

Training Program for American Samoa Fishermen

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Western Pacific Regional Fishery Management Council
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4. Teejay Letalie, Department of Marine and Wildlife Resources, American Samoa.

1 INTRODUCTION

Artisanal fishermen in American Samoa commonly practice snapper bottom handline fishing and trolling using 28 to 30 feet *alia* (catamaran) fishing boats. Generally catches are small but enough for family consumption. Experienced fishermen catch a bit more for sale and sometimes give fish away as gifts to relatives or friends. Local and traditional methods are often practiced for snapper fishing and trolling. These methods obviously need improvement for fishermen to increase their catches.

Pelagic longline fishing for tuna was popular during the mid-80s to late-90s, but at present there is only one *alia* boat which continues to fish using this fishing method. Pelagic longline fishing using *alia* boats is currently manually operated, and setting and hauling 8 to 10 miles of line requires enormous physical energy. This is detrimental to the health of the fishing crew and could be one of the key reasons why pelagic longline fishing has been diminishing.

Vertical longline fishing has not been practiced widely by local fishermen although one has claimed to have tried it with success.

Essential services needed by fishermen are either virtually unavailable or practically disorganized. Repair of outboard engines and purchase of spare parts have been a major problem. Commercial fishing gear is mainly sourced from overseas. Ice making machines to provide flake ice for fishermen are not available in Tutuila where most fishermen are based. Consequently, fishermen are using cube ice from retail shops which are expensive and unsuitable. Small-scale fishermen continue to use the *alia* boats with limited features to facilitate fishing operations thus catches are normally minimal and it is difficult to cover fishing expenses. Given these situations, improvement is needed to encourage the development of small-scale fishing.

Three key projects have been proposed under the American Samoa Marine Conservation Plan (ASMCP) to help improved the development environment for American Samoa fishermen. These include 1) the Development of a Multipurpose Fishing Boat as the new generation of fishing boats to replace the existing *alia* fleet, 2) the Development of a Fishermen Lending Scheme (FLS) to allow fishermen to acquire the new fishing boats, and 3) the Development of a Fishermen Training Program (FTP) to enhance fishermen's skills and introduce new fishing techniques to increase their catches. The FTP therefore is one of the key projects earmarked to help with the establishment of the small-scale fisheries in American Samoa.

2 PURPOSE

The purpose of the FTP is to provide an opportunity for American Samoa fishermen to:

1. increase fish catches through enhancement of their fishing skills and introduction of new fishing methods;
2. introduce and practice simple business management tools so that fishermen are able monitor, control and operate profitable small-scale fishing units successfully; and
3. provide the main prerequisite to qualify for the FLS. (Participants, once successfully complete requirements of the FTP, would be awarded with a Certificate of Successful

Completion, the main prerequisite to qualify for entry into the FLS).

3 TARGET AUDIENCE

The training is designed specifically for local fishermen, particularly those who have operated at small-scale or artisanal level. Importantly, the training is most relevant to fishermen who are acquiring new fishing boats through the assistance of the FLS.

4 TRAINING ARRANGEMENT AND SELECTION OF PARTICIPANTS

Depending on the demand, training will be arranged twice a year. It is anticipated that 16 participants will be the maximum intake per training. However, the size is determined through the amount of equipment and teaching tools available to sufficiently accommodate the prescribed number of participants.

Participants are required to apply using the prescribed form in Appendix 1. Any individual may apply, but should applicants exceed the maximum number of trainees allotted for a particular intake, then preference will be given to those applicants who have applied for new fishing boats under the FLS.

5 TRAINING COMPONENTS

The FTP will be delivered in two components, theory and practical. Theory sessions will be carried out in a classroom with powerpoint presentations, talks and exercises. Practical sessions will be carried out in the field and in three parts. These include: 1) fishing gear construction where participants will be taught on general rigging of fishing gear, 2) practical fishing, where participants are required to complete an assigned number of fishing trips with various fishing methods, and 3) boat construction attachment, where participants are required to complete an assigned number of weeks working with boat builders to familiarize themselves with important features of the new fishing boat. The training schedule is detailed in Appendix 2.

5.1 Theory

The theory component begins with an introduction to American Samoa fisheries on various relevant topics including: 1) an overview of the training program; 2) general understanding of why fisheries are important for the economic development of American Samoa; 3) a simple comparison of land resources against fisheries resources and why development of fisheries resources are a better option for economic development over the development of land resources; 4) the importance of sustainable fishing to the livelihoods of American Samoa people.

After the introduction, several sections focus on the following topics.

1. How to run a small-scale fishing unit successfully including:
 - basic record keeping,
 - determining expenses,
 - determining profit and loss,

- and why many small businesses fail.
2. Collection of catch data including:
 - the importance of catch data for the management and conservation of fisheries,
 - how catch data may be recorded and kept by fishermen,
 - a simple illustration of how regulations and fishery management measures are determined based on data.
 3. Fishermen safety at sea including:
 - an explanation of the components of the sea-safety grab-bag,
 - a demonstration of how the components may be properly used,
 - and why it is important for the safety of fishermen at sea.
 4. Fish handling and preservation, which covers:
 - why fish need to be carefully handled when they are caught and preserved on board,
 - theories behind various techniques of fish handling and how they may best be applied,
 - and the use of different ices for fish preservation (e.g., characteristics and determination of the best type of ice).
 5. Fishing gear and methods including:
 - different ropes, knots, and splices commonly used in fishing and how they best applied in different tasks;
 - different sizes and types of monofilaments, their breaking strength, and how best they may apply for different fishing methods;
 - hooks and swivels – designs, shapes and sizes and their best application for various fishing methods;
 - types of wire leaders and their construction commonly used in various fishing methods;
 - and arrangements, composition and constructions of different fishing methods that can be practiced by American Samoa fishermen (e.g., pelagic tuna longline fishing, vertical longline fishing, snapper bottom handline fishing and trolling).
 6. New prototype fishing boat to replace the existing fleet of *alia* fishing boats in American Samoa. It is important that fishermen are familiarized with vital features of the new fishing boat.
 7. Additional safety features including:
 - use of foam for floatation;

- engines – inboard, basic servicing and maintenance;
 - communication including use of 2 way radio, emergency channel and mobile phones;
 - use of safety appliances such as flare guns and electronic beacons;
 - ways of conserving and producing food and water while awaiting rescue;
 - and other topics such as use of fire extinguisher and first aid kit, and boat safety during rough weather.
8. Important features of fish holds such as size of fish holds and construction materials, how much weight each should take for fish, how much weight each should take for ice and how long the ice may last to retain good fish quality.
 9. Fuel capacity and boat speed including:
 - size of fuel tanks, how much they can hold, and how far the boat may travel;
 - and recommended boat speeds when searching fishing grounds, shooting longline, hauling lines and returning with full load.
 10. Boat water capacity – the adequate amount to last a fishing trip and ways of conserving water when scarce.
 11. Hydraulic longline reel and line shooter – why these two devices are important to have on board the fishing boat, especially for longline fishing.
 12. Samoan wooden reels – arrangement and application for bottom handline fishing and trolling.

5.2 Practical

Introduction to common fishing supplies and general gear construction including:

1. Ropes, knots, joints, splices, construction and application
 - demonstration under the guidance of the master fisherman, participants will be taught on construction of various knots, joints and splices and where they may be used;
 - participants will construct their own knots, joints and splices as exercises.
2. Monofilaments, knots, joints, construction and application:
 - demonstration under the guidance of the master fisherman, participants will be demonstrated with various sizes of monofilaments and their breaking strengths, and will be taught with various ways of making knots and joints;
 - participants will make their own knots and joints as exercises.
3. Wire leaders, swivels and construction of snoods:
 - demonstration under the guidance of the master fisherman, participants will be shown

various wire leaders and their breaking strengths, and will be taught various ways of constructing snoods using different wires and swivels;

- participants will construct various snoods used in different fishing methods as exercises.

Construction of fishing gear practiced by American Samoa fishermen:

- Trolling: the master fisherman will show participants how different trolling lures are constructed and how trolling gear are rigged. This will be followed by practical exercises for the participants.
- Snapper bottom handline fishing: the master fisherman will show participants how the fishing gear for snapper bottom handline fishing is constructed and rigged. This will be followed by practical exercises for participants.
- Vertical longline fishing around fish aggregating devices (FADs): the master fisherman and participants together will construct and rig the vertical longline fishing gear to be used around the FADs.
- Pelagic longline fishing: the master fisherman and participants together will construct and rig the pelagic longline fishing gear.

All participants are required to undertake practical fishing with all fishing methods that are or have been practiced by American Samoa fishermen. Depending on experience, participants may be assigned with different number of fishing trips under each fishing method including:

- Trolling: practical fishing using the trolling method will be carried out by participants when they go out searching fishing grounds for snapper bottom handline fishing, vertical long-lining or pelagic longline fishing. This will be carried out under the supervision of the master fisherman.
- Snapper bottom handline fishing: participants are required to undertake at least two fishing trips for those that have not done snapper bottom handline fishing before. For participants that already have experience, they may be required to undertake one fishing trip.
- Vertical longline fishing around FADs: participants are required to undertake at least two fishing trips for those that have not done vertical longline fishing around FADs before. Participants that already have experience in vertical longlining may be required to undertake one fishing trip.
- Pelagic longline fishing: participants are required to undertake at least two fishing trips for those that have no experience in pelagic long-lining. Participants that already have experience in pelagic long-lining may be required to undertake one fishing trip.
- Fish preservation: for all four practical fishing carried out with trolling and pelagic longline fishing methods, fish preservation methods will be taught on board. This will

include gaffing, gilling, gutting, bleeding and icing.

Participants will need to carry out attachments to work with the construction of the new type of fishing boat as part of their assessment requirement. Each attachment is for two weeks or 80 contact hours working with boat builders. The attachments will allow participants to learn about the main features of the new fishing boat and enable them to learn basic procedures to identify simple faults that may emerge while under fishing operation. These simple faults may be easily fixed by following simple procedures which are taught during boat construction. For example, fuel leaks may be easily located if participants are familiar with the piping system of the boat. Likewise, simple malfunction of mechanical devices or lights due to fuse damage may be easily detected and fixed if participants have knowledge of the electrical system.

6 FTP PARTNERS

The American Samoa Department of Marine and Wildlife Resources (DMWR) in consultation with the Western Pacific Regional Fishery Management Council is expected to take the lead role throughout the planning, coordination and implementation of the training program. However, achievement of goals for the successful training program would only be possible with contributions from the Department of Commerce (DOC), Development Bank of American Samoa (DBAS) and the Secretariat of the Pacific Community (SPC). DOC and DBAS are expected to provide expertise in the area of small business management. SPC is expected to provide a major contribution towards the training components in both theory and practical. The DMWR needs to make arrangement with SPC to allow its master fisherman to deliver over 75 percent of the training components, especially in the area of fishing gear and methods and practical fishing. Since American Samoa is a member of SPC, the provision of the SPC master fishermen to assist with the training is free. However, for long-term attachment of one month and over, a requesting SPC member may be asked to share minor expenses such as the master fisherman's accommodation.

7 LOCAL TRAINING COUNTERPARTS

SPC is delighted to be the major partner for the training program. However, SPC would essentially not be able to provide the same long-term service in future years because of its commitments to other Pacific Island Countries and Territories. For the sustainability of the program, one or two counterparts are necessary from the DMWR or DOC to be involved in the training to assume responsibilities of the SPC master fishermen when SPC's assistance terminates.

Several officers of the DMWR have attended past regional trainings promoted by SPC. The same officers and other DMWR staff have had opportunities to work alongside the SPC master fishermen during national assignment conducted by SPC for American Samoa. It is important that counterparts for the SPC master fishermen be selected from DMWR officers that participated at SPC regional trainings.

8 PREPARATION

8.1 Training Supplies and Services

DMWR is expected to provide training supplies such as papers, pens and equipment (e.g., powerpoint projector) needed to conduct the training. Services such as photocopying, typing, refreshments and others are also expected to be provided by DMWR.

8.2 Supply of Fishing Gear and Instruments

Training participants are expected to learn fishing gear construction. It is important that enough supplies of monofilaments, hooks, swivels, ropes and other material required for the construction of fishing gear are made available.

8.3 Training Boat

It is absolutely important that a boat is made available for the training during practical fishing. The boat must have navigational instruments and mechanical devices such as a longline hydraulic reel and line shooter for demonstration on board during practical fishing.

8.4 Crew Ration

It is important that enough food and drinks are carried on board for training participants during each three-day fishing trip.

9 BUDGET

To successfully run the training program, the following budget is estimated to cover the training expenses of 16 training participants:

(a) Training supplies	\$ 500
(b) Refreshment	\$ 880
(c) Fishing gear	\$ 2,500
(d) Fuel	\$10,800
(e) Ice	\$ 4,800
(f) Baits	\$ 2,640
(g) Crew ration	\$ 7,200
TOTAL =	\$29,320

10 PARTICIPANT ASSESSMENT AND CERTIFICATION

Participants will be assessed through their attendance and how well they participate during the training components discussed in section 5. There may be simple tests and exercises set by instructors to assess the ability and creativity of the participants. Depending on experience, there will be a minimum number of fishing trips needed to be carried out by each participant during the practical fishing for a participant to qualify. A participant should also successfully complete a boat construction attachment with boat builders as part of the assessment. Participants that satisfactorily complete all the components of the FTP will be awarded a Certificate of

Successful Completion at the end of the training. Awardees of certificates will automatically qualify for admissions to the FLS.

11 TRAINING REVIEW

The training will be reviewed after the first year by an outside consultant to see how far the goals established for FTP have been achieved. The review will underline goals that may not have been achieved and suggest how various components of the training may need to be modified for improvements.

12 CONCLUSION

The instigation of the FTP is an opportunity provided for American Samoa fishermen to enhance their fishing skills and be able to run and regulate operations of small-scale fishing units as successful small businesses.

Three projects earmarked under the ASMCP are required to be implemented relatively at the same time in order for the development of small-scale fisheries in American Samoa to be successful. These include the 1) development of a prototype multipurpose fishing boat; 2) development of an FLS; and 3) development of the FTP. It is important that these three projects are executed concurrently or the small-scale fisheries development would not succeed. For example, well-built new fishing boats that accommodate all needs for American Samoa fishermen are of little use if fishermen cannot afford them. Thus, there is a need for the FLS to be in place at the same time to allow fishermen to acquire new fishing boats. Likewise, new fishing boats are of little value if fishermen have limited fishing skills and are unable to operate them effectively, hence the need for the FTP to be executed at the same time. These three ASMCP projects need to be supportively implemented at the same time for successful development of small-scale fisheries in the territory. Importantly and above all, the success of the small-scale fisheries development in American Samoa can only be possible with availability of resources and support from the American Samoa Government.

Appendix 1 Fishermen Training Program application form.

Date: _____

Name of applicant:	Village:	Age:
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1. Fishing boat handling experience

Do you own a boat? <input type="checkbox"/> yes <input type="checkbox"/> no	Have you skippered a boat? <input type="checkbox"/> yes <input type="checkbox"/> no	Experience – less than 2 years <input type="checkbox"/> yes <input type="checkbox"/> no	Experience – 2 years and over <input type="checkbox"/> yes <input type="checkbox"/> no
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2 Navigational equipment

Do you know how to use GPS? <input type="checkbox"/> yes <input type="checkbox"/> no	Do you know how to use compass? <input type="checkbox"/> yes <input type="checkbox"/> no	Do you know how to use sexton instrument? <input type="checkbox"/> yes <input type="checkbox"/> no	Do know how to read charts? <input type="checkbox"/> yes <input type="checkbox"/> no
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3. Mechanical devices

Do you know how to use the long-line reel? <input type="checkbox"/> yes <input type="checkbox"/> no	If yes, how long? <input type="checkbox"/> < 2 yrs <input type="checkbox"/> 2 yrs>	Do you know how to use the line shooter? <input type="checkbox"/> yes <input type="checkbox"/> no	If yes, how long? <input type="checkbox"/> <2yrs <input type="checkbox"/> 2yrs>
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4. Fishing experience

i. Trolling

Little experience/ Just beginning <input type="checkbox"/> yes <input type="checkbox"/> no	Limited experience/Fish less than 2 times a fortnight <input type="checkbox"/> yes <input type="checkbox"/> no	Experience / fish less than 3 times/week <input type="checkbox"/> yes <input type="checkbox"/> no	Very experience/ have been fishing over 5 years <input type="checkbox"/> yes <input type="checkbox"/> no
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iii. Pelagic long-line fishing

Little experience/ Just beginning <input type="checkbox"/> yes <input type="checkbox"/> no	Limited experience/Fish less than 2 times a fortnight <input type="checkbox"/> yes <input type="checkbox"/> no	Experience / fish less than 3 times/week <input type="checkbox"/> yes <input type="checkbox"/> no	Very experience/ have been fishing over 5 years <input type="checkbox"/> yes <input type="checkbox"/> no
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iv. Vertical long-line fishing

Little experience/ Just beginning <input type="checkbox"/> yes <input type="checkbox"/> no	Limited experience/Fish less than 2 times a fortnight <input type="checkbox"/> yes <input type="checkbox"/> no	Experience / fish less than 3 times/week <input type="checkbox"/> yes <input type="checkbox"/> no	Very experience/ have been fishing over 5 years <input type="checkbox"/> yes <input type="checkbox"/> no
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Appendix 2 Fishermen Training Program training schedule.

OPENING		PRESENTER / INSTRUCTOR
DAY 1		
11:00 – 11:15	Arrival of guests and training participants	
11:15 – 11:25	Welcoming	DMWR Director: Dr. Ruth Matagi-Tofiga
11:25 – 11:35	Prayer	To be advised
11:35 – 11:45	Overview of the training	DMWR Director: Dr. Ruth Matagi-Tofiga
11:45 – 11:50	Introduction of training participants and instructors	
11:50 – 12:00	Opening Speech	Council Executive Director: Kitty M. Simonds
12:00 – 13:00	Lunch and closing	
THEORY		
	1. Introduction	Faasili U. (Council)
13:00-13:30	i. Outline of the training	
13:30 – 14:00	ii. Introduction on related projects (New fishing boat for A. Samoa Fishermen and Fishermen Lending Scheme) and the need to be cooperatively implemented.	
14:00 – 14:30	iii. General understanding why fisheries is important for the economic development of American Samoa;	
14:30 – 15:00	iv. Simple comparison of land/fisheries resources for economic development and why fisheries resources are better option;	
15:00 -15:30	AFTERNOON TEA	
15:30-16:00	v. Important of sustainable fisheries for livelihoods of AS people	
16:00 – 16:30	vi. Wrap up and discussion	
DAY 2		
	2. How to run a small-scale fishing unit	Uili L. (DOC)
8:30 – 9:15	i. Basic record keeping;	
9:15 – 10:00	ii. Determining expenses;	
10:00 – 10:30	MORNING TEA	
10:30 – 11:15	iii. Fixed costs;	
11:15 – 12:00	iv. Determining loss and profit;	
12:00 – 13:00	LUNCH	
13:00 – 13:45	v. Why many small business fail;	
13:45 – 14:30	vi. Exercises	
14:30 – 15:15	vii. Wrap up and discussion	
15:15- 15:45	AFTERNOON TEA	
15:45 – 16:30	3. Importance of fish catch data	Faasili U. (Council)
	i. Importance of fish data for management of fisheries resources;	
DAY 3		
8:30 – 9:15	ii. How fish data may be recorded and kept by fishermen;	
9:15 – 10:00	iii. How regulations may be determined based on fish data;	
10:00 – 10:30	MORNING TEA	
10:30 – 11:15	iv. How management measures may be determined based on fish data;	
11:15 – 12:00	v. Wrap up and discussion	
12:00 – 13:00	LUNCH	
	4. Fishing gear and methods	Sokimi W. (SPC)
13:00 – 13:45	i. Ropes – different knots and splices and applications;	

13:45 – 14:30	ii. Monofilaments – use of monofilaments, their breaking strengths and application on different methods;
14:30 – 15:15	iii. Hooks and swivels – sizes, shapes and application in different fisheries;
15:15 – 15:45	AFTERNOON TEA
15:45- 16:30	iv. Wire leaders – arrangement of wire leaders, their construction in different fishing methods;
DAY 4	
8:30 – 9:15	v. Fishing methods – Illustration on fishing methods currently practiced by AS fishermen (trolling, snapper bottom hand-lining, pelagic long lining, and vertical long lining);
9:15 – 10:00	5. Fish handling and preservation i. importance of maintaining good quality of fish, ii. preservation methods iii. handling – gaffing, gutting, icing etc.,
10:00 – 10:30	MORNING TEA
10:30 – 11:15	Fish handling continue..
11:15 – 12:00	Wrap up and discussion
12:00 – 13:00	LUNCH
13:00 – 15:00	6. Multipurpose fishing boat Overa A. (Consultant)/ Sokimi W. (SPC)
	i. Safety features of the boat (boat floatation, engines, communication, safety appliances, food, waters and others);
	ii. Fish Holds – size, construction materials, how much fish and ice they hold;
	iii. Fuel capacity and boat speed – size and capacity of fuel tanks, how far the boat can travel, recommended speeds while boat is under different tasks;
	iv. Water tanks – sizes and capacities of water tanks, Hydraulic long-line reels an important device on board;
	v. Line shooter and Samoan wooden reels as important devices.
15:00- 15:30	AFTERNOON TEA
15:30 – 16:30	vi. Wrap up and discussion

PRACTICAL

A. FISING GEAR CONSTRUCTION

Sokimi W. (SPC)

DAYS 5	1. Introduction to common fishing supplies and general gear construction i. Demonstration of fishing materials : i. Ropes - knots, joints, splices, construction and application; ii. Monofilaments - knots, joints, construction and application; iii. Wire leaders, swivels and construction of snoods. iv. Practical exercises
DAY 6	2. Construction of fishing gear practiced by American Samoa fishermen. i. Trolling – demonstration of fishing gear construction followed by exercises by participants;
DAY 7	ii. Snapper bottom hand lining – demonstration of fishing gear construction followed by exercised by participants;
DAYS 8 - 9	iii. Vertical long lining – demonstration of fishing gear construction followed by exercises by participants;
DAY 10 AND 11	iv. Pelagic long lining – demonstration of fishing gear construction followed by exercised by participants; v. Fish preservation – participants will be taught on board on gilling, gutting, bleeding, and icing of fish during all fishing trips conducted as practical component for the training.

B. PRACTICAL FISHING		Instructor: Sokimi W. (SPC)
	1. Trolling	
	i. Participants will undertake practices in trolling while they go out searching for fishing grounds;	
	ii. Master fisherman will keep close observation on how participants perform during fish bites, hauling, and on board fish handling.	
DAYS 12 - 14	2. Snapper bottom hand-line fishing Participants will undertake two fishing trips. Participants with good experiences may only need one fishing trip.	
DAYS 15 - 17	3. Vertical long-line fishing around FADs Participants will undertake two fishing trips. Participants with good experiences may only need one fishing trip.	
DAYS 18-20	4. Pelagic long-line fishing Participants will undertake two fishing trips. Participants with good experiences may only need one fishing trip.	
	5. On board fish handling and preservation	
	i. For all 4 practical fishing carried out in fishing methods (1) to (4), fish handling and preservation will be taught by the Master Fisherman on board.	
	ii. These include gaffing, gilling, gutting, bleeding, and icing.	
C. BOAT CONSTRUCTION ATTACHMENT		Instructor: Overa A. (Consultant)
DAYS 21-30	Under the supervision of the Master Boat Builder, participants will require to undertake 80 contact hours with boat construction or 2 weeks of attachment to work with boat builders to familiarize with important features of the new fishing boat.	