REPORT OF THE
FIRST VIETNAM TUNA FISHERY ANNUAL CATCH ESTIMATES WORKSHOP (VTFACE-1)

2-6 April 2012

Da Nang, Viet Nam

Western and Central Pacific Fisheries Commission
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1. OPENING

1.1 Introduction

For a number of years, the evolving tuna fisheries in Vietnam have been of interest to the Western and Central Pacific Fisheries Commission (WCPFC) given that the Vietnam tuna fisheries exploit the same tuna stocks as the other member countries of the WCPFC. The importance of the Vietnam tuna fisheries to the WCPFC and the involvement of Vietnam in the WCPFC process has been acknowledged with their inclusion in the a new project offered by the Global Environment Facility (GEF) - ***West Pacific East Asia Oceanic Fisheries Management (WPEA OFM)*** project, which began in 2010 (see http://www.wcpfc.int/doc/2009/wpea-ofm-project-document). The activities to be carried out under this project contribute towards the following objective:

"*To strengthen national capacities and international cooperation on priority transboundary concerns relating to the conservation and management of highly migratory fish stocks in the west Pacific Ocean and east Asia (Indonesia, Philippines and Vietnam)*"

The WPEA OFM project covers, *inter alia*, the following key objectives

(i) strengthen national capacities in fishery monitoring and assessment,
(ii) improve knowledge of oceanic fish stocks and reduce uncertainties in stock assessments,
(iii) strengthen national capacities in oceanic fishery management, with participant countries contributing to the management of shared migratory fish stocks,
(iv) strengthen national laws, policies and institutions, to implement applicable global and regional instruments.

Three workshops have been conducted over the past two years to firstly, establish a plan for the implementation of data collection systems in the Vietnam tuna fisheries, then review progress in the data collection systems established for the domestic longline, purse seine and gillnet fisheries (the workshop reports can be found at http://www.wcpfc.int/west-pacific-east-asia-oceanic-fisheries-management-project).

The third tuna data review workshop (VTFDC-3), held in Nha Trang in November 2011, identified an important need to produce historical annual catch estimates for the Vietnam Tuna Fisheries recognizing that the provision of annual catch estimates is a fundamental reporting obligation for members, cooperating non-members and participating countries and territories (CCMs) of the WCPFC and Vietnam had yet to produce any tuna fishery annual catch estimates. The VTFDC-3 therefore recommended that a workshop be convened as soon as possible with the specific objective to produce historical catch estimates for their tuna fisheries.

This report contains a summary of presentations and discussions held during in VTFACE-1 workshop plenary, which was conducted over three days (2-4 April 2012), and includes specific recommendations as key outputs from the workshop. The workshop required considerable translation from Vietnamese into English and vice-versa and special thanks was afforded to the main interpreters, Mr Viet Anh and Mr. Ngọc both from the DECAFIREP office.

Mr Pham Trong Yen, Deputy Director of Directorate of Fisheries (D-FISH), provided an opening address highlighting the recent developments in Vietnam with respect to tuna fisheries. There are now more positive signs that the level of data collection required in tuna fisheries is a long-term commitment for Vietnam with a new decree mandating a new phase of data collection systems to be established by the National Statistics Office. The tuna fisheries of Vietnam are developing very rapidly and there is a need to ensure they are monitored, for example, a major Vessel Monitoring System (VMS) which will cover more that 3,000 vessels is about to commence. Tuna F is now the third most important export (after squid and *Pangasius*) with 87 markets and USD 300 millions value of exports each year. He reiterated the importance of following the WPEA/WCPFC methodology for data collection in the tuna fisheries to ensure the necessary information is

collected and made available for stock assessments and that reliable information is provided, and extended beyond the three provinces currently covered.

Mr Peter Williams provided an opening statement on behalf of the WCPFC. He noted that as a Cooperating non-member of the WCPFC (CNM), Vietnam has certain obligations with respect to the collection and provision of data which are used to ensure the sustainable exploitation of the shared regional stock of highly migratory tunas. There has been significant progress in developing data collection systems for domestic tuna fisheries in Vietnam after only two years involvement with the WPEA project and WCPFC looks to seeing the data collection extending beyond the three Central provinces in the future, acknowledging that the long-term maintenance of national tuna fisheries data collection systems is an important commitment by WCPFC members.

Now in the final year of the project, given the achievements so far and likely favourable review of the activities undertaken, there are already indications of stronger support from the national government for tuna data collection, and with the outlook of an expanded GEF project to be developed and funded, to possibly commence during 2013. The objectives of this workshop are very challenging with the aim to produce historical tuna catch estimates by gear and species for the first time which will be of significant benefit to both Vietnam and the WCPFC.

1.2 Appointment of Chair and Rapporteurs

Mr Pham Trong Yen (first day) and Dr Antony Lewis were appointed as Chairs of the workshop and Mr Peter Williams and Mr Viet Anh were appointed rapporteurs.

1.3 Adoption of the Agenda

The agenda proposed for the workshop was adopted as presented in APPENDIX 1. The list of the participants can be found in APPENDIX 2 and a list of the presentations and data summaries made during the workshop can be found in APPENDIX 3.

2. Background on need for Annual Catch Estimates

The WCPFC representative, Mr Williams, provided an introductory presentation on the WCPFC requirements for the provision of Annual catch estimates and expected outputs from the workshop, covering the following areas:

- Why there is a need to produce annual catch estimates from both regional and national perspectives
- The WCPFC member country data-reporting obligations (refer to http://www.wcpfc.int/doc/data-01/scientific-data-be-provided-commission-revised-wcpfc4-wcpfc6)
- How annual catch estimates provide a fundamental description of a fishery
- The current WCPFC Annual catch estimates by GEAR and SPECIES
- The expected outcomes of the Workshop
- A process for producing outcomes

The objective of the workshop was to produce historical estimates for Vietnam's tuna fisheries, by GEAR and SPECIES. The process would involve reviewing all available information, reconciling each source of data, where possible, acknowledging that information on catch volume by GEAR and species composition is critical. Once all information was presented and available, participants would then discuss, compile and decide which estimates are the most appropriate. It was suggested that the workshop deal with the gears and years where estimates would be the easiest to produce initially and then work towards the more difficult, acknowledging that producing estimates for all years and species would not be possible at this stage and would be better dealt with in subsequent workshops. The perceived order of priority and extent of discussions for the workshop was to compile each of the following items:

- Annual catch estimates for 2010 and 2011 – each gear by species
- Tuna species catch estimates for 2000-2009 – each gear
- Tuna species catch estimates for years prior to 2000 – each gear

The workshop acknowledged that it was premature to deal with the following items which would hopefully be progressed inter-sessionally or at subsequent workshops:

- Estimates for years prior to 2000
- Billfish catch estimates for 2000-2009 – Longline
- Shark catch estimates for 2000-2009 – Longline
- Other species catch estimates in PS and GN

It was noted that shark species catch information used to determine annual catch estimates is typically only sourced from observer data, but that the situation in Vietnam where ALL catch is presumed landed presented the opportunity to also use landings data to determine shark species catch estimates.

3. WPEA Tuna fisheries data collected during 2010/2011

The workshop proceeded to review the annual catch estimates in the provinces that have established WPEA data collection with a presentation from a provincial representative. The following summarises the information in each presentation and ensuing discussion (see Appendix 3 which refers to presentations and working papers with more detailed information). The information compiled in these agenda items was discussed further in the decisions on compiling the national-level annual catch estimates (see Section 7).

3.1 Data collection in Binh Dinh Province

Ms. Hai Binh provided a presentation on data collected in Binh Dinh Province in recent years and preliminary estimates of active vessel numbers and catches by species and gear. The following are the key points of his presentation (noting that more detailed information is available in see VTFACE-1 Document # 2 – Appendix 3, translated into English):

- Monitoring under the WPEA has proceeded since late 2010 with most months covered in 2011. An estimated 60% of the longline fleet unloadings were covered in 2011 (i.e. landings data collection) with a total catch of 2,644 t. Estimates by species were provided but the estimated landed shark catch was noted to be unreliable because some of the shark catch is discarded at sea. WPEA Logbook provision was proceeding well.
- For the purse seine fishery, 70% of landings were covered with an estimated 3,607 t estimated. Gillnet fisheries were not covered as well as the other two fisheries since vessels use landing sites not covered by WPEA monitoring. An estimated 258 t of oceanic tuna species was covered by landings data collection. It was noted that these estimates may not take into account the months not covered by WPEA monitoring. Estimates by species were provided (SKJ 82%; YFT 8.6% and BET 4.4 %) with very small quantities of billfish and shark species).
- Review of the species composition in the gillnet fishery showed that the months of the year from September onwards showed a higher proportion of oceanic tuna in the catch. It was estimated that only 15% of the total gillnet catch was oceanic tuna.
- Good progress had been made inBinh Dinh in resolving some of the problems in collecting data, as described in the VTFDC-3, but there remains some work to do.

3.2 Data collection in Phu Yen Province

Mr Thuong provided a presentation on data collected in Phu Yen Province in recent years and preliminary estimates of active vessel numbers and catches by species and gear. The following are the key points of his presentation (noting that more detailed information is available in see VTFACE-1 Document # 3 – Appendix 3, translated into English):

- There have been some significant developments in the past year or so with many larger vessels entering the tuna fishery in Phu Yen province.
- The province of Phu Yen is very close to deep waters of the South China Sea and therefore smaller vessels can exploit oceanic tuna more readily than other provinces.
- There remain some problems in covering all the landing sites where many small vessels offload their catch and the WPEA logbook has yet to be satisfactorilyimplemented.
- Catch by species for the longline fishery determined from sampling were provided and it was encouraging to see the species composition is similar to Binh Dinh. The estimates did not account for those trips that were not monitoring for landings data and it was suggested that the total number of vessels returning to port should be monitoring with cooperation from the coastguard to get an accurate measure of the number of trips to raise the landings data.

3.3 Data collection in Khanh Hoa Province

Mr Phong provided a presentation on data collected in Khanh Hoa Province in recent years and preliminary estimates of active vessel numbers and catches by species and gear. The following are the key points of his presentation (noting that more detailed information is available in see VTFACE-1 Document # 3 – Appendix 3, translated into English):

- The gillnet fishery accounts for the largest catch of oceanic tuna in Khanh Hoa. They fish almost year round except for when there are periods of bad weather.
- Landing centres include Hon Ro, Cam Rahn and other sites with smaller landings. There are 98 longline vessels which fish for 20-30 days and take about 1-2 t per trip. Total catch in the longline fishery according to landings monitored is about 350 t with more BET than YFT (which is different to the other two provinces).
- There is now only one purse seine vessel which takes about 2-5 t per trip. There were about twenty purse seine vessels but most of these changed to other gears because they weren't efficient. The combined gillnet/purse seine catch of SKJ is estimated to be at least 5,000 t.
- As with Phu Yen, the WPEA logbook has yet to be implemented in Khanh Hoa.

4. Tuna fishery information in other (non-WPEA) Provinces

In recent years, several field trips have been conducted to provinces not covered by the WPEA project data collection (see VTFACE-1 Document #16 - Lewis, 2012) and it was evident that oceanic tuna were being landed (significant quantities in some areas). As such, the DECAFIREP extended participation at this workshop to representatives from other provinces where there is evidence of oceanic tuna landings so that their estimates could be included in the overall national tuna fisheries estimates. The other provinces were Ba Ria (Vung Tau), Da Nang, Tha Thien Hue, Quang Nam, Ninh Thuan, Binh Thuan, Quang Ngai and Quang Tri.

Participants from each province that attended the workshop provided background information on the extent of oceanic tuna landings where possible. The important points in each presentation and the ensuing discussion were noted and incorporated into the most recent version of the provincial tuna summaries (VTFACE-1 Document #16 - Lewis, 2012), noting that the workshop presentations and working papers (see Appendix 3) provide more detailed information. The information compiled under this agenda item was discussed further in the decisions on compiling the national-level annual catch estimates (see Section 7).

5. Information to determine estimates available from other sources

Beyond the Sub-DECAFIREP offices, there are several sources of additional information available on oceanic tuna catches that are considered very useful reference when determining the annual catch estimates. The Danish International Development Agency (DANIDA) project "Assessment of the Living Marine Resources in Vietnam" (ALMRV), which ran from 1996-2006 and has been described in previous WPEA Vietnam workshops, is the most comprehensive dataset available with respect to time series and potential information on species composition and catch volume for the oceanic tunas. Unfortunately, a representative from the Vietnam Research Institute of Marine Fisheries (RIMF) was unable to attend and provide summaries of oceanic tuna catch volume and species composition by gear and species. Some ALMRV data were compiled, summarized and used by DECAFIREP to produce preliminary estimates in preparation for this workshop (see VTFACE-1 Document # 13 in Appendix 3; Section 6.2). The General Statistics Office of Vietnam (GSO) data was also identified as another potentially useful source of data for reference when compiling annual catch estimates (see VTFACE-1 Document # 13 – Appendix 3)

The following provide an overview of presentations from the University of Natural Science, VASEP and SEAFDEC that describe other sources of data and/or data collection initiatives that involve oceanic tuna catches. More detailed information is available in the relevant presentations/accompanying documents for each.

- **Data collection initiatives from University of Natural Science (HUI) and RIMF.** Professor Doan Van Bo described hydrograhic/environmental data collected on fishery surveys covering 5 regions for the purpose of identifying areas of potentially high oceanic tuna catches. The project was augmented with the collection of 20 logbooks over 15 months of the survey period. It was noted that the type of data collected during this survey (climate, oceanographic, meteorological) is now available through satellite remote sensing equipment offered by a number of suppliers (e.g. GEOEYE) and access to this information would be investigated.

- **Exports data from VASEP**. Ms. Le Hang provided a comprehensive presentation on exports of fisheries and aquaculture products from Vietnam, highlighting tuna exports (see VTFACE-1 Documents #6, #7 and #8 – Appendix 3). Vietnam's tuna exports continue to increase. There are now 96 markets for canned, cooked loin and fresh tuna products. Japan and the EU mainly take the fresh (locally-caught) tuna which represents about 30% of the total exports. There are currently 114 processors exporting tuna products which represent a drop on recent years (i.e. from 144 in 2009) due to the lack of raw material and processors moving to other products. The key category in the export data was the "HS03" which represented the fresh/whole tuna which accounted for USD 232,479 in 2011 but there were no volume data as yet, which is of more interest to this workshop. "HS16" was the category of processed (cannery/cooked loins) for oceanic tunas, but this category also did not have any volume data associated with it. Review of the export value and average price data by processor showed which product each processor dealt with (i.e. fresh or canned). The workshop suggested it would be useful to get a better breakdown of the key market categories, in particular, the total volume in the HS03 and HS16 categories.
- **Imports data from the Directorate of Trade and Customs**. Mr Viet Anh presented information on available imports data which included SKJ: 19,000 t, YFT: 21,000 t, BET: 141 t and ALB: 6,000 t for 2010. Imports therefore represent about 50,000 t. of raw material (oceanic tuna) and therefore a coarse estimate of the local raw material (oceanic tuna) contribution to total exports could be determined after considering the weight loss due to processing. Most of the exports are canned products.
- **SEAFDEC**. Ms Penchon Laongmanee described their recent work in Vietnam related to tuna fisheries. They have recently supported data collection on purse seine and gillnet fisheries of Vietnam and have been involved in a Japanese study on juvenile yellowfin and bigeye tuna species identification in Thailand canneries. The type of information collected in Vietnam was through survey with data collected at the trip level but in a very similar format to the WPEA data – not as detailed as the logbook data but more detailed than the WPEA landings data. Estimates of longline catch for the three central provinces were provided and were very similar to estimates derived from the WPEA data

except for Khanh Hoa which was acknowledged to have too many vessels as used in their estimation process. According to SEAFDEC experience and data, a higher catch of BET was understood to occur in certain months of the year. Since this work overlaps with WPEA project, SEAFDEC have no plans to play a major role in the monitoring of the oceanic tuna fisheries but may continue to be involved in providing assistance to Vietnam for the neritic species, as a priority.

While the data available in each presentation are not directly usable for producing annual tuna fishery catch estimates at this stage, the workshop considered that they do provide some broad indications of oceanic tuna catches which are useful in the annual catch estimation process. Recommendations for enhancing the structure of some of the data summaries were provided by the workshop (see Appendix 4). The presentation files and documents relevant to the sections below provide more detailed information and are listed in Appendix 3.

6. Information available on historical catches

The workshop considered available information on historical catch estimates since there is evidence that commercial tuna fisheries have been present in Vietnam for at least 20 years but there are no annual catches estimates by gear and species. Mr Viet Anh (DECAFIREP) provided a presentation on the Inventory of historical data on tuna fisheries which is available in VTFACE-1 Document # 10 (Appendix 3). This working paper sets out the historical research data collected for each gear type (longline, purse seine and gillnet), including information on (i) the name of the project/program, (ii) the objectives of the project, (iii) the period covered by the project, (iv) the number of trips covered, (vi) the implementation agency, (vii) the types of data collected and (viii) the agencies holding the data. Some of the key information listed in this data inventory was summarized and presented in VTFACE-1 Document # 13 (Appendix 3) later in the workshop. The ensuing discussion noted some minor errors in the inventory which were subsequently corrected. It was suggested that other information available outside Vietnam could be added to the inventory, for example, the work of Japanese scientists who compiled data collected from Japanese vessels active in the South China Sea for which several publications are available. The RIMF ALMRV database for the longline fishery contains over 100,000 records and was identified as a key dataset for which further investigation is recommended. Mr. Viet Anh was commended for the preparation of this very useful document.

He then provided a presentation of the consolidated WPEA data collected so far, as a series of data summaries (tables, graphs, maps) and preliminary annual catch estimates (VTFACE-1 Document # 11 - Appendix 3). This presentation showed how useful the WPEA data collection can be in providing key information on the Vietnam tuna fisheries which can be used by scientists, managers and other stakeholders. There was some discussion on potential problems in the reporting of blue marlin as black marlin and concern that the estimate for swordfish in 2011 was too low, although it was noted after some investigation that the figure presented had not been raised to account for coverage of data collected. In regards to data management, dissemination and feed-back, the workshop noted that DECAFIREP should endeavour to send the Sub-DECAFIREP offices a set of data summaries on a quarterly basis. It was suggested that perhaps the set of secure web pages of data summaries could be established on the DECAFIREP web site for access by Sub-DECAFIREP offices. It was acknowledged that the long term goal is for the Sub-DECAFIREP offices to enter, manage and report on the data themselves.

Mr Viet Anh then provided a presentation on the historical catch estimates in Vietnam (VTFACE-1 Document # 13 – Appendix 3). This paper initially describes the problems in producing estimates where data are incomplete but that there have been precedents for reconstructing estimates in data-poor situations. The paper proceeded to list some key sources of data that should be considered when determining the Vietnam historical tuna fishery catch estimates. These data include information collected in recent years by the University of Natural Science in conjunction with RIMF, the General Statistics Office of Vietnam (GSO) and RIMF ALMRV. The paper attempts to estimate catches using several sources of data, including numbers of fishing vessels by gear and size class (compiled by DECAFIREP), monthly vessel activity by gear and target tuna catch rates obtained from the ALMRV (the estimates produced are listed in Table 7 of the paper). One potential problem noted with this method was the assumption that all vessels were active, and would have the average month activity applied to all active vessels, which would normally produce over-estimates.

Table 8 of the paper provides an independent list of estimates based on information extracted from the GSO and includes notes/caveats on the sources of information used to produce these estimates. Another set of estimates (but for 2009 only) are provided in the provincial summaries compiled by Dr Lewis after several field trips during 2009/2010 and are presented in Table 9 of the paper; these estimates were deemed to be the best available for 2009 and therefore could be used as a means of ground-truthing the other estimates.

Table 11 provided a summary of the different estimates compiled in VTFACE-1 Document #13 (Appendix 3) and the workshop noted that after accounting for the inclusion of non-oceanic species (that is, removing the estimated non-oceanic tuna catches from the purse seine and gillnet fisheries), there was general coherence amongst the different estimates of oceanic tuna by gear type. The workshop and paper acknowledged there were deficiencies in the available estimates and it was therefore left to participants to decide on an approach for compiling the best historical estimates, which is covered in the next agenda item (see Section 7 of this report).

7. Producing historical Tuna Fishery Catch Estimates

After further discussion, a proposal for how to proceed was suggested and some out-of-hours work was done compiling the available estimates into a working EXCEL file. The following describes how the available data were used to produce estimates that were ultimately agreed by the workshop as provisional estimates for 2000-2011.

The workshop agreed that determining estimates for years prior to 2000 was not possible at the stage and would be attempted at subsequent VTFACE workshops. This decision was also the case for estimates for shark species acknowledging that estimating shark species catch may ultimately only be possible for most recent years when adequate observer and landing data are collected and made available.

The estimates for 2008 from each source (GSO and ALMRV) were reviewed in addition to the most recent years' estimates from WPEA data. The reconciliation between these sources of data provided the basis for deciding how to determine estimates in previous years. The following sections describe the process for determining estimates for each gear type.

7.1 Longline catch estimates

- The GSO estimate for 2008 was approximately 19,000 t and the estimate derived from DECAFIREP and ALMRV/DECAFIREP data (Table 7 – see VTFACE-1 Document # 13 – Appendix 3) for 2008 was ~27,000 t, although the estimates from this latter source were closer to the GSO estimate for previous and subsequent years, so the GSO estimate (~19,000 t) was deemed to be the more reliable estimate for 2008 by the workshop.
- The GSO and DECAFIREP/ALMRV estimates were for ALL SPECIES and the target oceanic tuna estimates (yellowfin and bigeye tuna) were determined by applying recent observer-derived species composition estimates (that is, 71% of total catch represents YFT+BET catch). This produced an estimate of 13,700 t. for YFT and BET from the GSO data which is in line with the estimates determined from the WPEA data collection in recent years (YFT+BET : 12,000 t. for 2010 and 14,000 t. for 2011). Given that the GSO estimate could be reconciled with estimates derived from the WPEA data collection, the workshop agreed to apply the same methodology of estimating the YFT+BET from the GSO data for years 2000-2008.
- Species composition data were available from the ALMRV for the period 2000-2004, so these were applied to the YFT+BET catch estimates to produce year-specific catch estimates for yellowfin and bigeye tuna catch estimates. The ALMRV species composition data for the billfish species for 2000-2004 were deemed to be unusually high so were not considered. A review of the comprehensive ALMRV logbook data after the workshop was suggested in an attempt to obtain more reliable species composition data for years prior to 2009.

- The workshop decided to use the WPEA species composition data for 2010 and 2011 to determine species catch estimates for 2005-2011, in the absence of any reliable year-specific data. In the interim, the WPEA species composition data (2010-2011) for billfish were used to produce estimates of billfish catches for the period 2000-2011.

7.2 Purse seine catch estimates

- The oceanic tuna catch estimate for recent years according to the best information available for recent years (provincial summaries; VTFACE-1 Document #16 - Lewis, 2012) was in the order of 20,000-24,000 t. The GSO estimate for 2008 was approximately 57,000 t. and the estimate derived from DECAFIREP and ALMRV was about 27,000 t., which are significantly different. The estimate for the GSO can be explained since it contains ALL species catches which includes a large component of small pelagic species and coastal tuna species which are targeted by purse seine vessels using lights at night. An arbitrary estimate of about 40% of the total GSO catch was thought to represent the oceanic tuna catches and was applied to produce an estimate of SKJ+YFT+BET of about 22,800 t. which is in the range for the estimate provided recent provincial summaries (VTFACE-1 Document #16 - Lewis, 2012), and in the ballpark of the estimate derived by the ALMRV/DECAFIREP. The ALMRV/DECAFIREP estimate was thought to include ALL species which, after corrected to remove the non-oceanic species catches would make it an underestimate compared to the other sources of data; at this stage, it has been assumed that the ALMRV/DECAFIREP estimates for the purse seine fishery, as is, represents the oceanic tuna species catches only. It would be useful to get some indication if the AMLRV focused on larger vessels which would then be consistent with this assumption.
- Not enough data have been collected and processed under the WPEA project as yet to provide any estimate from the purse seine fishery for recent years. The workshop agreed that the GSO estimate, corrected to include the oceanic tuna catches only, was the best available estimate given that it could be reconciled with the estimate from recent provincial summaries (VTFACE-1 Document #16 - Lewis, 2012). The workshop therefore agreed to apply the same methodology of estimating the oceanic tunas SKJ+YFT+BET from the GSO data for years 2000-2008 and accept the ALMRV/DECAFIREP estimates as provisional estimates for 2009-2011.
- There are very few species composition data for the oceanic tuna species in the purse seine fishery available at this stage. An average species composition for SKJ/YFT/BET from the ALMRV data was applied to the total tuna catches for years in the range 2000-2009 and preliminary port sampling/landings data collected under WPEA project data were used to determine species composition for years 2010-2011. Further investigation of the ALMRV data may be required to obtain better species composition estimates for years prior to 2009.

7.3 Gillnet catch estimates

- The oceanic tuna catch estimates for recent years according to the best information available for recent years (VTFACE-1 Document #16 - Lewis, 2012) was in the order of 10,000-15,000 t. The GSO estimate for 2008 was approximately 30,000 t. and the estimate derived from DECAFIREP and ALMRV was about 67,000 t., which, as with the purse seine fishery, are significantly different. The larger estimates for both the GSO and the ALMRV/DECAFIREP data can be explained as they contain ALL species catches and include a significant component of neritic species, for example, longtail tuna (*Thunnus tonggol)*, mackerel tuna (*Euthynnus affinis*), frigate/bullet tunas *(Auxis* spp.) and Spanish mackerel (*Scomberomorus commerson*), which are taken by gillnet vessels that operate close to the coast in the central provinces, or in the most northern and most southern areas of Vietnam where the continental shelf (i.e. shallow waters) extends well off the coast. The large difference in the ALL species estimates between GSO and ALMRV/DECAFIREP could be due to the GSO not accounting for catches in some areas where significant amount of neritic species are taken.
- As with the purse seine gear, an arbitrary estimate of about 40% of the total GSO catch for GILLNET was thought to represent the oceanic tunas and was applied to produce an estimate of SKJ+YFT+BET

of about 12,000 t. in 2008 which is in the range for the estimate provided in the provincial summaries (VTFACE-1 Document #16 - Lewis, 2012). It was more difficult to explain the ALMRV/DECAFIREP estimate for 2008 which, after applying the 40% for oceanic tunas, was about double the level from both the GSO-derived catch estimates and the estimates in the provincial summaries.

- Not enough data have been collected and processed under the WPEA project as yet to provide any estimate from the gillnet fishery for recent years. The workshop agreed that the GSO estimate, corrected to represent the oceanic tuna catches only, was the best available estimate given that it could be reconciled with the estimates from the recent provincial summaries (VTFACE-1 Document #16 - Lewis, 2012). The workshop therefore agreed to apply the same methodology of estimating the oceanic tunas SKJ+YFT+BET from the GSO data for years 2000-2008 and accept the ALMRV/DECAFIREP estimates (after adjustment to the GSO estimate of 2008) as provisional estimates for 2009-2011.
- Species composition data for the oceanic tuna species in the gillnet fishery are available from the ALMRV for years 2000-2004 and the average species composition for these years (2000-2004) was used to determined the individual species catch estimates for this period. The species composition data obtained from provisional WPEA port sampling (2011) were used to estimate species catch for years 2005-2011; the oceanic tuna species composition data from WPEA 2011 gillnet landings data for SKJ:YFT:BET was 85.2%: 5.8%; 3.5% and from WPEA 2011 port sampling data was 88.2%: 7.0%; 4.8%.

8. Recommendations from the workshop

Based on discussions during the workshop, nine (9) recommendations were developed and agreed by participants to guide the work required in the coming year (see APPENDIX 4). The workshop also noted the link with the recommendations for this workshop and the recommendations from the previous workshop on tuna data review (VTFDC-3), so the recommendations from the latter workshop have been included in this report (see APPENDIX 7).

In drafting the recommendations for improving annual catch estimates in the future, the workshop recognized that the project needs to continue to take steps during the course of the project to ensure its sustainability, to build capacity at all levels of planned activity, to disseminate information and outcomes from the project and maximize collaboration and cooperation with all relevant Government and industry agencies. A specific VTFDC-3 recommendation had been formulated with respect to starting work on future plans for integration of the data collection system established by the WPEA into the national data collection system.

9. CLOSE

Dr Lewis thanked the organizers of the workshop, the Deputy Director of the Directorate of Fisheries (Mr. Yen) and staff of DECAFIREP, and the Deputy Director and staff of the Da Nang SUB-DECAFIREP office for hosting the workshop. He also thanked the participants from all SUB-DECAFIREP provincial offices, VASEP, University of Natural Science, SEAFDEC for their input into the meeting. He pointed out that this was the first time official oceanic tuna catch estimates by SPECIES and GEAR had been produced for Vietnam's fisheries and while there remains some work to do, this workshop should be acknowledged as a significant milestone.

The Deputy Director of the Da Nang Sub-DECAFIREP office provided closing remarks on behalf of Vietnam. He noted that while some data are available to produce historical catch estimates, he hoped that the next workshop would have better information with which to produce better estimates. He viewed this workshop and the work under the WPEA project as critical for Vietnam's contribution to the WCPFC as a cooperating non-member and their goal in becoming a member at some stage in the near future. The estimates produced will be critical for the regional stock assessments which provide advice on ensuring the sustainable

exploitation of the regional tuna stocks and equally important, for the management of their domestic fisheries. He thanked everyone for their involvement.

Appreciation was extended to the WCPFC and the funding agency for the WPEA OFM project – GEF. The meeting was closed with a round of applause.

The next WPEA workshop will be the fourth Vietnam Tuna Data Review Workshop (VTFDC-4) to be held in November 2012. With the conclusion of the current project at the end of this year, it was unclear how future meetings would be scheduled. It was noted that future Tuna Data Review and Annual catch estimates workshops should be conducted back-to-back, in the same week, ideally in March/April each year in the lead-up to the deadline for the submission of data to the WCPFC (30th April each year). Timing for these workshops should also consider when gillnet and purse seine landings are at their peak (i.e. just prior to the full moon period) so that field trips can be organized to conduct audits/reviews of data collection.

APPENDIX 1. VTFACE-1 Agenda

West Pacific East Asia Oceanic Fisheries Management
First Vietnam Tuna Fisheries Annual Catch Estimates Workshop (VTFACE-1)
2 – 6 April, 2012
Da Nang, Vietnam

AGENDA

CONTENTS	FACILITATOR / PRESENTER
1. **OPENING** 1.1. Registration 1.2. Introduction of participants 1.3. Election of Chairman and Rapporteurs 1.4. Adoption of the Agenda 1.5. Opening addresses and objectives of the workshop	 D-FISH DECAFIREP WCPFC/SPC
2. IMPORTANCE OF ANNUAL CATCH ESTIMATES AND EXPECTED OUTPUTS FROM THE WORKSHOP	WCPFC/SPC
3. **WPEA TUNA DATA COLLECTED IN 2010 AND 2011** 3.1. Overview of data collected by Binh Dinh for 2010-2011 3.2. Overview of data collected by Phu Yen for 2010-2011 3.3. Overview of data collected by Khanh Hoa for 2010-2011	Sub-DECAFIREP Binh Dinh Phu Yen Khanh Hoa
4. REVIEW OF TUNA FISHERY INFORMATION IN OTHER PROVINCES	Respective Sub-DECAFIREP offices
5. OTHER TUNA FISHERY DATA AVAILABLE FOR ANNUAL CATCH ESTIMATES 5.1. Data collection initiatives by University of Natural Science (HUI) and RIMF 5.2. Data collection initiatives by SEAFDEC 5.3. Tuna EXPORT data collected by VASEP 5.4. Tuna IMPORT data collected in Vietnam	WCPFC/SPC Univ. of Nat. Sci. - HUI SEAFDEC VASEP DECAFIREP/NTDC
6. INFORMATION TO DETERMINE HISTORICAL TUNA CATCH ESTIMATES 6.1. Historical tuna fishery data inventory 6.2. General overview of collected and processed data by WPEA OFM 6.3. Available historical tuna fishery data	 DECAFREP/NTDC DECAFREP/NTDC DECAFREP/NTDC
7. **COMPILATION AND REVIEW OF HISTORICAL TUNA FISHERY CATCH ESTIMATES**	CHAIR
8. **OTHER MATTERS**	CHAIR
9. **RECOMMENDATIONS AND CLOSE OF WORKSHOP**	CHAIR

APPENDIX 2. List of Participants

West Pacific East Asia Oceanic Fisheries Management
First Vietnam Tuna Fisheries Annual Catch Estimates Workshop (VTFACE-1)
2 – 6 April, 2012
Da Nang, Vietnam

LIST OF PARTICIPANTS

No	Name	Organisation
1	Antony Lewis	WCPFC
2	Peter Williams	WCPFC/SPC
3	Penchan Laongmanee	SEAFDEC
4	Đào Hồng Đức	DECAFIREP
5	Phạm Trọng Yên	Department of Science & Technology and International Cooperation
6	Nguyễn Quốc Ánh	DECAFIREP
7	Phạm Việt Anh	DECAFIREP
8	Phạm Hưng	DECAFIREP
9	Đoàn Văn Bộ	University of Natural Science
10	Nguyễn Bá Thông	Center for Fisheries Informatics
11	Nguyễn Thị Bích Ngọc	DECAFIREP
12	Lê Hằng	VASEP
13	Lữ Thanh Phong	Sub-DECAFIREP Khanh Hoa
14	Vo Khac En	Sub-DECAFIREP Khanh Hoa
15	Trần Lực	Sub-DECAFIREP Ba Ria - Vung Tau
16	Hoàng Quang Minh	Sub-DECAFIREP Đà Nẵng
17	Phan Văn Vải	Sub-DECAFIREP Đà Nẵng
18	Nguyễn Văn Bôn	Sub-DECAFIREP Thừa Thiên Huế
19	Võ Tấn Thành	Sub-DECAFIREP Quang Nam
20	Nguyễn Lý Ân	Sub-DECAFIREP Bình Đinh
21	Nguyễn Hải Bình	Sub-DECAFIREP Bình Định
22	Lê Đức Tuồng	Sub-DECAFIREP Phú Yên
23	Nguyễn Quách Trường Thanh	Sub-DECAFIREP Ninh Thuận

APPENDIX 3. List of VTFACE-1 Presentations, documents and data summaries

#	Presentation / Document / Data summary	Source
1	Recent information from WCPFC Fisheries, WCPFC Data reporting obligations and Vietnam data submissions	WCPFC/SPC
2	Recent collection of tuna fishery data in Binh Dinh Province	Sub-DECAFIREP – Binh Dinh
3	Recent collection of tuna fishery data in Phu Yen Province	Sub-DECAFIREP – Phu Yen
4	Recent collection of tuna fishery data in Khanh Hoa Province	Sub-DECAFIREP – Khanh Hoa
5	Information from other provinces	Sub-DECAFIREPS
6	VASEP Export data summary 2007-2001 (Vietnamese)	VASEP
7	VASEP Tuna export data 2011 (English)	VASEP
8	VASEP Tuna export data 2011 (Vietnamese)	VASEP
9	SEAFDEC – Vietnam Tuna fisheries summary	SEAFDEC
10	Vietnam tuna fisheries – DATA INVENTORY	DECAFIREP
11	WPEA Data Collection summary	DECAFIREP
12	Tuna data collection in Vietnam (2010 – Phuket meeting)	DECAFIREP
13	Overview of historical Vietnam tuna fishery data	DECAFIREP
14	Tuna data summaries – 2009	DECAFIREP
15	Tuna data collection and summaries - 2009	DECAFIREP
16	Vietnam Tuna fisheries – Provincial summaries (Lewis, 2012)	WCPFC

APPENDIX 4. Recommendations from VTFACE-1

FIRST VIETNAM ANNUAL TUNA CATCH ESTIMATES WORKSHOP

(VTFACE-1)

Da Nang, Vietnam

2–6 April 2012

RECOMMENDATIONS

DECAFIREP will arrange for a translation of the final version of the Recommendations into Vietnamese and then dissemination to Sub-DECAFIREP offices and other important stakeholders of the WPEA project in Vietnam. Responsibility for undertaking the work involved in each recommendation has been highlighted (bold/underlined).

1. **Annual tuna catch estimates**

   The provision of annual catch estimates is a fundamental reporting obligation for members, cooperating non-members and participating countries and territories (CCMs) of the WCPFC. While this initial workshop was very useful in producing historical tuna catch estimates for the first time, there remains considerable work to do and the workshop recommended **DECAFIREP and WCPFC** ensure that Annual Tuna Catch Estimates Workshops continue to be conducted on an annual basis.

   Future annual catch estimates workshops should be conducted in the same week, but after the annual WPEA Tuna Data Review Workshops. Both workshops should be conducted over two days each in March/April in the lead-up to the deadline for the provision of data to the WCPFC (30th April). In the longer term, it is envisaged that DECAFIREP will conduct these workshops without direct WCPFC involvement.

   Appendix 5 provides a flowchart of how the annual catch estimates process is intended to work.

2. **Tuna Data Review Recommendations**

   The work on resolving problems highlighted in the recommendations from the most recent Tuna Data Review Workshop (see **Appendix 7**) was noted as critical for the annual catch estimation process and therefore all parties (**DECAFIREP, Sub-DECAFIREP, RIMF and WCPFC**) were again reminded to address these recommendations.

3. **Extending WPEA data collection to other provinces**

   The Workshop noted that oceanic tuna species are landed in other provinces and therefore recommended that **DECAFIREP and WCPFC** investigate what resources are required to extend data collection to these provinces as soon as possible. This evaluation will be included in the overall study on resource requirements for the next WPEA project, for example.

4. **Species composition data by GEAR TYPE**

   The Workshop acknowledged that species composition data by GEAR is critical to the estimation of annual catch by species and strongly recommended that **DECAFIREP and Sub-DECAFIREP** offices compile (i) historical species composition data BY GEAR from available information, and (ii) start

collecting reliable species composition data by GEAR, ideally through the WPEA data collection systems.

5. Tuna Exports and Imports

The workshop noted the potential value in the export and import data and recommended that **DECAFIREP** investigate the possibility of breaking down the data, as follows :

- Exported tuna catch volume by "HS" category; conversion factors (to whole weight) could then be applied, in the case of HS 16 commodities
- Obtain more recent IMPORT data (i.e. needs to be updated)
- Other relevant information from the Ministry of Trade and Customs office to better differentiate the imports and exports. For example, compilation of the volume of tuna exports and imports at the processing plant or provincial level.

6. Cooperation amongst regional organisations

The workshop noted the involvement of regional organizations in the process of estimating Vietnam tuna fishery catches and encouraged the involvement of **WCPFC, SEAFDEC and FAO-RAPA,** with each offering a certain specialist level of expertise to the process.

7. Annual Provincial tuna fishery Reports and dissemination of WPEA data summaries to Sub-DECAFIREP

The workshop recommended that **Sub-DECAFIREP** offices prepare an annual provincial tuna fishery report to be submitted to DECAFIREP. The type of report produced by some provinces for this workshop is a good template for what is expected and these reports would then serve as input into the annual WPEA workshops. It is acknowledged this is a long-term goal which can be done by some provinces with WPEA data collection now, but not other provinces. **WCPFC** will provide more guidance on an appropriate template for the report.

The workshop recommended that **DECAFIREP** provide the Sub-DECAFIREP offices with quarterly data summaries of WPEA data collected in the province which can also be included in the annual provincial tuna fishery report. One suggestion was to establish secure web pages so that the provincial data summaries can be updated, viewed and downloaded at any time via the internet.

8. New fishing methods for oceanic tuna

The workshop recommended that **DECAFIREP and Sub-DECAFIREP** monitor and report on the extent of the new handline ("tuna/squid") fishery by purse seine (with lights) vessels, and with **WCPFC**, consider introducing new WPEA data collection forms to better collect the information from this new fishing method. Specifically, information is required from each province on when it started, approximately how many trips per year, and average catch in those trips when this method is used. Enumerators should separate the catch from this new fishing method out from the data collected for the purse seine activities.

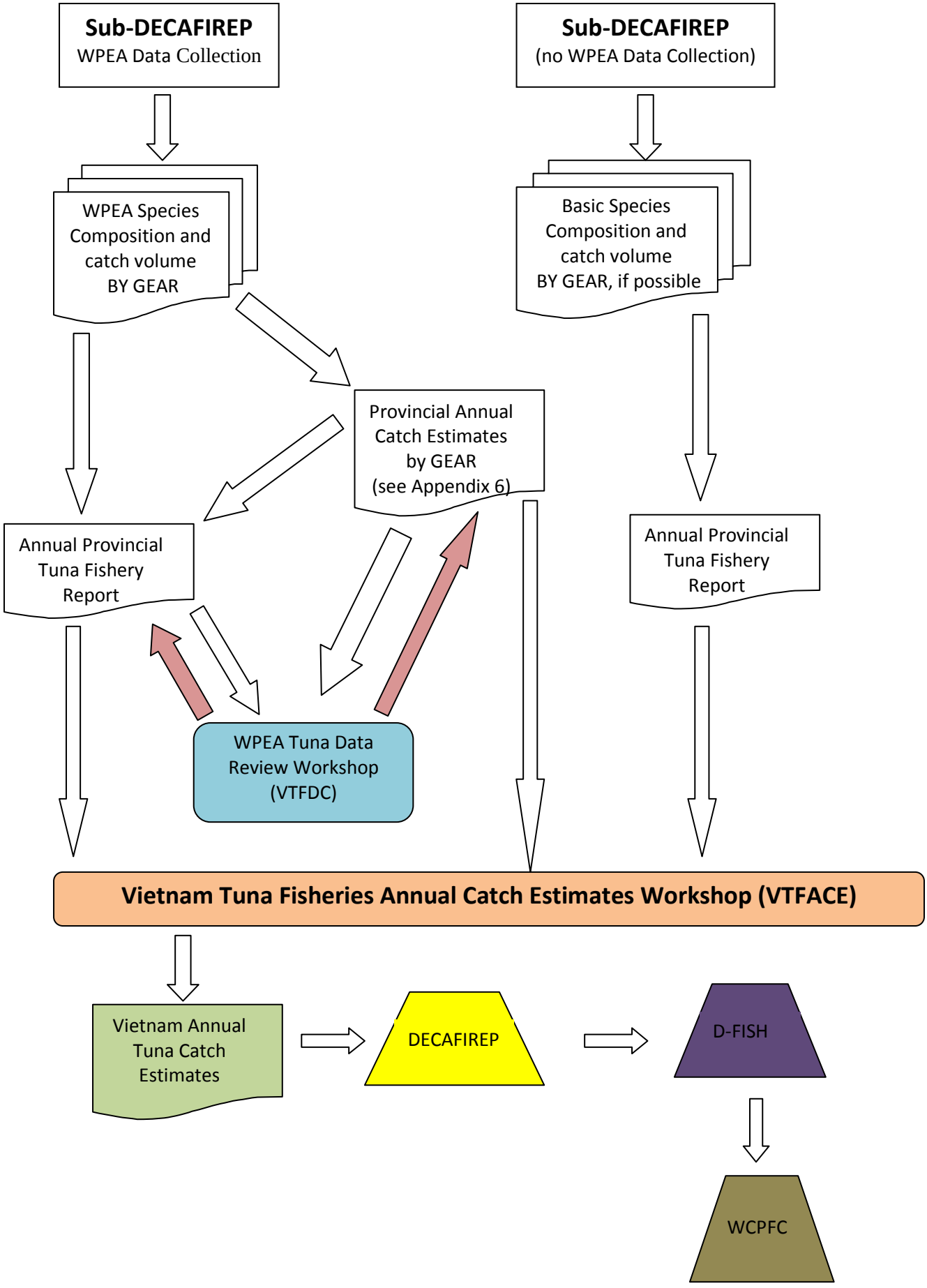
9. Key additional information for Annual catch estimates

The workshop recommended that **DECAFIREP and Sub-DECAFIREP** establish a formal arrangement with the **COASTGUARD** offices and **BUYERS** from each province to collect and compile the total number of trips BY GEAR based on port entry/departure information, which will be used to raise the data collected under the WPEA project.

Obtaining information from the COASTGUARD is difficult as it is in hard-copy format and requires some time to compile. **Sub-DECAFIREP** offices are asked to report at the next workshop what resources are required to compile this information.

The workshop acknowledged that other types of data will be available in the future to determine coverage, for example, Vessel Monitoring System (VMS) data.

APPENDIX 5. Flowchart of the future Vietnam Annual Catch Estimation process



APPENDIX 6. Provincial Annual tuna catch estimation using WPEA data – Example only

ANNUAL TUNA CATCH ESTIMATION -- PHU YEN -- LONGLINE -- 2011							
NOTES	Level of estimate	COVERAGE %			Catch (metric tonnes)		
		TRIPS	% to months covered by WPEA	% to ALL months	YFT	BET	YFT+BET
1	WPEA Sampling data	415	28.8%	*19.8%*	423	77	500
2	WPEA Landings data	944	65.5%	*45.0%*	1,172	379	1,551
3	Months covered by WPEA	1,441	100.0%	*68.6%*	*1,789*	*579*	*2,368*
4	ALL MONTHS	*2,100*		*100.0%*	*2,607*	*843*	*3,450*

Obtained from the COASTGUARD for Phu Yen

Raised Annual catch estimate for LONGLINE in PHU YEN

NOTES

1. Collect and compile the WPEA data - Total number of vessel unloadings **SAMPLED** and the total catch by species recorded by the enumerator
2. Collect and compile the WPEA data - Total number of **LANDINGS** data collected and the total catch by species
3. Record TOTAL number of trips for LONGLINE conducted in the months covered by WPEA sampling, that is the total number of vessels RETURNING to port in months covered by WPEA sampling which can be obtained/compiled from COASTGUARD data.
4. Record TOTAL number of trips for LONGLINE conducted in the YEAR, that is the total number of vessels RETURNING to port which can be obtained/compiled from COASTGUARD data.
5. This EXCEL table then automatically calculates the following (*shown in red italics*):
    a. The coverage of WPEA sampling data for (i) months covered by WPEA activity and (ii) the entire year (ALL MONTHS)
    b. The coverage of WPEA landings data for (i) months covered by WPEA activity and (ii) the entire year (ALL MONTHS)
    c. Raised catch estimates for (i) months covered by WPEA activity and (ii) the entire year (ALL MONTHS)
6. LOGBOOK data can also be used in a similar manner.
7. This procedure can also be done at the monthly level which would provide a higher level of accuracy.

APPENDIX 7. Recommendations from VTFDC-3

THIRD VIETNAM TUNA FISHERY DATA COLLECTION WORKSHOP
(VTFDC-3)

Nha Trang Vietnam
22–24 November 2011

Draft RECOMMENDATIONS

DECAFIREP will arrange for a translation of the final version of the Recommendations into Vietnamese and then dissemination to Sub-DECAFIREP offices, RIMF and other important stakeholders of the WPEA project in Vietnam. Responsibility for undertaking the work involved in each recommendation has been highlighted (bold/underlined).

1. LONGLINE DATA COLLECTION

The workshop noted the good progress made in implementing data collection in the LONGLINE fishery, noting that many problems highlighted last year had been resolved. The workshop noted that data collection systems continually evolve, requiring review and subsequent modification due to changing circumstances in the fishery and the available resources to collect data.

The workshop discussed the problems encountered in the data collection over the past year and agreed on the following advice to remedy these problems. The problems are noted under each type of data collection and the red text indicates the suggested and agreed action. The agency responsible for the action is noted in bold/underline.

LONGLINE LOGBOOK

- Problems in implementing LONGLINE LOGBOOKS
  - **DECAFIREP** will proceed to modify legislation to use the WPEA logsheet as the standard in the LONGLINE FISHERY
  - **DECAFIREP** will assist **Sub-DECAFIREP** offices to request the Sea Border Control Guard to enforce the submission of logbooks
  - **DECAFIREP** and **WCPFC/SPC** will verify that WPEA Logbook satisfies EU catch documentation requirements.
  - **WCPFC/SPC** and **DECAFIREP** will investigate the design of the WPEA logbooks to see where it can be improved, for example, increase the field spacing
  - **Sub-DECAFIREP** offices will inform vessels that only one LOGBOOK needs to be completed (after the legislation change, then this is expected to be the WPEA logbook for LONGLINE fishery). This may take several months, during which time provinces will make their own arrangements for implementation (some have largely implemented already).
  - **Sub-DECAFIREP** will continue to target 100% coverage of logbooks acknowledging this may take some time to achieve.

LONGLINE LANDINGS

- Target coverage (maximum number of landings per Province per month) for Longline fishery
  - **Sub-DECAFIREP** will continue to collect data according to target coverage reviewed and updated during the VTFDC-3 (see Appendix 6)
- Not all bycatch (non-tuna) species are covered in Landings data collection

- **Sub-DECAFIREP** will aim to collect by-catch landings BY SPECIES wherever possible and attempt to record the landings for the important bycatch (non-tuna) species only – e.g. billfish, wahoo and mahi mahi. If this is not possible, then record all other bycatch in one category – "OTHERS"

2. GILLNET AND PURSE-SEINE DATA COLLECTION ISSUES

The workshop noted that data collection in the GILLNET and PURSE SEINE fisheries had commenced in some provinces, but it was too early to undertake a comprehensive review of the data collected.

The workshop discussed the problems encountered in the GILLNET/PURSE SEINE data collection over the past year and agreed on the following advice to remedy these problems. The problems are noted under each type of data collection and the red text indicates the suggested and agreed action. The agency responsible for the action is noted in bold/underline.

PURSE SEINE/GILLNET LONGLINE LOGBOOK

- Implementation.
  - **DECAFIREP** will proceed to obtain approval to use the WPEA-designed purse seine and gillnet logbooks, but will not proceed to implement as yet.

PURSE SEINE/GILLNET LANDINGS

- Unable to attain the target coverage (maximum number of landings per Province per month)
  - **Sub-DECAFIREP** will collect data according to target coverage which was reviewed and adjusted at VTFDC-3 (see Appendix 6)
  - **DECAFIREP** and **WCPFC/SPC** will seek funds to support the additional resources of (**2 enumerators for each province)** to cover the required level of monitoring of the PURSE SEINE and GILLNET fisheries.
- Recording YFT/BET and bycatch (non-tuna) species landings
  - **Sub-DECAFIREP** Enumerators will record total skipjack tuna catch and the combined YFT/BET tuna catch on the forms. **DECAFIREP** and **WCPFC/SPC** will change the WPEA GILLNET and PURSE SEINE Landings data form and protocol instructions accordingly.
  - **Sub-DECAFIREP** will aim to collect by-catch landings BY SPECIES wherever possible and attempt to record the landings for the important bycatch (non-tuna) species only – e.g. billfish, wahoo and mahi mahi. If this is not possible, then record all other bycatch in one category – "OTHERS"
- Gear type missing on the data collection form
  - **DECAFIREP** will modify to the data collection form to add the GEAR TYPE

PURSE SEINE/GILLNET BIOLOGICAL SAMPLING (PORT)

- Suitable measuring equipment not used
  - **Sub-DECAFIREP** enumerators should not use measuring tapes under any circumstances
  - **DECAFIREP** will construct wooden calipers of 70 cm which will be used to measure most small fish from the PURSE SEINE and GILLNET landings.
- Difficulties getting access to fish / Buyers don't allow Enumerators to handle the fish
  - **DECAFIREP** and **Sub-DECAFIREP** to explain requirements for access to fish (e.g. stakeholders meeting).
  - If **Sub-DECAFIREP** enumerators can't get appropriate access to BOTH (i) SKJ and (ii) YFT/BET to measure, then they should not sample the vessel's catch. **DECAFIREP** will update the protocol instructions accordingly.

- How to select a vessel to be sampled, particularly when not much SKJ/YFT/BET taken ?
  - If **Sub-DECAFIREP** Enumerators note that SKJ/YFT/BET is not significant, or zero in the catch, then they should not sample the selected vessel. **DECAFIREP** will update the protocol instructions accordingly.
- Too much work to do with existing resources
  - (the issue of additional resources required is covered in the PS/GN Landings item above)
  - **Sub-DECAFIREP** will collect data according to target coverage which was reviewed and adjusted at VTFDC-3 (see Appendix 6)
- Sampling occurs at night-time and difficult to get advance warning when unloading occurs
  - **Sub-DECAFIREP** will use a co-operator who lives near the port to inform enumerators of pending unloading.
- Potential species identification problems – juvenile YFT and BET
  - A specific recommendation on resolving species identification problems has been formulated below.
- Gear type missing on the data collection form
  - **DECAFIREP** will modify to the data collection form to add the GEAR TYPE

3. ANNUAL TUNA CATCH ESTIMATES

The provision of annual catch estimates is a fundamental reporting obligation for members, cooperating non-members and participating countries and territories (CCMs) of the WCPFC. The workshop noted that the ***First Vietnam Tuna Fisheries Annual Catch Estimates Workshop*** (VTFACE-1) was scheduled for March/April 2012 and compiled a list of information to be prepared by **DECAFIREP** , **WCPFC/SPC**, **RIMF**, **VASEP** and **other relevant stakeholders** prior to the workshop. The detailed list of information to be prepared for VTFACE-1 is contained in APPENDIX 7 of the VTFDC-3 Workshop Report.

4. PROVINCIAL PROFILES

The Workshop noted that the oceanic tuna fishery profiles for each of the three Central provinces (Khanh Hoa, Phu Yen and Binh Dinh) have yet to be provided, but work has been progressing and they are expected to be completed by **RIMF** according to the agreed template by **late February 2012.** Subject to additional funding, stakeholder workshops may be conducted at all three provinces to verify, complete and share the information compiled in the profiles. The workshop noted that the information in the provincial profiles would be very useful for the VTFACE-1, to be held in March/April 2012.

5. DATA MANAGEMENT AND DISSEMINATION

The Workshop noted the importance of having the Vietnamese tuna fisheries data checked using quality control procedures, entered into a secure database system (with backups) and disseminated to the authorized users. There were a number of specific recommendations suggested in this area, including:

- **WCPFC/SPC** will conduct an audit of the 2011 Vietnam tuna fisheries data in March/April 2012, prior to the WCFPC Scientific data submission deadline (30th April 2012).
- **DECAFIREP**, with assistance from **WCPFC/SPC**, will make the necessary changes to the manuals for data collection forms, protocols, and implementation strategies resulting from the decisions of the workshop and distribute to workshop participants prior to **January 31st 2012**.

- **DECAFIREP**, with assistance from **WCPFC/SPC**, would pursue the purchase of a dedicated server for the Vietnam tuna fisheries database system (TUFMAN) as a matter of urgency. Funds should also include purchase of a suitable power supply (UPS), an external backup device and a desktop computer.
- **DECAFIREP** will disseminate summarized tuna fishery data to each **Sub-DECAFIREP** office on a six-monthly basis.
- **DECAFIREP** will continue to provide their tuna fishery data to the WCPFC according to their reporting obligations as a cooperating non-member (CNM).
- **WCPFC/SPC** will endeavour to produce new reports in the TUFMAN system to satisfy the requests for DECAFIREP and Sub-DECAFIREP offices. For example, the ability to produce reports by PROVINCE/PORT is a high priority request.

6. SPECIES IDENTIFICATION

The workshop noted that continued concern expressed by enumerators with respect to the identification of small yellowfin and bigeye tuna.

- **WCPFC/SPC** will continue to provide enumerators (through DECAFIREP) with information that will allow easier distinction of juvenile yellowfin and bigeye tuna.
- **SUB-DECAFIREP enumerators** will continue use all means available to them for identifying the longline tuna catch (e.g. body stripes, notch in caudal fork, general body shape, black lines on finlets, relative size of eye, appearance of liver [where possible], etc., depending on the situation and size of fish).
- **WCPFC/SPC** and **DECAFIREP** will investigate the availability of funds for a dedicated trip to Vietnam by an expert to conduct a series of species identification workshops at each Province.

7. VIETNAM TUNA FISHERIES OBSERVER PROGRAMME

The workshop commended DECAFIREP and RIMF for the work in conducting fifteen (15) LONGLINE observer trips over the past year, which exceeded expectations. However, the workshop noted the problems in establishing and maintaining viable observer programmes, particularly the higher costs involved compared to other types of data collection and the difficulties working onboard small vessels.

The Workshop recommended that **DECAFRIREP** continue to deploy observers on LONGLINE vessels in 2012 with a target five (5) observer trips, if funds were available after considering the other additional high priority funding requests. The Workshop considered that deploying observers on purse seine and gillnet vessels required further planning/work and was too early to implement.

The workshop recommended that **DECAFRIREP** and **WCPFC/SPC** collaborate to ensure the observers use translated versions of the key WCPFC Regional observer data collection forms, which will provide national scientists with more comprehensive data.

8. NATIONAL STOCK ASSESSMENT REPORT

The workshop noted the request for training in understanding the methodologies used in the WCPFC stock assessments. Vietnam has participated in the previous two Regional Stock Assessment Workshops (SAWs) conducted by SPC; there are however many more Vietnamese fisheries scientists that would benefit from the training provided at the SAWs but the lack of funds restricts their

participation. The workshop also acknowledged the expertise available in the Vietnamese Research Institute of Marine Fisheries (**RIMF**) and the technical support they can provide to any proposed workshops.

The workshop recommended that the **WCPFC/SPC**, **DECAFIREP** and **RIMF** investigate available financial and human resource (e.g. trainers) opportunities to organize and conduct a Vietnam National Stock Assessment Workshop, which would be along the lines of the regional SAW format.

9. FUTURE INTEGRATION OF WPEA DATA COLLECTION INTO NATIONAL DATA COLLECTION PROGRAMME

The workshop noted the fundamental objective of the WPEA was to ensure the data collection systems established under the WPEA project are integrated into, and supported under the National data collection programme over the longer term. The workshop recommended the following action:

- Recognising there needs to be a longer-term commitment to data collection beyond the three years of the project, **DECAFIREP**, with assistance from **WCPFC/SPC** and support from **other WPEA countries**, formally requests the relevant funding agencies to proceed to a Phase II of the WPEA project for 2013-2015, as a matter of urgency.
- **DECAFIREP**, in consultation with **RIMF**, begin to plan how the tuna fishery data collection programme can be integrated into the National data collection programme and supported by the government over the long term, and report progress in this area to the next Tuna Data Workshop.

10. WCPFC JAPAN TRUST FUND (JTF) PROPOSALS

The workshop recommended that **DECAFIREP** urgently consider developing proposals from JTF funding to the WCPFC-administered JTF for various qualifying activities not covered under the Annual Work Plan 2012, for example, the Annual Catch Estimates Workshop, the National Stock Assessment Workshop and the Species Identification Workshop. The proposals would generally need to be submitted by 31st December 2011.

APPENDIX 8. Vietnam Tuna Fisheries Annual Catch Estimates

VIETNAM TUNA LONGLINE																			
Year	Active vessels	Estimated Tuna Catch (metric tonnes)									Estimated Billfish Catch (metric tonnes)								TOTAL Tuna and Billfish
		Skipjack	%	Yellowfin	%	Bigeye	%	Albacore	%	Total tuna	Blue Marlin	%	Black Marlin	%	Striped Marlin	%	Swordfish	%	
2000		0	0%	6,776	68%	2,479	25%	10	0%	9,266	323	3%	152	2%	0	0%	253	3%	9,993
2001		0	0%	8,292	79%	1,450	14%	11	0%	9,753	340	3%	160	2%	0	0%	266	3%	10,518
2002		0	0%	9,756	87%	614	5%	11	0%	10,382	362	3%	170	2%	0	0%	283	3%	11,197
2003		0	0%	8,179	73%	2,129	19%	11	0%	10,320	360	3%	169	2%	0	0%	281	3%	11,130
2004		0	0%	11,122	74%	2,781	19%	15	0%	13,918	486	3%	228	2%	0	0%	379	3%	15,010
2005		0	0%	10,895	70%	3,527	23%	16	0%	14,438	504	3%	236	2%	0	0%	394	3%	15,572
2006		0	0%	10,930	70%	3,538	23%	16	0%	14,483	505	3%	237	2%	0	0%	395	3%	15,621
2007		0	0%	11,270	70%	3,648	23%	16	0%	14,935	521	3%	244	2%	0	0%	407	3%	16,107
2008		0	0%	10,375	70%	3,358	23%	15	0%	13,748	480	3%	225	2%	0	0%	375	3%	14,827
2009		0	0%	9,244	70%	2,992	23%	13	0%	12,249	427	3%	200	2%	0	0%	334	3%	13,211
2010		0	0%	9,513	74%	2,441	19%	4	0%	11,958	418	3%	196	2%	0	0%	326	3%	12,898
2011		0	0%	10,576	70%	3,424	23%	15	0%	14,015	489	3%	229	2%	0	0%	382	3%	15,116

Notes on sources of data and methodology

1	*The GSO estimate for 2008 was approximately 19,000 t. and the estimate derived from DECAFIREP and ALMRV/DECAFIREP data (Table 7 – see VTFACE-1 Document # 13 – Appendix 3) for 2008 was ~27,000 t., although the estimates from this latter source were closer to the GSO estimate for previous and subsequent years, so the GSO estimate (~19,000 t.) was deemed to be the more reliable estimate for 2008 by the workshop.*
2	*The GSO and DECAFIREP/ALMRV estimates were for ALL SPECIES and the target oceanic tuna estimates (yellowfin and bigeye tuna) were determined by applying recent observer-derived species composition estimates (that is, 71% of total catch represents YFT+BET catch). This produced an estimate of 13,700 t. for YFT and BET from the GSO data which is in line with the estimates determined from the WPEA data collection in recent years (YFT+BET : 12,000 t. for 2010 and 14,000 t. for 2011). Given that the GSO estimate could be reconciled with estimates derived from the WPEA data collection, the workshop agreed to apply the same methodology of estimating the YFT+BET from the GSO data for years 2000-2008.*
3	*Species composition data were available from the ALMRV for the period 2000-2004, so these were applied to the YFT+BET catch estimates to produce year-specific catch estimates for Yellowfin and bigeye tuna catch estimates. The ALMRV species composition data for the billfish species for 2000-2004 were deemed to be unusually high so were not considered. A review of the comprehensive ALMRV logbook data after the workshop was suggested in an attempt to obtain more reliable species composition data for years prior to 2009.*
4	*The workshop decided to use the WPEA species composition data for 2010 and 2011 to determine species catch estimates for 2005-2011, in the absence of any reliable year-specific data. In the interim, the WPEA species composition data (2010-2011) for billfish were used to produce estimates of billfish catches for the period 2000-2011.*

VIETNAM TUNA PURSE SEINE

Year	Active vessels	Estimated Tuna Catch (metric tonnes)							See NOTES
		Skipjack	%	Yellowfin	%	Bigeye	%	Total tuna	
2000		11,525	75%	3,534	23%	307	2%	15,367	
2001		12,130	75%	3,720	23%	323	2%	16,174	
2002		12,913	75%	3,960	23%	344	2%	17,218	
2003		12,836	75%	3,936	23%	342	2%	17,115	
2004		17,312	75%	5,309	23%	462	2%	23,082	
2005		17,959	75%	5,507	23%	479	2%	23,945	
2006		18,015	75%	5,525	23%	480	2%	24,020	
2007		18,576	75%	5,697	23%	495	2%	24,768	
2008		17,100	75%	5,244	23%	456	2%	22,800	
2009		12,926	75%	3,964	23%	345	2%	17,234	
2010		12,190	75%	3,738	23%	325	2%	16,253	
2011		18,350	80%	3,899	17%	688	3%	22,938	

Notes on sources of data and methodology

1	*The oceanic tuna catch estimate for recent years according to the best information available for recent years (provincial profiles; VTFACE-1 Document #16 - Lewis, 2012) was in the order of 20,000-24,000 t. The GSO estimate for 2008 was approximately 57,000 t. and the estimate derived from DECAFIREP and ALMRV was about 27,000 t., which are significantly different. The estimate for the GSO can be explained since it contains ALL species catches which includes a large component of small pelagic species which are targeted by purse seine vessels using lights at night. An arbitrary estimate of about 40% of the total GSO catch was thought to represent the oceanic tuna catches and was applied to produce an estimate of SKJ+YFT+BET of about 22,800 t. which is in the range for the estimate provided recent provincial profiles (VTFACE-1 Document #16 - Lewis, 2012), and in the ballpark of the estimate derived by the ALMRV/DECAFIREP. The ALMRV/DECAFIREP estimate was thought to include ALL species which, after corrected to remove the non-oceanic species catches would make it an underestimate compared to the other sources of data; at this stage, it has been assumed that the ALMRV/DECAFIREP estimates for the purse seine fishery, as is, represents the oceanic tuna species catches only.*
2	*Not enough data have been collected and processed under the WPEA project as yet to provide any estimate from the purse seine fishery for recent years. The workshop agreed that the GSO estimate, corrected to include the oceanic tuna catches only, was the best available estimate given that it could be reconciled with the estimate from recent provincial profiles (VTFACE-1 Document #16 - Lewis, 2012). The workshop therefore agreed to apply the same methodology of estimating the oceanic tunas SKJ+YFT+BET from the GSO data for years 2000-2008 and accept the ALMRV/DECAFIREP estimates as provisional estimates for 2009-2011.*
3	*There are very few species composition data for the oceanic tuna species in the purse seine fishery available at this stage. An average species composition for SKJ/YFT/BET from the ALMRV data was applied to the total tuna catches for years in the range 2000-2009 and preliminary port sampling/landings data collected under WPEA project data were used to determine species composition for years 2010-2011. Further investigation of the ALMRV data may be required to obtain better species composition estimates for years prior to 2009.*

VIETNAM TUNA GILLNET

Year	Active vessels	Estimated Tuna Catch (metric tonnes)							See NOTES
		Skipjack	%	Yellowfin	%	Bigeye	%	Total tuna	
2000		8,164	91%	522	6%	315	4%	9,001	
2001		8,593	91%	549	6%	332	4%	9,474	
2002		9,147	91%	585	6%	353	4%	10,085	
2003		9,093	91%	581	6%	351	4%	10,025	
2004		12,263	91%	784	6%	473	4%	13,520	
2005		12,371	88%	982	7%	673	5%	14,026	
2006		12,409	88%	985	7%	675	5%	14,070	
2007		12,796	88%	1,016	7%	696	5%	14,508	
2008		11,779	88%	935	7%	641	5%	13,355	
2009		13,016	88%	1,033	7%	708	5%	14,757	
2010		11,866	88%	942	7%	646	5%	13,454	
2011		11,142	88%	884	7%	606	5%	12,633	

Notes on sources of data and methodology

1	*The oceanic tuna catch estimates for recent years according to the best information available for recent years (VTFACE-1 Document #16 - Lewis, 2012) was in the order of 10,000-15,000 t. The GSO estimate for 2008 was approximately 30,000 t. and the estimate derived from DECAFIREP and ALMRV was about 67,000 t., which, as with the purse seine fishery, are significantly different. The larger estimates for both the GSO and the ALMRV/DECAFIREP data can be explained as they contain ALL species catches and include a significant component of neritic species (e.g. Longtail tuna-Thunnus tonggol and Spanish mackerel-Scomberomorus commerson) which are taken by gillnet vessels that operate close to the coast in the central provinces, or in the most northern and most southern areas of Vietnam where the continental shelf (i.e. shallow waters) extends well off the coast. The large difference in the ALL species estimates between GSO and ALMRV/DECAFIREP could be due to the GSO not accounting for catches in some areas where significant amount of neritic species are taken.*
2	*As with the purse seine gear, an arbitrary estimate of about 40% of the total GSO catch for GILLNET was thought to represent the oceanic tunas and was applied to produce an estimate of SKJ+YFT+BET of about 12,000 t. in 2008 which is in the range for the estimate provided in the provincial profiles (VTFACE-1 Document #16 - Lewis, 2012). It was more difficult to explain the ALMRV/DECAFIREP estimate for 2008 which, after applying the 40% for oceanic tunas, was about double the level from both the GSO-derived catch estimates and the estimates in the provincial profiles.*
3	*Not enough data have been collected and processed under the WPEA project as yet to provide any estimate from the gillnet fishery for recent years. The workshop agreed that the GSO estimate, corrected to represent the oceanic tuna catches only, was the best available estimate given that it could be reconciled with the estimates from the recent provincial profiles (VTFACE-1 Document #16 - Lewis, 2012). The workshop therefore agreed to apply the same methodology of estimating the oceanic tunas SKJ+YFT+BET from the GSO data for years 2000-2008 and accept the ALMRV/DECAFIREP estimates (after adjustment to the GSO estimate of 2008) as provisional estimates for 2009-2011.*
4	*Species composition data for the oceanic tuna species in the gillnet fishery are available from the ALMRV for years 2000-2004 and the average species composition for these years (2000-2004) was used to determined the individual species catch estimates for this period. The species composition data obtained from provisional WPEA port sampling (2011) were used to estimate species catch for years 2005-2011; the oceanic tuna species composition data from WPEA 2011 gillnet landings data for SKJ:YFT:BET was 85.2%: 5.8%; 3.5% and from WPEA 2011 port sampling data was 88.2%: 7.0%; 4.8%.*