

Fork length

Newsletter

The Observer and Port Sampler Newsletter
for the Tuna Fisheries of the Western and Central Pacific Ocean — Issue #6 — February 2005

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A later edition? Yes, it is true that this edition has been printed later than normal, but with two important observer conferences being held near the end of 2004 we felt a delay would be preferable so we could include a report on them. One was the 4th International Fisheries Observer Conference and the second was the 5th Western and Central Pacific Regional Observer Coordinators' Workshop, both held in Sydney, Australia. Full reports on these conferences are available inside.

A third meeting, which took place in November and will have a significant impact on the work of observers, was the meeting of the Tuna Fishery Data Collection Committee of the Secretariat of the Pacific Community (SPC) and the Forum Fisheries Agency (FFA). The outcomes of that meeting — newly revised data collection forms — will change how observers and port samplers collect data. A report of the meeting should be available on line by the time you read this article, at: <http://www.spc.int/OceanFish/Docs/Statistics/collection.htm>

It is likely that the new observer forms will start appearing in the hands of observers around May, after they have been printed and distributed. So at this stage there is no need to worry about what data you will be asked to collect. Also, once the new forms are ready, you will get extra help to interpret them. Soon after the observer data forms are printed, we will print booklets with additional written explanations on how to collect observer data.

'Ana Finau Taholo,
Tongan Fishery Officer,
responsible for the
National Observer
Programme



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This booklet will provide extra information, but it won't replace the instructions on the observer forms. You should always read the instructions on the back of your forms to see what is required for each data field you are asked to fill in.

Before we go on, we would like to welcome the observer programmes of Palau and Tonga to the Pacific observer community. Both of these programmes have commenced work since we last wrote. We wish them and all our readers the very best for 2005.



PNG Observer Programme



From a land of diversity, abundant natural resources, colour and a plentiful population comes an observer programme to match. With close to 200 vessels licensed to target tuna in Papua New Guinea's exclusive zone, using a range of fishing gears and departing daily from any one

of the six main fishing harbours, the challenges to the PNG observer programme are immense. These challenges are currently being met. The PNG observer programme is the largest observer programme in the Western and Central Pacific Ocean (WCPO), with the highest number of observers attaining some of the most extensive coverage levels in the region. It is an observer programme that many countries, even some beyond the Pacific, would be wise to emulate.

The PNG observer programme was first set up in 1996, as the European Union funded project, the South Pacific Regional Tuna Resource Assessment and Monitoring Project (SPR TRAMP), brought focus and funds to tuna monitoring programmes in the Pacific Islands region. It wasn't all plain sailing. Although a coordinator was appointed, observers trained and data collected, the results were often less than impressive, and coverage levels were low and haphazard. In 1999 an Asian Development Bank loan funded the Fisheries Development Project, allowing the National Fishery Authority (NFA) to be completely restructured. With that, the reins of the observer programme were firmly handed to Peter Sharples so that he could start afresh and re-build a robust and self-reliant monitoring programme.

PNG's newly reorganised NFA has the main goal of "Managing Our Fisheries for Sustainable Benefit". Focus on that goal is supported by a contemporary and efficient headquarters building, which offers top-level security from the heights of the 11th floor and provides a modern

and effective work environment including the latest communication tools to assist staff with their daily tasks.

Lamiller Pawut, the Monitoring Compliance and Surveillance Manager, oversees the observer programme with his feet firmly on a swathe of blue carpet and the advantage of a crow's nest view of the commercial harbour. The day-to-day running of the programme is boldly taken on by Noan Pakop, the Observer Programme Manager, who tackles the budgets, board submissions and belligerent vessels, while continuously maintaining the flow of information from the observer programme to other relevant sections of NFA, like Management, Enforcement, and Industry. And while Noan may be the captain of this orderly vessel, the Deputy Manager William Kewo is the chief engineer who keeps the engines running and the day-to-day operations in place. If an observer wants to know what their next trip will



Happy at the Helm: Noan Pakop, PNG's Observer Programme Manager

be, William will be able to tell them by consulting his roster. He is also the person responsible for maintaining the overall quality of the data that the PNG observer programme produces.

Because two managers are not enough to cover such a large team, a group of senior observers was chosen and trained to assist them. Two senior observers are now based at each of the main ports to help with placements, briefings and debriefings, accommodation and travel requirements: this number is expected to rise with the recent increase in observer numbers. Senior observers working in the provincial ports are supported by the Provincial Fisheries Officers, who work for the provincial governments. Their support is vital as they provide strong enforcement back-up during vessel boardings and provide compliance support when necessary. Their regional offices also give benefit to the observer programme by giving observers access to office space and communication services.

The observers, of course, do the work — gathering the data and boarding the vessels. There are

seventy-four of them now. Three of whom are female. All have attended one of the six basic observer training courses held by FFA and SPC in 1996, 1998 and annually from 2001 to 2004. To become an observer in PNG you must first spot the recruitment advertisement in the national newspapers, and meet the basic selection criteria — one of which is being a resident of one of the main fishing harbours. Given that the numbers of applicants is often high, those who are selected are likely to offer more than just the basic criteria. Many will have a good level of marine training and perhaps some experience at sea.

Those who do receive the call find themselves at the National Fisheries College (run by NFA) in Kavieng to pursue a five-week training course. The many facilities at the college include numerous classrooms (some with special equipment for sea-safety, fire-fighting, radio communications), wharf facilities, a library, and live-in dormitory accommodation. In their training candidates are first introduced to fire-fighting, sea-safety and radio communications before moving into the basic observer training component, funded by FFA with



PNG senior observers at their workshop in 2004. Standing (from left to right)
Apelis Johannes (Rabaul), Noan Pakop (Port Moresby),
William L. Kewo (Port Moresby), Eliaser Mutumut (Rabaul), Kei Meapura (Lae),
Iamo Airi (Port Moresby), Venantius Kabuak (Kavieng), Jacob Eddie (Madang),
Dennis Yehilomo (Wewak), Ludwig Kumoru (Port Moresby),
Kanawi Pomat (Manus) and Thomas Amepou (Madang)

Kneeling (from left to right): Glen English (Port Moresby),
Kilangis Komet (Kavieng), Douglas Wahun (Madang), Paul Mangu (Lae),
Vitolos Tomidi (Port Moresby), Clement Kembu (Rabaul),
Daniel Poli (Manus), Billy Pangi (Lae), Manoi Kutan (Manus)

support from SPC. Here candidates have to achieve a higher pass mark than in any other country. Participants wishing to receive their observer certificates will need to achieve a grade of 75 per cent from the combined total of continuous assessments and the final exam papers. Those receiving a grade of between 60 and 75 per cent will be accepted as port samplers.

Once training is over, observers will return to their home port, which will become their main port of embarkation allowing them to build up their experience of the main vessels utilising this particular port. They can expect, however, to embark from one of the other ports occasionally in order to keep up their skills and knowledge base.

A PNG observer can look forward to covering a wide range of fisheries and gear types during their time with the programme. Before they go aboard, they sign a contract for the duration of their trip. Their placement on board occurs in the presence of a Provincial Fisheries Officer or a senior observer, who introduces the observer to the captain following a standardised placement procedure that ensures each party understands their responsibilities.

A large part of a PNG observer's current work is boarding the domestic-based foreign purse seiners. These vessels have 100 per cent observer coverage, due to PNG's decision to allow transshipment at sea. As these vessels rarely come to port, observers transit to their assigned catcher vessel by smaller tender vessels. Generally observers stay on board these vessels for a two-month period, not leaving the vessel during any partial or full unloadings that may occur while they are at sea. New recruits are assigned for one month only, before disembarking for a full debriefing. Of course when foreign purse seiners come to port, these are boarded in a procedure that mirrors many other observer programmes. PNG observers also board purse seiners for the United States Treaty and FSM Arrangement observer programmes.

There are fewer longliners than purse seiners licensed, and the observer coverage level is lower (5 per cent). Most are domestic vessels and place an average of 1500 hooks in the water. For now, PNG observers do not encounter the Chinese and Japanese style of longline fishing. However, there is a shark longline fishery, with a higher coverage



Top: How to tag a turtle: Mike McCoy and Kanawi Pomat, Provincial Fisheries Officer, work together to demonstrate the finer points of turtle tagging and handling at the Senior Observer Workshop

Right: Elise Pangogo (observer) and Daniel Sua (port sampler) use their data collection skills to gather fisheries data from the local market



level (30 per cent), and the range of shark species being landed is likely to test the shark species identification abilities of even the best observers. Another fishery covered, which will be unknown to most observers in the Pacific region, is the prawn trawl fishery. The chance to observe over 22 different species of prawns will once more expand on an observer's species identification skills. The day is paced somewhat differently to tuna vessels, with cod-ends hitting the deck every four hours right around the clock. The average trip lasts 21 days. As well as covering the purse seine, longline and prawn trawl fleets, observers must cover all trial fishing in PNG waters. The most recent vessels to apply for trial fishing licenses have been the Filipino pump boats.

In PNG, disembarking does not represent the end of an observer's obligations. Before they experience the elation of a job well done, observers must complete their written report and then be fully debriefed. They are not paid until their debriefing is complete, so they are often anxious to finish their written reports and present themselves for debriefing. The impact of compulsory debriefing is beginning to show: PNG has a higher proportion of observers producing top-quality data when compared to other national observer programmes in the Pacific Region. After the observer has been debriefed, senior observers in the Port Moresby bring the data one step further and ensure that the data are scanned and sent to SPC for data entry. Things are followed through to the end in PNG!

As the number of people involved with the PNG observer programme has grown, the programme has expanded its activities. Recently, for exam-

ple, the senior observers have undergone specialised training in turtle identification and handling at the Senior Observer Workshop in Madang. They were trained by consultant Mike McCoy, who first shared these skills with observers in FSM (see *ForkLength* # 5).

Observers have also managed to pick up some land-based work gathering data for a number of various fisheries projects. One of these — the Coastal Fisheries Management and Development Project, based out of Kavieng, New Ireland — uses some of the locally based observers during their down-time to sample fish at the market, conduct household surveys, and collect data on fishers' landings. These observers have been trained to identify and collect fisheries and socio-economic data on reef fishes and other marine products (shellfish, crabs and lobsters), which again adds to their species identification skills and exposes them to other methods of data collection. In Madang, the Rural Coastal Fisheries Development Project has gathered data on deep water reef fishes, with the aid of trained observers.

There is no reason to believe that the sustained growth and subsequent expansion that has been shown by the PNG observer programme cannot be maintained in the future by the present cadre of effective and conscientious staff. We congratulate them for what they have achieved and wish them the best for the work ahead.

Note from Editor: Since this article was written Lamiller Pawut has moved on from his position as the Monitoring Compliance and Surveillance Manager.

17th Meeting of the Standing Committee on Tuna and Billfish



The 17th and final meeting of the Standing Committee on Tuna and Billfish (SCTB 17) was held in Majuro, Marshall Islands, from 9 to 18 August 2004. SCTB is an annual meeting giving scientists and others the opportunity to discuss tuna and billfish under a broad range of topics.

What tuna were caught, and who caught them in 2003?

The catch of tuna in the Western and Central Pacific Ocean (WCPO) during 2003 was

estimated to be provisionally 1,949,546 mt — the second highest annual catch record, after 1998. The purse-seine fishery accounted for approximately 60 per cent of this total catch, with the pole-and-line fishery contributing around 15 per cent and longline 11 per cent. The remainder was taken by troll vessels and a variety of artisanal gears fishing mostly in the eastern Indonesia and the Philippines.



What is the current status of the tuna stocks in the WCPO?

The total bigeye catch in the WCPO for 2003 was 103,833 mt. The stock assessment results indicate that; *"the current levels of fishing mortality carry high risks of overfishing, but the probability that the stock is in an overfished state is close to zero."*

In other words this means that while there are still enough bigeye in the WCPO to maintain their total number by reproduction, there is a risk that continuing to catch bigeye at the same rate, will deplete the population to an unsafe level.

The total yellowfin catch for 2003 was 464,510 mt. The stock assessment results maintain that: *"the yellowfin stock in the WCPO is probably not being overfished and it is not in an overfished state. However, the stock is likely to be nearing full exploitation and any future increase in fishing mortality would not result in any long-term increase in yield and may move the yellowfin stock to an overfished state"*. That is, the yellowfin catch rate is not yet excessive; however, we may soon reach that point if fishing effort increases.

The total skipjack catch in 2003 was estimated at 1,271,292 mt. While no formal stock assessment was conducted all the indicators suggest that: *"the skipjack tuna stock of the WCPO is not overfished owing to recent high levels of recruitment and a modest level of exploitation relative to the stock's biological potential"*. This means that the skipjack stock is still healthy and there have been some very high levels of spawning in recent times, which have compensated for the continuing high level of catches.

The South Pacific albacore catch was estimated to be 54,531 mt in 2003. No stock assessment for albacore was carried out, but scientists believe that the stock is not presently overfished. Some research was done on this species, however, due to the noted decline in its catch rates in some Pacific Island countries and territories in 2003. Results showed that oceanographic conditions contributed to much of this decline, although high levels of localised fishing effort may also have had an effect. Catch rates for most fleets in these countries and territories concerned have recovered somewhat over the last 12 months.

What next?

The SCTB recommended that focus should be placed on the following items in the near future:

1. Obtain better estimates of the tuna catches in Indonesia, Philippines and Vietnam.
2. Re-examine the early catch statistics for all fisheries.
3. Further develop methods to standardise fisheries effort (for instance, by finding ways to compare boats, which have different fishing skills and technologies on-board).
4. Continue to improve the stock assessment models.
5. Continue to evaluate how climate change may affect tuna stocks and reproduction.
6. Initiate a large-scale tagging experiment for the main target tuna species in the WCPO.
7. Assess the impacts that fishing and the environment have on the oceanic (pelagic) ecosystem.
8. Instigate a regional observer programme.

The establishment of the Western and Central Pacific Fisheries Commission —its first meeting was held from 1st to 10th December 2004 in Pohnpei, Federated States of Micronesia - will see the transformation of the SCTB into the Commission's Scientific Committee. Progress on the work in hand will next be reported at the first meeting of the Scientific Committee, which will be held from 8 to 19 August 2005 at SPC headquarters in Noumea, New Caledonia.

The full report of SCTB 17 can be found on the SPC's website at

<http://www.spc.int/OceanFish/Html/SCTB/SCTB17/index.htm#finalrep>.



Safety at Sea

As an observer, staying safe at sea will be a personal priority. So do **you** always make the extra effort to improve your chances of staying safe at sea? Although, it is true that the vessel captain has overall responsibility for the safety of the vessel and crew, there is a lot that an observer can do to reduce their own risk of injury while on board.

Staying safe at sea begins before the voyage starts, when you choose and pack your personal belongings. Leave behind any items of loose clothing and jewellery and, if you have long hair, pack something to tie it up, like a cap. These simple precautions can reduce your chances of getting caught or ensnared in machinery. In addition, for work on deck you should choose non-slip footwear. A wise investment would be a pair of standard rubber boots with steel caps, which are often the choice of many fishers. You may find rubber boots hot and uncomfortable when working in tropical areas, but before you decide against using them think about what that means for your own safety. Also make sure that you are physically fit to go to sea, and that you have no problems with your teeth that might flare up — unless you want to test the captain's dentistry skills!

Once the day for departure arrives, board the boat safely. Many people who have carelessly jumped on to a vessel have been seriously injured. Take your time and always use a ladder if one is available. Use the rope to pull the boat closer to the wharf before you decide to make wild leaps across the gap in thongs or beach sandals. Make an initial tour of the vessel and familiarise yourself with the location of the safety devices. Where are the lifeboats? Where is your life-jacket stored? Where are the fire extinguishers and the first aid kits kept? How will you exit safely from your bunk or cabin if there is an emergency while you are sleeping? Get to know the chain of command. Follow the directions of the captain and officers if there is an emergency.

Staying safe at sea requires observers to remain vigilant at all times. Work in an orderly

manner and store your equipment properly at the end of each sampling session. Keep your own work and accommodation areas neat and orderly; otherwise your untidiness could cause another crew member's injury. Pay special attention to your calipers. Store them safely and watch out for people behind you when you are measuring fish. Clean your equipment at the end of every sampling session, and be careful not to leave knives in the sink. Wear a hard hat when working on the deck of purse seiners.

Be aware of the potential dangers while you work on deck or around the vessel such as:

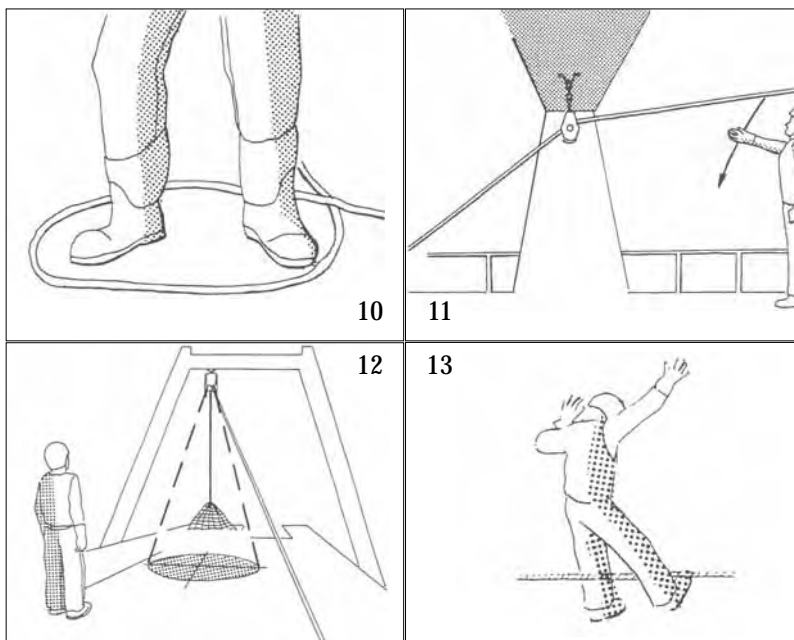
(Graphics Dean Raybould)

- electricity dangers (1)
- getting your fingers, limbs or clothing caught in machinery (2)
- inadequately secured items (3)
- slipping on deck due to oil or fish offal (4)
- falling from ladders, stairs or gangway (5)
- Portable part of the railing missing (6)
- falling down open hatches, manholes, or port-holes (7)
- poor lighting (8)
- carrying knives when walking (9)



Other potential dangers include

- being struck by breaking wires
- working from a height
- bad weather (being washed overboard)
- unsecured hatch doors closing on hands
- careless handling of wires or ropes
- not wearing the correct safety clothing
- standing in the wrong place during a fishing operation or bad weather
- dangers associated with freezers and freezing equipment
- Standing with your foot in the bight of the rope (10)
- Standing underneath the block, or underneath a line under tension (11)
- Standing under heavy weights that are being lifted (12)
- Standing astride a rope that may come tight (13)



Inform an officer if you see any situation that may lead to an accident.

You should also avoid certain areas of the vessel altogether. The helicopter deck is not a safe place for any observer to be. Your insurance may not cover you while you are there, or inside the helicopter. You stay out of the engine room. When you are new to the vessel, you may like to do an initial tour around the area to look at the equipment used, but generally observers have no reason to go into this work area. It is prudent to stay out of freezer areas as well, as your body can stick to the frozen surfaces and you risk losing skin when you pull away. If you do decide to go into a freezer area make sure you wear the proper warm protective clothing. Also, watch out for any very hot or very cold surfaces you may come into contact with. If you are aware of these areas it will be easier to avoid them if the vessel starts to pitch or roll.

If your vessel continues to fish in particularly bad weather always wear a life jacket when you go out on deck. Ask yourself the simple question "If a wave came onboard now, where would I be swept to?" Position yourself where you can get shelter from a superstructure or a large piece of equipment. If you need to go out on deck during rough weather tell at least one crew member where you are going.

Be responsible for your own personal health. Maintain a high level of personal hygiene and treat all cuts and scratches at the end of the working day. The confined spaces in the accommodation areas of small vessels allow infections and other sicknesses to spread easily, especially in the tropical seas. If you need to lift heavy objects let your legs — not your back — take the strain.

Take a few moments to reflect on your own safety both before you go to sea and throughout the voyage. Your awareness of these issues will increase your chances of staying safe, completing the trip and taking on another one.

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- South Pacific Commission. Pacific Island Qualified Fishing Deckhand. Module 12: Vessel cleanliness. Module 14: Personal safety.
- Secretariat of the Pacific Community: June 1998. Safety Aboard Fishing Vessels — A Practical Guide for Crew Members. A. Roberston



**Lift with
your legs,
not your
back**

Port Sampling

Summary of data submitted by port samplers in the region during 2002 (final)

Country	Port	Gear	Size Sampling						
			Vessels	SKJ	YFT	BET	ALB	OTH	TOT
AMERICAN SAMOA	PAGO PAGO	L	124	1,304	1,026	302	37,035	325	39,992
COOK ISLANDS	AVATIU	L	8	3	131	126	2,778	1,092	4,130
	RAROTONGA	L	1	0	2	0	74	9	85
	Cooks Islands Total			3	133	126	2,852	1,101	4,215
FSM	CHUUK	L	20	0	1,773	1,295	1	59	3,128
	KOSRAE	S	3	256	27	17	0	0	300
	POHNPEI	L	45	0	6,261	12,698	37	207	19,203
	POHNPEI	S	36	7,338	232	1	0	0	7,571
	YAP	L	7	0	97	261	0	69	427
	FSM Total			7,594	8,390	14,272	38	335	30,629
FIJI	LEVUKA	L	55	50	134	8	27,464	40	27,696
	LEVUKA	S	3	3,035	566	269	0	0	3,870
	SUVA	L	169	425	25,281	14,132	10,985	8,926	59,749
	Fiji Total			3,510	25,981	14,409	38,449	8,966	91,315
KIRIBATI	KIRITIMATI	S	3	1,109	5	0	0	0	1,114
MARSHALL ISLANDS	MAJURO	L	42	0	944	2,992	4	309	4,249
	MAJURO	S	96	125,161	16,101	8,365	0	264	149,891
	Marshall Islands Total			125,161	17,045	11,357	4	573	154,140
NEW CALEDONIA	KOUMAC	L	10	0	9,372	1,790	30,338	4,931	46,431
	NOUMEA	L	12	0	7,320	1,804	12,331	5,960	27,415
	New Caledonia Total			0	16,692	3,594	42,669	10,891	73,846
PALAU	KOROR	L	109	0	24,327	9,586	4	2,160	36,077
PAPUA NEW GUINEA	KAVIENG	S	2	2,833	1,053	1,888	0	14	5,788
	LAE	L	10	0	10,509	1,209	23	987	12,728
	LAE	S	1	1,334	729	70	0	0	2,133
	MOTUKEA	L	10	0	1,713	255	471	71	2,510
	PORT MORESB	L	16	0	9,668	3,082	856	210	13,816
	RABAUL	L	11	0	91	8	7	5,103	5,209
	RABAUL	S	5	4,489	368	243	0	0	5,100
	Papua New Guinea Total			8,656	24,131	6,755	1,357	6,385	47,284
SAMOA	APIA	L	97	3,522	4,048	1,530	49,909	4,359	63,368
TONGA	NUKU'ALOFA	L	28	2,979	7,874	5,839	31,473	9,638	57,803

Summary of data submitted by port samplers in the region during 2003 (final)

Country	Port	Gear	Size Sampling						
			Vessels	SKJ	YFT	BET	ALB	OTH	TOT
AMERICAN SAMOA	PAGO PAGO	L	142	1,044	1,476	714	29,984	299	33,517
COOK ISLANDS	AVATIU	L	33	50	788	1,236	5,017	3,606	10,697
FSM	CHUUK	L	29	0	1,096	1,588	0	19	2,703
	CHUUK	S	0	0	0	0	0	0	0
	POHNPEI	L	34	0	3,056	5,876	81	260	9,273
	POHNPEI	S	6	900	0	0	0	0	900
	YAP	S	0	0	0	0	0	0	0
	FSM TOTAL			900	4,152	7,464	81	279	12,876
FIJI	LEVUKA	L	81	60	2,204	414	32,153	0	34,831
	S				13,857	7,515	17,037	12,565	51,285
	Fiji Total				16,061	7,929	49,190	12,565	86,116
MARSHALL ISLANDS	MAJURO	L	41	0	3,390	5,094	1	909	9,394
	MAJURO	S	19	14,636	2,257	503	0	51	17,447
	Marshall Islands Total			14,636	5,647	5,597	1	960	26,841
NEW CALEDONIA	KOUMAC	L	10	0	16,112	1,403	18,253	6,111	41,879
	NOUMEA	L	11	1	8,823	973	9,954	4,952	24,703
	New Caledonia Total				24,935	2,376	28,207	11,063	66,582
PALAU	KOROR	L	92	0	34,786	10,738	3	1,018	46,545
PAPUA NEW GUINEA	LAE	L	14	0	2,601	454	24	635	3,714
	LAE	S	2	1,382	249	18	0	9	1,658
	MADANG	S	0	0	0	0	0	0	0
	PORT MORESBY	L	10	0	1,663	354	1,152	84	3,253
	PORT MORESBY	S	0	0	0	0	0	0	0
	WEWAK	S	0	0	0	0	0	0	0
	Papua New Guinea Total			1,382	4,513	826	1,176	728	8,625
SAMOA	APIA	L	57	3,770	5,974	2,475	55,888	6,953	75,060
SOLOMON ISLANDS	HONIARA	S	11	1,238	760	26	0	2	2,026
TONGA	NUKU'ALOFA	L	24	1,491	9,968	3,243	13,054	17,301	45,057

Fork length 



Left (from left to right): Ben Oli, Cosmos Hecko, Victor Kisiani and Johnson Wanuk looking after the port sampling in the port of Wewak, PNG



Right (from left to right): Pauga Moe, Tulaga Malau, and Ken Koneferenisi measure the length of a tuna caught in Samoa's EEZ

Fifth Western and Central Pacific Regional Observer Coordinator's Workshop

The last time the national observer coordinators got the chance to sit around a table together was in Hawaii in July 2002. This time the opportunity came in Sydney, Australia in November 2004, in meeting rooms kindly donated by the Cronulla Fisheries Centre, Department of Primary Industries, New South Wales. But while the location might have changed the opportunity to discuss common work topics, catch up with some old faces and meet some of the newly recruited coordinators was what was most appreciated by the participants. The 5th Western and Central Pacific Regional Observer Coordinators' Workshop was sponsored by SPC and FFA, convened by Peter Sharples and chaired by Siosifa Fukofuka. Sixteen countries and territories — American Samoa, Australia, Cook Islands, Federated States of Micronesia, French Polynesia, Kiribati, Marshall Islands, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Tonga, United States (Hawaii) were represented. Other staff from FFA and SPC also attended. Participants from East Timor were also at the table to assimilate as much as they could before embarking on their own observer programme.

The workshop kicked off with a report from each country and territory about what was happening in their own programmes. The older, more experienced programmes had more to contribute, but everyone was interested to know what the current status of each programme was and its

expected progress in the immediate future. Many of the major topics touched on during the meeting were concerned with the future direction of observer programmes, while other topics concentrated on the day-to-day issues like training and data management. A key theme of the meeting was coordination among programmes.

In leading the first discussion on the future directions for observer programmes Karl Staisch from FFA reviewed many of the possible formats that the future regional observer programme, which will monitor fleets that fish in the high seas, may take. Among the many arrangements he identified were that vessels may only use observers from their same flag state, or use independent observers, or only use observers from non-flag states. While noting these possibilities, participants recognised that the final decision would be left to the Fisheries Commission. The commission is required to have an observer programme in place within two year's of its first meeting, which took place in Pohnpei in December 2004. So the day when we know what the regional observer programme will look like is definitely within sight.

Another development that may have significant impact on observer programmes is the introduction of electronic calipers. These are currently being used for port sampling in the Cook Islands. Simon Anderson from Natural Resource



Electronic calipers and hand held console

Solutions (New Zealand) gave a presentation on how the device works and was open to discussing some of their advantages as well as their disadvantages. Simon also proposed that an electronic hand-held console, used in conjunction with the electronic calipers could allow observer data to be recorded electronically. Will observers give up their paper work for electronics in the future? Not in the immediate future, as more development time is needed before these devices can land in the hands of observers. All the same, there is a lot of interest in this work and funds are now being actively sought to support the development of an observer hand-held data logger.

Another introduction that is likely to have an impact on the management of observer programmes is TROPIC, a database developed by

SPC. This database will help observer coordinators track both their monitoring data and their staff. Emmanuel Schneider, who is involved in the development of the software (along with Peter Sharples and Peter Williams) presented information on the database and its many uses.

Data management and selected data quality results were the subject of another presentation, which allowed participants to reflect on how they should manage completed monitoring data. Unfortunately some of the purse-seine port sampling results were of a lower quality than would have been expected, with some port samplers leaving important areas of the port sampling forms blank. The challenge has been set

for Coordinators to substantially improve the quality of the purse-seine port sampling data before the next Coordinators' meeting.

One area that took up a large part of the second day, and was a major focus for the meeting, was regional cooperation. Such cooperation is needed to resolve issues such as observers getting dropped off in ports that are not in their country of origin and vessels moving to different exclusive economic zones and not allowing the observers to continue on with their work. With these concerns in mind, a memorandum of understanding is to be drawn up. Once signed, it will help national observer programmes to work together towards the common goal of monitoring tuna fisheries in the region.



Participants at the 5th Western and Central Pacific Observer Coordinators' Workshop

Standing (from left to right): Benaia Bauro, Martin Scott, Roseti Imo, Vatea Escande, John Kelly, 'Ana Taholo-Finau, Paul Pasini, George Diau, Steven Retalmai, Manasseh Avick, Andrew France, Karl Staisch, Joe Arceneaux, Peter Sharples, Ambrose Orianiha'a, Sifa Fukofuka

Kneeling (from left to right): Deirdre Brogan, Andrew Jones, Ioneba Temoai, William Kewo, Geoffrey Bertrand, Emmanuel Schneider, Rimirch Katosang, Noan Pakop

Fast Fish

When you see them lying dead on the deck of a vessel it's hard to imagine the swimming speeds that tuna are capable of. Yet, since speed is an advantage if you need to travel to search for your prey, it is really no surprise that tuna, open-ocean predators, are some of the fastest fish in the ocean. Tuna are not the fastest fish to the line, however. That honour goes to a sailfish, which clocked up a massive 109 km/h when hooked by a line in Florida, USA. Although it is not easy to compare the swimming speeds of different species of fish some information available on the World Wide Web indicates a loose ranking in this order:

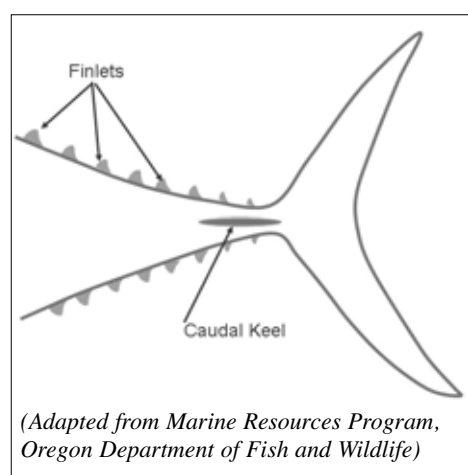
1. sailfish	109 km/h
2. mako shark	96 km/h
3. marlin	80 km/h
4. wahoo	78 km/h
5. bluefin	70 km/h
6. swordfish	65 km/h
7. yellowfin	45 km/h

(* 1 mile = 1.609 km)

So how do these fish, especially tuna, reach such high speeds? Muscles, of course, provide the basic power to push against the water, while fins add the thrust. Yet all fish use this same basic design, so we need to look a bit closer to identify the physical features that give faster fish their particular advantage.

Slower fish, like eels and trout, have looser bodies and their muscles tend to move in waves down the entire length of the body. Fish that have evolved for faster swimming speeds tend to have more rigid bodies and the muscle movements are concentrated closer to the tail. Wider caudal fins also give them greater thrust. In tuna-like species strong tail movements are powered by large stacks of muscles concentrated in the centre of the body and linked to the tail by tendons.

The caudal peduncle keels (see diagram) near the tail reduce drag and turbulence, while the sail-like finlets on the top and bottom of their bodies prevent swirls of water moving down the tail and disturbing the water around the caudal fin. The first dorsal fin also folds down into a groove in the body to reduce drag when it is not needed for steering.



While speed gives traveling predators an advantage, they also need to maintain these high speeds — unlike ambush predators which require short bursts of speed intermittently. The large proportions of red muscle, as opposed to white muscle (which is more prevalent in reef fish), allows tuna to maintain their movements over long periods. Active swimming requires a greater proportion of red muscle which is more resistant to fatigue. The abundant blood vessels in red muscle are not only the origin of the colour, but they also work to supply it with large amounts of oxygen and nutrients to sustain swimming and remove the wastes. White muscle can be as powerful as red muscle and is necessary for quick bursts of speed or 'getaways'. However, without the large supply of blood vessels, white muscle runs out of oxygen, builds up waste products and tires easily.



One final advantage that tuna (and a few sharks) have over many species is their ability to regulate their own body temperature. For most cold-blooded fish, a colder environment means they become more sluggish. Tuna, in contrast, have warmer body tempera-

tures that speed up the chemical reactions in their body, producing more energy and allowing their muscles to move more rapidly. As a result, they can swim faster and have greater stamina. Once again, it is the layers of red muscles that give this added benefit. Heat generated deep within the muscle allows the fish to retain its body temperature even as heat is being lost through the gills. Still, tuna can only be said to be warm-bodied, not warm-blooded, as they cannot completely regulate their body temperature. When they get overheated they need to dive down deeper to cool off.

Tuna are well designed to carry out both the vertical and horizontal movements they make daily. Their ability to regulate their body temperature gives them the option of moving down the water column to exploit deeper prey and evade predators. Their capacity to swim at high speeds for long periods means they can move over long dis-

tances, thus earning them the description 'highly migratory species'. It is this feature of tuna, moreover, that has made both politicians and scientists realise that tuna cannot be managed on a national basis only, and that regional cooperation is required. The inaugural meeting of the Fisheries Commission in Pohnpei, in December 2004 has moved us one step further to that goal.

<http://www.seagrantfish.lsu.edu/resources/factsheets/yellowfin.htm>

(Retrieved from the Internet - 3 February 2005)

http://www.geocities.com/aquarium_fish/how_fish_swim.htm

(Retrieved from the Internet - 3 February 2005)

<http://www.csuchico.edu/~pmaslin/ichthy/loc2.htm>

(Retrieved from the Internet - 9 December 2004)

Fourth International Fisheries Observer Conference

From 8 to 11 November, for the first time in its history, the International Observer Conference left the North American continent and held its fourth meeting in Sydney Australia. Given its closeness to the Pacific Island region, it was a good opportunity for those involved in the observer programmes of the Western and Central Pacific Ocean to attend this unique conference and to learn more about what other observer programmes are doing.

The first ever 'International Observer Conference' got underway, in Seattle, Washington, USA in 1998. At that time, the observer programmes from the USA and Canada came together to look at issues common to all observer programmes. As it took time for word of this debut international conference to travel, few foreign observer programmes were represented — they could have been counted on one hand.

In 2004, on the other hand, the international flavour of the conference was more evident, with representation from each of the continents, even Antarctica — the Commission for the Conserva-

tion of Antarctic Marine Living Resources (CCAMLR) observer programme focuses on vessels that fish in Antarctic waters. The Pacific region also came out in force: staff from FFA, SPC, and the observer programmes of French Polynesia, Marshall Islands, New Caledonia, Papua New Guinea and Tonga were present and motivated to share their experiences and learn more about other observer programmes. William Kewo spoke on a "New Career Path in NFA", Peter Sharples on "Serving Pacific Oceanic Fisheries" and Karl Staisch on "Observer Training in the Pacific Islands". For those with more time to reflect on the work that is being done in the Pacific region, Siosifa Fukofuka presented a poster "Pacific Island Observer Training - a coordinated approach".

Given the great breadth and depth of observer programmes these days, copious information was available over the four days of the conference. It was presented in a number of different formats — workshops, presentations, poster viewings, trade stands, and more informally during social engagements. Some of the pre-conference workshops (e.g. on conflict resolution and automated data collection) had been offered at earlier conferences, but given the high numbers who attended, the decision to offer them again was justified. A new subject for the conference was also introduced: the one day workshop on the 'Developments of best practices for the collec-



tion of longline data to facilitate research and analysis to reduce bycatch' reflects the increasing importance of species of special interest in observer data collection.

During the main body of the meeting, there were 10 sessions, with approximately seven speakers per session. That amounts to 70 speakers in three days, so the stamina that many of the attendees built up during their years as an observer was helpful! A full list of the session titles are available on the conference website.

Many of the observers reading this article will be most interested to learn about what was discussed during the session titled "What is the career path for observers?" As the backgrounds of the panellists (including William Kewo from PNG) differed significantly, no one career path was proposed, however, a healthy discussion on the many possible career paths was offered. Many panellists referred to the various skills that observers acquire during training and on the job such as data and time management skills, written and verbal communication, problem-solving, safety awareness, stress management and conflict resolution. These are all talents many future employers will be interested in. Some highlighted that observing itself can be the career of choice for the many observers who are content with

their work at sea, preferring to leave the routine of office-based work and rush-hour traffic behind. Others spoke on how some observer programmes have developed positions for the more experienced observers including debriefing positions and industry liaison positions.

Creating positions to which observers could aspire was identified by speakers as one strategy for retaining experienced observers — which, they emphasised, was needed so that observer programmes could gather good quality data. Observers with more advanced qualifications also asked that they be given the opportunity to carry-out their own research studies while at sea. Others felt that observers should have a voice on fishery advisory councils, giving direct feedback to the fisheries decision-makers. A call for an international observer exchange programme, which would allow observers to travel to foreign countries to observe different fisheries, was on many observers' wish lists, but it seems that the difficulty of acquiring foreign work visas is, for the moment, an insurmountable obstacle.

A full report on the 4th International Fisheries Observer Conference will be available on the conference website at:

[http:// www.fisheriesobserverconference.com](http://www.fisheriesobserverconference.com)

Observers in the new Paluan Observer Programme earn their stripes

by Celestine Yangilamu

Observers are now getting wet at sea in the Palau fishery zone as they collect fisheries data on Taiwan and Chinese longline fishing vessels. This two-observer team — Rimirch Katosang and Ellis Teliu, Jr. — were certified in November, 2003 in Majuro after observer training from FFA and SPC.

Teliu, Jr. returned to shore on the 26th July, 2004 after boarding FV *Chin Sheng Hsiang 23* for eleven days at sea. This followed on directly from another nine observer days on board the FV *Chin Hsiang Chi 3*. He transferred between these vessels at sea. Previously during his inaugural trip in February 2004, he completed fourteen days of sea-duty. Meanwhile, Katosang followed up with a trip on the FV *Lien Yie Tsai 7*. For the two observers, going on more trips is a personal ambition to expand their sea experience and build their stamina for boarding fishing vessels while allowing them to collect good quality data.



Starting off on the right foot, observer Ellis Teliu and the captain of the FV *Chin Sheng Hsiang 23*

New recruits

by Siosifa Fukofuka

Sixty-one new observers have joined our ranks since we last wrote. The table below summaries the training courses that brought them on board.

Country	Start date	Number of participants	Number of certified observers	Certified with Distinction
Marshall Islands (sub-regional)	Nov-03	22	15	5
Tuvalu	Feb-04	21	14	1
PNG	Jun-04	19	16	2

Marshall Islands

18 November – 5 December 2003

A sub-regional observer course was held in Majuro, Marshall Islands, during November and December 2003. Of the 22 trainees who attended the course 15 gained FFA-SPC certification.

SPC funded the travel for two participants from Palau, while FFA also funded the travel of two participants from Federated States of Micronesia.



Back Row (from left to right): Joran Joran, Lomodro Jebas, Maiting Kintaro, Lan Loran, Jacob Keju, Richard Carland, Clinton Kattil
Second Row: Jerry Tuisue, Dike Poznanski, Calvin Mizutani, Remirch Katosang, Ellis Teliu Jr, Joster Nena, Maxson Myazoa
Front row: James S Elio, Stephan Carlos, Aniba Jabkoj, Karl Staisch, George Jeik

FSM trainees Joster Nena and Stephan Carlos (see photo below) who attended the observer course in Majuro, Marshall Islands. Both trainees are currently doing observer trips for the National Oceanic Resources Management Authority.



Trainees from Palau, Rimirch Katosang and Ellis Teliu (see photo below), attended the observer course in Marshall Islands. Both trainees have covered observer trips since they completed the course.



Tuvalu

10 – 27 February 2003

Twenty-one trainees attended the Tuvalu observer course. Of this total 14 were certified under FFA-SPC to work as observers on tuna vessels that fish in Tuvalu's exclusive economic zone.



**Back row (from left to right): Lito Timaio,
Matagofie Iuliano, Maluga Pelosa, Tilafolau Siose
Second row: Faese Pole, Kaiau Alefaio, Vaelei Vaelei,
Pelosi Uota, Lalau Vaiola, Aisake Epati, Tanielu Levei
Front row: Tokoia Vave, Simeona Italeli, Solomua Ionatana,
Evi Tauaa, David Valemei, Leao Papau
Absent: Leitaliu Seono, Fenua Sione, Ken Sione**

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Papua New Guinea

21 June – 9 July 2004

PNG's National Fisheries Authority observer register now contains a total of 74 observers (including the new recruits). Three basic observer courses were conducted during SPR-TRAMP (1996-2001) and then three more during the PROCFish Project (2002-2004).

After being selected from more than 400 applicants, 19 trainees attended the PNG observer course in mid-2004 and 16 gained FFA-SPC certification. One of the trainees attaining certification was female. Three port samplers from Port Moresby also attended.



Trainees measuring and identifying tuna and other species during the PNG observer training course



Participants in the PNG observer course

Back row (from left to right):

Rex Suwi, Kaluwin Thomas, Jonathan Banakori, Albinus Banakori, Terence Fininki, Groverto Kukuh, Joe Bangui, Rahe Igo, Chris Remesen, Michael Sammy

Front row: Noah Lurang, Henery Mabai, Collin Ndrasile, Matthew Suarkia, Anna Olapu, Ezekiel Pue, Ataban Gibson, Gitei Nangai, Esmond Dalle

Tonga**21 September – 8 October 2004**

Back in October 2003, SPC conducted a course aimed at introducing longline observer work in Tonga before sea trials were conducted. Eleven trainees attended — three from from the Ministry of Fisheries and eight others. The full observer course for Tonga was finally carried out from 21 September to 8 October 2004, attended by 14 trainees from Tonga, three from Niue and one from Samoa.

The course followed the standard format for training observers in the SPC-FFA region. Short tests were given at the end of each topic in order to give the trainers feedback on how the observers were doing and as a condition of competency based training.



Participants in the Tonga observer course

Back row (from left to right): Taani Fa'oa, Joseph Baker, Nisifolo Siale, Nehemaia, William Hopkingi (Niue)

Second row: Poesse Kamaloni, Kalepi Fatoi, Hapakuki Talasinga, Morgan Makatogia (Niue), Mosese Mateaki

Front row: Anitelu Maea, Jay Talagi(Niue), Latanoa Taupe, Siosifa 'Amanaki

Absent: Tala'ofa Loto'ahea, Isaia Leiataua (Samoa), Falakiko Kusitafu, Ki'i Tonga Via