



## REPORT: IHO CAPACITY BUILDING VISIT TO THE COOK ISLANDS 21-25 FEBRUARY 2011

1. Commodore Rod Nairn, Hydrographer of Australia, Royal Australian Navy, and Adam Greenland, National Hydrographer, Land Information New Zealand (LINZ), the New Zealand Hydrographic Authority, undertook a technical assessment visit to the Cook Islands from 21 to 25 February 2011 on behalf of the International Hydrographic Organization (IHO). The visit was funded from the IHO Capacity Building Fund. Coincidentally, the visit coincided with a visit from a representative of Maritime NZ who had come to discuss potential Cook Island maritime infrastructure aid projects.

### Introduction

2. The IHO is an intergovernmental technical organisation, 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. A representative of the Cook Islands, Mr Vaipo Mataora (GIS Manager of the Survey Land Information Division at the Ministry of Infrastructure and Planning), attended a meeting of the South West Pacific Hydrographic Commission (SWPHC9) in PNG in 2009. This meeting was held in conjunction with a Capacity Building Workshop, funded by the IHO Capacity Building Sub Committee (CBSC). At that meeting concerns were expressed regarding the provision of hydrographic services and the accuracy and adequacy of charting to meet the needs of contemporary shipping in the Cook Islands. As a result the SWPHC recommended that an IHO technical visit to the Cook 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 CBSC.

### Background

4. The Cook Islands comprises two groups, the Northern Cook Islands Group and the Southern Cook Islands Group, with a total of fifteen small islands, atolls and reefs scattered over two million km<sup>2</sup> of the South West Pacific Ocean.



5. The northern Cook Islands are seven low-lying, sparsely populated, coral atolls; the southern Cook Islands, where most of the population lives, consist of eight elevated, fertile, volcanic isles, including the largest, Rarotonga, where the main port of Avatiu is located.
6. The main economic income is from tourism and marine resources, although the economy is vulnerable to natural disasters as demonstrated in 2005 and 2010 by the substantial damage caused by a series of cyclones.
7. The Cook Islands joined the United Nations' International Maritime Organization (IMO) in 2008 after a  $\frac{2}{3}$  majority vote from current members.
8. In the Cook Islands a private company is the Flag State Administrators of the Cook Islands open ship registry [www.maritimecookislands.com](http://www.maritimecookislands.com). It is not known whether this company pays a dividend or makes some other form of contribution to the government in its role as the administrator of the Cook Islands shipping registry.
9. The major source of revenue to progress development in the Cook Islands is through various aid agencies - primarily from New Zealand (\$17M NZD), Australia, the European Union (EU) and the Asian Development Bank (ADB).

### **Relationship with New Zealand**

10. From 1901 to 1965, the Cook Islands was a dependant territory of New Zealand. In 1965 the Cook Islands became self-governing but maintained a special constitutional relationship of free association with New Zealand.
11. The New Zealand area of charting coverage in the South West Pacific includes the Cook Islands. Under this relationship, LINZ, the New Zealand Hydrographic Authority, has a long standing informal agreement to provide charting services to the Cook Islands.
12. New Zealand joined the IHO in 1967 and recent advice from the New Zealand Ministry of Foreign Affairs and Trade (MFAT) is that New Zealand's IHO membership does not include the Cook Islands.

### **Existing Chart Coverage**

13. New Zealand paper chart coverage of the Cook Islands includes one small scale planning chart (scale 1:10m), one small scale chart showing all the Cook Islands (scale 1:1.5m) and three large scale plans of the Northern Cook Islands, Southern Cook Islands and Rarotonga. Raster Navigational Charts (RNC) are available for all paper charts. Full details of the paper chart coverage is shown in Annex B to this report.
14. Electronic Navigational Charts (ENC) coverage is now required to support recent amendments to the UN Convention on the Safety of Life at Sea (SOLAS) concerning the use of Electronic Chart Display and Information Systems (ECDIS) in ships. ENCs of the Cook Islands have been created based on the existing New Zealand paper charts and are available to the mariner worldwide through the established global chart distribution services.

### **Current Developments**

15. The Cook Islands permanent representative to the IMO, Captain Ian Finlay, expressed concern at Cook Islands charting coverage at the 54<sup>th</sup> Session of the Sub-Committee on Safety of Navigation (NAV54) in 2008.
16. In 2010 a technical report prepared by LINZ to assist in the determination of the maritime boundary between the Cook Islands and Tokelau indicated a misclosure of approx.

800 metres in the location of Pukapuka on the official chart compared to the WGS84 GPS control positions.

17. LINZ has been approached by a cruise ship operator who wishes to expand its operations in the South West Pacific, including the Cook Islands, but is concerned at the current standard of nautical charting.

18. From 2012 onwards under new SOLAS Carriage Requirements, ECDIS using official ENC's will become a mandatory carriage requirement in all new cruise ships greater than 500 gross tonnes. There will be no requirement to carry paper charts. Significant positioning inconsistencies are to be found in the existing ENC's covering the Cook Islands.

19. There is a high level of interest in seabed mining in the Cook Islands. Legislation has been passed and policy work is underway to enable exploitation of resources while ensuring protection of the marine environment.

20. The Ports Authority in Rarotonga is engaged in significant new infrastructure developments in the main port of Avatiu and the construction of a new cruise tender landing stage at Arorangi

## Visits

21. The official response from the Cook Islands to the introductory letter from the IHB appointed Mr Vaipo Mataora to serve as the principal point of contact for the visit. This ensured that all relevant Ministers and Department officials were aware of the visit and prepared to meet with the visiting team. Due to unforeseen circumstances, the main briefing on Tuesday was not attended by all officials which necessitated further individual briefing sessions. Full contact details are shown in Annex A to this report. Meetings were arranged with representatives from the following organizations:

- **Tuesday 22 February - Main Presentation & Briefing**

- Ministry of Infrastructure and Planning
- Ministry of Transport
- Maritime Police
- Ports Authority
- Airport Authority
- SOPAC
- Ministry of Foreign Affairs
- Emergency Management

- **Wednesday 23 February – Individual Presentation & Briefing**

- New Zealand High Commission
- Office of the Deputy Prime Minister

- **Thursday 24 February – Individual Presentation & Briefing**

- Ministry of Marine Resources
- Ports Authority

22. The purpose of the technical visit was explained with the aid of an IHO overview presentation which led to discussions on the general status of hydrography and charting in the Cook Islands. Possible options to improve the current situation were identified and considered. Copies of the presentations are attached.

## **Additional Information**

23. Prior to the visit a request for preliminary information was made and an IHO Technical questionnaire was completed and returned by Mr Vaipo Mataora – Ministry of Infrastructure and Planning. A copy of the completed questionnaire is attached.

24. Information about the current status and charting history of the Cook Islands was obtained from LINZ, the New Zealand Hydrographic Authority.

## **Findings**

25. The Government and its Administration were largely unaware of the role of hydrography, the importance of nautical charting or the State's obligations under SOLAS V/9 and SOLAS V/4.

26. There are a number of Cook Islands Government Departments that potentially have an interest in hydrography, namely:

Ministry of Transport

Ports Authority

Ministry of Infrastructure & Planning

Maritime Police

Ministry of Marine Resources

27. Records show that many of the hydrographic surveys of the Cook Islands were conducted some years ago including very old leadline surveys dating back to the early 1900's. Many charts have been compiled based on a variety of source data of limited hydrographic quality including ocean passage sounding sheets, bathymetric charts and adoptions from old Admiralty charts in fathoms and feet. Due to the large geographical area of the Cook Islands, limited work has been conducted by the Royal New Zealand Navy (RNZN) from 1965 to 1990. No hydrographic surveys in support of safety of navigation and the improvement of the official charts have been conducted in the Cook Islands in the last 20 years.

28. There is very little, if any, hydrographic capability in the Cook Islands. There is an Australian Bureau of Meteorology (BOM) SeaFrame tide gauge with a co-located GPS receiver at the main port of Avatiu. This is the extent of hydrographic equipment in the Cook Islands.

29. The South Pacific Applied Science Commission (SOPAC) are active in the Cook Islands and have carried out many bathymetric surveys for scientific purposes including, water management, habitat mapping, infrastructure projects and environmental impact assessments. Some of these surveys could be used to improve the quality of nautical charts.

30. SOPAC reports significant WGS84 GPS positioning inconsistencies when compared to the official charts of the Cook Islands. It is possible that SOPAC positional information could be used to improve the positional accuracy of some Cook Islands charts.

31. The cruise ship industry is a major contributor to the Cook Islands economy and this is likely to increase in the future - hence the construction and hydrographic survey of a new landing stage on the west side of Rarotonga at Arorangi. This will allow cruise ships to land passengers when conditions are unsuitable at the port of Avatiu.

32. The Ministry of Marine Resources is concerned with illegal fishing activities within the Cook Islands EEZ. As a consequence, the EEZ maritime boundary should be included on the official nautical charts in order to aid awareness, surveillance and enforcement.

33. A Cook Islands Fishing Association representing Aitutaki, Southern Group, Northern Group and Rarotonga has recently been established. Its members could provide maritime safety information to the designated MSI Coordinator. As part of a national hydrographic consultative committee the Fishing Association could be an effective organisation in helping to determine maritime safety priorities, including adequacy of charting and aids to navigation.

34. Nautical charts of the Cook Islands are not readily available locally because there is no recognised chart agent in the Cook Islands. All Cook Islands chart users' requirements must be sourced from agents in New Zealand or elsewhere in the world.

35. Two officials from the Cook Islands attended a technical workshop on Maritime Safety Information (MSI) hosted in Sydney in August 2010. 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 Cook Islands and LINZ as compilers and maintainers of the charts of the Cook Islands.

## Conclusions

36. The Cook 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 may have a significant adverse impact on the Cook Islands economy as well as putting the safety of life at sea and protection of the marine environment at risk.

37. A formal agreement with LINZ for the provision of hydrographic services is seen as the most logical and effective way for the Cook Islands to meet the Cook Islands international treaty obligations.

38. Priority should also be given to formally designating a national MSI coordinator. This 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.

39. The development of an in-country hydrographic data gathering capability is not currently seen as an economically sustainable option. The RNZN has provided hydrographic surveying services in the past. Current hydrographic technical expertise has more recently been provided by LINZ, e.g. technical specifications and advice to the Ports Authority and SOPAC for the hydrographic survey of the new cruise tender landing stage at Arorangi.

40. There is an urgent need for the development of a prioritised survey programme that would allow:

- a. reported dangers to be confirmed,
- b. enable the collection of relevant new or changed hydrographic information, and
- c. identify priorities for the survey of previously unsurveyed areas.

However, this will require the allocation of suitable funding. All the hydrographic data collected would require processing and subsequent verification by LINZ prior to charting action.

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

42. All hydrographic stakeholders need to be involved in contributing to the Cook 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 contractor support – for example for surveys of areas targeted for development and even the compilation of charts, in areas where LINZ 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.

43. Doing nothing is not in the interests of the Cook Islands. Chart coverage of the Cook Islands 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.

44. Funding to support at least a minimum level of in-country hydrographic and MSI capability and to join the IHO appears problematic when weighed against other national priorities. Consideration might be given to using some of the shipping fees levied on visiting ships or from the Cook Islands shipping registry to fund or to subsidise such activity.

### **Recommendations**

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

- a. **The Cook Islands government** apply for membership of the International Hydrographic Organisation (IHO);
- b. **The Cook Islands government** to investigate funding at least a minimum level of in-country hydrographic and MSI capability perhaps through using some of the shipping fees from visiting ships or from the Cook Islands shipping registry;
- c. **The Cook Islands government** to seek associate membership (as a non-IHO-Member State) of the South West Pacific Hydrographic Commission (SWPHC) and attend the next meeting in Brisbane, Australia 13-16 February 2012;
- d. **The Cook Islands government** to formally establish a national hydrographic governance structure, to ensure the provision of hydrographic services in accordance with the international Convention on Safety of Life at Sea (SOLAS) and contemporary international practice;
- e. **The Cook Islands government** to ensure that the national framework to meet hydrographic responsibilities establishes at least:
  - 1) a national MSI Coordinator position
  - 2) a formal agreement with Land Information New Zealand (LINZ), the New Zealand Hydrographic Authority, for the provision of hydrographic services;
- f. **The Cook Islands government** to establish a close liaison with LINZ to ensure new navigationally significant information is forwarded and included in existing charts of the country; and

- g. **The Cook Islands government** to form a national hydrographic consultative committee 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.

**Annex A****LIST OF CONTACTS**

Tuesday 22 February 2011

**Main Presentation and Briefing – Ministry of Infrastructure & Planning (MOIP)**

| <b>Name</b>        | <b>Title</b>                  | <b>Ministry/Department</b>   | <b>Email</b>   |
|--------------------|-------------------------------|--|--|
| Vaipo Mataora      | GIS Manager                   | MOIP   | <a href="mailto:v.mataora@moip.gov.ck">v.mataora@moip.gov.ck</a>   |
| Othjienel Tngianan | Secretary                     | MOIP   |  |
| Myra Moekaa        | Legal Adviser                 | Ministry of Foreign Affairs  | legaldv@mafai.gov.ck   |
| Ned Howard         | Director Maritime             | Ministry of Transport  | <a href="mailto:ned@transport.gov.ck">ned@transport.gov.ck</a>   |
| Esau Tupou         | Harbour Master                | Ports Authority <a href="http://www.ports.co.ck">www.ports.co.ck</a> | <a href="mailto:Esau.Topou@ports.co.ck">Esau.Topou@ports.co.ck</a><br><a href="mailto:hbmaster@oyster.net.ck">hbmaster@oyster.net.ck</a> |
| Ashishika Sharma   | Scientist                     | SPC/SOPAC  | ashishika@sOPAC.org  |
| Chris Cooper       | Maritime Surveillance Advisor | ADF/CI Maritime  | msa@police.gov.ck  |
| Del Bewg           | TA Police                     | Maritime Police  | TA@police.ck   |
| Nooroa Maui        | Manager Technical             | Airport Authority  | nmaui@airport.gov.ck   |
| Saungaki Rasmussen | Navigator                     | Police Maritime  | TeKukupu@police.govt.ck  |
| Tepaki Baxter      | CO Police                     | Police Maritime  | Tepaki.baxter@police.gov.ck  |
| William Tuivaga    | Planning Division             | Emergency Management   | wtuivaga@emci.gov.ck   |

Wednesday 23 February 2011

**NZ High Commission**

| <b>Name</b>    | <b>Title</b>             | <b>Ministry/Department</b> | <b>Email</b>                |
|----------------|--------------------------|----------------------------|-----------------------------|
| Nicola Ngawati | Deputy High Commissioner | NZ High Commission         | Nicola.ngawati@mfat.govt.nz |

**Ministers Briefing**

| <b>Name</b>        | <b>Title</b>          | <b>Ministry/Department</b>          | <b>Email</b>   |
|--------------------|-----------------------|-------------------------------------|--|
| Hon. Tom J Masters | Deputy Prime Minister | Office of the Deputy Prime Minister | <a href="mailto:tmasters@dpmoffice.gov.ck">tmasters@dpmoffice.gov.ck</a><br><a href="mailto:masters@oyster.net.ck">masters@oyster.net.ck</a> |
| Patrick Arioka     | Chief Exec Officer    | Office of the Deputy Prime Minister |  |
| Vaipo Mataora      | GIS Manager           | MOIP                                | <a href="mailto:v.mataora@moip.gov.ck">v.mataora@moip.gov.ck</a>   |

Thursday 24 February 2011

**Ministry of Marine Resources**

| <b>Name</b>   | <b>Title</b> | <b>Ministry/Department</b>   | <b>Email</b>   |
|---------------|--------------|------------------------------|--|
| Ben Ponia     | Secretary    | Ministry of Marine resources | b.ponia@mmr.gov.ck   |
| Vaipo Mataora | GIS Manager  | MOIP                         | <a href="mailto:v.mataora@moip.gov.ck">v.mataora@moip.gov.ck</a> |

**Ports Authority**

| <b>Name</b>      | <b>Title</b>    | <b>Ministry/Department</b>   | <b>Email</b>   |
|------------------|-----------------|--|--|
| Nooroa (Bim) Tou | General Manager | Ports Authority  | <a href="mailto:Bim.tou@ports.co.ck">Bim.tou@ports.co.ck</a><br><a href="mailto:twins@oyster.net.ck">twins@oyster.net.ck</a>             |
| Esau Tupou       | Harbour Master  | Ports Authority <a href="http://www.ports.co.ck">www.ports.co.ck</a> | <a href="mailto:Esau.Topou@ports.co.ck">Esau.Topou@ports.co.ck</a><br><a href="mailto:hbmaster@oyster.net.ck">hbmaster@oyster.net.ck</a> |
| Vaipo Mataora    | GIS Manager     | MOIP   | <a href="mailto:v.mataora@moip.gov.ck">v.mataora@moip.gov.ck</a>   |



**COOK ISLANDS CHARTING COVERAGE**

| <b>Cook Islands - Paper Charts</b> |  |              |                  |
|------------------------------------|--|--------------|------------------|
| <b>Chart No.</b>                   | <b>Title</b>                               | <b>Scale</b> | <b>Published</b> |
| NZ 14061<br>INT 61                 | South West Pacific Ocean                   | 10M          | 10/2008          |
| NZ 93                              | Cook Islands                               | 1.5M         | 10/1997          |
| NZ 945                             | Plans of the Cook Islands - Northern Sheet |              | 10/1995          |
|                                    | Pukapuka                                   | 10 0000      |                  |
|                                    | Nassau                                     | 75 000       |                  |
|                                    | Suwarrow                                   | 10 0000      |                  |
|                                    | Suwarrow Lagoon Entrance                   | 25 000       |                  |
|                                    | Manihiki                                   | 75 000       |                  |
|                                    | Manihiki Anchorage                         | 15 000       |                  |
|                                    | Rakahanga                                  | 15 000       |                  |
|                                    | Penrhyn                                    | 75 000       |                  |
|                                    | Taruia Passage to Gudgeon Bay              | 12 500       |                  |
| Taruia Passage                     | 6 000                                      |              |                  |
| NZ 955                             | Plans of the Cook Islands - Southern Sheet |              | 10/1993          |
|                                    | Aitutaki                                   | 60 000       |                  |
|                                    | Arutanga Anchorage                         | 15 000       |                  |
|                                    | Palmerston                                 | 75 000       |                  |
|                                    | Mitiaro                                    | 75 000       |                  |
|                                    | Mauke                                      | 75 000       |                  |
|                                    | Manaea                                     | 75 000       |                  |
|                                    | Takutea                                    | 75 000       |                  |
|                                    | Atiu                                       | 75 000       |                  |
| Mangaia                            | 75 000                                     |              |                  |
| NZ 9558                            | Rarotonga                                  | 40 000       | 10/1992          |
|                                    | Approaches to Avaitiu & Avarua Harbours    | 9 000        |                  |
|                                    | Avaitiu Harbour                            | 3 000        |                  |

Detailed information of the full NZ chart folio can be found on the LINZ website at <http://www.linz.govt.nz/hydro/charts/index.aspx>

NZMariner is the product name of New Zealand's Official RNC folio, and is available for download from the LINZ website at <http://www.linz.govt.nz/hydro/charts/digital-charts/nzmariner/index.aspx>

NZ ENC's - New Zealand ENC cells, prefixed by 'NZ', are available from chart retailers through the International Centre for ENC's (IC-ENC) [www.ic-enc.org](http://www.ic-enc.org) and PRIMAR global distribution network [www.primar.org](http://www.primar.org). For more information see <http://www.linz.govt.nz/hydro/charts/digital-charts/encs>