WEND8-7B rev.3

8TH WEND COMMITTEE MEETING
Tokyo, Japan, 5-6 March 2004

Compendium of National Reports
(IHB)

SUMMARY

Executive summary:	This document provides a compendium of all national reports to WEND/8 on ENC development / production, which have been received at the IHB.
Actions to be taken:	The meeting is invited to take note of this paper.
Related documents:	WEND8-7A

ARGENTINA

ENC DEVELOPMENT

The SHN has produced only 8 (eight) ENCs at different scales and for different purposes in S-57 Ed. 3.1 (5 of the Río de la Plata and 3 coastal harbours). They have been made from paper charts and have incorporated the latest hydrographic data available.

These ENCs are not available for commercial purposes yet (commercial navigation) because we didn't have capability for validation until now. We have just acquired a validation software.

ENC PRODUCTION PROGRAM

We have in process ENCs at different scales, covering approaches and harbours of the Río de la Plata. Among these, we are planning to produce a series of 16 large scales cells covering the main fairways to enter our most important ports (Buenos Aires, La Plata, Rosario, etc).

Apart from the mentioned ENCs, the SHN intends to produce 3 more cells of the Bahía Blanca Ria and other 3 coastal harbours.

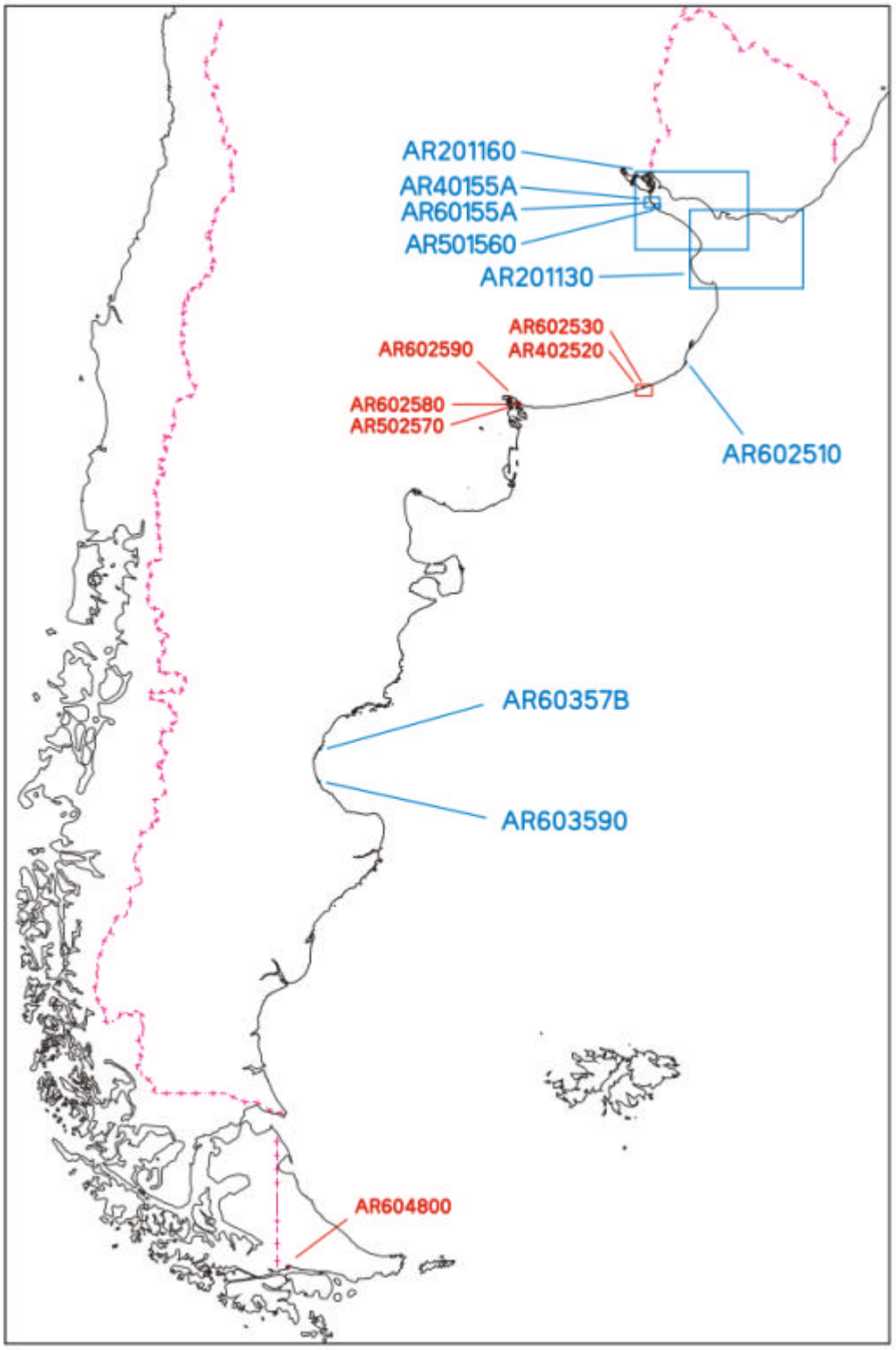
We have only a small capacity production, at the moment we are working with two CARIS ENC experts, but they are training more personnel while they continue the ENC production, therefore we expect to increase our capacities during the present year.

Regarding the ENC validation, at the beginning of this year we acquired one licence of the software: dKart Inspector – HydroService, so we will begin to validate our own cells from now on. This acquisition was achieved due to the proposal for an agreement with the IC-

ENC. This cooperation also includes the reception of two more CARIS HOM licences and the corresponding training.

ENC PRODUCTION PROGRAM

Also we produce EC in raster format BSB. We are commercialising 5 CDs, each of them covers a main navigational area: RÍO DE LA PLATA, 29 charts; RÍA DE BAHÍA BLANCA, 9 charts; RÍO PARANÁ, 28 charts; a total of 66 charts.


AR201160
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AR60155A
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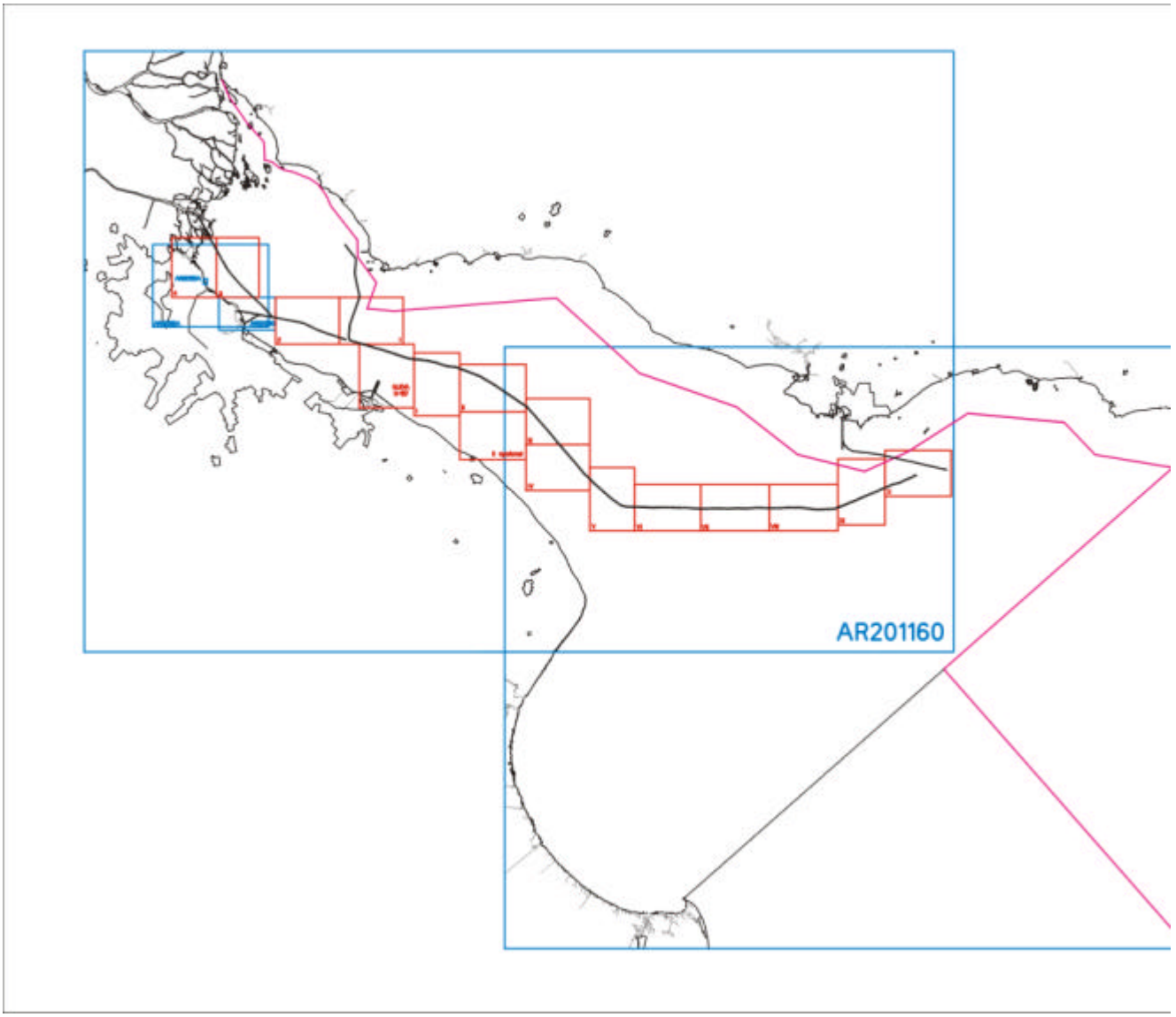
AR60357B
AR603590
AR604800


AR201160

AUSTRALIA

National report by Australia (Australian Hydrographic Office (AHO)

Principles and Priorities

Australia's ENC production program remains in the first instance targeted to providing ENC coverage for those vessels and areas most likely to benefit from the early uptake of ECDIS. In Australia this SOLAS class vessels transiting Torres Strait and the Great Barrier Reef (GBR) and those entering Australia's major ports.

Production priorities are therefore:

- Inner Great Barrier Reef Shipping Route
- Approaches and Ports, restricted pilotage waters and major shipping routes
- Coastal
- Remainder

The AHO compilation strategy is to work "from the part of whole". In other word firstly to create "larger scale" ENCs of priority areas and rely on RNC coverage as a backdrop for less frequented or less critical areas. Progressively, each ENC will contain more detailed data through revision and the completion of more priority areas.

Coverage

The AHO has continued production of Official ENC of the inner route of the Great Barrier Reef, and currently has 50 cells in circulation, covering the shipping route between Welpa, on the eastern side of the Gulf of Carpentaria, Queensland, through Torres Strait, to Mackay on the Great Barrier Reef, Queensland. These cells fall within the Navigational Purpose Categories Coastal, Approach and Harbour, and provide comparable to, or better than, data content from all paper charts covering the area up to a scale of 1:150 000. The latest release also includes the critical Great Barrier Reef entrance known as Hydrographers Passage. The cells have been produced using both source survey data to compile data rich, 1 metre (between 5 and 20 metres) contour interval coverage of confined and navigationally sensitive areas, with paper chart converted data of the remaining areas, including ports and harbours.

Additionally, the AHO continues to support the Australian Ports Series of ENC cells, which is a series of 70 paper chart derived cells, produced and maintained under contract, covering Australia's major ports and harbours. These cells are yet to be verified by the AHO, but have been made available under restricted license agreement to facilitate ENC awareness, and for research and development purposes.

All official AHO ENC cells are updated monthly in conjunction with the update service being supplied for the AHO Raster navigational Chart product. Updates are supplied via CD delivery to customers, as well as remote downloading from the AHO Web Site.

Validation and Distribution

All official ENC data and updates are validated using an in-house developed quality assurance process, utilising AHO production software, as well as external quality assurance soft-

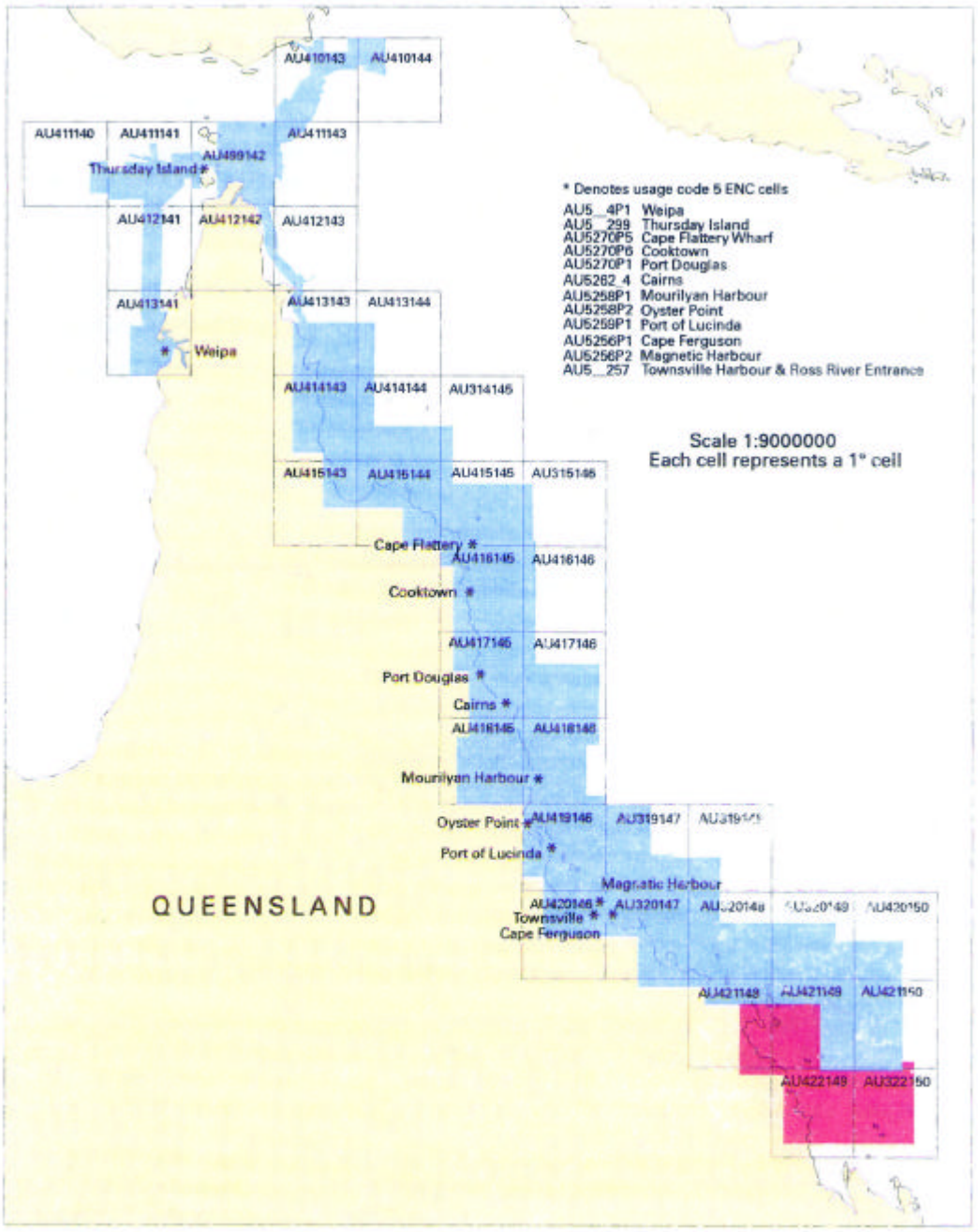
ware and evaluation and simulation on IMO Type Approved ECDIS systems. These ENC cells are packaged as a single S-57 Exchange Set within the AHO, and distributed to the civil sector through official commercial distributors and directly to Defence customers on CD Rom as Seafarer® ENC.

Australia is currently pursuing releasing official ENC data via SENC distribution.

Future Production

The AHO plans to progress official ENC coverage of the Great Barrier Reef Inner Route, through the release of blocks of ENC data, moving southwards through the Great barrier Reef to Port Bundaberg and Sandy Cape, Fraser Island, in order to complete the Torres Strait and the southern approaches to Great North East Channel, to replace the existing paper chart converted cell covering the region, as well as continued enhancement of existing cells. It will also include a 1:1 500 000 paper chart based cell of navigational Purpose Category General, covering the entire route. This cell can be used as an overview and planning cell, and for ocean passage planning and navigation.

The AHO has completed of a cell covering the Port of Launceston and the Tamar River, on the north coast of Tasmania but has not released it commercially due to the low expected uptake. On completion of the Great Barrier Reef Inner Route project, the AHO intends to commence validation of the Australian Ports Series for incorporation in the AHO Official ENC portfolio, as well as coverage of other major shipping routes within Australia's are of responsibility.


AU410143
AU410144
AU411140
AU411141
AU411143
AU489142
Thursday Island *
AU412141
AU412142
AU412143
AU413141
AU413143
AU413144
Weipa
AU414143
AU414144
AU314145
AU415143
AU416144
AU415145
AU315146
Cape Flattery *
AU416145
AU416146
Cooktown *
AU417145
AU417146
Port Douglas *
Cairns *
AU418145
AU418146
Mourilyan Harbour *
Oyster Point *
AU419146
AU319147
Port of Lucinda *
Magnetic Harbour
AU420146 *
Townsville *
Cape Ferguson
AU320147
AU421149
AU421150
AU422149
AU322150
QUEENSLAND
* Denotes usage code 5 ENC cells
AU5_4P1 Weipa
AU5_299 Thursday Island
AU5270P5 Cape Flattery Wharf
AU5270P6 Cooktown
AU5270P1 Port Douglas
AU5262_4 Cairns
AU5258P1 Mourilyan Harbour
AU5258P2 Oyster Point
AU5259P1 Port of Lucinda
AU5256P1 Cape Ferguson
AU5256P2 Magnetic Harbour
AU5_257 Townsville Harbour & Ross River Entrance
Scale 1:9000000
Each cell represents a 1° cell
Currently Available
Future Release
Correct at Dec 2003

FINLAND

ENC production

The current status of the released ENCs by the Finnish HO (FHO) and the areas where the production is going on can be seen on the Primar Stavanger Chart Catalog and on the IHO web pages. See also the figures attached.

The routes to main ports have been covered by ENCs. This means mainly the ports along the coast of Gulf of Finland. There are totally 89 ENC cells available at usage bands general (2), coastal (5) and approach (82).

The production of the ENCs for routes to the secondary ports is going on. These are planned to be completed by the end of 2004. Thus the requirement of the Helsinki Commission Copenhagen Declaration 2001 will be fulfilled.

The Finnish ENC cells are validated using dKart Inspector 4.0 SP3 and ENC Analyzer 2.1.4. Also two type approved ECDIS systems and three ECS's are used for visual verification and ENC tests.

The ENCs will be updated by a 10 days basis.

Finland considers these ENCs fully compliant to the SOLAS V chart carriage requirements.

Fig. 1. ENC Current status

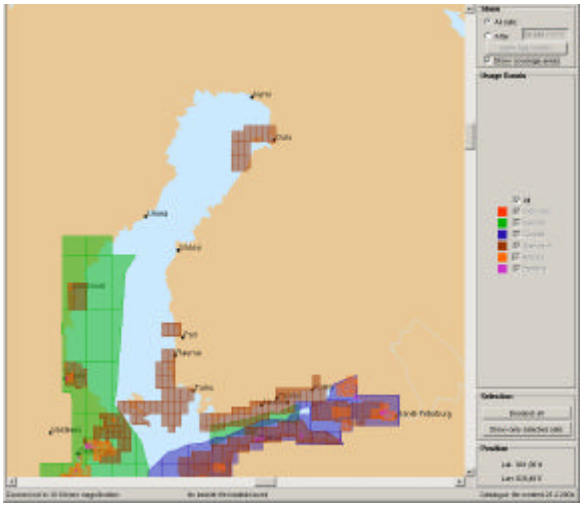
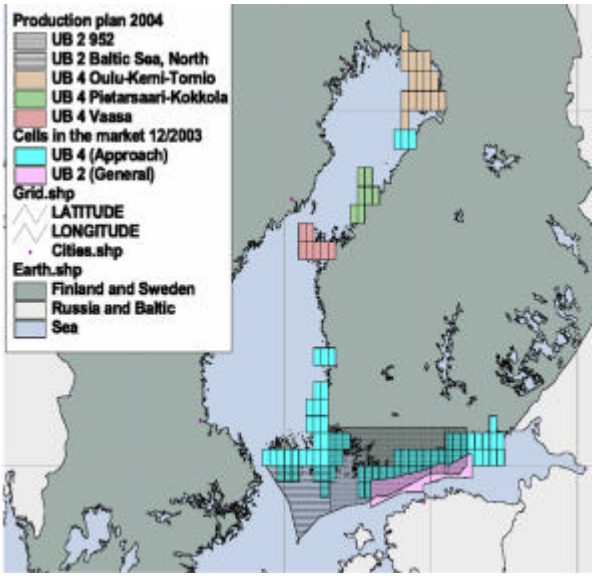


Fig. 2. ENC Production Plan for 2004



ENC Distribution

The ENCs and their updates will be delivered by the Primar Stavanger.

ENC's for vessels (ice-breakers, research vessel etc.) sailing under the flag of the Finnish State Shipping Enterprise (FINSTAHSIP) are distributed by the FINSTASHIP. For time being the FHO distributes ENC's for the Finnish Navy. In the future, the Navy plans to distribute ENC's for Navy vessels.

System Development

The Finnish HO has a production line by which both base ENCs and Paper Charts can be produced from a single Master Database (HIS). A development project for improved capabilities for sounding processing is in a testing phase. During the year 2004 will start new project to improve production of ENC updates.

Juha Korhonen
25 February 2004

GERMANY

National Report by Germany

1. Germany has produced so far 43 cells as follows (see enclosure):
   - 26 harbours
   - 11 approaches
   - 5 coastal
   - 1 general

2. All cells are being regularly updated, and/or have been re-issued as New Editions (some already as the 6th edition).

3. All cells and updates are validated by the IC-ENC, and distributed through the VAR system or IC-ENC.

4. The best selling ENCs are the small and medium scale cells of the passages of the North Sea (German Bight).

5. Priority was initially with completing ENC coverage for the Baltic Sea, because of a number of groundings off the German Baltic Sea coast, and in order to comply with the deadline set in an action programme of the Helsinki Commission (responsible for the Marine Environment in the Baltic Sea).

6. The about 16 cells remaining to complete coverage of German waters mainly in the North sea are in production and will be ready by the end of 2004.

Overview of cells covering German waters
(as of February 2004)

Rec	COUNTRY	ENC CELL	TITLE
1	Germany	DE221000	German Bight
2	Germany	DE316001	Waters north of Kiel
3	Germany	DE316002	Mecklenburger Bucht
4	Germany	DE316003	Waters west of Ruegen
5	Germany	DE316004	Waters east of Ruegen
6	Germany	DE321002	Waters south of Helgoland
7	Germany	DE416010	Fiensburger Foerde
8	Germany	DE416020	Eckemfoerder Bucht
9	Germany	DE416030	Fehmarn Belt
10	Germany	DE416040	Luebecker Bucht
11	Germany	DE416050	Rostock Approach
12	Germany	DE416075	Sassnitz Approach
13	Germany	DE416080	Stralsund East Approach
14	Germany	DE421030	Jade & Weser Approach
15	Germany	DE421040	Elbe – Northern Part
16	Germany	DE421060	Weser – Northern Part
17	Germany	DE421070	Jade
18	Germany	DE516100	Flensburg Harbour
19	Germany	DE516105	Farensodde
20	Germany	DE516110	Gluecksburg
21	Germany	DE516115	Schausende
22	Germany	DE516120	Langballigau
23	Germany	DE516200	Kiel Harbour
24	Germany	DE516210	Marina Lippe
25	Germany	DE516220	Heiligenhafen
26	Germany	DE516240	Burgstaaken Harbour
27	Germany	DE516260	Grossenbrode Harbour
28	Germany	DE516270	Groemitz Harbour
29	Germany	DE516280	Neustadt Harbour
30	Germany	DE516290	Niendorf Harbour
31	Germany	DE516300	Luebeck harbours
32	Germany	DE516400	Wismar Harbour
33	Germany	DE516410	Timmendorf Harbour
34	Germany	DE516420	Kirschdorf
35	Germany	DE516500	Rostock Harbour
36	Germany	DE516650	Darsser Ort
37	Germany	DE516700	Sassnitz Ferry Harbour
38	Germany	DE516790	Lohme
39	Germany	DE516800	greifswald Harbours
40	Germany	DE516870	Vierow
41	Germany	DE521420	Cuxhaven
42	Germany	DE521600	bremerhaven
43	Germany	DE521700	Wilheimshaven

GREECE

ENC Developme nt in Greece

The project for the development of ENCs and Updates, which cover the Greek area of responsibility, started on March 2001 and it's completion is estimated during the next three months.

After the first phase of the production, concerning the digitisation and transformation into S-57 Ed. 3.1 format, the resultant dataset has been cut into cells to generate a seamless database for the different Usage Bands.

The cells scheming, which is harmonized to the WEND principles, has been finalized and the production progress is shown in the following table.

		Present Status (February 04)	
	Total Number of Cells	Number of Cells	%
General	2	2	100.00%
Coastal	83	57	68.67%
Approach	14	9	64.29%
Harbour	49	26	53.06%
Berthing	159	59	37.10%

For the dissemination of the Greek ENCs, HNHS decided to join IC-ENC, as a full member, and co-operate with Primar-Stavanger as well. Moreover HNHS is member of the Advisory Committee of the MBS VRENC.

NETHERLANDS

Dutch ENC Production Status

Early 2000 NLHO started ENC-production with the focus on the usage band "coastal" for the NL continental shelf and the usage bands "approach" and "harbour" for the Europoort area; bearing in mind that already a complete RNC (ARCS) coverage has been established in close co-operation with UKHO.

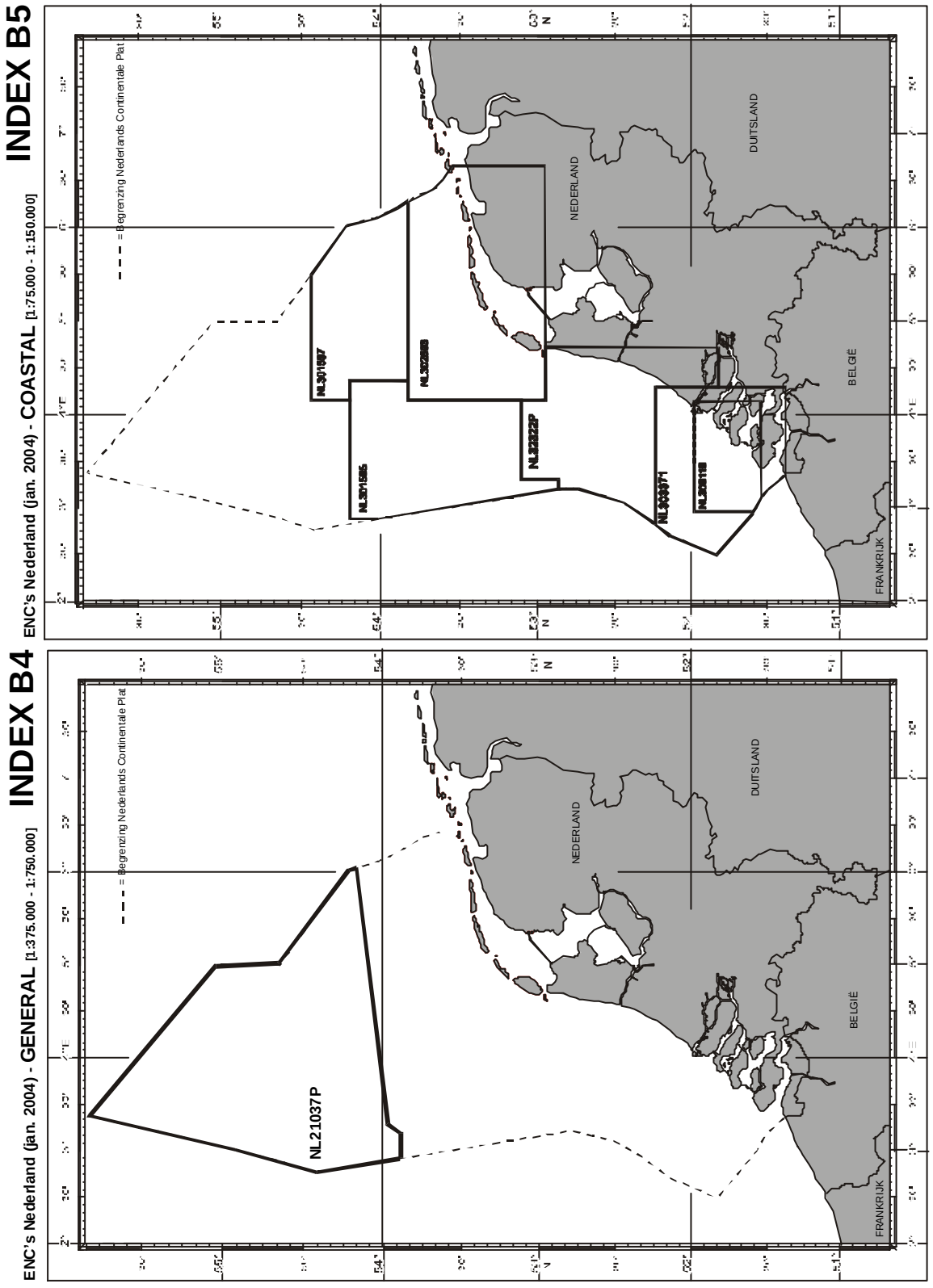
At present the Netherlands area of responsibility is covered with sufficient ENCs in the usage band "coastal". Also Rotterdam/Europoort, Flushing, Terneuzen, Den Helder and river Westerschelde (Antwerpen (BE) excluded) are covered in the usage bands "approach" and "harbour" (see views). For the short term especially the realisation of ENC consistency improvements, as reported by IC-ENC, are scheduled; for the meantime publication of new ENCs are postponed (other than the maintenance of the already released ENCs). As indicated by the SHARED-programme (Task Group 2-MACHC ECWG) ENC production for the Caribbean Area will start late 2004; ENC production will focus on the coastal area Aruba-Curacao-Bonaire-Venezuela and approaches to Willemstad Curacao.

The UKHO initiative to support the North Sea ENC production for the smaller scale usage bands "general" and "overview" is highly appreciated; within one year the Southern North Sea will become available in all usage bands. Within two years the approaches of IJmuiden/Amsterdam and Delfzijl/Emden will become available as ENC. From 2007 onwards there will be also ENCs available of the inland waters navigable by SOLAS-shipping and Caribbean Sea (in addition to the above mentioned approaches); these waters are already available as RNC (ARCS).

From 2007 onwards there will be an increasing difference in content of ENCs and paper nautical charts. ENCs are meant to become a more and more representative presentation of the actual and dynamic true maritime environment with higher density of information (e.g. 1 m. depth contour intervals and detailed updates). The paper nautical chart will stay relatively static (but still sufficient for safe navigation together with other nautical publications), bearing in mind that the Print on Demand and Pint on Board developments are a step forward in the direction to the content of this future ENC.

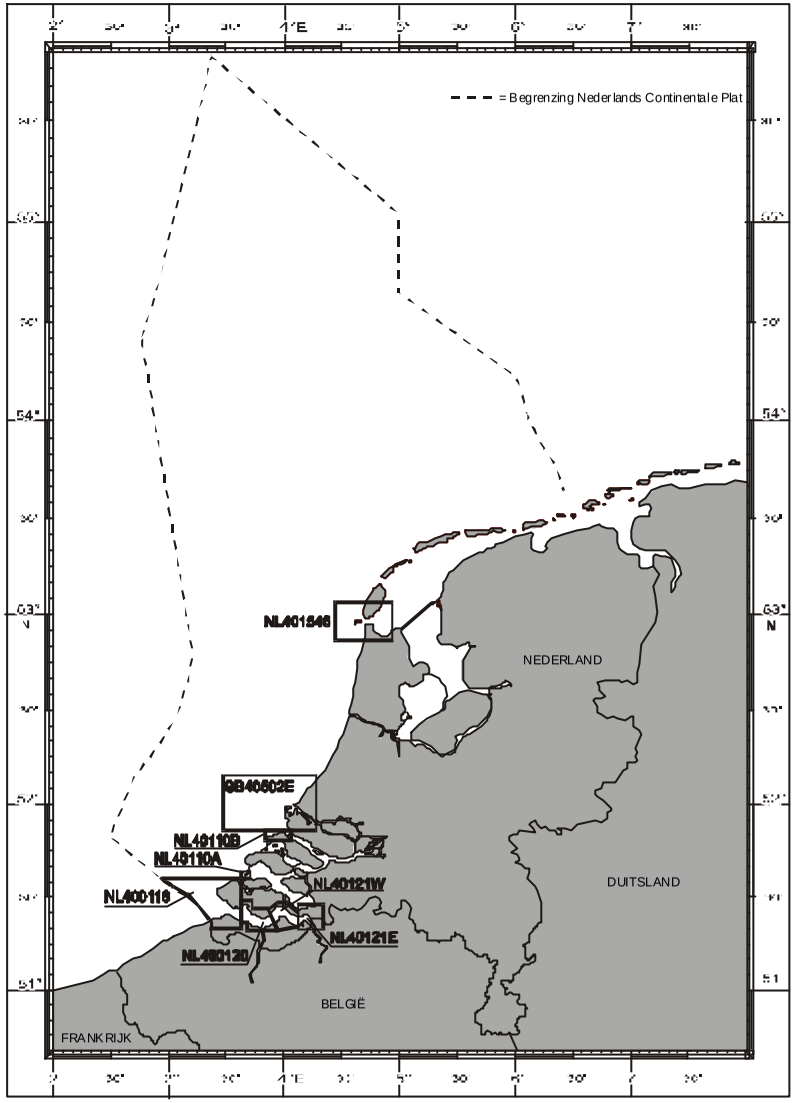
Beside the production of ENCs, there is also an increasing exchange of S57-data with especially the port authorities of Rotterdam/Europoort and Schelde-area (gridded bathymetry, obstructions, navaids, etc); this facilitates an efficient co-operation in favour of ENC-production progress and initiatives like Innovative Portable Pilot Assistance (European Community funding: IPPA) and Inland ECDIS.

NL DUTCH VIEWS ENC UNITS



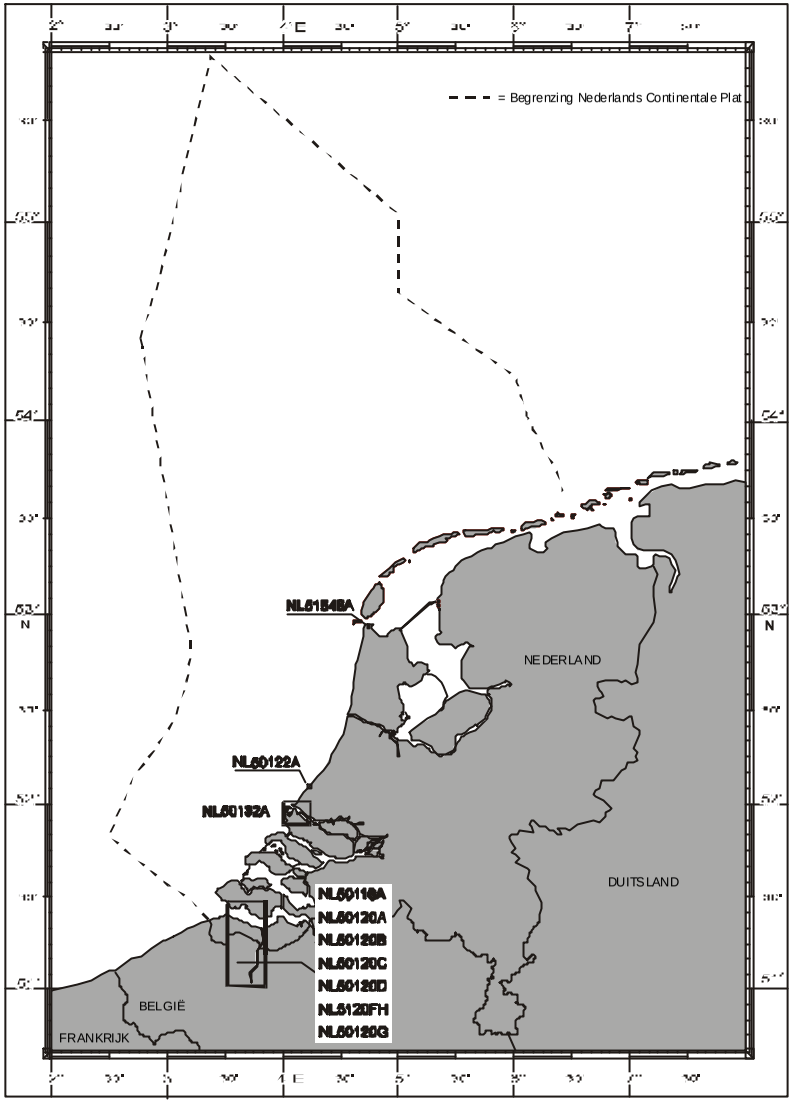
ENC's Nederland (jan. 2004) - **APPROACH** [1:30.000 - 1: 60.000]

INDEX B6



ENC's Nederland (jan. 2004) - **HARBOUR** [1:10.000 - 25.000]

INDEX B7



Netherlands units

GENERAL & COASTAL USAGE BANDS

Unit Name	Unit Title	ENC Cells	Cell Titles
NL2001	Dutch North Sea	NL21037P	Doggersbank to East Friesland TSS

COASTAL USAGE BAND

Unit Name	Unit Title	ENC Cells	Cell Titles
NL3001	Dutch Coast - Friesland TSS	NL301505	West Friesland TSS/Off Botney Ground
		NL301507	Friesland Junction/East Friesland TSS

Unit Name	Unit Title	ENC Cells	Cell Titles
NL3002	Dutch Coast - Texel to Westerems	NL302593	Off Texel TSS to Westerems

Unit Name	Unit Title	ENC Cells	Cell Titles
NL3003	Dutch Coast - Amsterdam Region	NL32322P	Noordwijk to Off Texel TSS

Unit Name	Unit Title	ENC Cells	Cell Titles
NL3004	Dutch Coast - Europoort Region	NL300110	Westkapelle to Maasvlakte
		NL303371	North Hinder / Eurogeul / Wester Schelde
		NL40110A	Approaches to Roompot sluis
		NL40110B	Approaches from Slijkgat to Stellendam

APPROACH & HARBOUR USAGE BANDS

Unit Name	Unit Title	ENC Cells	Cell Titles
NL4001	Dutch Approaches - Den Helder	NL401546	Den Helder Roads/Zeegat Texel
		NL51546A	Den Helder

Unit Name	Unit Title	ENC Cells	Cell Titles
NL4002	Dutch Approaches - Scheveningen	GB40502E	Approaches to Europoort
		NL50122A	Scheveningen Harbour

Unit Name	Unit Title	ENC Cells	Cell Titles
NL4003	Dutch Approaches - Vlissingen	NL400116	Approaches to Westerschelde
		NL400120	Wschelde Vlissingen Terneuzen
		NL40121E	Wschelde Baalhoek Antwerpen
		NL40121W	Wschelde Terneuzen Baalhoek
		NL50116A	Flushing (Vlissingen)
		NL50120A	Breskens
		NL50120B	Braakmanhaven
		NL50120C	Terneuzen Anchorage
		NL50120D	Kanaal Terneuzen-Gent
		NL5120FH	Terneuzen
		NL50120G	Sloehaven (Vlissingen Oost)

NEW ZEALAND

New Zealand Electronic Navigational Chart (ENC) Update.

Land Information New Zealand (LINZ) will produce an ENC of each chart in its folio, including INT charts where NZ is the producer nation. New survey data gathered from shipping lane surveys will be included in ENCs on the completion of each survey.

The capture process will be carried out in accordance with an ENC priority list and the ENC requirements which are outlined in the LINZ ENC specification. A ZOC project is due to commence shortly and will see a consistent evaluation carried out on every survey currently used on a LINZ chart. This 18 month project will provide the ZOC values for the LINZ ENCs and other internal processes.

RUSSIAN FEDERATION

List of ENCs (S-57, v3.0) issued by HDNO of RF MD (March 2004)

Nos (chars)	No (cells)	Charts	ENC cells RU*****
BARENTS SEA			
1.	1.	10100	2OIJ00
2.	2.	11114	2?OL50
3.	3.	11115	2OOM90
4.	4.	11116	2P8LT0
5.	5.	11117	2P8KE0
6.	6.	11118	2PGL50
7.	7.	11129	2OON90
8.	8.	11163	2P2M10
9.	9.	12000	3ORL20
10.	10.	12001	3OPLE0
11.	11.	12002	3ONLL0
12.	12.	12003	3OMLT0
13.	13.	12011	3ONMB0
14.	14.	12012	3OKMD0
15.	15.	12013	3OQMR0
16.	16.	12014	3ONMN0
17.	17.	12015	3OON60
18.	18.	12016	3OPNJ0
19.	19.	12017	3OQME0
20.	20.	12100	3OSKP0
21.	21.	12210	3PSMA9 (1)
22.	22.	12211	3PSNL9 (5)
23.		12212	
24.	23.	12213	3Q2NL9 (4)
25.		12214	
26.	24.	12215	3PSMS9 (2)
27.		12216	
28.	25.	12217	3Q2MS9 (3)
29.	26.	13003	3OTL50
30.	27.	13004	3ORL50
31.	28.	13005	3ORLC0
32.	29.	13006	3OQLH0
33.	30.	13007	3OPLL0
34.	31.	13008	3OOLO0
35.	32.	15005	5ORL90
36.	33.	15006	5ORL80
37.	34.	15013	5ORLB0
WHITE SEA			
38.	35.	10306	2OBL40
39.	36.	12005	3OHM10
40.	37.	12006	3OGLN0
41.	38.	12007	3ODLJ0
42.	39.	12008	3OFLC0
43.	40.	12009	3OBLC0
44.	41.	14011	3OILD0
45.	42.	14020	3OIL80
46.	43.	14042	3OJL60
47.	44.	16004	4ODLR0
48.	45.	16010	5OELF0
49.	46.	16011	5OFLH0
50.	47.	16012	4OBLL0
51.	48.	16013	5ODLE0
	49.	16013-A	6ODLE0
	50.	16013-?	6ODLE1

Nos (chart s)	No (cel s)	Charts	ENC cells RU*****
	51.	16013-?	6 O D L E 3
	52.	16013-?	6 O D L E 2
52.	53.	16015	5 O H L D 0
53.	54.	16016	5 O E L O 0
54.	55.	16017	5 O D L N 0
55.	56.	16018	4 O E L G 0
56.	57.	16021	5 O K L 7 0
	58.	16021-?	6 O K L 8 0
57.	59.	16022	5 O K L 7 1
58.	60.	16024	4 O H M A 0
59.	61.	16026	4 O K M 3 0
60.	62.	16027	5 O J M C 0
61.	63.	16028	5 O N M A 0
62.	64.	16029	5 O N M A 1
63.	65.	16040	4 O C L F 0
64.	66.	19020	6 O J L C 0
65.	67.	19028	5 O J M 7 0
66.	68.	19042	5 O L L 6 0
KARA SEA			
67.	69.	11122	2PDNC0
68.	70.	11123	2PKMH0
69.	71.	11124	2PGoo0
70.	72.	11126	2 P 5 N E 0
71.	73.	11127	2 P 8 O N 0
72.	74.	12305	3 P 0 N J 0
73.	75.	12306	3 O S N S 0
74.	76.	12307	3 O S O 2 0
75.	77.	12308	3 O O O D 0
76.	78.	12309	3 O S O C 0
77.	79.	12310	3 P 2 O B 0
78.	80.	12311	3 P 5 O G 0
79.	81.	12312	3 P 7 O P 0
80.	82.	12317	3 O I O R 0
81.	83.	12318	3 O M P I 0
82.	84.	12320	3 P 2 P E 0
83.	85.	12321	3 P 6 P D 0
84.	86.	12322	3 P A P D 0
85.	87.	12324	3PHPG0
86.	88.	12325	3PGP50
87.	89.	12326	3PKPD0
88.	90.	12327	3 P 9 P R 0
89.	91.	12328	3 P A Q 9 0
90.	92.	12329	3 P E Q E 0
91.	93.	12330	3 P G Q K 0
92.	94.	12331	3PHR70
93.	95.	12332	3PiRM0
94.	96.	12333	3PLRo0
95.	97.	12338	3PoRG0
96.	98.	12339	3PPQP0
97.	99.	12340	3PMR90
98.	100.	12341	3PKR50
99.	101.	12342	3 P E P Q 0
100.	102.	12343	3 P H Q 2 0
101.	103.	12344	3PjQi0
102.	104.	12345	3PKQ00
103.	105.	12346	3PMQM0
104.	106.	12347	3PMQ40
105.	107.	12348	3PPQ50
106.	108.	12349	3PMPK0

Nos (chart s)	No (cel s)	Charts	ENC cells RU*****
107.	109.	12350	3PRP80
108.	110.	12351	3Q0PA0
109.	111.	13329	3P6P60
110.	112.	13330	3P4P50
111.	113.	13331	3P2P50
112.	114.	13332	3P1P60
113.	115.	13333	3OTP50
114.	116.	13334	3ORP60
115.	117.	13335	3OPP70
116.	118.	13336	3ONP70
117.	119.	13337	3OPPC0
118.	120.	13338	3OLP70
119.	121.	13348	3P5PS0
120.	122.	15383	4P5Q70
121.	123.	15384	4P4Q80
122.	124.	15385	4P3Q70
123.	125.	15386	4P2Q80
124.	126.	15387	4P0Q80
125.	127.	15388	4P0Q70
126.	128.	15389	4OTQ90
127.	129.	15390	4OSQA0
128.	130.	15391	4OSQE0
129.	131.	15392	4ORQG0
130.	132.	15393	4OQQG0
131.	133.	15394	4OOQH0
132.	134.	15395	4OMQI0
	135.	15395-A	5OOQJ0
133.	136.	18313	5OSNT0
134.	137.	18318	5OTO30
135.	138.	18376	5PAQ09
136.		18378	
LAPTEV SEA			
137.	139.	12334	3PMS90
138.	140.	12335	3PPS30
139.	141.	12336	3Q0RE0
140.	142.	12337	3Q0QQ0
141.	143.	12400	3PJSC0
142.	144.	12401	3PJSo0
143.	145.	12402	3PHT50
144.	146.	12403	3PDT50
145.	147.	12404	3PASo0
146.	148.	12405	3PAT80
147.	149.	12406	3P8To0
148.	150.	12407	3P9UD0
149.	151.	12408	3PCUQ0
150.	152.	12409	3P7UQ0
151.	153.	12410	3P2UP0
152.	154.	12411	3P3V70
153.	155.	12412	3P3VK0
154.	156.	12413	3P8V90
155.	157.	12414	3PCV80
156.	158.	12415	3PGV80
EAST-SIBERIAN SEA			
157.	159.	12416	3PGVP0
158.	160.	12417	3PFWb0
159.	161.	12418	3PDX10
160.	162.	12419	3PDWF0

Nos (chars)	No (cells)	Charts	ENC cells RU*****
161.	163.	12420	3PbVP0
162.	164.	12421	3P7VS0
163.	165.	12422	3P6W90
164.	166.	12423	3P2WR0
165.	167.	12424	3P2X90
166.	168.	12425	3P1Xj0
167.	169.	12426	3oSXS0
168.	170.	12427	3oSYb0
169.	171.	12428	3oQYN0
170.	172.	12429	3oRZ60
171.	173.	12430-E	3P0ZM0
	174.	12430-W	3P00T0
CHUKCHI SEA			
172.	175.	12431-E	3ooZo0
	176.	12431-W	3oo0T0
173.	177.	12432	3oJ0M0
174.	178.	12433	3oH0B0
175.	179.	12434	3oo0P0
176.	180.	12435	3oo070
177.	181.	12436	3oS060
178.	182.	12437	3oT0N0
179.	183.	12438	3P30N0
BALTIC SEA			
		Gulf of Finland	
180.	184.	23000	3NTKQ0
181.	185.	23001	3NTKM0
182.	186.	23020	3NSSK0
183.	187.	23070	3NSKI0
184.	188.	25001	4NTKQ0
185.	189.	25002 int 1262	5NTKT0
186.	190.	25003	5NTKT2
	191.	25003-?	6O0KT0
187.	192.	25004 int 1261	5NTKS0
188.	193.	25005	5O1KP0
189.	194.	25009	5O0KO0
190.	195.	25010	5O1KO0
191.	196.	25012	5NSKO0
	197.	25012-?	6NTKP0
192.	198.	25053	4NTK P0
193.	199.	25054	4NTKN0
194.	200.	25055	4NTKK0
195.	201.	25056	4NTKO0
196.	202.	27045	5NTL09
197.		27047	
198.		28030	
199.	203.	27056	6O0KP0
200.	204.	28001	6NTKT3
201.	205.	28002	6NTKT4
202.	206.	28003	5O0KT0
203.	207.	28004	6NTKT0
204.	208.	28005	6NTKT1
205.	209.	28006	5NTKT1
206.	210.	28007 int 1257	5O1KP1
207.	211.	28010 int 1259	5O2KP0
208.	212.	28011 int 1260	6O2KQ0
209.	213.	28020	5NTKN0
210.	214.	28057	5NTKO0
211.	215.	28058	5O1KN0

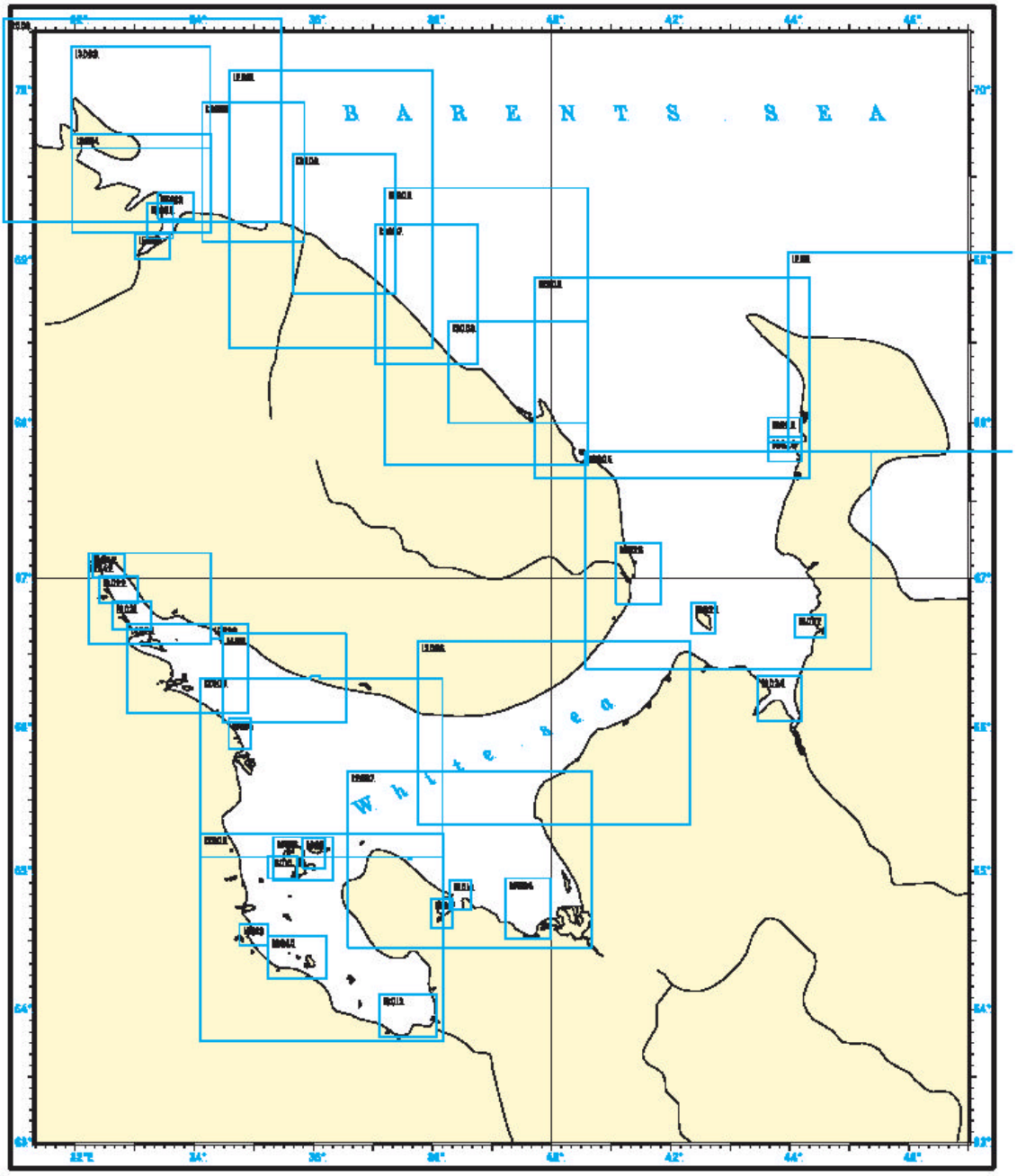
Nos (char s)	No (cel s)	Charts	ENC cells RU*****
		Gulf of Kaliningr d (Kaliningradskiy z - liv)	
212.	216.	25051	4NDJS0
	217.	25051-?	5NDK00
	218.	25051-?	5NDJT0
213.	219.	27001	6NDJT1
214.	220.	27002	6NDJT0
215.	221.	27003	6NDK00
216.	222.	27004	6NEK00
217.	223.	27005	6NEK01
218.	224.	27006	6NEK10
Lake Ladoga (Ladozhskoye ozero)			
219.	225.	23030	3NTL20
220.	226.	23031	3O1L00
221.	227.	23032	3O2KT0
	228.	23032-A	6O4L21
	229.	23032-?	6O4L22
222.	230.	23033	3O2L20
223.	231.	23034	3O1L50
224.	232.	25064	4O0L20
225.	233.	25067	4NTL30
226.	234.	25068	4O0L30
227.	235.	25069	4O0L60
228.	236.	25070	4O1L70
229.	237.	25071	4O2L60
230.	238.	25072	5O2L10
231.	239.	25073	4O3L70
232.	240.	25074	4O3L30
	241.	25074-?	5O4L30
233.	242.	25075	5O4L10
	243.	25075-?	6O4L20
234.	244.	28070	6NTL20
235.	245.	28071	5NTL30
236.	246.	28072-?	6O3L00
	247.	28072-?	6O1L10
237.	248.	28073	5O3K20
238.	249.	28074	6O3KT0
239.	250.	28075	5O3L00
240.	251.	28076	6O4L00
241.	252.	28077	6O3L70
242.	253.	28078	6O2L70
243.	254.	28079	5O1L70
	255.	28079-?	6O1L70
244.	256.	28080	6O2L71
245.	257.	28081	6O0L60
246.	258.	28082	6O0L70
247.	259.	28083	5O0L70
Lake Onega (Onezhskoye ozero)			
248.	*260.*	*23040*	*3OPLF0*
249.	*261.*	*23041*	*3O4LD0*
250.	*262.*	*23042*	*3O5LC0*
251.	*263.*	*23043*	*3O7LC0*
252.	*264.*	*25060*	*4O2LG0*
253.	*265.*	*25061*	*4O3LF0*
	266.	*25061-?*	*6O3LG0*
254.	267.	25062	4O4LD0
255.	*268.*	*25063*	*4O5LC0*
256.	*269.*	*25065*	*4O3LH0*
257.	*270.*	*25066*	*4O4LG0*

Nos (char s)	No (cel s)	Charts	ENC cells RU*****
258.	271.	25077	5 O 5 L H 0
259.	*272.*	*25078*	*5 O 5 L G 0*
260.	273.	25079	5 O 5 L G 1
261.	274.	25080	5 O 6 L G 0
262.	*275.*	*25081*	*5 O 6 L G 1*
263.	*276.*	*25082*	*5 O 6 L G 2*
	277.	*25082-?*	*6 O 7 L H 0*
264.	278.	25086	5 O 7 L E 0
265.	279.	25087	5 O 8 L D 0
266.	280.	25089	5 O 5 L E 0
267.	*281.*	*25090*	*5 O 6 L D 0*
268.	*282.*	*25091*	*5 O 6 L D1*
269.	283.	25092	5 O 6 L C 0
270.	284.	25093	5 O 5 L D 0
271.	*285.*	*25094*	*5 O 5 L C 0*
272.	*286.*	*28086*	*5 O 2 L G 0*
273.	*287.*	*28093*	*6 O 5 L F 0*
	288.	*28093-?*	*6 O 5 L F 1*
	289.	*28093-?*	*6 O 5 L F 2*
274.	*290.*	*28094*	*6 O 5 L F 3*
	291.	*28094-?*	*6 O 6 L F 0*
275.	292.	28095	5 O 5 L F 0
276.	*293.*	*28097*	*5 O 7 L F 0*
CASPIAN SEA			
277.	294.	31003	2 M 8 M J 0
278.	295.	31004	2 L T M J 0
279.	296.	31005	2 L H M J 0
280.	297.	32003	3 M 5 M M 0
281.	298.	32004	3 M 8 M L 0
282.	299.	32005	3 M C M J 0
283.	300.	32006	3 M E M M 0
284.	301.	32007	3 M F M Q 0
285.	302.	32008	3 M G N 1 0
286.	303.	32010	3 M D M Q 0
287.	304.	35010	5 M 6 M O 0
288.	305.	35011	5 M 7 M N 0
289.	306.	35012	5 M 7 M N 1
290.	307.	35013	5 M 7 M N 2
291.	308.	35014	5 M 8 M M 1
292.	309.	35021	4 M B M N 0
293.	310.	35022	4 M B M M 0
294.	311.	35023	4 M C M M 0
295.	312.	35024	4 M D M M 0
296.	313.	35026	4 M E M M 0
297.	314.	35027	4 M G M M 0
298.	315.	38015	5 M 8 M M 0
299.	316.	38016	5 M 9 M M 0
SEA OF JAPAN			
300.	317.	61001	2 M 0 U Q 0
301.	318.	62010	3 M P V T 0
302.	319.	62074	3 M E V I 1
	320.	62074-?	5 M E V J 1
	321.	62074-?	5 M F V K 0
	322.	62074-?	5 M I V O 0
303.	323.	62075	3 M J V O 0
	324.	62075-?	5 M N V S 0
	325.	62075-?	5 M L V Q 0
	326.	62075-?	6 M L V Q 0
304.	327.	62077	3 N 0 W 0 0
305.	328.	62079	3 M J V T 0

Nos (chars)	No (cells)	Charts	ENC cells RU*****
306.	329.	62100	3MFW20
307.	330.	62199	3N4W00
308.	331.	63000	3M6V10
309.	332.	63001	3M6V40
310.	333.	63002	3M8V40
311.	334.	63003	3M6V60
312.	335.	63004	3M7V80
313.	336.	63005	3M8VB0
314.	337.	63006	3M8VD0
315.	338.	63007	3MAVF0
316.	339.	63008	3MBVG0
317.	340.	63009	3MCVH0
318.	341.	63010	3MEVI0
	342.	63010-A	5MEVJ0
319.	343.	65004	4M9V40
320.	344.	65009	5M8V70
321.	345.	65010	5M8V81
322.	346.	65011	4E7V80
323.	347.	68005	6M9V50
324.	348.	68006	5M9V50
325.	349.	68011	5M8V80
326.	350.	68013	5M8V90
Tatarskiy proliv			
327.	351.	65138	4N9W30
328.	352.	65139	4N8W30
329.	353.	65140	4N8W31
330.	354.	65141	4N8W10
331.	355.	65142	4N7W30
332.	356.	65143	4N6W30
	357.	65143-?	5N6W40
333.	358.	65144	4N5W30
334.	359.	65145	4N4W30
SEA OF OKHOTSK			
335.	360.	61018	2M9W50
336.	361.	61019	2MIW70
337.	362.	61020	2N1W80
338.	363.	61021	2N9VN0
339.	364.	61023	2NLW20
340.	365.	61024	2NLWM0
341.	366.	61028	2N9X50
342.	367.	61029	2N0WR0
343.	368.	61030	2MLX10
344.	369.	61031	2MCWM0
345.	370.	61032	2N9W70
346.	371.	61033	2N9WL0
347.	372.	61035	2MIWL0
348.	373.	61036	2MSXA0
349.	374.	62128	3NSY00
350.	375.	62129	3O1Y20
351.	376.	62130	3O3Y50
352.	377.	62131	3O5Y70
353.	378.	62172	3MHW70
354.	379.	62173	3MNW70
355.	380.	62174	3MRW90
356.	381.	62175	3N3W70
357.	382.	62176	3N8W60
358.	383.	62177	3N9VS0
359.	384.	62178	3NAVJ0
360.	385.	62179	3NDVF0
361.	386.	62180	3NEVL0

Nos (chart s)	No (cel s)	Charts	ENC cells RU*****
362.	387.	62181	3NJVO0
363.	388.	62182	3NMVT0
364.	389.	62183	3NPW30
365.	390.	62184	3NPWC0
	391.	62184-A	5NSWG0
366.	392.	62185	3N0WL0
367.	393.	62186	3NPWQ0
368.	394.	62187	3NNX00
	395.	62187-A	6NRX10
369.	396.	62188	3NOX80
370.	397.	62189	3NQXC0
371.	398.	62190	3NTXC0
372.	399.	62191	3O1XH0
373.	400.	62192	3O1XO0
374.	401.	62193	3NPXL0
375.	402.	62194	3NNXI0
376.	403.	62195	3NKXC0
377.	404.	62196	3NFXB0
378.	405.	62197	3N9XB0
379.	406.	62198	3N4XE0
380.	407.	62271	3MBW60
381.	408.	62272	3M8WF0
382.	409.	62273	3MDWK0
383.	410.	62274	3MGWR0
384.	411.	62275	3MLX30
	412.	62275-?	5MMX80
385.	413.	62276	3MPX80
386.	414.	62277	3MSXC0
	415.	62277-A	4NOXF0
387.	416.	62278	3N1XG0
388.	417.	62279	3N3XO0
389.	418.	63206	3MBWH0
390.	419.	63209	3MFWo0
391.	420.	63220	3MSXC1
392.	421.	64140	3N2XH0
393.	422.	65265	
394.		65266	4N1Xi9
BERING SEA			
395.	423.	62280	3N9XR0
396.	424.	62281	3NDYB0
397.	425.	62282	3NBYB0
398.	426.	62283	3NHY50
399.	427.	62284	3NNY50
400.	428.	62285	3NQY80
401.	429.	62286	3NRYI0
402.	430.	62287	3NRZ00
403.	431.	62288	3O0Z70
404.	432.	62289	3O4ZF0
405.	433.	62290	3O5ZO0
	434.	62290 west	3O50T0
406.	435.	62291	3OAZM0
	436.	62291 west	3OA0T0
407.	437.	62292	3OE0T0
	438.	62292 west	3OEZR0
408.	439.	62293	3OC0P0
409.	440.	62294	3OB0L0
410.	441.	62295	3O90C0
411.	442.	62296	3OD090
412.	443.	62297	3OE040

Nos (chars)	No (cels)	Charts	ENC cells RU*****
413.	444.	65280	4N7XP9
414.		68280	
	445.	68280-?	6N8XP0
	446.	68280-?	6N9XP0
	447.	68280-?	6N9XP1
BLACK SEA, SEA OF AZOV (to be issued)			
415.	*448.*	*32106*	*3 M B L K 0*
416.	*449.*	*32121*	*3 M F L J 0*
417.	*450.*	*33146*	*3 M J L M 0*
418.	*451.*	*33147*	*3 M K L O 0*
419.	*452.*	*35145*	*4 M K L Q 0*
420.	*453.*	*35149*	*4 M I L N 0*
421.	*454.*	*35156*	*4 M D M L 0*
422.	*455.*	*35160*	*4 M B L Q 0*
	456.	*35160-?*	*6 M C L R 0*
	457.	*35160-?*	*6 M C L P 0*
423.	*458.*	*38160-A*	*6 M L L Q 0*
	459.	*38160-?*	*6 M K L O 0*
424.	*460.*	*38169*	*6 M F L L 0*
425.	*461.*	*38172*	*6 M E L N 0*
426.	*462.*	*38174*	*6 M E L N 1*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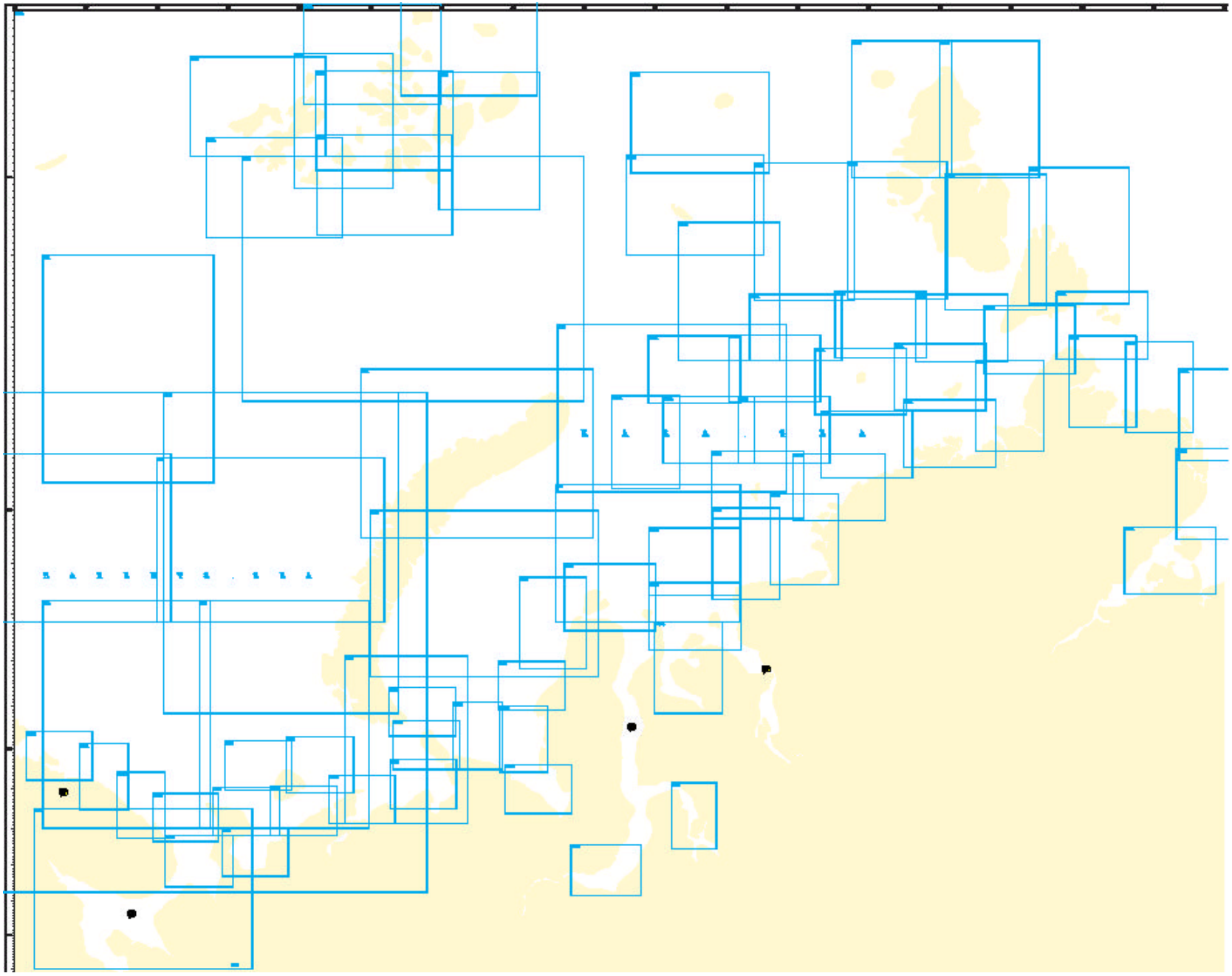
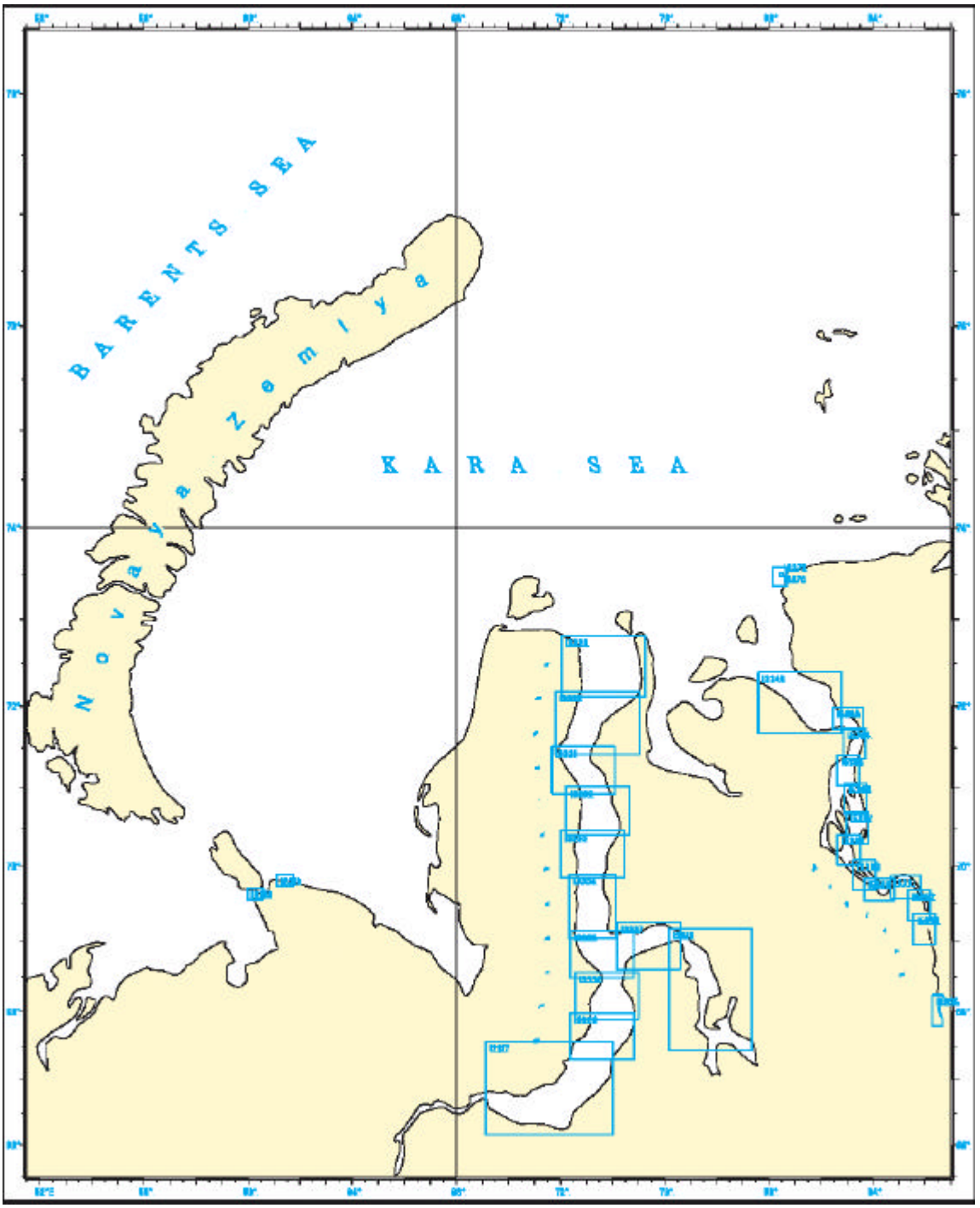
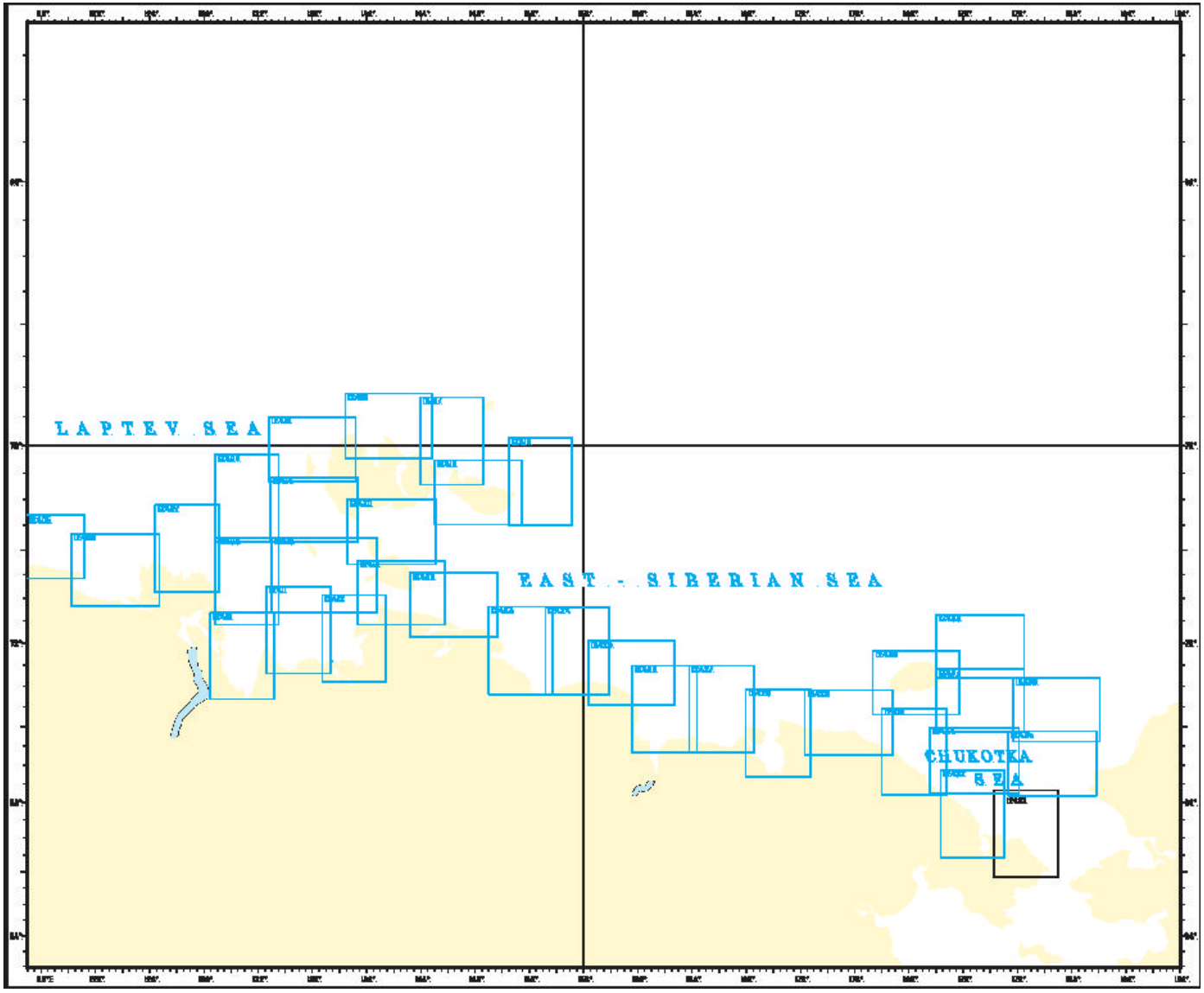
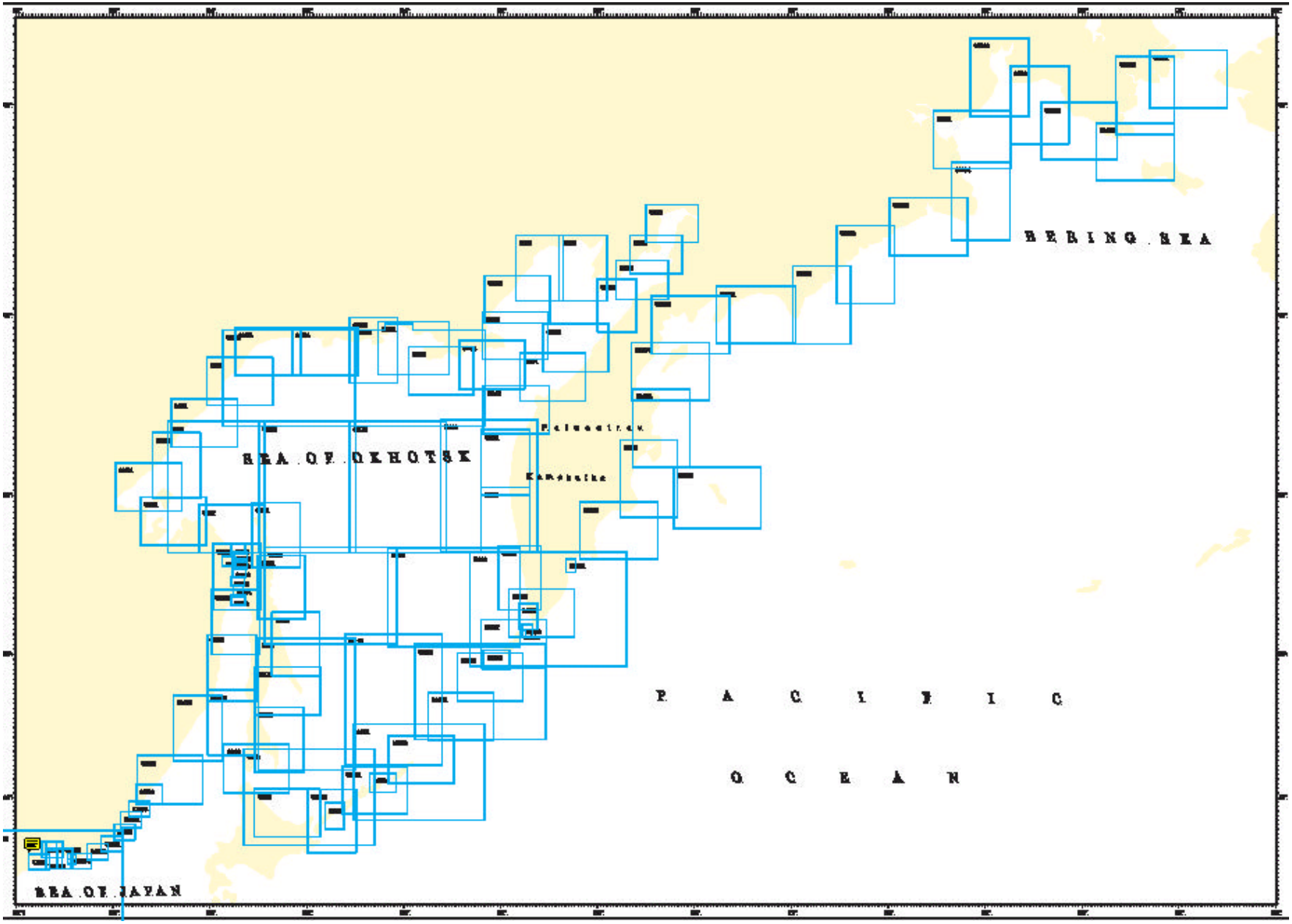
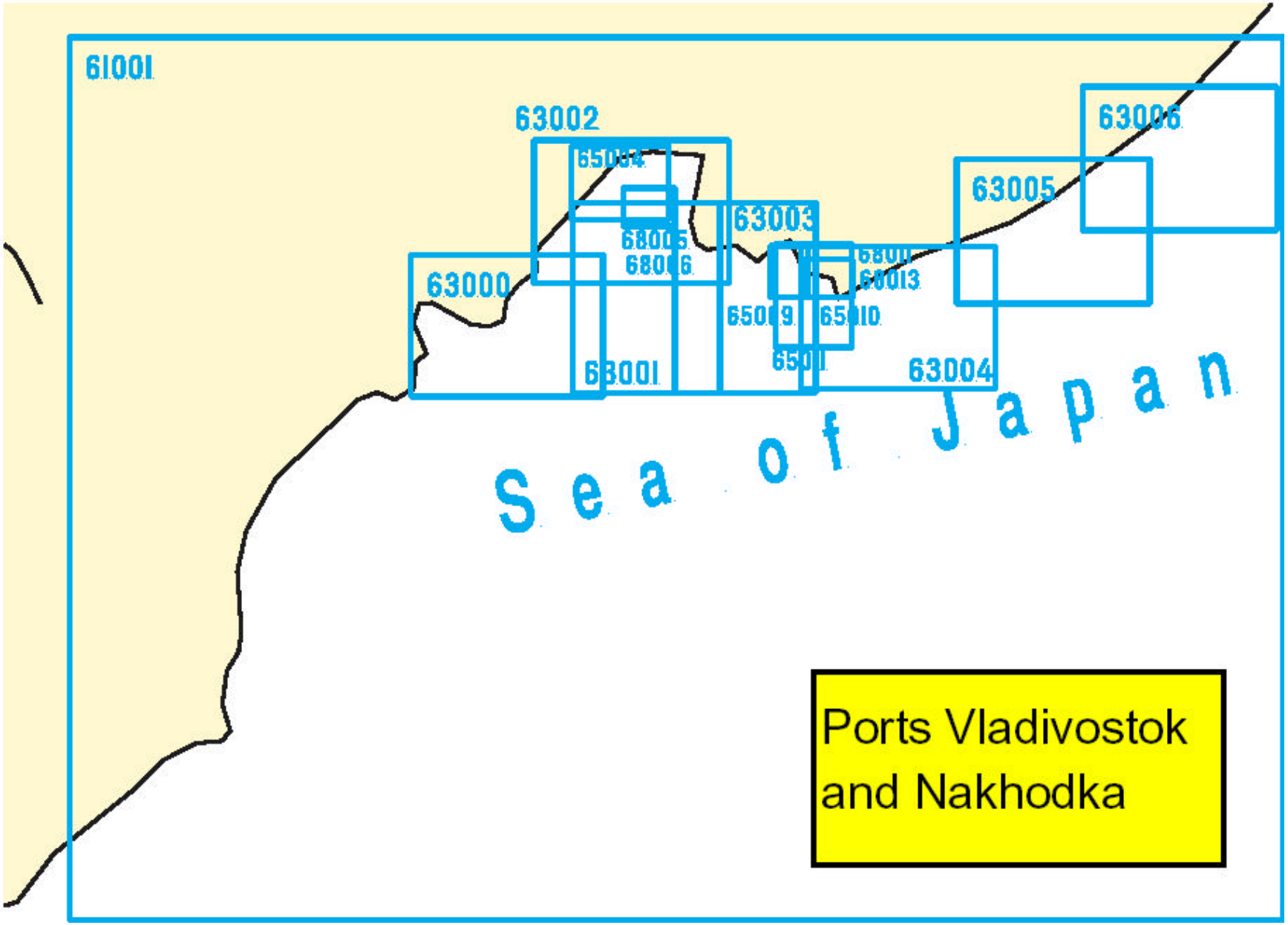
W h i t e S e a

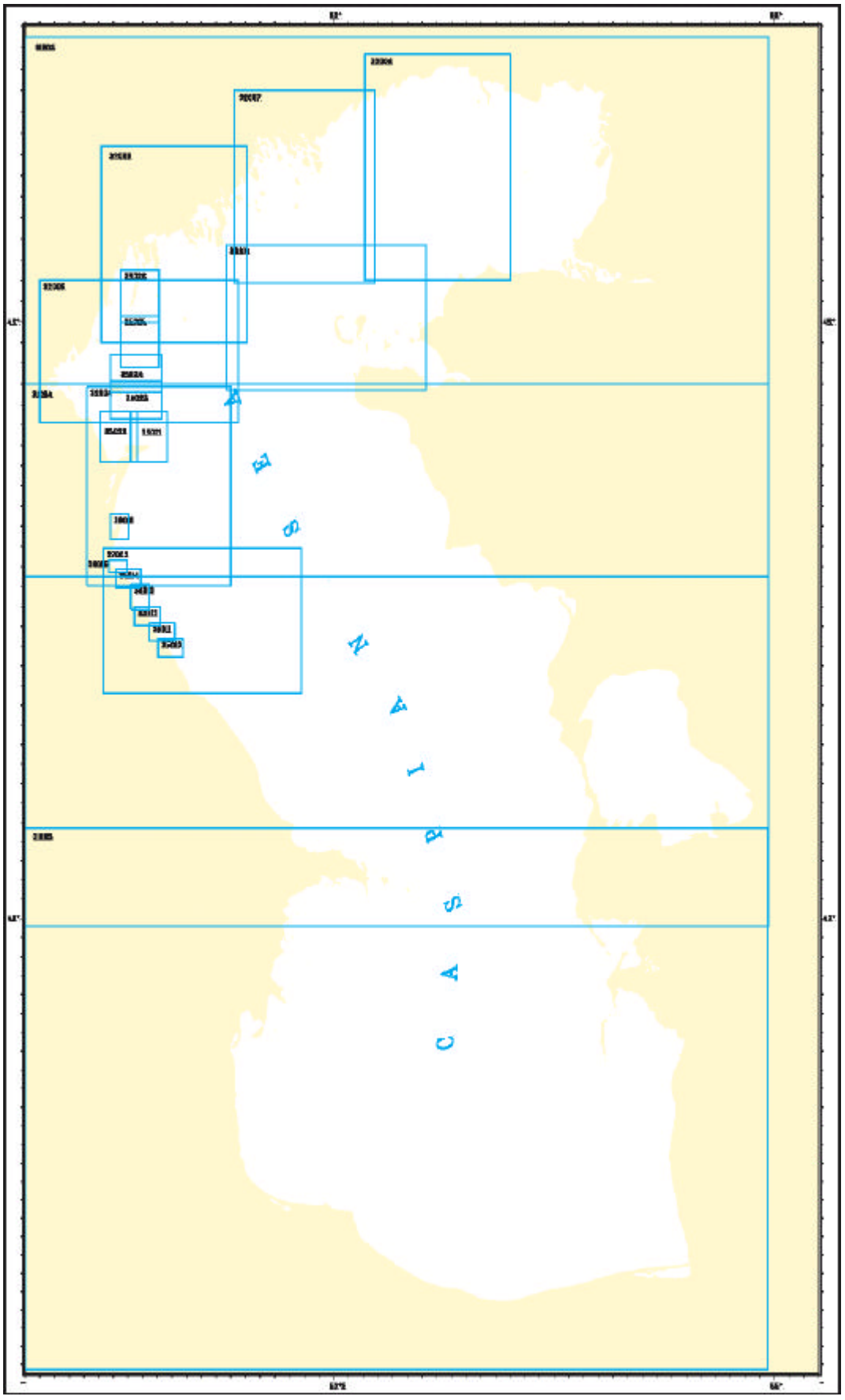


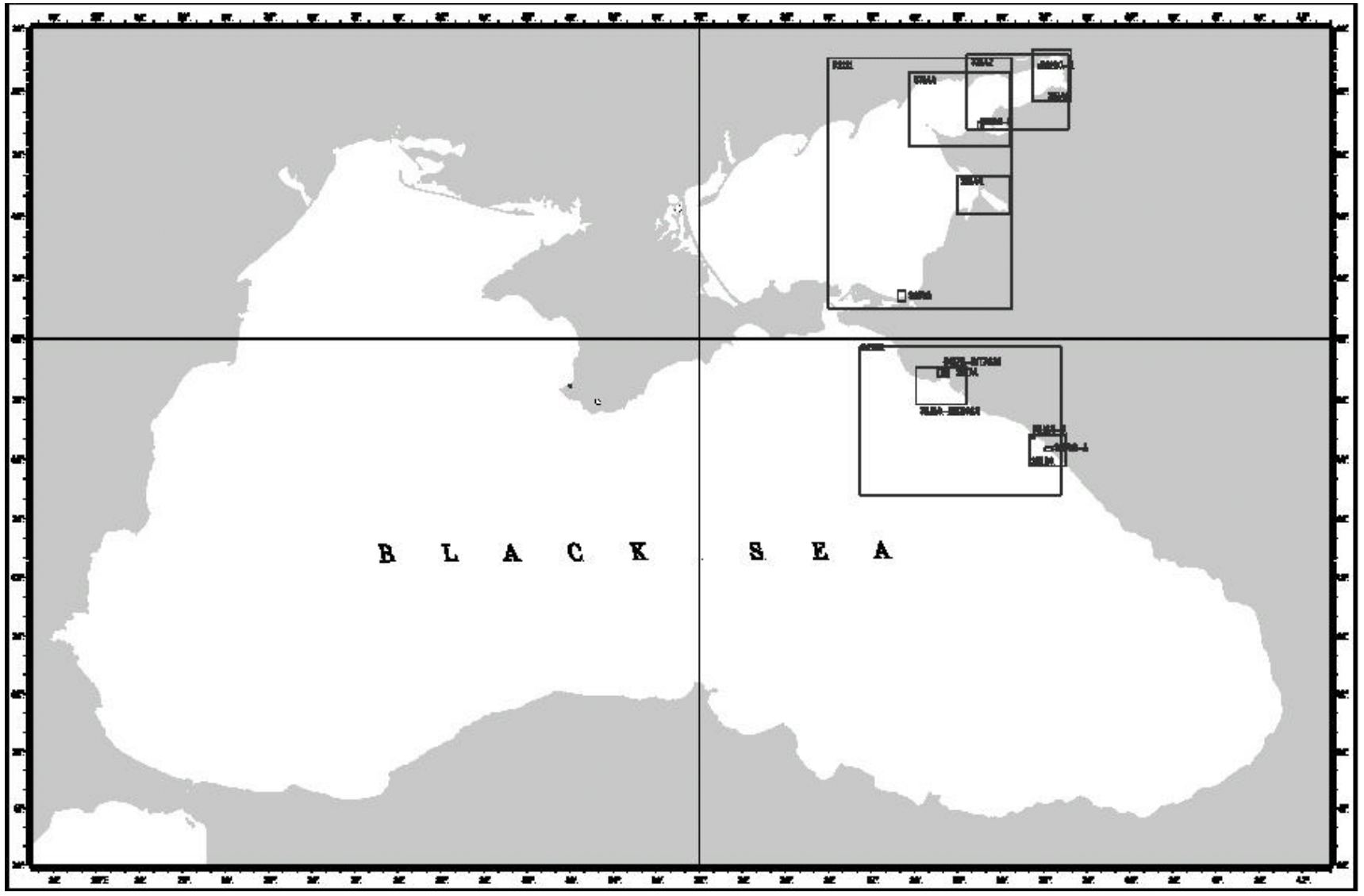

BARENTS SEA
Novaya Zemlya
KARA SEA

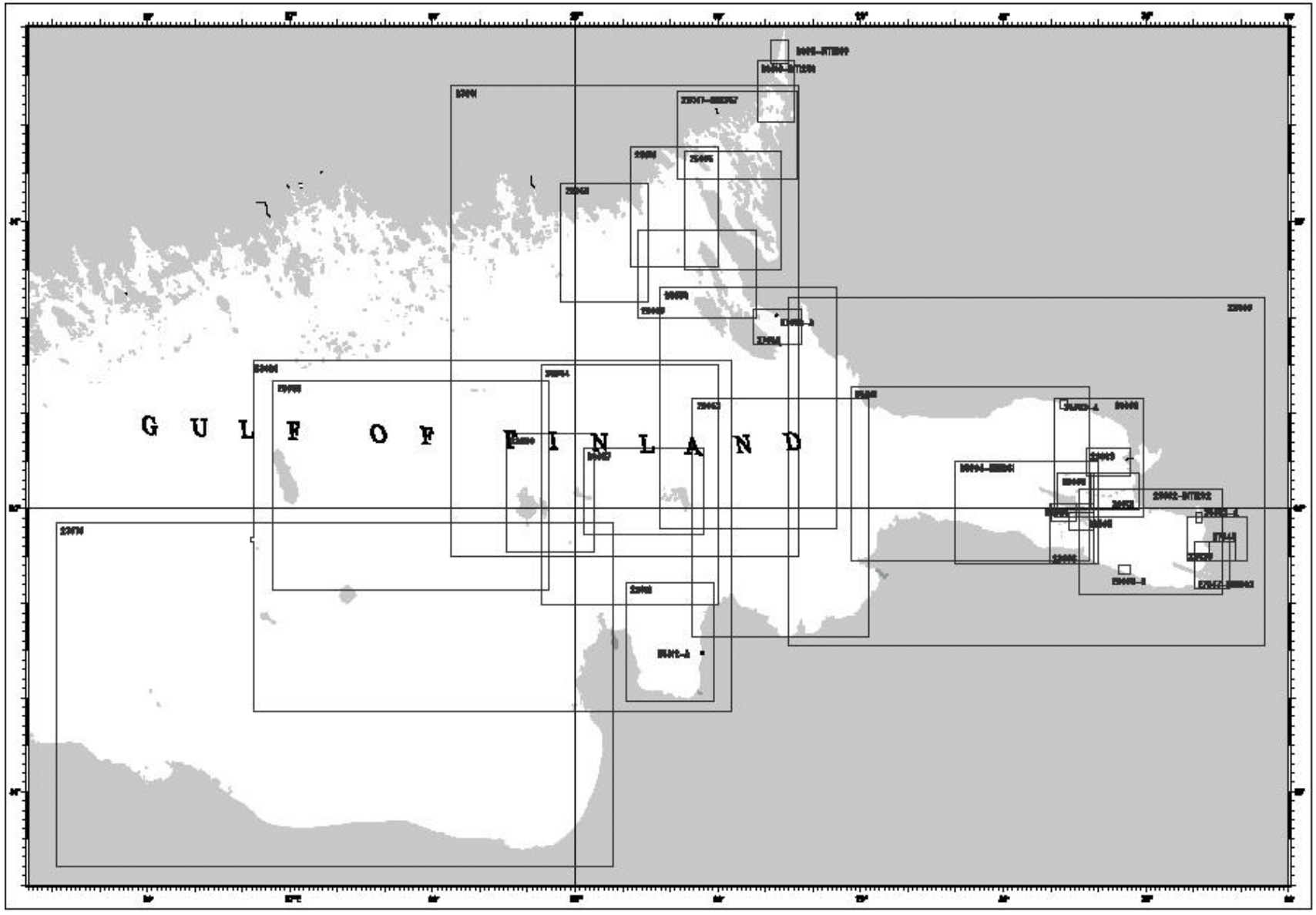

LAPTEV SEA
EAST SIBERIAN SEA
CHUKOTKA
SEA


BERING SEA
SEA OF OKHOTSK
Petropavlovsk
Kamchatka
PACIFIC
OCEAN
SEA OF JAPAN


61001
63002
63006
63005
63003
63000
63001
63004
Sea of Japan
Ports Vladivostok
and Nakhodka




B L A C K S E A


G U L F O F F I N L A N D

SOUTH AFRICA

Current State of Electronic Chart Production

Introduction

South Africa has chosen the following paper chart – ENC relationship:

Chart Series	ENC Usage Band
SAN Harbour charts	Harbour
SAN Approaches charts	Approaches
SAN 100 000 and 150 000 Series charts	Coastal
SAN 300 000, 600 000 Series	General
SAN 1 000 000 Series and all other small scales	Overview

The cells in the Coastal, General and Overview usage band will be compiled from more than one paper chart. All cells will conform to the current guidelines fior SCAMIN and data consistency as discussed at the 10th TSMAD meetring in Wollongong, Australia.

The SAN HO currently has four dJKazrt Editor licenses, three dKart Publisher licenses, and one licence each of dKart navaids, Catalogue Server and Archives.

Validation tools used are dKart Inspector (built into Editor, two licenses of SevenCs Analyser and Transas NaviSailor 2000).

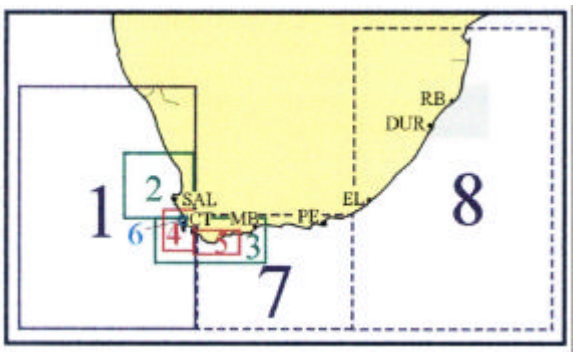
Staff

Currently two staff members are involved full time with S-57 matters of which one is a contract worker. Other staff is being integrated into the task as and when possible. staff shortages and S-57 inexperience of staff are contributing factors restricting the progress of South African ENC production.

ENC Production Priority

The priority for producing ENC cells is the approaches to the ports of Cape Town and Durban, the IMO Traffic Separation Scheme between Cape Agulhas and Mosselbaai and the overview charts for South African waters.

The following ENCs are in an advanced state of production :



Cell Name	*Usage Band*	*Reference on Graphic*
ZA100010	Overview	1
ZA200030	General	2
ZA200040	General	3
ZA300040	Coastal	4
ZA300050	Coastal	5
ZA400050	Approaches	6

The cells covering Durban and Richards Bay (grey areas) and the two Overview charts (7 and 8) are the future priority areas.

South African ENC Products

In the listing below, the cell number is given in column 1. ENCs will be marketed on a Unit basis. One or more cells form an ENC product Unit. Column 3 is the Unit's geographical title. Columns 4 – 7 give the extent of the Unnit in degrees, decimals. All latitudes are South of the Equator and all longitudes East of Greenwich.

Entries in Bold text are published ENC Unites, those in italics are in production.

Cell number	*Unit*	*Cell Title*	*S Lat*	*W Long*	*N Lat*	*E. Long*
ZA100010	**ZA1001**	**Western Waters of South Africa**	**38.500**	**10.000**	**28.250**	**19.000**
ZA100020	ZA1002	Southern Waters of South Africa	38.500	19.000	32.000	26.867
ZA100030	ZA1003	Eastern Waters of South Africa	38.633	26.867	25.833	37.133
ZA1N0010	ZA1004	Northern Waters of Namibia	23.333	4.500	16.250	15.000
ZA1N0020	ZA1005	Southern Waters of Namibia	31.000	7.500	23.333	18.500
ZA200010	ZA2001	Orange River to Island Point	30.975	14.167	28.608	18.000
ZA200020	ZA2002	Brand se baai to Melkbospunt	33.750	15.500	30.975	18.983
ZA200030	***ZA2003***	***Table Bay to Mosselbaai***	***35.625***	***16.983***	***33.750***	***22.583***
ZA200040	***ZA2004***	***Walker Point to Port Alfred***	***35.383***	***22.583***	***33.417***	***27.000***
ZA200050	ZA2005	Great Fish Point to Cape Hermes	35.055	27.000	31.617	30.750
ZA200060	ZA2006	Waterfall Bluff to Tongaat Bluff	31.617	28.733	29.375	32.350
ZA200070	ZA2007	Tugela River to Ponta do Ouro	29.375	30.333	26.783	33.383
ZA2N0010	ZA2008	Kunene River Bocock's Bay	21.667	11.108	17.217	14.058
ZA2N0020	ZA2009	Cape Cross to Dolphin Head	26.000	12.167	21.667	15.250
ZA2N0030	ZA2010	Hottentot Point to Orange River	29.700	13.358	26.000	17.167
ZA300010	ZA3001	Oranjemund to Skulpfonteinpunt	30.173	15.517	28.533	17.740
ZA300020	ZA3002	Hondeklipbaai to Olifantsrivier	31.740	16.233	30.173	18.413
ZA300030	ZA3003	Doringbaai to Yzerfonteinpunt	33.383	17.367	31.740	18.497
ZA300040	***ZA3004***	***Dassen Island to Kaap Hangklip***	***35.123***	***17.437***	***33.383***	***18.908***
ZA300050	***ZA3005***	***Mudge Point to Cape Infanta***	***35.190***	***18.908***	***34.270***	***21.217***
ZA300060	ZA3006	Cape Barracouta to Cape Seal	35.270	21.217	33.867	23.657
ZA300070	ZA3007	Storm Point to Port Alfred	34.740	23.657	33.503	26.967
ZA300080	ZA3008	Great Fish Point to Cape Morgan	34.357	26.967	32.500	29.747
ZA300090	ZA3009	Mbashe Point to North Sand Bluff	32.500	27.883	31.000	31.363
ZA300100	ZA3010	Port Shepstone to Tongaat Bluff	31.000	29.517	29.475	32.620
ZA300110	ZA3011	Tugela River to Cape St Lucia	29.474	31.133	28.250	32.897
ZA300120	ZA3012	Cape Vidal to Ponta do Ouro	28.250	31.893	26.753	33.447
ZA300200	ZA3013	Prince Edward and Marion Islands	47.070	37.250	46.500	38.500
ZA400030	ZA4001	St Helenabaai	32.795	17.950	32.624	18.258
ZA400040	ZA4002	Saldanha Bay	33.106	17.849	32.991	18.056
ZA400050	ZA4003	Langebaan Lagoon	33.225	17.979	33.057	18.133
ZA400060	***ZA4004***	***Approaches to Table Bay***	***33.992***	***18.257***	***33.687***	***18.515***
ZA400070	ZA4005	Houtbaai	34.149	18.282	34.022	18.389
ZA400080	ZA4006	False Bay	34.408	18.416	34.071	18.940
ZA400090	ZA4007	Mosselbaai	34.278	22.077	34.050	22.282

Cell number	*Unit*	*Cell Title*	*S Lat*	*W Long*	*N Lat*	*E. Long*
ZA400100	ZA4008	Knysna	34.108	23.017	34.025	23.088
ZA400110	ZA4009	Plettenbergbaai	34.164	23.318	33.958	23.491
ZA400120	ZA4010	Approaches to Port Elizabeth	34.126	25.583	33.703	25.940
ZA400130	ZA4011	Bird Island Passage	33.895	26.213	33.733	26.498
ZA400140	ZA4012	Approaches to East London	33.100	27.817	32.897	28.098
ZA400150	ZA4013	Durban Oil Terminal SMB	30.075	30.867	29.930	31.120
ZA400160	ZA4014	Approaches to Durban	29.938	30.979	29.724	31.152
ZA400170	ZA4015	Approaches to Richards Bay	28.968	32.000	28.650	32.253
ZA4N0010	ZA4016	Approaches to Walvis Bay	22.972	14.333	22.757	14.547
ZA4N0020	ZA4017	Approaches to Lüderitz	26.753	14.985	26.502	15.182
ZA4P0200	ZA3013	Approaches to Transvaal Cove	46.903	37.830	46.840	37.925
ZA500010	ZA5001	Port Nolloth	29.269	16.837	29.239	16.887
ZA500020	ZA5001	Lambert's Bay	32.097	18.277	32.073	18.323
ZA500040	ZA5002	Saldanha Bay	33.078	17.945	32.993	18.019
ZA500050	**ZA5003**	**Table Bay**	**33.922**	**18.386**	**33.864**	**18.490**
ZA500080	ZA5004	Simon's Bay	34.208	18.424	34.124	18.496
ZA500090	ZA4007	Mosselbaai Harbour	34.187	22.103	34.131	22.154
ZA500120	ZA4011	Port Elizabeth Harbour	33.980	25.597	33.915	25.703
ZA500140	ZA4012	East London Harbour	33.047	27.895	32.997	27.979
ZA500160	**ZA5005**	**Durban Harbour**	**29.904**	**30.991**	**29.847**	**31.091**
ZA500170	ZA5006	Richards Bay Harbour	28.842	32.017	28.771	32.140
ZA5N0010	ZA4016	Walvis Bay Harbour	22.963	14.475	22.877	14.528
ZA5N0020	ZA4017	Lüderitz Harbour	26.650	15.137	26.617	15.172
ZA5N0030	ZA2010	Oranjemund	28.640	16.285	28.550	16.426
ZA5P0010	ZA5001	Alexander Bay	28.686	16.486	28.664	16.516
ZA5P0020	ZA5001	Hondeklipbaai	30.325	17.260	30.307	17.279
ZA5P0030	ZA4001	Laaiplek	32.794	18.133	32.762	18.171
ZA5P0050	ZA4001	Sandy Point	32.750	18.005	32.735	18.033
ZA5P0060	ZA4002	Langebaan Yacht Club	33.106	18.031	33.104	18.033
ZA5P0070	ZA4002	Club Mykanos	33.050	18.034	33.044	18.044
ZA5P0080	ZA3004	House Bay Dassen Island	33.421	18.073	33.406	18.090
ZA5P0090	ZA3003	Yzerfontein	33.348	18.142	33.344	18.153
ZA5P0100	***ZA4004***	***Murray's Bay Robben Island***	***33.800***	***18.373***	***33.795***	***18.381***
ZA5P0110	ZA4005	Houtbaai	34.056	18.344	34.047	18.354
ZA5P0130	ZA4006	Harbour Island	35.155	18.852	34.149	18.861
ZA5P0140	ZA4006	Gordon's Bay	34.167	18.852	34.159	18.863
ZA5P0150	ZA3005	Hermanus	34.437	19.222	34.431	19.231
ZA5P0160	ZA3005	Gantsbaai	34.591	19.328	34.579	19.349
ZA5P0170	ZA3005	Struisbaai	34.802	20.055	34.796	20.064
ZA5P0180	ZA3007	Marina Glade	34.155	24.821	34.137	24.854
ZA6P0010	ZA5002	Saldanha Bay Yacht Club	33.022	17.945	33.016	17.956
ZA6P0020	ZA5004	Simon's Town	34.193	18.427	34.186	18.435
ZA6P0040	ZA4001	Port Owen	32.791	18.144	32.782	18.158
ZA6P0120	ZA5004	Kalkbaai	34.132	18.447	34.125	18.456

Data Capturing

Conversion of paper charts to S-57 is in accordance with the encoding rules published in IHO publication *S-57 Appendix B1 Annexure D, INT1 to S-57/52* (Version 3.1 of the Standard) and supplemented by SANHO coding decisions.

The lina quality of these datasets will be suitable for use in Dkart Publisher for producing paper chart from published ENCs.

Summary of Paper Chart Conversion as at 2 February 2004

Total number SAN charts:	**90**
Charts vectorized	39
Charts still to be vectorized:	41
ENC Satasets released for commercial distribution	3

Inputs received from Mozambique

INAHINA is concentrating its efforts on re-surveying of the major ports of Mozambique. The current status is as follows:

MAPUTO:	Completed and available in paper and electronic format.
QUILIMANE:	Completed and available in paper and electronic format.
BEIRA:	Surveyed and in production.
CHINDE:	Surveyed and in production.
ANGOCHE:	Surveyed and in production.

Note:
Meeting planned between INAHINA and SANHO in May 2004 to establish an ENC production programme and level of assistance required.

UNITED KINGDOM

1. Production

1.1 By the end of January 2004, the UKHO had produced 428 ENCs. 352 of these ENCs were available for distribution through IC-ENC and the UKHO's ENC service.

1.2 The UKHO has the capacity to produce about 20 ENCs per month (either as new cells, new editions, or as a mixture of both).

1.3 All of the UKHO's ENC production processes are ISO 9001:2000 certified.

2. Coverage

2.1 The main areas of geographic coverage of the UKHO's ENCs are the waters around the UK and parts of the Mediterranean Sea, the Red Sea and the Gulf. Plans to extend the coverage to other parts of the world are presently under consideration.

2.2 Each of the UKHO's ENCs is broadly equivalent to a paper chart both in terms of its area of coverage and its content.

3. Data Capture and Verification

3.1 Initial data capture is contracted out to a company in India (IIC). This reduces the average in-house production time for new cells from 6 to 3 weeks.

3.2 The verification of data from IIC and all work on the production of updates for ENCs and new editions is done in-house in the UKHO.

4. Training and Assistance

4.1 The UKHO is pleased to be able to offer the following services to other national hydrographic offices:

- Production of ENCs
- Quality Assurance (QA) of ENCs
- Updating of ENCs for Notices to Mariners and New Editions
- Provision of training in ENCs and their production (see IHO Special Publication S-47)
- Assistance with the establishment of ENC production facilities
- Assistance with the establishment of a Quality Management System for ENC production
- Assistance with the distribution of ENCs (through IC-ENC and UKHO's ENC service)

5. Distribution

5.1 Following the disbandment of PRIMAR in 2002 the UK set up a new RENC for the collection and distribution of ENCs known as IC-ENC - International Centre for ENCs.

5.2 IC-ENC is operated by UKHO on behalf of its members – Belgium, Germany, Greece, Netherlands, Portugal, South Africa, Spain and UK. IC-ENC distributes ENCs through a series of specialist distributors known as Value Added Resellers (VARs), who package ENCs to meet the needs of the shipping market. IC-ENC carries out validation, ECDIS and consistency checks to ensure that all ENCs supplied to its VARs are consistent and of uniform quality.

5.3 IC-ENC currently has three Value Added Resellers – the UKHO, SevenCs and C-Map Norway and is currently processing applications from other potential Value Added Resellers.

5.4 As a Value Added Reseller of IC-ENC, the UKHO has established an ENC service for end-users that combines ENCs from different countries, sourced from IC-ENC, on a single CD-ROM. The ENC service works in the same way as the UKHO's existing Admiralty Raster Chart Service (ARCS). The UKHO issues the latest ENC corrections every week to ensure all subscribers have fast access to all safety critical information. Updates are supplied on CD-ROM, but the UKHO intends to expand the service to include remote updating via web or email.

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February 2004

UNITED STATES OF AMERICA (NOAA)

ENC Production

1. The following table provides the status of United States (U.S.) Chart products as of 24 February 2004.

Paper	Raster	ENCs	Equiv't Paper Charts	Version 1	Version 2	Active Updates
1002	1002	380	380	34	346	380

NOAA's short-term goal is to complete coverage of the major U.S. commercial ports, consisting of approximately 200 ENCs. To date, 98% of this goal has been achieved with a projected completion by July 2004. NOAA is proceeding with the production of approximately 500 additional ENCs to provide seamless coverage between these ports with a projected completion by September 2007.

The first 60 U.S. ENCs that were produced have reduced content and are not considered adequate for navigation. These ENCs, located in the Gulf of Mexico and Great Lakes, are referred to as "Version 1" data. "Version 2" ENCs contain full chart detail; however, land features that are not considered navigationally significant have been deleted. All ENCs in work and to be produced in the future are Version 2. All Version 1 ENCs are being upgraded to Version 2 as time and resources permit and should be completed by the end of 2004. At this time 26 of the original 60 ENCs have been upgraded.

2. Version 2 ENC files may be downloaded from the NOAA/Office of Coast Survey web site (http://nauticalcharts.noaa.gov/) at no charge to the user. ENCs available from this site are updated for Notices to Mariners on at least a monthly basis. Users are encouraged to check the site frequently and download the latest versions of the files. Updates are currently available only as a complete, revised NOAA ENC file. Incremental updates (also called ENC Revision or "ER" files) will be available later in 2004.

3. ENC provisional designation was removed in July 2003 at which time the NOAA ENC was accepted as an official nautical chart.

4. ENCs are produced using the LaserScan Automated Map Production System 2 (LAMPS2).

5. Quality Assurance (QA) is achieved using several packages, primarily dKart Inspector.

6. Current information about the U.S. ENC program as well as the U.S. raster chart program can be found at the NOAA/Office of Coast Survey web site: http://nauticalcharts.noaa.gov/.

Certification Requirements for NOAA ENC Distribution

NOAA distributes official ENCs for free over the Internet. The Hydrographic Services Improvement Act of 1998 (2002 Amendments) requires NOAA to establish, not later than December 2004, a quality assurance program for the distribution of ENCs. To this end, requirements are being developed by which entities may be certified to download, redistribute, repackage, or in some cases reformat, official ENCs while retaining their official status for meeting chart carriage regulations. No other processes will result in products that meet these regulations.

Two types of certification will be offered. The first type, "Certified NOAA ENC Distributor", covers ENC downloading, exact copying, and redistribution of those copies. The second type, "Certified NOAA ENC Value Added Distributor", will permit reformatting official ENCs into a System ENC (SENC) using type-approved software, and distribution of that SENC. Both types of certification will result in products that meet federal chart carriage regulations. Both types of certification will permit, but will not require, compression, encryption, and packaging with other data.

Entities without certification may continue to download official ENCs and use, alter, and/or distribute that data, but the result does not meet U.S. Federal nautical chart carriage regulations. Individuals may download official ENCs for their own use. If imported unaltered into a type-approved ECDIS, the result meets U.S. National nautical chart carriage regulations.

NOAA International (INT) Chart ENC Production and Partnerships
NOAA is producing the following INT ENCs, several in cooperation with IHO Member State partners:

INT No.	Area	Scale	Partner	Estimated Availability
4144	Gulf of Mexico	1:500,000	Mexico*	#
4145	Gulf of Mexico	1:500,000		#
4146	Gulf of Mexico	1:500,000		#
4147	Gulf of Mexico	1:500,000		#
4148	Gulf of Mexico (W. FL)	1:500,000	Cuba	#
4149	Gulf of Mexico (E. FL)	1:500,000	Cuba*	#
Chart D	Gulf of Mexico (West)	1:1,000,000		#
Chart E	Gulf of Mexico (East)	1:1,000,000		#
50	North Pacific	1:10,000,000	Japan	#

* These INT charts will be maintained by the indicated Partner Nations using NOAA data and updates.

\# Data for all of these charts will be collected by 30 April 2004. However, only INT 50 is equivalent in coverage (geographic limits) to an existing raster chart. Data for the other INT charts will come from several charts at different scales. Data will be posted to the web in NOAA's current chart schema until we develop a strategy to re-scheme the ENC data into the new INT series. Expected completion date is December 2004.