SWPHC16-[07 or 08]xx

16TH MEETING OF THE SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION (SWPHC16)
Alofi, Niue, 11 - 14 February 2019

NATIONAL REPORTS FROM NEW ZEALAND TO THE SWPHC16

Reference: IHO Resolution 2/1997 as amended

Executive summary

1. Hydrographic Office / Service:
   a) Name of the institution: Land Information New Zealand (LINZ)
   b) Description: The National Hydrographer (Adam Greenland) and Group Manager Hydrography (Rebecca McAtamney) lead the New Zealand Hydrographic Authority (NZHA) in partnership. Both positions report to the Deputy Chief Executive Location Information, Jan Pierce.

      The NZHA comprises 19 personnel, including three hydrographic surveyors, five nautical cartographers, two marine geospatial data specialists and a Technical Change Leader who leads a programme of work to move the NZHA to a digital first, data centric environment.
   c) Submitted by: Stuart Caie, Manager Hydrographic Survey, scaie@linz.govt.nz

   Detailed information to update IHO Publication P-5 (*Yearbook*) is submitted in Annex A. Please indicate "no change" in Annex A if this is the case.

2. Surveys:
   [*Describe any significant developments since the last RHC meeting in surveys related to the items below*]
   a) Coverage of new surveys:
      In 2017 LINZ published a long-term hydrographic survey programme, HYPLAN. This formed the basis of a new approach to procuring hydrographic surveying services over a longer contract period, and provided opportunities to partner with other stakeholders with an interest in collecting marine datasets.

      Surveys completed or in progress since SWPHC15 are listed below:

Survey Number	Area	Completed
HYD-1718-HS57	New Zealand, South Island, East Coast – Kaikoura Peninsula to Cape Campbell[1]	Aug 2018
HYD-1718-HS60	Tonga – Tongatapu, Ha'apai Group, Vava'u Group and Nuias[2]	Dec 2018
HYD-1718-HS61	Cook Islands[2]	Oct 2018
HYD-1718-HS62	Niue, incl. Beveridge Reef and Antiope Reef[2]	Oct 2018
HYD-1718-HS63	Tokelau[2]	Oct 2018
HYD-1819-HS58	Fiordland	Underway
HYD-1819-HS59	Eastern Bay of Plenty	Jan 2018

[1] Partnership with Ministry of Primary Industries to collect bathymetry and backscatter data for scientific purposes.
[2] Hydrographic surveys comprising SDB, ALB and MBES, funded by NZ Aid programme, Pacific Regional Navigation Initiative (PRNI).

b) New technologies and /or equipment
   i. Policy issues regarding the collection and use of crowd-sourced bathymetry
   LINZ is developing a policy for CSB in accordance with IHO CSB Guidelines
   ii. Status of data collection
   The annual national survey programme is delivered through a Supplier Panel established in 2017. The Panel utilise the latest technology for the collection of hydrographic data including bathymetry and seafloor and water column backscatter. Technologies include; vessel mounted laser scanner and Unmanned Aerial Vehicles (UAV) to collect intertidal data (to remove the vessel and personnel from hazardous areas); Unmanned Surface Vessel (USV) to collect MBES in Tonga for PRNI; and a combination of SDB, ALB and MBES to collect data in areas previously surveyed in the 1890s. The results of the SDB were used to refine the ALB extents; and the ALB results were used to refine the MBES extents. This ensured the effort to collect ALB and MBES was more focused and removed the need to place the vessel and personnel in poorly charted and possibly hazardous areas.

   A 2m resolution SDB dataset was processed for the entire Tonga region, providing data to a general depth of 15m, achieving an accuracy equivalent to CATZOC C. The ALB technology (Leica Chiroptera 4X) provided 200% coverage of the seafloor to a general water depth of 20m, with a nominal data density of 36 points per $2m^2$. The MBES acquisition commenced at 18m depth and focused on the main shipping routes.

   The use of the USV acted as a force-multiplier enabling the survey to progress faster. It was also noted that the MBES system on-board the USV produced a cleaner dataset and achieved greater depths than the exact same equipment mounted on the vessel. This was attributed to the fact that the USV was a quieter platform than the main survey vessel.

c) New ships
   LINZ does not own or operate survey vessels; these are operated by the Supplier Panel.

   The Royal New Zealand Navy (RNZN) has purchased a vessel to replace their hydrographic surveying and dive support vessels. The vessel, MV *Edda Fonn* is expected to be in service by November 2019. The RNZN are also collecting requirements for an ice-strengthened offshore patrol vessel for Southern Ocean operations.

d) Problems encountered
   Recruiting and retaining qualified and experienced staff remains a challenge. With no education establishment providing FIG/IHO/ICA Category ‘A’ Hydrographic Surveyor or Category ‘B’ Nautical Cartographer courses, LINZ has to recruit outside the region.

Detailed information about surveys to update IHO Publications P-5 (*Yearbook*) and C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is submitted in Annexes A and B, respectively. Please indicate "no change" in Annexes A and B if this is the case.

3. New charts & updates:
[*Describe any significant developments since the last RHC meeting in charting related to the items below*]

New Zealand is the Primary Charting Authority (PCA) for five Pacific Island Countries, as below:

Nation	**Paper Charts**	**ENCs**	**Fathoms/non-WGS84**
Cook Islands	4	23	0
Niue	1	2	0
Samoa	7	7	2
Tokelau	1	4	0
Tonga	13	12	5

Through PRNI, LINZ has established a chart improvement programme using new survey data.The table below shows the charts updated and the proposed schedule for the remaining charts:

Nation	**Paper Charts**		**ENCs**	
	New Edition	**New Chart**	**New Edition**	**New Chart**
Cook Islands	1 (Jun 18) 2 (Feb 19)	-	19 (Jun 18) 3 (Nov 18) 6 (Jan 19)	-
Niue	-	1 (early 2020)	2 (May 18)	3 (early 2020)
Samoa	4 (Feb 18) 2 (Jun 2021)	4 (Jun 2021)*	2 (Jun 2021)	7 (Jun 2021)*
Tokelau	1 (Mar 19)	-	4 (Mar 19)	-
Tonga	3 (Jan 19) 2 (Apr 19) 1 (May 19) 2 (Jun 2021)	5 (Jun 2020)* 1 (Jun 2021)	1 (Nov 18) 4 (Dec 18) 1 (April 19) 2 (Jun 2021)	6 (Jun 2020)* 2 (Jun 2021)
INT Chart	-	1 (Jul 19)	-	1 (Jun 19)

* New Charts will replace current fathoms/non-WGS84 charts, enabling production of large scale ENC for the first time.

a) ENCs
To date LINZ has published a total of 305 official New Zealand ENCs and, as announced on World Hydrography Day 2018, has achieved full ENC coverage of New Zealand waters.

In June 2018 LINZ launched a new on-line spatial viewer that provides detailed information of the full New Zealand ENC folio.

LINZ is working with the Port of Napier and has produced a High-Density ENC (hdENC) prototype for operational trials. The provision of hdENC for ports ensures both Master and Pilot have the same information on ECDIS and PPU, and greatly enhances Bridge Resource Management in achieving a Shared Mental Model for navigation in pilotage waters.

a. ENC Distribution

i. LINZ is a member of IC-ENC and distributes all New Zealand ENCs through the regional IC-ENC office.

ii. LINZ is developing a local New Zealand S-63 ENC distribution service which is under trial. The service is planned to go-live in 2019.

New Zealand ENCs published since the SWPHC15 Meeting			
New Zealand Total: 18 New ENC: 3 NE ENC: 15	South West Pacific Total: 32 New ENC: 0 NE ENC: 32	Antarctica Total: 0 New ENC: 0 NE ENC: 0	INT Total: 0 New ENC: 0 NE ENC: 0

New Zealand ENCs scheduled for publication in 18/19 FY			
New Zealand Total: 24 New ENC: 5 NE ENC: 19 (+20)*	South West Pacific Total: 22 New ENC: 0 NE ENC: 22	Antarctica Total: 0 New ENC: 0 NE ENC: 0	INT Total: 1 New ENC: 1 NE ENC: 0

*includes the vectoristation of raster only charts

b) RNCs

NZ*Mariner* is the product name of New Zealand's Official RNC folio, and is available for download in unencrypted BSB format, at no charge from the LINZ website at https://www.linz.govt.nz/sea/charts/information-about-charts#nzmariner.

LINZ publishes NZ*Mariner* annually plus a monthly cumulative update file of corrections published in Notices to Mariners.

c) INT charts

LINZ has submitted a propsal to the SWPHC International Chart Coordination WG (ICCWG) to cancel INT 630 (NZ 14630) and publish NZ 93 as an INT chart. This was presented at SWPHC15. The INT version of NZ 93 will be published mid-2019 and the withdrawal of INT 630 (NZ 14630) will occur late-2019.

d) National paper charts

New Zealand has a total of 195 paper charts. Detailed information of the full New Zealand chart folio can be found on the newly launched on-line spatial viewer.

New Zealand Paper Charts published since the SWPHC15 Meeting		
New Zealand Total: 23 NC: 1 NE: 22	South West Pacific Total: 9 NC: 0 NE: 9	Antarctica Total: 0

New Zealand Paper Charts scheduled for publication in 18/19 FY			
New Zealand Total: 24 NC: 2 NE: 22*	South West Pacific Total: 9 NC: 0 NE: 9	Antarctica Total: 0	INT Total:1 NC:1

* includes the vectoristaion of raster only charts

e) Other charts, e.g. for pleasure craft
Nil.

f) Problems encountered
Nil

Detailed information about charting to update IHO Publications P-5 (*Yearbook*) and C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is submitted in Annexes A and B, respectively. Please indicate "no change" in Annexes A and B if this is the case.

4. New publications & updates:
[*Describe any significant developments since the last SWPHC meeting in nautical publications related to the items below*]
   a) New Publications
   In July 2018 LINZ implemented an automatic process for the publication of New Zealands fortnightly Notices to Mariners, using CARIS Publication Module.
   b) Updated publications
      a. Means of delivery, e.g. paper, digital
      The New Zealand Nautical Almanac (NZ 204) is available in hardcopy from chart retailers.

      The New Zealand publications are available in whole or part to download from the LINZ website at: http://www.linz.govt.nz/sea.

      The New Zealand Chart Catalogue is available on-line through an interactive spatial map, a catalogue list; and as a PDF document

   c) Problems encountered
   Nil

Detailed information to update IHO Publication P-5 (*Yearbook*) is submitted in Annex A. Please indicate "no change" in Annex A if this is the case.

5. MSI

[*Describe the status of Maritime Safety Information (MSI) related to the items below*]

a) Existing infrastructure for transmission

LINZ publishes Annual Notices to Mariners (available in the Nautical Almanac and online) and fortnightly Notices to Mariners (NtM) distributed via an email subscription service (http://www.linz.govt.nz/sea/maritime-safety/notices-mariners/subscribe-fortnightly-edition-notices-mariners) and available online at http://www.linz.govt.nz/sea/maritime-safety/notices-mariners. The subscription service allows users to select which charts they receive notices for.

A dedicated email address has been established for receipt of information pertinent to NtMs, ntm@linz.govt.nz.

Maritime New Zealand is the NAVAREA XIV Coordinator and the New Zealand National MSI Coordinator rccnz@maritimenz.govt.nz. Navigational warnings are available from the MNZ website https://www.maritimenz.govt.nz/commercial/safety/maritime-radio/navigational-warnings.asp

See the following NAVAREA XIV reports:
- The Self-Assessment report for NAVAREA XIV for the period July 2017 to June 2018 was submitted to the IHO World-Wide Navigational Warning Service (WWNWS) Sub-Committee Meeting (WWNWS10) held in Monaco on 27 to 31 August 2018.
- NAVAREA XIV Report to SWPHC16

The NAVAREA XIV Coordinator has initiated six monthly communications checks with the nine National Coordinators (outside of New Zealand) in an effort to improve communications and ensure contact details are correct. To date the response rate has been 100%.

NAVAREA XIV EGC Messages

2016	2017	2018
98	145	190

The increase in NAVAREA XIV Warnings is predominantly due to improved communications with Pacific Island National Coordinators and MSI training provided by IHO Capacity Building Fund, resulting in more MSI received.

MSI Received from Coastal States within NAVAREA XIV

Coastal State/Country	**Number of MSI messages**	**Topics/Subjects of messages**	**IHO CB Funded MSI Courses Attended**
Cook Islands	2	Wrecks	2010, 2014, 2016, 2018
Fiji	64	AtoN, Cable laying ops, Pipeline installations, Wrecks	2010, 2014, 2016, 2018
French Polynesia	37	Military exercises, Space debris	2010, 2014, 2016, 2018
New Caledonia	28	Military exercises	2010, 2014, 2016, 2018
Niue	1*		2016, 2018
Samoa	1	AtoN	2016, 2018
Tonga	6	AtoN, Wrecks, Shoal	2016, 2018
Tuvalu	1	AtoN	2016, 2018
Wallis & Futuna	Covered by New Caledonia		Covered by New Caledonia
Kiribati	3	AtoN	2016, 2018

* MSI message received but no warning required

b) New infrastructure in accordance with GMDSS Master Plan
GMDSS Master Plan updated July 2018. No new infrastructure.

c) Problems encountered

The Inmarsat I3-I4 migration, specifically the westerly repositioning of the POR and AOR-W satellites challenged New Zealand's ability to monitor NAVAREA and METAREA XIV EGC broadcasts. Without any landmass in the area of NAVAREA/METAREA XIV under the new AOR-W footprint, an EGC receiver could not be physically located to monitor AOR-W EGC reception. NAVAREA XIV has initiated the following model, with the support of the WWNWS Chair, to monitor MSI broadcasts:

Following every MSI broadcast

- All broadcast transmissions are monitored via the SafetyNET II interface, which provides system confirmation of message status and text display of the message sent. Monitoring of broadcast reception via the POR satellite continues via the existing INM-C EGC receiver.

Once Daily

- A ship in the eastern part of NAVAREA XIV, under the AOR-W footprint is identified via Satellite AIS (S-AIS) and requested to confirm message reception

Detailed information about MSI to update IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is submitted in Annex B. The national self-assessment of MSI is submitted in Annex C. Please indicate "no change" in Annexes B and C if this is the case.

6. C-55
   The table with the latest information to update IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is provided in Annex B. Please indicate "no change" in Annex B if this is the case.

7. Capacity Building Offer of and/or demand for Capacity Building
   [*Describe the need for or ability to offer Capacity Building in relation to the items below*]
   a) Training received, needed, offered
      LINZ has challenges in recruiting experienced staff. With few qualified and/or experienced candidates available and only one IBSC recognized Category B Hydrographic Surveying course in the region, it has been necessary to recruit from further afield. As such, New Zealand sees a real need for Hydrography and Cartography programmes to be developed and delivered in-region.

      LINZ and MNZ (NAVAREA XIV Coordinator) hosted the IHO CB funded (CBSC 2018 P-10), SWPHC Capacity Building IHO Maritime Safety Information (MSI) Training Course in Wellington, in August 2018. 13 particpants from 12 PICs attended the training, including the Marshall Islands for the first time. Mr Sunil Kumar (MSAF) joined the trainers from NAVAREA XIV Coordinator as a direct response to the IHOs goal to build training capacity by appointing MSI trainers from the region. This initiative is being actively encouraged and supported by the IHO as per Actions 2, 3, 4 and 5 of IRCC9 and Action 15 of CBSC15. The IHO and the SWPHC wishes to thank MSAF for releasing Mr Kumar who actively shared his knowledge and experience with the participants.

      Immediately prior to the SWPHC15 meeting the SWPHC CB 1-day worshop for PICs in Implementing Hydrographic Governance was held 20th February 2018, in Fiji. 14 participants from 11 PICs attended the workshop. The workshop built on the success of previous technical workshops held at SWPHC11, SWPHC13 and SWPHC14. Similarly, immediately prior to the SWPHC16 meeting a 2-day workshop for PICs on Disaster Response Planning and Data Discovery is to be held.

      Availability of funds for developing States in the region to attend the RHC meeting is a known barrier to participation in IHO matters. Holding an IHO funded workshop in conjunction with SWPHC meetings ensures Associate and non-member States are able to benefit from CB workshops and attend the RHC meeting.

      It is noted from IHO TWCWG3 the desire to notify RHCs of the IHO short course ontides for hydrography. The training material is targeted towards providing basic information to countries wishing to establish hydrographic survey capabilities.

b) Status of national, bilateral, multilateral or regional development projects with a hydrographic component. (In progress, planned, under evaluation or study)

a. In 2015 a partnership between LINZ, MFAT and SPC continued the above work through the Pacific Regional Navigation Initiative (PRNI), which focuses on navigation-related aspects of maritime safety. It builds on the successes of the 2011 NZ Aid funded South West Pacific Hydrographic Risk Assessment project and lessons learned particularly in relation to charting and risk assessment work by:

i. discovering relevant hydrographic data within the region

ii. undertaking hydrographic risk assessments in additional selected PICs

iii. supporting hydrographic capability building initiatives throughout the Pacific

iv. implementing hydrographic surveys and updating maritime charts

v. supporting the development of a partnership consortium model

The primary focus for LINZ is on assisting those five PICs where New Zealand is the Primary Charting Authority (PCA), namely Cook Islands, Niue, Samoa, Tonga and Tokelau.

To-date:

- Hydrography Risk Assessments for Cook Islands, Niue, Samoa and Tonga have been completed, presented to the respective governments and are available on the IHO website;
- an analysis of vessel traffic in and around Tokelau has been completed, used by SPC as the basis of their Safety-of-Navigation programme and is available on the IHO website;
- bilateral arrangements with the Cook Islands, Niue, Samoa and Tonga have been signed;
- hydrographic survey work in the Cook Islands, Niue, Tokelau and Tonga has been completed including; Satellite Derived Bathymetry (SDB) over nine islands of the Cook Islands, throughout Tonga and Beveridge and Antiope Reefs in Niue; Airborne Laser Bathymetry (ALB) in Tonga and Niue; and Multibeam echo sounder (MBES) survey in Tonga;
- chart improvement programmes for the Cook Islands, Niue, Samoa, Tokelau and Tonga have been progressed. Updated ENCs and paper charts have been published incorporating recent hydrographic survey data and data held by SPC.
- In January 2018 MFAT secured a further $2.2million in funding for PRNI which will see PRNI continue to June 2021. SPC have now completed all activities under PRNI.

b. In 2012 a partnership between MFAT and Maritime New Zealand (MNZ) commenced to work on the Pacific Maritime Safety Programme (PMSP) in

response to several high profile passenger ferry disaster in the Pacific. PMSP supports six PICs (Cook Islands, Niue, Samoa, Tuvalu, Tokelau and Tonga) raising awareness amongst fishermen and the community, strengthening the maritime safety regulator, support for seafarer training, vessel safety, marine pollution and Search and Rescue capability.

c) Description of requests to be considered by the IHO/CBSC
Hydrography and Cartography programmes to be developed and delivered in-region.

8. Oceanographic activities
[*Describe any significant developments in oceanographic activity since the last SWPHC meeting related to the items below*]

a) General
Within New Zealand there are two Crown Research Institutes (CRI) involved in oceanographic studies: NIWA, the National Institute of Water and Atmospheric http://www.niwa.co.nz/; and GNS Science http://www.gns.cri.nz/. During 2018 NIWA's research vessels *Tangaroa* and *Kaharoa* undertook around 250 days and 190 days respectively, of oceanographic and fisheries research.

Both operate data portals allowing users to discover and access a wide range of geoscience data across New Zealand.
- GNS: http://data.gns.cri.nz/dataportal/
- NIWA: https://marinedata.niwa.co.nz/project-map-sam/

New Zealand now has the Ocean Data Network (https://nzodn.nz/) as a node of the Australian Ocean Data Network (AODN https://portal.aodn.org.au/).

b) GEBCO/IBC's activities
Seabed 2030 project is a collaboration between The Nippon Foundation in Japan and the General Bathymetric Chart of the Oceans (GEBCO). The project aims are to combine all existing bathymetric data into a unified database, promote efforts to collect new data on the ocean floor and to generate maps of all ocean floor features larger than 100m.

New Zealand is the Seabed2030 Regional Data Assembly and Coordination Centre (RDACC) for the South and West Pacific Ocean, and operates the South and West Pacific Data Assembly Centre (SaWPac). The SaWPac is run jointly by NIWA/GNS/LINZ and is hosted by NIWA. The first batch of data from SaWPac was delivered to the Global GEBCO data centre in November 2018. The inaugral meeting of the SaWPac Regional Mapping Committee is on 4-6 March 2019, in Wellington. Representatives from countries in the South and West Pacific region will attend to discuss what bathymetry data their country has and learn how they can contribute this data to the Seabed2030 project.

c) Tide gauge network
LINZ publishes tide predictions for Standard and Secondary Ports on the web http://www.linz.govt.nz/sea/tides.

LINZ, in partnership with GNS Science, has stablished a network of 18 tide gauges to improve New Zealand's response to tsunami hazards. Further information is available

at http://www.linz.govt.nz/sea/tides/sea-level-data.

As part of the Mapping NZ 2025 programme, Joining Land & Sea (JLAS) Project, LINZ will engage contractors for the provision of sea level data and tide gauge calibration at 89 sites around New Zealand over the next 3-4 years. This data will be used, initially, to constrain and calibrate a new tide model being developed by NIWA for New Zealand's EEZ. This will provide the tidal surfaces for the JLAS tool to seamlessly connect land and sea datasets. The data collection involves establishing tide stations for a minimum of 35 days (often at sites where sea level observations have never been made before), calibrating existing tide gauges and surveying ellipsoidal heights on bench marks that are connected to the sea level data.

d) New equipment
NIWA has recently invested in the following equipment:
- GeoSwath Plus Compact - 500kHz portable system (purchased 2016)
- EM2040 dual Rx includes acquisition system, SIS and PosMV able to be used on a range of NIWA vessels.
- EM2040 single Rx has been installed permanently on NIWA's research vessel Tangaroa
- 2 Ocean Gliders - low-powered autonomous underwater vehicles (AUVs)
- Significant wave buoy and mooring technology

e) Problems encountered
Nil

9. Other activities
[*Describe any other significant developments of interest to the SWPHC since the last meeting related to the items below*]
a) Participation in IHO Working Groups

Working Groups since SHPHC15 Meeting	**Date**
S-100 WG	April 2018
IBSC41	April 2018
TWCWG3	April 2018
CBSC16	June 2018
IRCC10	June 2018

Future Activities Include:	
IBSC42	March 2019
CBSC17	May 2019
IRCC11	June 2019
S-101PT	June 2019
ENCWG	June 2019

b) Meteorological data collection
Nil

c) Geospatial studies
Refer to MSDI below.

d) Disaster prevention
Through the LINZ Outcome Framework, resilience & climate change has been identified as a critical work programme for the LINZ Location Information Group. Key datasets for this programme include the coastline, which is part of our Mapping NZ 2025 Coastal Mapping initiative.

e) Environmental protection
Nil

f) Astronomical observations
Nil

g) Magnetic/Gravity surveys
Nil

h) MSDI Progress
Marine Geospatial Information (MGI): LINZ is working with stakeholders across a range of NZ organisations to unlock value from marine geospatial information to contribute to a thriving Blue Economy. A National Working Group on MGI is beingformed, comprising representatives from government agencies, CRIs, regional councils, universities, and other entities, who have an interest in co-ordinating and improving access to marine geospatial information.

LINZ is the Steward of the New Zealand bathymetric dataset. Recognising the use of other datasets collected during hydrographic surveys, LINZ is undertaking a national stocktake to identify other marine geospatial datasets.

In March 2019, LINZ is seeking to attend the following meetings remotely:
- IHO MSDIWG
- OGC Marine WG
- UNGGIM Marine WG

LINZ will respond to the OGC MSDI Concept Development Study request for information.

In 2018 LINZ established a coordinator role to access ocean datasets collected by UNCLOS Marine Science Research (MSR) vessels within New Zealands EEZ. The role is to ensure that researchers comply with their obligations to provide voyage and scientific reports, data and samples to New Zealand. LINZ's MSR Coordinator acts as the point of contact for all MSR-related data and report enquiries.
https://www.linz.govt.nz/sea/marine-scientific-research.

The former New Zealand Geospatial Office (NZGO) developed a comprehensive work programme for the implementation of a national Spatial Data Infrastructure. More information can be found at http://www.linz.govt.nz/about-linz/our-location-strategy/sdi-and-open-government-data-programme.

The NZHA has extensive bathymetric data holdings and has the responsibility to; ensure the appropriate data management policies and standards are developed to maintain the data; and ensure the data is available and discoverable. In July 2018 an index to bathymetric surfaces was added to LINZ Data Service. Users are now able to

identify and request surfaces and scanned sounding sheets through the LINZ Data Service.

i) Regional
NZ is a participant in the AusSeabed program, a national seabed mapping coordination program aiming to serve the Australian community relying on seabed data by coordinating collection efforts in Australian waters and improving data access. The programme is led by Geoscience Australia.

j) National
Government partnerships: Through HYPLAN, the NZHA has partnered with local and central government bodies to collect marine datasets that will enable partners to manage and monitor the marine environment. Of note was the partnership with Marlborough District Council collecting data for safety-of-navigation and marine habitat mapping; and partnering with the Ministry for Primary Industries following the 2016 earthquake that caused the seabed between Kaikoura and Cape Campbell to uplift by up to 5m, posing a hazard to navigation and changing the marine habitat.

Mapping NZ 2025: A 10-year programme of leadership and coordination to ensure seamless integrated mapping and the provision of national datasets. To be delivered through focused projects, such as joining topographic and bathymetric datasets.

k) Use of risk to support survey and chart updating priorities
LINZ has undertaken a number of full hydrographic risk assessments through the Pacific Regional Navigation Initiative (PRNI), for the Cook Islands, Niue, Samoa and Tonga. In consultation with the respective government, an agreed programme of survey and chart improvement is underway.

In 2016 LINZ completed a hydrographic risk assessment of NZ coastal waters which resulted in a long-term, prioritise hydrographic survey programme, HYPLAN. In 2020 LINZ intends to review NZ vessel traffic and re-assess the survey programme.

In 2018 LINZ carried out a hydrographic risk assessment of the Sub-Antarctic Islands within the NZ EEZ. The results will be reviewed and incorporated in to HYPLAN as appropriate.

10. Conclusions
[*Provide a short summary statement that highlights any of the following:*
a) Areas of significant achievement
b) Areas of particular concern
c) *Any other matters of interest to the SWPHC*]

Over the past 12 months the NZHA has made progress in moving from a paper centric environment to a digital first, data centric one. This has been achieved through the automation of the Notices to Mariners publication; the release of an on-line chart catalogue; the development of a prototype hdENC; and a trial for a NZ ENC distribution service.

LINZ successfully recruited a Cat-A Senior Hydrogaphic Surveyor during 2018. Recruiting and retaining qualified and experienced staff remains a challenge, as there are

no education establishments providing FIG/IHO/ICA Category ‘A’ Hydrographic Surveyor or Category ‘B’ Nautical Cartographer courses in the region.

New Zealand is the Regional Data Assembly and Coordination Centre (RDACC) for the GEBCO Seabed 2030 South and West Pacific region.

NZ is committed to hydrography in the SWP region, collaborating with others under the umbrella of the SWPHC, most notably through the MFAT NZ Aid Programe PRNI. Through PRNI New Zealand has:

- delivered a hydrography risk assessment for Niue and Samoa and an analysis of traffic in and around Tokelau;
- signed bilateral arrangements with the Cook Islands, Niue, Samoa and Tonga;
- completed a extensive hydrographic survey programme including SDB, ALB and MBES technologies for the Cook Islands, Niue, Tokelau and Tonga;
- released 35 ENC incorporating new survey data for the Cook Islands, Niue, Samoa, Tokelau and Tonga; and
- implemented a programme of further chart improvement incorporating new data

The next twelve months will see further initiatives as New Zealand moves from a paper based environment to a digital first, data centric model, with a future focus on marine geospatial information for New Zealand.

Input to the IHO Publication P-5 (*Yearbook*)

Country: New Zeland
Organization: Land Information New Zealand (LINZ)

(Please provide the information in English)

Contact information/ Informations de contact / Información de contacto	
-National Hydrographer or equivalent -Directeur du service hydrographique ou équivalent -Director del Servicio Hidrográfico o equivalente	Post: National Hydrographer Name: Adam Greenland Postal address: Level 7, Radio New Zealand House, 155 The Terrace, Wellington 6145, New Zealand Tel: +64 4 460 0110 Email: agreenland@linz.govt.nz
-Head of the Hydrographic Office (if different from the person indicated above) -Directeur du Service Hydrographique (si différent de la personne indiquée ci-dessus) -Director del Servicio Hidrográfico (si diferente de la persona indicada anteriormente)	Post: Name: Postal address: Tel: Fax: Email:
-Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	
-Web site -site web -sitio web	www.linz.govt.nz/sea
Country information / Informations sur le pays/ Información sobre el país	
-Declared National Tonnage -Tonnage national déclaré -Tonelaje Nacional Declarado	Tonnage: 264,853 Date: 2017
-National day -Fête nationale -Fiesta nacional	6 February
-Date of establishment and Relevant National Legislation -Date de mise en place et législation nationale pertinente -Fecha de constitución y legislación nacional	1996

pertinente	
-Date first joined IHO -Date d'adhésion à l'OHI -Fecha de adhesión a la OHI	01/01/1959
-Date ratification Convention -Date de ratification de la Convention -Fecha de ratificación de la Convención	21/12/1967
-Remarks on membership -Remarques sur l'adhésion -Comentarios sobre la adhesión	Included under 'British Empire' with the UK from 1947
Agency information/ Information sur l'agence/ Información sobre la agencia	
-Top level parent organisation -Organisme mère -Organización asocieda de nivel superior	Land Information New Zealand (LINZ)
-Principal functions of the organisation or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o departamento	• Hydrographic surveys • Tidal services • Produce, maintain and distribute official nautical products and publications • Marine Geospatial Information for an NZ MSDI
-Annual operating budget -Budget annuel -presupuesto anual	
-Total number of staff employed -Effectifs totaux -Número total de personal empleado	705 = LINZ in total 19 = NZHA
-Number of INT charts published -Nombres de cartes INT publiées -Número de cartas INT publicadas	29
-Total number of paper charts published-Nombre total de cartes papier	195

<table>
<tr><td>publiées-Número total de cartas de papel publicadas</td><td colspan="4"></td></tr>
<tr><td>-Number of ENC cells published
-Nombres de cellules ENC publiées
-Número de células ENC publicadas</td><td colspan="4">305</td></tr>
<tr><td>-Number of Other charts
-Nombre d'Autres cartes
-Número de Otras cartas</td><td colspan="4"></td></tr>
<tr><td>-Type of publications produced
-Type d'ouvrages produits
-Tipo de publicaciones producidas</td><td colspan="4">Charts - paper, raster and ENC
Nautical Almanac
Notices to Mariners
Chart Catalogue
Tidal Stream Atlas</td></tr>
<tr><td rowspan="5">-Detail of surveying vessels/ aircraft
-Détail des bâtiments hydrographiques / aéronefs
-Detalle de los buques hidrográficos / aeronaves</td><td>-Name
-Nom
-Nombre</td><td>-Displacement
-Déplacement
-Desplazamiento</td><td>-Date Launched
-Date de mise en service
-Fecha de botado</td><td>-Number of crew
-Nombre de l'équipage
-Tripulación</td></tr>
<tr><td>None</td><td></td><td></td><td></td></tr>
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<tr><td>-Other information of interest
-Autres informations utiles
-Otra información de interés</td><td colspan="4"></td></tr>
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Input to the IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*)
Country: New Zealand
(Please provide the information in English)

No change

National MSI Self-Assessment

See Separate documents:

- SWPHC16-12B (NAVAREA XIV)
- NAVAREA XIV Report to SWPHC16