NORTHEAST ATLANTIC AND MEDITERRANEAN BLUEFIN TUNA *(THUNNUS THYNNUS,* L. 1758*)* CAUGHT DURING THE PERIOD (1998-2011) AS REVEALED BY INTERNATIONAL TRADE OFFICIAL STATISTICS

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SUMMARY

A comprehensive new set of largely ignored historical northeast Atlantic and Mediterranean bluefin tuna (E-BFT) monthly trade-flux data records for the period January 1998 through June 2012 has been transcribed and analyzed in order to provide an alternative insight into yearly caught volume trends of this species. Previously released E-BFT trade analysis reports also compiled by this author, already showed that significant gaps existed between ICCAT TACs and the amounts of equivalent wild E-BFT being traded each year worldwide since 1998. Our current proposed analysis answers a number of legitimate methodology issues raised with the release back in 2009 and 2011 of such previous E-BFT trade reports. This was made possible by adopting an alternative, more accurate and refined monthly crosscheck methodology, the use of a wider set of HS/CN trade commodity description codes as well as a more robust sourcing of official trade-flux data records, among other variables. This report also serves as an update to previous analysis, since it includes definitive trade-flux data analysis results for 2010 and accurate though provisional results for 2011, pending the publication by ICCAT of official live-E-BFT carryovers to 2012. Through the comparison of estimated E-BFT yearly catches resulting from pertinent trade-flux data record analysis, our report draws robust conclusions as to yearly caught volume trends, demonstrating that since 2008 and despite improved compliance, control and enforcement measures, the introduction of harsh fishing-fleet capacity reduction plans and substantial reduction of TACs, ongoing widespread lack of compliance with fishing quotas and persistent E-BFT catch underreporting practises are jeopardising current stock conservation efforts, thus threatening this fishery's very-own existence as well as the livelihoods of fishermen themselves.

RÉSUMÉ

Un nouveau jeu exhaustif de registres de données historiques grandement ignorées sur les flux commerciaux mensuels du thon rouge de l'Atlantique Est et la Méditerranée (E-BFT) au titre de la période allant de janvier 1998 à juin 2012 a été transcrit et analysé afin de fournir un aperçu différent des tendances de cette espèce en matière de volumes annuellement capturés. Des rapports d'analyses commerciales du E-BFT antérieurement publiés et compilés par cet auteur ont montré que des lacunes importantes existaient entre les TAC établis par l'ICCAT et les quantités de E-BFT sauvage équivalent qui sont commercialisées tous les ans au niveau mondial depuis 1998. L'analyse actuellement proposée répond à un certain nombre de questions méthodologiques légitimes soulevées avec la publication en 2009 et 2011 de ces rapports commerciaux antérieurs sur l'E-BFT. Ceci a été rendu possible par l'adoption d'une autre méthodologie de vérification mensuelle par croisement plus précise et plus sophistiquée, l'emploi d'un plus large jeu de codes descriptifs des denrées commerciales HS/CN ainsi que par le recours à une source plus robuste de registres officiels de données sur les flux commerciaux, entre autres variables. Ce rapport sert également à actualiser les analyses antérieures, étant donné qu'il inclut les résultats définitifs des données sur les flux commerciaux au titre de 2010 ainsi que les résultats précis bien que provisoires au titre de 2011, dans l'attente de la publication par l'ICCAT des reports officiels de E-BFT vivants à 2012. La comparaison des prises annuelles estimées de E-BFT réalisée en analysant les registres pertinents des données sur les flux commerciaux a permis à notre rapport de tirer des conclusions solides sur les tendances des volumes capturés annuellement, ce qui démontre que, depuis 2008 et malgré une meilleure application, malgré l'introduction de plans rigoureux de réduction de la capacité des flottilles de pêche et en dépit de la réduction considérable des TAC, le non-respect généralisé des quotas de pêche et les pratiques de non-déclaration des captures de E-BFT qui persistent menacent actuellement les efforts de conservation des stocks actuellement déployés, mettant donc en péril l'existence même de cette pêcherie ainsi que la subsistance des propres pêcheurs.

RESUMEN

Se ha transcrito y analizado un nuevo conjunto exhaustivo de registros de datos históricos de flujo comercial mensual de atún rojo del Atlántico este y Mediterráneo (E-BFT)para el periodo 1998-2012, ignorado durante mucho tiempo, con el fin de proporcionar una perspectiva alternativa de las tendencias en volumen de captura anual de esta especie. Los informes de análisis de comercio de atún rojo del Este, publicados anteriormente y compilados también por este autor, mostraban que existen importantes lagunas entre los TAC de ICCAT y las cantidades de atún rojo del Este capturado en estado silvestre comercializadas cada año en todo el mundo desde 1998. El análisis que se propone actualmente da respuesta a varias problemas metodológicos legítimos que se plantearon tras la publicación en 2008 y 2011 de dichos informes previos de comercio de atún rojo del Este. Esto fue posible mediante la adopción de una metodología de verificación cruzada mensual más precisa y perfeccionada, la utilización de un conjunto más amplio de códigos de descripción de mercancías comerciales HS/CN, así como mediante el recurso a una fuente más robusta de registros oficiales de flujo comercial, entre otras variables. Este documento actualiza también e análisis anteriores, ya que incluye resultados definitivos de análisis de flujo comercial para 2010 y resultados precisos, aunque provisionales, para 2011, a la espera de la publicación por parte de ICCAT de los remanentes de atún rojo del Este vivo para 2012. Mediante la comparación de las capturas anuales estimadas de atún rojo del Este resultantes de los análisis de los registros de datos de flujo comercial pertinentes, se extraen conclusiones robustas sobre tendencias de volumen capturado anual, que demuestran que desde 2008 y a pesar de la mejora en las medidas de cumplimiento, control y ejecución, la introducción de estrictos planes de reducción de la capacidad de la pesca-flota y de la importante reducción de los TAC, la continuación de los incumplimientos generalizados de las cuotas de pesca y las persistentes prácticas de infracomunicación de capturas de atún rojo del Este ponen en peligro los esfuerzos actuales de conservación del stock y suponen una amenaza para la propia existencia de esta pesquería, así como para el sustento de los pescadores.

KEYWORDS

Thunnus thynnus, reported catches, overages, trade-flux data records

1. Introduction

The latest three analyses on the population status of the Atlantic bluefin tuna *Thunnus thynnus L.* (E-BFT) carried out by ICCAT's SCRS in 2006, 2009 and 2010; have consistently pointed to a rapid deterioration of the stock [1].

Scientists involved in such stock assessments have often express concern on the reliability of seldom available data records, making reference to the complex biology of the species and the poor quality of fisheries dependent data, among other factors[2].

In fact, SCRS E-BFT stock assessments are subject to considerable uncertainties due to the scarcity of CPUE data and to high levels of catch under-reporting that, according to SCRS, took place primarily between the mid-1990s through 2007; a period during which the Mediterranean was overrun by illegal fishing vessels and an oversized industrial purse seine fleet, brazenly flaunting catch limits.

ICCAT's SCRS has estimated that E-BFT catches during such period may well have been in the order of 50.000.000,00 to 61.000.000,00 Kgs per year, based on the number of vessels operating inside the Mediterranean Sea and their respective catch rates at the time. See following **Chart 1**.

[1] The next E-BFT stock assessment has been scheduled by the Commission for 2012. This short intermission has not allowed time for key research projects to be completed; and therefore the Group plans to focus on updating the analyses used to provide management advice in 2010. Seven days in early September 2012 are deemed to be sufficient to conduct this work and write the report. 2011 SCRS, 2011 Bluefin Tuna Work Plan.

[2] Di Natale (2009) The Eastern Atlantic BlueFin Tuna: entangled in a big mess. Possibly far from a conservation red alert. Some comments after the proposal to include the BlueFin Tuna in CITES Appendix I. SCRS/2009/189.

Estimates by SCRS for 2008 and 2009, using updated vessel capacity and performance statistics from the various reports submitted to ICCAT by CpCs under Rec. 08-05, are significantly lower than the corresponding reported Task I catch data[3] and that recorded with ICCAT BCD database.

For 2010 and 2011, officially declared E-BFT catches by ICCAT CpCs are below adjusted TACs of 13.525.000,00 and 11.502.000,00 Kgs, respectively.[4]

As demonstrated in this paper, this was certainly not the case as catch limits set by ICCAT since 2008 were clearly not respected.

Previously released E-BFT trade analysis reports[5] [6], also compiled by this author, already showed that significant gaps existed between ICCAT TACs and the amounts of equivalent wild E-BFT being effectively traded worldwide since 1998.

To a large extent, such reports were based on an overly conservative yearly trade-flux data record crosscheck methodology, which in turn did not take into account live-E-BFT carryovers; a fairly recent practice that has spread to almost the entire Mediterranean tuna ranching industry.

Furthermore, such yearly trade-flux data records crosscheck methodology did not account for "*mislabelled*" E-BFT trade fluxes, nor did it allow for a higher degree of precision as to the assignment of the effective years of catch for important volumes of processed E-BFT trade-fluxes.

Overall, with the exception for 2009 and 2010, both such past reports yielded lower estimated volumes of yearly caught E-BFT than those presented herein.

Our current proposed analysis tackles such methodology shortcomings and answers a number of legitimate issues raised with the release back in 2009 and 2011 of previous E-BFT trade reports.

This was made possible by adopting an alternative more accurate and refined monthly crosscheck methodology developed by this author that includes the use of a wider set of HS/CN trade commodity description codes and a more robust sourcing of official trade-flux data records, among other new variables. Readers may refer to the entire new proposed methodology layout in **Annex I** of this report.

This report also serves as an update to previous analysis, since it includes definitive results for 2010 and provisional estimates for 2011, pending the release by ICCAT of the latest official live-E-BFT carryovers to 2012 and that will in time replace our own estimations.

Finally, the E-BFT stock has been subjected to a rebuilding plan since 2006 (ICCAT Rec. 06-05).

Such plan has been regularly amended ever since on an almost yearly basis and with the aim to rebuild the stock to a healthy B_{MSY} level by 2022, with at least a 60% probability, provided E-BFT catches are restrained to yearly TACs not exceeding 13.500.000,00 Kgs[7].

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[3] The Committee's interpretation is that a substantial decrease in the catch occurred in the eastern Atlantic and Mediterranean Sea in 2008 and 2009.

[4], It is to be noted however that some CpCs did not report all of their 2010 and/or 2011 E-BFT catches. Furthermore, ICCAT BCD database still remains largely incomplete for years 2008 to 2011.

[5] Requiem for a BlueFin, by Advanced Tuna Ranching Technologies (2009), http://www.atuna.com/requiem.pdf

[6] Mind the Gap (2011), An analysis of the international trade in Mediterranean BlueFin Tuna. Research and analysis conducted by Roberto Mielgo Bregazzi for Pew Charitable Trusts

[7] The original SCRS-ICCAT E-BFT stock recovery plan tabled a maximum catch threshold at 15.000 metric tonnes:

> "In order to reverse these declines and to initiate rebuilding, substantial reductions in fishing mortality and catch need to be implemented. The SCRS evaluated a number of alternative management scenarios which might be used to begin recovery. The only scenarios which have potential to address the declines and initiate recovery are those which (in combination) close the Mediterranean to fishing during spawning season and decrease mortality on small fish through fully enforced increases in minimum size. Realized catches during the next few years implied by fully implementing these actions are expected to be in the order of 15 000 t. The long-term gain resulting from these actions could lead to catches of 45 000 t or more with substantial increases in spawning biomass." Source: Report of the 2006 Atlantic Bluefin Tuna Stock Assessment Session (Madrid, Spain – June 12 to 18, 2006).
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> "The available information indicates that the current fishing mortality rate (under the current overall fishing pattern) may be more than three times the level which would permit the stock to stabilize at the MSY level. Although Rec [06-05] is seen as a step in the right direction, it is unlikely to fully meet the objective of the plan to rebuild to the MSY level in 15 years with 50%

Our proposed report brings to the attention of the scientific community a comprehensive new set of largely ignored historical E-BFT monthly trade-flux data records, the corresponding yearly estimated W/rW for which, is significantly higher than that established by ICCAT-SCRS up until 2007.

In turn, our findings largely contradict both ICCAT and SCRS's catch reports and estimates for the years 2008 to 2011.

Through the comparison of yearly trade-flux data-sets, our report draws robust conclusions as to caught E-BFT volume trends since 2008, demonstrating that despite

- Improved compliance, control and enforcement measures,
- The introduction of harsh fishing-fleet capacity reduction plans,
- The almost total and effective ban on tuna-spotting aircrafts,

  and

- Substantial reduction of TACs,

the widespread lack of compliance with TACs and persistent E-BFT catch underreporting practises by ICCAT CPCs, are jeopardising all stock conservation efforts[8], thus threatening this fishery's very-own existence as well as the livelihoods of fishermen themselves. The latter may well compel NGOs to urgently revisit the pertinence of possibly having E-BFT listed on CITES Annex I.

2. Deliverables

- ***Annex I***: Materials and methodology[9].
- Folders with extracted original raw trade-flux data records for the following countries:
  - Algeria
  - Canada
  - China & Hong Kong
  - Croatia
  - EU27
  - France
  - Italy
  - Japan
  - Korea
  - Morocco
  - Norway
  - Spain
  - Taiwan
  - Tunisia
  - Turkey
  - USA
- Folder (Japan's Fresh Med & NEA BFT Fish Auction Markets Reports 2002 to 2012) containing all original daily auction records obtained during the author's on-site historical fish auction market data-mining project, carried-out in Japan from 2009 to 2012. The custody of such data in Excel-format has

probability. In order to reverse SSB decline and to initiate rebuilding with a degree of confidence, additional reductions in fishing mortality and catch need to be implemented. The SCRS has evaluated during the 2006 and 2008 sessions a number of alternative management scenarios which might be used to achieve the recovery of this stock with a higher probability" Source: Report of the 2008 Atlantic BlueFin Tuna stock assessment session (Madrid, Spain – June 23 to July 4, 2008).

[8] For years, the E-BFT fishery in the Mediterranean has been the foremost example of a mismanaged, out of control fishery in the world. In 2008, an independent review of the ICCAT's work, famously called its policies a "travesty of fisheries management."

[9] Readers are advised to properly familiarize themselves with followed methodology for the purpose of this report.

been provided to ICCAT-GBYP. Access to such records, containing sensitive commercial information, is therefore subject to ICCAT-GBYP's prior authorization.

- Excel-format ((a) Data acquisition status by Data Source)
- Excel-format ((b) Used Taric CN8 and HS Codes, Description & Standardisation)
- Excel-format ((c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012). The custody of such data in Excel-format has been provided to ICCAT-GBYP.

  Access to such records, containing sensitive commercial information, is therefore subject to ICCAT-GBYP's prior authorization.

3. Results

- **Preliminary comments**

  This report's statistical robustness and crosscheck degree of refinement were substantially enhanced due to the following:

  - Previous 2009 and 2011 trade reports were produced on the basis of yearly crosschecks of EBFT trade-flux data records with the exception of intra EU27 trade.

    This report has been produced on the basis of monthly crosschecks of almost all trade-flux data records obtained from all primary official trade-data sources used for such purpose.

  - The most common problem facing parties responsible for providing trade information is finding the right code number (Classification) for the goods or commodities which are being exported or imported.

    E-BFT trade is not an exception: In numerous cases, traded E-BFT is labelled under HS/CN codes and descriptions corresponding to other Tuna species, thus allowing the marketing of specimens that may have not been reported at catch to pertinent fisheries authorities.[10]

    For these reasons, trade-flux data records, pertaining to ICCAT CpCs, traditionally targeting E-BFT and that could have not possibly caught such species or could have not possibly exported them under a given commodity description, were included for calculation purposes, as explained in **Annexe I**: Materials and methodology.

  - The number of primary sources of trade-data, from which trade-flux data records were acquired and crosschecked, was elevated from 10 to 25.

  - In an effort to further increase the conservative nature of this exercise and noting that the use of higher average fattening ratios yields a lower value for the estimated W/rW of traded ranched E-BFTs, cross-board fattening ratios used in previous reports were heighten as explained in **Annex I:** Materials and methodology.

  - Finally, the issue of yearly carry-overs of live EBFT inside tuna ranches across the Mediterranean Sea has been somewhat controversial during the past four years.

[10] There is a high incentive to fraudulently label other tunas as E-BFT in order to sell YFT or other Tuna for a higher price. Our report has not taken into account such issue, due to the difficulty in clearly evidencing such fraud cases. Though it nevertheless seems obvious that some cases of YFT or other Tunas being mislabelled as E-BFT for a higher price may have occurred, these cases are principally to be located at the final retail sale level and not at the import/export international trade level. The main reason being that, contrary to E-BFT, YFT and other Tunas are not subject to stringent quota regulations and therefore to stringent E-BFT catch and trade documentary red-tape.

In order to export E-BFT, such fish needs to be accompanied by proper ICCAT documentation (ICCAT E-BFT Statistical Document until 2007, BCD as of 2008). In our view, it seems unlikely, not to say almost impossible, for an international YFT, BET or other Tuna trader wanting to export such cheaper commodity to actually falsify such documents in order to mislabel it.

Prior trade reports, produced by this author, did not take into account such data, namely because most of it was thought to be highly inaccurate at the time.

Inclusion of such carryover data for calculation purposes, was perceived as potentially yielding important volume distortions in final estimated yearly caught W/rW E-BFT values.[11].

Noting that yearly live-E-BFT carryover figures have been officialised by ICCAT[12], we had this time, no other option but to input such volumes for calculation purposes.

In turn, our 2011 results are necessarily provisional, pending the publication of official ICCAT figures with reference to live-E-BFT carryovers to 2012.

In accordance with the above, this report proposes a set of two (2) alternative scenarios of estimated E-BFT yearly caught equivalent W/rW volumes for 1998 to 2011 included.

- **Scenario I**: corresponding to the lowest possible, highly conservative estimated equivalent W/rW of caught E-BFT for a given year (Live-E-BFT carryovers included)

- **Scenario II**: corresponding to a more realistic but conservative estimated equivalent W/rW of caught E-BFT for a given year (Live-E-BFT carryovers included).

Such estimations are based on the analysis and quantification of officially recorded trade-fluxes, as explained in ***Annex I*****:** Materials and methodology.

By examining official export/import official records (Trade-flux data records) and assigning to each one of them an estimated equivalent Wild-round-Weight (W/rW) and an effective year of catch, we were able to compare our results to catch amounts reported by ICCAT CpCs, therefore estimating the degree of unreported yearly E-BFT catches.

It also allowed us to quantify the amounts of E-BFT caught above ICCAT yearly adjusted quotas from 1998 to 2011 included, therefore determining the possible implications such overages could have on the outcome of the E-BFT stock rebuilding program, first set by ICCAT in 2006.

All calculations were performed by using annexed Excel spreadsheet file: (c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012.

Depending on the chosen year and scenario, pertinent **Assigned trade data crosscheck status** and **Assigned year of catch** cells in respective columns were selected.

- **Initial calculations**

  - Calculation of the estimated equivalent W/rW of caught E-BFT for a given year (Lowest conservative estimation - Carryovers not included)

    Estimated equivalent W/rWs of caught E-BFT for this scenario and year (1998 to 2011) were calculated by using the following formula:

$$ {}^{T}_{Y}W/rW^{nc}_{L} = \sum^{Y}_{W/rW\ OK}{}^{13} $$

[11] Inflated carry-overs coupled with overestimated fattening ratios have indeed been used by the Industry as one of the methods to launder unreported E-BFT catches.

[12] Source: CoC-302/2007 – Addendum 2; CoC-303/2008; Secretariat Report to CoC, Coc-303/2011.
2006 to 2011 live-EBFT carryovers to 2012 are provisional estimations by the author, subject to modifications, once official data is made available by ICCAT.

13 Where: T: Total

Y:	Any chosen year between 1998 and 2011 included
nc:	No carry-overs included
L:	Low estimation
W/rW ...OK...	Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "OK"

Total estimated equivalent W/rW of caught E-BFT during the studied period would have amounted to 623.131.657,56 Kgs.

Obtained yearly results for such calculation are detailed in **Table 1.**

- Calculation of the estimated equivalent W/rW of caught E-BFT for a given year (Realistic estimation - Carryovers not included)

Estimated equivalent W/rWs of caught E-BFT for this scenario and year (1998 to 2011) were calculated by using the following formula:

$$ {}^{T}_{Y}W/rW^{nc}_{H} = \sum^{Y}_{W/rW\ OK} + \sum^{Y}_{W/rW\ OK?} + \sum^{Y}_{W/rW\ Re\text{-}Exp?} + \sum^{Y}_{W/rW\ Exp\text{-}Cons?} $$ [14]

Total estimated equivalent W/rW of caught E-BFT during the studied period would have amounted to 715.930.732,19 Kgs.

Obtained yearly results for such calculation are detailed in **Table 2.**

- **Scenario I: Calculation of the estimated equivalent W/rW of caught E-BFT for a given year (Lowest conservative estimation - Carryovers included)**

Estimated equivalent W/rWs of caught E-BFT for this scenario and year (1998 to 2011) were calculated by using the following formula:

$$ {}^{T}_{Y}W/rW^{coi}_{L} = {}^{T}_{Y}W/rW^{nc}_{L} - (Co_{\overrightarrow{Y_{(-n)}}}Y) - (Co_{\overrightarrow{Y_{(-3)}}}Y) - (Co_{\overrightarrow{Y_{(-2)}}}Y) - (Co_{\overrightarrow{Y_{(-1)}}}Y) + (Co_{\overrightarrow{Y}}Y_{(-1)}) $$ [15]

Total estimated equivalent W/rW of caught E-BFT during the studied period would have amounted to 629.741.767,56 Kgs.

Obtained yearly results for such scenario are detailed in **Table 3.**

Note: *Readers must bear in mind that these results do not include volumes of E-BFT*

- *that were lost or disposed-off at catch, during cage-towing, because of cage/ranch collapse due to bad weather...*
- *for which no official trade-flux data records are yet available, in particular for 2011,*

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[14] Where: T: Total
Y: Any chosen year between 1998 and 2011 included
nc: No carry-overs included
H: Realistic estimation
W/rW OK: Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "**OK**"
W/rW OK?: Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "**OK?**"
W/rW Re-Exp?: Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "**Re-Exp?**"
W/rW Ex Cons?: Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "**Ex Cons?**"

[15] Where: T: Total
Y: Any chosen year between 1998 and 2011 included
coi: Carry-overs included
nc: No carry-overs included
L: Low estimation
Co → Y: Caged live-E-BFT carried over to chosen year expressed in original W/rW (Kgs)

- *for which, by definition there can be no traceable official trade-flux data records, in particular those yearly volumes of fish having been caught and consumed domestically; with the exception of E-BFT caught by Japan as explained in **Annex I:** Materials and methodology.*

- **Scenario II: Calculation of the estimated equivalent W/rW of caught E-BFT for a given year (High - realistic estimation - Carryovers included)**

  Estimated equivalent W/rWs of caught E-BFT for this scenario and year (1998 to 2011) were calculated by using the following formula:

$$ {}^{T}_{Y}W/rW^{coi}_{H} = {}^{T}_{Y}W/rW^{nc}_{H} - (Co_{\rightarrow Y(-n)}) - (Co_{\rightarrow Y(-3)}) - (Co_{\rightarrow Y(-2)}) - (Co_{\rightarrow Y(-1)}) + (Co_{Y \rightarrow Y(-1)}) $$

[16]

  Total estimated equivalent W/rW of caught E-BFT during the studied period would have amounted to 722.540.842,19 Kgs.

  Obtained yearly results for such scenario are detailed in **Table 4.**

  Note: *Readers must bear in mind that these results do not include volumes of E-BFT*

  - *that were lost or disposed-off at catch, during cage-towing, because of cage/ranch collapse due to bad weather...*
  - *for which no official trade-flux data records are yet available, in particular for 2011,*
  - *for which, by definition there can be no traceable official trade-flux data records, in particular those yearly volumes of fish having been caught and consumed domestically; with the exception of E-BFT caught by Japan as explained in **Annex I:** Materials and methodology.*

4. Key findings and discussion

As shown in **Chart 2** our newly estimated total equivalent W/rW of caught E-BFT during the period 1998 to 2011 (Carryovers included) fluctuates between 629.741.767,56 Kgs and 722.540.842,19 Kgs.

Total volume difference of estimated caught E-BFT W/rW for the entire studied period between our low and high estimations amounts to 92.799.074,63 Kgs, that is a 14,74% of our total low estimation or a 12,84% of our total high estimation.

Maximum yearly differences in estimated total equivalent W/rW of caught E-BFT between **Scenarios I** and **II** correspond to 2001, 2002, 2003 and 2004, that is during the years in which E-BFT PS fishing expanded from the western Mediterranean to the Central Basin waters of Malta, Tunisia and Libya.

It is our view that such differences are attributable to an important number of acquired and computed trade flux data records very likely pertaining to E-BFT in spite of them being labelled under other CN/HS codes.

The difference between our low (**Scenario I**) and high (**Scenario II**) estimated total equivalent W/rW of caught E-BFT for such years, amounts to 39.995.471,44 Kgs. 78,51% of such volume (Amounting to 31.401.477,87 Kgs) fully corresponds to trade-flux data records where there is little or no doubt as to the true nature of traded fresh and/or frozen fish; that is processed E-BFT erroneously recorded under other CN/HS codes[17].

[16] Where: T: Total
Y: Any chosen year between 1998 and 2011 included
coi: Carry-overs included
nc: No carry-overs included
H: Realistic estimation
Co → Y: Caged live-E-BFT carried over to chosen year expressed in original W/rW (Kgs)

17 Where possible, average prices per Kilogram of such trade-flux records was sought, only to find out that such prices did correspond to average prices for E-BFT during such years.

Our latest findings do not fully validate ICCAT's SCRS mid-1990s through 2007 E-BFT catch estimates[18]; as they significantly raise such figures for the years 2001 to 2007.

- Our average yearly estimated equivalent W/rW (Low estimate: **Scenario I**) for years 2001 to 2007 amounts to 54.019.180,71 Kgs.

- Our average yearly estimated equivalent W/rW (High estimate: **Scenario II**) for years 2001 to 2007 amounts to 62.611.981,26 Kgs.

"*Peak-Tuna*" year was 2007, during which the estimated W/rW fluctuated between 65.833.388,38 Kgs and 72.662.965,13 Kgs (Low and high estimates respectively)

Our findings also confirm a drastic fall of E-BFT catches as of 2009:

As can be seen in ***Chart III***, such decline is slightly higher than that previously estimated by this same author for the trade report published in 2011.

Such difference amounts to a minimum 1.615.942,26 Kgs and 1.237.217,13 Kgs for the years 2009 and 2010 respectively.

It is our view that such small differences are attributable to the inclusion for re-calculation purposes of live-E-BFT carryovers for this 2012 report on one hand; and to the fact that contrary to previous trade reports, important volumes of fish[19] are this time not subsumed as part of ***Scenarios I*** and ***II*** yearly totals, on the other hand.

The steepness of such catch downward trend is nevertheless hardly comparable to that established by SCRS for such years[20], or to that deduced from catch-reports by CpCs to ICCAT BCD database and/or Task I.

- Our average yearly estimated equivalent W/rW (Low estimate: **Scenario I**) for years 2009 to 2011 amounts to 26.077.720,47 Kgs, that is an average 51,73% drop from 2001-2007 average figures.

- Our average yearly estimated equivalent W/rW (High estimate: **Scenario II**) for years 2009 to 2011 amounts to 29.682.719,63 Kgs, that is an average 52,59% drop from 2001-2007 average figures.

As can be seen in **Table 5**, **Charts 4** and **5**, yearly percentages of estimated equivalent W/rW of overages above allocated TACs (**Scenarios I** & **II**) for years 2009 to 2011 have in fact augmented, this in spite of overall E-BFT catches for those same years having diminished.

As yearly quotas, fishing capacity and seasonality have drastically shrunken during the past four years; overfishing above allocated TACs has in fact risen.

Note: *We wish to point-out that a negligible distortion in our final yearly caught equivalent W/rW estimates may have occurred.*

[18] In the order of 50.000.000,00 to 61.000.000,00 Kgs.

[19] Non traded fish, fish discarded or disposed-off at catch, during cage-towing, because of cage/ranch collapse due to bad weather, etc…, as well as domestically consumed volumes of domestically caught E-BFT in countries other than EU27 and Japan.

[20] Estimates by SCRS for 2008 and 2009, using updated vessel capacity and performance statistics from the various reports submitted to ICCAT by CpCs under Rec. 08-05, are significantly lower than the corresponding reported Task I catch data and that recorded with ICCAT BCD database. Though the Committee's interpretation is that a substantial decrease in the catch occurred in the eastern Atlantic and Mediterranean Sea in 2008 and 2009, such conclusion is clearly in contradiction with Sergi Tudela and Gemma Quílez findings in "Reassessing fleet specific catch rates in the East Atlantic & Mediterranean BlueFin Tuna fishery": SCRS/2011/158.

> "Fleet-specific potential catch rates for the East Atlantic and Mediterranean BlueFin Tuna fishery were reassessed based on individual quota allocations during 2009-2011. Results point to conservative values of potential catches per vessel being significantly higher than those used by SCRS in the last few years, a trend which is particularly conspicuous with purse seines. Extrapolating these values to the active fleet in the period 2008-2010, yields estimates of potential annual catches at 31,500-34,000 tons, considerably higher than the reported figures".

Such distortion results from the assumption up until year 2007[21] that the totality of Japanese E-BFT catches since 1998 for any of those given years, effectively took place during those same years respectively; whereas Japan's E-BFT fishing calendar year spans from July to June of the next year.

Such distortion, in our view, is nevertheless buffered by unrecorded and therefore non-computed volumes of yearly caught E-BFT, as explained before.

Likewise, our findings would clearly indicate that, despite overall catches having dropped since 2009, yearly percentages of unreported E-BFT catches have in fact risen above those corresponding to E-BFT overages above TACs (see in **Table 6**, **Charts 6** and **7**).

Finally, our findings would also evidence that, despite overall catches having dropped since 2009, volumes of overfished E-BFT during its stock rebuilding plan since 2006, are clearly jeopardising all conservation efforts to rebuild the stock to a healthy B_{MSY} level by 2022 with at least a 60% probability. (see **Table 7**, **Charts 8**, **9** and **10**).

Such evidence and background, compels the entire scientific community to urgently review its Stock Rebuilding Plan, in order for a once credible case not to devolve into an utter failure, the unadvertised side-effects of which are clearly predictable.

[21] From 2008 onwards, Japanese LL E-BFT catches are reported and computed monthly.

Table 1. Detailed yearly estimated equivalent W/rW in Kgs (Low - Carryovers not included).

	Estimated equivalent W/rW in Kgs (Low - Carryovers not included)
1998	37.349.773,00
1999	40.530.919,44
2000	36.219.664,32
2001	45.244.903,57
2002	48.637.128,88
2003	47.655.259,65
2004	55.886.624,16
2005	57.926.260,51
2006	56.774.189,84
2007	65.057.348,38
2008	57.159.584,42
2009	27.971.654,21
2010	27.320.483,01
2011 Provisional	19.397.864,18

Table 2. Detailed yearly estimated equivalent W/rW in Kgs (High - Carryovers not included).

	Estimated equivalent W/rW in Kgs (High - Carryovers not included)
1998	41.357.152,52
1999	44.448.346,54
2000	44.977.045,03
2001	57.764.708,44
2002	57.742.339,33
2003	57.927.678,59
2004	63.984.661,33
2005	64.978.137,87
2006	63.046.868,12
2007	71.886.925,13
2008	62.311.870,42
2009	32.377.600,98
2010	33.406.304,78
2011 Provisional	19.721.093,12

Table 3. Scenario I. detailed yearly estimated equivalent W/rW in Kgs (Low - Carryovers included).

	Estimated equivalent W/rW in Kgs (Low - Carryovers included)
1998	37.349.773,00
1999	40.530.919,44
2000	36.219.664,32
2001	45.244.903,57
2002	48.637.128,88
2003	47.655.259,65
2004	55.886.624,16
2005	58.092.660,51
2006	56.784.299,84
2007	65.833.388,38
2008	59.273.984,42
2009	32.058.934,21
2010	25.241.853,01
2011 Provisional	20.932.374,18

Table 4. Scenario II. Detailed yearly estimated equivalent W/rW in Kgs (High - Carryovers included).

	Estimated equivalent W/rW in Kgs (High - Carryovers included)
1998	41.357.152,52
1999	44.448.346,54
2000	44.977.045,03
2001	57.764.708,44
2002	57.742.339,33
2003	57.927.678,59
2004	63.984.661,33
2005	65.144.537,87
2006	63.056.978,12
2007	72.662.965,13
2008	64.426.270,42
2009	36.464.880,98
2010	31.327.674,78
2011 Provisional	21.255.603,12

Table 5. Scenarios I & II comparative yearly estimated equivalent W/rW of E-BFT overages above allocated TACs.

	Estimated equivalent W/rW yearly TAC overage (Low - Carryovers included)		*Estimated equivalent W/rW yearly TAC overage (High - Carryovers included)*	
	Kgs	*%*	*Kgs*	*%*
1998	10.322.807,75	38,19%	14.330.187,27	53,02%
1999	9.529.319,44	30,74%	13.446.746,54	43,37%
2000	-1.559.635,68	-4,13%	7.197.745,03	19,05%
2001	4.918.203,57	12,20%	17.438.008,44	43,24%
2002	8.310.428,88	20,61%	17.415.639,33	43,19%
2003	11.494.659,65	31,79%	21.767.078,59	60,20%
2004	18.253.224,16	48,50%	26.351.261,33	70,02%
2005	21.266.860,51	57,75%	28.318.737,87	76,90%
2006	20.951.099,84	58,47%	27.223.778,12	75,97%
2007	34.110.628,38	107,53%	40.940.205,13	129,06%
2008	30.191.724,42	103,81%	35.344.010,42	121,53%
2009	10.278.444,21	47,19%	14.684.390,98	67,42%
2010	11.716.463,01	86,63%	17.802.284,78	131,62%
2011 Provisional	9.429.484,18	81,97%	9.752.713,12	84,78%

Table 6. Scenarios I & II comparative yearly estimated equivalent W/rW of unreported E-BFT catches.

	Estimated equivalent W/rW of yearly unreported catches (Low - Carryovers included)		*Estimated equivalent W/rW of yearly unreported catches (High - Carryovers included)*	
	Kgs	*%*	*Kgs*	*%*
1998	-2.368.227,00	-5,96%	1.639.152,52	4,13%
1999	8.074.919,44	24,88%	11.992.346,54	36,95%
2000	2.453.664,32	7,27%	11.211.045,03	33,20%
2001	10.639.903,57	30,75%	23.159.708,44	66,93%
2002	14.867.128,88	44,02%	23.972.339,33	70,99%
2003	16.492.259,65	52,92%	26.764.678,59	85,89%
2004	24.509.624,16	78,11%	32.607.661,33	103,92%
2005	22.247.660,51	62,07%	29.299.537,87	81,74%
2006	26.137.299,84	85,29%	32.409.978,12	105,75%
2007	31.319.878,38	90,75%	38.149.455,13	110,53%
2008	33.846.464,34	133,11%	38.998.750,34	153,37%
2009	12.166.186,81	61,16%	16.572.133,58	83,31%
2010	14.010.563,01	124,75%	20.096.384,78	178,93%
2011 Provisional	12.950.634,18	162,25%	13.273.863,12	166,30%

Table 7. Comparative yearly estimated equivalent W/rW of E-BFT overages above proposed Stock Rebuilding Plan TACs.

	Estimated equivalent W/rW of yearly E-BFT catch overage above proposed Stock Rebuilding Plan TACs (ICCAT reported catches)		*Estimated equivalent W/rW of yearly E-BFT catch overage above proposed Stock Rebuilding Plan TACs (Low - Carryovers included)*		*Estimated equivalent W/rW of yearly E-BFT catch overage above proposed Stock Rebuilding Plan TACs (High - Carryovers included)*	
	Kgs	*%*	*Kgs*	*%*	*Kgs*	*%*
2006	15.647.000,00	104,31%	41.784.299,84	278,56%	48.056.978,12	320,38%
2007	19.513.510,00	130,09%	50.833.388,38	338,89%	57.662.965,13	384,42%
2008	10.427.520,08	69,52%	44.273.984,42	295,16%	49.426.270,42	329,51%
2009	6.392.747,40	47,35%	18.558.934,21	137,47%	22.964.880,98	170,11%
2010	-2.268.710,00	-16,81%	11.741.853,01	86,98%	17.827.674,78	132,06%
2011 Provisional	-5.518.260,00	-40,88%	7.432.374,18	55,05%	7.755.603,12	57,45%

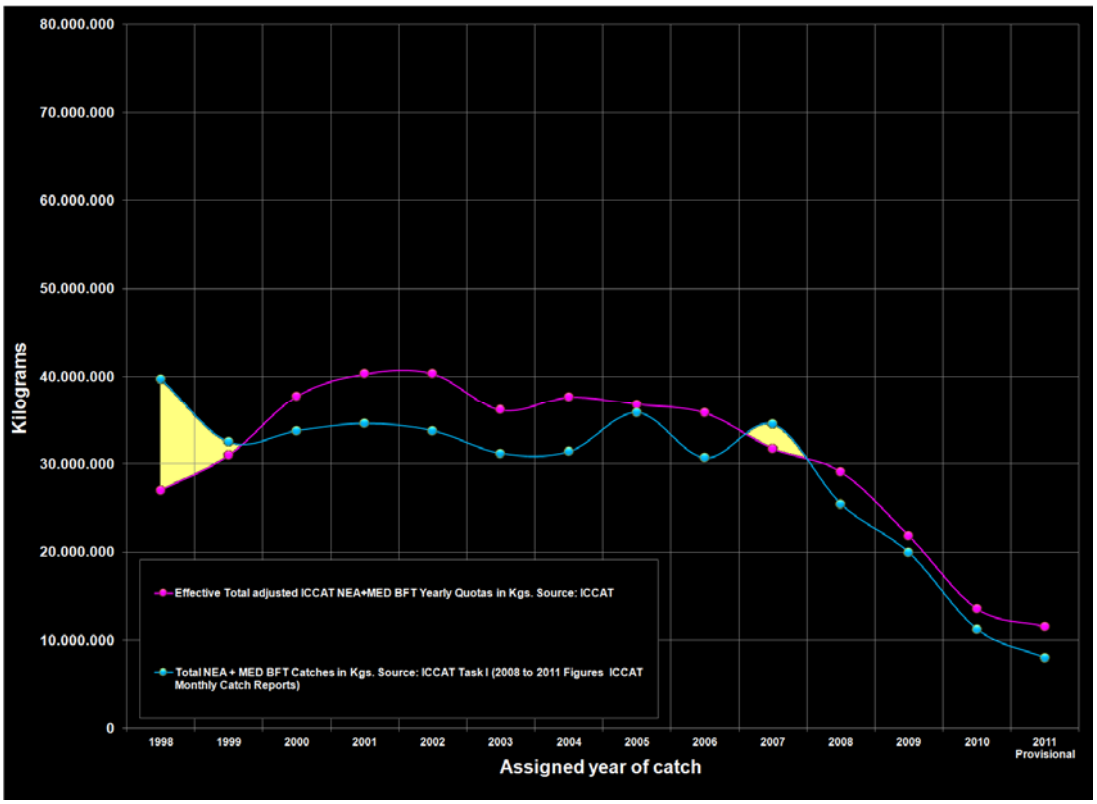


Chart 1. With the exception of 1998, 1999 and 2007, officially declared yearly E-BFT catches by ICCAT CpCs have consistently been lower than adjusted TACs. (Officially declared overages highlighted in yellow).

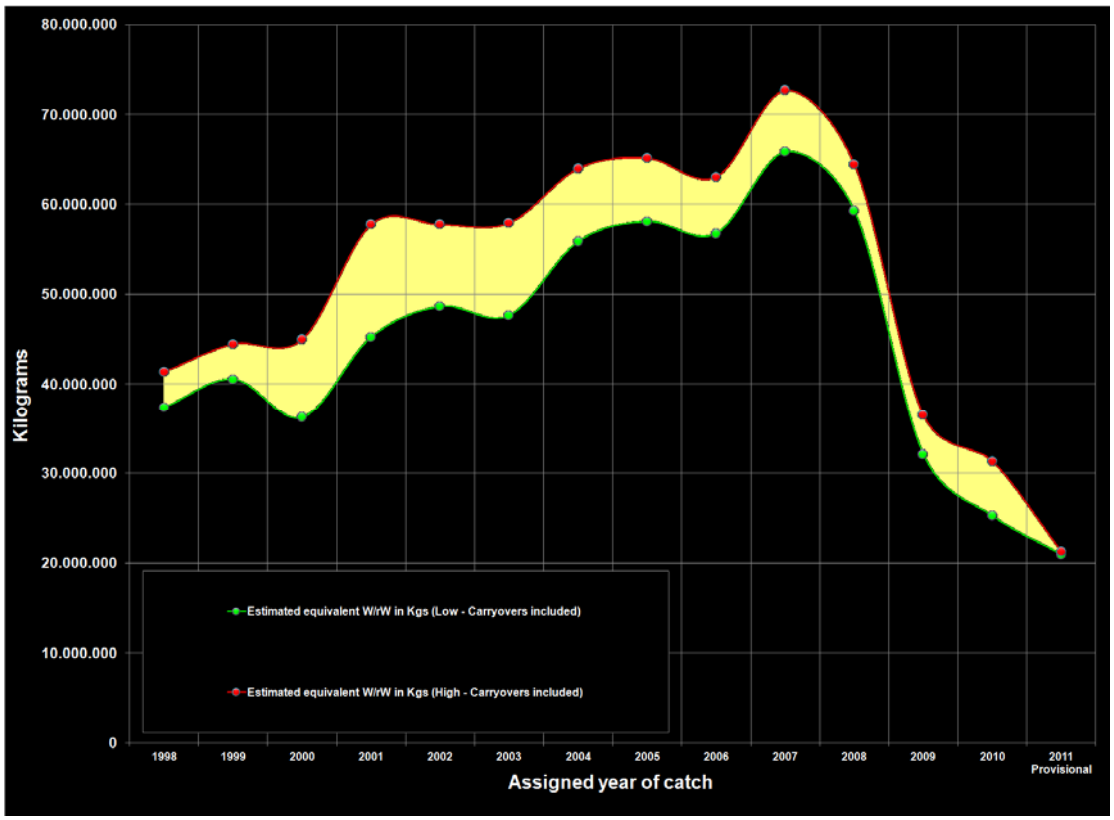


Chart 2. Comparative graph of Low (Green line) and High (Red line) 1998 to 2011 estimated equivalent W/rWs of yearly caught E-BFT **(Scenarios I & II**). Total difference between **Scenarios I and II** = 92.799.074,63 Kgs (Highlighted in yellow)

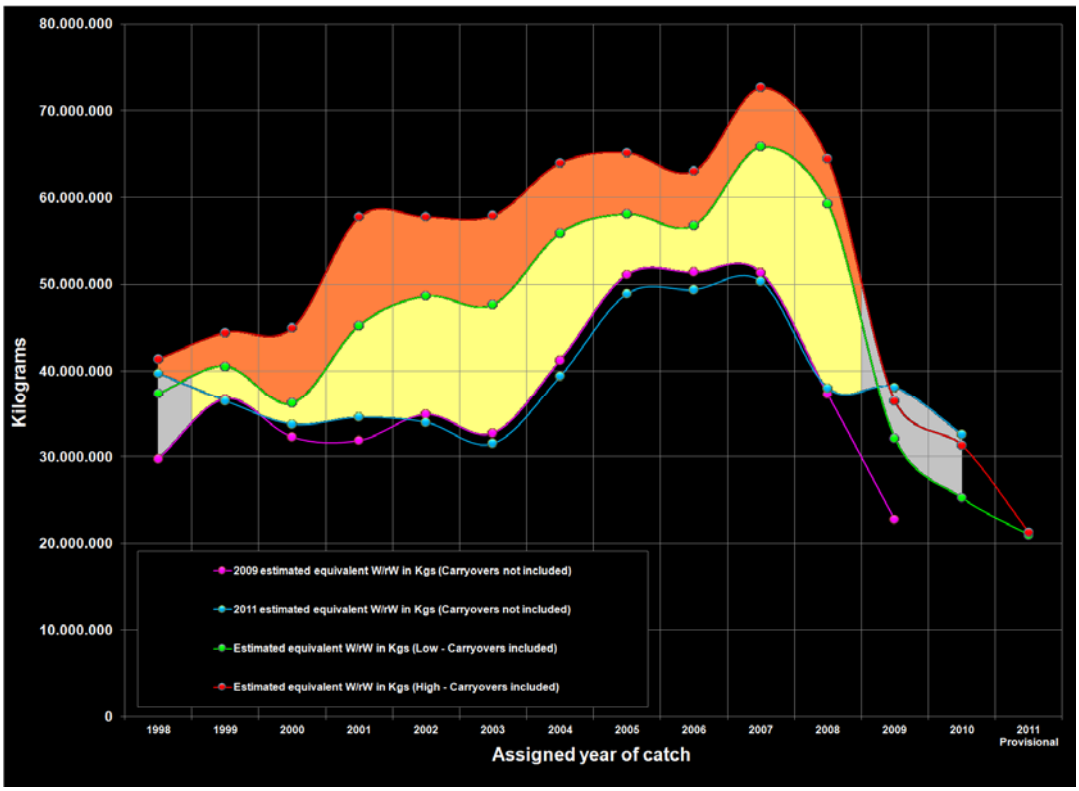


Chart 3. Comparison of estimated equivalent W/rWs of yearly caught E-BFT obtained in 2009, 2011 and 2012. 2012 results for **Scenarios I & II** (Green & red lines respectively) 2009 & 2011 previous trade reports' results - live-E-BFT carryovers not included - (Pink & blue lines respectively) Maximum differences between estimations (Highlighted in orange) ; Minimum differences between estimations (Highlighted in yellow) ; Lower revised estimated equivalent W/rWs of yearly caught E-BFT for 1998, 2009 & 2010 (Highlighted in grey).

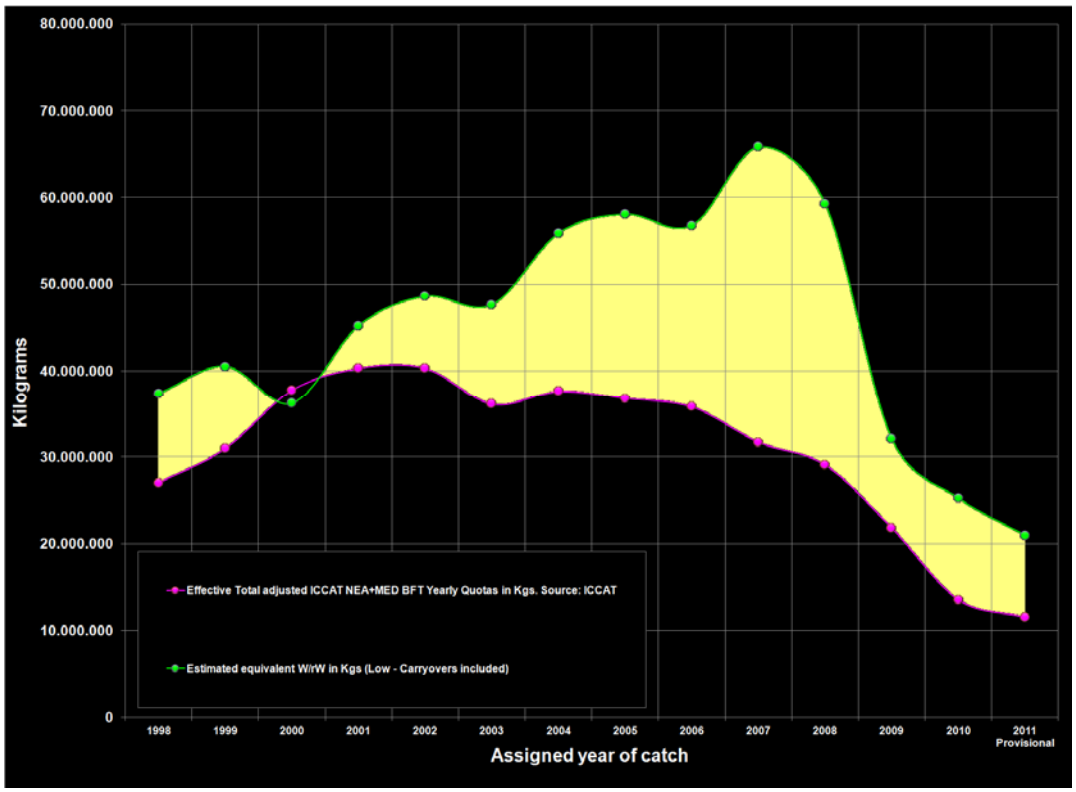


Chart 4. Scenario I yearly fluctuation of estimated equivalent W/rW of E-BFT overages above allocated TACs.

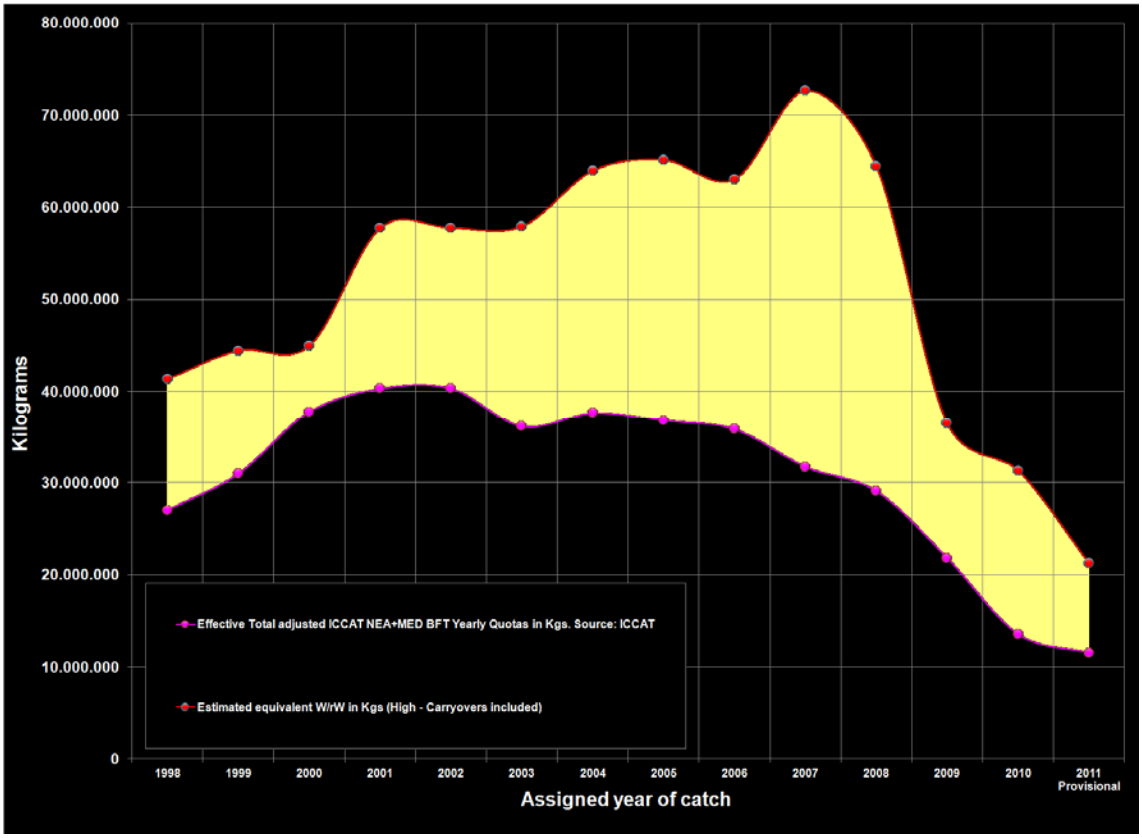


Chart 5. Scenario II yearly fluctuation of estimated equivalent W/rW of E-BFT overages above allocated TACs.

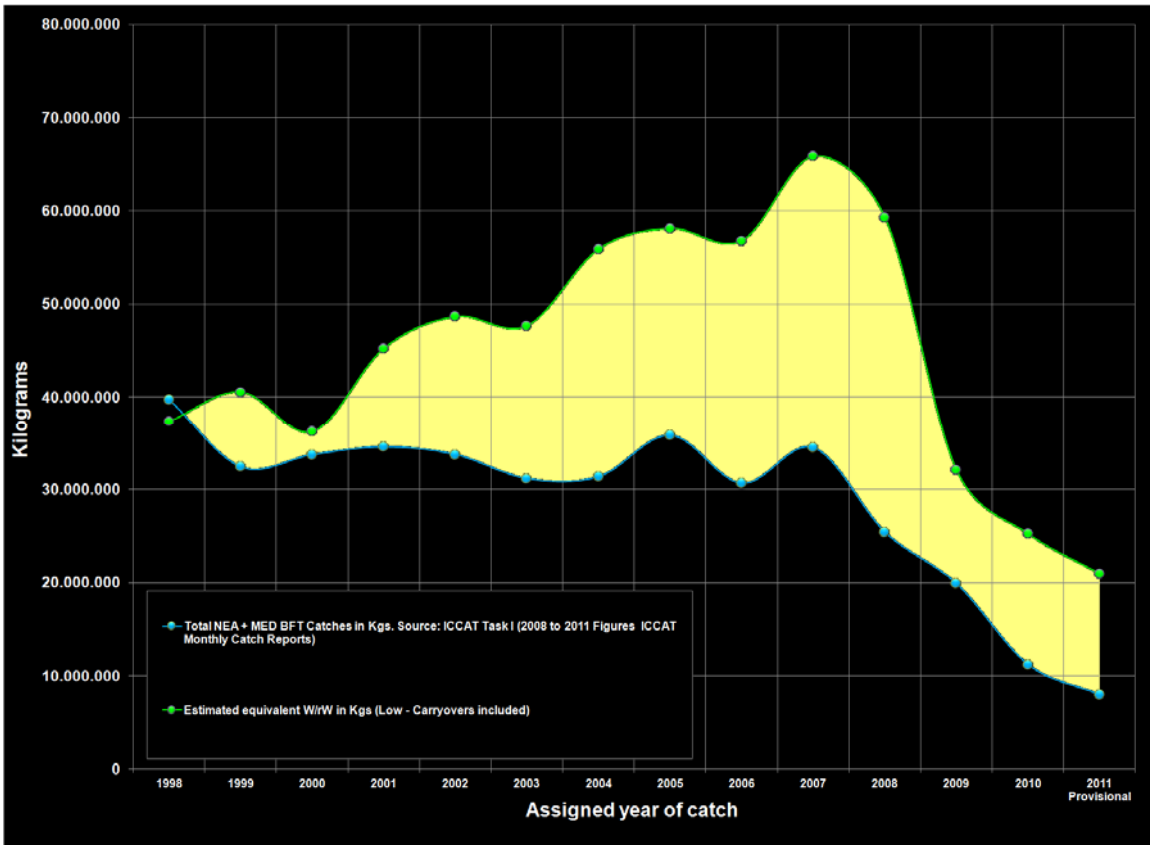


Chart 6. Scenario I yearly fluctuation of estimated equivalent W/rW of unreported E-BFT catches.

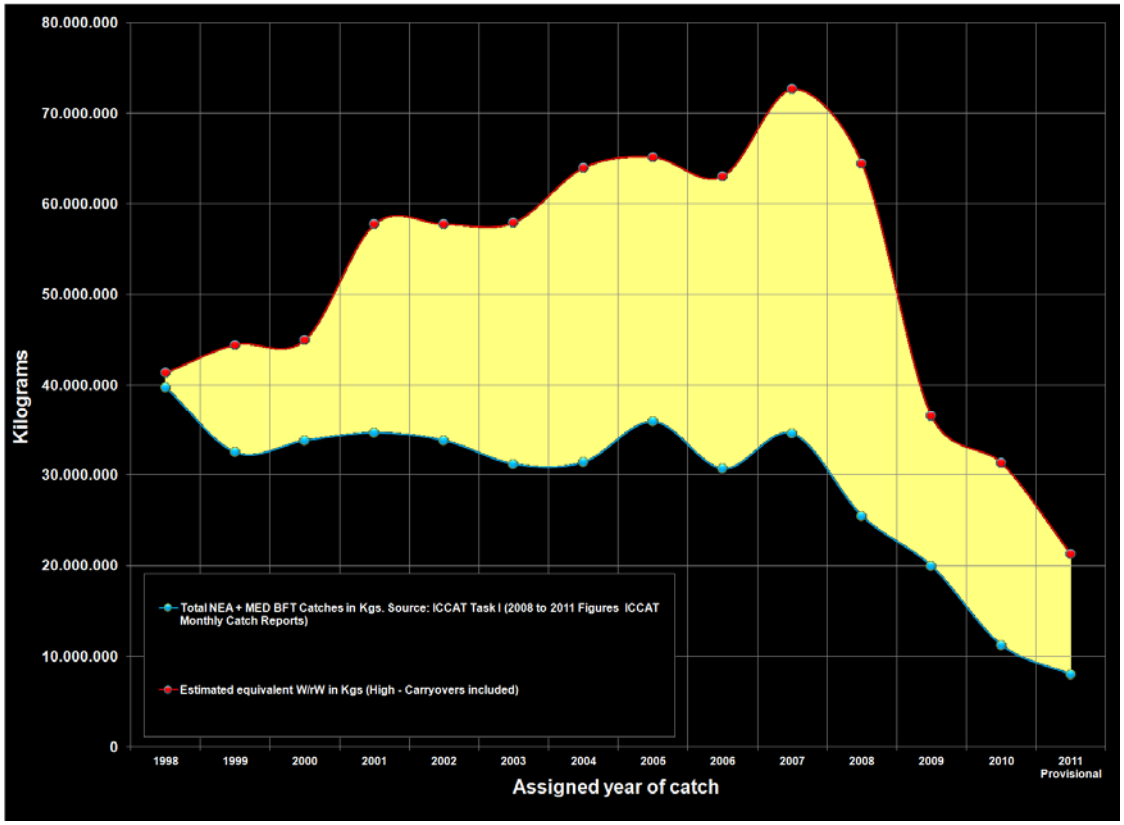


Chart 7. Scenario II yearly fluctuation of estimated equivalent W/rW of unreported E-BFT catches.

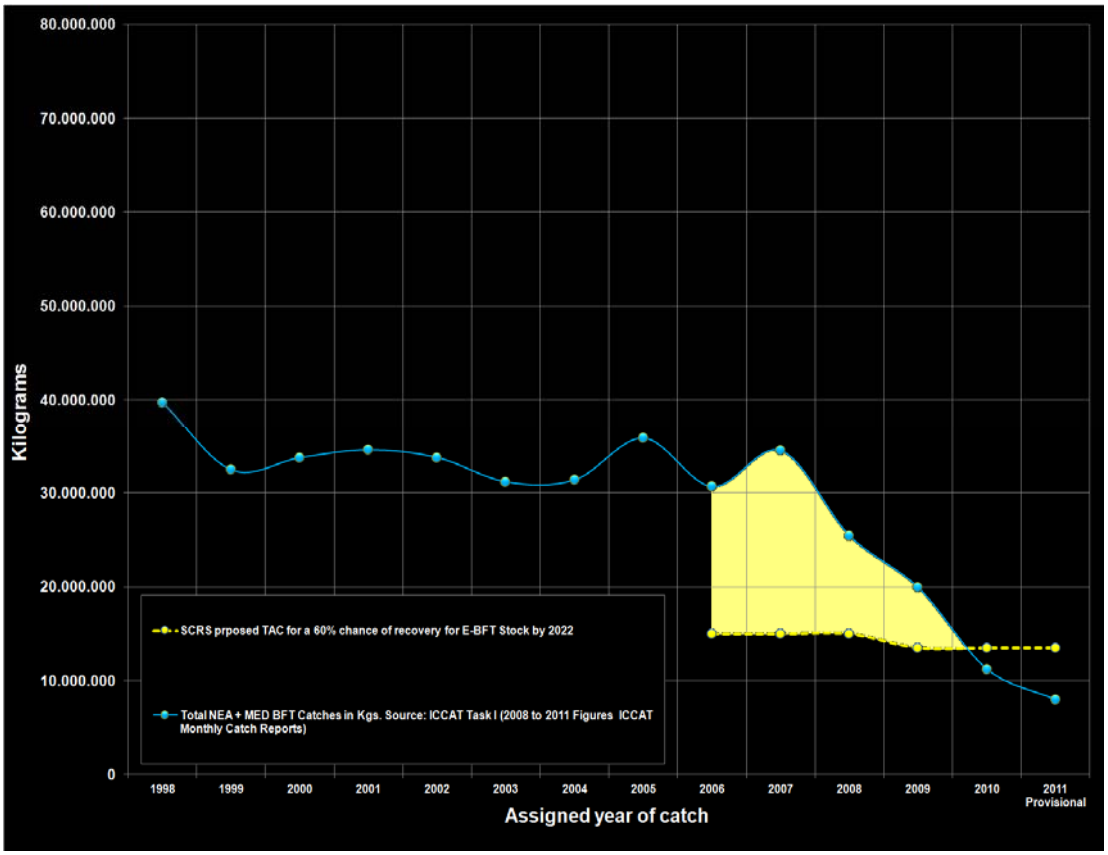


Chart 8. Yearly fluctuation of estimated equivalent W/rW of E-BFT overages above proposed Stock Rebuilding Plan maximum TACs, according to ICCAT officially reported catches.

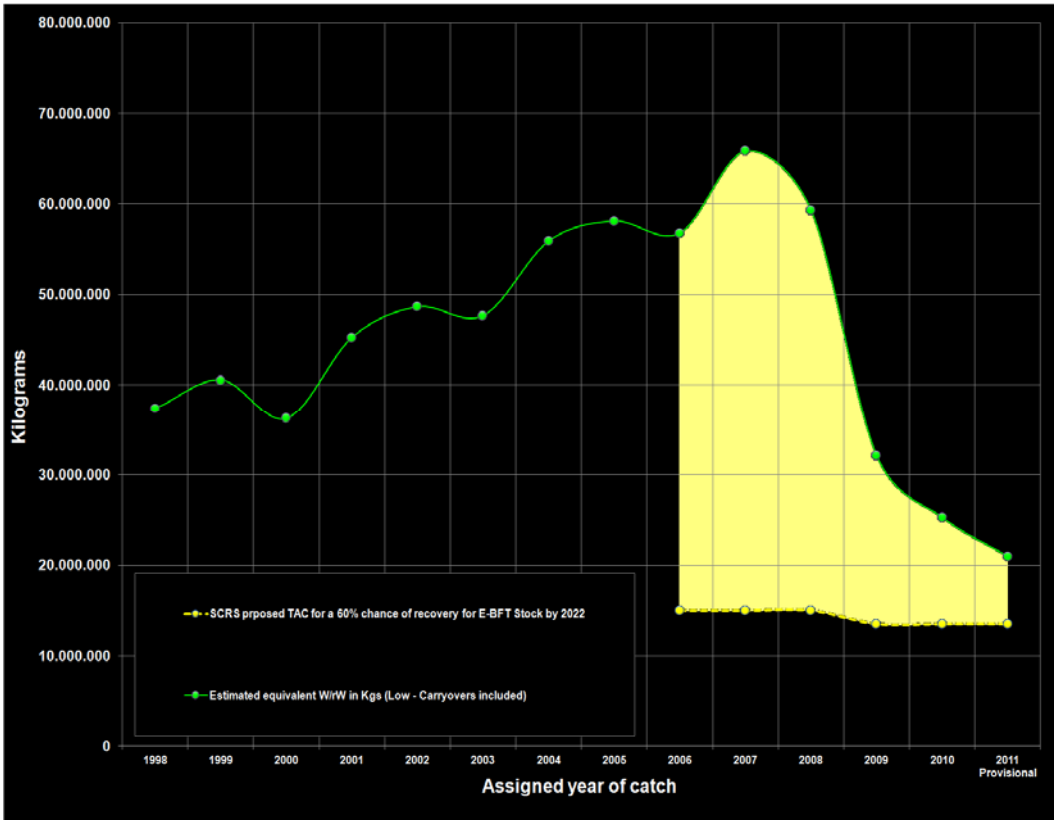


Chart 9. Yearly fluctuation of estimated equivalent W/rW of E-BFT overages above proposed Stock Rebuilding Plan maximum TACs, according to **Scenario I**: Low - Carryovers included.

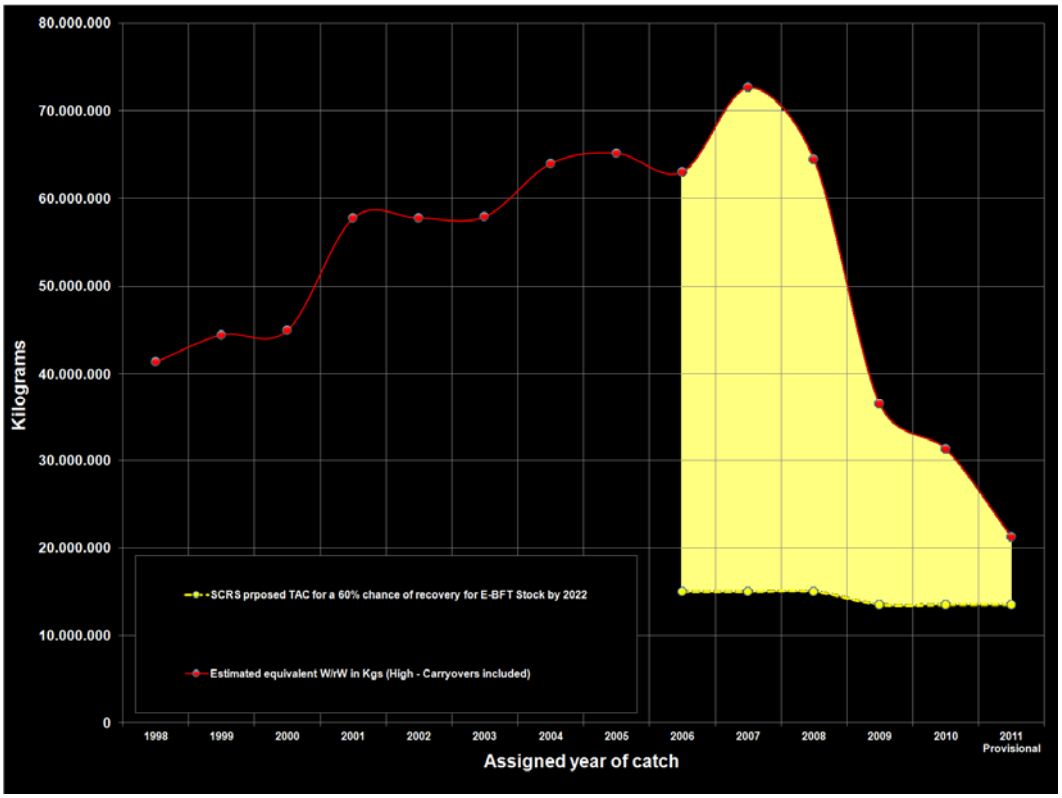


Chart 10. Yearly fluctuation of estimated equivalent W/rW of E-BFT overages above proposed Stock Rebuilding Plan maximum TACs, according to **Scenario II**: High - Carryovers included.

ANNEX I
Materials and methodology

Index

A. Initial considerations

This report analyses and quantifies recorded exports/imports of Fresh & Frozen Eastern Atlantic and Mediterranean BlueFin Tuna (E-BFT) from a variety of countries to Japan, the USA, the EU, Korea, China and other importing countries, in order to calculate its yearly global trade during the period 1998 to 2012.

By examining official export/import official records (Trade-flux data records) and assigning to each one of them an estimated equivalent Wild-round-Weight (W/rW) and year of catch, we were able to compare our results to catch amounts reported by fishing nations, thus allowing us to quantify the amounts of E-BFT caught above the yearly quotas set by ICCAT from 1998 to 2011, included.

All recorded/reported E-BFT trade-flux data records that were acquired for the purpose of this report, were transcribed and/or translated into English, as well as pertinently standardised[22] in order to be able to adequately integrate and sort them by specific data items.

Such data was then introduced into annexed Excel spreadsheet file: **(c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012**, where each E-BFT trade-flux record was identified and earmarked with the following specific set of reported (Black highlighted column heading) or assigned (Blue highlighted column heading) information items:

- **Type of record** — (D) Daily, (M) Monthly, (S) Semester, (Y) Yearly
- **Assigned year of catch**
- **Reported year of trade**
- **Reported month/s of trade**
- **Reported CN or HS code**
- **Assigned standardized description**
- **Reported exporting country**
- **Reported importing country**
- **Recorded traded weight** — (Kgs)
- **Reported product type** — (F) Fresh, (FR) Frozen, (FR/F) Frozen and/or Fresh, (L) Live
- **Reported or assigned product shape** — (DR) Dressed (FL) Fillet

[22] Commodity descriptions differently spelled though with an identical meaning were standardised into one; weights expressed in metric tonnes or quintals were translated into kilograms, dates were when necessary, formatted into standard numerical format year of trade and month of trade.

(GG) Gilled & gutted
(OT) Other
(RD) Round
(V) Various

- **Reported or assigned origin** — Ranched, Wild
- **Assigned presentation conversion factor**
- **Assigned average fattening ratio**
- **Estimated W/rW at catch** — (Kgs)
- **Reported data source &. assigned data-source colour code**
- **Reported trade document reference**
- **Reported number of operations**
- **Assigned Tuna species crosscheck status**
- **Assigned trade data crosscheck status**

Finally and in order to proceed with data crosscheck, all transcribed E-BFT trade-flux records were sorted-out and ordered by the following specific data item:

- Reported data source & assigned data-source colour code
- Recorded traded weight
- Reported CN or HS code
- Assigned standardized description
- Reported product type
- Reported or assigned product shape
- Reported or assigned origin
- Reported importing country
- Reported exporting country
- Type of record
- Reported month/s of trade
- Reported year of trade
- Assigned year of catch

Once all recorded E-BFT trade-flux records were assigned with their specific individual trade-flux data crosscheck status, such records were again sorted-out and ordered by the following specific data item

- Assigned trade-data crosscheck status
- Assigned year of catch

B. E-BFT catch & trade-flux data records acquisition

The exact same E-BFT catch and trade data-acquisition exercise was performed again, as for previous similar reports, this time and when possible, on a monthly-basis, including 2011 and Q1+Q2 2012.

All acquired data was transcribed, standardised and included for analysis and crosscheck in annexed Excel spreadsheet file: **(c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012**.

Were possible**, monthly** E-BFT trade-flux data records for the period 1998 to June 2012 (Included) were downloaded using TARIC and HS/10, 9 or 8 codes as described in **section C.** and using the following primary sources of data:

- **Agencia Tributaria de España, Spain** (Monthly data)
  Online data was downloaded and saved in raw original format from: http://aduanas.camaras.org/
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Central Bureau of Statistics of Croatia** (Monthly data)
  Data was ordered and purchased directly from the Central Bureau of Statistics of Croatia.
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Chinese Customs and ChinaTradeData.com** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://www.customs-info.com
  http://chinatradedata.com
  http://hs.e-to-china.com
  http://www.chinacustomsstat.com
  http://www.stats.gov.cn
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Direction Générale des Douanes - Ministère des Finances, Algeria** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://www.douane.gov.dz
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **e-Stat Japan** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://www.e-stat.go.jp
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:
- **Eurostat** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://epp.eurostat.ec.europa.eu/portal
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **GATS US Dept. of Agriculture Foreign Agricultural Service** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://www.fas.usda.gov/gats
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Hong Kong Customs** (Yearly data)
  Source: Data was provided by WWF (Mediterranean Programme)
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Institut National de la Statistique, Tunisia** (Yearly data)
  Online data was downloaded and saved in raw original format from:
  http://www.ins.nat.tn
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Instituto Nacional de Estadística Spain** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://datacomex.comercio.es/principal_comex_es.aspx
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Japanese Customs** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://www.customs.go.jp/toukei/srch/indexe.htm
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **L'Istituto nazionale di statistica, Italy** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://www.coeweb.istat.it/english/default.htm
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

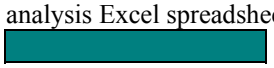
- **Ministère du Budget des Comptes et de la Réforme de l'Etat, France** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://lekiosque.finances.gouv.fr/APPCHIFFRE/Portail_default.asp
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Office des Changes - Ministère des Finances, Morocco** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://www.oc.gov.ma/portal/content/statistiques-des-%C3%A9changes-ext%C3%A9rieurs/bd/commerce-exterieur
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

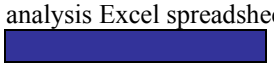
- **Taiwan Directorate General of Customs** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://eweb.customs.gov.tw/mp.asp?mp=21

Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

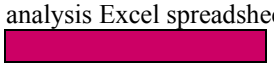
- **The Canadian International Merchandise Trade database** (Yearly data)
  Online data was downloaded and saved in raw original format from:
  http://www.statcan.gc.ca/trade-commerce/data-donnee-eng.htm
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:



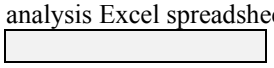
- **The Central Bureau of Statistics, Norway** (Yearly data)
  Online data was downloaded and saved in raw original format from:
  http://www.ssb.no/english/subjects/09/05/
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:



- **TurkStat Foreign Trade Database** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://www.turkstat.gov.tr/jsp/duyuru/upload/vt_en/vt.htm
  Online unavailable data was ordered and purchased directly from the Turkish Statistical Institute.
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:



- **Korean Customs Service** (Monthly data)
  Online data was downloaded and saved in raw original format from:
  http://english.customs.go.kr/kcshome/trade/TradeCommodityList.do?layoutMenuNo=21032
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:



- **ICCAT sourced E-BFT trade data** (Monthly and semester data)
  Source: ICCAT Bi-Annual E-BFT Statistical Reports by Contracting Parties to the Convention (CpC), ICCAT BCD Database & CoC Reports
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **ATRT Records**[23] (Daily data summarized into monthly data)
  Source: Advanced Tuna Ranching Technologies, sl.
  Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Japanese Daily Market Reports**[24] (Daily data summarized into monthly data)
  Source: On-sight historical fish auction market data-mining project, carried-out by the author in Japan, from 2009 to 2012.[25]

[23] Catch data essentially pertaining to live-E-BFT transfers.

[24] Daily weight at auction data records pertaining to possible exports on consignment of Fresh E-BFT to Japan that could or could not appear on official trade data records. Japanese fish markets' daily Tuna auction data records used for the purpose of this report, pertain by definition to exports/imports on consignment of Fresh E-BFT air-freighted to Japan. Because such fish is auctioned, its commercial final value is therefore unknown at the time of export and import, only to be finally recorded once the auction has effectively taken place. Such data shortcoming (Final definitive commercial value of a given trade-flux) entails that customs and/or statistical administrations, both at origin and destination, may not record such exports or imports in their respective trade databases. In other words, exports and imports on consignment may not appear in official trade data sources, consulted for the purpose of this report.

[25] Size structure of Northeast Atlantic and Mediterranean BlueFin Tuna (Thunnus thynnus, L. 1758) caught during the period (2001 2012) as revealed by Japanese daily fresh-Tuna market auction reports. Roberto Mielgo Bregazzi, SCRS 2012.

Cells containing trade-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **Japan's official Monthly E-BFT Catch reports to ICCAT**[26] (Monthly and yearly data)
  Source: Japan's official E-BFT Catch reports to ICCAT and SCRS Task I database.
  Cells containing catch-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are highlighted as follows:

- **E-BFT yearly Sport catches during the period 1998 to 2010**[27] (Yearly data)
  Source: ICCAT-SCRS Task I Database.
  Cells containing catch-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are also highlighted as follows:

- **Other E-BFT yearly non traded and NEI E-BFT catches** (Yearly data)
  Source: ICCAT-SCRS Task I Database.
  Cells containing catch-data records pertaining to this data-source and included in the Trade data & analysis Excel spreadsheet, are also highlighted as follows:

The data acquisition status for any given data source, any given year, semester and/or month can be seen in annexed Excel spreadsheet file: **(a) Data acquisition status by Data Source 1998 2012**.

Cells highlighted in green correspond to trade or catch data having been positively acquired, standardised and transcribed to annexed Excel spreadsheet file: **(c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012**.

- **Other consulted primary official sources of trade data**

Other primary official sources of trade data were consulted in order to acquire monthly, semester or yearly data records for imports and exports of E-BFT using TARIC and HS/10, 9 or 8 codes as described in section C.

These were:

- The Albanian Centre for International Trade
  http://www.acit-al.org
- The Cypriot Customs & Excise Department
  http://www.mof.gov.cy/mof/customs/ced.nsf
- The Egyptian Ministry of Industry and Foreign Trade
  http://www.tpegypt.gov.eg/ftrade/
- Statistics Iceland
  http://www.statice.is
- The Central Bureau of Statistics from Israel
  http://www1.cbs.gov.il

[26] As was the case for every single year in previous reports, non-tradable catches, that is E-BFT for which there can be no trade-flux trace since such catches are not exported and/or imported or cannot be traded for legal reasons, were also included in our general calculations. This is the case for E-BFT catches by Japanese vessels during the studied period. Such E-BFT catches are assumed to have been directly shipped and offloaded to and at Japanese ports. Japanese E-BFT exports are not taken into account in this report, thus avoiding any possible re-export double-counting.

[27] As was the case for every single year in previous reports, non-tradable catches, that is E-BFT for which there can be no trade-flux trace since such catches are not exported and/or imported or cannot be traded for legal reasons, were also included in our general calculations. This is the case for E-BFT yearly Sport catches during the period 1998 to 2010.

- Malta National Statistics Office
  http://www.nso.gov.mt

- Sistema de consulta de estadísticas de comercio exterior. Contraloría General, Instituto Nacional de Estadistica y Censo. Panama.
  http://www.contraloria.gob.pa/inec/ComercioExterior/

- NSCB - i-stats - Interactive Statistical Databases Philippines
  http://www.nscb.gov.ph/i-stats

No adequate trade-flux data records for E-BFT imports or exports were either available or usable for the purpose of this report.

C. Used HS and CN Codes, Description & Standardisation

a. Introduction

The International Convention on the Harmonized Commodity Description and Coding System (HS) of the Customs Cooperation Council (CCC) is used worldwide as a reference for classifications of external trade statistics and for customs tariffs.

- The Combined Nomenclature (CN) is the European Community's classification of goods, which meets requirements in terms of external trade statistics (Both intra- and extra-Community).

- In Japan, 9-digit statistical codes are used for commodity classification in Customs declarations.

  The 9-digit statistical code consists of 6-digit HS code and 3-digit domestic code.

  The 6-digit HS code is internationally harmonized under the HS Convention and used for both export and import.

  Hence, based on 6-digit HS code, Japanese trade statistics can be compared with those of other countries.

  The 3-digit domestic codes for exports and imports are not always the same.

  Therefore, the 9-digit statistical code lists for exports and imports are different.

Furthermore, changes are incorporated into the HS and CN each year, either at the request of trade federations or national and Community authorities or for legal reasons.

Such changes normally take effect as of January 1st of the following year to that in which changes were made.

International trade of E-BFT since 1998 has been subject to numerous changes and inclusions of HS/CN codes and commodity descriptions, thus rendering the acquisition of E-BFT trade-flux data a complex task.

Annexed Excel spreadsheet file: (**b) Used Taric CN8 and HS Codes Description & Standardisation** summarises all HS and CN codes that were used for the purpose of this report.

HS and CN codes are individually classified by their original data source, original commodity description, standardised commodity description[28] and years for which Trade-flux under

[28] A standardised commodity description was made necessary for the purpose of this report, due to the variety of different original descriptions and used original languages.

corresponding HS/CN code and/or description was carried-out (such years' corresponding cells are highlighted in green).

Used HS and CN codes, along with their pertinent standardised descriptions, are listed herein. They are grouped and ordered as follows:

- Atlantic BlueFin Tunas "Thunnus thynnus" Live
- Atlantic BlueFin Tunas "Thunnus thynnus" Fresh or chilled
- Atlantic BlueFin Tunas "Thunnus thynnus" Frozen

The most common problem facing parties responsible for providing information is finding the right code number (Classification) for the goods or commodities which are being exported or imported.

E-BFT trade is not an exception: In numerous cases, traded E-BFT is even purportedly mislabelled under a HS/CN code and description corresponding to other Tuna species, thus allowing the marketing of specimens that may have not been reported at catch to pertinent fisheries authorities.[29]

For these reasons, trade-flux data records, pertaining to ICCAT CpCs, traditionally targeting E-BFT, that could have not possibly caught such species or could have not exported them under certain commodity descriptions, were sought for the following Tuna species and reported product type:

- Other Tunas
    - Atlantic BlueFin Tunas "Thunnus thynnus" or Pacific BlueFin Tunas "Thunnus orientalis" Fresh chilled or Frozen
    - BigEye Tunas "Thunnus obesus" Fresh or chilled

      BigEye Tunas "Thunnus obesus" Frozen
    - Pacific BlueFin Tunas "Thunnus orientalis" Fresh or chilled

      Pacific BlueFin Tunas "Thunnus orientalis" Frozen
    - Southern BlueFin Tunas "Thunnus maccoyii" Fresh or chilled

      Southern BlueFin Tunas "Thunnus maccoyii" Frozen
    - Yellowfin Tunas "Thunnus albacares" Fresh or chilled

      Yellowfin Tunas "Thunnus albacares" Frozen
    - Tunas of the genus "Thunnus" and "Euthynnus" Fresh or chilled

      Tunas of the genus "Thunnus" and "Euthynnus" Frozen
- Live Tunas
    - Pacific BlueFin Tunas "Thunnus orientalis" Live

[29] There is a high incentive to fraudulently label other tunas as E-BFT in order to sell YFT or other Tuna for a higher price. Our report has not taken into account such issue, due to the difficulty in clearly evidencing such fraud cases. Though it nevertheless seems obvious that some cases of YFT or other Tunas being mislabelled as E-BFT for a higher price, may have occurred, these cases are principally to be located at the final retail sale level and not at the import/export international trade level. The main reason being that, contrary to E-BFT, YFT and other Tunas are not subject to stringent quota regulations and therefore to stringent E-BFT catch and trade documentary red-tape.

In order to export E-BFT, such fish needs to be accompanied by proper ICCAT documentation (ICCAT E-BFT Statistical Document until 2007, BCD as of 2008). In our view, it seems unlikely, not to say almost impossible, for an international YFT, BET or other Tuna trader wanting to export such cheaper commodity to actually falsify such documents in order to mislabel it.

- Southern BlueFin Tunas "Thunnus maccoyii" Live
- Live saltwater fish[30]

b. The complete list of HS/CN codes and standardised descriptions used for the purpose of this report can be found herein under and in following pages.

- **Atlantic BlueFin Tunas "Thunnus thynnus" Live**

0301-94-00	Atlantic BlueFin Tunas "Thunnus thynnus" Live
0301-94-000	Atlantic BlueFin Tunas "Thunnus thynnus" Live
0301-94-0000	Atlantic BlueFin Tunas "Thunnus thynnus" Live
0301-94-10	Atlantic BlueFin Tunas "Thunnus thynnus" Live
0301-94-210	Atlantic BlueFin Tunas "Thunnus thynnus" Live
0301-94-900	Atlantic BlueFin Tunas "Thunnus thynnus" Live
0301-99-40	Atlantic BlueFin Tunas "Thunnus thynnus" Live
0301-99-9015	Atlantic BlueFin Tunas "Thunnus thynnus" Live
0301-99-9060	Atlantic BlueFin Tunas "Thunnus thynnus" Live

- **Atlantic BlueFin Tunas "Thunnus thynnus" Fresh or chilled**

0302-35-00	Excluding fillets and other meat of heading 0304 livers and roes
0302-35-000	Excluding fillets and other meat of heading 0304 livers and roes
0302-35-0000	Excluding fillets and other meat of heading 0304 livers and roes
0302-35-01	Excluding fillets and other meat of heading 0304 livers and roes
0302-35-010	Excluding fillets and other meat of heading 0304 livers and roes
0302-35-0100	Excluding fillets and other meat of heading 0304 livers and roes

[30] Prior to 2010, there was no HS/CN code that would account for live-E-BFT trade. Such exports and imports, depending on the year, were registered under the various codes and descriptions for live saltwater fish and excluding: ornamental fish and "Salmo trutta" "Oncorhynchus mykiss" "Oncorhynchus clarki" "Oncorhynchus aguabonita" "Oncorhynchus gilae" "Oncorhynchus apache" "Oncorhynchus chrysogaster" "Anguilla spp".

- 0302-35-10 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
- 0302-35-1000 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
- 0302-35-11 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
- 0302-35-19 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
- 0302-35-90 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
- 0302-35-9000 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
- 0302-39-00 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
- 0302-39-00108 — Excluding fillets and other meat of Heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
- 0302-39-0020 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
- 0302-39-11 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
- 0302-39-91 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
- 0302-39-91 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604

- 0304-10-191 — Fillets and other meat whether or not minced - Fillets
- 0304-10-291 — Fillets and other meat whether or not minced - Meat whether or not minced excluding steaks
- 0304-19-191 — Fillets and other meat whether or not minced – Fillets
- 0304-19-991 — Fillets and other meat whether or not minced – Other

- **Atlantic BlueFin Tunas "Thunnus thynnus" Frozen**
  - 0303-45-00 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
  - 0303-45-000 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
  - 0303-45-0000 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
  - 0303-45-00001 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
  - 0303-45-010 — Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
  - 0303-45-10 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
  - 0303-45-11 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole
  - 0303-45-1100 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole
  - 0303-45-12 — Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604

o	0303-45-13	Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled & gutted
o	0303-45-18	Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
o	0303-45-19	Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Without head & gills but still to be gutted "heads off" or dressed
o	0303-45-1900	Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Without head & gills but still to be gutted "heads off" or dressed
o	0303-45-90	Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
o	0303-45-9000	Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
o	0303-49-0020	Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Kg
o	0303-49-21	Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole
o	0303-49-23	Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled & gutted
o	0303-49-29	Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Excluding whole and gilled & gutted
o	0304-20-092	Fillets and other meat whether or not minced - Fillets
o	0304-20-90313	Fillets and other meat whether or not minced – Fillets
o	0304-29-90	Fillets and other meat whether or not minced - Fillets

- 0304-29-90314 — Fillets and other meat whether or not minced - Fillets
- 0304-29-920 — Fillets and other meat whether or not minced - Fillets
- 0304-87-020 — Fillets and other meat whether or not minced - Fillets
- 0304-90-091 — Fillets and other meat whether or not minced - Other meat whether or not minced
- 0304-99-991 — Fillets and other meat whether or not minced - Other meat whether or not minced

- **Other Tunas**
  - **Atlantic BlueFin Tunas "Thunnus thynnus" or Pacific BlueFin Tunas "Thunnus orientalis" Fresh chilled or Frozen**
    - 0304-49-210 — Fillets and other meat whether or not minced – Other
  - **Atlantic BlueFin Tunas "Thunnus thynnus" or Pacific BlueFin Tunas "Thunnus orientalis" Fresh or chilled**
    - 0304-59-291 — Fillets and other meat whether or not minced - Other
  - **BigEye Tunas "Thunnus obesus" Fresh or chilled**
    - 0302-34-90 — Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
    - 0302-34-9000 — Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
    - 0302-34-00 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
    - 0302-34-000 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
    - 0302-34-0000 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
    - 0302-34-10 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604

- **BigEye Tunas "Thunnus obesus" Frozen**

  - 0303-44-90 — Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
  - 0303-44-9000 — Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
  - 0303-44-13 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled and gutted
  - 0303-44-11 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole
  - 0303-44-19 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Without head and gills but still to be gutted
  - 0303-44-00 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
  - 0303-44-000 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
  - 0303-44-0000 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
  - 0303-44-10 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604

- **Pacific BlueFin Tunas "Thunnus orientalis" Fresh or chilled**

  - 0302-35-99 — Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
  - 0302-35-91 — Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604

- 0302-35-020 Excluding fillets and other meat of heading 0304 livers and roes

- **Pacific BlueFin Tunas "Thunnus orientalis" Frozen**

  - 0303-45-99 Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604

  - 0303-45-91 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604

  - 0303-45-020 Excluding fillets and other meat of heading 0304 livers and roes

- **Southern BlueFin Tunas "Thunnus maccoyii" Fresh or chilled**

  - 0302-36-10 Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604

  - 0302-36-1000 Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604

  - 0302-36-90 Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604

  - 0302-36-9000 Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604

  - 0302-36-00 Excluding fillets and other meat of heading 0304 livers and roes

  - 0302-36-000 Excluding fillets and other meat of heading 0304 livers and roes

  - 0302-36-0000 Excluding fillets and other meat of heading 0304 livers and roes

  - 0304-10-192 Fillets and other meat whether or not minced - Fillets

  - 0304-19-192 Fillets and other meat whether or not minced - Fillets

  - 0304-10-292 Fillets and other meat whether or not minced - Other

  - 0304-19-992 Fillets and other meat whether or not minced – Other

- 0304-59-292 Fillets and other meat whether or not minced - Other

- **Southern BlueFin Tunas "Thunnus maccoyii" Frozen**

  - 0303-46-90 Excluding fillets and other meat of heading 0304 livers and roes excluding for the industrial processing or preservation of products of heading 1604
  - 0303-46-13 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled & gutted
  - 0303-46-19 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Other for example "heads off"
  - 0303-46-11 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole
  - 0303-46-10 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
  - 0303-46-00 Excluding fillets and other meat of heading 0304 livers and roes
  - 0303-46-000 Excluding fillets and other meat of heading 0304 livers and roes
  - 0303-46-0000 Excluding fillets and other meat of heading 0304 livers and roes
  - 0304-87-030 Fillets and other meat whether or not minced - Fillets
  - 0304-20-094 Fillets and other meat whether or not minced - Other
  - 0304-29-940 Fillets and other meat whether or not minced - Other
  - 0304-49-220 Fillets and other meat whether or not minced - Other
  - 0304-90-096 Fillets and other meat whether or not minced - Other
  - 0304-99-994 Fillets and other meat whether or not minced - Other

- **Yellowfin Tunas "Thunnus albacares" Fresh or chilled**

  - 0302-32-90 Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
  - 0302-32-10 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
  - 0302-32-000 Excluding fillets and other meat of heading 0304 livers and roes
  - 0302-32-0000 Excluding fillets and other meat of heading 0304 livers and roes

- **Yellowfin Tunas "Thunnus albacares" Frozen**

  - 0303-42-90 Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation of products of heading 1604
  - 0303-42-52 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Excluding whole gilled or gutted for example ‘heads off’ weighing > 10 kg each
  - 0303-42-58 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Excluding whole gilled or gutted for example ‘heads off’ weighing ≤ 10 kg each
  - 0303-42-32 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled and gutted weighing > 10 kg each
  - 0303-42-42 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled and gutted weighing > 10 kg each
  - 0303-42-38 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled and gutted weighing ≤ 10 kg each
  - 0303-42-48 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled and gutted weighing ≤ 10 kg each
  - 0303-42-12 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole weighing > 10 kg each

- 0303-42-18 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole weighing ≤ 10 kg each
- 0303-42-000 Excluding fillets and other meat of heading 0304 livers and roes
- 0303-42-0000 Excluding fillets and other meat of heading 0304 livers and roes

o **Tunas of the genus "Thunnus" and "Euthynnus" Fresh or chilled**[31]

- 0302-39-000 Excluding fillets and other meat of heading 0304 livers and roes
- 0302-39-0000 Excluding fillets and other meat of heading 0304 livers and roes
- 0302-39-010 Excluding fillets and other meat of heading 0304 livers and roes
- 0302-39-10 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
- 0302-39-19 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Other
- 0302-39-20 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
- 0302-39-80 Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation
- 0302-39-90 Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation
- 0302-39-99 Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation – Other
- 0304-10-0013 Fillets and other meat whether or not minced - Fillets
- 0304-10-0033 Fillets and other meat whether or not minced - Fillets
- 0304-10-199 Fillets and other meat whether or not minced - Fillets

[31] Excluding BlueFin Tunas "Thunnus thynnus" "Thunnus orientalis" and Southern BlueFin Tunas "Thunnus maccoyii"

- 0304-10-299 Fillets and other meat whether or not minced - Other
- 0304-10-3810 Fillets and other meat whether or not minced - Fillets
- 0304-10-9810 Fillets and other meat whether or not minced - Other
- 0304-19-199 Fillets and other meat whether or not minced - Fillets
- 0304-19-3910 Fillets and other meat whether or not minced - Fillets
- 0304-19-999 Fillets and other meat whether or not minced - Other
- 0304-49-290 Fillets and other meat whether or not minced – Other
- 0304-59-299 Fillets and other meat whether or not minced - Other

o **Tunas of the genus "Thunnus" and "Euthynnus" Frozen[32]**

- 0304-87-010 Fillets and other meat whether or not minced - Fillets
- 0303-49-00 Excluding fillets and other meat of heading 0304 livers and roes
- 0303-49-000 Excluding fillets and other meat of heading 0304 livers and roes
- 0303-49-0000 Excluding fillets and other meat of heading 0304 livers and roes
- 0303-49-010 Excluding fillets and other meat of heading 0304 livers and roes
- 0303-49-20 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
- 0303-49-30 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604
- 0303-49-31 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole
- 0303-49-33 Excluding fillets and other meat of

[32] Excluding BlueFin Tunas "Thunnus thynnus" "Thunnus orientalis" and Southern BlueFin Tunas "Thunnus maccoyii"

heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled and gutted

- 0303-49-39 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Other for example "heads off"
- 0303-49-41 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Whole
- 0303-49-43 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Gilled and gutted
- 0303-49-49 Excluding fillets and other meat of heading 0304 livers and roes for the industrial processing or preservation of products of heading 1604 - Other for example "heads off"
- 0303-49-80 Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation
- 0303-49-85 Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation
- 0303-49-90 Excluding fillets and other meat of heading 0304 livers and roes excluding tunas for the industrial processing or preservation
- 0304-20-0093 Fillets and other meat whether or not minced - Fillets
- 0304-20-091 Fillets and other meat whether or not minced - Other
- 0304-20-099 Fillets and other meat whether or not minced - Fillets
- 0304-20-45 Fillets and other meat whether or not minced - Fillets
- 0304-20-4500 Fillets and other meat whether or not minced - Fillets
- 0304-29-45 Fillets and other meat whether or not minced - Fillets
- 0304-29-910 Fillets and other meat whether or not minced - Other
- 0304-87-00 Fillets and other meat whether or not minced - Fillets

- 0304-87-090 Fillets and other meat whether or not minced - Fillets
- 0304-90-0023 Fillets and other meat whether or not minced - Fillets
- 0304-90-099 Fillets and other meat whether or not minced - Other
- 0304-99-999 Fillets and other meat whether or not minced - Other

- **Other Live Tunas**
  - 0301-94-220 Pacific BlueFin Tunas "Thunnus orientalis" Live
  - 0301-94-90 Pacific BlueFin Tunas "Thunnus orientalis" Live
  - 0301-95-00 Southern BlueFin Tunas "Thunnus maccoyii" Live
  - 0301-95-10 Southern BlueFin Tunas "Thunnus maccoyii" Live
  - 0301-95-90 Southern BlueFin Tunas "Thunnus maccoyii" Live
  - 0301-95-900 Southern BlueFin Tunas "Thunnus maccoyii" Live
- **Live saltwater fish**[33]
  - 0301-99-8000 Saltwater fish Live
  - 0301-99-90 Saltwater fish Live
  - 0301-99-9000 Saltwater fish Live

D. Individual trade-flux record identification and assignment of specific information items

a. Introduction

- As stated in **Section: Initial considerations** of this methodology **Annexe I**, all recorded/reported E-BFT trade-flux data records that were acquired and integrate into annexed Excel spreadsheet file: **(c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012** for the purpose of this report, originally carried the following individual set of specific data items.
  - Type of record
  - Reported year of trade
  - Reported month/s of trade

[33] Excluding ornamental fish and "Salmo trutta" "Oncorhynchus mykiss" "Oncorhynchus clarki" "Oncorhynchus aguabonita" "Oncorhynchus gilae" "Oncorhynchus apache" "Oncorhynchus chrysogaster" "Anguilla spp"

- Reported CN or HS code
- Reported exporting country
- Reported importing country
- Recorded traded weight
- Reported product type: Fresh (F), Frozen(FR) or Live (L)

In some cases, such E-BFT trade-flux data records also contained the following specific data items:

- Reported trade document reference
- Reported number of operations

No further specific individual data assignment for any of such records was thus needed in this regard.

Previous sections of this methodology **Annexe I** have explained at length the issues pertaining to the assignment of record data-source colour codes and standardized commodity descriptions.

- A number of recorded/reported E-BFT trade-flux data records that were acquired and integrate into annexed Excel spreadsheet file: **(c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012** for the purpose of this report, did not carry original specific data items such as:
  - Reported origin (Whether recorded traded E-BFT was harvested at sea –Wild- or whether it was fattened –Ranched-)
  - Reported product shape (Whether recorded traded E-BFT was Dressed –DR-, Filleted- FL, Gilled & gutted –GG-, Round/whole –RD- or presented otherwise –OT-)

  A number of logical assumptions were thus applied for such records, prior to further determining and assigning:
  - A specific presentation conversion factor,
  - A specific average fattening ratio,
  - A year of catch at sea,

  for each E-BFT trade-flux record, thus allowing to back-calculate an estimated equivalent wild round weight (W/rW) at catch, for each one of such records.

b. Determination of origin (Wild or Ranched) for recorded/reported E-BFT trade-flux data records not carrying such original specific data item

- Whenever origin data item was not available for a given E-BFT trade-flux data record, the reported identity of the exporting country and year of trade determined the assumption and assignment of origin:
- If such reported exporting country, for that reported given year of trade, operated one or more Tuna ranches inside its territorial waters, then the logical assumption is that such given E-BFT trade-flux data record could well be entirely attributable to Ranched E-BFT, though could also be entirely or partially attributable to Wild E-BFT.

For all cases we have chosen to assign the first assumption, noting that this is the most conservative choice.

In fact, the combined sequential use of whatever specific presentation conversion factor and average fattening ratio, yields in all cases a lower value for the estimated W/rW of fish, than for the Wild caught E-BFT.

Such a choice suites well cases such as Croatian recorded E-BFT exports for which no origin data item is available, since a very high percentage (≈95%) of its yearly national E-BFT production and exports, traditionally corresponds to Ranched fish.

In turn, such a choice severely penalizes cases such as Spanish recorded E-BFT exports for which no origin data item is available.

Spain, no doubt a major Tuna ranching operator since 1998, also produces and exports important yearly tonnages of Wild caught E-BFT, by means of its other active long-line and bait-boat fishing fleets inside the Mediterranean Sea or the Gulf of Biscay, as well as by its numerous trap set-nets, namely off the Atlantic coast of Cadiz.

By choosing to in fact compute such fish as having been ranched, the combined sequential use of a specific presentation conversion factor and average fattening ratio yields in all cases a lower value for the estimated W/rW of that Wild caught fish.

- If such reported exporting country, for that reported given year of trade, did not operate a single Tuna ranch inside its territorial waters, then the logical assumption is that such given E-BFT trade-flux data record is to be undoubtedly entirely attributable to Wild caught E-BFT.

  Such a choice suites well cases such as Moroccan recorded E-BFT exports since such country has never operated a Tuna ranch since 1998; 100% of its yearly national E-BFT production and exports corresponding to Wild-caught fish.

c. Determination of product shape for recorded/reported E-BFT trade-flux data records not carrying such original specific data item

- A number of HS and CN codes and corresponding commodity descriptions, used for the purpose of this report, do not describe the product shape of the commodity being traded.

  Whenever such an instance occurs for any given E-BFT trade-flux data record, the first logical assumption would be to attribute a Round/whole (RD) product shape to such E-BFT trade-flux data record.

  By choosing to retain such fish as having been traded Round/whole (RD), the combined sequential use of a presentation conversion factor of 1 and whatever average fattening ratio (1 to 3) yields in all cases a lower value for the estimated W/rW, as opposed to using a higher presentation conversion factor.

  Nevertheless and contrary to previously discussed origin item, such an assumption would yield distorted estimated equivalent W/rWs.

  In order to smooth such possible estimated equivalent W/rW distortions, the following assumptions were retained:

- Whenever the exporting country was Croatia and product shape data item was not available for a given E-BFT trade-flux data record, the retained product shape was Gilled & gutted (GG)

  The bulk of Croatia's yearly E-BFT production corresponds to catches of juvenile E-BFT practised by the Croatian domestic PS fishing fleet inside the Adriatic Sea. Such fish is

normally ranched at Croatian Tuna ranches for a period of two (2) to three (3) years and are traditionally gilled and gutted at harvest.

For a number of years, Croatia has also ranched large E-BFT spawners caught by Croatian and other ICCAT CpCs PS fishing fleets, outside the Adriatic Sea, namely in the Central Mediterranean Sea.

Such E-BFTs were caught at sea and transferred-live into transport cages that were then towed to Croatian Tuna ranches were they were fattened and harvested after a 3 to 6 months standard fattening season. Such large fish is normally Dressed at harvest.

By choosing to retain all such Croatian exported E-BFT as having been Gilled & gutted (GG), the combined sequential use of a GG presentation conversion factor and whatever average fattening ratio yields in all cases a lower value for the estimated W/rW of that fish that was Dressed at harvest.

- Whenever the exporting country was other than Croatia and specific product shape data item was not available for a given E-BFT trade-flux data record, the retained product shape was Various1 (V1), that is a combination of Dressed (DR), Filleted (FL), Gilled & gutted (GG), Round/whole (RD) and presented otherwise (OT). This was the case for 731 E-BFT trade-flux data records during the studied period.

- Whenever the exporting country was other than Croatia and specific product shape data item was not available for a given E-BFT trade-flux data record but the traded commodity HS or CN standardized description contained the mention: "*Excluding fillets and other meat of heading 0304 livers and roes*", the retained product shape was Various2 (V2), that is a combination of Dressed (DR), Gilled & gutted (GG) and Round/whole (RD). This was the case for 24.810 E-BFT trade-flux data records during the studied period.

d. Determination and assignment of specific product shape presentation factors for all recorded/reported E-BFT trade-flux data records

- ICCAT standard product shape presentation factors, for the purpose of their combined sequential use with whatever average fattening ratio, in order to back-estimate the W/rW of a given E-BFT trade-flux data record, were assigned as follows:

  - Dressed Weight (DR) 1.25
  - Fillets & Loins (FL) 1.67
  - Gilled & Gutted (GG) 1.13
  - Round/whole (RD) 1,00
  - Belly Meat (BM) and Other (OT) 1,00

  Applying ICCAT standard product shape presentation factors of 10,28 and 2,00 for BM and OT respectively would entail a double-counting risk, as there is no effective method to determine whether or not such BM and/or OT meat having been exported on one hand, may correspond to either E-BFT that was not marketed or E-BFTs having been filleted/loined and exported separately to that same market or to other markets.[34]

  Accordingly, we have chosen to assign a specific product shape presentation factor of 1,00 to all BM and OT.

[34] According to industry sources, BM and OT E-BFT meat, corresponding to ≈8% of long-line and purse-seine Wild-caught E-BFT for a given year, is exported on its own to Japan, since the rest of the meat is generally not suitable for such market.

The amount of ranched E-BFT BM and OT exported to Japan has been historically minimal (less than 2%).

The combined sequential use of a presentation conversion factor of 1,00 and whatever average fattening ratio, yields in all cases a lower value for the estimated W/rW of the corresponding fish.

- For E-BFT trade-flux data record where the retained product shape was (V1), that is a combination of Dressed (DR), Filleted (FL), Gilled & gutted (GG), Round/whole (RD) and presented otherwise (OT).the assigned specific product shape presentation factor is 1,21.

- For E-BFT trade-flux data record where the retained product shape was (V2), that is a combination of Dressed (DR), Gilled & gutted (GG) and Round/whole (RD) the assigned specific product shape presentation factor is 1,13.

e. Determination and assignment of specific average fattening ratios for all recorded/reported E-BFT trade-flux data records

- Introduction

Fattening factors/ratios for ranched E-BFT is a controversial issue, both from an ICCAT recommendations compliance enforcement aspect as from a scientific point of view.[35]

For many years ICCAT considered a standard fattening factor of 25% (Ratio = 1,25) for ranched E-BFTs.

Studies carried out in Croatia, Greece, Malta and Spain on weight gain rates of E-BFT in Mediterranean Tuna ranches were reviewed by the SCRS in 2009.

Such studies sustained that fattening rates of E-BFT in Tuna ranches could be significantly higher than formerly believed by the scientific community.

From this discussion the door to sensibly higher fattening rates was opened (ICCAT, 2010) and a new table which showed weight gain rates based on presented information at that time, was created yet not endorsed or adopted by SCRS. See following **Tables I & II**. (Page 30)

In 2010 and 2011, two papers submitted to ICCAT SCRS[36], unequivocally contested such new fattening ratios table.

[35] Reference is made to some of the most outstanding published papers and articles until 2012:

- A preliminary study of the growth rate of BlueFin Tuna from Adriatic when reared in the floating cages. Ivan Katavić, Vjekoslav Tičina, Vlasta Franičević. SCRS/2001/092. Col.Vol.Sci.Pap. ICCAT, 54(2): 472-476. (2002).
- Fattening rate of BlueFin Tuna (Thunnus thynnus) in two Mediterranean fish farms. Francisca Giménez Casalduero & Pablo Sánchez-Jerez. Cybium 2006, 30(1): 51-56.
- Growth indices of small northern BlueFin Tuna (Thunnus thynnus, L.) in growth-out rearing cages. Vjekoslav Tičina, Ivan Katavić, Leon Grubišić. Elsevier-ScienceDirect, Aquaculture 269 (2007) 538–543.
- Weight growth of Atlantic BlueFin Tuna (Thunnus thynnus, L. 1758) as a result of a 6-7 months fattening process in Central Mediterranean. Tzoumas A., Ramfos A., De Metrio G., Corriero A., Spinos E., Vavassis C., and Katselis G. SCRS/2009/135.
- Estimating the fattening factor of Atlantic BlueFin Tuna (Thunnus thynnus) Tuna Farms: The Ametlla de Mar facility as a case study. Ana Gordoa. SCRS/2009/158.
- Growth performances of the BlueFin Tuna (Thunnus thynnus) ranched in the Croatian waters of Eastern Adriatic. I. Katavić, L. Grubišić, V. Tičina, K. Mišlov-Jelavić, V. Franičević and N. Skakelja. SCRS/2009/190.
- Potential growth rates in fattened/ranched Pacific BlueFin Tuna (Thunnus orientalis Temminck & Schlegel) and Southern BlueFin Tuna (Thunnus maccoyii Castelnau). Simeon Deguara, Saviour Caruana, Carmelo Agius. SCRS/2010/109.
- Some morphometric relationships in fattened BlueFin Tuna, Thunnus thynnus L., from the Turkish Aegean Sea. Fatih Percin & Okan Akyol. Journal of animal & veterinary advances 9 (11) 1684-1688, 2010.
- Size structure of the Atlantic BlueFin Tuna fished and ranched in the Mediterranean in 2003 and 2008 as revealed by the Japanese Fresh market. ATRT, Greenpeace, MarViva, WWF. SCRS/2010/067.
- Results of a growth trial carried out in Malta with 190 Kg fattened Atlantic BlueFin Tuna (Thunnus thynnus L.) Simeon Deguara, Saviour Caruana, Carmelo Agius. SCRS/2010/108.

[36] Back-estimate of weight at catch of Atlantic BlueFin Tuna fished and ranched in the Mediterranean in 2008 based on data from the Japanese Fresh market. ATRT, Greenpeace, MarViva, WWF. SCRS/2010/068.

Eleven years 1995-2005 of experience on growth of BlueFin Tuna (Thunnus thynnus) in farms. Txema Galaz Ugalde. SCRS/2011/160.

In one of such papers, fish weight at catch was back-calculated individually for a total of 8.020 E-BFT specimens fished and ranched in the Mediterranean Sea in 2008 and auctioned Fresh in Japan, using such table on weight gain rates in Tuna ranches.

% Increase in weight of E-BFT over initial caged weight														
START AGE	START FL	June Caging START WT	Jul 1	Aug 2	Sep 3	Oct 4	Nov 5	Dec 6	Jan 7	Feb 8	Mar 9	Apr 10	May 11	Jun 12
1	55	4	27	63	99	135	162	180	191	202	213	224	240	256
2	77	9	17	40	63	85	103	114	125	135	146	156	172	188
3	97	17	13	29	46	63	76	84	94	104	115	125	140	155
4	116	29	12	27	43	59	70	78	88	98	109	120	131	142
5	133	42	11	25	40	54	65	72	81	90	99	108	122	136
6	148	56	10	23	36	50	59	66	74	83	91	100	112	124
7	162	72	9	22	35	47	57	63	71	78	86	93	105	117
8	176	90	9	21	33	45	54	60	67	73	80	87	97	107
9	187	106	9	20	31	43	51	57	63	69	76	82	91	100
10	198	124	8	19	30	41	49	54	59	65	70	76	84	92
11	208	142	8	19	29	40	48	53	58	62	67	71	78	85
12	217	160	8	18	29	39	47	52	56	60	63	67	73	79
13	226	179	8	18	28	38	46	51	54	57	60	63	67	71
14	233	195	8	18	28	38	45	50	52	55	57	59	63	67
15	240	211	7	17	27	37	44	49	51	52	54	55	58	61
16	247	228	7	17	26	36	43	48	49	50	51	52	53	54
17	252	241	7	16	26	35	42	47	47	48	48	49	49	50
18	258	258	7	16	25	35	41	46	46	47	47	47	48	48
19	262	269	8	16	25	34	41	45	45	46	46	46	47	47
20	267	283	7	15	24	33	40	44	44	45	45	45	46	46
21	271	295	6	15	24	32	39	43	43	44	44	44	45	45
22	275	307	6	15	23	32	38	42	42	43	43	43	44	44
23	278	316	6	14	23	31	37	41	41	42	42	42	43	43
24	281	326	6	14	22	30	36	40	40	41	41	41	42	42
25	284	335	6	14	21	29	35	39	39	40	40	40	41	41

Expected RWT of E-BFT														
START AGE	START FL	June Caging START WT	Jul 1	Aug 2	Sep 3	Oct 4	Nov 5	Dec 6	Jan 7	Feb 8	Mar 9	Apr 10	May 11	Jun 12
1	55	4	5	6	7	9	10	10	11	11	11	12	12	13
2	77	9	11	13	15	17	19	20	21	22	23	24	25	27
3	97	17	20	23	25	28	31	32	34	36	38	39	42	44
4	116	29	32	36	41	45	49	51	54	57	60	63	66	69
5	133	42	46	52	58	64	69	72	75	79	83	86	92	98
6	148	56	61	69	76	84	89	93	97	102	107	112	118	125
7	162	72	78	87	97	105	112	117	122	127	133	138	147	155
8	176	90	98	109	120	130	138	144	150	155	162	168	177	186
9	187	106	116	127	139	152	160	167	173	179	187	193	203	212
10	198	124	134	148	162	175	185	191	198	205	211	219	229	239
11	208	142	154	169	184	199	211	218	225	231	238	243	253	263
12	217	160	173	189	206	222	235	243	250	256	261	267	277	286
13	226	179	193	211	229	247	261	270	275	281	286	292	299	306
14	233	195	210	230	249	268	282	292	296	302	305	309	317	325
15	240	211	226	247	268	289	304	314	319	321	325	327	333	340
16	247	228	244	267	288	311	327	338	340	343	345	347	349	352
17	252	241	258	280	304	326	343	355	355	357	357	360	360	362

18	258	258	276	299	322	348	363	376	376	379	379	379	381	381
19	262	269	290	312	336	360	379	390	390	392	392	392	395	395
20	267	283	303	325	351	376	396	408	408	410	410	410	413	413
21	271	295	313	339	366	389	410	422	422	425	425	425	427	427
22	275	307	325	353	378	405	424	436	436	439	439	439	442	442
23	278	316	335	361	389	414	433	446	446	449	449	449	452	452
24	281	326	345	371	397	423	443	456	456	459	459	459	463	463
25	284	335	356	382	406	433	453	466	466	470	470	470	473	473

***Tables I & II**: New ranched E-BFT fattening rates table, created by SCRS in 2009/2010, which showed significant higher weight gain rates, based on information presented to SCRS at that time.*

The results obtained showed that overall 56 % of the E-BFTs caught and caged in Mediterranean Sea Tuna ranches and auctioned Fresh in the Japanese market would have been below the 30 Kg legal minimum catch size at the start of ranching.

Undersized, illegally caught E-BFT would have amounted to 70 % of the total sample in the case of Spain. The authors nevertheless, clearly warned that such results pointed to the unreliability of the new weight gain rates almost adopted back in 2009.

The unreliability of such new weight gain rates was furthermore proven beyond any reasonable doubt by using catch and harvesting weight data from Mediterranean Sea Tuna ranches, extracted from the ICCAT BCD database for the years 2008, 2009, 2010 and 2011.

- Based on the above, and in order to back-estimate the original weight at catch (W/rW) therefore accounting for the increase in weight during the various ranching periods, of all recorded/reported Ranched E-BFT trade-flux data records, the following average cross-board fattening ratios were assumed and individually assigned:
    - For all E-BFT trade-flux data records earmarked as Wild, the assigned fattening ratio is: 1,00.
    - For all E-BFT trade-flux data records earmarked as Ranched, the following fattening ratios were assumed and assigned:
        - The case of trade-flux data records pertaining to Croatian ranched E-BFTs.

          As previously explained, Croatia has ranched, during the studied period, two distinct types of E-BFT with two distinct fattening/growth periods and two distinct weight increase patterns:

          The bulk of Croatia's yearly E-BFT production for the years 1998 to 2001 and 2008 to 2012, corresponds to catches of juvenile E-BFT (W/rW $\leq$ 30 Kgs) practised by the Croatian domestic PS fishing fleet inside the Adriatic Sea.

          Such fish is ranched at Croatian Tuna ranches for a period of two (2) to three (3) years.

          For such fish, it is assumed that growth rates can reach a maximum of 300%.

          In turn and for a number of years (2002 to 2007), Croatia has also ranched large E-BFT spawners caught by Croatian and other ICCAT CpCs PS fishing fleets, outside the Adriatic Sea, namely in the Central Mediterranean Sea.[37]

[37] According to ICCAT BCD database, no such fish was transferred into Croatian Tuna ranches as of 2008.

Such E-BFTs were caught at sea and transferred-live into transport cages that were then towed to Croatian Tuna ranches were they were fattened and harvested after a 3 to 6 months standard fattening season.

For such fish, it is assumed that fattening rates can reach a maximum of 30%.

Trade-flux data records pertaining to Croatian Ranched E-BFT do not differentiate juvenile Adriatic fish from adult spawners caught in Central Mediterranean.

Because of such data shortcoming, it became necessary to apply two distinct average cross-board fattening ratios, based on previously explained specific assumptions:

- For trade-flux data records pertaining to Croatian Ranched E-BFT traded for the years 1998 to 2001 and 2008 to 2012 our retained average cross-board fattening ratio for such fish is: 2,00 (100%)

- For trade-flux data records pertaining to Croatian Ranched E-BFT traded for the years 2002 to 2007 our retained average cross-board fattening ratio for such fish is: 1,50 (50%)

- The case of trade-flux data records pertaining to ranched E-BFT other than Croatian.

  It is assumed that for such E-BFT, weighing less than 60 Kgs at catch and ranched during a standard 6 to 7 months season, fattening rates can reach a maximum of 60%.

  It is also assumed that for such E-BFT, weighing more than 60 Kgs at catch and ranched during a standard 3 to 6 months season, fattening rates can reach a maximum of 25%.

  As was the case for Croatian ranched E-BFT, trade-flux data records pertaining to these two groups of Ranched E-BFT do not differentiate smaller fish from larger adult spawners.

  Because of such data shortcoming, it became necessary to apply an average cross-board fattening ratio, based on previously explained specific assumptions:

  Our retained cross-board fattening ratio for such fish and for the entire studied period is: 1,25 (25%)

f. Determination and assignment of specific year of catch at sea for all recorded/reported E-BFT trade-flux data records

- Trade-flux data records pertaining to Wild-caught E-BFT

  - Wild-caught E-BFT traded Fresh (F)

    By definition, a wild-caught E-BFT, traded Fresh any given day of any given year, is considered to have been caught at sea, less than one week prior to its day of auction.

We have thus assumed that all trade-flux data records for a given year of trade and pertaining to Fresh Wild-caught E-BFT correspond to catches having taken place that same year[38].

- Wild-caught E-BFT traded Frozen(FR)

  Yearly, semester or monthly trade-flux data records used for the purpose of this report, do not identify wild-caught E-BFT having been traded Frozen during the first six months of any given year. Failure to further identify the exact year of catch of such fish we have made the following assumptions and assigned the following years of catch:

  - For Wild-caught E-BFT traded Frozen(FR) during the first six months of any given year, the assigned year of catch for such fish is the immediate preceding year.

  - For Wild-caught E-BFT traded Frozen(FR) during the second half of any given year, the assigned year of catch for such fish is the same year as that of trade.

- Trade-flux data records pertaining to Ranched E-BFT (F) & (FR)

  - With the exception of Ranched E-BFT originating from Croatia:

    - Ranched E-BFTs traded during the period January 1st to June 30th of any given year, whether Fresh or Frozen, were assigned as having been caught wild at sea during the immediate preceding year;

    - Ranched E-BFTs traded during the period July 1st to December 31st of any given year, whether Fresh or Frozen, were assigned as having been caught wild at sea during that same year.

  - In the case of E-BFT originating from Croatian Tuna ranches:

    - As explained before in this report, the bulk of Croatia's yearly Ranched E-BFT production for the years 1998 to 2001 and 2008 to 2012, corresponds to catches of juvenile E-BFT (W/rW ≤ 30 Kgs) practised by the Croatian domestic PS fishing fleet inside the Adriatic Sea.

      Such fish is ranched at Croatian Tuna ranches for a period of two (2) to three (3) years.
      It is therefore assumed that all Croatian ranched E-BFTs, traded during the years 1998 to 2001 and 2008 to 2012, were caught wild at sea, two years prior to the year during which they were traded.

    - In turn the bulk of Croatia's yearly Ranched E-BFT production for the years 2002 to 2007, corresponds to catches of large E-BFT spawners caught by Croatian and other ICCAT CpCs PS fishing fleets, outside the Adriatic Sea, namely in the Central Mediterranean Sea.

      Such fish was ranched and harvested after a 3 to 6 months standard fattening season.

      - For such years, Croatian ranched E-BFTs having been traded during the period January 1st to June 30th of any given year, were assigned as having been caught wild at sea during the immediate preceding year;

[38] Yearly, semester or monthly trade-flux data records used for the purpose of this report, do not differentiate or identify wild-caught E-BFT having been traded Fresh (F) during the first six days of any given year. Failure to further identify the exact year of catch of such fish we have assigned the same year of catch as the year of trade.

- For such years, Croatian ranched E-BFTs having been traded during the period July 1st to December 31st of any given year, were assigned as having been caught wild at sea during that same year.

g. Determination and assignment of specific Tuna species crosscheck status for all recorded/reported E-BFT trade-flux data records

- As stated before, the most common problem facing parties responsible for providing trade-flux information, is finding the right code number (Classification) for the goods or commodity which are being exported or imported.

  E-BFT trade is not an exception: In numerous cases, traded E-BFT is even purportedly mislabelled under a HS/CN code and description corresponding to other Tuna species, thus allowing the marketing of specimens that may have not been reported at catch to pertinent fisheries authorities.

  For these reasons, trade-flux data records, pertaining to ICCAT CpCs, traditionally targeting E-BFT[39], that could have not possibly caught such species or could have not exported them under certain commodity descriptions, were sought for the following Tuna species and reported product types:

  - BigEye Tunas "Thunnus obesus" Fresh or chilled
    BigEye Tunas "Thunnus obesus" Frozen
  - Pacific BlueFin Tunas "Thunnus orientalis" Fresh or chilled
    Pacific BlueFin Tunas "Thunnus orientalis" Frozen
  - Southern BlueFin Tunas "Thunnus maccoyii" Fresh or chilled
    Southern BlueFin Tunas "Thunnus maccoyii" Frozen
  - Yellowfin Tunas "Thunnus albacares" Fresh or chilled
    Yellowfin Tunas "Thunnus albacares" Frozen
  - Tunas of the genus "Thunnus" and "Euthynnus" Fresh or chilled
  - Tunas of the genus "Thunnus" and "Euthynnus" Frozen

- Whenever both CN/HS Codes and description for any given trade-flux data record clearly indicated that the exported or imported commodity was E-BFT, the corresponding Tuna species crosscheck status cell was earmarked with one of the following mentions, depending on the specific reported product type: (F) Fresh, (FR) Frozen, (L) Live

  - **F-E-BFT**
  - **FR-E-BFT**
  - **L-E-BFT C-over**
  - **L-E-BFT**

- Determination of Tuna specie and reported product type for records containing the commodity description: “Atlantic BlueFin Tunas "Thunnus thynnus" or Pacific BlueFin Tunas "Thunnus orientalis" Fresh chilled or Frozen”

[39] Only for exporting countries that could not have caught species belonging to fishing grounds other than those traditionally fished by such countries

The corresponding Tuna species crosscheck status cell for such records, was earmarked with mention: **F/FR-E-BFT**

- Determination of Tuna specie and reported product type for records containing the commodity description: BigEye Tunas "Thunnus obesus" Fresh or chilled or Frozen

    - A number of such records were detected for the years 2002 to 2011 included and for the following ICCAT exporting CpCs: Greece, Italy, Libya, Tunisia and Turkey.

    - After verification we concluded that none of such ICCAT CpCs were in the capacity to target or catch such specie of Tuna, unknown inside the Mediterranean Sea, nor did any of such CpCs reported catches of BigEye Tunas for those specific years (Source: ICCAT-SCRS Task I database).

    - Furthermore, no trace of imports of such specie into those countries and for those years, was verified.

  Such trade-flux records were thus assumed as pertaining to E-BFT and corresponding trade-data crosscheck status cells for such records, were earmarked with mentions: **F-E-BFT** or **FR-E-BFT**

- Determination of Tuna specie and reported product type for records containing the commodity description: Pacific BlueFin Tunas "Thunnus orientalis" Fresh or chilled or Frozen

    - A number of such records were detected for the year 2012 and for the following ICCAT exporting CpCs: Malta and Turkey.

    - After verification we concluded that none of such ICCAT CpCs were in the capacity to target or catch such specie of Tuna, unknown inside the Mediterranean Sea, nor has any of such CpCs reported catches of Pacific BlueFin Tunas in 2011 or 2012 (Source: ICCAT-SCRS BCD database).

    - Furthermore, no trace of imports of such specie into those countries and for 2011-2012, was verified.

  Such trade-flux records were thus assumed as pertaining to E-BFT and corresponding trade-data crosscheck status cells for such records, were earmarked with mentions: **F-E-BFT** or **FR-E-BFT**

- Determination of Tuna specie and reported product type for records containing the commodity description: Southern BlueFin Tunas "Thunnus maccoyii" Fresh or chilled or Frozen

    - A number of such records were detected for the years 2002 to 2011 included and for the following ICCAT exporting CpCs: Croatia, Cyprus, Greece, Italy, Malta, Morocco, Spain, Tunisia and Turkey and Slovenia.

    - After verification we concluded that none of such ICCAT CpCs or Slovenia were in the capacity to target or catch such specie of Tuna, unknown inside the Mediterranean Sea, nor has any of such CpCs reported catches of Southern BlueFin Tunas for those specific years (Source: ICCAT-SCRS Task I database).

    - Furthermore, no trace of imports of such specie into those countries and for those years, was verified.

  Such trade-flux records were thus assumed as pertaining to E-BFT and corresponding trade-data crosscheck status cells for such records, were earmarked with mentions: **F-E-BFT** or **FR-E-BFT**

- Determination of Tuna specie and reported product type for records containing the commodity description: Yellowfin Tunas "Thunnus albacares" Fresh or chilled or Frozen

    - A number of such records were detected for the years 1999, 2000, 2006 and 2007 included and for the following ICCAT exporting CpCs: Malta and Libya.

    - After verification we concluded that Libya could have been in the capacity, thanks to its Las Palmas-based LL fishing fleet operative in the Eastern Atlantic, to target and catch such specie of Tuna, unknown inside the Mediterranean Sea, and that Maltese exports could well be re-exports of Libyan caught Yellowfin Tuna, though no trace of imports of such specie into Malta and for those years, could be verified.

  Such trade-flux records were thus assumed as possibly not pertaining to E-BFT and corresponding trade-data crosscheck status cells for such records, were earmarked with mentions: **F-E-BFT?** or **FR-E-BFT?**

- Determination of Tuna specie and reported product type for records containing the commodity description: Tunas of the genus "Thunnus" and "Euthynnus" Fresh or chilled or Frozen

    - A number of such records were detected for the years 1998 to 2011 included and for a number of ICCAT exporting CpCs.

      All of such trade-flux records indicated that Japan was the final importing country. Average price per Kilogram of fish for every single trade-flux record was sought when possible, only to find out that such prices did correspond to average prices for E-BFT and for those particular years.

      After verification we concluded that such trade-flux records were to be assumed as pertaining to E-BFT and corresponding trade-data crosscheck status cells for such records, were earmarked with mentions: **F-E-BFT** or **FR-E-BFT**

    - Other similar records were detected for the same years but for other importing countries.

      Where possible, average price per Kilogram of fish for every single trade-flux record was sought again only to find out that such prices did correspond to average prices for E-BFT and for those particular years

      For such trade-flux records, corresponding trade-data crosscheck status cells were yet conservatively earmarked with mentions:

        - **F-E-BFT?** or
        - **FR-E-BFT?**

- Determination of Tuna specie and reported product type for trade-flux records containing the mention “Live” in their CN/HS commodity description.

    - Atlantic BlueFin Tunas "Thunnus thynnus"

        - For all trade-flux data records for which Source is ATRT db or ICCAT, the corresponding Tuna species crosscheck status cell was earmarked as: **L-E-BFT** , with the exception of Live E-BFT having been transferred into Croatian Tuna ranches during 2011, for which it has been established that such fish could not have been harvested and traded in 2011 or 2012, due to longer fattening periods practiced by them. For such trade-

flux data records the corresponding Tuna species crosscheck status cell was earmarked as: **L-E-BFT C-over**

- For all other trade-flux data records, based on the following Tuna ranching national operational chronogram (See **Chart I** Page 58) whenever:

    - Both CN or HS Codes and commodity description clearly indicates that the exported or imported commodity is Live E-BFT,

    - The exporting country was an ICCAT CpC, operating a purse-seine fishing fleet actively targeting E-BFT that same year

    - The importing country was an ICCAT CpC operating E-BFT ranches inside its territorial waters that same year,

    - Export or import of such fish took place during the months of April, May, June, July, August or September[40] that same year,

    - The volume of exported or imported fish that same year was higher than 10.000,00 Kgs[41],

  the corresponding Tuna species crosscheck status cell was earmarked as: **L-E-BFT**

- For all other trade-flux data records for which the corresponding Tuna species crosscheck status cell was not earmarked as: **L-E-BFT** or **L-E-BFT C-over** , we have assumed that such records pertain to Wild Fresh RD E-BFT and their corresponding Tuna species crosscheck status cell was thus earmarked as: **F-E-BFT**

- Southern BlueFin Tunas "Thunnus maccoyii"

  A reduced number of occurrences have been detected for very small volumes of traded fish. We have assumed that such records pertain to Wild Fresh RD E-BFT and their corresponding Tuna species crosscheck status cell was thus earmarked as: **F-E-BFT**

[40] Months corresponding to the E-BFT Mediterranean PS fishery, specifically targeting such specie for its catch and transfer live into towing cages for ranching purposes.

[41] We have assumed that 10.00,00 Kgs is the minimum required volume of Live E-BFT for a PS fishing vessel to proceed with a transfer of such fish into a towing cage.

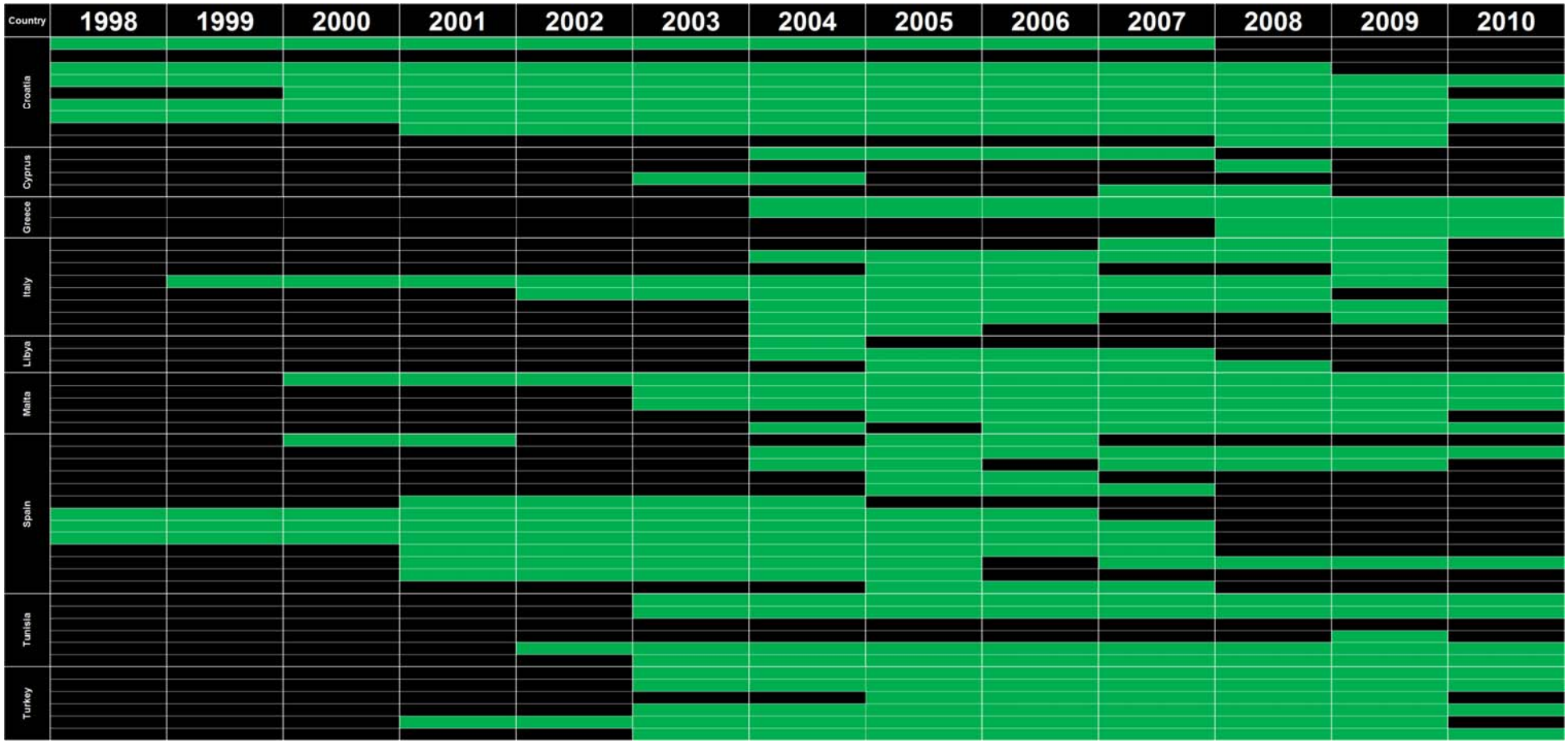


Chart 1. Tuna ranching national operational chronogram

- Live saltwater fish[42]

  - Whenever for a given trade-flux data record containing the mention "Live saltwater fish" in their CN/HS commodity description

    - The exporting country was an ICCAT CpC, operating a purse-seine fishing fleet actively targeting E-BFT that same year
    - The importing country was an ICCAT CpC operating E-BFT ranches inside its territorial waters that same year,
    - The volume of exported or imported fish for any given trade-flux data record was higher than 10.000,00 Kgs[43],
    - Export or import of such fish took place during the months of April, May, June, July, August or September[44] that same year,

    the corresponding Tuna species crosscheck status cell was earmarked as: **L-E-BFT**

  - Whenever for a given trade-flux data record containing the mention "Live saltwater fish" in their CN/HS commodity description

    - The exporting country was an ICCAT CpC, operating a purse-seine fishing fleet actively targeting E-BFT that same year
    - The importing country was an ICCAT CpC operating E-BFT ranches inside its territorial waters that same year,
    - The volume of exported or imported fish for any given trade-flux data record was higher than 10.000,00 Kgs,
    - Export or import of such fish took place during the months of January, February, March, October, November or December, that is, well outside the period corresponding to the E-BFT Mediterranean PS fishery, specifically targeting such specie for its catch and transfer live into towing cages for ranching purposes,

    the corresponding Tuna species crosscheck status cell was earmarked as: **L-E-BFT?**

- For the remaining trade-flux data record containing the mention "Live saltwater fish" in their CN/HS commodity description the corresponding Tuna species crosscheck status cell was earmarked as: **F-E-BFT?**

h. Determination and assignment of specific trade-data crosscheck status for all recorded/reported E-BFT trade-flux data records

Trade-flux data records pertaining to annexed Excel spreadsheet file: **(c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012**, were crosschecked in eight (8) consecutive stages:

- First trade-flux data records crosscheck

[42] Prior to 2010, there was no HS/CN code that would account for live-E-BFT trade. Such exports and imports, depending on the year, were registered under the various codes and descriptions for live saltwater fish and excluding: ornamental fish and "Salmo trutta" "Oncorhynchus mykiss" "Oncorhynchus clarki" "Oncorhynchus aguabonita" "Oncorhynchus gilae" "Oncorhynchus apache" "Oncorhynchus chrysogaster" "Anguilla spp".

[43] We have assumed that 10.00,00 Kgs is the minimum required volume of Live E-BFT for a PS fishing vessel to proceed with a transfer of such fish into a towing cage.

[44] Months corresponding to the E-BFT Mediterranean PS fishery, specifically targeting such specie for its catch and transfer live into towing cages for ranching purposes.

For all trade-flux data records with corresponding Tuna species crosscheck status cells earmarked as: **L-E-BFT** or **L-E-BFT?** , corresponding trade-data crosscheck status cells were earmarked as: **X**

Trade-data crosscheck status cells earmarked as: **X**, pertain to discarded trade-flux data records, in avoidance of any possible statistic double-counting.

In order to avoid double counting, live E-BFT import/exports amongst ICCAT Contracting Parties inside the Mediterranean Sea were thus discarded for general final calculation purposes.

Should we have included and/or computed such volumes of traded live E-BFT in our report, we would have incurred in fatal double-counting since that live-BFT would have been recounted at harvest.

- Second trade-flux data records crosscheck

  Whenever two or more trade-flux data records obtained from two or more alternative trade-flux data sources and for which corresponding Tuna species crosscheck status cells were earmarked with either:

  - **F-E-BFT** ,
  - **FR-E-BFT** ,
  - **L-E-BFT C-over** or
  - **F/FR-E-BFT**

  showed identical data (Date, TARIC/HS code, Description, Exporter, Importer, Recorded traded weight, Product Type and shape), redundant trade-flux data records' corresponding trade-data crosscheck status cells were earmarked as: **X** .

  Non-redundant trade-flux data records' corresponding trade-data crosscheck status cells were earmarked as: **OK** .

- Third trade-flux data records crosscheck

  A general search for recorded monthly exports and imports of processed Fresh and Frozen E-BFT among EU27 Member States for the period January 1998 to June 2012 was conducted for the purpose of this report.

  The main official trade-flux data source used in this regard was the Eurostat TARIC CN8 – based Trade Database.[45]

  Cells containing trade-data records pertaining to this data-source and included in annexed Excel spreadsheet file: **(c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012**, are highlighted as follows:

  Retained EU27 exporting Countries were:

Austria	Latvia
Belgium	Lithuania
Bulgaria	Luxembourg
Cyprus	Malta
Czech Republic	Netherlands
Denmark	Poland
Estonia	Portugal

[45] http://epp.eurostat.ec.europa.eu/portal

Finland	Slovenia
France	Slovakia
Germany	Sweden
Greece	Romania
Hungary	Spain
Ireland	United Kingdom
Italy	

Likewise, a parallel general search for recorded monthly imports of processed Fresh and Frozen E-BFT among EU27 Member States for the period January 1998 to June 2012 was also performed for the same above retained EU27 importing Countries.

It is to be noted that not all of recorded 1998-2012 processed Fresh and Frozen E-BFT trade fluxes prior to May 1st 2004[46] and January 1st 2007[47], can be considered or catalogued as true Intra-EU27 E-BFT trade fluxes. Some of today's EU27 Member States were not EU members until 2004 and 2007.

Trade fluxes among such states prior to their EU accession date as well as with EU Member States are thus to be considered as extra-EU imports and exports, not regulated by applicable Intra EU Trade regulations. The Trade status chronology among today's EU27 Member States can be seen in following Table III. (Page 43)

- A first crosscheck[48] (See **Chart 2** Page 63) between recorded monthly exports and imports of processed Fresh and Frozen E-BFT among EU27 Member States for the period January 1998 to June 2012, was carried-out with the following initial conclusions being addressed:

  For all EU27 Member States and all TARIC CN8 E-BFT presentations, there was not a single instance of a correspondence in volume (Kgs.) and value (€), between a given monthly recorded Intra EU27 export flux from one country to another and the recorded Intra EU27 import flux between those two same countries, for the following first, second and third months, as well as same TARIC CN8 E-BFT presentation.

- A second crosscheck (See **Chart 3** Page 64) between recorded monthly exports and imports of processed Fresh/chilled & Frozen E-BFT among EU27 Member States for the period January 1998 to June 2012 was also carried-out.

  For all EU27 Member States and all TARIC CN8 E-BFT presentations, there was not a single instance of a correspondence in volume (Kgs.) and value (€), between a given monthly recorded Intra EU27 import flux from one country to another and the recorded Intra EU27 added export fluxes between those two same countries, for the preceding first, second and third months, as well as same TARIC CN8 E-BFT presentation.

[46] EU27 Accession date for Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

[47] EU27 Accession date for Bulgaria and Romania

[48] The methodology of such first crosscheck can be seen on Charts II & III on Pages 44 & 45.

EU27 Member State	EU27 Accession Date	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Poland	Portugal	Slovenia	Slovakia	Sweeden	Romania	Spain	United Kingdom
Austria	Prior to January 1998																											
Belgium	Prior to January 1998																											
Bulgaria	January 1st 2007																											
Cyprus	May 1st 2004																											
Czech Republic	May 1st 2004																											
Denmark	Prior to January 1998																											
Estonia	May 1st 2004																											
Finland	Prior to January 1998																											
France	Prior to January 1998																											
Germany	Prior to January 1998																											
Greece	Prior to January 1998																											
Hungary	May 1st 2004																											
Ireland	Prior to January 1998																											
Italy	Prior to January 1998																											
Latvia	May 1st 2004																											
Lithuania	May 1st 2004																											
Luxembourg	Prior to January 1998																											
Malta	May 1st 2004																											
Netherlands	Prior to January 1998																											
Poland	May 1st 2004																											
Portugal	Prior to January 1998																											
Romania	January 1st 2007																											
Slovakia	May 1st 2004																											
Slovenia	May 1st 2004																											
Spain	Prior to January 1998																											
Sweeden	Prior to January 1998																											
United Kingdom	Prior to January 1998																											

Processed fresh/chilled & frozen BFT trade fluxes to be considered as Intra-EU27 as of January 1st 1998
Processed fresh/chilled & frozen BFT trade fluxes to be considered as Intra-EU27 as of May 1st 2004
Processed fresh/chilled & frozen BFT trade fluxes to be considered as Intra-EU27 as of January 1st 2007

Table 3. Trade status chronology among today's EU27 Member States.

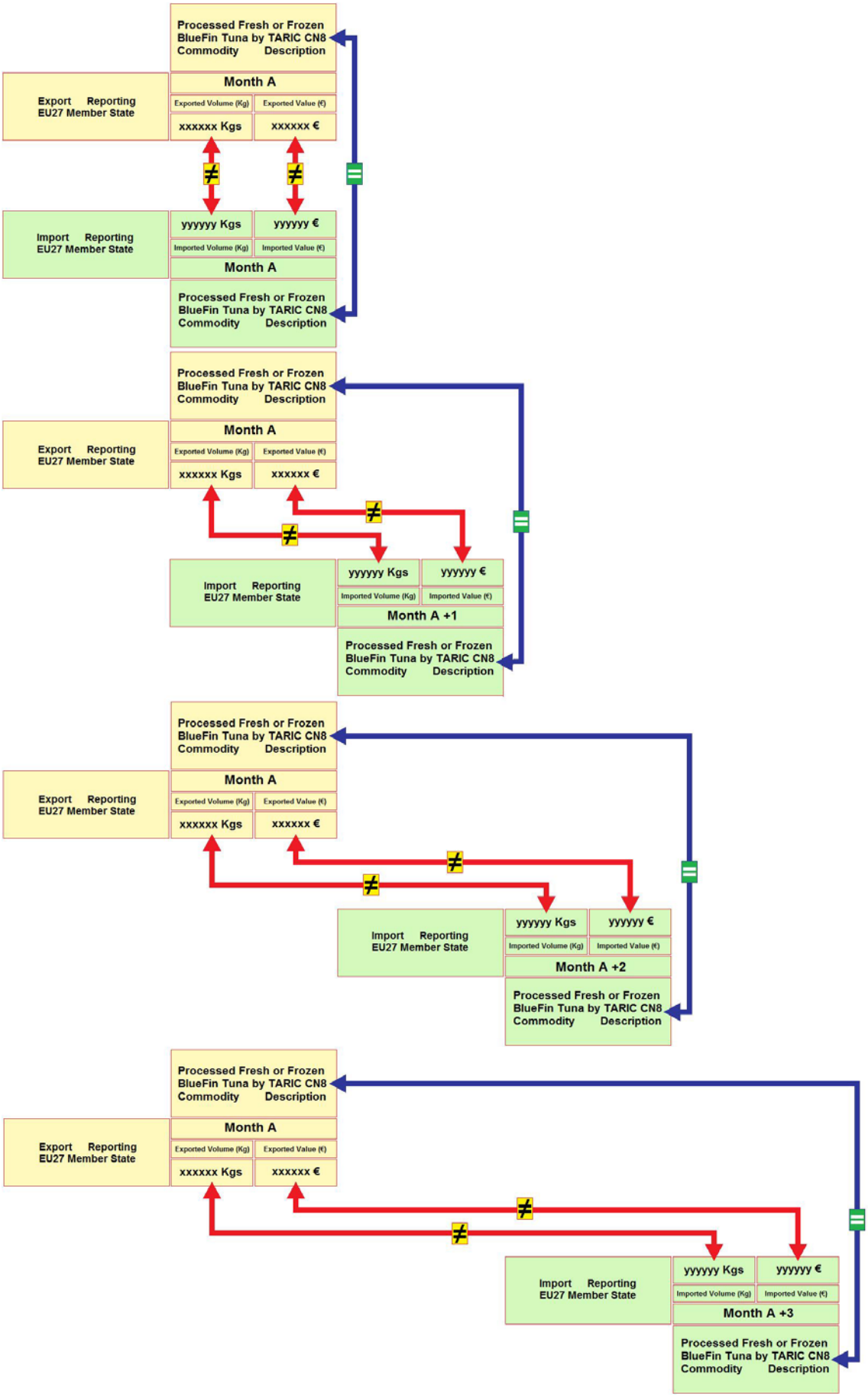


Chart 2. Methodology of first crosscheck between recorded monthly exports and imports of processed Fresh/chilled & Frozen E-BFT among EU27 Member States for the period January 1998 to June 2012.

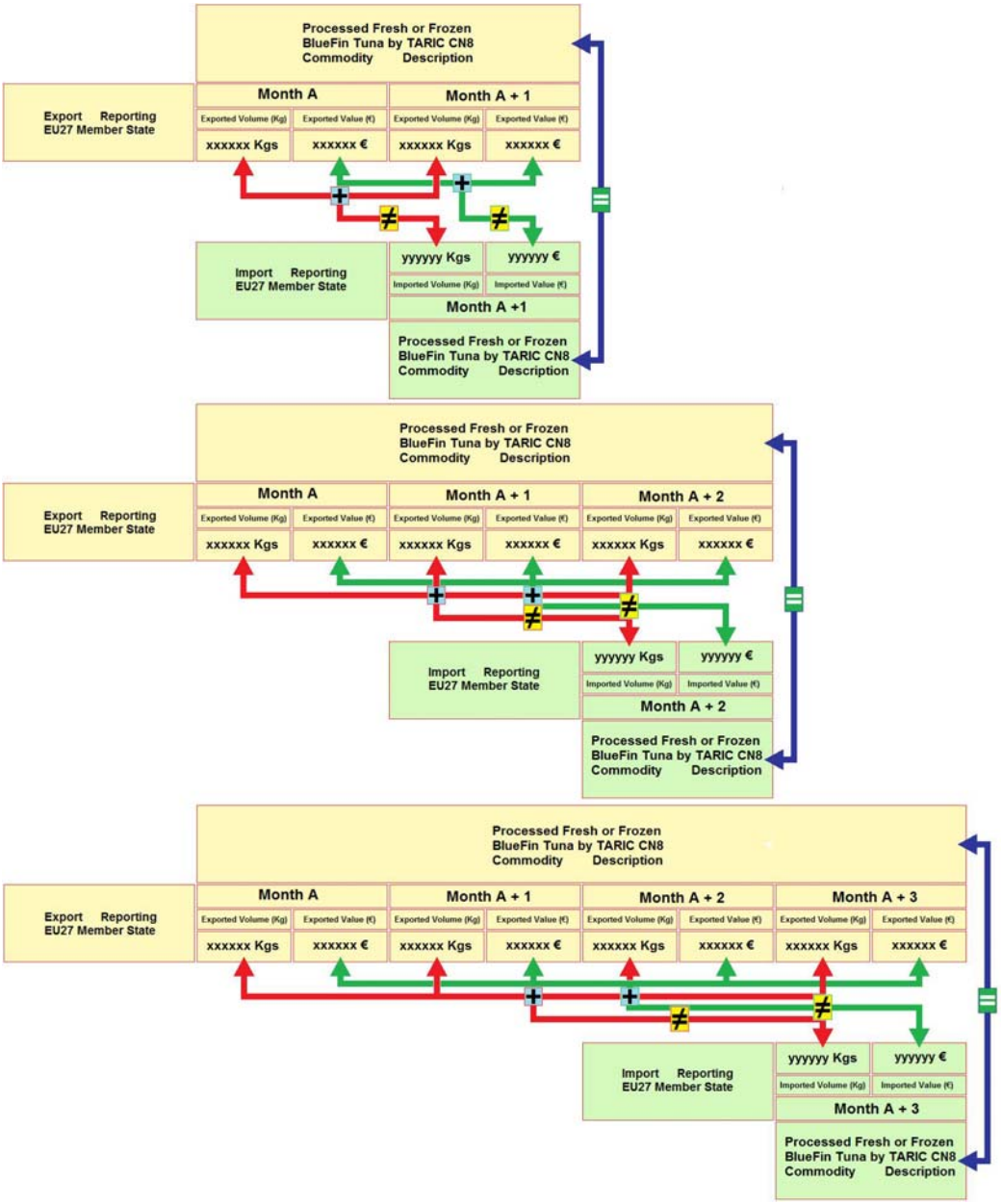


Chart 3. Methodology of second crosscheck between recorded monthly exports and imports of processed Fresh/chilled & Frozen E-BFT among EU27 Member States for the period January 1998 to June 2012.

According to Eurostat's *statistics on the trading of goods User Guide:*

- "*Statistics on trade between the Member States of the European Union are based on a European Parliament and Council Regulation (EC) No 638/2004 of 31 March 2004 and on the implementing Commission Regulation (EC) No 1982/2004 of 18 November 2004 which lay down or supplement the rules on methodology, thresholds and specific movements and one amending Commission regulation ((EC) No 1915/2005 on simplified quantity reporting). The Intrastat system, which was created as a means of collection of these statistics, came into operation on 1 January 1993.*"

- EUROSTAT "*provides for direct collection of information from trade operators, which send the relevant national administration a summary declaration for the previous month's operations. In France and Italy, these declarations also serve statistical and fiscal purposes.*"
- EUROSTAT "*is based on a close link with the VAT system relating to intra-EU trade. The tax authorities of the Member States are required, at least once every quarter, to*

transmit to the statistical services a list of operators who have made purchases or sales and the value of these operations, so that the exhaustiveness and quality of the statistical data can be checked."

- "*For intra-EU trade (and to a lesser extent for extra-EU trade) there are thresholds below which the information is either absent or simplified. These have been adopted to limit the burden on information providers, while preserving an acceptable quality of statistical information.*"

A number of assumptions were therefore asserted at this point:

- EUROSTAT does not cover the entirety of intra EU27 processed Fresh & Frozen exports and import fluxes,

- Since EUROSTAT is based on a close link with the VAT system relating to intra-EU trade, it is our fair assumption that systematic differences between monthly export and import values revealed by both previously described trade data crosschecks, are mostly to be attributable to such fact.

  Intra EU27 VAT billing regulations allow exporters to invoice importers with or without VAT.

  In the first case, VAT is declared to the exporter's Member State Tax Authority. In the second case, VAT is declared to the importer's Member State Tax Authority.

  It is therefore fair to assume that:

  - Intra EU27 processed Fresh & Frozen E-BFT export values contained in EUROSTAT, only cover those exports that were VAT invoiced by the exporter,

  - Intra EU27 processed Fresh & Frozen E-BFT import values contained in EUROSTAT, only cover those exports that were invoiced with no added VAT by the exporter,

  - Both previous assumptions are also valid for trade fluxes among states prior to their EU accession, as well as for such non EU states' trade fluxes with EU Member States.

  - Both sets of export and import values are therefore complementary and should furthermore be combined in order to reach an acceptable level of statistical exhaustiveness.

- Fourth trade-flux data records crosscheck

  Whenever two or more trade-flux data records, obtained from two or more alternative sources and for which corresponding Tuna species crosscheck status cell were earmarked with either:

  - **F-E-BFT** ,
  - **FR-E-BFT** ,
  - **L-E-BFT C-over** or
  - **F/FR-E-BFT**

  do not show identical data (Date, TARIC/HS code, Description, Exporter, Importer, Recorded Weight,, Product Type and shape) but may reasonably conflict, possible redundant trade-flux data records' corresponding trade-data crosscheck status cells were earmarked as: **X** .

- Fifth trade-flux data records crosscheck

Whenever trade-flux data records for which corresponding Tuna species crosscheck status cells were earmarked with either:

- F-E-BFT ,
- FR-E-BFT ,
- L-E-BFT C-over or
- F/FR-E-BFT

did not conflict with other similar trade-flux data records, corresponding trade-data crosscheck status cells were earmarked as: OK .

- Sixth trade-flux data records crosscheck
  - Japanese fish markets' daily Tuna auction data records used for the purpose of this report pertain by definition to exports/imports on consignment of Fresh E-BFT air-freighted to Japan.

    Because such fish is auctioned Fresh, its commercial final value is therefore unknown at the time of export and import, only to be finally recorded once the auction has effectively taken place.

    Customs and/or statistics services administrations, both at origin and destination, may not record such exports or imports in their respective trade databases, due to such administrative data incompleteness.

    In other words, exports and imports on consignment may not appear recorded in official trade data sources, consulted for the purpose of this report.

    A number of flagrant cases were indeed detected, whereas entire monthly volumes of auctioned Fresh E-BFT for a given exporting country and origin, did not appear on any of consulted trade databases; no monthly F-E-BFT trade-flux data record having been uploaded at origin or destination for that matter.

    For all such trade-flux data records pertaining to Japanese Daily Market Reports (Daily data summarized into monthly data), corresponding trade-data crosscheck status cells were earmarked as: OK .
  - For all trade-flux data records pertaining to Japanese Daily Market Reports (Daily data summarized into monthly data), for which other records may reasonably conflict[49], corresponding trade-data crosscheck status cells were earmarked as: Exp Cons? .
- Seventh trade-flux data records crosscheck

  Whenever trade-flux data records for which corresponding Tuna species crosscheck status cells were earmarked with either:
  - F-E-BFT? or
  - FR-E-BFT?

  that is, for which there is a reasonable doubt with regards to the nature of the traded species, corresponding trade-data crosscheck status cells were earmarked as: OK? .
- Eighth trade-flux data records crosscheck

[49] That is similar official trade-flux data records for the same or a higher traded volume of F-E-BFT, exporting country and origin and during the same given month and year. In such cases, whenever auctioned weight is lower than that recorded as exported and/or imported, we must assume the possibility that auctioned weights are to be included in traded weight records.

Whenever trade-flux data records for which corresponding Tuna species crosscheck status cells were earmarked with either:

- F-E-BFT ,
- FR-E-BFT ,
- F/FR-E-BFT
- F-E-BFT? or
- FR-E-BFT?

and the exporting country is not a coastal state, it was concluded that such exports could only correspond to re-exports and therefore corresponding trade-data crosscheck status cells were earmarked as: Re-Exp in avoidance of double-counting.

- Ninth trade-flux data records crosscheck

Whenever trade-flux data records for which corresponding Tuna species crosscheck status cells were earmarked with either:

- F-E-BFT ,
- FR-E-BFT ,
- F/FR-E-BFT
- F-E-BFT? or
- FR-E-BFT?

and the exporting country was not traditionally engaged in E-BFT fishing[50], it was assumed that such exports could pertain to either exports and/or re-exports. In some cases, such countries have reported significant amounts of E-BFT catches to ICCAT, the yearly detail of which can be found on SCRS Task I database. In such cases we have extracted yearly import and export flux data pertaining to each of those countries, as well their corresponding reported yearly E-BFT catch recorded in ICCAT's Task I database.

Whenever, for any given year and for any of such exporting countries, total recorded processed F/FR E-BFT exports was higher than the sum of total recorded processed F/FR E-BFT imports and reported yearly E-BFT catch, corresponding trade-data crosscheck status cells for such country and such year of trade, were earmarked as: OK .

Whenever, for any given year and for any of such exporting countries, total recorded processed F/FR E-BFT exports was lower than the sum of total recorded processed F/FR E-BFT imports and reported yearly E-BFT catch, corresponding trade-data crosscheck status cells for such country and such year of trade, were earmarked as: Re-Exp? .

The detail of yearly trade-data crosscheck status cells' earmarking by year of trade and exporting country can be seen in following **Tables 4a, b, c, d and e**.

[50] This was the specific case for the following exporting countries: Belgium, Bulgaria, Denmark, Estonia, Finland, Germany, Ireland, Latvia, Lithuania, Netherlands, Poland, Romania, Slovenia, Sweden and UK.

Table 4a. Yearly trade-data crosscheck status cells' earmarking by year of trade and exporting country for cases in which the exporting country was not traditionally engaged in E-BFT fishing.

Year of Trade or Catch	*Exporting Country*	*Exports*	*Imports*	*Task I E-BFT reported yearly catch*	*Difference*	*Assigned trade-data crosscheck status cells earmarking*
1998	Belgium	1.350,00	116.550,00	0,00	-115.200,00	**Re-Exp?**
	Bulgaria	0,00	0,00	0,00	0,00	**Not applicable**
	Denmark	33.792,00	9.700,00	1.000,00	23.092,00	**OK**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	0,00	1.300,00	0,00	-1.300,00	**Not applicable**
	Germany	11.428,00	127.450,00	0,00	-116.022,00	**Re-Exp?**
	Ireland	24.040,00	250,00	23.000,00	790,00	**OK**
	Latvia	0,00	0,00	0,00	0,00	**Not applicable**
	Lithuania	0,00	0,00	0,00	0,00	**Not applicable**
	Netherlands	30.800,00	43.700,00	0,00	-12.900,00	**Re-Exp?**
	Poland	0,00	0,00	0,00	0,00	**Not applicable**
	Romania	0,00	0,00	0,00	0,00	**Not applicable**
	Slovenia	0,00	200,00	0,00	-200,00	**Not applicable**
	Sweden	600,00	11.650,00	0,00	-11.050,00	**Re-Exp?**
	UK	9.700,00	215.000,00	1.000,00	-206.300,00	**Re-Exp?**
1999	Belgium	3.550,00	94.750,00	0,00	-91.200,00	**Re-Exp?**
	Bulgaria	0,00	0,00	0,00	0,00	**Not applicable**
	Denmark	84.719,00	60.850,00	0,00	23.869,00	**OK**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	100,00	1.750,00	0,00	-1.650,00	**Re-Exp?**
	Germany	61.150,00	134.330,00	0,00	-73.180,00	**Re-Exp?**
	Ireland	184.701,00	700,00	51.560,00	132.441,00	**OK**
	Latvia	0,00	0,00	0,00	0,00	**Not applicable**
	Lithuania	0,00	0,00	0,00	0,00	**Not applicable**
	Netherlands	12.450,00	26.400,00	0,00	-13.950,00	**Re-Exp?**
	Poland	0,00	0,00	0,00	0,00	**Not applicable**
	Romania	0,00	500,00	0,00	-500,00	**Not applicable**
	Slovenia	0,00	150,00	0,00	-150,00	**Not applicable**
	Sweden	750,00	3.450,00	0,00	-2.700,00	**Re-Exp?**
	UK	36.743,00	174.700,00	12.067,00	-150.024,00	**Re-Exp?**
2000	Belgium	3.050,00	122.950,00	0,00	-119.900,00	**Re-Exp?**
	Bulgaria	50,00	50,00	0,00	0,00	**OK**
	Denmark	108.319,00	200.350,00	0,00	-92.031,00	**Re-Exp?**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	100,00	2.700,00	0,00	-2.600,00	**Re-Exp?**
	Germany	214.400,00	153.779,00	0,00	60.621,00	**OK**
	Ireland	52.221,00	650,00	22.400,00	29.171,00	**OK**
	Latvia	0,00	1.500,00	0,00	-1.500,00	**Not applicable**
	Lithuania	0,00	0,00	0,00	0,00	**Not applicable**
	Netherlands	13.800,00	23.300,00	0,00	-9.500,00	**Re-Exp?**
	Poland	0,00	0,00	0,00	0,00	**Not applicable**
	Romania	0,00	0,00	0,00	0,00	**Not applicable**
	Slovenia	0,00	200,00	0,00	-200,00	**Not applicable**
	Sweden	2.200,00	2.000,00	0,00	200,00	**OK**
	UK	15.750,00	308.450,00	420,00	-293.120,00	**Re-Exp?**

Table 4b. Yearly trade-data crosscheck status cells' earmarking by year of trade and exporting country for cases in which the exporting country was not traditionally engaged in E-BFT fishing.

Year of Trade or Catch	*Exporting Country*	*Exports*	*Imports*	*Task I E-BFT reported yearly catch*	*Difference*	*Assigned trade-data crosscheck status cells earmarking*
2001	Belgium	4.900,00	124.100,00	0,00	-119.200,00	**Re-Exp?**
	Bulgaria	0,00	0,00	0,00	0,00	**Not applicable**
	Denmark	17.813,00	73.750,00	0,00	-55.937,00	**Re-Exp?**
	Estonia	0,00	50,00	0,00	-50,00	**Not applicable**
	Finland	2.563,00	67.550,00	0,00	-64.987,00	**Re-Exp?**
	Germany	93.250,00	127.876,00	0,00	-34.626,00	**Re-Exp?**
	Ireland	40.007,00	50,00	7.570,00	32.387,00	**OK**
	Latvia	0,00	11.350,00	0,00	-11.350,00	**Not applicable**
	Lithuania	0,00	0,00	0,00	0,00	**Not applicable**
	Netherlands	31.400,00	24.900,00	0,00	6.500,00	**OK**
	Poland	0,00	100,00	0,00	-100,00	**Not applicable**
	Romania	0,00	800,00	0,00	-800,00	**Not applicable**
	Slovenia	0,00	100,00	0,00	-100,00	**Not applicable**
	Sweden	62.300,00	8.000,00	0,00	54.300,00	**OK**
	UK	6.350,00	286.150,00	0,00	-279.800,00	**Re-Exp?**
2002	Belgium	7.350,00	674.150,00	0,00	-666.800,00	**Re-Exp?**
	Bulgaria	0,00	700,00	0,00	-700,00	**Not applicable**
	Denmark	26.750,00	3.350,00	0,00	23.400,00	**OK**
	Estonia	0,00	300,00	0,00	-300,00	**Not applicable**
	Finland	0,00	250,00	0,00	-250,00	**Not applicable**
	Germany	18.450,00	113.112,00	0,00	-94.662,00	**Re-Exp?**
	Ireland	156.120,00	0,00	15.000,00	141.120,00	**OK**
	Latvia	0,00	0,00	0,00	0,00	**Not applicable**
	Lithuania	0,00	250,00	0,00	-250,00	**Not applicable**
	Netherlands	34.400,00	17.100,00	0,00	17.300,00	**OK**
	Poland	0,00	900,00	0,00	-900,00	**Not applicable**
	Romania	0,00	250,00	0,00	-250,00	**Not applicable**
	Slovenia	0,00	100,00	0,00	-100,00	**Not applicable**
	Sweden	750,00	25.550,00	0,00	-24.800,00	**Re-Exp?**
	UK	1.927,00	783.200,00	100,00	-781.373,00	**Re-Exp?**
2003	Belgium	28.900,00	167.027,00	0,00	-138.127,00	**Re-Exp?**
	Bulgaria	0,00	8.000,00	0,00	-8.000,00	**Not applicable**
	Denmark	8.200,00	5.650,00	0,00	2.550,00	**OK**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	0,00	6.050,00	0,00	-6.050,00	**Not applicable**
	Germany	6.350,00	124.906,00	0,00	-118.556,00	**Re-Exp?**
	Ireland	8.100,00	3.200,00	3.000,00	1.900,00	**OK**
	Latvia	0,00	0,00	0,00	0,00	**Not applicable**
	Lithuania	0,00	0,00	0,00	0,00	**Not applicable**
	Netherlands	90.600,00	11.950,00	0,00	78.650,00	**OK**
	Poland	0,00	1.200,00	0,00	-1.200,00	**Not applicable**
	Romania	0,00	250,00	0,00	-250,00	**Not applicable**
	Slovenia	0,00	1.450,00	0,00	-1.450,00	**Not applicable**
	Sweden	9.000,00	900,00	0,00	8.100,00	**OK**
	UK	2.700,00	90.050,00	270,00	-87.620,00	**Re-Exp?**

Table 4c. Yearly trade-data crosscheck status cells' earmarking by year of trade and exporting country for cases in which the exporting country was not traditionally engaged in E-BFT fishing.

Year of Trade or Catch	*Exporting Country*	*Exports*	*Imports*	*Task I E-BFT reported yearly catch*	*Difference*	*Assigned trade-data crosscheck status cells earmarking*
2004	Belgium	35.800,00	164.200,00	0,00	-128.400,00	**Re-Exp?**
	Bulgaria	0,00	7.450,00	0,00	-7.450,00	**Not applicable**
	Denmark	3.950,00	5.200,00	0,00	-1.250,00	**Re-Exp?**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	0,00	20.300,00	0,00	-20.300,00	**Not applicable**
	Germany	27.400,00	101.757,00	0,00	-74.357,00	**Re-Exp?**
	Ireland	18.665,00	1.400,00	1.476,00	15.789,00	**OK**
	Latvia	0,00	0,00	0,00	0,00	**Not applicable**
	Lithuania	0,00	50,00	0,00	-50,00	**Not applicable**
	Netherlands	127.150,00	63.600,00	0,00	63.550,00	**OK**
	Poland	0,00	2.700,00	0,00	-2.700,00	**Not applicable**
	Romania	0,00	1.900,00	0,00	-1.900,00	**Not applicable**
	Slovenia	400,00	3.450,00	0,00	-3.050,00	**Re-Exp?**
	Sweden	2.300,00	450,00	0,00	1.850,00	**OK**
	UK	51.300,00	132.950,00	0,00	-81.650,00	**Re-Exp?**
2005	Belgium	21.150,00	123.125,00	0,00	-101.975,00	**Re-Exp?**
	Bulgaria	0,00	2.450,00	0,00	-2.450,00	**Not applicable**
	Denmark	5.250,00	1.050,00	0,00	4.200,00	**OK**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	0,00	8.950,00	0,00	-8.950,00	**Not applicable**
	Germany	50.400,00	90.915,00	0,00	-40.515,00	**Re-Exp?**
	Ireland	3.800,00	1.400,00	950,00	1.450,00	**OK**
	Latvia	5.200,00	0,00	0,00	5.200,00	**OK**
	Lithuania	100,00	5.400,00	0,00	-5.300,00	**Re-Exp?**
	Netherlands	120.100,00	71.250,00	0,00	48.850,00	**OK**
	Poland	0,00	14.450,00	0,00	-14.450,00	**Not applicable**
	Romania	0,00	8.850,00	0,00	-8.850,00	**Not applicable**
	Slovenia	0,00	6.050,00	0,00	-6.050,00	**Not applicable**
	Sweden	1.950,00	1.350,00	0,00	600,00	**OK**
	UK	38.900,00	148.050,00	0,00	-109.150,00	**Re-Exp?**
2006	Belgium	39.000,00	130.282,00	0,00	-91.282,00	**Re-Exp?**
	Bulgaria	0,00	700,00	0,00	-700,00	**Not applicable**
	Denmark	5.850,00	19.400,00	0,00	-13.550,00	**Re-Exp?**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	0,00	5.350,00	0,00	-5.350,00	**Not applicable**
	Germany	28.757,00	109.150,00	0,00	-80.393,00	**Re-Exp?**
	Ireland	4.800,00	900,00	2.323,00	1.577,00	**OK**
	Latvia	650,00	100,00	0,00	550,00	**OK**
	Lithuania	750,00	650,00	0,00	100,00	**OK**
	Netherlands	67.800,00	47.800,00	0,00	20.000,00	**OK**
	Poland	0,00	3.600,00	0,00	-3.600,00	**Not applicable**
	Romania	0,00	6.750,00	0,00	-6.750,00	**Not applicable**
	Slovenia	7.300,00	5.250,00	0,00	2.050,00	**OK**
	Sweden	2.750,00	8.800,00	0,00	-6.050,00	**Re-Exp?**
	UK	24.000,00	145.800,00	32,00	-121.832,00	**Re-Exp?**

Table 4d. Yearly trade-data crosscheck status cells' earmarking by year of trade and exporting country for cases in which the exporting country was not traditionally engaged in E-BFT fishing.

Year of Trade or Catch	*Exporting Country*	*Exports*	*Imports*	*Task I E-BFT reported yearly catch*	*Difference*	*Assigned trade-data crosscheck status cells earmarking*
2007	Belgium	60.550,00	151.590,00	0,00	-91.040,00	**Re-Exp?**
	Bulgaria	50,00	1.000,00	0,00	-950,00	**Re-Exp?**
	Denmark	9.330,00	23.000,00	0,00	-13.670,00	**Re-Exp?**
	Estonia	1.200,00	50,00	0,00	1.150,00	**OK**
	Finland	50,00	4.550,00	0,00	-4.500,00	**Re-Exp?**
	Germany	74.150,00	97.300,00	0,00	-23.150,00	**Re-Exp?**
	Ireland	6.200,00	14.450,00	644,00	-8.894,00	**Re-Exp?**
	Latvia	700,00	1.250,00	0,00	-550,00	**Re-Exp?**
	Lithuania	0,00	2.850,00	0,00	-2.850,00	**Not applicable**
	Netherlands	130.000,00	81.200,00	0,00	48.800,00	**OK**
	Poland	2.100,00	3.400,00	0,00	-1.300,00	**Re-Exp?**
	Romania	0,00	3.300,00	0,00	-3.300,00	**Not applicable**
	Slovenia	50,00	92.850,00	0,00	-92.800,00	**Re-Exp?**
	Sweden	2.600,00	950,00	0,00	1.650,00	**OK**
	UK	232.950,00	40.700,00	0,00	192.250,00	**OK**
2008	Belgium	12.550,00	63.039,00	0,00	-50.489,00	**Re-Exp?**
	Bulgaria	0,00	650,00	0,00	-650,00	**Not applicable**
	Denmark	7.250,00	7.550,00	0,00	-300,00	**Re-Exp?**
	Estonia	0,00	700,00	0,00	-700,00	**Not applicable**
	Finland	0,00	2.550,00	0,00	-2.550,00	**Not applicable**
	Germany	22.150,00	158.273,00	0,00	-136.123,00	**Re-Exp?**
	Ireland	33.700,00	22.250,00	873,00	10.577,00	**OK**
	Latvia	550,00	100,00	0,00	450,00	**OK**
	Lithuania	386,00	100,00	0,00	286,00	**OK**
	Netherlands	106.850,00	23.100,00	0,00	83.750,00	**OK**
	Poland	200,00	3.350,00	0,00	-3.150,00	**Re-Exp?**
	Romania	1.200,00	2.700,00	0,00	-1.500,00	**Re-Exp?**
	Slovenia	0,00	3.950,00	0,00	-3.950,00	**Not applicable**
	Sweden	2.450,00	2.100,00	0,00	350,00	**OK**
	UK	58.650,00	18.150,00	12,00	40.488,00	**OK**
2009	Belgium	83.750,00	89.300,00	0,00	-5.550,00	**Re-Exp?**
	Bulgaria	100,00	6.450,00	0,00	-6.350,00	**Re-Exp?**
	Denmark	11.600,00	1.300,00	0,00	10.300,00	**OK**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	50,00	12.800,00	0,00	-12.750,00	**Re-Exp?**
	Germany	55.200,00	115.800,00	0,00	-60.600,00	**Re-Exp?**
	Ireland	41.500,00	200,00	1.045,00	40.255,00	**OK**
	Latvia	0,00	9.900,00	0,00	-9.900,00	**Not applicable**
	Lithuania	0,00	5.700,00	0,00	-5.700,00	**Not applicable**
	Netherlands	131.450,00	134.150,00	0,00	-2.700,00	**Re-Exp?**
	Poland	15.400,00	2.300,00	0,00	13.100,00	**OK**
	Romania	0,00	14.550,00	0,00	-14.550,00	**Not applicable**
	Slovenia	5.000,00	7.450,00	0,00	-2.450,00	**Re-Exp?**
	Sweden	28.150,00	1.000,00	0,00	27.150,00	**OK**
	UK	25.200,00	83.700,00	561,00	-59.061,00	**Re-Exp?**

Table 4e. Yearly trade-data crosscheck status cells' earmarking by year of trade and exporting country for cases in which the exporting country was not traditionally engaged in E-BFT fishing.

Year of Trade or Catch	*Exporting Country*	*Exports*	*Imports*	*Task I E-BFT reported yearly catch*	*Difference*	*Assigned trade-data crosscheck status cells earmarking*
2010	Belgium	20.000,00	79.500,00	0,00	-59.500,00	**Re-Exp?**
	Bulgaria	0,00	3.150,00	0,00	-3.150,00	**Not applicable**
	Denmark	7.150,00	50,00	0,00	7.100,00	**OK**
	Estonia	0,00	550,00	0,00	-550,00	**Not applicable**
	Finland	0,00	11.350,00	0,00	-11.350,00	**Not applicable**
	Germany	68.200,00	117.850,00	0,00	-49.650,00	**Re-Exp?**
	Ireland	14.200,00	7.900,00	2.150,00	4.150,00	**OK**
	Latvia	150,00	1.150,00	0,00	-1.000,00	**Re-Exp?**
	Lithuania	0,00	15.950,00	0,00	-15.950,00	**Not applicable**
	Netherlands	123.350,00	193.850,00	0,00	-70.500,00	**Re-Exp?**
	Poland	16.900,00	1.400,00	0,00	15.500,00	**OK**
	Romania	50,00	11.250,00	0,00	-11.200,00	**Re-Exp?**
	Slovenia	100,00	4.600,00	0,00	-4.500,00	**Re-Exp?**
	Sweden	3.350,00	150,00	0,00	3.200,00	**OK**
	UK	107.000,00	16.300,00	0,00	90.700,00	**OK**
2011	Belgium	22.800,00	64.000,00	0,00	-41.200,00	**Re-Exp?**
	Bulgaria	500,00	200,00	0,00	300,00	**OK**
	Denmark	5.450,00	400,00	0,00	5.050,00	**OK**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	0,00	1.500,00	0,00	-1.500,00	**Not applicable**
	Germany	63.400,00	48.600,00	0,00	14.800,00	**OK**
	Ireland	520.000,00	2.650,00	0,00	517.350,00	**OK**
	Latvia	0,00	1.200,00	0,00	-1.200,00	**Not applicable**
	Lithuania	0,00	23.400,00	0,00	-23.400,00	**Not applicable**
	Netherlands	76.900,00	26.300,00	0,00	50.600,00	**OK**
	Poland	23.400,00	45.050,00	0,00	-21.650,00	**Re-Exp?**
	Romania	0,00	3.500,00	0,00	-3.500,00	**Not applicable**
	Slovenia	0,00	5.700,00	0,00	-5.700,00	**Not applicable**
	Sweden	450,00	200,00	0,00	250,00	**OK**
	UK	8.000,00	6.700,00	0,00	1.300,00	**OK**
2012	Belgium	3.550,00	18.200,00	0,00	-14.650,00	**Re-Exp?**
	Bulgaria	0,00	0,00	0,00	0,00	**Not applicable**
	Denmark	300,00	4.250,00	0,00	-3.950,00	**Re-Exp?**
	Estonia	0,00	0,00	0,00	0,00	**Not applicable**
	Finland	0,00	1.700,00	0,00	-1.700,00	**Not applicable**
	Germany	5.250,00	7.300,00	0,00	-2.050,00	**Re-Exp?**
	Ireland	0,00	250,00	0,00	-250,00	**Not applicable**
	Latvia	0,00	400,00	0,00	-400,00	**Not applicable**
	Lithuania	0,00	0,00	0,00	0,00	**Not applicable**
	Netherlands	51.150,00	12.800,00	0,00	38.350,00	**OK**
	Poland	0,00	0,00	0,00	0,00	**Not applicable**
	Romania	0,00	100,00	0,00	-100,00	**Not applicable**
	Slovenia	0,00	1.650,00	0,00	-1.650,00	**Not applicable**
	Sweden	1.700,00	150,00	0,00	1.550,00	**OK**
	UK	7.550,00	13.200,00	0,00	-5.650,00	**Re-Exp?**

- Note on possible re-exports of E-BFT by exporting countries traditionally engaged in E-BFT fishing and/or ranching

    - None of the official trade databases consulted for the purpose of this report, differentiates exports from re-exports, thus raising the legitimate question as to the overall reliability of obtained results.

      The issue of re-exports is especially true and relevant for E-BFT trade between the three most important E-BFT fishing EU Member States: Spain, France & Italy; totalling a combined 1998-2009 EU TAC of 195.922.734,00 Kgs. (92,91%) out of an EU 1998-2009 ICCAT combined ICCAT Quota of 210.875.625,25 Kgs.

      Based on EUROSTAT intra EU27 processed Fresh & Frozen E-BFT export flux data for the period 1998-June 2009[51], the flow of such imports/exports can be seen at Chart IV (Page 49).

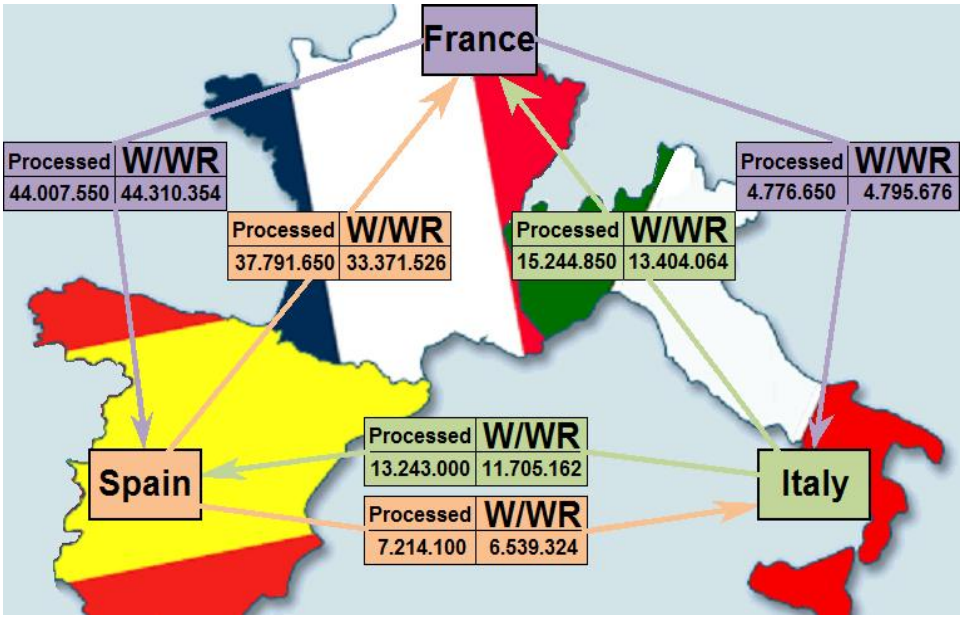


Chart 4. Flow of processed E-BFT import/export flux for the period 1998-June 2009, among the three most important E-BFT fishing EU Member States: Spain, France & Italy. All values in Kgs. Source: Eurostat.

According to EUROSTAT intra EU27 processed Fresh & Frozen E-BFT export flux data during the period 1998-June 2009 between Spain, France and Italy alone, the total flow of E-BFT exports by and between these three countries amounted to 122.277.800,00 Kgs. of processed E-BFT, equivalent to 114.126.106 Kgs. (W/RW); that is 58,25% of the combined 1998-2009 EU TAC of 195.922.734,00 Kgs.

- It appears that France was the leading exporting/re-exporting country with 48.784.200,00 Kgs. of processed E-BFT equivalent to 49.106.031,00 Kgs. (W/RW) having been exported/re-exported to Spain and Italy during the period 1998-June 2009.

- France was followed by Spain with 45.005.750,00 Kgs. of processed E-BFT equivalent to 39.910.849,00 Kgs. (W/RW) having been exported/re-exported to France and Italy during the period 1998-June 2009.

- Spain was in turn followed at a considerable distance by Italy with 28.487.850,00 Kgs. of processed E-BFT equivalent to 25.109.226,00 Kgs. (W/RW) having been exported/re-exported to France and Spain during the period 1998-June 2009.

[51] At the peak of EU's E-BFT consumption.

- In terms of fully detectable exports (FDE), that is: FDE = TE-TI[52],
    - It appears that Italy was by far the only net exporting country with 16.497.100,00 Kgs. of processed Fresh & Frozen E-BFT having been exported net to France and Spain during the period 1998-June 2009.
    - Spain was the most important net importer with 12.244.800,00 Kgs. of processed Fresh & Frozen E-BFT having been imported net from Italy during the period 1998-June 2009.
    - Spain was followed by France as a net importer with 4.252.300,00 Kgs. of processed Fresh & Frozen E-BFT having been imported net from Italy during the period 1998-June 2009.
- This would therefore mean that out of a total 122.277.800,00 Kgs. flow of processed Fresh & Frozen E-BFT exports by and between these three countries during the period 1998-June 2009, a maximum flux of 105.780.700,00 Kgs. of processed Fresh & Frozen E-BFT may well be presumed as corresponding to re-exports, thus raising a double-counting issue.
- We note at this point, that this report does not take into account, national domestic consumptions of domestically caught and processed Fresh & Frozen E-BFT. The reason for this is obvious: There can be no trace of international trade for such fish, because it was simply never exported.
- An estimated combined average national domestic consumption of processed Fresh & Frozen E-BFT amounting to some 11.000.000,00 Kgs. per year for France, Spain and Italy, during the period 1998-2008 (That is 121.000.000,00 Kgs.) largely exceeds the 105.780.700,00 Kgs. threshold of presumed processed Fresh & Frozen E-BFT re-exports.
    - According to data from Spain's former Ministry of Agriculture & Fisheries (MAPA-FROM[53]) Spain had an average yearly processed Fresh & Frozen E-BFT domestic consumption of 2.889.570,00 Kgs. during the period 2002 to 2005.
    - According to same MAPA-FROM data, Spain's processed Fresh & Frozen E-BFT domestic consumption for 2005 rose to 4.098.500,00 Kgs.
    - According to industry sources, Spain's processed Fresh & Frozen E-BFT domestic consumption for 2006 and 2007 was in tune with that of 2005.
    - According to France's OFIMER[54], 15% (1.418.700 Kgs.) of France's 2004 total E-BFT Catches (9.458.000,00 Kgs according to EUROSTAT and 7.032.067,00 Kgs. according to ICCAT) were marketed nationally.
    - Again according to OFIMER/DPMA, France imported that same year some 2.800.000,00 Kgs. of processed Fresh & Frozen E-BFT from Spain, Italy, Tunisia and Turkey in order to satisfy its national market demand, thus raising France's processed Fresh & Frozen E-BFT domestic consumption for 2004 up to some 4.200.000,00 Kgs.[55]
    - According to industry sources, France's processed Fresh & Frozen E-BFT domestic consumption for 2005, 2006 and 2007 was in tune with that of 2004.

[52] Where TE accounts for total exports and TI accounts for total imports

[53] Fondo de Regulación y Organización del Mercado de los Productos de la Pesca y Cultivos Marinos

[54] Office national interprofessionnel des produits de la mer et de l'aquaculture. Conseil de Direction. Séance du 21 Septembre 2005. Le Point sur le marché du thon germon.

[55] According to OFIMER, France's 2007 processed Fresh & Frozen E-BFT domestic consumption rose to 4.412.000,00Kgs. Source: Bilan Annuel 2007, Consommation des Produits de la Pêche et de l'Aquaculture.

- According to industry sources[56], over 10.000,00 Kgs. of Fresh E-BFT are sold daily at Palermo's fish market alone, during the three month-long E-BFT Summer fishing season. Italy's processed Fresh & Frozen E-BFT yearly domestic consumption up until 2007 is estimated at some 3.000.000,00 Kgs.

o It is therefore our assumption, that whatever E-BFT yearly trade-flux volume may be attributable to re-exports, such volume is always lower than that pertaining to domestically caught and processed Fresh & Frozen E-BFT in traditional E-BFT fishing and/or ranching nations. The later not having been accounted for in our report, the pertinent re-exports double-counting issue no longer supposes a problem

E. Calculation of estimated E-BFT yearly caught equivalent Wild-round-Weights (W/rW)

This report proposes a set of four (4) alternative scenarios of estimated E-BFT yearly caught equivalent W/rW volumes for 1998 to 2011 included.

Such estimations, ranked on a conservative scale of I to IV, are based on the analysis and quantification of officially recorded trade-fluxes, as explained in previous sections of this methodology **Annexe I**.

By examining official export/import official records (Trade-flux data records) and assigning to each one of them an estimated equivalent Wild-round-Weight (W/rW) and effective year of catch, we were thus able to compare our results to catch amounts reported by fishing nations and therefore estimate the degree of yearly E-BFT IUU catches.

In turn, it also allowed us to quantify the amounts of E-BFT caught above the yearly quotas set by ICCAT from 1998 to 2011, included, thus determining the possible implications such overages could have on the outcome of the E-BFT stock rebuilding program first set by ICCAT in 2006.

All calculations were performed by using annexed Excel spreadsheet file: **(c) Catch & Trade Data Crosscheck and Analysis 1998 to 2012**, selecting pertinent **Assigned trade data crosscheck status** and **Assigned year of catch** cells in respective columns, depending on which scenario was chosen.

a. Initial calculations

i. Calculation of the estimated equivalent W/rW of caught E-BFT for a given year (Low-conservative estimation - Carryovers not included)

$$ {}^{T}_{Y}W/rW^{nc}_{L} = \sum^{Y}_{W/rW\ OK} $$

Where: T: Total
Y: Any chosen year between 1998 and 2011 included
nc: No carry-overs included
L: Low estimation

W/rW **OK**: Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "OK"

ii. Calculation of the estimated equivalent W/rW of caught E-BFT for a given year (Realistic estimation - Carryovers not included)

$$ {}^{T}_{Y}W/rW^{nc}_{H} = \sum^{Y}_{W/rW\ OK} + \sum^{Y}_{W/rW\ OK?} + \sum^{Y}_{W/rW\ Re\text{-}Exp?} + \sum^{Y}_{W/rW\ Exp\text{-}Cons?} $$

Where: T: Total
Y: Any chosen year between 1998 and 2011 included

[56] Source: HACCP.

nc: No carry-overs included
H: Realistic estimation

W/rW **OK** — Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "**OK**"

W/rW **OK?** — Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "**OK?**"

W/rW **Re-Exp?** — Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "**Re-Exp?**"

W/rW **Ex Cons?** — Calculated estimated W/rW per trade-flux data record for which assigned trade data crosscheck status cell carries the mention "**Ex Cons?**"

b. Final calculations

i. Scenario I: Calculation of the estimated equivalent W/rW of caught E-BFT for a given year (Low-conservative estimation - Carryovers included)

$$ {}^{T}_{Y}W/rW^{coi}_{L} = {}^{T}_{Y}W/rW^{nc}_{L} - (Co_{\rightarrow Y_{(-n)}}) - (Co_{\rightarrow Y_{(-3)}}) - (Co_{\rightarrow Y_{(-2)}}) - (Co_{\rightarrow Y_{(-1)}}) + (Co_{\rightarrow Y_{(+1)}}) $$

Where: T: Total
Y: Any chosen year between 1998 and 2011 included
coi: Carry-overs included
nc: No carry-overs included
L: Low estimation
Co → Y: Caged live-E-BFT carried over to chosen year expressed in original W/rW (Kgs)[57] [58]

ii. Scenario IV: Calculation of the estimated equivalent W/rW of caught E-BFT for a given year (High - realistic estimation - Carryovers included)

$$ {}^{T}_{Y}W/rW^{coi}_{H} = {}^{T}_{Y}W/rW^{nc}_{H} - (Co_{\rightarrow Y_{(-n)}}) - (Co_{\rightarrow Y_{(-3)}}) - (Co_{\rightarrow Y_{(-2)}}) - (Co_{\rightarrow Y_{(-1)}}) + (Co_{\rightarrow Y_{(+1)}}) $$

Where: T: Total
Y: Any chosen year between 1998 and 2011 included
nc: No carry-overs included
H: Realistic estimation
Co → Y: Caged live-E-BFT carried over to chosen year expressed in original W/rW (Kgs)[59] [60]

57 Source: CoC-302/2007 – Addendum 2 ; CoC-303/2008; Secretariat Report to CoC, Coc-303/2011.

58 2006 to 2011 live-EBFT carryovers to 2012 are provisional estimations by the author, subject to modifications, once official data is made available by ICCAT.

59 Source: CoC-302/2007 – Addendum 2 ; CoC-303/2008; Secretariat Report to CoC, Coc-303/2011.

60 2006 to 2011 live-EBFT carryovers to 2012 are provisional estimations by the author, subject to modifications, once official data is made available by ICCAT.

Annex I
List of Tables and Charts

Tables I & 2:

New ranched E-BFT fattening rates table, created by SCRS in 2009/2010, which showed significant higher weight gain rates, based on information presented to SCRS at that time.

Table 3:

Trade status chronology among today's EU27 Member States.

Table 4a, b, c, d and e:

Yearly trade-data crosscheck status cells' earmarking by year of trade and exporting country for cases in which the exporting country was not traditionally engaged in E-BFT fishing

Chart 1:

Tuna ranching national operational chronogram

Chart 2:

Methodology of first crosscheck between recorded monthly exports and imports of processed Fresh/chilled & Frozen E-BFT among EU27 Member States for the period January 1998 to June 2012

Chart 3:

Methodology of second crosscheck between recorded monthly exports and imports of processed Fresh/chilled & Frozen E-BFT among EU27 Member States for the period January 1998 to June 2012

Chart 4:

Flow of processed E-BFT import/export flux for the period 1998-June 2009, among the three most important E-BFT fishing EU Member States: Spain, France & Italy. All values in Kgs. Source: Eurostat

Annex I

List of Acronyms

BB:	Bait Boat
BCD:	BlueFin Tuna Catch Document
BM:	Belly meat
B_{MSY}:	Total biomass that can support harvest of the maximum sustainable yield
CCC:	Customs Cooperation Council.
CN:	European Community's Combined Nomenclature for classification of goods
CoC:	Compliance Committee
CpC:	Contracting party to the Convention
CPUE:	**Catch per unit effort**
D:	Daily
DR:	Dressed
E-BFT:	Eastern Atlantic and Mediterranean BlueFin Tuna
Exp Cons:	Export on consignment
F:	Fresh
FDE:	Fully detectable exports
FL:	Fillet
FR/F:	Frozen and/or Fresh
FR:	Frozen
GG:	Gilled & gutted
HS:	Harmonized Commodity Description and Coding System
ICCAT:	International Commission for the Conservation of Atlantic Tunas
Kgs:	Kilograms
L	Live
L-E-BFT C-over:	Live Eastern Atlantic and Mediterranean BlueFin Tuna carryover
LL:	Longliner
M:	Monthly
OT:	Other
PS:	Purseiner
Q1	Year’s first quarter
Q2	Year’s second quarter
Q3	Year’s third quarter
Q4	Year’s fourth quarter
RD:	Round
Re-Exp:	Re-export
S:	Semester
SCRS:	Standing Committee on Research and Statistics
TARIC:	Integrated Tariff of the European Communities
V:	Various
W/rW:	Wild round weight
Y:	Yearly