TRAINING PROGRAM FOR SKIPJACK TUNA FISHERMEN IN HAWAII*

by

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ABSTRACT

In the response to the need for more fishermen to man the boats of the skipjack tuna fleet, the State of Hawaii in January, 1965, initiated a program in which participants spend 1,950 hours learning the skills requisite for work as commercial fishermen. Most of the training is offered aboard a vessel acquired specially for this purpose. Six students have completed the year's course and are employed in the skipjack tuna fleet. The program is scheduled to last only through 1966 but may be extended.

INTRODUCTION

The annual fish landings for Hawaii in 1950-64 fluctuated between 5.0 and 9.1 million Kg, valued at 2.5 to 4.0 million dollars to the fishermen. There were 2,478 commercial fishermen and 759 commercial fishing vessels in Hawaii in 1950-51**. In 1963-64, the number of fishermen had decreased to 813 and vessels to 373. This decrease was the result of abandonment of the fishing by part-time fishermen because they found it unprofitable. Changes in the age composition of the fishermen during the years are shown by records in Table I for 1950-51, 1958-59, and 1963-64. Although the number of fishermen in each age group and the percentage of young men in the fishery decreased steadily, the percentage of older fishermen remained relatively stable or increased. In 1950-51, 54.8 per cent of the fishermen were 41 years or older and 21.5 per cent were 30 years or younger. In 1963-64, 65.7 per cent were 41 years or older and 12.2 per cent were 30 years or younger.

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*IPFC/C66/SYM 22.

**Statistics on number of vessels and fishermen are given in terms of the fiscal year, which begins July 1 and ends June 30.

TABLE I

THE NUMBER AND PERCENTAGE OF COMMERCIAL FISHERMEN IN HAWAII BY AGE GROUPS IN 1950-51, 1958-59, AND 1963-64

Age	1950-51 Number	1950-51 Percentage	1958-59 Number	1958-59 Percentage	1963-64 Number	1963-64 Percentage
<20	128	5.2	33	3.0	17	2.1
21-30	404	16.3	127	11.4	82	10.1
31-40	588	23.7	238	21.4	180	22.1
41-50	792	32.0	283	25.4	222	27.3
51-60	397	16.0	290	26.1	195	24.0
>61	169	6.8	141	12.7	117	14.4
Total	2,478		1,112		813	

Live-bait fishing with pole and line for skipjack tuna (*Katsuwonus pelamis*) is the most important fishery in Hawaii; this fishery contributes 65 to 75 per cent of the weight and 34 to 45 per cent of the value of the annual landings. In 1950, 27 commercial vessels and 280 fishermen were in the Hawaiian skipjack fishery. By 1964, the number of vessels had decreased to 20 (owing mainly to withdrawal of the older vessels from the fishery) and the number of fishermen to 175. Fifteen of the fishermen were Palauan trainees who were in Hawaii to receive 3 years of on-the-job training. Data on the age of 10 of the local fishermen are not available; of the remaining 150, 62 per cent were 41 years or older and 14 per cent 30 years or younger.

Skipjack tuna fishermen earned an average of $4,600 per annum from 1950 to 1964. This amount was small compensation for the long hours of hard work required. Many fishermen and potential fishermen turned to employment ashore to obtain better working conditions and steadier incomes. The skipjack tuna fishery, as well as the other fisheries in Hawaii, is faced with a shortage of skilled fishermen and young recruits to replace retiring fishermen.

The Hawaii training program is directed towards furnishing recruits to maintain and possibly expand the skipjack tuna fishery. The program is funded by the Federal Manpower Development and Training Act of 1962 as amended and is administered jointly by the Hawaii Employment Service of the Department of Labor, and the Manpower Training Section of the Department of Education. The Manpower Training Section of the Division of Vocational and Adult Education, Hawaii Department of

Education, is responsible for the training. Classes are held at the State's Hawaii Technical School in Hilo; shipboard training is conducted aboard the Kula Kai (Hawaiian for "school by the sea"), formerly a commercial skipjack tuna boat, which is berthed in Hilo. The Kula Kai (Fig. 1), purchased by the Department of Education for the training program, has been equipped with an automatic direction finder, ship-to-shore radiophone, loran, radar, and an automatic steering device. The vessel is 24.5 m registered length, weighs 65.3 metric tons, and has a 250-horsepower diesel engine.

SELECTION OF CANDIDATES

The Employment Service of the Hawaii Department of Labor selects the participants. Any unemployed person 16 years or older is eligible. The candidates must be able to float in the water for 5 minutes. They are taken on several short trips on a fishing vessel to see if they are adaptable to work at sea. They must be of stable temperament, so as not to endanger the lives of others, and should be capable of lifting 2.3 to 11.3 Kg weights with a pole and line for periods of 1 to 3 hours. After meeting these requirements, they are referred to the Manpower Training Section as candidates for the program.

FINANCIAL AID

Participants in the program receive varying amounts of financial aid. Unemployed heads of households and bachelors who have had 2 years or more of full-time employment receive training allowances of $40 per week; an additional $5 per dependent per week (but not to exceed $30 weekly) is also included. Transportation allowances may also be provided. These allowances include the cost of public transportation to and from the training facility or payment by mileage. Those who live beyond the commuting area and establish a temporary residence near the training facility receive an allowance of $5 per day. The payment of allowances is authorized after each week of satisfactory performance is certified by the training facility instructor. Some of the participants qualify for additional aid from the Department of Social Services.

TRAINING PROGRAM

The program is now scheduled to continue only through 1966. Results will then be reviewed and the decision made as to whether to continue the program. Each student is expected to complete his training in 1 year. He becomes a member of a section accommodating, at a maximum, 15 or 16 students. A student may enter a section at any time during the school year, but to complete the course must finish the full year of training. The curriculum consists of 1,950 hours of training under 10 main subjects:

Unit	Subject	Hours
I.	Economics of tuna fishing in Hawaii	8
II.	Orientation and familiarization	80
III.	Human relationships	12
IV.	Seamanship	160
V.	Navigation and electronic gear	150
VI.	Methods of propulsion	140
VII.	Hull maintenance	100
VIII.	Cooking	40
IX.	First aid and lifesaving techniques	100
X.	Fishing	1,160
	Total	1,950

The detailed curriculum, as outlined by the Department of Education, is shown in Appendix I. Most of the subjects are taught by the skipper, who is the head instructor, and the chummer and engineer, who are assistant instructors. Another instructor (part-time) is a retired college professor who teaches courses in human relationships and economics. The Fire Department assists in the instruction of lifesaving techniques and scuba diving and the Coast Guard in navigation and chart reading.

PROGRESS AND OUTLOOK

The first section began classes on January 11, 1965, with 15 participants. Only six completed the course and graduated on January 28, 1966. Of the remaining participants, three who did not complete all of their course work will be graduated on June 30, 1966, and six dropped out because they could not adjust to work at sea. The Employment Service placed the six graduates on skipjack tuna vessels, where they are probationary, earning 70 per cent of a share. They will remain on probation until they either prove themselves worthy of a full share by becoming skilled tuna fishermen, or if found incompetent, are asked to leave the fishery. The second section started on November 29, 1965, with 13 new participants and 3 carryover participants from the first section. The job description of a tuna fisherman, as prepared by the Hawaii Department of Labor, is shown in Appendix II.

Most of the participants have been in their teens and twenties, but several were in their thirties and one was 49 years old. He graduated in January and was placed as an engineer, a position in which his age is no drawback. Although it is advantageous to train young men, it is also beneficial to train older men who are potential skippers or engineers since they are hard to locate.

The skipjack fleet is anxiously waiting to receive more graduates from the training program. The Employment Service is finding it very difficult to stimulate participation in the program. Since it would not be justifiable to maintain a training program with only a handful of participants, the success of the program will depend largely upon recruiting and graduating sufficient numbers of men. The effectiveness of the training program in producing well-trained fishermen will have to be evaluated after the graduates have had more time to work in the commercial fleet.

APPENDIX I

Curriculum for the Hawaiian Skipjack Training Program prepared by the Manpower Training Section, Department of Education

Revised - 4/16/64

COURSE OUTLINE

Fisherman, Tuna

Unit I	The Economics of Tuna Fishing in Hawaii
	A. A perspective
	B. Problems facing the industry
	   1. Competition from other areas
	   2. The labor market
		8 hours

Unit II	Orientation and Familiarization -- (including shake down cruise on training vessel)	80 hours
Unit III	Human Relationship A. Omnipresent integrant Lab - "What Am I" B. Self-evaluation, personality C. The other fellow D. People are funny E. Skill in adjusting F. The wholesome personality	12 hours

Unit IV	Seamanship
	A. Hawaiian-type sampans
	B. Steering and rudder control
	   1. Control instruments
	   2. Steering and rudder control
	C. Anchoring and mooring
	   1. Anchor handling
	   2. Securing lines
	D. Towing and transfer at sea
	   1. The towline
	   2. Securing and release
	E. Rescue at sea
	   1. Backing off
	   2. Assisting vessel
	   3. Rescue in heavy weather
		160 hours

F. Safety
   1. Gear safety
   2. Fire safety
G. Knots and line
   1. Knot tying technique
   2. Line splicing technique
   3. Types of ropes
H. Skiff operation and maintenance
   1. Maintenance
   2. Hoisting and lowering gear
   3. Outboard motor operation and maintenance
   4. Rowing techniques

Unit V Navigation and Electronic Gear 150 hours
A. Steering by compass
B. Aids to navigation
   1. Buoys
   2. Lights
   3. Range lights
C. Notice to mariners
D. Electronic gear
   1. Radio direction finder (automatic type)
   2. Ship-to-shore radiophone
   3. Radar
   4. Depth recorder
   5. Sonar
   6. Automatic pilot

Unit VI Methods of Propulsion 140 hours
A. Engine types
   1. Diesel
   2. Gasoline
B. Principle of the diesel engine
   1. Definition of diesel
   2. Pressure - temperature relation
   3. Cycle phase
C. Engine maintenance - main engine and auxiliary

Unit VII Hull Maintenance 100 hours
A. Corrosion
B. Painting
C. Dry-docking

Unit VIII Cooking 40 hours
A. Stove operation and maintenance
B. Purchasing and storing of food
C. Sanitation
D. Preparation of balanced meals

Unit IX First Aid and Lifesaving Techniques 100 hours

A. First aid techniques
B. Lifesaving techniques in the water
C. Swimming
D. Scuba techniques

Unit X Fishing 1,150 hours

A. Bait catching
    1. Surrounding nets
    2. Use of attracting lights
    3. Use of small skiff
    4. Bait tank procedures
    5. Care of net
B. Preparation of fishing gear
    1. The bamboo pole -- small and large
        a. Reinforcements
        b. Types of line
        c. Length of line
        d. Types of hooks
        e. Securing hooks to line
        f. Identification
        g. Care of equipment
C. Sighting of schools
    1. Use of binoculars
    2. Observing bird action
        a. Type of bird
        b. Behavior of birds
D. Approaching the schools
E. Chumming procedures
    1. Purpose
    2. Quantity chummed
F. Fishing positions
G. Techniques in relation to size of fish
H. Safety precautions
I. Storage of fish
J. Cleanup

Total 1,950 hours

APPENDIX II

Job description of a Hawaiian skipjack tuna, pole-and-line fisherman prepared by the Department of Labor

FORM MT-1 (attachment) Page 1

SKIPJACK TUNA FISHERMEN TRAINING PROGRAM

Item 1. Occupation:

a. Description of occupation: Skipjack, Pole-and-Line Fisherman

1. Fishes for skipjack (tuna) on the high seas, works as a team member of a crew of 10 to 12 fishermen on large (75 to 95 ft.) boat. Mans assigned station after tuna school is spotted and lured near craft. Pulls in fish using bamboo pole and hook; may work in team of two or three men to haul in larger fish.

2. May assist in chumming operations.

3. Catches bait using nets, handles operation of bait skiff, prepares bait tanks for proper storage of bait; repairs bait nets.

4. Prepares, maintains and uses fishing gear, such as bamboo poles, lines, hooks, and other gear as required.

5. Participates in unloading catch from vessel to dock.

6. Performs cleanup operations of craft and gear.

7. Assist in locating schools of fish by use of binoculars and electronic equipment.

8. Identify navigational aids for the safety of the crew and vessel.

9. Operate direction finder, ship-to-shore radiophone, radar when available, depth recorders, sonar and automatic pilot.

10. Participate in rescue work when necessary; may operate skiffs; stands wheel watches at sea; participates in anchoring and mooring of vessel.

11. Assists in maintenance and repair of diesel and gas engines, hull and superstructure.

12. Acts as cook--purchases and stores food, prepares balanced meals, and maintains cooking equipment and ares in sanitary condition.

b. Training objective: To develop skills that will enable workers to be fishermen (entry level) initially and journeymen within a reasonable period. Training should be for Skipjack, Pole-and-Line Fisherman. The specific skills required are identified in the description of the occupation as per item la, above. Industry representative will continue training after employment. This training must include elements concerning the maintenance and operation of a fishing craft and its equipment. Emphasis will be to train the worker to be a member of a team of which each crewman is an integral part.

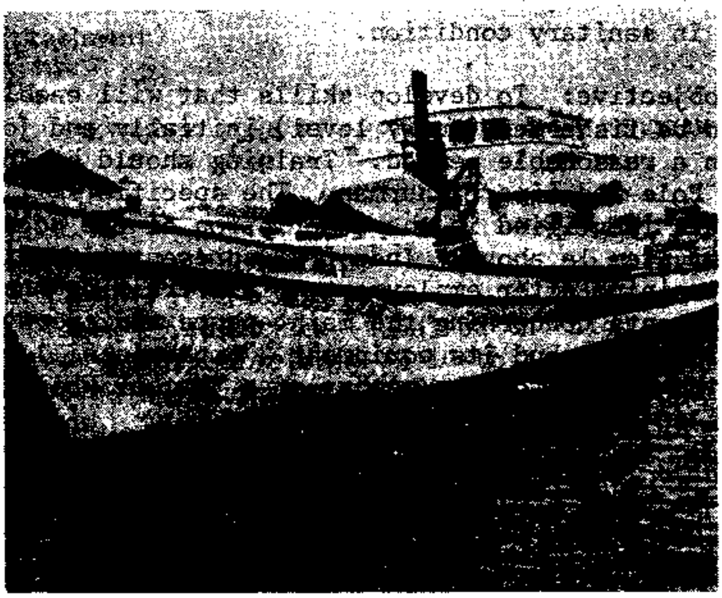

Fig. 1. The Kula Kai, formerly a commercial fishing vessel, is used by the State of Hawaii in its program for training fishermen for the Hawaiian skipjack tuna fleet.