



IIC Technologies:

Doing our part
**Activities of
Interest in the
Region**

David Crossman
1 March 24
SWPHC21



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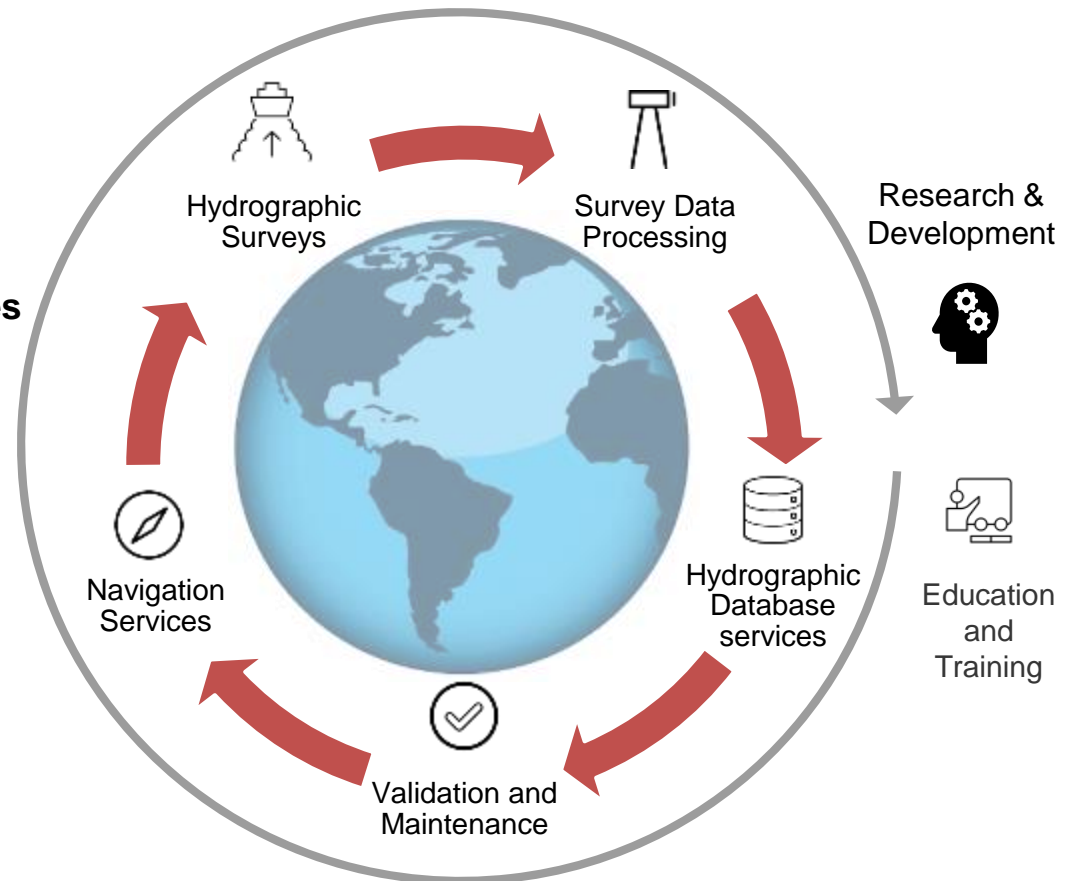
- ❖ **Intro**
- ❖ **NaAVIC Free ECS**
- ❖ **Kiribati Surveys**
- ❖ **S-100**
- ❖ **Training**

Turnkey Surveying, Mapping, and Charting Solutions Company

- Established in 1993
- More than 1500 employees
- ISO Accredited
- NATO Secret Facility
- 8 offices, 4 continents
- 30+ National Authority Customers

Six Divisions, focused on Geospatial Sciences

- Terrestrial Services and Solutions
- Geo Surveys
- Geospatial Engineering
- Innovation Centre
- Marine Services and Solutions
- IIC Academy



Regional Client List



- Australian GEOINT Organisation (AGO)
- Australian Hydrographic Service (AHS)
- Australian State of Victoria Department of Environment, Land, Water and Planning
- Asian Development Bank
- Fiji Hydrographic Office
- French Hydrographic Office (SHOM)
- Geoint New Zealand (GNZ)
- Geoscience Australia
- Indonesian Navy Hydrography and Oceanography Center
- Kingdom of Tonga Ministry of Lands and Natural Resources
- Korea Hydrographic and Oceanographic Agency
- Land Information New Zealand (LINZ)
- LandGate Western Australia
- National Oceanic and Atmospheric Administration (NOAA)
- National Institute of Water and Atmospheric Research NIWA
- Niue Ministry of Natural Resources
- NMSA Papua New Guinea
- Open Geospatial Consortium (OGC)
- Republic of Kiribati (MICT)
- Royal New Zealand Navy
- Secretariat of the Pacific Community
- UK Hydrographic Office (UKHO)
- University of Sydney
- US National Geospatial Intelligence Agency (NGA)
- SA DEW Geospatial Panel
- World Bank

NaAVIC: Electronic Chart System

- Released Feb 23
- Free downloadable mobile app
- Utilises National Authoritative S-57 data
- Fortnightly Updates
- Cloud based
- Free safety and planning tool for small boat users, and recreational water users such as kayakers, SUP, jet skis etc
- Numerous land and maritime layers.
- Real time positioning
- Route planning.
- Allows user defined editing
- Built in emergency reporting function.
- Community communications functions



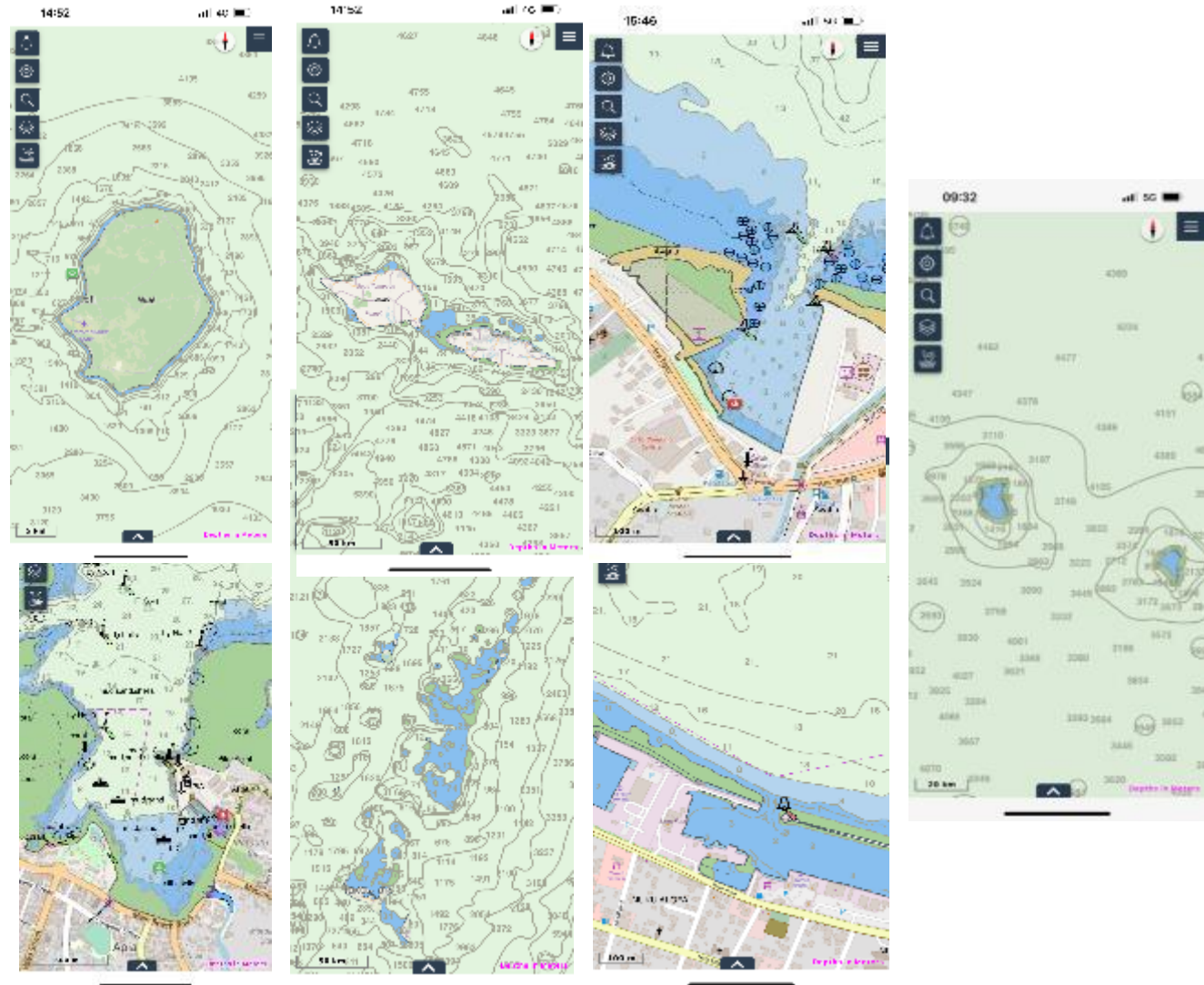
Regional Safety of Navigation



NaAVIC ECS The Pacific Islands!

- New Zealand
- Tonga
- Samoa
- Niue
- USA incl Hawaii
- American Samoa
- Guam
- INT Charts

If you want this then please discuss with me or discuss with your PCA's.



Activities: Data Gathering

• KOITIIP Kiribati Bathymetric Survey

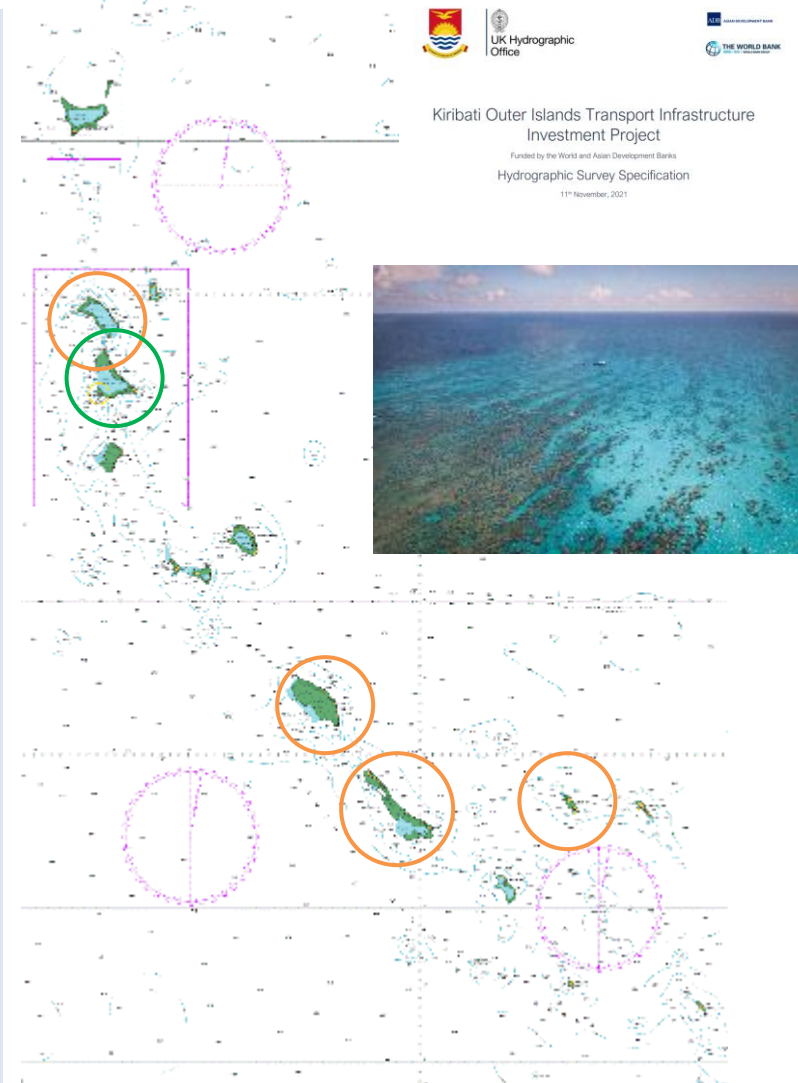
- 4 Outer Island Areas
- Tides, Geodetics, LiDAR, ALB, imagery & MBES, Ancill Obs
- Full LiDAR and imagery coverage, targeted Navigation passages for MBES – IHO 1a.
- Safety of Nav, economic Development, resilience planning etc
- Kiribati Govt (MICT), WB / ADB funded & UKHO Client Rep
- MBES complete, Anticipate LiDAR completion 10 Mar 24, processing ongoing

• UKHO Tarawa, Kiribati MBES Survey

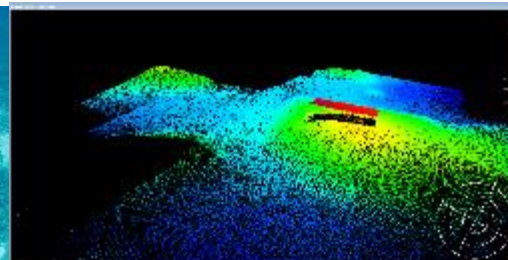
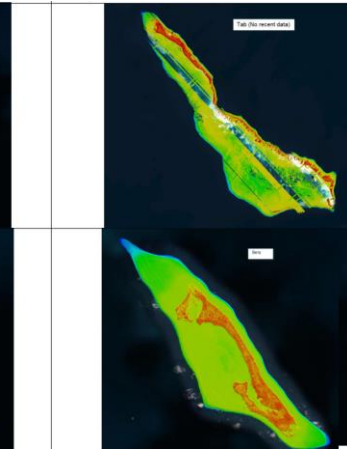
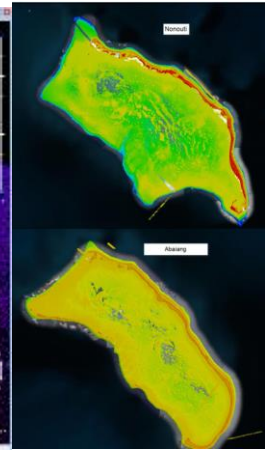
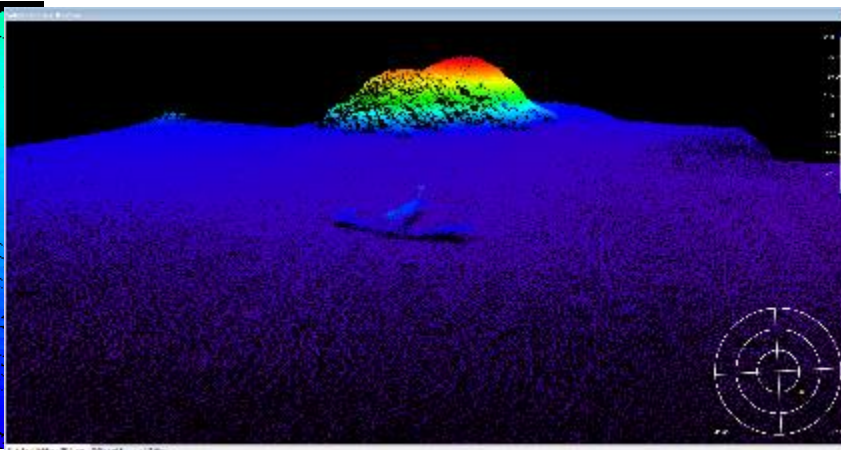
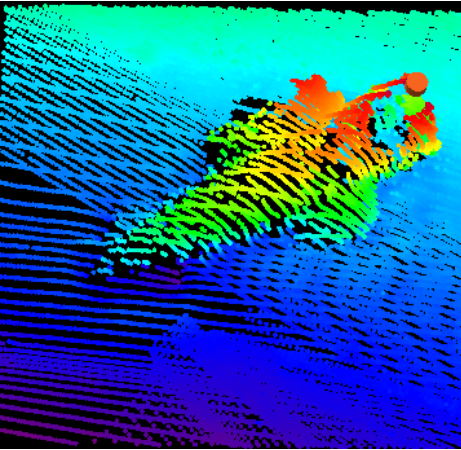
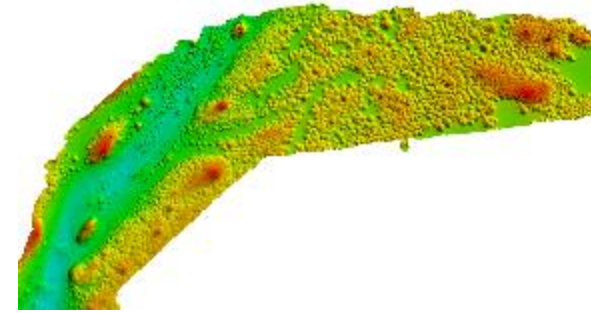
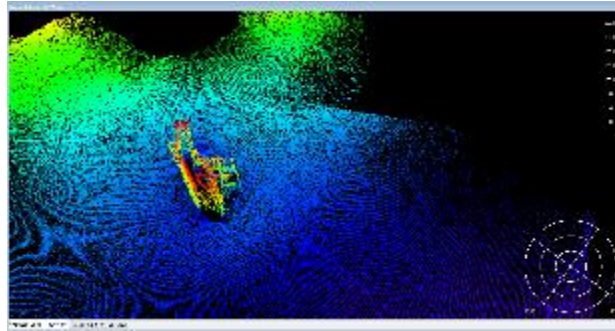
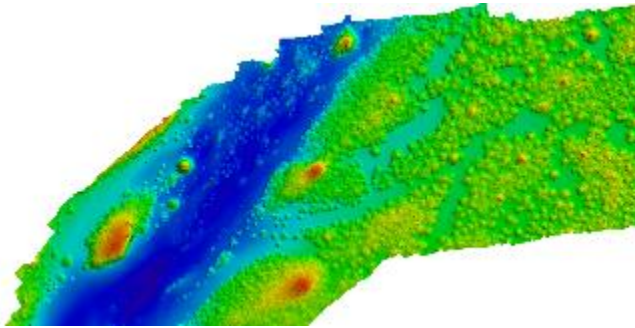
- MBES of Main port at Betio and Approaches – IHO1a
- Tides, Geodetics, & MBES
- Safety of Nav, economic Development, resilience planning etc
- UKHO funded, Govt of Kiribati supported
- Gathering complete, processing ongoing

• ADB Tarawa, Kiribati, ALB Survey

- Main island of Tarawa
- Tides, Geodetics, LiDAR & ALB
- Safety of Nav, economic development, resilience planning etc
- ADB funded, Govt of Kiribati Govt supported UKHO Client Rep
- Anticipate LiDAR completion 10 Mar 24, processing ongoing



2023 KIRIBATI BATHYMETRIC SURVEY



NEW PATHS. NEW APPROACHES

S-100 Activities



- IIC continues its strong contribution and leadership of numerous standards Groups including S100, S-57, OGC and other.
- IIC has now undertaken approximately 50+ S-100 Projects for IHO and its various National Authority Clients and others.
- <https://s100.iictechnologies.com/>

Are you ready for S-100?

By 2025 Hydrographic Offices and National Agencies worldwide are expected to deliver regular native production of S-101 ENC's. This will mark the start of the transition to the S-100 data model.

[Contact Us](#)

Offered Services

IIC Technologies is pleased to announce a range of new services to assist organizations with their S-100 transition journey.

| | |
|--|--|
| <h4>S-100 Migration Planning</h4> <p>Maximize efficiency by ensuring a successful Hydrographic transition to the new standard of producing S-100 operational capability. This is achieved by creating an actionable migration plan based on in-depth analysis of the network of existing production systems, data content and production processes, delivering an optimal migration plan ready for implementation.</p> | <h4>Data Conversion and Validation</h4> <p>Data Conversion and Validation is critical to the success of the transition from the older S-57 Standard to the newer S-101 Standard. This service can handle individual dataset conversions, post-conversion validation, full database migration and transfers in production systems. Additionally, it is able to support other S-100 product related file formats compatible to various marine information needs.</p> |
| <h4>Continuous Production</h4> <p>This service focuses on data conversion, validation and the release of the S-101/S-100 product updates that are a vital continuous process in the life of marine cartography and navigation. We ensure that navigational data remains accurate, up-to-date and compliant with international standards, all while contributing to the safety and efficiency of maritime transportation.</p> | <h4>Infrastructure Support</h4> <p>The Infrastructure Support service focuses on value-added services like digital signatures, encryption, and exchange dialogue in order to assist in system integration support. These services are essential for securing, managing, and sharing marine data efficiently, and complying with international standards. These also ensure the required data and related products meet the required quality and security standards required of Hydrographic Offices.</p> |

Our Expertise

Our team has played an integral part in the S-100 development both as industry expert contributors to the development of the Standards, as well as successfully delivering numerous industry leading projects. As a result of this we are now excited to offer the expertise and insights we have gained to support other organizations transitioning on the S-100 transition path. Our new services and solutions are tailored to meet the needs of the industry with highly personalized support for each organization to ensure a complete transition to a successful S-100 implementation.

- **NOAA**
 - ENC Conversion Study
 - ECDIS Transition to S-101
 - S-64 test datasets
 - Realtime data in S-100
 - S-121 Catalogue creation
 - S-100 metadata database
- **CHS/CHC**
 - Grid Study and Arctic Grid Study
 - S-100 HPD Restructuring
 - CHC S-100 Multi-language Metadata Support Design
 - CHS S-131 Database API Software Development
- **CHS/USN Oceanographic Office**
 - Creation of 1st S-102 Bathy Surface prototype
- **NGA**
 - S-100 Database Consult
- **Geoscience Australia**
 - Revised S-121 product spec. and Encoding document
- **KHOA**
 - Grid and implementation study
 - S-100 HPD Restructuring
 - S-100 Middleware System
 - JPA (KHOA & NOAA)
 - S-98 Interoperability Catalogue Design
 - Streamlining S-100 ECDIS Portrayal
 - S-100 Testing Infrastructure
 - S-102/S-104/S-111 Testing Rules
 - S-98 IC V2 Authoring
- **LINZ**
 - S-101 to S-57 Conversion Pilot
 - S-100 MDT Implementation Plan
- **UKHO**
 - S-100 Grid
 - S-100 Exchange Set
- **AHO**
 - Discussions commenced support



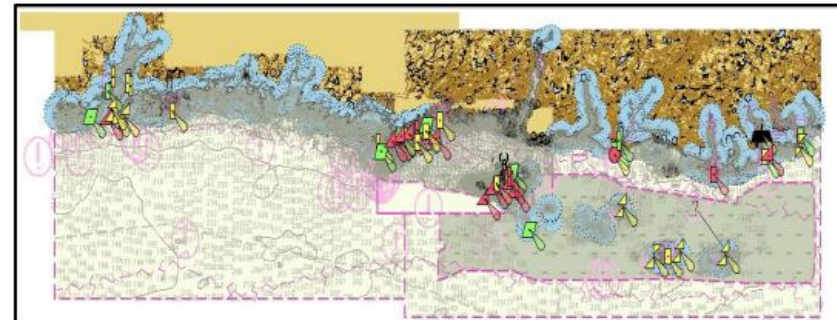
Canadian CG S-100 Projects

- S-129 UKC Policy Review
- S-127 Data production for Canada
- S-100 Metadata Proposal
- S-100 Training Materials Development
- AtoN DB Conversion Roadmap
- S-123/S-127 Portrayal Development
- S-100 Workflow Visualizations
- S-421 Sample Data Production
- S-123 and S-127 Geoserver Data Loading and Visualization
- AtoN DB Sample Conversion
- UKC Safety Analysis

Check out the website or talk to me for a briefing for your organisation!

Other S-100 Projects

- OGC S-121 S-121 Maritime Limit and Boundary schema and GIS plug-in
- GeoNovum S-100 OGC API
- Toolset Development
- Canada's Ocean Supercluster S-100 Dissemination System Development
- IIC Nautilus Cloud
- ***IIC S-100 Linked Series***



Short Courses (bespoke):

- Geodesy, datums, water levels, quality, LiDAR & other geospatial data, GIS, data management, data manipulation, equipment, processes etc - increasing
- Modules from IBSC recognised training for individuals and HO's
- On the Job Training:
 - Kiribati
- Delivery of IBSC recognised IHO Capacity Building on behalf of KHOA (alternately S-5b and S-8B)



S-5B Hydrographic Surveyors Program

- IBSC Recognised (IHO/FIG/ICA)
- Annual, maximising Distance Learning
- 13-week online theory over 22 weeks, then 9 week in person practical
- Fully revamped practical

- Year 1: 9 students (nil from SWP)
- Year 2: 16 students (1x Tonga)
- Year 3: 21 Global students 9 from Region
 - 1 x PNG Government
 - 2 x Kiribati Government (+2 enrolled for Sep 24)
 - 4 x Malaysian (Industry)
 - 1 x Australian Government
 - 1 Saudi Government



S-8B Nautical Cartographers Program

- IBSC Recognised (IHO/FIG/ICA)
- Annual, maximising Distance Learning
- 23-week online theory over 30 weeks, instructor supported assessment

- Year 1: 18 students (Nil SWP)
- Year 2: 8 students (2 x Fiji)
- Year 3: 30 Global students 24 from Region
 - 13 x Philippines Government
 - 2 x Kiribati Government
 - 5 x Australian Government
 - 1 x Australian Industry
 - 2 x Saudi Government
 - 1 x PNG Government

- Direct delivery to Vietnam in 2024 tbc



Registrations for Sep 24 Intakes on both Programs are now open!

Please talk to me about how you can get onto these programs or how you can sponsor.


<https://www.iicacademy.com/> or hydrographicsurveyor@iicacademy.com



Thank You

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www.iictechnologies.com 

Program Overview

Theory

Classroom : 11 weeks

Distance Learning: Complete within 6 months

INTRODUCTION – 6 days
Introduction to Hydrography
Introduction to GIS
Introduction to Surveying

COMPUTATION TOOLS – 10 days
Math, Physics and computer sciences re-fresher

NAUTICAL SCIENCE – 6 days
Nautical Science Theory

ENVIRONMENT – 4 days
Earth and Environmental Sciences

POSITIONING – 6 days
Geodesy, Horizontal and Vertical Positioning

UNDERWATER ACOUSTICS – 6 days
Theory, SBES and SSS
Swath Systems

WATER LEVELS – 4 days
Water Levels, Tidal Theory

QA/QC – 4 days
Quality Assurance Quality Control

REMOTE SENSING – 3 days
Remote Sensing, LiDAR, SDB

HYDROGRAPHIC PRACTICE – 3 days
Survey Projects, Introduction to survey operations
Legal Aspect (law of the sea, liability)

Practical 5 weeks

POSITIONING – 5 days (4 field, 1 class)
Positioning Practice

WATER LEVELS – 2 days (field)
Setting up tide gauge

NAUTICAL SCIENCE – 4 days (boat)
Boatmanship

ENVIRONMENT – 1 day (boat)
Environment sciences field operations

HYDROGRAPHIC PRACTICE – 10 days (6 boat, 4 class)
Hydrographic survey planning and set-up (boat)
Calibrations and correction (boat)
Real time acquisition and control (boat)
Data Processing and analysis (class)
Hydrographic survey documentation (class)

HYDROGRAPHIC DATA MANAGEMENT – 3 days (class)
Debrief on hydrographic practice
Data Organisation and Presentation

Final Field Project
minimum 4 weeks

S-8B Nautical Cartographers Program

- Current course commenced Sep 2023
- Will complete the practical Apr/May 2024

Total Students globally: 30

Total Asia Pacific Students: 21

Breakdown Asia Pacific nationality:

- 13 x Philippines Government (3 sponsored by IIC)
 - 5 x Australian Government 1 x Australian Industry
 - 2 x Saudi Government
 - 1 x PNG Government
-
- Annual & bespoke deliveries
 - *Sign up for the delivery commencing Sep 2024*

Theory:

| | |
|----------|--|
| Module-1 | Foundations of Marine Geospatial Information |
| Module-2 | Data Assessment and Compilation |
| Module-3 | Production and Validation |
| Module-4 | Marine Environment |
| Module-5 | Marine Spatial Data Infrastructures |

Practical's

| | |
|---------|------------------------------------|
| 3 weeks | Practicals |
| 4 weeks | Comprehensive Cartographic Project |



Summary

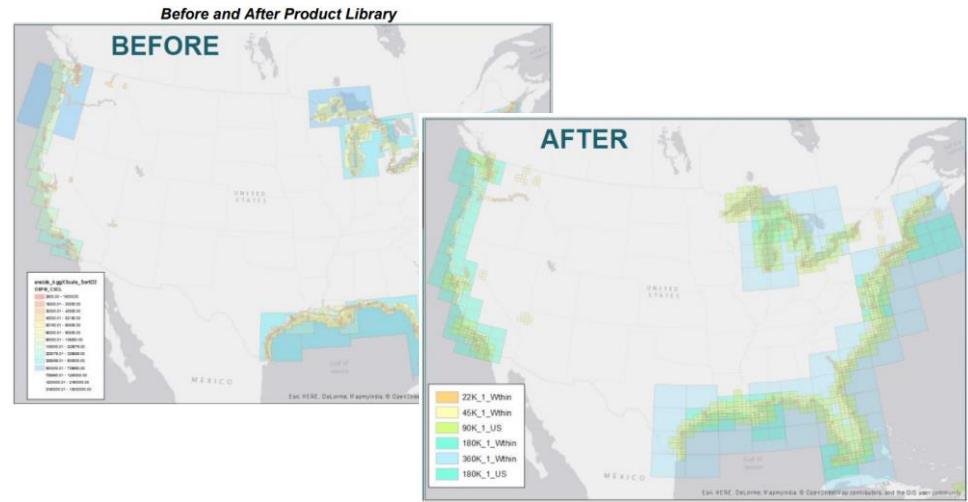
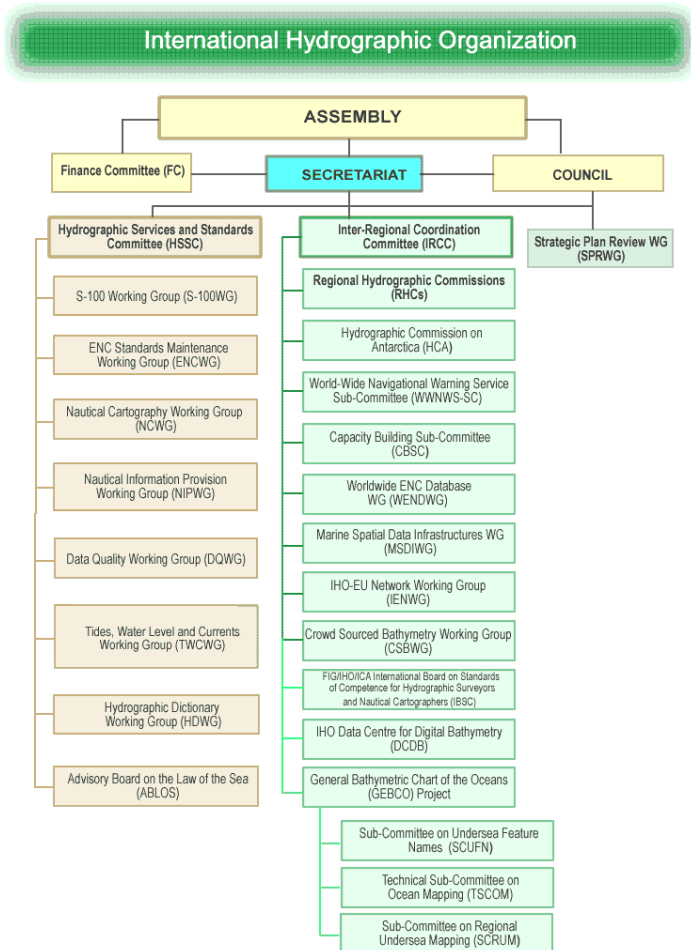


NaAVIC, is a **free and downloadable mobile app** and it represents a new approach to an ECS where the electronic **chart data does not physically exist within the onboard computer.**

The data for this particular form of ECS goes well beyond the traditional ENC content and **consists of an output from a database consolidating many different data products currently available in the marine domain.**

NaAVIC pushes the sailing experience further by **enabling all members of expeditions to engage in the voyage and share that voyage to fellow “marine friends”.**

2.3 S-100 Committees and WG's



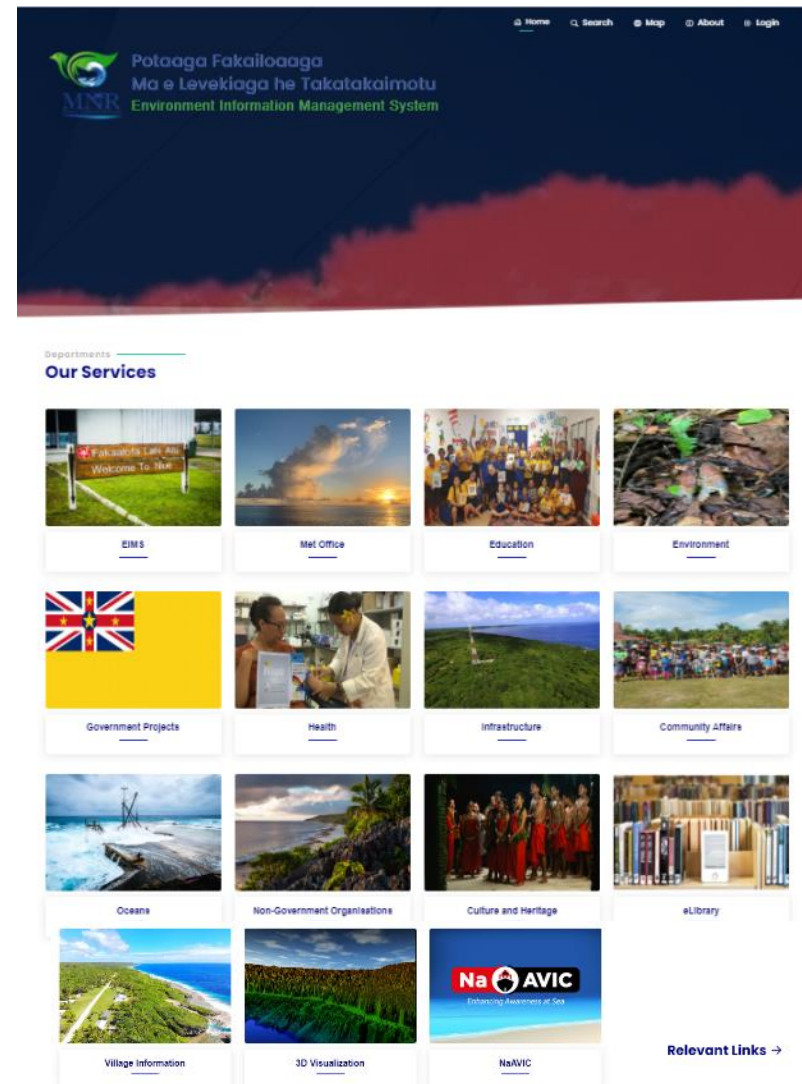
S-100 Groups Supported by IIC

- S-100 WG
- HSSC - Hydrographic Services and Standards Committee
- Nautical Information and Publications WG
- ENC Standards Maintenance WG
- Nautical Cartography
- Advisory Board on the Law of the Sea
- Various IRCC's including Nth America and Australasia

2.5 Support to e-Navigation & MSDI

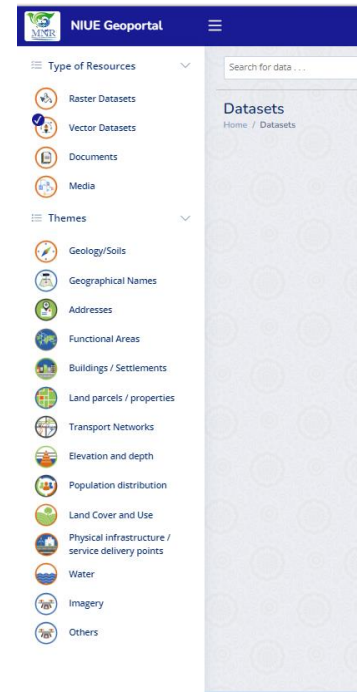
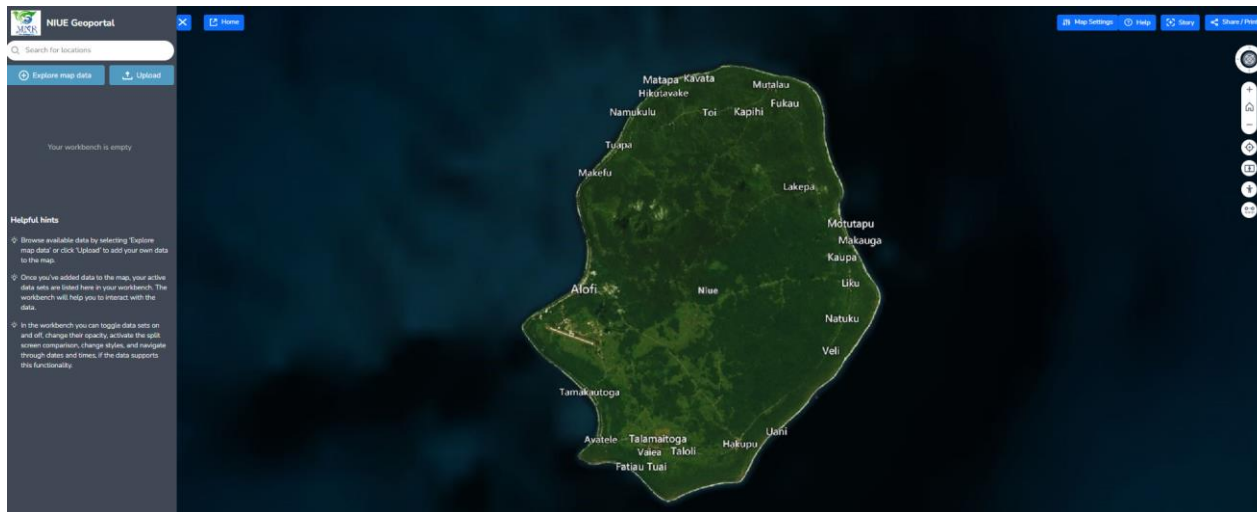
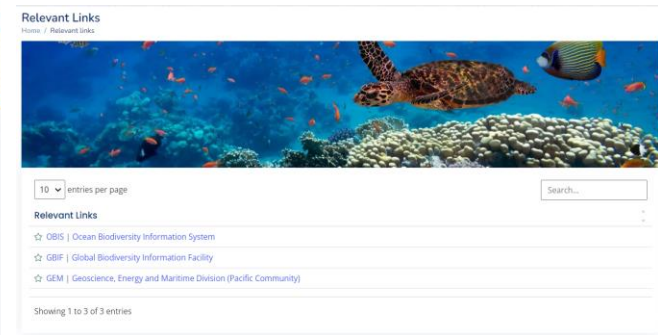
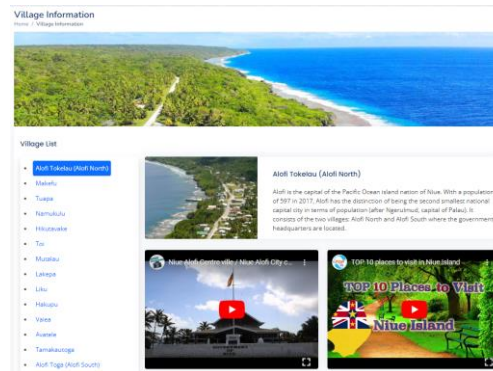
Niue Electronic Information Management System

- Spatial Data Infrastructure ++
- Full data capture, management, analysis, visualisation and reporting
- Full GIS back-end
- All of govt supporting
- Numerous formats (incl non-spatial)
- Managed multi-level access
- Strong community interest Incl academic and environmental
- 400% increase in data holdings to date
- Will capture Niue culture, History, language and traditional environmental practices
- Promotes Open data, and maximises use of Open Standards and freeware



2.5 Support to e-Navigation & MSDI

- Goes Live next week
- Physical infrastructure install Jun 23
- Is a common issue that IIC are happy to assist nations to resolve.
- Is being developed as a resolve that can be re-used across any SWP nation.



This Project is supported by the Niue Govt and Niue Ministry of Natural Resources, and is part of the Ridge to Reef program funded by GEF via UNDP



