

CRUISE REPORT NO. 40
of PE/WS.4

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CRUISE REPORT

SAMOA OFFSHORE SURVEY

8 - 13 January 1980

by

A John Halunen Jr

Prepared for:
COMMITTEE FOR CO-ORDINATION OF
JOINT OFFSHORE PROSPECTING FOR
MINERAL RESOURCES IN SOUTH PACIFIC
OFFSHORE AREAS (CCOP/SOPAC) WORK
PROGRAMME CCSP-1/WS.4

As a contribution by:
UNDP Project Office
Project RAS/79/074
Investigation of Mineral
Potential in the South
Pacific

INTRODUCTION AND BACKGROUND

This cruise was undertaken as part of the CCOP/SOPAC Work Programme for CCSP-1/WS.4 (Investigation of the deeper flanks of the island slope for precious coral).

One of the first indications that precious coral may exist in the South Pacific Region came from an unconfirmed report that *Corallium* was recovered off the western end of Tutuila in American Samoa. Based upon this report, a programme was instigated to investigate two areas in Western Samoa, namely off the northwest end of Savaii and off the southeast end of Upolu. Results of earlier surveys by CCOP/SOPAC have been just promising enough to continue the search (see Cruise Reports PR.10 and 22). Precious coral was recovered in both localities but not in sufficient size and quantity to be economically viable.

CRUISE OBJECTIVES

The objective of this cruise was to collect sufficient bathymetric data to delineate the bottom morphology in an area off the south coast of Savaii and, if the depth and environment are appropriate to the growth of precious coral, collect samples from those areas.

PERSONNEL PARTICIPATING

Personnel taking part in this survey were:

Data Collection:

A John Halunen Jr: UNDP Project Staff
Fa'atoia Malele: Apia Observatory Staff, Apia, Western Samoa
Sapa Saifaleupolu: Apia Observatory Staff, Apia, Western Samoa

R/V MACHIAS personnel:

Capt. W Austin: Master
Mr. Conrad Erkelens: 1st Mate
Mr. Charles Blem: 2nd Mate
Mr. William Meyers: Cook

EQUIPMENT AND FACILITIES

The following project equipment was used during this survey:

EPC Graphic Recorder Model 4100;
 Raytheon Echo Sounding Transceiver Model PTR-106C;
 Raytheon Transducer Model TC-3.5j7;
 Magnavox Satellite Navigator Model MX1102 with printer;
 Tangle Nets (manufactured by Project personnel).

The marine platform used during this cruise was the R/V MACHIAS, a 78 foot two-Inasted auxiliary schooner powered by a General Motors Model 6-71 Marine diesel engine. The ship has two auxiliary diesel generators to power the ship and laboratory equipment, an air conditioned laboratory and a good hydraulic powered deep-sea winch capable of carrying up to 14,000 meters of quarter-inch wire.

PRELIMINARY RESULTS

Material recovered in 300-350 meters water depth off the northwest end of Savaii was tentatively identified as Corallium. On Station WS-4, one living piece was recovered with a 7mm diameter base and about 35mm length. On station WS-5 three living pieces of Corallium were recovered as well as several smaller pieces possible broken from the three larger samples. WS-5(A) has two major stalks; one has an 11mm diameter base and 40mm length, and the second has a 9mm diameter base and 33mm length. WS-5(B) has two major stalks; one is 9mm diameter and 43mm length, and the second is 6mm diameter and 24mm length. WS-5(C) has one major stalk and several minor stalks; the major stalk has a base diameter of 7mm and a length of 30mm.

All of this material has been sent to Dr R Grigg of the University of Hawaii for evaluation.

CONCLUSIONS AND RECOMMENDATIONS

No interesting coralline material was found along the south coast of Savaii and this area may be eliminated as a prospective area.

In the Falealupo area (northwest of Savaii) very interesting samples were recovered from stations TN-4 and TN-5 and a three step follow-up appears warranted:

- 1) Confirm the tentative identifications of material described in this report;
- 2) Prepare a detailed bathymetric map of the area (sufficient well navigated data now exists to prepare this map);
- 3) Using this information return to the area for additional sampling.

A similar follow-up is needed in the Aleipata area (southwest of Upolu) where a single interesting sample was recovered this year and several recovered previously. The bathymetry in the Aleipata area is much more complicated than of Falealupo and it is therefore extremely important that bathymetric maps be prepared from existing data prior to additional sampling.

WORK REMINING

Confirm tentative identifications of material collected on this cruise and WS-78(2). These samples have been sent to Dr R Grigg at the University of Hawaii; Complete analysis of bathymetric data at Falealupo and Aleipata; Return to both areas to conduct intensive sampling in specific areas. Analysis of the bathymetry data and results of sampling completed thus far should provide parameters with which to restrict prospective areas in each of these locations to a few square kilometers.

APPENDIX: STATION LIST; SAMOA OFFSHORE SURVEY - WS-80(1); 8-13 January 1980

STA. No.	STA. TYPE & No.	DATE (GMT)	LATITUDE (South)	LONGITUDE (West)	WATER DEPTH (Uncorr. metres)	REMARKS
WS-1	TN-1	10 Jan	13° 47.4'	172° 33.9'	225-375	No sample recovered.
WS-2	TN-2	10 Jan	13° 47.1'	172° 34.0'	525	One piece, tentatively identified Dendrophyllia.
WS-3	TN-3	10 Jan	13° 47.2'	172° 34.3'	375	No sample recovered.
WS-4	TN-4	10 Jan	13° 27.8'	172° 50.1'	375-490	One piece, tentatively identified Corallium.
WS-5	TN-5	10 Jan	13° 28.3'	172° 50.5'	320-400	Three larger pieces (about 1cm stalks) tentatively identified Corallium and several smaller pieces probably fragment of above.
WS-6	TN-6	11 Jan	13° 29.0'	172° 50.4'	110-300	No hard coral; one piece "black?" coral.
WS-7	TN-7	11 Jan	14° 04.2'	171° 22.3'	400-525	Various small pieces white branching coral tentatively Dendrophyllia.
WS-8	TN-8	12 Jan	14° 05.8'	171° 23.3'	140-160	Various types coral; no branching corals.
WS-9	TN-9	12 Jan	14° 06.8'	171° 23.1'	375-450	Rock sample; no significant coral.
WS-10	TN-10	12 Jan	13° 59.8'	171° 21.7'	300-450	No sample recovered.
WS-11	TN-11	12 Jan	13° 59.3'	171° 20.2'	330-670	No significant coral; one piece "wire" coral.
WS-12	TN-12	12 Jan	13° 57.6'	171° 22.6'	300	No sample recovered.
WS-13	TN-13	12 Jan	14° 02.9'	171° 22.6'	190-240	Tangle nets lost when main wire parted.
WS-14	TN-14	12 Jan	14° 04.1'	171° 22.2'	500	One small piece tentatively identified Corallium; small sample of rock.
WS-15	TN-15	13 Jan	14° 06.3'	171° 22.3'	580-900	Minor sample of "tree" type coral; several pieces rock.
WS-16	TN-16	13 Jan	14° 05.8'	171° 21.6'	560	Good quantity 1-2cm diameter hard white coral tentatively identified Dendrophyllia.

Station No. & Location 013

Station No & Location	013
Cruise Track	—1

