

PACIFIC TUNA TAGGING PROJECT WP 2

CRUISE REPORT No. 1

15th – 23rd March 2009

INTRODUCTION

This report summarizes activities of the first cruise of the Pacific Tuna Tagging Project (PTTP) WP2 I 2009, during an 8 day period in PNG waters. The vessel departed from Noro on March 15th, and fished in Milne Bay waters (PNG) for 7 days before returning to Noro on March 23rd. The cruise was undertaken by special arrangement with the PNG authorities as an extension of the PNG Tuna Tagging Project which commenced in August 2006. It aimed to take advantage of usually favourable weather prevailing and the expected good fish abundance in the southern Solomon Sea, where tagging had not previously been undertaken. Previous PNG TTP releases had however been made in the central Solomon Sea, operating from the south coast of New Britain, in February-March 2007 and May 2007, as well as in the eastern Solomon Sea during Solomon Islands-based cruises.

GENERAL DESCRIPTION OF FISHING ACTIVITY

Following departure from Noro on March 15th, the vessel steamed to Patutiva (New Georgia) to bait and then fish across the Solomon Sea to Milne Bay waters. With full bait tanks, fishing was carried out with some success on the traverse, just after crossing into PNG waters. The vessel then steamed overnight and fished initially north of Rossel Island on logs, free schools and whale shark-associated schools before going in to bait. For the next five days, the vessel fished in an area bounded by Rossel Island in the east, and Misima Island in the west, but well south of Woodlark Island. This activity was supported by successful baiting on three nights at Hei Huti Bay, Pana Tinane, the single bait location approved for the cruise. Good fishing was found mostly on log and whale shark-associated schools in the area, but also some free schools. Nearly 9000 fish were tagged and released in the 5 days fishing, despite worsening weather conditions. The vessel checked Pocklington Reef for a possible entrance to the extensive lagoon and attempted to fish the vicinity in difficult conditions, but only schools of small skipjack were found before the vessel headed for Noro on March 22nd.

The track of the cruise, based on school and noon positions, is found below as **Figure 1** and a summary of general movements during the cruise and daily tag release numbers follows as **Table 1**. A compilation of the daily log extracts, detailing daily activities, is provided as **Appendix 1**.

TAG RELEASES

Seven days of the short cruise involved fishing, with all but a few of the fish tagged in PNG waters. All fishing days were productive, with 9242 fish tagged with conventional tags and one archival tag, at an average of 1333 fish per fishing day.

Releases of conventional tags comprised 4,675 skipjack (52%), 4,423 yellowfin (48%) and 41 bigeye (< 1.0%). The "yellowfin plus bigeye" proportion of the catch, at 48.0%, was maintained as a result of much fishing occurring on associated schools, with free schools generally yielding less than 25% yellowfin. Yellowfin comprised over 50% of the catch on three fishing days. Bigeye were taken in small numbers throughout the cruise, but never more than 15 in a day.

The Cruise 1 releases are summarized by school in **Table 3**, while **Figure 2** below shows the distribution of the releases in FSM waters by 0.5 degree square, by species.

Figure 1. Track during WP 2 Cruise 1, 15th – 23rd 2009, showing the positions of schools fished

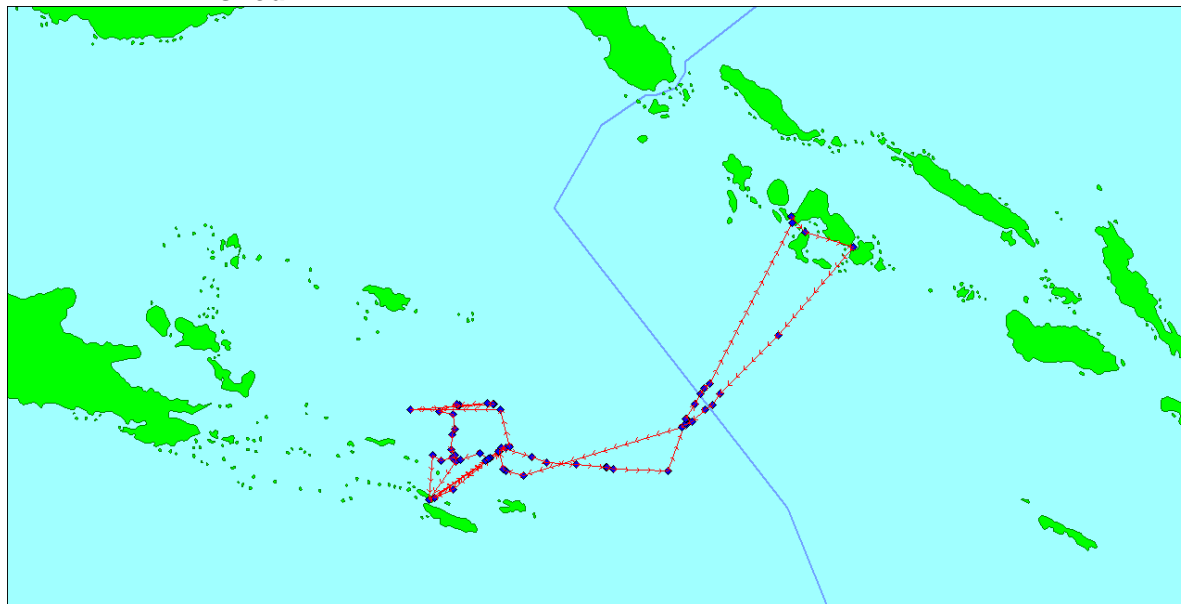


Table 1. Summary of Cruise 1 activity, with number of tagged fish released per day

Dates	Activity	Tag releases		
		SJ	YF	BE
March 15 th	Depart Noro for baiting at Patutiva			
March 16 th	Steaming towards Pocklington Reef; cross into PNG waters	123	247	1
March 17 th	Fishing north of Rossel Island; baiting Hei Huti Bay, Pana Tinane	634	275	13
March 18 th	Fishing east of Misima; baiting Hei Huti Bay	1613	887	1
March 19 th	Fishing NE of Misima; drifting	403	318	6
March 20 th	Fishing east of Misima; baiting Hei Huti Bay	1128	1749	2
March 21 st	Fishing north of Rossel Island; steaming overnight	700	961	18
March 22 nd	Fishing around Pocklington Reef, then steaming to Noro	154		
March 23 rd	Arrive Noro; prepare for departure to FSM			
	TOTAL (9243)	4765	4437	41

Nearly 58% of the Cruise 1 releases were from log schools, with logs and flotsam commonly encountered in the area but no anchored FADs in this section of PNG waters. Whale shark-associated schools were also common in the area (12% of releases), and their presence may have been considerably underestimated, given the unobtrusive nature of the association.

Just 30% of the releases were from unassociated (free) schools, with skipjack comprising 78% of these releases. On the other hand, yellowfin comprised the majority of releases from log and whale-shark schools (57% and 70% respectively); the proportion of bigeye tagged, low during the cruise, was highest from whale shark-associated schools.

With most releases from associated schools, typically with a high incidence of smaller fish, a majority of releases of conventional tags (58%) were the smaller 11cm Z tags (5357), and 42% (3885) the 13 cm P tags. Z tag releases were approximately equal numbers of skipjack (2,684) and yellowfin (2,668), whereas P tags numbers were greater for skipjack (2082) than yellowfin (1769).

Figure 2. Distribution of releases in FSM waters by half degree square, by species, for PTPP Phase 2 Cruise 2 (18/07 to 14/08/2008)



ARCHIVAL TAG SUMMARY

During Cruise 1, just one medium-sized bigeye (59 cm) was tagged and released with an MK 9 archival tag.

SIZE DISTRIBUTION OF TAGGED FISH

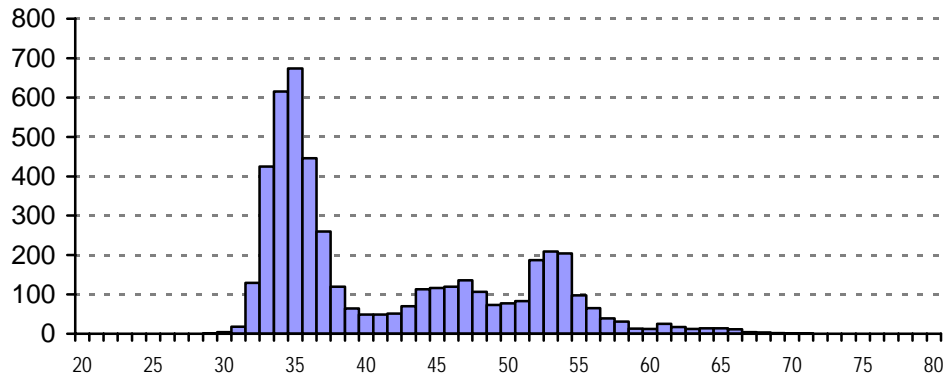
Figure 3 shows the size distribution of fish tagged during the cruise leg.

A slight majority of skipjack were smaller than 40cm , but with over 2000 fish > 50cm LCF. Most of the larger fish were from free schools, whereas the smaller 30-40 cm fish were mostly from associated schools. Yellowfin tagged during the cruise were largely from associated schools, with fish of 30-40 cm fish predominant. Good numbers of yellowfin larger than 60cm were tagged and released from both whale shark and free schools, with whale shark yellowfin mostly 40-55 cm. The small number of bigeye tagged (41) were mostly less than 55 cm, with most (32) from whale shark schools.

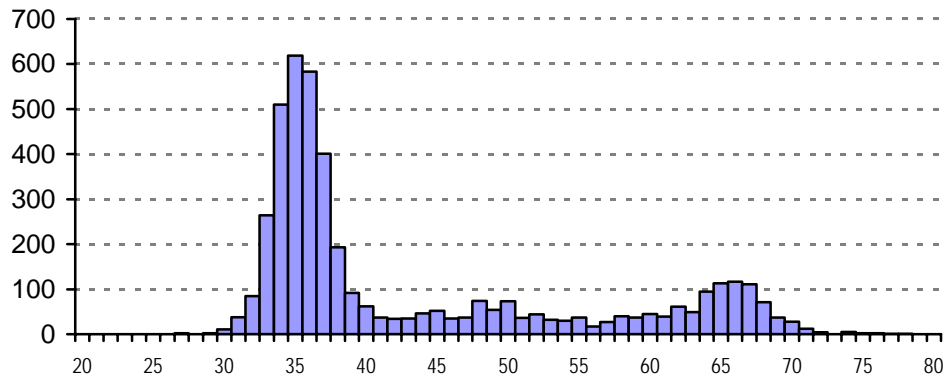
The average size of all three species from whale shark-associated schools was noticeably larger than that from log schools, suggestive of quite a different association, and more akin to free schools, though with more bigeye, which were generally are in free schools.

Figure 3. Size distribution of fish tagged during Cruise 1 (15/3 to 23/3/2009)

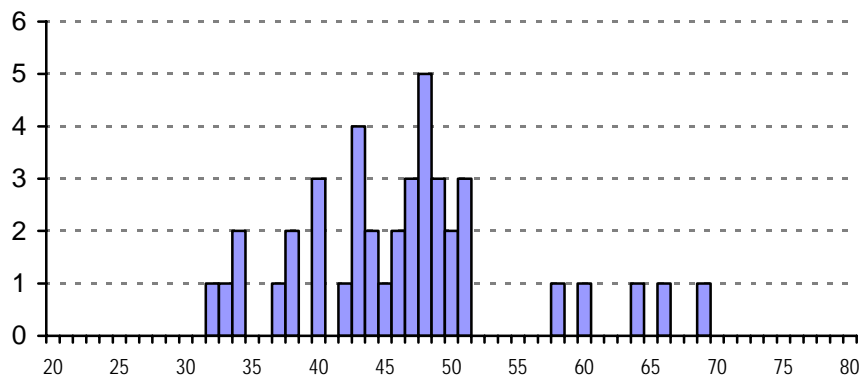
SKIPJACK n = 4672



YELLOWFIN n = 4432



BIGEYE n = 41



BAITING

Prior to the cruise, the bait tank system and pumps on Solati 105 had been overhauled, which resulted in much improved water circulation and increased capacity, with 350 buckets of most bait species now able to be carried (previously 300 bkts) and survival of most species enhanced.

Baiting was successfully carried out at Patutiva (New Georgia) before departure from Solomon Islands, enabling the crossing of the Solomon Sea to be undertaken with full bait tanks (mostly anchovy) and active fishing and searching in all daylight hours. Baiting was subsequently undertaken on three nights at Hei Huti Bay, Pana Tinane, the sole approved location for the cruise (Table 2). Good catches enabled tanks to be filled on each occasion and with good bait survival, fishing trips of two days duration were the preferred mode of operation.

Catches were a mix of blue sprats, sardines, herring and hardyheads, with the blue sprats dominating. Bait catches on a previous trip by the Te Tautai in 1991 were dominated by silver sprats which were rare or absent in hauls on this cruise, suggesting some species replacement has possibly occurred. Baiting was not undertaken at exactly the same location however, with the inner bay now occupied by pearl shell lines – shades of Indonesia, and baiting occurred in more exposed and current-prone areas.

Table 2. Summary of baitfishing activity during WP2 Cruise 1

Date	Location	Catch (bkts loaded, hauls)	Species
March 15 th	Patutiva	300 (1)	Anchovy
March 17 th	Hei Huti Bay	323 (3)	Blue sprat, sardines, Hq
March 18 th	Hei Huti Bay	201 (2)#	Blue sprat, sardines, Hq
March 20 th	Hei Huti Bay	328 (3)	Blue sprat, sardines, Hq
	TOTAL		

= topping up existing bait

CONCLUSIONS

The short trip was gratifying successful, enabling a gap in previous coverage of the Solomon Sea to be completed. Good quantities of fish in various associations were found in the relatively limited area fished and it is suspected that this abundance was more widespread in the southern Solomon Sea , as on a visit by Te Tautai 10 years previously at this time of the year, and possibly also in the northern Coral Sea. Operations were hampered in the second half of the cruise by bad weather, with a tropical depression forming near Rennell Island just several hundred miles away.

Thanks to experienced PNG observer Lyndsay Mundri who joined the cruise at short notice and facilitated bait ground access in Milne Bay, Thomas Usu who engineered the necessary arrangements for the cruise, and the many new crew on Soltai 105 who slotted in well to the new experience.

TABLE 3. Tag releases (all tags) by school during PTPP Phase 2 Cruise 2

Event no	Tagged sch no.	Date	Lat	Lon	Sch type	Assoc.	Start	Stop	YFT	TAG TOTALS				SHK bite
										BET	SKJ	OTH	TOTAL	
1	1	16-Mar-2009	1015.706S	15620.163E	5	2	1210	1250	54	0	17	0	71	2
2	2	16-Mar-2009	1018.521S	15615.396E	2	2	1330	1359	1	0	0	0	1	0
3	3	16-Mar-2009	1026.420S	15606.420E	3	2	1532	1609	84	1	61	0	146	5
4	4	16-Mar-2009	1028.000S	15602.880E	2	1	1650	1654	3	0	0	0	3	0
5	5	16-Mar-2009	1028.137S	15601.760E	3	1	1702	1740	105	0	55	0	160	4
6	6	17-Mar-2009	1058.281S	15403.683E	2	2	0730	0818	140	0	243	0	383	1
7	7	17-Mar-2009	1057.157S	15401.745E	2	7	0833	0844	1	0	23	0	24	0
8	8	17-Mar-2009	1045.665S	15359.335E	2	1	1000	1030	31	0	125	0	156	5
9	9	17-Mar-2009	1043.226S	15403.500E	5	5	1100	1126	62	13	59	0	134	1
10	10	17-Mar-2009	1110.372S	15328.785E	3	1	1607	1633	41	0	184	0	225	2
11	11	18-Mar-2009	1050.501S	15352.119E	2	1	0612	0735	241	0	605	0	846	11
12	12	18-Mar-2009	1046.879S	15346.260E	2	1	0830	0832	24	0	3	0	27	0
15	13	18-Mar-2009	1051.534S	15320.952E	3	1	1140	1221	71	0	803	0	874	7
16	14	18-Mar-2009	1048.091S	15315.434E	2	2	1311	1400	551	1	202	0	754	4
17	15	19-Mar-2009	1018.865S	15359.963E	2	1	1008	1023	17	0	102	0	119	3
18	16	19-Mar-2009	1018.541S	15300.424E	2	2	1039	1055	78	3	24	0	105	4
19	17	19-Mar-2009	1015.219S	15355.500E	2	5	1139	1212	192	3	61	0	256	7
20	18	19-Mar-2009	1014.727S	15351.651E	2	1	1232	1240	26	0	12	0	38	1
21	19	19-Mar-2009	1016.532S	15331.587E	2	5	1454	1508	0	0	78	0	78	1
22	20	19-Mar-2009	1015.900S	15332.730E	2	2	1516	1540	1	0	14	0	15	0
23	21	19-Mar-2009	1015.331S	15331.348E	2	2	1553	1606	4	0	112	0	116	1
24	22	20-Mar-2009	1031.162S	15330.111E	3	2	0700	0835	1317	0	566	0	1883	10
25	23	20-Mar-2009	1035.151S	15328.200E	2	2	0910	0949	364	0	402	0	766	9
26	24	20-Mar-2009	1044.244S	15327.684E	2	1	1045	1100	7	1	2	0	10	0
27	25	20-Mar-2009	1048.277S	15329.845E	2	2	1134	1144	49	1	68	0	118	1
28	26	20-Mar-2009	1052.208S	15330.675E	2	1	1210	1222	11	0	90	0	101	1
29	27	21-Mar-2009	1043.526S	15400.315E	2	1	0710	0723	30	1	36	0	67	4
30	28	21-Mar-2009	1049.130S	15420.876E	3	2	0946	1102	413	1	557	0	971	46
32	29	21-Mar-2009	1055.851S	15509.459E	4	5	1645	1656	149	7	27	0	183	5
33	30	21-Mar-2009	1055.937S	15510.193E	3	5	1701	1737	370	9	80	0	459	18
34	31	22-Mar-2009	1024.698S	15602.594E	2	1	1153	1202	0	0	37	0	37	0
35	32	22-Mar-2009	1015.209S	15608.571E	3	1	1323	1326	0	0	2	0	2	0
36	33	22-Mar-2009	1008.471S	15612.247E	3	1	1527	1533	0	0	83	0	83	0
37	34	22-Mar-2009	1004.813S	15614.211E	3	1	1605	1610	0	0	16	0	16	0
38	35	22-Mar-2009	1001.835S	15617.902E	3	1	1643	1649	0	0	16	0	16	0
CRUISE 1 TOTALS									4437	41	4765	0	9243	153

DAILY LOGS

March 15th

Cast off 0955 hrs, on schedule, then steaming in good weather to Patutiva for baiting. Alongside Seghe wharf 1630 hrs to collect observer Lyndsay Mundri - flight 15 mins late and Lyndsay slow to disembark but eventually made it after plane held for double checking. Headed to bait ground and anchored 1730 hrs in 30m. Small toksave to welcome new crew, lights set, and a few teething problems gradually ironed out. Light boat deployed - bait quick to gather in dense mass; first haul 2030 hrs for huge catch - probably 800 bkts or more, mostly anchovy; 300 bkts loaded, with 10 canoes picking up the spoils; retrieved light boat and headed out 2210 hrs.

March 16th

Good run overnight, making over 9 kts with WNW swell side-on and some roll; began searching 0630 hrs; nothing all morning - crossed into PNG waters 1300 hrs and turned clocks back one hour; chanced on a log 1210 hrs PNG time - large area of mixed size fish associated but shifting boilers and poor biting; 71 tagged, mostly medium size YF(54) - first tagged fish of the year and of WP2; second log (large buttress with rope attached) found 1330 hrs; jumpers but no bite - just one YF tagged; another Loch Ness monster-type log, with plenty of small fish in boilers - 114 tagged; two large areas of fish close together - just 3 medium YF from first one, then 133 from last one; hectares of fish seen today but biting generally poor on the boilers and breezers; daily total 381 - 123 SJ, 247 YF, 1 BE.

March 17th

Good steam overnight with some heavy downpours - dawn calm and clear, north of Rossel; first log school (vertical log) at 0630 hrs for 383 fish (140 YF), then brief bite on current line school for 24 fish (all SJ), an area of free schools for 156 fish (31 YF), and several patches with whale sharks for 134 fish (62 YF, one of 96 cm) and including some BE (13) with one AT released (BE 69cm); with 6 hrs to the baitground, headed in (finally - hard to persuade fishing master to stop), with no searching until 1500 hrs; fewer fish closer in but eventually chummed one patch of small fish near the line of seamounts; 225 tagged, all Z tags, with just 41 YF; daily total 922 (plus 2 fish yet to be entered due to TagDager glitches), with 275 YF (35%) and 13 BE; maybe 20 bkts of bait left; inside the pass just in the nick of time (1740 hrs) and anchored Hei Huti Bay 1845 hrs in 25m; one DTT and one 'cuda trolled in pass; first net 2100 hrs for just 90 bkts - seems much spratsilver ?) escaped; wind gusting 15 kts plus from SW; second set on light boat 2215 hrs - 86 bkts, with many sardines; final set midnight for 147 bkts, mostly sardines; total 323 bkts plus today's small remainder.

March 18th

Up anchor 0115 hrs and headed back to same area as yesterday; started searching 15nm SW of yesterday's whale shark area at 0600 hrs; first school just after 0600 hrs - large area of good size fish, with 846 tagged (28% YF); headed west, to work closer to bait ground - second school 0830 hrs for just 27 fish, mostly medium YF; several schools of larger YF - not fished; wind freshening from the NW - decided to fish until 1400 hrs then head for baitground; third school of smaller mostly SJ fished for less than an hour - very quick bite with 874 tagged (92% SJ) before calling a halt; final school while heading towards Misima in wind and rain - 754 tagged (551 YF and one BE); still more than two tanks of bait left (100 bkts ?), but needed to head for bait ground, some 3 hrs away; 2501 for the day - 1613 SJ, 887 YF (35%) and just one BE; could have been a lot more - the medium sized sardines proved to be excellent bait and survived well; will just need top-up tonight; an excellent day, even if most fish Z tags. 3800 for the cruise. Good welcome from resource owners when anchored (1830 hrs); first net 2030 hrs for 160 bkts of sardines and blue sprat; second net on lighboat just to top up - just 41 bkts, but the call was "enough"; up anchor 2215 hrs and headed for fishing ground at slightly reduced speed.

March 19th

Steamed NE from 2300 hrs then stopped at 0500 hrs to drift in same position as last fishing 17th March; heading NE and searching from 0600 hrs; bait survival good; nothing early - turned NW but heavy rain made searching impossible for 3 hours; three schools after 1000 hrs, all good size fish; one free (119 -14 YF), one log (119 - 74 YF, 3 BE) and one good whale shark school (254 - 192 YF, 3 BE) - biting mostly slow; fourth free school for just 38 fish, mostly medium YF (26); 518 at this stage, with 60% YF and 6 BE; light rain most of the time, with occasional heavy; three schools between 1445 and 1600 hrs, 2 with logs and one whale shark, for 78, 15 and 116 tags; all SJ save 5 YF, and mix of sizes; weather slightly improved but no more fish; 727 for the day (44% YF), and 4533 for the cruise - a good day given the weather; drifting overnight then will fish back to Hei Hutu Bay tomorrow.

March 20th

Good drift in calm conditions overnight; started searching 0545 hrs with 2 full tanks bait and remnants of another two; good log at 0700 hrs for a long productive bite - 1884 tagged (1318 YF) - probably a record catch for a single school; another log at 0900 hrs for another 766 fish (364 YF), then began chasing free schools - about 6 chummed for another 229 fish, mostly medium SJ; searched on the way in but very little closer than 20 miles from the entrance; total for the day 2879 (1749 YF), the second highest daily catch on record; 7410 for the cruise with at least one full day fishing to go; anchored early (1630 hrs) to bait at Hei Hutu for the last time; first net 2000 hrs, with some current, for 136 bkts of blue sprat and sardine; second haul delayed when light boat failed - hauled in same place 2315 hrs for 106 bkts; final haul 0015 hrs for 86 bkts - 328 bkts total, with perhaps another 35 in remainders.

March 21st

Up anchor after last shot 0100hrs and headed NE towards fishing area of two days ago; NW wind and rain at dawn; free school at 0710 hrs - brief bite for 67 fish (30 YF, 1 BE); turned to SE to run with the strengthening NW wind; good log found at 0945 hrs - small fish under log and a rippler of larger fish nearby - 971 tagged (413 YF, 1 BE) in several passes; nothing for several hours but conditions difficult; one school chummed 1430 hrs without success - now along north edge of Pocklington Ridge; just when all looked over for the day, an area of fish found at 1645 hrs - rippers with whale sharks; time to fish two schools - both bit well for 183 (149 YF, 7 BE) and 459 (370 YF, 9 BE) respectively; a good end to a good day, despite difficult conditions; daily total 1680 (57% YF, 18 BE) and cruise total now 9,090; steamed into offshore lee of Pocklington Reef - not much shelter but drifted in moderate seas. 3 tanks of bait left for tomorrow, and will fish and search en route for Noro.

March 22nd

Drifting from 2200 hrs the previous night, 11 nm offshore of Pocklington Reef; drifted 12 nm overnight then steamed back to SW corner of reef; established that no passage and trolled wide out from reef for just one YF; eastern point lost in wind and rain and headed ENE for Noro in moderate side-on seas and rain; one free school popped just after noon - 37 SJ tagged; crossed into Solomons 1400 hrs - clocks changed; schools (rippers) of small SJ encountered after 1130 hrs - 5 for 117 fish, all SJ < 36cm; stopped searching 1730 hrs and prepared for a long rough night steaming to Noro.

March 22nd

Rough trip overnight, but inside Munda Bar 0545 hrs and alongside Noro wharf 0630 hrs; fish unloaded, bait tanks drained (half tank left) and began preparations for departure the next day. End of a very successful cruise.