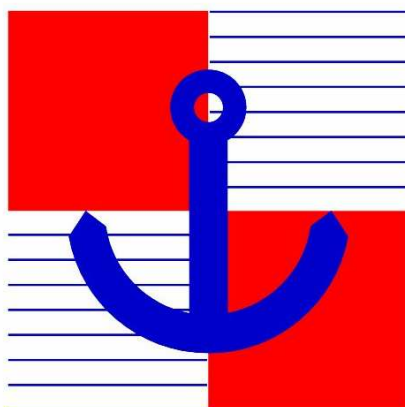


**MEDITERRANEAN AND BLACK SEAS  
HYDROGRAPHIC COMMISSION**

**XV CONFERENCE**

**CONTRIBUTION BY CROATIA**

**HRVATSKI HIDROGRAFSKI**



**INSTITUT**

**MALTA  
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## **1. HYDROGRAPHIC OFFICE**

Hydrographic Institute of the Republic of Croatia carries out scientific-research, development and professional works concerning the safety of navigation, hydrographic-geodetic survey of the area of national responsibility, marine geodesy, design and production of charts and nautical publications, oceanographic research, submarine geology research and finally publishing and printing activities. Hydrographic activities are regulated by law. The CHI position in the structure of Croatian administration is shown in Annex 1. For details see [www.hhi.hr](http://www.hhi.hr).

## **2. SURVEYS**

### **2.1. Survey status**

Hydrographic surveys conducted along the Croatian coast since the XIV MBSHC Conference were limited to selective parts of the coast and ports. Numerous hydrographic profiles have been surveyed in order to elaborate underwater marine installations. Annex 2 summarizes the status of hydrographic surveys

### **2.2. New technologies**

Through the joint Croatian – Norwegian Hydrographic Information Project a new spatial data management and chart production system (SDMCPS) was procured. The system is designed to meet all functional and technical requirements for SDMCP.

In addition, through the same project a new MBES on r/v Hidra and Palagruža was installed and made operational. A new flat scanner (A0 format) with one work station was installed and made operational.

### **2.3. Problems encountered**

Due to some reasons which are not hydrography related, the joint IT/SI/HR hydrographic survey of the North Adriatic area (*Rec. MBSHC14-7*) planned to be supported by IHO CBC budget was not released.

## **3. NEW CHARTS**

### **3.1. ENC's**

Having recognized in the IHO documents, the recommendation, the possibility and the right to charge another HO or company with the production of ENC's if proper capacities are missing, the CHI decided that official ENC's would be realised in a short time in cooperation with a world renowned company in ENC production. ENC's are based on the existing paper charts, and what has been produced so far are 107 ENC cells, all navigational purpose, covering the Croatian area of responsibility.

In the next two years, continuing the CRONHIP project, the CHI is planning to establish its own ENC / paper chart production.

The status of the CHI ENC's production is shown in the following table:

	October 2007		01 July 2008	
	Number of Cells	%	Number of Cells	%
Overview	1	100%	1	100%
General	1	35%	4	100%
Coastal	0	0%	14	95%
Approach	10	60%	20	90%
Harbour	25	70%	30	95%
Berthing	17	70%	25	95%
	54	56%	94	96%

Annex 3 shows Croatian ENC priority plan. Annex 4 shows ENC's release status. Annex 5 shows recognized HSC routes which are planned to be covered by ENC's until 1 July 2008.

### 3.2. ENC's distribution method

CHI distributes its ENC's through the PRIMAR RENC. The first Croatian ENC's were released in February 2007.

### 3.3. RNC's

RNC's covering Croatian area of responsibility are available from ARCS according to bilateral agreement.

### 3.4. INT Charts

INT No.	Producer <i>Producteur</i>	National No.	Date		Scale/ <i>Echelle</i>		Format	Printer <i>Reproducteur</i>
			Publication	N. Edition	1:	Latitude		
3410	HR	INT3410	1988	2007	250 000	45°00'	A0	FR(7244 – 04)
3412	HR	INT3412	1991	2000	250 000	42°50'	A0	FR (7326 – 92)
3414	HR	INT3414	1998		250 000	41°55'	A0	

INT No.	Producer <i>Producteur</i>	National No.	Date		Scale/ <i>Echelle</i>		Format	Printer <i>Reproducteur</i>
			Publication	N. Edition	1:	Latitude		
300	IT	360	1984	1997	4 200 000	41°30'	A0	FR, ES, GB, HR (2001)
301	IT	340	1972	1996	2 250 000	41°30'	GA	FR, DE, ES, GB, US, PT, HR (2001)

### 3.5. Paper charts

In the period between the two MBSHC Conferences Croatian Hydrographic Institute published the following charts:

#### New editions

Rijeka – Venezia	INT3410	1:250 000
Venezia – Zadar	300-31	1:300 000
Ancona – Šibenik	300-32	1:300 000

### **New printing**

Rijeka – Venezia	151	1:200 000
Rijeka – O. Murter	152	1:200 000
Šibenik – O. Lastovo	153	1:200 000
PelješAC – Rt Oštra	154	1:200 000
Silba – Pag	100-19	1:100 000
Dugi otok – Zadar	100-20	1:100 000
Šibenik – Split	100-21	1:100 000
Jabuka – Vis	100-22	1:100 000
Pelješac – Mljet	100-27	1:100 000
MK – I dio		1:100 000
MK – II dio		1:100 000
Pula – Cres	50-3	1:55 000
Dubrovnik	50-20	1:50 000

### **3.6. Problems encountered**

Some overlapping issues exist among CRO, IT and GR Overview and General ENC's and should be discussed and solved.

## **4. NEW PUBLICATIONS**

CHI nautical publication series includes the following documents related to the MBSHC area:

- 1 Sailing Directions
- 1 Sailing Directions for Yachts (in four languages)
- 1 Lists of Lights
- 1 Radio Service
- 1 Tide Tables
- 1 Special Publication for Croatian Navy Ships
- 1 Nautical Almanac
- 1 Nautical Tables

The publications issued since the XIV MBSHC Conference are listed hereinafter:

Tide Tables:

- Tablice morskih mijena 2006
- Tablice morskih mijena 2007

Nautical Almanac:

- Nautički godišnjak 2006
- Nautički godišnjak 2007

List of Lights:

- Popis svjetala i signala za maglu Jadransko more istočna obala, New ed. 2005

Radio Service

- Radio služba 2006

## 5. MARITIME SAFETY INFORMATION (MSI)

The Croatian NAVTEX Station has been installed in Hvar Is. (Q) since 1999 (previously Split), covering the area of the Adriatic Sea, being maintained by the coastal station Split Radio. This station broadcasts every four (4) hours. Correctness in the promulgation of information is controlled on the NAVTEX receiver in Nautical Department of the CHI. No failure occurred during ordinary operation. Croatia took an active part in the meeting organized by NAVAREA III Coordinator in order to define areas of responsibility of NAVTEX stations in NAVAREA III.

Schedule of radionavigational warnings is shown in the following table:

NAVWARNINGS	2005	2006	2007
NAVAREA	10	14	4
COASTAL	61	77	48
LOCAL	173	189	218

The most important maritime safety information – Notices to Mariners (monthly edition), 10-day's bulletin of radionavigational warnings and the list of Temporary (T) and Preliminary (P) Notices – are available on [www.hhi.hr](http://www.hhi.hr).

## 6. S-55 IHO PUBLICATION

Updating information is provided as necessary.

## 7. CAPACITY BUILDING

### 7.1. Training

Within implementation of the three-year CRONO HIP project, instruments and equipment for the new digital production line are obtained. CHI personnel have been trained in various ENC construction issues and Quality Control and Validation procedures. Cartographic Department personnel have also attended seminars in dKart software (ENC tools) and HydroCap vectorisation software. Hydrographic Department personnel have completed MBES training course.

### 7.2. Bilateral agreements

During the period 2005-2007, the following Bilateral Arrangements were compiled and are now under affirmation between Croatia and the following countries: Portugal, Greece and Italy.

Croatia signed Bilateral Arrangements with the following countries: Germany, UK and Norway.

### 7.3. Bilateral projects

Ongoing joint Croatian - Norwegian project (CRONO HIP) will be continuing with Phase III in the next two years. The project shall integrate the total system from data collection to ENC and chart compilation and production. All involved CHI staff will gain experience in the new production system. The result will contribute to CHI's portfolio of nautical products, and written procedures as foundation of a future ISO 9000 quality system.

## 8. OCEANOGRAPHIC ACTIVITIES

Oceanographic Department participates in several projects: Research of the Adriatic Sea as the Basis for the Sustainable Development of the Republic of Croatia - Project Adriatic (RASSDC), European Sea Level Service - Research Infrastructure (ESEAS-RI, 2002-2005), Dynamics of the Adriatic in Real Time (DART 06/07), Internal Tidal Hydrodynamics and Ambient Characteristics of the Adriatic (ITHACA) and Mediterranean Network for Systematic Sea-level Monitoring in the Mediterranean and Black Seas - regional subsystem of GLObal Sea Level Observing System (MedGLOSS).

Through the project "Adriatic tides and sea level on-line" managed by the CHI, several web applications were created, giving tidal predictions at 7 standard and 9 secondary ports along the Croatian coast of the Adriatic Sea. During 2005 tide gauge station (Split) was collocated with (CGPS – Continuous Global Positioning System) providing the real-time information about absolute measured sea level. Operational tide gauges (see Figure 1) are equipped with analogue-to-digital converters (a/d) having continuity in the long-term observation.

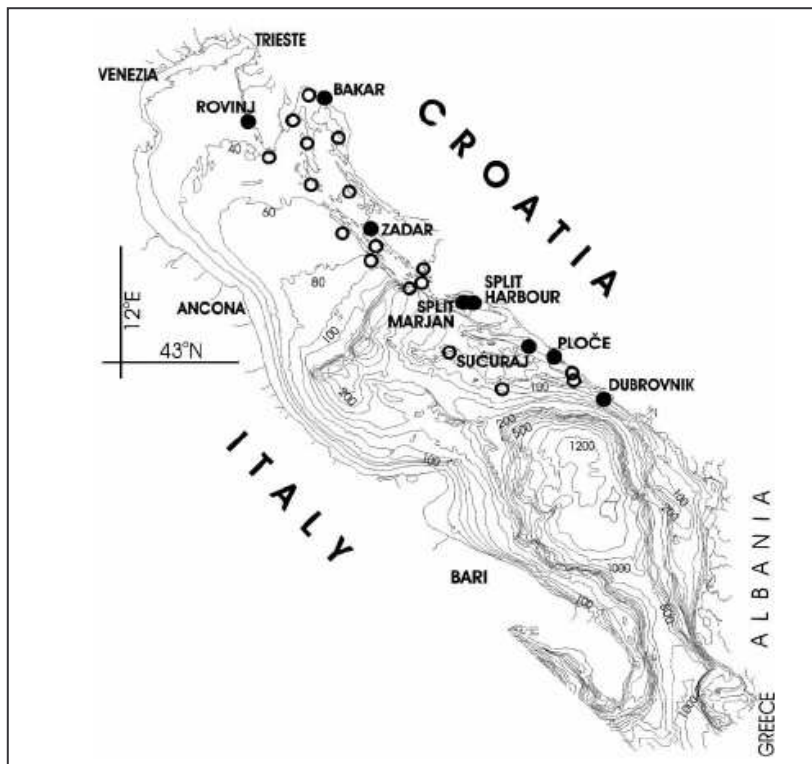


Figure 1: Schematic Adriatic Sea map with tide gauges operational at present time (filled circles) and the last 50 years (blank circles) along the Croatian coast.

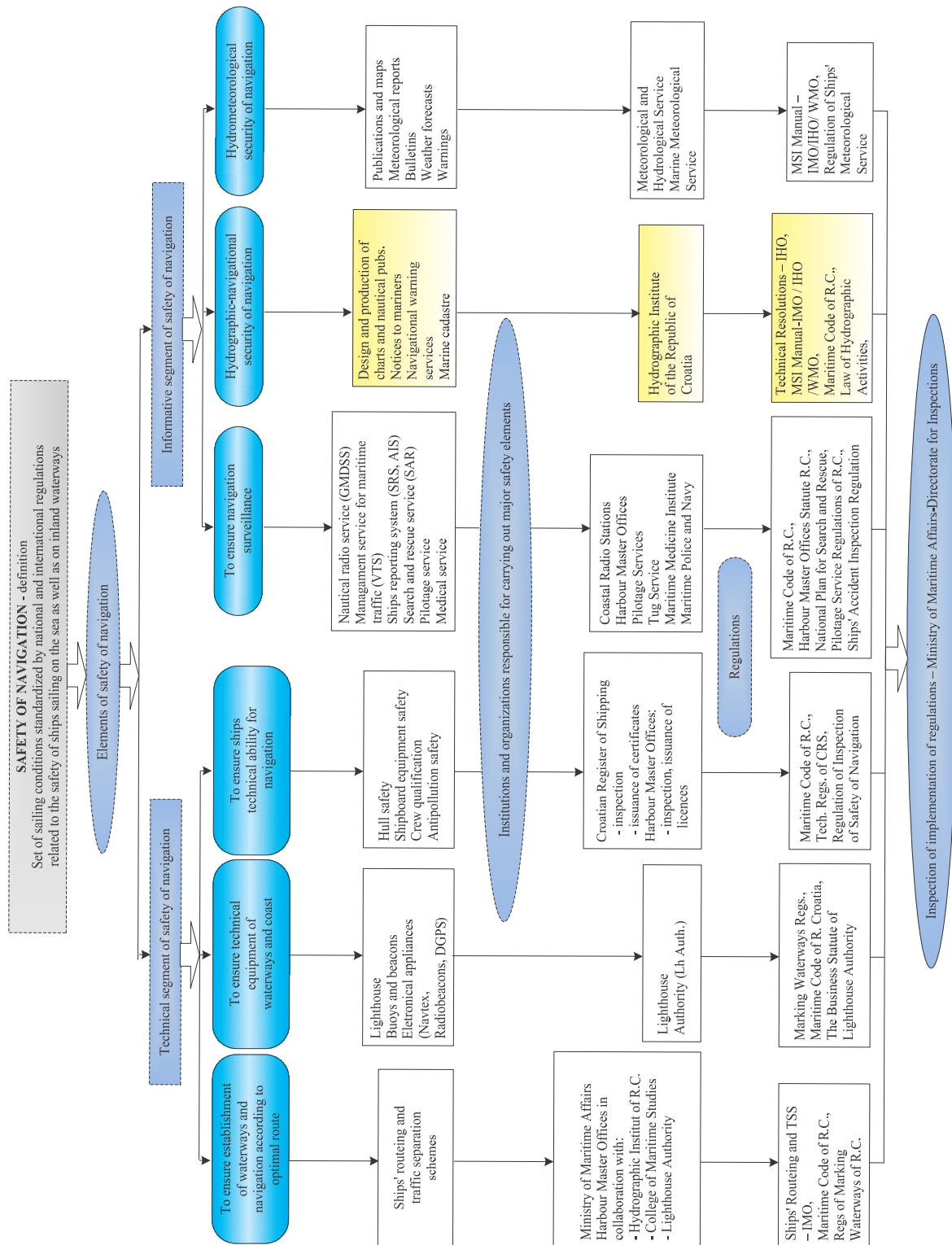
Annual publications "Tide tables – Adriatic sea, East coast" and "Report on tide-gauge measurements along the east Adriatic coast" are also presented in a digital format.

## 8. OTHER ACTIVITIES:

CHI personnel participating in several IHO Committees and WG such as ABLOS, CPRNW, WEND, MBSHC.

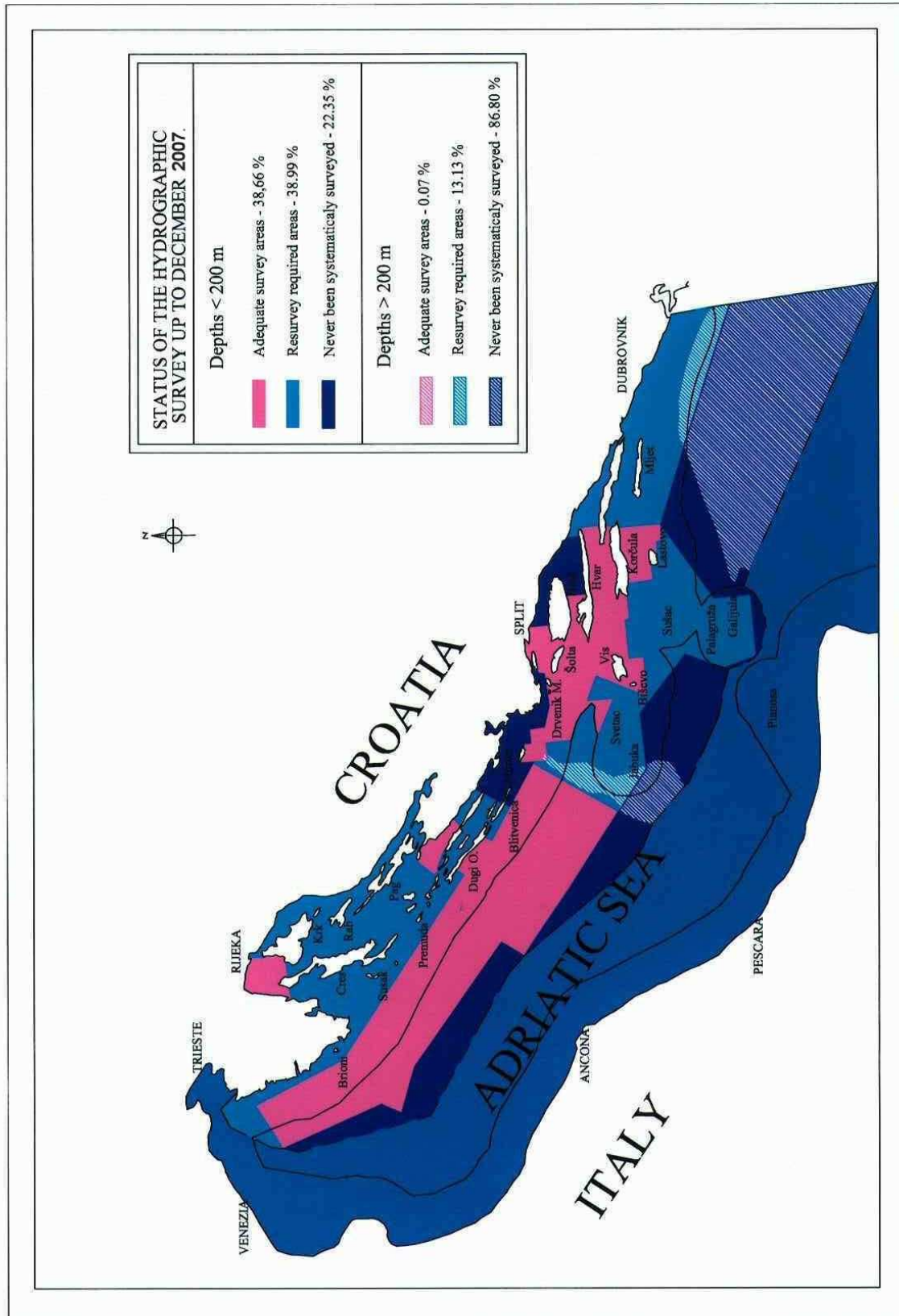
CHI is coordinator of the Croatian project Places of refuge for ships in need of assistance.

**Annex 1 CHI POSITION IN STRUCTURE OF CROATIAN ADMINISTRATION**

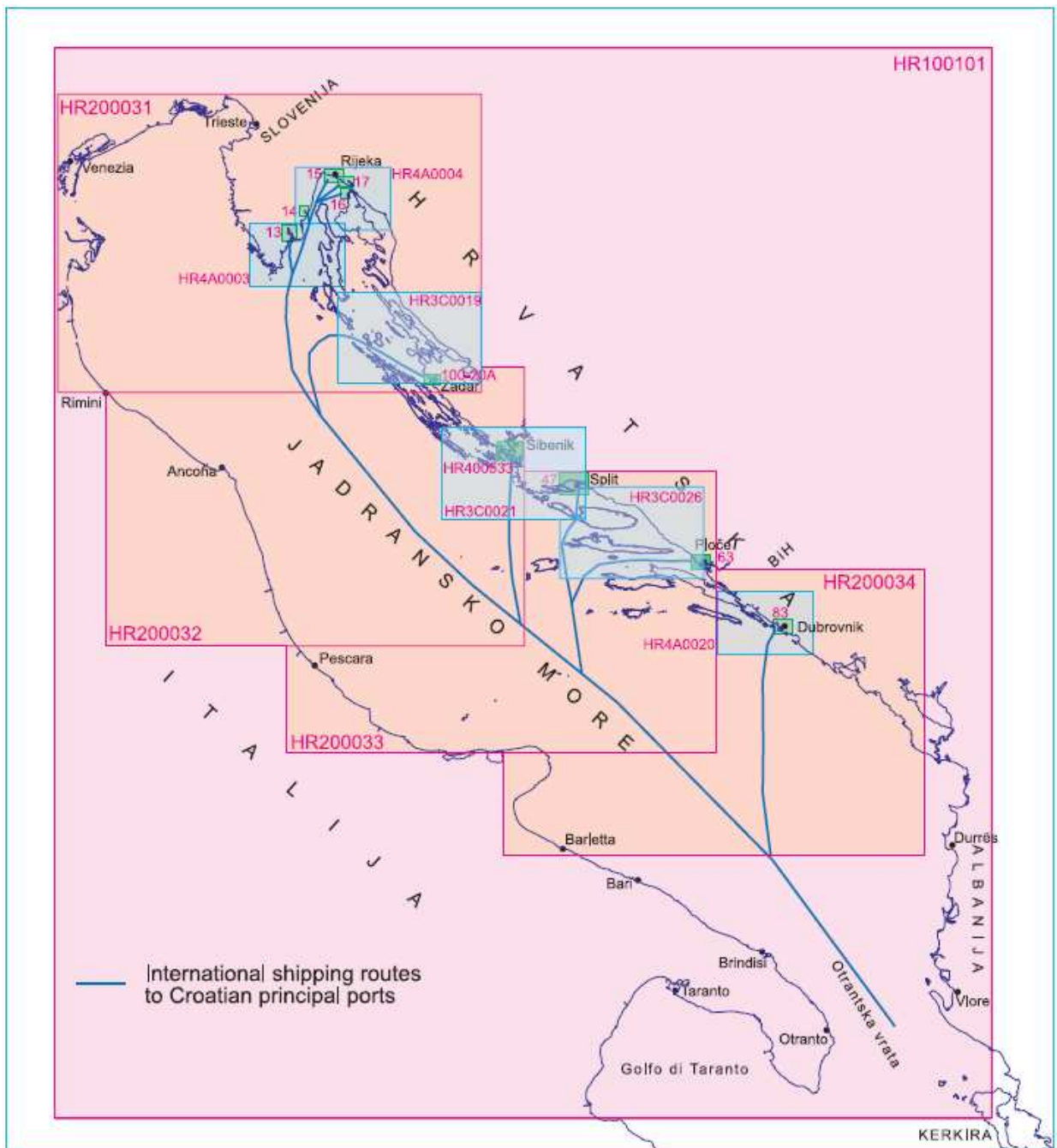




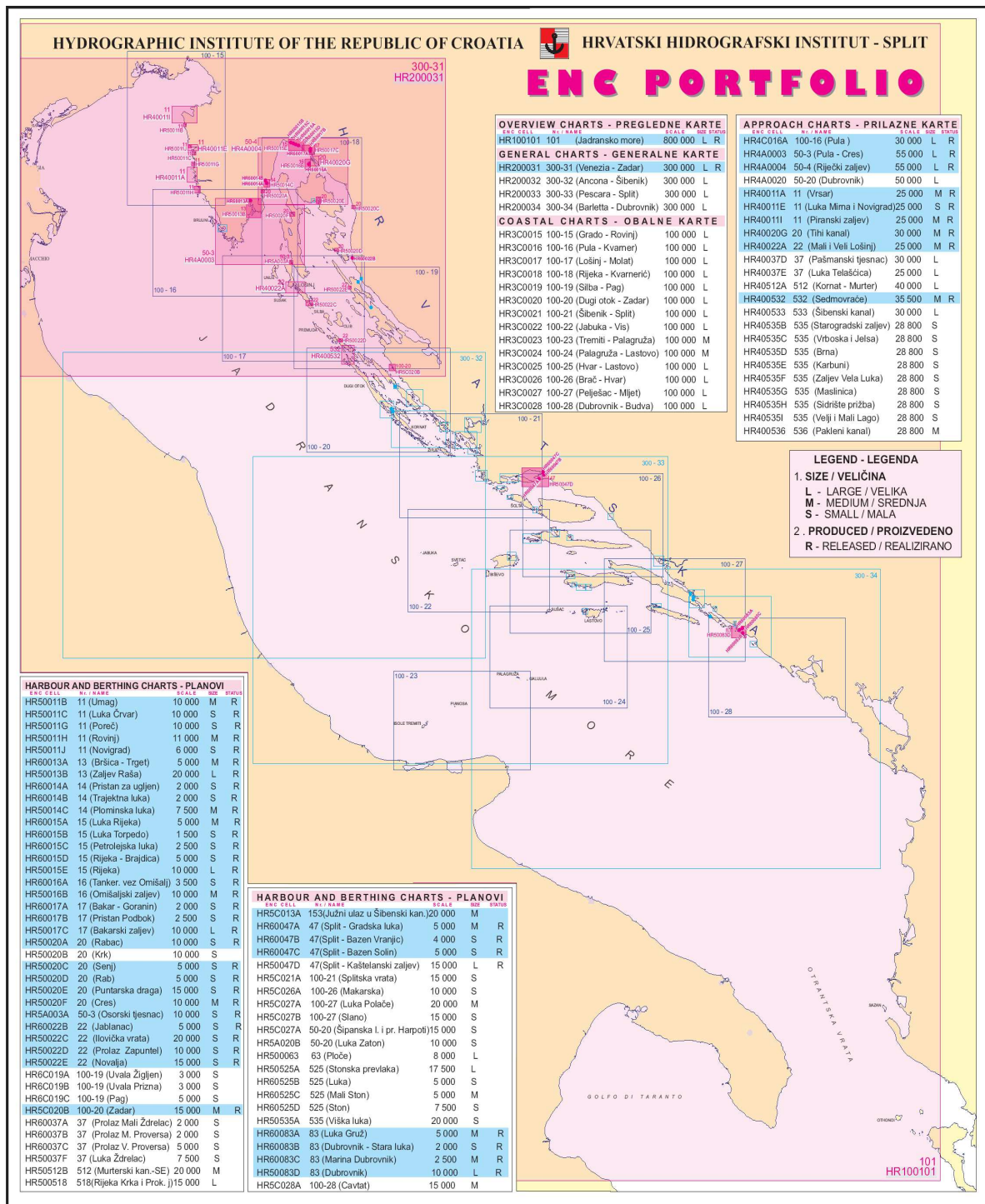
**Annex 2 STATUS OF HYDROGRAPHIC SURVEYS**



### Annex 3 CROATIAN ENC PRIORITY PLAN



## Annex 4 ENC'S RELEASE STATUS



### Annex 5 RECOGNIZED HSC ROUTES

