



#### **REPUBLIC OF CROATIA**

Ministry of the Sea, Transport and Infrastructure Directorate for Safety of Navigation, Marine Environment and Inland Waters

## Establishment of the Croatian vessel traffic monitoring and information system ( CVTMIS )

Valbandon, 01.06.2010

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## **Background of the project - CVTMIS** Croatian Vessel Traffic Monitoring and Information System

The establishment of the VTMIS is conceived and based on the:

- Commission White Paper on the European transport policy
- Directive 2002/59/EC establishing a Community vessel traffic monitoring and information system
- Chapter V of the SOLAS Convention
- IALA Guidelines and recomendations
- Pre-accession Maritime Transport Strategy of the Republic of Croatia (2005) (web page of MSTI)
- VTMIS Development Strategy (2005)
- > Amendments to Maritime Code (Official Gazette 146/2008)
- The system project has been initiated through
  - --- PHARE 2005 (phase 1- Twinning project ; FMA, EMA, ICG )
  - --- PHARE 2006 (phase 2 Supply and setting )

- VTMIS is technical, legal and institutional setup, facilitating systematic monitoring of vessel movements and their physical and information tracking, with the main goals;
  - --- improvement of safety of navigation
  - --- life protection in rescue operations,
  - --- risk reduction of the ship accidents
  - --- reduction of all types of dangerous situations,
  - --- improvement of search and rescue service
  - --- reduction of the sea pollution risks
  - --- coordination of the cleaning action in case of accidents.

It is going to collect all the necessary information on maritime traffic through different sensors, making possible to process, analyze, display in real time, store and replay all collected data, to share and distribute such information to the competent national and international authorities and institutions.

**CVTMIS** is an organizational structure within the MSTI.

- Through VTMIS procedures and arrangements manual the system will provide;
  - ---- <u>Information service</u> regular information regarding traffic situation (all-ship reports), aiming to assist on-board decision making, information (upon request from a ship) regarding traffic situation.
  - --- <u>Navigational Assistance service -</u> information to assist the on-board decision-making process and may inform, advise and/or instruct vessels accordingly.

--- <u>Traffic Organization service - essential and timely information to</u> assist the on-board decision-making process and may advise, instruct or exercise the authority to direct movements.

- And based on different sensors :
  - ---- RADAR
  - --- RDF ( radio direction finder )
  - --- AIS ( automatic identification system )
  - --- METEO ( meteorological )
  - --- Electronic Cartography
  - --- TVCC ( closed circuit cameras )
  - --- PMIS (port management information system)
  - --- VHF ( radio trnsceiver )

# FOLLOWING ACTIVITIES - AS A RESULT OF THE TWINNING

- Establishment of VTMIS services:
  - 1st November 2010- testing stage
  - 1st April 2011- start of regular services
  - Law on Maritime Safety Services- in development
- **Finalization of works on radar and radio-communication systems**
- Integration of Maritime Coastal Radio service into VTMIS service
- **Establishment of single- access maritime administration database** 
  - Standardized interface for notification of arrivals and departures of vessels in all Croatian ports
  - Reducing paper- work- no double reporting requirements for agents
  - Improvement of coordination between port authotrities, port operators, agents, harbourmaster's offices and other
- Facilitation of Integration with SafeSeaNet- EU wide system on accession to EU



### **<u>CVTMIS</u>** structure

- 1 NCC --- extended economical zone + territorial sea water
- **3 RCC** --- internal sea water
- **8 13 LCC** --- port area
- NCC Permanent Surveillance over all the routine operations of the RCC and LCC, managing VTS on EEZ and TW. It intervenes on demand or on its own initiative in critical situations that could involve the maritime safety of the territorial waters or of part of them.
- <u>RCC</u> Permanent surveillance on internal waters and over routine activities of the LCC and intervenes on demand of LCC or on its own initiative in case of emergency or of a difficult situation.
- LCC Permanent surveillance in harbour area and solves all the routine situations

### PROJECT LIFELINE

### <u>2005</u>

- Technical assistance through Administrative Capacity Building/Project Preparation Facility - CARDS 2004 :
  - Pre-accession Maritime Transport Strategy for Croatia (2005)
  - **CVTMIS Development Strategy**
  - Feasibilty Study

### 2004-2005

- Automatic Identification of Ships System- phase 1 (4 base sta.)
   <u>2007-2008</u>
- Functional and Technical Study on VTMIS

### <u>2008</u>

- Automatic Identification of Ships System- phase 2 (add. 13 base sta.)
- **Twinning projects PHARE 2005 & 2006 in implementation**
- Radar subsystem contracted

**Total disbursed and contracted costs** 2.500.000 Eur – documentation 7.500.000 Eur – equipment: radars, AIS, other

### PHARE 2005 Title;

"Maritime safety: Enforcement of Administrative Capacity -Monitoring and Management of Vessels" – PHASE 1

- The purpose of the project is enhancement of administrative and tehnical efficiency of Maritime Administration in monitoring and management of vessels with a special regard to vessels carrying dangerous and polluting goods. Duration 2006 2009.
- **The project activities :**
- 1)
- ---- Twinning
- --- Education and training of AIS operators
- --- Elaboration of a Conceptual model of dangerous and polluting goods database
- --- drafting of a preliminary VTMIS procedures and arrangements manual
  --- education and training of personnel on marine casualty investigation
  --- study visit to VTMIS resources and component authorities in EU member
  2)
- --- "Functional and tehnical Study on VTMIS"

### Study --- Title ; "Functional and Tehnical Study on VTMIS"

The consortium in established by ;
 — THETIS S.p.A., as a Team Leader
 — D'APPOLONIA, as Partner 1
 — RINA INDUSTRY, as Partner 2
 Started on 22nd January 2008, the project of

Started on 22nd January 2008, the project purpose was enhancement of administrative and tehnical efficienty of Maritime Administration in monitoring and management of vessels with special regard to vessels carrying dangerous and polluting goods trough facilitating high quality of further development of Croatia VTMIS.

Ended on 21st July 2008.

The project development activities ;

- Detailed design of the CVTMIS system
- Design of the CVTMIS data management system
- CVTMIS legal and organizational framework
- CVTMIS study

### PHARE 2006 Title;

"Maritime safety: Enforcement of Administrative Capacity -Monitoring and Management of Vessels" – PHASE 2

- The purpose of the project is enhancement of administrative and tehnical efficiency of Maritime Administration in monitoring and management of vessels, flag state implementation and port waste reception facilities evalution. Duration 2007 2010.
- The project activities :
- 1) Establishment of VTMIS ( EQUIPMENT SUPPLY )
- 2) Institutional Capacity Building (TWINNING)
- --- Education and training of the VTMIS personnel
- --- Study tour to VTMIS resources and competent authority in the EU member state including simulator training
- --- Administrative capacity building for the Flag state implementation (FSI)
- 3) Port reception facility study
- 4) Tehnical assistance
- 5) Establishment of theVHF communications subsystem in the VTMIS

### **TWINNING** Title;

**"EU PHARE Institutional Building Twinning project, Institutional Capacity Building in the Field of Maritime Safety"** 

The beneficiary ; FMA (Finnish Maritime Administration) Junior parner : ICG (Italian Coast Guard) Partner : EMA (Estonian Maritime Administration)

The project started in 2006, the project purpose enhancement of administrative and tehnical efficienty of Maritime Administration in monitoring and management of vessels with special regard to vessels carrying dangerous and polluting goods.

The project end is 2009.

Croatia and Finland, with the help from Italy, undertake to carry out the present twinning project. For its part, Croatia will take all measures necessary to ensure that the results of the project, prepared jointly are effectively implemented.

- It is concentrating on support and advice to the MSTI regarding procedural and administrative arrangements as well as implementation of the Acquis. The implementation of the project tasks is to be carried out through joint twinning cooperation, through exchange of information, mentoring, twinning workshops as well as seminars and study visits.
- From the Member State side, the Finnish Maritime Administration (FMA, a Mandated Body) will be responsible for the success of the twinning project. Based on the recommendation of the MSTI as stated in the so called Selection Letter of the Delegation of the European Commission to the Republic of Croatia on 6th of February 2007, Finland formed a Member State Consortium with Italy. Finland is the Lead Partner of the Consortium and Italy is the Junior Partner, represented by the Italian Coast Guard.

#### The project activities ;

- Education and training of AIS operators
- Elaboration of Conceptual model of Dangerous and Polluting goods database
- Preliminary drafting of VTMIS procedures and arrangements manual
- Education and training of personnel on marine casualty investigation

## **Overall Objective**

- Improvement of maritime safety and prevention of pollution from ships
- will manage the maritime traffic in the Croatian part of Adriatic Sea
- have also a role to play in maritime security

### STUDY VISIT ; FINLAND, ESTONIA, ITALY









## Tasks and responsibilities

The VTS operators manual collects rules and procedures to be used by VTS personnel and ship officers.

### VTS's in Croatia may provide mariners with:

- --- Information service
- --- Navigational Assistance service
- --- Traffic Organization service

#### **Procedures for VTS operator :**

- --- internal and
- --- external procedures

#### VTS staff ;

- VTS light-operator
- VTS operator
- VTS supervisor instructor
- VTS manager

## Main responsibility

Main task	NCC	RCC	LCC	LU	<b>Plovput</b>
Managing VTS/monitoring in VTS	X				
Managing VTS /monitoring in VTS area		X			
Safety instructions in port approach		X			
Information planning in port			X	X	
Last stage arrival/departure and port operation				X	
International/national law enforcement			X		
Ship clearance in/out from port			X		
Definitive communications with vessels, berthing/unberthing clearance, anchorage		X			
Regular provision of information about VTS					<b>X</b>
Provision of operational information	X	X	X	<b>/</b> ×	

#### NCC VTS CENTAR RIJEKA

#### RCC VTS CENTAR RIJEKA



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## Technical structure of the vessel monitoring and information system

VTS operations, based on different sensors :

---- RADAR

--- RDF (radio direction finder)

- --- AIS (automatic identification system)
- --- METEO (meteorological)
- --- Electronic Charts
- --- CCTV ( closed circuit cameras )
- --- PMIS (port management information system)
- --- VHF (radio transceivers)

AIS Main Control Centre in Rijeka. 17 base stations in place fully operational.

Obligation for all Croatian ships to be fitted with AIS; obligation for ships calling at Croatian ports to be fitted with AIS.



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#### Technical Specification, CoastWatch VTMIS



- Vessel traffic monitoring and information system combines information from AIS, MRS's, VTS (radar) and other sensors compiling a detailed traffic picture, and monitors current state of the system. The combined data is displayed in a modern userfriendly Graphical User Interface (GUI) on an electronic chart display that allows VTS operators to quickly evaluate and respond to the traffic situation at hand. The system supports advanced handling of alerts, traffic flow and vessel information in order to support the operators in their daily work.
- Vessel traffic monitoring operators may rely on an electronic chart display capable of showing:
  - chart information
  - tracks (vessel positions)
  - radar plots and radar video
  - sensor information
  - custom chart objects
  - routes.

- a typical operator workstation consists of a computer with up to 4 large screen displays and standard PC peripherals (such as mouse and keyboard);
- vessel traffic monitoring and information system software integrates information from VTS's, AIS and other sources, providing operators with a comprehensive traffic picture;
- electronic charts are a helpful tool allowing operators to quickly select interested areas and zoom in charts.

## Screenshot showing an electronic chart

Saab Coast Watch VTS

#### File View Tools Vessel Window Help



No user logged in

On operator workstations with multiple monitors the workspace spans all the monitors providing a large viewing area for the operator.

### **Chart Window Showing a Maritime Situation Picture**



## **1.5 - Ships participating in VTS** VTS - REGIME OF PARTICIPATION

- All vessels of 24 meters overall length and upwards (except fishing vessels and war ships) are required to participate.
- Participating vessels are required to:
  - report to VTS centre,
  - watch VHF channels used in the VTS area,
  - follow instructions received by responsible VTSO.

--- navigational information provided to vessels either on their reporting, or at set intervals, or whenever deemed necessary or upon request by a vessel;

---- English and/or Croatian languages used.











## **A Typical VTS Operator Workstation**



## **AIS** Title;

"Supply of equipment for the implementation of the AIS system"

- The consortium in established by;
- --- TEKONET d.o.o.
- --- C.N.S. System (communication, navigation and surveliance system-Sweden)

The project started in May 2008 and ended in November same Year.
Purpose of the project is considered that the AIS subsystem as a part of future VTMIS is completed with AIS Main Control Centre in Rijeka MRCC.
And 17 based base stations are placed and fully operational.

It is harmonizated with Directive 2002/59/EC in 2007.

The new Technical rules --- stipulate the obligations for fitting of all Croatian ships with AIS.Obligation for ships calling at Croatian ports to be fitted with AIS.

## NORTH ADRIATIC TSS

## start 01.12.2004.

All ships sailing in the operational area of the system

## The TSS system does not apply to:

- warships or transport troops ships;
- ships whose gross tonnage is less than 300 tons;
- ships without mechanical propulsion;
- wooden ships of primitive construction;
- pleasure boats;
- fishing units
- The international regulation for preventing collision at sea (COLREG) is applicable trough the whole area covered by the system
- Chart TSS



## TSS Monitoring (AIS)

Actively monitoring TSS (by MRCC Rijeka)

When breach of rules within TSS is observed, vessel is requested to observe and follow rules

If vessel refuse to act accordingly, report is sent to PSC who then report to Vessel's Administration





## MANDATORY SHIP REPORTING SYSTEM ADRIATIC TRAFFIC

In Adriatic sea – states participating - Italy, Slovenia, Albania, Monte Negro and Croatia

SHIP – All oil tanker ships of 150 GT and above. All ships of 300 GT and above, carrying on bord, as cargo, dengerous or polluting goods, in bulk or in packages (IMO RESOLUTION MSC .139 (76))

System is from 01.July.2003.



## **OPERATIONAL CONCEPT**

- The system has got the primary goal of permitting the coastal States to have a complete landscape of the maritime traffic of dengerous and/or polluting goods in whole Adriatic Sea.
- The informations obtained trough the report sent by ships make, as first thing, the responsible centres for SAR and for maritime traffic control able to have available immediatly the necessary data to start at best the operations of search and rescue in case of accidents

- All possible methods shall be used to promote the complete participation of the ship requested to submit to the system as per SOLAS Rule V/11
- Failure of reporting will be considered as a clear ground for more details inspection by the competent Authority at the port of arrival.
- Information shall be sent to the competent Authority of the Flag State for the subsequent inquire and any possible action as per the national low



 MRCC Rijeka is equipped with AIS Monitoring system covering all of Adriatic sea using base stations in 17 different positions

- MRCC Rijeka is actively monitoring traffic in Croatian open waters and in case any of laws is breached acting accordingly.
- In case any vessel requires any assistance, information etc



## AIS base stations

No.	Site	Geographic	Altítude	
1	Goli	45° 01' 20'' N	14º 08' 03'' E	538 m
2	Crikvenica	45° 10° 22'' N	14º 41' 36" E	12 m
3	Kamenjak	44° 46' 24'' N	14º 47' 36'' E	410 m
4	Dugi otok	43° 59' 24'' N	15° 03° 54" E	341 m
10	Zadar	44° 07' 12'' N	15° 13' 36" E	22 m
6	Žirje	43° 39' 18'' N	15° 38' 42" E	117 m
7	Jadrija	43° 18'' N	15° 51' 18" E	12 m
8	Split	43° 30' 28'' N	16° 26' 39" E	25 m
9	Makarska	43° 17' 30'' N	17° 01' 30'' E	14 m
10	Ploče	43° 42' 00'' N	17° 26' 00" E	12 m
11	V. Petka	42° 39' 00'' N	18º 04' 36'' E	197 m
12	Lastovo	42° 45' 42'' N	16° 51' 18" E	423 m
13	Mljet	42° 41' 24'' N	17° 45' 06'' E	155 m
14	Savudrija	45° 29' 24'' N	13° 29' 45'' E	<b>29 m</b>
15	Brijuni	44° 54' 50'' N	13° 46' 00'' E	55 m
16	Susak	44° 30' 52'' N	14° 18' 24'' E	96 m
17	Vis	43° 01' 47'' N	16° 06' 49'' E	579 m

PLACED IN YEAR 2004 PLACED IN YEAR 2008



## AIS application in the Ship Reporting System

- AIS System plays the major role in the Ship Reporting System
- the information required by the coastal authorities in the Ship Reporting System is typically included in the static, dynamic and voyage related data provided by the AIS System

## **Benefits**

- operators in shore-based stations have possibility to control ships' reporting
- all standard reports from the ships are generated from AIS database and distributed by e-mail to all competent authorities of Adriatic coastal states.
- manual entry of information in standard reporting formats is excluded.

## **Conclusion:**

- Republic of Croatia will propose to the Adriatic coastal states the amendments to the existing Mandatory Ship Reporting System for its improvement through AIS System
- Common proposal will be submitted for consideration and approval by IMO Sub-Committee on the Safety of Navigation and to the Maritime Safety Committee for adoption



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MRCC Rijeka duty officer

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### **Entering Internal waters**

- When foreign vessel underway to foreign port is entering Croatian Internal waters he is required to ask for permission to enter from nearest Harbourmaster office
- In case Vessel entered Internal waters without permission, MRCC will report to Harbourmaster Office



## **ADRIATIC SEA** – sea safety

- Is natural resource of the countries situated along its coast.
- As semi closed and particulary sensitive sea its deserves our particular attention and therefore the protection of the Adriatic sea is of the utmost importance for each and every country along its coast. The protection of the sea and coastal areas is today regulated by International Maritime Organization, and any improvment in that field has to be based on common approach and in close cooperation between all interested coastal states.

### Thank you for your kind attention



### We remain at your disposal for any further detail