Tag recovery
Manual for Observers

Got Tags?

Table of Contents

About the Pacific Tuna Tagging Program

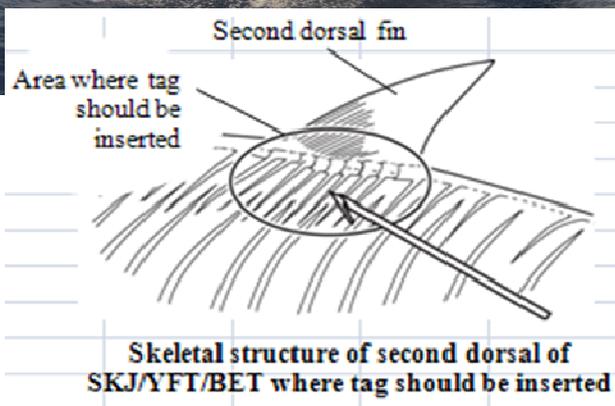The objectives of the program are to obtain:
- data that will help provide more accurate stock assessments of tuna in the western and central Pacific Ocean (WCPO);

- information on movement and mixing of tuna in the equatorial WCPO, between this region and adjacent regions of the Pacific, and the impact that fish aggregating devices (FADs) have on movement over large and small areas throughout the region;

- information on the depths that different tuna species- live and move within in the tropical WCPO, and the impacts of FADs on this vertical behaviour;

- information on local exploitation rates and productivity of tuna in various parts of the WCPO.

To achieve these objectives, the project used tags on skipjack, yellowfin and bigeye tuna throughout the equatorial WCPO (10°N–10°S; 120°E–130°W). A chartered commercial pole-and--line vessel suitably modified for tagging operated for 20 months, primarily in the western part of this region (west of 180°). Other smaller chartered vessels undertook shorter cruises of 1–2 months in the central Pacific, targeting bigeye tuna by hand-line fishing on drifting FADs, oceanographic moorings and seamounts.

Three types of tag are used in the project:
- archival tags to measure a range of environmental parameters,
- sonic tags used in monitoring the behavior of tuna around FADs;
- conventional tags (the most commonly used type) to monitor movement, growth and fishery interaction studies or just to indicate the presence of the other types of tags.

Getting a maximum return of recaptured tags is crucial to the success of this work. Wide publicity, attractive rewards, lotteries, in-country tag -recovery officers and tag- seeding experiments are conducted to achieve (and verify) high rates of tag reporting. Tag releases and returns are processed and stored in an established database. Tag- return data are cross--checked against other data sources (logsheet, vessel monitoring systems) to verify reported data and estimate missing data. The work to collect tag recovery data and to verify, correct and compile those data contributes to the conservation and management of the WCPO tuna fishery, one of the world's largest capture fisheries.

Second dorsal fin

Area where tag should be inserted

Skeletal structure of second dorsal of SKJ/YFT/BET where tag should be inserted

Tags are placed behind the second dorsal fin in the fin spines located there. This anchors the tag in the muscle and between the dorsal fin spines (the pterigyophores) to hold it in place.

What are the different tags used

Conventional dart tags

Conventional dart tags are composed of a composite plastic barbed head with a polyvinyl plastic streamer/ shaft. The tag series number is written at both ends of the streamer, along with the legend 'SPC NOUMEA – REWARD – www.spc.int/tagging'.

Four colours of conventional tags were used for this project:

- **Yellow** conventional tags were the standard tags used. Two different sizes of yellow tags have been used depending on the size of the tuna when tagged and released.

- **Orange/Red** conventional tags were used to indicate that an archival tag was placed in the abdominal cavity of the tagged tuna on other cruises.

- **Green and white:** These tags may signify a special project that may require special handling or sampling requirements. In such case, the tag release agency should be contacted for clarification.
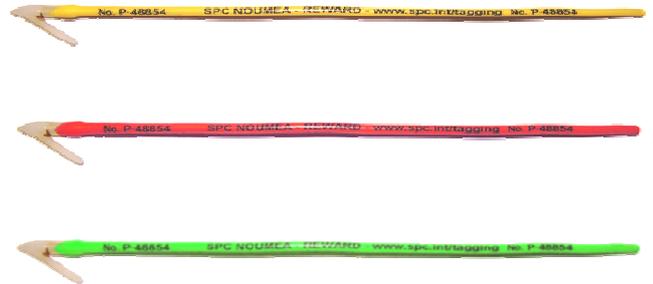
When the tag is removed from the fish, make sure none of it remains inside the fish!
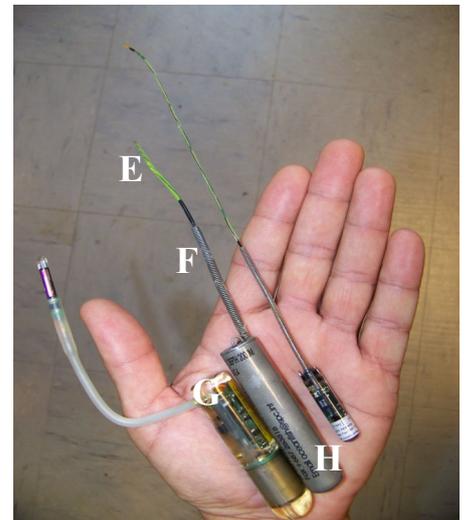
Archival tags

Archival tags are miniature computerised data recorders that are surgically implanted into the peritoneal cavity of a tuna. Archival tags measure a range of parameters, including water pressure, water temperature, light intensity and the internal body temperature of the tagged tuna. These parameters are often recorded every minute and the information is stored into the tag memory. The tag needs to be retrieved to get the information.

E – Light sensor.
F – Thermometer to record water temperature
G – Internal clock, internal temperature thermometer and data storage.
H – Battery

An orange or green dart tag indicates that the fish also carries an archival tag. The archival tag will be located in the peritoneal cavity and can be further identified by the stalk/antenna protruding externally from the peritoneal cavity.

Tag Seeding

Tag seeding with steel head conventional tags is conducted by senior observers only on purse-seine vessels. It is used to measure tag reporting rates in locations where purse-seine catches are unloaded or trans-shipped.

Steel head tags are secretly deployed by the observer. If an observer deployed some tags before your trip and that the crew finds them while you are onboard, do not inform them that tag seeding was conducted and upon recovery proceed in the same fashion as genuine tag recovery. Fish can be single tagged or double tagged. When removing the tag, be sure that the steel head doesn't remain in the flesh of the fish.

What to do if you find a tagged tuna

There are three kinds of situation in which you can come across a tag. A tag can be found (1) on a fish during fishing time or (2) on a fish during well transfer/unloading, or (3) a crew member can hand you a tag recovered previously. For each situation there is a specific procedure that you should follow.

> **FOR ALL TAGS RECOVERED ONBOARD DURING YOUR TRIP, EVEN IF YOU ARE NOT THE FINDER, THE RECOVERY INFORMATION MUST BE RECORDED IN YOUR WORKBOOK.**
>
> **DO NOT REMOVE THE FORM FROM YOUR WORKBOOK!**
> **BUT PROVIDE A COPY OF THE INFORMATION TO THE FINDER**
> (either by using the tag recovery envelopes or by copying the data on another paper or forms).

What do you do if you find a tagged fish during fishing time?

- Ask permission to put the fish aside.
- Verify that there is no archival tag in the belly. You should be able to see the antenna of the archival tag sticking out. Remove the archival tag by cutting the fish from the anus toward the gills (a small cut will be enough; do not pull the antenna).
- Measure the fish. If possible weigh the fish.
- Remove the tag entirely from the fish. Make sure that the dart doesn't remain inside the flesh of the fish.
- Fill in the tag recovery form and report the exact date and position of the catch.
- If you have access to a freezer, you can collect biological samples (otoliths, first dorsal spine, stomach, gonads, muscle, liver).

What do you do if you find a tagged fish during a well transfer or trans-shipment?

- Ask permission to put the fish aside.
- Note the <u>well number</u> and tag number.
- Verify that there is no archival tag in the belly. You should be able to see the antenna of the archival tag sticking out. Remove the archival tag by cutting the fish from the anus toward the gills (a small cut will be enough; do not pull the antenna).
- Measure the fish. If possible weigh the fish.
- Remove the tag entirely from the fish. Make sure that the dart doesn't remain inside the flesh of the fish.
- Fill in the tag recovery form and if there were several sets in the well, report the period and position that includes all the sets.
- If you have access to a freezer, you can collect biological samples (otoliths, first dorsal spine, stomach, gonads, muscle, liver).

What do you do if a crew member gives you a tag?

- Ask when the crew member found the tagged fish and other questions as necessary to gather information relative to the recovery. If you do not have the precise date when the tag was found, you can at least enter the month and the year of the catch.
- If the catch position cannot be retrieved, at least try to describe the region where the tagged fish was caught.
- If the crew gives you an approximate date, try to access the vessel's logbook to find out where the boat was around that date and use the estimate section of the form to report the position.
- Note all the recovery information in your workbook, and provide a copy to the finder (report data on another form, or tag recovery envelope). Do not take the tag from the finder.
- On your tag recovery form, in the section 'Tag provided with this form' place a cross in 'No' and specify where the crew member will collect the reward.
- Upon arrival at port you can provide assistance to the crew member to collect the reward.

How to fill out the tag recovery form

The tag recovery form is used to record the data associated with the recapture of a tagged tuna and the recovery information. It is important that the information be as accurate as possible. Sometimes part of the data will not be available, but later it may be possible for others to trace it using the additional information recorded on the form. This form consists of seven sections. Examples are provided to demonstrate how to complete it. There is also a multiple tag recovery form, which can be used when up to eight tags are recovered at the same time, on the same day.

SPC TAG RECOVERY FORM

REVISED SPC -Nov 2011

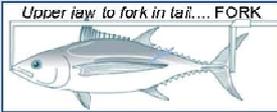**Caution: when the tag is removed from the fish, be sure none of it remains inside the fish.**

CRITICAL TAG INFORMATION

TAG NUMBER:		DATE WHEN TAG FOUND:	DD	MM	YY

1
WHERE FOUND: ☐ Fishing vessel   ☐ Reefer / Transfer / Carrier   ☐ Port Fish market   ☐ Cold storage

ACTIVITY WHEN FOUND: ☐ Fishing   ☐ Transfer / Transhipment   ☐ Unloading at port   WELL NUMBER WHERE FISH FOUND: (If Applicable)

FISH INFORMATION

2
SPECIES: _____   SPECIES RELIABILITY: ☐ Confirmed   ☐ Guessed

Upper jaw to FORK LENGTH (UF): ___ cm   NO length information ☐   HOW MEASURED? ☐ Measuring tool   ☐ Estimated

WHO MEASURED? ☐ Port sampler   ☐ Observer   ☐ Other... Please specify:

PROCESSED STATE WHEN MEASURED: ☐ Fresh   ☐ Frozen   ☐ Frozen then thawed

FISH WEIGHT ___ kg   NO weight information ☐   HOW WEIGHED? ☐ Measuring tool   ☐ Estimated

PROCESSED STATE WHEN WEIGHED: ☐ Whole weight   ☐ Gilled & gutted   ☐ Other... please specify:

Upper jaw to fork in tail.... FORK

FISH CATCH INFORMATION / Date and position when fish was caught by the fishing vessel

3
DATE   Exact ☐ | DD MM YY   Estimated ☐ From | DD MM YY to | DD MM YY

POSITION   Exact ☐   Latitude: dd mm.mmm N/S   Longitude: ddd mm.mmm E/W

Estimated ☐ Record 2 lines of latitude and 2 of longitude to form box in which tag was likely recovered
Latitude Max/Min: dd mm.mmm N/S
Longitude: ddd mm.mmm E/W

or DESCRIBE FISHING AREA:

FISHERY INFORMATION (Catcher / Fishing vessel that caught the tagged fish)

4
VESSEL NAME: _____   FLAG: _____

FISHING METHOD: ☐ Longline   ☐ Purse seine   ☐ Troll   ☐ Handline   ☐ Gill net   Other: _____

SCHOOL TYPE: ☐ Log   ☐ Free school   ☐ Anchored FAD   ☐ Drifting FAD   FAD no: _____

TRANSSHIPMENT INFORMATION/ Carrier only (if tag found during set share/transhipment/unloading)

5
NAME OF CARRIER: _____   FLAG: _____   DATE OF TRANSSHIPMENT FROM FISHING VESSEL TO CARRIER: DD MM YY to DD MM YY

LOCATION OF TRANSSHIPMENT FROM FISHING VESSEL TO CARRIER (EEZ/Port): _____   TRANSHIPMENT POSITION: Latitude dd mm.mmm N/S   Longitude ddd mm.mmm E/W

FINDER INFORMATION / finder details for lottery

6
FINDER NAME: _____   FINDER ADDRESS: _____

COUNTRY OF RECOVERY: _____   RECOVERY INFORMATION RECEIVED AT (Cannery/Company/Agency name): _____

TAG PROVIDED WITH THIS FORM ☐ Yes   ☐ No   (tag kept by finder for reward purpose) IF NO, specify expected reward location for finder (Port/Country):

TYPE OF REWARD ☐ Not given   ☐ T-shirt   ☐ Cap   ☐ Cash - amount: _____   FORM COMPLETED BY: _____

7
COMMENTS:

ARCHIVAL TAG NUMBER (If applicable):

Type of tag	Reward
Yellow tag, Orange tag or Green tag	– 10$ or Cap or T-shirt
Internal archival tag	– 250$

Critical tag information (1)

Tag number: This is a required field. Every conventional tag has a series number printed on both ends. Write down the **full series number including the single letter prefix**. If you have an archival tag, the series number is written on the archival tag itself; record this series number in the comments.

Date when tag was found: Note the date when you found the tag. This can be during fishing time, during well transfer or trans-shipment. Use two digits each to write the day, month and the year (DD/MM/YY) e.g. the 3rd of June 2011 would be written as 03/06/11. **If you don't have an exact date, place a dash in the day field and note the month and/or year.** The date for when the tag was found can be different from when the tagged fish was caught. Indeed sometimes crew can keep the tag for a long time before they give it to an observer. This information can help us to determine when the fish was caught.

Where found: Where was the fish when the tag was found. If you find the tagged fish onboard and frozen in a well, tick 'Fishing vessel' and 'Cold storage'. If it is inside the cold storage of a carrier, tick 'Carrier' and 'Cold storage'.

Activity when found: What was the vessel/crew doing when the tagged fish was found? "Processing" is related to butchery or when the fish is gilled and gutted, but it does not refer to sorting fish during storage in the well. "Transfer" is when the fish is either transferred to a carrier or when it is transferred from one well to another inside the vessel

Well number Where found: If the tagged fish was found in a well, note the number and position of the well. Eg: Starboard side well # 2: S2. If the tagged fish is recovered on a fish carrier, note the well number it came from. Ask to obtain the carrier storage plan which details the fishing vessels that unloaded their catch onto the carrier. This will allow to determine where and when the tagged fish was caught.

Example 1: A tagged fish is found during fishing time on the 26th of August 2011. The tag number is P-234516. According to this example, this is how this section of the form should be filled in.

Fish information (2)

Species: The three main species tagged during the field work are **skipjack, yellowfin and bigeye tuna**. If the tag finder returns the tags only, ask him or her for the species.

Species reliability: If the tag finder is not sure of the species, then tick the 'Guessed' box in the species reliability section. If the finder is sure and you are confident that the information is reliable then tick the 'Confirmed' box.

Fork length: *If the length of the fish hasn't been measured*
Tick the 'No length information' box and go to the next section.
If the length can be measured or has been measured
Take the measurement from the upper jaw to the fork in the tail (UF). It must be given in centimeters. Round down to the nearest cm; eg: 65.4 cm= 65cm.

How measured: Was the measurement an estimate or was the measurement taken using a measuring board, a ruler, a deck tape or a caliper? If the measurement was taken with a piece of string, or by eye, tick the 'Estimated' box.

Processed state when the fish was measured : How was the fish when it was measured – was the fish fresh, frozen, previously frozen but then thawed (defrosted) ?

Fish weight: If the weight of the fish hasn't been measured, tick the 'NO weight information' box and go to the next section. If a weight can be taken on board or at port, note the exact weight in kilogram and grams; eg: 2.8 kg.

How weighed: Is the weight an estimate or was it obtained more precisely, using scales? If the weight was estimated by using a length/weight relation, please tick the 'Estimated' box and add a comment explaining that you used a length/weight relation.

Processed state when weighed: Record the state of the fish when it was weighed, e.g. whole, gilled and gutted or in some other processed state.

Example 2: During fishing time, an observer found a tagged yellowfin tuna, which was identified with certainty and was measured at 58 cm using a caliper. It was weighed whole at 6.4 kg using the vessel's scale. According to this example, this is how this section of the form should be completed.

Fish catch information (3)

It is very important to determine the date when the fish was caught.

A tagged fish is either found:

(A) During fishing time; or

(B) After fishing time.

(A) Date and position when tagged fish is found during fishing time (from a single set):

In the case of a tagged fish found during fishing time, the date and position of the set can be reported on the form.

Exact Date: Tick the 'Exact' box and enter the exact ship's date. Use two digits each to write the day, month and the year (DD/MM/YY).

Exact Position: Tick 'Exact' box and report the position. This position will be the same as the start of the set. Latitude and longitude are reported in degrees and decimal minutes. In such case, there is no need to complete the other side of this section (when date and position are estimated).

Example 3 – Position and date of a single set: A tagged tuna was found during fishing time on the 26th of August 2011; the position for the start of the set was 03°56.450N and 158°5.300E.

FISH CATCH INFORMATION / Date and position when fish was caught by the fishing vessel

| DATE | Exact ☒ | 26 08 11 | Estimated ☐ From | to |

POSITION — Exact ☒ Latitude 03° 56 .450 N / Longitude 158° 25 .300 E

Estimated ☐ Record 2 lines of latitude and 2 of longitude to form box in which tag was likely recovered

or DESCRIBE FISHING AREA:

(B) Date and position when tagged fish is found after fishing time (from several sets):

This is the case when a tagged fish is found by either a crew member, stevedores or observers when transferring fish from one well to another or during trans-shipment and unloading. If the well contains only one set, you can retrieve the exact date and position (see previous section). However, if the well contains several sets, you will need to record the date and position of each set (because you don't know which set the tagged fish came from).

Estimate date: Tick the 'Estimated' box and write down the period that includes all the dates of the sets that are present in the well. Use two digits each to write the day, month and the year (DD/MM/YY).

Estimate position: Tick the 'Estimated' box and enter two latitudes and two longitudes outlining an area that encompasses all of the sets present in the well. Latitude and longitude are reported in degrees and decimal minutes.

Examples 4 to 7 on the next pages show to complete this section of the form based on different scenarios.

⚠️ Navigation Reminder

Be aware that on a chart when facing the 180°meridian, the lines of longitude West are on the right side of the chart and the lines of longitude East are on the left side of the chart.

On the left of the 180°meridian, the number of degrees East increase as you move towards the East.

On the right of the 180°meridian, the number of degrees West decrease as you move towards the West.

180°

Lines of longitude heading East   Lines of longitude heading West
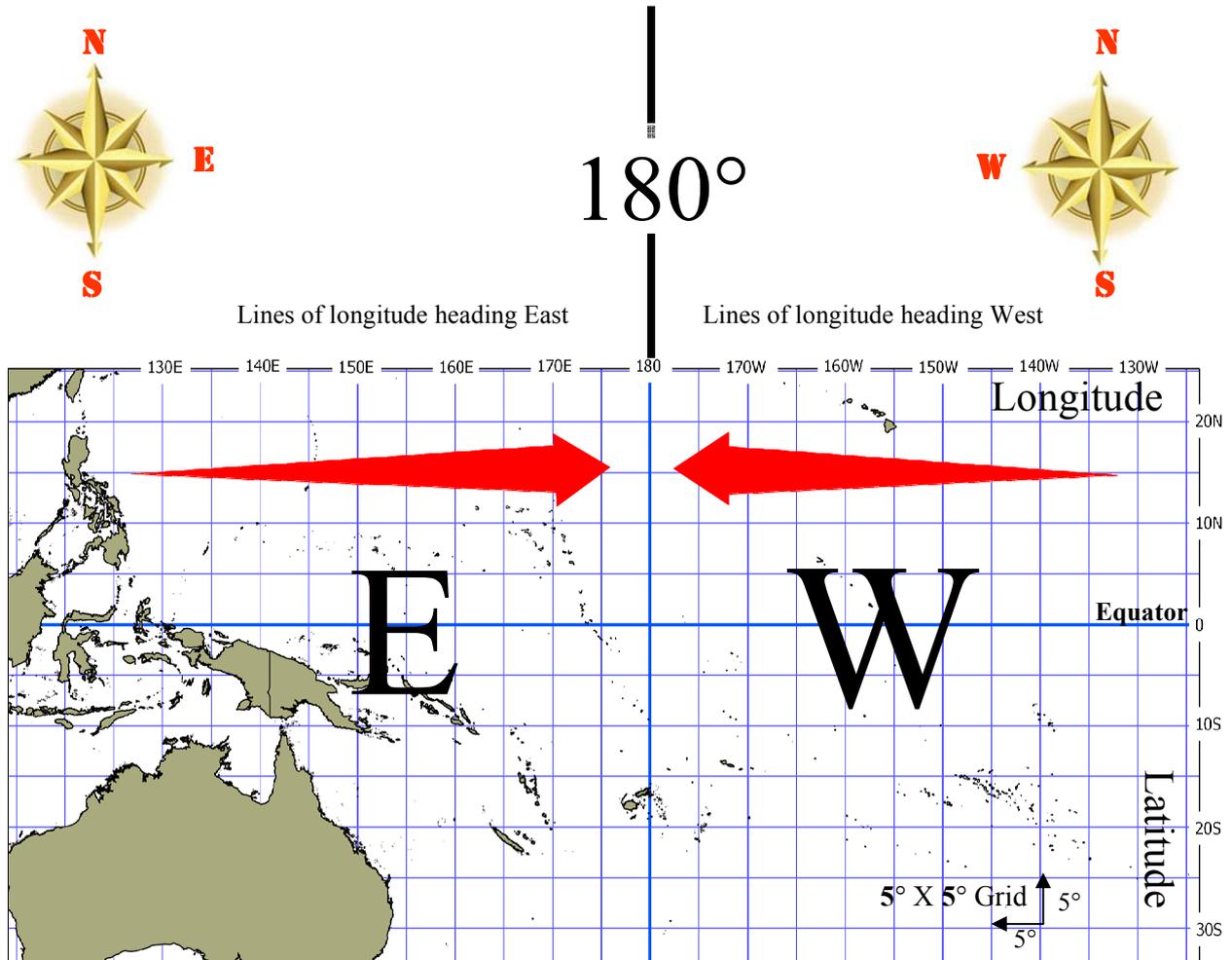
NOTES: (use your own words to remember how to use the chart):

The well contains six sets:
Set 1 date: <u>01/03/11</u> position: **05°02.500N** and 146°10.000E
Set 3 date: 08/03/11 position: 02°50.100N and ***145°12.300E***
Set 5 date: 10/03/11 position: 02°48.200N and 147°30.000E
Set 7 date: 11/03/11 position: ***00°50.600N*** and 148°30.150E
Set 8 date: 13/03/11 position: 04°20.300N and 148°50.750E
Set 12 date: <u>15/03/11</u> position: 04°00.400N and **150°20.450E**

MIN° and MAX° N

MIN° and MAX° E

How to fill the 'Estimated' section

Date: You need to find out the time period when the tuna was likely caught. Look at the dates for the first set (set 1) and the last set (set 12). Since the well was composed of six sets which were fished between 01/03/11 and 15/03/11, tick 'Estimated' and write down '01/03/11 to 15/03/11', which corresponds to the period when the tagged fish was caught.

Position: All the <u>sets were deployed on the latitude North and the longitude East</u> which makes it easy to determine the minimum and maximum latitude and longitude.
In this example the minimum and maximum latitude is equal to the lowest N position and the highest N position, and the minimum and maximum longitude are equal to the lowest E position and the highest E position.

<u>Select the lowest and highest North position and the lowest and higher East Position.</u>
Go back to the list of sets above, look down the latitude until you find the lowest number (in bold italic) and the highest number (in bold). Then look down the longitude and also find the lowest and highest number.
The minimum latitude is from the set 7 (00°N – the lowest North value);
The maximum latitude is from the set 1 (05°N – the highest North value);
The minimum longitude is from the set 3 (145°E – the lowest East value);
the maximum longitude is from the set 12 (150°E – the highest East value).
Once you have found these positions, report them on the form and tick the 'Estimated' box.

<u>Note</u>: The minimum and maximum latitude and longitude don't have to be from the same set.

nt by the fishing vessel

		DD	MM	YY	to	DD	MM	YY
☒	From	01	03	11	to	15	03	11

Record 2 lines of latitude and 2 of longitude to form box in which tag was likely recovered

			dd	mm.mmm	N/S		ddd	mm.mmm	E/W
Latitude	Min Max		05°	02.500'	N	Longitude	150°	20.450'	E
			00°	50.600'	N		145°	12.300'	E

10

MAX°
N

MIN°
W

MIN°
E

S
MAX°

The well contains 6 sets:
Set 1 date: 01/07/11 position: 01°20.500N and **176°10.200E**
Set 3 date: 04/07/11 position: **04°00.100N** and 179°59.900E
Set 7 date: 07/07/11 position: 02°00.200N and ***177°30.000W***
Set 9 date: 10/07/11 position: 02°50.600S and 178°30.150W
Set 11 date: 12/07/11 position: ***03°20.400S*** and 179°50.750W
Set 14 date: 15/07/11 position: 02°40.400S and 179°59.900W
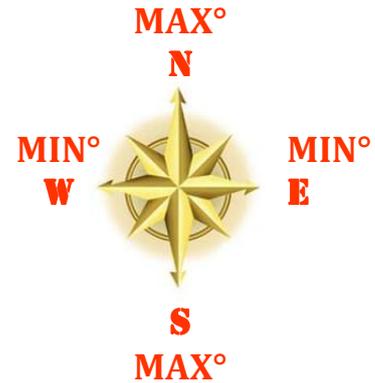
How to fill the 'Estimated' section

Date: Look at the dates for the first set (set 1) and the last set (set 14). Since the well was composed of six sets, which were fished between 01/07/11 and 15/07/11, tick 'Estimated' and write down '01/07/11 to 15/07/11', which corresponds to the period when the tagged fish was caught.

Position: The sets were deployed on both side of the 0° of latitude and on both side of the 180° longitude, which can be confusing.
In this example the minimum latitude is equal to the highest South position, the maximum latitude is equal to the highest North position. The minimum longitude is equal to the lowest East on the left on the left of a chart , and the maximum longitude is equal to the lowest West position on the right of the chart.

Select the highest South and North position, and the lowest East and West position.
Go back to the list of sets above and look down the North positions until you find the highest number (in bold) then look down the South positions until you found the highest number (in bold italic). Look down the East positions until you find the lowest number (in bold) then look down the West position until you found the lowest number (in bold italic)
The minimum latitude is from the set 11 (03°S – the highest South value);
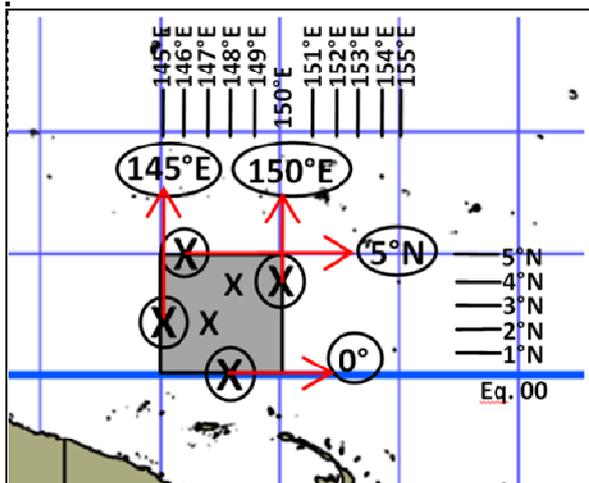The maximum latitude is from the set 3 (04°00.100N – the highest North value);
The minimum longitude is from the set 1 (176°10.200E – the lowest East value);
The maximum longitude is from the set 7 (177°W– the lowest West value).
Once you have found these positions, report them on the form and tick the 'Estimated' box.
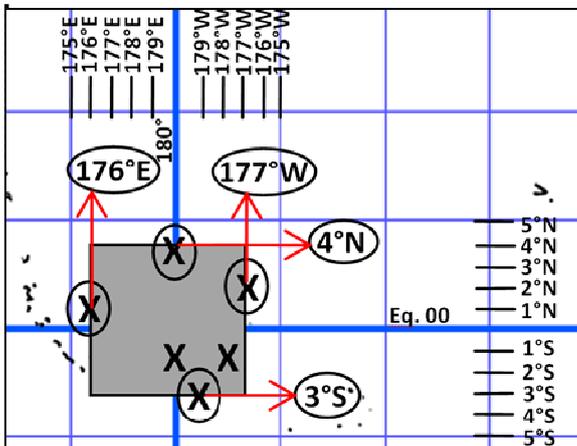
Note: In this example, it is better to use the map.
Plot the sets and make sure the extreme positions that outline the area are reported on the form.

ht by the fishing vessel

		DD	MM	YY		DD	MM	YY
✗	From	01	07	11	to	15	07	11

Record 2 lines of latitude and 2 of longitude to form box in which tag was likely recovered

	dd	mm.mmm	N / S		ddd	mm.mmm	E / W
✗ Latitude Min Ma	04°	00.100'	N	Longitude	176°	10.200'	E
	03°	20.400'	S		177°	30.000'	W

Example 6 – Sets deployed N, S and E: A tagged fish was found during unloading. The well it was found in was composed of the following sets:

Set 1 date: <u>05/04/11</u> position: **04°40.500N** and 155°10.000E
Set 3 date: 12/04/11 position: 02°30.100N and **158°25.300E**
Set 7 date: 15/04/11 position: 01°00.200S and 157°30.000E
Set 9 date: 17/04/11 position: *03°50.600S* and 156°30.150E
Set 11 date: 19/04/11 position: 01°20.400S and 155°50.750E
Set 14 date: <u>22/04/11</u> position: 02°00.400N and *152°20.450E*

How to fill the 'Estimated' section

Position: The <u>sets were deployed on both side of the 0° of latitude but all in longitude East.</u>
In this example the minimum latitude is equal to the highest South position and the maximum latitude is equal to the highest North position. The minimum and maximum longitude are equal to the lowest and highest East positions.

<u>Select the highest South and North position, and the lowest and highest East position:</u>
Go back to the list of sets above and look down the North positions until you find the highest number (in bold) then look down the South positions until you find the highest number (in bold italic). Look down the East positions until you find the lowest number (in bold) then find the lowest number (in bold italic)
The minimum latitude is from the set 9 (03°S – the highest South value);
The maximum latitude is from the set 1 (04°N– the highest North value);
The minimum longitude is from the set 14 (152°E– the lowest East value);
the maximum longitude is from the set 3 (158°E– the highest East value).

was caught by the fishing vessel

			DD	MM	YY		DD	MM	YY
Estimated	✗	From	*05*	*04*	*11*	to	*22*	*04*	*11*

Estimated ✗ Record 2 lines of latitude and 2 of longitude to form box in which tag was likely recovered

		dd°	mm.mmm	N/S		ddd°	mm.mmm	E/W
Latitude	Min Max	*04°*	*40.500*	*N*	Longitude	*158°*	*25 .300'*	*E*
		03°	*50 .600'*	*S*		*152°*	*20 .450'*	*E*

Example 7 – Sets deployed in an approximated zone: A crew member hands you a tag that he or she says was found during fishing time when the vessel was fishing between Manus Island and Kavieng in PNG. The crew member recalls that it was some time in October 2011.

How to fill the 'Estimated' section

Date: Since it was some time in October 2011, report 01/10/11 and 31/10/11, a range that includes all days in October.

Position: In this example, the observer should provide the outline for the geographic zone described by the crew. To determine this outline it is best to use the map. Also note the information provided by the crew member in the section 'describe fishing area'.

position when fish was caught by the fishing vessel

	MM	YY				DD	MM	YY		DD	MN	YY
			Estimated	✗	From	*01*	*10*	*11*	to	*31*	*10*	*11*

Estimated ✗ Record 2 lines of latitude and 2 of longitude to form box in which tag was likely recovered

			dd	mm.mmm	N/S		ddd	mm.mmm	E/W
Latitude	Max		*01°*	*00 .000*	*S*	Longitude	*150°*	*00 .050'*	*E*
	Min		*03°*	*00 .000*	*S*		*148°*	*00 .000'*	*E*

Between Manus Island and Kavieng (PNG)

Fishery information (4)

Vessel name: It is important to record the name of the vessel that recaptured the tagged tuna. Do not record an abbreviated name; use the full name every time. Be aware that your data are used by a lot of people who will not know the local names for vessels.
If you find a tagged fish on a carrier, provide the name of the fishing vessel that caught the tagged fish and not the carrier name (refer to the carrier storage plan and well number).

Vessel flag: The vessel's country of registration should be easily picked up from the marking on the transom (back) of the boat. The nationalities of the captain and crew may be unrelated to the country of registration of the vessel.

School type: Fill in the appropriate school type and don't forget to add any FAD number if available.

Fishing method: The fishing method used to catch the fish (if the crew do some hand-line fishing onboard a purse-seine vessel, report that it was hand-line and not purse-seine).

Trans-shipment information (5)

This section will be only completed if you find a tagged fish during trans-shipment or set share or inside a carrier.

Name of carrier: Write down the unabbreviated name of the carrier.

Dates: Note the start and end dates of the trans-shipment. If it only lasted a day, then write the same date in both fields.

Location: Record the port where the trans-shipment took place or if at sea the EEZ.

Position: Record the latitude and longitude of the trans-shipment only if it happens at sea.

Example 8 – Two day trans-shipment in port: A tagged fish is found during a trans-shipment in Wewak (PNG port). The trans-shipment was conducted during two days between 06/08/11 and 07/08/11 on the Philippino carrier Galaxinia 888.

Example 9 – One day trans-shipment at sea: A tagged fish is found during a trans-shipment at sea in FSM waters. The trans-shipment was conducted on 08/09/12 on the Chinese carrier Tai Xing.

Finder information and comments (6 and 7)

Finder's name: The name of the finder is important for us to know who to send tag return rewards to. Also, tag lotteries are conducted regularly and only tags with names of finders enter this lottery.

Finder's address: This is important so we are able to get in contact with tag finders in order to pay tag return rewards and in the case of tag lotteries, contact winners. If the finder has no address, note down the company's address.

Port of recovery: This is the port where the recovery was reported. If you find the tagged fish in the Marshall Islands exclusive economic zone but the boat unloads in Tarawa, the port of recovery will be Tarawa.

Recovery information received at: Name or contact details of the Coordinator, Tag Recovery Officer, cannery, or company that collected and compiled the recovery details concerning a tagged fish. In the case where you compile the information, note your name.

Tag provided With this form: In some cases, the finder will need to keep the tag to claim the reward in a major port where a TRO is present. Here you need to mention if the recaptured tag was provided or not with the form. Tick 'Yes' or 'No'. If 'No', please try to indicate in which port the finder would likely hand the tag back for reward purposes.

Type of reward: For each tag reported there is a reward (see tag reward poster at the end of this manual). It is important to ensure that tag finders are quickly given rewards and are therefore happy to continue returning recaptured tags and providing us with the necessary information associated with tag recaptures. If you are an Observer, you should help the crew to meet the Observer Coordinator or the Tag Recovery Officer to collect his reward. All Tag Recovery Officers are listed by country at the end of the form and they are able to collect forms and give rewards. Try to ensure that recovered tags are reported as soon as you get to port.

Form completed by: Please write down the name of the person who filled out the form.

FINDER INFORMATION / finder details for lottery					
FINDER NAME: *Joselito Zamora*			FINDER ADDRESS: *Frabelle PNG ltd*		
COUNTRY OF RECOVERY: *PNG*			RECOVERY INFORMATION RECEIVED AT (Cannery/Company/Agency name): *Obs Linsay Kovero*		
TAG PROVIDED WITH THIS FORM	☐ Yes	☒ No	(tag kept by finder for reward purpose) *IF NO, specify expected reward location for finder (Port/Country):* *Madang*		
TYPE OF REWARD	☐ Not given	☐ T-shirt ☐ Cap	☒ Cash - amount: *30 PGK*	FORM COMPLETED BY: *Obs Linsay Kovero*	

COMMENTS:

No. P-48854   SPC NOUMEA - REWARD - www.spc.int/tagging No. P-48854

ARCHIVAL TAG NUMBER (If applicable):

Summarizing the tag recovery form

REVISED SPC - Nov. 2011

Note the 1st date when the tag has been found. If you dont have an exact date, place a dash in the day field and note the month and/or year.

If there is more than 1 tag recovered during the trip, number each page.

TAG NUMBER:

DATE WHEN TAG FOUND: DD MM YY

where did you find the tagged fish?

WHERE FOUND:

☐ Port
☐ Fish market
☐ Cold storage

ACTIVITY WHEN FOUND:

What were you doing when you found the tagged fish?

☐ Unloading at port

WELL NUMBER WHERE FISH FOUND: (If Applicable)

If tagged fish is found during transfer/transhipment, note the well number.

FISH INFORMATION

Are you sure about the identification?

SPECIES: Specie code

SPECIES RELIABILITY: ☐ Confirmed ☐ Guessed

Upper jaw to **FORK LENGTH**

NO length Information [X]

If there is no length, place a cross and move to the next section.

If there is no weight, place a cross and move to the next section.

☐ Other... *Please specify:*

PROCESSED STATE WHEN MEASURED: ☐ Fresh ☐ Frozen ☐ Frozen then thawed

FISH WEIGHT **NO weight information** [X] **HOW WEIGHED?** ☐ M

Choose one option to describe the processed state.

PROCESSED STATE WHEN WEIGHED: ☐ Whole weight ☐ Gilled & gutted ☐ Other... *please specify:*

kg

If you know exactly when and where the fish was caught.

If you find the tagged fish in a well composed of several sets or if the finder is not sure of position and date of catch.

		DD	MM	YY			DD	MM	YY
DATE	Exact [X]	05	02	11	**Estimated** [X] From	01 03 11	to	15	03 11

Record 2 lines of latitude and 2 of longitude to form box in which tag was likely recovered

POSITION	Exact [X]	dd	mm.mmm	N/S	**Estimated** [X]		dd	mm.mmm	N/S		ddd	mm.mmm	E/W
	Latitude	06	02.300	N	Latitude Max	05°	02.500 '	N	Longitude	145°	12.300 '	E
		ddd	mm.mmm	E/W	Min	00°	50.600 '	N		150°	20.450 '	E
	Longitude	140°	04.600 '	E								

or DESCRIBE FISHING AREA:

Name of the vessel that caught the tagged fish.

VESSEL NAME:

Use the chart on the back of the form. Place a cross for the position of each set, then draw a box that includes all the sets. Report in the table the two longitudes and the two latitudes creating the box.

FISHING METHOD:

If on a PS or PL, enter the school type. If found in well with several school types, place a cross in all options.

SCHOOL TYPE:

TRANSSHIPMENT INFORMATION/ Carrier only (if tag found o

If the recovery of a tagged fish involve a carrier/reefer, fill this section. If the unloading/transhipment occurs at port, note the name of the port, if it is at sea note the country code (EEZ of the country).

FROM to

If transhipment/set share occur the same day, note only 1 date.

Country where the recovery will be reported or port where you desimbarked.

FINDER ADDRESS:

If you can't provide an address, note the fishing company.

COUNTRY OF RECOVERY:

RECOVERY INFORMATION

TAG PROVIDED WITH THIS FORM ☐ Yes [X] No (tag ke... for rewa...

Specify if the crew keep the tag and where he will collect his reward.

TYPE OF REWARD [X] Not given ☐ T-shirt ☐ Cap ☐ Cash

FORM COMPLETED BY: Your name

If you or the finder haven't received a reward , cross "Not Given".

COMMENTS:

Use this section to record any relevant information not provided on the form. Example: Archival tag number/copy of the data provided to the tag finder.
You can attach the tag here :

No. P-48854   SPC NOUMEA - REWARD - www.spc.int/tagging No. P-48854

Type of tag	Reward
Yellow tag, Orange tag or Green tag	− 10$ or Cap or T-shirt

The multiple tag recovery form – Front

The multiple tag recovery form is meant to be used when a finder recovers up to eight tagged fish the same day, either from the same set during fishing time or from the same well during transfer or unloading. The critical tag information on the front of the form is similar to the single tag recovery form. The back of the form is composed of the same sections (3 to 7) as the single tag recovery form and should be completed with as much detail as possible. Note that each fish has a unique tag number; they can be different of species and the size and the weight can also be different.

Annotations on the form:

- Indicate if you have more than 1 series of multiple tag recoveries
- Where did you find the tagged fish?
- Note the date when the tags were first found. If you don't have an exact date, place a dash in the day field and note the month and/or year.
- What were you doing when you found the tagged fish?
- If the tagged fish come from a well, note the number and position (Eg; S2 for starboard well #2). It is very important to note this information first and then you can determine which sets composed this well from your logbook.
- Select the species code
- Are you sure about the identification?
- Note the size of the fish, round down to the nearest cm (Eg: 65.7cm=65 cm)
- Note the exact weight of the fish (Eg: 1.8 kg)
- Select 'Fresh' for a tagged fish caught during fishing time. Select 'Frozen' if found during well transfer/unloading
- Were the size and weight measured with an instrument or estimated?
- Select the processed state of the fish when weighed
- If there is no length, place a cross and move to the next section.
- If there is no weight, place a cross and move to the next section.

Form fields:

SPC MULTIPLE TAG RECOVERY FORM — MULTIPLE TAGGED FISH FOUND THE SAME DAY, COMING FROM...

PAGE / OF

DATE WHEN TAG FOUND: DD 26 MM 08 YY 11

WHERE FOUND: [X] Fishing vessel / [ ] Reefer / Transfer / Carrier

ACTIVITY WHEN FOUND: [X] Fishing ... at port

WELL NUMBER WHERE FISH FOUND: (If Applicable)

TAG NUMBER: — SPECIES: [X] SKJ [ ] BET [ ] YFT [ ] Other

FORK LENGTH cm / NO length Information / HOW ... / PROCESSED ... WHEN ...

(Tag No. P-48854)

TAG NUMBER: P-234587 — SPECIES: [ ] SKJ [ ] BET [ ] YFT [ ] Other please specify — IDENTIFICATION: [ ] Confirmed [ ] Guessed

FORK LENGTH cm / NO length Information / HOW MEASURED? [ ] Measuring tool [ ] Estimated / PROCESSED WHEN

FISH WEIGHT Kg / NO weight information / HOW WEIGHED? [ ] Measuring tool [ ] Estimated / PROCESSED STATE WHEN WEIGHED: [ ] Whole weight [ ] Gilled & gutted [ ] Other....

TAG NUMBER: — SPECIES: [ ] SKJ [ ] BET [ ] YFT [ ] Other please specify — IDENTIFICATION: [ ] Confirmed [ ] Guessed

FORK LENGTH 65 cm / FISH WEIGHT 1.8 Kg / [ ] Fresh [ ] Frozen / PROCESSED STATE WHEN WEIGHED: ...

TAG NUMBER: — SPECIES: [ ] SKJ [ ] BET [ ] YFT [ ] Other please specify

FORK LENGTH cm / NO length Information [X] / FISH WEIGHT Kg / NO weight information [X] / [ ] Other....

TAG NUMBER: P-195236 — SPECIES: [X] SKJ [ ] BET [ ] YFT [ ] Other please specify — IDENTIFICATION: [X] Confirmed [ ] Guessed

FORK LENGTH 46 cm / NO length Information / HOW MEASURED? [X] Measuring tool [ ] Estimated / PROCESSED STATE WHEN MEASURED: [X] Fresh [ ] Frozen

FISH WEIGHT 1 Kg / NO weight information / HOW WEIGHED? [X] Measuring tool [ ] Estimated / PROCESSED STATE WHEN WEIGHED: [X] Whole weight [ ] Gilled & gutted [ ] Other....

TAG NUMBER: P-278564 — SPECIES: [ ] SKJ [ ] BET [X] YFT [ ] Other please specify — IDENTIFICATION: [X] Confirmed [ ] Guessed

FORK LENGTH 85 cm / NO length Information / HOW MEASURED? [X] Measuring tool [ ] Estimated / PROCESSED STATE WHEN MEASURED: [X] Fresh [ ] Frozen

FISH WEIGHT 5.9 Kg / NO weight information / HOW WEIGHED? [X] Measuring tool [ ] Estimated / PROCESSED STATE WHEN WEIGHED: [X] Whole weight [ ] Gilled & gutted [ ] Other....

16

What are the rewards for reporting tags?

Every time someone finds a tag and completes a tag recovery form, a reward can be claimed. In some main ports you can find a **Tag Recovery Officer (TRO)**, who can distribute rewards for recovered tags. **If you find a tag**, to claim your reward you need to give the tag to a TRO.

TROs are stationed in PNG (Wewak, Madang, Lae), Solomon Islands (Honiara), FSM (Pohnpei), Marshall Islands (Majuro) and Kiribati (Tarawa), and they will debrief you on the tag recoveries and collect your forms from your workbook as well as the tags.

In other regions, you can remove the tag from the recovery form (do not remove the tag recovery form from your workbook). Inform the TRO that all information related to the tag has been provided inside your observer workbook. If you can, make a copy of the tag recovery form and provide it to the TRO. If it is not possible to make a copy of the form, give the TRO your trip ID number (so we can find your workbook and retrieve the tag recovery forms).

For a conventional tag (yellow or orange), the reward is either USD 10 (or equivalent in local currency), a hat or a shirt especially designed for the project. For an archival tag, the reward is USD 250. For these tags, you also need to report the orange conventional tag that is inserted in the back of the fish (which has an additional USD 10 reward).

Tags recovered by the observer

To retrieve your reward you need to give the tag to the TRO. You can remove the tag from the recovery form (do not remove the tag recovery form from your workbook). Inform the TRO that all information related to the tag has been provided in your observer workbook. If you can make a copy of the tag recovery form, provide it to the TRO. If it is not possible to make a copy of the form, give the TRO your trip ID number (so we can find your workbook and retrieve the tag recovery forms).

Tag recovered by crew member

If a crew member on the vessel finds a tag, fill out the tag recovery form with the crew member so he or she knows what to do next time if there is no observer around. Give the tag back to the finder with a copy of the recovery information – you can use another tag recovery form, a blank piece of paper, or an envelope to copy the information (see next section). Advise the crew member where to collect the reward.

Tag recovery envelopes

Tag recovery envelopes are also available for you to distribute to fishing vessels. The envelopes can be used to:

• store tags from a single catch date and position, with basic information recorded on the top of the envelopes; or

• copy recovery information for the finder.

The SPC Pacific Tuna Tagging Website

Tag recoveries may also be reported to SPC by email to tagging@spc.int, or on a web-based form at www.spc.int/tagging. You can inform the captain and the crew that they can use the website if they recover tags in the future.

You can inform the captain and the crew that they can use the website if they recover tags in the future. Observers must always use the recovery forms in their workbook to report tag recoveries. At the end of the trip if you have extra forms, you can remove them from your workbook and give them to the captain. If you need more tag recovery forms you can download them from the website and print them onboard.

The website list all the reward location and contact details of the Tag Recovery Officer (TRO). A dynamic map allows you to identify the exact location of the TRO.

For any recovery you can also contact Caroline Sanchez, SPC tag recovery coordinator:
Carolines@spc.int / (+687) 24 22 27.

The tagging posters

To advertise the project and rewards, posters in different languages have been created to be distributed to fishing companies and stevedores and posted onboard vessels, at ports and in processing plants and canneries.

You can ask your Observer Coordinator to give you a few posters in different languages before getting onboard. This will help you advertise the tagging project and ensure that the crew understands you.

Location and name of Tag Recovery Officers

American Samoa
1. NOAA – American Samoa Field Office Station PAGO PAGO
   (Contact: Gordon Yamasaki)

China
1. China Fisheries Association, BEIJING
   (Contact: Zhao Gang)
2. Ningbo Poseidon Food Company NINGBO
   (Contact: Shirley Chen)

Cook Islands
1. Ministry of Marine Resources RAROTONGA
   (Contact: Pamela Maru)

Federated States of Micronesia
1. Secretariat of the Pacific Community POHNPEI
   (Contact: Angie Semes)
2. National Oceanic Resource Management Authority POHNPEI
   (Contact: Steve Retalmai)

Ecuador
1. Inter American Tropical Tuna Commission IATTC/CIAT in MANTA
   (Contact: Francisco Robayo)

Fiji
1. Secretariat of the Pacific Community SUVA
   (Contact: Front Office)

Guam
1. Guam Fishermen's Cooperative Association GUAM (Contact: Manuel Duenas)

Indonesia
1. Research Centre for Capture Fisheries, JAKARTA
   (Contact: Anung Widodo)

Japan
1. National Research Institute of Far Seas Fisheries SHIMIZU (Contact: Yukiko Hashimoto)

Kiribati
1. Ministry of Fisheries & Marine Resource Development, Bairiki TARAWA
   (Contact: Aketa Taanga)
2. Ministry of Fisheries & Marine Resource Development,
   CHRISTMAS ISLAND
   (Contact: Tikarerei Mwea)

Korea
1. National Fisheries Research and Development Institute BUSAN
   (Contact: Seon Jae Hwang)

Marshall Islands
1. Marshall Islands Marine Resources Authority MAJURO
   (Contact: Berry Muller)

New Caledonia
1. Secretariat of the Pacific Community NOUMEA
   (Contact: Caroline Sanchez)

Palau
1. Bureau of Marine Resources KOROR
   (Contact: Kathy Sisior)

Papua New Guinea
1. National Fisheries Authority PORT MORESBY
   (Contacts: Brian Kumasi)
2. National Fisheries Authority MADANG
   (Contact: Jacinta Jacob)
3. National Fisheries Authority LAE
   (Contact: Priscilla Wrambin)
4. National Fisheries Authority WEWAK
   (Contact: Andrew Rahiria)

Philippines
1. Bureau of Fisheries & Aquatic Resources/NFRDI MANILA
   (Contact: Noel Barut / Elaine Garvilles)
2. Bureau of Fisheries & Aquatic Resources GENERAL SANTOS
   (Contact: Glennville Castrence)
3. Bureau of Fisheries & Aquatic Resources DAVAO
   (Contact: Front Office)

Seychelles
1. Indian Ocean Tuna Commission SEYCHELLES
   (Contact: Julien Million)

Solomon Islands
1. Ministry of Fisheries & Marine Resources HONIARA
   (Contact: Derick Suimae)
2. Forum Fisheries Agency HONIARA
   (Contact: Ambrose Orianihaa)
3. Soltai Fishing NORO
   (Contact: Solomon Kakana)

Taiwan
1. Taiwan Tuna Association KAOHSIUNG
   (Contact: Martin Ho)
2. Overseas Fisheries Development Council KAOHSIUNG
   (Contact: Peter Ho (何勝初))

Thailand
1. Thailand Department of Fisheries, SAMUTSAKOM
   (Contact: Suwimon Keerativiriyaporn)

United States of America
1. Inter American Tropical Tuna Commission SAN DIEGO
   (Contact: Dan Fuller)
2. Pelagic Fisheries Research Program, University of Hawaii HONOLULU
   (Contact: David Itano)

Vietnam
1. Phu Yen Province
   (Contact: Le Duc Tuong)
2. Binh Dinh Province
   (Contact: Nguyen Duy Lam)
3. Khanh Hoa Province
   (Contact: Vo Khac En)

Contact details for the principal Tag Recovery Officers in the WCPO region (Western and Central Pacific Ocean)

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Emai: carolines@spc.int

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