



International
Hydrographic
Organization

CHS Paper Chart 2.0

NCWG 9 - Taunton

November 2023





Paper Chart 2.0 concept

- ▶ The Canadian Hydrographic Service (CHS) is actively in the process of transitioning to a digital future centered on the S-100 standard.
- ▶ Important to recognize the limitations of available resources for some steps of the processes
- ▶ In response to this challenge and to prepare for the digital transformation,
- ▶ CHS has developed an automated process known as Paper Chart 2.0 (PC2.0), which is designed to generate traditional paper chart products based on their Electronic Nautical Chart (ENC) portfolio.
- ▶ The main goal of CHS is to switch to a digital world and upgrade the coverage of its ENCs.





Objectives

- ▶ Develop and launch a semi-automated paper chart service, derived directly from officially released CHS ENC's
- ▶ This will continue to provide mariners with a secure paper chart product that can also serve as a dependable backup to electronic navigation systems when needed.
- ▶ Aims to replicate the presentation style of traditional paper charts.
- ▶ To be a safe and reliable replacement for the traditional charts, aligned with and respect S-4 guidance
- ▶ Also needs to evolve over-time based on real-world requirements of mariners and professional navigators, distributors and academics
- ▶ Meet national maritime carriage requirements.





Methods

- ▶ PC2.0 represents CHS's initial foray into the automated generation of paper charts from ENC content
- ▶ Adheres to the S-4 standard and currently employs a variation of INT1 symbology.
- ▶ CHS has plans to transition to the S-101 ENC symbology in the future
- ▶ This transition will harmonize the symbology used in both ENC and paper chart products, ensuring consistency and compatibility



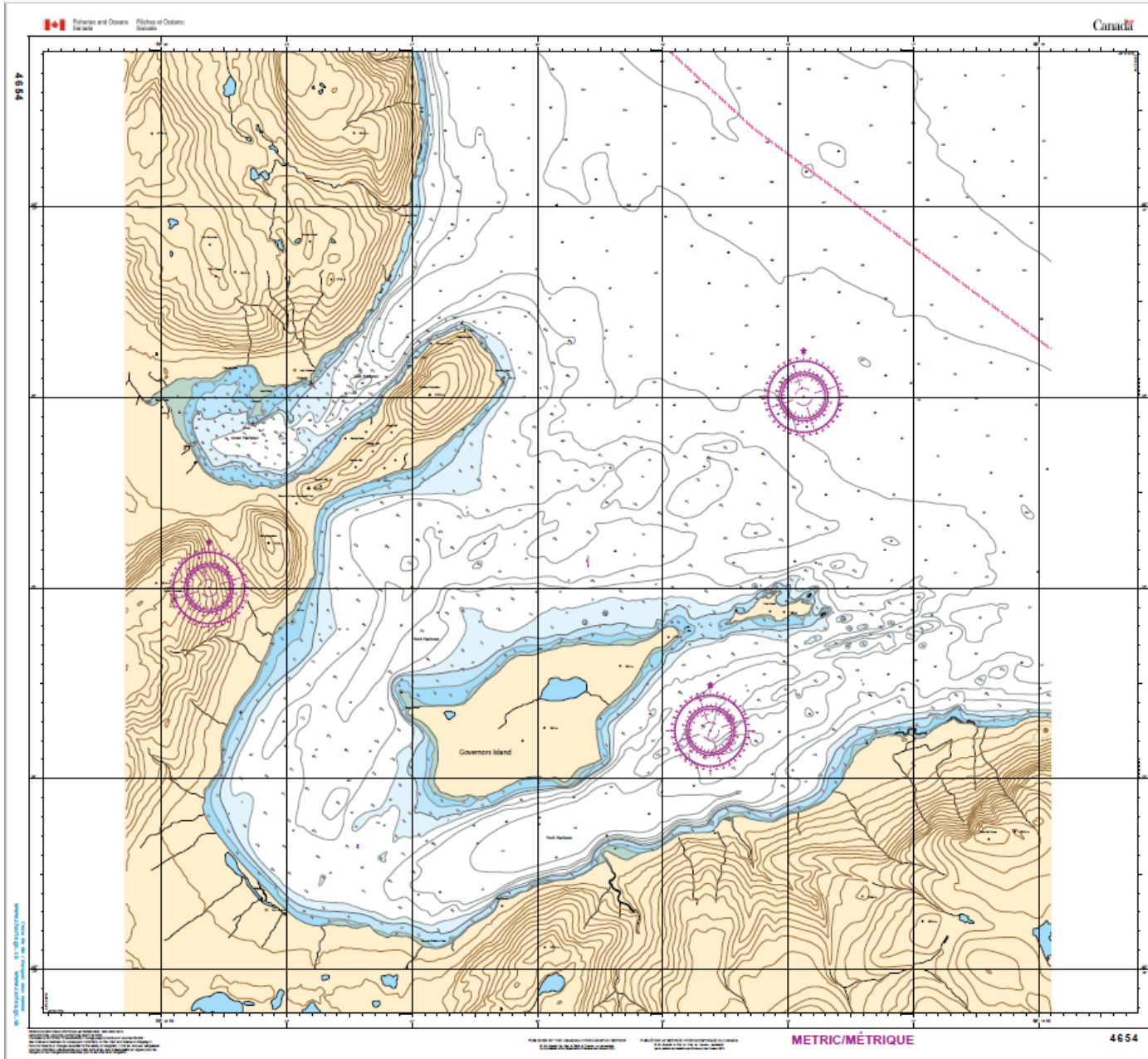


PC 2.0 promises substantial advantages

- ▶ Significant reduction of both Human Resources and financial costs,
 - ▶ Streamlining of paper chart maintenance
 - ▶ Unwavering compliance with the regulations laid out by Transport Canada.
 - ▶ Additionally, the proposal ensures the continuity of the existing distribution system.



Example




 CANADA
 NEWFOUNDLAND AND LABRADOR / TERRE-NEUVES-ET-LABRADOR
Lark Harbour and/or York Harbour
 Projection - Mercator
 Scale 1:1000 (675.29 N) Actual

INFORMATION ON THE USE OF THIS CHART AND THE RESPONSIBILITY OF THE USER IS GIVEN IN THE PREAMBLE TO THE CANADIAN HYDROGRAPHIC ACT AND IN THE PREAMBLE TO THE CANADIAN HYDROGRAPHIC REGULATIONS.

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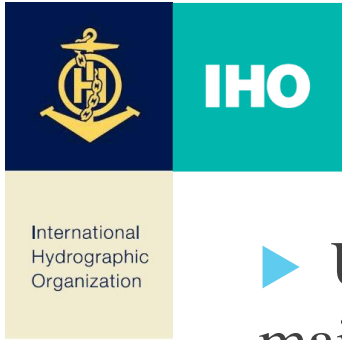
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Use of Confidence (20) Magnet (2) Magnet de la zone de confiance (20)



DEPTH (M)	DEPTH (FATHOMS)	DEPTH (M)	DEPTH (FATHOMS)
0	0	10	5
1	1	20	10
2	2	30	15
3	3	40	20
4	4	50	25
5	5	60	30
6	6	70	35
7	7	80	40
8	8	90	45
9	9	100	50
10	10	110	55
11	11	120	60
12	12	130	65
13	13	140	70
14	14	150	75
15	15	160	80
16	16	170	85
17	17	180	90
18	18	190	95
19	19	200	100
20	20	210	105
21	21	220	110
22	22	230	115
23	23	240	120
24	24	250	125
25	25	260	130
26	26	270	135
27	27	280	140
28	28	290	145
29	29	300	150
30	30	310	155
31	31	320	160
32	32	330	165
33	33	340	170
34	34	350	175
35	35	360	180
36	36	370	185
37	37	380	190
38	38	390	195
39	39	400	200
40	40	410	205
41	41	420	210
42	42	430	215
43	43	440	220
44	44	450	225
45	45	460	230
46	46	470	235
47	47	480	240
48	48	490	245
49	49	500	250
50	50	510	255
51	51	520	260
52	52	530	265
53	53	540	270
54	54	550	275
55	55	560	280
56	56	570	285
57	57	580	290
58	58	590	295
59	59	600	300
60	60	610	305
61	61	620	310
62	62	630	315
63	63	640	320
64	64	650	325
65	65	660	330
66	66	670	335
67	67	680	340
68	68	690	345
69	69	700	350
70	70	710	355
71	71	720	360
72	72	730	365
73	73	740	370
74	74	750	375
75	75	760	380
76	76	770	385
77	77	780	390
78	78	790	395
79	79	800	400
80	80	810	405
81	81	820	410
82	82	830	415
83	83	840	420
84	84	850	425
85	85	860	430
86	86	870	435
87	87	880	440
88	88	890	445
89	89	900	450
90	90	910	455
91	91	920	460
92	92	930	465
93	93	940	470
94	94	950	475
95	95	960	480
96	96	970	485
97	97	980	490
98	98	990	495
99	99	1000	500





Product Maintenance

- ▶ Using the ENC update message to create a maintenance/NTM copy of the PC 2.0
- ▶ Automated creation of a layer showing, deletion, addition and changes using different colours and symbology
- ▶ CHS could still for now still use the Canadian Coast Guard communication system to publish paper chart changes but in a graphic way, isn't of written description
- ▶ CHS working with NGA and trying to establish a similar process and methodology





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Example

