Separating TIB, TVH and Processor catch records from Docket-Book Data

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Note: In this version of the document all Seller- and Vessel-Names (where associated with catch data) have been replaced by non-identifying labels to respect the confidentially of fishers and processors.

1. **Introduction**

The Buyers and Processors Docket Book (TDB01) is used in the Torres Strait rock lobster fishery principally to record the catch and effort for fishers operating in the TIB sector of the fishery. In principle, the completed Dock-Book form acts as a receipt given to the fisher landing the catch by the processor to which the lobsters are sold. However, due to the receipt-like nature of the Docket-Book catches recorded in the docket-book can also be reported elsewhere, including the TVH logbook. Catches sold between processors can also sometimes be recorded in the Docket-Book. The recording of TVH catches and those on-sold between processors means that duplicate catch records are created resulting in some degree of uncertainty and difficulty in ascertaining the true catch taken in the TIB sector of the fishery.

Several mechanisms have been introduced to help identify duplicate catch records included in the Docket-Book data. First, there is a specific field on the Docket-Book which asks whether the seller has recorded their catches elsewhere. Where this has occurred, the seller is requested to identify the other logbook where the catch has been recorded (this is called the Related-Log in the AFMA data). For example, TVH sellers would indicate that the catch has been recorded in the TRL04 logbook while sellers identified as processors may indicate that the catch has been recorded in the TDB01 docket-book. In such instances the catches can be separated from the TIB catch data. Where this field is null it can be interpreted that the catch data has not been recorded elsewhere and as such is catch data related to the TIB sector. However, there are a range of other entries in this field (e.g. HC01 – Hand Collectable daily fishing log, HC02 - Hand Collectable catch disposal record, NSS BESI, etc) associated with an Unknown Seller-Type for which the character of the data remains uncertain.

Second, around 2006 AFMA added an additional field (Seller-Type) to the Docket-Book data to indicate whether the seller is a TIB or TVH fisher or a Processor and this field was used to remove TVH and duplicate processor to processor data from the TIB data. It was based on linking the Seller-Name on the Docket-Book to the Seller-Type (TIB, TVH, Processor) in a look-up table. However, the list of names and Seller-Types has not been kept up to date, and together with the fact that the Seller-Names are often misspelt or a nick-name is used, the Seller-Type most often remains unknown. This reduces the utility of this data field to identify the Seller-Type.

Using both the Seller-Type and Related-Log fields defined above together with the vessel symbol (with the symbol for most TVH vessels starting with an ‘F’) it should be possible to identify and remove non-TIB and duplicate records from the Docket-Book data. Towards this end, Table 1 classifies the number of data records currently stored in the Docket-Book database managed by CSIRO according to the combination of several data fields. Together with the two data fields identified above, the following fields are used:

1. LOG-TYPE: identifies where the data originated (Docket-Book, TVH Log-Book, and Combined=historical data provided by AFMA before 2012)
2. SELLER-TYPE: identifies seller-type (TIB, TVH, PRC=processor)
3. RELATED-LOG: identifies the other logbook where the catch has been recorded where OTHER= ('TSF01', 'TSF01 : TSSB', 'NSS BESI', 'T.I.', 'Yam Island', ‘Pearl Island’, '13', '9',)
4. VESSEL-TYPE: identifies the type of vessel (TVL-Vessel identifies vessels with a symbol also listed in the TVH logbook data, and F-Symbol identifies vessels with a symbol beginning in 'F' but not in the TVH logbook data)

Table 1. Classification of Docket-Book data held by CSIRO based on several related data fields.



*TIB vessels using TVH-logbook*

The above Docket-Book data includes 669 records which are related to large TIB vessels which recorded their catch in the TVH-TL04 logbook. The reason this occurred is that for a period of time TIB operators believed they had to complete the TRL04 logbook, though they later because aware that mandatory reporting for TIB is not possible under the Torres Strait Fisheries Act unless it is amended. A listing of the data associated with these vessels is provided in Table 2.

Table 2. Listing of TIB vessels where catch has been recorded in the TVH-logbook. (Note, Vessel-Names replaced by non-identifying labels.)



**2. Seller-Type**

*Processor*

Based on the information provided above, records where Seller-Type =‘PRC’ relate to catches sold between different processors and therefore should be considered duplicate catch records in the Docket-Book data. A summary (by Processor) of the 488 records where Seller-Type =‘PRC’ is provided in Table 3. A majority of these records (430, or 88%) indicate that the catch has been recorded in another logbook, which is to be expected if indeed these are catches being sold between processors. However, if this is the case then why a vessel-name is listed against several of these records remains unclear. Furthermore, it can be noted that of the 10 Seller-Names listed three appear to correspond to personal names (Sellers – C, F,H) and as such one can query whether the related Seller-Type has been correctly recorded. A check (Dean Pease*, personal communication*) indicates that Seller-C is associated with a TIB fisher, Seller-F is associated with a processor based, while Seller-H is associated with a person who works on a TVH vessel. As such all records in Table 3 were considered to be duplicate catch records except for those associated with one name which were considered to be TIB catch records.

Table 3. Summary of Docket-Book data where Seller-Type=’PRC’. (Note, Seller=Seller-Type and Seller- and Vessel-Names replaced by non-identifying labels.)



A check of the list of all Seller-Names in the Docket-Book data indicates other business-names which may be associated with a processor but where the Seller-Type has not been recorded as a processor. (Note, it is acknowledged that individual fishers may operate under a business name). A summary of the Docket-Book data related to the 3019 records for these other businesses is provided in Table 4 (note, this list of other business names may not be complete). As with the previous table where Seller-Type had been listed as a processor, the majority of related records (91%, and 93% of the associated catch) indicate that the catch has been recorded in another logbook, which again is to be expected if indeed

Table 4. Summary of Docket-Book data where Seller-Name is a Business but Seller-Type!=‘PRC’. (Note, Seller=Seller-Type and Seller- and Vessel-Names replaced by non-identifying labels.)



these are catches being sold between processors. However, as before it remains unclear then why a vessel-name is listed against many of these records. Again, a check of license information found that the records associated with Sellers- E, L, N,O,P,Q, U,W, Y, AA are associated with the TVH sector (Dean Pease*, personal communication*) while further checking is required to ascertain the sector related to the remaining record.

Given that the vessels associated with those records identified above as TVH are listed TVH-vessels, and that the vessels associated with the Seller-M data are also listed TVH vessels, then it was decided that these latter records should also be identified as TVH. Also, to be consistent with the data handling practices of previous years the catch records associated with Seller-K were also seen as being duplicate processor records are therefore removed from the catch for the TIB sector. Of the remaining six business-names, the records for Seller-R and Seller-X were selected as being associated with the TIB sector as the vessels associated with these records are TIB vessels while until further checking is undertaken all other records were also associated with the TIB sector. Based on these comments a listing of the sector designation for each business-name is shown in Table 4a.

Table 4a. Summary of Docket-Book data where Seller-Name is a Business but Seller-Type!=‘PRC’. (Note, Seller=Seller-Type and Seller- and Vessel-Names replaced by non-identifying labels.)



*TVH*

Where Seller-Type =‘TVH’ it is understood that the related catch is from the TVH sector of the fishery and should therefore be considered as duplicate catch records in the Docket-Book data. In such instances one would expect that the Related-Log field should indicate that the catch has been recorded in the TRL04 logbook. A summary of the 2859 records where Seller-Type =’TVH’ is provided in Table 5. Several things can be noted. First, the Related-Log field has been left blank for 58% of the records (21% of the corresponding catch). Second, not all the vessels listed are TVH-vessels (i.e. correspond to a vessel listed in the TVH catch and effort database) with these non-TVH vessels representing 77% of the records (and 53% of the corresponding catch) listed in Table 5. While those records associated with a TVH vessel should perhaps be interpreted as TVH catches (and therefore seen as duplicates to the catches recorded on the TRL04 logbook), it remains less certain as to which sector the other catches should be associated. Nevertheless, until this uncertainly can be further clarification the following rules were used for partitioning these catch records between sectors:

1. those records associated with a TVH vessel should be interpreted as TVH catches,
2. all remaining records should be interpreted as TIB catches.

Table 5. Summary of Docket-Book data where Seller-Type=‘TVH’. (Note, Seller=Seller-Type and Seller- and Vessel-Names replaced by non-identifying labels.)



Table 6. Summary of Docket-Book data where Related-Log=‘TRL04’. (Note, Seller=Seller-Type and Seller- and Vessel-Names replaced by non-identifying labels.)



1. **Related Log**

When the Related-Log field has been completed this indicates that the catch recorded in the Docket-Book has been recorded in the other logbook listed in this field. Again, where this occurs one needs to check that a double-counting of the corresponding catch does not occur.

*TRL04*

A summary of the 3516 records where the Related-Log =‘TRL04’ is provided in Table 6. Again, several things can be noted. First, only 34% of all records (and 22% of the corresponding catch) indicate that the Seller-Type=‘TVH, though 51% of all records (and 49% of the corresponding catch) indicate that the vessel is a TVH-Vessel. Second, 2% of all records (corresponding to 1% of the catch) indicate that the Seller was a processor (i.e. Seller-Type=‘PRC’) and a check of the Seller-Name for these records indicates that these were Seller-E (46), Seller-F (25) and Seller-H (3) (c.f. Table 3) – and based on the previous comments in relation with Table 3 these should be seen as duplicate records. Third, a number of vessels known to have active (or expired) TIB licenses are highlighted in yellow (Dean Pease, *personal communication)*. While the records related to these vessels indicate that the catch was also reported in the TRL04 logbook (and in two instance that the Seller-Type was TVH), nevertheless none of these vessels are listed as TVH vessels (which is to be expected if indeed they are TIB vessels).

*Other Entries*

A summary of the 1532 records where Related-Log is either ‘TDB01’ or some other non-null entry (‘NSS BESI’, ‘TSF01’, ‘TSF01:TSSB’ , ‘Pearl Island’, ‘Yam Island’, ‘T.I. ’, ‘13’, ‘9’) is provided in Table 7. The following can be noted. First, 23% of all records (and 41% of the catch) are associated with records where the Seller-Type=‘PRC’ and the Related-Log=‘TDB01’. An examination of the Seller-Names associated with these records indicates that most are business names (processors?) except for 110 records associated with Seller-H (c.f. Table 3). Second, 71% of all records and 58% of the catch is associated with records where the Seller-Type= ‘U’ and the Related-Log= ‘TDB01’. An examination of the Seller-Names associated with these records indicates that again most (80%) are business names (processors?) with the others associated with 20 individual personal names. Perhaps for those records where the Seller-Name is a business the Seller-Type should be updated to be ‘PRC’. Third, most records where the Related-Log is shown as ‘OTHER’ occurred during 2004 (except for two records where Related-Log= ‘TSF01’ in 2005 and 2007). In all instances these records are associated with a Seller-Name which is an individual personal name. Fourth, it is unclear why there are 26 records indicating that the Seller-Type was TIB and the Related-Log was TDB01 (and all Seller-Names are again individual personal names).

Table 7. Summary of Docket-Book data where Related-Log=‘TDB01’ or some other non-null entry. (Note Seller=Seller-Type and Vessel-Names replaced by non-identifying labels.)



Table 8. Summary of Docket-Book data where Vessel-Type=‘TVH Vessel’. (Note Seller=Seller-Type and Vessel-Names replaced by non-identifying labels.)



1. **Vessel-Type**

Vessel-Type is a field that has been added to indicate whether the vessel-symbol listed on the Docket-Book corresponds to a vessel listed in the TVH database (known as a TVH Vessel) and if not whether the vessel-symbol begins with the letter ‘F’ (as this usually indicates a TVH vessel). If neither of these is the case the Vessel-Type is left blank.

*TVH Vessel*

A summary of the 2100 records where Vessel-Type = ‘TVH Vessel’ is provided in Table 8. The following can be noted. First, all vessels have a symbol beginning with the letter ‘F’ as this corresponds to all vessels in the TVH database. Second, 86% of all records (and 91% of the corresponding catch) indicate that the Docket-Book data is also associated with the Related-Log TRL04. Such as association is to be expected if indeed the catch data relates to the TVH sector of the fishery. However, only 31% of records (and 25% of the corresponding catch) indicate that the Seller-Type is ‘TVH’. Third, the processor Seller-E (c.f. Table 3) is associated with the seven records where the Seller-Type= ‘PRC’

*F-Symbol*

A summary of the 792 records where Vessel-Type = ‘F-Symbol’ is provided in Table 9. Again, several things can be noted. First, 15% of all records (and 54% of the corresponding catch) indicate that the Docket-Book data is also associated with the Related-Log TRL04 while only 13% of records (and 44% of the corresponding catch) indicate that the Seller-Type is ‘TVH’. Second, all records are associated with personal Seller-Names except 21 associated with Seller-Q and 4 associated with Seller-AA (c.f. Table 4, with both indicating a related TRL04 log and based on previous comments both identified with the TVH sector). Third, vessels which are believed to be either TIB or TVH vessels are highlighted in yellow and green respectively (Dean Pease, *personal communication*). If these designations are correct then the association of the two TIB vessels (Vessels 1&2) with a TVH Seller-Type and TRL04 Related Log are correspondingly incorrect, unless perhaps the symbols are in error or the designation of these vessels has changed over time.

Table 9. Summary of Docket-Book data where Vessel-Type= ‘F-Symbol’. (Note Seller=Seller-Type and Vessel-Names replaced by non-identifying labels.)



1. **Rules for Separating TIB and TVH data**

As noted in the Introduction use of the Related-Log field on the Docket-Book and the creation of the Seller-Type field by AFMA both have utility in helping to identify duplicate catch records in the Docket-Book data. For example, if a seller has been designated as a TVH Seller-Type (and the corresponding vessel as a TVH-Vessel) and the catch has also been reported in the TRL04 logbook then the data listed in the Docket-Book can be interpreted as a duplicate of a catch record associated with the TVH sector. However, as detailed in the previous sections for a large number of records the information within these two fields (i.e. Seller-Type and Related-Log) remains missing (unknown) or

Table 10. Summary of Docket-Book data remaining unassigned to a DATA-TYPE after application of the five data rules listed in the document. (Note Seller=Seller-Type and Vessel-Names replaced by non-identifying labels.)



some of the information is contradictory (e.g. the vessel associated with a TVH seller is not listed in the TVH database).

Given this uncertainty, it would be prudent to identify a number of data rules for classifying the data as either TIB, TVH or Processor-to-Processor. Once these rules are established, and unless new information comes to hand, they can then be used consistently each year for this task so that new data rules are not created each year on an ‘ad-hoc’ basis.

In the data analysis undertaken last year, the following rules were used:

1. Where the Vessel-Type=‘TVH-vessel’ then the corresponding catch record was associated with the TVH sector. Note, the Seller-Type was either TVH or Unknown for all such records.
2. Where the Vessel -Type=’F-symbol’ then the corresponding catch record was associated with the TVH sector but was associated with the TIB sector where the vessel-symbol was in the following list: (FSYE, FVGZ, FXAY, FXJG, FXZS, FYSE, FYTQ). Note this exception was despite the Seller-Type being listed as TVH for some of the records associated with two of the vessels.
3. Where the Vessel-Type remained blank but the Seller-Type=‘TVH’ then the catch was attributed to the TIB sector. Note, most of these records were associated with a vessel having a symbol beginning with the letters ‘TRAWQ’.
4. Where the Seller-Name was associated with a processor who had provided data directly to AFMA then the corresponding catch record was interpreted as a duplicate associated with a Processor-to-Processor trade and as such was not included in the catch for the TIB sector. All other records where Seller-Type=’PRC’ were associated with the TIB sector.

Given the analysis outlined in this report, which includes the use of the Related-Log field for the first time, the rules used last year can be updated. The following rules are therefore proposed for identifying each Docket-Book record with a specified DATA\_TYPE:

1. Where Seller-Type=‘PRC’ then the corresponding catch record should be interpreted as a duplicate associated with a Processor-to-Processor trade and as such should not be included in the catch for the TIB sector (c.f. Table 3). The DATA\_TYPE associated with these records is therefore set to ‘PROCESSOR’. An exception is made for the records associated with Joseph Dai where DATA\_TYPE=‘TIB’.
2. Where Seller-Type!=‘PRC’ but the Seller-Name is a business name then the corresponding catch record should be identified with the fishery sector as listed in Table 4a. The DATA-TYPE is listed as ‘TVH-TradeName’ or ‘TIB-TradeName’ respectively.
3. Where Vessel-Type=‘TVH-vessel’ then the corresponding catch record should be interpreted as a duplicate associated with the TVH sector and as such should not be included in the catch for the TIB sector (c.f. Table 8). The DATA-TYPE is listed as ‘TVH’. (Note, whether or not the corresponding catch is contained in the TVH database needs to be checked).
4. Where Vessel-Type=‘F-symbol’ then the corresponding catch record should be included in the catch for the TIB sector and the DATA-TYPE is listed as ‘TIB’. An exception is made for the two vessels (c.f. Table 9) which are TVH vessels and for these records the DATA-TYPE is listed as ‘TVH’ (c.f. Table 9).
5. Where Related-Log is blank then the corresponding catch record should be identified as a catch for the TIB sector and the DATA-TYPE is listed as ‘TIB’.

The DATA-TYPE field was sequentially updated using above data rules (i.e. the next rule was used to update only those records where DATA-TYPE remained null after application of preceding rules). After fitting the five rules above, only 1055 records (of the 77,358 in total) remained un-assigned. A summary of these records is provided in Table 10. Despite the fact that 72% of these records are listed as having a related TRL04 logbook entry, none of the vessels are listed in the TVH database. Nevertheless, 22 of the 25 vessels-symbols (accounting for all but 3 of the 1055 records) listed in Table 10 occur in the Docket-Book database where the DATA-TYPE has already been assigned to the TIB sector. As such, the final data rule was chosen to be:

1. All other records should be attributed to the TIB sector and the DATA-TYPE listed as ‘TIB’.

Comments on these rules welcome!

A summary, by year, of the number of distinct Docket-Book records and corresponding catch associated with each of the five DATA-TYPES identified in the data-rules listed above are shown in Table 11.

Table 11 Annual summary of (a) the number of distinct Docket-Book records and (b) the corresponding catch (while weight, kg) associated with each of the five DATA-TYPES identified in the data-rules listed in the text. Note, the aggregate catch data supplied directly by several processors is also shown.

