

PACIFIC TUNA TAGGING PROJECT

CRUISE 5 SUMMARY REPORT

25th March – 7th April 2008

INTRODUCTION

This report summarizes activities during a two week trial cruise with a new larger vessel, the Soltai 105, to assess its suitability for the Phase 2 activities of the PTTTP throughout the wider western and central Pacific. For these activities, which are expected to commence in the second half of 2008, a vessel with greater bait holding capacity, cruising speed and operational flexibility will be required. Following agreement with SFPL management on the charter arrangements, minor modifications were made to the vessel before the cruise commenced on March 26th. The two weeks were to be spent in Solomon Islands waters, but with greater emphasis on longer range activities and applying techniques to keep bait for extended periods. The vessel remained at sea for the two week period, with a crew of 30, reduced from the normal operating complement and utilizing 9 specialist crew from the Soltai 6.

GENERAL DESCRIPTION OF FISHING ACTIVITY

Fishing commenced in the southern Slot, to familiarize crew with the overall tagging and baiting operations, then followed an easterly loop through northern Malaita, east to Sikaiana, and southern Malaita, before fishing around the south (weather) coast of Guadalcanal back to southern Ysabel. The western side of Ysabel was then fished, before a longer range trip to Ontong Java and back to north-eastern Ysabel to complete the cruise. Plans to fish south to Makira were abandoned when few fish were found in southern Malaita.

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**.

Figure 1. Track during Cruise 5 March 26th – April 7th

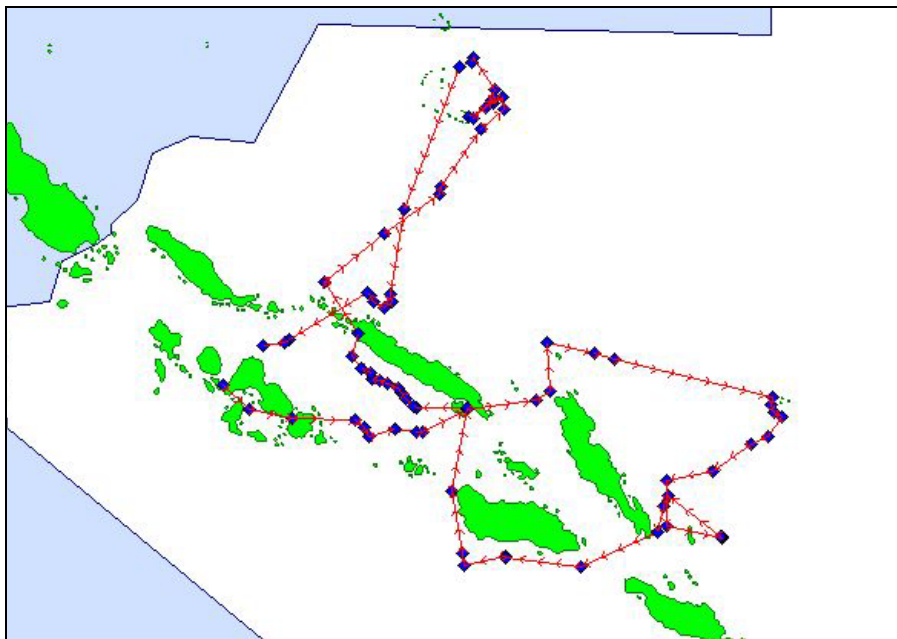


Table 1. Summary of cruise activity, with the number of tagged fish released each day

Dates	Activity	Tag releases
March 25 th	Charter commences; preparing vessel	
March 26 th	Finish preparations, depart Noro; baiting Patutiva	n/a
March 27 th	Fishing FADs east of Gatokae, baiting San Jorge	2175
March 28 th	Fishing north-east Malaita towards Sikaiana	453
March 29 th	Fishing FADs Sikaiana; baiting Taka Taka (south Malaita)	610
March 30 th	Fishing Ulawa (logs), baiting TakaTaka	451
March 31 st	Fishing towards Guadalcanal weather coast (logs)	917
April 1 st	Fishing weather coast FADs; baiting San Jorge	2010
April 2 nd	Fishing FADs western Ysabel; baiting Kolokofa	3045
April 3 rd	Fishing FADs north of Manning Strait then to Roncador	924
April 4 th	Fishing east of Ontong Java (free schools)	440
April 5 th	Fishing east and north of OJ (free schools)	117
April 6 th	Fishing FADs north-east Ysabel	1805
April 7 th	Fish across Slot ; dock in Noro, charter concludes	0
TOTAL		12944

TAG RELEASES

Of the 14 days of charter during the trial cruise, 11.5 days were spent fishing, one day steaming and not fishing, and 1.5 days in port, preparing then later decommissioning the vessel. Despite the exploratory nature of the cruise, all days except the final half day were productive for tuna fishing and tagging, with 12,934 fish tagged with conventional tags, at an average of 1125 fish per fishing day, and 10 archival tags deployed, all on yellowfin tuna. On four days, over 1800 fish were tagged, including 3045 on one day, a new record number of releases for the PTTP.

The releases of *conventional tags* comprised 8963 skipjack (69.2%), 3945 yellowfin (30.6%) and just 26 bigeye. The higher proportion of skipjack relative to the previous cruise was the result of more fishing on free schools, and fewer yellowfin on FADs and logs further to the south than on Cruise 4. 17% of total releases were away from FADs, on free schools and logs. Good numbers of fish were again encountered on FADs off NE Ysabel, west Ysabel and on the Guadalcanal weather coast, but free and log schools elsewhere in Solomons waters were generally less abundant.

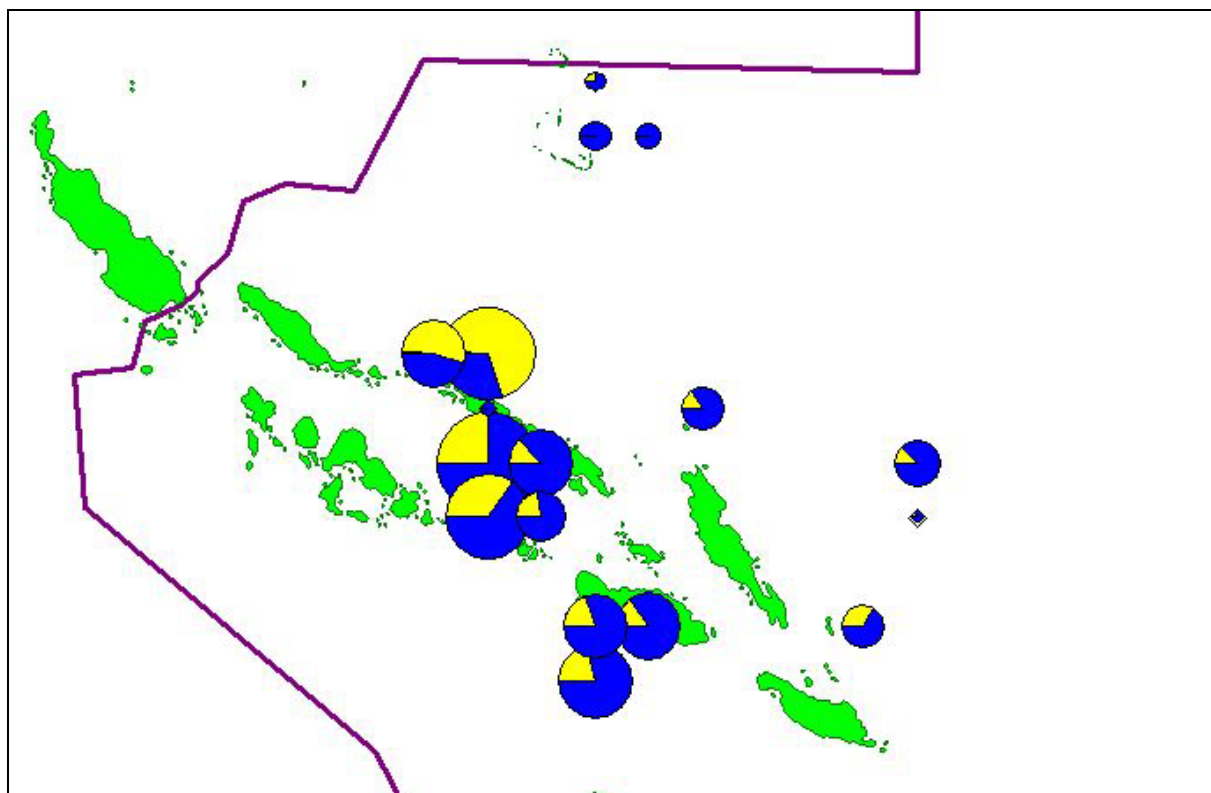
The Cruise 5 releases are listed by school/fishing station in **Table 3**, and the distribution of the releases, by 0.5 degree square, in **Figure 2**.

37% of the releases during Cruise 5 were smaller (11 cm) Z tags, generally used on fish below 38cm; over 80% of these releases of smaller fish were skipjack, but few skipjack smaller than 35 cm were tagged. Of the 8085 larger (13 cm) P tags deployed, nearly 40% were on yellowfin.

Archival tag summary

During Cruise 5, very few fish over 60 cm were available and just 10 fish were tagged, all yellowfin with MK-9 tags, in the size range 62-80cm. All fish were released from around anchored FADs.

Figure 2. Distribution of tag releases by half-degree square, by species, for Cruise 5
 Skipjack – blue, yellowfin – yellow; bigeye -red



BAITING

Baiting during the trial cruise was carried out on just 7 occasions, with a major aim being to catch and load bait in good condition, to transport over several days for longer range fishing activity. This mainly involved partial/staged loading when good catches were available. Daytime loading was not however trialled. The Soltai 105 bait net was about 25% larger than that of Soltai 6 and bait catches were impressive, averaging over 280 buckets per night in good baiting areas (Table 2). Baiting in southern Malaita was however disappointing. The six Soltai 105 bait tanks proved to have larger capacity (360 buckets) and better circulation, resulting in better survival. On several occasions, bait was held and transported in good condition with low mortality for four days, before eventually being used.

Table 2. Summary of baitfishing activity during Cruise 5

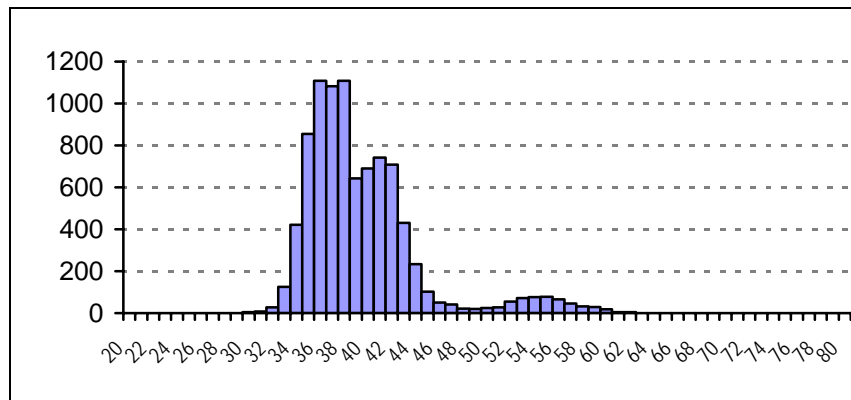
Date	Location	Catch (bkts loaded, hauls)	Species
March 26 th	Patutiva (Marovo)	330 (2)	Anchovy (<i>het</i>), sprat (<i>gracilis</i>)
March 27 th	San Jorge (Ysabel)	280(2)	Anchovy (<i>devisi</i>)
March 29 th	Taka Taka (Malaita)	117 (1)	Anchovy (<i>devisi</i>)
March 30 th	Taka Taka	88 (2)	Mixed
April 1 st	San Jorge	360 (2)	Anchovy (<i>devisi</i> , <i>punctifer</i>)
April 2 nd	Kolokofa (Ysabel)	165 (2)	Anchovy, sardine
April 4 th	Luania (Ontong Java)	280 (3)	Sprat (<i>gracilis</i>), h'head, aigo

SIZE DISTRIBUTION OF TAGGED FISH

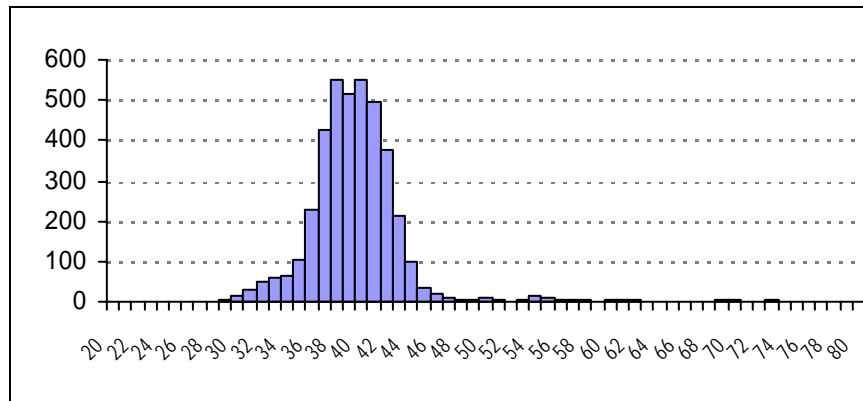
Figure 3 shows the size distribution of skipjack and yellowfin tagged during the cruise. The skipjack size distribution comprises possibly three modes, at 38, 42 and 56 cm respectively; the larger fish were mostly taken in free schools. The yellowfin size distribution shows a rather broad mode centred on about 40cm, but with a tail of larger fish up to 80cm. The small number of bigeye taken were mostly between 30 and 44 cm.

Figure3. Size distribution of tagged fish

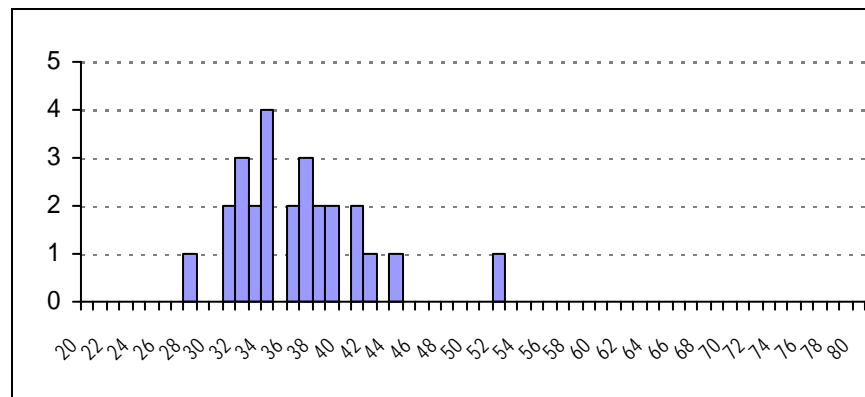
Skipjack n = 8958



Yellowfin n = 3954



Bigeye n = 26



A compilation of daily log extracts is provided as **Appendix 1**.

OUTCOMES

The two week trial cruise confirmed the suitability of the Soltai 105 as a tagging platform for Phase 2 of the PTTP, with the more extensive working space, greater vessel speed, better fuel consumption, increased bait carrying capacity, and greater operational flexibility. With minor modifications and correction of some existing defects, the vessel is essentially ready for service. The construction and fitting of a working office on deck remains the major task to be undertaken.

Increased spatial coverage of Solomons waters was achieved during the short cruise, as a result of the commitment to longer range operations. Large numbers of fish were tagged from the outset, with an additional tagging cradle in use at the stern, and an extra fishermen supplying cradles at both bow and stern. Nearly 13,000 fish were tagged in just 11 days fishing and over 3,000 fish tagged in a single day for the first time. Bigeye numbers continued to be low, with a visit to the formerly productive NE Ysabel FADs yielding much fewer bigeye than on previous visits.

With four scientific personnel on board, considerable biological sampling was undertaken, and as noted, four cradles manned. During Phase 2, it likely that 5 scientific personnel will be carried on most occasions, including an observer from the operational area/country. The number of vessel officers and crew is likely to be between 28 and 30, as opposed to 25 on the Soltai 6, with additional crew needed to support both the hauling of the larger net and the additional tagging cradle.



Soltai 105 preparations in Noro

Table 3. Tag releases (all tags) by school/fishing station during Cruise 5

Event no	Tagged sch no.	Date	Lat	Lon	Sch type	Assoc.	Start	Stop	YFT	TAG TOTALS				SHK bite
										BET	SKJ	OTH	TOTAL	
1	1	27-Mar-2008	0833.985S	15831.893E	1	3	0620	0715	186	0	514	0	700	6
2	2	27-Mar-2008	0839.206S	15837.623E	1	3	0804	0857	302	5	406	0	713	3
3	3	27-Mar-2008	0844.178S	15840.288E	1	3	0935	0957	15	0	29	0	44	0
4	4	27-Mar-2008	0840.018S	15856.551E	5	3	1150	1220	40	0	69	0	109	3
5	5	27-Mar-2008	0841.213S	15909.152E	1	3	1340	1419	54	0	185	0	239	1
6	6	27-Mar-2008	0841.175S	15913.052E	1	3	1458	1533	83	0	287	0	370	4
8	7	28-Mar-2008	0753.214S	16057.482E	2	2	1530	1624	75	0	378	0	453	3
10	8	29-Mar-2008	0824.777S	16245.319E	1	3	0640	0723	65	2	486	0	553	1
12	9	29-Mar-2008	0832.576S	16251.948E	1	3	0842	0900	8	0	49	0	57	1
16	10	30-Mar-2008	0945.341S	16214.260E	1	4	1220	1313	153	0	298	0	451	1
18	11	31-Mar-2008	0958.132S	16002.947E	1	2	1720	1810	139	1	777	0	917	5
19	12	01-Apr-2008	1002.939S	15937.802E	1	3	0615	0645	242	0	884	0	1126	8
20	13	01-Apr-2008	0955.842S	15937.477E	1	3	0729	0812	175	2	707	0	884	3
22	14	02-Apr-2008	0821.515S	15902.617E	2	3	0710	0801	121	0	843	0	964	3
23	15	02-Apr-2008	0817.658S	15859.715E	2	1	0830	0845	61	0	213	0	274	7
24	16	02-Apr-2008	0814.934S	15857.988E	1	3	0905	0920	10	0	241	0	251	9
25	17	02-Apr-2008	0811.851S	15851.838E	3	3	1000	1015	17	0	115	0	132	3
26	18	02-Apr-2008	0809.827S	15847.157E	2	3	1055	1104	30	0	31	0	61	0
27	19	02-Apr-2008	0809.480S	15841.697E	1	3	1135	1214	258	0	653	0	911	17
28	20	02-Apr-2008	0805.724S	15841.262E	1	3	1237	1307	129	1	189	0	319	7
29	21	02-Apr-2008	0802.393S	15835.885E	2	3	1347	1356	1	0	39	0	40	2
30	22	02-Apr-2008	0754.934S	15830.200E	1	3	1458	1530	5	0	88	0	93	6
31	23	03-Apr-2008	0710.091S	15812.800E	1	3	0620	0700	496	9	416	0	921	12
34	24	04-Apr-2008	0517.123S	16001.972E	2	1	0930	0943	0	0	192	0	192	4
35	25	04-Apr-2008	0520.893S	15955.582E	2	1	1024	1032	0	0	91	0	91	0
36	26	04-Apr-2008	0518.083S	15956.987E	4	1	1103	1113	0	0	157	0	157	5
39	27	05-Apr-2008	0453.260S	15943.800E	2	1	1506	1517	5	0	0	0	5	0
41	28	05-Apr-2008	0458.860S	15935.800E	2	1	1742	1800	27	0	85	0	112	1
42	29	06-Apr-2008	0722.273S	15854.322E	2	3	1239	1304	184	2	300	0	486	3
43	30	06-Apr-2008	0725.350S	15849.717E	2	3	1350	1423	393	0	161	0	554	3
44	31	06-Apr-2008	0721.841S	15843.097E	2	3	1519	1555	605	1	77	0	683	5
45	32	06-Apr-2008	0718.581S	15841.384E	1	3	1726	1741	76	3	3	0	82	3
CRUISE 5 TOTALS									3955	26	8963	0	12944	129

APPENDIX 1

DAILY LOG EXTRACTS

March 26th

Left Noro 0900 hrs on schedule after finishing all works (mostly the davit for the dinghy) at 2130 hrs the night before; good weather, dolphins leaping on departure and SFPL management and NFD GM there to observe; toksave with crew after crossing Munda Bar and began all necessary preparations as heading for Patutiva (estimated 6.5 hrs); anchored Patutiva 1600 hrs in 30m, with dinghy deployed nearby; seems net is nearly 37m long and 28m deep (with weights), so 5m longer than Soltai 6 and 3m deeper; bait gathered early, with sprats and sardines at surface; first haul 2100 hrs for 210 bkts of sprats, gold anchovy and sardine - partial loading, rest released or given to the waiting 20 or so canoes, now a regular feature; second haul, to fill up, on dinghy 2210 hrs for 120 bkts of mostly large anchovy (*heterolobus*), with small amount released; stand down and ready to sail at 0100 hrs for NFD 146.

March 27th

Arrived in vicinity of NFD 146 at 0530 hrs - drifted until 0615 hrs. Good weather and full tanks of great bait; fish bit well from the outset - 1400 tagged on first two FADs before 0900 hrs; good sized fish, mostly 40cm up; continued throughout the day, with a lull around midday, as headed east towards San Jorge; some good sized YF and three ATs deployed; just a few BE; a great day for what was supposed to be an initial hit-out/training day, with 2175 fish tagged, the second highest daily total on record; all worked well on the spacious vessel - crew very adaptable, excellent boat speed, FM extremely capable; opted to keep last two tanks untouched and headed for San Jorge at 1545 hrs, anchoring at 1930 hrs in 33m, behind the usual island; bait gathered deep immediately - first haul at 2130 hrs for 160 bkts loaded of gold anchovy, deep sardines and *Dussumieria* - rest let go; probably too crowded in net; second haul on light boat 2230 hrs for 280 bkts loaded - hope all survives as 360 buckets total for possibly the first time on this vessel. Up anchor 0100 hrs to be in the strait between Ysabel and Malaita at dawn.

March 28th

In strait at daylight - north wind and rain, with some side-on chop; bait appears to have survived well; early encounter with breezing school of large YF mixed with SJ, with 5 largish whales (*sei* ?), but sounded and did not respond to chum; another flock of birds on radar but dispersed before approached; steamed to north of Ndai Island before turning for Sikaiana at noon, searching en route; lucky to come across a drifting cable reel with school of small SJ and YF associated; 453 tagged, mostly small SJ; saved the day, as nothing else substantive seen; steaming overnight for Sikaiana FADs, against some current; ETA 0530 hrs tomorrow morning; bait doing quite well.

March 29th

In vicinity of Sikaiana FAD S-3 at 0500 hrs - light rain and N swell; found raft (no mast for low profile) but no signs - few scattered jumpers; S-4 at 0640 hrs with much better result - 553 tagged (486 SJ, 65 YF, 2 BE), no doubt first fish ever tagged at Sikaiana; nothing on next FAD (S-5) then a few on S-6 (49 SJ, 8 YF) before heading for TakaTaka at slightly increased speed (10 kts) with the approval of the CE; school of large YF along a current line/temperature front as in the SST map for yesterday, but as always not interested; nothing for the rest of the day - and a long day it was; several bird flocks rose on approach, and hopes raised with one school at 1500 hrs but did not bite .. and very small fish; seems to be all arranged for baiting tonight near Wara village, via several radio calls; will not get in until 2100 hrs so need to have set up; still 3 tanks of bait left - Patutiva bait has survived very well indeed (3 days); anchored 2130 hrs in northern bay - ascertained that need to see different baitground owner (Wara area with too much reef for night passage), so lights out and FM/Capt ashore; approval given with settlement (\$150) tomorrow; net hauled 2330 hrs for eventually 117 bkts of smallish gold anchovy.

March 30th

Up anchor 0200 hrs and headed out for Ulawa; between Cape Zelee and Ulawa at 0600 hrs, then fished towards seamounts south of Ulawa; began using the Patutiva bait before it died; chased a school near Lark Patch but not chummed; along a current line eastwards, finally found a log and nearby a radio buoy tied to

several logs - this produced 451 fish - small SJ and some larger YF to 50cm; very little after that and still a long way from TakaTaka; big area of large boiling YF just after 1700 hrs, but with ample natural bait (probably punctifer) no interest in the chum, as is usual with such schools; heading for baitground but not anchored until 2100 hrs; a modest 451 for the day, but second bonus achieved and 3,689 for the cruise. First haul delayed - bait slow to gather.

March 31st

First haul 0015 hrs - 81 bkts of very mixed bait, including Lactarius and trevally scooped out first, but anchovy, sardine, Rk, Hq etc; second haul on dinghy for just 7 bkts; up anchor and headed for Cape Zelee 0210 hrs; off the Cape at 0630 hrs, then turned towards Marau - making good time and only ~ 120 bkts bait, so decided to head for G'canal FADs - should be there ~ 1500 hrs; fish a few then possibly head in to Honiara to pick up Hugo Kahano (OJ) and head for OJ. Birds along current line but rose; one school of very small fish < 1 kg not approached; similar one at 1300 hrs; beating into east-setting current but arrived in vicinity of G-30 at 1530 hrs - this and next two FADs missing (G-29, G-24); luckily came upon two logs near position of G-24 (missing); fish rose immediately, bit fiercely and well - 917 tagged in just over 50 minutes (777 SJ, 139 YF, one BE); steamed towards G-23 then G-16 in failing light and drifted from 2100 hrs onwards; still ~ 60 bkts bait left, so will fish FADs early AM then steam direct to San Jorge; thus not to Honiara and ... Hugo turns out to be in OJ anyway on charter - will speak today to confirm baiting OK.

April 1st

Poisson d'avril !! Start main engine 0500 hrs after drifting o'nite then head for G-13; no April Fool's joke on arrival at G-12 - 1126 tagged in 30 minutes - fairly hectic; stopped fishing when ran out of tags and headed for G-13 as a respite; no relief there, with 884 tagged in 45 minutes before ran out of bait; 60 bkts of indifferent mixed bait produced 2010 fish before 0800 hrs - 1591 SJ, 417 YF, 2 BE (20.8% YF/BE) - shedsfull of fish on these Guadalcanal weather coast FADs; uneventful 9 hr steam to San Jorge - anchored 1800 hrs in 32m behind the usual island; first Soltai 105 BBQ well received - hearts and minds in place; radio to Hugo Kahano suggests all OK at OJ so will proceed, fishing tomorrow along western side of Slot, and bait Kolokofa tomorrow night; first haul tonight 2100 hrs for around 400 bkts, of which 155 loaded - much *punctifer*, some *devisi*, plus juv *Dussumieria*; over-crowded in net; second set 2245 hrs on dinghy, for 205 bkts - a bold 360 bkts total for the second time.

April 2nd

Left baitground 0100 hrs for Ysabel west coast FADs, mostly Global; near NFD 203 position at daybreak - now GLO-05; no signs, so moved on; that was the only disappointment for the day; with full bait tanks, fished 8 FADs and one free school for an amazing 3045 fish - school tag numbers as follows: 964, 274, 251, 132, 61, 911, 319, 40 and 93; two big schools but solid fishing all day; by good fortune, Yuh Fa vessels are in Suva for slipping etc - 6 weeks, so fish will get some respite before any real effort on the FADs; 2412 SJ (79%) and 632 YF, with just one BE; most fish 36cm or larger, with YF mostly > 40cm; a great day, which carried us to within 400 of the 100K mark and close to 10,000 for the trip; lights burning late for data entry; anchored in Kolokofa around 1700 hrs; bait not as impressive as previously, with 117 bkts in first net (beautiful large heterolobus, some punctifer and sardines) and just 48 in the second - but will work with that; ready to set off just before midnight for NFD 010, north of Manning Strait, which has previously yielded a high % BE. By any standards, a vintage day ..

April 3rd

Steamed all night, arriving off NFD 010 at 0530 hrs; drifted until 0600 hrs then fished the raft with good signs of fish on sounder; bit very well on just one tank of bait, as pre-arranged; 924 tagged, 54% YF but just 9 BE (~ 20% on previous visits to this FAD); this brought up the 100,000 mark for the project .. and 10,000 for the trial trip - some trial; nothing else in the vicinity and headed for Roncador, ETA 1600 hrs; nothing sighted on way - stood down from spotting for 3 hrs from 1100 hrs; chased one school close to SE corner of Roncador - some large YF but also small fish; no bite - FM says due to marlin amongst the fish; searched for place to bottom fish but too steep; drifted until midnight, then headed north, to be off SE corner of OJ at daylight.

April 4th

Off SE corner of Luaniua at first light; searched along eastern side of OJ but schools seemed not come up until around 0900 hrs; 3 schools of quick moving SJ fished - quick bite, good size (3-5 kgs); 440 tagged, all SJ; one

large fish, possibly marlin, lost on the troll; steamed in 1130 hrs after finished bait on third school, but other schools in the area - will be good to return tomorrow with full tanks; anchored off Luaniuia 1400 hrs in 31m - diplomatic party ashore to confirm baiting access; prolonged discussions, complicated by the continuing chiefly succession problem, resulted in access granted for one night - no additional fee required; will have to bait at Pelau tomorrow night, so fish until noon, then head north; lights set - first haul 2300 hrs, delayed by wind and rain; 185 bkts of silver sprat, hardyhead and some sardines; second haul 2345 hrs for 45 bkts, with fusiliers not rising well from near bottom.

April 5th

Third haul 0430 hrs for 52 bkts - total 282 bkts, surely enough to account for a few on the grounds today; up anchor and out through the narrow passage at daylight (0605 hrs at this easterly latitude); early encounter with drifting FAD (Taiwanese ?) - YF associated but did not bite; several schools of large YF but not chummed; returned to area of yesterday's catch ~ 1030 hrs but YF only; reduced speed to 650 rpm at noon, due to cracked expansion pipe .. and no spare; can continue fishing but at this reduced speed - the long way home. Continued chasing wandering birds, all of which turned out to be YF; one patch stopped briefly at 1500 hrs and 5 YF tagged, not far from PNG border; finally one mixed school induced to bite briefly - 85 SJ and 27 YF tagged; too late at that stage (1800 hrs) to go into Pelau and seek permission to bait, so with four tanks left and some lingering concerns about engine, opted to head for for one last visit to Dufour Ridge area, for one last hit at the BE and YF area; steaming overnight at 660 rpm, but making 9 kts, luckily with following sea and current.

April 6th

Passed Roncador 0500 hrs, with ETA Dufour Ridge area noon; fished four FADs (another missing) in sequence (NFD 15,14,13) - very good bite on three and less so on last (NFD/UNK3); 1805 fish tagged - mostly YF (1258 - 70%) and mostly P tags, but very few BE (6 only); SJ were a mix of Z and P tags; 15 recaptures, all from Cruise 15 releases (14YF) except one SJ; 1800 hrs headed for Dufour Ridge and exploratory reef fishing for "take home"; fished till midnight then headed through Manning Strait en route Noro; still one tank of bait left - good survival of especially the sprats from OJ - so will fish two FADs on the way in, to finish Z tags; weather still lumpy.

April 7th

Reached first FAD of two - NFD 64 - at 0615 hrs; RR only - fish at 40m but did not come up; NFD 67 at 0800 hrs but same story - RR only; thereby finished a great cruise with a small whimper; tank emptied, began clearing, storing and packing up; head for Noro with ETA noon; cruise total 12944 for the two weeks - 11 days fishing not counting this last morning @ 1177/day; includes 10 ATs, all YF; species composition 30.6% YF, 69.2% SJ and 0.1% BE; Solomons 41,161, PTPP Phase 102,912. Tied up just after noon - good to be back in with a successful trial and good feelings about the vessel and crew.