

# PACIFIC TUNA TAGGING PROJECT WP 3

## CRUISE REPORT No. 5

### FSM and PNG waters

29<sup>th</sup> September – 15<sup>th</sup> October 2009

#### INTRODUCTION

This report summarizes activities of the fifth cruise of the Pacific Tuna Tagging Project (PTTP) Phase 2 WP3 during an seventeen day period in September/October 2009. The vessel fished from Kavieng up to Pohnpei and back, along the 156<sup>o</sup> E line, then fished the north-eastern Bismarck and across the northern Solomon Sea to Buka, crossing to the east coast of Bougainville before returning to Noro at the end of the charter and the conclusion of the PTTP.

Scientific personnel onboard the Soltai 105 during Cruise 5 are listed in Table 1.

**Table 1. SPC and In-Country personnel onboard during Cruise 5**

Name	Title	Affiliation	Period
Antony Lewis	Cruise leader	SPC contractor	29/09/09 – 15/10/09
Hearty Matamaru	Tagging technician	SPC contractor	29/09/09 – 15/10/09
Peter Williams	Database Manager	SPC	29/9/09 – 10/10/09

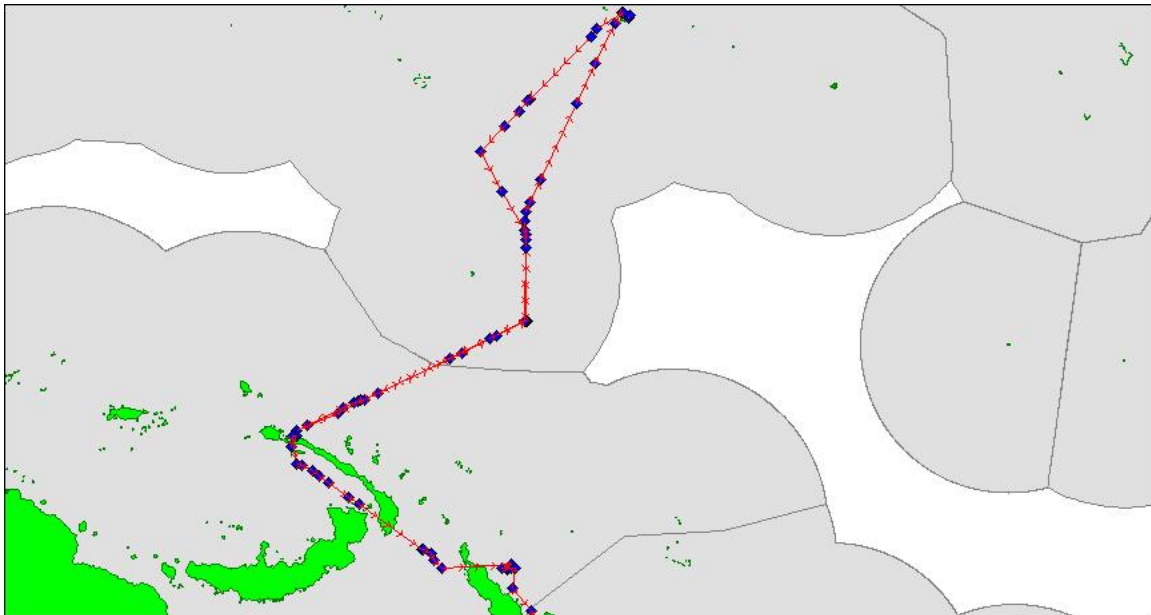
#### GENERAL DESCRIPTION OF SEARCHING and FISHING ACTIVITY

After departing Kavieng with limited bait, the vessel fished north-east to join the 156<sup>o</sup>E line at the equator; very few fish were seen on this transit across open water. Fish were however found in association with the TAO buoys at Equator and 2<sup>o</sup>N, including some larger bigeye and yellowfin, before running out of bait and steaming in to Pohnpei. Baiting was very poor in Pohnpei harbour, resulting in no local fishing during the visit, but enough bait was eventually gathered to make the return journey along the 156 meridian. Again, fish were found on all the TAO buoys but virtually nothing in open waters. Several days were spent steaming without bait into Kavieng. Following departure from Kavieng for the last time, some good fishing was found on the Albatross FAD, some schools in the eastern Bismarck Sea which did not bite well, some fishing on a log across the northern Solomon Sea, then on the final day, good fishing on the FADs east of Bougainville before heading home to Noro.

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

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

**Figure 1: Cruise track during WP3 Cruise 5**



**Table 2 Summary of Cruise 5 activity, with the number of conventional and archival tag releases per day**

Date	Activity	Conventional releases			Archival releases			Total releases
		SJ	YF	BE	SJ	YF	BE	
Sept 29 <sup>th</sup>	Departure Kavieng; fishing -> TAO Eq 156E		5					5
Sept 30 <sup>th</sup>	Fish TAO Eq then fish -> TAO 2N 156E	1						1
Oct 1 <sup>st</sup>	Fish TAO 2N then fish -> TAO 5N 156E	1056	168	159				1383
Oct 2 <sup>nd</sup>	Fish -> Pohnpei; bait outer harbour							-
Oct 3 <sup>rd</sup>	Clear in to FSM; full moon break							-
Oct 4 <sup>th</sup>	Full moon break; baiting outer harbour							-
Oct 5 <sup>th</sup>	Resume full moon break; baiting Matalanim							-
Oct 6 <sup>th</sup>	Clear out FSM; fish towards TAO 5N 156E	6						6
Oct 7 <sup>th</sup>	Fish TAO 5N, then fish -> Nukuoro; bait							786
Oct 8 <sup>th</sup>	Fish -> TAO 2N, then -> TAO Eq	750	243	194				1187
Oct 9 <sup>th</sup>	Fish TAO Eq, then steam -> Kavieng	183	76	35				294
Oct 10 <sup>th</sup>	Continue -> Kavieng; baiting							-
Oct 11 <sup>th</sup>	Clear in to PNG ;fish Albatross FAD; baiting	1155	147					1302
Oct 12 <sup>th</sup>	Fish Dyaul then -> north Solomon Sea	29						29
Oct 13 <sup>th</sup>	Fish -> Buka; bait	520	276					796
Oct 14 <sup>th</sup>	Fish east Bougainville; clear out Kieta	854	521	91				1466
Oct 15 <sup>th</sup>	Arrive Noro – end of charter.							-
	<b>CRUISE TOTAL</b>	<b>5064</b>	<b>1647</b>	<b>544</b>				<b>7255</b>

## TAG RELEASES

Of the 17 days of the cruise, six days were spent in port for the full moon break or because of lack of bait, one day steaming without bait, and 11 days or part thereof fishing. The bulk of the cruise was spent in FSM waters (10 days) with 6 days in PNG waters, and the return to Solomon Islands on the final day.

A total of 7255 fish was tagged and released with conventional tags during the cruise, comprising 5064 skipjack (69.8%), 1647 yellowfin (22.7%) and 544 bigeye (7.5 %). No archival tags were deployed during the cruise (none were available).

3657 fish tagged during the 10 days in FSM waters, mostly in association with the array of TAO buoys along the 156E meridian. Two of these days produced zero catch and other days fishing or part thereof were aborted due to lack of bait. The 5 days in PNG waters, in the eastern Bismarck sea, north Solomon Sea and east of Bougainville, produced 3598 fish

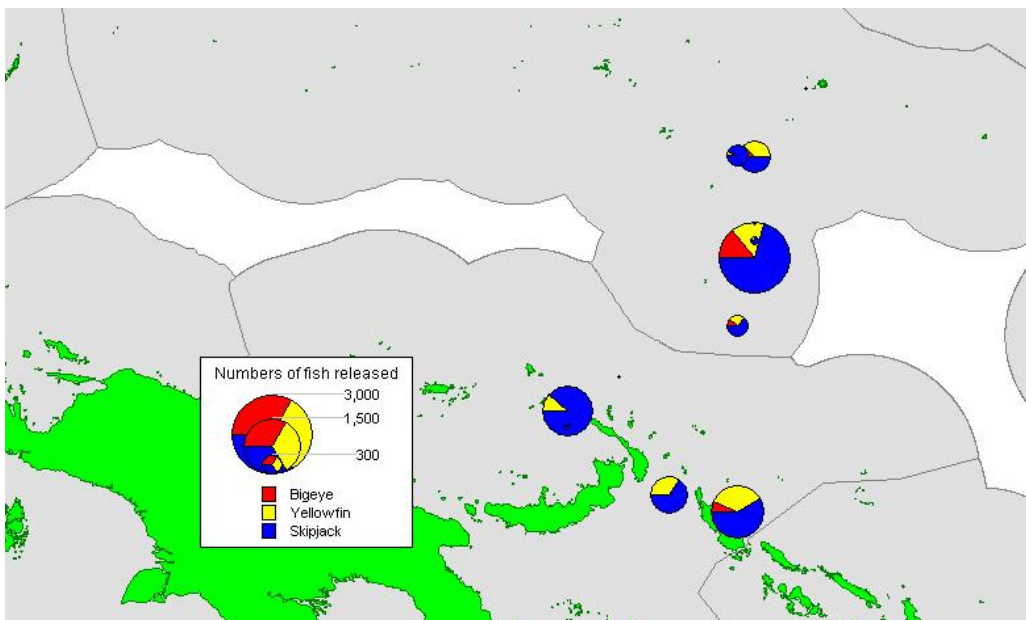
The average number of fish tagged per day's fishing was 660, a lower average result relative to other cruises.

The majority of the releases (5,278 – 73%) were the larger P tags (generally fish > 37 cm), but with a significant number (1,977 -27%) of the smaller 11cm Z tags used on skipjack 32-37 cm, and yellowfin and bigeye 27-37 cm.

The majority of releases (78%) involved fishing in association with anchored rafts (FADs), but with a good proportion of releases on log schools (22%); very few releases were made on free schools.

The Cruise 5 releases are summarized by school, location, school type day and area in **Appendix Table 1**, whereas **Figure 2** shows the distribution of releases during the cruise

**Figure 2** Distribution of tag releases by species during Cruise 5



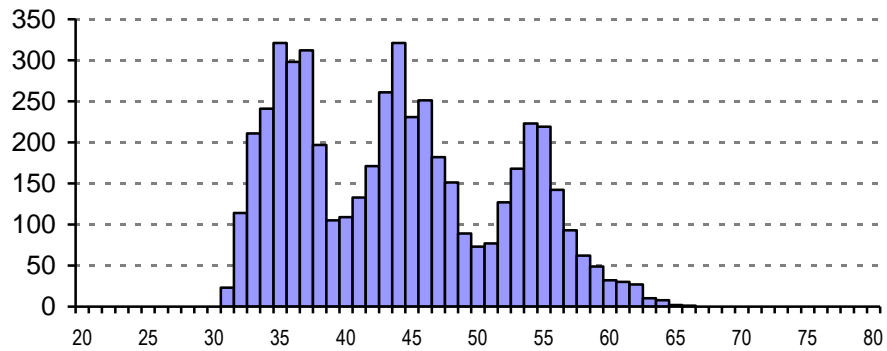
## SIZE DISTRIBUTION OF TAGGED FISH

**Figure 3** shows the size distribution of fish tagged during Cruise 5. The skipjack size distribution shows good modal structure, with three clear modes at 36, 44 and 55 cm.. The yellowfin size distribution shows two modes (38 and 48 cm) were slightly larger on average, with a large composite mode centred on 52cm, with a tail of larger fish. The bigeye sizes are widely distributed between 35 and 80cm with some modal structure.

**Figure 3. Size distribution of fish tagged during Cruise 5**

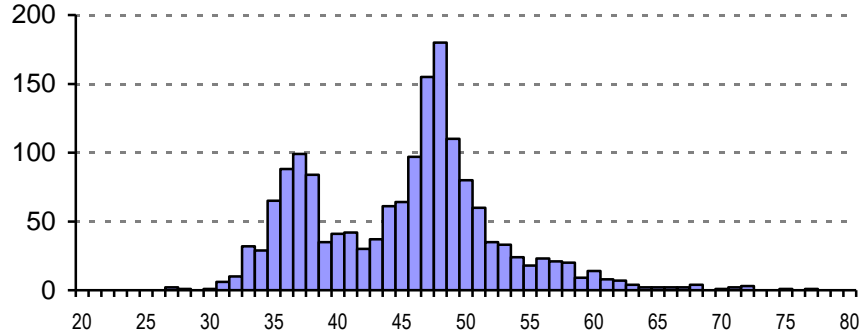
**Skipjack**

**n = 5064**



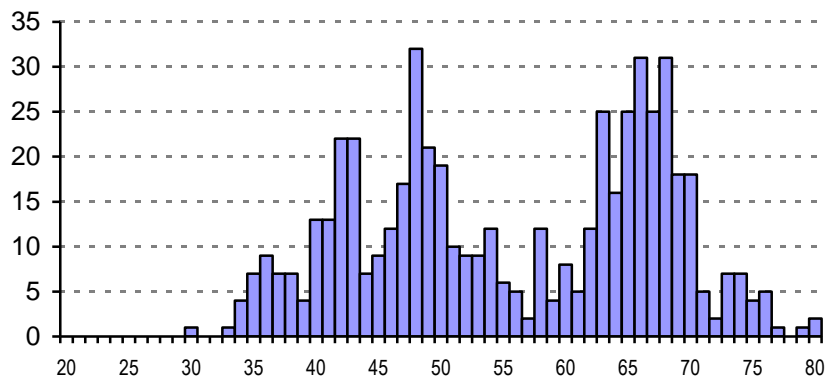
**Yellowfin**

**n = 1645**



**Bigeye**

**n = 544**



## BAITING

Good baiting was experienced at the regular PNG locations of Nusandaula (New Hanover) and Taiof Island (Buka), but was very poor in FSM waters (Pohnpei outer harbour, Nukuoro) with the exception of Matalanim Harbour where enough bait was found for the journey south. Baiting in the Pohnpei outer harbour seems to have been affected by the regular presence of numbers of well-lit transshipment vessels

At the PNG locations, fusiliers were more abundant than usual, and with gold-spot herring, provided the mainstay of baiting in contrast to the usual anchovies

**Table 4 Summary of bait fishing activity during WP3 Cruise 5**

Date	Location	Catch (bkts loaded, hauls)	Species
Sept 29 <sup>th</sup>	Nusandaula	145 (3)	Anchovy, Hq , sardine
Oct 2 <sup>nd</sup>	Pohnpei OH	13 (2)	Sardine, <i>Selar</i>
Oct 4 <sup>th</sup>	Pohnpei OH	8 (4)	"
Oct 5 <sup>th</sup>	Matalanim Hbr	326 (4)	Herring (Hq), <i>Decapterus</i> , <i>Selar</i>
Oct 7 <sup>th</sup>	Nukuoro	4 (2)	Sprats
Oct 10 <sup>th</sup>	Nusandaula	312 (2)*	Fusiliers (Gg), herring, sardine
Oct 11 <sup>th</sup>	Nusandaula	167 (1)	Fusiliers (Gg), herring
Oct 13 <sup>th</sup>	Taiof Is., Buka	165 (1)*	Fusiliers, sardine, sprat (l), Hq
Total			

\* partial loading

## CONCLUSIONS

This cruise provided a suitable conclusion to the PTTTP, with a fourth run along the 156E TAO buoys providing good fishing, including good numbers of larger yellowfin and bigeye, in contrast to open waters which were almost devoid of fish, presumably El Nino related. In a fitting farewell to Kavieng, the Albatross FAD again produced good fish then some good fishing in northern Solomon Sea and on the FADs east of Bougainville, with over 7200 fish for this final cruise, including 544 bigeye and 1647 yellowfin.

Close to 30,000 fish were released in PNG waters during 2009 and just under 250,000 for the 19.5 months of charter involving Soltai 6 and Soltai 105 since August 2006.

A job well done ...

## APPENDIX TABLE 1

### Releases of tagged fish by date, location, school type and species during Cruise 5

Event no	Tagged sch no.	Date	Lat	Lon	Sch type	Assoc.	Start	Stop	YFT	TAG TOTALS				TOTAL
										BET	SKJ	OTH		
2	1	29-Sep-2009	0148.287S	15212.037E	1	2	1430	1444	5	0	0	0	5	
6	2	30-Sep-2009	0000.461S	15601.429E	3	1	1740	1752	0	0	1	0	1	
8	3	01-Oct-2009	0157.471N	15600.512E	3	3	0649	0809	150	157	1017	0	1324	
9	4	01-Oct-2009	0216.488N	15558.343E	2	1	1014	1028	0	0	1	0	1	
10	5	01-Oct-2009	0229.202N	15600.323E	2	2	1200	1225	13	2	37	0	52	
11	6	01-Oct-2009	0241.671N	15605.600E	1	2	1358	1412	5	0	1	0	6	
12	7	06-Oct-2009	0636.806N	15736.522E	1	1	1625	1629	0	0	6	0	6	
13	8	07-Oct-2009	0458.243N	15601.875E	1	3	0625	0702	198	65	258	0	521	
14	9	07-Oct-2009	0444.965N	15550.991E	1	2	0850	0903	13	0	252	0	265	
15	10	08-Oct-2009	0157.410N	15600.538E	1	3	1233	1306	108	189	83	0	380	
16	11	08-Oct-2009	0157.405N	15600.615E	1	3	1515	1610	135	5	667	0	807	
17	12	09-Oct-2009	0000.647S	15558.456E	1	3	0610	0655	76	35	183	0	294	
18	13	11-Oct-2009	0249.856S	15040.699E	1	3	0522	0657	147	0	1155	0	1302	
20	14	12-Oct-2009	0315.584S	15054.691E	3	8	0635	0650	0	0	28	0	28	
23	15	12-Oct-2009	0359.902S	15158.216E	4	1	1548	1615	0	0	1	0	1	
24	16	13-Oct-2009	0510.582S	15339.934E	3	2	0610	0734	276	0	520	0	796	
28	17	14-Oct-2009	0536.758S	15533.758E	3	2	0555	0650	139	75	236	0	450	
30	18	14-Oct-2009	0536.220S	15545.980E	3	3	0824	0920	382	16	618	0	1016	
<b>CRUISE 5 TOTALS</b>									<b>1647</b>	<b>544</b>	<b>5064</b>	<b>0</b>	<b>7255</b>	

## APPENDIX 1

### DAILY LOG EXTRACTS – WP3 Cruise 5

#### Sept 29<sup>th</sup>

Up anchor 0200 hrs and out via Byron Strait; sea flat calm - searching brief = fish logs and dFADs only; SE wind up mid-morning with moderate low swell; 3 bamboo clumps and one log checked during the afternoon, but just 5 YF tagged; increased speed 1700 hrs - will cross into FSM waters 0300 hrs tomorrow and change clocks.

#### Sept 30<sup>th</sup>

Crossed into FSM waters 0430 hrs local time; some head current during the night; spymasters constrained not to search until 1400 hrs, because of tight time frame to get to TAO Eq 156E; some good fish seen but passed up and arrived at buoy 1700 hrs; acres of rippling fish down to 50m and another large rippler 2-3 nm away; plenty of natural bait and no interest in biting; tried the rippler 3nm away but similar; whales nearby and fish on sounder when steaming between stations; returned to TAO buoy just before dark, but again no interest in the bait; gave up 1830 hrs and headed for TAO 2N; one fish for the day, after 5 yesterday - not exactly a purple patch, but has been normal for the past 2 weeks; FAD closure finishes today ..

#### Oct 1<sup>st</sup>

Good steam overnight and in vicinity of TAO buoy 0645 hrs; no fish evident but small SJ (32-38cm) initially came up, then later slightly bigger Yf then larger BE; numerous passes, and bit for an hour and 20 minutes - eventually 1324 tagged, with 150 BE (to 80cm, but most 50-70cm), 157 YF and 1017 SJ; used most of the bait however and scratched another 56 for the rest of the day on a few logs before bait finished; a good morning nonetheless, and nice to see the two-pole bigeye in numbers; heading direct for Pohnpei overnight in good weather.

#### Oct 2<sup>nd</sup>

Helpful current overnight but stiff westerly wind early morning which soon died down; glassy calm heading past Ngatik 1130 hrs; one spearfish tried to hook up 3 times but not successful; no other action all day other than several schools sighted between Ngatik and Ant - mer d'huile; anchored in outer harbour 2030 hrs in 50m under bright moon and with 3 p/s vessels transshipping - possibly a tall order to get bait one night before full moon and moonset 0502 hrs.

#### Oct 3<sup>rd</sup>

Very poor bait signs all night under bright moon with no cloud; first haul 0400 hrs for 10 bkts plus ~ 30 small mackerel tuna discarded; second haul on lightboat 0500 hrs for just 3 bkts .. not really enough to go fishing; approval to go alongside 0830 hrs, initially 4 wide at CFC, then after at main wharf; clearance quick and efficient, with 6 other boats to be cleared; provisions and other shopping, the quick visit to TCC meeting at Palikir; function in the evening long into the night and some moderate howling.

#### Oct 4<sup>th</sup>

Alongside at main wharf all day - left 1720 hrs for baiting, just before RL grand final kicked off, with full cloud cover and some light rain; Tim Park (FFA) as observer; anchored in 50m 180 hrs; first haul 0745 hrs for just one bkt- good show of sardines but escaped between stern and haul; second net on light boat, still with some cloud cover 2030 hrs, for zilch.

#### Oct 5<sup>th</sup>

Moved closer inshore; third net with few signs 0200 hrs for 5 bkts large sardines; final haul 0400 hrs after waiting for an hour, but again zero catch; cancelled trip with Sean Dorney and Aust Embassy staff, and alongside 0515 hrs; much of morning with filming and interview with ABC; deposited Wakio at hospital for overnight stay; cast off 1430 hr and anchored Matalanim Hbr in 40m 1730 hrs; some cloud cover but moonrise 1840 hrs; first haul 1930 hrs for 163 bkts but much

weak herring and large sardine; second net under bright moon 2030 hrs for another 47 bkts with much larger bait.

### **Oct 6<sup>th</sup>**

Third haul under good cloud 0230 hrs for 4 bkts only; final haul on lightboat 0430 hrs for 112 bkts - anchovy and Hq .. 326 in total less the considerable mortality expected; up anchor 0530 hrs and headed in to Pohnpei; two nice wahoo trolled at north point; alongside 0810 hrs - Immigration and Customs already there, Quarantine soon after and cleared by 0930 hrs; Nukuoro folks welcoming; Wakio retrieved from Genesis Hospital at great expense but much better which is the main thing ; bank account sorted, fish delivered, another interview for local book writer, Sean given additional footage for coverage etc etc; ready to go by 1130 hrs and cast off 1145 hrs; speed increased, and making 10 kts passing Ant Atoll; nothing sighted during the afternoon save a school of small SJ fished 1630 hrs - most too small (< 30cm) but 6 tagged; steaming overnight in good weather, with some head current - should be at the TAO 5N 0630 hrs.

### **Oct 7<sup>th</sup>**

Reached TAO 5N in calm conditions 0620 hrs; no surface signs but fish came up quickly and good bite for 40 minutes. mostly Z tags, 521 total, with 50% YF (198) and BE (65); log with small SJ at 0800 hrs - 265 tagged but just 13 YF; nothing for the rest of the morning; stiff westerly getting up; nothing all afternoon - in the pass 1730 hrs and anchored 1747 hrs; soon greeted by Mayor and others; filled the forms, and received approval to bait; no messages had been received so our second visit was a surprise - no calls from Sherman (Ace) or Eka (ex-Major) as radio out; good discussion before returning to village; also helped with putting additional markers on passage for midnight exit; bait slow to gather - good show close to bottom but did not come up; first haul 0845 hrs just as moon came up and a good crowd to witness; alas, just 2 bkts of sprats; second set on lightboat 2130 hrs, also for 2 bkts - some escapees but some bait never came across; fed and watered the masses and talked story while waiting for bait but it never came; decided 2330 hrs to cut and run; stirring farewells then good and safe exit through pass with little current, as planned; out into the deep blue before midnight, bound for TAO 2N.

### **Oct 8<sup>th</sup>**

Steaming overnight in kind sea; nothing sighted all morning; reached TAO 2N at 1230 hrs - fish quick to come up, initially small SJ and YF, then larger BE arrived (60-75 cm); great action, with handlines admidships as well as double poling; 189 BE tagged of a wide size range, 109 YF and just 83 SJ, so 79% YF and BE; no fish on second pass so opted to drift for a while; BE initially stayed with ship and tempting to try to carry them but wind and current in concert and fast drift; steamed up-current then drifted until 1500 hrs, with 2 good tanks left; will save one for the morning on TAO Eq; second trip to buoy quite different - large fish began jumping (YF) at chumming then good long bite with small SJ and some YF before larger SJ (to 60cm) then large YF (up to 80cm) arrived; bigeye never showed (5 tagged); 807 for the school and 1187 for the day (36% YF and BE); the 250,000 mark smashed and of course another bonus; no more searching, with just one tank left, and headed for TAO Eq.

### **Oct 9<sup>th</sup>**

Good steam overnight with sea flattening out and no wind; drifting near TAO Eq at 0430 hrs; good mark under the buoy and started fishing in the dark - medium size YF and BE came up, and about 60 tagged before drifting away; then good but brief SJ bite (all P tags) with a few YF and BE; in full daylight, large area of rippling fish but mostly RR and did not bite; bait down to just large Decapterus and Selar, so called it off and ate the remaining bait for breakfast; started the long haul to Kavieng 0700 hrs, with ETA Saturday night; sea oily calm but battling head current so increased speed at noon; marlin trolled at 1430 hrs, to relieve the monotony; confirmed details of clearance from Buka Tuesday morning; clocks turned back one hour at midnight;

### **Oct 10<sup>th</sup>**

Abeam Lyra Reef 0400 hrs; Heavy rain much of the morning, but then calm; making good speed; nothing trolled or sighted; invitational BBQ at 1730 hrs, to clear freezer stocks, with 8 crew names



drawn from the hat - well enjoyed; passed a boiler of MT/AT at 1715 hrs, as in the old days, and managed to lure two large YF on the fringes (117,135 cm) - perfect for the GG tomorrow morning; at top of Byron St 1930 hrs and anchored Nusandaula 2000 hrs under full cloud; full complement of canoes from Lavongai .. and bait quick to gather - first haul 2300 hrs, before moonrise; 247 bkts, mostly fusiliers and herrings (Hq); second net midnight on lightboat for ~ 200 bkts of sardine - mostly too large, so scooped out 100 bkts, loaded ~ 65 bkts (but some straining - say 40) and let rest go.

### **Oct 11<sup>th</sup>**

Up anchor 0300 hrs and headed for Albatross FAD; on raft at 0520 hrs - fish came up immediately and bit for 1.5 hrs before breaking off and heading for Kavieng; alongside 0900 hrs; hurried preparations for GG visit; he was welcomed by excellent rendition of Solomons anthem, then tour of the vessel with full bait tanks, fresh fish for tagging demonstration, nice whiteboard display by Hearty, and presentation of 40 kg YF and tagging shirts; numerous photos and all happy; some provisioning, lunch at the island, last clearance from Kavieng 1500 hrs then headed out 1700 hrs for Nusandaula; first haul 167 bkts of mostly fusiliers, enough to fill up; up anchor 2345 hrs and headed for Dyaul FAD.

### **Oct 12<sup>th</sup>**

Drifting from 0500 hrs close to Dyaul FAD; one shark longliner nearby; signs under the raft but fish did not come up; fished toward seamount - good school 0630 hrs but did not stay long on the bite - several marlin cruising in the school; 28 tagged, all SJ; increased speed in the face of north-setting current; running school chased 0900 hrs but never slowed down; nothing else sighted all morning; one wahoo trolled 1030 hrs; chased one good school with lots of frigates near Watom Is - came up twice around the boat but just one tagged; water dirty from ash from Matupit which was very actively spewing ash and pumice; had to stop searching 1730 hrs as just too much ash in the air; head current through St George's Channel until after midnight

### **Oct 13<sup>th</sup>**

Current changed when through the channel and making over 10.5 kts heading for Buka; confused choppy sea; found good log at 0600 hrs, with breezer close by; did not bite at log but good bite for over an hour on the breezer - 796 tagged (276 YF - 35%), all P tags; free school 0845 hrs but did not come up on chum; opted to divert to 488m seamount south of the track, since making good time; a few scattered birds but nothing substantial; nothing on the way in except several patches of large YF; one tazar trolled in the pass then anchored 1550 hrs; numerous canoe visits then waiting for last bait shot on Soltai 105 - momentous; first haul 2145 hrs for large catch with much large sardine; some Ulua floated up, to be seized by eager villagers; many sardines scooped out (100 bkts ?) then 165 bkts of fusiliers, sprat and sardine loaded and the rest let go or given to canoes; up anchor 2300 hrs and threaded the passage; current very strong and making only 5 kts at full speed; safely thorough before midnight and headed for east coast FADs.

### **Oct 14<sup>th</sup>**

Good steam in calm seas with no wind; on RD 8129 at 0445 hrs - full daylight at 0500 hrs; large area of rippling and jumping fish close to FAD but no bite despite various tricks employed; headed for RD 7670 but met large log on the way; area of breezers all around - short sharp bursts of biting, and a lot of bait used, but good YF and BE; 450 tagged, for 139 YF and 75 BE; RD 7670 with few signs and just RR; ran into breezers on the way to RD 7661 - again large area of fish but sporadic biting only; 1016 tagged, with 382 YF and 16 BE; bait finished and headed for Kieta 0940 hrs in flat calm; alongside 1305 hrs, cleared out by 1415 hrs; headed for Noro; crossed into Solomons waters about 1900 hrs and advanced clocks one hour.

### **Oct 15<sup>th</sup>**

Good steam into Noro in calm seas; cleaning net and tidying up in Hathorn Sound 0745 hrs, but not called alongside until 0900 hrs for clearance - end of cruise, end of PTTT.