



DEVELOPMENT OF A DRAFT SET OF STANDARDS TO ENSURE CDS DATA INTEGRITY

Introduction

At the 5th Meeting of the Compliance Committee, the Secretariat was tasked to develop a draft set of standards and processes to ensure CDS data integrity for consideration by CC6.

The Secretariat has approached this task by developing and implementing a suite of comprehensive checks on the CDS data submitted to the Secretariat.

This document provides a summary of these checks. It should be noted that a separate set of standards is required to ensure integrity of CDS data collected in the field (e.g. inspection levels).

This document also provides analyses for some data items on the variations seen in the 2010 data, and makes recommendations for levels at which the Secretariat will perform further checking and verification of data with Members and CNM's.

A number of problems have been encountered with missing or incomplete CDS data during 2010. The Secretariat is working with Members and CNM's to resolve these issues, however due to limited resources within the Secretariat, the process for the Secretariat contacting Members/CNM's regarding missing data and discrepancies and obtaining responses is taking a long time to complete.

Basic Checks

Tables 1 to 6 provide summaries of the checks conducted and problems detected regarding missing and/or incomplete CDS data from 2010. Data included in these tables are intended to be followed up by the Secretariat with the providing Member/CNM.

Members are encouraged to identify any checks that are not necessary and to specify any important checks that are missing.

For each of these tables, items in bold are where problems have been detected, while items in italics are checks that are currently conducted, but where no problems have been identified.

Table 1: Breakdown of checks conducted and problems detected with CDS Catch Monitoring Forms provided by the Catching Member/CNM from the 2010 Calendar year. A total of 2734 CMF forms were received for 2010.

Type of Problem	Australia	Japan	Korea	New Zealand	Taiwan	Indonesia	Philippines	South Africa
<i>Document Number not in correct format</i>	0	0	0	0	0	0	0	0
<i>Catch Tagging Form document numbers (CTF) not provided</i>	0	0	0	0	0	0	0	0
Weight on CTF's differs by more than 2.5%	139	6	7	15	2	33	0	0
<i>Farm Stocking Form (FSF) document numbers not provided</i>	0	0	0	0	0	0	0	0
Farm listed on CMF not on FSF	3	0	0	0	0	0	0	0
Vessel/Farm name not provided	0	2	0	0	2	1	0	0
Vessel/Farm not Authorised	0	0	0	0	0	104	0	0
<i>Missing or Invalid Processed Code</i>	0	0	0	0	0	0	0	0
Missing or invalid product state (F/FR)	0	0	0	0	0	1	0	0
<i>Missing Harvest Month</i>	0	0	0	0	0	0	0	0
Harvest date provided as a range spanning months	0	88	9	0	0	23	0	0
<i>Missing or invalid Gear Code</i>	0	0	0	0	0	0	0	0
Missing or invalid statistical area	0	0	0	0	0	117	0	3
Missing or invalid conversion factor for 'OT' product¹	132	0	0	0	0	7	0	8
Multiple statistical areas provided for a single fish description record	0	0	4	0	0	0	0	0
<i>Missing or invalid Weight</i>	0	0	0	0	0	0	0	0
<i>Missing or invalid Number</i>	0	0	0	0	0	0	0	0
<i>Incorrect or unlikely Average weight</i>	0	0	0	0	0	0	0	0
Missing Catch validator name	3	0	0	1	1	3	1	1
Missing Catch validator signature	1	0	0	1	1	2	1	1
Missing Catch validation stamp	3	1	4	3	1	7	1	1
Missing Catch validation date	3	0	0	2	2	6	1	1
Missing Point of export city	0	0	0	2	2	131	0	10
Missing Point of export country	0	0	0	0	1	109	0	3
<i>Missing Export Destination</i>	0	0	0	0	0	0	0	0
Missing Exporter name	12	0	1	1	1	1	0	5
Missing Exporter signature	1	0	0	3	1	7	0	3
Missing Export date	6	0	2	1	2	0	0	3
Missing Export validator signature	0	0	1	0	0	2	0	0
Missing Export validation stamp	0	0	5	1	0	2	0	0
Undecipherable Export validation stamp	0	0	0	0	0	1	0	0
Missing Export validation date	4	0	2	0	0	2	0	1
Domestic Landing buyer details not provided	0	9	0	0	5	1	0	0
Domestic Landing Date not provided	9	0	0	0	1	2	0	0
Domestic Landing weight not provided	46	0	0	1	0	2	0	0
Domestic Landing buyer not signed	12	3	0	0	0	0	0	0
Domestic Landing Weight differs from Catch weight by more than 2.5%	0	7	0	0	0	0	0	0

¹ A Conversion factor less than 1.0 is considered invalid, as the conversion factor is used to 'raise' the processed weight to an estimated whole weight and should not provide a calculated value lower than the processed weight.

Type of Problem	Australia	Japan	Korea	New Zealand	Taiwan	Indonesia	Philippines	South Africa
<i>Tow Dates not provided or invalid</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Missing estimated weight of fish</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Missing estimated number of fish</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Receiving Farm not provided</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Missing Transferring Farm Certifier name</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Missing Transferring Farm Certifier signature</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Missing Transferring Farm Certifier date signed</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Missing Receiving Farm Certifier name</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Missing Receiving Farm Certifier signature</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>Missing Receiving Farm Certifier date</i>	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 6: Breakdown of checks conducted and problems detected with CDS Catch Monitoring and Re-export/Export after Landing of Domestic Product forms provided by the Importing Member/CNM from the 2010 Calendar year.

Type of Problem	Australia	Japan	Korea	New Zealand	Taiwan	Indonesia	Philippines	South Africa
Import City not provided	n/a	221	n/a	n/a	n/a	n/a	n/a	n/a
Importer Name not provided	n/a	91	n/a	n/a	n/a	n/a	n/a	n/a
Import Date not provided	n/a	261	n/a	n/a	n/a	n/a	n/a	n/a
Importer Not signed	n/a	25	n/a	n/a	n/a	n/a	n/a	n/a

Note concerning "Harvest Date" provided as a range spanning Months

The design of the CMF form implies that each description of fish row in the CMF should be for a single harvest month. However, three Members have submitted CMF forms where a single fish description row is for a range of harvest dates that span multiple months (see **Table 1**, "Harvest Data provided as a range spanning months"). This is not specifically disallowed in the instructions for this form, which only says that "one row shall describe one product type". However, the practice of having a range of months for one row can cause difficulties in verifying catch against quota for a Member/CNM's quota year if the range of months provided on a single row of a CMF spans the start or end months of a quota year. Similar problems occur for verifying scientific data when the range of months span December/January. This item has been identified as a problem for these reasons.

Japan advised that it provides the information aggregated by product type as well as by statistical area, and noted that the restriction of using one month per row could cause difficulties in validation of catches due to the number of rows that may be required on a single CMF.

The Secretariat is seeking clarification as to whether this process should be allowed to continue, accepting that verification of catches against quota and verification of scientific

data may be compromised in the abovementioned situations, or whether a single month should be used. If so, the CDS resolution should be amended so that the instructions for the "Description of Fish" section of the Catch Monitoring Form would read "***One row shall describe one product type for a single month of catch***".

Other Checks

In addition to the checks and problems listed in the tables above, the Secretariat also performs the following automated checks when entering data:

Dates

Dates are checked to ensure that they are valid dates, and that they do not occur in the future. For forms with multiple dates provided, each date is checked for consistency with 'surrounding' dates. (i.e. The date the exporter signs the document is checked to ensure it is after the catch validation date, and before the import date etc).

Validators & Signatures

The Secretariat database holds a list of validators, signatures and authorisation dates based upon information provided by Members and CNM's.

Validators are checked to ensure they were authorised by the relevant authority on the date they signed. Validator signatures are also checked to ensure they match the authorised information.

Document Cross Checking

Where a document links to other CDS documents, these links are checked to ensure that all documents are received. Where documents have not been received, the Secretariat will follow up to check that:

- a) An error has not been made in the document numbers; or
- b) If there is no error, then the related documents should be provided to the Secretariat

Information on related forms

In cases where related forms have been received, the Secretariat performs cross-checks to ensure that the information contained on all related forms matches. For example;

- a) That the farm provided on a CMF is listed as a receiving farm on the related Farm Stocking or Farm Transfer form; and
- b) That the weight and numbers of fish on a CMF closely matches information provided on the related Catch Tagging Forms (see below for further analyses and information on tolerance levels)

Analyses of Discrepancies and Ranges in Data

Catch Tagging Form information compared to Associated Catch Monitoring Form

Figure 1 shows the frequency distribution of the percentage discrepancy in weights between Catch Monitoring Forms, and the associated Catch Tagging Forms.

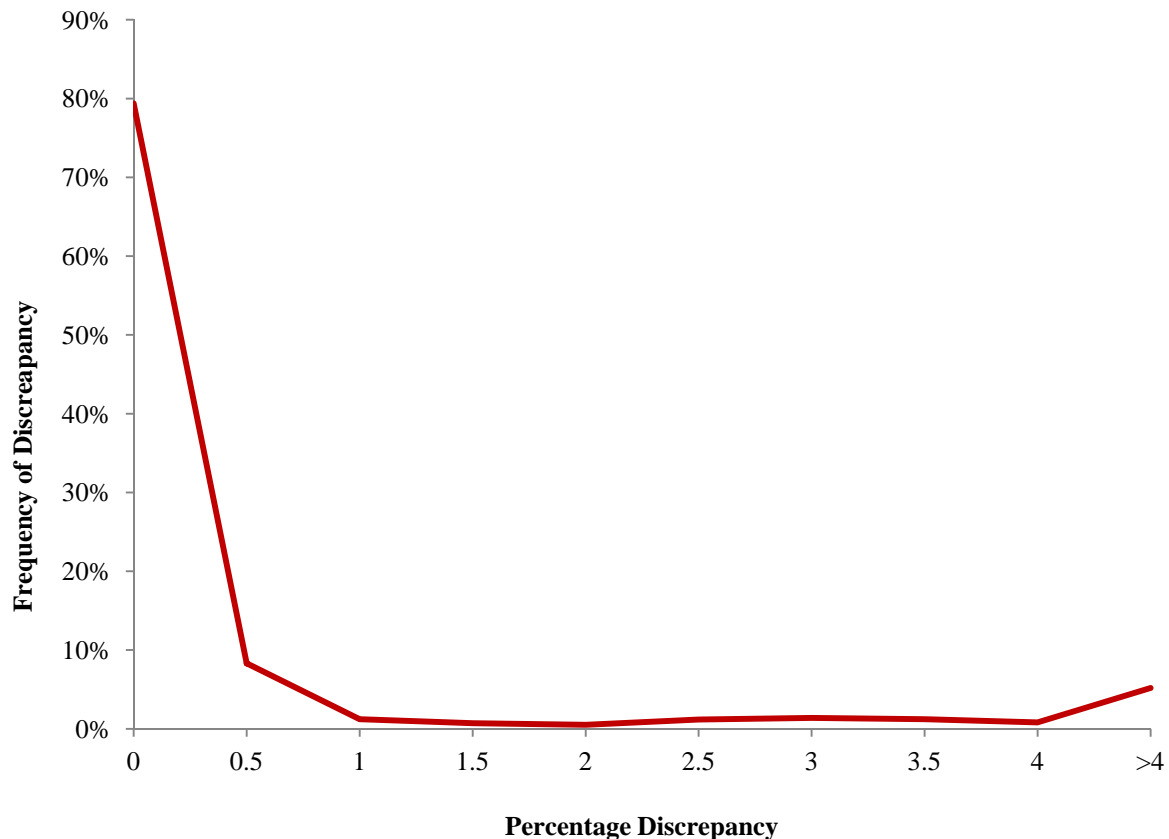


Figure 1 - Frequency Distribution of differences between weights on CMF and corresponding CTF

Examination of the data shows that for 80% of the total records, there are no weight discrepancies between the two forms. Weight discrepancies between 0% and 1.0% account for approximately 10% of the total, with a steady decrease in the number of discrepancies from 0.5% suggesting that the current 2.5% tolerance level between the forms should be easily achievable and would represent approximately 91% of the total data being accepted without follow up.

It is therefore recommended that any discrepancies outside the 2.5% level should continue to be followed up by the Secretariat with the Member/CNM providing the data. It is possible that with fine tuning of the system, this tolerance level could be further reduced in future.

Differences between weights on Domestic Landing CMF

Figure 2 provides a frequency distribution of the differences in weight between the Catch/Harvest section and the Landing of Domestic Product section of CMF's.

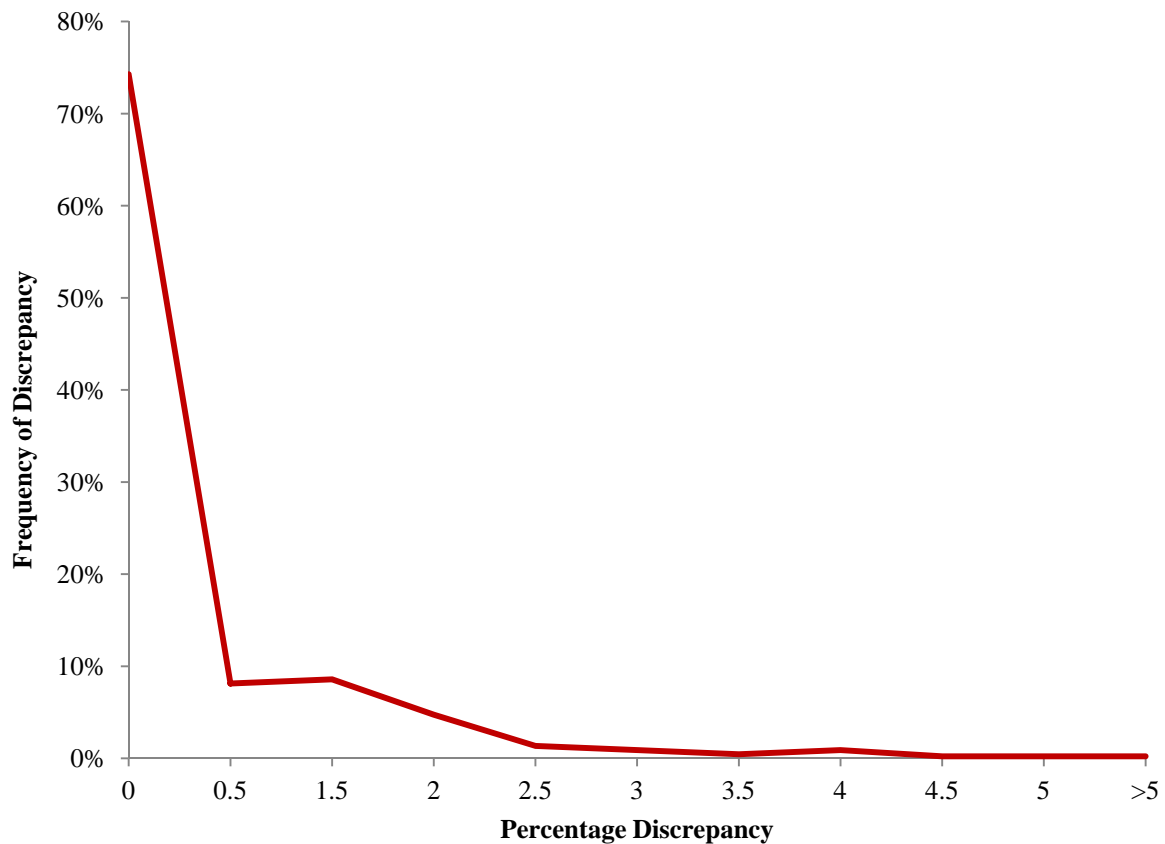


Figure 2 - Frequency Distribution of differences between weights for Domestic Landings between the Catch/Harvest section, and the Final Destination section.

Examination of the figure shows that there is no weight discrepancy between the Catch and Domestic Landing sections of the forms for approximately 75% of the total. Furthermore, there is a decline in the number of discrepancies greater than 1.5%, with very few discrepancies greater than 2.5%. Subsequently, the current tolerance level of 2.5% would allow approximately 97% of forms to be accepted without follow up.

It is recommended that the Secretariat continue to follow up forms with a discrepancy greater than 2.5%.

Maximum and Minimum Length Data from CTFs

Figure 3 provides a summary of Length Frequencies from CTF's by capture source.

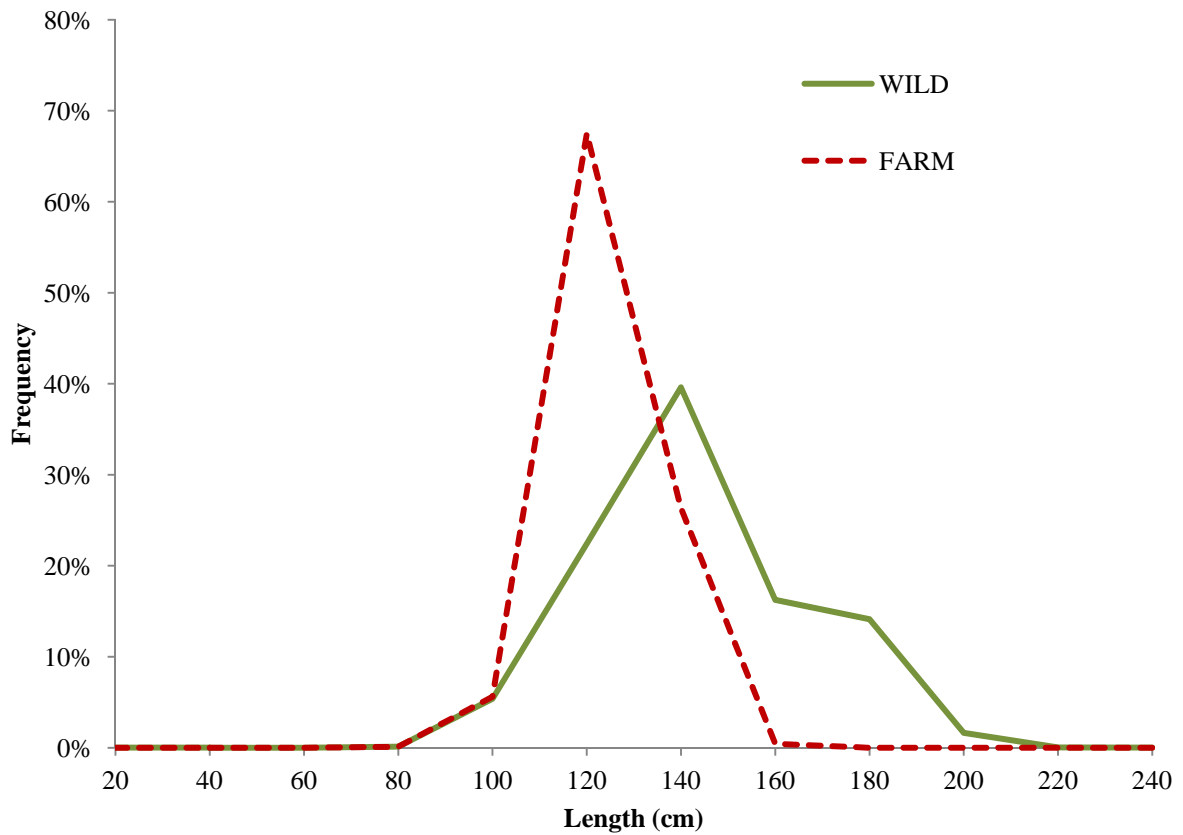


Figure 3 - CTF Length Frequencies by capture source

Examination of the Length data indicates that there appears to be 2 distinct size ranges, dependent upon the capture source. For Wild product, there is a range between 80cm and 220cm, that comprises 99.3% of the total, while for Farmed product the range is between 80cm and 160cm, comprising 98.9% of the total.

Subsequently, the Secretariat recommends that any length data provided on CTF's that falls outside the above ranges for each capture source be checked with the providing Member/CNM.

Average weight by capture source from CMF's and REEF's

These are the average weights (Net weight/Total number of whole fish) in the Description of Fish section of the form.

Figure 4 provides a summary of average weights by capture source from CMF's and from the exporting description of fish on REEF's.

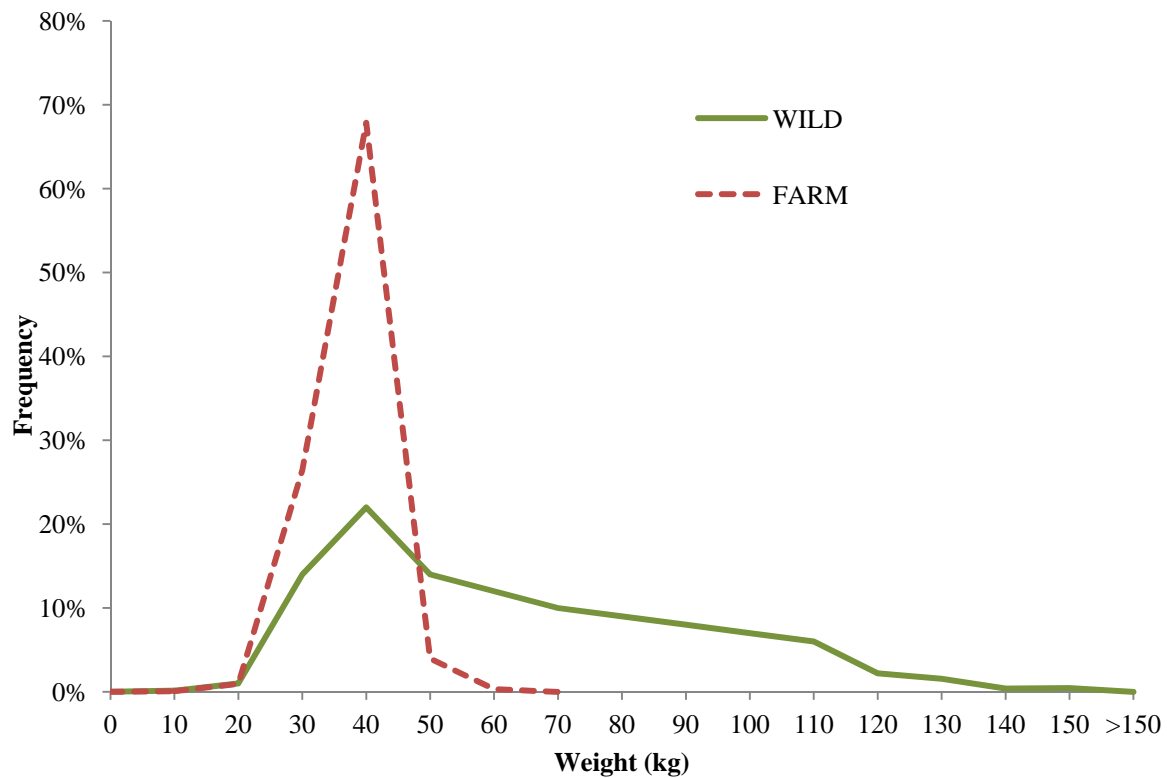


Figure 4 - CMF/REEF Average weights (kg) by Wild/Farm

Examination of the data was initially performed by separating various product types, however there were no significant differences in the average weight distribution between product types, apart from the differences due to capture source and location. Subsequently, the Secretariat is recommending that the average and individual weight checks (as shown in **Figure 5**) be performed based on the capture source, regardless of product type.

It can be seen that the average weight for all capture sources had a lower limit of about 20kg, and peaks at about 40kg. The upper limit varied significantly depending on the capture source.

Based on the above figure, the Secretariat recommends the following upper and lower average weight checks based on capture source, and that average weights outside the above ranges should be checked by the Secretariat with the Catching or Exporting Member/CNM.

Capture Source	Lower Limit for average weight	Upper Limit for average weight
Wild	20kg	140kg
Farmed	20kg	70kg

Individual weight by capture source from CTF's

Figure 5 provides a summary of individual weights by capture source from CTF's.

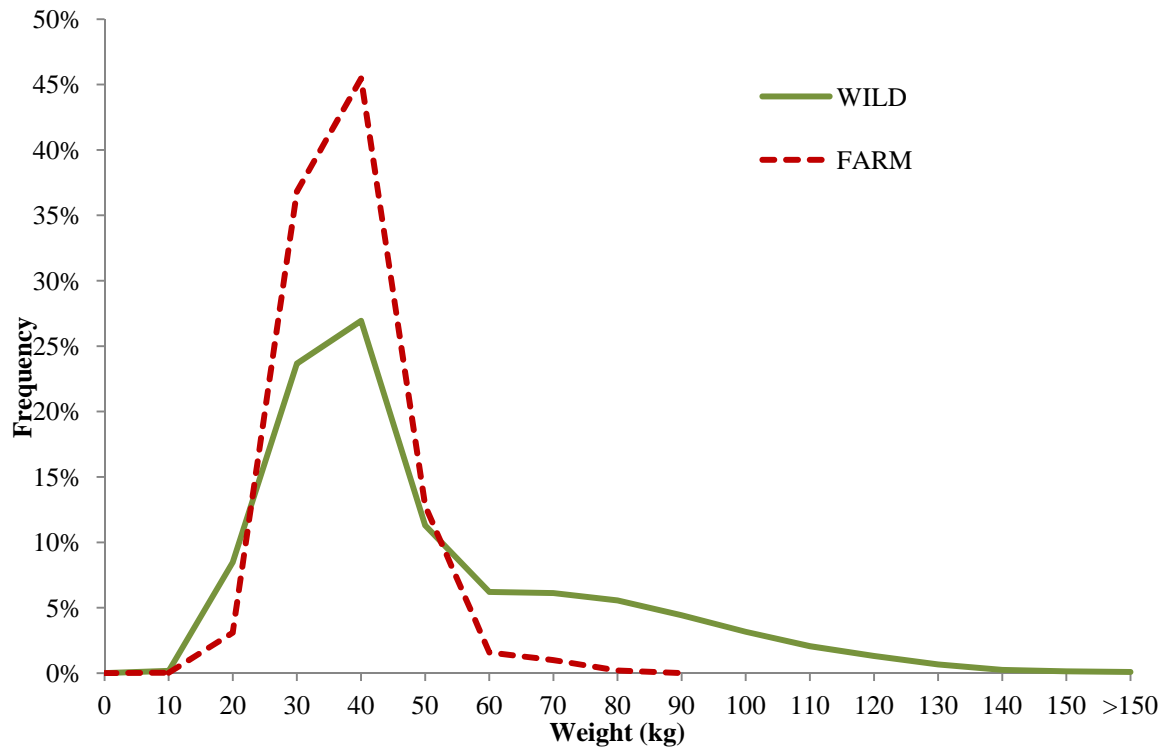


Figure 5 - CTF Individual Weights by Wild/Farm

Based on the above figure, the Secretariat recommends the following minimum and maximum weight ranges for checking individual weights from CTF's.

Capture source	Lower Limit for individual SBT	Upper Limit for individual SBT
Wild	10kg	150kg
Farm	10kg	80kg

Average weight from Farm Stocking Forms

Figure 6 provides a summary of average weights from Farm Stocking Forms (estimated by calculating total weight transferred divided by total number).

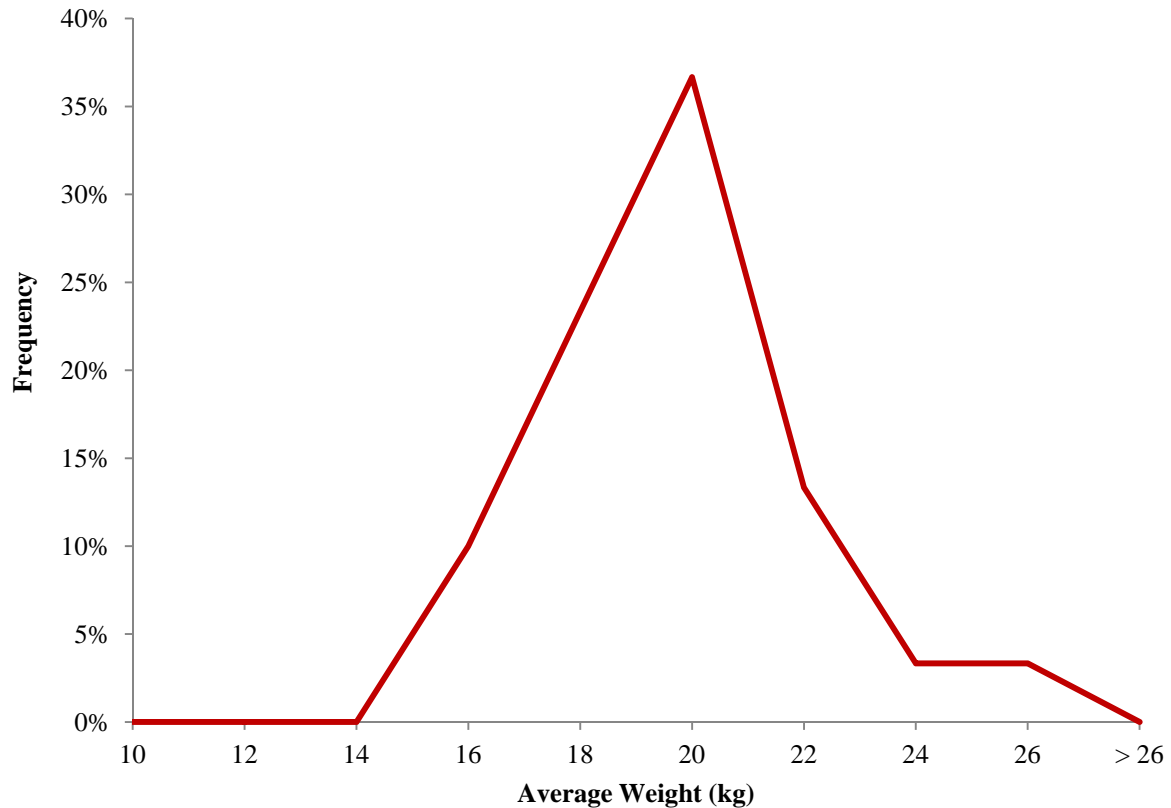


Figure 6 - Farm Stocking Form Average weights (kg)

Examination of the data indicates that the average weight transferred into farms was between 14kg and 26kg. However, there were only 17 transfers during 2010 and the Secretariat is not confident that this distribution provides a reliable indication of the potential distribution of average weights at transfer. Therefore, no recommendation is made at this stage.

Length/Weight relationships from Catch Tagging Forms

The Secretariat has established crude formulae for minimum and maximum weights versus length to identify length/weight data with unlikely values. These formulas are shown in **Table 7**.

Table 7: Equations used to calculate predicted, minimum and maximum weights based on length.

	Length (L) < 130cm	Length (L) > 130cm
Predicted Weight	$L^{2.9058} \times 3.139e^{-5}$	$L^{3.5399} \times 1.15(1.2205e^{-6})$
	Predicted Weight (PW) < 15kg	Predicted Weight (PW) > 15kg
Minimum Weight	1	$(PW-10)-0.4(PW)$
Maximum Weight	$(PW+15)+0.3(PW)$	

Figure 7 shows a sample of predicted total weight, and estimated minimum and maximum weights based on length data from CTF's.

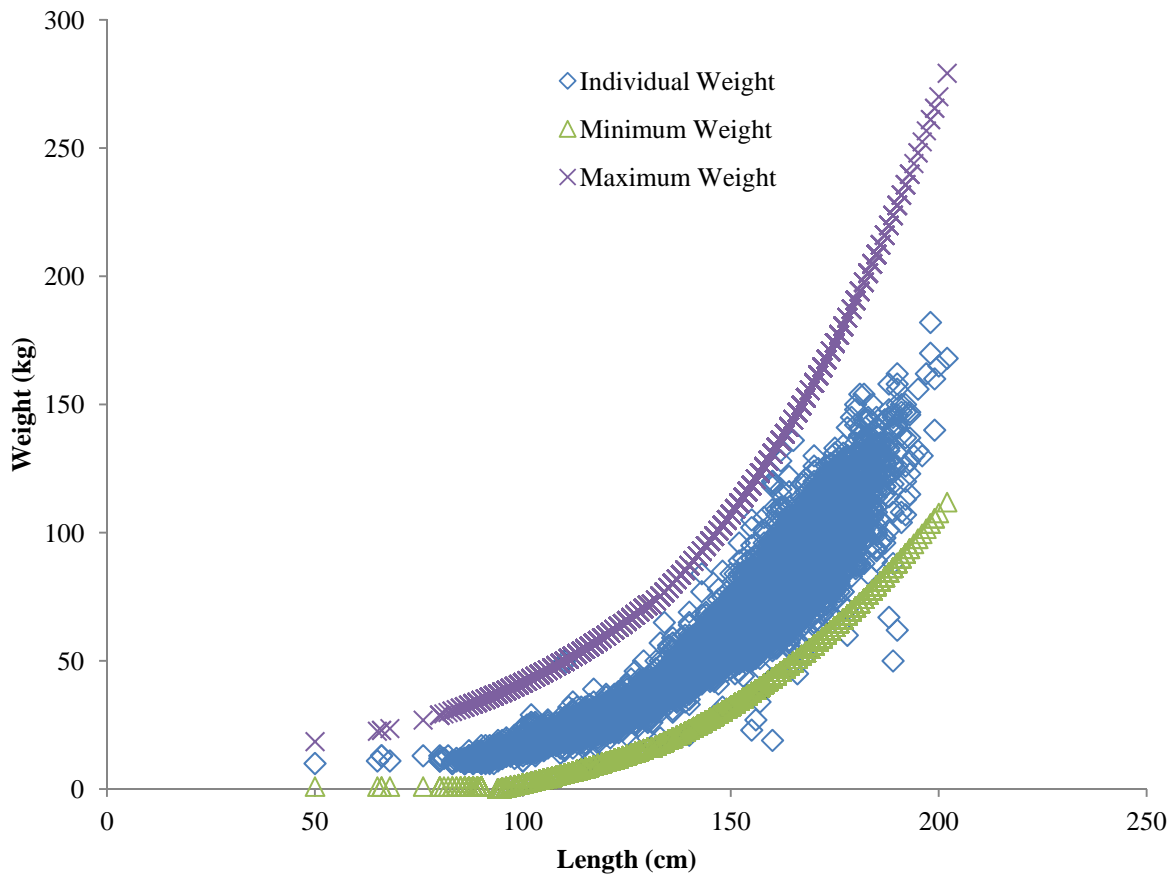


Figure 7 - Sample of 10000 random length/weight relationships from CTF's

Only about 10 individuals fell outside the range limits from a random sample of 10000 records.

The secretariat recommends that it implement the formulas provided in **Table 7** to identify unlikely length/weight data, and that any individual measurements in Catch Tagging data that fall outside these ranges be followed up.