

Biological Sampling Newsletter

Observer and Port Sampler Biological Sampling Newsletter SPC Ecosystem Monitoring and Analysis Programme

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Stomach sampling overview of the GEF-SAP project 2000-2005 & 1st overview of stomach sampling of the GEF-OFM project 2005-2010.

Welcome to the January 2007 newsletter for the “Ecosystem monitoring and analysis” programme co-ordinated by SPC in Noumea. In this issue we provide an update on the stomach sampling undertaken to date in collaborations with the national observer programmes of the region.

ECOSYSTEM MONITORING AND STOMACH SAMPLING

Ecosystem monitoring provides an understanding of the interaction between species. This information assists fisheries managers with achieving sustainability within a fishery and with mitigating potential threats to oceanic environments. Since 2000, SPC has implemented an ecosystem monitoring program for the Western and Central Pacific Warm Pool Ecosystem. A component of this project is collecting data on the food habits of tropical tuna's. Observers working at sea as part of the national observer programmes in the region have been collecting samples (stomachs and tissues), and then sending them to SPC in Noumea, where they are analysed and the diets of the tuna's determined.

By collecting this information, fisheries managers will be able to better understand the ecosystem components that support the tuna fishery. Importantly, this data also allows scientists and managers to make more certain evaluations about the impacts that particular harvest strategies have on the ecosystem.



Observer collecting stomach samples onboard a purse-seiner – Valérie Allain in the field.

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RESULTS SO FAR (2000-2005)

- Between 2000 and 2005, observers sampled 3100 stomachs (**Error! Reference source not found., Error! Reference source not found.**).
- They were mainly collected in French Polynesia, New Caledonia, Micronesia area, Bismarck Sea and Solomon/PNG area (**Error! Reference source not found.**).
- 2733 stomachs have been examined and entered into the STOMACH database developed to store the data at SPC.
- 114 stomachs remain stored in the SPC freezer and will be examined in the laboratory during 2007.
- 282 stomachs could not be examined because they thawed and deteriorated before arrival in Noumea, were lost in transit, or the data were missing.
- This component of the program was funded under the under the GEF-Oceanic Fisheries Management component of the Strategic Action Programme of the Pacific Small Island Developing States (SAP)

Table 1. Number of stomach samples collected and examined during the GEF-SAP Project 2000-2005

Observer Program	Number of stomachs sampled	Number of stomachs examined, entered in the database	Number of stomachs that need to be examined	Number of sub-samples ¹ of stomachs or additional stomach not in the observer form	Number of stomachs lost, missing, rotten or without data	Stomachs entered in the database because of isotope analysis but no stomach
Cook Islands	29	29				
Fiji	65	40			25	
French Polynesia	561	474	50	11	48	
FSM	182	174			8	
FSMA	392	398		1		5
Marshall Islands	52	52				
New Caledonia	528	450	56	5	27	
Papua New Guinea	471	300			171	
Ship of Opportunity	71	65	8	3	1	
Solomon Islands	357	360		3		
SPC	362	360			2	
Wallis & Futuna	30	31		1		
Total	3100	2733	114	24	282	5

¹ The sub-samples of stomachs are stomachs sampled from preys found in predator stomach.

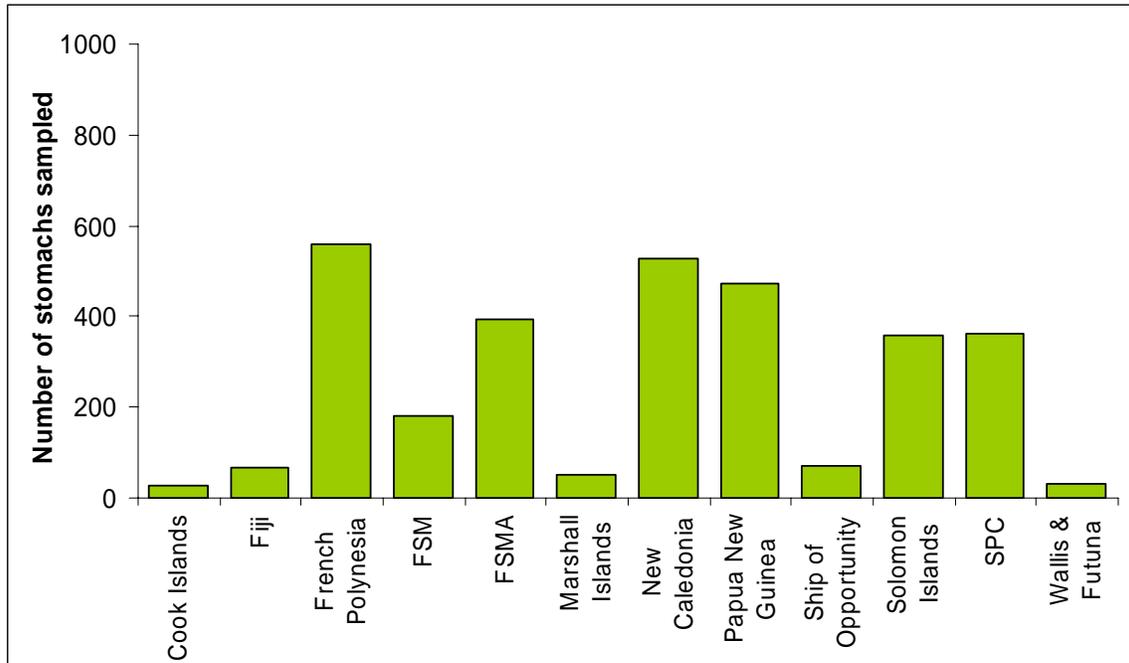


Figure 1. Number of stomachs collected by the different observer programmes during the GEF-SAP Project 2000-2005.

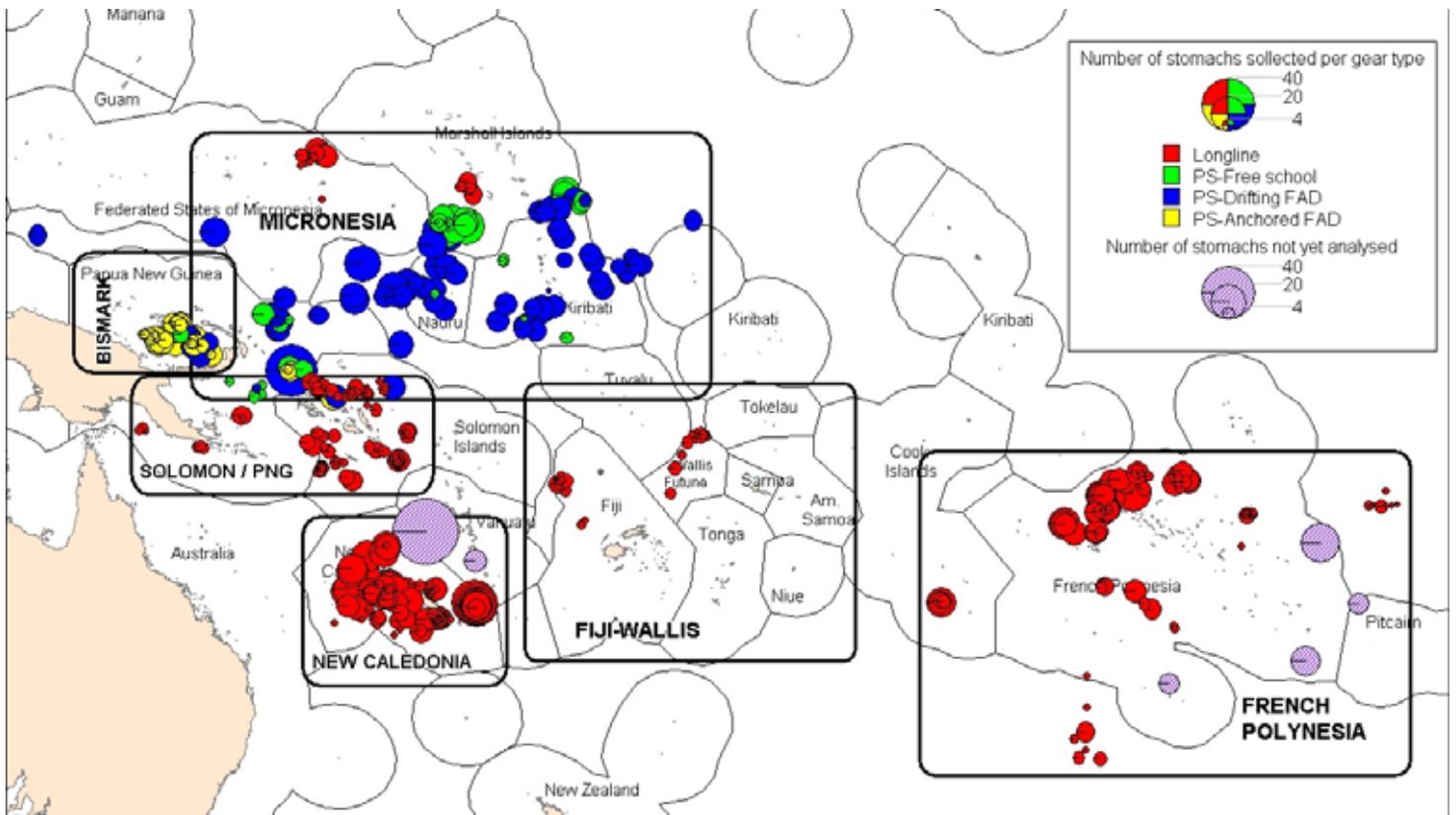


Figure 2. Geographic distribution of the samples collected/analysed and the samples collected/not yet analysed during the GEF-SAP Project 2000-2005.

2005 – 2010 PROJECT PLAN

The second GEF- funded project “Pacific Islands Oceanic Fisheries Management Project (OFM)” started in 2005 and will continue stomach sampling until 2010. The stomach analysis will contribute to answering 4 key fisheries management objectives:

1. complete the dataset of stomach samples to obtain a valid description of the trophic structure of the pelagic ecosystem,
2. collect samples from different gear types in the same area to describe the diet of different parts of the fish populations,
3. collect samples from seamounts to establish their impact on the diet of tuna and other pelagic predators,
4. collect samples around anchored FADs in the Bismarck Sea to determine their impact on the diet of tuna and other pelagic predators.

To reach these objectives the strong collaboration with the observer programmes will need to continue.



Stomach sample examination at the lab at SPC Noumea – Kim Loeun sorting the preys.

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 should be beneficial.

2006 RESULTS

The second phase of the sampling started in July 2006 and observers have sampled 1043 stomachs of which 280 have been analysed and entered in the database (

Table 2, Figure 3).

Samples so far have been collected in New Caledonia, French Polynesia, Cook Islands, Micronesia and mostly in the Bismarck Sea by SPC observers during the PNG tagging cruise in August-November 2006 (Figure 4).

Table 2. Number of stomach samples collected and examined during the GEF-OFM Project 2005-2010 as of 15 January 2007.

Observer Program	Number of stomachs sampled	Number of stomachs examined, entered in the database	Number of stomachs that need to be examined
Cook Islands	34		34
French Polynesia	105	57	48
FSM	11		11
New Caledonia	24		24
SPC ²	869	223	646
Total	1043	280	763

² PNG tagging trip

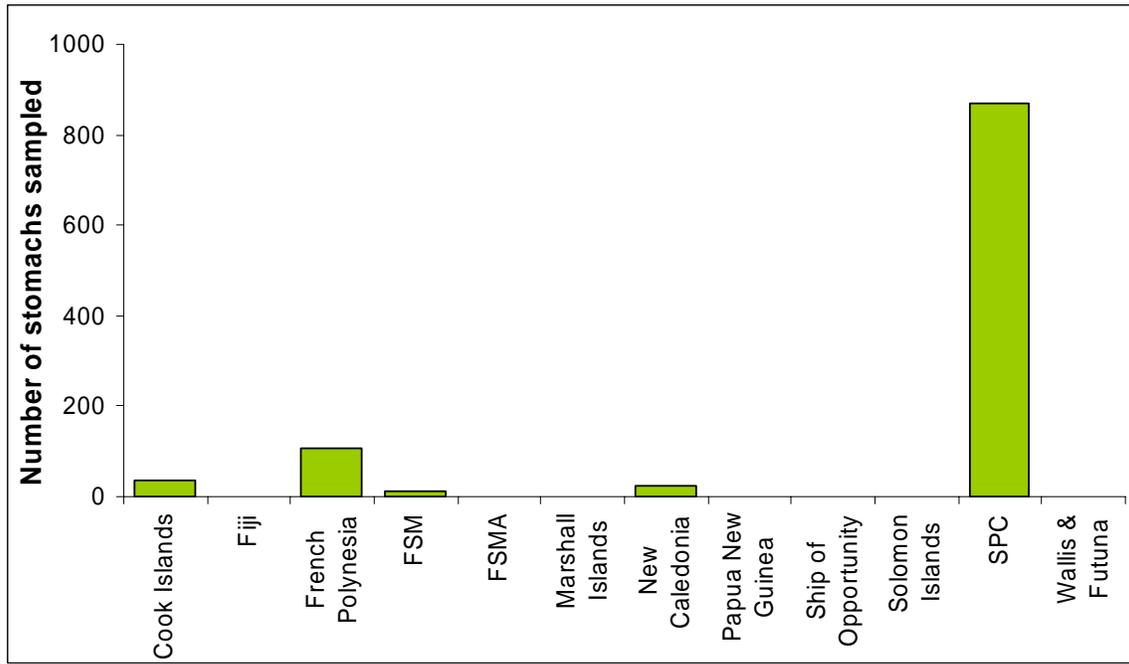


Figure 3. Number of stomachs collected by the different observer programmes during the GEF-OFM Project 2005-2010 as of 15 January 2007.

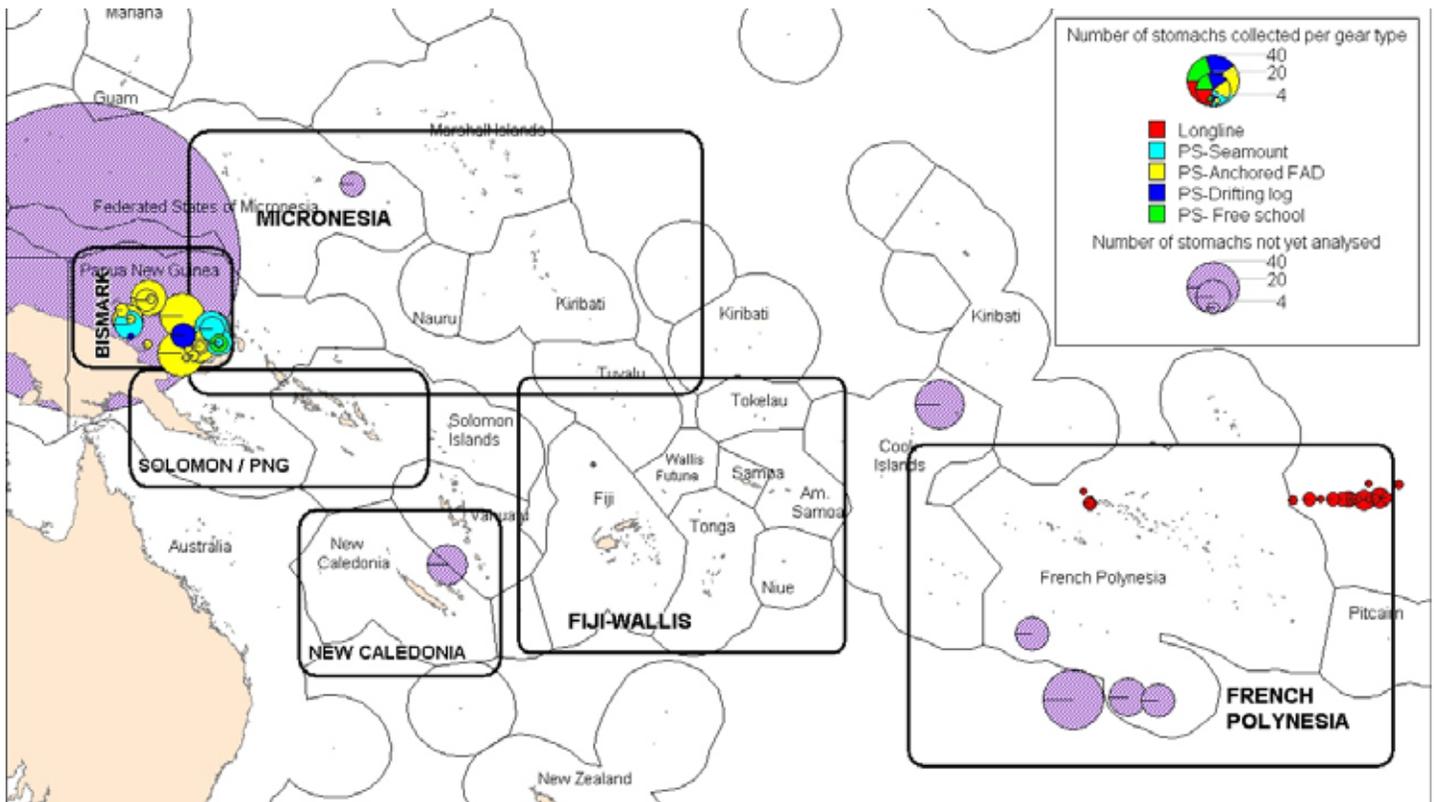


Figure 4. Geographic distribution of the samples collected/analysed and the samples collected/not yet analysed during the GEF-OFM Project 2005-2010 as of 15 January 2007.

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), 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 2007

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