Commission for the Conservation of
Southern Bluefin Tuna

みなみまぐろ保存委員会

CCSBT-CC/1209/08

SOUTHERN BLUEFIN TUNA TRADE DATA: EXPLORATORY ANALYSES
みなみまぐろ貿易データ：予備的分析

Introduction
はじめに

In October 2011, the 6th Meeting of the Compliance Committee (CC6) recommended that market analyses be conducted, and that a subscription to a trade database be taken out to allow these analyses to be undertaken. Further, CC6 recommended that the ESC be tasked with developing a methodology for using these trade figures to analyse market trends.
2011 年 10 月、第 6 回遵守委員会会合（CC6）は、市場分析を実施し、かつ、かかる分析を実施するために貿易データベースを購入をするよう勧告した。さらに CC6 は、拡大科学委員会（ESC）に対して、市場トレンドを分析するためのこれらの貿易データの利用手法を開発するよう要請した。

As recommended, the Secretariat took out a subscription to the Global Trade Atlas® (GTA) database in January 2012, and subsequently prepared a paper on exploratory analyses of these trade data. This paper was submitted as paper ESC/1208/10 (Rev.2) to the 17th Meeting of the Extended Scientific Committee (ESC). It is equally relevant to CC7, and is therefore re-submitted here as paper CCSBT-CC/1209/BGD 03[1].
勧告のとおり、2012 年 1 月、事務局はグローバルトレードアトラス（GTA）データベースの利用契約を結び、この貿易データの予備的分析に関する文書を作成した。この文書は、第 17 回 ESC において、ESC/1208/10 (Rev.2)として提出している。これは、CC7 においても同様に関連していることから、ここでは文書 CCSBT-CC/1209/BGD 03[1] として再提出している。

ESC Meeting Outcomes
ESC 会合の結果

The ESC made no recommendations on paper ESC/1208/10 (Rev.2). However, the following key observations were made:
ESC は、文書 ESC/1208/10 (Rev.2) についての勧告は行わなかった。しかしながら、以下に掲げる見解を表明した。

1. The ESC agreed that the Secretariat's analysis was of value in identifying broad market trends and particularly expansion of new markets and trade by NCNMs.
   ESC は、事務局による分析は、広範な市場トレンド、特に新興市場の拡大及び NCNM による貿易を特定するのに重要なものであることに合意した。
2. The ESC regarded the lack of information for SBT fillets in the subscription to the GTA database as being a substantial issue, given the potential scale of SBT fillet trade.

[1] Note that CDS import quantities presented in this paper do not include imports from Re-export/ Export after Landing of Domestic Product (REEF) forms
この文書に記載している CDS に基づく輸入量は、再輸出/国産品の水揚げ後の輸出（REEF）様式に基づく輸入量は含んでいない。

ESC は、SBT フィレの貿易の潜在的規模を考慮すれば、購入契約をしている GTA データベースにおいて SBT フィレに関する情報が欠如していることは、実質的な問題であると考えた。

3. The ESC noted the limitations in the trade data presented. In addition, the ESC noted the substantial issue of potential accidental or intentional miscoding and that there is uncertainty in the robustness of the price and origin data. The ESC was not aware of the validation processes for these data and noted the Compliance Committee was probably better placed to evaluate this. The GTA data presented also do not distinguish trade of SBT product that is on-sold, *i.e.* that is imported to one country and then exported on to another country.
ESC は、提供された貿易データが抱える制約に留意した。さらに ESC は、偶発的又は意図的なコードミスの可能性の実質的な問題、並びに価格及び輸出元のデータの頑健性の不確実性に留意した。ESC は、これらのデータに関する確認プロセスがどのようなものかについて承知しておらず、恐らく遵守委員会がこれを評価するのに適切なところであると指摘した。また、提供された GTA データからは、SBT 産品の再輸出（すなわち、ある国に輸入後、別の国に輸入されるもの）であるかどうかを見分けられない。
4. Given the data limitations, the ESC did not recommend more detailed analyses at this stage, but reiterated the value of continuing the Secretariat's approach.
データが抱える制約を考慮すれば、ESC は、現時点において更に詳細な分析を行うことは勧告しないが、事務局の作業は継続する価値がある点を再度指摘したい。

Summary of Exploratory Analyses
予備的分析の概要

Some of the conclusions noted within the original ESC paper were as follows:
当初の ESC 文書に含まれていた結論の一部は、次のとおり。

- A total of 26 Non-Cooperating Non-members (NCNMs) were recorded as importers[2]. One additional importing NCNM was identified from Catch Documentation Scheme (CDS) records, giving a grand total of 27 importing NCNMs. Many of these importers received SBT in small quantities,
全部で 26 の非協力的非加盟国（NCNM）が輸入国として記録されていた[2]。漁獲証明制度（CDS）の記録に基づき、更に 1 つの輸入 NCNM が特定され、最終的に全 27 の輸入 NCNM に達した。これら輸入国の多くが、僅かの量の SBT を受け入れていた。
- A total of 11 NCNMs were recorded as exporters[3] from combined GTA and CDS database extracts, and
GTA 及び CDS データーベースに基づき、全部で 11 の NCNM が輸出国[3]として記録されていた。
- A general inspection of the CDS and GTA data suggested that the main markets outside the current CDS coverage areas include Hong Kong, Singapore, the USA and more recently China.
CDS 及び GTA の全体的なチェックによって、現行の CDS が網羅する範囲外の主要な市場には、香港、シンガポール、米国、そして最近では中国が含まれることが示唆された。

However, data extracted from the GTA trade database should be considered with caution due to its inherent limitations. For example, CCSBT's subscription includes only a subset of all the GTA data

[2] Importers are considered to be those states/entities listed as either importers or export destinations (and so by implication importers)
輸入国又は輸出先（すなわち輸入国を示唆）のどちらかとして掲載された国/主体を輸入国とした。
[3] Exporters are considered to be those states/entities listed as either exporters or import sources (and so by implication exporters)
輸出国又は輸入元（すわんわち輸出国を示唆）のどちらかとして掲載されていた国/主体と輸出国とした。

available. In addition, some low unit price values and unlikely trades of fresh SBT, potentially indicate that some miscoded commodity codes could be present within the trade database, *i.e.* that some non-SBT product may have been erroneously recorded under SBT commodity codes in the trade data.
しかしながら、GTA 貿易データベースからの抽出データについては、それに内在する制約のため、取扱いに注意する必要がある。例えば、例えば、CCSBT が購入しているデータは、利用可能な全 GTS データから構成されるサブセットだけである。さらに、低単価のものや、想定されない輸入/輸出実績があることは、この貿易データベース内に商品コードの記載ミスが存在する可能性を潜在的に示している。すなわち、GTA データベースの中に、一部の非 SBT 産品が誤って SBT 産品として記録されている可能性がある。

World Wildlife Fund (WWF) Market Survey in China
世界自然保護基金（WWF）による中国市場調査

An additional item relevant to this paper was notified to Members in the Secretariat's Circular #2012/023. In this Circular, the Secretariat advised Members and Cooperating Non-Members (CNMs) of the outcomes of a market survey carried out in the People's Republic of China by the World Wildlife Fund (WWF). That survey is provided at Attachment A.
この文書に関連する事項として、事務局からの回章#2012/023 によってメンバーに通報されたものがある。この回章において、事務局は、メンバー及び協力的非加盟国（CNM）に対して、世界自然保護基金（WWF）が中華人民共和国内で実施した市場調査の結果を通知した。かかる調査は、別紙 A のとおり。

One hundred samples of sashimi-grade tuna products were collected in 75 different restaurants and 4 different supermarkets in Beijing and Shanghai during July and August 2011. Of the samples collected that were verified to be tuna (88 out of 100), a surprisingly large percentage, were confirmed by genetic analysis to be southern bluefin tuna (29.5%). All of the southern bluefin tuna identified came from the restaurant samples. These results appear to indicate that substantial quantities of SBT reached both Beijing and Shanghai.
2011 年 7 月から 8 月において、北京及び上海の 75 の異なるレストラン及び 4 つの異なるスーパーマーケットで、サシミグレードのまぐろ 100 サンプルを収集した。まぐろであることが検証された収集サンプル（100 のうちの 88）のうち、遺伝解析によって、驚くべきほど高い確率で、みなみまぐろが確認された（29.5%）。同定されたみなみまぐろの全てが、レストランからのサンプルであった。かかる結果は、相当量の SBT が北京及び上海に運ばれていることを示唆していると思われる。

China confirmed that the China Customs Authority recorded 9.864 tonnes of SBT imports during 2011. This figure matches the quantity of 9.864 tonnes of frozen SBT imports to China extracted from the trade database. However, the trade database also recorded 0.46 tonnes of fresh/chilled SBT imports to China during 2011. Note that the quantity of imported product confirmed by China (9.864 tonnes) is substantially greater than is indicated by CDS quantities of fresh plus frozen export records to China (0.45 tonnes during 2011) provided to CCSBT by Members and CNMs. However, the CDS does not store any information on any NCNM exports to China which may have occurred.
中国は、中国関税局において 2011 年に 9.864 トンの SBT の輸入を記録していることを確認している。この数値は、貿易データベースからの抽出した中国への冷凍 SBT 輸入の 9.864 トンと一致する。しかしながら、貿易データベースは、2011 年に 0.46 トンの生鮮/冷蔵 SBT が中国に輸入されていることを記録している。中国によって確認された輸入品の量は、メンバー及び CNM から事務局に提供された CDS によって示唆された中国に輸出された生鮮及び冷凍品の量（2011 年 0.45 トン）を、相当程度を上回っていることに留意されたい。しかし

ながら、CDS は、起こりうる NCNM から中国への輸出については、何ら情報を持ち合わせていない。

Prepared by the Secretariat
事務局作成文書

WWF study:

Market survey in the People's Republic of China in 2011-2012 (sashimi-grade tuna)

July 2012

Introduction

In order to check the reliability of information on species composition of sashimi-grade tuna products in global markets, we carried out a systematic monitoring of tuna products from the Japanese, Chinese and some European markets during two years. The sampling was carried out in Tokyo, Hong Kong, Beijing, Shanghai, Rome and Barcelona, and the samples of sashimi grade tuna were later analyzed based on DNA sequencing methodologies. In the case of China the purpose of the work was also to assess from the field the magnitude of Atlantic bluefin tuna (ABFT) consumption and trade, as information reported to ICCAT points to little more than anecdotal relevance.

A total 100 samples were taken from supermarkets and restaurants in the Chinese cities of Beijing and Shanghai during July and August 2011 (Table 1, from sample CNB011 to CNS421). Furthermore, in order to check how significant the Chinese capacity to import Bluefin tuna is, 17 additional samples were obtained from a field assessment in January and February 2012 in Dalian and Yantai. These cities were identified as the hubs for importing and redistributing bluefin tuna in China therefore, in addition to markets, supermarkets and restaurants, samples were taken from the three main bluefin tuna importing and processing companies in Dalian and Yantai (Table 1, from sample 1 to 17, and Figure 1), which in order of assessed importance for Atlantic bluefin tuna imports are:

1. Yantai Shandong Zhonglu Oceanic Foods Co., Ltd. (YSZOF)
2. Dalian Global Foods Corporation Ltd. (DGF) subsidiary company of Dalian Zhangzidao Fishery Group Co., Ltd.
3. Dalian Ocean Fishery Group of Corporations. (DOFGC)

These companies import, process, freeze and redistribute several species of sashimi-grade tunas, including Atlantic bluefin tuna. Our consultant visited the cold storage rooms at Dalian Global Foods Ltd. and was informed by local sources of the presence there of frozen bluefin tuna from a Turkish farm, as well as of the packing of 250g-pieces of frozen tuna intended for the European market.

Results

The samples, once taken, were sent to the ichthyological genetics laboratory of Girona's University (Spain) to be analyzed. After several runs of PCR and sequencing, all 117 samples were successfully identified. Several procedures were used to identify the species. First, 105 samples were identified as species of the genus *Thunnus* using the methodology described in Viñas and Tudela (2009); the remaining 12 samples were not recognized as any *Thunnus* species. Using the BLAST approach, these 12 samples were compared to the sequences from GenBank and gave a positive identification of 10 sequences with escolar *Lepidocybium*

flavobrunneum, one sequence with Atlantic salmon *Salmo salar*, and one sample with Atlantic blue marlin *Makaira nigricans*. See Table 1 for the summary results of the species identification and Document 4 (Annex 2) for details.

The identification obtained from the 100 samples taken in Shanghai and Beijing (i.e. samples CNB011 to CNS421) is the following: 29 were identified as yellowfin tuna (*Thunnus albacares*), 26 as Southern bluefin tuna (*T. maccoyii*), 15 as bigeye tuna (*T. obesus*), 12 as Atlantic bluefin tuna (*T. thynnus*), 6 as Pacific bluefin tuna (*T. orientalis*), and 12 were not from the genus *Thunnus*. This means that from the genus *Thunnus* 33 % were yellowfin (*T. albacares*), 29.5 % Southern bluefin (*T. maccoyii*), 17 % bigeye (*T. obesus*), 13.6 % Atlantic bluefin (*T. thynnus*), and 6.8 % Pacific bluefin (*T. orientalis*).

Regarding the additional 17 tuna samples taken for the field assessment in Dalian and Yantai (i.e. samples 1 to 17), the identification outcome is as follows: 8 *T. thynnus*, 4 *T. albacares*, 2 *T. obesus*, 2 *T. alalunga* and 1 *T. maccoyii*. Atlantic bluefin tuna was found in the three cold storage facilities (= main importing companies) sampled.

Conclusion

Our research suggests consumption and related imports of Atlantic bluefin tuna in China are significant, and our findings don't seem consistent with the very low figures reported to ICCAT (imports of only 19 t in 2010, COC-303/2011; it's worth noting Chinese catches in 2011 were not consumed in China but were reportedly exported to Japan).

Our findings regarding Southern bluefin tuna (second most abundant species after yellowfin in our sashimi sampling) suggest an even greater mismatch as trade data available from CCSBT and from Chinese customs points to an almost anecdotal trade of this species into China.

Table 1. Summary of China's sampling and genetic analysis. Samples CNB011 to CNS421 are from Beijing and Shanghai. Samples 1 to 17 are from the field assessment in Dalian and Yantai. More details are available upon request. Origin of samples 9 to 17 as reported by the companies' staff.

SAMPLING					GENETIC ANALYSIS	
Sample	Label Product's Name	Place	Date	City	Species common name	Scientific name
CNB011	Tuna	Japanese Restaurant	7/2/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB021	Tuna	Supermarket	7/2/2011	Beijing	Bigeye tuna	*Thunnus obesus*
CNB031	Red tuna	Japanese Restaurant	7/2/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB032	White tuna	Japanese Restaurant	7/6/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB041	Red tuna	Japanese Restaurant	7/10/2011	Beijing	Bigeye tuna	*Thunnus obesus*
CNB042	White tuna	Japanese Restaurant	7/10/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB051	Tuna	Japanese Restaurant	7/12/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB061	Tuna	Japanese Restaurant	7/12/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB062	Tuna middle part	Japanese Restaurant	7/12/2011	Beijing	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNB071	Tuna	Japanese Restaurant	8/3/2011	Beijing	Bigeye tuna	*Thunnus obesus*
CNB081	Tuna	Japanese Restaurant	8/3/2011	Beijing	Bigeye tuna	*Thunnus obesus*
CNB091	Tuna	Japanese Restaurant	8/3/2011	Beijing	Southern Bluefin tuna	*Thunnus maccoyii*
CNB101	Tuna	Japanese Restaurant	8/3/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB111	Tuna	Japanese Restaurant	8/3/2011	Beijing	Southern Bluefin tuna	*Thunnus maccoyii*
CNB121	Tuna	Japanese Restaurant	8/3/2011	Beijing	Bigeye tuna	*Thunnus obesus*
CNB131	Tuna	Japanese Restaurant	8/4/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB141	Tuna	Japanese Restaurant	8/4/2011	Beijing	Bigeye tuna	*Thunnus obesus*
CNB151	Bigeye tuna	Japanese Restaurant	8/4/2011	Beijing	Southern Bluefin tuna	*Thunnus maccoyii*
CNB152	White tuna (whitefish)	Japanese Restaurant	8/4/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB153	Black-fin tuna	Japanese Restaurant	8/4/2011	Beijing	Atlantic Blue marlin	*Makaira nigricans*
CNB161	Tuna	Japanese Restaurant	8/4/2011	Beijing	Yellowfin tuna	*Thunnus albacares*

SAMPLING					GENETIC ANALYSIS	
Sample	Label Product's Name	Place	Date	City	Species common name	Scientific name
CNB171	Tuna	Japanese Restaurant	8/4/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB172	Tuna	Japanese Restaurant	8/4/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB181	Tuna	Japanese Restaurant	8/4/2011	Beijing	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNB191	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB201	Tuna	Japanese Restaurant	8/7/2011	Beijing	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNB211	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB221	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB231	Tuna	Japanese Restaurant	8/7/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB232	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB241	Tuna	Japanese Restaurant	8/7/2011	Beijing	Southern Bluefin tuna	*Thunnus maccoyii*
CNB251	Tuna	Japanese Restaurant	8/7/2011	Beijing	Bigeye tuna	*Thunnus obesus*
CNB261	Tuna back part	Japanese Restaurant	8/6/2011	Beijing	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNB271	Tuna	Japanese Restaurant	8/6/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB281	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB291	White tuna	Japanese Restaurant	8/7/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB292	Red tuna back part	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB301	Tuna	Japanese Restaurant	8/6/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB311	Wild bigeye tuna	Japanese Restaurant	8/7/2011	Beijing	Southern Bluefin tuna	*Thunnus maccoyii*
CNB312	Bluefin tuna middle part	Japanese Restaurant	8/7/2011	Beijing	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNB321	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB331	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB332	White tuna	Japanese Restaurant	8/7/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB341	White tuna	Japanese Restaurant	8/7/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB342	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*

SAMPLING					GENETIC ANALYSIS	
Sample	Label Product's Name	Place	Date	City	Species common name	Scientific name
CNB351	Tuna	Japanese Restaurant	8/7/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB361	Tuna	Japanese Restaurant	8/16/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNB362	Tuna	Japanese Restaurant	8/16/2011	Beijing	Escolar	*Lepidocybium flavobrunneum*
CNB371	Tuna	Japanese Restaurant	8/1/2011	Beijing	Bigeye tuna	*Thunnus obesus*
CNB372	Tuna	Japanese Restaurant	8/1/2011	Beijing	Yellowfin tuna	*Thunnus albacares*
CNS011	Tuna sashimi	Japanese Restaurant	7/14/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS021	South tuna	Japanese Restaurant	7/14/2011	Shanghai	Yellowfin tuna	*Thunnus albacares*
CNS022	Fatty tuna middle part	Japanese Restaurant	7/14/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS023	Bigeye tuna	Japanese Restaurant	7/14/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS031	Tuna sushi	Japanese Restaurant	7/15/2011	Shanghai	Yellowfin tuna	*Thunnus albacares*
CNS041	Sashimi mixed	Japanese Restaurant	7/15/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS042	Sashimi mixed	Japanese Restaurant	7/15/2011	Shanghai	Escolar	*Lepidocybium flavobrunneum*
CNS051	Sashimi mixed	Japanese Restaurant	7/15/2011	Shanghai	Bigeye tuna	*Thunnus obesus*
CNS052	White tuna sashimi	Japanese Restaurant	7/16/2011	Shanghai	Bigeye tuna	*Thunnus obesus*
CNS061	Tuna sashimi	Japanese Restaurant	7/16/2011	Shanghai	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNS062	Tuna sashimi	Japanese Restaurant	7/16/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS071	Tuna	Japanese Restaurant	7/16/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS081	Tuna	Japanese Restaurant	7/17/2011	Shanghai	Northern Bluefin tuna Pacific	*Thunnus orientalis*
CNS091	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Bigeye tuna	*Thunnus obesus*
CNS101	Tuna	Japanese Restaurant	7/17/2011	Shanghai	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNS111	Tuna sashimi	Supermarket	7/17/2011	Shanghai	Bigeye tuna	*Thunnus obesus*
CNS121	Tuna	Supermarket	7/17/2011	Shanghai	Yellowfin tuna	*Thunnus albacares*
CNS131	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Northern Bluefin tuna Pacific	*Thunnus orientalis*
CNS141	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*

SAMPLING					GENETIC ANALYSIS	
Sample	Label Product's Name	Place	Date	City	Species common name	Scientific name
CNS151	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Northern Bluefin tuna Pacific	*Thunnus orientalis*
CNS161	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Northern Bluefin tuna Pacific	*Thunnus orientalis*
CNS171	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS181	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS191	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS201	Tuna	Japanese Supermarket	7/17/2011	Shanghai	Yellowfin tuna	*Thunnus albacares*
CNS211	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Bigeye tuna	*Thunnus obesus*
CNS221	Tuna sashimi	Japanese Restaurant	7/17/2011	Shanghai	Yellowfin tuna	*Thunnus albacares*
CNS231	Tuna sashimi	Japanese Restaurant	7/20/2011	Shanghai	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNS241	Bluefin tuna sushi	Japanese Restaurant	8/7/2011	Shanghai	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNS251	Red tuna	Japanese Restaurant	8/7/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS252	White tuna	Japanese Restaurant	8/7/2011	Shanghai	Northern Bluefin tuna Atlantic similar Albacore	*Thunnus thynnus*
CNS261	Tuna sashimi	Japanese Restaurant	8/7/2011	Shanghai	Yellowfin tuna	*Thunnus albacares*
CNS271	Bluefin tuna	Japanese Restaurant	8/7/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS281	Tuna sashimi	Japanese Restaurant	8/8/2011	Shanghai	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNS291	Black fin tuna sashimi	Japanese Restaurant	8/7/2011	Shanghai	Northern Bluefin tuna Pacific	*Thunnus orientalis*
CNS301	Tuna sashimi	Japanese Restaurant	8/7/2011	Shanghai	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
CNS311	Tuna sashimi	Japanese Restaurant	2011-8-8	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS321	Tuna sashimi	Japanese Restaurant	8/11/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS331	Bigeye tuna	Japanese Restaurant	8/4/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS341	Tuna sashimi	Japanese Restaurant	8/8/2011	Shanghai	Yellowfin tuna	*Thunnus albacares*
CNS351	Bluefin tuna	Japanese Restaurant	8/7/2011	Shanghai	Northern Bluefin tuna Pacific	*Thunnus orientalis*
CNS361	Tuna sashimi	Japanese Restaurant	8/8/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS371	Tuna sashimi	Japanese Restaurant	8/5/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*

SAMPLING					GENETIC ANALYSIS	
Sample	Label Product's Name	Place	Date	City	Species common name	Scientific name
CNS381	Tuna sashimi	Japanese Restaurant	8/8/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS391	Tuna	Japanese Restaurant	8/10/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS392	Long fin tuna	Japanese Restaurant	8/10/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS401	Red tuna	Japanese Restaurant	8/12/2011	Shanghai	Atlantic Salmon	*Salmo salar*
CNS402	White tuna	Japanese Restaurant	8/12/2011	Shanghai	Southern Bluefin tuna	*Thunnus maccoyii*
CNS411	Tuna sashimi	Japanese Restaurant	8/1/2011	Shanghai	Bigeye tuna	*Thunnus obesus*
CNS421	Tuna	Japanese Restaurant	7/17/2011	Shanghai	Bigeye tuna	*Thunnus obesus*
1		Supermarket	1/19/2012		Yellowfin tuna	*Thunnus albacares*
2		Supermarket	1/19/2012		Yellowfin tuna	*Thunnus albacares*
3		Uminosato Restaurant	1/19/2012	Dalian	Yellowfin tuna	*Thunnus albacares*
4		Uminosato Restaurant	1/19/2012	Dalian	Yellowfin tuna	*Thunnus albacares*
5		Wasabi Restaurant	1/25/2012		Bigeye tuna	*Thunnus obesus*
6		Wasabi Restaurant	1/25/2012		Northern Bluefin tuna Atlantic	*Thunnus thynnus*
7		Wasabi Restaurant	1/25/2012		Northern Bluefin tuna Atlantic	*Thunnus thynnus*
8		Haiqiao Restaurant	1/29/2012	Dalian	Bigeye tuna	*Thunnus obesus*
9		DGF (Spain farm origin)	1/30/2012	Dalian	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
10		DGF (Spain farm origin)	1/30/2012	Dalian	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
11		DGF (Spain farm origin)	1/30/2012	Dalian	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
12		DGF (Spain farm origin)	1/30/2012	Dalian	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
13		YSZOF (Spain farm origin)	2/1/2012	Yantai	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
14		DOFGC (Spain farm origin)	2/1/2012	Dalian	Northern Bluefin tuna Atlantic	*Thunnus thynnus*
15		YSZOF (Turkey farm origin)	2/4/2012	Yantai	Southern Bluefin tuna	*Thunnus maccoyii*
16		YSZOF (Morocco trap origin)	2/4/2012	Yantai	Albacore	*Thunnus alalunga*
17		YSZOF (Japan farm origin)	2/4/2012	Yantai	Albacore	*Thunnus alalunga*

Dalian Global Food Corporation Ltd.

Sample 10

Sample 12

Yantai Shandong Zhonglu Oceanic Foods Co., Ltd.

Sample 13

Dalian Ocean Fishery Group of Corporations

Sample 14