MEASUREMENTS FOR EACH SPECIES
UF - UPPER JAW TO FORK IN TAIL (TUNA, SHARK)
LF - LOWER JAW TO FORK IN TAIL (BILLFISH) BL - BILL LENGTH (DEAD BIRDS)
TW - TOTAL WIDTH (TIPS OF WINGS - RAYS) WL - WING LENGTH ( DEAD BIRDS)
TL - TOTAL LENGTH - TO END OF TAIL (FISH WITH NO FORK IN TAIL)



Observer Name Vessel Name
Observer Trip ID
Page of
Start Set Date \& Time
SAMPLING DETAILS

| Sample | - Grab |
| :---: | :--- |
| type | - Spill |
|  | - Othe |

"OTHER" samples can only be one of: (use code)

Put first name first and last name (family name as it would be recorded in a passport) last.
Full name of vessel (no abbreviations)
Use number assigned to the observer by the Observer Programme, for this trip. E.g.: AZA 03-01
Number all the PS-4 forms in sequence from the start until the end of the trip.
Record the date and time that the ship is using, exactly as it is recorded on Forms PS-2 and PS-3.
Fill in only one of the three sampling option areas - GRAB, SPILL or OTHER.
In normal GRAB samples target 5 fish from every brail. If fish are large target 4 or 3 per brail. Record the target number. If SPILL sampling record the brail number being sampled. When finished record the number of samples taken from that brail

DA - all discards
DT - only discarded tunas
BS - bycatch - select species (one or more different species but not all species)
SS - Species of special interest. Include the sex with the length eg. "male" $26 \mathrm{~cm}=\mathrm{M} 26$, "unknown" $56 \mathrm{~cm}=\mathrm{U} 56$
LB - Live-fish Brailing - separate the samples on different pages if live fish brailing is used prior to standard brailing.
Brail times (start + end) Record when first brail came onboard (start) and when last brail came onboard (end) for transfer to Form PS-3.
Usually BRAIL 1., but a vessel may use different brails (see PS-1). The correct brail number recorded on the PS-4 form, must be the same brail number on the PS-4 form. (Remember - when you fill in the brail number on the PS-4 you are indicating the brail type and brail capacity as that was recorded on the PS-1 form. Use a new form when the brail is changed during a set. If two brail sizes are used: always prepare two forms, even if only measuring from one brail size, as the "sum of all brails" must be calculated for each brail size separately!

Forms used this sample: Target samples per brail
Measuring instrument
Record forms used only for this sample as "number of the form used" out of "total used". Eg.: "1 of 3", "2 of 3". If "normal" sampling, record No. of fish observer tried to measure from each brail. If not normal sampling dash it. Record whether callipers, flat ruler or deck tape was used. N.B. - do not use tape measures.
Callibrated this set?

Comments on Protocol Did you check the zero of the measuring instrument. When zeroed was the intrument reading more or less than zero e.g. $'+4 \mathrm{~mm}$ '. If the callipers shows a length that is 30.4 cm when the true length is 30 cm . Record ' +4 mm '.
Explain why you sampled as you did, especially if you tick "Other" or collect two samples. Were their any problems? If conditions allow during GRAB sampling, experienced observers are asked to use two forms when brailing mixed tuna sets - one for "GRAB" species composition and the second for "OTHER - BET/YFT only" species composition sampling.

Brail tallies
Total No. of Brails
Sum of ALL Brails
Record a tally mark for every full, $7 / 8,3 / 4$ (etc)., brail that comes onboard. Tally counts and write totals in boxes. a simple count of all the brails that came onboard, whether full or not full. Add numbers in all corner boxes together. must be calculated using the work area below. If two brail sizes are used, calculate each one on a separate form.
Brail pattern - fullness and samples - record a fullness code (1-8) and the number of fish measured for every brail that comes on board
MAIN BLOCK
Species Code 1-120 Record species measured fish in the order they are sampled - follow field numbers down one column and then the next, etc.
Column totals To ease adding the lengths of each species in the entire sample first count each species and add the lengths of each species in each column, then add totals from each column together before making the average length calculations.

AVERAGE LENGTH CALCULATIONS (these totals are also used to check data entry, so must be accurately added)
A Number Sampled
B Sum of Lengths

C Average Length $\quad$| Write in the total number of each species that were sampled in this set (add the column totals for a species). |  |
| :--- | :--- |
|  | Add lengths of each species sampled in each column then add the column totals for each species together. |
| To get the "average length" (C) of each species in the sample divide the "sum of lengths" (B) by the "number sampled" (A). |  |

## IMPORTANT POINTS ON THE SAMPLING PROTOCOL

1 For most sets observers carry out either a "Grab" or a "Spill" sample, as they have been drected and are equipped to do.
If grab sampling spread sampling throughout the entire brailing process. Try to take 5 tuna from every brail. If a specimen is missed occasionally try to get an extra one from the next brail but try to keep the number of tuna steady throughout the sampling process.
If brailing is too fast measure less than 5 tuna per brail but try to sample the same number from every brail. If problems describe in comments.
3 Always get a random sample. Don't choose fish just because they are the easiest size to handle or you haven't had one like that yet.
4 Do not include measurements from fish that crew select even though they are trying to help.
5 IT is very, very important to correctly identify juvenile yellowfin and bigeye tuna!
6 If using a deck tape, ensure one end is placed against a flat surface or has a nose block. Make sure the end of the tape starts at 0 cm .
If using deck tape, make sure fish is straight on tape when measuring. Never bend tail down to measure. Look directly over top of tail.
7 Do not measure damaged fish.
8 Record lengths to the nearest centimetre below e.g. a 69.9 cm fish will be recorded as 69 cm .
9 ALWAYS record all species and lengths in full and in order. Follow the numbered order. Do not use ditto marks !
10 If taking an "Other" sample, start a new PS-4 page, tick "Other" and write what that other is.
Most often this will be lengths from every species still on deck, ready to throw away after brailing is ended. Record as "all discards". Remember to still collect specimens at random, as trained. Do not be tempted to choose different (or same) sizes.
N.B. - "All discards" includes target discards (SKJ-YFT-BET) and bycatch discards. "All discard bycatch" is for sampling only bycatch discards. Usually an "Other" sample is collected after, or along with, a "Normal" sample but it could also be collected as an only sample.

## How many?

Full and part brails - get these numbers from the "No." boxes of each tally box.

Equivalent full brails (use a calculator!)


