

# PACIFIC TUNA TAGGING PROJECT WP 3

## CRUISE REPORT No. 3

### INDONESIA

17<sup>th</sup> August – 17<sup>th</sup> September 2009

#### INTRODUCTION

This report summarizes activities of the third cruise of the Pacific Tuna Tagging Project (PTTP) Phase 2 WP3 during a four week period beginning August 17<sup>th</sup> 2009. This was the second cruise in Indonesian waters, following the successful visit (WP1 Cruise 5) in October 2008. Following entry into Indonesian waters on August 17<sup>th</sup>, the cruise saw extensive fishing initially in Papuan waters, then the Maluku, Banda, Flores and Halmahera Seas before fishing Papuan waters again prior to departure from Jayapura on September 17<sup>th</sup>.

Scientific personnel onboard the Soltai 105 during Cruise 3 are listed in Table 1.

**Table 1. SPC and In-Country personnel onboard during Cruise 3**

Name	Title	Affiliation	Period
Antony Lewis	Cruise leader	SPC contractor	17/08/09 – 26/08/09 06/09 – 17/09/09
David Itano	Cruise leader	SPC contractor	26/08/09 – 05/09/09
Brian Kumasi	Tagging Officer	SPC	17/08/09 – 17/09/09
Thomas Usu	Tagging Technician	NFA PNG	06/09 – 17/09/09
Natsir Muhammad	Counterpart C/L	RCCF	19/08 – 17/09/09
Ignatius Hargiyatno	Scientist	RCCF	19/08 – 17/09/09
Craig Proctor	Fisheries Scientist	CSIRO	06/09 – 17/09/09
Capt Sahat Monang	Security Officer	Military Security (Naval Division)	26/08 – 17/09/09

#### GENERAL DESCRIPTION OF SEARCHING and FISHING ACTIVITY

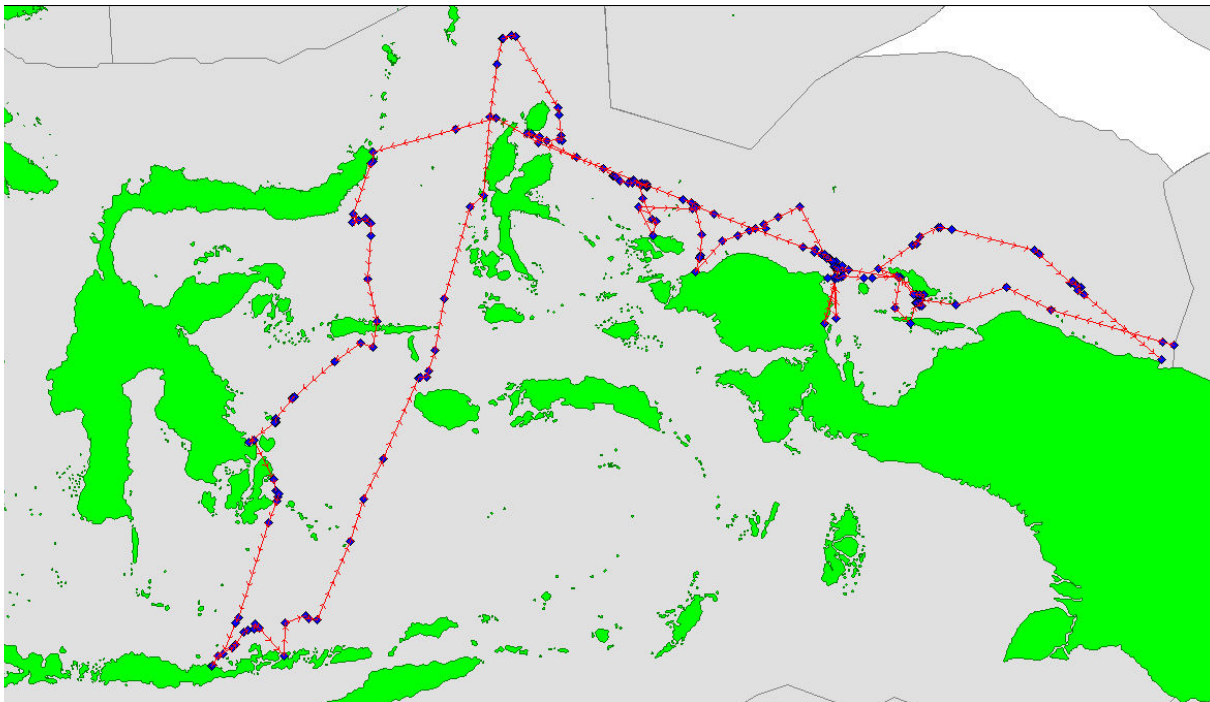
The vessel entered Indonesian waters on 17<sup>th</sup> August 2009 during transit from PNG to clear in to Indonesia at Biak. During some unexpected initial delays, limited fishing was carried out on FADs near Biak before heading towards Bitung north of Waigeo. Good catches were made near Manokwari and near Asia Island before bait ran out; following a port call in Bitung, fishing in the Maluku Sea and south of Taliabu was less successful than last year but with some success on rumpons close to Kendari; during the long trip south to Flores Sea, fishing on rumpons near Maumere and north of Adonara produced good catches; very little was seen on the northwards traverse of the western Banda Sea before successful fishing on rumpons west of Buru Island; heading north from a port call in Ternate, one day of good fishing was found on the plateau east of Talaud Island but few fish found heading south to east of Morotai; loaded with good bait from Morotai, an array of rumpons north of Waigeo produced good fishing; following baiting in Waigeo (Fofak), fishing towards Mapia produced few fish, but further east, the rumpons off

Manokwari again provided successful fishing. Few sightings and poor fishing were experienced north of Biak and eastwards along the Equator; the final run into Jayapura however encountered fish along the boundary between the westward setting ECC and the east setting PNGCC some 55 nm offshore from the Papuan mainland.

The track of the cruise in the Indonesian EEZ, 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 3**



**Table 2 Summary of Cruise 3 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	
Aug 17 <sup>th</sup>	Crossed into Indonesian waters from PNG							
Aug 18 <sup>th</sup>	Steaming -> Biak with gear stowed							
Aug 19 <sup>th</sup>	Inwards clearance; board RCCF scientists/ SO							
Aug 20 <sup>th</sup>	Temp security clearance given; bait Korido							
Aug 21 <sup>st</sup>	Steam R/K -> Ansoes (no fishing); bait Ansoes							
Aug 22 <sup>nd</sup>	Fish -> Biak for port clearance; bait Korido	53	130	0	0	0	0	<b>183</b>
Aug 23 <sup>rd</sup>	Fish -> Manokwari	1037	217	1	4	1	0	<b>1260</b>
Aug 24 <sup>th</sup>	Fish -> Asia Is. (north of Waigeo)	1287	32	0	0	3	0	<b>1322</b>
Aug 25 <sup>th</sup>	Steaming -> Bitung (no fishing)							
Aug 26 <sup>th</sup>	In port Bitung; bait purchase Matabulu							
Aug 27 <sup>th</sup>	Fish -> N Taliabu; bait Penu Bay	114	20	0	0	0	0	<b>134</b>
Aug 28 <sup>th</sup>	Fish -> S Taliabu	7	2	1	0	0	0	<b>10</b>
Aug 29 <sup>th</sup>	Fish NE of Kendari; bait Wawasingu	342	54	1	5	0	0	<b>402</b>
Aug 30 <sup>th</sup>	Fish SE Sulawesi	32	32	0	0	0	0	<b>64</b>
Aug 31 <sup>st</sup>	Fish -> Maumere; bait Dateh	3	5	0	0	0	0	<b>8</b>
Sept 1 <sup>st</sup>	Fish -> offshore Maumere; bait Tk LebaLeba	559	53	0	6	0	0	<b>618</b>
Sept 2 <sup>nd</sup>	Fish -> north of Lomblen and Pantar Islands	1097	185	1	1	0	0	<b>1284</b>
Sept 3 <sup>rd</sup>	Fish -> Buru	0	0	0	0	0	0	<b>0</b>
Sept 4 <sup>th</sup>	Fish Buru -> E Mangole; steam -> Ternate	1512	44	0	2	0	0	<b>1556</b>
Sept 5 <sup>th</sup>	In port Ternate							
Sept 6 <sup>th</sup>	In port Ternate							
Sept 7 <sup>th</sup>	Fish -> east of Talaud	445	285	144	0	0	0	<b>874</b>
Sept 8 <sup>th</sup>	Fish -> east of Morotai; bait SW Morotai	169	134	0	0	0	0	<b>303</b>
Sept 9 <sup>th</sup>	Fish -> north of Waigeo; drifting overnight	1711	638	2	6	0	0	<b>2357</b>
Sept 10 <sup>th</sup>	Fish -> Waigeo; bait Fofak	1790	30	0	2	0	0	<b>1822</b>
Sept 11 <sup>th</sup>	Fish -> NE Ayu Is then SE; bait Makebon	100	103	0	0	0	0	<b>203</b>
Sept 12 <sup>th</sup>	Fish -> Mapia; steam -> Manokwari FADs	35	9	0	0	0	0	<b>44</b>
Sept 13 <sup>th</sup>	Fish Manokwari FADs; bait Rumberpon	457	505	0	0	0	0	<b>962</b>
Sept 14 <sup>th</sup>	Fish east from Manokwari; bait Rede Korido	324	485	1	0	0	0	<b>810</b>
Sept 15 <sup>th</sup>	Fish -> N of Biak, then east -> TAO Eq 138 <sup>0</sup> E	0	0	0	0	0	0	<b>0</b>
Sept 16 <sup>th</sup>	Fish TAO Eq, then -> Jayapura	670	114	1	3	0	0	<b>788</b>
Sept 17 <sup>th</sup>	RCCF scientists debark; outwards clearance							
	<b>CRUISE TOTAL</b>	<b>11744</b>	<b>3077</b>	<b>152</b>	<b>29</b>	<b>4</b>		<b>15006</b>

## TAG RELEASES

Of the 32 days of the cruise, ten days were spent in port or steaming without bait, as a result of delays in obtaining necessary clearances. This was a relatively high number for the project and the cruise was extended by two days with the kind approval of the Indonesia Government to partly compensate for this down time. Of the 22 days of fishing, all in Indonesian waters, only two days produced zero catch, 9 days produced over 500 fish tagged and four days over 1000 fish tagged. The average number of fish

tagged per day's fishing was 680, a good result relative to other cruises but less than the 900 per day experienced on the October 2008 cruise.

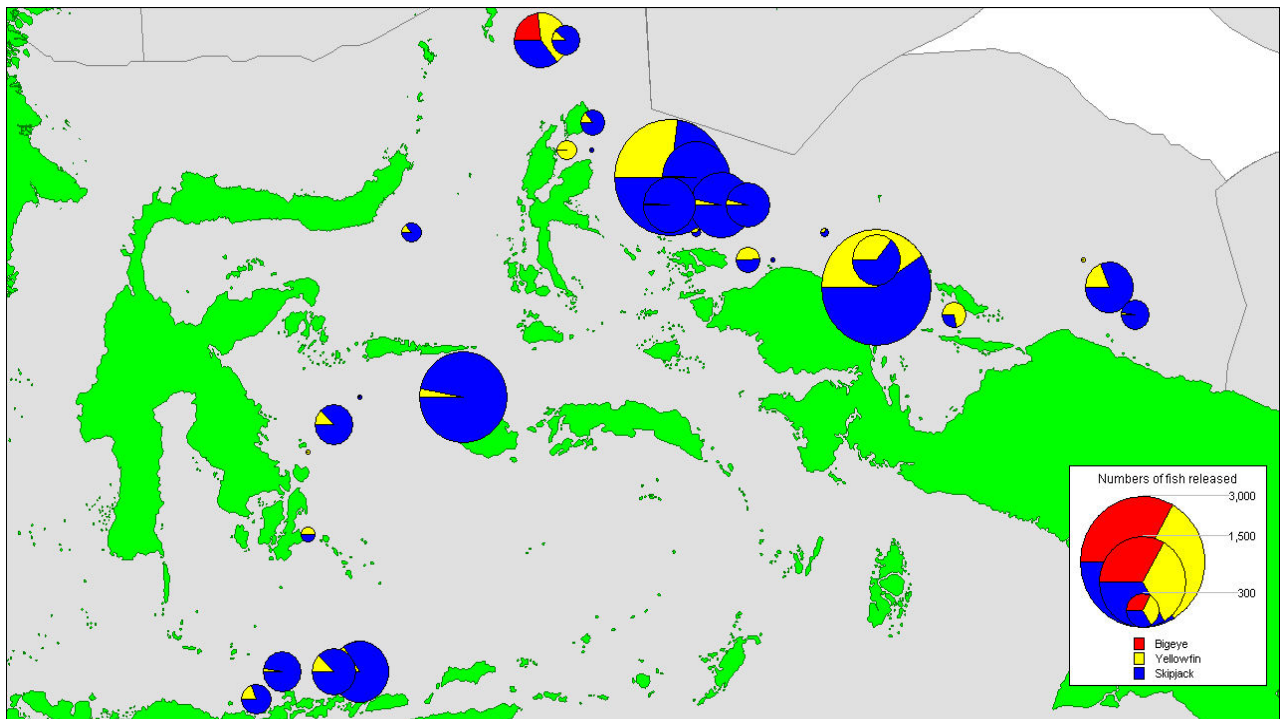
A total of 14,793 fish was tagged and released with conventional tags during the cruise, comprising 11,744 skipjack (79%), 3077 yellowfin (21%) and 152 bigeye (1%) .

63% of the releases (9,330) were the larger P tags (generally fish > 37 cm), with the balance (37% - 5,643) the smaller 11cm Z tags used on skipjack 32-37 cm, and yellowfin and bigeye 27-37 cm.

Most of the releases (86%) involved fishing in association with anchored rafts (rumpons), with relatively few free school releases (6%), and the balance on log schools. Relative to the 2008 cruise, there was a notable absence of marine mammal and whale shark sightings in this cruise

The Cruise 3 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 3



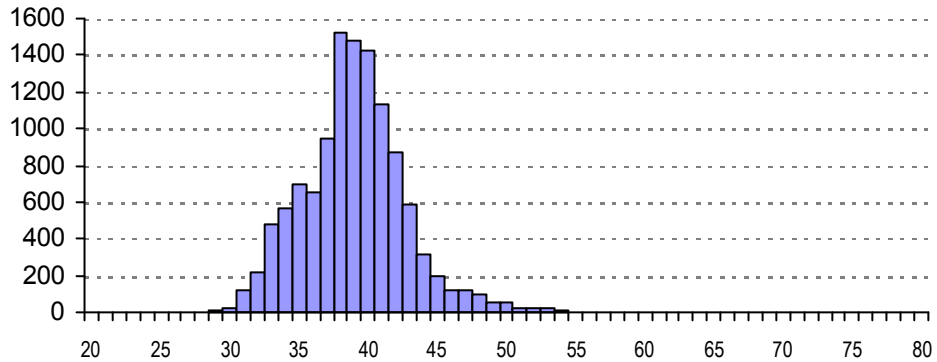
### SIZE DISTRIBUTION OF TAGGED FISH

**Figure 3** shows the size distribution of fish tagged during Cruise 3. The skipjack size distribution centred on large mode at around 38cm, with a subsidiary mode at around

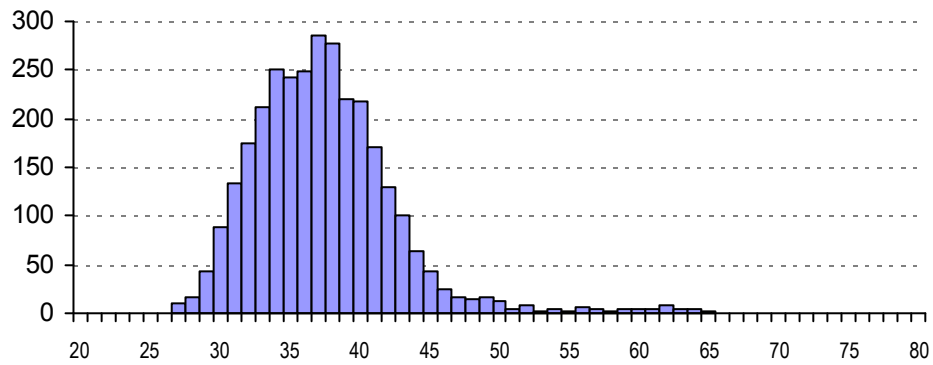
34cm. The yellowfin were slightly smaller on average, with a large composite mode centred on 37cm, with a tail of larger and smaller fish. The small number of bigeye tagged were mostly less than 36 cm.

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

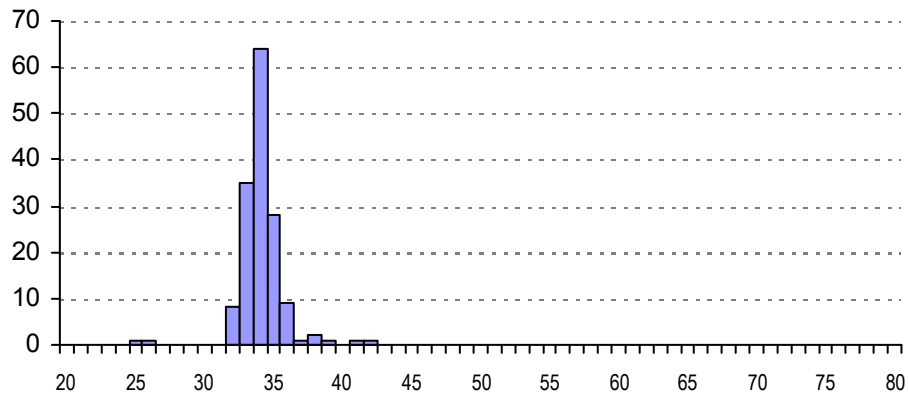
**Skipjack n = 11772**



**Yellowfin n = 3081**



**Bigeye n = 152**



## BAITING

Baiting was carried out at 11 locations during the cruise, with only a single location fished more than once (Rede Korido). Catches were generally sufficient for effective fishing, though 3 locations produced less than 25 buckets of bait. At two of these three locations, the poor catch was supplemented with bait purchased from bagans, and bait was supplied solely from bagans at one other location. Catches at the remaining seven locations averaged a satisfactory 180 bkts per night, at 95 bkts per set.

Catches were dominated by anchovies, but often comprised a mix of species. The prized ocean anchovy (*Encrasicholina punctifer*) was less common than last year and abundant at one location only. A herring species not known from previous baiting was common in Nusa Tenggara and south east Sulawesi. Juvenile layang (*Decapterus* sp.) dominated at one site and proved to be hardy and effective bait. Large numbers of scombroid juveniles, mostly *Rastrelliger* but also tuna (*Euthynnus*) were taken at one site.

**Table 4 Summary of bait fishing activity during WP3 Cruise 3**

Date	Location	Catch (bkts loaded, hauls)	Species
Aug 22 <sup>nd</sup>	Ansoes	254 (2)	Anchovy (d,h), Hq, Rk, Tb
Aug 22 <sup>nd</sup>	Rede Korido	159 (2)	Sardines, Hq
Aug 26 <sup>th</sup>	Matabulu	200 (purchased)	Anchovy (punctifer)
August 27 <sup>th</sup>	Teluk Penu	165 (1)	Dussumeria sp., mixed spp.
August 29 <sup>th</sup>	Tk Wawasingu	7 (1)	Herring sp., mixed spp.
August 31 <sup>st</sup>	Tk Dateh	8 (1) 225 (purchased)	Herring sp., mixed spp. E. punctifer
Sept 1 <sup>st</sup>	Tk LebaLeba	21 (1) 120 (purchased)	Herring sp., mixed spp. Herring sp.
Sept 8 <sup>th</sup>	Morotai	340 (1)	Anchovy (punctifer)
Sept 10 <sup>th</sup>	Fofak	217 (2)	Anchovy (d, ins), Duss., Tb, Pd
Sept 11 <sup>th</sup>	Makebon	83 (2)	Anchovy (Tb), Duss, Hq
Sept 13 <sup>th</sup>	Rumberpon	197 (2)	Decapterus, Hq, anchovy, sprat
Sept 14 <sup>th</sup>	Rede Korido	177 (3)	Sprats, Hq, fusiliers, h/h
Total			

## CONCLUSIONS

A generally successful cruise after a slow start; fish were less abundant than on the previous cruise, possibly related to the month difference in timing and also the impact of the El Nino event prevailing during the second half of 2009. More very small fish (< 30cm) were also encountered in some areas, but were generally not fished. The successful release of good numbers of fish new areas - the Flores Sea and also near Manokwari - were highlights of the cruise, but there was a general lack of fish when more than 50nm or so from land, even where rumpons were present, and often with large quantities of dolphin fish and rainbow runners associated. In contrast to the previous cruise, few marine mammal and no whale shark sightings were made. A total of over 40,000 tunas have now been tagged in Indonesian waters and given good recapture data for the majority of tags, will form the basis of a solid assessment of the resource for the first time.

**Appendix Table 1 Releases of tagged fish by date, location, school type and species during Cruise 3**

Event no	Tagged sch no.	Date	Lat	Lon	Sch type	Assoc.	Start	Stop	YFT	TAG TOTALS		
										BET	SKJ	TOTAL
3	1	22-Aug-2009	0124.347S	13559.851E	1	3	0704	0742	123	0	48	171
6	2	22-Aug-2009	0111.630S	13559.215E	1	3	1356	1405	0	0	4	4
8	3	22-Aug-2009	0111.377S	13552.312E	3	3	1501	1517	7	0	1	8
9	4	23-Aug-2009	0042.917S	13428.274E	1	3	0646	0656	5	0	1	6
11	5	23-Aug-2009	0032.043S	13420.840E	2	3	0901	1002	57	1	552	610
12	6	23-Aug-2009	0031.105S	13414.849E	1	3	1059	1128	18	0	165	183
13	7	23-Aug-2009	0027.514S	13410.637E	1	3	1212	1230	58	0	97	155
14	8	23-Aug-2009	0028.184S	13409.058E	4	3	1244	1305	80	0	225	305
16	9	23-Aug-2009	0023.688S	13403.773E	1	3	1403	1413	0	0	1	1
19	10	24-Aug-2009	0033.802N	13133.493E	3	1	0828	0855	10	0	465	475
20	11	24-Aug-2009	0036.886N	13129.363E	1	2	0945	1054	25	0	822	847
23	12	27-Aug-2009	0018.750N	12503.785E	1	3	0831	0849	0	0	1	1
24	13	27-Aug-2009	0014.714N	12506.752E	1	3	0924	0943	2	0	52	54
25	14	27-Aug-2009	0012.399N	12509.506E	1	3	1009	1022	18	0	61	79
28	15	28-Aug-2009	0230.353S	12427.070E	1	3	1714	1740	2	1	7	10
29	16	29-Aug-2009	0315.179S	12336.455E	1	3	0529	0552	0	0	12	12
30	17	29-Aug-2009	0312.593S	12339.684E	1	3	0620	0701	50	1	320	371
31	18	29-Aug-2009	0315.144S	12336.277E	1	3	0731	0741	0	0	15	15
32	19	29-Aug-2009	0338.640S	12317.115E	1	3	1103	1110	4	0	0	4
36	20	30-Aug-2009	0503.375S	12317.377E	1	3	1325	1341	32	0	32	64
43	21	31-Aug-2009	0819.255S	12209.077E	1	3	1201	1219	5	0	3	8
44	22	01-Sep-2009	0819.529S	12208.778E	1	3	0846	0908	43	0	76	119
46	23	01-Sep-2009	0809.366S	12225.784E	2	1	1116	1130	0	0	112	112
48	24	01-Sep-2009	0748.438S	12243.775E	1	3	1444	1527	5	0	243	248
49	25	01-Sep-2009	0747.300S	12251.937E	1	3	1619	1632	4	0	42	46
50	26	01-Sep-2009	0740.995S	12253.306E	1	3	1712	1724	1	0	92	93
51	27	02-Sep-2009	0731.811S	12353.210E	1	3	1454	1524	34	0	329	363
52	28	02-Sep-2009	0735.188S	12356.946E	1	3	1612	1625	25	0	80	105
53	29	02-Sep-2009	0736.758S	12406.470E	1	3	1728	1807	126	1	689	816
54	30	04-Sep-2009	0250.023S	12605.867E	1	3	0530	0543	1	0	7	8
55	31	04-Sep-2009	0248.837S	12615.969E	1	3	0711	0807	43	0	1501	1544
56	32	04-Sep-2009	0242.227S	12617.906E	1	3	0854	0912	0	0	6	6
57	33	07-Sep-2009	0351.574N	12744.825E	1	3	1456	1548	258	143	219	620
58	34	07-Sep-2009	0352.295N	12746.847E	1	3	1601	1611	0	0	1	1
60	35	07-Sep-2009	0354.738N	12800.816E	3	3	1754	1835	27	1	225	253
61	36	08-Sep-2009	0221.453N	12851.973E	3	3	0712	0745	27	0	158	185
64	37	08-Sep-2009	0151.201N	12838.282E	2	1	1330	1348	0	0	10	10
65	38	08-Sep-2009	0155.485N	12829.228E	3	3	1450	1503	1	0	0	1
66	39	08-Sep-2009	0157.867N	12820.867E	1	3	1602	1633	106	0	1	107
71	40	09-Sep-2009	0103.602N	13004.170E	3	3	1300	1434	390	1	1040	1431
74	41	09-Sep-2009	0102.986N	13022.034E	3	3	1645	1800	248	1	677	926
79	42	10-Sep-2009	0101.127N	13030.756E	2	3	0750	0840	6	0	1067	1073
80	43	10-Sep-2009	0059.474N	13027.731E	4	3	0905	1005	5	0	696	701
81	44	10-Sep-2009	0018.032N	13043.175E	1	3	1514	1522	16	0	17	33
82	45	10-Sep-2009	0015.347N	13047.930E	1	3	1558	1608	3	0	12	15
83	46	11-Sep-2009	0030.466N	13130.240E	1	3	0624	0632	8	0	1	9
85	47	11-Sep-2009	0024.772S	13139.699E	1	3	1435	1507	76	0	92	168
86	48	11-Sep-2009	0027.010S	13139.451E	2	3	1527	1541	19	0	7	26
88	49	12-Sep-2009	0001.551S	13224.215E	5	2	0834	0855	0	0	13	13
89	50	12-Sep-2009	0004.662N	13238.126E	1	3	1059	1107	0	0	1	1
92	51	12-Sep-2009	0020.502N	13312.113E	2	3	1548	1620	9	0	21	30
93	52	13-Sep-2009	0028.291S	13408.977E	1	3	0535	0605	75	0	54	129
94	53	13-Sep-2009	0027.473S	13410.546E	1	3	0617	0624	0	0	2	2
95	54	13-Sep-2009	0031.046S	13414.846E	1	3	0704	0718	8	0	8	16
96	55	13-Sep-2009	0032.847S	13416.795E	1	3	0736	0752	65	0	21	86
98	56	13-Sep-2009	0036.015S	13418.693E	1	3	0903	0920	74	0	7	81
99	57	13-Sep-2009	0038.191S	13418.277E	1	3	0935	0939	2	0	1	3
100	58	13-Sep-2009	0039.912S	13420.821E	1	3	1001	1021	142	0	101	243
101	59	13-Sep-2009	0040.449S	13422.876E	1	3	1037	1055	139	0	263	402
103	60	14-Sep-2009	0051.256S	13420.238E	1	3	0604	0640	46	0	194	240
106	61	14-Sep-2009	0052.133S	13422.242E	3	3	0724	0810	439	1	130	570
115	62	16-Sep-2009	0024.140S	13821.205E	1	2	0642	0655	3	0	0	3
116	63	16-Sep-2009	0058.118S	13858.205E	2	2	1151	1222	79	1	103	183
117	64	16-Sep-2009	0057.173S	13859.656E	3	2	1228	1305	28	0	352	380
119	65	16-Sep-2009	0100.033S	13905.052E	2	1	1408	1443	1	0	91	92
121	66	16-Sep-2009	0102.371S	13910.195E	2	1	1545	1550	1	0	9	10
122	67	16-Sep-2009	0105.232S	13908.271E	2	1	1625	1637	2	0	118	120
<b>CRUISE 3 TOTALS</b>									<b>3081</b>	<b>152</b>	<b>11773</b>	<b>15006</b>

## APPENDIX 1

### DAILY LOG EXTRACTS - WP3 Cruise 3

#### August 17<sup>th</sup>

Crossed into Indonesian waters 1645 hrs - no wind and sea calm, with following current and making close to 11 kts; put clocks back one hour during the night.

#### August 18<sup>th</sup>

Heavy rain during night but calm; following current slowed - ETA Biak now after 1800 hrs; encountered dirty water off Mamberamo mouth from 1000 hrs on, and as far as 26 nm offshore; moved outside to clean water; arrived off Biak 2200 hrs in flat calm and drifted until morning.

#### August 19<sup>th</sup>

Perfectly calm with little current; started engine 0700 hrs to go in for clearance - alongside 0825 hrs; one large p/s transhipping (BMJ/Ocean Mitramas); Naseer, Ignatius, Tri Joko, Thomas and agent on the dock, but had to wait for arrival of Customs; all proceeded smoothly and cleared in by 1000 hrs; alas no security officer and little news, so cannot leave for interim bait ground; water and cooking gas, and good shopping (Hadi Supermarket and Pasar Inpres) with help of Pelni agent Kris; good nasi padang dinner with help of local Seafood QC person (Abbash - Bugis), then meet and appoint Biak TRO - Pak Hendryono (advance of 1.5 milion for 4 previous tags -> Jayapura but not paid, plus 11 more); clearance provided for Thurs 0700 hrs after SO should arrive (0530 hrs); alas no security officer coming and no news, so will try to get local security and at least bait Rede Korido tomorrow night, with possible departure noon Thursday; raucous night onboard with creatures slithering and sparking.

#### August 20<sup>th</sup>

NOTE: Garmin position shifted ~ 3 nm to west during the night - same with ship's main plotter; awoke to wet morning; market not on until later; hired angkot for the morning in anticipation of noon departure; more shopping, including huge chunks of meat, and email check (good at diBiak); security clearance finally sent from Jakarta - arrived 1400 hrs but then port clearance took another 2 hours; Naseer and Thomas visited navy office and secured approval to fish locally without SO but return on Saturday to pick one up ; cast off 1700 hrs and headed for Rede Korido; a deflating day, with more to come, unbeknown to us; good steam in the continuing excellent weather and inside Rede Korido 2130 hrs; not far inside when glided onto an unseen patch reef - chart in error, islands used for radar fix had disappeared in the intervening years and patch rose precipitously from 50m; stern clear, transducer undamaged but hull held fast at port midships; set anchor off SB quarter, shifted water, brine and fuel to SB side, and waited for high tide at 0600 hrs (went on at half falling tide); plenty of blue sprats around vessel but no baiting of course.

#### August 21<sup>st</sup>

Vessel kedged off with ease, amidst great relief, at 0530 hrs; anchor retrieved after dawn then brief survey of the bay for next time; headed for Ansoes 0730 hrs; uneventful passage - some squalls with SW wind; one raft sighted but no fish associated; no bird flocks seen after commenced searching 1015 hrs; anchored Ansoes (light boat and vessel) 1630 hrs in 39m; brand new wharf .. and cellphone tower under construction; town looks to be on the move - excellent anchorage; hope to load tanks before midnight; appears will have to return to Biak to get new clearance papers tomorrow morning - just another "chose merdique"; four and a half days into the cruise and not a fish troubled ... numerous canoes visiting (outriggers with sail, some with long shaft diesel) - one fisherman noted he had recaptured and thrown away about 10 tags, not knowing what they were; another had returned tags to Jayapura during RTTP but none this time; one rumpon "about 5 litres of fuel" away - shelf edge ~ 5 nm away, so well beyond that; first net 2115 hrs for 195 bkts, anchovy with much Hq, Rk and priests; second net on lightboat 2215 hrs for 59 bkts, with more anchovy; opted to head for Biak - up anchor and set off 2300 hrs



### **August 22<sup>nd</sup>**

Good passage overnight - ~ 15nm SW Biak at 0600 hrs; diverted to fish rumpsons to east; the floats a stubby version of RD style, with mounting for flag/beacon mid-dorsal; first raft with good showing but dolphins and much RR - about 12 boats fishing, both down (spreader bar) and troll; checked bamboo 0650 hrs but no signs; second raft with ~ 14 boats - first fish tagged in Indonesia (at last) - 171 fish, mostly small YF (123); posters given to one fisherman, spoke to others and donated the few fish on deck; another raft nearby - fish underneath but did not come up; other rafts nearby but headed for port 0810 hrs; approval to anchor in stream; captain and Naseer ashore in dinghy to get port and customs clearance, and pay any bills (certain to be some); more money indeed paid, but docs delivered and underway by 1300 hrs bound for Rede Korido again ! fished a series of inshore FADs on the way west to Biak SW corner - mostly MT and AT but 12 YF tagged from 2 areas - multiple FADs with some riplers in between; no fish on the run up the west coast, as was the case last time coming down; inside Rede Korido 1745 hrs, anchored 1830 hrs in 49m. first net 2100 hrs for 99 bkts, mostly sardines; second net 2200 hrs for 60 bkts of Hq and sardines; up anchor 2245 hrs and off to the west.

### **August 23<sup>rd</sup>**

Rain and some SW wind overnight, with good boat speed; two local rafts (one with two canoes) about 25 nm from Manokwari chummed for just a few small YF; another at 0800 hrs with two large canoes ( tuna rawai - float fishing) - no signs; things improved as moved offshore, with a line of FADs, mostly seeming to be new and well maintained - even a few old Phils drums; squalls with SE wind much of the day; ten rafts fished, most with fish, but not always biting, with a lot of natural bait in the area; good fishing on four rafts, for 610, 183, 155 and 305 fish - total 1260 for the day, including 218 YF, a solitary BE and 5 ATs (4 SJ, one YF) - not bad on about 160 bkts of bait. Nothing for last two hours, as ran out of rafts; only option now is to head for FADs near Asia Is, then head into Bitung without bait for 360 nm - paying the penalty for all the lost time in Biak. A better day though ..

### **August 24<sup>th</sup>**

55nm NE of eastern end of Waigeo at dawn after good passage overnight at around 9.6 kts; not far along the road towards Asia FADs, after rain and wind halted, before seeing fish - a rippler of SJ at 0830 hrs yielded 475 fish - just 10 YF, including 2 ATs, then a good log school at 0945 hrs bit for over an our before the bait ran out - 847 fish, but again just 25 YF and no BE; 1318 for day plus 4 ATs, and 2765 for the fractured cruise .. steaming from 1100 hrs onwards, with over 400 nm to Bitung; fish seen on the way by casual observation and Asia FADs, the nominal target for the day, are still in place; no industrial size vessels seen, and little surface activity other than the fish; will still be SE of Morotai at dawn and will pass through Selat Morotai late morning.

### **August 25<sup>th</sup>**

Good passage through Morotai Strait but stronger wind from S and head current once in Maluku Sea; heading for Mogogimbun to buy or make arrangements for bait; put clocks back one hour (GMT +8) at noon; slow passage across with ETA now back to 0630 hrs

### **August 26<sup>th</sup>**

At Mogogimbun baitground 0600 hrs; checked 15 bagans by dinghy but no one onboard (presumably go home after selling bait); price per bkt also up to close to 100,000Rp; headed for Bitung 0700 hrs through Lembah Strait - alongside Fish Port wharf 0830 hrs outside two p/l vessels; agent, Anung and Thomas Mahulete soon on board and immigration OK, but waiting for Customs; good news with Capt Glen coming onboard and offering to organize bait at Matabulu, 70nm to south; he will provide captain to accompany; bait Rp 75,000 per big bucket - good strong bait; gave advance of Rp one million and basket SJ. CL Itano arrived Manado 1300 and met by Anung and TRO and taken to Imigrasi. All immigration matters sorted out and fingerprinted etc by 1600 hrs. CL Lewis and Agent, Anung, etc off, CL Itano onboard with BRK; cast off at 1715 hrs bound SW for Matabulu.

### **August 27<sup>th</sup>**

Arrived at Matabulu baitground at 0200 hrs, anchored at 0 32.659'N; 124 29.713'E in 18 m. Transferred 10 large, 61 5 gall buckets to fill four wells with small *E. punctifer* with some *S. devisi*. Bait transfer, payment and dropped off assisting fishermen by 0330 hrs and away from baitground at 0345 hrs - headed SE. Checked five payaos located 30 - 45 nm SE of Matabulu, most loaded with very small skipjack with local PL boats working on the schools of small skipjack. A few handline boats also jigging and one seen working a bait from trolled kite. All FADs were anchored "house FADs/rakit" equipped with radio. Fished three of the payaos for 114 SJ and 20 YF releases, mostly Z tag size. Turned south toward Penu Bay at 1030 hrs for long run to the bait ground with light searching continued. Passed some free schools but either travelling too fast or not biting. Trolled one blue marlin 200 cm LJFL at 1600 hrs. Running south to Penu Bay on Taliabu all night. Set up light boat and dropped anchor in Penu Bay, Taliabu in 20m at 2350 hrs.

### **August 28<sup>th</sup>**

Set lights in Penu Bay, Taliabu just after midnight; haul at 0315 for 165 buckets of *Dussumeria* sp. Unfortunate haul, no anchovies seen but some weak species (*S. indicus/insularis* ?) and a mix of *Rastrelliger* and reef fish. Depart baitground 0415 hrs and through Capalulu Passage by 0730 hrs. FAD positions fished last year south of the pass and the east end of Taliabu were missing. Two new FADs located in the same area not holding. Searched west and SSW toward Kendari, locating a FAD and handline vessel in late afternoon. Naseer and CL visited the Kendari-based Indonesian handline vessel tied up to this FAD and obtained several GPS positions of FADs in a group SW of Taliabu. Running all night to reported FAD positions on our course track towards Kendari.

### **August 29<sup>th</sup>**

Ran till around 0400 hrs to drift near FAD positions obtained yesterday; starting fishing on first of two anchored bamboo rafts at greylight. A few tags on first FAD but second FAD produced bulk of 401 releases; 86% SJ, only one small BE but 5 of the SJ released with LAT 2510 archival tags. Searched towards Kendari and checked 7 bamboo payaos SW and S of Maui Island, mostly empty or with very small fish - produced only 4 small YF releases. Ran in to Teluk Wawasingu and dropped anchor in 42.5m in center of inner bay.

### **August 30<sup>th</sup>**

First baithaul at 0340 hrs in Teluk Wawasingu a disappointing 5 buckets of herring and mixed species. Ran out in dinghy with Naseer to check bagans. Most boats were actually small coastal pelagic ringnet boats. Found bagans further out and boarded one willing to sell us his haul. Unfortunately only five buckets of sardines came up with squid so declined the purchase. Second bait haul at light boat at 0420 hrs but only two buckets! Picked up and started running south through Selat Wowoni at 0515 hrs. Encountered a dense field of bamboo payaos east of Pulau Buton on SE corner of Sulawesi; checking 5 and tagging on one for 29 SJ and 29 YF releases, all small fish split between Z and P size. Small class pole and line, one ringnet and several handline boats seen on FADs. Some FADs were holding dense schools on sounder but not biting well in mid-afternoon. Running south all night towards Flores.

### **August 31<sup>st</sup>**

Ran SW all night waking up about 80 miles offshore. Located first payao 17 miles north of Maumere. Large mark on sounder but only a few small fish came up for 8 releases (3 SJ, 5 YF). Searched inshore finding two more FADs but no luck and used up almost all bait. Dropped anchor in 42 m at 1545 between Dateh and Koro villages in Dateh Bay, west of Maumere. Visited Dateh which seems to be a village of bagans with live and dried bait the main activity. About 20 bagans counted at anchor off the village. Went ashore with Naseer who negotiated baitfish purchasing arrangements with a kind fellow with a few boats at 50,000 Rp/ 5 gall bucket.

### **September 1<sup>st</sup>**

Anchored inner Dateh Bay located west of Maumere, Flores in 42m, west of Dateh village. Bait haul at 0330 hrs but only 8 buckets of herring and mixed species. Purchased a full load of small *E. punctifer* from two bagans in outer bay; daylight loading all six wells with 150 buckets (5 gallon ACE) @ 50,000/bucket, equivalent to about 225 standard buckets. Away from baitground at 0715 and headed northeast. Fished FAD found yesterday and a free school in the AM. Located another FAD 60 nm NE of baitground with locally based PL boats from the Flotim company. Visited the Flotim 25 with Naseer who gave out posters, did publicity and obtained ten useful FAD positions in the area. Visited three of the FADs before sunset for a total release of 618 (565 SJ, 53 YF) of which six SJ were also tagged with Lotek 2510 archival tags. Finished two wells on last FAD and ran in to Teluk Lebaleba on Lomblen Island (Alor Group) for baiting.

### **September 2<sup>nd</sup>**

Bait haul at Lebaleba in 31 m at 0415 hrs; 21 buckets of an unknown herring species. Purchased the same species of herring from two bagans @ 40 and 35 five gall buckets, very full, about twice capacity of our standard bucket. Checked three FAD positions given us yesterday but all missing, eventually searching out and east 70 nm before locating a group of steel payaos and handline boats with carriers about 40 nm north of Panta Island. Fished three FADs from 1500 to sunset for 1284 total (1098 SJ, 185 YF, 1 BE) that included a single skipjack AT. Running NNE all night.

### **September 3<sup>rd</sup>**

Running all day on course 021 T from Flores toward west coast of Buru Island in the Banda Sea. No fishing boats sighted, no FADs, no fish.

### **September 4<sup>th</sup>**

Running all night to pass NW corner of Buru Island early AM. Located a cluster of FADs 20 nm north of Buru at dawn. The first FAD had a local purse seiner vessel from Bali sacking up a nice catch with several small carriers and auxiliary vessels in attendance. The next three FADs were fished with the second producing the bulk of 1558 releases (incl 2 SJ ATs). Most releases were skipjack just over 40 cm. The last FAD visited had a Philippine style handline mothership tied up with about 8 auxiliary handline skiffs. The vessel was based from Bitung; Indonesian flagged with a mix of Philippine and Indonesian crew. Tagging posters in Bahasa and Visayan were provided. Running NNE from there straight to Ternate for full moon break and fuelling/provisioning.

### **September 5<sup>th</sup>**

Ship's clocks set ahead one hour before making port. Arrived Ternate port 0930 hrs. Customs clearance and issuance of crew shore passes took until 1400 hrs when fuel and water could finally start to be loaded. Took 20,000 KI diesel and water. ADL, THU and Craig Proctor arrived around 1330 hrs. DGI and BRK moved off boat to overnight in hotel for early morning departure to Jakarta. Pak Dwi not there, but Pak Endang (Coop Manager) helpful as providore and provided car; Kris Syamsudin (North Maluku Governor's staff) also helpful - had been instructed to assist and also came with car; some provisioning done (market and supermarket) but no freezer goods; invited to dinner (Platinum) by Governor's staff, combined with media interview; long discussion well into the morning with departing members, who left on 0700 hrs flight with icebox of samples.

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

Slow start to the day, but provisioning concluded, funds topped up, and THU photographed and fingerprinted - not bad progress for a Sunday during Ramadan; outwards clearance and a raft of other papers took longer; 172 kgs fish unloaded to local agent who pleaded for fish to serve an empty market - payment not made but will go to Fisheries office via Pak Endang for tag rewards (~ Rp1 million); 12 crew on a tour of Ternate for several hours with Kris and second vehicle; finally paid off agent 1900 hrs (Rp 13 million) and left 1930 hr with great relief; good steam over night under bright moon and helpful current - will be west of Morotai early AM.

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

Abeam northern tip Halmahera 0500 hrs; sunrise 0630 hrs at western margin of this time zone; nothing all morning except one patch large YF with birds; began to see rafts once on the Talaud plateau in water < 1500m; many small fish on the first raft, as was to be the pattern all afternoon, but 620 tagged (65% YF and BE); bailed out of next raft - all small fish, as was the case on a breezer to the east; found a raft at the death - 1800 hrs - for 253, with just 27 YF and one BE; 874 for the day - no ATs; will head south to be east of Morotai at dawn where there should be FADs based on depth and tag return locations; two tanks of good bait left; making 9.5 kts and weather good; a good start for homeward run in Indonesia.

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

Some head current during night - altered course 0400 hrs to get closer inshore to Morotai; FAD found 0700 hrs with vessel tied up to it; 3 good rippers around the raft, and plenty of fish, but mostly very small (SJ 30 cm or less); 185 tagged, with maybe 5-10 flicked off for everyone lifted; 15% YF, no BE; two more FADs investigated but no signs underneath; no other vessels sighted; headed west to Morotai at 1130 hrs to bait since not enough time to get to Teluk Buli; free school of SJ ~ 40cm popped up at 1330 hrs but would not bite - just 10 tagged; then good breezer near a FAD but no bite on either, save one small YF at stern; next FAD further inshore with canoe jigging - many mahi which greatly interfered with the bite, but 107 tagged, all YF; final FAD with fish but no bite; ~ 5 bkts left; headed for Morotai western lagoon and anchored SW of Doruba at 1850 hrs in 35m, just on sunset; bait gathered quickly - little current and slack water 2030 hrs; first haul 2045 hrs for ~ 500 bkts of large *punctifer*; 340 bkts loaded and up anchor 2200 hrs, with a large mass of anchovy still under the boat; headed out for FADs north of Waigeo, near Asia Is, some 160 nm distant - excellent result with the bait and similar to last year, just further south in the Morotai west lagoon.

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

Good run overnight at 9 kts; entered FAD positions seen on 24th August heading for Bitung - should start encountering FADs at 1400 hrs and maybe before; indeed first FAD at 1000 hrs with good fish underneath but no bite; none for several hours then 2 FADs without fish before finding a good one at 1300 hrs with rippers all around the raft - a long bite with 1431 fish tagged - 390 YF and 1 BE, with most fish 35-45 cm; two more FADs without fish before finding one at 1700 hrs which produced ~ 920 fish, with about 28% YF and one BE, and 6 SJ ATs; larger fish than on first FAD - most SJ 38-48 and YF similar, but with ~ 20 YF > 60cm and SJ to 62cm; only about 400 Z tags used, so 5:1 ratio - just fine; directive issued to tag 38cm (and 37cm fish in good condition) with P tags, as bow has always done but not the stern; the second FAD was just the first (westernmost) on the previously plotted list so then steamed SE for 2 hrs before drifting for the night; just two tanks used (the smallest ie no. 1s) for over 2300 fish - the large *punctifer* (up to 7mm) made excellent bait and mortality has been low; 2357 fish and three bonuses for the day .. cruise total now over 10,000, with excellent prospects for tomorrow; several vessels tied to rafts visible on the radar - drifting NNW at about 0.5 kts.

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

Only drifted 4 nm to NW during night - engine start 0540 hrs to head for nearest raft 2 nm away; some signs but fish did not come up; three more rafts with no signs or no response, then two good rafts with fish - first for 1073 fish, nearly all SJ (6 YF) and just a handful of Z tags; second at 0900 hrs, with pump boat attached, for 700 fish (5 YF), but smaller on average and some Z tags; put down the spy glasses for 2 hours then began searching near Budd Is; nothing seen until at inshore FADs 18nm off Fofak entrance; two rafts checked but both with heaps of aggressive small RR and mahi - hard to get bait past them - 51 small fish tagged, ~ 30% YF; 1820 for the day plus 2 SJ ATs - only 30 YF, which has brought the average down a bit; over 12,000 now for the cruise; inside the scenic Fofak Hbr 1800 hrs and anchored at eastern end 1830 hrs in 35m; two pole-and-line vessels also baiting in the harbour; first net 0920 hrs for 133 bkts of mixed bait - anchovy (d,h), *Thrissina*, much *Dussumieria*, weak anchovy; second haul on lightboat 2230 hrs for another 84 bkts of similar bait; headed off 2315 hrs ...

### September 11<sup>th</sup>

Steamed overnight towards ~ 00-30N 130-30E; seas flat calm; saw radio buoy on radar 0530 hrs but proved to be net or line float; FAD nearby - small YF but not biting well -and only 9 tagged; bambo clump nearby with hno fish - possibly too new; nothing then until the FAD line starting off Makebon - fish tagged on two occupied rakits, but only slow bite, with many RR and AT; 194 tagged, with 85 YF; nothing then on an abandoned rakit and headed in for Makebon; established that no bagans there - will hope to get lucky with *punctifer*, 203 for the day .. way down on the last two days, but ~ 160 bkts bait left, including two good *punctifer* tanks, and well relaxed; anchored 1815 hrs in 32m - visit by two canoes; several carriers visible at Makebon wharf; first net in rain at 2245 hrs for 82 bkts of mixed bait, but much Duss, weak anchovy and priests; second haul on lightboat 2355 hrs in driving wind and rain for just one bkt; up anchor and head for Mapia 0030 hrs.

### September 12<sup>th</sup>

Weather change with E/NE wind and rain; first FAD (which produced good fish last year) missing; large area of fish boiling/jumping within 1 km of a large bamboo clump along a current line, but poor biting - 11 tagged; raft at 1100 hrs but many small mahi beating small SJ to the bait; rafts at 1230 hrs and 1330 hrs but again mahi only; finally a raft with few mahi at 1545 hrs - 30 tagged (9 YF); pumpboats spied 1745 hrs at 5nm distance .. reached with increased speed at 1815 hrs but alas, no fish signs; gave posters (two Filipino vessels from GenSan), fish and bade farewell; another pump boat nearby, so probably a nest of FADs towards Mapia; steamed for Manokwari FADs 72nm away; will drift until morning on arrival; just 44 for the day ... messed up by mahi ... but 2 good tanks (Morotai *punctifer*) and 2 light tanks (Fofak) left.

### September 13<sup>th</sup>

Drifting from 0300 hrs adjacent to previously productive FADs 25 nm north of Manokwari; fishing at 0535 hrs on oily calm sea at first FAD - reasonable YF bite at bow (only one at stern) - 129 with 60% YF; second with poor bite - just 2 fish; third at 0700 hrs - slow bite with ~ 16 tagged (8 YF); better at 4th for 86 in quick bite (65 YF); 5th nearby for zero; 6th better with 81 tagged (74 YF); only three on 7th; 8th with good bite for 243 (142 YF); best bite saved for last on final FAD with bait running out - 402 tagged (139 YF); 962 for the day with 505 YF - certainly a useful contribution; dialogue with some local fishers in perahus (trolling and drop-stone) - one had 5 tags which he will return to Dinas Propinsi .. there must be others, so hope publicity has been done; headed for Rumberpon 1100 hrs at increased speed with ETA 1800 hrs; FADs and free schools passed on the way, especially just east of Manokwari; anchored lightboat 1815 hrs in 33m on a patch and vessel at 1830 hrs close to shore in 64m; turns out to be deep bay with the occasional patch - hope for the best; first net 2100 hrs, after watching fish slowly aggregate, for 145 bkts - small *Decapterus*, Hq and mackerel (Rk); second on light boat 2215 hrs for 52 bkts of sprat (g,d) and anchovy (h,d); up anchor 2245 hrs and head for Manokwari.

### September 14<sup>th</sup>

Drifting from 0500 hrs amidst FADs 11nm due east of Manokwari; first FAD 0540 hrs with just small fish; 6 more FADs investigated, some less than 1 nm apart; two with fish that chose to bite, others with hordes of mahi and RR; the second of the day yielded 240 fish, with 46 YF, whereas the 5th of the day produced a solid 570 fish, with 439 YF and one BE; fish smaller than yesterday, with a majority Z tags; heading east after 0900 hrs but very little seen outside the FAD zone; west of Supiori bare of fish, for the third time - leeward side effect ?; anchored in 42m Rede Korido 1730 hrs; 810 for the day and now over 14,000 for the cruise - almost respectable; first haul 2030 hrs for 89 bkts of mixed bait - huge numbers of juvenile Rk (3-4 cm) and tunas, presumably MT, sprats, Hq, fusiliers etc; second haul 2145 hrs for 25 bkts with more sprats; set lights for a final haul, needing ~ 90 bkts to fill up for the long trip east.

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

Final haul 0030 hrs for 63 bkts of mostly sprats, H/h, Hq etc; total 177 bkts and just 300 onboard; up anchor and away 0130 hrs; light NW wind, little current; dawn still passing Supiori NW reef, then passed Isabel Rf and Bepondi; first raft not until 1130 hrs - no signs, not chummed; second with large log nearby - small fish only near log, with triggerfish; running free school at 1315 hrs but no bite; another raft 1600 hrs - no fish, then a free school some miles away but fast moving and not slowed; there was to be last roll of the dice - free school at 1720 hrs evaporated and a skunk it was ! Steaming overnight - will be in vicinity of TAO Eq at 0130 hrs tomorrow; almost zero surface activity today but 3 FADs and 2 free schools, but nothing to show ...

### **September 16<sup>th</sup>**

Arrived at TAO Eq 0145 hrs; p/s vessel tied to it, despite stiff NW wind and tilting the buoy close to horizontal; position as last year - 00 01.854 N 137 53.716 E; appeared to be very little fish around buoy so opted to head for next known raft ("the 25,0000") 26 nm to SE; in vicinity 0500 hrs and drifted; no sign of raft so headed for Jayapura (205 nm); big old log 0640 hrs but alas, mostly small RR and just 3 YF; nothing then until just before noon on a current line which proved to be the boundary between the friendly east-setting ECC and west-setting PNG Coastal Current, ~ 55nm offshore; 2 adjacent logs produced a total of 563 fish (107 YF, one BE), mostly Z tags; then an hour later, began chasing a succession of flighty free schools - 322 fish tagged, mostly SJ and nearly all P-tag size; called off the FM at 1700 hrs as had to head for Jayapura; still ~ 50 bkts of good bait left but may not get there in time to fish FADs off Jayapura; 788 for the day, including the last 3 ATs, and **15006** for the cruise - just made it .. wild celebrations all round; ETA off Jayapura 0700 hrs with increased speed to counter the current.

### **September 17<sup>th</sup>**

Passed several vessels heading to rumpons after dawn; inside Hollandia Bay 0730 hrs; 3 very large bagan and four smaller, but all with nets up and anchored in very deep water (> 50m); alongside 0800 hrs for clearance and journey's end for the eventful Indonesian cruise.