



REPORT: IHO CAPACITY BUILDING VISIT TO THE SOLOMON ISLANDS 26-29 OCTOBER 2009

1. Captain Robert WARD and Ingénieur en chef Michel HUET, from the secretariat of the IHO undertook a technical assessment visit to the Solomon Islands from 26 to 29 October 2009 on behalf of the IHO. The visit was funded from the IHO Capacity Building Fund.

Introduction

2. The IHO is an intergovernmental technical organization, comprising 80 Member States. The IHO seeks to ensure that all States with coastlines and maritime interests provide adequate and timely hydrographic data, products and services, thereby advancing maritime safety and efficiency in support of the protection and sustainable use of the marine environment. The IHO is the recognised competent authority of the United Nations for hydrography and nautical charting. The International Hydrographic Bureau (IHB), based in Monaco, provides the secretariat function for the IHO.

3. The Deputy Superintendent of the Solomon Islands Marine Division, Captain Pascal OHOAU, highlighted the deteriorating state of hydrography and nautical charting in the Solomons at the 7th and 8th meetings of the South West Pacific Hydrographic Commission (SWPHC) and at a hydrographic awareness workshop and seminar conducted by the IHB and funded by the International Maritime Organization (IMO) as part of its Technical Cooperation program. As a result the SWPHC recommended that an IHO technical visit to the Solomon Islands be made to assess the current status of hydrography and to raise awareness in the country of the importance of hydrography and nautical charting. This was supported by the IHO Capacity Building Sub Committee

Background

4. The Solomon Islands comprises over 990 islands spread over approximately 1000 km east-west, and sitting in a strategic location between the South Pacific, the Coral Sea and the Solomon Sea.

5. The CIA World Factbook reports that the Solomon Islands is a very poor country with limited transport and other infrastructure. The bulk of the population depends on agriculture, fishing, and forestry for at least part of its livelihood. Most manufactured goods and petroleum products must be imported (by sea). The islands are rich in undeveloped mineral resources such as lead, zinc, nickel, and gold.



6. The major source of revenue to progress development in the Solomons is through various aid agencies - primarily from Japan, the Asian Development Bank (ADB), the European Union (EU), Australia and Taiwan.

Background

7. A Solomon Islands Hydrographic Unit (SIHU) was first established in the Solomon Islands Marine Division in 1966 by an expatriate master mariner, who was subsequently assisted by a Solomon Islander cartographer (Mr Paul TEFEROMU). In 1979 the cartographer undertook a one-year survey drafting course at Honiara Technical Institute while Mr. Vitali TANGISI (the future Officer in Charge of SIHU) commenced a two-year Survey Tech Course at the same Institute.

8. Between 1966 and 1976 the SIHU conducted many "sketch surveys" and produced a number of A3 chartlets in support of local marine shipping needs. A limited number of coastal surveys were also undertaken. SIHU provided local support to HMS HYDRA during surveys in the mid 70's. In addition, SIHU incorporated the Solomon Islands navigation aids section comprising four personnel, who also assisted and supported the conduct of hydrographic surveys. A dedicated vessel was available for both survey and nav aids support. SIHU also provided the Marine Division radio station service.

9. In November 1980, Australian Defence Cooperation Program (DCP) support was provided to the SIHU in the form of hydrographic training and equipment. This continued until about 1995. As part of the DCP, a hydrographic adviser from Australia was permanently attached to the unit. This resulted in steady progress, to the point where the SIHU conducted various surveys which were incorporated into large scale official charts and plans produced and issued locally.

10. The SIHU was transferred to the Solomons Department of Lands and Survey in January 1984.

11. The SIHU suffered a steady decline from 1995 onwards, when the Defence Cooperation Program support ceased and the hydrographic adviser left. There has been no significant hydrographic activity since. The last officer involved in the SIHU left the Department of Lands and Survey in November 2005.

Existing Chart Coverage

12. The current coverage of charts for the Solomons comprises 15 charts published by the United Kingdom Hydrographic Office (UKHO). Some of the material from the larger scale plans produced by the SIHU was incorporated when these charts were produced, but with almost no significant new or updated information being provided since.

13. The UKHO is using its existing paper charts to create the ENC coverage that is now required to meet the latest amendments to the UN Convention on the Safety of Life at Sea (SOLAS) concerning electronic charts. The Solomon Islands government is party to the SOLAS Convention and therefore has an obligation to ensure that such charts are available.

Current Developments

14. The establishment of a Solomon Islands Maritime Safety Authority (SIMSA) is planned to begin in 2010. The establishment of SIMSA is being funded through a project of the Asian Development Bank (ADB) contributing 1M USD together with 0.6M USD from the EU, and 0.325M USD from the SI government. The project plan acknowledges the need to reinstate

some level of in-country hydrographic capability, but no specific details have been developed or approved. It is planned that responsibility for hydrography will transfer from the Ministry of Lands and Survey to SIMSA's parent Ministry of Infrastructure Development.

15. A project implementation team is in place to help establish the SIMSA. Recruiting and appointments to permanent positions will begin in early 2010.

Visits

16. Unfortunately, the three relevant Solomon Islands government ministers were all hospitalized and therefore unavailable during the period of the visit. Meetings were arranged with representatives from the following organizations:

- ***SIMSA Implementation Team***
Project Officers
- ***Ministry of Infrastructure and Development***
Permanent Secretary
Superintendent and Deputy Superintendent of the Marine Division
- ***Solomon Islands Port Authority***
General Manager
Harbourmaster
- ***Solomon Islands College of Higher Education***
Permanent Secretary
Acting Head of Marine School
- ***Ministry of Land, Housing & Survey, Department of Lands & Surveys***
Surveyor-General
- ***Solomon Islands Visitors Bureau Ltd***
General Manager
- ***Solomon Islands Maritime Police Operations Centre***
Operations Officer
- ***HMAS Gascoyne***
Navigation Officer

17. The general status of hydrography and charting in the Solomons was discussed during each visit and various options to improve the current situation were identified and considered.

18. Contact details are shown in Annex A to this report.

Additional Information

19. Information about the current status and charting history of the Solomons was obtained from the UK Hydrographic Office and the Australian Hydrographic Service.

20. L3 Nautronix Ltd (incorporating the former HSA Systems) provided a copy of its report of a visit made to the Solomon Islands in August 2009 – two months earlier than the IHO

visit. The L3 visit was as a result of L3's participation in a capacity building workshop held in conjunction with the 8th meeting of the SWPHC earlier in the year and in particular, HSA Systems' recent experience as the successful principal contractor for the rehabilitation of the nautical charts of Papua New Guinea (PNG). This significant nautical charting project was funded by the ADB and managed by the Australian Hydrographic Service on behalf of the Hydrographer of PNG.

Findings

21. Since the Australian Hydrographic Adviser was withdrawn in 1995, the level of hydrographic activity and capability in the Solomons has declined steadily. Today, it is non-existent. Equipment and the competent, trained personnel that existed at that time have all gone. The large scale charts that were created and published by Solomon Islands authorities have not been updated or maintained. As a result they are no longer available to the public. In any case, there is no longer any capacity in the Solomons to print these charts.

22. The underlying source survey data used in the locally produced charts of the Solomons may have been lost or is now incomplete. Similarly, the collection of printing sheets for the charts may have been lost or is incomplete.

23. Nautical charts of the Solomon Islands published and maintained by the UKHO are in many if not most cases degraded because little or no new information has been provided by the local authorities. For example, the chart of Honiara still shows a wharf area under construction, whereas it was completed many years ago.

24. The Solomon Islands Maritime Police reported that there are a number of coastal routes and passages that are being used without charts or with inadequate charts. HMAS Gascoyne, an Australian mine-hunting ship which had been operating in the area just prior to the visit by the IHO, reported numerous inconsistencies in the charts that were in use. Reports of these inconsistencies are being forwarded to the UKHO for charting action.

25. Although cruise ships are currently avoiding the Solomons as a result of internal unrest in recent years, visits are likely to increase in the future. An increasing number of smaller vessels are already engaged in eco-tourism and diving. These vessels are generally operating in poorly surveyed and charted waters.

26. Nautical charts of the Solomon Islands are not available locally because there is no recognised chart agent in the Solomons. The SIHU chart agency with Australia effectively ceased in 2000 because of non-payment of outstanding debts with the Australian Hydrographic Service which supplied the chart requirements of the agency. All Solomon Islands chart users' requirements must now be sourced from agents in Fiji or elsewhere in the world.

27. An officer from the Solomons attended a technical workshop on Maritime Safety Information (MSI) hosted in Fiji in November 2004. However, no national MSI coordinator has been identified to collate and promulgate new and important navigation information through the relevant channels. There is very limited liaison between maritime authorities in the Solomons and the UKHO as compilers and maintainers of the charts of the Solomon Islands.

28. The Government and its Administration appear to be unaware of the fundamental importance and benefits of hydrography and nautical charting or its obligations under SOLAS V/9 and SOLAS V/4. The only organization that appears to appreciate the importance of

hydrography and nautical charting services is the Marine Department, which will emerge as SIMSA in 2010.

Conclusions

29. The re-establishment of a recognised, albeit limited, in-country hydrographic capability is a matter of urgency. The Solomon Islands does not appear currently to be meeting its international treaty obligations to ensure that appropriate hydrographic services are in place. Furthermore, the current state of nautical charting and the lack of coherent MSI services are most probably having a significant adverse impact on the Solomon Islands economy as well as putting the safety of life at sea and protection of the marine environment at risk.

30. Designating the newly formed SIMSA as the Solomon Islands national hydrographic authority responsible for meeting the Solomon Islands' international obligations is a logical way to begin to address the current shortcomings. This would be similar to the arrangements most recently put in place in Papua New Guinea whereby the PNG Maritime Safety Authority has responsibility for ensuring the provision of the national hydrographic programme.

31. Priority should also be given to formally designating SIMSA as the national MSI coordinator. The MSI role should include a limited hydrographic surveying capability. These two measures would enable navigationally significant information to be *collected* and subsequently *promulgated*; both through immediate warnings to shipping when warranted, and through the incorporation of new or revised information in existing published charts.

32. A mobile hydrographic surveying capability is the most sustainable option for providing an in-country hydrographic data gathering capability. It would allow reported dangers to be confirmed, as well as enable the collection of relevant new or changed hydrographic information and even allow the survey of previously unsurveyed areas.

33. Purchase of a relatively simple and unsophisticated outfit of equipment would minimise maintenance and running costs. Although some surveys may take longer using such equipment, the use of a single beam echo sounder and side scan sonar can be as equally effective as much more sophisticated and expensive technology such as multibeam echo sounders (MBES). This is especially true in shallow water. MBES usually requires the use of dedicated vessels. Using portable equipment in craft of opportunity avoids the capital cost of dedicated boats and significantly reduces deployment/mobilisation expenses. All hydrographic data collected by a deployable hydrographic team would be processed and verified by the national hydrographic authority and then forwarded to the charting authority (UKHO) for charting action.

34. There is now little or no indigenous hydrographic expertise in the Solomons. The use of overseas hydrographic advisers, as in the past, would therefore assist in re-establishing an in-country hydrographic capability and help establish close liaison and potential assistance from recognized hydrographic services in other countries. The ongoing support of advisers and liaison will require the allocation of suitable funding.

35. It is unrealistic in the current circumstances to consider establishing an in-country chart production facility. Subject to the continuing agreement of the UKHO, the Solomon Islands should rely on the UKHO to publish charts; however, there is a fundamental obligation on the Solomons to ensure that the UKHO is provided with all the relevant information required for inclusion in those charts. Currently, this is not happening.

36. There may be some cases where the UKHO is not willing to publish charts, particularly those intended primarily for local or coastal traffic. In such cases, the Solomon Islands may need to consider alternative arrangements. This could be achieved through engaging contract support. However, the Solomon Islands government must be able to verify any contractors' work and authorise these charts for subsequent public use. The same would be true if the Solomon Islands authorities engaged contract support for new surveys. Other established hydrographic offices in the region may be prepared to take on these verification roles or to provide assistance and advice to the hydrographic authority. The SWPHC is the appropriate forum in which to resolve such issues.

37. All hydrographic stakeholders need to be involved in contributing to the Solomon Islands' national hydrographic program. This is not only to identify and prioritise national requirements, but also to contribute to the execution of the programme. This could be through help in-kind, such as the provision of boats, or personnel; but also through contributions to enlist contract support – for example for surveys of areas targeted for development and even the compilation of charts, in areas where the UKHO has not assigned a priority. A key role is to educate and encourage stakeholders to forward all relevant new or changed hydrographic information to the national hydrographic authority.

38. Recent history shows that any new or reinstated hydrographic capability must be relatively modest in scope and be supportable from national resources if it is to be successful. It will be unrealistic to attempt to reinstate the previous capability for in-country chart production until an MSI and basic hydrographic data gathering capability are both well established.

39. Doing nothing is not in the interests of the Solomon Islands. Chart coverage of the Solomons is deteriorating progressively and there are signs that the lack of up to date charting is actually impeding growth and the efficiency of maritime trade generally.

Recommendations

40. Based on the discussions held and from the information provided, the relevant Solomon Islands authorities should consider the following actions:

- a. **The Solomon Islands government** to formally designate an authority, such as SIMSA, to be responsible for ensuring the provision of the national hydrographic service in accordance with the international Convention on Safety of Life at Sea (SOLAS) and contemporary international practice.
- b. **The Solomon Islands government** to ensure that the designated national hydrographic authority establishes at least:
 - 1) a national MSI Coordinator position, and
 - 2) a hydrographic surveyor and/or a survey technician position.
- c. The **national hydrographic authority** (*SIMSA?*) to seek associate membership of the South West Pacific Hydrographic Commission (SWPHC).
- d. The **national hydrographic authority** (*SIMSA?*) to apply, through the SWPHC, for MSI training under the IHO Capacity Building Program. IHO-sponsored MSI training is programmed to be held in Australia in 2010.
- e. The **national hydrographic authority** (*SIMSA?*) to establish liaison with the UKHO's Regional Team 5B to ensure new navigationally significant information is forwarded and included in existing charts of the country.

- f. The **national hydrographic authority** (*SIMSA?*) to obtain at least one outfit of portable hydrographic surveying equipment. An estimated breakdown of cost is shown in Annex B. Funding will also be required for ongoing maintenance of the equipment and for the training and requalification of personnel;
- g. The **national hydrographic authority** (*SIMSA?*) to seek appropriate training for hydrographic personnel. There are limited opportunities for internationally recognised hydrographic training. A list of courses is contained in IHO publication C-47 - *Training Courses in Hydrography and Nautical Cartography, 6th Edition*. Noting that the Solomon Islands prefers in-country training to maximise attendance by trainees, On the Job Training (OJT) may be available through the US NAVOCEANO Mobile Training Team program (NMTT). Cost will depend on the length of the course. A pamphlet at Annex C contains all information about NMTT training. Application should be made by presenting the pamphlet to the Security Affairs Officer at the U.S. Consulate in Honiara (or US Embassy in Papua New Guinea). The Consulate or Embassy will determine whether US funding is available for the training. Additionally, training may be available from Australia under the Defence Cooperation Programme or directly through liaison with the Hydrographer of Australia. It may be possible for an Australian Deployable Geospatial Support Team to deploy to the Solomons and provide OJT in a similar way to the US NMTT program;
- h. The **national hydrographic authority** (*SIMSA?*) to engage an overseas hydrographic adviser to guide and assist during the re-establishment of an in-country hydrographic capability and to foster close liaison and possible support from recognized national hydrographic authorities in other countries.
- i. **The Solomon Islands government** to form a national hydrographic consultative committee, chaired by the designated hydrographic authority, to coordinate national hydrographic requirements. This committee should include representation from all stakeholder groups, including but not limited to: maritime police, ship operators, port authorities, maritime education authorities, provincial representatives, tourism operators, fisheries, geology, and coastal survey, and SOPAC and other potential assistance agencies;
- j. **The Solomon Islands Department of Lands and Surveys** to relinquish responsibility for the extant Bilateral Arrangement between the Solomon Islands Department of Lands and Surveys and the UKHO done on 27 August 2004, and signed for the Solomons by the Permanent Secretary to the newly designated SI hydrographic authority;
- k. **The Solomon Islands Department of Lands and Surveys** to transfer all hydrographic records and materials to the custody of the newly designated hydrographic authority. This would include survey records, charts, chart documentation and any hydrographic equipment (if still existing). The Surveyor-General has indicated that such a transfer is logical and acceptable to his Department; and
- l. **The Solomon Islands government** to initiate to apply for membership of the IHO (details available in IHO publication M-2), including ensuring on-going funding for annual contributions (about €10,000 per annum) and travel support for SI representatives to attend relevant meetings.

LIST OF CONTACTS

Ministry of Infrastructure and Development	Permanent Secretary	Mr. John TA'ARU <i>psmid@pmc.gov.sb</i>
	Superintendent of Marine Division	Captain Elliot CORTES <i>elliottcortez@gmail.com</i>
	Dep. Supt. of Marine Division	Captain Pascal OHOAU <i>pohoau@gmail.com</i>
SIMSA Project Implementation Team	Head	Mr Jeremy BROWN <i>jeremy.brown@ghd.com</i>
	Deputy	Mr Michael AHIKAU <i>mahikau@yahoo.com</i>
Solomon Islands Ports Authority	General Manager	Mr William BARILE <i>b.barile@sipo.com.sb</i>
	Harbourmaster	Captain Judah KULABULE <i>j.kabule@sipa.com.sb</i>
Solomon Islands College of Higher Education	Director	Mr Dick HA'AMORI <i>director@siche.edu.sb</i>
	Acting Head of Marine School	Captain Dudley HOALA
Ministry of Lands, Housing and Survey	Under Secretary	Mr Eric GORAPAVA <i>egorapava@hotmail.com</i>
	Surveyor-General	Mr Jackson VAIKOTA <i>jvaikota@lands.gov.sb</i>
Solomon Islands Visitor Bureau Ltd	General Manager	Mr Michael TOKURU <i>mtokuru@sivb.com.sb</i>
Solomon Islands Maritime Police Operations Centre	Operations Officer	Inspector Charles Fox SAU <i>operationsofficer@policemaritime.gov.sb</i>
HMAS Gascoyne	Commanding Officer	LCDR Michael PARKER <i>michael.parker1@fleet.defence.gov.au</i>

EQUIPMENT COST FOR PORTABLE HYDROGRAPHIC SURVEY CAPABILITY

Approximate Prices:

- based on a presentation at the SWPHC Capacity Building Seminar, Port Moresby in March 2009

EQUIPMENT AND SOFTWARE	Approximate USD
single beam echo sounder - 200KHz	7,500
single beam echo sounder - dual 200+30KHz.	9,800
combined echo sounder and logger - 200 KHz.	13,500
combined echo sounder and logger - 200 +30KHz.	optional (15800)
DGPS service, annually	1,700
acoustic Tide Gauge	10,500
post processing for DGPS, single frequency	12,000
digital sidescan sonar	20,000
hydrographic data processing software	6,500
ruggedized laptop	5,000
desktop PC for processing	2,250
plotters	8,000
accessories	5,000
Approximate total for outfit (ES, Sonar, tide gauge, data logger, GPS, plotter, post processor):	110K-140K
training in regional centre (inclusive of travel, etc)	50,000



NAVAL OCEANOGRAPHIC OFFICE

<https://www.navo.n>

NAVOCEANO Mobile Training Team and Tailored Maritime Geospatial Training

NMTT Tenets

The Naval Oceanographic Office (NAVOCEANO) Mobile Training Team provides tailored formal and on-the-job training to USA partners, friends and allies while simultaneously collecting maritime geospatial and environment (MGE) information to describe the coastal and littoral environment.

Information and knowledge from these surveys are used to generate in-country interoperable products for rapid, safe manoeuvrability of U.S. and host nation military vessels during joint combat operations and exercises, and Safety of Navigation (SoN) and Safety of Life At Sea (SOLAS) for commercial and military vessels during port and harbor egress and ingress.

NMTT Core Competencies

Using the host nation's personnel and vessel, NAVOCEANO provides professional personnel and state of the science commercial off-the-shelf equipment to conduct highly accurate MGE surveys.

With 80 hours of formal classroom training and up to 450 hours of practical field MGE, the program provides students with the fundamentals of MGE surveying through practical training in mathematics, computer science, physical sciences, geodesy, Global Positioning System (GPS) for navigation, hydrography, oceanography, meteorology, Geographical Information System (GIS) for nautical cartography, remote sensing and resource management.

Students

The NMTT is designed for three to five students and is open to both military and civilian personnel. At the end of the training period, students will receive a certificate of completion and will have the capacity to assist hydrographers and oceanographers in MGE surveys from a naval and international perspective.

Faculty

NMTT instructors and surveyors are highly qualified personnel with education and experience in the subjects they teach.

Skill Level

Prospective students must have successfully completed trigonometry, calculus and physics. In addition, students should have some knowledge and experience in maritime navigation and electronics.

Students from non-English speaking countries must have an English comprehension level of at least 70%. Classroom instruction in Spanish may be provided for additional costs.

Requests for NMTT

Requests for NMTT should be sent to the Security Assistance Officer at the U.S. Embassy in the host nation. The course is listed in the Military Articles and Service Listing (MASL) under the title Hydrographic Management and Engineering Program and MASL number P-309027 or course identification number MTT-PNO.

Contact Information

Commanding Officer, Fleet Survey Team ATTN: Karen ALLAIN, IMSO Stennis Space Center, MS 39522
Telephone: (228) 688-5844 Fax: (228) 688-5020