

Biological Sampling Newsletter

for Observers and Port Samplers

SPC-OFP Ecosystem Monitoring and Analysis

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Stomach sampling overview of the GEF projects 2000-2010.

Best wishes for 2008 and welcome to the first 2008 newsletter for the “Ecosystem monitoring and analysis” programme co-ordinated by SPC in Noumea. This issue will provide an update to issue #4 of the newsletter on the stomach sampling undertaken to date in collaboration with the national observer programmes of the region.

STOMACH SAMPLING OVERVIEW DURING THE 7TH REGIONAL OBSERVER COORDINATORS WORKSHOP, BRISBANE, 19-23 NOV. 2007

The 7th Regional observer coordinators workshop in Brisbane last November has been a good opportunity to meet and discuss with Caroline Sanchez, coordinating the stomach sampling programme at Noumea, SPC in collaboration with Valerie Allain and Aude Chenet.

Caroline was pleased to talk to all the coordinators and she has the feeling it was a very successful meeting. She presented an overview of the stomach analysis outcomes, of the sampling strategy and stratification. She also provided the coordinators with a listing and mapping of the number of samples collected, analysed as well as the number of samples still to be analysed and the requirement to fulfil the sampling strategy.



Participants to the 7th Regional Observer Coordinators Workshop in Brisbane, November 2007.

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RESULTS FOR THE GEF-SAP PROJECT (2000-2005)

- All the GEF-SAP Project samples have now been analysed with a total of 2912 stomachs examined and logged into the database
- 1040 of them were empty, meaning 36% of the samples
- The 1872 non-empty stomachs are distributed between 57 species and the species mainly examined were yellowfin, bigeye, albacore, skipjack, wahoo and mahi mahi (Table 1)
- The samples are covering the whole western Pacific region with however some areas more sampled than others (Figure 1).

Table 1. Number of non-empty stomachs examined for the GEF-SAP Project 2000-2005; shaded cells are the categories for which the target of 100 samples has been reached.

	FIJI- WALLIS	MICRONESIA			NEW CALEDONIA	SOLOMON- PNG	BISMARCK	POLYNESIA	Grand Total
	Longline	Longline	Free-school	Drifting FAD/log	Longline	Longline	Anchored FAD	Longline	
YELLOWFIN	25	28	15	22	131	75	15	105	416
BIGEYE	11	24	1	8	56	67	4	100	271
ALBACORE	13	1			59	21		116	210
SKIPJACK	1	5	83	5	41	3		19	157
WAHOO	7	3		8	34	7		54	113
MAHI MAHI / DOLPHINFISH	4	8	2	6	58	4	1	25	108
LONGSNOUTED LANCETFISH					78	1		11	90
RAINBOW RUNNER		1	1	57			21		80
MOONFISH / OPAH					27	7		22	56
BLUE MARLIN	1	2	1		9	1		18	32
GREAT BARRACUDA		2		2	18	3	1	6	32
SWORDFISH					12	1		18	31
OCEANIC TRIGGERFISH				29					29
SHORT-BILLED SPEARFISH	2				17			10	29
STRIPED MARLIN					12	1		15	28
UNSPECIFIED					1			23	24
PELAGIC STING-RAY					7	7		7	21
SILKY SHARK		3		6	4	3	4		20
SAILFISH (INDO-PACIFIC)	1	1			8	6			16
BLUE SHARK		3			10			1	14
OTHER SPECIES	1	5	5	21	31	14	2	16	95
Grand Total	66	86	108	164	613	221	48	566	1872

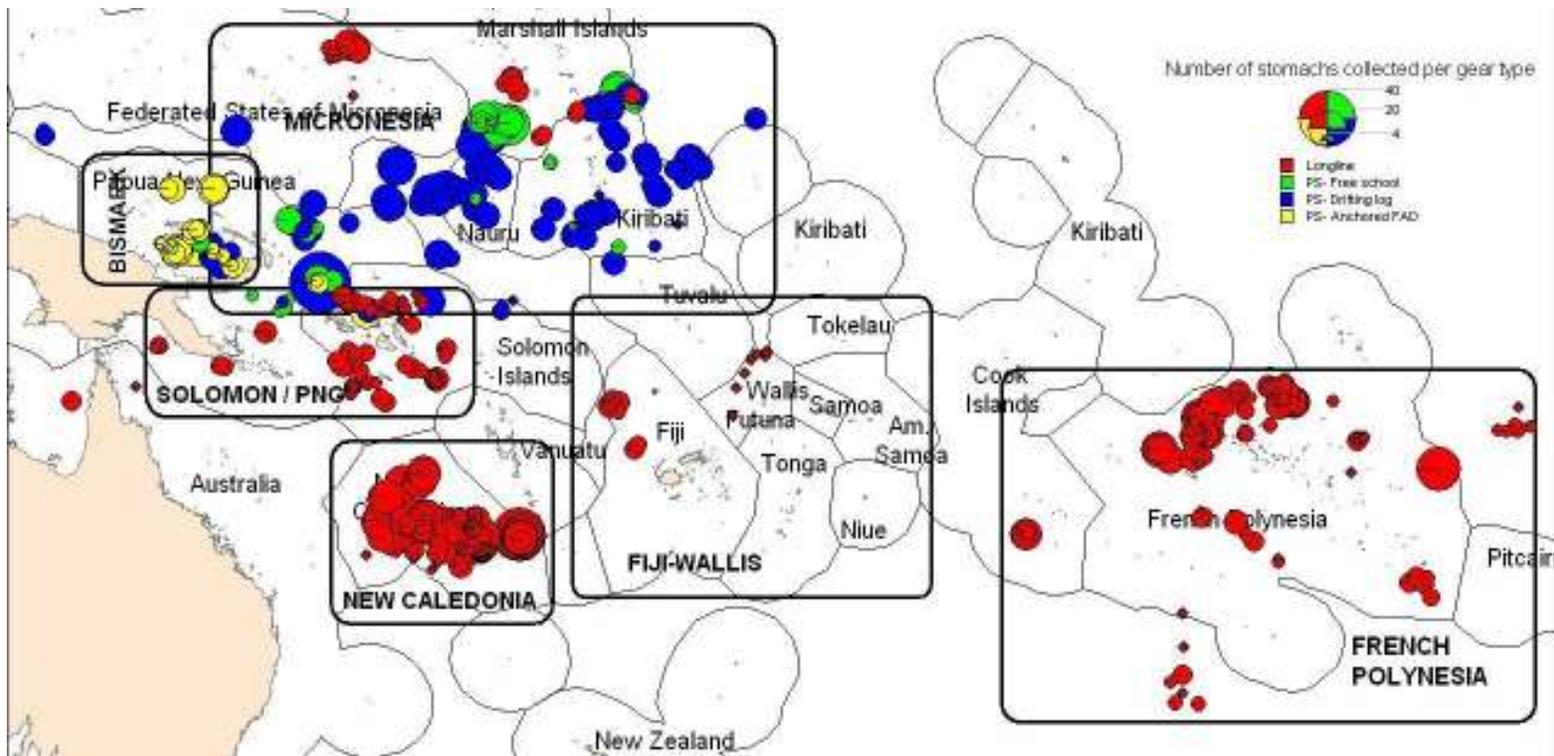


Figure 1. Geographic distribution of the samples analysed for the GEF-SAP Project 2000-2005.

PRIORITY AREAS FOR SAMPLING IN 2006 -2010 ARE:

- Micronesia area for purse seine samples of free-school, and FAD associated schools of skipjack and large specimens of yellowfin and bigeye (more than 80 cm), bycatch specimens should also be collected.
- Micronesia area for longline samples of all tuna species and bycatch specimens.
- Bismarck Sea for purse seine anchored FAD samples of all tuna species and bycatch specimens.
- Fiji- Wallis area including Tonga, Samoa, American Samoa and Cook Islands for longline samples of all tuna species and bycatch specimens.
- Solomon-PNG area for longline samples of all tuna species and bycatch specimens.
- More samples from French Polynesia and New Caledonia are still required but are of a lower priority.
- Recording and reporting the presence of seamounts in the vicinity of sampling would be beneficial.



Small yellowfin tuna ready to be sampled, onboard SOLTAI 6, during the tagging trip.

RESULTS OF THE GEF-OFM PROJECT (2006-2008)

The second phase of the sampling started in July 2006 and, so far, observers have sampled 2763 stomachs of which 468 have been analysed and entered in the database.

The regional tagging project extending in Solomon waters, SPC scientists in collaboration with Papua New Guinea observers continued the collection of samples around FADs, seamounts and within free schools during the September-October 2007 trip (Figure 2).

Since October 2007, samples have been collected in Federated States of Micronesia, New Caledonia, Fiji and in Solomon Islands.

As highlighted during the 7th Regional Observer Coordinators Workshop in November 2007, the target is to obtain 100 samples of non-empty stomachs for each species in each area/gear strata. To help you identify the gaps in the sampling programme, Table 2 sums up the number of non-empty stomachs examined up to now (GEF-SAP + GEF-OFM), the number of stomach currently in the lab which will be analysed in the coming months, and finally, the number of stomachs that need to be collected to complete the sampling program.



Baits (anchovies) used to attract the tuna during the pole-and-line fishing operations for the tagging project. It is important to know which baits were used to distinguish them from the natural preys when examining the stomach contents of predators caught with live baits.

Table 2. Number of stomachs examined and non-empty, cumulating GEF-SAP and GEF-OFM samples (Done), number of stomachs recently collected that need to be analysed (Analyse) and number of samples to be collected to reach the target of 100 samples (Collect); as of 30 December 2007; light yellow cells are number of samples to collect, orange cells are priorities for collection.

	FIJI-WALLIS			MICRONESIA								
	Longline			Longline			Free-school			Drifting FAD/log		
	Done	Analyse	Collect	Done	Analyse	Collect	Done	Analyse	Collect	Done	Analyse	Collect
ALBACORE	13	5	82	1	1	98						
BIGEYE	11	29	60	24	23	53	5	2	93	8		92
BLUE MARLIN	1		99	2		98	2		98			
BLUE SHARK				3		97						
GREAT BARRACUDA				2		98				2		98
LONGSNOUTED LANCETFISH		1	99									
MAHI MAHI / DOLPHINFISH	4	7	89	8	8	84	2		98	6		94
MOONFISH / OPAH												
OCEANIC TRIGGERFISH										29		71
OTHER SPECIES	1	4		5	13		5	47		21	2	
PELAGIC STING-RAY												
RAINBOW RUNNER				1		99	1	20	79	58	4	38
SAILFISH (INDO-PACIFIC)	1		99	1		99						
SHORT-BILLED SPEARFISH	2	2	96		1	99						
SILKY SHARK		1	99	3	1	96				7		93
SKIPJACK	1	14	85	5	13	82	139	207		34	78	
STRIPED MARLIN		6	94									
SWORDFISH		2	98		1	99						
WAHOO	7	6	87	3	7	90				8		92
YELLOWFIN	25	52	23	28	28	44	57	162		32	24	44
Grand Total	66	129		86	96		211	438		164	108	

	NEW CALEDONIA			SOLOMON-PNG			BISMARCK			POLYNESIA		
	Longline			Longline			Anchored FAD			Longline		
	Done	Analyse	Collect	Done	Analyse	Collect	Done	Analyse	Collect	Done	Analyse	Collect
ALBACORE	59	11	30	21		79				136	3	
BIGEYE	56		44	67	7	26	10	19	71	114	13	
BLUE MARLIN	9		91	1	1	98				18		82
BLUE SHARK	11	1	88		3	97				2		98
GREAT BARRACUDA	18		82	3		97	1		99	6		94
LONGSNOUTED LANCETFISH	80	15	5	1		99				12		88
MAHI MAHI / DOLPHINFISH	58	1	41	4		96	1		99	27	3	70
MOONFISH / OPAH	27	3	70	7		93				22	1	77
OCEANIC TRIGGERFISH												
OTHER SPECIES	35	6		14	9		2	43		39	2	
PELAGIC STING-RAY	7		93	7		93				7		93
RAINBOW RUNNER							32	37	31			
SAILFISH (INDO-PACIFIC)	8		92	6		94						
SHORT-BILLED SPEARFISH	17	2	81							10		90
SILKY SHARK	4		96	3		97	5	1	94			
SKIPJACK	41	2	57	3	65	32	72	583		19		81
STRIPED MARLIN	12	3	85	1		99				15		85
SWORDFISH	12		88	1		99				18		82
WAHOO	34	3	63	7		93				60	23	17
YELLOWFIN	132	8		75	60		100	575		111	20	
Grand Total	620	55		221	145		223	1258		616	65	

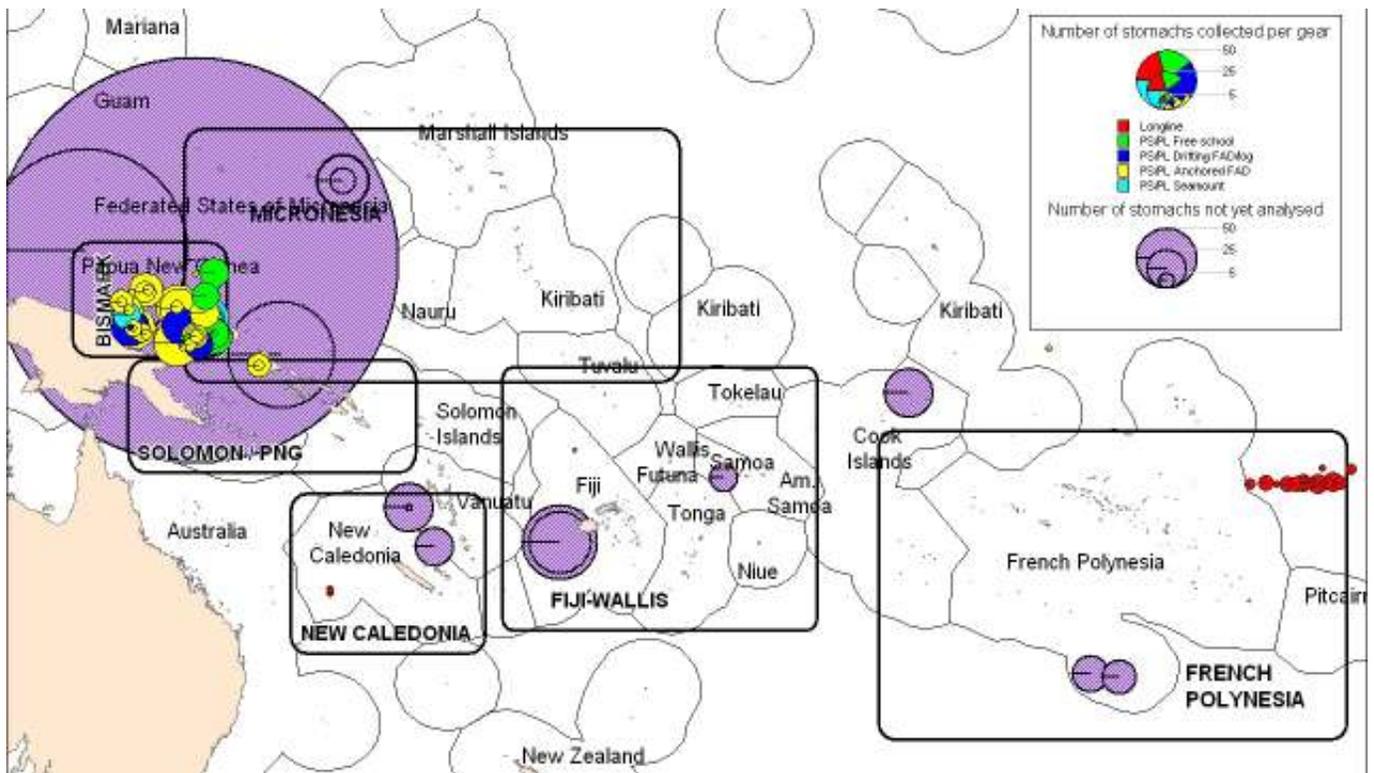


Figure 2. Geographic distribution of the samples collected/analysed and the samples collected/not yet analysed during the GEF-OFM Project 2005-2010 as of 30 December 2007.

RESULTS OF THE STRIPED MARLIN BIOLOGY SAMPLING PROGRAMME

Observers in Fiji and New Caledonia have continued to collect samples from striped marlin in order to help identify key aspects of the species' biology including size-at-age, maturity, and spawning dynamics. Samples include dorsal and anal fin spines, gonads, and a head section from which otoliths are extracted. Samples have been collected from a total of 300 striped marlin caught in the Australian longline (N=75), Australian recreational (N=46), New Zealand recreational (N=135), and tropical longline fisheries (N=44) of the southwest Pacific Ocean (**Figure 3**).

Pre-spawning females have been collected from waters near Fiji which may extend the previously known spawning ground for the species. The majority of striped marlin sampled from Australia and New Zealand are large adults while more small (less than 2000mm Lower Jaw-Fork) striped marlin have been collected in the tropics. The observation of juvenile striped marlin in the tropics has made sampling Pacific Island Countries and Territories within the southwest Pacific Ocean a high priority. Sampling efforts in the next year will focus on obtaining access to more juvenile and spawning striped marlin from Fiji, New Caledonia, Tonga, and French Polynesia. If you are able to collect juvenile striped (less than 2000mm Lower Jaw-Fork) please contact Keller Kopf*.

Thanks very much to the observers in Fiji and New Caledonia for their continued support.

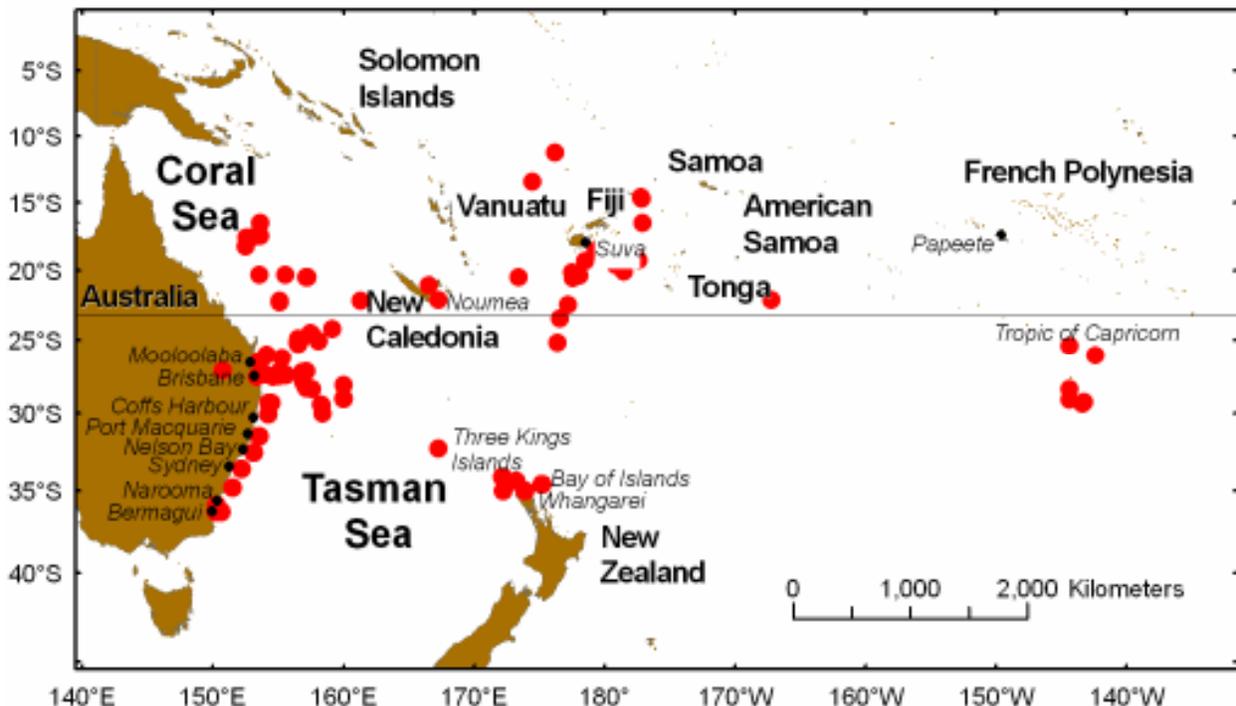


Figure 3. Map of striped marlin biology study area showing ports (black points) where samples were collected and sample locations from commercial longline and recreational vessels (red points – please disregard the sample point 20kms inland from Brisbane).

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ADDITIONAL INFORMATION

An overview of the GEF-SAP 2000-2005 sampling programme and the strategy for the new GEF-OFM 2005-2010 was sent to the observer programmes in July 2006 and this report has been presented during the Second Scientific Committee of the Western and Central Pacific Fisheries Commission in Manila in August 2006; it is available at http://www.wcpfc.int/sc2/pdf/SC2_EB_IP6.pdf.

YOUR HELP IS VITAL

The success of this project is dependent upon the efforts of the observers. If you are experiencing difficulties with collecting, storing and transporting of samples or delays in payment please contact Caroline Sanchez (carolines@spc.int), Aude Chenet (audec@spc.int), Valérie Allain (valeriea@spc.int), Peter Sharples (peterbs@spc.int) or Siosifa Fukofuka (siosifaf@spc.int) who will attempt to resolve these logistical and/or training issues.

NEXT NEWSLETTER: END OF MARCH – BEGINNING OF APRIL 2008

Your comments on the content of this report are welcome, please send them to Valérie Allain (valeriea@spc.int), Caroline Sanchez (carolines@spc.int) and/or Aude Chenet (audec@spc.int).