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A REVISED ANALYSIS CONCERNING
THE MARKETING OF LIVE SALT WATER TROPICAL FISH

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SUMMARY

On the basis of the cost estimates and assumptions employed in this business analysis, particularly the assumption that the buyer will pay all air freight charges, this business appears capable of earning a profit for the owner-operator of more than \$12,000 per year in addition to his annual salary of \$7,200. These estimates are predicated upon a minimum daily collection of 100 live fish per day with an average value (FOB Truk) of \$1.50 each.

Before going into this business, it is suggested that any one interested in this endeavor first contact potential buyers and establish specific markets for the catch.

It should be kept in mind that the distance live fish can be shipped by air is directly related to the value of the fish. The higher the value, the greater the distance they can be shipped.

Because of the extremely fragile nature of transporting live fish in their delicately balanced environment, shipments from the Trust Territory will require meticulous planning and coordination with a precise time schedule.

ASSUMPTIONS

This is a revised analysis of the estimated profit potential in marketing live tropical fish caught in the Truk Lagoon and marketed on the West Coast of the United States.

It is assumed that the buyer of the fish will pay the air freight shipping charges which could amount to approximately \$32,700 per year.*

Because of the cost of electricity required to change the water in the holding tanks, which can amount to as much as \$9,400 per year if purchased from the district utility authority or \$9,300 if the firm were to generate its own electricity (plus an additional \$12,000 investment in generators), it is assumed that the water in the holding tanks will be changed manually.

On this basis, the project could earn an estimated annual profit of \$12,900 on an initial investment of \$16,000 with an annual cost of production of \$15,400.

* Based on a container weight of 51.5 pounds containing 50 fish x \$1.26 per pound freight charge = \$64.89 per container (\$1.30 freight charge per fish) x 504 containers = \$32,704. The fish buyer has a total of \$2.80 invested in each fish C.I.F. U.S. West Coast. It should be realized that the buyer of fish will be paying freight on dead fish. Assuming a 25% death loss, the fish buyer will actually be paying a freight charge of \$1.73 per live fish for a total of \$3.23 C.I.F. US West Coast. The fish buyer will then mark the price of the fish up 100%. The price of fish that the customer must pay will be around \$6.46 each wholesale.

TABLE 1

ESTIMATED STATEMENT OF ANNUAL INCOME AND EXPENSES
FOR A HYPOTENTIAL BUSINESS
TO CATCH AND MARKET LIVE SALT WATER TROPICAL FISH

Income

25,200 fish less assumed 25% death loss	
or	
18,900 fish at average FOB (aircraft Truk)	
of \$1.50 each	\$28,350

Expenses

(shipping to Los Angeles)	
Raw Material (fish)	-0-
Supplies	\$ 2,800
Overhead	10,950
Wages (less supervisory)	932
*Utilities	700
Taxes (1% of gross income over \$10,000 + \$40)	1,875
Insurance on Product in transit	N/A
Allowance for U.S. import duty (item 190.45)	free
Air freight charges	N/A

Total Estimated Expenses \$17,257

Total Estimated Net Profit (Loss) 11,093

Plus Depreciation Allowance 1,800

TOTAL PROFIT (LOSS) \$12,893

* NOTE: This estimated statement is subject to the comments and assumptions contained in the entire report. Additional deductions from net profit could include debt service. Should water in holding tanks not be changed manually, then the entire cost of electricity must be deducted from the total project.

RECOGNITION OF RISK

In addition to the ordinary risk factors associated with any new business, it should be recognized that unexpected climatic conditions, unforeseen changes in flight schedules, etc. could disrupt the catching and transporting of fish. Preliminary estimates on an annual basis of the possible operating results have been prepared; it should be recognized that these estimates assume efficient management and are based upon the described rates of catches. While no guaranty or warranty can be made, the estimates are set forth to portray an average year results after the business has been in operation for a reasonable period of time. It is possible that the estimates of the operating results will vary in the early years until the business is functioning on a normal basis.

The report is based on an evaluation of the present general economy of the Trust Territory and does not take into account or make provisions for the effect of sharp change in district or general economic conditions not presently foreseen.

Until a scientific inventory is conducted which accurately lists the varieties of fish in the Truk Lagoon, this report must rely on the species and prices listed for the Majuro Lagoon and assume the fish are available in both places. (See Appendix XIII)

All interested parties reviewing this report should bear in mind that this proposed project has had no operating experience to support the basic assumptions employed. Nor has a market survey been made. Prices of equipment are based on U.S. prices which could possibly be reduced by purchasing certain comparable items in Asia.

COLLECTION

Dip nets, seins, traps, screens, etc., may be used. Only hardy young fish should be collected and they should be identified by their scientific names (consult the Encyclopedia of Tropical Fish). Local names of fish confuse wholesalers except for newly discovered fish.

To record the fishes' environment when they are collected, the temperature of the water should be noted and, if possible, the pH and hardness* should be measured. It is important that the fish be caught early in the morning when the water is cool.

Fish should be transferred and stored in the water in which they were found. Sudden changes of water temperature of more than 2 degrees Fahrenheit can kill the fish. Temperature variation in the water can be adjusted by floating the fish's container for a few minutes in the tank into which they are to be transported.

The fish can be hauled after capture in plastic bags, filled with about one gallon of water, inflated with oxygen from a hospital bottle or compressed air. The open end of the bag is twisted and sealed with heavy rubber bands or a strip of heavy tape. To keep the water from getting too hot, the bag is placed inside a styrofoam ice chest or similar container and transported to storage facilities. Usually for short hauls, 2 to 6 pounds of many species can be hauled per bag.

* The Handbook of Tropical Aquarium Fishes provides information on collecting and also describes a method of determining water hardness by the number of drops of soap needed to form permanent suds.

STORING OR HOLDING

Fish should be kept for a period of one or two weeks in large containers before shipment by air. Oil drums, cut in half and lined with plastic would be a suitable holding tank. Other kinds of vats of fibreglass, smooth wood or glass with a continuous flow of water could be used for holding the fish prior to shipment. Bare metal surfaces which could give off poisonous oxides to the fish should be avoided. The temperature should be maintained as close to the water temperature in which the fish were caught as possible. If possible, the same water should be used.

Feed can consist of commercial fishfood purchased in bulk or live brine shrimp*, mosquito larvae, small worms, etc.

Aeration should be provided by commercial pumps.

Only fish of the same size should be stored, however, compatible species may be stored together.

When stored, the weak and damaged fish may not survive and this is just as well for the shipper will then be transporting only healthy fish during the rigorous journey.

* Hatched by adding eggs to 80° water.

Mr. Paul Callaghan, Marine Biologist at the University of Hawaii, states, "Holding marine fish after they have been collected and while they are awaiting shipment presents problems with regard to feeding, disease control, sorting, habitat, and water supply. Water purity, temperature, salinity, and aeration could be provided by the direct supply of filtered sea water and subsand filters located in the bottom of each tank. The spread of disease can be minimized by the relatively small size and isolation of each holding tank. Periodic entry of proper antibiotics into the water also helps control spread of disease. Marine fish are in general more fragile than their fresh water counterparts. It must be emphasized that problems which may arise with regard to disease control could very well prove acute. In discussions with various tropical fish dealers, I was impressed with the general lack of knowledge existing in the field of disease and parasitic control. Inadequate knowledge as to proper feeding and habitat, as well as disease control, seems to be one reason why many retail outlets have stopped handling marine fish."

"Feeding costs can be cut to almost nothing where an abundance of shell fish exists. These shell fish could be easily collected in the field and ground to provide natural food for the fish being held."

"Some species of aquaria fish must have coral and other natural habitat in which to hide. Knowledge of necessary habitat could be essential to prolonged holding of certain varieties of fish. Of course, some fish are natural enemies and may not be held in the same tank together. Other fish are carriers of disease or parasites and thus must be held separately, i.e., sea

horses. It cannot be emphasized enough that, at the outset, the advice of an expert is necessary to the proper operation of a holding area. Only an experienced marine biologist or aquaria specialist is capable of teaching the local labor to deal with the feeding, disease control, and habitat problems which will arise. Local labor is capable of learning how to handle almost all but the extreme disease problems. [In OK! you're not OK!]

Contact should be made with either the University of Guam or the University of Hawaii when seeking solutions to problems related to holding the fish.

SHIPPING

Transporting the fish to market can best be accomplished by placing fish of a similar size and type in plastic bags of about two quart size. These bags should then be filled only about 1/4 to 1/3 full of water to which the fish have become acclimatized. The bag should then be filled with oxygen and sealed with a rubber band. The water-filled bags should then be packed into styrofoam containers about 17"x17"x19" to keep the temperature from getting too high or too low. Such a standard size box will support 50 to 100 average size fish. These containers can keep the fish healthy for periods up to 48 hours*, providing the temperature remains between 70°-80° Fahrenheit.

It is recommended that the fish not be fed the day before shipment as this tends to reduce waste and contamination.

A tranquilizer, such as methyl-pentyrol, may be used. This chemical can be purchased from Airco Chemicals, 150 E. 42nd Street, New York, 10017. This tranquilizer should only be used on the stronger fishes.

The fish should be placed in their containers below the density recommendations. Sometimes dealers may provide information as to the number of fish a given volume can support.

According to Mr. Paul Callaghan, "The factors of water pollution, aeration, salinity, and temperature must be regu-

* Shipments from the Trust Territory will require meticulous planning and coordination, upon a time schedule far more precise than now exists for dry commodities entering or leaving the Trust Territory.

lated and controlled during shipment. The longer the time span and the greater the number and size of fish per shipping container, the more difficult it is to control these factors." Most people in the business feel that any shipping time up to thirty hours in length was feasible.

The water in which the fish are shipped can become polluted in a number of ways. Assuming, however, that clean, fresh sea water is placed in clean packing materials, the major sources of pollution during shipment will result both from the excretion of live fish in the container and the decomposition of dead fish allowed to remain in the container. The bacterial action of decomposition will cause a change in the pH of the water and a removal of oxygen.* Normal excretion of fish over the twenty-four hour period will have some effect on pollution, but most people interviewed felt that this was not a critical factor.

The water in which the fish are packed must contain a sufficient quantity of oxygen to sustain life during transportation. The cooler the water temperature, the greater the quantity of oxygen that can be dissolved in it. Even though there is sufficient oxygen in the water, carbon dioxide must be allowed to escape from the water or suffocation will result.

* Earl Schneider and Dr. Leon F. Whitney, The Complete Guide to Tropical Fishes (New York: Thomas Nelson & Sons, 1957), pp. 111-118.

Water temperature must be kept as constant as possible during shipment. There was some agreement among those interviewed and available literature that the maximum allowable variation in temperature is between 60° and 80°F.* All agreed that sudden temperature variations are very damaging to marine fish.

Most dealers feel that the above-mentioned factors could best be controlled if fish were shipped in filtered sea water placed in clean plastic bags inside insulated containers. It was felt that water should constitute only from one-fourth to one-third of the volume of each container. The remaining volume to be filled with pure oxygen.

As to the question of how many fish can be shipped per container or per gallon of water, answers vary greatly. Much depends upon the size and activity of the fish. Oxygen consumption is not as great for two one-inch fish as it is for one two-inch fish. Consumption is also not as great for lethargic fish as it is for active fish. Each type of fish shipped demands a different density per container. Most dealers indicate that about fifty of the common Blue Damsel fish could be shipped in a ten gallon container enclosing three gallons of water and the remaining space filled with oxygen.

It is important not to inflate the bags too much with oxygen because the air pressure on the aircraft fluctuates and could cause a bag to deflate if tightly inflated.

* Herbert R. Axelrod and Dr. Leonard P. Schultz, Handbook of Tropical Aquarium Fishes (New York: McGraw-Hill Book Company, Inc., 1955), pp. 94-98.

C The temperature requirements could vary with different species. Water temperature requirements for one species might not be suitable for another species. In general, many species could be handled well in water equal to early morning temperatures.

The shipping container should be marked "Live Fish - Keep From Excessive Heat And Cold." The recipient should always be notified in advance as to time and place of arrival; otherwise loss may result.

MARKETS

This report contains the names and addresses of several potential buyers. Generally, wholesalers are always interested in fresh new sources. It would probably be best to contact several and determine if they are interested in a trial shipment.

It is suggested that negotiations be held directly with the aquarium. Prices on tropical marine fishes are subject to considerable fluctuation, and depend upon who is selling and who is buying. Some of the factors affecting price are prompt availability on request, guarantee that the specimens arrive in good condition, and adaptability of the species to aquarium conditions. Unusual, rare, and spectacular fish bring higher prices, although many aquariums are reluctant to pay a high price for "unusuals" whose feeding habits and life requirements are little known, making the purchase of these a greater risk for the consignee.

Since most large aquariums have literature available on fish species found in specified areas, they may either furnish a list of desired kinds, or else may arrange to purchase a general assortment. In any case, it will be necessary for the collector to familiarize himself with the common or native names and the correct scientific names for the local species for use in correspondence.

Importation of tropical fish into the United States is regulated by entry requirements administered by the Bureau of Sport Fisheries and Wildlife, Department of the Interior. For details, concerning these requirements, contact the Director, Bureau of Sport Fisheries and Wildlife, Department of the Interior, Washington, D.C. 20240.

THE JAPANESE MARKET

Mr. Clinton E. Atkinson, Regional Fisheries Attache for the American Embassy in Tokyo, has stated that, as shown below, the market in Japan for live aquarium fish (both fresh water and salt water) reached a peak in 1967 for quantity and in 1969 for value. The popularity of aquarium fish, especially salt water tropical fish, has been declining over the past three years in Japan (1972 has been estimated to be about 20% below 1971). This decline has also been confirmed in conversations with local aquarium fish dealers.

<u>Year</u>	<u>Table II</u>	
	<u>Quantity</u> (IN METRIC TONS)	<u>Value</u> (\$1,000)
1966	93	1,663
1967	114	2,583
1968	106	3,409
1969	105	3,648
1970	76	2,015
1971	61	1,962

Because of the almost unlimited variety of fish used for aquariums and the broad range of prices reflected in the above statistics, the average price per pound would have little meaning. However, based both on these statistics and trade sources, prices have about doubled in the six year period (1966-1971) and are still increasing. For reference, at the present time, the Tokyo Aquarium Company pays from 13¢ to \$1.67 per fish FOB Okinawa. About ten species of marine tropical fish are being used in aquaria at present: Butterfly fish (Pomacanthus, Forcipiger, Chaetodon, etc.), Bream-type fish (Pomocentrus, Amphiprion, etc.), and Trigger fish (Oxymonacanthus, Stephanolepis, etc.).

Two of the larger Japanese importers of tropical marine fish are:

Tokyo Aquarium
457, Tabata-machi, Kita-ku
Tokyo, Japan

Azabu Aquarium
3-2, Nishi Azabu, Minato-ku
Tokyo, Japan

The Japanese duty at the present time is five percent.

FINANCIAL DATA

TABLE 3

ESTIMATED LIVE FISH CATCH (ASSUMED)

ITEM	DAILY	WEEKLY	MONTHLY	ANNUAL
Assorted live salt water tropical fish	100	500	2,100	25,200

TABLE 4

ESTIMATED AVERAGE VALUE BEFORE
MARKETING COST DEDUCTIONS AND DEATH LOSS (ASSUMED)

ITEM	DAILY	WEEKLY	MONTHLY	ANNUAL
Tropical Fish @ \$1.50 each (FOB Truk)	\$150	\$750	\$3,150	\$37,800

TABLE 5

ESTIMATED COST OF EQUIPMENT

ITEM	ESTIMATED COST	ACTUAL COST
Thermometers	\$ 10.00	
Holding Tank Fixtures*	500.00	
Nets	100.00	
Reference Books	50.00	
Aeration Pumps & Piping (Plastic)	600.00	
Scuba Gear	800.00	
<u>T O T A L:</u> \$2,160.00		

* NOTE: Flexible fish tanks can be obtained from:

National Marine Plastic, Ltd.
 22-1 Omori-kita, 1-chome
 Ota-ku, Tokyo, Japan

TABLE 6

ESTIMATED COST OF FURNITURE AND
FIXTURES, BOAT, VEHICLE, COM-
PRESSOR AND GENERATORS

ITEM	ESTIMATED COST	ACTUAL COST
Desk, Tables, Chairs (used)	\$300.00	
Filing Cabinet (used)	50.00	
Office Machines	200.00	
Vehicle (used)	1,000.00	
Boat (new)	800.00	
Boat Motor (2-new)	750.00	
Compressor*	1,300.00	
TOTAL	\$4,400.00	

* Compressor Station - consisting of a Cyclone Compressor, 2 high pressure storage tanks with valve, oxygen tee, oxygen pigtail, high pressure check valve assembly, commercial filler and gauge, and 5' high pressure hose from U.S. Divers Company, Santa Ana, California.

TABLE 7

ESTIMATED ANNUAL COST OF SUPPLIES

ITEM	ESTIMATED COST	ACTUAL COST
Plastic Liners (.0002" thickness in 1,000 price lots @ \$0.105 each) <u>1,000</u>	\$100.00	
Containers (10 gal. in 1,000 price lots at \$1.67 each) <u>500</u>	850.00	
Feed (shrimp)	500.00	
Fuel (vehicle and boat at \$0.32 per gallon + \$0.50 for qt. of oil = \$3.10 p/d x 252 days)	800.00	
*Oxygen (244 cu.ft. K cylinder at \$0.06 per cu.ft. = \$14.60 C.I.F. x 24)	350.00	
Office Supplies and Labels	<u>200.00</u>	
TOTAL	\$2,800.00	

* See Mr. Callaghan's remarks relative to density of fish and Oxygen consumption on page 9.

NOTE: Plastic bags - Bradley's Plastic Bag Company, Downey, California

Styrine Lined Corregated Containers - Tharco Precision Inc.
Hegenberger Road,
Oakland, California

Oxygen - A.G. Pond Company, San Jose, California

TABLE 8

ESTIMATED PROJECT CAPITAL COST

ITEM	ESTIMATED COST	ACTUAL COST
Office Space.	leased	
Building and Tanks (4,100 gallon cap)	\$5,000	
Equipment C.I.F.	2,160	
Furniture, Fixtures, Boat, Vehicle, etc.	4,400	
Installation of Equipment	200	
Supplies	2,800	
Contingencies (10%)	<u>1,450</u>	
TOTAL (rounded)		\$16,000

TABLE 9

ESTIMATED MANPOWER REQUIREMENTS

OCCUPATION	NUMBER REQUIRED	MONTHLY COST	ESTIMATED ANNUAL COST	ACTUAL COST
Manager (also performs accounting marketing, & diving)	1	\$600.00	\$7,200	
Diver (75¢/hour at 5 hours/day)	<u>1</u>	<u>77.60</u>	<u>932</u>	
TOTAL	2	\$677.60	\$8,132	

Scuba diving should not be performed by a single diver.

Consideration should be given to paying fish collectors according to the number of fish they collect rather than a flat hourly wage.

TABLE 10

ESTIMATED ANNUAL UTILITY EXPENSE

ITEM	DESCRIPTION	ESTIMATED ANNUAL COST	ACTUAL COST
Water	---	-0-	
Telephone/Cable	---	\$500	
Electricity*	Only for lights & aeration pump. Report assumed water would be changed manually.	200	
TOTAL		\$700	

* NOTE: If provided by the district, electric charges are \$0.03 per KWH, thus 36 KWH @ \$0.03 KWH x 24 hours = \$25.92 per day x 365 days = \$9,461. Frequent power outages may require a generator to operate water filter and pumping system.

Actually, this may be an unnecessary expense when one considers the cost of changing water either by purchasing or generating electricity when in such close proximity to the sea. It would seem the water could be changed at less frequent intervals by hauling water in large plastic tanks or by hand pumps in which case the annual cost of lights only would be the minimum charge or about \$20 per year.

If the company-owned generators are used, the following costs will apply to an Oran Diesel Generator: (1) Fuel per hour - \$0.07; Miscellaneous Costs per hour - \$0.08; Total - \$1.06 per hour x 24 hours = \$25.44 per day x 365 days = \$9,285.00. The C.I.F. price for one 40 KW generator is \$6,000. Two would be required, one for stand-by.

MARKETING LIVE TROPICAL FISH

CHART TO CALCULATE ANNUAL NET PROFIT
Based On Specified Catch & Average Fish Prices

F.O.B. Truk Lagoon

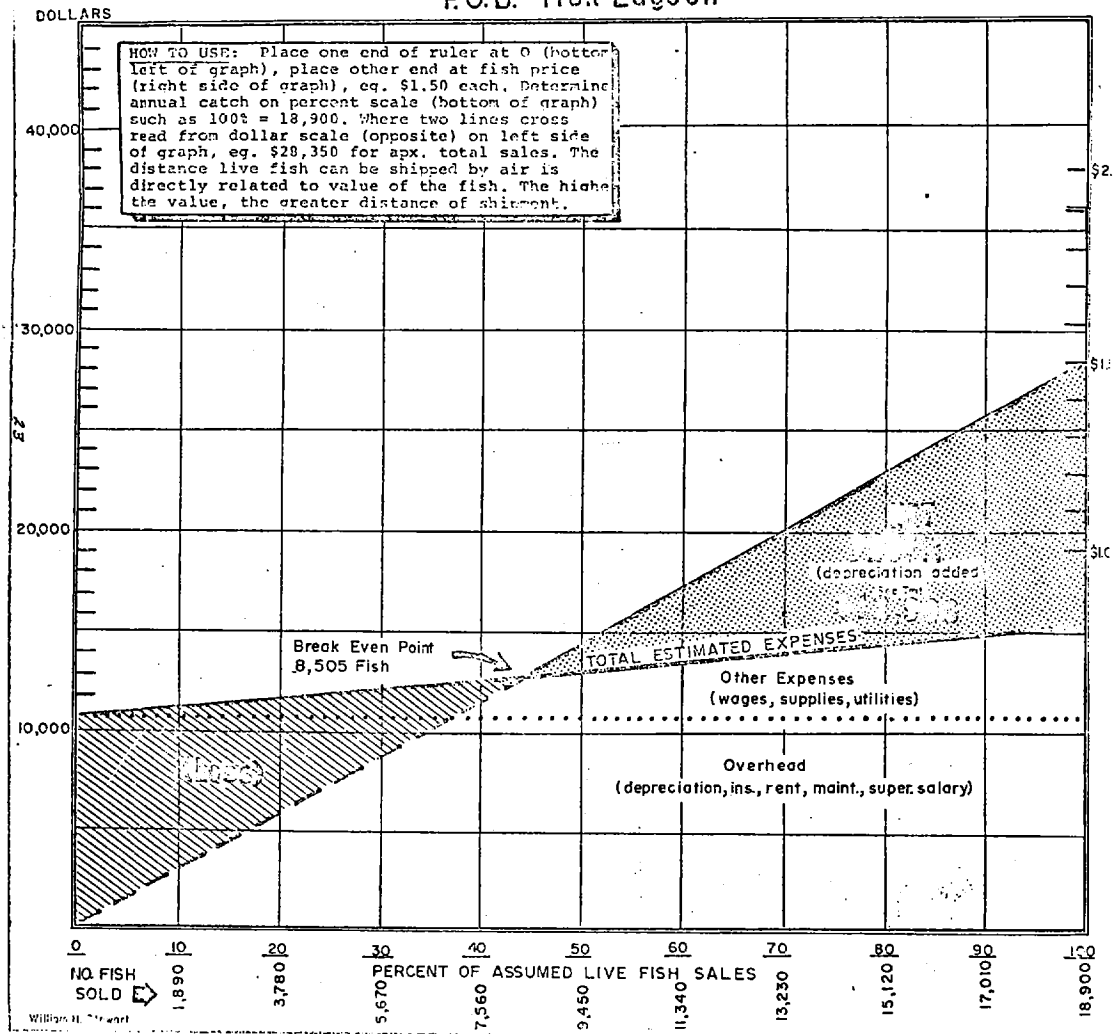


TABLE 11

ESTIMATED ANNUAL DEPRECIATION*

ITEM	COST	YEARS LIFE (no salvage)	ANNUAL COST
Building & Tanks	\$5,000	15	\$333
Equipment (less scuba gear & nets)	1,160	15	77
Scuba Gear & Nets**	1,000	3	333
Furniture & Fixtures	350	15	23
Office Machines	200	5	40
Boat	800	10	80
Motor	750	5	150
Vehicle (used)	1,000	2	500
Compressor	<u>1,300</u>	5	<u>260</u>
TOTALS (rounded)	\$11,550		\$1,800

* The decrease in value due to wear and tear through use, action of the weather or obsolescence. If not placed in a reserve account for replacement, this sum may be added back to earnings since the tax structure does not allow deductions for business expenses.

** A Double Hooker Compressor - 100 psi constant air pressure with mask, harness, and 50' of hose could possibly be used as a substitute. Price \$360.

TABLE 12

ESTIMATED ANNUAL OVERHEAD*

ITEM	ESTIMATED COST	ACTUAL COST
Depreciation	\$1,800	
Insurance (on divers only, fish not insurable)	200	
Rent (land)	600	
Debt Service	-0-	
Maintenance (10% of project cost less supplies)	1,150	
Supervisory salary (administrative expense)	<u>7,200</u>	
TOTAL	\$10,950	

* Overhead is a fixed cost which does not necessarily increase or decrease.

TABLE 13

ESTIMATED ANNUAL COST OF PRODUCTION*

ITEM	ESTIMATED ANNUAL COST	ACTUAL COST
Overhead	\$10,950	
Supplies	2,800	
Manpower (less supervisory)	932	
Utilities	700	
Raw Material (fish)	<u>-0-</u>	
TOTAL (rounded)	\$15,400	

* The value of the product, in this case fish, as depending upon the amount of labor, materials, and production efficiency to procure the product.

TABLE 14

ESTIMATED WORKING CAPITAL REQUIREMENTS

ITEM	PERIOD OF TIME	ESTIMATED COST	ACTUAL COST
Supplies	2 months	\$ 466	
Overhead	2 months	1,825	
Manpower (less supervisory)	2 months	154	
Contingencies (10%)	---	<u>245</u>	
	TOTAL (rounded)	\$2,700	

TABLE 15

SUMMARY OF THE ESTIMATED ANNUAL INCOME AND EXPENSES
PER FISH FOR COLLECTING, HOLDING, AND TRANSPORTING
TRUK LAGOON TO U.S. WEST COAST

(Based on 25,200 fish - Average value FOB \$1.50 - on income from 18,900 fish)*

ITEM	EXPENSE	
Depreciation	\$0.07	
Insurance	0.01	
Rent	0.02	
Maintenance	0.05	
Supervisory Salary	<u>0.28</u>	
Total Overhead		\$0.43 (non-add)
Supplies	0.11	
Wages	0.037	
Utilities	0.028	
Taxes	<u>0.0089</u>	
Total Estimated Expenses		\$0.62
Death Loss per Fish		0.38
Profit for Micronesian		<u>0.50</u>
Average FOB Fish Price		\$1.50
Shipping Costs (Truk to West Coast)**		<u>1.30</u>
TOTAL CIF PRICE/U.S. WEST COAST		\$2.80

The above figures are based upon the assumptions contained in this report.

* 25% Death Loss from which no income is derived.

** Buyer's Expense.

COMPUTING AIR FREIGHT CHARGES

Tropical fish must be transported in a pressurized cabin at a temperature between 70°-80°F. Air Micronesia has stated that they can have the fish at their destinations within 48 hours from the time the fish depart Truk.

Table 16

ESTIMATED AIR FREIGHT CHARGES
PAID BY PURCHASER OF FISH

FROM TRUK TO	DISTANCE MILES	CHARGE PER LB.	CHARGE PER 100 LBS.
Honolulu	3,075	\$0.55	\$ 54.39
Los Angeles	5,375	1.26	111.39
Chicago	7,000 (apx)	1.48	128.39
New York	8,000 (apx)	1.63	134.19
Tokyo	1,840	0.96	73.99
Source: Air Micronesia - August, 1972			

Estimating 50 fish per container (25,200 fish ÷ 50) = 540 styrofoam containers per year or 42 containers shipped per month. Each container measures 17" x 17" x 19" or 5,491 cubic inches ÷ 12" x 12" x 12" or 1,728 cubic inches = 3.2 cubic feet per container. Salt water weighs 64.0 pounds per cubic foot. Fish weigh estimated at one pound per container for total water/fish weight of 65 pounds ÷ 3.2 cubic feet = 20.6 pounds per container (64 x 3.2 = 204.8 + 1 = 206 lbs.)

Since the container will be only one fourth full of water

(206 lbs $\div$ 4), 51.5 pounds will be the average weight per shipped container.

The freight charges to Los Angeles are estimated to be \$1.25 per pound x 51.5 pounds or \$64.38 per container containing 0.8 cubic feet of water and 50 fish. It is customary in this business for the buyer to pay air freight charges.

It has been recommended that any shipper of live tropical fish ship only on direct flights so guaranteeing live delivery. The buyers' telephone numbers should be included on every shipping carton along with a note instructing the carrier to call the buyer immediately upon arrival of the shipment. The shipper of fish should inform the buyer when the shipment is due, flight number, etc., so that the buyer can meet the plane at its destination.

APPENDIX I

What You Should NOT Do

- DON'T: OVERFEED.
- DON'T: OVERCROWD the tank with fish, especially a newly set-up one.
- DON'T: Use too small an air pump - the bigger the better.
- DON'T: Allow any metal to be in contact with the water.
- DON'T: Stop aeration for more than a few minutes.
- DON'T: Overlook monthly 25% partial water changes.
- DON'T: Add extra units of trace elements as a substitute for partial water changes.
- DON'T: Use too little filtrant, or have it too coarse (no physical filtering), or too fine (clogs and filtering ceases).
- DON'T: Subject fish to sudden changes of any kind, e.g. temperature, pH, light, salinity, handling, etc.
- DON'T: Fuss with your salt water fish - they are better off being left alone.
- DON'T: Keep your aquarium tank uncovered - causes excessive evaporation, expensive fish may jump out, etc.
- DON'T: Treat sick fish in your main aquarium tank. Use a separate one - you could kill other healthy fish, stop all biological action in your filter. Kill off all invertebrates (copper, for example, is deadly poisonous to them), etc.
- DON'T: Replace water that has evaporated from your tank with salt water. Replace it with fresh water (salt does not evaporate.)

APPENDIX II

Additional Information

BOOKS

- Axelrod, Herbert R., and Dr. Leonard P. Schultz. Handbook of Tropical Aquarium Fishes. New York: McGraw-Hill Book Company, Inc., 1955.
- Axelrod, Herbert R., and William Vorderwinkler. Encyclopedia of Tropical Fishes. Jersey City, New Jersey: T.F.H. Publications, Inc., 1962.
- Braker, William P., and Ed L. Fisher. Marine Tropicals. Jersey City, New Jersey: T.F.H. Publications, Inc., 1966.
- Force, Roland W. Leadership and Cultural Change in Palau. Chicago: Chicago Natural History Museum, 1960.
- Knowles, Francis G.W. Freshwater & Salt-water Aquaria. London: George G. Harrap & Co., Ltd., 1956.
- Schneider, Earl, and Dr. Leon F. Whitney. The Complete Guide to Tropical Fishes. New York: Thomas Nelson & Sons, 1957.
- Axelrod, H.R. and Cliff W. Emmens. 1968. Exotic Marine Fishes. T.H.F. Publications, Inc., Jersey City, N.J. 608 p. illus.
- Axelrod, W.R. and Wm. Vorderwinkler. 1963. Salt-Water Aquarium Fish. T.F.H. Publications, Inc., Jersey City, N.J. 352 p., illus.
- Clark, John R. and Roberta L. Clark, Editors. Sea-Water Systems for Experimental Aquariums; A collection of Papers. T.F.H. Publications, Inc., Jersey City, N.J. 1962 p. illus.
- O'Connell, R.F. 1969. The Marine Aquarium for the Home Aquarist. The Aquarium Press, Great Outdoors Pub. Co., St. Petersburg, Fla. 158 p., illus.
- Ravensdale, T. 1967. Coral Fishes, Their Care and Maintenance. The Pet Library, Ltd., New York. 255 p. illus.
- Simkatis, Helen. 1958. Salt-Water Fishes for the Home Aquarium. J.B. Lippencott Co., Philadelphia.
- Straughan, Robert P.L. 1959. The Salt-Water Aquarium in the Home. Barnes Pub. Co., New York.

C Valenti, Robert J. 1969. The Salt-Water Aquarium Manual.
Aquarium Stock Co., Inc., New York and Los Angeles.

Waters, Barbara, and John Waters. 1967. Salt-Water Aquariums.
Holiday House, New York. 161 p., illus.

MAGAZINES AND DIRECTORIES

Tropical Fish Hobbyist Magazine

Write: TFH Publications
245 Cornelison Ave.
Jersey City, New Jersey

The Marine Aquarist

P. O. Box 362
Bayside
New York 11361

Annual Directory to the Pet Industry

Pet Industry Magazine
P. O. Box 33
Jersey City, N.J. 00703

Pets/Supplies/Marketing

P. O. Box 6109
Duluth
Minnesota 55806

Pet Shop Management's Directory of Pet Product Suppliers and Buyer's Guide

(Includes 1,000 manufacturers, wholesalers, and livestock wholesalers.)

Pet Shop Management Inc.
P. O. Box 109
Fond du Lac, Wisconsin
54936

The Aquarium Magazine

87 Rte. 17
Maywood, N.J.
07607

Pet Dealer

Commercial Circular Co.
80 Fifth Avenue
New York, N.Y.
10011

ASSOCIATIONS

Florida Tropical Fish Industries
P. O. Box 4517
Fort Lauderdale, Florida
33304

International Federation
of Aquarium Societies
5334 Blow Street
St. Louis, Mo. 63109

American Assn. of Zoological
Parks & Aquariums
Olgebay Park
Wheeling, W. Virginia
(for very unusual species)

APPENDIX III

POTENTIAL BUYERS

Long Beach Fisheries, Inc.
1406-08 Cherry Avenue
Long Beach California 90813

World Wide Aquarium Traders, Inc.
4074 Lincoln Boulevard
Venice, California 90291 (Importers)

Global Fish West Inc.
13012 Athens Way
Los Angeles, California 90061 (Importers)

Ozark Fisheries Inc.
Star Route
Stoutland, Missouri

Beldt's Aquarium
Box 146
Hazelwood, Mo. 63042

Aquarium Stock Company Inc.
31 Warren Street
New York, N.Y.

Blue Atoll Products
615 Old Country Road
San Carlos, California 94070

Mr. Phillip Bellin
Reef Fish International
P. O. Box 231
Holualoa Kona, Hawaii 96725

Atlantis Aquarium
2670 Coney Island Avenue
Brooklyn, N.Y.

Marine Imports Inc.
1017 Branster Road
San Carlos, California

TROPICAL FISH SUPPLIERS

(Write for catalog of fish available)

Global Fish West, Inc.
13012 Athens Way
Los Angeles, Calif. 90006

Marine Imports of California
1701 Gum Street
San Mateo, California 94402

World Wide Aquarium Traders
4074 Lincoln Blvd.
Venice, California 90291

Western States Wholesale Aquarium
3891 Forest Street
Denver, Colorado 80207
(Instant Ocean Distributor)

Connecticut Tropical Fish Inc.
146-156 High Street
Milford, Conn. 06460
(Instant Ocean Distributor)

Atlantic Marine Life
12295 N.W. Second Street
Miami, Fla. 33144

Global Fish Imports, Inc.
613 West 27th Street
Hialeah, Fla. 33010

Gulf Specimen Company
P. O. Box 237
Panacea, Fla. 32346
(Instant Ocean Distributor)

Interfish
P. O. Box 7321
Miami, Fla. 33155
(Instant Ocean Distributor)

Marine World
P. O. Box 455
Big Pine Key, Fla. 33043

Roberts Fish Farm
6611 S.W. 99 Ave.
Miami, Fla. 33165

Sealife Unlimited, Inc.
270 West 21st Street
Hialeah, Fla. 33010

Silent World
14625 N.W. Seventh Avenue
Miami, Florida 33168

South Miami Tropical Fish
7100 S.W. 97th Avenue
Miami, Florida 33143

Atlas Pet Supply
1505 West Market Street
Indianapolis, Ind. 46222
(Instant Ocean Distributor)

The Aquarium
4100 Aquarium Place
Baltimore, Maryland 21215

Marine Research Associates
Box 7
West Point, Mass. 02791

Red Sea Horse Imports
17247 West McNichols
Detroit, Mich. 48235

Midwest Aquatic Center
P. O. Box 194
103 South Main
Austin, Minn. 55912

Crystal Marine Aquarium
43 Shadowlawn Drive
Old Bridge, N.J. 08857

Millbrook Farm, Inc.
P. O. Box 33
118 Highway 17
Upper Saddle River, N.J. 07450

Coral Reef
3099 Emmons Avenue
Brooklyn, N.Y. 11235

C Tropical Enterprises, Inc.
91 Delaware Ave.
Patterson, N.J.
(Instant Ocean Distributor)

Coral Seas Trading Co.
2728 Gerritsen Ave.
Brooklyn, N.Y. 11229

Emark Tropical Imports
2508 East 63rd Street
Brooklyn, N.Y. 12234

Favors Aquarium & Pet Supply
251-61 Jamarca Ave.
Bellrose, N.Y. 11426

Syracuse Aquarium & Pet Supply
343 West Jefferson
Syracuse, N.Y. 13202
(Instant Ocean Distributor)

C Chester County Aqua-Pet
36 West Lancaster Ave.
Paoli, Penn. 19301
(Instant Ocean Distributor)

House of Tropical Fish
3316 South Jones
Fort Worth, Texas 76110
(Instant Ocean Distributor)

Great Lakes Aquatics
2111 East Norse Avenue
Cudahy, Wisconsin 53110
(Instant Ocean Distributor)

Coral Island Marine Tropicals
P. O. Box 114
Culbra, Puerto Rico 00645

Aquarium Systems Inc.
33208 Lakeland Boulevard
Eastlake, Ohio 44094

Hawaiian Marine Imports
465 Town & Country Village
Houston, Texas 77024

Marine World
3452 Devon Avenue West
Lincolnwood, Ill. 60646

Marine Tropical Imports
9807 Fourth Ave.
Brooklyn, N.Y. 11209

Marine Tropical Fish
12438 Magnolia Blvd.
N. Hollywood, Calif. 91607

Salt & Sea Enterprises
P. O. Box 302
Kealahou, Hawaii 96750

Coral Reef Marine Retail Store
San Diego, California

International Marine Imports
San Diego, California

Mr. Chuck Watts
Tropical Imports Co.
1054 Aviation Blvd.
Hermosa Beach, Calif. 40254

C
Chaung Hing Import & Export Comapny
14 HAU Wong Road
First Floor
Kowloon City, Kowloon
Hong Kong

Ngai Hang Company
K.C.P.O. Box K 4379
Kowloon, Hong Kong

Yeung Brothers Aquarium
212 Ocean Terminal
Kowloon, Hong Kong

TABLE 17

CHARACTERISTICS OF TROPICAL FISH OUTLETS
SAMPLED IN THE BAY AREA DURING OCTOBER, 1968

Mr. Paul Callaghan, Marine Biologist, contacted a number of U.S. West Coast tropical fish outlets in October, 1968. From those businesses that stocked tropical fish, the following table summarizes prices.

NAME & ADDRESS OF OUTLET CONTACTED	PRICES OF COMMON FISH IN STOCK					
	Butter fly Fish	Sea Horse	Blue Damsel	Lion Fish	Percula Clown	Tomato Clown
Alameda Pet Shop 2526 Santa Clara Ave. Alameda, California		3.50	4.95		4.95	
Andy's Pet Shop 1280 The Alameda San Jose, California	(Does not now stock, but interested)					
Aqua-Serve of Concord 1839 East Concord, California		3.95		23.00	3.98	14.98
Aqua House 20332 Meebird Avenue Hayward, California	15.00					
Aqua-Wood Aquarium 384 St. Francis Daly City, California	(Does not now stock, but interested)					
Bangkok Aquarium Tropicals 916 S. Bascom San Jose, California	10.95		4.95	24.95	4.98	14.98
	(Long experience in marine tropicals)					
Dolphin Aquarium 1652 W. Campbell Ave. Campbell, California	22.98		3.49	24.95	3.98	14.98
	(Long experience in marine tropicals)					
Mei Lan Aquariums 6625 Foothill blvd. Oakland, California	8.00			25.00		
	(Long experience in marine tropicals)					
Net-tai-Gyo Tropical 818 San Pablo Albany, California	15.00	1.50	3.75	14.95	4.00	
Nippon Goldfish 102 Town & Country Palo Alto, California	14.98	3.98	3.98	14.95	4.98	
	(San Francisco importer)					
Tropicana Pet Shop 1291 University Berkeley, California	12.95	4.50	3.95	16.95	3.95	7.95
Western Enterprises 1423 Solano Avenue Albany, California			6.00		6.00	10.00

APPENDIX IV

LIST OF MAJOR PUBLIC AND PRIVATE AQUARIUMS IN THE UNITED STATES AND CANADA, 1972

Public Aquariums:

California, La Jolla:

T. Wayland Vaughan Aquarium

California, San Francisco:

Steinhart Aquarium

Canada, Quebec:

Quebec Aquarium

Canada, Toronto:

Toronto Aquarium

Canada, Vancouver:

Vancouver Public Aquarium

District of Columbia:

National Aquarium

Hawaii, Honolulu:

Waikiki Aquarium

Illinois, Chicago:

John G. Shedd Aquarium
Seven Seas Panorama
(Brookfield Zoo)

Louisiana, New Orleans:

Audubon Park Aquarium

Massachusetts, Woods Hole:

Woods Hole Aquarium

Michigan, Detroit:

Belle Isle Aquarium

New York, Brooklyn:

New York Aquarium

New York, Buffalo:

Buffalo Aquarium

Ohio, Cincinnati:

Lily Ackerland Fleischmann
Memorial Aquarium

Ohio, Cleveland:

Cleveland Public Aquarium

Ohio, Columbus:

Columbus Zoo Aquarium

Ohio, Toledo:

Toledo Zoo Aquarium

Texas, Dallas:

Dallas Aquarium

Texas, Ft. Worth:

James R. Record Aquarium

Texas, San Antonio:

San Antonio Aquarium

Washington, Tacoma:

Port Defiance Aquarium

Private Aquariums:

California, Los Angeles:	Marineland of the Pacific
California, San Diego:	Sea World
Canada, Calgary:	Calgary Aquarium
Florida, Ft. Walton Beach:	Gulfarium
Florida, Key West:	Key West Aquarium
Florida, Marineland:	Marineland of Florida
Florida, Miami:	Miami Seaquarium
Florida, St. Petersburg:	Aquatarium
Hawaii, Honolulu:	Sea Life Park
Massachusetts, Boston:	New England Aquarium
Massachusetts, West Brewster:	Sealand of Cape Cod
New York, Niagra Falls:	Niagra Falls Aquarium
Ohio, Cleveland:	Sea World
Pennsylvania, Pittsburg:	Pittsburg Aqua Zoo

NOTE: This list may omit some aquariums which have recently opened or are now in the process of construction. For more complete information on existing aquariums, the following references may be consulted.

Hoff, William. 1966. Zoos and Aquariums in the Americas.
An Official Publication of the American Association
of Zoological Parks and Aquariums, Oglebay Park,
Wheeling, West Virginia.

Zukeron, Karen, Chas. DeLuca, and Spencer Tinker.
Directory of Public Aquaria of the World. Waikiki
Aquarium, University of Hawaii, 2777 Kakakua Avenue,
Honolulu, Hawaii.

APPENDIX V

MANUFACTURERS AND SUPPLIERS OF
AQUARIUM ACCESSORIES

Nippon Sisei Sangyo Co. Ltd.
1 Nihombashi Kayaba-cho 1-chome
Chuo-ku, Tokyo, Japan

Jewel Aquarium
5005 W. Armitage
Chicago, Illinois

New Rochelle Mfg. Co.
207 1/2 Washington Avenue
New Rochelle, N.Y.

Danyo Sales Co.
678 Washington
Lynn, Mass.

Wm. Tricker Inc.
Independence, Ohio

Keihin Choju Trading Co. Ltd. (live porpoise)
10307 Matsukage-cho, Naka-ku
Yokohama, Japan

APPENDIX VI

THE VALUE OF A PRE-INVESTMENT FEASIBILITY ANALYSIS

The most important art in business development work is detecting unsound projects which may be premature for the level of development of the Trust Territory.

Major characteristics of any project that is sound is that, under normal conditions, it should have an advantage in costs compared to an outside competitor. At least, it must have as favorable a "production-plus-delivery" cost as its competitors. The items which give a project production cost advantages are:

- low cost and more efficient labor
- advantage in market accessibility
- modern, efficient equipment
- a large scale of operation thereby permitting economy of scale
- low interest rate on financing

When a project in the Trust Territory does not have any of the cost advantages mentioned above, compared to existing competitors, why market the product at a higher cost than can be obtained by the buyer from another source?

Any sound project which as a market and cost advantage described above, will have sufficiently high commercial profitability to attract investors and the problem of financing can be solved.

Feasibility studies must be objective with emphasis placed on costs. Given accurate information on markets, prices, wages, etc., the commercial profitability is not difficult to

C estimate. It should be clearly understood, however, that any measure of the profit potential of a project is nothing more than an elaborate combination of estimates. The availability of statistics in the Trust Territory and limitations thereof, should lead no one to accept them without realizing they are subject to a wide margin of error. The calculations in this report rest on three estimates:

1. Estimated cost of the project
2. Estimated marketing cost
3. Estimated earnings from sales

To the extent that any of the above is in error, then the final estimated net profit (or loss) will be wrong.

C Hazardous as it is, it is an improvement over the intuitive method which some employ without any attempt to measure the factors involved. It is not always essential to have a specialist in a particular business to undertake an initial economic analysis, since the requirements of the business can be researched in some detail. The task is to match the market demand with what is known for the business to produce economically and to relate capital and operating costs to potential earnings.

APPENDIX VII - TABLE 18

SUMMARY OF ESTIMATED COST FOR COLLECTING, HOLDING AND SHIPPING FISH

	No.Fish Period Value FOB cost/fish	100 Day	500 Week	2,100 Month	25,200 1 Year
Collecting & Holding	\$1.12	\$112.	\$562.	\$2,362.	\$28,350.
Overhead:					
Depreciation	0.07	7.14	35.71	150.	1,800.
Insurance	0.008	0.79	3.77	16.66	200.
Rent	0.0238	2.38	11.90	50.	600.
Maintenance	0.0456	4.56	22.82	95.83	1,150.
Supervisory Salary	0.286	28.57	142.86	600.	7,200.
TOTAL	0.43	43.45	217.26	912.50	10,950.
Supplies	0.11	11.11	55.55	233.33	2,800.
Wages	0.037	3.70	18.49	77.66	932.
Utilities	0.028	2.77	13.88	58.33	700.
Taxes	0.0089	0.89	4.44	18.66	224.
Total Estimated Cost	0.62	61.92	309.64	1,300.50	15,606.
Profit for Micronesian	0.50	50.08	252.36	1,061.50	12,744.
Shipping Cost Truk/U.S. (West Coast)	\$1.30	\$129.77	\$648.88	\$2,725.33	\$32,704

FAMILY	NAME	PRICE PER LBS. ACCORDING TO SIZE				COMMENTS
		Small Up to 2-1/2"	Medium 2-1/2" - 3"	Large 3" - 3-1/2"	Shore size 3-1/2" on up	
Zanclus (Moorish Idol)	Zanclus Canescens "Moorish Idol"	.50	1.00	1.75	2.25	Acclrod P. 93. Ravensdale P. 246. Good supply ... Red eaters ... There are small ones all around but are hard to catch in the daytime ... catch just before shipping ... eat green algae best.
Heniochus	Heniochus Acuminatus "Heniochus"	Up to 1-1/2"	1-1/2" - 2-1/2"	2-1/2" - 3-1/2"	3-1/2" on up	Acclrod P. 93. ... Poor supply ... Good eaters ... both these and the Moorish Idol can be caught in the "super" nets or suji nets.
		.25	.75	1.50	2.50	
Carnegiidae (Ulu)	Gastrophodon Speciosus "Yellow Ulu"	Up to 1-1/2"	1-1/2" - 3"	3" - 4"	4" on up	The body is bright yellow with 12 dark bands down it ... good eater and will eat most anything you should feed it while it is in the pen.
		.75	1.50	1.75	2.25	
Coral	Mushroom Type	Up to 6"	6" - 10"	10" - 12"	12" on up	Soak all coral for at least 12 hours ... Hose off and let dry in sun until ready for shipping ... of course pack carefully.
		.25	.50	1.00	1.50 plus .25 per inch above 12 inches	

APPENDIX VIII

SALT WATER TROPICAL FISH - MAREO LAGOON VARIETY

FAMILY	NAME	PRICE PER FISH ACCORDING TO SIZE (INTERPOLATED 1970)				COMMENTS
		Small Up to 1"	Medium 1" to 2"	Large 2" - 3.1/2"	Shoosize	
Amphiprion (Clowns)	Amphiprion bicinctus "Two Stripe"	.50	1.00	1.25		(Including where fishes picture can be found is - Axelrod P. 223, etc.)
	A. ephippium "Tomato Clown"	.35	.50	1.00		
	A. periderion "Shank Clown"	.75	1.10	1.45		
	"Pink Clown"					
	A. xanthurus "Three Stripe"	.50	1.00	1.25		
Acanthuridae (James & Surgeons)	Acanthurus glaucopterus	Up to 3"	3" - 4"	4" - 5"	5" or up	Axelrod P. 246. These are all over in fair to good good supply ... hard to catch. Colors are: dark with dorsal and anal fins trimmed with blue ... yellow margins around main body areas ... Fair eater ... prefer shrimp. Pair supply but very hard to catch. Axelrod P. 236. Lives in 5' to about 20' ... Catch in snijl net is the easiest way. Good eaters. Axelrod P. 236. Good eaters.
	A. lineatus	1.50	1.75	2.00		
	Naso lituratus "Naso Tang"	1.25	1.50	1.75		

SOURCE: Mr. Tony De Arum
Majuro.

ENTRY	NAME	PRICE PER FISH ACCORDING TO SIZE					COMMENTS
		up to 3"	3" - 4"	4" - 5"	5" on up		
Acanthuriidae (names of Surgeons)	Zebrafish "Yellow Tang"	1.25	1.50	1.75			Good supply ... hard to catch. Axelrod P. 248 Good eater ... will go into Suji net ... lives in shallows to about 25 ft.
Acanthuridae "Scittin Tang"	Z. Velliferum	.50	.75	1.50			Axelrod P. 249 ... Fair supply ... Good eaters ... lives in shallows to around 20 ft.
Pajistidae (Triggers)	Oxymonocanthus Longirostris Filefish "Orange Spot Filefish" Rhincanthus Aculcaetus "Ikanu"	up to 2"	2" - 4"	4" - 5"	5" on up		Axelrod P. 310 ... assume they are in poor supply ... Mostly in shallows ... Easy to catch in "bag" type net. ... Good eaters ... mostly in "small" size. Axelrod P. 169 ... in good supply from the shallows to the depths ... good feeders on anything ... keep in a separ- ate pen as they nip fins ... also ship by themselves for the same reason.
		.50	.75	1.00	1.50		
Chactodon (Butterflies)	Chactodon Auriga "Criss Cross"	.25	.50	.75	2.00		Axelrod P. 101 ... good supply ... small ones feed in shallows ... good eaters ... range from shallows to 60'.
	C. Ehippium "Saddleback"	.50	.75	1.50	3.50		Axelrod P. 112 ... good supply ... like to eat green algae. Will eat froz. or fresh brine shrimp.
	C. Falcula	.75	1.00	1.75	4.00		Ravensdale P. 196 ... Axelrod P. 103 (Falcula is correct - NOT trifasciatus as Ravensdale says). Live at 15' to 25' Good eaters.
	C. Melanotus	.75	1.00	1.75	4.00		Ravensdale P. 193. Axelrod P. 116 ... same information as C. Falcula.
	C. Meyer	1.25	1.75	2.25	4.50		Very rare - Ravensdale P. 194 - one caught at 25' (The Community Action idiot we had ate him!) Hard feeders. Like green algae. Axelrod Pgs. 117 & 108.

FAMILY	NAME	PRICE PER FISH ACCORDING TO SIZE					COMMENTS
		Small Up to 2"	Medium 2" to 4"	Large 4" to 5"	Shoosize		
Charodon (Butterflies)	C. Ornatisimus "Clown Butterfly"	.50	.75	1.10	3.50		Axelrod P.125 ... Poor supply ... hard feeders like green algae and coral polyps.
	C. Reticularis	1.25	1.75	2.25	4.50		Descriptions: Axelrod P.110. Ravensdale P.195. Caught 2 big ones at about 20 ft. ... big ones outside the reef... they are not the same fish but close to the Reticularis according to Ravensdale P.107 Bad feeders ... like green algae and coral polyps.
	C. Trifasciatus	.50	.75	1.50	3.50		Axelrod Pgs. 240-241 ... good supply in all sizes ... bad feeder ... like green algae and coral polyps.
	Megaproton Striangua	.75	1.00	1.75	4.00		Axelrod P.125 (juvenile). Ravensdale P.186 (adult) Ravensdale is incorrect in calling the fish C. Chrysurus. ... terrible eaters ... starved to death fairly easy to catch.
	"Mystery Butterfly"	.75	1.00	1.75	4.00		No pictures. Looks like C. Auriga but has a black band from the end of the dorsal to the anal fin. Poor eaters.
Charodon (Butterflies)	C. Citrinellus	Up to 1.1/2"	1.1/2" - 2.1/2"	2.1/2" - 3.1/2"	3.1/2" - 6"		Axelrod Pgs. 108, 109. Good supply ... fair eater Small ones feed in shallows.
		.25	.50	.75	2.00		
Holocentridae (Squirrelfish)	Holocentrus Diadema "Squirrelfish"	Up to 2"	2" - 3"	3" - 4"			Axelrod P.66. Good supply of small and medium ones in shallows. Nervous and fragile fish ... catch in "super" net or "bag" type net. (also Ravensdale P.206) Axelrod P.306. Same information as H. Diadema.
		.25	.50	.75			
		.25	.50	.75			

FAMILY	NAME	PRICE PER FISH ACCORDING TO SIZE					COMMENTS
		Small Up to 1-1/2"	Medium 1-1/2" - 2-1/2"	Large 2-1/2" - 3-1/2"	Shows size 3-1/2" up		
Labridae (Wrasses)	"Ceylon Wrasse" Gomphosus Varius "Bird Wrasse"	.75	1.00	1.50	1.95		Axeirod P. 189 ... good supply ... hard to catch. Can be run into suji net ... found at all depths. Good eaters ... be careful in removing from net. Axeirod Pgs. 191-192 ... male is green ... female is brown or reddish brown ... male is more popular ... mostly found in large sizes but small sizes are desirable ... hard to catch ... almost have to run into suji net ... be careful in removing from net ... so as not to damage ... good supply
		.75	1.00	1.50	2.00		
Pomacentridae (Damies)	All Pomacentrus "Blues". Dascyllus Aruanus	Up to 1"	1"-1-1/2"	1-1/2" - 2"			See Axeirod's chapter - begins on P. 136 ... Majuro has easily a dozen or so different kinds ... you can refer to them as "blues" ... some of them have red lines along the length of them (fair supply) ... the majority of them are brilliant shades of blue. (good supply). You can also pack about 6 of these in the small bags if they are no longer than 1". Good eaters. Axeirod P. 148 ... good supply ... good eaters ... tend to be aggressive ... in the shallows to about 25' ... easy to catch in "bag" type net.
		.15	.25	.50			
Scorpenidae (Lionfish)	Pterois Volitans "Lionfish"	Up to 2"	2" - 3"	3" - 4"	4" on up		Axeirod P. 235 ... these types live under rocks and ledges ... they have poison in their dorsal spines and must be handled carefully ... put them in a pen all by themselves as they eat anything smaller also ship them one to a sack (polyethylene bag) ... feed them at least a few small fish every day. Majuro has at least two types of lionfish (Same price)
		.75	1.25	2.00	3.00		