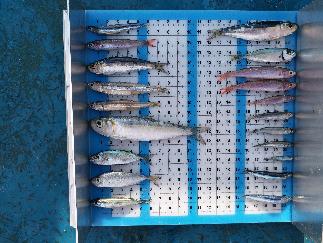
**ProtocolS for observers on board pole-and-line Tuna Fishing vessels, Indonesia**

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**Ministry of Marine Affairs and Fisheries, Indonesia (MMAF)**

**Asosiasi Perikanan Pole & Line dan Handline Indonesia (AP2HI)**

**International Pole and Line Foundation (IPNLF)**

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# *Acronyms and Abbreviations*

ALB Albacore (*Thunnus alalunga*)

BET Bigeye tuna (*Thunnus obesus*)

BLT Bullet tuna (*Auxis rochei*)

cm Centimetre

DGCF Directorate General of Capture Fisheries (Indonesia)

ETP Endangered, threatened, and protected species (turtles, marine mammals, sharks, birds)

FAD Fish aggregating device

FAO Food and Agriculture Organization of the United Nations

FL Fork length

FRI Frigate tuna (*Auxis thazard*)

IOTC Indian Ocean Tuna Commission

KAW Kawakawa (*Euthynnus affinis*)

kg Kilogram

LOT Longtail tuna (*Thunnus tonggol*)

RFMO Regional Fisheries Management Organisation

SKJ Skipjack (*Katsuwonus pelamis*)

SPC Secretariat of the Pacific Community

TUN Tuna

WCPFC Western and Central Pacific Fisheries Commission

YBT New code when unsure if the species is bigeye tuna or yellowfin tuna

YFT Yellowfin tuna (*Thunnus albacares*)

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| ***Introduction*** |

The Republic of Indonesia, the largest tuna fishing country in the world, must improve its sampling protocols and data-gathering implementation to facilitate proper assessment of fish stocks and ensure their long-term sustainability.

Data collected by the Directorate General of Capture Fisheries (DGCF) of Indonesia include industry declarations, some enumerator and observer reports, as well as data collected by environmental non-governmental organisation, particularly for handline. DGCF assumes that these data are complete, but these reports do not cover all fishing activities or landing places, and those covered lack, for the most part, the detail required by the Regional Fisheries Management Organisations (RFMOs) therefore additional information is needed. Specifically, these data may lack species resolution, effort, fishing locations, size frequencies, etc. Because of this, the sampling protocol for pole and line vessels was created to address gaps present in the current system, explicitly:

1. effort data as number of fishermen and fishing events per day;
2. species composition and quantity of the catch (skipjack, yellowfin tuna, bigeye tuna, and others);
3. length frequency data for each species;
4. amount of bait caught per fishing event or purchased;
5. quantity of each species of bait caught by weight and number;
6. interactions between the pole and line fleet and endangered, threatened and protected species (ETP).

This protocol is designed to address the situations common to pole and line fishing operations in eastern Indonesia. Various sources were used as reference throughout the protocol and include Brogan (2002), Dietrich *et al.* (2010), Proctor *et al.* (2013), Moreno and Herrera (2015), and KKP and AP2HI (2017).

This protocol will allow DGCF to collect the main data needed to:

1. estimate the total catch (volume, number) of target and bait species, by month, port and year for pole and line vessels;
2. estimate total catch (volume, number) of other species by month, port and year for pole and line vessels;
3. collect size frequency by species, port and month caught by pole and line vessels;
4. measure fishing effort such as number of trips and active vessels, average number of fishing events per vessel per trip, average number of hooks deployed, average number of trips per month and per year for pole and line vessels;
5. estimate the number and type of interactions with ETP species and their mortality.

The protocols not only cover the practical aspects of sampling but also include a Code of Conduct for Observers (Appendix 1) that shows the do’s and don'ts of observer behaviour. This was produced to ensure an impartial and professional interaction between observers and the fishing industry.

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| *Compliance with data supply and willingness to assist in data collection are the two biggest administrative problems for management. The industry often sees the provision of data as time-consuming, pointless and/or a release of information that would be beneficial to others. It is clear from experience that two attributes of a fishery enhance the ability to collect accurate and timely data:*  *• the general trust between those fishing and the authorities (including data confidentiality);*  *• the ease with which data can be collected, compiled and distributed.*  *It is important, therefore, to select indicators and variables that are directly related to the objectives, in order to limit the task both for fishers and landings enumerators. However, in some cases more information than that strictly required for the analyses may be necessary to validate data. FAO (1999).* |

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| *Concepts about sampling* |
| **What is sampling?** |

These protocols do not aim to be a sampling manual *per se*, as existing publications address this subject in detail. Nonetheless, a basic introduction to the topic is warranted to place the work conducted for the production of these protocols in context.

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| *Data collection is the recording of one or more data variables (length, duration, etc.) from members of a population of “data-units” (the population of fishing vessels, fishing trips, etc.). Two basic data collection approaches are possible:*  *• by complete enumeration where all members of the whole population are measured;*  *• by sampling where only a proportion of members of the whole population are measured. FAO (1999).* |

Sampling is the collection of information from some units (sample) of a population to estimate the total of that population. In this case, a small portion of the total catch is sampled in detail to calculate the total catch composition by species and sizes.

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| **Why do we need to sample and why randomly?** |

Numbers of fish, in this case tuna, are changing all the time and we need to know how fisheries affect them. Are we catching too many fish or can we catch more? Maybe one species is in trouble but another one is not? We sample to know who catches what species in what area of the sea, at what time of the year, in what quantities, sizes and with what gears. Also, we want to know how much time fishers spend fishing and some details about the gears as a small purse seine, for example, will not catch the same quantity of fish as a large one. All this information put together in models allows scientists to predict how fish stocks are doing and whether preventive measures are needed before stocks collapse.

Random sampling aims to remove bias from the data. It is difficult to be objective when collecting samples, as we may choose the smallest, biggest, freshest, easiest to identify etc. This is why we must predetermine the way in which samples will be collected from our fisheries.

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| ***Who are observers and what do they do?*** |

Observers sample the catch at sea to determine total catch by species, as well as bait composition, total bait caught and used, effort, interactions with ETP species, etc. Considering the needs of their jobs, observers should (modified after Moreno and Herrera 2015):

1. know how to select and take samples (know what the sampling unit is);
2. correctly identify all target, bait, bycatch and ETP species (see ID guides provided);
3. know how to measure the length and weight of fish caught (and collect other biological information as requested; Appendix 2);
4. know what effort means and how to measure it;
5. know the different types of forms used, how to fill them and timing of delivery to supervisory/data entry staff (Appendices 3-9;
6. be aware of a “code of conduct” for responsible sampling (*i.e.* how to sample without interfering with fishing operations, as well as general behaviour while working; Appendix 1);
7. be able to identify changes in the fisheries operations and communicate them to supervisors.

The primary duties of observers are (modified after Proctor *et al.* 2013):

1. To collect daily data as detailed in the observer protocol;
2. To ensure confidentiality of all data and information collected. Confidentiality will ensure continued support from the fishing industry;
3. To report changes in fishing effort, fleets, gears, or any behaviour that may have significant impacts on the amount, size and species composition of the landings;

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| *If you miss a sampling day or period* ***do not invent*** *data. If your workload is too much please talk to your supervisor and the project coordinator to resolve whatever issues you may have. Observers found falsifying or omitting data will be* ***dismissed*** *immediately.* |

Personal safety is an issue rarely discussed but is of utmost importance. Observers must wear protective gear (*e.g.* hardhat, boots) where necessary, avoid unnecessary risks, and be aware of their surroundings and movements of people and gear. Finally, observers must not interfere with fishing operations and must obtain permission to board a vessel or sample the catch before starting work.

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| *Practical issues about sampling* |
| **Getting ready to sample at sea** |

The quality of your work will depend in large part on your equipment, therefore have it ready! The following equipment will be provided for you upon embarkation by the site supervisor:

1. working papers from AP2HI and KKP
2. sampling protocol
3. relevant forms (there are 7 forms)
4. measuring boards (tuna and bait)
5. electronic scales for bait and for tuna
6. identification guides (tuna, bait, ETPs,)
7. clipboard
8. counting tool (clicker)
9. camera (can use phone)
10. headlamp
11. spare batteries for headlamp and scales
12. first-aid kit
13. pencils, erasers and pencil sharpeners
14. rain clothes
15. gloves
16. bait buckets (2)
17. Tupperware to sample bait (6)
18. boots (optional)
19. hardhat if working under equipment moving overhead.

Where possible avoid transcribing field data. Ensure data are recorded on the forms **directly** and do not worry if they get dirty. This will save you time as well as reduce the number of errors. The forms are printed in waterproof paper and they will not get damaged by water. Remember that all data are **confidential** and as such, they should be kept safe and filed properly. If it is part of your job, enter data as soon as possible into the database provided.

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| **Care of Equipment** |

You have been provided with balances, measuring boards for tuna and bait, and in some cases cameras. Please ensure you rinse the measuring boards after work to remove fish slime and seawater. If the electronic balances and cameras become dirty please wipe them with a damp tissue and dry. You have signed out for all the equipment and you are responsible to return it in working condition when the trip ends. Please take care of it and if you have any problems inform the field coordinator. Do not stop collecting data because something as simple as the electronic balances ran out of batteries. If that happens, buy new batteries, save the receipt and give it to the coordinator for reimbursement.

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| ***Living Conditions at Sea*** |

Ensure you are not in the way of fishing, bait catching or navigation operations. The vessels may not have sleeping quarters and you must find a place to rest. If possible bring a sheet and small pillow. Food is basic and will consist of rice and fish so if you have dietary requirements or needs please make sure you bring what you need with you. Bring a plastic plate, spoon, fork and a drinking cup. If possible bring a refillable drinking water bottle as well. Showers are done by using a bucket on deck. Toilets are very basic consisting of a squating area with little privacy. You may have to store your equipment in the bridge so please be respectful as this is where the captain sleeps. Bring any toiletries and personal belongings you may need. Please contemplate that the trip may take longer than planned.

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| ***Sampling Forms*** |

There are seven forms and the instructions on how to fill them are provided in the respective Appendix after each form.

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| **Fishing Vessel Information (Form PL-1)** |

Please fill this form as soon as you get on board the vessel. You can ask the skipper or various crew members and also make your own notes about the vessel. You may have to estimate the volume of the bait holding tanks. Measure or estimate the length, width and height in meters of the tanks and multiply them (1.5 m x 2.5 m x 2 m= 6 m3). Ensure all this work is done on Form PL-1 which found on Appendix 3.

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| **Observer Daily Notes (Form PL-2)** |

This form is a diary of events where you note when you go on board the vessel, start steaming to the fishing grounds, start fishing, when there is no fishing because of poor weather or lack of fish or bait, etc. This form is not mandatory and a few lines may be filled a day, if an event of interest takes place. Form PL-2 is found on Appendix 4.

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| **Tuna Fishing Protocol (Form PL-3)** |

You will collect data on all fishing events as they occur. Sometimes it is difficult to tell when one fishing event ends and another begins but if they turn off the sprays used for fishing, the bait is returned to the large bait tanks and the fishermen leave their fishing poles on deck this is enough to determine that a fishing event has ended. Discuss with the relevant crew the sampling process and the help you will need counting fish of each species (smaller boats) or number of baskets dumped in the cold storage (larger boats). During fishing you will do two samplings: 1. Length frequency while fishing is occurring and 2. Species composition and total catch soon after fishing ends. Form PL-3 is found on Appendix 5.

1. When the fishermen start getting ready to fish write on your form the date, time and latitude/longitude. Note the number of fishermen and whether the boat is fishing near a FAD, the type of FAD, etc. On larger boats note that there may be a couple of fishermen at the stern (back) of the boat.
2. As fishing starts, set your measuring board on the starboard (right) side of the vessel and out of the way of fishing and chumming operations, and take a fish every few minutes to record species, FL, and weight. You will take a total of 20 FL and 5 weights per fishing event. Remember to always associate a weight to a FL otherwise the weight data are of no use. You have to decide when to sample, as fishing events may be short or long-lived. Choose the fish randomly and one of the best ways is to choose a fish before it is caught, *i.e.* I will measure the fish that is caught next or the third after that. This avoids bias on selection for sizes or species. If there are a few specimens of a species then try to measure some. It is unlikely that selecting them randomly will allow you to sample them.
3. For small catches, the easiest way to determine the composition and number of fishes in a fishing event is to count when the fishermen bring them to the cold-storage hold. Pre-agree with the fishermen so they keep track of the number of each species they collect and then you can record as they drop them in the designated hold. You can then add up all the individuals for each species at the end of the session or later depending on whether fishing events are still taking place soon after. Please double check your work to ensure the right number of fishes is recorded. These numbers will be entered in the first two left-most columns (Small catches, # and weight)
4. For large catches the number of fishes caught per fishing event can be too many to count and the fish may be brought to the cold storage in baskets. If this is the case, pre-agree with the fishermen offloading the fish in the holds to count the number of baskets. You will then take a basket full of fish and you will borrow one of their empty baskets so you can separate the species in the full basket, count the number of fish and weigh them in the basket. Remember to write the weight of an empty basket on your form. Sample baskets throughout the storing process and try to collect data on 2 baskets for a small catch (less than a ton), 4 baskets for a medium catch (1-2 tons), and 6 baskets for catches larger than 2 tons. If you have completed your length frequency sampling, go ahead and start sampling baskets of fish. You will have to collect the fish and carry the basket to your working area. Do this to avoid having too much work at the end of the fishing event. Ensure you use the baskets used by the crew. Do not forget to collect the total number of baskets offloaded in the holds at the end of the operation. Ensure you include an estimate of how many baskets were caught at the stern of the vessel.
5. In some cases, few fishes of a species may be caught (BET, RRU) and if sampled randomly they will likely be missed. Please separate them and enter their number and weight on the two first columns to the left of the datasheet (Complete enumeration: # and Weight) as these numbers will not be raised regardless of the total number of baskets.
6. Even if no fish are caught but bait was used and fishermen were ready, this is a fishing event and should be registered as such. Write zero fish (small vessels) and zero number of baskets (large vessels).
7. Bycatch (rainbow runners, dolphinfish and neritic tuna) will usually be separated from the catch. Please note the number of fish and their weight on Form PL-3 under TOTAL ENUMERATION.

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| **Bait Protocol (Form PL-4)** |

Bait quantification and identification are two of the more important tasks you will have. Bait may be caught from the boat with boke ami or bought from bagan or fish holding cages. In all cases, you must sample the catch.

The first thing to understand is how the crew move the bait from the bagan, holding pens or boke ami to the bait tanks on the boat. There usually are two or more large buckets (20-25 litres) that are used to scoop the bait with water into the bait tanks on board the vessel. Because these buckets are so large, and we do not want to waste bait, instead of sampling a vessel bucket we rely on a sampling bucket that is around a third of the size of the bigger bait bucket. You may have to wake up a few times a night to follow bait-scooping operations so please ensure the crew is aware of this, so they can warn you when operations are about to start. In Bitung the bait collection operations happen quite fast one after the other as the fish are held in pens and were caught the night before. Ensure you sample each sampling pen with a Tupperware but only one sampling bucket per night



***a.*** *Boke ami net being set up;*



***b.*** *Bagan*



***c.*** *Holding pen*

The bait protocol is as follows:

**Boke ami, holding pens and bagan:**

1. Before starting fishing for bait determine the ratio of your sampling bucket to those on board. To do this, measure the number of buckets of water that take from your bucket to fill a ship’s bait bucket. Write this number on your form. Also, determine the weight (kg) of your empty sampling bucket and note it on the same form.
2. Note position and time when the lamps are submerged to attract bait (only for boke ami).
3. Note how many of the vessel bait buckets are loaded into the bait tanks and ask the fishermen to get one of your sampling buckets filled directly from the boke ami or bagan following the same procedure as used for the vessel bait buckets. You should alternate the time of collection from night to night to have a bucket collected at the beginning, middle and end of the scooping process.
4. Using a net, drain the sampling bucket and weigh in kg in your bucket. **DO NOT** subtract the weight of the empty bucket as this will be done in the database. You will do this once per night.
5. From this bucket you will collect a sample with the Tupperware provided. Ensure you gauge the right amount to collect. If larger bait species are present then you can fill the container but if smaller bait species are prevalent then maybe fill half of it. Aim to collect no less than 100 fish. Ensure to collect the weight of this container while empty and then with the sample and enter these values on your bait form. **DO NOT** subtract the weight of the empty container from the weight of the bait sample, as this will be done in the database.
6. You may store the bait samples in one of the holds (palkah) with ice until the morning, when it will be easier to identify the species. Please ensure your containers are labelled to associate the sample to the right haul.
7. Weigh the sample from the container and then separate by species. Count the number of fishes per species and weigh each species separately. Photograph if you have any doubts about the identification of a species. Label the photo with the cruise number, date and haul number. You can then dispose of the samples as you record the information.
8. The complete procedure will be done for only **one** boke ami, holding pen or bagan haul per night. You will collect a sample as indicated from **5.** onwards for **all hauls** by taking fish with the Tupperware container directly from the ship’s bait buckets as they come on board.

Form PL-4 is found on Appendix 6.

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| **Unused Bait (Form PL-5)** |

Throughout the trip bait will die or cannot be used because it is too big. You must endeavour to keep track of how much bait is thrown out dead or used for food or bait for handline by the crew. Please ask the relevant people every day a few times per day to ensure you capture all the information on Form PL-5 (Appendix 7). On some larger boats this may not be possible as there are drains at the bottom of the bait tanks where dead bait goes out before it can be collected.

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| **Endangered, Threatened and Protected species (Form PL-6)** |

Endangered, threatened and protected (ETPs) species may interact with the fishery and you need to record the species, type of interaction and if any animals were hurt, captured or killed. The species groups include turtles, marine birds, marine mammals, and sharks and rays. Rate of interactions is typically very low for pole and line and usually does not result in the death of an animal. It is extremely important that when there is contact with any species belonging to these groups you get a photo and record the species. Please ask the crew to inform you if there are any interactions when you are not present. This may happen while they use handline but you still need to record an interaction if it happens. Form PL-6 is found on Appendix 8.

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| **Transhipment at Sea (Form PL-7)** |

Please fill this form every time there is a transhipment at sea. This will not occur on most of the trips but it is important you record it when it does on Form PL-7 (Appendix 9).

**For all forms:**

Ensure you fill the relevant **white** boxes on all the forms mentioned above. They were made this way so you can know, at a glance, if you are missing data in any of the fields.

Always use pencil and never pen, as ink will smudge if datasheets become wet.

**Always** fill in the header details with the date, vessel information, gear type, association to FADs, etc. Do not expect to remember later in the day what information was supposed to go into the boxes provided. Sampling forms are the result of your work. Please treat them with care and do not lose them. If you do, all the work for that day and important information will be lost.

**Everybody** makes mistakes so please double check your work to verify the data you have entered. Remember that errors in species identification, lengths or weights may have a big impact in future estimates.

Before you embark, the site supervisor will meet with you to check all the paperwork, hand you the gear, brief you on the vessel and communicate possible issues. When you return to port, the site supervisor will be there to meet you to receive the filled datasheets as well as the gear. Ensure the datasheets are stored chronologically from beginning of the trip to the end and that all the gear is stored in the box provided and clean. If any gear was lost or damaged during the trip please inform the supervisor. At this time, you will have a debriefing meeting to report issues, concerns, and changes in the fishery that may affect the sampling.

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| ***Activities*** |

**Daily:**

1. Number of operations to catch or buy bait, number of buckets loaded, species identification and one bucket weight per per night;
2. Calculate the quantity of baitfish (kg) throw out or used as food or handline bait;
3. For each fishing event count the number of tunas of each species, and collect 20 fork lengths and 5 weights;
4. For each fishing event, count and weigh any other species caught (such as rainbow runner, kawakawa, dolphinfish, etc.);
5. Note any interactions with ETP species;
6. Collect effort information including number of fishing events, catch per event, number of fishermen, use of FADs, etc

**Data Handling:**

Observers will collect the data but they will **not** do calculations or estimations of any parameter (*e.g.* total catch, total quantity of bait caught, length-weight conversion, etc.) except when summing up the total number of fishes caught, or the total number of baskets at the end of each fishing event as reported by the fishermen. All other calculations will be done in the computer through the database.

**Data Entry:**

Data will be entered into a database yet to be developed. Please **double check** all your work and ensure that species, lengths and weights, dates, and other data are correct. Also, ensure your handwriting is **legible**, as other people will have to read your data entries.

**Data Verification:**

The field project coordinator will run weekly data verification procedures to search for errors and inconsistencies that will be addressed immediately. Please report to the field project coordinator any changes on fleet behaviour that may impact sampling such as changes in bait fishing, modifications of gear, use of different types of FADs and others.

**Datasheet Archival:**

At the end of each sampling day and after you have checked your work, please file all the data sheets in chronological order (from oldest to newest) in the binder provided. These data are very important and should be kept in a dry, safe place. Remember that all data collected by you are **confidential** and should be kept under lock and key to ensure nobody looks at the information. The regional supervisor will collect these sheets when you disembark and will conduct a debrief at this time as well, so ensure that the sheets are properly collated and stored.

**Species Codes**

A single species may have a multitude of local names depending on the region, or many species may share a common name (*e.g.* tongkol). It is therefore **mandatory** that **FAO** codes be used on **all** forms (check the ID guides provided separately for all the codes). The unique codes are derived from the English names of the species (*e.g.* madidihang = yellowfin tuna = YFT). Please ensure you **always** use these codes and in the case where identification is suspect due to difficulties in identification, use the next, type-specific code available. For example, and a common case for Indonesian tuna fisheries around FADs, juvenile specimens of bigeye tuna (BET) and yellowfin tuna (YFT) are usually caught together. If the specimens are in good shape (*i.e.* fresh) it is relatively easy to identify them. If unsure of the species, using the code for tuna (TUN) is **not** an appropriate choice, as we know that the two species in question are the only choices. Therefore, the code used in this case should be **YBT**, a new code that is the combination of yellowfin tuna and bigeye tuna when identification is in doubt, a recurrent issue when identifying small specimens. Identification sheets for small individuals of these two species show you details to distinguish them (Appendix 10).

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| ***Protocol for the Collection of Length Frequencies: Generalities*** |

Selecting fish for measurements is not as straightforward as it may initially seem. It is common for biases to occur when observers unwittingly choose fish because they are, for example, bigger. This is why fish samples must be chosen at random before seeing the fish by pre-set criteria such as third fish from now will be measured. Remember that the aim of this sampling is to get a **representative** sample of the fish on board.

1. Record lengths as planned in the sampling protocol.
2. The only length measurement that you will use for tuna species is fork length (FL). You will use a measuring board instead of a calliper.

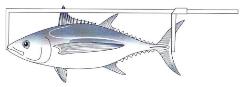


Illustration by Jipé LeBars, © Secretariat of the Pacific Community (2002)

1. For other types of fish (e.g. sharks, mantas, etc.) please refer to Appendix 2 for the appropriate measurement;
2. Use the measuring board provided. Do not use a tape measure as it will deform and lengthen easily.
3. When using a measuring board ensure that the head of the fish is pressed to the 0 cm mark and that your head is **directly** above the tail, as reading at an angle will result in mistakes.



Illustration by Jipé LeBars, © Secretariat of the Pacific Community (2002)

1. Length is measured to the **nearest centimetre below**; for example, the kawakawa seen below measures 19 cm FL.



1. Always measure fish on a **flat surface**.
2. Whenever you take a measurement make sure the length is FL and the weight is whole.
3. **Never** measure a fish if the head or tail is damaged. **Never** measure fish that are bent or twisted. **Do not** guess the size!

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| ***Protocol for the Collection of Weights: Generalities*** |

1. Individual weights collected by you will **always** be associated to a **length measurement**.
2. Weights will **always** be whole.
3. Weights will **always** be in **kilograms**. The electronic balances provided go as low as 0.001 kg. Ensure you have chosen **kg** as the unit of weight in the balance. When kg is chosen, the balance will show four zeros and the **kg** symbol will be seen on the lower right-hand corner.



1. Always tare (bring back to zero) the electronic balance after you have weighed a sample. The balance will lock the last value and will not allow you to weigh any other specimens unless you **tare** (left top button, see photo above). When the balance is locked, it will show a lock symbol on the upper right-hand corner (see photo below).



1. For individual tuna weights **never** weigh more than one fish at a time.
2. Because baitfish are so small, weights will be recorded per species. Ensure you note the number of fish, as well as the species and weight in kg.

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| ***Communications with Vessel Owners and Fishermen*** |

Cooperation from vessel owners and fishermen is essential to the success of this and any other sampling project. Ensure you or preferably a senior person in the team communicates with them the purpose of the project and to gain their cooperation. If there are issues with the personnel, please address them to your immediate superiors for them to resolve the issue. **Do not** confront or antagonise ship personnel but ensure the issue gets resolved so you can get on with your work. If there are any issues with boat or shore personnel please communicate them to your immediate supervisor.

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| *Appendix 1: Code of Conduct for Observers* |

The code of conduct requires that observers:

1. Do not cause a reasonable person to question the impartiality or objectivity with which the Observer Program is administered;
2. Do not engage in activities that significantly impair the Observer’s ability to perform his/her duties;
3. Do not engage in activities that adversely affect the efficient accomplishment of the Program’s mission;
4. May not have direct financial interest in the observed fishery, other than the provision of observer services;
5. May not solicit or accept, directly or indirectly, any gratuity, gift, favour, entertainment, loan or anything of monetary value from anyone who conducts activities that are regulated by the fishery, or who has interests that may be substantially affected by the performance or non-performance of the observers’ official duties. Gratuities may be perceived as 'bribes' and an attempt to influence the accuracy of your recording. If you are placed in this situation, just politely decline the offer, stating that your conditions of employment do not allow acceptance of such gifts;
6. May not solicit or accept employment as a crew member or an employee of a vessel or shore-side processor in any fishery while employed as an observer;
7. A person may not serve as an observer in a fishery during the 3 consecutive months following the last day of his/her employment as a paid member or employee in that fishery;
8. May not engage in an activity that may give rise to the appearance of a conflict of interest that may cause another individual to question the observer’s impartiality, fairness or judgment;
9. Must avoid any behaviour that could adversely affect the confidence of the public in the integrity of the Observer Programme;
10. Must diligently perform their duties;
11. Must accurately record the data sampled;
12. Shall report to their immediate supervisor any issues regarding the data to be collected and recorded rather than attempting to estimate values when information is not available;
13. Must preserve the confidentiality of the collected data and observations made on fishing docks, on board fishing vessels, or inside processing plants;
14. Must refrain from engaging in any illegal actions or any activities that would reflect negatively on their image, on other observers, or the Observer Program, as a whole. This includes, but is not limited to:
15. Engaging in drinking of alcoholic beverages while on duty;
16. Engaging in the use or distribution of illegal substances;
17. Becoming physically or emotionally involved with fishing vessel or processing plant personnel;
18. Falsification of data.
19. Must ensure that interference with fishing operations (bait catching, fishing, etc.) is kept to a minimum. Similarly, skippers, other vessel personnel should not interfere with your duties. Follow instructions from the vessel owner, skipper, crew, or staff of port authority or local fisheries office about how you should operate to minimize interference;
20. Must strive to gain and maintain the respect and cooperation of skippers, vessel owners, and all persons that you will interact with during your at-sea sampling activities, ensure that you are always respectful, polite, courteous, and not demanding;
21. Must ensureto obtain the permission of the skipper or vessel owner before you board a fishing vessel. Do not assume you will have their approval to board. Also obtain permission before you use any of the vessel's equipment. Ideally you should have all your own equipment with you, including everything you need to sample for length measurements and any biological sampling;
22. Must look and act professional as you are more likely to gain the respect and cooperation that will make your job much easier;
23. Must keep open communication and develop good relationships with the skippers and crew by informing them about the sampling program and about the biology of the fish species and by asking questions that recognize their experience and expertise as fishers. However, you must not discuss details about your previous sampling activities on landings and trip details of other vessels of other companies/owners (i.e. for reasons of confidentiality);
24. Must make sure you have all the necessary gear with you as you head out to sea. Ensure that you maintain your equipment in good working order and clean it after each sampling activity;
25. Must keep a close eye on your equipment and personal belongings when doing your sampling. Do not leave valuable items unattended, providing opportunity for theft;
26. Must clean up your work area after sampling for length measurements and/or after biological sampling;
27. If you suffer an injury or illness during your sampling activities, stop work activity and seek medical attention. **Your health and safety are everyone's top priority**. Report injuries or illnesses, which require you to take time off from your work, to the Observer Programme Manager.

The material presented here was taken and modified from SWIOFP (2010), Proctor *et al.* (2013), and Moreno and Herrera (2015).

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| *Appendix 2: Types of recommended measurements for various types of fish and turtles* |

| **Species Group** | **Measuring Tool** | **Recommended Measurement** | **Example** |
| --- | --- | --- | --- |
| **Tuna** | Calliper,  Measuring board | Fork length: Straight distance from the tip of the upper jaw to the fork of the tail | SharkJ01 |
| **Billfish** | Calliper | Fork length: Straight distance from the tip of the lower jaw to the fork of the tail | SharkJ04 |
| **Sharks** | Calliper | Fork length: Straight distance from the tip of the upper snout to the fork of the tail | SharkJ02 |
| **Rays** | Calliper | Depending on the species; the length that applies to manta rays is shown on the right | RAYmeasurement |
| **Other bonefish** | Calliper,  Measuring board | Depending on the species; Total length: Straight distance from the tip of the upper snout to the end of the tail  Standard length: Straight distance from the tip of the snout to the posterior end of the last vertebra  Fork length: as above |  |
| **Marine turtles** | Calliper | Length of the shell | TURTLELENGTH |

Illustrations 1-4 by Jipé LeBars, © Secretariat of the Pacific Community (2002)

* + 1. Measurement method**: Straight lengths** shall be taken whenever it is possible. **The use of curved lengths shall be avoided**.

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| *Appendix 3: Information fishing vessel. PL-1* |

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| **FISHING VESSEL INFORMATION** | | | | | | | | | | | | | | **FORM PL-1** | | | | | | | | | | | | | | |
| ID TRIP | | |  | | | | | VESSEL NAME | | | | | |  | | | | | | TANDA SELAR | | | | | |  | | |
| SIPI NO. |  | | | SIUP NUMBER | | | |  | | | | | | | | | | CALL SIGN | | | | |  | | | | | |
| RFMO REGISTRATION NO. | | | |  | | | | | | | | | RFMOs: WCPFC / IOTC / CSBT | | | | | | | | | |  | | | | | |
| YEAR BUILT | | | |  | FLAG | | | |  | | VESSEL MATERIAL | | | | | | WOOD / METAL / FIBERGLASS | | | | | | | | | GT/HP | | / |
| CAPTAIN’S NAME | |  | | | | | | | | | | FISHING MASTER’S NAME | | | | | | | | |  | | | | | | | |
| OWNER/COMPANY NAME | | | | |  | | | | | | | | | | | | | | | | | | | | | | | |
| PORT | | | | | | | | DATE | | | | | | | | | | | | | NUMBER CREW MEMBERS | | | | | | | |
| DEPARTURE | | |  | | | | | DEPARTURE | | | | | | | HARI/BULAN/TAHUN | | | | | | WNI | | | | WNA | | | |
| ARRIVAL | | |  | | | | | ARRIVAL | | | | | | | HARI/BULAN/TAHUN | | | | | |  | | | |  | | | |
| VESSEL LENGTH (m) | | |  | | | VMS: | | Y / N | | VMS CONDIT. | | | | | | on/off | | VTS | | | Y/N | | | VTS CONDIT. | | | on/off | |
| VESSEL WIDTH (m) | | |  | | | FISH PROCESSING | | | | | | | | | | | | | | | WHOLE/LOINS | | | | | | | |
| FISH STORAGE | | | | | | | ICE/FROZEN | | | | | | | PHOTO VESSEL | | | | | Y/N | | | PHOTO NUMBER | | | |  | | |

|  |  |
| --- | --- |
| HOOK SIZE |  |
| NUMBER BAIT PERSONNEL |  |
| NUMBER BAIT TANKS |  |
| BAIT TANKS CAPACITY |  |
| RECIRCULATION SYSTEM BAIT TANKS | Y/N |

|  |  |  |  |
| --- | --- | --- | --- |
| NAME OBSERVER | |  | |
| ID OBSERVER | |  | |
| SIGNATURE | |  | |
| DATE | |  | |
| GEAR | AVAILABILITY | CONDITION | |
| SONAR | Y/N |  | |
| FISHFINDER | Y/N |  | |
| RADIO | Y/N |  | |
| GPS | Y/N |  | |
| TELEPON SATELIT | Y/N |  | |

**TUNA HOLD CAPACITY (TON)**

|  |  |  |  |
| --- | --- | --- | --- |
| HOLD 1: |  | HOLD 4 |  |
| HOLD 2: |  | HOLD 5: |  |
| HOLD 3: |  | HOLD 6: |  |

**BAIT FISHING GEAR**

|  |  |
| --- | --- |
| LAMP (WATT) |  |
| BOKE AMI? | Y/N |

**OTHER INFORMATION**

|  |  |  |
| --- | --- | --- |
| DIESEL CONSUMPTION | LITER |  |
| ICE CONSUMPTION | KG |  |
| TRIP PRICE | RP |  |

**LEMBAR PL-1.** **INFORMASI KAPAL PENANGKAP IKAN**

|  |  |  |  |
| --- | --- | --- | --- |
| **INFORMASI KAPAL PENAGKAPAN IKAN** | | | |
| ID Trip | Diisi dengan menggunakan nomor Surat Perintah Berlayar (SPB) atau Surat Perintah Tugas (SPT) Observer | | |
| Nama Kapal | Diisi dengan nama kapal penangkap ikan dimana pemantau ditempatkan sesuai dengan surat tugas dan dokumen kapal bersangkutan (dapat dilihat pada SIUP, SIPI, Surat Ukur, Sertifikat Kebangsaan, Gross Akte) | | |
| Tanda Selar | Diisi dengan nomor dan kode yang memuat informasi ukuran isi kotor, nomor dan tempat penerbitan Surat Ukur Kapal (dapat dilihat di dokumen Surat Ukur, Gross Akte, Sertifikat Kebangsaan, SIUP, SIPI) | | |
| No. SIPI | Diisi dengan nomor Surat Izin Penangkapan Ikan (SIPI) yang merupakan izin tertulis yang harus dimiliki kapal penangkapan ikan (dapat dilihat di dokumen SIPI) | | |
| No. SIUP | Diisi dengan nomor Surat Izin Usaha Perikanan (SIUP) yang merupakan izin tertulis yang harus dimiliki perusahaan perikanan untuk melakukan usaha perikanan dan masih berlaku (dapat dilihat di dokumen SIUP) | | |
| *Call Sign* | Diisi dengan kode radio panggil / *call sign* kapalbersangkutan yang diterbitkan oleh Kementerian Perhubungan, jika ada (dapat dilihat di dokumen Sertifikat Radio) | | |
| No. Register *RFMOs* | Diisi dengan nomor register keanggotaan yang dikeluarkan oleh *Regional Fisheries Management Organizations (RFMOs)* bersangkutan (dapat dilihat di lambung kapal) | | |
| *RFMOs : WCPFC / IOTC / CCSBT* | Jika kapal penangkap ikan bersangkutan terdaftar pada *RFMOs*, pilihlah yang sesuai dan coret yang tidak sesuai (jika ada, dapat dilihat di lambung kapal) | | |
| Tahun Pembangunan | Diisi dengan tahun pembangunan kapal sesuai dengan dokumen kapal (Gross Akte, Surat Ukur, Sertifikat Kebangsaan Kapal) | | |
| Bendera | Diisi dengan tanda kebangsaan atau bendera kapal bersangkutan (dapat dilihat di Sertifikat Kebangsaan : Surat Laut atau Pas Tahunan) | | |
| Bahan Kapal: Kayu / Besi / Fiber glass | Diisi dengan jenis bahan kapal. Jika bahan kapal dari kayu, maka coretlah Besi dan *Fiber glass.* JIka bahan kapal dari besi, coretlah kayu dan Fiber glass. Dst. | | |
| GT / HP | Diisi dengan ukuran isi kotor / gross tonnage dalam satuan GT serta ukuran kekuatan mesin utama kapal penangkap ikan bersangkutan dalam satuan Daya Kuda (DK) / horse power (HP), dapat dilihat di Gross Akte, SIPI, Surat Ukur Kapal | | |
| Nama Nakhoda | Diisi dengan nama nakhoda / kapten kapal penangkap ikan yang mengoperasikan kapal bersangkutan (dapat dilihat di buku Sijil Awak Kapal, Daftar ABK (crew list) | | |
| Nama Fishing Master | Diisi dengan nama fishing master kapal penangkap ikan bersangkutan | | |
| Nama Pemilik / Perusahaan | Diisi dengan nama perorangan / perusahaan perikanan selaku pemilik kapal penangkap ikan sesuai yang tercantum pada SIUP / SIPI | | |
| Pelabuhan Keberangkatan | Diisi dengan nama pelabuhan perikanan / pelabuhan umum dimana pemantau diberangkatkan menuju fishing ground dengan kapal penangkap ikan atau kapal pengangkut ikan | | |
| Tanggal Keberangkatan | Diisi dengan tanggal keberangkatan pemantau menuju fishing ground dari pelabuhan keberangkatan | | |
| Pelabuhan Kedatangan | Diisi dengan nama pelabuhan perikanan / pelabuhan umum dimana pemantau kembali dari fishing ground dengan kapal penangkap ikan atau kapal pengangkut ikan | | |
| Tanggal Kedatangan | Diisi dengan tanggal kedatangan pemantau dari fishing ground di pelabuhan kedatangan | | |
| Panjang Kapal (m) | Diisi dengan ukuran panjang kapal dalam satuan meter sesuai dokumen kapal penangkap ikan bersangkutan (dapat dilihat di Surat Ukur, Gross Akte, Sertifikat Kebangsaan Kapal) | | |
| Jumlah Awak Kapal (WNI / WNA) | Diisi dengan jumlah seluruh Anak Buah Kapal (ABK) termasuk nakhoda yang berkewarganegaraan Indonesia dan jumlah seluruh Anak Buah Kapal (ABK) yang berkewarganegaraan Asing (jika ada) pada kapal penangkap ikan bersangkutan dalam satuan orang (dapat dilihat di Crew List) | | |
| Panjang Kapal | Diisi dengan ukuran panjang kapal dalam satuan meter sesuai dokumen kapal penangkap ikan bersangkutan (dapat dilihat di Surat Ukur, Gross Akte, Sertifikat Kebangsaan Kapal) | | |
| VMS (Y/T) | Jika terdapat Vessel Monitoring System (VMS), maka pilihlah Y (ya) dan coretlah T T (Tidak). Jika tidak terdapat VMS, maka pilihlah T dan coretlah Y (dapat dilihat di Surat Keterangan Aktivasi Transmiter/SKAT) | | |
| Kondisi VMS | Jika pada kapal penangkap ikan bersangkutan terdapat VMS, maka diisi dengan kondisi VMS pada saat pemantauan, online / tidak | | |
| VTS (Y/T) | Jika terdapat *Vessel Tracking System* (VTS)—alat pelacak kapal selain VMS, maka pilihlah Y (Ya) dan coretlah T (Tidak). Jika tidak terdapat VTS maka pilihlah T dan coretlah Y. | | |
| Lebar Kapal | Diisi dengan ukuran lebar kapal dalam satuan meter sesuai dokumen kapal penangkap ikan bersangkutan (dapat dilihat di Surat Ukur, Gross Akte, Sertifikat Kebangsaan Kapal) | | |
| Cara Penanganan di atas kapal | Diisi dengan cacra penanganan di atas kapal terhadap ikan hasil tangkapan. Jika di simpan utuh maka coretlah tidak. Jika dilakukan tindakan seperti pembuangan isi perut, pemotongan ekor, dll coretlah utuh. | | |
| Cara Penanganan Pasca Panen (Fresh/Frozen) | Diisi dengan cara penanganan pasca panen terhadap ikan hasil tangkapan. Jika ikan ditangani dengan rantai dingin (es), maka pilihlah fresh dan coretlah frozen. Jika ikan dibekukan dalam palka berinsulasi, maka pilihlah frozen dan coretlah fresh. | | |
| Foto Kapal (Y/T) | Diisi dengan informasi dokumentasi foto kapal. | | |
| Nomor Foto | Diisi dengan nomor foto kapal yang dilampirkan dalam borang sebagai data dukung | | |
| **ALAT PENANGKAPAN IKAN** | | | |
| Ukuran mata Pancing | Diisi dengan nomor mata pancing. Gambar (jiplak) mata pancing di buku catatan pemantau. | | |
| Jumlah Boi-boi | Diisi dengan jumlah Boi-boi atau petugas pelempar umpan yang ada di atas kapal | | |
| Jumlah Palkah Umpan | Diisi dengan jumlah tempat penyimpanan umpan hidup yang ada di atas kapal | | |
| Kapasitas Palkah Umpan | Diisi dengan kapasitas wadah penyimpanan umpan dalam satuan Kg | | |
| Sistem sirkulasi air di palkah umpan | Disi apakah palkah umpan di atas kapal memiliki sitem sirkulasi air atau tidak. | | |
| **ALAT BANTU NAVIGASI / KONDISI** | | | |
| Sonar | Diisi dengan informasi alat bantu navigasi sonar, jika ada maka coretlah T. jika tidak ada maka coretlah Y. Kemudian jika ada tuliskan kondisinya | | |
| Fishfinder | Diisi dengan informasi alat bantu navigasi Fishfinder, jika ada maka coretlah T. jika tidak ada maka coretlah Y. Kemudian jika ada tuliskan kondisinya | | |
| Radio | Diisi dengan informasi alat bantu navigasi Radio, jika ada maka coretlah T. jika tidak ada maka coretlah Y. Kemudian jika ada tuliskan kondisinya | | |
| GPS | Diisi dengan informasi alat bantu navigasi GPS, jika ada maka coretlah T. jika tidak ada maka coretlah Y. Kemudian jika ada tuliskan kondisinya | | |
| Telepon Satelit | Diisi dengan informasi alat bantu navigasi Telepon Satelit, jika ada maka coretlah T. jika tidak ada maka coretlah Y. Kemudian jika ada tuliskan kondisinya | | |
| **KAPASITAS PALKAH** | | | |
| Palkah 1, 2, dst... | | Diisi dengan jumlah kapasitas masing-masing palkah, bisa ditanyakan ke nakhoda / kapten kapal dalam satuan ton | |
| **ALAT MEMANCING UMPAN** | | | |
| Lampu | | Diisi jika terdapat alat bnatu penangkapan ikan berupa lampu, tuliskan jumlah total kekuatan lampu pada saat terpasang ketika memikat ikan (jumlah lampu \* daya lampu) | |
| Ada boke ami | | Circle the correct choice | |
| **INFORMASI LAIN** | | | |
| Jumlah Solar yang dihabiskan per trip | | | Diisi dengan jumlah solar yang dihabiskan untuk sekali perjalanan/trip memancing. Observer dapat bertanya kepada petugas/kapten kapal untuk mengetahui informasi ini. |
| Jumlah Es yang dihabiskan per trip | | | Diisi dengan jumlah es yang dihabiskan untuk sekali perjalanan/trip memancing. Observer dapat bertanya kepada petugas/kapten kapal untuk mengetahui informasi ini. Jumlah es ditulis dalam satuan balok atau Kg. Apabila ditulis dalam satuan balok, maka harus diketahui 1 balok itu berapa Kg. |
| Jumlah Biaya trip memancing | | | Diisi dengan besar biaya yang dihabiskan untuk sekali perjalanan/trip memancing. Observer dapat bertanya kepada petugas/kapten kapal untuk mengetahui informasi ini. |
| **CATATAN** | | | |
| Diisi dengan peristiwa/kejadian/hal- hal lain yang dihadapi/ditemui dalam pelaksanaan tugas pemantauan. lanjutkan di diary jika kolom tidak memadai | | | |
| Nama Pemantau | | Diisi dengan nama pemantau yang melaksanakan tugas pemantauan | |
| ID Pemantau | | Diisi dengan nomor ID Pemantau sesuai Keputusan Direktur Jenderal Perikanan Tangkap | |
| Tanda Tangan | | Diisi dengan tanda tangan pemantau yang melaksanakan tugas pemantauan | |
| Tanggal | | Diisi dengan tanggal, waktu dan tanda tangan | |

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| *Appendix 4: Observer diary. PL-2* |

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| **OBSERVER DIARY** | | | | | | **FORM PL-2** | | |
| VESSEL NAME | | | TRIP ID | | | PAGE | | |
|  | | |  | | | of | | |
| DATE | TIME | COORDINATES | | | | | ACTIVITY CODE |
| LATITUDE | | N/S | LONGITUDE | |
| HARI/BULAN/TAHUN |  | DD MM.MM | |  | DD MM.MM | |  |
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ACTIVITY CODE:

1. FISHING 9. SEARCHING FOR FISH SCHOOLS ASSOCIATED TO FADS
2. SEARCHING FOR FISH 10. DEPLOYING A FAD
3. TRANSIT 11. RETRIEVING A FAD
4. NOT FISHING-RESTING 12. NOT FISHING-LAST DAY OF THE TRIP
5. NOT FISHING- BAD WEATHER 13. NOT FISHING-OTHER (CLARIFY)
6. AT PORT (CLARIFY) 14. CATCHING BAIT
7. DOCKED AT A LIFTNET 15. BUYING BAIT

8. SEARCHING FOR FREE SCHOOLS 16. TRANSSHIPMENT AT SEA

OBSERVER NAME:

OBSERVER ID: SIGNATURE:

**\*\* IT IS NOT MANDATORY TO FILL THIS DATASHEET**

**LEMBAR PL-2. CATATAN HARIAN PEMANTAU KAPAL PENANGKAP IKAN**

**(*POLE & LINE*)**

|  |  |  |
| --- | --- | --- |
| **Menu Istilah dalam Borang** | **Penjelasan Cara Pengisian** | **Contoh** |
| Halaman ... dari  ... halaman | Diisi dengan nomor halaman dari keseluruhan jumlah halaman pada lembar 2. | Halaman 2  dari 5 halaman |
| Nama Kapal | Diisi dengan nama kapal penangkap ikan dimana pemantau ditempatkan sesuai dengan surat tugas dan dokumen kapal bersangkutan (dapat dilihat pada SIUP, SIPI, Surat Ukur, Sertifikat Kebangsaan, Gross Akte) | KM. Bima - 1 |
| Trip ID | Diisi dengan menggunakan nomor Surat Perintah Berlayar (SPB) atau Surat Perintah Tugas (SPT) Observer |  |
| Tanggal | Diisi dengan tanggal, bulan dan tahun saat dimulainya aktivitas memancing atau setting penangkapan ikan untuk setiap kali setting pada saat pelaksanaan tugas pemantauan | 14/12/2013 |
| Waktu  (pukul) | Diisi dengan waktu dimulainya atau berakhirnya aktivitas memancing atau setting penangkapan ikan dalam satuan jam | Mulai : 06.30  Selesai : 10.55 |
| Lintang  (dd-mm.mm) | Diisi dengan koordinat lintang pada saat dimulainya atau berakhirnya aktivitas memancing atau setting penangkapan ikan dalam satuan jam, menit dan detik (dd-mm-ss) | 9.35.760 S |
| Bujur  (dd-mm.mm) | Diisi dengan koordinat bujur pada saat dimulainya atau berakhirnya aktivitas memancing atau setting penangkapan ikan dalam satuan jam, menit dan detik (dd-mm-ss) | 101.41.000 T |
| Kode Aktivitas | Diisi dengan kode aktivitas, kode aktivitas disesuaikan dengan aktivitas yang sedang terjadi saat itu. Pilihan kode aktivitas terdapat di bawah tabel. Pilih hanya satu kode aktivitas. Pilih kode aktivitas yang paling sesuai. Jika ada dua aktivitas pada waktu yang sama, tulis satu kode aktivitas, dan aktivitas yang lainnya dituliskan dikolom keterangan. | (14) Menangkap Umpan |
| Nama Pemantau | Diisi dengan nama pemantau yang melaksanakan tugas pemantauan | Elvis Lapadu |
| ID Pemantau | Diisi dengan nomor ID Pemantau sesuai Keputusan Direktur Jenderal Perikanan Tangkap | 016/P/2013 |
| Tanda tangan | Diisi dengan tanda tangan pemantau yang melaksanakan tugas pemantauan |  |

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| *Appendix 5: Tuna capture data. PL-3* |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TUNA CAPTURE DATA** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **FORM PL-3** | | | | | | | | | |
| CAPTAIN’S NAME | | | | |  | | | | | | | | | | | | VESSEL NAME | | | | | |  | | | | | | | | | | | | | TRIP ID | | | | | | |  | | | | | | | | | | | PAGE | | | | | | | | | | | | | of | | | | | | |
|  | | | | | | | | | | SET NUMBER | | | | | | | START | | | | | | | | | FINISH | | | | | | |  | | | | | | | | | | | | | SET NUMBER | | | | | | | | START | | | | | | | | | | | | | FINISH | | | | | | |
| DAY | MONTH | | | | YEAR | | | | | HOUR | | | | MINUTE | | | | | HOUR | | MINUTE | | | | | DAY | | | MONTH | | | | | | YEAH | | | | HOUR | | | | | | | MINUTE | | | | | | HOUR | | | | MINUTE | | |
|  |  | | | |  | | | | |  | | | | | | |  | | | |  | | | | |  | |  | | | | |  | | |  | | | | | |  | | | |  | | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | |
| NUMBER OF FISHERMEN | | | | |  | | | | | LATITUDE | | | | | | | NORTH/SOUTH | | | | | | LONGITUDE | | | | | | E/W | | | | NUMBER OF FISHERMEN | | | | | | | |  | | | | LATITUDE | | | | | | | | NORTH/SOUT | | | | | | | | | | | | LONGITUDE | | | | | | | | E/W |
| MEASURING TOOL | | | | |  | | | | | DD MM.MM | | | | | | |  | | | | | | DD MM.MM | | | | | | E | | | | MEASURING TOOL | | | | | | | |  | | | | DD MM.MM | | | | | | | |  | | | | | | | | | | | | DD MM.MM | | | | | | | | E |
| FAD Y/N |  | | | TYPE FAD I | | | | | | ANCHOR/DRIFT | | | | | | | TYPE FAD 2 | | | | | | HOUSE/PONTOON/STYROFOAM | | | | | | | | | | FAD Y/N | |  | | | | TYPE FAD 1 | | | | | | | ANCHOR/DRIFT | | | | | | | | | TYPE FAD 2 | | | | | | | HOUSE/PONTOON/STYROFOAM | | | | | | | | | | | |
| FISH ASSOCIATION | | | | |  | | FOUND FISH WITH | | | | | | |  | | | | | FOTO FAD | | | Y/N | | | NO.PHOTO FAD | | | |  | | | | FISH ASSOCIATION | | | | | | | | | | |  | | | FOUND FISH WITH | | | | |  | | | | | | FOTO FAD | | | | | Y/N | | | | | NO.PHOTO FAD | | | |  | |
| **TOTAL CAPTURE** | | | | | | NUMBER OF BASKETS WITH FISH | | | | | | | | | | | | |  | | WEIGHT OF EMPTY BASKET | | | | | | | | |  | | | **TOTAL HASIL TANGKAPAN** | | | | | | | | | | | JUMLAH KERANJANG TANGKAP | | | | | | | | | | | | | | |  | | | | | | | BERAT KERANJANG YANG KOSONG | | | | | | |  |
| SPECIES CODE | TOTAL ENUMERATION | | | | | BASKET 1 | | | | | BASKET 2 | | | | BASKET 3 | | | | | BASKET 4 | | | | | | BASKET 5 | | | BASKET 6 | | | | SPECIES  CODE | | TOTAL ENUMERATION | | | | | | | | KRAN 1 | | | | | KRAN 2 | | | KRAN 3 | | | | | | | | | KRAN 4 | | | | | | | KRAN 5 | | | | KRAN 6 | | |
| # | | W | | | # | | | W | | # | | W | | # | | | | W | # | | | W | | | # | W | | # | | | W | # | | | BER | | | | | # | | BER | | | # | | BER | # | | | | | BER | | | | # | | BER | | | | | # | | BER | | # | | BER |
| **SKJ** |  | |  | | |  | | |  | |  | |  | |  | | | |  |  | | |  | | |  |  | |  | | |  | **SKJ** | |  | | |  | | | | |  | |  | | |  | |  |  | | | | |  | | | |  | |  | | | | |  | |  | |  | |  |
| **YFT** |  | |  | | |  | | |  | |  | |  | |  | | | |  |  | | |  | | |  |  | |  | | |  | **YFT** | |  | | |  | | | | |  | |  | | |  | |  |  | | | | |  | | | |  | |  | | | | |  | |  | |  | |  |
|  |  | |  | | |  | | |  | |  | |  | |  | | | |  |  | | |  | | |  |  | |  | | |  |  | |  | | |  | | | | |  | |  | | |  | |  |  | | | | |  | | | |  | |  | | | | |  | |  | |  | |  |
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| SPECIES CODE | | LENGTH cm | | | | | | WEIGHT kg | | | | | | | | SPECIES CODE | | | | | LENGTH cm | | | | | | WEIGHT kg | | | | | | KODE SPESIES | | | | PANJANG cm | | | | | | | | BERAT kg | | | | | | | | | KODE SPECIES | | | | | | | | | | | PANJANG cm | | | | | BERAT kg | | | |
| 1 | |  | | | | | |  | | | | | | | | 11 | | | | |  | | | | | |  | | | | | | 1 | | | |  | | | | | | | |  | | | | | | | | | 11 | | | | | | | | | | |  | | | | |  | | | |
| 2 | |  | | | | | |  | | | | | | | | 12 | | | | |  | | | | | |  | | | | | | 2 | | | |  | | | | | | | |  | | | | | | | | | 12 | | | | | | | | | | |  | | | | |  | | | |
| 3 | |  | | | | | |  | | | | | | | | 13 | | | | |  | | | | | |  | | | | | | 3 | | | |  | | | | | | | |  | | | | | | | | | 13 | | | | | | | | | | |  | | | | |  | | | |
| 4 | |  | | | | | |  | | | | | | | | 14 | | | | |  | | | | | |  | | | | | | 4 | | | |  | | | | | | | |  | | | | | | | | | 14 | | | | | | | | | | |  | | | | |  | | | |
| 5 | |  | | | | | |  | | | | | | | | 15 | | | | |  | | | | | |  | | | | | | 5 | | | |  | | | | | | | |  | | | | | | | | | 15 | | | | | | | | | | |  | | | | |  | | | |
| 6 | |  | | | | | |  | | | | | | | | 16 | | | | |  | | | | | |  | | | | | | 6 | | | |  | | | | | | | |  | | | | | | | | | 16 | | | | | | | | | | |  | | | | |  | | | |
| 7 | |  | | | | | |  | | | | | | | | 17 | | | | |  | | | | | |  | | | | | | 7 | | | |  | | | | | | | |  | | | | | | | | | 17 | | | | | | | | | | |  | | | | |  | | | |
| 8 | |  | | | | | |  | | | | | | | | 18 | | | | |  | | | | | |  | | | | | | 8 | | | |  | | | | | | | |  | | | | | | | | | 18 | | | | | | | | | | |  | | | | |  | | | |
| 9 | |  | | | | | |  | | | | | | | | 19 | | | | |  | | | | | |  | | | | | | 9 | | | |  | | | | | | | |  | | | | | | | | | 19 | | | | | | | | | | |  | | | | |  | | | |
| 10 | |  | | | | | |  | | | | | | | | 20 | | | | |  | | | | | |  | | | | | | 10 | | | |  | | | | | | | |  | | | | | | | | | 20 | | | | | | | | | | |  | | | | |  | | | |
| **TAGGED FISH** | | | | | | | | | | | | TAG # | | | | | |  | | | | | | SPECIES CODE | | | | | | |  | | | SEX | | | | | |  | | | | | | | | | LENGTH (cm) | | | | | | | |  | | | | | | | | | WEIGHT (kg) | | | | | | |  |

**LEMBAR PL-3 DATA HASIL TANGKAPAN POLE & LINE**

|  |  |
| --- | --- |
| **Menu Istilah dalam Borang** | **Penjelasan Cara Pengisian** |
| Nama Pemantau | Diisi dengan nama pemantau yang melaksanakan tugas pemantauan |
| Nama Kapal | Diisi dengan nama kapal penangkap ikan dimana pemantau ditempatkan sesuai dengan surat tugas dan dokumen kapal bersangkutan (dapat dilihat pada SIUP, SIPI, Surat Ukur, Sertifikat Kebangsaan, Gross Akte) |
| Trip ID | Diisi dengan menggunakan nomor Surat Perintah Berlayar (SPB) atau Surat Perintah Tugas (SPT) Observer |
| Halaman ... dari  ... halaman | Diisi dengan nomor halaman dari keseluruhan jumlah halaman pada lembar 2. |
| Tahun / bulan / tanggal dan Jam/Menit mulai dan selesai Aktivitas memancing | Diisi dengan tanggal, bulan dan tahun saat dimulainya aktivitas memancing atau setting penangkapan ikan untuk setiap kali setting pada saat pelaksanaan tugas pemantauan |
| Set Nomor | Each day you will start with number 1 until the maximum number of fishing events in that day |
| Jumlah Pemancing | Diisi dengan jumlah pemancing per aktivitas memancing / persetting |
| Lintang  (dd-mm-ss) | Diisi dengan koordinat lintang pada saat dimulainya atau berakhirnya aktivitas memancing atau setting penangkapan ikan dalam satuan jam, menit dan detik (dd-mm-ss) |
| Utara/Selatan | Please note if it is North or South of the Equator from the GPS on board or from your phone |
| Bujur  (dd-mm-ss) | Diisi dengan koordinat bujur pada saat dimulainya atau berakhirnya aktivitas memancing atau setting penangkapan ikan dalam satuan jam, menit dan detik (dd-mm-ss) |
| Measuring Tool | Fill with the tool used to measure the fish: papan ukur, kaliper, atau pita pengukur |
| FAD (Y/T) | Diisi dengan menulis Y jika aktivitas memancing dilakukan di sekitar rumpon, dan tulis tidak jika aktivitas memancing tidak di sekitar rumpon. Jika jawaban adalah Tidak, lihat keterangan mengenai informasi kumpulan ikan |
| Jenis Rumpon 1: Menetap/ Hanyut | Diisi dengan menetap jika rumpon yang digunakan adalah jenis rumpon menetap yaitu rumpon yang ditempatkan secara menetap dengan menggunakan jangkar dan/atau pemberat, dan tulis hanyut jika rumpon yang digunakan adalah jenis rumpon hanyut yaitu rumpon yang ditempatkan tidak menetap, tidak dilengkapi dengan jangkar dan hanyut mengikuti arah arus |
| Jenis Rumpon 2: Berumah/Ponton/ Styrofoam | Diisi dengan berumah jika rumpon yang digunakan merupakan rumpon berumah yaitu rumpon yang ada penunggunya, tulis ponton jika rumpon yang digunakan adalah jenis rumpon ponton, dan tulis styrofoam jika bahan yang digunakan sebagai pelampung dari blok gabus (styrofoam) |
| Foto FAD | Here you write down Y if there is photo for this FAD under this setting |
| No. Foto FAD | Here you write the code number of the photo as attachment of this form |
| Ikan terasosiasi dengan | Diisi dengan kumpulan ikan yang terlihat terasosiasi dengan apa: 1. Tidak terasosiasi, 2. Memakan ikan kecil, 3. Kayu, sampah atau binatang mati, 4. Paus hidup, 5. Hiu paus hidup, 6 Lainnya (jelaskan), 7 Gunun laut (seamount), 8 Rumpon menetap |
| Ikan terlihat dengan | Diisi dengan kumpulan ikan terlihat dengan cara apa: 1. Terlihat dari kapal, 2. Terlihat dari suar kapal, 3. Sonar/Depth sounder, 4. Informasi dari kapal lain |
| Ketahui bahwa Anda memiliki tempat yang cukup untuk dua sesi memancing di masing-masing halaman. | |
| Jumlah keranjang tangkapan | Catat jumlah keranjang darimana ikan dipindahkan ke palkah. Anda harus meminta awak kapal untuk menghitung karena Anda akan sibut menentukan komposisi dan berat ikan per spesies dari banyak keranjang yang disampel. |
| Berat keranjang yang kosong | Ini adalah berat dari keranjang kosong |
| Kode Spesies | Diisi dengan kode jenis ikan |
| Total Enumerasi | Here you will write the number of fish and their weight (if possible) for small catches and for fish that are rare in the catch and would not show in the crates. This applies to total number of fishes for BET, and dolphinfish, rainbow runner and other rare species. Fill this column if you have a total count of the relevant species. |
| Keranj 1…Keranj | Ini adalah keranjang yang akan Anda pisahkan berdasarkan spesies untuk mencatat jumlah ikan dan berat dari semua ikan dari spesies yang sama. Anda akan mengambil sampel dari sebanyak mungkin keranjang per sesi memancing. Ingat bahwa Anda setidaknya mengambil sampel dari 2 keranjang per sesi. Akan terdapat banyak keranjang umpan dalam sesi memancing yang besar jadi harap Anda mengambil sampel dari sebanyak mungkin keranjang tapi jangan sampai melebihi 12 keranjang. Ingat bahwa label Kranj di sisi kanan borang belum diberi label sehingga Anda dapat memberi label 7…..12 jika Anda mengambil sampel sampai 12 keranjang, atau 1…6 untuk sesi memancing berikutnya. |
| Kode Spesies | Diisi dengan kode jenis ikan |
| Panjang (cm) | Diisi dengan ukuran panjang baku ikan yang disampling yang diukur dari pangkal kepala sampai pangkal ekor dalam satuan centimeter |
| Berat (kg) | Catat berat tiap ikan yang Anda timbang dalam kg. Pastikan ikan yang Anda timbang juga dicatat panjang bakunya. |
| Ikan Bertanda yang ditemukan | Jika Anda menemukan ikan yang ditandai, pastikan Anda mencatat semua informasi yang tertulis di tanda tersebut. |
| Tanda # | Tulislah nomor tanda dan jika mungkin foto juga tanda tersebut. Juga lepaskan tanda tersebut dari ikan dan berikan tanda tersebut ke supervisor. |
| Kode Species | Diisi dengan kode jenis ikan |
| Jenis kelamin | Potong ikan dan cari tahu jenis kelaminnya. Ambil foto gonadnya dan jika tidak yakin dimana letak gonad, ambil foto dalaman ikan tersebut. |
| Panjang (cm) | Ukur panjang baku dalam cm untuk ikan bertanda dan juga ambil fotonya diatas papan ukur. |
| Berat (kg) | Ukur berat dari ikan bertanda tersebut dalam kg. |

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| *Appendix 6: Bait Sampling. PL-4* |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BAIT SAMPLING** | | | | | | | | | | | | | | | | | | | | **FORM PL-4** | | |
| VESSEL NAME | | |  | | | | | | | | | TRIP ID | | | |  | | | | SHEET | | of |
| LOAD NO. | | |  | | | TIME | | | | | | | | | | | | RATIO BAIT BUCKETS | | WEIGHT EMPTY BAIT BUCKET (KG) | | WEIGHT EMPTY BAIT TUPPER (G) |
| START | | | | END | | | | | | | |
| DAY | MONTH | | | YEAR | | HOUR | | | MINUTE | | HOUR | | | | MINUTE | | | VESSEL | SAMPLE |
|  |  | | |  | |  | | |  | |  | | | |  | | | 1 = | |  | |  |
| ORIGIN BAIT  BOUGHT (1);  AQUACULTURE (2); CAUGHT (3) | | | | SAMPLE FROM BUCKET NO. | | LATITUDE | | | | LONGITUDE | | | | | | | | BAIT PRICE/ BUCKET (Rp) | JUMLAH EMBER DIANGKUT | BERAT SAMPEL DI EMBER UMPAN (KG) | | BERAT SAMPEL DI TUPPER UMPAN (G) |
|  | | | |  | | DD MM.MM N/S | | | | DD MM.MM E | | | | | | | |  |  |  | |  |
| SPECIES CODE | | NUMBER OF FISH | | | WEIGHT (G) | | | SPECIES CODE | | | | | NUMBER OF FISH | | | | | WEIGHT (G) | SPECIES CODE | NUMBER OF FISH | | WEIGHT (G) |
| 1 | |  | | |  | | | 5 | | | | |  | | | | |  | 9 |  | |  |
| 2 | |  | | |  | | | 6 | | | | |  | | | | |  | 10 |  | |  |
| 3 | |  | | |  | | | 7 | | | | |  | | | | |  | 11 |  | |  |
| 4 | |  | | |  | | | 8 | | | | |  | | | | |  | 12 |  | |  |
| NO. ANGKUT | | |  | | | WAKTU | | | | | | | | | | | | RASIO EMBER UMPAN | | BERAT EMBER SAMPEL UMPAN YANG KOSONG (KG) | | BERAT TUPPER UMPAN YANG KOSONG (G) |
| MULAI | | | | SELESAI | | | | | | | |
| TANG | BULAN | | | TAHUN | | JAM | | | MENIT | JAM | | | | MENIT | | | | KAPAL | SAMPEL |
|  |  | | |  | |  | | |  |  | | | |  | | | | 1 = | |  | |  |
| ASAL UMPAN  BELI(1);  BUDIDAYA (2); TANGKAP (3) | | | | SAMPEL DARI EMBER NO. | | LINTANG | | | | BUJUR | | | | | | | | HARGA UMPAN/EMBER (Rp) | JUMLAH EMBER DIANGKUT | BERAT SAMPEL DI EMBER UMPAN (KG) | | BERAT SAMPEL DI TUPPER UMPAN (G) |
|  | | | |  | | DD MM.MM U/S | | | | DD MM.MM T | | | | | | | |  |  |  | |  |
| KODE SPESIES | | JUMLAH EKOR | | | BERAT (G) | | | KODE SPESIES | | | | | JUMLAH EKOR | | | | BERAT (G) | | KODE SPESIES | JUMLAH EKOR | | BERAT (G) |
| 1 | |  | | |  | | | 5 | | | | |  | | | |  | | 9 |  | |  |
| 2 | |  | | |  | | | 6 | | | | |  | | | |  | | 10 |  | |  |
| 3 | |  | | |  | | | 7 | | | | |  | | | |  | | 11 |  | |  |
| 4 | |  | | |  | | | 8 | | | | |  | | | |  | | 12 |  | |  |
| NO. ANGKUT | | |  | | | WAKTU | | | | | | | | | | | | RASIO EMBER UMPAN | | BERAT EMBER SAMPEL UMPAN YANG KOSONG (KG) | | BERAT TUPPER UMPAN YANG KOSONG (G) |
| MULAI | | | | SELESAI | | | | | | | |
| TANG | BULAN | | | TAHUN | | JAM | | | MENIT | JAM | | | MENIT | | | | | KAPAL | SAMPEL |
|  |  | | |  | |  | | |  |  | | |  | | | | | 1 = | |  | |  |
| ASAL UMPAN  BELI (1);  BUDIDAYA (2); TANGKAP (3) | | | | SAMPEL DARI EMBER NO. | | LINTANG | | | | BUJUR | | | | | | | | HARGA UMPAN/EMBER (Rp) | JUMLAH EMBER DIANGKUT | BERAT SAMPEL DI EMBER UMPAN (KG) | | BERAT SAMPEL DI TUPPER UMPAN (G) |
|  | | | |  | | DD MM.MM U/S | | | | DD MM.MM T | | | | | | | |  |  |  | |  |
| KODE SPESIES | | JUMLAH EKOR | | | BERAT (G) | | | KODE SPESIES | | | | | JUMLAH EKOR | | | | BERAT (G) | | KODE SPESIES | JUMLAH EKOR | | BERAT (G) |
| 1 | |  | | |  | | | 5 | | | | |  | | | |  | | 9 |  | |  |
| 2 | |  | | |  | | | 6 | | | | |  | | | |  | | 10 |  | |  |
| 3 | |  | | |  | | | 7 | | | | |  | | | |  | | 11 |  | |  |
| 4 | |  | | |  | | | 8 | | | | |  | | | |  | | 12 |  | |  |
| Observer Name | | | | | | | : | | | | | | | | | |  | | | |  | |
| Observer ID | | | | | | | : | | | | | | | | | | Signature | | | | : | |

**LEMBAR PL-4. DATA SAMPLING UMPAN**

Dalam setiap pengambilan umpan, pemantau diharuskan mengambil sampling ikan umpan untuk diketahui komposisi dan estimasi beratnya. Gunakan ember sampel sebagaimana disampaikan dalam protokol.

|  |  |  |
| --- | --- | --- |
| **Istilah dalam Borang** | | **Penjelasan Cara Pengisian** |
| Halaman….dari….Halaman | | Diisi dengan nomor halaman dari keseluruhan jumlah halaman pada lembar 5. Contoh: Halaman 2 dari 3 halaman |
| Nama Kapal | | Diisi dengan nama kapal penangkap ikan di mana pemantau ditempatkan sesuai dengan surat tugas dan dokumen kapal bersangkutan. Tulis nama kapal seluruhnya dengan lengkap tanpa disingkat (Contoh: “KM. Aneka Bahari” menjadi “A. Bahari”) |
| Trip Id | | Diisi dengan nomor ID pemantau sesuai yang diberikan saat penugasan |
| No. Angkut | | This will start from 1 every evening and will count number of bagan, boke ami or other bait buying/catching operations that take place in one night |
| Tanggal | Tang | Diisi dengan urutan bagan tempat pembelian ikan atau urutan usaha penangkapan ikan umpan oleh kapal |
|  | Bulan |
|  | Tahun |
| Waktu | Mulai | Diisi dengan waktu lampu dinyalakan (untuk buko ami), dan waktu kapal bersandar (untuk bagan) |
| Selesai | Diisi dengan waktu selesai memindahkan seluruh umpan dari jaring (buko ami) atau dari bagan (untuk bagan) |
| Rasio Ember Umpan | | Ukur berapa ember sampel yang diperlukan untuk mendapatkan satu ember umpan yang biasa digunakan oleh kapal |
| Berat ember sampel umpan yang kosong (kg) | | Ukur berat ember sampel umpan yang digunakan dalam keadaan kosong |
| Berat toples umpan yang kosong (g) | | Diisi dengan berat toples umpan yang digunakan untuk mengetahui komposisi ikan tangkapan |
| Asal Umpan | | Diisi dengan asal umpan dalam tiap pengambilan umpan, apakah berasal dari beli, tangkap sendiri (bouke ami) atau dari budidaya |
| Sampel dari ember No. | | Catat nomor ember keberapa yang digunakan untuk diambil sampelnya |
| Lintang & Bujur | | Diisi dengan kordinat lintang dan bujung saat pemindahan ikan dilakukan |
| Harga umpan/ember (Rp) | | Tanyakan berapa harga umpan per embernya |
| Jumlah ember diangkut | | Catat jumlah ember yg digunakan untuk mengangkut umpan |
| Berat sampel di ember umpan (kg) | | Setiap malamnya, timbanglah berapa berat umpan di satu ember sampel. Mintalah kru mengambil umpan langsung ke dalam ember sampel dengan cara yang biasa mereka lakukan untuk ember mereka sendiri. |
| Berat sampel di tupper umpan (kg) | | Ukur berat total sampel di toples umpan |
| Komposisi toples umpan | | |
| Kode spesies | | Isi dengan kode spesies umpan |
| Jumlah ekor | | Isi dengan jumlah ekor tiap spesies yang terdapat di toples umpan |
| Berat (g) | | Isi dengan total berat perspesies dalam toples umpan |

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| *Appendix 7: Data unused bait. PL-5* |

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| **DATA UNUSED BAIT** | | | **FORM PL-5** | | | | SHEET | | of |
| Date | Time (HH:MM) | Weight bait not used  (Kg) | ACTIVITY CODE | | | | | | |
| Dead | | Used alive for fishing | Leftover not used | | Comments | |
| Disposed | Eaten |
| HARI/BULAN/TAHUN | HH:MM |  |  |  |  |  | |  | |
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Observer Name :

Observer ID : Signature :

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| **LEMBAR PL-5. DATA UMPAN YANG TIDAK DIGUNAKAN** | | | | |
| **Menu** **Istilah dalam Borang** | | | **Penjelasan Cara Pengisian** | **Contoh** |
| Halaman…dari…Halaman | | | Diisi dengan nomor halaman dari keseluruhan jumlah halaman pada lembar 4 | Halaman 2 dari 3 halaman |
| Tanggal | |  | Diisi dengan tanggal, bulan dan tahun saat terdapat umpan yang tidak digunakan | 14/12/2013 |
| Waktu | | | Diisi dengan waktu dimulainya atau berakhirnya aktivitas memancing atau setting penangkapan ikan dalam satuan jam |  |
| Berat Umpan Tidak Digunakan | | | Diisi dengan berat total umpan yang dibuang dalam satu kali aktivitas pembuangan umpan dilaksanakan. | 5 kg |
| Kode Aktivitas | 1 | Dibuang | Ceklist kolom ini jika umpan yang tidak digunakan dalam kondisi mati dan dibuang |  |
| Dimakan | Ceklist kolom ini jika umpan yang tidak digunakan dalam kondisi mati dan dimakan oleh awak kapal |  |
| 2 | | Ceklist dikolom ini jika umpan yang tidak digunakan dalam kondisi hidup dan dimakan |  |
| 3 | | Ceklist dikolom ini jika umpan yang tidak digunakan adalah sisa umpan tidak terpakai dari trip |  |
| Deskripsi | | | Diisi dengan keterangan daya tahan spesies umpan | spesies TEM paling banyak mati |

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| *Appendix 8: Data ETP species. PL-6* |

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| **DATA ETP SPESIES** | | | | | | | | | | | | | | | | | | **FORM PL-6** | | | | | |
| VESSEL NAME | | | | | | TRIP ID | | | | | | TRIP ID | | | | | | FISHING ACTIVITY | | | SHEET | | |
|  | | | | | |  | | | | | |  | | | | | |  | | | of | | |
| DATE | HARI/BULAN/TAHUN | | | | | TIME | | | HH:MM | | | LATITUDE | | | DD MM.MM N/S | | | LONGITUDE | | | | DD MM.MM E | |
| **TURTLES: NUMBER OF SCUTES** | | | | | | | | | **KODE JENIS** | | | | | |  | | | **TURTLE MEASUREMENTS** | | | | | |
| Prefrontal SCUTES | | NUCHAL Scutes | | | | | | COSTAL Scutes | | | | | VERTEBRAL SCUTES | | | PHOTO NUMBER | | | CCL (cm) | SCL (cm) | | | CW (cm) |
|  | |  | | | | | |  | | | | |  | | |  | | |  |  | | |  |
| **SHARKS, WHALES, DOLPHINS AND BIRDS** | | | | | | | | | | | | | | | | | | | | | | | |
| SPECIES CODE | | | SEX | | | | | | | PHOTO Y/N | | | PHOTO NUMBER | | | | | LENGTH (CM) | | | | | |
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| FISHING GEAR | | | | | CODE HOOK POSITION | | | | | | | | | 1. TERKAIT DI DALAM ALAT PENCERNAAN 2. TERKAIT DI DALAM MULUT 3. TERKAIT DI LUAR BAGIAN TUBUH 4. TERJERAT/TERLILIT SENAR PANCING | | | | | | | | | |
|  | | | | |  | | | | | | | | |
| **CONDITION CODE** | | | | | | | | | | | | | | | | | | | | | | | |
| DURING CAPTURE | | | | | | |  | | | | | | CONDITION DESC. | | | |  | | | | | | |
| DURING RELEASE | | | | | | |  | | | | | | CONDITION DESC. | | | |  | | | | | | |
| H: HIDUP/SEHAT  H1: HIDUP TAPI SEPERTI TIDAK HIDUP (PINGSAN)  H2: HIDUP DAN SEHAT TAPI TERJERAT ALAT TANGKAP  H3: TERLUKA DAN TERJERAT ALAT TANGKAP  H4: TERLUKA DAN TERKENA PANCING DIBAGIAN LUAR | | | | | | | | | | | | | H5: TERLUKA DAN TERKENA PANGING DIBAGIAN DALAM  M: MATI  M1: MATI DAN TERKENA PANCING DIBAGIAN LUAR TUBUH  M2: MATI DAN TERKENA PANCING DIBAGIAN DALAM TUBUH  M3: MATI DAN TERJERAT ALAT TANGKAP | | | | | | | | | | |
| **TAG** | | | | | | | | | | | | | | | | | | | | | | | |
| TAG NUMBER | | | | SPECIES CODE | | | | | | | ORGANIZATION | | | | | | | PHOTO NUMBER | | | | | |
|  | | | |  | | | | | | |  | | | | | | |  | | | | | |

**LEMBAR PL-6. DATA SPESIES TERKAIT SECARA EKOLOGI (ERS) YANG TERTANGKAP**

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| **Menu Istilah dalam Borang** | **Penjelasan Cara Pengisian** |
| Vessel Name | Fill with the vessel name which caught the ETP/ERS |
| Nama Pemantau | Diisi dengan nama pemantau yang melaksanakan tugas pemantauan |
| Trip ID | Diisi dengan nomor trip / *setting* pada saat spesies ERS tertangkap |
| Fishing Activity | Fill what fishing gear was used when the ETP was caught: 1. Pole and line, 2. Handline, 3. Boke ami, 4. Other (specify) |
| Halaman ... dari ... halaman | Diisi dengan nomor halaman dari keseluruhan jumlah halaman pada lembar 6. |
| Tanggal | Diisi dengan tanggal, bulan dan tahun pada spesies ERS tertangkap secara tidak sengaja |
| Waktu (pukul) | Diisi dengan waktu tertangkapnya spesies ERS dalam satuan jam |
| Lintang (dd-mm-ss) | Diisi dengan koordinat lintang pada saat tertangkapnya spesies ERS dalam satuan jam, menit dan detik (dd-mm-ss) |
| Bujur (dd-mm-ss) | Diisi dengan koordinat bujur pada saat tertangkapnya spesies ERS dalam satuan jam, menit dan detik (dd-mm-ss) |
| **IDENTIFIKASI SPESIES** | |
| **KHUSUS PENYU** | |
| Jika yang tertangkap adalah penyu, maka isilah kolam “jumlah” dan “ukuran”. Jika yang tertangkap selain penyu, maka kolom tidak perlu diisi. | |
| Jumlah sisik | Memuat informasi jumlah sisik penyu |
| Hidung (*prefrontal scales*) | Diisi dengan jumlah sisik yang terdapat pada bagian hidung. |
| Leher (*nuchal scutes*) | Diisi dengan jumlah sisik yang terdapat pada bagian leher. |
| Kosta (*costal scutes*) | Diisi dengan jumlah sisik yang terdapat pada bagian kosta. |
| Belakang (*vertebral scutes*) | Diisi dengan jumlah sisik yang terdapat pada bagian belakang. |
| Ukuran panjang (cm) | Memuat informasi ukuran panjang penyu |
| CCL (cm) | Diisi dengan ukuran panjang lengkung karapas pada penyu atau *Curve Carapace Length* (CCL) dalam satuan centimeter. |
| SCL (cm) | Diisi dengan pengukuran panjang lurus total diatas papan ukur |
| CW (cm) | Diisi dengan ukuran lebar karapas |
| **SPESIES LAIN** | |
| Kode spesies | Diisi dengan kode spesies ERS selain penyu yang tertangkap secara tidak sengaja sebagaimana tercantum padal lembar tersebut. |
| Jenis Kelamin | Diisi dengan jenis kelamin spesies jika pemantau mengetahui. Tuliskan J jika jantan atau B jika betina atau biarkan koson jika pemantau tidak mengetahui. |
| Foto (Y/T; Nomor) | Diisi dengan informasi dokumentasi foto spesies ERS yang tertangkap. Pilihlah Y jika ada foto dan coretlah T. Tuliskan nomor foto yang dilampirkan. Pilihlah T jika tidak ada foto dan coretlah Y. |
| Panjang khusus untuk hiu, paus dan lumba-lumba (cm) | Diisi dengan ukuran panjang hiu, paus dan lumba-lumba yang tertangkap dalam satuan centimeter |
| Jenis pancing (*Circle/J*) | Diisi dengan jenis pancing yang digunakan yang terkait pada spesies ERS yang tertangkap. Tuliskan C untuk penggunaan *circle-hook* atau J untuk penggunaan *J-hook* |
| Kode posisi pancing | Pilih dan lingkari kode posisi tersangkutnya kail/pancing pada spesies ERS sebagaimana tercantum pada kolom tersebut. |
| **KODE KONDISI** | |
| Pada saat tertangkap | Diisi dengan kode kondisi spesies ERS pada saat tertangkap sebagaimana tercantum pada lembar tersebut |
| Deskripsi kondisi | Diisi dengan deskripsi kondisi spesies ERS pada saat tertangkap |
| Pada saat di lepas | Diisi dengan kode kondisi spesies ERS pada saat dilepas sebagaimana tercantum pada lembar tersebut |
| Deskripsi kondisi | Diisi dengan deskripsi kondisi spesies ERS pada saat tertangkap |
| Tag / Tanda | TAG / tanda / label adalah lempengan aluminium yang berisikan beberapa informasi yang dikaitkan pada sayap/sirip penyu untuk keperluan penandaan dan penelitia terhadap migrasi penyu. |
| Nomor tanda | Diisi dengan nomor yang tertera pada TAG tersebut |
| Kode Spesies | Diisi dengan FAO kode spesies |
| Organisasi | Diisi dengan nama organisasi sebagaimana tertulis pada TAG |
| Foto | Diisi dengan informasi dokumentasi foto spesies ERS yang tertangkap. Pilihlah Y jika ada foto dan coretlah T. Tuliskan nomor foto yang dilampirkan. Pilihlah T jika tidak ada foto dan coretlah Y. |

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| *Appendix 9: Transshipment at sea. PL-7* |

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| **TRANSSHIPMENT AT SEA** | | | | | | | **FORM PL-7** | | | | | | |
| **FISHING VESSEL** | | | | | | | **CARRIER VESSEL** | | | | | | |
| VESSEL NAME | |  | | | | | VESSEL NAME | | |  | | | |
| CAPTAIN’S NAME | |  | | | | | CAPTAIN’S NAME | | |  | | | |
| FLAG | |  | | | | | FLAG | | |  | | | |
| NO. SIPI | |  | | | | | NO. SIPI | | |  | | | |
| TANDA SELAR | |  | | | | | TANDA SELAR | | |  | | | |
| RFMOs | | WCPFC/IOTC/CCSBT | | | | | RFMOs | | | WCPFC/IOTC/CCSBT | | | |
| NO. REGISTER RFMO | |  | | | | | NO. REGISTER RFMO | | |  | | | |
| PHOTO VESSEL HULL | | Y/T | | | NO. FOTO | | PHOTO VESSEL HULL | | | Y/T | | NO. FOTO | |
|  | |  | |
| DATE | | HARI/BULAN/TAHUN | | | | | LATITUDE | | | DD MM.MM UTARA/SELATAN | | | |
| TIME | | HH:MM | | | | | LONGITUDE | | | DD MM.MM TIMUR | | | |
| SPECIES CODE | PRODUCT TYPE | | WEIGHT (KG) | SPECIES CODE | | PRODUCT TYPE | | WEIGHT (KG) | SPECIES CODE | | PRODUCT TYPE | | WEIGHT (KG) |
|  | UTUH/LOIN | |  |  | | UTUH/LOIN | |  |  | | UTUH/LOIN | |  |
|  | UTUH/LOIN | |  |  | | UTUH/LOIN | |  |  | | UTUH/LOIN | |  |
|  | UTUH/LOIN | |  |  | | UTUH/LOIN | |  |  | | UTUH/LOIN | |  |
|  | UTUH/LOIN | |  |  | | UTUH/LOIN | |  |  | | UTUH/LOIN | |  |
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| TOTAL |  | |  |  | |  | |  |  | |  | |  |

OBSERVER NAME :

ID OBSERVER: SIGNATURE :

**LEMBAR PL-7. PEMINDAHAN IKAN DI LAUT**

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| **Menu Istilah di Borang** | **Penjelasan Cara Pengisian** |
| Halaman ... dari ... halaman | Diisi dengan nomor halaman dari keseluruhan jumlah halaman pada lembar 7. |
| Kapal Penangkapan Ikan | Memuat informasi kapal penangkapan ikan yang melakukan pemindahan ikan di laut |
| Nama Kapal | Diisi dengan nama kapal penangkap ikan dimana pemantau ditempatkan sesuai dengan surat tugas dan dokumen kapal bersangkutan (dapat dilihat pada SIUP,SIPI, Surat Ukur, Sertifikat Kebangsaan, Gross Akte) |
| Nama Nakhoda | Diisi dengan nama nakhoda / kapten kapal penangkap ikan yang mengoperasikan kapal bersangkutan (dapat dilihat di buku Sijil Awak Kapal, Daftar ABK (crew list) |
| Bendera | Diisi dengan tanda kebangsaan atau bendera kapal bersangkutan (dapat dilihat di Sertifikat Kebangsaan : Surat Laut atau Pas Tahunan) |
| No. SIPI | Diisi dengan nomor Surat Izin Penangkapan Ikan (SIPI) yang merupakan izin tertulis yang harus dimiliki kapal penangkapan ikan (dapat dilihat di dokumen SIPI) |
| Tanda Selar | Diisi dengan nomor dan kode yang memuat informasi ukuran isi kotor, nomor dan tempat penerbitan Surat Ukur Kapal (lihat di dokumen Surat Ukur, Gross Akte, Sertifikat Kebangsaan, SIUP, SIPI) |
| *RFMOs : WCPFC / IOTC / CCSBT* | Jika kapal penangkap ikan bersangkutan terdaftar pada RFMOs, pilihlah yang sesuai dan coret yang tidak sesuai (jika ada, dapat dilihat di lambung kapal) |
| No. Register  RFMOs | Diisi dengan nomor register keanggotaan yang dikeluarkan oleh Regional Fisheries Management Organizations (RFMOs) bersangkutan (dapat dilihat di lambung kapal) |
| Foto Lambung Kapal (Y/T) | Diisi dengan informasi dokumentasi foto kapal. Jika ada dokumentasi foto, pilihlah Y dan coretlah T. Jika tidak ada dokumentasi foto, pilihlah T dan coretlah Y. |
| No. Foto | Diisi dengan nomor foto kapal yang dilampirkan dalam borang sebagai data dukung |
| Kapal Pengangkut/Penyangga Ikan | Memuat informasi kapal pengangkutan ikan yang melakukan pemindahan ikan di laut |
| Nama Kapal | Diisi dengan nama kapal pengangkut ikan yang melakukan pemindahan ikan di laut dengan kapal penangkap ikan dimana pemantau ditempatkan (dapat dilihat pada SIKPI, Surat Ukur, Sertifikat Kebangsaan, Gross Akte, lambung kapal, bagian luar depan ruang kemudi atau ditanyakan ke nakhoda) |
| Nama Nakhoda | Diisi dengan nama nakhoda / kapten kapal penangkap ikan yang mengoperasikan kapal bersangkutan (dapat dilihat di buku Sijil Awak Kapal, Daftar ABK (crew list) |
| Bendera | Diisi dengan tanda kebangsaan atau bendera kapal bersangkutan (dapat dilihat di Sertifikat Kebangsaan : Surat Laut atau Pas Tahunan) |
| No. SIKPI | Diisi dengan nomor Surat Izin Kapa Pengangkut Ikan (SIKPI) yang merupakan izin tertulis yang harus dimiliki kapal pengangkutan ikan (dapat dilihat di dokumen SIKPI) |
| Tanda Selar | Diisi dengan nomor dan kode yang memuat informasi ukuran isi kotor, nomor dan tempat penerbitan Surat Ukur Kapal (lihat di dokumen Surat Ukur, Gross Akte, Sertifikat Kebangsaan, SIUP, SIKPI, bagian luar ruang kemudi atau lambung kapal) |
| RFMOs : WCPFC / IOTC / CCSBT | Jika kapal pengangkut ikan bersangkutan terdaftar pada RFMOs, pilihlah yang sesuai dan coret yang tidak sesuai (jika ada, dapat dilihat di lambung kapal) |
| No. Register RFMOs | Diisi dengan nomor register keanggotaan yang dikeluarkan oleh Regional Fisheries Management Organizations (RFMOs) bersangkutan (dapat dilihat di lambung kapal) |
| Foto Lambung Kapal (Y/T) | Diisi dengan informasi dokumentasi foto kapal. Jika ada dokumentasi foto, pilihlah Y dan coretlah T. Jika tidak ada dokumentasi foto, pilihlah T dan coretlah Y. |
| No. Foto | Diisi dengan nomor foto kapal yang dilampirkan dalam borang sebagai data dukung |
| Waktu dan lokasi pemindahan ikan | Memuat informasi waktu dan lokasi pemindahan ikan dilakukan |
| Tanggal | Diisi dengan tanggal dilakukan pemindahan ikan |
| Pukul | Diisi dengan waktu pemindahan ikan dilakukan dalam satuan jam |
| Lintang (dd-mm- ss) | Diisi dengan koordinat lintang pada saat dilakukan pemindahan ikan dalam satuan jam, menit dan detik (dd-mm-ss) |
| Bujur (dd-mm-ss) | Diisi dengan koordinat bujur pada saat dilakukan pemindahan ikan dalam satuan jam, menit dan detik (dd-mm-ss) |
| Spesies / kode dagang | Diisi dengan nama spesies atau kode dagang ikan yang dipindahkan |
| Tipe produk | Diisi dengan produk (ikan) yang dipindahkan sesuai tipenya |
| Berat (kg) | Diisi dengan berat ikan yang dipindahkan dalam satuan kg |
| Total | Diisi dengan jumlah total berat ikan yang dipindahkan dalam satuan kg |
| Nama Pemantau | Diisi dengan nama pemantau yang melaksanakan tugas pemantauan |
| ID Pemantau | Diisi dengan nomor ID Pemantau sesuai Keputusan DJPT |
| Tanda tangan | Diisi dengan tanda tangan pemantau yang melaksanakan tugas pemantauan |