

PACIFIC TUNA TAGGING PROJECT PHASE 2

CRUISE REPORT No. 4

29th August – 27th September 2008

INTRODUCTION

This report summarizes activities of the fourth cruise of the Pacific Tuna Tagging Project (PTTP) Phase 2 during a 30 day period, beginning on 29 August 2008. This report describes a brief period in Palau for personnel change, fishing and tagging in transit to the Philippines, operations in Philippine waters and the transit to northern Indonesia to end Cruise 4. Scientific staff and national observers participating in Cruise 4 are listed in **Table 1**.

Table 1. SPC and In-Country personal onboard during cruise 4

Name	Title	Affiliation	Period
David Itano	Cruise leader	SPC contractor	29/8/08 – 27/9/08
Brian Kumasi	Scientist	SPC	29/8/08 – 18/9/08
Ashley Williams	Scientist	SPC	03/9/08 – 18/9/08
Cynthia Wickham	Technician	SPC contractor	04/9/08 – 27/9/08
Val Borja	Observer	BFAR, Manila	04/9/08 – 24/9/08
Keith Bigelow	Scientist	NMFS, Honolulu	24/9/08 – 27/9/08
Thomas Usu	Tagging cons.	NFA, PNG	17/9/08 – 27/9/08

GENERAL DESCRIPTION OF FISHING AND DAILY ACTIVITIES

Cruise Summary (chronological)

Of the 30 days of charter, 20 days were spent searching and fishing, 6 days in port for provisioning and crew change, two days for full moon break and one day steaming or transiting areas. Weather was good to excellent in the Sulu Sea and Moro Gulf. Rough seas and adverse weather hampered operations on the Pacific coast.

The track of the entire cruise, based on school and 18:00 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**.

Palau

Staff changeover took place in Koror, Palau on 29 August 2008 with incoming CL Itano replacing CL Leroy who flew out that evening with SPC scientist Valerie Alain. The Palau observer had already left the boat leaving Itano and Kumasi as the only scientific staff onboard. Provisions and water were loaded and the vessel departed Koror at 1830 for baiting. After loading the baitwells with gold anchovy the vessel steamed out the west passage to cross the Philippine Sea to General Santos. Three free schools of 50-55 cm skipjack feeding on ocean anchovy were tagged between 15 – 55 nm west of the Palau islands on 30 August followed by small skipjack and yellowfin tagged in association with a bamboo raft. On 31 August an area of drifting logs and debris was located in the outer Palau EEZ that produced 920 releases of small skipjack and yellowfin using the smaller Y-11 tags. Tagging was

halted at 1100 AM due to a shortage of Z tags onboard and uncertainty as to replenishment of Z tags in the Philippines (later confirmed receipt of 5000 in General Santos). The vessel crossed the Indonesian EEZ in the afternoon and evening without further school sightings.

Philippines – Philippine Sea

An area of small logs and debris was encountered 100 miles ENE of Cape St Augustin, Mindanao on 1 September that yielded 163 tag releases of small skipjack and yellowfin. Three anchored payaos were checked before entering Suringani Bay but no signs of tuna were present.

The vessel cleared in to the Philippines on 2 September 2008 after berthing at the Philippine Fisheries Development Authority (PFDA) Fish Port outside General Santos City. The vessel remained in port for crew changes, provisioning and involvement in the 10th Philippine Tuna Congress meeting until the morning of 5 September.

Philippines – Sulu Sea

The vessel departed the PFDA Fish Port on 5 September, running a “dogleg” course out into the Moro Gulf. Several anchored payaos were checked but no significant tuna schools were seen or fished. Basilan Strait was transited to enter the Sulu Sea on 6 September. Zamboanga based - Romero (Romy) Alvarez who was an RTTP/PTRP observer on the RTTP chartered vessel *Te Tautai* visited the boat and advised as to security issues and baitground locations. We were advised that security issues for Basilan Strait and Zamboanga area that had been provided to us in General Santos were greatly exaggerated. However, we were strongly advised to not attempt baiting or coastal fishing operations off the west coast of Mindanao.

The vessel searched and fished within the Sulu Sea for seven days beginning on 7 September 2008. The cruise track and significant waypoints during operations in the Sulu Sea are depicted in **Figure 2**. The vessel investigated payaos and free schools in the central area from Cavili Island, north to Cagayan Atoll and East Cuyo pass, west to Basilan Island, south along the eastern coast of Palawan and east to Tubbataha Reef before exiting the Sulu Sea on the evening of 13 September. Fourteen schools were successfully fished for 1747 releases consisting of 1553 SJK, 180 YFT and 14 BET releases at a ratio of 88.9% skipjack, 10.3% yellowfin and 0.8% bigeye tuna. Half of these schools were found in association with anchored payaos. The rest were either unassociated schools feeding on natural forage or one school found in association with a 9 m whale shark off Palawan.

Moro Gulf

The vessel transited the upper Moro Gulf on 5 Sept after departing General Santos/Suringani Bay en route to Basilan Strait. Several anchored payaos were checked with the depth sounders but no associated tuna schools were detected and no fishing attempts were made. A single unassociated school of actively feeding skipjack was encountered and fished resulting in 3 releases of 50 cm SKJ. Stomach examination of one retained skipjack indicated small (40 cm) ocean anchovy.

The vessel exited the Sulu Sea through the Basilan Strait on the afternoon of 14 September, running at night to a position well south of the area searched on 5 September. Thirty eight payaos were investigated between 5°24' - 4°24'N in the central Moro Gulf. Only one payao indicated an associated tuna school (by echo sounder) which was chummed, resulting in a single skipjack release.

After clearing out of the Philippines on the evening of 25 September, the vessel passed through the Moro Gulf transit to Indonesia. No schools were sighted in the morning and no fishing attempts were made.

Indonesia

The vessel entered Indonesian waters by mid-morning on 25 September 2008 in transit to Bitung. One anchored payao was investigated that had a small house raft and handline boat attached. We visited the raft that was occupied by three men and a boy engaged in handline jigging for small tuna. They had small yellowfin and skipjack split, salted and drying in the sun, 20 – 35 cm. We provided a tagging poster and took photos. A school of small tuna was present but no fishing or tagging was conducted.

Figure 1. General cruise track during PTTP Phase 2 Cruise 4, 29th August – 27th September 2008, showing the positions of schools fished



Table 1. Summary of Cruise 4 activity, with number of tagged fish released per day

Date	General Area	Principal Activity	Conventional tag releases			Total Tagged
			SJ	YF	BE	
29-Aug-08	Koror, Palau	In port provisioning, crew change	-	-	-	-
30-Aug-08	Palau, western EEZ	Searching and fishing	613	478	1	1092
31-Aug-08	Palau, western EEZ	Searching and fishing	595	310	15	920
01-Sep-08	Indo and Philippine EEZ, east of Mindanao	Searching and fishing	145	18	0	163
02-Sep-08	SE Mindanao, Suringani Bay	Searching and fishing, clear in to General Santos	0	0	0	0
03-Sep-08	General Santos Fishport	In port provisioning, crew change	-	-	-	-
04-Sep-08	General Santos Fishport	In port provisioning, crew change	-	-	-	-
05-Sep-08	Moro Gulf	Searching and fishing	3	0	0	3
06-Sep-08	Basilan Strait, Zamboanga	Steaming, in baitground	-	-	-	-
07-Sep-08	SE Sulu Sea	Searching and fishing	0	0	0	0
08-Sep-08	Central Sulu Sea	Searching and fishing	11	2	0	13
09-Sep-08	Cagayan Atoll to E Cuyo Pass	Searching and fishing	110	0	0	110
10-Sep-08	circumnavigate Cagayan Atoll	Searching and fishing	0	0	0	0
11-Sep-08	west Cagayan Atoll to Dumarani I	Searching and fishing	518	118	12	648
12-Sep-08	Dumarani I to Puerto Princesa	Searching and fishing	48	2	0	50
13-Sep-08	Puerto Princesa to Tubbataha Rf	Searching and fishing	866	58	2	926
14-Sep-08	C Sulu Sea to Basilan Strait	Searching, fishing and transit	0	0	0	0
15-Sep-08	Central Moro Gulf	Searching and fishing	1	0	0	1
16-Sep-08	General Santos Fishport	Full moon break	0	0	0	0
17-Sep-08	General Santos Fishport	Full moon break	0	0	0	0
18-Sep-08	Sarangani Islands to Davao Gulf	Searching and fishing	0	0	0	0
19-Sep-08	Davao Gulf and north	Searching and fishing	0	0	0	0
20-Sep-08	Lianga bay to Lanuza Bay	Searching and fishing	0	0	0	0
21-Sep-08	Lanuza Bay to Siargao Island	Searching and fishing	0	0	0	0
22-Sep-08	Lanuza Bay and south	Searching and fishing	0	0	0	0
23-Sep-08	Pajuda Bay to Sarangani Islands	Searching and fishing	0	0	0	0
24-Sep-08	General Santos Fishport	In port provisioning, crew change	-	-	-	-
25-Sep-08	General Santos Fishport	In port provisioning, crew change	-	-	-	-
26-Sep-08	Mindanao to Indonesia	Searching and fishing	0	0	0	0
27-Sep-08	Bitung	In port provisioning, crew change	-	-	-	-
Totals			2910	986	30	3926

Figure 2. Cruise track and significant positions of the Soltai 105 in the Sulu Sea during PTP Phase 2 Cruise 4



TAG RELEASES

In total, **3926** tuna were tagged with conventional tags, at an average of 196.3 fish per fishing day. This statistic is not representative of true tagging effort which was characterized by some good days and several days when no tuna were encountered. No archival tags were deployed as no yellowfin or bigeye tuna large enough to accept archival tags were encountered.

Releases of conventional tags comprised **2910 skipjack** (74.1%), **986 yellowfin** (25.1%) and **30 bigeye** (0.8%). Tag releases by general area are shown in **Table 2**. More than half (51.2%) of releases during Cruise 4 were made in the Palau EEZ (2012 releases) while leaving Palau prior to the start of Philippine tagging effort. These releases had a 39.2% yellowfin composition as most of the effort was on drifting logs or drifting FADs.

Searching and fishing in the Philippines added 1914 conventional tag releases, most of which were skipjack. Only 30 bigeye tuna were tagged during the month equally split between Palau and the Philippines.

Table 2. Tag releases by area

General Area	Tag releases			Percent release			Total releases
	SJK	YFT	BET	SKJ	YFT	BET	
Palau EEZ	1208	788	16	60.0	39.2	0.8	2012
Philippine Sea -1	145	18	0	89.0	11.0	0	163
Philippine Sea -2	0	0	0	-	-	-	0
Sulu Sea	1553	180	14	89.8	10.3	0.8	1747
Moro Gulf – Celebes Sea	4	0	0	100.0	0.0	0.0	4
Indonesia EEZ	0	0	0	0	0	0	0
Totals	2910	986	30	74.1	25.1	0.8	3926
Total in Palau	1208	788	16	60.0	39.2	0.8	2012
Total in Philippines	1702	198	14	88.9	10.3	0.8	1914

The number of tags deployed by tagger is shown in **Table 3**. On the transit from Palau to the Philippines the only SPC staff onboard were the CL and Brian Kumasi. Crewmen D. Piri and E. Tuhaika filled in well as stern taggers during this period and assisted at other times as well. One side objective of Cruise 4 was to introduce Ashley Williams to tuna tagging technique and data handling procedures. He adapted well to the shipboard environment and gained good experience and expertise during some very fast biting schools.

Table 3. Tag releases by tagger

Tagger code	Tagger	Y-11 tags	Y-13 tags	Total releases
DGI	DAVID ITANO	241	715	956
DVP	DAVID PIRI	155	549	704
AJW	ASHLEY WILLIAMS	348	239	587
CYW	CYNTHIA WICKHAM	362	210	572
EDT	EDDIE TUHAIKA	4	434	438
BRK	BRIAN KUMASI	305	86	391
VMB	VALERIANO M. BORJA	191	87	278
Total tag releases		1606	2320	3926

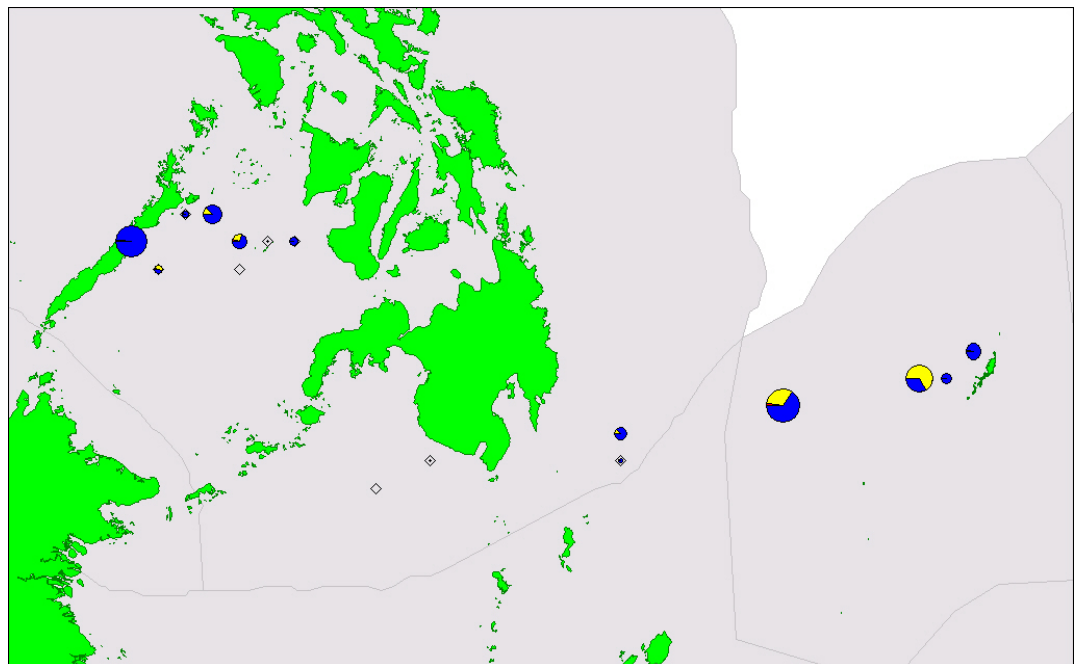
The species composition by school association is shown in **Table 4** below. Tag releases in Palau waters were split between unassociated (surface feeding) schools and schools found in association with floating objects. The same was true for Philippine releases with the exception of a single fast biting school of skipjack tagged in association with a whale shark.

Table 4. Cruise species composition by school association

Project	Cruise 4				TOTAL	Percentage		
	Numbers of releases					BET	SKJ	YFT
School association	BET	SKJ	YFT	OTH		BET	SKJ	YFT
Unassociated / Free	-	543	5	-	548	-	99.1	0.9
Log	15	740	328	-	1083	1.4	68.3	30.3
Anchored FAD	14	560	167	-	741	1.9	75.6	22.5
Drifting FAD	1	237	475	-	713	0.1	33.2	66.6
Whale shark	-	830	11	-	841	-	98.7	1.3
	30	2910	986	-	3926	0.8	74.1	25.1

The Cruise 4 releases are summarized by school in **Appendix 2**, while **Figure 3** below shows the distribution of the releases in Palau and Philippine waters by 0.5 degree square, by species. The figure clearly indicates the higher percentage of Yellowfin in Palau releases and that almost all of Philippine releases were made in the Sulu Sea.

Figure 3. Distribution of releases in Palau and Philippine waters by half degree square, by species, for PTTP Phase 2 Cruise 4 – yellowfin in yellow and skipjack in blue.

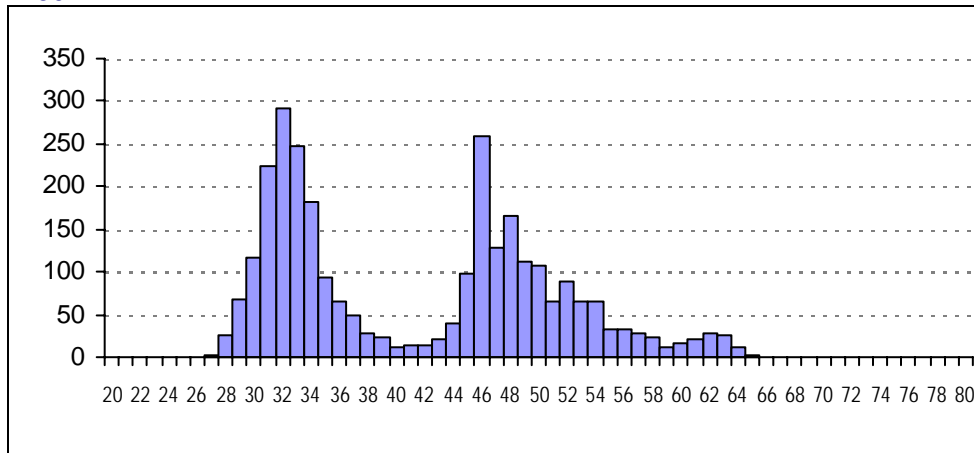


SIZE DISTRIBUTION OF TAGGED FISH

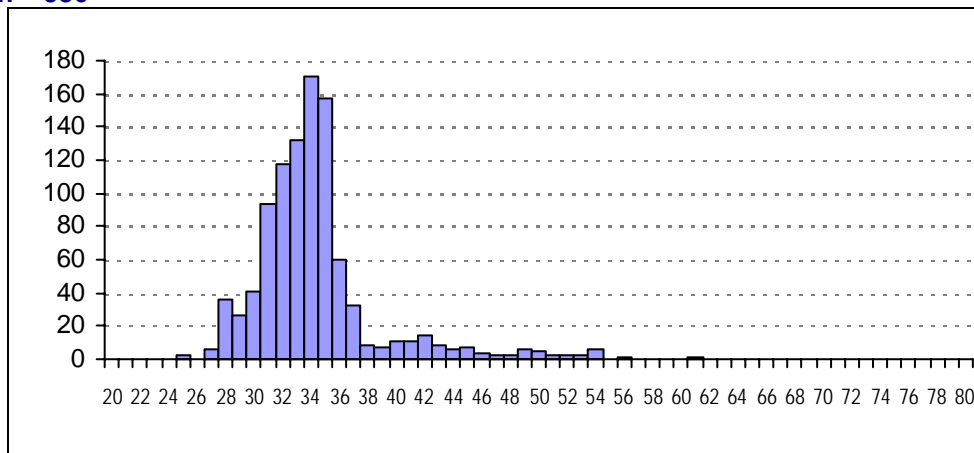
Figure 4 shows the size distribution of fish tagged during the cruise leg. These figures clearly indicate the reason why no archival tags were deployed. Yellowfin and the few bigeye tagged were generally less than 39 cm with modes around 32-35 cm and were floating object associated. Skipjack tag releases were bimodal with small floating object associated fish (mode 32 cm) and larger unassociated or whale shark associated skipjack with a length mode at 46 cm and another small group of fish greater than 60 cm FL.

Figure 4. Size distribution of fish tagged during Cruise 4

SKIPJACK n = 2907



YELLOWFIN n = 986



BIGEYE n = 30

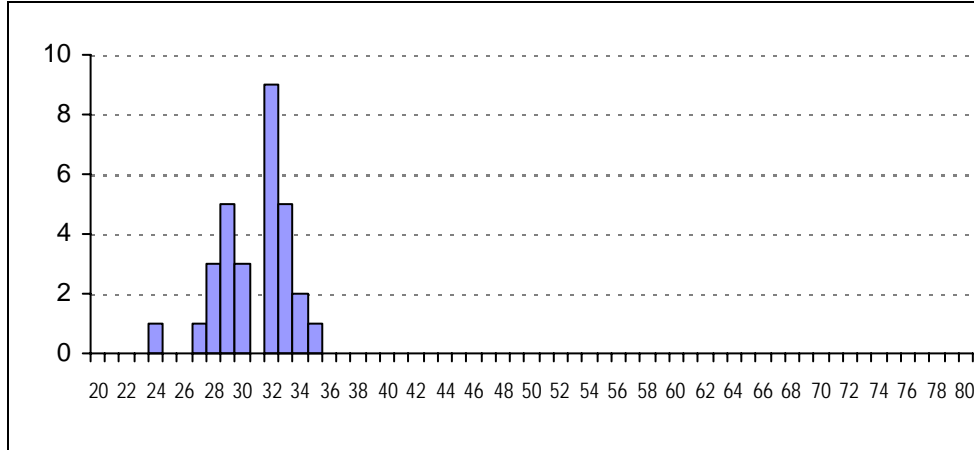


Table 5 indicates the numbers of tag releases per day using the smaller Y-11 tags vs the larger Y-13 tags. Y-13 tags were reserved for tuna larger than 38-39 cm.

Table 5. Tag releases by conventional tag type.

Date	Y11 small tags				Y13 large tags				Totals
	BE	SJ	YF	Total	BE	SJ	YF	Total	
30/8/08	1	194	439	634	0	419	39	458	1092
31/8/08	15	595	297	907	0	0	13	13	920
1/9/08	0	136	18	154	0	9	0	9	163
5/9/08	0	0	0	0	0	3	0	3	3
8/9/08	0	9	2	11	0	2	0	2	13
9/9/08	0	0	0	0	0	110	0	110	110
11/9/08	12	424	93	529	0	94	25	119	648
12/9/08	0	0	0	0	0	48	2	50	50
13/9/08	2	35	47	84	0	831	11	842	926
15/9/08	0	1	0	1	0	0	0	0	1
Totals	30	1394	896	2320	-	1516	90	1606	3926

BAITING

Lights for baiting were set on eight nights in seven different locations. Baiting success varied widely from nil to over 300 buckets of sprats in the Sulu Sea. The most consistent Philippine baitground was Cagayan Atoll that also supported baiting and tagging operations during the RTTP and PRTP cruises in 1992-1992. Species composition in baitgrounds revisited between programs were remarkably similar. A positive surprise was the substantial bait haul of golden anchovies in turbid water in inner Puerto Princesa Bay. The cruise discovered a good baitground in Carrascal Bay in northeast Mindanao but unfortunately no tuna to use them on.

Milkfish fry were purchased in General Santos on one occasion. 10,000 pieces were purchased at 2 peso each. The fry were of ideal size (approx 50-60 mm). The milkfish were delivered in 32 bags of oxygenated brackish water. The crew figured the bait delivered was equivalent to about 8 standard buckets of bait. The milkfish appeared to be good chum when used but were not well tested as no good tuna schools were encountered while they were on the vessel. The high cost of the bait, and

difficulty in obtaining the proper size fry discouraged further baitfish purchases. **Table 5** details the location, catch and effort of all baiting attempts during Cruise 4.

Table 5. Summary of bait fishing activity during PTTP Phase 2 Cruise 4

Date	Location	Catch bkts loaded (hauls)	Dominant species (other species present)
30 Aug	NW Urukthapel 07°18.7'N 134°24.8'E	245 (3)	<i>Stolephorus devisi</i>
4 Sept	General Santos	8 (purchased)	<i>Milkfish</i>
7 Sept	Caldera Bay, SW Mindanao 06°55.8'N 121°58.6'E	1 (1)	<i>Sprats, mixed species</i>
9 Sept	Cagayan Atoll, Sulu Sea 09°45.7'N 121°15.6'E	310 (2)	<i>Spratelloides lewisi, Sp. devisi, A. sirm</i>
10 Sept	Cagayan Atoll, Sulu Sea 09°45.7'N 121°16.0'E	210 (1)	<i>Spratelloides lewisi, Sp devisi</i>
12 Sept	Dumaran Island 10° 23.4'N 119° 47.2'E 10° 22.7'N 119° 47.1'E	18 (2)	<i>Amblygaster sirm, Gazza minuta, mixed spp.</i>
13 Sept	Puerto Princesa harbor 09° 43.4'N 118° 43.7'E 09° 43.3'N 118° 43.8'E	148 (2)	<i>Encrasicholina punctifer, Sardinella gibbosa? (Stol. heterolobus, G. minuta)</i>
21 Sept	Lanuzza Bay 09°23.32'N, 126°01.28'E 09°23.01'N, 126°01.42'E	11 (4)	Stolephorid anchovies, Sprat gracilis, A. sirm, mixed reef associated species
22 Sept	Carrascal Bay 09°23.96'N, 125°56.68'E 09°23.91'N, 125°57.03'E	67 (3)	<i>Stolephorus devisi, Sprat delicatulus, atherinids, Sphyraena sp.</i>
	TOTAL	1010 (18)	mean 56 buckets per haul

CONCLUSIONS

Not unexpectedly the Philippine portion of Cruise 4 was very difficult. No bait, no fish or restricted access to potentially productive baitgrounds. However, a decent survey of the areas formerly visited by the RTTP and PTRP was conducted with good tag release numbers in the Sulu Sea. The information and experience gained during the RTTP/PTRP cruises proved extremely useful in planning and implementing Cruise 4 and were key to the success achieved in the Sulu Sea.

The crew performed extremely well throughout as did the replacement Captain Analau. SPC staff also performed admirably and made the Cruise Leader's job much easier. Special thanks and acknowledgement are due to our BFAR observer/coordinator Val Borja and for the incredible support provided by BFAR staff Noel Barut, Glen Castrence, Elaine Garvilles and Joseph while in General Santos and thanks also to Romy Alvarez for his assistance in Zamboanga.

APPENDIX 1

DAILY LOG EXTRACTS

29th Aug 08

Alongside main wharf in Palau. Bruno, Val and Brian met up with David who flew in the previous night and were met by same at airport for informal late night debriefing. Day spent provisioning, taking water and running errands. Managed to extract USD \$12,200 using all six credit cards at Bank of Hawaii, Koror through combination of \$2000 debits in the bank per card and ATM extractions, \$200 at a time. Arranged the OK to bait at Helen Reef direct from the Philippines if necessary from Theo at Fisheries as we have clearance for access approved from Hatohobei State Govt. New IRIDIUM phone set up and successfully tested for communications with SPC and others. Bruno and Val departed vessel and we sailed at 1830 to NW Urukthapel baitground. Light boat and main boat set by 1730. First haul at 1110 for 135 buckets of small/med S. devisi. Lots of jacks and rubbish mixed in that may have weakened bait.

30th Aug 08

Second haul at 0015 on the light boat. Lots of Amblygaster sirm scooped off the top and discarded with some Caranx sexfasciatus and other rubbish. 92 bkts of good S. devisi loaded. Third haul at the boat was a clean 76 buckets of S. devisi to load the wells. Steamed out west pass of Baubeldaub at daybreak and searched on the course towards the Philippines. Fast biting school of 50-55 cm skipjack found 15 nm from west pass. Two boilers of 60 cm skipjack tagged 45 - 50 nm west of Palau feeding on ocean anchovy. Our small gold anchovy was a fair imitation and both schools bit in small flurries for 66 and 82 releases. Fourth school of the day was a fast biting school of Ztag size yellowfin and skipjack aggregated to a drifting bamboo raft with a small shelter that resulted in 712 releases of which 474 were 35 cm yellowfin. Fishing was halted when two baitwells were finished, leaving four more for the rest of the crossing to General Santos. Total 477 YFT, 1 BET and 623 SKJ for 1091 releases. Two unfortunate accidents occurred with Brian taking a nasty cut to his palm from a tagging needle and Eddie getting his finger ripped by a poling hook. David Piri filled in on the bow during the drifting raft school while Eddie tagged on the stern. Steaming all night toward the Philippines in fair weather.

31st Aug 08

Came across an area of big logs and debris this morning and stopped to fish on three of them. Fast biting schools of small skipjack and yellowfin with a couple tiny bigeye in the mix. Halted action at 1100 with over 900 releases, mostly Z taggers. Seems to be a huge mode of skipjack and yellowfin at 32 cm. An inventory onboard of Z tags prompted a halt to tagging and told the guys to rest till 1500 awaiting news if Z tags were arriving in General Santos with the troops (later 5,000 confirmed). Of course, nothing sighted in the afternoon so kept steaming, crossing into Indonesian waters in late afternoon. Cruise total now over 2000 for the two days. Good to have the Iridium email up and running so many comms with HQ and ADL on pending port call and crew change.

1st Sep 08

Running all night, woke up 95 miles ENE of Cape San Agustin in area of logs and debris. Stopped on Schools #8 and #9 which were small skj and a few yft associated to groups of natural logs about 100 miles east of Cape St Augustin, Mindanao. 163 tagged, mostly small skipjack with no bigeye seen. Continued through an area of small logs and debris but nothing worth stopping on. Most of the afternoon spent running through light rain and overcast with light winds on stern quarter, making very good time with current pushing. Slowed down at sunset to run into lee of Sarangani Islands to make final run in to General Santos in the morning.

2nd Sep 08

Shut down to drift SE of Sarangani Island early AM and started up running at 0600 toward General Santos. Checked 3 payaos (numbered PH-1 to PH-3) on Mapsource. Checked with sounder but nothing worth throwing bait on. Big tok save with crew on port call, security, manning

and schedule. Paid off all crew for bonus and Sea Time owed to date and reset ship time to Manila time +9GMT. Pulling in to FishPort outside GenSan at 1145 and alongside by noon with Noel, Val, Glen and others eagerly awaiting our clearance. Busy day running around looking at milkfish (too big), trying to cash checks and making other arrangements. Received news late in the day that milkfish of the right size were available from an out of town farm and could be delivered on the 4th. Crew cleared in at very high cost with typical customs/immigration squeeze. Nice opening cocktail for the 10th National Tuna Congress and caught up with RD and Frabelle colleagues.

3rd Sep 08

Out to the airport early to drop off outgoing Captain Oso who seemed in decent spirits considering his situation. Reassured him that he would be met by Cynthia and Ben in Manila and taken care of in Port Moresby by Thomasl. Noel was very good on keeping tabs on him via connections and cel phone and all reports were positive. Ashley arrived on the same plane from Manila laden with cash and travellers checks. Val Borja from BFAR joined the scientific crew for the cruise. Much of the day spent trying in vain to cash AUD travellers checks or obtain cash Pesos in any way possible. Gleaned enough to pay for provisions and supplies. In and out of the Tuna Congress meeting most of the afternoon being tended by BFAR drivers with Noel doing a great job of making arrangements for bait, water and fuel.

4th Sep 08

Was finally able to convert USD cash 2600 into peso to cover baitfish purchase, clearance fees and misc expenses while BFAR folks and Brian picked up Cynthia and Captain Ben at the airport. CL had to attend NTC meeting and sit in on the afternoon panel and provide a presentation on the PTPP while continuing convert or withdraw pesos w credit cards. Milkfish were delivered sometime in the afternoon in 32 bags at about 300 fish/bag/. We had requested 10,000 fish @ 2 peso each plus charge for bags and transport. Bill ended up very expensive for what amounted to what the crew reconed was about 8 buckets of bait! Probably will not repeat that exercise. Water loaded successfully at any rate and NTC adjourned. Strong recommendation from factions within BFAR that we should take on armed security and subsidize fuel for patrol boats. We decided to go solo but had under the condition that we minimize time in the Moro Gulf and proceed almost directly to the Sulu Sea.

5th Sep 08

Left all AUD travellers checks with BFAR GenSan to give to Dr Lewis during visit to GenSan on 7-9 Sept. Pulled away from FishPort at 0620 with new Captain Ben A. at the helm. Ran west all day out into the Moro Gulf encountering payaos and small handline boats until late afternoon. One free school of 50 cm skipjack splashing and boiling on E. punctifer found and fished in late morning for 3 releases and one fish kept. Nothing worth fishing on any of the payaos checked with some very small fish seen jumping on a few occasions. Running all night towards Basilan Strait.

6th Sep 08

Ran all night 3/4 speed and entered Basilan Strait passage at dawn. Despite dire warnings from some advisors we encountered no problems at all. Val was able to contact Romy Alvares of RTTP days via cel phone. He advised that we should try baiting near Zamboanga in Caldera Bay. Picked him up at 1400 and set light boat position and anchored vessel in 30 m. Small shopping run courtesy of Romy for fresh vegetables, some grilled Naso, misc odds and ends.

7th Sep 08

Very strong current off Calera Bay all evening that slacked somewhat around 0100. Attempted a baithaul at 0130 but current still prohibitive. Ended up with one half scoop of mixed anchovy, sprat and other species at pos 0655.845N, 12158.406E in 30 m. No use to try further so dropped Romy off and started running NW toward Cavili Island, south of Cagayan Atoll. Checked one payao 25 miles off Mindanao (FAD S-1) but only large YF and mahi seen. Located a cluster of three small, old style rusty payaos about 100 m NW of Zamboanga with a group of pump boats

and their small handline boats working. Brian and Val visited two of the larger pump boats to notify them of the tagging project and distribute Tagalog language tagging posters. Running slow toward Cavili Island in the evening. Happy Birthday Cynthia!

8th Sep 08

Shut down to drift south of Cavili Island last night, central Sulu Sea. Started up searching at 0545 working to NW. Stopped on FAD S-4, south of sand key SW of Cavili for 7 SJ and 2 YF Z tag releases. There was a spot of fish on the payao so rigged handline gear and had the crew try it out. Nothing caught but the gear is now ready to use. Brian and Val visited one pump boat on the FAD and distributed Tagalog tagging posters. Checked FADs S-5 and S6 south of Cavili but no fish present. A free school of larger fish popped up briefly but moving fast and never got any response to our chumming attempts. Another spot of breaking fish popped up 8 miles south of Cagayan Atoll splashing and feeding on what was later found to be pelagic phase goatfish. 4 skipjack were tagged and 4 kawakawa retained for 11 SKJ and 2 YFT for the day. Dropped anchor at 1650 inside Cagayan Atoll for baiting in 32 m very near site of Te Tautai baiting operations.

9th Sep 08

First bait shot at 0010 for 144 buckets. *Spratelloides lewisi* and *S. gracilis* all of good size with very small amount of *S. delicatulus*. Lots of big *A. sirm* mixed in tho. The light boat haul at 1305 was pure large sprats, all 167 buckets, so wells well stuffed. We will see if they can hold this amount but the bait was loaded nicely. Out the pass at 0200 to drift offshore to start searching at first light. Two feeding schools found SE of Cagayan Atoll for 50 and 60 SKJ releases of 45-50 cm size. Searched north to E. Cuyo Pass, east to Panay but no fish. Ran south to drift off Cagayan for the night.

10th Sep 08

Shut down to drift last night in the calm off entrance to Cagayan Atoll. Startup 0545 to search north around shallow bank area north of atoll. Chummed several schools on the northern edge of the shallow bank north of Cagayan Atoll in the morning but no response to our nice chum. Circled the entire bank and atoll complex searching about 5 to 12 miles off the edge, passing between Cagayan Atoll and Calusa Island and over two large seamounts west of the atoll. Found another concentration of bird schools working on mixed schools of tuna and kawakawa. Tuna would not come in to boat and only responded weakly to all chumming attempts. Poled 4 kawakawa which was the only catch for the day. Used a lot of bait and high mortality. Ran in to Cagayan Atoll for baiting at 1830. First and only bait shot hauled at 2250 for 210 buckets of sprats, mostly *S. lewisi*.

11th Sep 08

Checked an old anchored payao (S-8) nearby with a small sounder mark. A few very small tuna responded to chum but would not enter the sprays close to the vessel. Proceeded to search NW towards Palawan. FAD S-8 checked with a small mark present but no bite followed by a nice free school of skipjack but only one tag release resulted. Old steel FADs (S-9 and S-10) located around mid-day for 174 and 72 releases of small Z tag sized skipjack and yellowfin with a few very small bigeye. Four old style FADs were then encountered with good numbers of Z tags on the first three and mostly larger fish on the last payao. Finally a decent day with 12 BET (all small), 518 SKJ and 118 YFT for 648 releases. The last payao with larger fish had two pump boats from Palawan and several of their handline boats jigging and handlining. They were informed of the project by poster distribution and seemed very happy to return tags for a reward. Ran in to bait in the channel of Dumarán Island, setting anchor at 2020 at 10 23.4N, 119 47.2E.

12th Sep 08

First bait haul at Dumarán Island at 0350. Only 9 buckets of medium size *A. sirm* with some squid and mixed species, including ponyfish, a weak anchovy, perhaps *S. indicus* and a few fusiliers. Second haul at light boat for 9 buckets of sardines, squid and mixed species including a very large sea snake! Searched south from Dumarán Island and parallel (SW) to the Palawan coastline all day. Tagged on two open schools found breezing and splashing 15 - 20 nm south of

Dumaran Island for 42 and 8 releases; all good sized skipjack with two 43 cm YF. Searched parallel to Palawan coast, locating more schools but none responded to chumming attempts. Ran in to Puerto Princesa for baiting at 1830. Val organized minor provisioning visit for foodstuffs and consumables with connections in Puerto Princesa.

13th Sep 08

First baithaul in designated anchorage off Puerto Princesa in 32 m at 0340 for an incredible 191 buckets of big ocean anchovy mixed with a deep bodied herring similar to *H. q* (*Sardinella gibbosa*?) and *S. heterolobus*. Ponyfish, a few cardinalfish and small Indian mackerel rounded out the haul. Second haul at the light boat for 57 buckets of the same with a higher percentage of herring. Ten miles outside Puerto Princesa bay we came across a fast biting school of 56-58 cm skipjack on a whale shark for a very quick 841 P tag releases. Found one payao 35 miles offshore with one pump boat tied up. Decent sounder mark produced 80 Z tags. A few free schools chummed later in the day but only one more skipjack tagged for a daily total of 1 BET, 864 SKJ and 57 YFT to total 922 releases. No further fishing on the run to Tubbataha. Checked the South Islet where radio aerial and vessel was visible so ran small party ashore on tinny. Small house present but boarded up. Authorities contacted S105 by radio asking intentions and directed us to the south of the north atoll where their camp was established. Brian and Val visited with permits and posters. Their small boat returned to S105 for short visit by park rangers. All good and underway by 2030.

14th Sep 08

Ran all night from Tubbataha Reef towards Basilan Strait. Searched on the way but no sign of life. Checked three payaos 40 miles NW of Zamboanga but no sign of fish on the sounder. Passed thru Basilan Strait in the afternoon, clearing the last island at sunset. Running SE all night to start searching 70 miles SE of Basilan Island.

15th Sep 08

Ran last night to position 5-25N 122-46E to start searching eastward in central Moro Gulf area. Several anchored payaos in the area with some handline boats and a few ringnet operations tied up to payaos. Ran SE to position 4d22' N; 123d 28'E which is 130 nm SW of Suringani Bay and 155 nm SE of Jolo Island sighting 38 payaos without activity aside from payao M-8 which had a sounder mark. Chumming was attempted and one small skipjack was tagged. Searched NE from 1345 to sunset. Odd to not see a single payao or vessel on this run. Crew busy cleaning vessel and making ready for full moon break. The two crew bonuses paid after dinner and running all night for General Santos City.

16th Sep 08

Steamed in to Suringani Bay at dawn for full moon break in General Santos. Alongside FishPort wharf at 0630. Still difficulties with Petron refusing to provide fuel or berthing until the funds cleared the bank in Manila. The situation finally cleared up by late morning and fuel loaded directly from the Petron dock completed by 1700. A long day for the captain and engineers. Meanwhile USD \$2500 travellers checks were cashed into USD thanks to assistance from RD on Rudi Rivera's blessing direct from RD accounts. Main provisioning and supplies purchased and loaded so full moon in full swing. Nice dinner with BFAR friends in town.

17th Sep 08

Continued full moon break and provisioning. Thomas Usu arrived on morning flight from Manila with box of P tags and spare parts for engineering. Fresh vegetables, cooking gas and water loaded. Anchovies dying off in murky baitwells.

18th Sep 08

Brian and Ashley off to airport and Thomas now onboard and Val Borja remaining as BFAR observer. Departed GenSan FishPort at 0745 after slight delay, all good. Ran south around the Sarangani Islands and then northeast toward Cape St Augustin but nothing seen all day. Most of crew resting or recovering and a good day for it. Moderate and freshening southwesterlies made

easy slide. Ran north after sunset to shelter in the lee of western Mindanao. Shut down to drift for the night at 2030.

19th Sep 08

Searched across the mouth of Davao Gulf to the seamount south of Cape St Augustin early this morning but nothing sighted. Impressive current line set up from the Cape and running straight through the seamount but no birds or activity sighted. Turned NNE from there to parallel the eastern Mindanao coast all afternoon bucking a very strong head current that slowed us to 7 knots all day. No birds, no fish, nothing all day long. Decided to run north all night given the lack of activity or payaos in this area.

20th Sep 08

Ran north all night and woke up offshore of Lianga Bay. Nothing seen until a cluster of 12 fairly new steel payaos were located about 12 miles east of the northeast point of Mindanao which is the eastern limit of Lanuza Bay. Small baitfish were apparent on the sounder near payaos and in the general area but the fishing master did not feel any of them were worth chumming. Very strong N current still apparent. Entered Lanuza Bay in the mid afternoon to search out suitable baitground close to the named positions used by the RTTP. Located a protected area between Auqui, General and Unamao Islands in 30 m of water. Set light boat at 9d23.01N, 126d01.42E and vessel anchored at 9d23.32, 126d01.28. As we were setting up a motorized bagan pulled up and turned out to be a friend of Val Borja's (Raffy Martinez) with a team of biologists conducting coastal resource survey as part of USAID funded FISH project - coordinated by Nigel Armada, BFAR, Cebu who I had met at the 08 Tuna Congress. First shot at the boat at 2130 for 8 buckets of mixed anchovies, Sprat. devisi and everything else possible. More present but strong current and chovies deep. Light boat haul just 3 buckets of mixed bait including Thryssa and Sprat. Delicatulus that weren't noted in the first. Set lights for an early morning attempt.

21st Sep 08

Bait hauls 3 and 4 at 0330 and 0420 produced nothing worth bucketing, not even squid. Some bait present on haul 3 but still a current making trouble. Steamed out and searched north toward Samar. No payaos or fish sign encountered with very strong westerlies encountered by mid-morning. Received reports that tropical storm Hagupit was upgraded to typhoon and causing wind warnings in Luzon down to Samar and neighboring islands. Decided to turn around at northern tip of Siargao I in time to investigate new baiting location in the Lanuza Bay area. Set light boat (0923.91N, 12557.03E) and anchored (6PM position) for baiting in 33 m off the village of Carrascal in protected bay formed by Carrascal Bay and Ludgunon Island. Nice spot and good bait sign on the sounder. First haul at boat for 58 buckets of golden anchovy, blue sprats, silver sprat and a mix of atherinids and other species. Second haul at the light boat only 9 buckets but high percentage of comb jellies with juvenile barracudas. Re-set anchor closer to first haul position for a pre-dawn bait shot.

22nd Sep 08

3rd and last bait haul at 0425. Almost all comb jellies mixed with small blue sprat. Entire shot was dumped but probably 2 buckets of bait mixed in. Hauled anchor at 0500 and started searching toward the south. Ran down the 1750 to 2000 metre line all day but a repeat performance with no birds, no tuna and no interesting payaos seen. In fact some of the payaos checked on the way north were nowhere near their positions and were not sighted! Somewhat perplexing with an apparently similar north flowing current much in evidence. SE wind and seas built up all day and had to slow down by 1430 and start tacking 40 degrees off by 1630. Reduced to 600 rpm but still making close to 8 knots with favorable current.

23rd Sep 08

Very rough last night running SE with strong current running directly into wind and seas. Vessel pounding heavily in 8-15' sea. Captain requested to shelter and wait for daylight so advised to steam for Pajuda Bay. Entered the bay at 0400 and drifted until 0615. Lost most of the anchovies yesterday, likely due to rough weather. Searched south and SW all day passing Cape St Augustin

and crossing the mouth of the Davao Gulf toward the Sarangani Islands. Encountered two skipjack breezers 12 miles east of the Sarangani Islands but no response to the large chum available. Running all night for General Santos.

24th Sep 08

In port for provisioning and crew change. Keith Bigelow joined vessel and Val Borja, BFAR observer disembarked. At sea allowances for crew doled out to cover period 30 August thru 27 September to allow last good shopping opportunity for crew. All major food provisioning and supplies purchased for upcoming Indonesia leg. Fuel and water arranged for tomorrow 0800.

25th Sep 08

Impossible to bunker at Petron wharf due to large fuel ship offloading. Elected to load at FishPort wharf with tanker truck. Loaded freshwater. Long delays with truck finally arriving at 1630 with fueling complete by 1810. Departed wharf at 1820 with all hands onboard and ready for Indonesia.

26th Sep 08

Running south from the Philippines all day. Encountered an anchored payao with floating house and small pump boat at 1000 at 3d33'N, 20 miles west of Sangir Island. Visited the housecraft, gave tagging poster and tried to communicate with the inhabitants. Nice guys with a small boy from Sangir, hand jigging small skipjack and yellowfin. Several split and dried on the raft. Nothing else investigated all day. Running for Bitung all night.

27th Sep 08

Arrived Bitung early AM for customs, immigration, etc. clearances and welcoming ceremony. End of Cruise 4 with arrival of ADL and departure of DGI on 28/9/08 via Manado/Jakarta. Muhammad Natsir, RCCF observer and security officer joined vessel.

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

<NOTE: INSERT REPORT 3>

Project		Cruise 4											
WTP Phase 2													
Event no	Tagged sch no.	Date	Lat	Lon	Sch type	Assoc.	Start	Stop	YFT	BET	SKJ	TOTAL	bite
1	1	30-Aug-2008	0731.986N	13411.570E	1	1	0825	0842	3	0	228	231	3
2	2	30-Aug-2008	0726.224N	13344.792E	5	1	1138	1157	0	0	66	66	0
3	3	30-Aug-2008	0721.707N	13338.257E	5	1	1248	1305	0	0	82	82	1
4	4	30-Aug-2008	0718.230N	13328.675E	1	4	1408	1452	475	1	237	713	6
5	5	31-Aug-2008	0643.646N	13056.949E	3	2	0720	0753	243	14	171	428	2
6	6	31-Aug-2008	0645.027N	13038.133E	1	2	0958	1016	7	0	244	251	2
7	7	31-Aug-2008	0642.405N	13033.066E	1	2	1053	1110	60	1	180	241	3
8	8	01-Sep-2008	0602.654N	12750.234E	1	2	0630	0654	17	0	130	147	1
9	9	01-Sep-2008	0559.270N	12744.123E	2	2	0742	0755	1	0	15	16	0
10	10	05-Sep-2008	0543.654N	12420.605E	4	1	1338	1350	0	0	3	3	0
12	11	08-Sep-2008	0906.456N	12049.234E	1	3	0712	0802	2	0	7	9	0
13	12	08-Sep-2008	0939.345N	12126.654E	4	1	1405	1445	0	0	4	4	0
14	13	09-Sep-2008	0949.454N	12133.081E	2	1	0713	0731	0	0	60	60	1
15	14	09-Sep-2008	0958.090N	12131.627E	2	1	0844	0857	0	0	50	50	0
19	15	11-Sep-2008	0937.754N	12046.345E	4	1	0714	0728	0	0	1	1	0
20	16	11-Sep-2008	0939.355N	12038.140E	1	3	0833	0904	39	7	128	174	0
21	17	11-Sep-2008	0947.120N	12035.000E	1	3	1031	1112	30	3	39	72	2
22	18	11-Sep-2008	1007.789N	12016.732E	1	3	1445	1537	23	2	251	276	1
23	19	11-Sep-2008	1012.425N	12009.468E	1	3	1633	1705	26	0	99	125	3
24	20	12-Sep-2008	1009.705N	11951.927E	3	1	0650	0707	0	0	42	42	0
25	21	12-Sep-2008	1001.558N	11953.831E	3	1	0803	0830	2	0	6	8	0
26	22	13-Sep-2008	0938.268N	11854.373E	2	5	0636	0724	11	0	830	841	6
27	23	13-Sep-2008	0918.155N	11918.336E	1	3	1044	1105	47	2	35	84	0
28	24	13-Sep-2008	0914.085N	11923.581E	1	1	1157	1215	0	0	1	1	0
29	25	15-Sep-2008	0502.172N	12303.310E	1	3	0824	0840	0	0	1	1	0
CRUISE 4 TOTALS									986	30	2910	3926	31