

**A REVIEW OF SOPAC ACTIVITIES IN  
SOLOMON ISLANDS FROM 1972-1993**

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## SUMMARY

Solomon Islands became a member of SOPAC when it was established in 1972. For the past twenty years, (20 yrs) SOPAC has carried out various tasks for Solomon Islands in coastal, nearshore and offshore resource assessment and management. The information gained from the work done by SOPAC has been of great value to the development of Solomon Islands.

In the offshore area, SOPAC has conducted reconnaissance offshore exploration for metalliferous sediments, manganese nodules, hydrocarbons and precious corals.

Although no metalliferous sediments and manganese nodules were found in the areas surveyed, further surveys are necessary in other areas of Solomon islands that could yield such deposits.

The hydrocarbon work resulted in the identification of five offshore sedimentary basins in the Solomon islands having hydrocarbon potential. Further detailed work is warranted for each basin.

A first assessment of the potential of deepwater precious coral suggest that the central and eastern Solomon Islands were probably the most prospective areas for deepwater precious corals. Identified potential sites are recommended for detailed survey which also should include shallow precious corals.

An integral part of the offshore cruises which have taken place over the past two decades has been the collection of bathymetric data which has resulted in a vast amount of data for Solomon Islands. This will ultimately enable the production of detailed charts and a geological map of the complete Exclusive Economic Zone claimed by Solomon islands.

SOPAC's nearshore minerals work has focused on placer gold and heavy mineral sands off North Guadalcanal and San Jorge. Sampling in both areas was recommended.

Coastal baseline studies and erosion survey work by SOPAC has been carried out in a number of sites in the Solomon Islands in the recent years. Studies for the Naha sewerage outfall and the proposed Noro port development produced baseline data for both sites and a recommendation for regular monitoring.

The coastal erosion surveys made on Ranadi Beach, Kwai and Ngongosila, and Gizo Township revealed that erosion has been taking place on all sites and recommendations were made to reduce the problem.

The Quaternary geology study of the Guadalcanal plains resulted in better understanding of the geological evolution of the plains which form the richest land resource of Solomon Islands. A recommendation was made for detailed studies of each river system of the plains.

The training of nationals to upgrade in-country capabilities in technical, scientific and management skills is an important component of SOPAC's Work Program. Solomon Islands has benefited greatly from this training program.

### **ACKNOWLEDGEMENTS**

Despite the limited time available for this review work, the assistance and co-operation provided by the SOPAC Technical Secretariat staff, in particular those in the Information Program, to accomplish this work in good time is gratefully acknowledged. The support and encouragement provided by the Directorate and Training Program Offices of the Technical Secretariat is also noted with thanks.

## **OBJECTIVE**

The objective of this report is to review the activities of SOPAC in Solomon Islands since the organisation's inception.

## **BACKGROUND**

The South Pacific Applied Geoscience Commission (SOPAC) was established in 1972 as CCOP/SOPAC (the Committee for Co-ordination of Joint Prospecting for Mineral Resources in the South Pacific Offshore Areas) under the sponsorship of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). In 1984, CCOP/SOPAC changed its legal status to become an independent, regional, inter-governmental body when its member countries signed a Memorandum of Understanding. This was then replaced by a Treaty, embodying a new constitution signed in 1990. The organisation's name changed to SOPAC in 1989. The change in name reflected to some degree the change in work emphasis from the late 1970s onwards from the search of deep water minerals to an evaluation of nearshore and coastal mineral resources and towards management studies of the coastal areas in which most Pacific island people obtain food and shelter, and live their lives.

When SOPAC was first established in 1972, its primary focus was on the development of the hydrocarbon and deep sea mineral potential of the region. Initially this largely involved monitoring and co-ordinating research work and cruises by specialised oceanographic vessels within the region. The latter is a field of research which is expensive and well beyond the means of the countries of the region.

Solomon Islands lacked the resources and expertise to investigate the mineral and hydrocarbon potential of its marine areas and took an active part at the initial organisational meeting of SOPAC in 1971. It then became one of the first full members of SOPAC when it was established.

The achievements of SOPAC's initial objectives provides the government with relevant basic data to assess the mineral and hydrocarbon potentials of their offshore areas and assistance in planning further programs.

Member countries of SOPAC are currently Australia, Cook Islands, Federated States of Micronesia, Fiji, Guam, Marshall Islands, New Zealand, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu and Western Samoa. Associate members are New Caledonia and French Polynesia.

The current work emphasis of SOPAC is to:-

- a) provide information on the physical environment of coastal and nearshore areas to assist with resource and environment management, hazard evaluation and coastal protection works; and planning and implementation of coastal development projects;
- b) investigate the resource potential of coastal, nearshore and offshore minerals including construction materials, phosphates, cobalt-rich crusts, manganese nodules, polymetallic sulphides, precious corals and detrital minerals such as gold;
- c) assess and promote the hydrocarbon and wave energy potential of the region;
- d) monitor and co-ordinate marine geological and geophysical research being carried out in the region;
- e) curate and distribute marine geological and geophysical data from the South Pacific;
- f) train nationals in the implementation and management of their work programs.

A work program of applied tasks requested by member countries is carried out by the SOPAC Secretariat, often in conjunction with other organisations. The SOPAC Secretariat was established in late 1974 and field survey work started in 1975 with nearshore survey for placer gold off Guadalcanal.

SOPAC's current work is carried out within seven programs:

- offshore;
- hydrocarbon;
- coastal;
- onshore;
- information;
- training and;
- management.

Solomon Islands participation in SOPAC's Work Program during the last 20 years is as outlined below. SOPAC's publications and joint contribution reports for Solomon islands are listed in Appendix 1.

## OFFSHORE PROGRAM

Very little offshore geological work had been carried out in Solomon Islands prior to the establishment of SOPAC. At that time offshore geological surveys were solely the work of foreign research institutions although with some support from the Solomon Island Government. The various data collected formed the basis for the subsequent work by SOPAC and others conducting offshore surveys.

Solomon Islands' first three work requirements when SOPAC was established were under the Offshore Program were:-

- (1) Coastal survey, Choiseul to Santa Isabel, Bathymetry, gravity and magnetic profiling;
- (2) Traverse single-channel seismic profiling of the "Slot" area for petroleum potential evaluation;
- (3) Bathymetry, geophysical profiling and bottom sampling in Solomon Islands sea areas not covered by any other work.

### **Metalliferous Sediments**

#### *Background*

In offshore basins where sediments are deposited at an extremely slow rate, occurrence of manganese nodules is more likely. Manganese nodules are formed and continuously enlarged by precipitation of elements such as manganese and iron from seawater in a colloidal form and by the process of particle agglomeration. The dominant agencies adding manganese to the ocean are probably river run-off, submarine volcanic eruptions and submarine springs. The Santa Cruz Basin was expected to have the favourable conditions for manganese nodules formation and therefore was made a target area for manganese nodule survey.

Early surveys on Lake Tengano on Rennell Island revealed occurrence of a brown alumina hydroxide gel in shallow areas of the lake and concluded that the known Rennell bauxite onshore deposit originates from andesitic volcanic ash sediments by biogenic degradation in a shallow water environment.

Many nearshore geothermal emanations and offshore submarine volcanoes exist in Solomon Islands. Submarine basins adjacent to these geothermal areas provide favourable site for deposition of metal-rich sediments from these geothermal areas. Thus the requirement was to sample and analyse sediments from likely metal enriched submarine basins to determine their base metal concentration.

The areas next to submarine volcanoes such as Kavachi, Cook, and Kana Keoki; the Eastern Woodlark Basin; and high heat flow areas such as in the Vella and Kula Gulfs and around Vangunu in the New Georgia Group were target areas for survey.

### *Work done*

The work carried out by SOPAC that is of particular relevance to metalliferous sediments includes:

- (a) CCOP/SOPAC, MV Wakio cruise, SI-77(1) 1977. Indispensable Reefs and Lake Tengano Bauxite surveys, Southern Solomons.
- (b) CCOP/SOPAC, project CCSP-SI4 "Investigation of shallow submerged plateaus in the Manning Straights and SW Choiseul Island" was carried out in 1976 for bauxite deposits.
- (c) CCOP/SOPAC, Machias cruise, SI-79(2) 1979. Reconnaissance sampling (22 samples) at South Vangunu, Vella Gulf and Paraso bay. Samples analyzed.
- (d) CCOP/SOPAC, Machias cruise SI-81(1) 1981. Preliminary surveys for manganese nodules in the Santa Cruz Basin. The survey involved seafloor photography and sampling at six stations (Figure 1).
- (e) CCOP/SOPAC, *Machias* cruise, SI-81(2) 1981. The cruise was to accurately locate the Cook and Kavachi submarine volcanoes and sample their slopes and nearby basins for metalliferous sediments. Sampling of Kula Gulf was also made for metal enrichment related to high heat flow.

### *Results*

The work on Lake Tengano revealed that bauxite only occurred as pockets of grey

mud with an aluminium content in the lake bed strata.

The work on the Indispensable Reefs and on the submerged plateaus (Waghina) in the Manning Straight found no bauxitic sediments. However it was recommended that future exploration work should involve deep augering or drilling in the latter area.

No concentrations of either indicator metals (Mn or Al) or metal sulphides (Cu, Pb, Zn, Ni) were found in Paraso Bay, Vella and Kula Gulf, or South of Vangunu island.

No manganese nodules were collected from the six sample sites in the Santa Cruz Basin.

The results for the analysis of the sediment samples from the Kavachi Submarine volcano were not located during this review. Analyses of the discoloured seawater sample suggests that some metals are emanating from the vent.

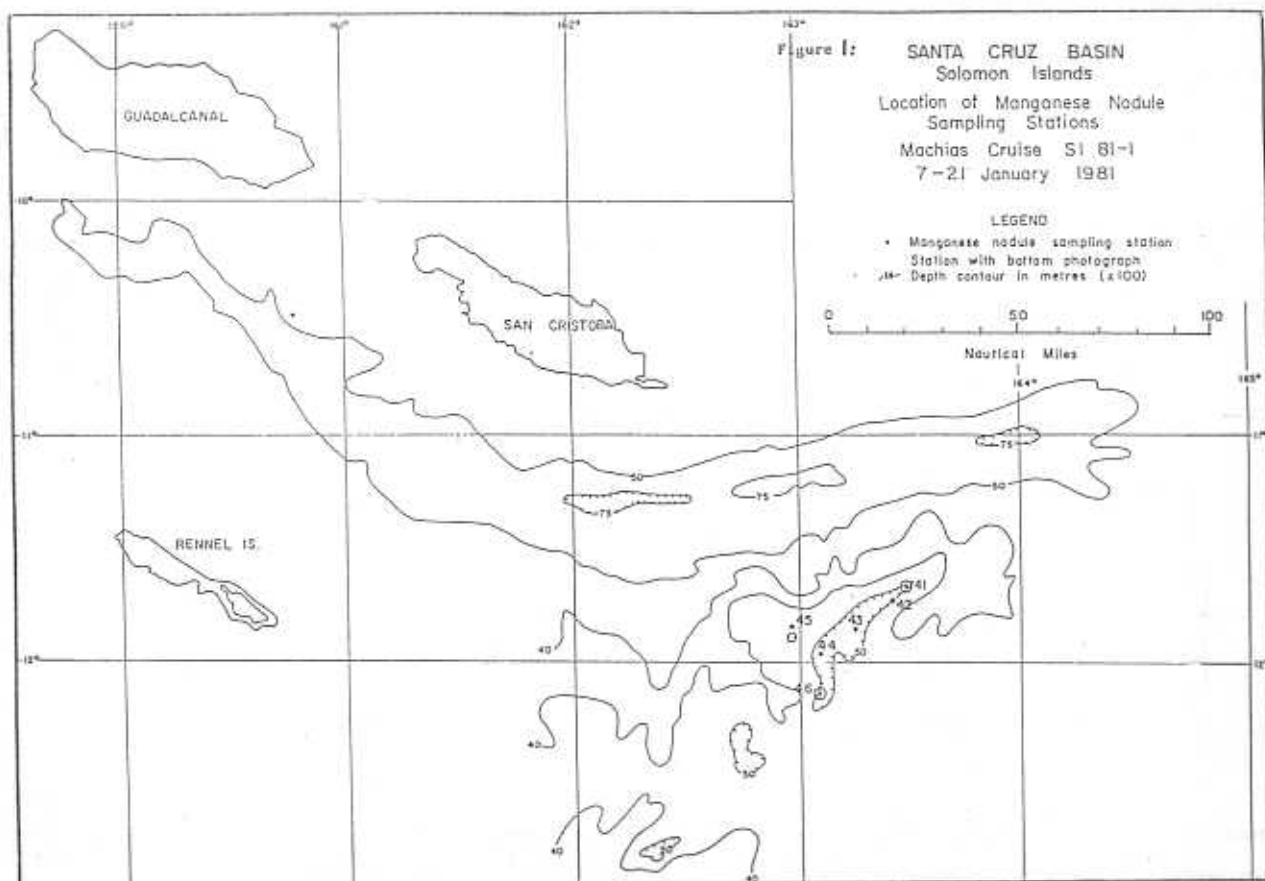


Figure 1. Santa Cruz Basin manganese nodule sampling stations.

Although the results of the work done by SOPAC in Solomon Islands offshore areas on metalliferous sediments are not encouraging, further work is still necessary in the offshore areas of the Volcanic Province of Solomon Islands and in the Woodlark Basin.

## **Phosphorite**

### *Background*

Phosphorite, a complex calcium phosphate rock, is a source of phosphate fertilizer and chemicals. It may occur as guano in lagoons or on submarine banks and shallow shelf areas where deep cold water, rich in dissolved phosphate and other nutrients, upwell and precipitate phosphorite. The northern part of the Solomon Islands chain is considered to have some prospectivity for phosphorite deposits.

### *Work done*

In 1981 SOPAC carried out a sampling program in the lagoons of Ontong Java, offshore reefs off North Malaita and the Durour Ridge off north Santa Isabel. The planned survey had also included the Roncandor Reef but due to lack of time this was not covered.

### *Results*

The result of the phosphorite survey on the offshore reefs of North Malaita was discouraging, whilst that for the Durour Ridge has some promising potential; unfortunately the results of an analysis referred to in SOPAC Cruise Report No.50 cannot be located.

The samples collected from the southeastern part of Ontong Java lagoon may mean that guano-derived phosphate may exist under the Halimeda sands. Any further prospecting will need drilling beyond the Halimeda sand.

## **Precious Corals**

### *Background*

Precious corals referred to in this review are corals whose skeleton is the raw material for the coral jewellery industry. Precious corals as a group consist of a variety of species. There are red, white, pink and non-calcareous gold and black species. All these species however have one factor in common: they are hard and dense enough to take and hold a good polish.

Precious corals fall into two categories, deep-water and shallow-water. The deep-water corals are primarily *Corallium* species (White, pink and red) but also gold and bamboo corals. These grow on hard substrate on ridges or ridge crests water depths of 150-500 m where there is no sediment. The shallow-water precious corals are the black corals which live over a wide depth range of 30-70 m depths.

Fragments of gem corals were reported from several localities in Solomon islands in late 1975 - early 1976 by a Japanese company, Takuho Eresi Ltd. The company did a survey for two and half months under the supervision of the Fisheries Division of the Ministry of Natural Resources. Unfortunately the company did not provide a report of the survey to Solomon Islands government. From the lack of further interest to continue the work by the company it is inferred that the results were unfavourable.

From the review of Solomon Islands SOPAC work program in 1978, and at the request of the Fisheries Division, the precious (gem) coral project was formulated.

### *Work done*

In 1979 the first detailed survey for precious corals, cruise SI-79(3) on the MV Komaliae was conducted by SOPAC with the Fisheries Division of Solomon Islands. The survey was carried out over the main island chain from Choisuel to San Cristobal. In 1981 the SOPAC Machias Cruise SI-81(1) made surveys for precious corals in the Santa Cruz islands.

### *Results*

From the 138 dredgings made during cruise SI-79(3), 27 recovered precious corals representing a 20% success rate at 12 different locations in the main island

chain. Three species of *Corallium* have been found of which two species are of commercial value. A follow up to cruise SI-79(3) was made in 1981 when further surveys on Ndai island - Indispensible Strait - Marau sound were made.

During the SOPAC *Machias* cruise SI-81(1), 40 sites were dredged and 31 sites recovered precious coral samples which were despatched for identification. Results have not yet been received.

The results of the surveys done so far have identified a number of areas in Solomon Islands that warrant further detailed investigations for *Corallium* occurrences. The work so far covered by SOPAC in the precious coral program for Solomon Islands does not extend to black precious coral species (shallow-water species); its investigations is also warranted. Refer to Figure 2 and Appendix 2 for *Corallium* species distribution and list of *Corallium* species identified in Solomon Islands.

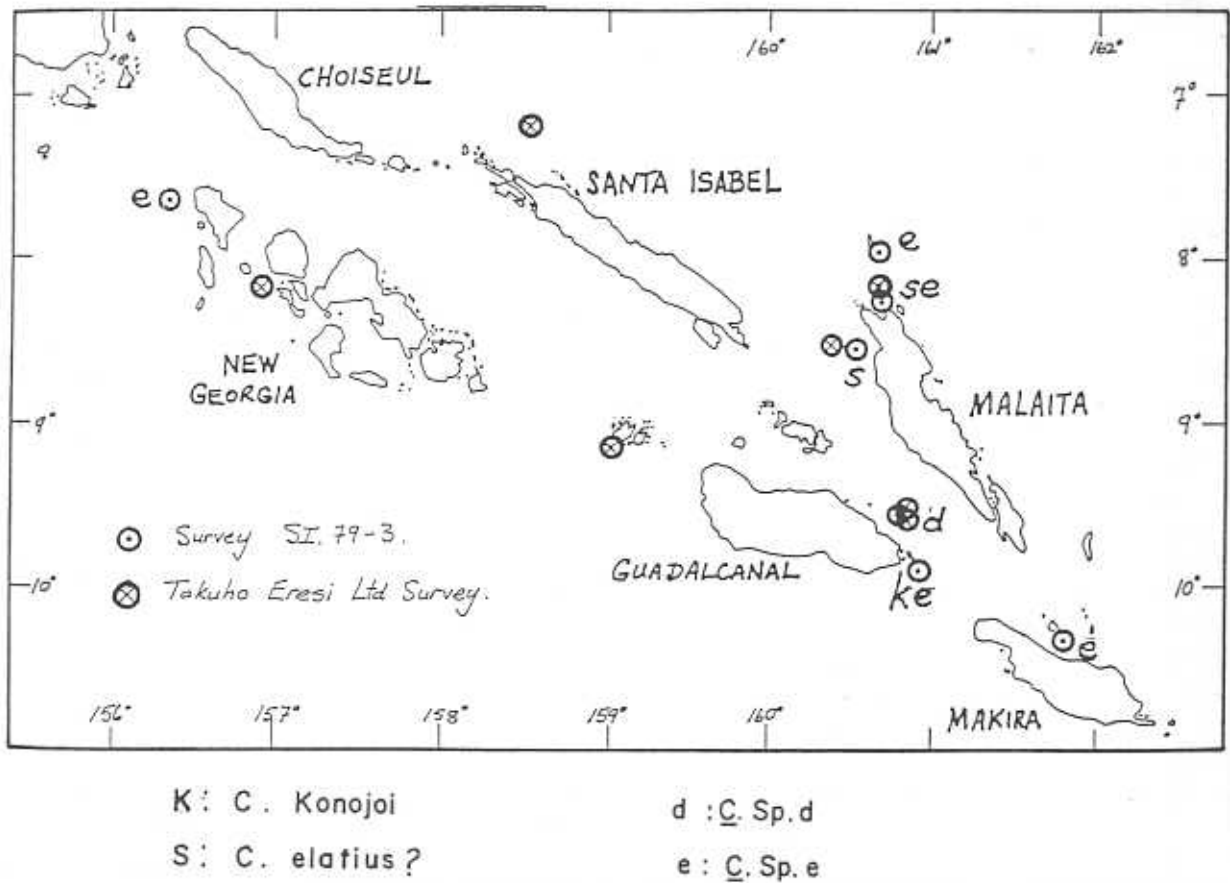


Figure 2. Distribution of *Corallium* in the central Solomon Islands.

## **Bathymetric Mapping**

### *Background*

The main objective of SOPAC's offshore seabed bathymetric mapping are to:

- provide sidescan imagery and bathymetric information for resource assessments in the EEZs of member countries;
- map areas of the seafloor for ongoing SOPAC investigations and provide a basis for planning further work.

Bathymetric data are collected by various techniques but those which are used increasingly include Seabeam, multibeam echosounding and bottom imagery systems such as GLORIA (Geological Long Range Inclined Asdic). In all offshore investigations, bathymetric data are collected to determine seabed topography and to correct depth for seismic interpretation work and seafloor imagery.

### *Work done*

Bathymetric data are collected on all scientific cruises along the vessel tracklines. A map indicating cruise tracklines in Solomon Islands, including cruise numbers and campaigns, is in Appendix 3.

In the early 1980s and prior to the Tripartite cruises, much work went into the compilation and production of the CCOP/SOPAC Miscellaneous Chart series, using data collected from all previous scientific cruises. Six charts cover the Solomon Islands area.

Although the EEZ of Solomon Islands is vast and has complex geology and scientifically interesting features, there have been few swath mapping cruises in Solomon Islands compared to other member countries since swath mapping techniques were introduced into the region. The only swath mapping using Seabeam and GLORIA as done in part of the Vanikoro Basin, Eastern Solomons, in 1989 during the SOPAC GLORIA Survey on the HMAS Cook and using SeaMARCII during the Tripartite II program on the RV Moana Wave in 1985 at the Woodlark Basin Triple Junction in the Western Solomons.

In 1990 a SeaBeam track was made in Solomon islands waters when the SONNE

68 - OLGA II Research Cruise transited through the San Cristobal Trench to the south of Rendova island.

### *Results*

By utilising the pre-1983 cruises bathymetric data, six Miscellaneous Charts were produced:

1. Chase, T.E, Seekins, B.A., Mann, G.M. 1983. Topography of the Solomon islands region, USGS-CCOP/SOPAC South Pacific Project. CCOP/SOPAC Miscellaneous Chart Series 16.
2. Chase, T.E, Seekins, B.A., Cloud, M.A. 1983. Topography of the Solomon islands region between 10' - 12'S and 161' - 165'E. USGS-CCOP/SOPAC South Pacific Project: plate 7 of 11; CCOP/SOPAC Miscellaneous Chart Series 17.
3. Chase, T.E, Seekins, B.A., Cloud, M.A. 1983. Topography of the Solomon Islands region between 8' - 10'S and 161' - 165'E. USGS-CCOP/SOPAC South Pacific Project: plate 8 of 11; CCOP/SOPAC Miscellaneous Chart Series 18.
4. Chase, T.E, Seekins, B.A., Cloud, M.A. 1983. Topography of the Solomon Islands region between 6'30' - 10'S and 158'30' - 160'E. USGS-CCOP/SOPAC South Pacific Project: plate 9 of 11; CCOP/SOPAC Miscellaneous Chart Series 19.
5. Chase, T.E, Seekins, B.A., Cloud, M.A. 1983. Topography of the Solomon Islands region between 6'30' - 10'S and 156' - 158'30'E. USGS-CCOP/SOPAC South Pacific Project: plate 10 of 11; CCOP/SOPAC Miscellaneous Chart Series 20.
6. Chase, T.E, Seekins, B.A., Cloud, M.A. 1983. Topography of the Solomon islands region between 4'30' - 8'S and 154' - 156'E. USGS-CCOP/SOPAC South Pacific Project: plate 11 of 11; CCOP/SOPAC Miscellaneous Chart Series 21.

The SeaMARC II survey of 1985 mapped the Kana Keoki submarine volcanic seamount and discovered a new larger volcanic seamount now named Coleman. The 1990 SeaBeam transit survey confirms the Kana Keoki volcanic origin but failed to do so for the Coleman volcanic seamount. Apart from these discoveries, bathymetric profiles were obtained.

The SOPAC GLORIA survey has improved the geological understanding of the

Vanikoro Basin and Jean Charchot Troughs in the Eastern Solomons region.

Currently there are eight areas in the Solomon Islands that are targeted for further swath mapping surveys under SOPAC's work programs (Figure 3).

## HYDROCARBON PROGRAM

### *Background*

The interest in the petroleum potential of the South Pacific aroused after the discovery of seepages of crude oil in Tonga in 1968 was also experienced in Solomon Islands when a number of oil companies commenced offshore seismic reflection surveys (Table 1).

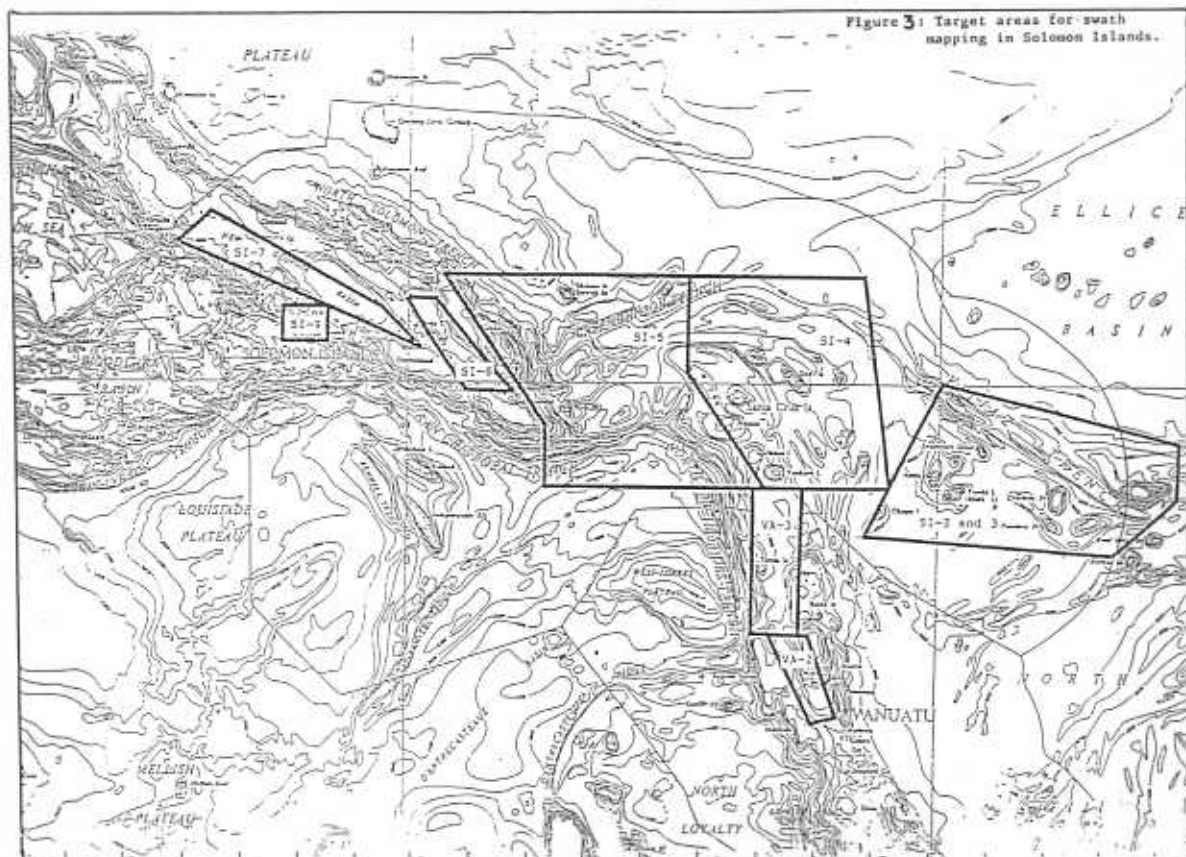


Figure 3. Target areas for swath mapping in Solomon Islands.

**Table 1.** Summary of Exploration for petroleum resources in the Central and Western Solomon Islands and Bougainville area of Papua New Guinea 1969 - 1984.

DATE	SURVEYED BY	SURVEY LOCATION	LENGTH (KM)	DESCRIPTION
October-November 1969	Magellan Petroleum (Australia), Ltd.	Shortland Islands shelf, Bougainville Strait, Manning Strait, Indispensable Strait, region between Malaita and Guadalcanal.	769 (discontinuous traverses)	Seismic survey (airgun and sparker).
1969-1970	Bataafse Internationale Petroleum Maatschappij N.V.	Shortland Islands, Choiseul, Santa Isabel, Guadalcanal, Malaita.		Field examination of exposed sedimentary rocks.
May 1971	Shell International Petroleum	Shortland Islands, New Georgia Sound, Malaita, Indispensable Strait, San Cristobal, and Rennell Island.	2764	Multichannel seismic reflection. Magnetometer, Gravimeter.
October 1971	Western Geophysical and Teledyne Exploration International, Inc. for Southern Pacific Petroleum	Manning Strait	141	12-fold digital seismic reflection
October-November 1971	Teledyne Exploration Company	Shortland Islands, Bougainville Strait, Choiseul, Santa Isabel, Florida Islands, north coast Guadalcanal, Malaita, Ulawa	2458	Seismic survey (sparker)
June 1972	Mobil Oil Corporation	North coast San Cristobal, Malaita, north coast Guadalcanal, Russell Islands area, Manning Strait, north coast Choiseul, Bougainville Strait, south coast New Georgia	4447	Multichannel seismic reflection. Sonobuoy seismic refraction.
1972	Australian Gulf Oil Company	Shortland Islands shelf, Bougainville Strait, north coast Choiseul, New Georgia Sound, south coast Santa Isabel, region between Malaita, Guadalcanal, and San Cristobal.	2480	Single-channel and multichannel seismic reflection. Sonobuoy refraction profile. Magnetometer. Gravimeter.
1973	Western Geophysical Company	Shortland Islands shelf, Bougainville Strait, north coast Choiseul, Manning Strait, Russell basin, Iron Bottom basin, Sealark Channel, and area east of Guadalcanal.	100 (approximate)	Multichannel seismic reflection. Other (?).
1975	AUSTRALDEC III Centre National d'Exploitation des Océans, Office de la Recherche Scientifique et Technique Outre-Mer, Institut Français du Pétrole Comité d'Études Pétrolières Marines	Central Solomon Islands, Woodlark Basin, New Ireland forearc.	5000	Multichannel seismic reflection (12- and 24-fold).
December 1978	Western Geophysical for Pacific Energy and Minerals, Ltd.	Area between Guadalcanal, Savo Island and the Florida Islands	100	Multichannel seismic reflection.
1979	CCOP/SOPAC	New Georgia Sound	4064 (trackline spacing 15-25 km)	Single-channel seismic reflection.
May-June 1982	CCOP/SOPAC R/V S.P. Lee (L7-82-SP)	Shortland Islands, New Georgia Sound, Indispensable Strait, Iron Bottom Sound, Malaita fold belt, New Georgia-Guadalcanal forearc area	5500 (trackline spacing 10-30 km)	Multichannel seismic reflection (24-fold). High-resolution Uni-boom seismic reflection. 3.5 kHz high-resolution seismic reflection. 12 kHz bathymetric profiles. Wide-angle seismic reflection/refraction sonobuoy profiles. Magnetometer. Gravimeter.
1982	U.S. Geological Survey	Guadalcanal, Florida Islands, Malaita		Field examination and laboratory analysis of outcrop samples and cores.
June 1984	CCOP/SOPAC R/V S.P. Lee (L6-84-SP)	Central and western Solomon Islands, eastern Papua New Guinea	2000	Multichannel seismic reflection (24-fold). High-resolution Uni-boom seismic reflection. 3.5 kHz high-resolution seismic reflection. 12 kHz bathymetric profiles. Wide-angle seismic reflection/refraction sonobuoy profiles. Magnetometer. Gravimeter.

Solomon Islands is part of the same island arc system as the Tonga Arc and the petroleum potential can be said to be similar or even greater because of its greater area and the additional dimensions of structural plays.

Advances in the understanding of the onshore geology of Solomon Islands started when reconnaissance work in the islands in the early 1950s. The first geological map of Solomon Islands was published in 1960 and petroleum exploration work in the Solomon Islands started at that time, mainly onshore,

A waning of interest in oil company exploration investment occurred in the late 1970s, and SOPAC initiated hydrocarbon exploration work with other institutions throughout the region in 1979, including Solomon Islands.

In this program the S.P. Lee cruises were arranged under the Australia-New Zealand-United States Tripartite Agreement with CCOP/SOPAC as part of the marine geoscientific research and mineral resource studies in the South Pacific region.

#### *Work done*

Offshore geophysical investigations for the evaluation of hydrocarbon resources in the Solomon Islands began in 1969 when Magellan Petroleum Ltd of Australia initiated geophysical prospecting in the area. Industry interest increased with eight companies, undertaking geophysical surveys in the area during the years that followed up until 1975.

SOPAC started offshore geophysical work for hydrocarbon investigations in the Solomon Islands in 1979 and was then followed by the CCOP/SOPAC co-ordinated Tripartite program in 1982 to 1984. The work done included offshore geophysical and geological surveys, and onshore source rock sampling (Refer Figure 4 for source rock sample sites).

Interpretation of commercial multi-channel seismic reflection profiles from the southern, nearshore part of Iron Bottom Basin by SOPAC was done in 1990 and a report was presented (Johnson & Pflueger 1990). Figures 5 and 6 show the study area and results of interpretations made.

SOPAC has played a key advisory role in the formulation of the Solomon Islands Petroleum Act 1987 and continues to do so for the Petroleum Regulations.

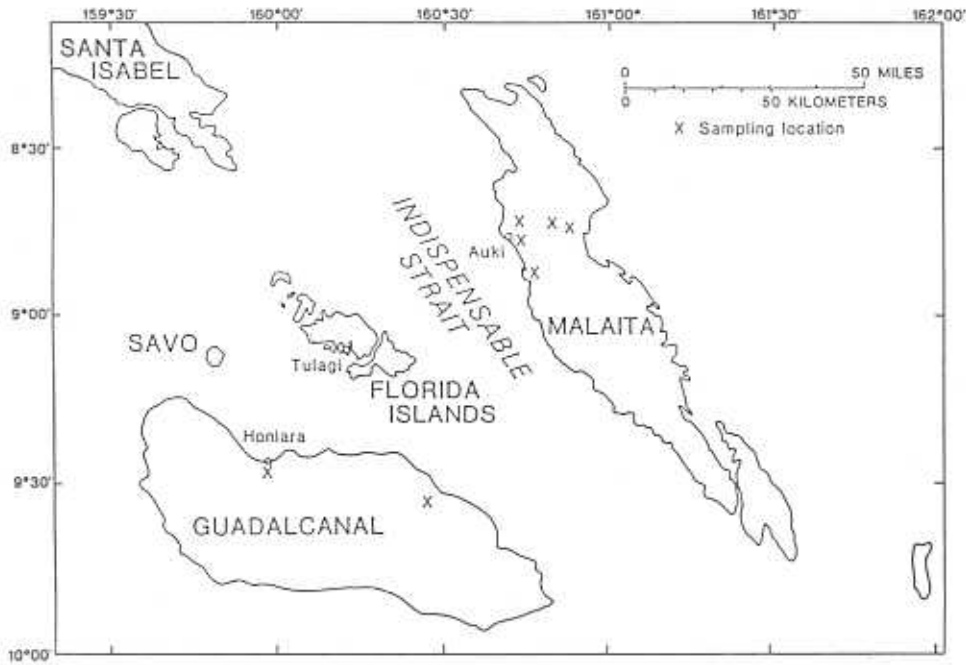


Figure 4. Location map showing source rock sampling locations in the Solomon Islands.

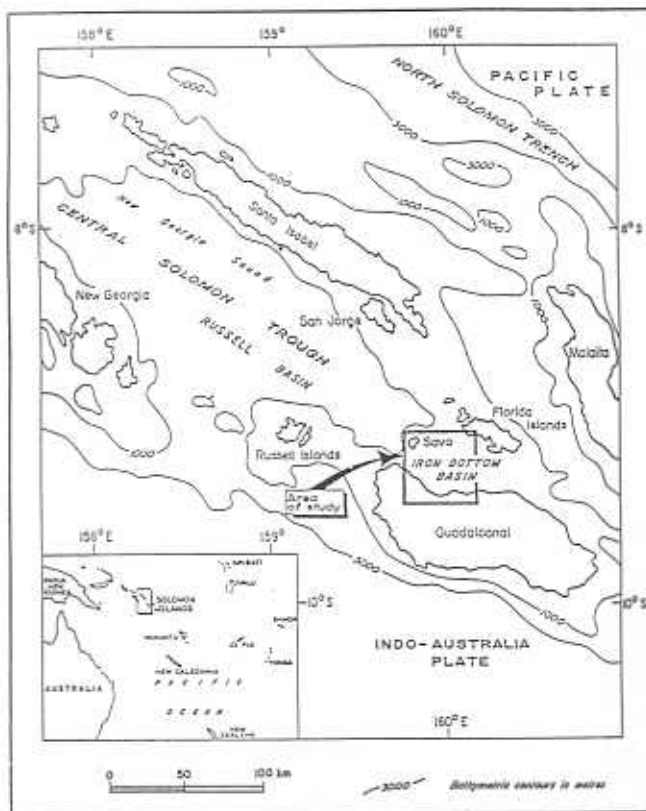


Figure 5. Map of central Solomon Islands showing the location of Iron Bottom Sound.

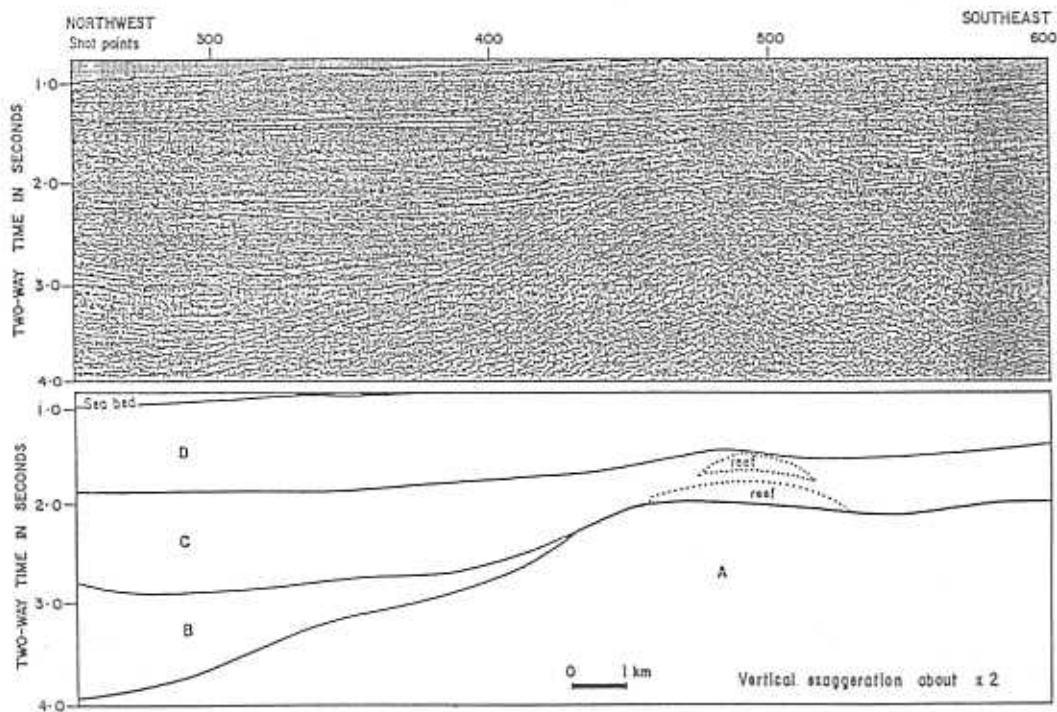


Figure 6. Interpreted multi-channel seismic reflection profile across Iron-Bottom Basin, showing Mio-Pliocene and Pliocene reef mounds which are potential hydrocarbon traps.

Promotional activities on the petroleum potential of Solomon Islands to international oil companies have continued during recent years. This involves attendance and poster presentations at international petroleum conferences and planned production of a revised Solomon Islands Petroleum Brochure by SOPAC in 1993.

### Results

The results of all the onland and offshore work during the Tripartite program is reported in Volumes 4 and 12 of the Circum Pacific Council for Energy and Mineral Resources Earth Science series. The papers in these volumes emphasised the geological framework and tectonic history of the region that is vital for assessing the generation and concentration of oil and gas.

The study has defined five favourable offshore targets for future hydrocarbon exploration namely Mbokokimbo Basin, Iron Bottom Basin, Russell Basin, Shortland Basin and the New Georgia Wedge. The analysis of a few source rock samples collected on land for the study indicate a poor organic content dominantly of type II kerogen, which is the type more likely to yield natural gas than liquid hydrocarbons.

One valuable result of the work done by SOPAC for the Solomon Islands hydrocarbon program was the production of the Solomon Islands hydrocarbon promotional brochure in 1989. The brochure publicised the results of the re-interpretation of commercial data in 1990 for the Iron Bottom Basin, revealing the possible existence of fossil reefs that could be potential hydrocarbon traps,

The results of the Tripartite and previous offshore work improved the understanding of offshore geology and structure and provided the chance to review and refine the knowledge of onland geology. The result of the work provides an improved knowledge of offshore mineral resource potential, and of the geological hazards in Solomon Islands.

### *Hydrocarbon Potential*

Although significant hydrocarbons have not been conclusively identified in Solomon Islands; the following factors suggests that there is a potential;

- the presence of thick sedimentary basins;
- the presence of structural, stratigraphic, and reefal traps;
- sedimentary formation continuity from the basin centres to the margins;
- the thermal history, both from sediment thickness and high heatflow from the intra-arc basins, appears to be favourable for hydrocarbon generation;

Negative features that may discourage exploration for oil in the region are:

- apparent lack of good source rocks;
- signs of secondary cementation (diagenesis) in rocks through which hydrocarbons may migrate or be stored;
- large areas with water depths beyond present day production technologies;
- incomplete legislation.

Unknown factors that need to be determined before a comprehensive hydrocarbon evaluation is complete consist of:

- identification of subsurface stratigraphic sequences;
- determination of source rock potential;

- porosity and permeability of potential reservoirs i.e. potential reservoir volumes;
- heat flow measurements to determine thermal gradient history;
- further delineation of potential traps;
- determination of closure and reservoir area.

The current dedication by SOPAC to Solomon Islands' hydrocarbon program is highly appreciated.

## **COASTAL PROGRAM**

The majority of SOPAC's field studies are in this program, which provides information on the physical aspects of coastal and nearshore areas to assist member countries with resource and environmental management so that their coastlines can be conserved, utilised or developed wisely.

The program is divided into four sub-programs: Nearshore minerals; Coastal management and development; Coastal and nearshore mapping and Ocean energy.

### **Nearshore minerals**

#### *Background*

The assistance and advice in the investigation, assessment and management of nearshore sand and gravel aggregate resources is a significant requirement for many of SOPAC member countries because of their importance in their construction industry.

The investigation of detrital minerals such as gold in the nearshore areas is also an important requirement also for some SOPAC member countries.

Prior to the recent addition of the Onshore Program to SOPAC's programs in 1992, a number of onshore mineral surveys were completed in the Solomon Islands under the nearshore program.

#### *Work done*

The first-ever field work done by SOPAC on its establishment in 1975 was the

investigation of the gold potential of sediments at the Matepono River delta, Guadalcanal. Follow up work on the same site was made in 1991 and preparations for a more detail work is now underway for 1994 (Figure 7).

In 1982 SOPAC carried out a survey to investigate the potential of heavy mineral sand occurrence in the San Jorge and Southeast Santa Isabel nearshore areas.

An investigation into the potential of ceramic clays in Solomon Islands was made on Guadalcanal in 1981 by SOPAC. The work involved sample collection (24 samples) and analysis (Figure 7).

An assessment of the quality of the known pyrope garnet from North-Central Malaita with its potential to stimulate a cottage industry in tumble-polished stones was made in 1984. The work involved collection of samples, mineralogical analysis and possible market and value analysis.

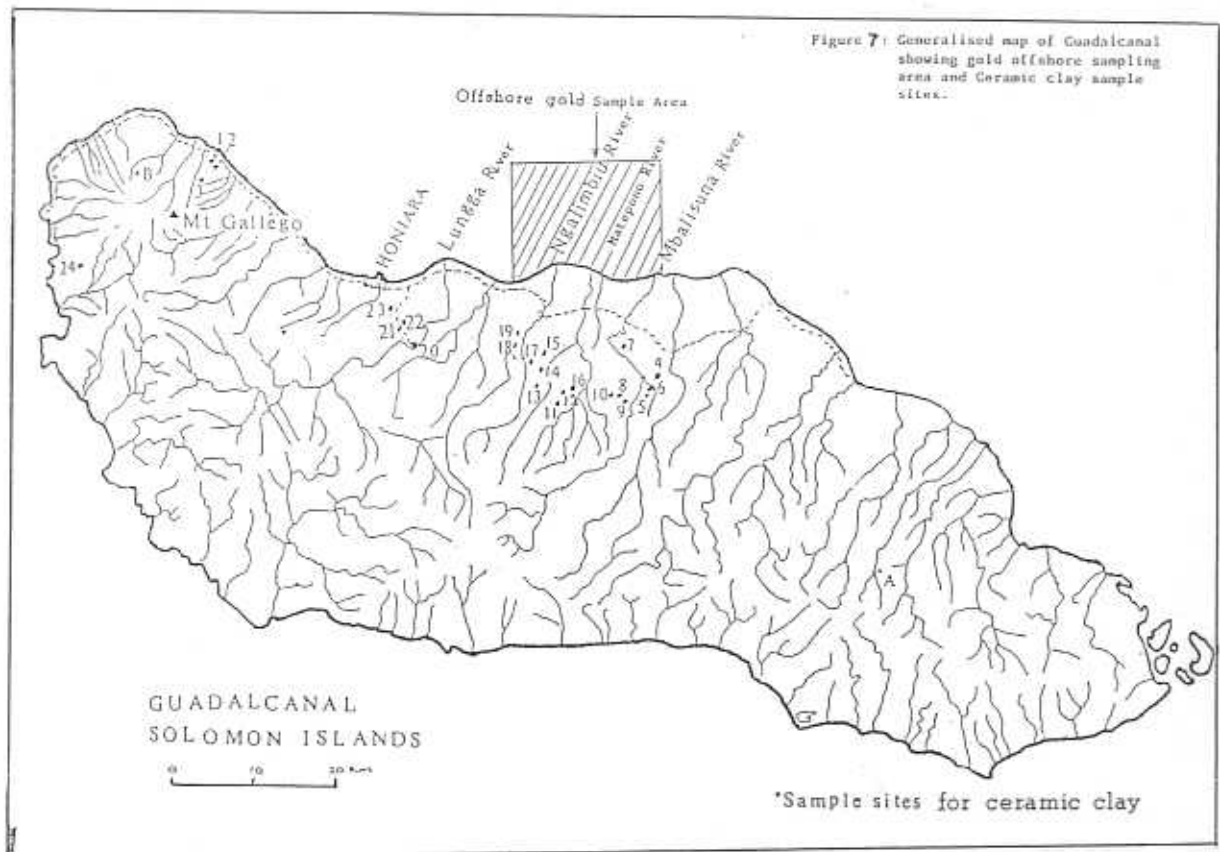


Figure 7. Generalised map of Guadalcanal showing offshore gold sampling area and ceramic clay sample sites.

### *Result*

The work done so far reveals the occurrence of gold in the nearshore sediments and in the beach sands at the Matepono River delta. The possible existence of a old buried river channel and a transgressive horizon of an old land surface has been identified. Further work to core sample these possible sites of gold concentration have been recommended.

The result of the heavy mineral sand survey indicates that there is no chromium content of sufficient quantity to arouse economic interest. However two offshore areas, Baravale passage and Ortega Channel, were recommended for shallow offshore coring (drilling).

The ceramic clay investigation confirms that there are materials with possible ceramic potential in Solomon Islands. Of the 24 samples collected, four were found to yield suitable material and were recommended for further investigation in some detail. Figure 7 shows general sample site locations.

The conclusive results of the North-Central Malaita pyrope garnet assessment are presented in Appendix 4.

## **Coastal Management**

### *Background*

This SOPAC work sub-program mainly deals with collection of baseline marine data that are necessary to aid future good coastal management of developing areas and those areas where coastal development is proposed. Data collection includes current studies; physical, chemical, and biological characteristics of waters, residence periods; fresh water discharges; bathymetry; coastal and beach morphology; and earthquake, cyclone, flood and other hazards.

A baseline study is usually undertaken to obtain and interpret basic information regarding physical conditions in a given location in order to enhance ongoing development planning, and to assemble and improve data bases for future site-and industry-specific resource management and environmental protection strategies. Such studies should provide the best possible relevant baseline information and resource data past and economic potential development in an area on ecosystems. This

includes information on value, constraints, dynamics, hazards and resource management requirement.

Such full assessment would require the expertise and resources of many institutions. SOPAC undertakes the collection of only the physical characteristics of coastal and nearshore areas.

#### *Work done*

SOPAC has carried out a number of baseline studies in the Solomon Islands during the last few years which include the following:

- the study of the Naha waste water outfall, Honiara in 1981,
- the baseline study of Port Noro, Harthon Sound, New Georgia Island, in 1984,
- the baseline oceanographic data collection and analysis from off Lungga Point in the Tenaru Bay, Guadalcanal, in 1986,
- the study of the Quaternary geology of the Guadalcanal coastal plain and adjacent sea bed which was completed in 1990,
- the study of the coastal environment of Kwai and Ngongosila islands, Malaita Province, in 1990,
- the baseline study of coastal erosion, Gizo Township, Western Province, in 1990,
- the study of coastal erosion of Ranadi Beach, Honiara, Guadalcanal which was completed in 1992,
- air photographic survey of coastal areas, north Guadalcanal, in 1992;
- a current meter survey off Ranadi Beach completed in 1993.

#### *Results*

The Naha waste water outfall survey indicates that an increase in adverse aesthetic, public health, and ecological impacts will certainly occur in the Kukum nearshore waters unless the effluents are treated before discharging or the outfall is extended well offshore. The report recommends that further environmental studies should be done in all of Honiara waste water outfalls to determine the overall pollution and find ways to reduce the pollution threat.

The results of the baseline studies of Port Noro are presented in CCOP/SOPAC Cruise Report 87. The study provides baseline data for the Noro seawater area for future comparison and reference for determining whether any pollution has occurred. The report recommended annual monitoring of the seawater area of Port Noro.

The results of the baseline oceanographic data collection and analysis from offshore Lungga point are presented in CCOP/SOPAC Technical Report 67.

The result of the study of the Quaternary geology of the Guadalcanal plains and adjacent seabed revealed that the Guadalcanal Plains are the largest alluvial plains in the SW Pacific apart from Papua New Guinea and probably the richest land resource of Solomon Islands. The plains is a product of 8 coalescing river deltas. Since the mid-Holocene, the rivers have built a sediment pile 290 km in area and 50 m in thickness. Coastal changes measured over the last 40 years indicate an average annual progradation for the whole delta complex of 1 million m of sediment. The report also reveals that the rivers on the coastal plain show distinctly different morphologies, sediment loads and flow regimes which are dependent on their flow energy. The report recommends that detailed studies of each river are necessary to evaluate differences in their flow regimes and morphologies - a prerequisite for devising strategies to cope with their flood channel zone. The report also recommends land use surveys of the swamp zones in the plains with a view to assessing the long term value in environmental, human and commercial terms; and to identify flood-vulnerable sites on the plains to devise plans for mitigating the impacts of future severe floods.

The preliminary results of the study of the coastal environment of Kwai and Ngongosila islands indicate that coastal erosion is occurring on the eastern sides of both islands. The erosion is caused by the natural occurrence of high tides coupled with low intensity waves reformed after breaking on the nearby reef. The report recommends that a Coastal Engineer be sought to develop an economical and reliable long-term plan of coastal protection for both islands: Resettlement of some of the islands' population to the main island of Malaita may also be a solution.

The baseline study of coastal erosion of Gizo township revealed that erosion is severe in the villages of Malakarava 1, 2, and 3 near Gizo township although the township itself appears to be at little risk. The report recommends that a six-monthly beach profile survey be made and a Coastal Engineer be consulted for specific advice on remedying the erosion problem.

The result of the Ranadi Beach coastal erosion study clearly indicates that the central portion of Ranadi Beach is eroding at a rate between 1-2m/yr and that the beach has been undergoing erosion for at least 3-4 decades (Figures 8 and 9). The report recommends that the beach mining be discontinued and installations be built 40 m from the shoreline.

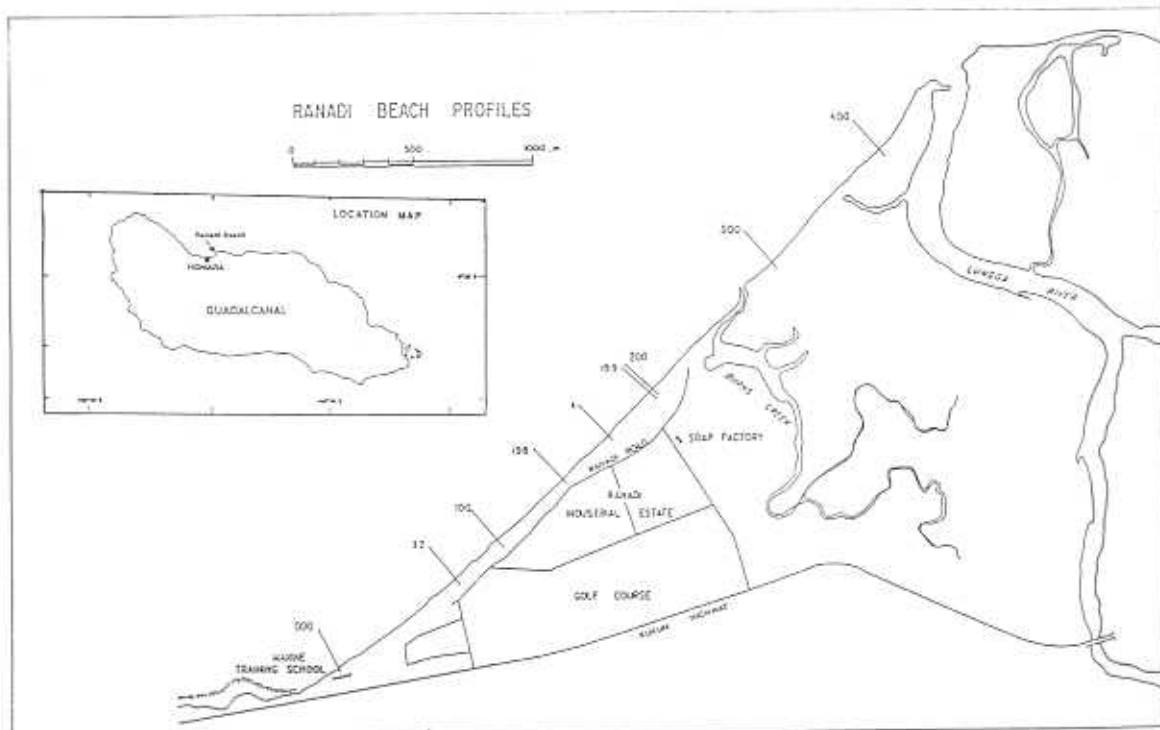


Figure 8. Location of beach profiles on Ranadi Beach.

The aerial photography survey of northern coast of Guadalcanal has resulted in a series of colour photographs available for a variety of purposes.

The result of the current meter survey completed in early 1993 was not available when this report was prepared.

## TRAINING PROGRAM

### *Background*

The lack of appreciable understanding and experience in marine geology within the SOPAC member countries in the early days has led to the need for a co-ordinated approach to matters related to research and development of non-living marine resources in the region. In order to improve the capabilities of SOPAC member countries in marine geology, training was incorporated into the SOPAC Work Program.

The overall objective of the SOPAC Training Program is to develop and strengthen the manpower and institutional capabilities of member countries in the application of geoscience to the management and development of their non-living resources.

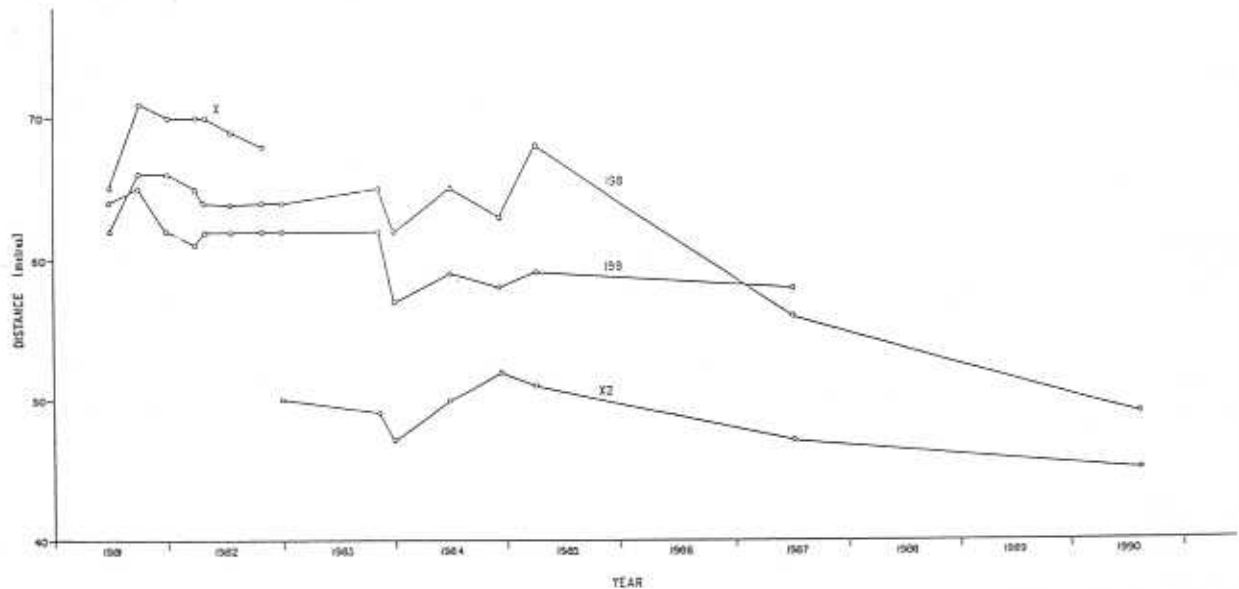


Figure 9. Change in position of the shoreline (mean water level) three beach profiles, 1981-1990.

The training requirements of SOPAC member countries are met in a number of ways including general education in earth sciences as well as technical, scientific and management training in marine and coastal geology and non-living resources assessment. The current training activities of SOPAC are grouped as follows:-

A. Certificate courses:

1. Certificate in Earth Science and Marine Geology.

B. Scholarships:

1. First degree training.

C. On-the-job training:

1. Training at the Secretariat (fellowship scheme)
2. Management attachment at the Secretariat (Management scheme)
3. Training during field work and cruises
4. Training at places other than the Secretariat.

D. Workshops and Seminars:

1. Coastal Mapping

2. SOPAC Annual Session Workshop
3. Other workshops - in-country workshops
4. Seminars

### *Participation in Training Activities*

Solomon Islands has participated in SOPAC's training activities since 1975 and continues to do so still. Table 2 summarises the training activities of SOPAC in which Solomon Islands nationals have participated since 1975. Figure 10 shows Solomon Islands' position in SOPAC training activities for the years 1988 and 1989 in relation to other member countries.

The training activities of SOPAC have mostly been undertaken by staff of the Geology Division, but recently the trend now tends to include staff of other related departments of the government.

**Table 2.** Summary of training for Solomon Islands.

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Earth Science & Marine Geology Course <sup>1</sup>	1 96	2 84	3 126	4 126	3 336	3 252	2 188	3 275	3 246	3 252	3 7
Scholarship									1 7	1 7	1 7
On-the-Job Training	3 39	2 26	1 21	6 87	1 34	1 69	3 93	30 210	32 262	6 114	1 312
Coastal Mapping	1 10	1 10	2 16		2 24		4 56	1 12	1 12	1 10	
Training Workshops			1 7		1 7	3 44	2 14	5 58	4 18	4 19	
<b>T O T A L S</b>	<b>5 105</b>	<b>5 120</b>	<b>7 170</b>	<b>9 213</b>	<b>8 401</b>	<b>7 365</b>	<b>11 351</b>	<b>39 533</b>	<b>40 539</b>	<b>14 395</b>	<b>5 312</b>

No. of participants in the left side of the column  
No. of man-days in the right side of the column

Total Participants (1975 - 1993 incl): 189  
Total man-days (1975 - 1993 incl): 4758

#### NOTES

For 1975 - 1979 data refer SOPAC Miscellaneous Report 23  
For 1975 - 1987 data are Annual Session to Annual Session  
For 1988 data are 16th Annual Session (Oct. 1987) to 31 December 1988  
For 1989 - 1993 data in calendar years

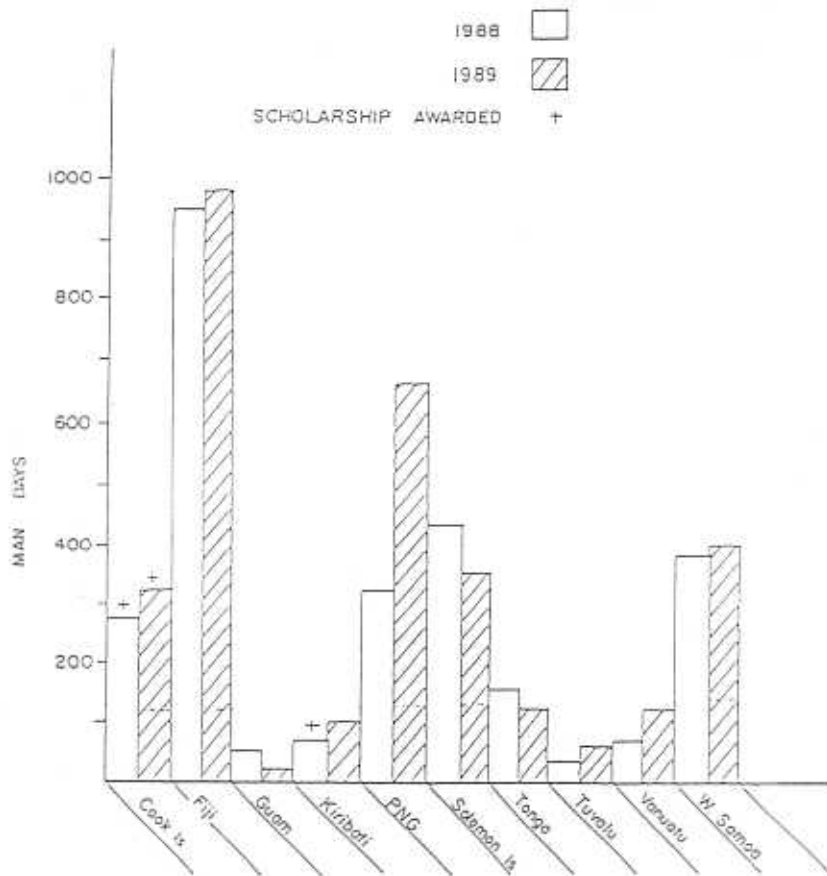


Figure 10. Training summary by country, 1988, 1989.

## INFORMATION PROGRAM

### Background

The information program is one of the important programs in SOPAC's activities because it collects, collates, and provides the results of all the program activities of SOPAC in a technical format.

The Information Program includes technical services for publication and distribution of SOPAC reports, drafting and production of maps, provision of library services, and the Regional Data Centre.

The Regional Data Centre locates and acquires all offshore cruise data in the SOPAC region, digitises where necessary and stores the data in computer in a readily accessible format.

#### *Work done*

Most of the reports prepared by SOPAC on Solomon Islands are products of the Information Program which carries out the review and publication of each report.

In 1990 and 1992, assistance in the strengthening of the Ministry of Natural Resources Library was received from SOPAC. The work reviewed the Ministry of Natural Resources' library contents, set-up and cataloguing and recommend improvements. A training attachment was made at the SOPAC Technical Secretariat Library by a Solomon Islands national.

The final compilation and provision of cruise tracklines and figures for this report was made available by the data management unit of the Information Program.

#### *Results*

The high quality of SOPAC's publications, the accessibility to cruise data and the efficient cataloguing and classification of materials in the SOPAC Library reflects a high quality output from the Information Program.

### **CONCLUSIONS**

Without the existence of SOPAC, it would have been difficult for Solomon Islands to obtain the amount of marine geological, geophysical and environmental data that it now has and which form the basis for geoscience developments in Solomon Islands.

The results of the investigations that have been conducted and co-ordinated by SOPAC in various fields of marine geosciences have helped improved the understanding of Solomon Islands onshore, nearshore and coastal geology and environment, and the mineral resource and development potential.

The work done by SOPAC so far have aided Solomon Islands in:

- better understanding of offshore geology in relations to onshore geology;

- better understanding of nearshore detrital mineral resources potential;
- the knowledge that although manganese nodules may not be found, offshore ferrous sediments and sulphides may occur;
- the location of precious corals and the identification of sites needed further detailed studies;
- the co-ordination of collection of the vast amount of bathymetric data that currently exist;
- the identification of sedimentary basins and determination of their hydrocarbon potential;
- the promotion of hydrocarbon potential;
- the formulation of hydrocarbon legislation;
- the collection of baseline data required for specific developed and developing areas so that sound environmental management decision on these areas can be made;
- the safe repository of offshore, nearshore and coastal data;
- the training of nationals in technical, scientific and management skills.

Solomon Islands have benefited for the last 20 years from the activities of SOPAC. Without SOPAC the projects so far covered would have not been carried out under bilateral funding as the projects would have been accorded low priorities because of their complexity, high cost and the lack of direct immediate economic benefits. SOPAC assistance is seen as most benefiting major projects with long term scientific or economic benefits, or small projects requiring high level technical or professional inputs.

## **RECOMMENDATIONS**

The following recommendations have been developed from this review in order to improve the usefulness and application of the work done by SOPAC for Solomon Islands in the past and to improve the value of projects to be carried out by SOPAC for Solomon Islands in the years to come.

1. A full review of each of the individual SOPAC programs should be made assessing past work and evaluating the future work program for Solomon islands.
2. An assessment of all reports produced for Solomon Islands should be made to ensure whether reports have been worthwhile.
3. An assessment of all report recommendations should be made to find out which

needed immediate follow up, whether such follow up work is to be carried out by SOPAC or by Solomon Islands.

4. For all work program/tasks completed, SOPAC should monitor the implementation and usage of the results and reports.
5. SOPAC should assist and advise, where feasible, in the implementation of report recommendations.
6. SOPAC should review all reports produced and prepare addendum reports to those which are still incomplete (Some of the reports have analytical data results still not reported).
7. SOPAC should collaborate more closely with member countries in preparing annual work programs to ensure work programs are well defined with clear objectives and ensure the results of the work are used immediately for the purpose requested rather than shelved.

## **APPENDIX 1**

### **SOPAC Reports on the Solomon Islands**

## APPENDIX 1

### *SOPAC Reports on the Solomon Islands*

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#### CCOP/SOPAC CRUISE REPORT

- Eade, J.V. 1975. Solomon Islands offshore gold survey, 10 November - 8 December 1975. CCOP/SOPAC Cruise Report 1: 14 p.
- Eade, J.V., Thompson, R-M., Iko, S. 1977. Indispensable Reefs and Lake Tegano bauxite surveys, southern Solomon Islands, 5 - 18 May 1977. CCOP/SOPAC Cruise Report 8: 6 p.; 6 appendices
- Eade, J.V. 1980. Solomon Islands/Papua New Guinea offshore survey, cruise SI79-2. CCOP/SOPAC Cruise Report 24: 5 p.; 2 appendices
- Eade, J.V. 1980. Solomon Islands offshore survey, Cruise SI 79(3), 10 October - 25 November 1979. CCOP/SOPAC Cruise Report 38: 13 p.; 7 tables; 23 fig.
- Gayman, W. 1981. Solomon Islands offshore survey, cruise SI 81(1), 7-21 January 1981. CCOP/SOPAC Cruise Report 49: 6 p.; 1 app.
- Exon, N.F. 1981. Solomon Islands offshore survey: phosphate and metalliferous sediments, Cruise SI81(2), 24 January - 2 February 1981. CCOP/SOPAC Cruise Report 50: 7 p.; 2 app.
- Saphore, E., Exon, N.F. 1981. Rennell Arc seismic survey, cruise SI 81(3), 10-15 February 1981. CCOP/SOPAC Cruise Report 51: 3 p.; 2 app.
- Tiffin, D.L. 1981. Papua New Guinea geophysical survey, cruise PN 81(3), 25-31 March 1981. CCOP/SOPAC Cruise Report 54: 6 p.; 2 app.; 1 fig.
- Gayman, W., Gauss, G.A. 1981. Naha waste water outfall, Honiara, Solomon Islands, 17 June - 8 July 1981. CCOP/SOPAC Cruise Report 60: 25 p.; 1 app.
- Gauss, G.A. 1983. San Jorge heavy mineral sand survey, Solomon Islands, 9-29 July 1982. CCOP/SOPAC Cruise Report 66: 12 p.; 2 app.
- Taylor, B., Exon, N.F. 1982. Ridge subduction in the Woodlark-Solomons region, "Kana Keoki" Cruise 82-03-16 Leg 5, 15 May - 7 June 1982. CCOP/SOPAC Cruise Report 70: 25 p.
- Tiffin, D.L., Vedder, J.G., Cooper, A. (and shipboard scientific party) 1983. Multichannel seismic and geophysical survey of 'The Slot' and adjacent areas in the Solomon Islands, 19 May - 11 June 1982. CCOP/SOPAC Cruise Report 71: 16 p.; 5 fig.; 5 tables
- Carter, R. 1984. Baseline study of Port Noro, Hathorn Sound, New Georgia Islands, Solomon Islands, 23 June - 6 July 1983. CCOP/SOPAC Cruise Report 87: 23 p.; 14 fig.; 9 tables
- Radke, B.M. 1984. Assessment of the potential of the North Malaita alluvial garnets for a cottage industry producing tumble-polished stones, 9-18 June 1984. CCOP/SOPAC Cruise Report 89: 6 p.; 1 fig.; 1 table
- Colwell, J.B., Vedder, J.G. (and scientific staff) 1984. Initial report on 1984 R/V S.P. Lee cruise L6-84-SP in Western Solomon Islands and Eastern Papua New Guinea, 9-26 June 1984. CCOP/SOPAC Cruise Report 91: 17 p.; 4 fig.
- Tiffin, D.L., Honza, E., Keene, J.B. (and shipboard scientists) 1984. A geological and geophysical investigation of the western Solomon Sea, Trobriand Basin and adjacent areas: cruise report of the R/V Natsushima, 5 December 1983 - January 1984. CCOP/SOPAC Cruise Report 92: 17 p.; 4 fig.; 2 tables; 1 app.

Greene, H.G., Macfarlane, A. (and scientific staff) 1984. Initial report on SOPAC II Leg 2, Vanuatu to Solomon Islands, R/V S.P.Lee cruise L5-84-SP. CCOP/SOPAC Cruise Report 94: 23 p.; 20 fig.; 4 tables; 2 app.

Kroenke, L.W. [1982]. Report on the third leg of the joint CCOP/SOPAC - Australia, New Zealand, U.S. cruise of the R/V S.P. Lee, Solomon Islands (L7-82-SP). CCOP/SOPAC Cruise Report 112: 8 p.; 2 app.

Tiffin, D.L., Taylor, B., Crook, K.A.W., Sinton, J., Frankel, E. 1986. Surveys in the Solomon Islands and Papua New Guinea using SeaMARC II. CCOP/SOPAC Cruise Report 117: 25 p.; 6 fig.

Tiffin, D.L., Clarke, J.E.H., Jarvis, P.J., Johnson, D., Hill, P., Huggett, Q., Parson, L., Price, R. (and shipboard scientific party) 1990. CCOP/SOPAC GLORIA survey: Port Vila - Apia - Port Vila on HMAS Cook, 1 August - 1 September 1989. SOPAC Cruise Report 130: 45 p.

Tufar, W., McPhee, J., Wallace, D. 1990. Sonne 68 - OLGA II research cruise, April 29 - June 25, 1990: preliminary cruise report. SOPAC Cruise Report 136

#### SOPAC MISCELLANEOUS REPORT

Johnson, H., Pflueger, J. 1989. Potential Pliocene reef traps in the Iron Bottom Basin, Solomon Islands. SOPAC Miscellaneous Report 90: [6] p.

Note: Text for poster paper. For graphics, see master file.

#### SOPAC PRELIMINARY REPORT

Gillie, R.D. 1990. Initial survey for beach erosion monitoring at Ranadi Beach, Honiara, Solomon Islands, 7-17 August 1990. SOPAC Preliminary Report 25: 22 p.

Collins, W.T. 1991. Gold potential at the Matapono River mouth and adjacent areas. SOPAC Preliminary Report 36: 15 p.

Woodward, P., Musunamasi, P. 1992. Air photo survey of coastal areas, northern Guadalcanal, Solomon Islands, August 1992. SOPAC Preliminary Report 53: 16 p.; figs., tables, 3 app.

#### CCOP/SOPAC TECHNICAL REPORT

Shepherd, G.L. 1978. Report: on trip to Honiara, Solomon Islands, 23 November - 4 December 1978. CCOP/SOPAC Technical Report 2: 5 p.

Katz, H.R. 1979. The assessment of petroleum potential in the offshore areas of the Solomon Islands. CCOP/SOPAC Technical Report 6: 6 p.

McKenzie, K. 1981. Studies of ostracods and others in the southwest Pacific. CCOP/SOPAC Technical Report 16: 18, [7] p.

Claridge, G.G.C. 1981. Potential resources of ceramic clays in the Solomon Islands. CCOP/SOPAC Technical Report 21: 27 p.

Maung, T.U., Coulson, F.I. 1983. Assessment of petroleum potential of the Central Solomon Basin. [CCOP/SOPAC], [Suva]. CCOP/SOPAC: Technical Report 26: 56, [12] p.; 18 fig.

Exon, N.F., Taylor, B. (comps.) 1984. Seafloor spreading, ridge subduction, volcanism and sedimentation in the offshore Woodlark-Solomons region and Tripartite cruise report for Kana Keoki cruise 82-03-16 leg 4, June 1984. CCOP/SOPAC Technical Report 34: 386 p.

Colwell, J.B., Tiffin, D.L. 1984. Recent depositional patterns in the Central Solomons Trough of the Solomon Islands. CCOP/SOPAC Technical Report 40: 15 p.; 7 figs.

Vedder, J.G., Pound, K.S. (eds.) 1984. Geology and offshore resources of the Solomon Islands: joint cruise report,

R/V S.P. Lee 1982. CCOP/SOPAC Technical Report 43: 226 p.  
Note: Preliminary version of Circum-Pacific Council Earth Science series volume 12.  
Photocopied in two parts.

- Greene, H.G., Wong, F.L. (eds.) 1984. Executive summary of geology and offshore resources of Pacific island arcs: Fiji, Papua New Guinea, Solomon Islands, Tonga, and Vanuatu. CCOP/SOPAC Technical Report 44: 66 p.
- Radke, B.M., McColl, D. 1985. The potential of the North Malaita alluvial garnets for a gemstone industry; Malaita garnet assessment. CCOP/SOPAC Technical Report 48: 10 p.; 5 figs.; 2 tables; 1 app.
- Roy, P.S. 1990. Quaternary geology of the Guadalcanal coastal plain and adjacent seabed, Solomon Islands. CCOP/SOPAC Technical Report 61: 99 p.; 2 fig. in pockets
- Carter, R. 1986. Baseline oceanographic data collection and analysis from off Lungga Point in Tenaru Bay, Guadalcanal, Solomon Islands: hurricane and flooding frequency in the Lungga Delta area 12 - 27 May 1986. CCOP/SOPAC Technical Report 67: 17 p.; 11 figs.
- Pelletier, B. 1990. Swath-mapping target areas in the EEZ's of Tonga, Fiji, Tuvalu, Solomon Islands, Papua New Guinea, and Vanuatu. SOPAC Technical Report 108
- Johnson, H., Pflueger, J. 1990. Potential Mio-Pliocene reef traps in the Iron Bottom Sound, Solomon Islands, SW Pacific. SOPAC Technical Report 111: 19 p.
- Creech, H. 1990. Strengthening information services, Solomon Islands, Ministry of Natural Resources. SOPAC Technical Report 113
- Rearic, D.M. 1991. Baseline study of coastal erosion, Gizo township, Western Province, Solomon Islands. SOPAC Technical Report 120: 41 p.
- Rearic, D.M. 1991. Coastal environment of Kwai and Ngongosila Islands, Malaita Province, Solomon Islands. SOPAC Technical Report 121: 37 p.
- Johnson, D.P., Maillet, P.C., Rice, R.C. 1992. The seabed morphology of the Hazel Holme fracture zone and the New Hebrides Arc, northern Vanuatu - Solomon Islands region. SOPAC Technical Report 138: 28 p.; figs.
- Creech, H. 1992. Strengthening information resources at the Solomon Islands Geology Division. SOPAC Technical Report 140
- Gillie, R.D. 1992. Ranadi Beach coastal erosion study, Honiara. Guadalcanal, Solomon Islands. SOPAC Technical Report 152: 42 p.; figs., tables, 8 app. + map in back-pocket
- Morel, Y., Medina, B. 1993. A database on multichannel seismic shotpoints in the sea area of the Solomon Islands. SOPAC Technical Report 160: 22 p.; figs., 4 annexes

#### CCOP/SOPAC TRAINING REPORT

- Howorth, R. 1989. CCOP/SOPAC 1989 coastal mapping workshop, 17-31 August, Honiara, Solomon Islands. CCOP/SOPAC Training Report 23: 14 p.
- Howorth, R., Woodward, P. 1990. Coastal mapping workshop for Solomon Islands College of Higher Education, 26 April - 3 May 1990. SOPAC Training Report 28: 4 p.
- Creech, H. 1990. Library training attachment at Techsec, 15 May - 4 June 1990. SOPAC Training Report 30: 10 p.
- Woodward, P., Gillie, R. 1991. Coastal mapping workshop for Solomon Islands College of Higher Education, 20 May - 24 May 1991. SOPAC Training Report 42: 3 p.

### SOPAC TECHNICAL BULLETIN

Danitofea, S., Baines, G.B.K. 1991. Cyclone Namu and the north Guadalcanal coast, Solomon Islands: implications for economic development. In: Workshop on Coastal Processes in the South Pacific Island Nations, Lae, Papua New Guinea, 1-8 October 1987. SOPAC Technical Bulletin 7: 125-126.

### SOUTH PACIFIC MARINE GEOLOGICAL NOTES

Landmesser, C.W. 1977. Evaluation of potential hydrocarbon occurrence in the Solomon Islands. South Pacific Marine Geological Notes 1 (5): 47-54.

Taylor, G.R. 1977. Investigation of shallow submerged plateaus in the Manning Straits and south west of Choiseul Island results of the February 1976 expedition. South Pacific Marine Geological Notes 1 (4): 41-46.

Turner, C.C., Eade, J.V., Danitofea, S., Oldnall, R. 1977. Gold-bearing sediments on the continental shelf: northern Guadalcanal, Solomon Islands. South Pacific Marine Geological Notes 1 (6): 55-70.

## **APPENDIX 2**

### **Corallium Species found in the Solomon Islands**

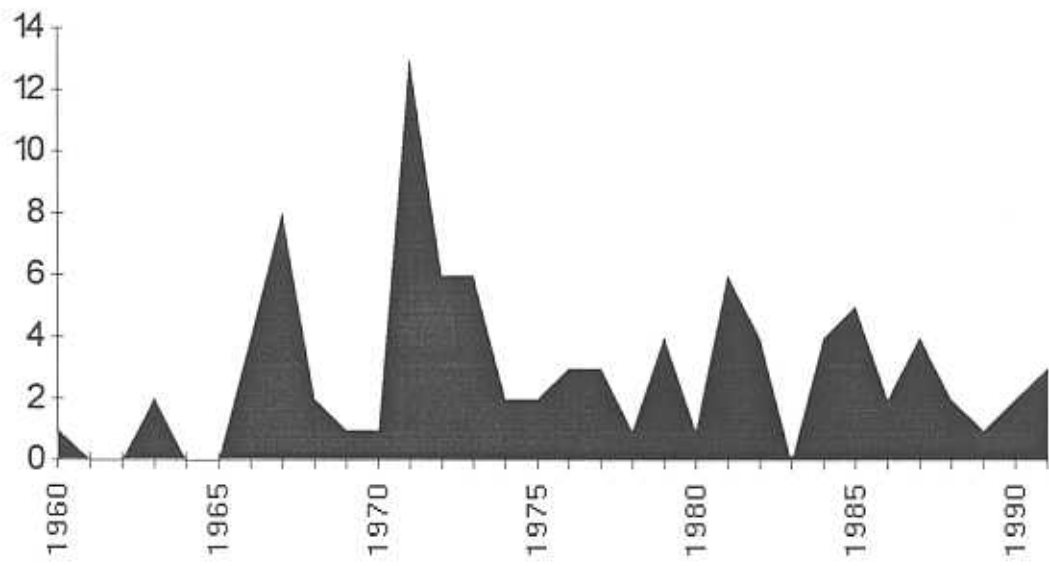
APPENDIX 2  
Corallium species found in Solomon Islands

- SI-79-3-1 Stylaster sp., Family Stylasteridae, Class Hydrozoa. No commercial value.
- SI-79-3-9 Corallium sp. d, possible new, excellent color and would be of commercial value if larger (> 1/4 inch diameter).
- SI-79-3-12 Hydrocoral cf. Stenohelia sp., Family Stylasteridae, Class Hydrozoa. No commercial value.
- SI-79-3-15 Bamboo coral, Acanella sp., Family Isidae, Order Gorgonacea.
- SI-79-3-25 Corallium konojoi, pink coral of commercial grade although of relatively low value since the skeleton is generally white, also known as shiro-sango, Family Corallidae, Order Gorgonacea.
- SI-79-3-26 Hydrocoral, Family Stylasteridae, Class Hydrozoa. No commercial importance.
- SI-79-3-30 Dead pink coral, probably Corallium elatius of good commercial quality (if collected alive). Demonstrates the presence of commercial quality precious coral in the Solomon Islands but does not allow any assessment of quantity (commercial potential).
- SI-79-3-35 Hydrocoral, Crypthelia sp., Family Stylasteridae, Class Hydrozoa. No commercial importance.
- SI-79-3-36 Corallium sp. e, axis too small and too light (white) in color to be of commercial importance.
- SI-79-3-44A Enallopsammia sp., Family Dendrophylliidae, Order Scleractinia. No commercial value but good indicator of commercial grade precious coral, generally found about 50 meters deeper than Corallium spp.
- SI-79-3-44B Stylaster sp., Family Stylasteridae, Class Hydrozoa. No commercial value.
- SI-79-3-46 Oculinid coral, Family Oculinidae, Order Scleractinia. No commercial value.
- SI-79-3-57A Calyptrophora sp., Family Primnoidae, Order Gorgonacea. No commercial value but commonly occurs with Corallium.
- SI-79-3-57B Callogorgia sp., Family Primnoidae, Order Gorgonacea. No commercial value.

- SI-79-3-57C Keroeides mosaica, Family Kerosididae, Order Gorgonacea.
- SI-79-3-59A Narella sp., Family Primnoidae, Order Gorgonacea. No commercial value.
- SI-79-3-59B Stylaster sp., Family Stylasteridae, Class Hydrozoa. No commercial value.
- SI-79-3-65 Stylaster sp., Family Stylasteridae, Class Hydrozoa. No commercial value.

The Solomon Islands collection includes two species of commercial grade Corallium and several gorgonians and one dendrophyllid that are frequently found in association with Corallium. Sample SI-79-3-30 is particularly encouraging even though the coral is dead. This sample indicates the presence of commercial quality precious coral in the Solomons. My recommendation is to continue collecting in island channels or over high but rather flat outcrops at depths of 100-350 meters.

Number of cruises per year



## CRUISES IN THE SOLOMON ISLANDS IN MAGEON DOCUMENTARY DATABASE

Following are some clues to read this catalogue:

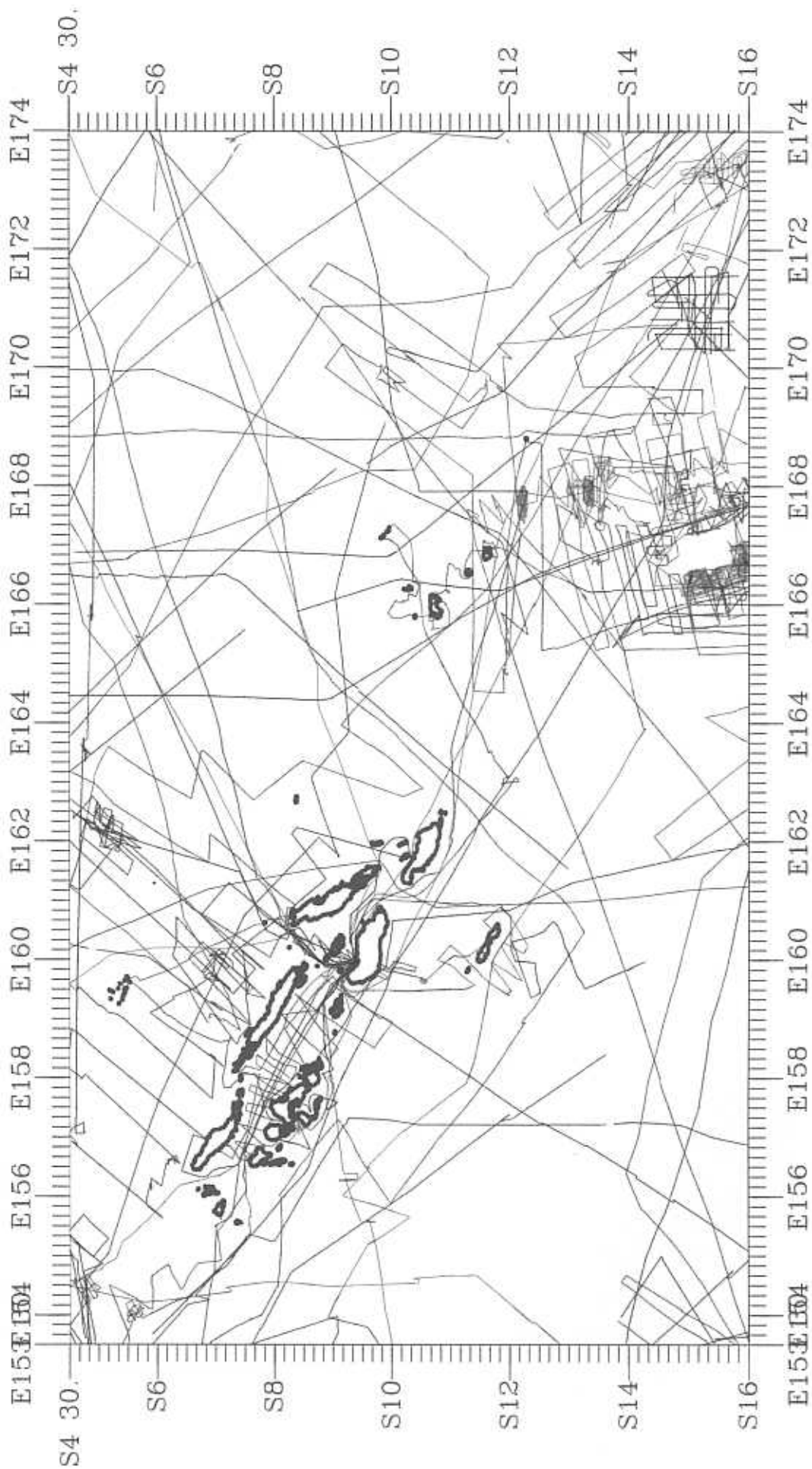
EXEMPLE	CONTENT
<i>Cruise id....KAIYO89 (OFC) Reels RE123, JODC *****(9) I407 M492</i>	<ul style="list-style-type: none"> <li>- Cruise id: Cruise identifier used at SOPAC</li> <li>- In parenthesis, the other cruise identifiers used for the same cruise, if any</li> <li>- (OFC) or (OSC) Offshore Foreign or SOPAC cruise</li> <li>- Reels RE123, JODC list of the magnetic tapes held at SOPAC Data Management for this cruise, usually MGD77 underway data,</li> <li>- JODC Origin of the data</li> <li>- I407/M144;M492 shows that this cruise is described in record #407 of the ISIS database, in file #492 of the MAGEONC cruise database.</li> <li>***** (0) to (9) Index that shows the data held in the MGD77 files of the data base</li> </ul>
<i>Institution...GSJ; ORSTOM (Project: Starmer)</i>	Institution: provide informations on the institutions whih conducted the cruise; in parenthesis is the name of the project and cruise leg number where applicable.
<i>Cruise by....Urabe, Maillet, Ruellan on R/V KAIYO (Suva/141289-Suva/130190)</i>	Cruise by: lists the chief scientist, the vessel, the port and date of begining of the cruise, the port and date of end of cruise.
<i>Instrument...satnav; GPS; MBES; mag; SCS; MCS; dredge; corer; photo; TV;</i>	Instrument: lists the instrumentation used on board <sup>1</sup>
<i>EEZ.....NC, VA, SI, FJ</i>	EEZ: Indexes the EEZ crossed by that cruise.
<i>Comments.....Copy of single channel seismic records received by Tiffin,</i>	Comments provides some additional information, when available. For some recent cruises, these comments contain more extensive information provided by Don Tiffin (Techsec).
<i>Reports.....Report by scientific party in SOPAC library.</i>	Report: indicates wether a cruise report has been catalogued at SOPAC for that survey.
<i>Lines.....full.</i>	Lines:indicates whether the available cruise reports contain description of date and time of start and end of lines.

<sup>1</sup> See list below

**LIST OF THE UNDERWAY DATA in the TECSEC DATA BASE  
FOR SOLOMON ISLAND EEZ**

<b>Cruise Name</b>	<b>Cruise Nb</b>	<b>Begin</b>	<b>End</b>	<b>Year</b>	<b>Number of points</b>
MONS01AR	294	2608	610	1960	4500
LUSI05HO	96	201	901	1963	1573
LUSI06HO	97	1001	1701	1963	1347
C1006	201	2703	2304	1966	6004
C1007	203	2904	2805	1966	5254
66102601	43	1111	2811	1966	1007
66102602	405	312	2912	1966	2681
NOVA02HO	357	3105	107	1967	8512
NOVA1AHO	308	704	305	1967	9472
NOVA04HO	303	1307	708	1967	5954
NOVA04AR	300	1207	808	1967	7080
V2407	380	1606	1307	1967	2672
ELT30	268	1208	2109	1967	5024
67102100	44	2210	2301	1967	5262
68101200	45	1210	2401	1968	12335
C1205	182	105	3005	1968	5236
KH6804_D	120	902	103	1969	1599
70042202	232	3006	208	1970	8146
SHELL71	530	105	106	1971	406
71042605	220	410	211	1971	13305
DSDP20GC	289	1709	1011	1971	2114
DME05_B	92	703	1205	1971	1527
DME06	87	1806	1310	1971	2353
V2813	240	2104	1605	1971	5644
71042602	227	2605	1907	1971	14989
VIT49	123	1411	2303	1971	5349
KH7104	121	2101	2403	1971	1481
71042604	222	109	2409	1971	7636
CH100L08	129	1807	3107	1971	6383
CH100L09	130	408	2608	1971	10191
VIT51	110	2601	1005	1972	3309
72110802	375	2912	1501	1972	8164
AUS100	426	404	2205	1972	8165
MOBIL72	524	105	3006	1972	923
PEML78	521	112	3112	1972	154
DME09	86	2001	1005	1973	1377
DSDP30GC	291	2404	1206	1973	5084
GEO100	433	908	1209	1973	4949
KH7304	367	507	2509	1973	14488
WGC73	520	109	3009	1973	441
GEO200	438	2008	1809	1974	4902
V3214	196	1809	1510	1975	2328
AUS300	427	1502	2603	1975	9544
76010304	250	204	1205	1976	12211

76010303	208	1303	3003	1976	16572
DME18	89	601	904	1977	3211
V3314	246	2101	1802	1977	7430
V3401	198	2202	2203	1977	2745
V3506	202	607	2307	1978	2786
SI792	38	2602	803	1979	1725
V3603	394	1010	1011	1979	5871
SI791	34	2701	2302	1979	4912
DME24	90	2201	605	1980	3761
SI812	16	2301	102	1981	2968
PN811	12	1902	303	1981	5508
SI813	17	1002	1502	1981	2696
KI811	10	404	1504	1981	2220
SI811	15	701	2001	1981	3202
PN813	14	2503	3003	1981	1379
82031605	403	1106	107	1982	10002
82031604	253	1405	606	1982	27630
82031603	252	2204	1105	1982	24702
DSDP89GC	103	1110	2811	1982	2081
L584SP	505	905	506	1984	6049
L782SP	508	1905	1106	1984	3734
L682SP	506	2704	1605	1984	3328
L784SP	509	2906	1607	1984	3380
L684SP	507	806	2506	1984	7163
85002811	407	2607	608	1985	4132
85004911	1	1410	611	1985	31167
MW8518	527	2212	901	1985	5178
85004711	436	1409	1010	1985	2361
MW8517	526	2911	2212	1985	4125
MW8516TR	49	1611	2811	1985	5727
85005111	2	911	2911	1985	28735
PPTU06WT	40	1602	1403	1986	24628
EV1300	412	2108	2509	1986	4636
MW8701	39	1201	202	1987	42877
EV1400	430	308	409	1987	7759
87001411	74	1104	3004	1987	23231
890801CK	472	108	109	1989	12521
KAIYO89	492	1412	1301	1989	10001



## **APPENDIX 3**

### **Selected Cruises in the Solomon Islands Waters**

# APPENDIX 3

## SELECTED CRUISES IN SOLOMON ISLANDS WATERS

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SOPAC TECHSEC

### Introduction

This report, prepared for Mr Don TOLIA, Geology Division, Ministry of Natural Resources, Solomon Islands, intends to provide an inventory of the offshore cruises carried out in the Solomon Islands EEZ.

Solomon Islands wishes to locate on maps the various data collected at sea along the routes navigated by the research vessels that have been granted permission to conduct marine scientific research programmes in Solomon Islands waters.

Though **it is** not possible to provide a comprehensive analysis of the work done, this report represents a first step. It allows identification of the location of a cruise and data acquired.

### Methods

We established a computerised marine geophysical cruise database that contains the navigation, and in most cases, underway geophysical data from about 550 marine scientific research cruises, 106 of them took place in or crossed Solomon Islands EEZ.

We used two distinct databases:

**MAGEON is a documentary cruise database** which is run on ISIS software, containing such information as:

- identifier of the cruise
- name of the vessel and chief scientist
- dates of beginning and end of the cruise
- instrumentation used during the cruise

**MAGEONC is an underway marine geophysical database** containing positioning bathymetry, magnetism, and gravity data along the track of the vessel, where available.

The first one is set up on a PC, whereas the second one is on TecSec's MicroVAX computer, connected to a large format pen plotter.

The graphic representation of the ship tracks is trimmed from the portions of the tracks where two consecutive records are more than 35 kilometers, or 20 nautical miles apart.

## **Area Covered**

4–30' S to 16' S  
153'30' E to 174' E

## **Results**

Trackplots and printouts.

An AO format map showing the navigation tracks of XX cruises in the selected area is supplied separately. A reduced version is reproduced on a A4 printout.

The plot does not differentiate between the nature of the data collected along tracks, neither the availability of the data at Techsec or in Solomon Islands,

The trackplot has been produced on tracing paper in the Mercator projection at a scale suitable to match the size of the paper. As most of the cruises have been loaded in the data base as they arrived, without prior checking, there might be some erroneous details on the plots. The available digital file may not cover the whole of each cruise : some cases have been noticed where the files are obviously not complete from harbour to harbour.

More cruises will be added as they progressively become available in digital form. Further plots may be obtained to meet specific need.

## **Documentation**

Details on cruises are given in the accompany printout. Cruises must be referred to by the date along the trackline of a given cruise for its identification, as the cruise are not identified on the trackplot.

## **Discussion**

This work should only be considered as a first step, as many additional cruises from Solomon Islands could have been selected.

Then it would be desirable that the report be accompanied by an inventory of data actually acquired at sea and accessible from the various institutions, as each category of data may not have been acquired from beginning to end of cruise; showing a full cruise track on a plot might therefore be misleading where only portions of it correspond to data acquisition.

Then also it would be desirable that the report be accompanied with an inventory of data actually held at Techsec or in Solomon Islands.

## **Conclusions**

This work will allow Solomon Islands to consider undertaking their own review of offshore cruise data in Solomon Islands EEZ and to further cooperate with Techsec's Data Management section for the preparation of more specific products.

## List of the Equipment Abbreviations

PDR .....	:	Precision depth Recorder (12 kHz)
SBP .....	:	Sub-bottom penetrator (3.5 kHz)
SLS .....	:	Side looking sonar
MBES.....	:	Multi beam echo sounder (Seabeam...)
NBES .....	:	Narrow beam echo sounder
mag .....	:	Magnetometer
grav .....	:	Gravimeter
SCS .....	:	Single channel seismics
MCS .....	:	Multichannel seismics

## List of the data Index

(0) .....	:	Navigation only
(1) .....	:	Bathymetry
(2) .....	:	Gravity
(3) .....	:	Magnetism
(4) .....	:	Bathymetry + gravity
(5).....	:	Bathymetry + magnetism
(6) .....	:	gravity + magnetism
(7) .....	:	Bathymetry + gravity + magnetism
(8) .....	:	---
(9) .....	:	Unspecified

## List of the cruises that took place in SOLOMON ISLAND EEZ

period 1960-1993

### 1960

Cruise id. MONS01AR (OFC) Reels RE139, NGDC \*\*\*\*\*(5) I178 M294  
Institution SCRIPPS (Project: Monsoon leg 1)  
Cruise by Shor on R/V ARGO (San Diego/260860-Cairns/061060)  
Instrument PDR; mag;  
EEZ KI, TU, SI, AU, VA  
Reports Norep.

### 1963

Cruise id... LUS105HO (OFC) Reels RE146, NGDC \*\*\*\*\*(0) I388 M096  
Institution... SCRIPPS (Project: Lusiad leg 5(HO))  
Cruise by... Riedel on R/V HORIZON (Port Mores/020163-Honiara/090163)  
Instrument... PDR; mag;  
EEZ..... PNG, SI  
Reports..... norep.

Cruise id..., LUS106HO (OFC) Reels RE146, NGDC \*\*\*\*\*(0) I389 M097  
Institution... SCRIPPS (Project: Lusiad leg 6)  
Cruise by... Riedel on R/V HORIZON (Honiara/100163-Kwajalein/170163)  
Instrument... PDR;  
EEZ..... SI, KI, GM  
Reports..... norep.

### 1966

Cruise id.. CI006 (OFC) Reels RE144, NGDC \*\*\*\*\*(7) I238 M201  
Institution.. LDGO (Project: Cruise 10 leg 6)  
Cruise by... Lonardi on R/V CONRAD (Papeete/270366-Townsville/230466)  
Instrument... satnav; PDR; SBP; mag; gravi; SCS; corer;  
EEZ..... FP, CK, KI, TU, SI, AU, VA  
Reports.... .norep.

Cruise id .. C1007 (OFC) Reels RE144, NGDC \*\*\*\*\*(7) I239 M203  
Institution.. LDGO (Project: Cruise 10 leg 7)  
Cruise by ... Lonardi on R/V CONRAD (Townsville/290466-Tokyo/280566)  
Instrument .. satnav; PDR; SBP; mag; gravi; SCS; corer;  
EEZ..... AU, PNG, SI  
Reports..... .norep.

Cruise id... 66102601 (OFC) Reels RE137, NGDC \*\*\*\*\*(4) I487 M043  
Institution.. .HIG (Project: Solis 66 leg 1)  
Cruise by... Kroenke on R/V MACHIAS (Honolulu/111166-Majuro/281166)  
Instrument.. satnav; PDR; SCS;  
EEZ..... .SI, PNG  
Reports..... norep.

Cruise id...	66102602(OFC)ReelsRE137, NGDC***** (1)1702M405
Institution..	HIG (Project: SOLIS 66 leg 2)
Cruise by...	Malahoff on R/V TARANUI (Samoa/031266-Honiara/291266)
Instrument...	satnav; SBP; SCS;
EEZ.....	AS, SI
Reports.....	norep.
1967	
Cruise id...	NOVA02HO (OFC) Reels RE146, NGDC *****(1) I394 M357
Institution..	SCRIPPS (Project: Novaleg 2(HO))
Cruise by...	Winterer on R/V HORIZON (Noumea /310567-Suva/010767)
Instrument..	PDR; SCS; corer;
EEZ.....	NC, PNG, SI, VA, FJ
Reports.....	norep.
Cruise id...	NOVAIAHO (OFC) Reels RE146, NGDC *****(5) I392 M308
Institution..	SCRIPPS (Project: Novaleg 1A(HO))
Cruise by..	.Chase on RN HORIZON (Kwajalein/070467-Brisbane/030567)
Instrument...	PDR; mag; SCS; corer;
EEZ.....	MI, KI, SI, VA, AU, MH, FJ, TG
Reports.....	norep.
Cruise id...	NOVA04HO (OFC) Reels RE146, NGDC *****(5) I396 M303
Institution..	SCRIPPS (Project: Novaleg 4(HO))
Cruise by...	MenardonR/V HORIZON(Suva/130767-Noumea/070867)
Instrument...	PDR; mag; corer;
EEZ.....	FJ, NC, VA, MH, SI
Reports.....	norep.
Cruise id	NOVA04AR (OFC) Reels RE139, NGDC *****(5) 1190 M300
Institution	SCRIPPS (Project: Novaleg 4(AR))
Cruise by	Winterer on R/VARGO(Suva/120767-Noumea/080867)
Instrument	PDR; mag; SCS; corer;
EEZ	FJ, VA, PNG, NC, SI
Reports	norep.
Cruise id...	V2407 (OFC) Reels RE144, NGDC *****(7) 1747 M380
Institution..	.LDGO (Project: Cruise 24 leg 7)
Cruise by...	.Ludwig on R/V VEMA (Manila/160667-Townsville/130767)
Instrument...	satnav; PDR; SBP; mag; gravi; SCS; corer;
EEZ.....	PNG, AU, SI
Reports.....	norep.
Cruise id...	UM67 (OFC) Reels RE147, NGDC *****(5) 1713 M124; M998
Institution..	U. OF TOKYO
Cruise by...	? on R/V UMITAKA M (Tokyo/011167-Yaizu/200268)
Instrument..	mag;
EEZ.....	PNG, AU, SI
Reports ...	norep.

Cruise id... ELT30 (OFC) Reels RE144, NGDC \*\*\*\*(7) I309 M268  
Institution.. LDGO project: Cruise 30  
Cruise by... Neuman on R/VELTANIN (Brisbane/120867-SanFranci/210967)  
Instrument... atnav; PDR; mag; gravi; SCS; corer;  
EEZ..... AU, SI, TU, KI, VA  
Reports..... norep.

Cruise id... 67102100 (OFC) Reels RE137, NGDC \*\*\*\*(4) 1488 M044  
Institution.. HIG (Project: Solis 67)  
Cruise by... Kroenke on R/V MACHIAS (Honolulu/221067-Honolulu/230168)  
Instrument... satnav;PDR;SCS;  
EEZ..... SI,PNG, GM  
Reports..... norep.

1968

Cruise id... 68101200 (OFC) Reels RE138, NGDC \*\*\*\*(7) 1516 M045  
Institution.. HIG (Project: Solis 68 leg 1-9)  
Cruise by... Kroenke on R/VMAHI (Honolulu/121068-Honolulu/240169)  
Instrument... satnav; SBP; mag; gravi; SCS;  
EEZ..... PNG, SI, TU, KI, VA  
Reports .... norep.

Cruise id... C1205 (OFC) Reels RE144, NGDC \*\*\*\*(7) I245 M182  
Institution.. LDGO (Project: Cruise 12 leg 5)  
Cruise by... Lonardi on R/V CONRAD (Brisbane/010568-Tokyo/300568)  
Instrument... satnav; PDR;SBP;mag;gravi;SCS;corer;  
EEZ..... AU, FJ, MH, SI, KI  
Reports.... .norep.

1969

Cruise id... KH6804\_A(KH6804\_B;KH6804\_D)(OFC)ReelsRE147,  
NGDC\*\*\*\*(7) I352 M117;M998  
Institution.. ORI (Project: Southern Cross leg A, B, D)  
Cruise by... Horibe on R/V HAKUHO M (Tokyo/14168-Tokyo/010369)  
Instrument.. .mag; gravi; corer;  
EEZ..... .KI, WS, TG, NZ, AU, NC, SI, PNG, FSM  
Comments..... Four legs: Tokyo-Apia(M117)-Wellington(M118-Sydney-  
Tokyo(M120).  
Reports..... Report at SOPAC library.

1970

Cruise id... 70042202 (OFC) Reels RE136, NGDC \*\*\*\*(7) I518 M232  
Institution.. .HIG (Project: Monster cruise leg 2)  
Cruise by... Halunen on R/V MAHI (Suva/300670-Rabaul/020870)  
Instrument... satnav; SBP; SCS;  
EEZ..... FJ, KI, TU, SI, PNG  
Reports .... norep.

1971

Cruise id... SHELL71 (OFC) Reels RE021, USGS;RE179, BMR \*(9) 1875  
M530

Institution.. SHELL (Project: Shell South Pacific)  
Cruise by... ? on R/VPETREL (?/000571-?/000571)  
Instrument.. .MCS;  
EEZ..... PNG, SI

Cruise id.. 71042605 (OFC) Reels RE136, NGDC \*(7) 1413 M220  
Institution.. HIG (Project: KK71-04-26 leg 5)  
Cruise by... Halunen on R/VKANA KEOKI (Suva/041071-Suva/021171)  
Instrument... satnav; SBP; mag; gravi; SCS;  
EEZ..... FJ, VA, SI  
Reports.... .norep.

Cruise id... DSDP20GC (OFC) Reels RE146, NGDC \*(5) I330 M289  
Institution.. SCRIPPS (Project: DSDP leg 20)  
Cruise by... Heezen, McGregor on R/V GLOMAR CH (Yokohama/170971-  
Suva/101171)  
Instrument.. satnav; PDR; mag; SCS; corer;  
EEZ..... FJ, SI, KI  
Reports..... norep.

Cruise id... DME05\_ B (OFC) Reels RE145, NGDC \*(4) I561 M092  
Institution.. IFZANSSSR (Project: DME1 leg 5)  
Cruise by.. Korenfeld on R/V MENDELEEV (070371-Vladivosto120571)  
Instrument... PDR; gravi;  
EEZ..... SI, VA, FJ, TG, CK, KI  
Reports .... norep.

Cruise id... DME06 (OFC) Reels RE145, NGDC \*(4) 1562 M087  
Institution.. IFZANSSSR (Project: DME1 leg 6)  
Cruise by... Tulin on R/V MENDELEEV (070371-Vladivosto/180671-  
Vladivosto/13 1071)  
Instrument.. .PDR; gravi;  
EEZ..... PNG, SI, VA, NC, FJ, TG, WS, TU, KI  
Reports.... norep.

Cruise id... V2813 (OFC) Reels RE144, NGDC \*(7) I753 M240  
Institution.. LDGO (Project: Cruise 28 leg 13)  
Cruise by... Kent, Ladd on R/V VEMA (Suva/210471-Guam/160571)  
Instrument... satnav; PDR; SBP; mag; gravi; SCS; corer;  
EEZ..... FJ, TU, SI, PNG, GM  
Reports.... norep.

Cruise id...	71042602 (OFC) Reels RE136, NGDC ****(7) I410 M227
Institution..	HIG (Project: KK71-04-26leg2)
Cruise by...	Kroenke on R/V KANA KEOKI (Ponape/260571-Suva/190770)
Instrument..	satnav; SBP; mag; gravi; SCS;
EEZ.....	FJ, SI, PNG, VA
Reports.....	norep.
Cruise id	CH100L08 (OFC) Reels Reels, NGDC ***(7) 1219 M129
Institution	WHOI
Cruise by	.? on R/V CHAIN (?/180771-?/310771)
Instrument	satnav; PDR; mag; gravi; SCS;
EEZ	VA, SI, PNG
Reports	norep.
Cruise id..	CH100L09(OFC)Reels RE142,NGDC****(7)I220M130
Institution.,	WHOI
Cruise by...	? on R/V CHAIN (?/040871-?/260871)
Instrument..	satnav; PDR; mag; gravi; SCS;
EEZ.....	FJ, VA, SI
Reports.....	.norep.
Cruise id...	KH7104 (OFC) Reels RE147, NGDC***(7) 1354 M121;M998
Institution..	U. OF TOKYO (project: Cruise 71 leg 4)
Cruise by...	? on R/V HAKUHO M (Tokyo/210171-Tokyo/240371)
Instrument..	satnav; PDR; mag; gravi;
EEZ.....	PNG, SI
Reports.....	norep.
Cruise id...	71042604(K71264)(OFC)Reels RE136,NGDC****(7)1412
Institution.	M222
Cruise by...	.HIG(Project:KK71-04-26leg4)
Instrument...	Andrews on R/V KANA KEOKI (Wellington/010971-
EEZ.....	Suva/240971)
Reports ....	satnav; SBP; mag; gravi; SCS;
	NZ, PNG, VA, FJ, SI
	norep.
Cruise id...	DMA03973 (03973)(OFC)Reels RE147, NGDC****(1) I717
Institution..	M998
Cruise by...	DMA
Instrument...	? on R/V USDMA (?/010371-?/310371)
EEZ.....	satnav; PDR;
Comments....	FJ, SI, PNG, KI, VA, MH
Reports.....	Cruise lousy; erased from MAGEONC.
	norep.

Cruise id...	VIT49(V149)(OFC)ReelsRE147,NGDC***** (4)I779
Institution..	M123;
Cruise by...	USSRACAD. OF SC.
EEZ.....	?on R/V VITYAZ (?/141170-?/230371)
Reports.....	FJ, WS, TG, NZ, AU, NC, VA, SI, PNG, MH norep.
1972	
Cruise id...	VIT51 (OFC)ReelsRE145,NGDC ***** (4)I780M1110
Institution..	GAISH(project: Vityazleg51)
Cruise by...	Stroev on R/V VITYAZ (Vladivosto/260172-Vladivosto/100572)
Instrument...	PDR; gravi;
EEZ.....	PNG, SI, AU, VA, KI
Reports.....	norep.
Cruise id...	GULF90 (OFC) Reels none ***** (9)1345 M999
Institution..	GULF (Project: Gulfregional cruise 90)
Cruise by...	?onR/VGULFREX(?/010872-?/010872)
Instrument...	satnav; mag; gravi;MCS;
EEZ.....	VA, SI, PNG
Comments....	.BMR survey 803; SCS andMCS sections with magnetics and gravity, and map tracklines at BMR.
Reports ....	norep.
Cruise id...	GULF92 (OFC) Reels none ***** (9) I347 M522
Institution..	GULF (project: Gulf regional cruise 92)
Cruise by...	.?onR/VGULFREX(?/140872-?/120972)
Instrument..	satnav; mag; gravi; MCS;
EEZ.....	SI, VA
Comments....	BMR survey 803; SCS andMCS sections with magnetics and gravity, and map tracklines at BMR.
Reports.....	norep.
Lines.....	full.
Cruise id...	AUS100 (OFC) Reels RE070, ORSTOM ***** (1)1280 M426
Institution.,	ORSTOM (Project: Austradec leg 1)
Cruise by..	.Montadert on R/V CORIOLIS (Noumea/040472-Noumea/220572)
Instrument...	satnav;PDR; mag;MCS;
EEZ.....	NC, VA, SI
Reports.....	norep.
Cruise id...	MOBIL72 (OFC)Reels RE177, BMR***** (0) I323 M524;M998
Institution..	MOBIL MARINERECON. (Project: Midmar)
Cruise by....?	onR/VFREDMOORE (?/000572-?/000672)
Instrument...	satnav;PDR; mag; gravi;MCS;
EEZ.....	TG, FJ, VA, SI, PNG
Comments.....	BMR survey 805; digital data ARE IN REEL RE177 which HAS NOT been used to prepare MOBIL72.M77 file.
Reports .....	norep.

Cruise id...	PEML78 (WGC78) (OFC) Reels none *****(9) I866 M521
Institution..	PACIFIC ENERGY AND MINERALS LTD (Project: )
Cruise by...	.?on R/V WESTERN IS (?/001278-?/001272)
Instrument...	MCS; Survey area..Iron Bottom Sound
EEZ.....	SI
Comments....	cruise by Western Geophysical Co.
Reports.....	norep.
1973	
Cruise id..	DME09 (OFC) Reels RE145, NGDC *** (4) I563 MOUT
Institution..	IFZ AN SSSR (Project: DME1 leg 9)
Cruise by...	Tulin on R/V MENDELEEV(Vladovosto/200173- Vladovosto/100573)
Instrument...	PDR; gravi;
EEZ.....	SI, VA, FJ, TU, WS, CK, KI, PNG
Comments....	MGD77 FILE IS BAD WITH MAJORITY OF RECORDS AT OVER 16 KNOTS.
Reports.....	norep.
Cruise id...	DSDP30GC(OFC)Reels RE146,NGDC*****(5)I332M291
Institution..	SCRIPPS (Project: DSDP leg 30)
Cruise by...	Andrews, Ackhamon R/V GLOMAR CH (Wellington/240473- Apre/120673)
Instrument..	satnav; PDR; mag; SCS; corer;
EEZ.....	NZ, VA, PNG, SI, GM, MH, TG
Reports.....	norep.
Cruise id...	GEO100 (OFC)Reels RE147,NGDC*****(5)1630M433;M998
Institution..	ORSTOM (Project: Georstom leg 1)
Cruise by...	Recy on R/V NOROIT (Noumea/090873-Noumea/120973)
Instrument...	satnav; PDR; mag; MCS;
EEZ.....	NC, VA, SI
Comments....	CNEXO dredges. Missing routes are transits with no underway geophysical data.
Reports.....	norep.
Cruise id...	KH7304 (OFC) Reels RE147, NGDC*****(7) I356 M367;M998
Institution..	ORI (Project: cruise 73 leg 4)
Cruise by...	Tomoda on R/V HAKUHO M (Tokyo/050773-Tokyo/250973)
Instrument....	satnav;
EEZ.....	FJ, VA, SI, PNG, GM, KI
Reports.....	norep.
Cruise id.	WGC73 (OFC)Reels none *****(9) 1152 M520
Institution	WESTERN GEOPHYSICAL CO.
Cruise by	.?on R/V ? (?000973-?000973)
Instrument	satnav;MCS;
EEZ	PNG, SI, VA, FJ
Comments	Three trackplots, 1,2, and 3. Sheet 1 only has been digitised, other sheets did not show up yet.
Reports	norep.

Cruise id...	HYDRA73 (OFC)****(9) I401 Mout
Institution..	ROYALNAVY (Project: Hydrographic Surveys)
Cruise by...	Haslam on R/VHYDRA (?/120673-?/070973)
Instrument...	satnav;PDR;
EEZ.....	.SI
Reports ....	norep.
1974	
Cruise id...	GEO200 (OFC) Reels RE147, NGDC***(5) 1281 M438;M998
Institution..	ORSTOM (Project: Georstom leg 2)
Cruise by..	.Dubois on R/V CORIOLIS (Noumea/200874-Noumea/180974)
Instrument...	satnav;PDR;mag;SCS;
EEZ.....	NC, VA, SI
Comments.....	PAUTOT Orstom Nodules, Missing routes are transits with no underway geophysical data.
Reports ....	norep.
Cruise id...	ERDC03WT (OFC)Reels RE139, NGDC ****(5) 1806 M080
Institution..	SCRIPPS (Project: Eurydice leg 3)
Cruise by...	Hawkins on R/V WASHINGTON (Pagopago/041174- Noumea/301174
Instrument...	satnav; PDR; SBP; mag;gravi;SCS; corer;
EEZ.....	AS, WS, FJ, TU, VA, NC, MH, SI, TG, TG
Reports.....	norep.
1975	
Cruise id...	V3214 (OFC)Reels RE144, NGDC ****(7) 1756 M196
Institution..	LDGO project: Cruise 32 leg 14)
Cruise by...	Larson on R/V VEMA (Tokyo/180975-Suva/151075)
Instrument...	satnav; PDR; SBP; mag; gravi; SCS; corer,
EEZ.....	FJ, VA, SI, KI
Reports.....	norep.
Cruise id...	AUS300 (OFC) Reels RE070, ORSTOM ****(1) 1282 M427
Institution..	ORSTOM (Project: Austradec leg 3)
Cruise by...	Dubois on R/V CORIOLIS (Noumea/150275-Noumea/260375)
Instrument...	satnav;PDR; mag; SCS;
Survey area..	Bougainville, New Ireland Basin
EEZ.....	PNG, SI, VA, NC
Reports.....	norep.
1976	
Cruise id...	76010304 (OFC) Reels RE135, NGDC ***(7) I428 M250
Institution..	HIG (Project: KK76-01-03 leg4)
Cruise by...	Hammond on R/V KANA KEOKI (Honiara/020476-?/120576)
Instrument...	satnav;SBP; mag;SCS; corer;
EEZ.....	KI, TU, SI
Reports.....	norep.

Cruise id.. 76010303 (OFC) Reels RE136, NGDC \*\*\*\*\*(7) I427 M208  
Institution.. HIG (Project: )  
Cruise by... Hussong on R/V KANA KEOKI (Guam/130376-Honiara/300376)  
Instrument... satnav; SBP; mag; gravi; SCS;  
EEZ..... GM, SI  
Reports..... .norep.

Cruise id... AUS400 (A476SP) (OFC) Reels RE142, NGDC\*\*\*(5) I633  
M474  
Institution.. .ORSTOM (Project: Austradec leg 4)  
Cruise by... Dubois, LaunayonR/VNOROIT (?/260176-?/110476)  
Instrument... satnav; PDR; mag; SCS;  
Survey area.. Tonga; New Hebridies; Solomon Is; Lau ridge  
EEZ..... TG, VA, SI, FJ  
Reports..... .norep.  
Lines..... .part.

### 1977

Cruise id... DME18 (OFC) Reels RE145, NGDC \*\*\*\*\*(4) 1568 M089  
Institution.. .IFZ ANSSSR (Project: DME1 leg 18)  
Cruise by... Tulin on R/VMENDELEEV(Vladivosto/060177-  
Vladivosto/090477)  
Instrument... PDR;gravi;  
EEZ..... .PNG, SI, VA, FJ, TG, AU, MH  
Reports..... norep.

Cruise id... V3314 (OFC) Reels RE144, NGDC \*\*\*\*\*(7) I760 M246  
Institution.. LDGO project: Cruise 33 leg 14)  
Cruise by... Watts on R/V VEMA (Townsville/210177-Suva/180277)  
Instrument... satnav; PDR; SBP; mag; gravi; SCS; corer;  
EEZ..... FJ, VA, SI, PNG, AU, NC, MH, TG  
Reports..... norep.

Cruise id... V3401 (OFC) Reels RE144, NGDC \*\*\*(7) I761 M198  
Institution.. LDGO (Project: Cruise 34 leg 1)  
Cruise by... Heezen on R/V VEMA (Suva/220277-Guam/220377)  
Instrument... satnav; PDR; SBP; mag; gravi; SCS; corer;  
EEZ..... FJ, GM, SI, KI, TU  
Reports .... norep.

### 1978

Cruise id... V3506 (OFC) Reels RE144, NGDC \*\*\*\*\*(7) I765 M202  
Institution.. LDGO (Project: Cruise 35 leg 6)  
Cruise by... Cande on R/V VEMA (Guam/060778-Suva/230778)  
Instrument... satnav; PDR; SBP; mag; gravi; SCS; corer;  
EEZ..... GM, FJ, SI  
Reports..... norep.

1979

Cruise id... SI792 (OSC) Reels RE137, NGDC \*\*\* (7) I493 M038  
Institution.. HIG; CCOP/SOPAC Task: 79SI08; 79N09, 79PN12  
Cruise by... Eade on R/V MACHIAS (Honiara/260279-Rabaul/080379)  
Instrument... satnav; PDR; SBP; dredge; corer;  
EEZ..... SI, PNG  
Reports..... CR024.  
Lines..... full.

Cruise id... V3603 (OFC) Reels RE144, NGDC \*\*\*\* (7) 1768 M394  
Institution.. LDGO (Project: Cruise 36 leg 3)  
Cruise by... .Weissel on R/V VEMA (Suva/101079-Guam/101179)  
Instrument... satnav; PDR; SBP; mag; gravi; SCS; corer;  
EEZ..... FJ, SI, PNG, GM, VA  
Reports..... norep.

Cruise id... SI791 (OSC) Reels RE137, NGDC \*\*\*\* (7) I492 M034  
Institution.. HIG; CCOP/SOPAC Task: 79S110  
Cruise by... Halunen on R/V MACHIAS (Noumea/270179-Honiara/230279)  
Instrument... satnav; PDR;  
EEZ..... SI  
Reports..... CR023.

Cruise id... SI793 (OSC) \*\*\*\* (9) 1468 M999  
Institution.. CCOP/SOPAC Task: 79SII4  
Cruise by... Eade on R/V KOMALIAE (?/101079-?/251179)  
Instrument..... satnav; PDR; dredge;  
EEZ..... SI  
Comments... see CR038 for navigation and box TS043 for archives.  
Reports..... CR038.  
Lines..... full.

1980

Cruise id... DME24 (OFC) Reels RE145, NGDC \*\*\*\* (4) I570 M090  
Institution.. INST. PHYSICS EARTH ACAD. SCI. project: DME1 leg 24  
Cruise by... Korenfeld on R/V MENDELEEV (Vladivosto/220180-  
Vladivosto/0605 80)  
Instrument .. satnav; PDR; gravi; corer;  
EEZ..... PNG, SI, FJ, TG, WS, AS, CK  
Reports..... norep.

1981

Cruise id... SI812 (OSC) Reels RE135, NGDC \*\*\* (7) 1508 M016  
Institution.. HIG CCOP/SOPAC Task: 81SI06; 81SI07, 81S108  
Cruise by... Exon on R/V MACHIAS (Honiara/230181-Honiara/OIO281)  
Instrument... satnav; PDR; SCS;  
EEZ..... SI  
Reports..... CR050.  
Lines..... full.

Cruise id...	PN811 (OSC) Reels RE135, NGDC ***(7) 1510 M012
Institution..	HIG; CCOP/SOPAC Task 81PN07; 81PN10
Cruise by...	Tiffin on R/V MACHIAS (Honiara/190281-Rabaul/030381)
Instrument.....	satnav; PDR; SCS;
EEZ.....	SI, PNG
Comments.....	Bathymetry picked from seismic data due to too few recorders.
Reports.....	CR052.
Lines .....	full.
Cruise id...	SI813 (OSC) Reels RE135, NGDC ***(7) 1509 M017
Institution..	HIG; CCOP/SOPAC Task: 81SII0
Cruise by...	Exon, Saphore on R/V MACHIAS (Honiara/100281-Honiara/150281)
Instrument.....	satnav; PDR; SCS;
EEZ.....	.SI
Comments....	Bathymetry picked from seismic data instead from echo sounder due to too few recorders.
Reports.....	CR051.
Lines .....	full.
Cruiseid ....	KI811 (OSC) Reels RE135, NGDC ****(7) 1513 M010
Institution..	HIG; CCOP/SOPAC Task: 81KI02
Cruise by..	Exon on R/V MACHIAS (Honiara/040481-Betio/150481)
Instrument...	satnav; PDR; SCS;
EEZ.....	KI, SI, Tu
Reports.....	CR056.
Cruise id...	SI811 (OSC) Reels RE135, NGDC ****(7) 1507 M015
Institution..	HIG, CCOP/SOPAC Task: 81S112; 81S114
Cruise by....	Gayman on R/V MACHIAS (Port Vila/070181-Honiara/200181)
Instrument...	satnav; PDR; SCS; dredge; photo; Submersible
EEZ.....	VA, SI
Reports.....	CR049.
Cruise id...	PN813 (OSC) Reels RE135, NGDC ***(7) 1512 M014
Institution..	HIG, CCOP/SOPAC Task 81PN07; 83PN10
Cruise by...	Tiffin on R/V MACHIAS (Rabaul/250381-Honiara/300381)
Instrument..	satnav; PDR; SCS;
EEZ.....	PNG, SI
Comments ....	Seismic reflection data recorded at 4 & 8 seconds. Bathymetry data were obtained from seismic profiles.
Reports....	CR054.
Lines .....	full.

1982

Cruise id...	82031605(KK8205;K82035)(OFC)ReelsRE137, NGDC*** (7) 1456 M403
Institution..	HIG (Project: KK82-03-16leg5)
Cruise by...	Hussong on R/V KANA KEOKI (Honiara/110682- Honolulu/010782)
Instrument..	satnav; SBP; SLS; SEAMARC; mag; gravi; SCS;
EEZ.....	SI, PNG, KI
Comments....	Test Seamarc.
Reports.....	norep.
Cruise id...	82031604(KK8204;K82034)(OFC)ReelsRE135, NGDC*** (7) 1455 M253
Institution..	.HIG; CCOP/SOPAC (Project: Trip 1 Cruise KK3)
Cruise by...	Taylor, Exon on R/V KANA KEOKI (Port Vila/140582- Honiara/060682)
Instrument..	satnav; SBP; mag; gravi; SCS;
EEZ.....	VA, SI
Reports.....	CR070. TR034. cruise report by Brocher at SOPAC library.
Lines .....	part.
Cruise id...	82031603 (KK8203;K82033)(OFC)ReelsRE135, NGDC*** (7) 1454 M252
Institution..	HIG; CCOP/SOPAC (Project: Trip 1 Cruise KK2)
Cruise by...	Kroenke, Eade on R/V KANA KEOKI (Suva/220482-Port Vila/110582)
Instrument..	satnav; SBP; mag; gravi; SCS;
EEZ.....	FJ, VA, SI
Reports.....	CR101. cruise report by Brocher at SOPAC library.
Lines.....	part.
Cruise id...	DSDP89GC (OFC)Reels RE146, NGDC *** (5) I341 M103
Institution..	SCRIPPS (Project: DSDP leg 89)
Cruise by...	Moberly, Schlanger on R/V GLOMAR CH (Yokohama/111082- Noumea/281182)
Instrument..	satnav; PDR; SBP; mag; SCS; corer;
EEZ.....	PNG, SI, NC
Reports ....	norep.
1984	
Cruise id...	L584SP(L5VU84)(OFC)ReelsRE142, NGDC*** (7) 1481 M505
Institution..	USGS (Project: Trip 2 Cruise L3 leg 5)
Cruise by...	Greene, McFarlane on R/V LEE (Port Vila/090584- Honiara/050684)
Instrument..	satnav; PDR; SBP; mag; gravi; SCS; MCS;
EEZ.....	VA, SI
Comments....	BMR SURVEY 208.
Reports ....	CR094. Cruise report by Collot, Orstom/Noumea, at library.
Lines.....	full. CR094.

Cruise id...	L782SP(L7S182)(OFC)ReelsRE143,NGDC;RE015, USGS***(7) 1474 M508;M998
Institution..	USGS; CCOP/SOPAC (Project: Trip 1 Cruise L3 leg 7)
Cruise by..	Vedder, Tiffon R/V LEE(Honiara/190582-Rabaul/110682)
Instrument..	satnav; PDR; mag; gravi; SCS; MCS; dredge;
EEZ.....	.SI, PNG
Comments....	.BMRSURVEY203.
Reports.....	CR071. CR069. CR112.
Lines.....	fullCR071.
Cruise id...	L682SP(L6VU82)(OFC)ReelsRE143,NGDC;RE015, USGS***(7) 1473 M506
Institution..	USGS; CCOP/SOPAC (Project: Trip 1 Cruise L2 leg 6)
Cruise by...	Greene, Falvey on R/V LEE (Port Vila/270482-Honiara R/V LEE (Port Vila
Instrument..	satnav; PDR; mag; gravi; MCS; corer;
EEZ.....	VA, SI
Comments....	BMRSURVEY 202.
Reports.....	CR075.
Lines.....	not.inCR075.
Cruise id...	L684SP(L6S184)(OFC)****(6)1482M507
Institution..	USGS (Project: Trip 2 Cruise L4 leg 6)
Cruise by...	Vedder, Colwell on R/V LEE (Honiara/080684- Kieta/250684) Instrument....satnav; PDR; SBP; mag; gravi; MCS;
EEZ.....	.SI, PNG
Comments....	BMR SURVEY 209 Tape RE013 Discarded Data on a cartridge.
Reports.....	CR091.
Lines.....	not.notinCR091.
1985	
Cruise id..	85002811 (OFC) Reels RE142, NGDC ****(1) I225 M407
Institution..	IFREMER (Project: Transit)
Cruise by...	? on R/V CHARCOT (Guam/260785-Noumea/060885)
Instrument....	satnav; MBES;
EEZ.....	NC, SI, PNG, GM
Reports.....	.norep.
Cruise id...	MW8518 (OFC) Reels RE118, HIG ****(9) I579 M527
Institution..	HIG; CCOP/SOPAC (Project: Trip 2 leg cruise MW2)
Cruise by ..	Taylor, Tiffin on R/V MOANA WAVE (Rabaul/221285- Ponape/090186)
Instrument...	satnav; GPS; PDR; SBP; SLS; SEAMARC; mag; gravi; SCS; dredge; corer;
EEZ.....	SI, PNG, FSM
Reports.....	CR117.
Lines...	.not.not in CR117.

Cruise id...	MW8517 (OFC)Reels RE1 18, HIG ****(9) 1578 M526
Institution...	HIG; CCOP/SOPAC (Project: Trip 2 Cruise MW1)
Cruise by...	Taylor, Tiffin on R/V MOANA WAVE (Honiara/291185-Rabaul/221285)
Instrument..	satnav; GPS; PDR; SBP; SLS; SEAMARC, mag; gravi; SCS; dredge; corer,
EEZ.....	SI, PNG
Reports.....	CR117.
Lines.....	not in CR117.
Cruise id...	MW8516TR (8516TR) (OFC) Reels RE135, NGDC; RE137, NGDC****(1) I577 M049
Institution...	HIG
Cruise by....	Warlop on R/V MOANA WAVE (Honolulu/161185-Honiara/281185)
Instrument..	satnav; GPS; SBP;
EEZ.....	KI, SI
Comments.....	Both Mag. Tapes are identical.
Reports.....	norep.
Cruise id...	85005111 (852SEAPS; SPS200; SEAPSO)(OFC)Reels RE147, NGDC; RE142, NGDC ****(7) 1229 M002; M998
Institution.	.IFREMER; ORSTOM (Project: Seapso leg 2)
Cruise by...	.Recyon R/V CHARCOT (Port Vila/091185-Port Vila/291185)
Instrument...	satnav; GPS; MBES; mag; gravi; SCS;
EEZ.....	VA, SI
Reports.....	cruise report in library.
Lines.....	full.
1986	
Cruise id...	PPTU06WT(OFC)Reels RE140, NGDC****(5) 1845 M040
Institution..	SCRIPPS (Project: Papatua leg 6)
Cruise by...	.Craig on R/V WASHINGTON (Auckland/160286-Rabaul/140386)
Instrument....	satnav; PDR; mag;
EEZ.....	PNG, SI, FJ, NZ, VA, MH
Comments.....	Collection of volcanic rocks & gases by island landings doneg expedition tracks. No seabeam collected.
Reports.....	SIO CR8714 for legs 5 and 6.
Lines.....	full.
Cruise id...	EV1300 (OFC) Reels RE147, NGDC****(7) I297 M412; M998
Institution..	ORSTOM (Project: Eva leg 13)
Cruise by..	.Louat on R/V CORIOLIS (Noumea/210886-Port Vila/250986)
Instrument...	satnav; PDR; mag; gravi;
EEZ.....	NC, VA, SI
Comments.....	OBSSismologie; 1 OBSOrsto/Texas.
Reports....	norep.

1987

Cruise id... MW8701 (OFC) Reels RE136, NGDC\*\*\*\*(7) 1583 M039  
Institution.. HIG; CCOP/SOPAC (Project: Trip 2 Cruise MW3)  
Cruise by... Kroenke, Priceon R/V MOANA WAVE (Suva/120187-  
Apia/020287)  
Instrument.. satnav; GPS, SBP; SLS; SEAMARC; mag; gravi; SCS;  
EEZ..... FJ, SI  
Comments.... SEAMARC data in NFB (four mosaics and two bathymetric maps  
1/200,000) received from L. Kroenke through Ph. Jarivs, MRD and  
Tiffin 22/6/90.  
Reports..... CR113.

Cruise id... EV1400 (OFC) Reels RE147, NGDC\*\*\*\*(5) 1298 M430; M998  
Institution.. ORSTOM (Project: Eva leg 14)  
Cruise by... Pelletieron R/V CORIOLIS (Noumea/030887-Noumea/040987  
Instrument.. satnav; PDR; mag; SCS;  
EEZ..... NC, VA, SI  
Reports .... norep.

Cruise id... 87001411 (MULTIPSO) (OFC) Reels RE147, NGDC\*\*\*\*(7)  
1235 M074; M998  
Institution.. IFREMER; ORSTOM (Project: Multipso)  
Cruise by.. Danielon R/V CHARCOT (Noumea/110487-Honiara/300487)  
Instrument.. satnav; GPS; MBES; mag; gravi; SCS; MCS;  
EEZ..... SI, VA, NC  
Reports .... norep.  
Lines..... part.

Cruise id... PILLAR(OFC)\*\*\*\*(9)1651 Mount  
Institution.. .RAN project: AIDAB Hydrographic Surveys)  
Cruise by... ?on R/V PILLAR (?/000787-?/001087)  
Instrument.. satnav; PDR;  
EEZ..... .VA, SI  
Comments.... Several cruises over several years; Scale 1/250 000; see file  
[user.yann.data.cruise]PILLAR.M77 for coverage by that  
bathymetric programme.  
Reports .... norep.

1988

Cruise id... FMOORE88 (OFC) \*\*\* (9) 1876 M999  
Institution.. IMS, UCSC (Project: ?)  
Cruise by.... Silver on R/V FRED MOORE (?000088-?/000088)  
Instrument.. MCS;  
EEZ..... PNG; SI  
Comments.... ,E. Silver, Institute of Marine Sciences, UC Santa Cruz, Cal. year  
uncertain. R/V Fred Moore belongs to U. of Texas.  
Reports..... see paper by Silver et al. in Tectonophysics, vol 10, no 5, 1991 at  
library.

Cruise id...	CD34A88(OFC)****(9)1304M999
Institution..	IOS
Cruise by...	Webb on R/V DARWIN (Auckland/150888-Suva/300988)
Instrument...	satnav;GPS;PDR;gravi;
EEZ.....	PNG,FSM,SI,VA,FJ
Comments....	Leg 1: Transit Auckland(15/8)-Cairns(24/8); then leg 2.
Reports.....	.Cruise report by Webb #CR207 from IOS at SOPAC library.
Lines.....	part.
1989	
Cruise id...	890801CK (OFC) Reels RE079, Marconi;RE080, Marconi;RE081, Marconi;RE082, Marconi;RE083, Marconi; RE084, Marconi;RE085, Marconi;RE086, Marconi;RE087, Marconi;RE088, Marconi; TK021, JCU;RE999, JCU****(9) 1278 M472
Institution..	CCOP/SOPAC (Project: GLORIA leg 1 & 2)
Cruise by....	Tiffin on R/V COOK (Port Vila/010889-Port Vila/010989)
Instrument...	satnav;GPS;MBES;SBP;SLS;GLORIA;SCS;
EEZ.....	FJ,VA,SI,WS,TG
Comments....	COOK,HMAS (Australia) August 1-31, 1989, for SOPAC program. Leg 1: August 1 - 16, from Port Vila to Apia. Leg 2: August 19 - 31 from Apia to Port Vila. GLORIA, Seabeam and seismic data was obtained in Vanuatu eastern Solomon Islands, Fiji, Tonga and W.Samoa waters.
Chief scientist:	Don Tiffin, SOPAC.
Reports.....	Report CR130 by D. Tiffin. TR139 by Price et al.
Lines.....	full.
1990	
Cruise id...	KAIYO89 (OFC) Reels RE123, JODC ****(9) 1407M492
Institution..	.GSJ; ORSTOM (Project: Starmer)
Cruise by...	Urabe, Maillet, Ruellan on R/V KAIYO (Suva/141289-Suva/130190)
Instrument...	satnav;GPS;MBES;mag;SCS;MCS;dredge;corer;photo;TV;
EEZ.....	NC,VA,SI,FJ
Comments....	Copy of single channel seismic records received by Tiffin, KAIYO (Japan), 1989 for STARMER program. Leg 1: December 14 - January 2, from Suva to Noumea. Leg 2: January 4 - 13, from Noumea to Suva. Obtained one multichannel seismic (MCS) line in Baravi Basin for Fiji; studied hydrothermal vent areas of North Fiji basin Triple Junction; looked for possible hydrothermal mineralisation in Jean Charcot Troughs, Vanuatu; made sonobuoy MCS line across Coriolis Troughs, southern Vanuatu; looked for possible hydrothermal areas on southern NFB axial spreading centre. Co-chief scientists: Tetsuro Urabe (GSJ), Patrick Maillet (ORSTOM, Leg 1), Etienne Ruellan (CNRS, Leg 2).
Comments....	Reports..... Report by scientific party in SOPAC library.
Lines.....	full.

Cruise id...	KH9003 (OFC) ****(9)I363 M999
Institution..	.U. OF TOKYO (Project: KH90-3 leg 2)
Cruise by...	Sakai on R/VHAKUHO M (Honolulu/301090-Tokyo/141290)
Instrument...	satnav;MBES; dredge;photo;TV;
EEZ.....	SI, FJ, PNG
Comments.....	Stops at Rabaul (21/11) and Guam (7/12). IOANI BUGAVE on board from UPNG, representing PNG.
Reports.....	CR138; Preliminary report from H Sakai.
Lines.....	not.in CR138.
1991	
Cruise id..	HY4_901 (OFC)****(9)1350M999
Institution..	MARINE GEOPHYSICAL SURVEY (Project: ?)
Cruise by...	Wang Guangyu on R/V HAIYANG IV (?/251090-?/030591)
Instrument...	satnav; PDR; mag; gravi; MCS; dredge; corer,
EEZ.....	PNG, SI, VA, FJ, TG, CK, FP
Comments.....	HAI YANG (China), Nov 1990 in transit from China to Antarctica via Suva, Tahiti and Santiago. In Suva Nov 13 - 16, 1990, returning to China through Suva in April 1991. Carries 24 channel MCS, gravimeter, and other geophysical equipment. Guangzhou Marine Geophysical Survey.
Chief scientist :	Prof. Wang Guangyu.
Reports.....	norep; see conference document CR20/10.1/2.
Cruise id...	MW9103? (OFC) Reels DC019, SSI; DC020, SSI***(9) 1606 M998
Institution..	SSI; OTC (Project: Pacrimwest leg 2)
Cruise by...	Hussong on R/V MOANA WAVE (Port Vila/260291-Guam/2903 91)
Instrument...	satnav; GPS; SLS; SEAMARC;
EEZ.....	VA, SI
Comments.....	received navigation tapes and watch log 12/91 from Debra Peat/SSI.
Reports.....	Full atlas of interpreted SEAMARC data handed to SOPAC at 20th annual session by OTC; see HIG file for conditions by OTC for use of the data.
Cruise id...	SNTACRUZ(OFC) ****(9)1636M999
Institution..	ORSTOM (Project: Santa Cruz leg 1 and 2)
Cruise by...	Pelletier on R/V NOROIT (Noumea/021191-Noumea/131291)
Instrument...	satnav; PDR; mag; SCS;
EEZ.....	SI
Comments.....	NOROIT (France), Noumea to Noumea, 4 Aug - 15 Sept, 1991 by ORSTOM for SANTA CRUZ program in northwestern North Fiji Basin, eastern Solomon Islands. The history and tectonics of the area will be studied by bathymetry, magnetic and structural data to determine nature of northwest backarc troughs and tectonics of northern basin in relation with Vitiaz paleo-subduction and evolution. Port stop in Honiara. Chief scientist : Bernard Pelletier.
Reports.....	cruise report leg 1 by Y. Lafoy in library.
Lines.....	part.CR by Y Lafoy: leg 1.

**1993**

Cruise id ...	EWING93 (OFC)****(9)1888M999
Institution..	UOFTEXAS(Project: ?)
Cruise by..	Mann on R/V EWING (?/000093-?/000093)
Instrument..	.MCS;
EEZ.....	SI

## APPENDIX 4

### Conclusions of the North-Central Malaita Pyrope Garnet Study

APPENDIX 4: CONCLUSIONS OF THE NORTH-CENTRAL  
MALAITA PYROPE GARNET STUDY

CONCLUSIONS

1. Pyrope garnet from the Faufaumela River, central Malaita has a dark blood red to red brown colour and very good transparency in stones which are not flawed.
2. A small but steady lapidary industry could be established on the basis of the Malaita raw material with an international market if the resource can be quantitatively defined and if production and processing costs can be kept at levels competitive with those prevailing in southeast Asia.
3. The potential of this industry could be enhanced through the establishment of a parallel jewellery industry which develops a distinctive and preferably ethnic style.
4. Quality tumble-polished pyrope, devoid of flaws, has a determined market value of AS\$200-400 per kilogram. However this evaluation is dependant on demand which presently is not known but not believed to be high. Caution would also be required not to saturate this market.
5. The manufacture of cabochons and faceted stones, though requiring higher skills, capital investment, and labour input, would provide more employment, a greater financial yield from the resource, and would entertain a more predictable market.

6. Peridot, although not as abundant as pyrope in the Faufaumela River, has greater value (A\$2-40/carat) as faceted stones than pyrope (A\$2-20/carat).

## RECOMMENDATIONS

1. The possible participation of Solomon Island nationals in lapidary and gem-cutting courses should be investigated through RMRDC and/or on a bilateral aid scheme with a country offering relevant training courses.
2. The order of magnitude of the pyrope and peridot resources should be determined by mapping and reconnaissance sampling on drainage systems immediately downstream from known alnoite and alnoite breccia outcrops.
3. Market research should be conducted on the local tourist industry to establish price range and potential preferences, to provide direction for a small lapidary industry. Such research would also assist in recognising the most successful means of promotion.
4. The interest, aptitude and skills available to establish a creative jewellery industry should be investigated to complement an established lapidary industry. Training of appropriate candidates could be arranged through bilateral aid, to be undertaken at appropriate technical or fine art institutions.