

## Port Sampling Program - Federated States of Micronesia.

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### INTRODUCTION

The Micronesian Maritime Authority (MMA) was established by FSM law in 1979 and has as its mandate to maximize the stream of benefits that the nation accrues from the pelagic fisheries being harvested within the Exclusive Economic Zone (EEZ) of the FSM. As such, the Authority is the main licensing and monitoring agency of the National Government. As part of its monitoring mandate, the MMA has operated a port sampling program aimed at collecting biological data (species composition, length and weight frequencies, etc) from the foreign and domestic fishing vessels that off-load their catches in the FSM ports of Pohnpei, Chuuk, Kosrae and Yap. The MMA has received funding for its port sampling programs from the South Pacific Commission's Tuna and Billfish Assessment Program (SPC-TBAP) and from the Forum Fisheries Agency (FFA) under the Project Development Fund (PDF) of the US Multilateral Treaty on Fisheries. The MMA Port Sampling program just recently received a \$31,000 infusion of funds from the FFA PDF to cover sampling activities for 1994. The SPC has provided over \$17,000 for MMA port sampling activities during 1993 in addition to funds earmarked earlier through the RTTP Assessment Program.

The June 15, 1993 region-wide ban on high seas transshipment has brought an influx of foreign purse seine (PS) vessels to FSM ports for transshipment operations. In particular, Chuuk and Kosrae ports have witnessed a tremendous surge of PS transshipment activity which, for the first time, has created opportunities to accurately monitor the catches of foreign fishing vessels that have previously transhipped their catches unmonitored on the high seas. With financial and technical support from SPC and FFA, the MMA has capitalized on the opportunity to collect this new and valuable information. There are now 7 MMA port samplers in the 4 states of the FSM collecting qualitative and quantitative data from both longline and purse seine off-loadings.

Prior to 1991, most foreign longline vessels licensed to fish in the EEZ of the FSM off-loaded their catches in ports other than those in the FSM and as such negated the possibilities for collecting biological data. Recently, however, the MMA has shifted the licensing priorities to encourage the basing of foreign longliners in FSM ports. As a result, the number of longline vessels now off-loading their catches in FSM ports has increased dramatically (Table 1). The economic benefits for the States have been substantial in addition to the foreign assistance provided in modernizing the infrastructure of the transshipment facilities within the FSM. With a modernized and expanded infrastructure, the FSM will no doubt continue to handle a large number of foreign longline transshipments in the future as well as develop their expanding domestic longline fleet. The monitoring of these transshipments by MMA Port Samplers will continue to provide the necessary information from which we hope to manage our valuable pelagic fisheries on a more reliable and sustainable basis.

## Section 1. MMA Port Samplers

1.1 Pohnpei Port: Mr. Clay Hedson, originally from Mokil Atoll, Pohnpei, is the current MMA port sampler in Pohnpei. Mr. Hedson was hired on a one year contract in July 1991 utilizing funds provided by the SPC TBAP under the Regional Tuna Tagging Project. His contract was renewed for another year through July 1993 at which time he was absorbed under the umbrella MMA Port Sampling Program partially funded by FFA PDF money from the US Multilateral Treaty on Fisheries.

1.2 Yap Port: Mr. John Tipmai, from Woleai Atoll, Yap, is the current MMA port sampler in Yap. Mr. Tipmai was also hired in February 1992 with SPC TBAP funds and is now funded under the umbrella MMA Port Sampling Program.

1.3 Kosrae Port: Mr. Steven Palik and Mr. Loto Ismael are the current MMA port samplers in Kosrae. They are both trained MMA Fisheries Observers and rotate between observer and port sampling duties respectively. They began sampling operations in Kosrae (PS transshipment) on July 13, 1993.

1.4 Chuuk Port: Mr. Petrus Sitan of Etal Atoll, Mortlocks and Mr. Lincher Petrus of Ta Atoll, Mortlocks are the current MMA port samplers in Chuuk. In addition, Mr. Isauo Ychiro also from Etal Atoll, an MMA Fisheries Observer with 5 years of experience, has been temporarily stationed in his home state of Chuuk to assist Petrus and Lincher with the heavy volume of transshipment taking place there.

1.5 Port Sampling Coordinator: Mr. Craig Heberer of San Pedro, California is the Port Sampling and Observer Program Coordinator for the MMA. He is currently working under a two year contract that began in June, 1992. Previous to working for the MMA, Mr. Heberer worked as a fisheries biologist for the InterAmerican Tropical Tuna Commission (IATTC) as Supervisor of their Ecuador and Puerto Rico Field Offices. Mr. Heberer's duties with the IATTC included managing the port sampling and observer programs for the foreign PS fleets participating in the eastern Pacific tuna fishery.

## Section 2. Longline Transshipments

### 2.1 Fleet Composition

All of the foreign longline vessels currently off-loading their catches in the FSM are small scale ice boats that provide sashimi grade fish for the Japanese export market. These boats range in size from 49 GRT (Taiwanese LL) up to 169 GRT (mainland Chinese LL). On a typical trip, these vessels will normally set between 800-1,800 hooks and stay out fishing for up to 2 weeks at a time. The target species are bigeye tuna, *Thunnus obesus*, and yellowfin tuna, *Thunnus albacares*. Appreciable amounts of billfish and shark are caught incidentally to the target species.

The largest of these foreign operations is the Ting Hong Oceanic Enterprises Corporation, a Taiwanese company which began utilizing FSM ports during 1991 and now has operations in all 4 states of the FSM. The Ting Hong Corporation operates two Boeing 727-100 jet planes for air-transshipment of their tuna to Japan. The bycatch and reject fish are stored in shore-side freezers and then transported in bulk back to Taiwan by ship.

The Japanese longline fleet comprises two distinct components: one group of small longline vessels that are based in Guam and tranship their catches from that port and another group of vessels that are based in home ports in Japan and return to their bases for off-loading. The MMA has a unique and complex licensing system for the Japanese longline registrations that caters for each vessel on a per trip basis. For this reason, the number of Japanese LL vessels licensed to fish within the FSM EEZ can vary from month to month. At the present time, there are approximately 30-40 Japanese LL vessels actively licensed by the MMA.

## 2.2 Sampling Procedures

Advance notice of a scheduled transshipment operation is forwarded to the respective MMA Port Samplers by fax, telephone or by personal communication with the agents in charge of the off-loading operation (e.g. EDA in Pohnpei). The time of operation is coordinated around the arrival schedule of the airplane which will transport the fish to Japan (via Guam or Saipan).

Upon arriving to the dock for the transshipment operation, the MMA port sampler will first verify that the vessel in question has the proper FSM fishing permit and that the name of the vessel is properly marked and legible. The Country Registration Number will be noted and verified back at the office. The port sampler will then fill out the header information asked for in the Longline Transshipment Form. This information will either come from the captain of the vessel or from the company agent who may need to translate the information from the captain into English.

The off-loading crew prepares the equipment for operation and the MMA port sampler takes his place in the processing line for initiation of biological sampling. All of the MMA port samplers utilize standard 2 meter plastic calipered rulers for measurements which are checked for calibration before the start of the operation.

After unloading and prepping (fins trimmed, carcass cleaned) the fish are brought to the fish grader and a determination is made with a coring tool as to the quality of the fish (export quality or reject). Export quality fish are then passed to the weigh station for weighing and it is at this point that the MMA port samplers are measuring the fish and recording the weights. All tunas are measured to the nearest centimeter forklength (tip of the upper snout to the fork of the tail) and weighed to the nearest kilogram. If a fish is rejected (stored for later shipping to Taiwan or sold locally versus exported) then a note is made on the forms (r = reject) and the weights and lengths are taken when time permits (some rejects are weighed after the transshipment operation is near completion).

Any billfish that are off-loaded (swordfish, marlins, sailfish, short billed spearfish) are identified and measured according to the dressed state of the carcass. If, for example, the lower jaw of the billfish is still intact, then a lower jaw fork length is taken (tip of lower jaw to the fork in the tail). But if the lower jaw is not intact or is damaged, then a post eye orbital fork length is taken (posterior margin of eye orbit to the fork of the tail). If the head has been completely removed from the billfish, then a pectoral fin to fork of the tail measurement is taken as a last resort. Weights are recorded to the nearest kilogram.

Upon completion of the transshipment operations, it is the duty of the MMA port sampler to track down a copy of the packing list and rejects list from the company agent. This information is then forwarded to MMA headquarters in Pohnpei and entered into the Port Sampling database. The length frequency sheets are

photocopied by the port samplers and the originals sent to Pohnpei for subsequent mailing to SPC, Noumea, New Caledonia where they are entered into a regional database.

It should be noted that the length frequency measurements taken by our port samplers on longline caught fish will not in most cases give a completely accurate picture of all fish captured by the vessels. This is due to the practice of discarding at sea of the smaller tunas which do not meet minimum size requirements arbitrarily set by auction buyers in Japan. This minimum size is approximately 95 centimeters forklength for yellowfin and bigeye tuna. This size minimum can fluctuate depending on market price and demand.

### Section 3 Longline Operations By Port

#### 3.1 Pohnpei Port

In addition to the previously mentioned Ting Hong fleet of Taiwanese longliners, which currently numbers 100 vessels actively licensed to fish in FSM waters, Pohnpei port also serves as a transshipment base for three other foreign companies: Union Corporation which owns and operates five 59 GRT longline ice-boats (*Union 1,2,3,8,and 9*), the Sanwa Corporation which manages two small longline ice-boats, (*Yuang Huang 201, Lanka Star 101*), and Okinawa Tuna Fisheries which has managed up to three 59 GRT Japanese longline ice boats. Okinawa is now only servicing one longliner in Pohnpei, the *Tomo M. 3*, a 49 GRT longline ice boat.

A Korean longline company, Pyungwha, had previously operated six 69 GRT longline ice-boats out of Pohnpei beginning early in 1992. The operation ran into some financial and legal difficulties and ceased to operate out of the FSM as of the first quarter of 1993. The Korean longline vessels have since abandoned FSM waters.

The FSM National Fisheries Corporation (NFC) has recently based two of it's six domestic longline vessels (the NFC *Waab* and the NFC *Kosrae*) in Pohnpei to provide fish for the Pohnpei Fisheries Corporation (PFC) Fish Processing Facility. In addition, the PFC has secured an agreement with Micronesian Fishing Ventures Inc. (MFV Inc.), to base 9 mainland Chinese longline vessels in Pohnpei in order to provide fish (both export grade and rejects) for the Fish Processing Facility. The agreement is now active and the first vessels should arrive sometime during the first quarter of 1994. The agreement between MMA and MFV Inc. will eventually involve up to 75 mainland Chinese longliners.

The China National Fisheries Corporation (CNFC) has secured an access agreement with the MMA that will involve basing additional mainland Chinese longliners in Pohnpei as well as other FSM ports. Currently, CNFC has 30 active permits with the potential to increase that number up to 75 vessels. These vessels will be based in all four states of the FSM.

Another mainland Chinese company, Guangdong, has been actively pursuing an access agreement with the MMA to allow up to 40 longliners to fish in FSM waters. The agreement is still in the negotiating stage but if approved, Guangdong has stated they will base their vessels in all 4 FSM states. The Guangdong vessels are currently operating under the Ting Hong agreement primarily out of Yap and to a lesser extent Chuuk.

The National Fisheries Corporation is also investigating a possible joint-venture operation with some Japanese longliners that involves bringing in a cargo plane for air transshipment of sashimi grade fish to Japan. Details are not yet available.

A US company (out of Guam), Equator Traders Inc., has brought in a DC-3 Cargo plane to Pohnpei and has carried out some limited air transshipments of longline caught sashimi grade fish to Guam for connection with commercial airflights to Japan. The fish carrying capacity for the DC-3 is about 6 metric tons. During the second week of December, a subsidiary of Equator Traders, Micronesian Aviation Corporation, was formed and a C-130 cargo plane was brought in. To date, the C-130 has carried out a couple of air-transshipments to Guam for connecting flights to Japan. The fish carrying capacity for the C-130 is roughly 14 metric tons.

**3.2 Yap Port:** The Ting Hong Co. has utilized Yap port as it's main transshipment base since the inception of it's operations in FSM early in 1992 . Both Taiwanese and mainland Chinese longline vessels operate out of Yap. The longline fishery is seasonal in some parts of the FSM and during the holiday season (starting before Christmas) many of the Yap based Chinese and Taiwanese longline vessels either return to China/Taiwan for refits/crew leave or they move more easterly following the migration of fish and hence utilize other FSM ports for transshipment. The vessels will normally spend about 3 months in China/Taiwan before returning for the new fishing season. The peak fishing season in Yap appears to be from May-September.

**3.3 Kosrae Port:** The first longline transshipment at Kosrae port took place December 27, 1993 with the off-loading of two Ting Hong Taiwanese longline vessels. A second off-loading in Kosrae was carried out January 8, 1994 with one Ting Hong LL vessel unloading approximately 7 metric tons of fish. Ting Hong is working under an agreement with Pacific Tuna Industries (PTI) of Kosrae, a government affiliated company set up to manage all aspects of domestic and foreign tuna activity in Kosrae. Mr. Lou Brooks, Director of the Kosrae Department of Conservation and Development, is one of the 5 board members of PTI. The off-loading operations took place in the PTI cold store facility recently completed at Okat Harbor by an Australian firm. The facility includes an immense freezer (30,000 m<sup>3</sup>/t capacity) that is planned for use as a cold storage for PS transshipment operations.

China National Fisheries Corporation has also expressed interest in basing some mainland Chinese longline vessels in Kosrae but no definite plans have been solidified as of yet.

**3.4 Chuuk Port:** Ting Hong Co. began longline transshipment operations in Chuuk port in March of 1993. A mixture of Taiwanese and mainland Chinese longline vessels are now based in Chuuk utilizing the off-loading facilities of Chuuk Fresh Tuna Inc., (CFTI) a Chuuk state enterprise. The CFTI facility began receiving transshipment operations in October, 1993. Prior to that, the transshipment operation took place at the TRANSCO commercial dock across the harbor. The NFC domestic longline vessels *Nien Weno* , *Arrayane*, *Ik No. 3*, *NFC Pohnpei* and *NFC Chuuk* are currently based in Chuuk and are also utilizing the CFTI off-loading facility. Prior to their arrival to Chuuk, these vessels were based in Yap.

## Section 4 Purse Seine Port Sampling

### 4.1 High Seas Transshipment Ban

As part of a region wide initiative to capture more of the economic benefits of purse seine transshipment operations and to enhance the monitoring capabilities of island nations over the foreign fishing fleets, a ban on all high seas transshipment of purse seine caught tuna was put into effect on June 15, 1993. This ban was instituted as part of the minimum terms and conditions for all foreign purse seine vessels seeking access to the fishing zones of FFA member countries. Prior to the initiation of the ban on June 15, 1993 all 43 of the FSM licensed Taiwanese PS vessels conducted trial transshipments at Chuuk Lagoon, FSM. The Korean PS fleet did not elect to follow suit and as a result they were less prepared to comply with the ban when it took effect. The Taiwanese on the other hand immediately entered the FSM port of Chuuk en masse and kicked off the regional in-port transshipment era with a bang. The totals in metric tons transhipped by the various fleets calling to Chuuk between June, 1993 and December 1993 are listed in Table 2.

### 4.2 Sampling Procedures for Monitoring of Transshipment Operations

As it became obvious that a heavy volume of PS vessels were utilizing FSM ports for transshipment activities, MMA solicited and secured funding from the SPC to hire port samplers to begin monitoring the action. Port samplers were recruited, trained and installed in the FSM ports of Chuuk and Kosrae. The Chuuk port sampler began monitoring activities in March, 1993. The Kosrae sampler was in place early in July, 1992.

A Purse Seine Transshipment Sampling Manual was prepared by the Tuna Biologist of MMA and a series of forms composed to obtain qualitative and quantitative data from the transshipment operations. For brevities sake I will leave the details concerning the forms and their use for review of the PS Transshipment Manual. The port samplers have two main tasks to accomplish: a) to collect accurate and timely information on vessel movements, total amounts transhipped by species and the destinations of the transhipped fish and b) to collect length frequency and species composition data from the fish being off-loaded to the Fish Carrier vessels.

### 4.3 Purse Seine Transshipment Operations by Port

#### 4.3.1 Pohnpei Port

Pohnpei port has received only a trickle of PS transshipments (3) since the ban took effect. In speaking with the captains of the Fish Carrier vessels, it has become obvious that they are reluctant to come to Pohnpei due to the limited and reef studded anchorage space and because Pohnpei lies off the beaten path of the fishing grounds for most of the year.

The 3 PS vessels of the Pohnpei based Caroline Fisheries Corporation have used Pohnpei port for transshipment of their catch on a regular basis. These vessels, the *Trinidad III*, *Queen Mary* and *Eastern Pacific* spend quite a bit of time fishing in the FSM EEZ close to Pohnpei which makes it convenient for port calls to Pohnpei. The Pohnpei port sampler has received good cooperation from the officers of the CFC vessels in accessing the fishing logbooks and over 1,000 length frequencies have been obtained from the transshipments (Table 3).

#### 4.3.2 Kosrae Port

Kosrae port has received a moderate amount of PS transshipment activity after the ban took effect. Table 4 lists the amounts transhipped by species from Kosrae. The total amount for the period July-October, 1993 is roughly 17,545 metric tons. The majority of which was off-loaded by Korean PS vessels which accounted for over 85% of all vessel calling to port (TW=7%, FSM=7%). The average amount transhipped per PS vessel in Kosrae was 351 m/t. Product flow for fish exported from Kosrae went to Korean canneries (69%, 5,397 m/t) and Bangkok canneries (31%, 12,148 m/t) exclusively.

There was a cessation of PS transshipment activities in Kosrae effective November 8, 1993 by order of the Governor of Kosrae. This shut down stems from the grounding of two Dongwon vessels (one PS + one Carrier) on the reef near the entrance to Okat Harbor. The State of Kosrae will not resume transshipment operations until the legal matter of this grounding is settled. In spite of this order, 3 Korean PS vessels and 2 KR Fish Carrier vessels (from Dongwon) conducted transshipment operations 10 miles off the coast of Kosrae on January 10-13, 1994. Permission to conduct this operation was granted by the Executive Director of the MMA on a temporary, one-time only basis pending resolution of the dispute over the vessel groundings. Our port sampling agents were not able to arrange transportation out to the operation site 10 miles off of Okat Harbor entrance.

#### 4.3.3 Chuuk Port

Chuuk port has become the single most important port in the entire SPC region in terms of foreign PS transshipment. The total amount transhipped for the period June-December, 1993 equals a staggering 102,089 metric tons (Table 5). Approximately 280 PS vessels off-loaded this quantity of fish, of which 70% were TW PS vessels, 27% Korean PS vessels, and 3% FSM PS vessels. Product flows for fish exported from Chuuk went mainly to Bangkok canneries (49,093 m/t, 48%), Korean canneries (18,854 m/t, 19%), Japanese canneries (9,415 m/t, 9%), and European canneries (8,388 m/t, 8%). A breakdown of product flows is given in Table 6.

The governor of Chuuk issued an executive order in November, 1993 setting new regulations for the transshipment operations in Chuuk. These new regulations were aimed at increasing the economic benefits to Chuuk state and to address the environmental and social concerns of the citizens of Chuuk. Pollution from the operation (petrochemical discharges, garbage and damaged fish dumping, etc.) have caused great concern in Chuuk. The governor's order also banned the practice of the foreign fishermen giving free fish to local citizens in hopes of protecting the fresh fish market for local Chuukese fishermen.

Table 1. Longline Transshipment Deliveries to FSM ports from 1992-93.

Yap Port - 1992 (1993)**	Actual No. of Unloadings	No. of Vessels (unique)
	1992 (1993)	1992 (1993)
China	140 (484)	13 (85)
FSM	60 (44)	4 (5)
Taiwan	297 (254)	65 (73)
<b>Chuuk Port - 1992 (1993)</b>		
FSM	5 (10)	2 (2)
China	0 (401)	0 (57)
Taiwan	0 (68)	0 (25)
<b>Pohnpei Port - 1992 (1993)</b>		
Japan	18 (22)	4 (2)
Korea	51 (8)	6 (6)
Taiwan	99 (140)	10 (18)
<b>Kosrae Port - 1992 (1993)</b>		
Taiwan	0 (1)	0 (2)

\*\* through September 1993.



Table 2. 1993 Purse Seine Transshipment Unloadings - Chuuk State, FSM.

Carrier Vessel	Date Arr. d/m/y	Date Dep. d/m/y	Tons SKJ	Tons YFT	Tons YFT + SKJ	Flag/No. Vessels	Destination
Chilbosan 3 *	270693	260793	170			TW (1)	Bangkok
Win Shuen	090793	120793	1,940	80		TW (5)	Bangkok
Shing							
Halniak	290693	130793		1,920		TW (7)	Singapore
Fortuna	200693	140793	655		2,495	TW (6)	Bangkok
Voyager						FSM (2)	
Win Shing	040793	150793			3,230	TW (10)	Bangkok
Golden Express	060793	180793			2,345	KR (5)	Korea
Pacific Kim	070793	190793	660	715		KR (3)	Korea
Wide Sea 28	170793	200793	1,260			KR (2)	Bangkok
Vasu	120793	010893	580	380		KR (1)	Korea
Fong Kuo 807	200693	220793	1,780	410		TW (6)	Bangkok
Reefer Lake	200793	050893	835	775		TW (2)	Bangkok
						KR (1)	
Voshtocny	270793	180893			1,863	KR (2), TW (2)	Bangkok
Bereg						FSM (2), AU (1)	
Chiquita	180793	050893		3,420		TW (11),	Puerto Rico
Abava						KR (3)	Spain
Frio Oceanic	100793	220793		3,328		TW (7) KR (1)	Italy
Jin Hwei 101	080793	240793			1,375	TW (6)	Bangkok
Ocean Express	140793	270793			3,548	KR (7)	Korea
Golden Pacific	210793	030893			750	KR (1)	Korea
Mizuho Ace	280793	070893			1,697	KR (3), TW (1)	Solomon Isl
Sea Express	050893	070893			2,195	KR (5)	Korea
Fong Kuo 806	070793	070893	1,750	375		TW (5)	Bangkok
Isla Bonita	010893	310893		1,760		TW (5)	Italy
Marine	110893	130893			855	KR (3)	Korea
Express							
Frio Hellenic	090893	230893			3,300	TW (15), KR (1)	Oso, Spain
Golden Express	180893	n/a	210	270		KR (1)	Korea
Atlas Frio	240893	250893	110	230		KR (1)	Bangkok
Fong Kuo 807	200893	310893	1,350	720		TW (6)	Bangkok
Tokachi Maru	190893	010993		460		n/a	Japan
Win Shing	120893	100993			2,200	TW (4)	Bangkok
Frio Alaska	200893	040993			300	KR (2)	Bangkok
Rungholstand	200993	210993					
Jin Hwei 101	280893	240993			1,230	TW (8)	Japan
Fortuna	130893	260993	2,185	185		TW (6)	Bangkok
Voyager							
Kala Mona	010993	011093	1,532	288		TW (4), FSM (2)	Bangkok
Moa Moa	031093	051093		340		TW (2)	Japan
Fong Kuo 806	050993	071093	1,820	390		TW (6), KR (2)	Bangkok
Sajo Dolphin	051093	111093		860		TW (3)	Japan
Pacific No. 1	260993	121093			1,590	KR (4)	Bangkok
Win Ka Fu 111	060993	131093	2,300	380		TW (5)	Bangkok

Table 2/3 (Con't) 1993 Purse Seine Transshipments - Chuuk State, FSM

Carrier Vessel	Date Arr. d/m/y	Date Dep. d/m/y	Tons SKJ	Tons YET	Tons YET SKJ	Flag/No. Vessels	Destination
Dragon Rise 303	141093	191093	610	510		KR (2)	Japan
Fong Kuo 807	071093	231093	1,730	420		TW (6)	Bangkok
Golden Express	161093	231093	960	492		KR (4)	Korea
Taisetsu Maru	061093	231093	1,429	823		TW (5), US (1)	Ecuador
Flower Garden	161093	251093			2,100	TW (7)	Japan
Vasu	251093	311093		230	100	TW (2), FSM (1)	Japan
Hakko	291093	311093		350		TW (1)	Japan
Fontaine							
Sun Panama	201093	011193	400	180		TW (2)	Japan
Marine	111193	141193	630	235		KR (2)	Korea
Express							
Sun Panama	131193	181193	650			TW (1), KR (1)	Bangkok
Kotoku M. 1	161193	191193	80	260		TW (2)	Japan
Win Shing	101093	191193			2,310	TW (7)	Bangkok
Fortuna	131193	201193	1,370	230		TW (3)	Pago Pago, Am. Samoa
Voyager							
Frio Hellenic	111193	211193	455	345	400	TW (2), KR (1)	Am. Samoa
Win Kae Fu 111	151193	251193	1,230	310		TW (3)	Bangkok
Akishio M.	241193	261193	420	100		KR (1)	Solomon Is.
Vasu	191193	261193	420	345		TW (1), KR (1)	Japan
Atlas Frio	111193	281193	940	694		KR (3)	Korea
Ishikara M.	181193	041293	120	5		KR (1)	Japan
Fong Kuo 806	221193	101293	1,950	170		TW (4)	Bangkok
En Yoh M.	051293	111293		815		TW (2)	Japan
Chi Chao	081093	131293	1,805	370		TW (3), KR (1)	Singapore
Golden Express	041293	181293	1,258	1,067		KR (5)	Korea
Sajo Dolphin	141293	211293	60	10		KR (1)	Korea
Win Kae Fu 111	121293	211293	400	680		TW (2)	Bangkok
World Mora	111293	231293	65		540	KR (3)	Solomon Is.
Reefer Emmy	271193	231293	750	200		TW (1), KR (1)	Bitung, Indonesia
Jia Yow	101193	2261293	1,740	580		TW (5)	Bangkok
Fortuna	191293	301293	1,770	580		TW (4), FSM (1)	Bangkok
Voyager							
Sub Totals =			40,379	27,287	34,423	280 Vessels	
Grand Total =			102,089 m/t				
Avg. Tranship/Vessel =			365 m/t				

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Table 3. MMA Length Frequency measurements from PS vessels unloading to Fish Carriers at Kolonia Harbor, Pohnpei, FSM.

August → Dec '93

Date of LF (d/m/y)	Vessel Name	Flag	Logbook Copied?	Well No.	Type Set	# Sets to fill well	Month of LF Sample	No. SKJ	No. YFT	No. BET
180992	Mathawmal	FSM	yes	SP 5	Surface	3	August	50	0	0
190992	Gapimogol	FSM	yes	SP 4	Surface	3	Aug./Sep.	80	14	3
220992	Mathawwolwol	FSM	yes	S 5	Log	4	Sep.	55	31	2
081293	Queen Mary	FSM	yes	S 3	Log	1	Dec.	50	33	3
081293	Queen Mary	FSM	yes	P 3	Log	2	Dec.	76	16	8
040194	Trinidad III	FSM	yes	P 7	Log	2	Dec.	77	73	19
050194	Eastern Pacific	FSM	yes	P 2	Log	3	Dec.	76	61	16
060194	Queen Mary	FSM	yes	P 7	Log	2	Dec.	50	100	50
							Totals	514	328	101

Table 4. MMA Length Frequency measurements from PS vessels unloading to Fish Carriers at Chuuk Lagoon, FSM.

Date of LF (d/m/y)	Vessel Name	Flag	Logbook Copied?	Well No.	Type Set	# Sets to fill well	Month of LF Sample	No. SKJ	No. YFT	No. BET
150493	Fong Seong 767	TW	yes	S 3	Surface	1	n/a	50	0	0
150493	Fong Seong 767	TW	yes	P 4	Surface	1	n/a	50	5	0
150493	Fong Seong 767	TW	yes	P 10	Log	1	n/a	50	100	4
160493	Fong Seong 747	TW	yes	P 1	Log	1	n/a	50	7	1
160493	Fong Seong 747	TW	yes	DW A *	Log	1	n/a	50	5	57
300693	Ching Feng 767	TW	yes	Hatch 4	Surface	1	June	50	0	0
010793	Yu I Hsiang	TW	yes	DW A	Log	n/a	n/a	50	100	29
020793	Yu I Hsiang	TW	yes	n/a	Surface	n/a	n/a	0	100	0
020793	Shun Tien 606	TW	yes	n/a	Log	n/a	n/a	50	100	6
040793	Ching Feng 787	TW	no	n/a	n/a	n/a	n/a	100	50	3
070793	Fong Kuo 768	TW	no	n/a	n/a	n/a	n/a	50	100	10
100793	Hsieh Feng 707	TW	no	n/a	n/a	n/a	n/a	53	59	17
100793	Yu Hsiang 303	TW	no	n/a	n/a	n/a	n/a	48	1	1
130793	Western Kim	KR	no	n/a	n/a	n/a	n/a	73	69	24
170793	Olympus Kim	KR	no	n/a	n/a	n/a	n/a	53	96	33
160793	Oriental Kim	KR	no	n/a	n/a	n/a	n/a	59	72	29
240793	Fong Seong 737	TW	no	n/a	n/a	n/a	n/a	55	83	27
260793	Shilla Explorer	KR	no	n/a	n/a	n/a	n/a	80	79	21
290793	Jih Yu 212	TW	no	n/a	n/a	n/a	n/a	50	62	50
290793	Fu Kuan 606	TW	no	n/a	n/a	n/a	n/a	39	93	56
310793	Hsieh Feng 707	TW	no	6,8,9,10	n/a	n/a	n/a	46	107	2
060893	Yu I Hsiang 611	TW	no	n/a	n/a	n/a	n/a	67	105	0
050893	Zora	AU	no	n/a	n/a	n/a	n/a	84	117	0
180893	Ching Feng 867	TW	yes	S 5	log	1	Aug.	50	0	0
190893	Marine Kim	KR	yes	P 5	Surface	1	Aug.	84	15	0
190893	Fong Seong 737	TW	yes	SP 2	Surface	5	July	0	50	0

\* DRY WELL NO. A (4 DW'S ON BOARD, 50 MT @)

**Table ● (Cont.) MMA Length Frequency measurements from PS vessels unloading to Fish Carriers at Chuuk Lagoon, FSM.**

Date of LF (d/m/y)	Vessel Name	Flag	Logbook Copied?	Well No.	Type Set	# Sets to fill well	Month of LF Sample	No. SKJ	No. YFT	No. BET
310893	Eastern Pacific	FSM	yes	SP 6	Log	1	Aug.	50	103	2
080993	Fu Chi Hsiang 767	TW	yes	SP 3/ SP 6	Log/Surf.	n/a	Aug./Sept.	50	101	0
100993	Ching Feng 867	TW	yes	P 4	Log	1	Sept.	50	101	1
110993	Jih Yu 612	TW	yes	S 4	Log	3	Aug.	50	100	0
210993	Hsieh Feng 707	TW	yes	S 8	Surface	1	Sept.	50	100	5
270993	Shilla Challenger	KR	yes	S 2	Log	2	Aug.	50	50 *	0
270993	Shilla Challenger	KR	yes	SP 9	Surface	1	Sept.	0	50	0
290993	Hung Fu 308	TW	yes	S 2	Surface	1	Aug.	50	101	1
290993	Win Far 626	TW	yes	SP 6	Log/Surf.	5	Sept.	50	100	0
101093	Gapimogol	FSM	yes	S 4	Surface	3	Sept.	64	15	28
121093	Win Far 636	TW	yes	S 4	Log	2	Oct.	50	100	12
121093	Win Far 636	TW	yes	P 4 **	Log	2	Oct.	31	0	0
201093	Captain Kim	KR	yes	P 9	Log	1	Oct.	63	100	22
281093	Samsun Ranger	KR	yes	P 9	Log	1	Oct.	56	103	47
021193	Sajo Gloria	KR	yes	S 7	Log	2	Oct.	50	100	50
161193	Fong Kuo 706	TW	yes	SP 6/SP 7	Log/Surf.	n/a	Oct./Nov.	50	100	0
241193	Sajo Gloria	KR	yes	n/a	Log/Surf.	n/a	Nov.	55	94	30
101293	Sajo Victoria	KR	yes	P 2	Log	1	Nov.	50	100	50
131293	Sea Chase	KR	yes	SP 8/P 5	Log/Surf.	n/a	Nov./Dec	83	119	0
241293	Mathawmal	FSM	yes	P 3	Surf.	1	Nov.	50	96	50
301293	Ching Feng 767	TW	yes	S 6	Log	1	Dec.	50	77	50
311293	Win Far 636	TW	yes	S 4	Surface	1	Dec.	50	100	50
	TW Samples = 31				Grand Total by Species:			2,493	3,485	768
	KR Samples = 13									
	FSM Samples = 3				Total All Species Combined:			6,746		

\* Yellowfin were size sorted prior to sampler arriving to vessel for LF measurements.

\*\* Size Sorted Sample - Discards (incl. RRU, WAH, MAH, etc.)