., Orbesen, E.S., Schirripa, M., and Diaz, G.A.
SCRS/2013/067	Preliminary estimations of non-ratained catch of albacore, *Thunnus alalunga*, in the southwestern Atlantic Ocean. Domingo, A., Mas, F. and Forselledo, R.
SCRS/2013/068	Standardized catch rates of albacore (*Thunnus alalunga*) caught by the Brazilian fleet (1978-2011). Hazin, H.G., Hazin, F.H.V. and Mourato, B.L.
SCRS/2013/069	Standardization on northern Atlantic albacore (*Thunnus alalunga*) CPUE, dating from 1967 to 2012, based on Taiwanese longline catch and effort statistics. Chang, F., Tzeng, T. and Yeh, S.
SCRS/2013/070	Standardized CPUE of South Atlantic albacore (*Thunnus alalunga*) based on Taiwanese longline catch and effort statistics dating from 1967 to 2012. Chang, F. and Yeh, S.
SCRS/2013/072	Standardization of the catch per unit effort for albacore (*Thunnus alalunga*) for the South African tuna-pole (baitboat) fleet for the time series 1999-2011. West, W.M., Winker, H. and Kerwath, S.E.

Appendix 4

Ageing algorithm based on the Kimura Chikuni mixture of distributions analysis (Kimura and Chikuni, 1987) implemented with an R function from A. Murtua (http://albertomurta.wikispaces.com/file/detail/Kimura-Chikuni-1987.R). R function.

```
## Function to apply the method by Kimura and Chikuni (1987):
## Kimura, D.K. and Chikuni, S. (1987) Mixtures of empirical distributions:
##  an iterative application of the age-length key. Biometrics. 43, 23-35.
## 'freq.mat' is a matrix with the number of fish in each length (row) and age (column) class.
## This matrix can be obtained by simple random sampling or length-stratified random sampling.
## 'length.vec1' and 'length.vec2' are vectors with the number of fish in each length-class in population 1
##  and population 2, respectively.

iterativeALK <- function(freq.mat, length.vec1, length.vec2, stop.value=0.001){
  if(length(length.vec1) != length(length.vec2) || length(length.vec2) != nrow(freq.mat) ||
     any(c(length.vec1, length.vec2, apply(freq.mat, 1, sum)) <= 0)){
        stop("The number of length-classes must be the same in all data sets and all length-classes must have
       been sampled.")
  }
  nij1.temp <- length.vec1 * freq.mat/apply(freq.mat, 1, sum)
  denom <- apply(nij1.temp, 2, sum)
  denom[denom==0] <- 1
  ialk.temp <- sweep(nij1.temp, 2, denom,"/")
  pj2.temp <- rep(1/ncol(freq.mat), ncol(freq.mat))
  criterion <- 10
  iterations <- 0
  while(criterion > stop.value){
    iterations <- iterations + 1
    pj2.temp.old <- pj2.temp
    denom <- apply(sweep(ialk.temp, 2, pj2.temp, "*"),1, sum)
    denom[denom==0] <- 1
    alk.temp <- sweep(ialk.temp, 2, pj2.temp, "*")/denom
    nij2.temp <- length.vec2 * alk.temp
    pj2.temp <- apply(nij2.temp, 2, sum)/sum(nij2.temp)
    criterion <- sum(abs(pj2.temp - pj2.temp.old))
  }
  output <- list("Number of fish in each length and age-class in population 2" = nij2.temp,
               "Number of iterations to convergence" = iterations)
  return(output)
}
```

Example of R script:

```
CAAyr <- matrix(NA,nrow=1,ncol=dim(proSzAge)[2])
# Use the function for year version     Remember to test the use of the positive cte 0.01 for empty
for (i in 1:dim(CASyr2)[2]) {
  IALK_N <- as.matrix(iterativeALK(freq.mat=proSzAge, length.vec1=CASyr2[,i], length.vec2=CASyr2[,i],
stop.value=0.00001)[[1]])
  tmp <- apply(IALK_N,2,sum)
  if (i == 1) { CAAyr <- tmp
     } else {
  CAAyr <- rbind(CAAyr,tmp)
    }}
# check total number in CAS vr CAA
sum(CASyr)
sum(CAAyr)
```

Results test new algorithm.

1. Epsilon value choice

epsilon												
		CAA from CAS 1983										
Num Itera	Epsilon	Age_0	Age_1	Age_2	Age_3	Age_4	Age_5	Age_6	Age_7	Age_8	Age_9	Age_10
2	0.1	2612.977	7447.194	29974.590	154751.800	236834.600	171007.100	102998.890	73583.080	56428.830	45816.110	41906.090
4	0.01	2614.300	7637.790	26473.310	154532.400	246117.200	167032.800	101255.160	74665.540	56137.960	44828.430	42066.330
10	0.001	2611.921	7670.317	26165.340	153994.700	249391.800	163934.400	100771.730	76882.280	55612.420	43380.550	42945.780
29	0.0001	2611.929	7670.030	26173.320	153942.400	249487.600	164093.600	99863.480	78274.960	55253.720	42345.200	43644.970
53	0.00001	2611.928	7670.046	26172.710	153950.100	249443.400	164198.500	99678.270	78479.020	55204.570	42235.640	43717.020
123	0.0000001	2611.928	7670.048	26172.640	153951.100	249437.600	164213.200	99648.610	78524.860	55163.300	42254.030	43713.970
244	0.00000001	2611.928	7670.048	26172.630	153951.200	249436.900	164215.100	99643.920	78534.660	55150.430	42263.650	43710.780
365	0.000000001	2611.928	7670.048	26172.630	153951.200	249436.900	164215.200	99643.450	78535.640	55149.150	42264.620	43710.460

2. Test small positive (0.01) constant added to avoid zero size bin cells

Age Distribution No Cte CAS 40-140 cm

Year	Age_0	Age_1	Age_2	Age_3	Age_4	Age_5	Age_6	Age_7	Age_8	Age_9	Age_10
1981	2283.67522	32248.84	56657.95	221089.06	308187.5	244717	162096.99	137615.58	109355.98	85897.5	74614.37
1983	2611.92829	7670.046	26172.71	153950.13	249443.4	164198.5	99678.27	78479.02	55204.57	42235.64	43717.02
1984	475.94177	3090.98	45907.34	141628.88	213692	146811.7	88112.03	73626.74	50739.53	35830.22	62173.65
1986	9510.35293	50538.11	167577.83	368719.1	603850.7	458847.8	255786.29	160130.21	123523.55	108852.31	110560.13
1995	384.01228	117797.4	319632.17	279068.21	375837.5	336853.9	171201.08	118934.44	103672.78	87057.57	67732.3
1996	3578.45619	111671.1	312445.17	344406.74	481491.6	412641.5	179484.49	111133.06	97305.64	62754.49	41016.15
1997	2322.96543	21076.58	80029.51	258368.59	385013	327738.1	190188.57	130872.68	113827.07	94069.65	90556.58
2002	3860.61593	22952.6	184228.73	150244.64	354209.2	313973.8	241970	192764.35	142267.97	108628.89	112149.61
2003	997.38647	8514.318	43089.19	36430.88	228295.1	233232.2	235960.86	212377.08	162109.48	124802.86	101157.99
2004	2925.66392	16055	70197.73	131885.41	296909.3	305552	191418.57	135718.57	93536.94	64534.53	48535.09
2006	3657.22627	2752.732	60784.53	229288.69	327385.2	246780.3	202742.11	154617.78	110013.73	72404.41	58266.66
2007	41.91015	2723.262	44521.16	146651.49	297868.8	277970.4	165076.43	97207.74	74849.01	60758.18	52451.84

-0.05003	-0.122	-0.11	-0.09	-0.1	-0.1	-0.06	-0.06	-0.05	-0.08	-0.24
-0.05003	-0.122	-0.11	-0.09	-0.1	-0.1	-0.07	-0.06	-0.05	-0.07	-0.24
-0.05003	-0.122	-0.11	-0.09	-0.1	-0.1	-0.06	-0.06	-0.05	-0.06	-0.24
-0.05004	-0.123	-0.1	-0.1	-0.1	-0.1	-0.06	-0.06	-0.05	-0.07	-0.24
-0.05004	-0.122	-0.11	-0.09	-0.1	-0.1	-0.06	-0.06	-0.03	-0.08	-0.23
-0.05004	-0.122	-0.11	-0.1	-0.1	-0.1	-0.06	-0.05	-0.05	-0.06	-0.24
-0.05004	-0.123	-0.11	-0.09	-0.1	0	-0.06	-0.06	-0.05	-0.07	-0.24
-0.05004	-0.122	-0.1	-0.09	-0.1	-0.1	-0.07	-0.06	-0.05	-0.06	-0.25
-0.05004	-0.123	-0.11	-0.09	-0.1	-0.1	-0.06	-0.06	-0.04	-0.08	-0.23
-0.05004	-0.122	-0.11	-0.1	-0.1	0	-0.06	-0.06	-0.04	-0.08	-0.23
-0.05004	-0.122	-0.11	-0.1	0	-0.1	-0.06	-0.06	-0.06	-0.06	-0.24
-0.05004	-0.122	-0.11	-0.09	-0.1	-0.1	-0.07	-0.06	-0.05	-0.07	-0.24

Differencia in numbers

Age Distribution Yes Cte CAS 40-140 cm

Age_0	Age_1	Age_2	Age_3	Age_4	Age_5	Age_6	Age_7	Age_8	Age_9	Age_10
2283.72525	32248.966	56658.06	221089.2	308187.6	244717.1	162097.1	137615.6	109356	85897.58	74614.61
2611.97832	7670.168	26172.82	153950.2	249443.5	164198.6	99678.34	78479.08	55204.62	42235.71	43717.26
475.9918	3091.102	45907.45	141629	213692.1	146811.8	88112.09	73626.8	50739.58	35830.28	62173.89
9510.40297	50538.228	167577.93	368719.2	603850.8	458847.9	255786.4	160130.3	123523.6	108852.4	110560.4
384.06232	117797.52	319632.28	279068.3	375837.6	336854	171201.1	118934.5	103672.8	87057.65	67732.53
3578.50623	111671.18	312445.28	344406.8	481491.7	412641.6	179484.6	111133.1	97305.69	62754.55	41016.39
2323.01547	21076.707	80029.62	258368.7	385013.1	327738.1	190188.6	130872.7	113827.1	94069.72	90556.82
3860.66597	22952.722	184228.83	150244.7	354209.3	313973.9	241970.1	192764.4	142268	108629	112149.9
997.43651	8514.441	43089.3	36430.97	228295.2	233232.3	235960.9	212377.1	162109.5	124802.9	101158.2
2925.71396	16055.123	70197.84	131885.5	296909.4	305552	191418.6	135718.6	93536.98	64534.61	48535.32
3657.27631	2752.854	60784.64	229288.8	327385.2	246780.4	202742.2	154617.8	110013.8	72404.47	58266.9
41.96019	2723.384	44521.27	146651.6	297868.9	277970.5	165076.5	97207.8	74849.06	60758.25	52452.08

0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Differencia in proportion by age class

Appendix 5

Substitution tables used to create CAS data (ALB Northern and Southern stocks)
(Blue header: Task I information; orange header Task-II size information).

ATN

t1Yr	tlFleetC	t1Gear	t1Stock	t1LorD	t1Yt	ratio	szYr	szFleetC	szGear	szStock	Yield(t)	szNt	Lrng	Lmed	Wmed	TPerGrp	Remarks	Actions
1992	JPN	LLHB	ATN	L	466	0.8811	1992	JPN	LLHB	ATN	529	33038	49-134	89	16	qq	<>99%	raise
1993	JPN	LLHB	ATN	L	485	1.3425	1993	JPN	LLHB	ATN	361	36495	37-134	71	10	qq	<>99%	raise
1994	JPN	LLHB	ATN	L	505	1.1077	1994	JPN	LLHB	ATN	456	36970	37-134	78	12	qq	<>99%	raise
1995	JPN	LLHB	ATN	L	386	1.0557	1995	JPN	LLHB	ATN	366	23048	37-134	87	16	qq	<>99%	raise
1996	JPN	LLHB	ATN	L	466	0.9518	1996	JPN	LLHB	ATN	490	27761	69-134	92	18	qq	<>99%	raise
1997	JPN	LLHB	ATN	L	414	0.7485	1997	JPN	LLHB	ATN	553	27522	35-134	95	20	qq	<>99%	raise
1998	JPN	LLHB	ATN	L	446	0.7402	1998	JPN	LLHB	ATN	603	30127	40-134	95	20	qq	<>99%	raise
1999	JPN	LLHB	ATN	L	425	0.9163	1999	JPN	LLHB	ATN	464	31760	61-134	86	15	qq	<>99%	raise
2000	JPN	LLHB	ATN	L	688	0.7157	2000	JPN	LLHB	ATN	961	52995	46-130	92	18	qq	<>99%	raise
2001	JPN	LLHB	ATN	L	1126	0.7935	2001	JPN	LLHB	ATN	1419	87324	58-130	89	16	qq	<>99%	raise
2002	JPN	LLHB	ATN	L	711.401	0.8315	2002	JPN	LLHB	ATN	856	48834	61-130	92	18	qq	<>99%	raise
2003	BRB	HAND	ATN	L	1	3.9914	2003	USA-Com	HAND	ATN	0	11	107-118	115	34	mm	no sz/cs	sub-raise
2003	JPN	LLHB	ATN	L	680.281	0.9493	2003	JPN	LLHB	ATN	717	37540	42-134	94	19	qq	<>99%	raise
2004	BRB	HAND	ATN	L	1	0.1446	2004	USA-Com	HAND	ATN	9	155	103-149	138	60	mm	no sz/cs	sub-raise
2004	BRB	LLHB	ATN	L	8	0.0275	2004	USA-Com	LL	ATN	300	6331	77-190	128	47	mm	no sz/cs	sub-raise
2004	JPN	LLHB	ATN	L	892.813	1.0031	2004	JPN	LLHB	ATN	890	54368	41-130	88	16	qq	OK(t1=cs)	none
2005	BRB	HAND	ATN	L	2	0.3781	2005	USA-Com	HAND	ATN	6	102	123-139	137	58	mm	no sz/cs	sub-raise
2005	BRB	LLHB	ATN	L	11	0.0396	2005	USA-Com	LL	ATN	278	6103	90-210	126	46	mm	no sz/cs	sub-raise
2005	JPN	LLHB	ATN	L	1335.779	0.9997	2005	JPN	LLHB	ATN	1336	79503	39-134	90	17	qq	OK(t1=cs)	none
2006	JPN	LLHB	ATN	L	780.668	0.9688	2006	JPN	LLHB	ATN	806	45960	39-134	91	18	qq	<>99%	raise
2007	BRB	HAND	ATN	L	1	0.0025	2007	USA-Rec	RR	ATN	385	19125	54-127	96	20	mm	no sz/cs	sub-raise
2007	BRB	LLHB	ATN	L	6	0.021	2007	USA-Com	LL	ATN	288	5912	103-180	129	49	mm	no sz/cs	sub-raise
2007	BLZ-TTO	LL	ATN	L	22	0.0357	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	CAN	HARP	ATN	L	0.1	0.1701	2007	CAN	HARP	ATN	1	26	96-128	114	33	mm	<>99%	raise
2007	CAN	LL-surf	ATN	L	20	1.2567	2007	CAN	LL-surf	ATN	16	582	82-149	105	27	mm	<>99%	raise
2007	CAN	RR	ATN	L	5	2.3932	2007	CAN	TROL	ATN	2	59	101-125	117	36	mm	no sz/cs	sub-raise
2007	CAN	TL	ATN	L	0.4	0.207	2007	CAN	TROL	ATN	2	59	101-125	117	36	mm	<>99%	raise

2007	CHN	LL	ATN	L	59	0.0966	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	TAI	LLFB	ATN	L	1297	2.1243	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	<>99%	raise
2007	EU.ESP-ES-CANARY	BB	ATN	L	256	1.0383	2007	EU.ESP-ES-CANARY	BB	ATN	246	16931	64-112	87	15	mm	<>99%	raise
2007	EU.ESP-ES-CANT_ALB	BB	ATN	L	8120	0.9685	2007	EU.ESP-ES-CANT_ALB	BB	ATN	8384	969232	42-115	73	9	mm	<>99%	raise
2007	EU.ESP-ES-CANT_ALB	TROL	ATN	L	6089	0.9874	2007	EU.ESP-ES-CANT_ALB	TROL	ATN	6166	1016367	38-114	65	6	mm	<>99%	raise
2007	EU.ESP-ES-SWO	LLHB	ATN	L	118	338.05	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2007	EU.FRA	BB	ATN	L	15	0.0018	2007	EU.ESP-ES-CANT_ALB	BB	ATN	8384	969232	42-115	73	9	mm	no sz/cs	sub-raise
2007	EU.FRA	HAND	ATN	L	86	0.0306	2007	EU.FRA-FR	MWTD	ATN	2819	308756	48-109	75	9	mm	no sz/cs	sub-raise
2007	EU.FRA	LL	ATN	L	1	0.0058	2007	EU.FRA-FR	LL-deri	ATN	166	23774	52- 88	68	7	mm	no sz/cs	sub-raise
2007	EU.FRA	LL-B	ATN	L	1	0.0038	2007	EU.FRA-FR	LL-deri	ATN	166	23774	52- 88	68	7	mm	no sz/cs	sub-raise
2007	EU.FRA	LL-deri	ATN	L	228	1.3695	2007	EU.FRA-FR	LL-deri	ATN	166	23774	52- 88	68	7	mm	<>99%	raise
2007	EU.FRA	TROL	ATN	L	4	0.0015	2007	EU.FRA-FR	MWTD	ATN	2819	308756	48-109	75	9	mm	no sz/cs	sub-raise
2007	EU.FRA	MWTD	ATN	L	2837	1.0066	2007	EU.FRA-FR	MWTD	ATN	2819	308756	48-109	75	9	mm	OK(t1=cs)	none
2007	EU.FRA	TRAW	ATN	L	5	0.0018	2007	EU.FRA-FR	MWTD	ATN	2819	308756	48-109	75	9	mm	no sz/cs	sub-raise
2007	EU.FRA	UNCL	ATN	L	2	0.0006	2007	EU.FRA-FR	MWTD	ATN	2819	308756	48-109	75	9	mm	no sz/cs	sub-raise
2007	EU.IRL	TROL	ATN	L	10	1.3972	2007	EU.IRL	TROL	ATN	7	945	53- 91	71	8	mm	<>99%	raise
2007	EU.IRL	MWTD	ATN	L	586	0.9779	2007	EU.IRL	MWTD	ATN	599	77475	49-100	71	8	mm	<>99%	raise
2007	EU.PRT-PT-AZORES	BB	ATN	L	28	4.9782	2007	EU.PRT-PT-AZORES	BB	ATN	6	583	62- 91	76	10	mm	<>99%	raise
2007	EU.PRT-PT-AZORES	LLSWO	ATN	L	2	4.9795	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2007	EU.PRT-PT-MADEIRA	BB	ATN	L	53	9.4437	2007	EU.PRT-PT-AZORES	BB	ATN	6	583	62- 91	76	10	mm	no sz/cs	sub-raise
2007	EU.PRT-PT-MADEIRA	LL	ATN	L	2	7.0828	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2007	EU.PRT-PT-MADEIRA	LLALB	ATN	L	57	163.48	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2007	EU.PRT-PT-MAINLND	LL-surf	ATN	L	4	10.543	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2007	EU.PRT-PT-MAINLND	LLHB	ATN	L	39	110.37	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2007	EU.UK	HAND	ATN	L	21	0.0355	2007	EU.IRL	MWTD	ATN	599	77475	49-100	71	8	mm	no sz/cs	sub-raise
2007	EU.UK	LL	ATN	L	8	0.014	2007	EU.IRL	MWTD	ATN	599	77475	49-100	71	8	mm	no sz/cs	sub-raise
2007	FR.SPM-CAN	LL	ATN	L	3	0.2021	2007	CAN	LL-surf	ATN	16	582	82-149	105	27	mm	no sz/cs	sub-raise
2007	GRD	LL	ATN	L	20	0.0333	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	JPN	LLHB	ATN	L	288	0.8529	2007	JPN	LLHB	ATN	338	16138	62-134	98	21	qq	<>99%	raise
2007	KOR	LL	ATN	L	12	0.0197	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	MAR	LL	ATN	L	96	0.3898	2007	EU.ESP-ES-CANARY	BB	ATN	246	16931	64-112	87	15	mm	no sz/cs	sub-raise
2007	PAN-PAN-GHA	LL	ATN	L	6	0.0102	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	PAN-PAN-SEN	LL	ATN	L	116	0.1904	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	PAN-PAN-TTO	LL	ATN	L	175	0.2873	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	PHL	LL	ATN	L	8	0.0123	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	VCT	LLFB	ATN	L	263	0.4301	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	LCA	TROL	ATN	L	2	0.8873	2007	VEN	PS	ATN	2	107	90-110	100	22	mm	no sz/cs	sub-raise
2007	TTO-TTO-TRINID	LLHB	ATN	L	18	0.0302	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	USA-Com	GILL	ATN	L	1	0.0036	2007	USA-Com	LL	ATN	288	5912	103-180	129	49	mm	no sz/cs	sub-raise
2007	USA-Com	HAND	ATN	L	6	0.556	2007	USA-Com	HAND	ATN	10	201	119-148	130	50	mm	<>99%	raise
2007	USA-Com	LL	ATN	L	127	0.4406	2007	USA-Com	LL	ATN	288	5912	103-180	129	49	mm	<>99%	raise
2007	USA-Com	TRAW	ATN	L	0.3	1.1469	2007	USA-Com	TRAW	ATN	0	5	126-126	127	45	mm	<>99%	raise
2007	USA-Com	UNCL	ATN	L	4	11.233	2007	USA-Com	UNCL	ATN	0	8	121-136	127	46	mm	<>99%	raise
2007	USA-Rec	RR	ATN	L	394	1.0212	2007	USA-Rec	RR	ATN	385	19125	54-127	96	20	mm	<>99%	raise
2007	VUT	LL	ATN	L	95	0.1549	2007	TAI	LLFB	ATN	611	26570	60-137	101	23	mm	no sz/cs	sub-raise
2007	VEN	BB	ATN	L	26	10.991	2007	VEN	PS	ATN	2	107	90-110	100	22	mm	no sz/cs	sub-raise
2007	VEN	LL	ATN	L	146	62.084	2007	VEN	PS	ATN	2	107	90-110	100	22	mm	no sz/cs	sub-raise
2007	VEN	PS	ATN	L	198	84.042	2007	VEN	PS	ATN	2	107	90-110	100	22	mm	<>99%	raise
2007	VEN.ARTISANAL	GILL	ATN	L	5	1.9987	2007	VEN	PS	ATN	2	107	90-110	100	22	mm	no sz/cs	sub-raise
2008	BRB	HAND	ATN	L	1	0.0084	2008	USA-Rec	RR	ATN	114	5499	61-114	97	21	mm	no sz/cs	sub-raise
2008	BRB	LLHB	ATN	L	6	0.0233	2008	USA-Com	LL	ATN	264	5299	94-178	130	50	mm	no sz/cs	sub-raise
2008	BLZ-TTO	LL	ATN	L	26	0.0474	2008	TAI	LLFB	ATN	553	19897	43-141	107	28	mm	no sz/cs	sub-raise
2008	CAN	HARP	ATN	L	3	2.1776	2008	CAN	HARP	ATN	2	70	87-112	101	23	mm	<>99%	raise
2008	CAN	LL-surf	ATN	L	22	1.3656	2008	CAN	LL-surf	ATN	16	836	70-194	95	19	mm	<>99%	raise
2008	CAN	RR	ATN	L	5	1.2869	2008	CAN	TROL	ATN	4	170	64-136	100	22	mm	no sz/cs	sub-raise
2008	CAN	TL	ATN	L	1	0.1522	2008	CAN	TROL	ATN	4	170	64-136	100	22	mm	<>99%	raise
2008	CAN	UNCL	ATN	L	2	5.1217	2009	CAN	TROL	ATN	0	19	94-109	103	24	mm	no sz/cs	sub-raise
2008	CHN	LL	ATN	L	24	0.0441	2008	TAI	LLFB	ATN	553	19897	43-141	107	28	mm	no sz/cs	sub-raise
2008	TAI	LLFB	ATN	L	1107	2.0017	2008	TAI	LLFB	ATN	553	19897	43-141	107	28	mm	<>99%	raise
2008	EU.ESP-ES-CANARY	BB	ATN	L	730	0.9821	2008	EU.ESP-ES-CANARY	BB	ATN	744	46201	52-126	89	16	mm	<>99%	raise
2008	EU.ESP-ES-CANT_ALB	BB	ATN	L	6673	1.0949	2008	EU.ESP-ES-CANT_ALB	BB	ATN	6094	853737	40-108	68	7	mm	<>99%	raise
2008	EU.ESP-ES-CANT_ALB	TROL	ATN	L	5233	1.0179	2008	EU.ESP-ES-CANT_ALB	TROL	ATN	5141	977418	39-106	62	5	mm	<>99%	raise
2008	EU.ESP-ES-SWO	LLHB	ATN	L	89	254.67	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2008	EU.FRA	BB	ATN	L	7	0.0011	2008	EU.ESP-ES-CANT_ALB	BB	ATN	6094	853737	40-108	68	7	mm	no sz/cs	sub-raise
2008	EU.FRA	HAND	ATN	L	67	3.2676	2008	EU.FRA-FR	MWTD	ATN	20	2178	49-120	74	9	mm	no sz/cs	sub-raise
2008	EU.FRA	LL	ATN	L	66	3.7261	2009	EU.FRA-FR	LL-B	ATN	18	1752	48-118	75	10	mm	no sz/cs	sub-raise
2008	EU.FRA	LL-deri	ATN	L	62	54.225	2008	EU.FRA-FR	LL-deri	ATN	1	132	45- 93	72	9	mm	<>99%	raise
2008	EU.FRA	MWTD	ATN	L	1360	66.504	2008	EU.FRA-FR	MWTD	ATN	20	2178	49-120	74	9	mm	<>99%	raise
2008	EU.FRA	TRAW	ATN	L	1447	70.759	2008	EU.FRA-FR	MWTD	ATN	20	2178	49-120	74	9	mm	no sz/cs	sub-raise
2008	EU.FRA	UNCL	ATN	L	1	0.0703	2008	EU.FRA-FR	MWTD	ATN	20	2178	49-120	74	9	mm	no sz/cs	sub-raise
2008	EU.IRL	TROL	ATN	L	3	0.9327	2008	EU.IRL	TROL	ATN	3	420	54- 88	70	7	mm	<>99%	raise
2008	EU.IRL	MWTD	ATN	L	1514	1.0508	2008	EU.IRL	MWTD	ATN	1441	157050	52-107	74	9	mm	<>99%	raise
2008	EU.PRT-PT-AZORES	BB	ATN	L	407	1.1986	2008	EU.PRT-PT-AZORES	BB	ATN	339	29123	67-111	81	12	mm	<>99%	raise
2008	EU.PRT-PT-MADEIRA	BB	ATN	L	111	0.3264	2008	EU.PRT-PT-AZORES	BB	ATN	339	29123	67-111	81	12	mm	no sz/cs	sub-raise
2008	EU.PRT-PT-MADEIRA	LL	ATN	L	1	3.4055	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2008	EU.PRT-PT-MADEIRA	LLALB	ATN	L	46	131.67	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2008	EU.PRT-PT-MAINLND	HAND	ATN	L	5	14.366	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2008	EU.PRT-PT-MAINLND	LLHB	ATN	L	44	124.56	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	<>99%	raise
2008	EU.PRT-PT-MAINLND	SURF	ATN	L	1	2.1778	2008	EU.PRT-PT-MAINLND	LLHB	ATN	0	6	65-219	116	58	mm	no sz/cs	sub-raise
2008	EU.UK	HAND	ATN	L	50	0.0344	2008	EU.IRL	MWTD	ATN	1441	157050	52-107	74	9	mm	no sz/cs	sub-raise
2008	GRD	LL	ATN	L	15	0.0268	2008	TAI	LLFB	ATN	553	19897	43-141	107	28	mm	no sz/cs	sub-raise
2008	JPN	LLHB	ATN	L	402	0.8279	2008	JPN	LLHB	ATN	486	22903	61-134	98	21	qq	<>99%	raise

2008	KOR	LL	ATN	L	59	0.1063	2008	TAI	LLFB	ATN	553	19897	43-141	107	28mm	no sz/cs	sub-raise
2008	MAR	LL	ATN	L	99	0.1331	2008	EU.ESP-ES-CANARY	BB	ATN	744	46201	52-126	89	16mm	no sz/cs	sub-raise
2008	PAN-PAN-SEN	LL	ATN	L	6	0.0113	2008	TAI	LLFB	ATN	553	19897	43-141	107	28mm	no sz/cs	sub-raise
2008	PAN-PAN-SUR	LL	ATN	L	99	0.1792	2008	TAI	LLFB	ATN	553	19897	43-141	107	28mm	no sz/cs	sub-raise
2008	PAN-PAN-TTO	LL	ATN	L	8	0.014	2008	TAI	LLFB	ATN	553	19897	43-141	107	28mm	no sz/cs	sub-raise
2008	PHL-PHL-MANILA	LL	ATN	L	19	0.035	2008	TAI	LLFB	ATN	553	19897	43-141	107	28mm	no sz/cs	sub-raise
2008	VCT	LLFB	ATN	L	130	0.2352	2008	TAI	LLFB	ATN	553	19897	43-141	107	28mm	no sz/cs	sub-raise
2008	LCA	TROL	ATN	L	2	5.2044	2008	VEN	PS	ATN	0	21	92-110	100	22mm	no sz/cs	sub-raise
2008	TTO-TTO-TRINID	LLHB	ATN	L	32	0.057	2008	TAI	LLFB	ATN	553	19897	43-141	107	28mm	no sz/cs	sub-raise
2008	USA-Com	GILL	ATN	L	2	0.0085	2008	USA-Com	LL	ATN	264	5299	94-178	130	50mm	no sz/cs	sub-raise
2008	USA-Com	HAND	ATN	L	1	0.786	2008	USA-Com	HAND	ATN	1	20	111-130	123	42mm	<>99%	raise
2008	USA-Com	LL	ATN	L	127	0.4798	2008	USA-Com	LL	ATN	264	5299	94-178	130	50mm	<>99%	raise
2008	USA-Com	UNCL	ATN	L	2	0.0071	2008	USA-Com	LL	ATN	264	5299	94-178	130	50mm	no sz/cs	sub-raise
2008	USA-Rec	RR	ATN	L	125	1.0986	2008	USA-Rec	RR	ATN	114	5499	61-114	97	21mm	<>99%	raise
2008	VUT	LL	ATN	L	20	0.0353	2008	TAI	LLFB	ATN	553	19897	43-141	107	28mm	no sz/cs	sub-raise
2008	VEN	BB	ATN	L	5	10.643	2008	VEN	PS	ATN	0	21	92-110	100	22mm	no sz/cs	sub-raise
2008	VEN	GILL	ATN	L	8	17.811	2008	VEN	PS	ATN	0	21	92-110	100	22mm	no sz/cs	sub-raise
2008	VEN	LL	ATN	L	138	300.23	2008	VEN	PS	ATN	0	21	92-110	100	22mm	no sz/cs	sub-raise
2008	VEN	PS	ATN	L	70	152.74	2008	VEN	PS	ATN	0	21	92-110	100	22mm	<>99%	raise
2009	BRB	HAND	ATN	L	1	0.0368	2009	USA-Rec	RR	ATN	23	1208	36-114	93	19mm	no sz/cs	sub-raise
2009	BRB	LLHB	ATN	L	3	0.1198	2009	USA-Rec	RR	ATN	23	1208	36-114	93	19mm	no sz/cs	sub-raise
2009	BLZ-TTO	LL	ATN	L	39	3.3891	2009	BLZ-TTO	LL	ATN	11	949	75- 90	82	12mm	<>99%	raise
2009	CAN	HARP	ATN	L	1	2.4772	2009	CAN	HARP	ATN	0	20	57-111	99	22mm	<>99%	raise
2009	CAN	LL-surf	ATN	L	8	0.9265	2009	CAN	LL-surf	ATN	9	536	47-113	91	17mm	<>99%	raise
2009	CAN	RR	ATN	L	1	6.3983	2009	CAN	RR	ATN	0	7	99-111	105	26mm	<>99%	raise
2009	CAN	TL	ATN	L	0.2	0.4654	2009	CAN	TROL	ATN	0	19	94-109	103	24mm	<>99%	raise
2009	CHN	LL	ATN	L	27	0.8746	2009	CHN	LL	ATN	31	1255	84-129	104	25mm	<>99%	raise
2009	TAI	LLFB	ATN	L	863	1.7276	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	<>99%	raise
2009	CUW-CW-ETRO	PS	ATN	L	20	1.0004	2009	CUW-CW-ETRO	PS	ATN	20	714	90-123	108	28mm	OK(t1=cs)	none
2009	CIV-CIV-KOREA	LL	ATN	L	25	0.0494	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	EU.ESP-ES-CANARY	BB	ATN	L	49	0.9895	2009	EU.ESP-ES-CANARY	BB	ATN	50	5930	40-127	72	8mm	<>99%	raise
2009	EU.ESP-ES-CANT_ALB	BB	ATN	L	4890	0.9442	2009	EU.ESP-ES-CANT_ALB	BB	ATN	5180	498866	44-111	78	10mm	<>99%	raise
2009	EU.ESP-ES-CANT_ALB	TROL	ATN	L	4437	1.0185	2009	EU.ESP-ES-CANT_ALB	TROL	ATN	4356	731451	36-112	64	6mm	<>99%	raise
2009	EU.ESP-ES-SWO	LLHB	ATN	L	240	1385	2010	EU.PRT-PT-MAINLND	LLHB	ATN	0	10	60-113	90	17mm	no sz/cs	sub-raise
2009	EU.FRA	HAND	ATN	L	4	5.5223	2009	EU.FRA-FR	TROL	ATN	1	70	42- 87	76	10mm	no sz/cs	sub-raise
2009	EU.FRA	LL	ATN	L	4	0.2089	2009	EU.FRA-FR	LL-B	ATN	18	1752	48-118	75	10mm	<>99%	raise
2009	EU.FRA	TROL	ATN	L	1	2.0448	2009	EU.FRA-FR	TROL	ATN	1	70	42- 87	76	10mm	<>99%	raise
2009	EU.FRA	TRAW	ATN	L	773	16.712	2009	EU.FRA-FR	MWTD	ATN	46	3797	36-130	81	12mm	<>99%	raise
2009	EU.FRA	UNCL	ATN	L	341	7.3733	2009	EU.FRA-FR	MWTD	ATN	46	3797	36-130	81	12mm	no sz/cs	sub-raise
2009	EU.FRA-FR-ETRO	PS	ATN	L	17	0.9998	2009	EU.FRA-FR-ETRO	PS	ATN	17	588	90-123	108	28mm	OK(t1=cs)	none
2009	EU.IRL	TROL	ATN	L	1	0.8847	2009	EU.IRL	TROL	ATN	1	167	48- 92	58	4mm	<>99%	raise
2009	EU.IRL	MWTD	ATN	L	1997	0.9084	2009	EU.IRL	MWTD	ATN	2198	333291	50-106	67	7mm	<>99%	raise
2009	EU.PRT-PT-AZORES	BB	ATN	L	45	0.9942	2009	EU.PRT-PT-AZORES	BB	ATN	45	4347	76-110	79	10mm	OK(t1=cs)	none
2009	EU.PRT-PT-MADEIRA	BB	ATN	L	9	5.12	2009	EU.PRT-PT-MADEIRA	BB	ATN	2	55	83-154	112	33mm	<>99%	raise
2009	EU.PRT-PT-MADEIRA	LL	ATN	L	42	243.68	2010	EU.PRT-PT-MAINLND	LLHB	ATN	0	10	60-113	90	17mm	no sz/cs	sub-raise
2009	EU.PRT-PT-MAINLND	LLHB	ATN	L	11	63.151	2010	EU.PRT-PT-MAINLND	LLHB	ATN	0	10	60-113	90	17mm	no sz/cs	sub-raise
2009	EU.UK	HAND	ATN	L	24	0.0111	2009	EU.IRL	MWTD	ATN	2198	333291	50-106	67	7mm	no sz/cs	sub-raise
2009	EU.UK	LL	ATN	L	1	0.0004	2009	EU.IRL	MWTD	ATN	2198	333291	50-106	67	7mm	no sz/cs	sub-raise
2009	EU.UK	TRAW	ATN	L	41	0.0188	2009	EU.IRL	MWTD	ATN	2198	333291	50-106	67	7mm	no sz/cs	sub-raise
2009	GRD	LL	ATN	L	18	0.0358	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	JPN	LLHB	ATN	L	288	0.9967	2009	JPN	LLHB	ATN	289	14766	62-134	96	20qq	OK(t1=cs)	none
2009	KOR	LL	ATN	L	82	0.1642	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	MAR	LL	ATN	L	130	2.5998	2009	EU.ESP-ES-CANARY	BB	ATN	50	5930	40-127	72	8mm	no sz/cs	sub-raise
2009	PAN-PAN-GHA	LL	ATN	L	3	0.0058	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	PAN-PAN-SUR	LL	ATN	L	42	0.0849	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	VCT	LLFB	ATN	L	134	0.2683	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	TTO-TTO-TRINID	LLHB	ATN	L	17	0.0336	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	USA-Com	GILL	ATN	L	6	0.6311	2009	CAN	LL-surf	ATN	9	536	47-113	91	17mm	no sz/cs	sub-raise
2009	USA-Com	HAND	ATN	L	1	0.058	2009	CAN	LL-surf	ATN	9	536	47-113	91	17mm	no sz/cs	sub-raise
2009	USA-Com	LL	ATN	L	158	0.9516	2009	USA-Com	LL	ATN	166.45	6877	49-143	103	24mm	<>99%	raise
2009	USA-Com	UNCL	ATN	L	1	0.1407	2009	CAN	LL-surf	ATN	9	536	47-113	91	17mm	no sz/cs	sub-raise
2009	USA-Rec	RR	ATN	L	23	0.9949	2009	USA-Rec	RR	ATN	23	1208	36-114	93	19mm	OK(t1=cs)	none
2009	VUT	LL	ATN	L	140	0.2802	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	VEN	GILL	ATN	L	24	75.25	2009	VEN	PS	ATN	0	13	96-110	104	25mm	no sz/cs	sub-raise
2009	VEN	LL	ATN	L	290	908.64	2009	VEN	PS	ATN	0	13	96-110	104	25mm	no sz/cs	sub-raise
2009	VEN	PS	ATN	L	84	264.01	2009	VEN	PS	ATN	0	13	96-110	104	25mm	<>99%	raise
2010	BRB	HAND	ATN	L	4	0.03	2010	USA-Rec	RR	ATN	131	7424	84-110	93	18mm	no sz/cs	sub-raise
2010	BRB	LLHB	ATN	L	2	0.0147	2010	USA-Rec	RR	ATN	131	7424	84-110	93	18mm	no sz/cs	sub-raise
2010	BLZ-CIV	PS	ATN	L	51	3.0235	2009	EU.FRA-FR-ETRO	PS	ATN	17	588	90-123	108	28mm	no sz/cs	sub-raise
2010	BLZ-ESP	LL	ATN	L	2	0.0513	2010	BLZ-TTO	LL	ATN	37	2807	70- 94	84	13mm	no sz/cs	sub-raise
2010	BLZ-TTO	LL	ATN	L	364	9.9527	2010	BLZ-TTO	LL	ATN	37	2807	70- 94	84	13mm	<>99%	raise
2010	CAN	HARP	ATN	L	0.4	5.2798	2010	CAN	HARP	ATN	0	3	99-101	101	22mm	<>99%	raise
2010	CAN	LL-surf	ATN	L	14	1.1371	2010	CAN	LL-surf	ATN	12	706	68-133	92	17mm	<>99%	raise
2010	CAN	TL	ATN	L	0.1	0.4849	2010	CAN	TROL	ATN	0	4	95-110	106	26mm	<>99%	raise
2010	CHN	LL	ATN	L	142	3.3725	2010	CHN	LL	ATN	42	1728	76-129	103	24mm	<>99%	raise
2010	TAI	LLFB	ATN	L	1587	2.5481	2010	TAI	LL	ATN	623	23345	76-150	106	27mm	<>99%	raise
2010	CIV-CIV-KOREA	LL	ATN	L	53	0.0857	2010	TAI	LL	ATN	623	23345	76-150	106	27mm	no sz/cs	sub-raise
2010	EU.ESP-ES-CANARY	BB	ATN	L	408	1.3719	2010	EU.ESP-ES-CANARY	BB	ATN	298	16833	59-116	92	18mm	<>99%	raise
2010	EU.ESP-ES-CANT_ALB	BB	ATN	L	5432	0.9655	2010	EU.ESP-ES-CANT_ALB	BB	ATN	5626	722768	44-105	70	8mm	<>99%	raise
2010	EU.ESP-ES-CANT_ALB	TROL	ATN	L	7009	1.025	2010	EU.ESP-ES-CANT_ALB	TROL	ATN	6838	1203937	36-115	63	6mm	<>99%	raise
2010	EU.ESP-ES-SWO	LLHB	ATN	L	111	639.26	2010	EU.PRT-PT-MAINLND	LLHB	ATN	0	10	60-113	90	17mm	no sz/cs	sub-raise
2010	EU.FRA	GILL	ATN	L	2	0.0429	2009	EU.FRA-FR	MWTD	ATN	46	3797	36-130	81	12mm	no sz/cs	sub-raise

2010	EU.FRA	HAND	ATN	L	57	9.515	2010	EU.FRA	HAND	ATN	6	946	46-101	64	6	mm	<>99%	raise
2010	EU.FRA	LL	ATN	L	17	0.9509	2009	EU.FRA-FR	LL-B	ATN	18	1752	48-118	75	10	mm	no sz/cs	sub-raise
2010	EU.FRA	PS	ATN	L	5	0.2727	2009	EU.FRA-FR-ETRO	PS	ATN	17	588	90-123	108	28	mm	no sz/cs	sub-raise
2010	EU.FRA	MWT	ATN	L	7	0.1414	2009	EU.FRA-FR	MWTD	ATN	46	3797	36-130	81	12	mm	no sz/cs	sub-raise
2010	EU.FRA	MWTD	ATN	L	1043	4.4084	2010	EU.FRA	MWTD	ATN	237	29810	41-120	70	8	mm	<>99%	raise
2010	EU.FRA	TRAW	ATN	L	166	0.7029	2010	EU.FRA	MWTD	ATN	237	29810	41-120	70	8	mm	no sz/cs	sub-raise
2010	EU.FRA	UNCL	ATN	L	2	0.0064	2010	EU.FRA	MWTD	ATN	237	29810	41-120	70	8	mm	no sz/cs	sub-raise
2010	EU.IRL	TROL	ATN	L	4	0.0087	2010	EU.IRL	MWTD	ATN	442	81907	49-120	62	5	mm	no sz/cs	sub-raise
2010	EU.IRL	MWTD	ATN	L	785	1.7763	2010	EU.IRL	MWTD	ATN	442	81907	49-120	62	5	mm	<>99%	raise
2010	EU.PRT-PT-AZORES	BB	ATN	L	82	9.8129	2010	EU.PRT-PT-MADEIRA	BB	ATN	8	473	70-125	92	18	mm	no sz/cs	sub-raise
2010	EU.PRT-PT-MADEIRA	BB	ATN	L	97	11.654	2010	EU.PRT-PT-MADEIRA	BB	ATN	8	473	70-125	92	18	mm	<>99%	raise
2010	EU.PRT-PT-MAINLND	LLHB	ATN	L	13	75.314	2010	EU.PRT-PT-MAINLND	LLHB	ATN	0	10	60-113	90	17	mm	<>99%	raise
2010	EU.PRT-PT-MAINLND	SURF	ATN	L	10	58.763	2010	EU.PRT-PT-MAINLND	LLHB	ATN	0	10	60-113	90	17	mm	no sz/cs	sub-raise
2010	EU.UK	HAND	ATN	L	71	0.1599	2010	EU.IRL	MWTD	ATN	442	81907	49-120	62	5	mm	no sz/cs	sub-raise
2010	EU.UK	LL	ATN	L	21	0.0486	2010	EU.IRL	MWTD	ATN	442	81907	49-120	62	5	mm	no sz/cs	sub-raise
2010	EU.UK	TRAW	ATN	L	25	0.0576	2010	EU.IRL	MWTD	ATN	442	81907	49-120	62	5	mm	no sz/cs	sub-raise
2010	GRD	LL	ATN	L	18	0.0284	2010	TAI	LL	ATN	623	23345	76-150	106	27	mm	no sz/cs	sub-raise
2010	GTM.ETRO	PS	ATN	L	3	0.9808	2010	GTM.ETRO	PS	ATN	3	108	90-123	108	28	mm	OK(t1=cs)	none
2010	JPN	LLHB	ATN	L	525	0.8308	2010	JPN	LLHB	ATN	632	28632	62-124	99	22	qq	<>99%	raise
2010	KOR	LL	ATN	L	110	0.1771	2010	TAI	LL	ATN	623	23345	76-150	106	27	mm	no sz/cs	sub-raise
2010	PAN	LL	ATN	L	154	0.2475	2010	TAI	LL	ATN	623	23345	76-150	106	27	mm	no sz/cs	sub-raise
2010	VCT	LLFB	ATN	L	174	0.28	2010	TAI	LL	ATN	623	23345	76-150	106	27	mm	no sz/cs	sub-raise
2010	VCT	TROL	ATN	L	2	24.498	2010	VEN	PS	ATN	0	19	54- 66	61	5	qq	no sz/cs	sub-raise
2010	LCA	TROL	ATN	L	130	1419.4	2010	VEN	PS	ATN	0	19	54- 66	61	5	qq	no sz/cs	sub-raise
2010	TTO-TTO-TRINID	LLHB	ATN	L	17	0.0275	2010	TAI	LL	ATN	623	23345	76-150	106	27	mm	no sz/cs	sub-raise
2010	USA-Com	HAND	ATN	L	2	0.1599	2010	CAN	LL-surf	ATN	12	706	68-133	92	17	mm	no sz/cs	sub-raise
2010	USA-Com	LL	ATN	L	160	1.2482	2010	USA-Com	LL	ATN	128.21	7113	62-125	93	18	mm	<>99%	raise
2010	USA-Com	UNCL	ATN	L	2	0.1861	2010	CAN	LL-surf	ATN	12	706	68-133	92	17	mm	no sz/cs	sub-raise
2010	USA-Rec	RR	ATN	L	150	1.1412	2010	USA-Rec	RR	ATN	131	7424	84-110	93	18	mm	<>99%	raise
2010	VUT	LL	ATN	L	187	0.3002	2010	TAI	LL	ATN	623	23345	76-150	106	27	mm	no sz/cs	sub-raise
2010	VEN	BB	ATN	L	6	70.087	2010	VEN	PS	ATN	0	19	54- 66	61	5	qq	no sz/cs	sub-raise
2010	VEN	GILL	ATN	L	24	263.85	2010	VEN	PS	ATN	0	19	54- 66	61	5	qq	no sz/cs	sub-raise
2010	VEN	LL	ATN	L	242	2645.1	2010	VEN	PS	ATN	0	19	54- 66	61	5	qq	no sz/cs	sub-raise
2010	VEN	PS	ATN	L	16	176.84	2010	VEN	PS	ATN	0	19	54- 66	61	5	qq	<>99%	raise
2011	BRB	HAND	ATN	L	1	0.0061	2011	USA-Rec	RR	ATN	148	8483	84-110	93	18	mm	no sz/cs	sub-raise
2011	BRB	LLHB	ATN	L	3	0.0226	2011	USA-Rec	RR	ATN	148	8483	84-110	93	18	mm	no sz/cs	sub-raise
2011	BLZ-TTO	LL	ATN	L	351	5.9858	2011	BLZ-TTO	LL	ATN	59	4496	60-125	84	13	mm	<>99%	raise
2011	CAN	HARP	ATN	L	1	2.8778	2011	CAN	HARP	ATN	0	16	73-128	99	23	mm	<>99%	raise
2011	CAN	LL-surf	ATN	L	22	1.0698	2011	CAN	LL-surf	ATN	20	1030	73-126	95	20	mm	<>99%	raise
2011	CAN	RR	ATN	L	5	1.0019	2011	CAN	RR	ATN	5	206	76-118	104	25	mm	OK(t1=cs)	none
2011	CAN	TL	ATN	L	0.3	4.4518	2011	CAN	TL	ATN	0	3	100-108	105	26	mm	<>99%	raise
2011	CPV	PS	ATN	L	5	1.5232	2011	EU.FRA-FR-ETRO	PS	ATN	3	115	92-123	108	28	mm	no sz/cs	sub-raise
2011	CHN	LL	ATN	L	101	9.3814	2011	CHN	LL	ATN	11	465	82-127	101	23	mm	<>99%	raise
2011	TAI	LLFB	ATN	L	1367	2.2082	2011	TAI	LL	ATN	619	24290	79-140	105	25	mm	<>99%	raise
2011	CIV-CIV-KOREA	LL	ATN	L	39.034	0.0631	2011	TAI	LL	ATN	619	24290	79-140	105	25	mm	no sz/cs	sub-raise
2011	EU.ESP-ES-CANARY	BB	ATN	L	330	1.1097	2010	EU.ESP-ES-CANARY	BB	ATN	298	16833	59-116	92	18	mm	no sz/cs	sub-raise
2011	EU.ESP-ES-CANT_ALB	BB	ATN	L	4346	0.9545	2011	EU.ESP-ES-CANT_ALB	BB	ATN	4553	957798	42-123	60	5	mm	<>99%	raise
2011	EU.ESP-ES-CANT_ALB	TROL	ATN	L	3564	1.0291	2011	EU.ESP-ES-CANT_ALB	TROL	ATN	3463	594887	39-120	64	6	mm	<>99%	raise
2011	EU.ESP-ES-SWO	LLHB	ATN	L	117	138.06	2011	EU.PRT-PT-MAINLND	LLHB	ATN	1	29	50-129	108	29	mm	no sz/cs	sub-raise
2011	EU.FRA	GILL	ATN	L	1	0.0587	2011	EU.FRA	MWTD	ATN	12	1291	48-110	74	9	mm	no sz/cs	sub-raise
2011	EU.FRA	HAND	ATN	L	12	1.9346	2010	EU.FRA	HAND	ATN	6	946	46-101	64	6	mm	no sz/cs	sub-raise
2011	EU.FRA	LL	ATN	L	3	0.1587	2009	EU.FRA-FR	LL-B	ATN	18	1752	48-118	75	10	mm	no sz/cs	sub-raise
2011	EU.FRA	TN	ATN	L	26	2.2324	2011	EU.FRA	MWTD	ATN	12	1291	48-110	74	9	mm	no sz/cs	sub-raise
2011	EU.FRA	TROL	ATN	L	10	0.8329	2011	EU.FRA	MWTD	ATN	12	1291	48-110	74	9	mm	no sz/cs	sub-raise
2011	EU.FRA	MWT	ATN	L	90	7.6813	2011	EU.FRA	MWTD	ATN	12	1291	48-110	74	9	mm	no sz/cs	sub-raise
2011	EU.FRA	MWTD	ATN	L	3113	265.22	2011	EU.FRA	MWTD	ATN	12	1291	48-110	74	9	mm	<>99%	raise
2011	EU.FRA	TRAW	ATN	L	46	3.9471	2011	EU.FRA	MWTD	ATN	12	1291	48-110	74	9	mm	no sz/cs	sub-raise
2011	EU.FRA	UNCL	ATN	L	48	4.1105	2011	EU.FRA	MWTD	ATN	12	1291	48-110	74	9	mm	no sz/cs	sub-raise
2011	EU.FRA-FR-ETRO	PS	ATN	L	3	1.0001	2011	EU.FRA-FR-ETRO	PS	ATN	3	115	92-123	108	28	mm	OK(t1=cs)	none
2011	EU.IRL	TROL	ATN	L	2	0.0007	2011	EU.IRL	MWTD	ATN	2999	421941	49- 89	69	7	mm	no sz/cs	sub-raise
2011	EU.IRL	MWTD	ATN	L	3595	1.1987	2011	EU.IRL	MWTD	ATN	2999	421941	49- 89	69	7	mm	<>99%	raise
2011	EU.NLD	TRAW	ATN	L	6	0.0019	2011	EU.IRL	MWTD	ATN	2999	421941	49- 89	69	7	mm	no sz/cs	sub-raise
2011	EU.PRT-PT-AZORES	BB	ATN	L	760	0.8539	2011	EU.PRT-PT-AZORES	BB	ATN	891	43877	49-127	96	20	mm	<>99%	raise
2011	EU.PRT-PT-MADEIRA	BB	ATN	L	94	0.1057	2011	EU.PRT-PT-AZORES	BB	ATN	891	43877	49-127	96	20	mm	no sz/cs	sub-raise
2011	EU.PRT-PT-MADEIRA	LL	ATN	L	3	3.2509	2011	EU.PRT-PT-MAINLND	LLHB	ATN	1	29	50-129	108	29	mm	no sz/cs	sub-raise
2011	EU.PRT-PT-MAINLND	LLHB	ATN	L	84	99.049	2011	EU.PRT-PT-MAINLND	LLHB	ATN	1	29	50-129	108	29	mm	<>99%	raise
2011	EU.PRT-PT-MAINLND	SURF	ATN	L	104	122.2	2011	EU.PRT-PT-MAINLND	LLHB	ATN	1	29	50-129	108	29	mm	no sz/cs	sub-raise
2011	EU.UK	HAND	ATN	L	33	0.0111	2011	EU.IRL	MWTD	ATN	2999	421941	49- 89	69	7	mm	no sz/cs	sub-raise
2011	EU.UK	LL	ATN	L	24	0.008	2011	EU.IRL	MWTD	ATN	2999	421941	49- 89	69	7	mm	no sz/cs	sub-raise
2011	GRD	LL	ATN	L	18	0.0287	2011	TAI	LL	ATN	619	24290	79-140	105	25	mm	no sz/cs	sub-raise
2011	JPN	LLHB	ATN	L	494	1.0993	2011	JPN	LLHB	ATN	450	19245	62-127	101	23	qq	<>99%	raise
2011	KOR	LL	ATN	L	60	0.0965	2011	TAI	LL	ATN	619	24290	79-140	105	25	mm	no sz/cs	sub-raise
2011	PAN	LL	ATN	L	103	0.1657	2011	TAI	LL	ATN	619	24290	79-140	105	25	mm	no sz/cs	sub-raise
2011	VCT	LLFB	ATN	L	329	7.5301	2011	VCT	LLFB	ATN	44	2980	50-139	86	15	qq	<>99%	raise
2011	TTO-TTO-TRINID	LLHB	ATN	L	17	0.0274	2011	TAI	LL	ATN	619	24290	79-140	105	25	mm	no sz/cs	sub-raise
2011	USA-Com	HAND	ATN	L	1	1.2506	2011	USA-Com	HAND	ATN	0.60	48	82- 98	83	13	mm	<>99%	raise
2011	USA-Com	LL	ATN	L	268	1.2472	2011	USA-Com	LL	ATN	214.61	12748	62-111	91	17	mm	<>99%	raise
2011	USA-Com	TRAW	ATN	L	2	1.247	2011	USA-Com	TRAW	ATN	1.63	128	72-103	83	13	mm	<>99%	raise
2011	USA-Com	UNCL	ATN	L	8	1.2469	2011	USA-Com	UNCL	ATN	6.29	495	72-103	83	13	mm	<>99%	raise
2011	USA-Rec	RR	ATN	L	171	1.1487	2011	USA-Rec	RR	ATN	148	8483	84-110	93	18	mm	<>99%	raise
2011	UK.BMU	RR	ATN	L	1	0.0036	2011	USA-Rec	RR	ATN	148	8483	84-110	93	18	mm	no sz/cs	sub-raise
2011	VUT	LL	ATN	L	196	2.4923	2011	VUT	LL	ATN	79	5640	76-107	86	14	qq	<>99%	raise

2011	VEN	LL	ATN	L	247	2709.2	2010	VEN	PS	ATN	0	19	54- 66	61	5	qq	no sz/cs	sub-raise

ATS

t1Yr	tlFleetC	t1Gear	t1Stock	t1LorD	t1Yt	ratio	szYr	szFleetC	szGear	szStock	Yield(t)	szNt	Lrng	Lmed	Wmed	TPerGrp	Remarks	Actions
1992	JPN	LLHB	ATS	L	583	1.1126	1992	JPN	LLHB	ATS	524	29871	61-118	92	18	qq	<>99%	raise
1993	JPN	LLHB	ATS	L	467	0.884	1993	JPN	LLHB	ATS	528	28864	54-118	94	18	qq	<>99%	raise
1994	JPN	LLHB	ATS	L	651	0.9868	1994	JPN	LLHB	ATS	660	44431	49-129	87	15	qq	<>99%	raise
1995	JPN	LLHB	ATS	L	389	0.8149	1995	JPN	LLHB	ATS	477	29109	49-124	91	16	qq	<>99%	raise
1996	JPN	LLHB	ATS	L	435	0.8305	1996	JPN	LLHB	ATS	524	30318	56-119	91	17	qq	<>99%	raise
1997	JPN	LLHB	ATS	L	424	0.7424	1997	JPN	LLHB	ATS	571	30024	56-119	94	19	qq	<>99%	raise
1998	JPN	LLHB	ATS	L	418	0.5586	1998	JPN	LLHB	ATS	748	40326	56-119	93	19	qq	<>99%	raise
1999	JPN	LLHB	ATS	L	601	0.7803	1999	JPN	LLHB	ATS	770	48592	59-116	89	16	qq	<>99%	raise
2000	JPN	LLHB	ATS	L	554	0.7333	2000	JPN	LLHB	ATS	755	42733	69-121	92	18	qq	<>99%	raise
2001	JPN	LLHB	ATS	L	341	0.9364	2001	JPN	LLHB	ATS	364	25281	59-121	86	14	qq	<>99%	raise
2002	JPN	LLHB	ATS	L	230.681	1.731	2002	JPN	LLHB	ATS	133	20161	38-114	64	7	qq	<>99%	raise
2003	JPN	LLHB	ATS	L	321.845	1.794	2003	JPN	LLHB	ATS	179	22663	38-109	69	8	qq	<>99%	raise
2004	JPN	LLHB	ATS	L	509.009	1.0998	2004	JPN	LLHB	ATS	463	41630	37-110	79	11	qq	<>99%	raise
2005	JPN	LLHB	ATS	L	312.312	0.9136	2005	JPN	LLHB	ATS	342	29479	37-118	79	12	qq	<>99%	raise
2006	JPN	LLHB	ATS	L	315.952	0.898	2006	JPN	LLHB	ATS	352	31373	37-119	78	11	qq	<>99%	raise
2007	BLZ-TTO	LL	ATS	L	32	0.0089	2007	TAI	LLFB	ATS	3578	196672	38-151	93	18	mm	no sz/cs	sub-raise
2007	BRA-BRA-ITAIPAVA	UNCL	ATS	L	20	0.5617	2007	BRA-BRA-SANTOS	LL	ATS	36	1760	78-125	98	21	mm	no sz/cs	sub-raise
2007	BRA-BRA-ITAJAI	BB	ATS	L	46	68.337	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16	mm	<>99%	raise
2007	BRA-BRA-ITAJAI	LL	ATS	L	60	1.6576	2007	BRA-BRA-SANTOS	LL	ATS	36	1760	78-125	98	21	mm	no sz/cs	sub-raise
2007	BRA-BRA-NATAL	LL	ATS	L	39	20.13	2007	BRA-HND-NATAL	LL	ATS	2	66	100-123	111	30	mm	<>99%	raise
2007	BRA-BRA-RECIFE	LL	ATS	L	6	0.1564	2007	BRA-BRA-SANTOS	LL	ATS	36	1760	78-125	98	21	mm	no sz/cs	sub-raise
2007	BRA-BRA-RJANERO	BB	ATS	L	247	364.74	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16	mm	no sz/cs	sub-raise
2007	BRA-BRA-SANTOS	LL	ATS	L	29	0.8018	2007	BRA-BRA-SANTOS	LL	ATS	36	1760	78-125	98	21	mm	<>99%	raise
2007	BRA-ESP-CABDELO	LL	ATS	L	44	1.357	2007	BRA-ESP-CABDELO	LL	ATS	32	1004	84-147	113	32	mm	<>99%	raise
2007	BRA-ESP-NATAL	LL	ATS	L	37	0.8556	2007	BRA-ESP-NATAL	LL	ATS	43	1461	86-135	111	30	mm	<>99%	raise
2007	BRA-MAR-NATAL	LL	ATS	L	6	1.238	2007	BRA-MAR-NATAL	LL	ATS	5	166	66-143	111	30	mm	<>99%	raise
2007	CHN	LL	ATS	L	35	0.0098	2007	TAI	LLFB	ATS	3578	196672	38-151	93	18	mm	no sz/cs	sub-raise
2007	TAI	LLFB	ATS	L	13146	3.6741	2007	TAI	LLFB	ATS	3578	196672	38-151	93	18	mm	<>99%	raise
2007	EU.ESP-ES-SWO	LLHB	ATS	L	758	177.7	2008	EU.PRT-PT-MAINLND	LLHB	ATS	4	107	55-149	118	40	mm	no sz/cs	sub-raise
2007	EU.FRA-FR-ETRO	PS	ATS	L	12	1.0005	2007	EU.FRA-FR-ETRO	PS	ATS	12	398	82-127	112	31	mm	OK(t1=cs)	none
2007	EU.PRT-PT-MAINLND	LLHB	ATS	L	13	3.0016	2008	EU.PRT-PT-MAINLND	LLHB	ATS	4	107	55-149	118	40	mm	no sz/cs	sub-raise
2007	JPN	LLHB	ATS	L	238	0.9638	2007	JPN	LLHB	ATS	247	21455	68-119	81	12	qq	<>99%	raise
2007	KOR	LL	ATS	L	56	0.0157	2007	TAI	LLFB	ATS	3578	196672	38-151	93	18	mm	no sz/cs	sub-raise
2007	CPV-ETRO	PS	ATS	L	15	1	2007	CPV-ETRO	PS	ATS	15	491	82-127	112	31	mm	OK(t1=cs)	none
2007	NAM	BB	ATS	L	1058	1.3801	2007	NAM	BB	ATS	767	72077	50-118	78	11	mm	<>99%	raise
2007	NAM	LL	ATS	L	138	251.87	2007	NAM	LL	ATS	1	22	70-118	104	25	mm	<>99%	raise
2007	PAN-PAN-ETRO	PS	ATS	L	18	0.9999	2007	PAN-PAN-ETRO	PS	ATS	18	585	82-127	112	31	mm	OK(t1=cs)	none
2007	PAN-PAN-TTO	LL	ATS	L	69	0.0193	2007	TAI	LLFB	ATS	3578	196672	38-151	93	18	mm	no sz/cs	sub-raise
2007	PHL	LL	ATS	L	13	0.0035	2007	TAI	LLFB	ATS	3578	196672	38-151	93	18	mm	no sz/cs	sub-raise
2007	ZAF	BB	ATS	L	2024	265.89	2007	ZAF	BB	ATS	8	761	47- 97	77	10	mm	<>99%	raise
2007	ZAF	LLSWO	ATS	L	34	2136.5	2007	ZAF	LLSWO	ATS	0	1	90- 90	91	16	mm	<>99%	raise
2007	ZAF	RR	ATS	L	1696	222.84	2007	ZAF	BB	ATS	8	761	47- 97	77	10	mm	no sz/cs	sub-raise
2007	ZAF-JPN	LLJAP	ATS	L	35	0.4403	2007	ZAF-JPN	LLJAP	ATS	81	4496	27-210	93	18	mm	<>99%	raise
2007	ZAF-KOR	LLJAP	ATS	L	2	0.3273	2007	ZAF-KOR	LLJAP	ATS	7	313	70-128	102	24	mm	<>99%	raise
2007	ZAF-PHL	LLJAP	ATS	L	6	0.0761	2007	ZAF-JPN	LLJAP	ATS	81	4496	27-210	93	18	mm	no sz/cs	sub-raise
2007	VCT	LLFB	ATS	L	160	0.0447	2007	TAI	LLFB	ATS	3578	196672	38-151	93	18	mm	no sz/cs	sub-raise
2007	UK.SHN	RR	ATS	L	46	83.232	2007	NAM	LL	ATS	1	22	70-118	104	25	mm	no sz/cs	sub-raise
2007	URY	LLHB	ATS	L	34	2.2529	2007	URY	LLHB	ATS	15	804	60-129	94	19	qq	<>99%	raise
2007	VUT	LL	ATS	L	96	0.0269	2007	TAI	LLFB	ATS	3578	196672	38-151	93	18	mm	no sz/cs	sub-raise
2008	BLZ-TTO	LL	ATS	L	31	0.0122	2008	TAI	LLFB	ATS	2553	150794	41-148	91	17	mm	no sz/cs	sub-raise
2008	BRA-BRA-ITAIPAVA	UNCL	ATS	L	89	2.9731	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-BRA-ITAJAI	BB	ATS	L	140	207.57	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16	mm	no sz/cs	sub-raise
2008	BRA-BRA-ITAJAI	LL	ATS	L	47	1.5551	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-BRA-NATAL	LL	ATS	L	74	2.4637	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-BRA-RECIFE	LL	ATS	L	16	0.5216	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-BRA-RGRANDE	LL	ATS	L	34	1.1215	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-BRA-RJANERO	BB	ATS	L	16	22.917	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16	mm	no sz/cs	sub-raise
2008	BRA-BRA-RJANERO	UNCL	ATS	L	8	0.2796	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-BRA-SANTOS	LL	ATS	L	16	0.5268	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	<>99%	raise
2008	BRA-ESP-CABDELO	LL	ATS	L	4	0.1251	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-ESP-NATAL	LL	ATS	L	30	0.9917	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-HND-NATAL	LL	ATS	L	3	0.1056	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	BRA-MAR-NATAL	LL	ATS	L	11	0.3687	2008	BRA-BRA-SANTOS	LL	ATS	30	1372	68-121	100	22	mm	no sz/cs	sub-raise
2008	CHN	LL	ATS	L	25	0.0096	2008	TAI	LLFB	ATS	2553	150794	41-148	91	17	mm	no sz/cs	sub-raise
2008	TAI	LLFB	ATS	L	9966	3.9033	2008	TAI	LLFB	ATS	2553	150794	41-148	91	17	mm	<>99%	raise
2008	EU.ESP-ES-ETRO	PS	ATS	L	25	0.9846	2008	EU.ESP-ES-ETRO	PS	ATS	25	773	72-127	114	33	mm	<>99%	raise
2008	EU.ESP-ES-SWO	LLHB	ATS	L	908	212.85	2008	EU.PRT-PT-MAINLND	LLHB	ATS	4	107	55-149	118	40	mm	no sz/cs	sub-raise
2008	EU.FRA-FR-ETRO	PS	ATS	L	50	1	2008	EU.FRA-FR-ETRO	PS	ATS	50	1616	72-127	112	31	mm	OK(t1=cs)	none
2008	EU.PRT-PT-MAINLND	LLHB	ATS	L	49	11.428	2008	EU.PRT-PT-MAINLND	LLHB	ATS	4	107	55-149	118	40	mm	<>99%	raise
2008	JPN	LLHB	ATS	L	1370	1.0135	2008	JPN	LLHB	ATS	1352	116711	68-119	81	12	qq	<>99%	raise
2008	KOR	LL	ATS	L	88	0.0345	2008	TAI	LLFB	ATS	2553	150794	41-148	91	17	mm	no sz/cs	sub-raise
2008	NAM	BB	ATS	L	1856	0.8044	2008	NAM	BB	ATS	2308	165196	48-121	86	14	mm	<>99%	raise
2008	NAM	LL	ATS	L	102	185.76	2007	NAM	LL	ATS	1	22	70-118	104	25	mm	no sz/cs	sub-raise
2008	PAN-PAN-GHA	LL	ATS	L	5	0.0018	2008	TAI	LLFB	ATS	2553	150794	41-148	91	17	mm	no sz/cs	sub-raise
2008	PHL-PHL-MANILA	LL	ATS	L	79	0.0308	2008	TAI	LLFB	ATS	2553	150794	41-148	91	17	mm	no sz/cs	sub-raise
2008	ZAF	BB	ATS	L	2334	194.33	2008	ZAF	BB	ATS	12	905	44-122	84	13	mm	<>99%	raise
2008	ZAF	LLSWO	ATS	L	86	7.7315	2008	ZAF	LLSWO	ATS	11	684	53-152	90	16	mm	<>99%	raise

2008	ZAF	RR	ATS	L	1028	85.575	2008	ZAF	BB	ATS	12	905	44-122	84	13mm	no sz/cs	sub-raise
2008	ZAF-JPN	LLJAP	ATS	L	21	0.3472	2008	ZAF-JPN	LLJAP	ATS	59	3131	13-205	95	19mm	<>99%	raise
2008	VCT	LLFB	ATS	L	71	0.028	2008	TAI	LLFB	ATS	2553	150794	41-148	91	17mm	no sz/cs	sub-raise
2008	UK.SHN	RR	ATS	L	94	171.25	2007	NAM	LL	ATS	1	22	70-118	104	25mm	no sz/cs	sub-raise
2008	URY	LLHB	ATS	L	53	5.1677	2008	URY	LLHB	ATS	10	559	60-124	94	18qq	<>99%	raise
2008	VUT	LL	ATS	L	131	0.0512	2008	TAI	LLFB	ATS	2553	150794	41-148	91	17mm	no sz/cs	sub-raise
2009	BLZ-ETRO	PS	ATS	L	100	0.9999	2009	BLZ-ETRO	PS	ATS	100	3882	92-123	106	26mm	OK(t1=cs)	none
2009	BLZ-TTO	LL	ATS	L	213	8.9622	2009	BLZ-TTO	LL	ATS	24	1815	70- 90	85	13mm	<>99%	raise
2009	BRA-BRA-BELEM	LL	ATS	L	9	7.5648	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-ITAIPAVA	UNCL	ATS	L	15	11.655	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-ITAJAI	BB	ATS	L	13	19.912	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16mm	no sz/cs	sub-raise
2009	BRA-BRA-ITAJAI	LL	ATS	L	19	14.983	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-ITAJAI	PS	ATS	L	1	0.4627	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-NATAL	LL	ATS	L	82	65.527	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	<>99%	raise
2009	BRA-BRA-NATAL	UNCL	ATS	L	1	0.9973	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-RECIFE	LL	ATS	L	6	5.1698	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-RGRANDE	BB	ATS	L	1	1.8008	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16mm	no sz/cs	sub-raise
2009	BRA-BRA-RGRANDE	LL	ATS	L	3	2.3248	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-RJANERO	BB	ATS	L	4	5.4408	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16mm	no sz/cs	sub-raise
2009	BRA-BRA-RJANERO	LL	ATS	L	5	3.7306	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-RJANERO	UNCL	ATS	L	18	14.25	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-BRA-SANTOS	LL	ATS	L	12	9.2698	2009	BRA-BRA-NATAL	LL	ATS	1	74	70- 97	92	17mm	no sz/cs	sub-raise
2009	BRA-ESP-NATAL	LL	ATS	L	7	2.4522	2009	BRA-ESP-NATAL	LL	ATS	3	105	94-119	110	29mm	<>99%	raise
2009	BRA-MAR-NATAL	LL	ATS	L	6	1.9567	2009	BRA-ESP-NATAL	LL	ATS	3	105	94-119	110	29mm	no sz/cs	sub-raise
2009	CPV-ETRO	PS	ATS	L	5	1.0173	2009	CPV-ETRO	PS	ATN	5	173	90-123	108	28mm	<>99%	raise
2009	CHN	LL	ATS	L	89	3.2768	2009	CHN	LL	ATS	27	1089	76-127	105	25mm	<>99%	raise
2009	TAI	LLFB	ATS	L	8678	3.6452	2009	TAI	LLFB	ATS	2381	130812	42-150	93	18mm	<>99%	raise
2009	CUW-CW-ETRO	PS	ATS	L	1	1.0782	2009	CUW-CW-ETRO	PS	ATS	1	36	88-125	109	29mm	OK(t1=cs)	none
2009	CIV-CIV-KOREA	LL	ATS	L	47	0.0199	2009	TAI	LLFB	ATS	2381	130812	42-150	93	18mm	no sz/cs	sub-raise
2009	EU.ESP-ES-ETRO	PS	ATS	L	64	0.9982	2009	EU.ESP-ES-ETRO	PS	ATS	64	1908	88-133	115	34mm	OK(t1=cs)	none
2009	EU.ESP-ES-SWO	LLHB	ATS	L	997	233.67	2008	EU.PRT-PT-MAINLND	LLHB	ATS	4	107	55-149	118	40mm	no sz/cs	sub-raise
2009	EU.FRA-FR-ETRO	PS	ATS	L	43	0.9999	2009	EU.FRA-FR-ETRO	PS	ATS	43	1316	72-133	114	33mm	OK(t1=cs)	none
2009	EU.PRT-PT-MAINLND	LLHB	ATS	L	254	59.601	2008	EU.PRT-PT-MAINLND	LLHB	ATS	4	107	55-149	118	40mm	no sz/cs	sub-raise
2009	EU.UK	LL	ATS	L	1	5.0505	2009	NAM	LL	ATS	0	7	90-135	105	26mm	no sz/cs	sub-raise
2009	JPN	LLHB	ATS	L	921	1.3742	2009	JPN	LLHB	ATS	670	56459	68-119	82	12qq	<>99%	raise
2009	KOR	LL	ATS	L	374	0.1571	2009	TAI	LLFB	ATS	2381	130812	42-150	93	18mm	no sz/cs	sub-raise
2009	NAM	BB	ATS	L	4936	1.2026	2009	NAM	BB	ATS	4104	262376	53-149	89	16mm	<>99%	raise
2009	NAM	LL	ATS	L	0.0	0.1358	2009	NAM	LL	ATS	0	7	90-135	105	26mm	<>99%	raise
2009	PAN-PAN-GHA	LL	ATS	L	1	0.0012	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	PAN-PAN-SUR	LL	ATS	L	5	0.0104	2009	TAI	LLFB	ATN	500	17371	73-124	108	29mm	no sz/cs	sub-raise
2009	PHL-PHL-MANILA	LL	ATS	L	45	0.0188	2009	TAI	LLFB	ATS	2381	130812	42-150	93	18mm	no sz/cs	sub-raise
2009	ZAF	BB	ATS	L	2967	0.723	2009	NAM	BB	ATS	4104	262376	53-149	89	16mm	no sz/cs	sub-raise
2009	ZAF	RR	ATS	L	1855	0.4519	2009	NAM	BB	ATS	4104	262376	53-149	89	16mm	no sz/cs	sub-raise
2009	ZAF	HAND	ATS	L	96	8.0228	2008	ZAF	BB	ATS	12	905	44-122	84	13mm	no sz/cs	sub-raise
2009	ZAF	LL-Shrk	ATS	L	1	0.0413	2009	ZAF	LLSWO	ATS	12	754	30-150	90	16mm	no sz/cs	sub-raise
2009	ZAF	LLSWO	ATS	L	87	7.0235	2009	ZAF	LLSWO	ATS	12	754	30-150	90	16mm	<>99%	raise
2009	ZAF-JPN	LLJAP	ATS	L	34	0.4135	2009	ZAF-JPN	LLJAP	ATS	82	4415	2-203	94	19mm	<>99%	raise
2009	ZAF-KOR	LLJAP	ATS	L	3	1.4993	2009	ZAF-KOR	LLJAP	ATS	2	117	69-134	96	19mm	<>99%	raise
2009	VCT	LLFB	ATS	L	51	0.0214	2009	TAI	LLFB	ATS	2381	130812	42-150	93	18mm	no sz/cs	sub-raise
2009	UK.SHN	RR	ATS	L	81	83.266	2011	UK.SHN	RR	ATS	1	41	93-114	103	24mm	no sz/cs	sub-raise
2009	URY	LLHB	ATS	L	97	0.322	2009	URY	LLHB	ATS	301	13557	55-134	101	22mm	<>99%	raise
2009	VUT	LL	ATS	L	64	0.027	2009	TAI	LLFB	ATS	2381	130812	42-150	93	18mm	no sz/cs	sub-raise
2010	ARG	PS	ATS	L	130	25.762	2010	URY	LLHB	ATS	5	297	65-124	92	17qq	no sz/cs	sub-raise
2010	BLZ-TTO	LL	ATS	L	300	10.971	2010	BLZ-TTO	LL	ATS	27	2171	70- 94	84	13mm	<>99%	raise
2010	BLZ-URY	LL	ATS	L	2	0.08	2010	BLZ-TTO	LL	ATS	27	2171	70- 94	84	13mm	no sz/cs	sub-raise
2010	BRA-BRA-BELEM	LL	ATS	L	12	0.9878	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	no sz/cs	sub-raise
2010	BRA-BRA-ITAIPAVA	UNCL	ATS	L	19	1.6035	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	no sz/cs	sub-raise
2010	BRA-BRA-ITAJAI	BB	ATS	L	11	15.82	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16mm	no sz/cs	sub-raise
2010	BRA-BRA-ITAJAI	LL	ATS	L	23	1.9088	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	no sz/cs	sub-raise
2010	BRA-BRA-NATAL	LL	ATS	L	76	6.4036	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	no sz/cs	sub-raise
2010	BRA-BRA-RECIFE	LL	ATS	L	16	1.3192	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	no sz/cs	sub-raise
2010	BRA-BRA-RGRANDE	LL	ATS	L	22	1.8622	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	no sz/cs	sub-raise
2010	BRA-BRA-RJANERO	BB	ATS	L	23	33.911	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16mm	no sz/cs	sub-raise
2010	BRA-BRA-RJANERO	UNCL	ATS	L	11	0.9422	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	no sz/cs	sub-raise
2010	BRA-BRA-SANTOS	LL	ATS	L	1	0.0748	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	no sz/cs	sub-raise
2010	BRA-ESP-NATAL	LL	ATS	L	57	4.7847	2010	BRA-ESP-NATAL	LL	ATS	12	351	14-221	115	34mm	<>99%	raise
2010	CHN	LL	ATS	L	97	2.5647	2010	CHN	LL	ATS	38	1517	76-127	105	25mm	<>99%	raise
2010	TAI	LLFB	ATS	L	10975	3.718	2010	TAI	LL	ATS	2952	148558	45-151	95	20mm	<>99%	raise
2010	CUW-CW-ETRO	PS	ATS	L	4	3.9967	2010	CUW-CW-ETRO	PS	ATS	1	37	88-125	107	27mm	<>99%	raise
2010	CIV-CIV-KOREA	LL	ATS	L	43	0.0147	2010	TAI	LL	ATS	2952	148558	45-151	95	20mm	no sz/cs	sub-raise
2010	EU.ESP-ES-ETRO	PS	ATS	L	28	0.9286	2010	EU.ESP-ES-ETRO	PS	ATS	30	1164	88-125	106	26mm	<>99%	raise
2010	EU.ESP-ES-SWO	LLHB	ATS	L	266	195.96	2010	EU.PRT-PT-MAINLND	LLHB	ATS	1	42	80-125	113	32mm	no sz/cs	sub-raise
2010	EU.FRA-FR-ETRO	PS	ATS	L	109	1	2010	EU.FRA-FR-ETRO	PS	ATS	109	4118	88-125	107	27mm	OK(t1=cs)	none
2010	EU.PRT-PT-MAINLND	LLHB	ATS	L	84	61.612	2010	EU.PRT-PT-MAINLND	LLHB	ATS	1	42	80-125	113	32mm	<>99%	raise
2010	GTM.ETRO	PS	ATS	L	56	0.9999	2010	GTM.ETRO	PS	ATS	56	2186	92-123	106	26mm	OK(t1=cs)	none
2010	JPN	LLHB	ATS	L	973	1.0525	2010	JPN	LLHB	ATS	924	79323	68-119	81	12qq	<>99%	raise
2010	KOR	LL	ATS	L	130	0.0439	2010	TAI	LL	ATS	2952	148558	45-151	95	20mm	no sz/cs	sub-raise
2010	NAM	BB	ATS	L	1263	0.6333	2010	NAM	BB	ATS	1994	140673	55-160	86	14mm	<>99%	raise
2010	NAM	LL	ATS	L	57	104.99	2010	NAM	LL	ATS	1	28	80-120	96	19mm	<>99%	raise
2010	PAN-PAN-ETRO	PS	ATS	L	1	0.25	2010	PAN-PAN-ETRO	PS	ATS	4	149	88-125	107	27mm	<>99%	raise
2010	PHL-PHL-MANILA	LL	ATS	L	95	0.0323	2010	TAI	LL	ATS	2952	148558	45-151	95	20mm	no sz/cs	sub-raise
2010	ZAF	BB	ATS	L	2446	1.2263	2010	NAM	BB	ATS	1994	140673	55-160	86	14mm	no sz/cs	sub-raise

2010	ZAF	RR	ATS	L	1529	0.7665	2010	NAM	BB	ATS	1994	140673	55-160	86	14	mm	no sz/cs	sub-raise
2010	ZAF	HAND	ATS	L	89	7.4103	2011	ZAF	BB	ATS	12	1008	58-108	82	12	mm	no sz/cs	sub-raise
2010	ZAF	LLSWO	ATS	L	76	1.6689	2010	ZAF	LLSWO	ATS	46	1154	35-969	94	40	mm	<>99%	raise
2010	ZAF-JPN	LLJAP	ATS	L	7	0.2463	2010	ZAF-JPN	LLJAP	ATS	27	1487	35-157	93	18	mm	<>99%	raise
2010	VCT	LLFB	ATS	L	31	0.0104	2010	TAI	LL	ATS	2952	148558	45-151	95	20	mm	no sz/cs	sub-raise
2010	UK.SHN	RR	ATS	L	3	2.6787	2011	UK.SHN	RR	ATS	1	41	93-114	103	24	mm	no sz/cs	sub-raise
2010	URY	LLHB	ATS	L	24	4.6961	2010	URY	LLHB	ATS	5	297	65-124	92	17	qq	<>99%	raise
2010	VUT	LL	ATS	L	104	0.0354	2010	TAI	LL	ATS	2952	148558	45-151	95	20	mm	no sz/cs	sub-raise
2011	ARG	PS	ATS	L	43.186	6.1711	2011	URY	LL	ATS	7	437	55-139	90	16	mm	no sz/cs	sub-raise
2011	BLZ-GHA	PS	ATS	L	30	7.4997	2011	CUW-CW-ETRO	PS	ATS	4	151	96-115	107	27	mm	no sz/cs	sub-raise
2011	BLZ-TTO	LL	ATS	L	252	6.3921	2011	BLZ-TTO	LL	ATS	39	3172	63-135	83	12	mm	<>99%	raise
2011	BLZ-URY	LL	ATS	L	3	3.2936	2011	BLZ-URY	LL	ATS	1	50	75-145	95	20	mm	<>99%	raise
2011	BLZ-ZAF	LL	ATS	L	80	1.5646	2011	BLZ-ZAF	LL	ATS	51	1751	60-118	110	29	mm	<>99%	raise
2011	BRA-BRA-BELEM	LL	ATS	L	27	1.3936	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-ITAIPAVA	UNCL	ATS	L	5	0.2361	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-ITAJAI	BB	ATS	L	58	85.752	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16	mm	no sz/cs	sub-raise
2011	BRA-BRA-ITAJAI	GILL	ATS	L	41	2.1387	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-ITAJAI	HAND	ATS	L	1	0.0265	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-ITAJAI	LL	ATS	L	22	1.1446	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-ITAJAI	PS	ATS	L	2	0.0881	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-NATAL	LL	ATS	L	12	0.6275	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-RECIFE	LL	ATS	L	22	1.1246	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-RGRANDE	LL	ATS	L	44	2.288	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-RJANERO	BB	ATS	L	140	206.46	2007	BRA-BRA-ITAJAI	BB	ATS	1	41	84- 97	92	16	mm	no sz/cs	sub-raise
2011	BRA-BRA-RJANERO	HAND	ATS	L	103	5.3451	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-BRA-RJANERO	LL	ATS	L	3	0.1558	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	no sz/cs	sub-raise
2011	BRA-ESP-NATAL	LL	ATS	L	92	4.7504	2011	BRA-ESP-NATAL	LL	ATS	19	583	72-211	113	33	mm	<>99%	raise
2011	BRA-JPN	LL	ATS	L	699	3.7073	2011	BRA-JPN-NATAL	LL	ATS	188	7378	14-279	105	26	mm	<>99%	raise
2011	CHN	LL	ATS	L	80	4.1213	2011	CHN	LL	ATS	19	1239	72-127	90	16	mm	<>99%	raise
2011	TAI	LLFB	ATS	L	13032	3.3931	2011	TAI	LL	ATS	3841	192171	32-150	95	20	mm	<>99%	raise
2011	CIV-CIV-KOREA	LL	ATS	L	45.351	0.0118	2011	TAI	LL	ATS	3841	192171	32-150	95	20	mm	no sz/cs	sub-raise
2011	CUW-CW-ETRO	PS	ATS	L	4	1	2011	CUW-CW-ETRO	PS	ATS	4	151	96-115	107	27	mm	OK(t1=cs)	none
2011	EU.ESP-ES-ETRO	PS	ATS	L	64	1.0069	2011	EU.ESP-ES-ETRO	PS	ATS	64	2252	92-123	109	28	mm	OK(t1=cs)	none
2011	EU.ESP-ES-SWO	LLHB	ATS	L	250	91.978	2011	EU.PRT-PT-MAINLND	LLHB	ATS	3	133	65-119	95	20	mm	no sz/cs	sub-raise
2011	EU.FRA-FR-ETRO	PS	ATS	L	50	1.0001	2011	EU.FRA-FR-ETRO	PS	ATS	50	1792	88-125	109	28	mm	OK(t1=cs)	none
2011	EU.PRT-PT-MAINLND	LLHB	ATS	L	44	16.239	2011	EU.PRT-PT-MAINLND	LLHB	ATS	3	133	65-119	95	20	mm	<>99%	raise
2011	JPN	LLHB	ATS	L	1194	1.091	2011	JPN	LLHB	ATS	1094	93049	68-119	82	12	qq	<>99%	raise
2011	KOR	LL	ATS	L	70	0.0183	2011	TAI	LL	ATS	3841	192171	32-150	95	20	mm	no sz/cs	sub-raise
2011	NAM	BB	ATS	L	3711	24.371	2011	NAM	BB	ATS	152	9223	29-148	91	17	mm	<>99%	raise
2011	NAM	LL	ATS	L	80	572.83	2011	NAM	LL	ATS	0	4	115-118	117	35	mm	<>99%	raise
2011	PHL-PHL-MANILA	LL	ATS	L	96	0.025	2011	TAI	LL	ATS	3841	192171	32-150	95	20	mm	no sz/cs	sub-raise
2011	ZAF	BB	ATS	L	2029	168.4	2011	ZAF	BB	ATS	12	1008	58-108	82	12	mm	no sz/cs	sub-raise
2011	ZAF	RR	ATS	L	1268	105.27	2011	ZAF	BB	ATS	12	1008	58-108	82	12	mm	<>99%	raise
2011	ZAF	LLSWO	ATS	L	81	1.7725	2010	ZAF	LLSWO	ATS	46	1154	35-969	94	40	mm	no sz/cs	sub-raise
2011	ZAF-JPN	LLJAP	ATS	L	1	0.3254	2011	ZAF-JPN	LLJAP	ATS	3	147	64-116	93	18	mm	<>99%	raise
2011	VCT	LLFB	ATS	L	94	0.0245	2011	TAI	LL	ATS	3841	192171	32-150	95	20	mm	no sz/cs	sub-raise
2011	UK.SHN	RR	ATS	L	120	123.54	2011	UK.SHN	RR	ATS	1	41	93-114	103	24	mm	<>99%	raise
2011	URY	LL	ATS	L	37	5.2579	2011	URY	LL	ATS	7	437	55-139	90	16	mm	<>99%	raise
2011	VUT	LL	ATS	L	85	12.07	2011	VUT	LL	ATS	7	490	20-124	87	14	qq	<>99%	raise