

PNG TUNA TAGGING PROJECT (PNGTP-3)

CRUISE REPORT No. 2

Bismarck and Northern EEZ

28th April – 19th May, 2013

INTRODUCTION

This report summarizes activities of the second cruise of the third annual charter of the Papua New Guinea Tagging Project (PNGTP) during a twenty three day period in April and May, 2013. After the first full-moon break in Lae on the 27-28th April, the vessel initially fished in Southern Bismarck Sea, north of New Britain and East of New Ireland before moving to the Northern waters, north of Manus to the equator and north-west to Hermit Island. The last six days of the cruise was spent in Western Bismarck before calling into Madang port at cruise end. Scientific personnel involved in the cruise are listed below in **Table 1**.

Table 1. SPC and NFA personnel onboard during Cruise 2

| Name | Title | Affiliation | |
|-------------------|--------------------|-------------|--------------------|
| Thomas Usu | Cruise leader | SPC | 28/04 – 19/05/2013 |
| Benthly Sabub | Tagging Technician | NFA | 28/04 – 19/05/2013 |
| Chris Molai | Tagging Technician | NFA | 28/04 – 19/05/2013 |
| Francois Rounsard | Tagging Technician | SPC | 07/05 – 19/05/2013 |

GENERAL DESCRIPTION OF SEARCHING and FISHING ACTIVITY

The first one and half day of the cruise after departing Lae was spent steaming to the baitground north of New Britain. Seven days were spent fishing and searching North of New Britain and West of New Ireland with patchy result. A lot small fish biting mainly on anchored FADs and several log schools encountered but there was also a high abundance of natural bait in the water which affected the fishing. A visit to the Djaul seamount was not rewarding as hoped as the area was a complete desert at the time. However, the vessel found good schools on anchored FADs further west of New Ireland before calling into Kavieng for provisioning. A brief encounter with a whale shark with good school on the way to Northern Seas provided good numbers of tag releases on bigeye tuna. Good five-day fishing was experienced north of Manus with high fish abundance above 01^oS line to the TAO equator, 147^oE buoy and exceptional baiting in Seadler Harbour. Plenty fish was also encountered in two days north west to west of Manus with good baiting as well at Hermit Island. However, minor mechanical problems with bait tanks and one of the baiting lights resulted in some loss in fishing time. The remaining 6 days was spent searching and fishing in the Western Bismarck. Two visits were made to the 48m seamount which proved useful. Poor baiting at Hansa bay resulted in a long haul back to Hermits Island for good bait and then quick two day fishing to Madang.

The track of the cruise in the PNG EEZ, based on school, 0600, 1800 and 2400 hrs positions is found below as **Figure 1** and a summary of general movements and tag releases follows as **Table 2**.

Figure 1: Cruise track during PNGTP-3 Cruise 2

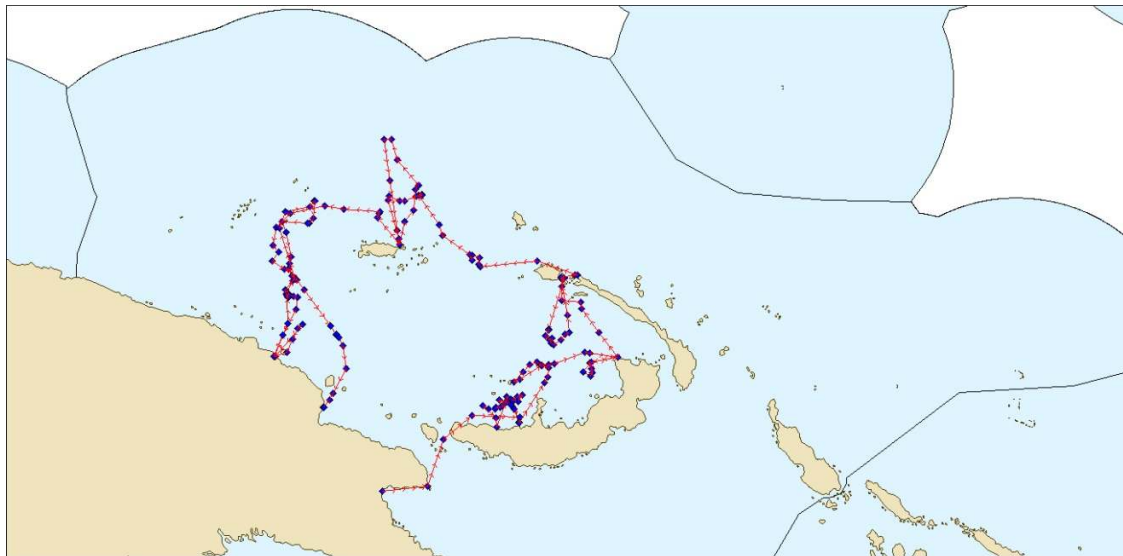


Table 2 Summary of PNGTP- 3 Cruise 2 activity, with the number of conventional and archival tag releases per day

| Date | Apr Activity | Conventional releases | | | Archival releases | | | Total releases |
|------------------------|---|-----------------------|-------------|-----------|-------------------|----|----|----------------|
| | | SJ | YF | BE | SJ | YF | BE | |
| 28 th April | Departed Lae for North New Britain | | | | | | | |
| 29 th April | Steaming and baiting Emeline Bay | | | | | | | |
| 30 th April | Fishing and searching, Baiting Iboki | 90 | 63 | | | | | 153 |
| 01 st May | Fishing and searching, Baiting Emeline Bay | 393 | 729 | 1 | | | | 1123 |
| 02 nd May | Fishing and searching, Baiting Peter Haven | 65 | 101 | | | | | 166 |
| 03 rd May | Fishing and searching, Baiting Cape Lambert | 54 | 78 | | | | | 132 |
| 04 th May | Fishing and searching, Baiting Cape Lambert | 1 | 1 | | | | | 2 |
| 05 th May | Fishing and searching, Baiting Analaua | 32 | 7 | | | | | 39 |
| 06 th May | Fishing and searching, Baiting Analaua | 688 | 282 | 7 | | | | 977 |
| 07 th May | Port Call, Kavieng | | | | | | | |
| 08 th May | Fishing and searching, drifted North of Manus | 98 | 72 | 41 | | | | 211 |
| 09 th May | Fishing and searching, Baiting Seadler Hbr | 3 | | | | | | 3 |
| 10 th May | Fishing and searching, Drifted TAO Equator | 1019 | 63 | 3 | | | | 1085 |
| 11 th May | Fishing TAO Equator, Baiting Seadler Harbour | 759 | 19 | | | | | 778 |
| 12 th May | Fishing and searching, Baiting Hermits Is | 749 | 7 | 3 | | | | 759 |
| 13 th May | Fishing and searching, Baiting Hermits Is | 1770 | 154 | 3 | | | | 1927 |
| 14 th May | Fishing and searching, Drifting W Bismarck | 197 | 91 | | | | | 288 |
| 15 th May | Fishing and searching, Baiting Hansa Bay | 256 | 142 | 2 | | | | 400 |
| 16 th May | Fishing and searching, Baiting Hansa Bay | 186 | 2 | | | | | 188 |
| 17 th May | Fishing and searching, Baiting Hermits Is | 70 | 8 | | | | | 78 |
| 18 th May | Fishing and searching, Steaming | 443 | 192 | 3 | | | | 638 |
| 19 th May | Fishing and searching, Baiting Rasch Pass | 146 | 26 | 2 | | | | 174 |
| TOTAL | | 7019 | 2037 | 65 | | | | 9121 |

A compilation of the daily log extracts, detailing daily activities, is provided as **Appendix 2**.

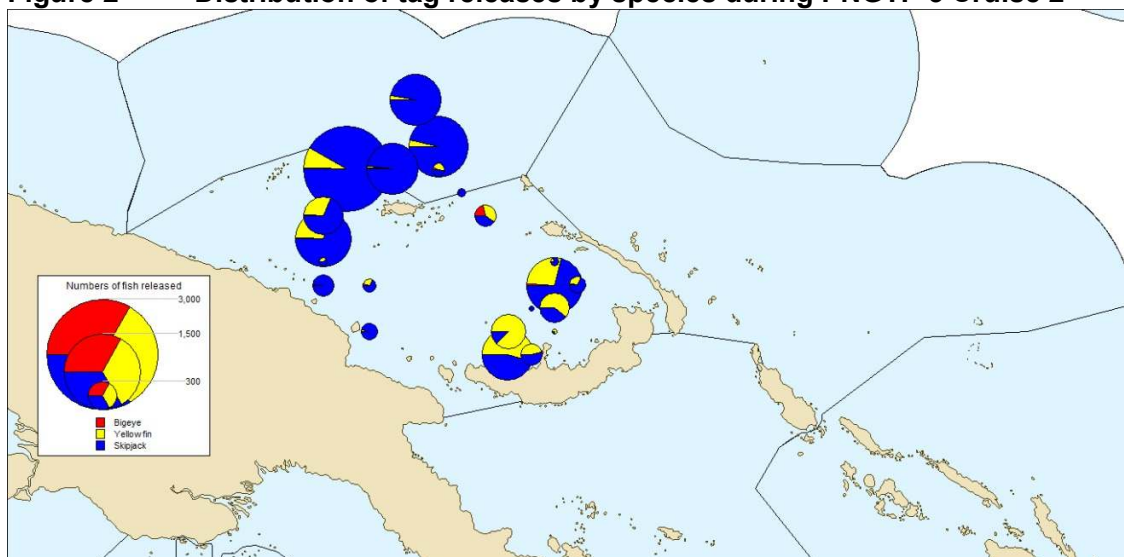
TAG RELEASES

Of the 22 days of the cruise, all or part of two days were spent in port with 1 and half day steaming from Lae to Emeline Bay, north of New Britain for baiting. A total of 9,121 fish was tagged with conventional tags comprising 7,019 skipjack (77%), 2,037 yellowfin (22%) and 65 bigeye tuna (less than 1%). No archival tags were deployed during the cruise.

An average of 480 fish was tagged per day's fishing. Of the total 19 fishing days, two days had only 2-3 fish tagged and released. Three of the 19 days saw tag releases on more than 1000 fish. On one occasion the number of fish tagged and released was close to 2000 fish in the area north-west of Manus. 75% (6848) of the tag releases were from schools associated with anchored FADs including the TAO buoy followed by unassociated schools (11%, 998) and log associated schools (9%, 778). 378 fish tagged on one of two seamounts visited and 119 fish tagged on a school associated with a whale shark made up 5% of the tag releases. Most of the tag released on bigeye (41, 39-56 cm) for the cruise was on this whale school west of New Hanover. No fish were tagged and released on drifting FADs in this cruise. Of the three drifting FADs, attempt on one was unsuccessful west of Manus and the other two found in the Western Bismarck area were newly deployed and had no fish aggregation on them yet as it seems.

Figure 2 below shows the distribution of tag releases by species during the cruise. Over 52% (4,763) of fish were tagged and release in the Northern waters mainly small size skipjacks on anchored FADs and a few larger sizes on the TAO Equator 147⁰E buoy. 28% (2592) of the tag releases were in the Bismarck where 61% (1262) of yellowfin was tagged and released. 19% (1766) of tag releases was in the Western Bismarck area with some larger sizes of yellowfin on the 48m seamount and small skipjacks on anchored FADs and couple of log schools. A few larger size skipjack was tagged on a free school between Karkar and Bagbag Island near Madang.

Figure 2 Distribution of tag releases by species during PNGTP 3 Cruise 2

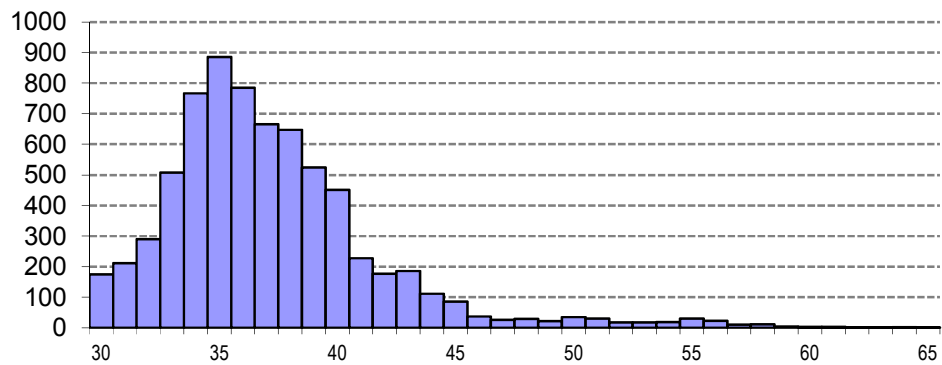


The Cruise 2 releases are summarized by school, location, school type, day and area in **Appendix Table 1**.

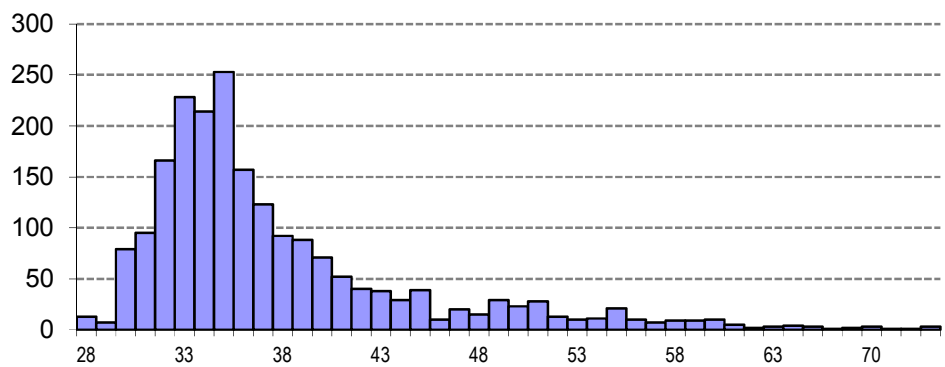
SIZE DISTRIBUTION OF TAGGED FISH

Figure 3 below shows the overall size distribution of fish tagged during Cruise 2.

Skipjack : n=7,019



Yellowfin: n= 2,037



Bigeye : n=65

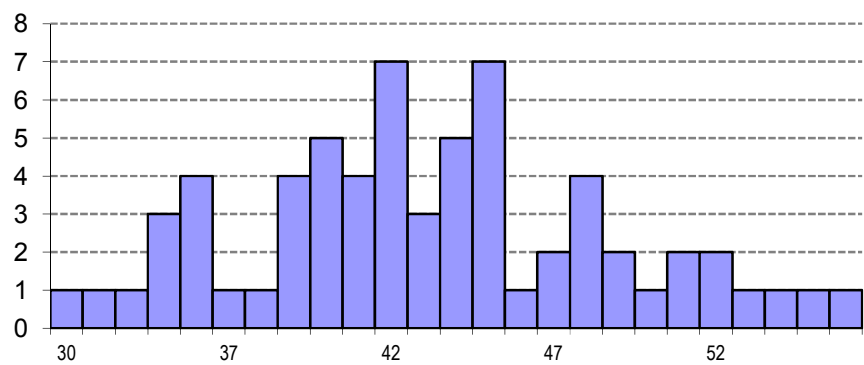


Figure 3 Size distribution of fish tagged during PNGTP 3 Cruise 2.

Skipjack and yellowfin size distribution are skewed to the right respectively with modes of 35 cm in both species. The size of skipjack ranged from 30 cm to 65 cm with most skipjack between 31 and 41cm. The size of yellowfin ranged from 28 cm to 73 cm with most yellowfin between 30 cm and 39 cm. The sizes of the 65 bigeye tagged and released ranged from 30 cm to 56 cm with the majority between 39 cm and 45 cm.

BAITING

Baiting was generally very good in this cruise as summarized in **Table 4** below.

Table 4 Summary of bait fishing activity during PNGTP 3 Cruise 1

| Date | Location | Catch (bkts loaded, hauls) | Species |
|----------------------|---------------|-------------------------------|---|
| Apr 29 th | Emeline Bay | 216 (2) | Anchovy (devisi, punctifer), dusumieria spp., pellona |
| Apr 30 th | Iboki Bay | 93 (1) | Anchovy (dev., indicus), dusumieria spp. and small squids |
| May 01 th | Emeline Bay | 249 (2)* | Anchovy (devisi, punctifer), rastreliger, pellona |
| May 02 th | Peter Haven | 39 (3) | Sprats (delicatus) |
| May 03 th | Cape Lambert | 15 (2) | Anchovy (heterolobus, devisi), hh, small hq |
| May 04 th | Cape Lambert | 65 (2) | Anchovy (heterolobus, devisi), hh, small hq |
| May 05 th | Analaua | 240 (1) | S. devisi, hh, sardines, sardines (sirm), dusumieria spp. |
| May 06 th | Analaua | 278 (2) | S. devisi, hh, sardines, sardines (sirm), dusumieria spp |
| May 09 th | Seadler | 220 (3) | S. heterolobus, sardines (hq, pellona), S. lewisi, dusumieria spp, |
| May 11 th | Seadler | 270 (1)* | Anchovy (devisi, heterolobus), sprats (lewisi, gracilis, delicates), hh, sardines |
| May 12 th | Hermit Island | 270 (2)* | Anchovy (devisi, heterolobus), sprats (lewisi, gracilis, delicates), hh, sardines |
| May 13 th | Hermit Island | 135 (1) | Anchovy (devisi, heterolobus), sprats (lewisi, gracilis, delicates), hh, sardines |
| May 15 th | Hansa Bay | 75 (2) | Anchovy (devisi, indicus, bae), s. delicatus, dusumieria spp, pellona, hh |
| May 16 th | Hansa Bay | 65 | Anchovy (devisi, indicus, bae), s. delicatus, dusumieria spp, pellona, hh |
| May 17 th | Hermit Island | 252 (2) | Sprats (gracilis, delicatus), Anchovy (heterolobus, devisi), sardinella, hh |
| May 19 th | Rasch Pass | 156 (3) | Dusumieria spp, indicus, delicatus |

* partial loading only

The vessel had access to good baiting areas north-coast of New Britain (Emeline Bay, Iboki Bay and Cape Lambert) although Cape Lambert was not that reliable this time than the past cruises. Peter Haven in Garove Island also did not supply enough bait due to small anchorage space and strong currents through the passage.

Baiting at Analaua in the Lavongai area of New Island was unfailing providing enough supply of anchovies and sardines for the cross over to the Northern seas. Exceptional baiting was experienced in Seadler Harbour in Manus Island as well as the Hermit Island with good mix of anchovies, sprats and sardines. Disappointing results was experienced in Hansa Bay on the north-coast of Madang with poor quantity and quality of bait. Mainly the weak species such as *Stolephorus indicus*, *Thrisna*, *baelama* and *dusumierira* spp.. Some of these weak species were also encountered in Rasch Pass near Madang to be used on the start of the Cruise 3.

SUMMARY

Although the cruise was 879 fish short of the anticipated 10,000 tag releases, it was again another successful campaign for the PNGTP-3 project bringing the overall total to 21,387 tag releases. The abundance of natural bait in the highly exploited Bismarck Sea resulted in low catches on anchored FADs in the area. Although weather conditions were a bit rough, good baiting conditions and fish abundance saw good numbers of tag releases on fish in the Northern Seas. Poor baiting conditions in the north-coast of Madang provided less opportunity to increase releases in the Western Bismarck area.

Apart from small glitches with bait tanks and one of the underwater baiting lights, the vessel fully accomplished its objectives. The devoted crew of FV Soltai 101 and the Fishing Master was outstanding in their performance which contributed greatly to the success of the cruise.

APPENDIX TABLE 1

Releases of tagged fish by date, location, school type and species during Cruise 2

| Project PNGTP - Papua New Guinea #3 | | | | | | Cruise 2 To 2 | | | | TAG TOTALS | | | | NOTES |
|-------------------------------------|-------------|------|--------|----------|-----|---------------|-------|------|-----|------------|------|-------------|---|-------|
| Tagged sch no. | Date | Lat | Lon | Sch type | Ass | FAD no | Start | Stop | Y | B | S | TOT | | |
| 47 | 19-May-2013 | 0453 | 14601E | 2 | 1 | | 1531 | 1550 | 3 | 0 | 97 | 100 | big sj and yf. Small debris around | |
| 46 | 19-May-2013 | 0357 | 14612E | 3 | 2 | | 0814 | 0843 | 15 | 0 | 45 | 60 | small sj and yf | |
| 45 | 19-May-2013 | 0344 | 14604E | 2 | 3 | | 0605 | 0618 | 8 | 2 | 4 | 14 | Unknown RD FAD but could be RD8688. Very very small sj and yf. | |
| 44 | 18-May-2013 | 0240 | 14518E | 1 | 3 | | 1552 | 1616 | 47 | 1 | 161 | 209 | Unknown RD FAD. Sj and yf | |
| 43 | 18-May-2013 | 0238 | 14515E | 1 | 3 | | 1513 | 1526 | 3 | 0 | 14 | 17 | Small skj | |
| 42 | 18-May-2013 | 0227 | 14508E | 3 | 3 | | 1242 | 1310 | 8 | 0 | 156 | 164 | FRA#803. Mix small sj and yf | |
| 41 | 18-May-2013 | 0214 | 14511E | 3 | 2 | | 0959 | 1107 | 134 | 2 | 112 | 248 | small yf and sj | |
| 40 | 17-May-2013 | 0238 | 14515E | 1 | 3 | | 1158 | 1223 | 7 | 0 | 70 | 77 | FAD # FRA#B04 Small SKJ and YFT | |
| 39 | 17-May-2013 | 0257 | 14505E | 4 | 8 | | 0938 | 0945 | 1 | 0 | 0 | 1 | small yf caught | |
| 38 | 16-May-2013 | 0337 | 14519E | 1 | 3 | | 0926 | 1009 | 2 | 0 | 186 | 188 | RD8233. small skj. Log with FAD as well | |
| 37 | 15-May-2013 | 0315 | 14517E | 1 | 3 | | 1353 | 1430 | 6 | 0 | 17 | 23 | RD8324. small sj and yft. Trigger and rru. Several logs within 100m from the FAD | |
| 36 | 15-May-2013 | 0257 | 14505E | 3 | 8 | | 0902 | 1015 | 131 | 2 | 125 | 258 | mix sj and yf tagged. >60cm yf as well. Rru | |
| 35 | 15-May-2013 | 0300 | 14507E | 2 | 8 | | 0732 | 0743 | 5 | 0 | 0 | 5 | yft and rru | |
| 34 | 15-May-2013 | 0258 | 14508E | 3 | 8 | | 0651 | 0721 | 0 | 0 | 114 | 114 | small sj and rru | |
| 33 | 14-May-2013 | 0238 | 14515E | 6 | 3 | | 1659 | 1741 | 74 | 0 | 119 | 193 | FRA#804. skj and yft and few bet | |
| 32 | 14-May-2013 | 0228 | 14508E | 1 | 3 | | 1505 | 1530 | 17 | 0 | 78 | 95 | FRA#803. Small sj and yf caught. Big yft present | |
| 31 | 13-May-2013 | 0108 | 14539E | 3 | 3 | | 1151 | 1430 | 154 | 3 | 1770 | 1927 | big school of skj, yft and very few bet. | |
| 30 | 12-May-2013 | 0114 | 14551E | 3 | 1 | | 1408 | 1424 | 0 | 0 | 29 | 29 | | |
| 29 | 12-May-2013 | 0120 | 14655E | 3 | 1 | | 0714 | 0832 | 1 | 2 | 707 | 710 | Small sj | |
| 28 | 12-May-2013 | 0123 | 14654E | 3 | 1 | | 0641 | 0655 | 6 | 1 | 13 | 20 | small skj | |
| 27 | 11-May-2013 | 0003 | 14700E | 1 | 3 | | 0535 | 0658 | 19 | 0 | 759 | 778 | TAO Buoy Equator 147E | |
| 26 | 10-May-2013 | 0050 | 14741E | 1 | 3 | | 1250 | 1422 | 34 | 0 | 994 | 1028 | mostly sj and few yf | |
| 25 | 10-May-2013 | 0119 | 14735E | 3 | 3 | | 0840 | 0915 | 29 | 3 | 25 | 57 | FRA#C02. Mixed sj and yf | |
| 24 | 09-May-2013 | 0102 | 14738E | 5 | 1 | | 0700 | 0722 | 0 | 0 | 3 | 3 | Good size sj | |
| 23 | 08-May-2013 | 0148 | 14809E | 4 | 1 | | 1606 | 1629 | 0 | 0 | 22 | 22 | Small sj | |
| 22 | 08-May-2013 | 0218 | 14844E | 3 | 3 | | 1042 | 1100 | 0 | 0 | 70 | 70 | RD8801. Small skj | |
| 21 | 08-May-2013 | 0212 | 14843E | 4 | 5 | | 0926 | 1010 | 72 | 41 | 6 | 119 | Wale shark. BET | |
| 20 | 06-May-2013 | 0342 | 15036E | 2 | 1 | | 1529 | 1600 | 35 | 1 | 78 | 114 | Big sj and yf | |
| 19 | 06-May-2013 | 0344 | 15032E | 3 | 3 | | 1431 | 1451 | 2 | 0 | 0 | 2 | RD8798. Small yf & sj. Longline tangled on the FAD | |
| 18 | 06-May-2013 | 0350 | 15027E | 3 | 3 | | 1130 | 1245 | 168 | 3 | 561 | 732 | RD8819. Big school of good size sj first 20 mins, then came yf crashing sj party. | |
| 17 | 06-May-2013 | 0350 | 15014E | 2 | 2 | | 0806 | 0833 | 76 | 3 | 3 | 82 | Big yf and few sj. 3 bet tagged | |
| 16 | 06-May-2013 | 0346 | 15009E | 1 | 3 | | 0648 | 0720 | 1 | 0 | 46 | 47 | RD8795. Small skj | |

APPENDIX 2

April 28th

A few deadman walking in the early am. Goodbye to outgoing CL and Jeff at 0630hrs and BRK and ANT 1130hrs ashore by dinghy. Acquired last crew necessities, flex cards, saving machines, more cigarettes and of course more buai. Departed anchorage 12:40hrs and passed Tami 18:15hrs then heading NE into the Vitiaz towards New Britain in good weather.

April 29th

Cruising N Coast of New Britain all morning from C Gloucester. Arrived entrance to Emeline Bay at 1230hrs. Anchored just inside the entrance for a visit resource owners by BES and CHM. Moved to baiting spot at 17:30hrs. First haul 2000hrs - 183 buckets of mostly s.devisi, pellona, few punctifer and weak herring. Second set on light boat- 33 buckets of similar composition with some decap. Anchor up and head to fishing ground 2210hrs. Fishing westward S of Unea Is then to Iboki.

April 30th

Arrived first FAD RD8493 position 0115hrs and drifted. FAD found 0530hrs. Chummed but not many fish, couple dol on the hooks and only 1 small yf tagged. Moved to RD8703 FAD 0646hrs with birds. Tagged 153 fish of mostly z-size yf and skj. Briefly chased a free school of large size yf and skj SW of Unea Is but no luck. Found RD884 FAD 0907hrs but nothing on sounder. Tried a log school of good size yft 2nm SW of last FAD but plenty of bait in the water. Found a FAD not on the list, chummed but no response. Found another log school 1043hrs of and poled a half basket of frigate and kawkawa. Moved to RD8521 for 2 rru and a dol. After unsuccessful attempts on 2 more FADs decided to head to baitground 14:30hrs with 4 tanks bait left. Arrived baitground at 1920hrs. Only 1 set at 2100hrs yielding 93 buckets of s.devisi, indicus, weak hering and squid. Enough bait for tomorrow fishing west of Willaumez.

May 01st

Departed baitground 2345hrs last night to fishing ground. Arrived at first FAD position RD8703 0400hrs. Started fishing under light morning showers at 0540hrs with fish biting better than yesterday. Mostly small yft and sj mixed with fri and kaw. There was a log drifting nearby not more that 300m from the FAD. Tagged 604 fish with 58% yft. Found a log school 5nm north with riplers of similar species and size composition to first school and tagged 341 (87% yft). Another log found 40 mins later for fri and one dol. Moved to FADs closer to Willaumez. Found RD8525 at 0950hrs and again tagged mostly z-size sj and yf. No sign of big fish except rru and dol. Another ripler on RD8492 but this time they were not interested in our bait. Visited 2 more FADs with last bait tank for 58 more fish before heading to baitground at 1515hrs. Arrived at Emeline bay and anchor down 18:00hrs. 205 bkts on first set at 2130hrs of mixed anchovies and rastreliger, and pellona (100 bkts into local canoes). 44bkts of pure anchovies on light boat.

May 02nd

Departed baitground 0010hrs. Searching started 0600hrs N of Willaumez. Tagged 15 yf and 5 sj on first FAD RD8664 at 0700hrs. Found RD 8783 at 0824hrs with fish on sounder but doesn't want to come up. RD87551 at 0934hrs with some hungry fish. Tagged 138 z-size sj and yf again. RD8807 showed no sign of fish then head west towards Garove Is. Found a log 1139hrs but fish not really hungry for our bait but managed to tag 8 sj. High bait mortality experienced from overcrowding in the net last night. Calm weather, although very hot and almost no wind. Found a log school 1307hrs 12 miles N from Peter Haven and chummed with no response. Only 2 and half tanks left now so decided to head to Peter Haven to arrive at the small entrance with plenty of daylight since its the first time for FM. Entered passage safely and anchor down 1600hrs. Bait

gathered on sounder but current a bit strong. First haul 2230hrs for 27 bkt of blue sprat and skunk on light boat. Lights down again for a third set in the morning.

May 03rd

Third haul at 0415hrs resulting in 12 buckets of more blue sprats. Departed baitground 0510hrs to fish towards Cape Lambert. First school on RD8751 at 0924hrs and released 72 tags on yf and 50 on sj. Found a log school 1052hrs and only rru and trigger fish responded to our chum. RD8754 looks promising with birds and good size sj and yf jumping but chasing their own bait in the water. Spent almost half an hour with only 5 yf and 4 sj tagged. Investigated 3 more FADs on the way but no signs of fish. Arrived RD8437 at 1705hrs with birds and debris drifting around. Spent half hour circling and chumming in desperation. Only 1 tagged and released. Headed for Cape Lambert with approx. 50 bkts of bait left including the some white sardine and rastrelliger from Emeline. Arrived late and anchor down at 2200hrs.

May 04th

Aggregation not too good because of late arrival. First net at midnight for only 12 bucket of small bait. Set on light boat resulted in only 3 buckets. Decided to head to fishing ground Open Bay area with more than 60 buckets. First two FADs showed no signs of fish so continued searching. Found a free school 0756hrs of good size sj jumping but no kaikai. Arrived RD8441, 0918hrs, chummed but no response. Found a school 3miles NE of RD8441 of nice jumpers but again no sakana. Fish at RD8799 responded to chum in the first 5mins but not for long. Kept at it for another 25 mins before moving on. No fish tagged though. Attempted rippers on RD8812 at 1138hrs until bait ran out. Only 2 fish tagged out of 3 poled. Head back to Cape Lambert for better baiting this time. Arrived baiting spot 1545hrs. Locals came over to the boat to sell/trade produce. Garden produce, mumu casava, even some lobsters. Sounder slowly looking good at 1930hrs. First set at 2230hrs for 62 buckets of mixed small bait of mostly s.heterolobus, hardyheads, small hq and cardinals. Set on light boat produced 3 buckets of squid. Decided to do another set before moonrise.

May 05th

Third haul at 0115hrs was not so good with only 10 buckets. Pulled up anchor and departed Cape Lambert 0215hrs with 75 buckets in 3 bait tanks to fish towards W New Ireland. Started searching 0600hrs on the way to Djaul Ridge with no sightings of fish. Arrived seamount 0915hrs and searched area for one and half hours but no birds or schools around. Decided to throw bait at the summit but nothing even on sounder. Searched north closer to Djaul Is and around Mait Is. Today not so sunny like the previous days and SE winds at 06kts. Found a nice free school 15nm W of Mait Island 1440hrs which started biting quickly then disappearing quickly. Managed to tag 32 sj and 7 yf of good size (43-55cm) including a couple of jumbo skippies (>60cm). Continued searching towards Byron Strait. Nothing seen until 1733hrs, 2nm from passage when encountered a school of kawakawa and 4 poled at the stern for dinner. Arrived Analua baitground and anchor down 1845hrs. Around 60 buckets of bait still onboard. First haul at 2100hrs resulted in 240 buckets of mixed bait, hardyheads, devisi, dusumieria and big sardines (sardinella sirm). No need to set on the light boat so anchor up at 2215hrs and exited through Byron Strait to FADs on the southern border of famous Morgado Square.

May 06th

Arrived first FAD position RD8794 and fishing started at 0530hrs. Although some fish detected on sounder, nothing surfaced to put faces to the colour. Moved south RD8795 where small skipjack responded after 5 mins of chumming. Tagged 46 sj <39cms and 1 yf. Found a log school 0806hrs 6nm SE from last FAD with big yellowfin jumpers. The big sardines were useful in this school where 76 yf (45-75cm), three jumbo skippies and three 40cm bigeyes were tagged. Briefly attempted another school of big yellowfin 3 miles NE from the log school and another

5nm south but was unsuccessful on these ones. Found nothing on RD8746 at 1007hrs then searched back NE. Two tanks of bait already used and the other 4 still looking good even the pilchards. Arrived at RD8819 at 1130hrs with several breezers at the vicinity. Maxi let go and sj responded immediately resulting in over 300 fish tagged in the first 20 mins at the bow. Biting continued after circling couple of times until large yf decided to crash the party and the smaller fish dispersed. 2 bait tanks left now so decided to stop fishing 1245hrs to break for lunch with the anticipation that the school will come back again with the same enthusiasm. Resumed at 1345hrs at the same FAD but this time a bit more harder and seemed like all our bait will be gone before we can get any useful bites. A total of 561 sj (35-45cm), 168 yf (35-50cm) and 3 bet (39-41cm) was tagged and released before the lunch break. None of the party crashers was caught on hook. Head NE to RD8798 where it had a longline set tangled on it. 2 small yft tagged at the stern. Found school of mixed sj and yf 1600hrs and tagged 78 sj, 35 yf and 1 bet (41cm) until bait ran out. Started steaming back to baitground - 60nm to Byron Strait. Arrived baitground 2310hrs. Still enough time to make a set or 2.

May 07th

First haul at 0225hrs for 228 buckets of mixed bait like last night. Another 50 buckets from the light boat then departed baitground for Kavieng. Alongside Fisheries wharf at 0640hrs and commenced loading water. Met Samol who was heading out with the BDM survey team. No customs officer at 0800hrs so brought papers to customs office in town with NFC vehicle... all good. Fuel arrived 0930hrs. Market shopping, food shopping at Bisi Trading. Met Kevin Kisekup (Observer Trainee) who requested for some fish on next stop for biological sampling training for observers. Francois joined the vessel from Nusa. Last fuel truck delivery of 15kl was completed by 1645hrs and ready to depart. Clearance done by 1815hrs because of late arrival of the clearance officer. Ropes away 1830hrs and headed for FADs W of New Hanover to Manus with ETA to first position 0630hrs tomorrow morning.

May 08th

Arrived RD8540 at 0620hrs but no action there. Checked RD8599 also with no success. Found a whale school (whale shark) at 1010hrs and tagged 72 yf, 41 be and 6 skipjack all of good size between 38 and 56cm. Later found school of small sj on RD8801 and tagged 70. Weather a bit shaky with NE wind at 8-10kts. Bait experiencing high mortality. There is a problem with the email and is neither sending nor receiving any message. Tried calling SPC but no help. Searched towards W of Manus but nothing seen so decided to fish N towards TPJ FADs. Met a school 1606hrs in rough seas at 1-1.5m and wind picked up. Tagged a total of 22 small sj. Stopped fishing 1800hrs and continued steaming hoping the weather will improve. Four tanks of bait still available however mortality still high. Arrived first FAD position at 2200hrs and drifted in a rocking condition. Should be better tomorrow.

May 09th

Started fishing 0600hrs and the weather has not improved overnight. Fished TPJ#90 with no success. Searched W and found a sj free school 0700hrs in heavy showers and a sudden gust of NE at 25-30kts. Attempted the breezers several times but no biting and the weather condition was not making the chase any easier. Manage to tag 3 sj before continuing west. There is still enough bait however all the big sardinella perished during the trip. Another free school at 0845hrs with no results but sky starting to clear up...not. Unsuccessfully tried a free school again 0948hrs in heavy showers again. Hopefully this will be the last rain to clear up the weather. Email still not working even with good reception (full bars) on satphone. Found an unknown AFAD at 1234hrs that was partly submerged. The sky now starting to clear but still rough and no fish. Searching continued towards Manus and will bait tonight. No action all afternoon. Arrived Seadler 1845hrs for some good bait and then will fish N to the equator tomorrow. First haul at 2300hrs for 130 buckets of heterolobus, lewisi, mixed sardine (hq, pellona) and some weak dusumieria. Would

have been if not for the almost 2 full basket of travelly. Set on light boat provided only 45 buckets so decided to put the lights down again for another quick set.

May 10th

Third set at 0200hrs for another 45 buckets and another 1/2 basket travelly. Departed baitground 0255hrs to fish towards the Equator. Arrived FRA#C02 0840hrs with a nice school but manage to tag only 25sj, 29yf and 3 be. Chased a couple of free schools without success. Weather is a lot better than yesterday. Detected a big school on an unknown FAD, 1250hrs and started fishing in strong current. Good biting but often drifted away from the school by the current. Spent one and half hours and 4 tanks of bait for 1028 fish, 97% sj. Stopped fishing to save some bait for the TAO buoy. Heading for buoy ETA 2100hrs. Sampling, data entry and Francois made his debut with 166 tag releases. A lot of schools met in the afternoon including a drifting FAD but a seiner (probably the owner) nearby. Arrived TAO Buoy at 2100hrs with strong equatorial current so steamed 12nm E against the current to drift.

May 11th

Drifted back through the night to 1 mile NW of buoy at 0500hrs. Still have two tanks of good bait. Fishing commenced 0530hrs with the decklights on as it was still a bit dark. The school responded quickly to chum. Good school of sj and very few yf which were mostly on the surface. Nothing exciting on sounder below 70m and no bet as hoped. There was a rope tied to the buoy, maybe for mooring and can't remember if it was there before. Biting slowed down towards the bait's end until 0658hrs. Tagged a total of 760 sj and 19 yf. Headed back to baitground now 120nm. Should arrive in good time for baiting. Email is working now but still not sure what happened to it. Weather was good today except for showers in the evening closer to Manus. Arrived Seadler Harbour 1950hrs. Very good aggregation by 2100 with the sounder monitor covered in bloody red colour. However, wind picked-up during the night with heavy rain and sea a bit rough for setting so no chance for early departure. Decided to wait a little bit more.

May 12th

First haul at 0030hrs in light showers although still a bit rough. Got 270 buckets of mixed anchovies, spats, small sardines and around 30 buckets into local canoes. Departed fishing ground heading NW and then will fish towards Hermits. First school at 0640hrs and tagged 13 sj, 6 yf and 1 be before it disappeared. To our dismay, the nice bait was not looking good. In addition to baiting in rough conditions at night, the tanks were bubbling since early am according to Essa master causing loss to almost a 100 buckets. They would not last the day if not used. Engineers started to work to fix the problem. Another big free school at 0715hrs with 3 or more breezers of mostly skj and very few yf. Released 707 tags on skj, 1 yft and 2 bet. Headed West towards Hermits with only one bait tank left. Briefly searched a couple of FADs before arriving on another nice sj school 1424hrs. Tagged 29 fish on this one. Could gotten more but bait ran out. Steamed for Hermits to bait. Arrived baitground 2000hrs. Aggregation very slow but should be ok in time.

May 13th

Long wait for better aggregation of bait but was worth it. Did first haul at 0200hrs for 235 buckets of mixed anchovies, sprats, hardy heads and few big sardinella. Got another 35 buckets on light boat and the rest go. Departed baitground 0400hrs to fish NW to Kaniet Is. Found a drifting FAD 1008hrs with jumpers 50m away but no luck attracting them. Bait mortality is a lot better than yesterday. Bubble problem was fixed and essa boys closely monitoring. Briefly chased a couple of free schools without success. RD8156 missing so searched towards Kaniet Island. Found an RD FAD not on the new list but on old list on bridge plotter at 1151hrs, 14nm S of Kaniet Is with big school and strong current. First came the yft and then the boat drifted away in the current. Headed back and this time many skj and the 3rd round for more skj. Rain approaching in the 4th

and 5th round, as well as a few be but biting slowed down. Tagged 1770 sj (33-48cm), 154 yf (30-48cm) and 3 be (36-37cm) on this one with 3 tanks of bait. Stopped fishing 1430hrs and decided to search south to W of Hermits. Came upon a splasher 1643hrs but the school disappeared very quickly. Tried another late afternoon school of jumping yf at 1747hrs but was not successful. Still 3 tanks of strong bait remaining and alot of data that are yet to be entered. Headed for Hermits to top-up our bait supply for the trip S to N coast Madang via the 48m Seamount. Arrival at baitground will be late but should be enough time to make a set if those good bait are still there. Anchor down same position as yesterday at 2215hrs and opt not to use the light boat this time. One of the underwater lights (front/bow) not working and engineers request to send email to John Terri if he can send spare bulbs with BRK if possible.

May 14th

Start set at 0330hrs under slightly rough condition for 135 buckets of similar species composition like yesterday. Headed out to fish south. First FAD on fishing plan missing so continued searching south. Arrived RD8511 with no sign of fish even on sounder. Changed direction west to Fabelle FAD #828 6nm but FAD missing so changed course S again. Spotted a drifting FAD 1005hrs with satellite buoy and no fish as well. Another drifting FAD with no buoy a mile away also did not produce any result. Checked RD8326 and nothing. Attempted a school of big yft at 1432hrs without success. Still using only one bait tank. Arrived FRA#803 at 1503hrs with some signs of life. Tagged 78 sj and 17 yf - all z-sizes. Big yf seen jumping but not biting. Found another school of good size yft at 1629hrs where RD8116 supposed to be but missing. Didn't catch any of those yf though who seemed to be enjoying themselves splashing around. Last school for the day on FRA#804 with 119 sj, and 74 yf tag releases. There was also a bigeye caught at bow but dropped hard on deck and got the automatic selection for the sampling lineup. Stopped fishing and searching at 1745hrs and steamed towards the 48m seamount now 20nm SW. Plan to drift and fish seamount tomorrow morning. Stopped engine 1930hrs 3nm from position to drift with plenty of bait in 3 and half tanks.

May 15th

Engine started 0445hrs 7nm NW from seamount position and started steaming. Commenced sounding of NW of seamount 0530hrs until first school 0608hrs of rru poled. Proceeded east and another school and more rru on poles. Followed birds to the S and this time small sj and some fri started biting then came the rru again who seemed to be showing their ownership of this place. Manage to tagged 114 sj. Continued further S to another school with good size yft which briefly came to the boat. Tagged 5 of them before the rru came again and another basket poled for lunch. Chased another yft school 0748hrs a little bit more further S without success. Some big size sardines would be good for this one. Head back up again and couple more stops for more baskets of rru poled, flicked, kicked, hammered, whatever. Then followed birds W of Seamount in pouring rain and hopefully no rainbow. Found a good school 0902hrs after rain subsided of mixed sj and yf. Sticked to this school a bit longer circling 3 more times trying to dodge the rru who were finishing our bait. Tagged 125 sj, 131 yf and 2 be including big yf >60cm. Decided to fish down towards Manam 1015hrs with only half a tank of bait left. Found a log 1123hrs but looks fresh and no much on it yet. Final school for the day on RD8324 1353hrs where the remaining bait was used for 17 sj and 6 yft tag releases. Headed for Hansa Bay to bait tonight then fish more of Western Bismarck tomorrow. Arrived baitground 2100hrs and anchored W of Laing Island.

May 16th

First haul at 0200hrs for 32 buckets of mostly weak rainbow sardine and indicus and quite big ones. A few white sardine, hh and blue sprat also present. Second set on light boat provided 45 buckets of same. Headed out to fishing ground NE of Manam Is 0400hrs. Met first school of big yellowfin 0743hrs. School responded briefly our bait but not enough bait to continue pursuit. Found RD8233 at 0926hrs with several small logs around. Tagged 186 sj and 2 yf with most of

the bait. Decided to just confirm position and availability of fish on other FADs in the vicinity for tomorrow fishing with the remaining bait in the chum tanks. Two FADs chosen were missing so headed back to Hansa Bay for early baiting to make 3 or 4 sets if necessary. Good weather with light SE winds. Steamed past the east side of Manam the volcano Is 1630hrs with clear summit but still hot from the looks of it. More vegetation coverage than on the western side. A relaxing afternoon for everybody. Arrived Hansa bay 1810hrs and anchored where light boat was yesterday. First set at 1130hrs just after moon set for 40 buckets of same weak bait and another 25 buckets on light boat.

May 17th

Decided not to continue baiting and departed baitground 0045hrs. Plan to fish back N and bait at Hermits tonight. Headed straight for the 48m seamount to try the yellowfin schools that were there last time with our big bait. Although half of it would be dead by lunch time. Tried the first school 0938hrs at the seamount but rru again. Many fish still around the vicinity. Tried another school this with the big yft but not interested in our Hansa bait. Tagged only 1 small yellowfin. Investigated another school but only mackerel. Continued fishing N towards Hermits. Arrived Frabelle FAD #804 at 1158hrs and tagged 70 sj and 8 yf with the last of survivors in the bait tanks. Steamed for hermits with an ETA of 1930hrs hoping to fill up with some good bait and fish SW down to Madang. Another fine weather and another relaxing afternoon for all after various cleaning tasks undertaken by the crew. Report writing, movies and siesta for others. Learnt that one of the crew, Mitchael the light boat oprator is sick (fever, muscle ache). Currently doing fine on panadol and bed rest but might have to get him checked if condition become necessary. Arrived baitground on time and anchor down by 1940hrs.

May 18th

First haul at 0100hrs for 175 buckets of mixed sprats, hh, few anchovies and cardinals. There was also more big sardinella than the other nights spent here. Another 77 buckets on light boat for more sardinella than sprats. Departed Hermits 0330hrs to fishing ground. First FAD 30nm SE was missing so continued S. Found a log 0959hrs with good school. Spent an hour on this school for 112 sj, 134 yf and 2 small be tag releases. A revisit of FRA#803 1242hrs as it was the closest FAD. Tagged 156 sj and 8 yf then continued SE. Another quick revisit of FRA#804 for 14 sj and 3 yf as well as a couple of recaptures. Found an Unknown RD FAD 1552hrs for 161 sj, 47 yf and 1 be tag release. Continued searching until 1730hrs. SW current a bit stronger than expected so did cover as much ground as planned. Two and half tanks now remaining for tomorrow. Steamed all night to FADs N of Karkar to drift and will fish the next day down to Madang.

May 19th

Started Fishing 0545hrs on an Unknown RD FAD that was floating nearby. Many fish jumping, but very very small sj and yf almost the same size of our big sardine bait <25cm. Tagged only 4 sj, 8 yf and 2 be before departing the school. Attempted a free school 30mins SE but not interested in our big sardine. Found a log 0814hrs and released 60 tags on 45 sj and 15 yf mostly small sizes. Current more stronger than yesterday and now steaming directly against the SE wind with speed dropping to 8knts. Continued searching towards Karkar Island. 4 FADs on the fishing plan were missing so headed for Madang through Karkar and Bagbag Is. Met a free school at 1531hrs south of Karkar Is. Mostly big skippies (44-63cm) and managed to tagged 97 of them plus 3 big yf before they disappeared. Bait almost finished now, only enough for 1 more school left and probably the last for this cruise. Chased another school of big yf 1641hrs until bait ran out. Steamed for Rasch Pass to bait and drop-off Francois by dinghy to the hotel. Arrived baitground 1800hrs. After final fairwells from the crew, BES and CHM, Francois was transported to Madang Resort accompanied by CL. Met up with ADL and BML at the resort and brought back the the spare underwater light sent from Noro. New light now fitted by engineers and working alright.

May 20th

First set a 0200hrs for 38 buckets of mostly dusumieria spp, indicus and blue sprats. Set on light boat resulted in another 33 buckets. Decided to put the lights down again for another hour. The third set at 0500hrs was a bit better with 85 buckets of similar weak species. Anchor up and head out of passage to Madang Harbour entrance. Arrived main wharf 0710hrs. End of Cruise 2 and start of Cruise 3.