

# PACIFIC TUNA TAGGING PROJECT PHASE 2

## CRUISE REPORT No. 3

15<sup>th</sup> August – 29<sup>th</sup> August 2008

### INTRODUCTION

This report summarizes activities of the third cruise of the Pacific Tuna Tagging Project (PTTP) Phase 2 during a 15 day period in Palau waters, from arrival in Koror for personnel changes, provisioning and the full moon break on August 16<sup>th</sup> -17<sup>th</sup>, then fishing around the main islands and towards Helen Reef to come back in Koror on August 29<sup>th</sup> for personnel changes before heading to Philippines.

#### Personal onboard during cruise 3

Name	Quality	Affiliation
Bruno Leroy	Cruise leader	SPC
Valerie Allain	Scientist	SPC
Brian Kumasi	Scientist	SPC
Rimirch Katosang	Observer	Palau Bureau of Marine Resources

### GENERAL DESCRIPTION OF FISHING ACTIVITY

Following the full moon break, 3 days fishing were spent east and west sides of the Palau main islands up to a couple of seamounts south and west of Angaur island. One day (19<sup>th</sup>) without bait was spent anchored at the bait ground. Releases were mostly made on log or fad associated schools, and was composed of a noticeable high percentage of small fish. A 7 day trip covered the south of the EEZ comprising Helen Reef/Tobi Island and the Sonsoral small island group. Many free schools were found around these islands, with a bigger percentage of Yellowfin (up to 65% around Tobi Island). One fishing day was lost due to bait survival problem on the way down to Helen Reef. Releases around Helen Reef and Tobi Island were hampered by the presence of great quantities of oceanic anchovies.

The track of the 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**.

### TAG RELEASES

Of the 15 days of charter, 9 days were spent fishing, two days at anchor without bait, and 4 days in port. Weather was fair during the period and all fishing days except one were productive. In total, **5,275** tuna were tagged with conventional tags, at an average of **586** fish per fishing day. Only two archival tags were deployed due to lack of sizeable fish.

**Table 1. Summary of Cruise 3 activity, with number of tagged fish released per day**

Dates	Activity	Tag releases
August 15 <sup>th</sup>	In port, refueling, provisioning, water, personnel changes	-
August 16 <sup>th</sup>	Full moon break	-
August 17 <sup>th</sup>	Full moon break then baiting	-
August 18 <sup>th</sup>	Fishing east coast of Babelthuap then unsuccessful baiting	612
August 19 <sup>th</sup>	Anchored at bait ground waiting for baiting	0
August 20 <sup>th</sup>	Fishing south and west Angaur seamounts	74
August 21 <sup>st</sup>	Fishing west coast of Babelthuap then baiting	743
August 22 <sup>nd</sup>	Fishing south Angaur seamounts	206
August 23 <sup>rd</sup>	Fishing Sonsoral Islands	844
August 24 <sup>th</sup>	Anchored inside Helen Reef, waiting for baiting	0
August 25 <sup>th</sup>	Fishing Tobi and Helen Reef area, then baiting	477
August 26 <sup>th</sup>	Fishing north and west Helen Reef, then baiting	0
August 27 <sup>th</sup>	Fishing Sonsoral Islands	2311
August 28 <sup>th</sup>	Fishing toward main islands west coast	8
August 29 <sup>th</sup>	In port, provisioning, water, personnel changes	-
<b>TOTAL</b>		<b>5275</b>

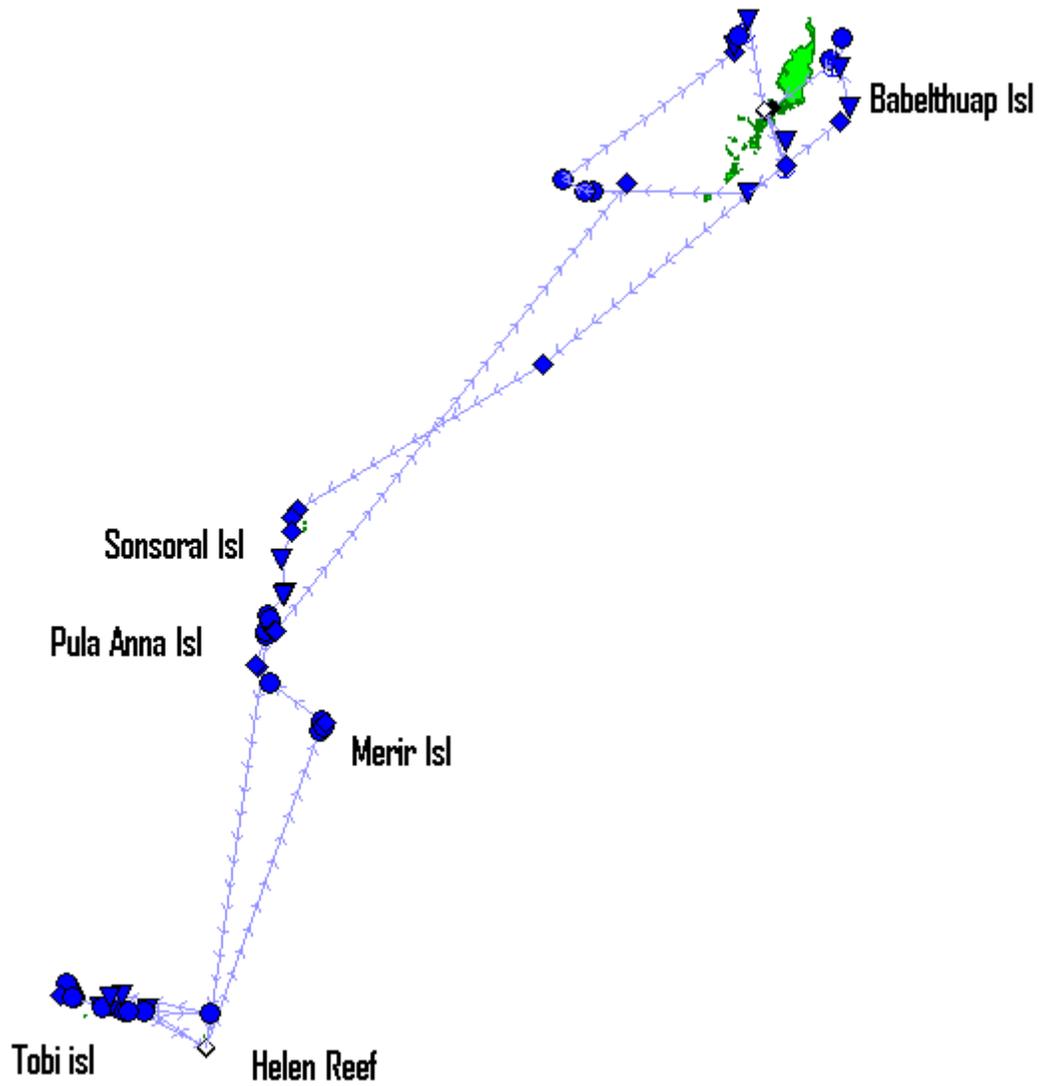
Releases of conventional tags comprised **3,332** skipjack (63.2%), **1,914** yellowfin (36.3%) and **29** bigeye (0.5%). Interestingly yellowfin proportion of the catch was superior in free schools than in associated schools. The species composition by school association is shown in **Table 2** below.

**Table 2. Cruise species composition by school association**

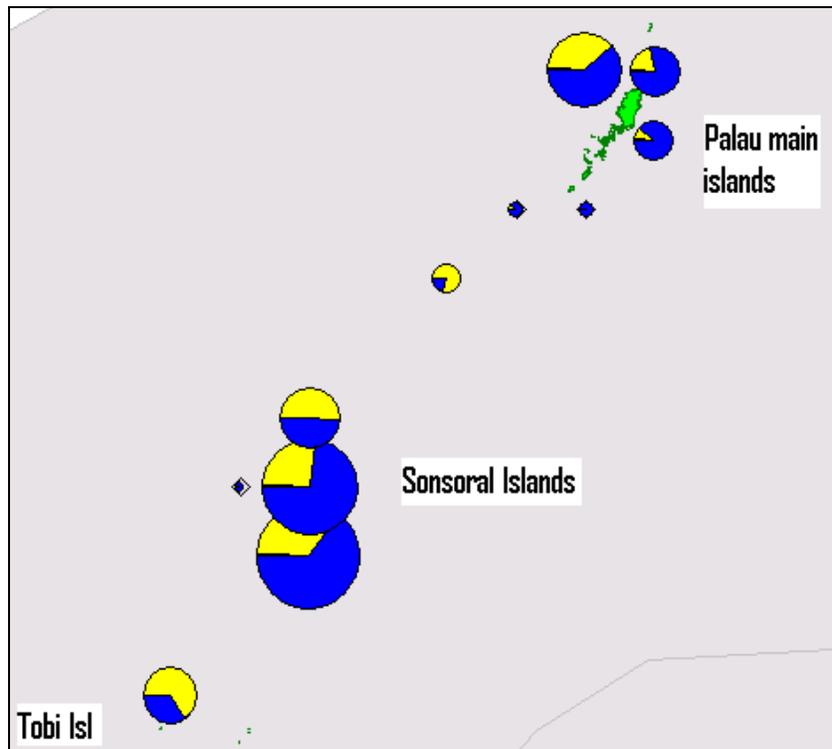
School association	Cruise 3 To 3					Percentage		
	BET	SKJ	YFT	OTH	TOTAL	BET	SKJ	YFT
Unassociated / Free	14	1339	974	-	<b>2327</b>	0.6	57.5	41.9
Log	7	450	251	-	<b>708</b>	1.0	63.6	35.5
Anchored FAD	5	204	89	-	<b>298</b>	1.7	68.5	29.9
Drifting FAD	2	1018	272	-	<b>1292</b>	0.2	78.8	21.1
Marine mammal or whale shark	-	4	7	-	<b>11</b>	-	36.4	63.6
Current line	-	217	65	-	<b>282</b>	-	77.0	23.0
Island or reef	1	100	256	-	<b>357</b>	0.3	28.0	71.7
<b>CRUISE</b>	<b>29</b>	<b>3332</b>	<b>1914</b>	<b>-</b>	<b>5275</b>	<b>0.5</b>	<b>63.2</b>	<b>36.3</b>

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

Figure 1. Track during PTTP Phase 2 Cruise 3, 18<sup>th</sup> August – 28<sup>th</sup> August 2008, showing the positions of schools fished



**Figure 2.** Distribution of releases in Palau waters by half degree square, by species, for PTPP Phase 2 Cruise 3 (18/08 to 28/08/2008) – yellowfin in yellow and skipjack in blue.



### ARCHIVAL TAG SUMMARY

During Cruise 3, one bigeye (56 cm) and one yellowfin (76 cm) were tagged and released with an MK 9 archival tag.

### SIZE DISTRIBUTION OF TAGGED FISH

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

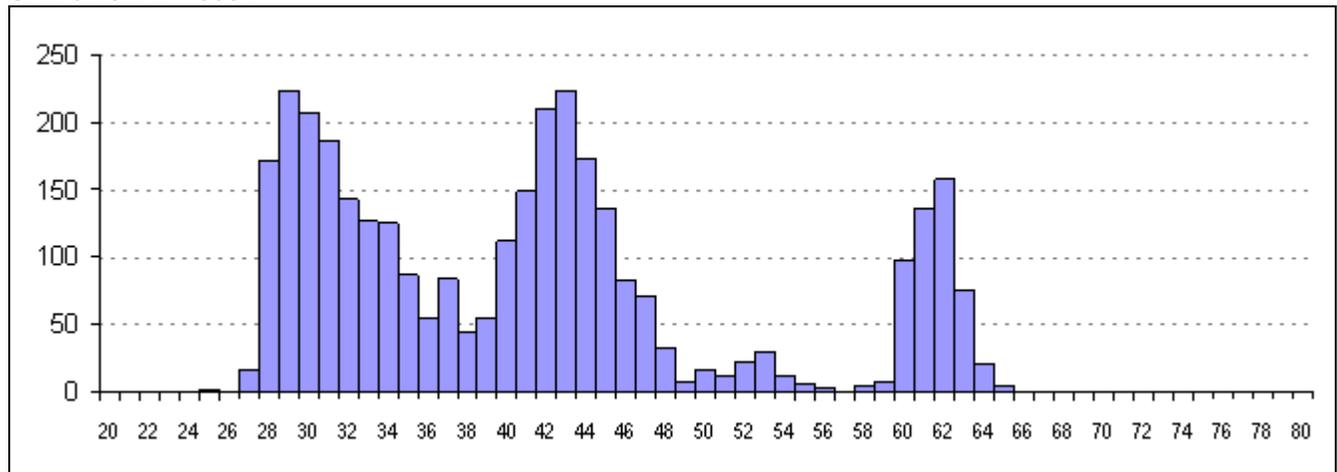
Fish tagged around the main island were quite small, with a narrow mode of 30-32cm, and mostly from associated schools. Bigger fish were found in the south of the area, especially near the Sonsoral Islands group, mainly on free school (with more than 500 skipjack around 60-62cm).

44 % of releases of conventional tags were the smaller 11cm Z tags (2308), and 56% (2965) the 13cm P tags.

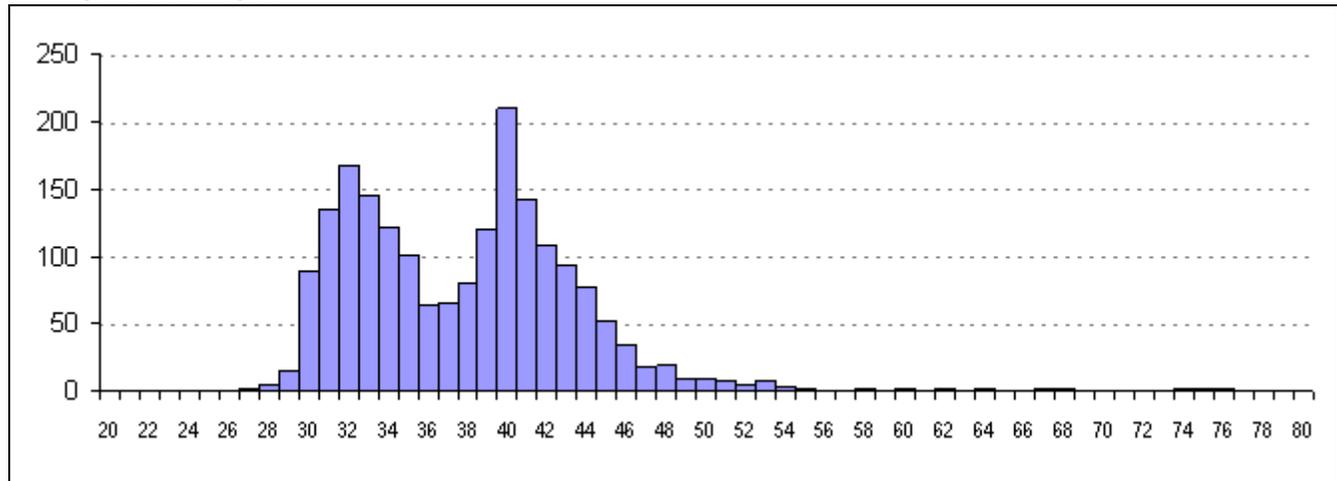
Yellowfin tagged during the cruise were mostly from free schools with very few fish bigger than 50 cm. The bigeye tagged were mostly less than 40 cm but a few bigger fish were caught in free schools.

**Figure 3. Size distribution of fish tagged during Cruise 3 (18/08 to 28/8/2008)**

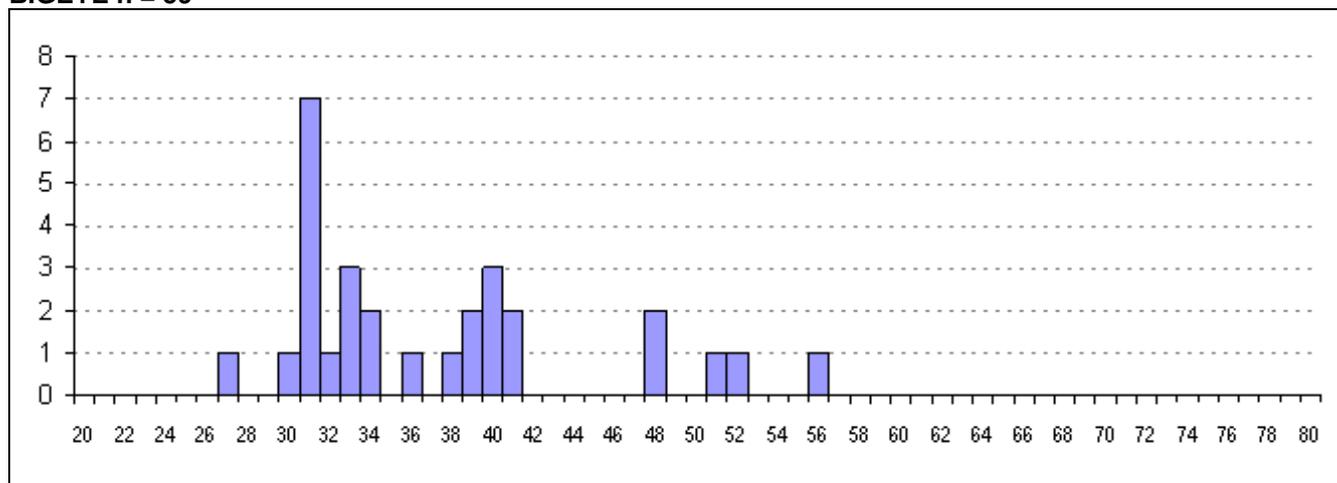
**SKIPJACK n = 3331**



**YELLOWFIN n = 1914**



**BIGEYE n = 59**



## BAITING

Lights for baiting were set on 7 nights in 2 locations; one night's bait fishing produced not enough bait for the following fishing day due to moon brightness (18<sup>th</sup> Aug). The average bait catch per night was 157 buckets.

Passed the difficult nights just after full moon, NW Urukthapel Islands produced great quantity of anchovies but bait survival has been a problem in one occasion, although mortality might have been induced by exceptionally hot encountered waters (SST 31 degrees) on the way to Helen Reef. In consequences, one fishing day was lost (24<sup>th</sup> Aug) and spent at anchor in Helen Reef, waiting for baiting.

Good catches of silver and blue sprats were made in Helen Reef on three successive nights.

**Table 2. Summary of bait fishing activity during PTTP Phase 2 Cruise 3**

Date	Location	Catch bkts loaded (hauls)	Species
August 17 <sup>th</sup>	NW Urukthapel	38 (3)	Gold anchovy
August 18 <sup>th</sup>	NW Urukthapel	3 (3)	Gold anchovy
August 19 <sup>th</sup>	NW Urukthapel	180 (4)	Gold anchovy
August 21 <sup>st</sup>	NW Urukthapel	330(2)	Gold anchovy
August 24 <sup>th</sup>	Helen Reef	115 (4)	Silver and blue sprat
August 25 <sup>th</sup>	Helen Reef	119 (4)	Silver and blue sprat
August 26 <sup>th</sup>	Helen Reef	86(2)	Silver and blue sprat
	TOTAL	871 (22)	

## CONCLUSIONS

A successful cruise, where good numbers of fish were tagged in a few days. Thanks to all who made this possible, including The Bureau of Marine Resources and The State Rangers. Thanks to the Koror State Dept of Conservation and the Hatohobei State Government to let us getting bait fish in the Rock Islands lagoon and inside Helen Reef MPA.

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

Project WTP Phase 2		Cruise		3 To	3	Vessel SOLTAI 105			TAG TOTALS				SHK	
Event no	Tagged sch no.	Date	Lat	Lon	Sch type	Assoc.	Start	Stop	YFT	BET	SKJ	OTH	TOTAL	bite
1	1	18-Aug-2008	0703.300N	13430.800E	1	3	0800	0818	4	0	10	0	14	0
2	2	18-Aug-2008	0715.700N	13446.400E	1	4	1035	1050	0	0	30	0	30	0
3	3	18-Aug-2008	0719.440N	13449.710E	1	2	1125	1154	24	4	143	0	171	0
6	4	18-Aug-2008	0733.256N	13443.500E	1	1	1551	1610	0	0	187	0	187	1
7	5	18-Aug-2008	0732.320N	13444.500E	1	3	1621	1640	82	5	123	0	210	1
9	6	20-Aug-2008	0655.164N	13420.100E	4	2	0830	0845	0	0	36	0	36	0
10	7	20-Aug-2008	0655.740N	13335.770E	4	1	1421	1434	0	0	38	0	38	0
13	8	21-Aug-2008	0735.800N	13416.600E	3	7	0629	0705	65	0	217	0	282	0
14	9	21-Aug-2008	0737.228N	13416.454E	1	2	0717	0742	49	2	49	0	100	0
15	10	21-Aug-2008	0740.000N	13417.434E	3	1	0759	0813	77	0	167	0	244	1
16	11	21-Aug-2008	0741.881N	13419.302E	1	3	0832	0837	1	0	12	0	13	1
17	12	21-Aug-2008	0744.700N	13420.360E	3	2	0916	0940	95	1	8	0	104	0
19	13	22-Aug-2008	0703.210N	13430.770E	1	3	0737	0745	2	0	59	0	61	0
20	14	22-Aug-2008	0606.421N	13321.800E	1	4	1637	1700	113	1	31	0	145	0
21	15	23-Aug-2008	0525.000N	13211.700E	1	9	0704	0712	73	0	5	0	78	0
22	16	23-Aug-2008	0522.440N	13209.800E	1	9	0732	0744	121	1	42	0	164	1
24	17	23-Aug-2008	0510.460N	13206.900E	1	2	0907	0932	68	0	209	0	277	1
25	18	23-Aug-2008	0501.100N	13208.200E	1	2	1058	1108	15	0	5	0	20	0
28	19	23-Aug-2008	0453.000N	13203.420E	4	1	1234	1247	91	4	25	0	120	3
29	20	23-Aug-2008	0453.730N	13203.275E	4	1	1256	1309	117	4	64	0	185	2
34	21	25-Aug-2008	0305.540N	13107.750E	4	1	1130	1138	10	0	16	0	26	1
35	22	25-Aug-2008	0306.808N	13107.155E	1	5	1148	1152	0	0	3	0	3	0
36	23	25-Aug-2008	0307.122N	13107.000E	2	1	1155	1204	10	0	0	0	10	0
38	24	25-Aug-2008	0309.775N	13105.570E	2	1	1224	1231	2	0	1	0	3	0
39	25	25-Aug-2008	0306.500N	13103.600E	4	9	1300	1327	62	0	20	0	82	2
40	26	25-Aug-2008	0305.540N	13107.190E	5	1	1355	1427	140	1	22	0	163	1
41	27	25-Aug-2008	0302.760N	13115.510E	4	1	1526	1547	84	0	87	0	171	1
44	28	25-Aug-2008	0301.540N	13123.110E	4	1	1643	1647	4	0	15	0	19	0
48	29	27-Aug-2008	0421.830N	13217.800E	3	1	1018	1037	203	1	254	0	458	16
49	30	27-Aug-2008	0423.100N	13218.755E	4	1	1048	1111	167	4	264	0	435	4
50	31	27-Aug-2008	0424.050N	13219.536E	3	4	1124	1137	98	1	255	0	354	1
51	32	27-Aug-2008	0424.460N	13218.120E	4	1	1148	1200	22	0	122	0	144	1
52	33	27-Aug-2008	0435.310N	13203.250E	4	1	1402	1415	0	0	55	0	55	0
53	34	27-Aug-2008	0439.800N	13200.000E	4	9	1455	1459	0	0	3	0	3	0
54	35	27-Aug-2008	0440.400N	13159.600E	4	9	1506	1510	0	0	30	0	30	1
55	36	27-Aug-2008	0448.980N	13202.200E	4	1	1614	1619	47	0	22	0	69	0
57	37	27-Aug-2008	0450.308N	13204.420E	4	4	1645	1652	61	0	178	0	239	0
58	38	27-Aug-2008	0450.300N	13205.170E	4	4	1700	1734	0	0	524	0	524	0
59	39	28-Aug-2008	0658.280N	13345.750E	4	5	1158	1209	7	0	1	0	8	0
<b>CRUISE 3 TOTALS</b>									<b>1914</b>	<b>29</b>	<b>3332</b>	<b>0</b>	<b>5275</b>	<b>39</b>

## APPENDIX 1

### DAILY LOG EXTRACTS

#### 16<sup>th</sup> Aug

Shopping for provision has been the main activity of the day along with slow internet café emails as the satellite phone still not working onboard.

#### 17<sup>th</sup> Aug

Last shopping in the morning (new fuel-drum pump for premix, the last one been dead), last email. Every body onboard at 15h including Palau observer Rimirch Katosang; main engine started at 15:30. Let the rope at 16:08 and head on the NW side of Urukthapel; could not go too much inside due to quite strict new management area in this Rock Islands lagoon. At anchor 17:10 in about the same position than TeTautai in July 1990...A bit of rain and SE wind, cloud cover is 100%, hope it will help to get the bait one day after full moon! Alas clouds didn't stayed and moon was really bright when fishing master decided to set the net at 20:40 with small detection on the echo-sounder. Result: half a bkt of Decapturus and pony fish..

#### 18<sup>th</sup> Aug

Second net at 04:10 with moon too bright provided 1 bkt of pony fish and a few anchovies (devisi). Last set on the light boat at 05:00 was a good surprise, providing 37 bkts of nice anchovies, just enough to go out and check ...Out of East passage at 0630. arrived at the PSFA#1 fad at 0800, but school of small fish only and mostly kawakawa provided a modest 14 small size skj tagged. Further north, a log with a radio buoy and another big log provided the same type of fish (respectively 30 and 171 fish), with large quantity of RR and kaw restraining the bigger fish that might swim below to come up. 2 free schools were chummed without success before encountered one that provided 187 fish, again small size; we finished the baits on an anchored unknown Fad with some bigger fish. A useful 612 fish for the day. Came back in the dark by the east passage, alas a bit too late to avoid the moon for the first early bait shot: at anchor NW Urukthapel at 20:18. As scheduled, a ranger came to observe the baiting for the night.

#### 19<sup>th</sup> Aug

First bait set at 24:00 for a mere 3 bkts mixed of pony fish and anchovies. No clouds. Not worth doing the light boat set; wait until 4h; 1 bkt and another bkt on the light boat at 4:45...Not enough to go fishing; after asking the ranger, we could go a bit more inside the bay to be protected by the first Rock Islands. So we did in the morning moving east about 1.5 km. First set at 08:00 before the moon provided 101 buckets of gold anchovy; Second set at 8:45 on light boat gave only 23 bucket, moon was already awake...

#### 20<sup>th</sup> Aug

Third set at 3am for 16 bkts with the bright moon just above, fourth set at 4am on the light boat with 40 bkts. Headed to the Malakal passage at 4:45 with 4 bait tanks of good baits. Arrived at Fad PSFA1 at 0700 but nothing except RR. Headed south, found a small log/current line with small SJ resulted in 36 fish tagged. Headed toward the seamount SW of Angaur but no sign of life around at 12 am. Found a small school of good size sj

but only 38 tagged. A few sea birds flocks encountered when heading west but no fish. Some medium size YF school sights; try to chum but no answer. Arrived on the so called 540 m seamount at 5pm with no more success, and then heading to the west side Fad, about 70 miles away, scheduled to fish at first light in the morning.

### **21<sup>st</sup> Aug**

Reach fad position at 00:30; can't find it on the radar; drift to wait for daylight but Fad obviously not there; we search around and found many schools associated with current line and/or log; also a pump-boat with his private Fad to whom we gave posters in Tagalog and Cebuano. At 09:40, we finished the baits after 5 schools tagged for a total of 743 fish (2B, 287 Y, 453 S). We came back through the West passage and anchored to our favorite bait ground NW Urukthapel at 13:00. Took the dinghy to go to the fisheries office for sending fishing report and get some cigarettes for the crew. Back to the boat at 15:30. First set at 08:00 for 270 buckets in dark night + rain...second set at 8:45 to add an extra 10 bkts in each tank; total 330, enough to go fishing on the road to Helen reef...

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

Go out Malakal passage at 05:30 and headed SW, visiting the PFSA anchored fad on the way but very briefly, only getting the usual small SJ. Passed over the 388m seamount south of Angaur at 12 am without any sign of life. Headed to the 23 m seamount; found a drifting Fad (bamboo + piece of seine net) nearby and tagged 145 fish, mostly YF of small sizes around 30 cm; continue the road toward Sonsoral Islands for the night.

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

Stop the boat 6 miles from Sonsoral at 01h; start searching at 6h, turning around before heading to Pula Anna. Bait survival is a catastrophe with more than 3 tanks lost during the night; circulation problem or encountered SST up to 31 degrees? Sonsoral Islands are nesting site for at least 2 species of boobies and flock of these birds everywhere on the east side make chumming choice a bit difficult; also these birds seems more associated with large yellowfin impossible to catch; going more on the west side we found mixed schools, with a majority of YF, associated with terns and noddies; managed to successfully attract and tag 2 schools for a total of 242 fish. After chumming and tagged 2 log school between Sonsoral and Pula Anna there was only 2/3 of a tank left...then we met a large school mainly but with some SJ and B (one AT..) Total for the day is 843 + 1 archival but it could have been much more...Headed toward Helen Reef at 13:10, with about 120 nm to cover.

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

Arrived in front of Helen Reef at 01:25 and drift awaiting daylight. Entering inside at 7:30, at anchor at 8:30. Wait all day for baiting. First set at 21h for 89 bkts of silver and blue sprats and a mixed bag of other species; second set at 22:00 for 23 bkts.

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

3rd set at 4:00 for 3 bkts and last one at 5h on light boat was nil (night very bright)...Outside at 0630. Meet several free and log schools on the way to Tobi island but they did answer very poorly to our baits even if it looked like pure SJ schools (feeding on

punctifer?); same figure around Tobi but with more yellowfin school; a whale shark with a big ball of punctifer brought some more credit to this hypothesis and the confirmation came after checking the first SJ stomach! Managed to get a couple of good free schools in the afternoon. Total for the day: 477 fish after having thrown baits at 15 schools...Came inside HR in the dark at 19:30. First set at 22:30 for 85 bkts and second set one hour later for 23 bkts, mostly silver sprat.

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

Third and fourth sets at 3:45 and 4:30 for 8 and 3 bkts; go out fishing at 6:45, headed to the seamount 20 miles north of Helen Reef in a slight front swell. No fish found, we turned WSW toward Tobi Island, getting a more comfortable road in following sea and hoping to find the same fishing situation than yesterday; But situation completely changed: almost no active school, only a couple of log associated that didn't answer to the chum; we headed back to HR at 14:00. All encountered schools in the afternoon vanished very quickly; a very disappointing day (like any 0 fish day...) come inside HR at 17:30. At anchor at 1815. First set at 0945 for 65 bkts, second at 1045 for 21 bkts. Left HR at 1145, heading to Merir.

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

At 0600 we are 60 miles away from HR and 30 miles from the first island, Merir; 1m east swell make S105 rolling gently. Arrived near Merir at 0945. Start encountered schools just when we passed the island; tagged 1391 fish in 4 schools before heading to Pula Anna. Then tagged, under the rain, another 920 fish in 6 schools, finishing by an extraordinary school where we tagged 524 jumbo SJ. Interesting to note that species composition progressively switched to about 50/50 YF/SJ to almost 100% SJ from Merir to Pula Anna. Total for the day=2311 fish tagged, and we stopped to keep one bait tank for tomorrow...Started steaming toward west coast of main islands at 17:45.

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

Steam all night from Sonsoral Islands but against current and waves our speed was only 9 knots. Arrived at Angaur island latitude at about 12h and fish briefly a whale school with a nice sight of 3 small rorquals feeding within yellowfin; managed to deploy an archival tag in a 76 cm YF but the school was not interested in our baits and we only tagged 8 fish. After that we only saw kawakawa schools...Arrived in front of the West entrance at 18:30 ...