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SOUTH PACIFIC COMMISSION

ELEVENTH REGIONAL TECHNICAL MEETING ON FISHERIES  
(Noumea, New Caledonia, 5-10 December 1979)

FISHERIES STATEMENT - TRUK 1979

by

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Fisheries Specialist III  
and  
Peter Sitan  
Fisheries Specialist I

This fisheries statement is organized into seven parts:  
(I) General description; (II) Existing fisheries; (III) Joint ventures; (IV) Resource estimates; (V) Development priorities; (VI) Fishing cooperatives; (VII) Infrastructure; (VIII) Developmental needs. It is only by preparing such statements as these that we can better adjust our programmes to meet the needs of Truk.

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I. GENERAL DESCRIPTION

1. The State of Truk is located approximately 7°N latitude and 152°W longitude. The state covers an approximate area of 281,250 sq. miles with land mass of 49.2 sq. miles. There are at least 93 islands in the state; only 38 of these islands are inhabited. The 5 major island groups are: Truk Lagoon, which comprises the high islands, Upper Mortlocks, Lower Mortlocks, Hall Islands and the Western Islands. With the exception of Truk Lagoon, all the island groups are coral islands or low islands. Truk Lagoon is the largest inhabited lagoon in the world. The marine area can be divided into four zones. Barrier reefs; submerged reefs, lagoon waters, and high seas. The barrier reefs of the state represent an estimated coastal length of four hundred miles. These reefs represent good fishing ground for pelagic fish as well as reef fishes. The submerged reefs, some of which are shared with Yap in the Western Island group covering an estimated area of 2,695 sq. miles. The major fishing banks here are: McLaughlin Bank, Mogami Bank, Koyo Bank, Gray Feather Bank, Shin Matsaye Bank, Candor Bank, Hitchfield Bank, Uranie Bank, Lady Elgin Bank, Manila Reef and Helene Shoal. These areas represent an ideal habitat for many kinds of fish and in the future should prove to be very valuable fishing grounds. Truk lagoon provides an estimated 490 sq. miles of protected water.

2. In addition to these shallow waters, the state includes a massive area of open ocean. This open ocean has very little continental shelf, but sizeable tuna resources exist. The general weather conditions are tropical with an average of 81.2°F. During the months of October, November, December and January strong north easterly trade winds are present and they inhibit small boat fishing from the area. The remainder of the year, good weather is the general rule. Truk lagoon itself lies outside the path of typhoons and provides excellent protection during the tropical storm season.

## II. EXISTING FISHERIES TECHNOLOGY

3. The State of Truk has the largest number of motor boats as well as canoes in the whole Trust Territory. The boats are locally built from 11 to 20 feet in length. They are of plywood construction and powered by one or two out-board motors. Generally these boats are too small and can not be fished in rough weather. They lack loading capacity and cruising range for efficient operation. They are used for lagoon transport and fishing. On the outer islands, they are now replacing the traditional sailing canoes for inter-island transportation and fishing. The locally built canoes range from 8 to 36 feet in length. They are built from the trunk of the breadfruit tree. The common size now is in the 12 to 20 feet range. They are mostly used for bottom fishing in the outer islands. In the Western Islands the large size canoes have sails and are used for trolling and other types of fishing at those islands.

4. A very high percentage of these locally built motor boats and canoes are used to fish. In fact, it could be asserted that every boat and canoe owner is a part-time fisherman. The ratio of full-time fishermen to part-time fishermen is very difficult to determine. We can only project a rough estimate. The ratio is skewed dramatically in favour of the part-time fishermen.

5. This is due primarily to the seasonal variation in fish supply and the limited demand for the products. The two most common methods of catching fish are trolling and spear fishing. Handlining is also very popular, but comes after the first two. Reef netting by kin groups produces excellent catches during the calm weather months. Almost all of this production is sold on the local market or used in home consumption. At present larger quantities of fish are being exported by a purse seining operation.

Table I

Boat in Truk

Boat Type	Tuna Boat	Open Motor Boat	Large Canoe	One-man canoe
Length. (Ft.)	34-90	14-25	18-36	8-18
No. of Boats	10	950	100	300
No. of Boats involved in Fishing	6	100	20	400
Usual Fishing Method	Purse Seining Pole & Line Trolling	Trolling & Bottom Fishing	Trolling	Hand-line Spear-Fishing
No. of Crew	5-20	1-5	3-8	1-3

Note: The above table is a close estimation of motor boats and canoes in the State.

Table II

Fishermen

Year	Full Time	Part Time	Occasional	Total
1975	70	5,000	3,500	19,000
1976	80	5,000	13,500	19,000
1977	90	5,000	13,500	19,500
1978	100	5,000	14,900	20,000

Full Time = At least 90% their time  
 Part Time = At least 30%  
 Occasional = Under 30% time spent for fishing

Table III

Fish Landed in Truk 1978

Fish Type	Tons	Value in Dollars	Exported in Tons
Skipjack tuna	200	\$ 160,000.00	0
Yellowfin tuna	40	40,000.00	0
Rainbow runner	20	16,000.00	0
Black skipjack	20	16,000.00	0
Reef fish	200	200,000.00	0
Trochus	75	45,000.00	75
Lobster	10	100,000.00	8
Total	565	577,000.00	83

Note: Some of the figures above are our close estimation rather than from existing record.

This year 1979, Truk has already exported 120 tons of tuna to Van Camp in Palau. This catch is a two months catch from a small purse seining operation operated by a local businessman and a firm in Japan.

### III. JOINT VENTURES

6. Within the last three years, joint ventures have been organized to attempt fishing enterprises. The basic nature of these attempts has been a commitment of capital from an outside company, with political and logistical support provided by local businessmen. The operations have been hampered by old out-dated vessels and equipment. They have been plagued by breakdown and their inability to catch and market fish. Some of these ventures have met with initial success, despite the difficulties.

### Kiomasa Enterprises

7. The brightest spot in this picture has been Kiomasa Enterprises operation. Mr. Kiomasa is a successful local businessman. At one point about seven years ago, he hired a group of fishermen from Okinawa to operate a pole-and-line vessel. The operation was very successful in catching tuna, but the effort had to be disbanded because no market could be found for the fish produced. Last year, he chartered a Japanese longline vessel and has used it to buy, process and export 7.2 tons of lobster. This is the only organization to export fishery products beside trochus that succeeded in 1978. This year Mr. Kiomasa and a company in Japan are operating a small purse seining operation. They use a small seiner vessel and two pole-and-line vessels as carriers. Their catch was sold to Van Camp in Palau. The success of Mr. Kiomasa's operations are dependent upon four clearly defined prerequisites: (1) they had proper equipment; (2) people were available to maintain it; (3) their goals were very specific and limited to realistic proportions; (4) their products are in great demand and markets are clearly defined.

### South Pacific Marine Products

8. The next fishery endeavour which marks a low point in activity is the South Pacific Marine Product seining operation. This operation is headed by a local businessman who is working with Japanese businessmen in a joint venture. They have been in the state for approximately three years. Their fleet started out with four vessels - three seine vessels and one mothership as carrier. Now they are down to two seine vessels. They wrecked one on the reef and the mother vessel is not in running condition. Last year they caught about 12 tons of fish one day and most of them were rainbow runner (Elegatis bipinnulatus), black skipjack (Euthynnus affinis) and 50 yellowfin tuna (Thunnus albacares). Today, the two vessels are not fishing at all, they are not used for transporting people between islands in Truk Lagoon area. Purse seining if it is to be successful requires a higher level of capital investment and greater expertise in fishing.

### Susumu Enterprises

9. Susumu Enterprises is another company actively involved in fishing. Mr. Susumu Aizawa is a powerful leader and businessman from the southern part of the lagoon. He was involved with two fishing operations. One was the operation of two pole-and-line vessels. He leased the Mokorkor, a fibreglass war reparation vessel from Marine Resources which is now under the custody of Marine Resources. He also used a small wooden pole-and-line vessel which still fishes today. His overall operation for pole-and-line wasn't successful. This was due to mechanical breakdowns and lack of expertise in pole-and-line fishing. In addition to the pole-and-line operations he has also been experimenting with a Bokami net fishing operation. He was using a good size vessel brought from Japan. It appeared to be well equipped with excellent chilling facilities to handle fresh fish and, most importantly, had knowledgeable personnel to handle and maintain the operation. At one time they were bringing in the highest quality of fish yet seen in the state. They have had considerable success in catching mackerel (Rastrelliger kanagurta), bigeye scad (Selar crumenophthalmus) and sardine (Sardinella sirm). Mr. Aizawa disbanded this operation when the boat was found fishing illegally in the exclusive fishery zone of the Northern Marianas Islands. He has another fishing vessel in his possession, but it is now used for inter-island transport.

Canditio Michael

10. Canditio Michael is another individual who is using a good size pole-and-line fishing vessel for fishing operation in the area. He obtained his boat from the Trust Territory Government to promote and assist the fishing business in Truk. They used this vessel for bottom fishing, and other types of fishing using gill nets. They have never done any pole-and-line fishing. They have attempted many different kinds of fishing, but they have not been able to operate at a profit. The boat has had many mechanical problems.

Mortlockese Association

11. This group is operating an outdated wooden pole-and-line vessel in Truk. They are fishing for bottom fish and reef fish by hand lining, spear fishing and gill netting. They have a Japanese fishing master and manager and as of now, they have not been able to operate at a profit. Like Canditio's vessel, they have been hampered by mechanical difficulties.

IV. RESOURCE ESTIMATES.

12. It is very difficult to approximate the size of the fish stocks in Truk. A proper estimation of resources can not be made unless the resource is under consistent exploitation and then it can only be expressed indirectly through a catch-per-unit - effort as an indicator.

13. Fortunately, we have experience to guide us in our estimation. The Japanese fleet consistently takes in the area of 18,000 tons of tuna from Eastern Truk; landings reached a peak of 12,433.5 metric tons of tuna. The average catch per year hovered around 8,000 tons. As recently as 1972, a pole-and-line operation crewed by Okinawans produced over one and a half tons per day.

14. There are many species that exist in unknown commercial quantities. Seven tons of lobster were taken by hand in the Hall Islands, in connection with a buying operation sponsored by a local businessman. In the past a number of deep water bottom fishing vessels traveled from Japan to catch an undisclosed quantity of high value species from the banks in the Western Islands. The ill-fated South Pacific Marine Products joint venture caught up to 12 tons of rainbow runner (Elegatis bipinnulatus) and black skipjack (Euthynnus affinis) in a single set before they suffered complete mechanical failure. Trolling and handlining efforts have produced catch rates of up to 1,000 pounds per day of tuna, but effort has been sporadic because of lack of adequate equipment and difficulties in supply.

15. Present productive capacity and marketing conditions do not provide indicators of the true size of the fish stocks. Even short term fish efforts don't give an adequate picture of the resources available.

V. DEVELOPMENT PRIORITIES

16. Development priorities for the State of Truk, centre around two major objectives: (1) the establishment of an industry based upon the tuna resources of the state to provide export income and employment; (2) the upgrading of fish production and marketing within the state to limit dependence on imports. Governor Erhart Aten is firmly committed to this course of action to bring capital and employment to the state. The primary method of reaching these objectives is the construction of a fishery complex on Dublon Island to provide the necessary infrastructure. The plan involves

three phases: (1) improvement of the docking facility; (2) building of a 500 ton cold storage facility for transshipments and (3) if productivity is high enough, a processing facility to produce canned fish. Truk imports over 1.0 million dollars worth of canned fish annually and we need to lower or stop this dependency on imported canned fish.

17. Reef and lagoon fisheries of today supply the bulk of fishes desired by Trukese for local consumption. We need to upgrade this area to satisfy the present annual demand for fishery products by the islanders.

18. Other objectives should be considered seriously in this area, for instance: (1) recruitment and allocation of government, private and foreign financial resources; (2) redirection of educational programmes to achieve Trukese awareness that fishing and fisheries related activities are economically attractive and socially desirable and that fishing and related support industries require levels of scientific and technical skills equivalent to those in parallel trades and professions; (3) development of recognition that fish can constitute a cash crop as well as a source of personal food supply; that fisheries are dynamic renewable resources which are a priceless Trukese heritage to be managed wisely and used to assure maximum sustainable social, cultural and economic benefit.

19. We also should look at the human and natural resources of the outer islands which can and should participate in and contribute to the overall fishery development of Truk State. Today, in most instances, the people of the outer islands are in harmony with their resources. Modern fishing skills should be taught to these people, handling and processing technologies that are in line with their islands' remoteness and infrastructure must be promoted and emphasized. We should approach it cautiously but forcefully so as to retain the delicate balance between the people and their resources while at the same time assisting them to wisely and more efficiently utilize the resources.

20. The local fishermen lack capital, equipment and knowledge. Marketing of fish is carried on a haphazard manner, which leads to a very low quality product, and inconsistent supply. The fishermen lack boats and reliable markets for their produce. The fish marketers lack quality produce and reliable supplies.

#### Existing institution

21. Marine Resources and Development is the major development instrument operating in Truk State. A budget of \$178,000 is allocated for fiscal year 1979. This is the basic capital provided by the Trust Territory Government to keep operations running. This includes a staff of nineteen employees, two expatriates providing management and maintenance and 17 Trukese providing labour and operating skills. The services provided by Marine Resources and Development involve a full range of marine related services: resource identification, resource management, training and technical support, controlling the lagoon and enforcing the laws related to the marine environment. Marine Resources provides expertise and advice to the government and private industry in relation to marine environment.

We also operate a 100 tons capacity freezing facility used exclusively to handle local fish production. Marine Resources has in its possession two vessels, a thirty-four foot fiberglass troller the Toku and pole-and-line vessel Mokorkor. Both vessels are available for training programmes and fishing projects to demonstrate the potential of fish production in the area. In addition to this, Marine Resources is also responsible for leasing of three boats to the private sector used mainly in lagoon fishing and transport. In addition to these activities Marine Resources and Development has in the past 4 years accomplished four training programmes involved with fishing: (1) Beche-de-mer project in 1976; (2) an inshore fishing project introducing improved techniques in fish capture, preservation and vessel maintenance. As a result of this programme, diesel powered boats have been introduced into the lagoon fishery; (3) PTDF trolling project was accomplished in 1977. This project brought to Truk modern trolling techniques and investigated the feasibility of trolling as a potential method of supplying fish for the fishery complex. This project was successful and it showed increased catch rates were possible with new techniques and it pointed to the fact that boats with longer cruising ranges were necessary for efficient exploitation within the state; (4) PTDF tuna handline project in 1978 was introduced in Truk also. In this project we were primarily concerned with catching large yellow-fin tuna for export as fresh fish for sashimi markets. This project has had some initial success, and the training of local fishermen is still to be performed.

## VI. FISHING COOPERATIVES

22. Fishing cooperatives at present are in a state of disorganization. There are at least eight fishing cooperatives in existence and many other individual private fish markets in Truk. Among the eight fishing cooperatives, only one of them is actively involved in pursuing fishing development. The Truk Fishing Cooperatives with help of the Social Action Center of the Catholic Church, provides docking, fuel, ice and fishing gear to the local fishermen. The cost of adequate equipment is high; even the best fisherman can not afford the expense, and lending institutions are unwilling to risk money in Truk. This situation is very detrimental to the growth of fishing industry. At present although the government has written a comprehensive five years indicative plan for the development of Truk State, community support for the plan is at low level. There are major splits in the community that have not resolved themselves into full support of the objectives. The business community itself is largely indifferent to the project; they are more interested in making short-term profits through retail stores rather than long-term development goals and pursuit of export profit. Many of the village leaders wish to see more funds, time and energy put into the local fishery, and in promoting localized development and are less concerned with larger scale development. The few businessmen that are concerned with long-term development are operating without direct governmental support and appear to be financed from foreign sources.

## VII. INFRASTRUCTURE

23. During the prewar years infrastructure in Truk supported a fleet of up to forty skipjack vessels. During war time Truk served as a naval base and staging area for a fleet of up to sixty ships. At this point in time infrastructure appears to look like a jigsaw puzzle in which the general picture has been started but certain key pieces are mismatched or missing altogether.



### Communication

1. Reliable internal telephone communication exists only within the urban section on the island of Moen.
2. Outside telephone communication exists only on a limited basis. Links to Saipan are reasonable, Guam difficult, United States possible but useless.
3. Cable transmissions are also available, but the receiving station is taxed to handle the present low volume of traffic. A twenty-five words message to San Francisco costs \$8.50.
4. Radio communication is available through the government communications station to the outer islands. Citizen band radios are very popular and serve to connect the lagoon islands. Ship to shore radio communication generally takes place between the government communication station and incoming ships. The frequencies in use are not compatible with those that are in use by the U.S. fishing industry.
5. There is a local AM radio station, which provides entertainment and news broadcasts throughout the state.
6. Postal services are reliable with a four day delivery time.

### Port information.

1. Commercial dock 300' length
2. Depth along side 32'
3. One warehouse on dock 50' by 100'
4. Northeast passage is marked with can buoys
5. 790' channel width
6. 14 miles channel length
7. Channel depth deepest 86 metres.
8. Shallowest 26 metres. Scattered submerged coral heads. Defense Mapping Agency Chart 81338.

### Repair facilities

1. Basic machine shop available. No close tolerance work available.
2. Small vessel slipways available on Tol. Five hundred dollars a day haulout fee.
3. Supplies of new parts generally ordered from outside.
4. Supplies locally available scrap parts
5. Crane lift and coral boat ramp available for small boats.

### Refrigeration facilities

1. 50 tons capacity government controlled, non-bonded, freezing and chilling facility available for storage of imported products.
2. 100 tons holding facility with eight ton a day blast freeze capability along with ten tons of chilling capability. This facility is available for locally produced fishery products.
3. A new 100 tons facility under construction to be finished by December of 1979 is being built adjacent to existing facility.
4. All refrigeration facilities at present are accessible only by shallow draft vessels.

Power supplies

1. Moen
  - a. 3450 KW full potential, may expect 50% reduction due to break-down and routine maintenance.
2. Dublon
  - a. 300 KW plant at site needs capital to be put into full operation.
3. Power is suitable for home consumption. Needs to be expanded for industrial usage.

Water supply.

Moen excess of 200" of rain

1. One million gallons a day on line in central Moen. Water hours in effect in many sections because of breaks in the pressurized system.

Dublon

2. A one million gallons reservoir in site. Partially filled to provide water to villagers.
3. Needs more extensive hydraulic investigation

Fuel supplies

1. Allocations frozen by recent political development.
2. Prices.

Gasoline	Wholesale	Retail
"	\$.81 gal.	\$.95 gal
Diesel	79 gal.	90 gal.

VIII. DEVELOPMENTAL NEEDS

24. It is difficult for Truk to participate in the outside economic world other than a consuming entity, because it lacks the means whereby it can effectively articulate its production with outside markets. Truk needs: (1) communications; (2) docking facilities; (3) repair facilities; (4) fueling facilities; (5) production equipment; (6) refrigeration facilities; (7) transportation links to acceptable markets.

Communication

25. It will be necessary to have adequate telephone contact. If Truk is to become a viable economic unit it must have access to the most common line of communication. This would allow closer contacts to sources of supply and would also make the area more attractive to tourists as well as facilitate the process of production.

#### Docking facilities

26. The present docking facilities are inadequate. What is available is already being used to the maximum extent. Sheltered docking is needed that will accommodate medium sized fishing vessels. This docking needs to be located in close proximity to refrigeration facilities. The dock in front of the two reefer plants can not safely harbour vessels of over four foot draft.

#### Repair facilities

27. If vessels are to be stationed in Truk, repair facilities need to be provided. A slipway with reasonable prices in conjunction with a machine shop.

#### Refrigeration facilities

28. Larger refrigeration capacity needs to be built. In some cases the minimum shipment for frozen tuna is five hundred tons. Present capacity falls short by three hundred tons. Fishing vessels with draft greater than four feet do not have access to the refrigeration facility.

#### Fueling facilities

29. A separate fueling dock or area is needed: at this point in time only one fuel outlet is available and it is located in the centre of the commercial dock. Several days waiting period may be necessary to have the area cleared of shipping to allow easy access for fishing vessels.

#### Production equipment

30. Fishing vessels either need to be built or used vessels that are available in other areas need to be transferred to Truk. Consideration should be taken in the selection of these vessels because of the unique nature of the marine environment and the difficulties in supply and repair.

#### Transportation links

31. Either a refrigerated container service needs to be established or refrigeration ships need to be allocated.

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