

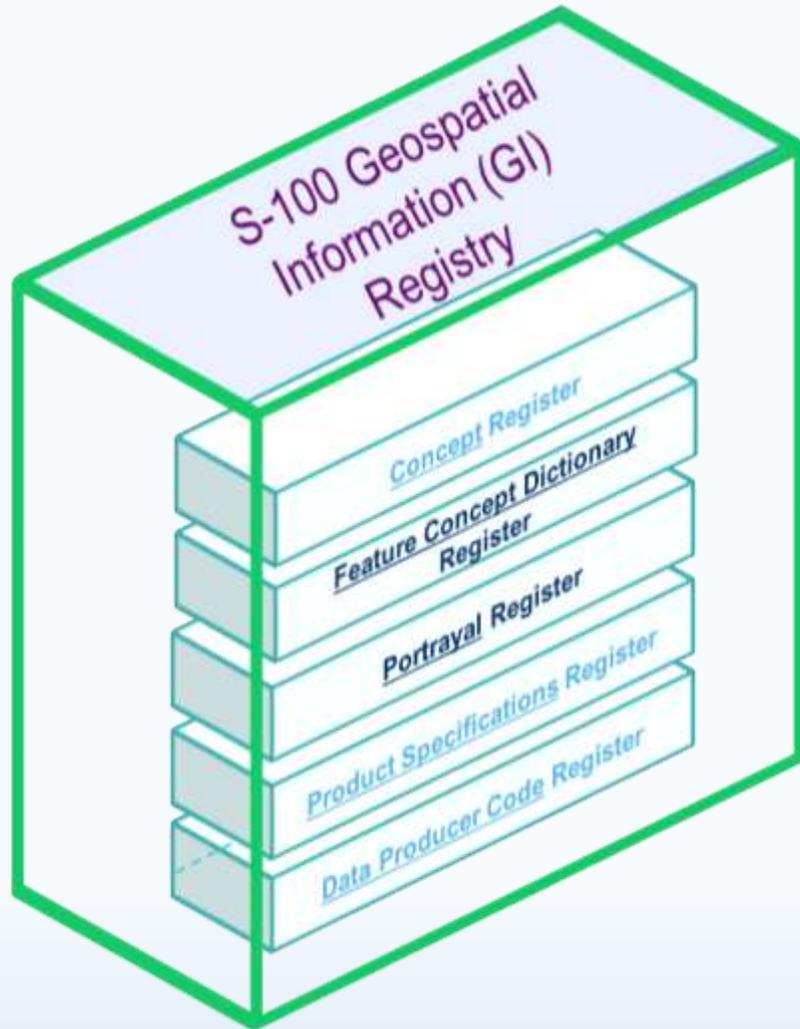
International Hydrographic Organization



S-100 Geospatial Information Registry Brief



IHO GI Registry - Registers



Feature Concept Dictionary (FCD) Register

- Register containing definitions on how to digitally describe and encode any piece of information

- a buoy
- a sounding
- a ship position
- a radio service
-

Portrayal		Management Details	
Item Type :	Complex Attribute	Proposal Type :	addition
Proposed Type :	Unspecified	Submitting Organisation :	IHO/IHO
Dissemin :	IHO/IHO	Proposed Change :	From 5.22.17
AlphaCode :	Unspecified	Justification :	From 5.22.17
Complex AttributeName :	Feature Name	Proposed :	2014-02-17
Alias :	Unspecified	Accepted :	2014-02-17
CancelCode :	NotApplicable	Amended :	
		Successor :	
		Predecessor :	

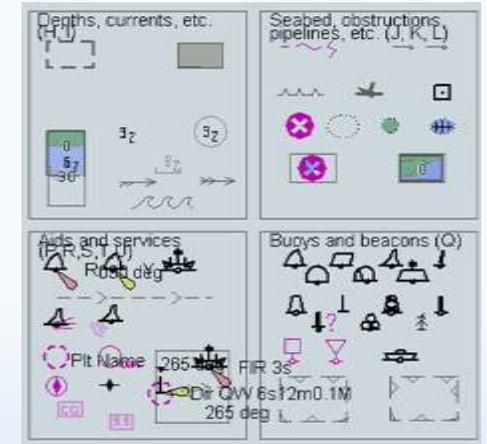
No.	Attribute	Lower Upper	Defaulted	
0	[Att.] Display Name	0	1	False
0	[Att.] Language	0	1	False
0	[Att.] Name	0	1	False

Definition : The complex attribute provides the name of an entity, defines the national language of the name, and provides the option to display the name at various system display settings.

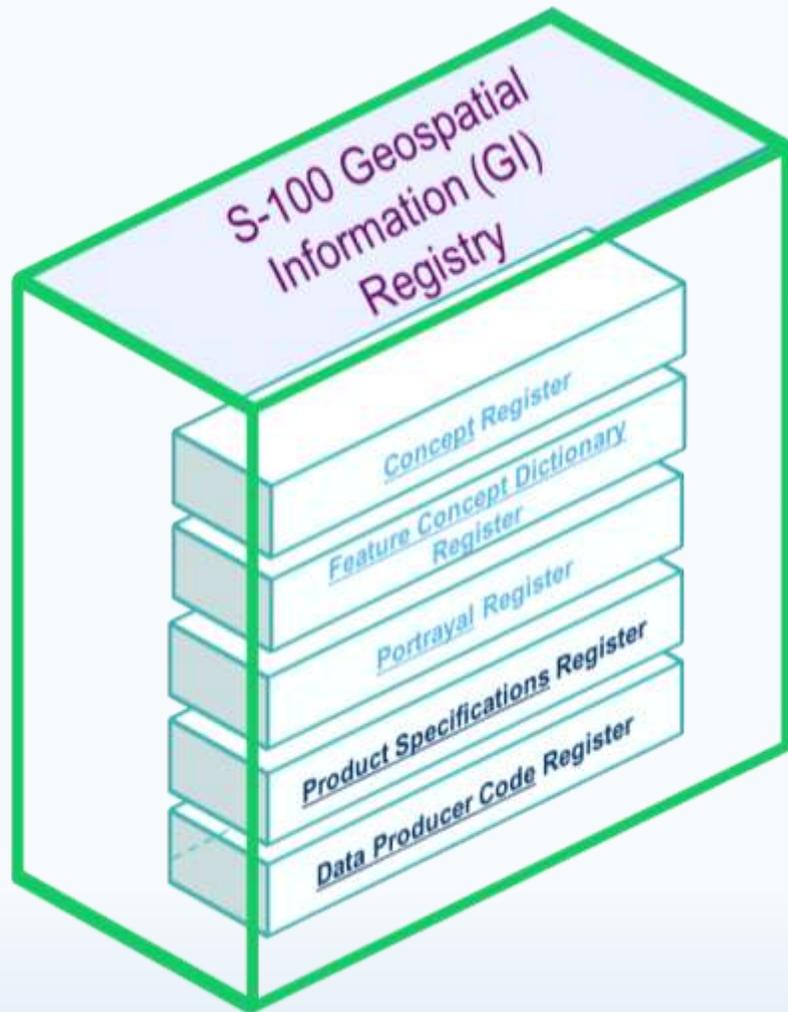
Portrayal Register

- Register containing the elements of portrayal schemes such as

- point and pattern symbols
- complex line styles
- colour tokens



IHO GI Registry - Registers



Product Specifications Register

- **Repository for published versions of S-100 product specifications or data exchange standards**
 - **ENC product specification**
 - **real-time tidal height exchange standard**
 - **sea ice product specification**
 - **ship reporting exchange standard**
 - **VTMS route definition product specification**
 - **IALA, WMO, IEC,**
 - **AML**

S-101 ENC
S-102 Bathy Surface
S-112 Dynamic Water Level
S-121 Maritime Boundaries
.....
S-201 AtoN Information
S-210 Inter-VTS Exchange
.....
S-401 Inland ENC
S-411 Ice Information
S-412 Weather Overlay
.....

Data Producer Code Register

- **Register containing the list of codes identifying the official producers of a particular data product**

S-62



Register Domains

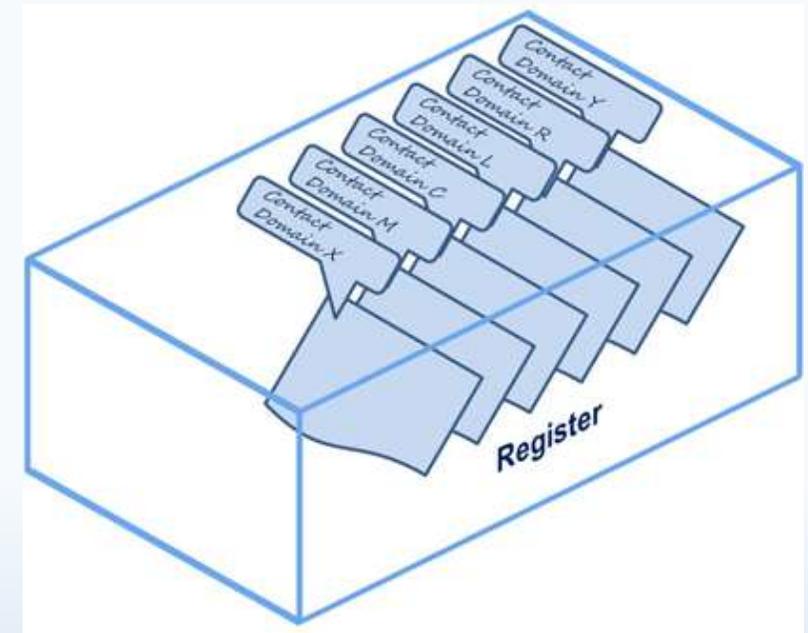
• Domains

Within the Feature Concept and the Metadata Registers each entry is assigned to a recognized Domain. The purpose of designating domains and a related Domain Control Body is to ensure that the key stakeholders (as represented by the domains) are consulted in any subsequent proposals to add or amend items contained in a Register.

Domains of the Feature Concept Dictionary Register:

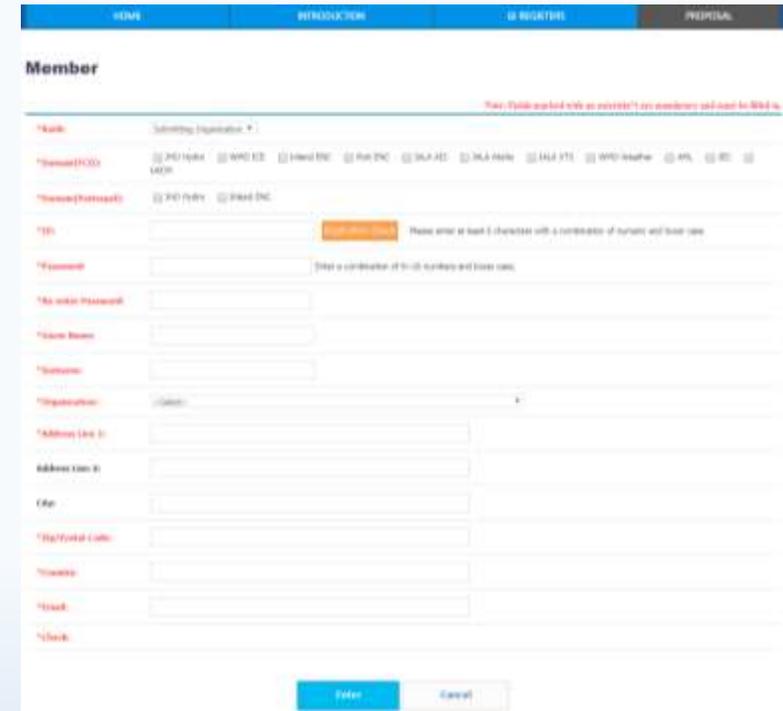
- IHO Hydrographic – (IHO Working Groups (S-100WG, NIPWG, S-101PT, TWCWG, WWNWS Sub-WG,))
- Inland ENC's – (IEHG)
- Sea Ice – (WMO)
- Weather – (WMO)
- IALA AtoNs – (IALA)
- IALA VTS – (IALA)
- IALA AIS – (IALA)
- Under Keel Clearance Management – (UKCM Project Team)
- IEC – (IEC)
- UML – (??)

Note: Additional domains can be added to the Register as required



Register Domains

- Establishment of Domains
 - Any recognized organization or the Register Manager may propose a new Domain if there is a need or new requirement.
 - Application for a new Domain is submitted to the IHO Hydrographic Services and Standards Committee (HSSC).
 - IHO has an application form on-line for the establishment of roles within a Domain, with the mandatory fields for the information required for prospective members.
 - Each Domain should assign at least one representative to act as Submitting Organization and Domain Control Body representatives.
 - The Register Manager reviews all and endorses the proposals, and consults with the Executive Control Body as required.



The screenshot shows a web-based registration form titled "Member". At the top, there are navigation tabs for "HOME", "INTRODUCTION", "REGISTER", and "HELP". Below the title, there is a red warning message: "This field is required with an asterisk (*) on the form and must be filled in." The form contains several fields with red asterisks indicating they are mandatory:

- *Name:** Submitting Organization (dropdown menu)
- *National Code:** Radio buttons for ISO 3166-1 codes: AF, AG, AI, AM, AN, AW, AX, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BM, BN, BO, BR, BS, BT, BV, BW, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CK, CL, CM, CN, CO, CR, CU, CV, CW, CX, CY, CZ, DD, DE, DG, DH, DI, DJ, DK, DL, DM, DO, DQ, DR, DS, DT, DU, DV, DW, DX, EY, EZ, FA, FB, FC, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FO, FP, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GD, GE, GF, GG, GH, GI, GL, GM, GN, GP, GQ, GR, GS, GT, GU, GV, GW, GY, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UU, UV, UW, UX, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.
- *Email:** (text input)
- *Password:** (text input)
- *Repeat Password:** (text input)
- *Phone Number:** (text input)
- *Country:** (text input)
- *Organization:** (text input)
- *Address Line 1:** (text input)
- Address Line 2:** (text input)
- City:** (text input)
- *Postal Code:** (text input)
- *Country:** (text input)
- *Street:** (text input)
- *Block:** (text input)

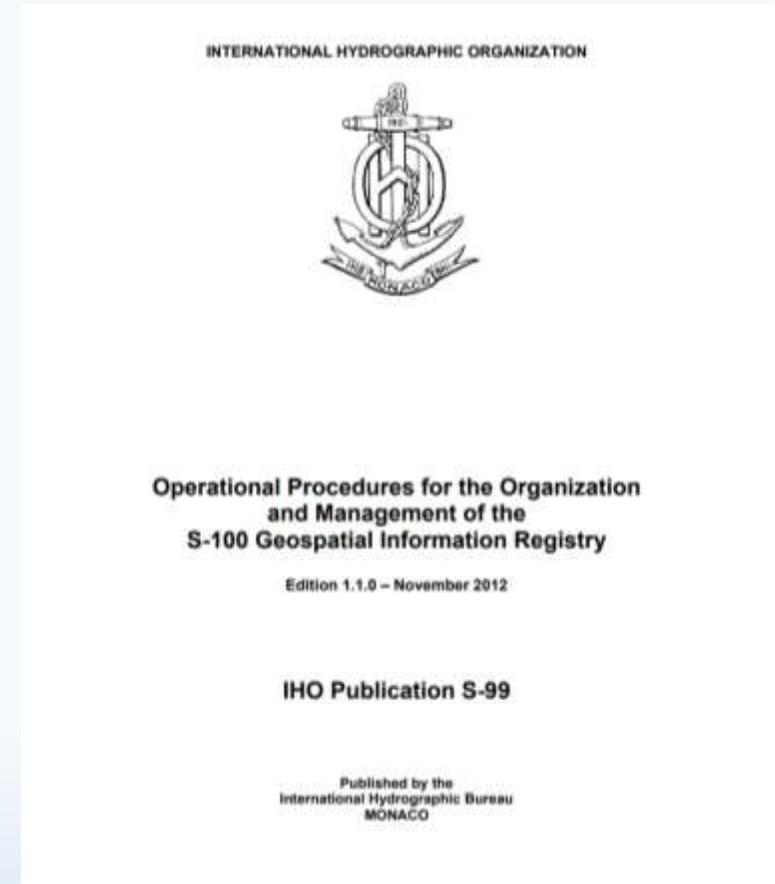
At the bottom right, there are "Save" and "Cancel" buttons.



Roles and Responsibilities

S-99 describes the expectations for the following Roles:

- Registry Owner – IHO owns the IHO GI Registry
- Registry Manager – IHO Secretariat appointed manager responsible for the day-to-day operation of the Registry
- Register Owner – IHO owns all of the registers
- Register Manager – responsible for the administration of a register
- Register Control Body
 - Domain Control Body (DCB) – assess and endorse proposals
 - Executive Control Body (ECB) – oversees the DCB operations and adjudicates disputes.
- Representatives of Submitting Organizations – nominated spokesperson for their submitting Organization.



Administration of the Registers

- The FCD and Portrayal Registers can have the following proposal submission types:
 - Addition of new registered items
 - Clarification of registered items
 - Supersession of registered items
 - Retirement of registered items

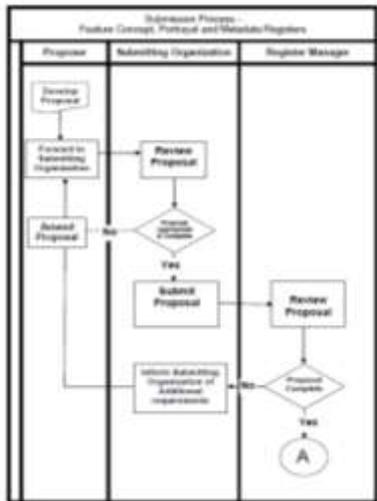


Figure 3 – Processing of Proposals

The screenshot shows the 'Proposal : FCD' form. It has a blue header bar. Below it are three dropdown menus: 'Item Type :', 'Proposal Type :', and 'Domain :'. The 'Proposal Type' dropdown is open, showing options: 'Addition', 'Clarification', 'Supersession', and 'Retirement'. A blue arrow points from the right side of the image towards this dropdown menu.

This is a screenshot of the IHO Geospatial Information Registry website. The header features the IHO logo and the text 'IHO Geospatial Information Registry' and 'KHDA of IHO'. Below the header is a navigation menu with 'HOME', 'INTRODUCTION', 'GI REGISTERS', and 'PROPOSAL'. The 'PROPOSAL' menu item is active, showing sub-links for 'FCD' and 'Portrayal'. The main content area is titled 'Proposal : FCD' and contains a 'Select Category' section with three dropdown menus: 'Item Type :', 'Proposal Type :', and 'Domain :'. A 'Continue' button is located below these menus. At the bottom, there is a copyright notice: 'COPYRIGHT © IHO Geospatial Information Registry. ALL RIGHTS RESERVED.' and a logo for 'KHDA Acknowledgements'.



Product Specification Register

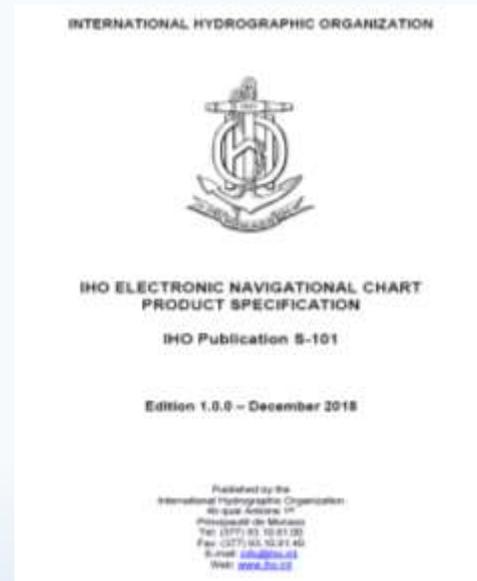
- A list of IHO Published and adopted specifications:

- S-101* - ENC Product Specification: Edition 1.0.0 – December 2018
- S-102 - Bathymetric Surface Product Specification: Edition 1.0.0 - April 2012
- S-111* - Surface Currents Product Specification: Edition 1.0.0 – December 2018
- S-122 - Marine Protected Areas Product Specification: Edition 1.0.0 – January 2019
- S-123 - Marine Radio Services Product Specification: Edition 1.0.0 – January 2019

* Edition 1.0.0 published for implementation and testing purposes only.

- IHO Product Spec's under development:

- S-97 - Guidance for Product Specification Developers
- S-98 - Interoperability Specification for ECDIS
- S-104 - Tidal Information for Surface Navigation
- S-121 - Maritime Limits and Boundaries
- S-124 - Navigational Warnings
- S-125 - Navigational Services
- S-126 - Physical Environment
- S-127 - Traffic Management
- S-128 - Catalogues of Nautical Products
- S-129 - Under Keel Clearance Management



Data Producer Code Register

The Registry web interface has two distinct lists for data Producer Codes:

- Government Authorities –allocated to Governments, authorised Hydrographic Offices or relevant government institutions.
- Others – all other accredited organizations and entities.

Conforms to IHO Publication S-62.

The image shows the cover of the International Hydrographic Organization (IHO) Publication S-62, titled "LIST OF DATA PRODUCER CODES". The cover features the IHO logo and the text "INTERNATIONAL HYDROGRAPHIC ORGANIZATION" and "S-62 - LIST OF DATA PRODUCER CODES". Below the title, it states "This document was approved on 22 May 2018". At the bottom, it says "Published by the International Hydrographic Office, 2, Rue de la Libération, 75013 Paris, France".

Three blue arrows point from the cover to three tables of data producer codes:

- I. IHO Member States:** A table with columns for Country Name, Country Code, Agency Name, and Agency Code. It lists various member states and their hydrographic agencies.
- II. Other States:** A table with columns for Country Name, Country Code, Agency Name, and Agency Code. It lists other states and their hydrographic agencies.
- III. Other Organizations/Entities:** A table with columns for Agency Name and Agency Code. It lists various organizations and entities that are accredited to produce hydrographic data.



Not just for the IHO

- Non-IHO Product Specifications

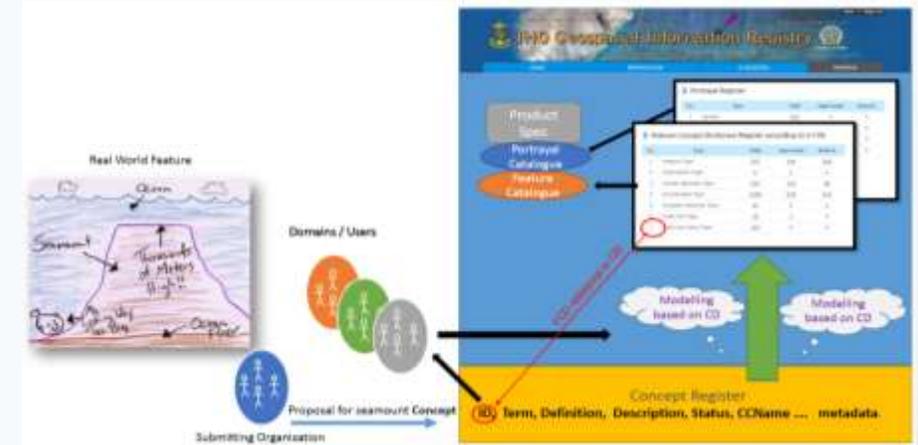
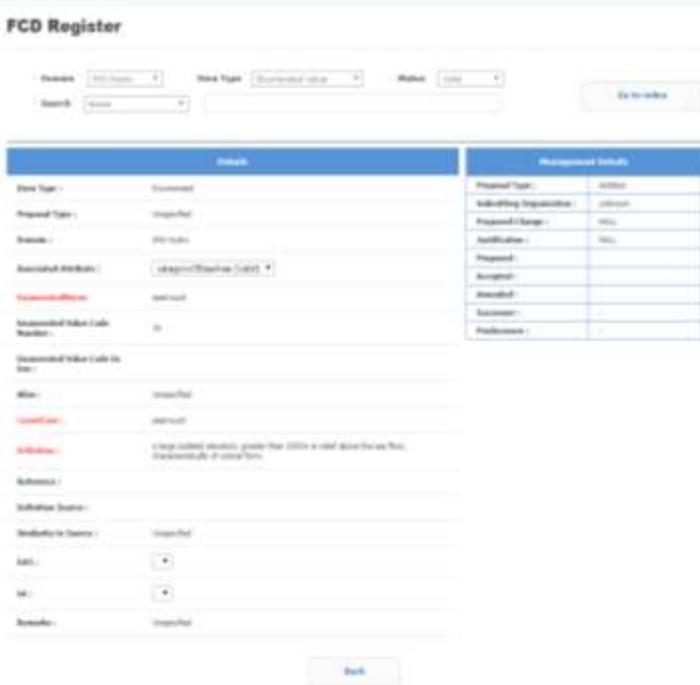
- IALA S-201 - Aids to Navigation Information
- IALA S-210 - Inter-VTS Exchange Format
- IALA S-230 - Application Specific Messages
- IALA S-240 - DGNSS Station Almanac
- IALA S-245 - eLoran ASF Data
- IALA S-246 - eLoran Station Almanac
- IEHG S-401 - Inland ENC
- IEHG S-402 - Bathymetric Inland ENC
- WMO JCOMM S-401 - Ice Information
- WMO JCOMM S-402 - Weather Overlay

- GI Registry: IALA, IEC, IEHG & WMO JCOMM currently involved in maintaining domains in the FCD Register



S-100 Howto

- Identify the requirement
 - What information does one want to exchange in a digital, standardised way ?
 - “enter once – use many” applications



- Are the definitions that one needs already in the S-100 Registry?
 - Yes => Go ahead
 - develop own Product Specification / Exchange Standard



S-100 Howto

- No? (Definitions not in the registry):
 - Find or become a submitting organization to:
 - revise an existing entry
 - propose something new
 - Then develop own Product Specification / Exchange Standard

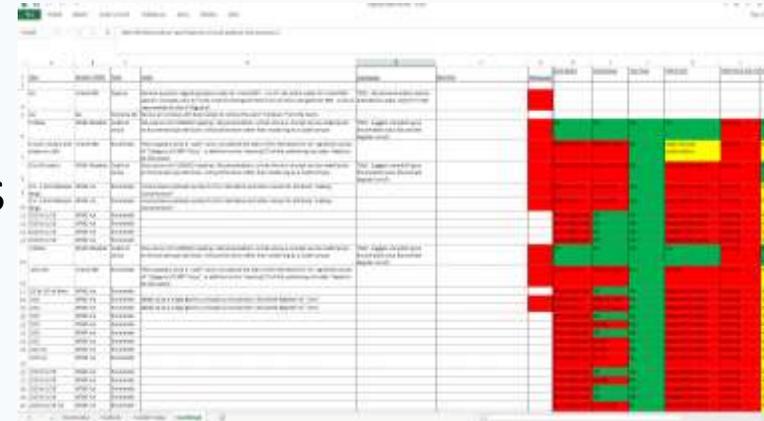
A screenshot of a web form titled "Member". The form has a blue header with navigation tabs: "HOME", "MEMBERSHIP", "MEMBERSHIP FORM", "MEMBERSHIP", and "MEMBERSHIP". Below the header, there is a "Member" section with a red link: "How to fill out the form for membership? (see conditions and fees for 2019)". The form contains several input fields: "Name", "Telephone No.", "Telephone No. (mobile)", "E-mail", "Address Line 1", "Address Line 2", "Address Line 3", "City", "Country", "Postal Code", and "VAT No.". There are also checkboxes for "I am a member of the following organization" and "I am a member of the following organization". A blue "Submit" button and a grey "Cancel" button are at the bottom.

- IHO/HSSC will not create or control definitions or standards outside its scope
 - But it can help and advise if asked ...



Ongoing Development

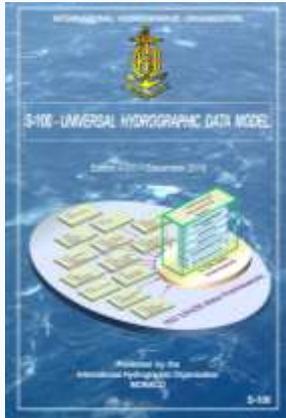
- Implement a “true” Concept Register
 - Subsequent possible restructure of the FCD Register
 - Introduction of “Enumerate” and “Codelist” Registers
- Review current content of the FCD Register
 - Likely impact on PS in development and published
- Draft Guidelines and Conventions document for Register content and Registry users
 - Proposers, Control Bodies, PS developers
- Connection and establish relationship with Hydrographic Dictionary database
- Review of S-99



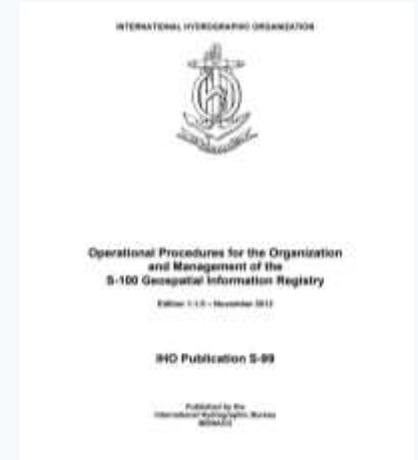
The image shows a screenshot of a software application window. It features a table with multiple columns and rows. The table contains text-based data. Several cells in the table are highlighted with colors: a large vertical strip of cells is highlighted in red, and a smaller vertical strip of cells is highlighted in green. The interface includes a menu bar at the top and a toolbar with various icons.



S-100 References



- S-100 - Universal Hydrographic Data Model
Edition 4.0.0 – December 2018
- S-99 - Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry



Edition 1.1.0 - November 2012

- S-100 on-line GI Registry:
<http://registry.iho.int/>
- S-100 Web Site:
<http://s100.iho.int/S100/>



Questions?



For more information: <https://www.iho.int>
IHO Secretariat Contact: jeff.wootton@iho.int

