IHO Capacity Building Programme

The State of Hydrography and Nautical Charting in Montenegro

November 2016

Contents

Abbreviations

CB	Capacity Building
CBSC	Capacity Building Sub-Committee
DoHO	Institute of Hydrometeorology and Seismology, Department of Hydrography and Oceanography
EEZ	Exclusive Economic Zone
ENC	Electronic Navigational Chart
HHI	Hydrographic Institute of the Republic of Croatia
IHO	International Hydrographic Organization
IHMS	Institute of Hydrometeorology and Seismology
IMO	International Maritime Organization
MBES	Multi-Beam Echo Sounder
MBSHC	Mediterranean and Black Seas Hydrographic Commission
MSD	Maritime Safety Department
MSI	Maritime Safety Information
NHA	National Hydrographic Authority
NHS	National Hydrographic Service
NHC	National Hydrographic Committee
NtMs	Notice to Mariners
PCA	Primary Charting Authority
RHC	Regional Hydrographic Commission
SFRY	Socialist Federal Republic of Yugoslavia
SOLAS	[United Nations] Convention for the Safety of Life at Sea
UKHO	United Kingdom Hydrographic Office
UNCLOS	United Nations Convention on the Law of the Sea
WWNWS	Worldwide Navigation Warning Service

REPORT

1. Introduction

The International Hydrographic Organization (IHO) is an intergovernmental international organization, currently comprising of 86 Member States. The IHO seeks to ensure that all States with coastlines and maritime interests provide adequate and timely hydrographic data, products and services, thereby advancing maritime safety and efficiency in support of the protection and sustainable use of the marine environment. The United Nations recognizes the IHO as the competent authority for hydrography and nautical charting. The IHO Secretariat, based in Monaco. Montenegro is currently a member of IHO.

The IHO has encouraged the establishment of Regional Hydrographic Commissions (RHCs) to coordinate hydrographic activity and cooperation at the regional level. The RHCs are made up predominantly of IHO Member States; however, other coastal States may also participate as Associate Members or Observers. RHCs are not formal bodies of the IHO, but work in close cooperation with the Organization to help further achieve its goals and programs. RHCs meet at regular intervals to solve mutual hydrographic and chart production problems, plan joint survey operations, and resolve schemes for International Chart coverage in their regions.

This report has been written with the express intention of assisting the Government of Montenegro to strengthen and develop its hydrographic capability to meet its current and future needs and its international maritime obligations under the UN Convention for the Safety of Life at Sea (SOLAS). The report comprises a description of the visit, major conclusions and a number of recommended actions for consideration by the relevant organizations.

The report is supported by various Annexes providing detailed information including the dependence on hydrography and nautical charting of various sectors in Montenegro, an analysis of the current survey state, an analysis of the existing charting situation and surveys, and recommendations for the strengthening of national hydrography in Montenegro.

2. IHO Technical Visit

A proposal for a technical visit to the Montenegro was approved by the 14th Capacity Building Sub Committee (CBSC) to assess the current status of nautical charting and hydrography in the country and to provide advice to the government and to stakeholders on a way ahead. At the 19 th Mediterranean and Black Seas Hydrographic Commission (MBSHC) the visiting team was defined to be comprised by Turkey (Lead), Greece and the IHO Secretariat.

Although the team comprised of representatives from IHO, Turkey and Greece, due to busy agenda of IHO, Burak İNAN from Turkey and Dimitrios EVANGELIDIS from Greece carried out hydrographic awareness and technical assessment visit to Montenegro between 28 and 30 November 2016.

The IHO Team first called on the Director of the Institute of Hydrometeorology and Seismology (IHMS), Luka MITROVIC. The main meetings were held at the building of IHMS where the members of the Department of Hydrography and Oceanography (DoHO) had assembled.

The meetings enabled the IHO Technical Team to build up a picture of the conspicuous features of the hydrographic activities. The meetings also facilitated the appreciation of data available and data sharing amongst the national representatives. It was clear to the visiting team that all the stakeholders especially DoHO was well prepared for the meetings and able to actively interact with the team. This resulting report has been written with the express intention of assisting the Government of Montenegro to develop and strengthen its hydrographic capability to meet its current and future needs and also its international maritime obligations under the SOLAS Convention. The report comprises a description of the

visit, a brief assessment of the current situation and an analysis of the nation's hydrographic needs, major conclusions and a number of recommended actions for consideration by the relevant authorities.

3. Assessment of the Previous Technical Visit

No technical visit was conducted before.

4. Montenegro Hydrographic Assessment

The following is a general assessment of the situation in Montenegro regarding hydrography and nautical charting services.

4.1 National Hydrographic Awareness

In general, there is high awareness in Montenegro of the obligations and provisions under SOLAS Chapter V Regulations 4 and 9 to ensure that appropriate hydrographic and charting services are made available. Montenegro has been a member of IMO and IHO and a signatory to the SOLAS Convention,

The Government of Montenegro, through its various agencies, is aware of the current state of hydrography and nautical charting in Montenegro and the benefits of modern hydrography to economic growth, safety of navigation and protection of the marine environment. Awareness was one of the key tasks of the IHO Technical Visiting Team.

4.2 National Hydrographic Infrastructure

Three agencies within Montenegro have responsibility for/or participate in hydrographic matters: Ministry of Transport and Maritime Affairs, Montenegrin Navy and Institute of Hydrometeorology and Seismology of Montenegro (IHMS).

Ministry of Transport and Maritime Affairs has responsibility for Maritime Affairs and implementation of all Maritime Conventions ratified by Montenegro. It is a regulatory body and responsible for maintenance and improvement of marine navigational aids in ports and coast. It has no hydrographic capability.

The Directorate of Real Assets is responsible for land mapping in the country. It has all the necessary staff and equipment and ready to provide all the land data for the nautical charting.

DoHO within in the IHMS is the principal point of contact with the IHO. With the clear support of the Montenegrin Navy, DoHO assumed main responsibility for national hydrography and nautical cartography and represents itself as the Primary Charting Authority (PCA).

4.3 National Hydrographic Committee (NHC)

To coordinate hydrographic effort for the effective fulfilness of SOLAS responsibilities and the efficient management of a State's maritime area the IHO recommends the establishment of a NHC to provide input to and coordination of the hydrographic programme and setting national charting and surveying priorities. In this way, the stakeholders are in a position to assist in the continuing maintenance of the charts, longer term planning and perhaps also to the programme budget.

All hydrographic stakeholders need to be involved in contributing to Montenegro national hydrographic programme. This is not only to identify and prioritise national requirements, but also to contribute to the execution of the programme. This could be through help in-kind, such as the provision of boats, or personnel or through contributions to enlist contract support – for example for surveys of areas targeted for development. A key role for the stakeholders is to educate and encourage everyone to forward all relevant new or changed hydrographic information to the national coordinator for hydrography and charting.

Montenegro has currently no established National Hydrographic Committee (NHC) but the need for coordination of the national hydrographic effort was clearly demonstrated to the IHO Technical Team.

4.4 National Hydrographic Authority (NHA)

The IHO recommends that every coastal State should designate a NHA responsible for coordinating hydrography and charting in the country. The role of the NHA is to be the principal national and international point of contact and to act on behalf of the government to ensure that the State meets its international obligations to make proper Maritime Safety Information (MSI) and nautical charting services available to mariners. The NHA is the first point of contact for in-country stakeholders and for maintaining relations with relevant international organisations. In the case of Montenegro, these contacts would include the IHO, MBSHC, related MBSHC Coordinators, other countries and agencies that might support hydrographic development and assistance in Montenegro.

The DoHO within in the IHMS seems to be the most appropriate body to be the National Hydrographic Authority. The IHMS should seek a formal arrangement in order to establish a national legal framework by means of a law, decree or equivalent.

4.5 Maritime Safety Information (MSI)

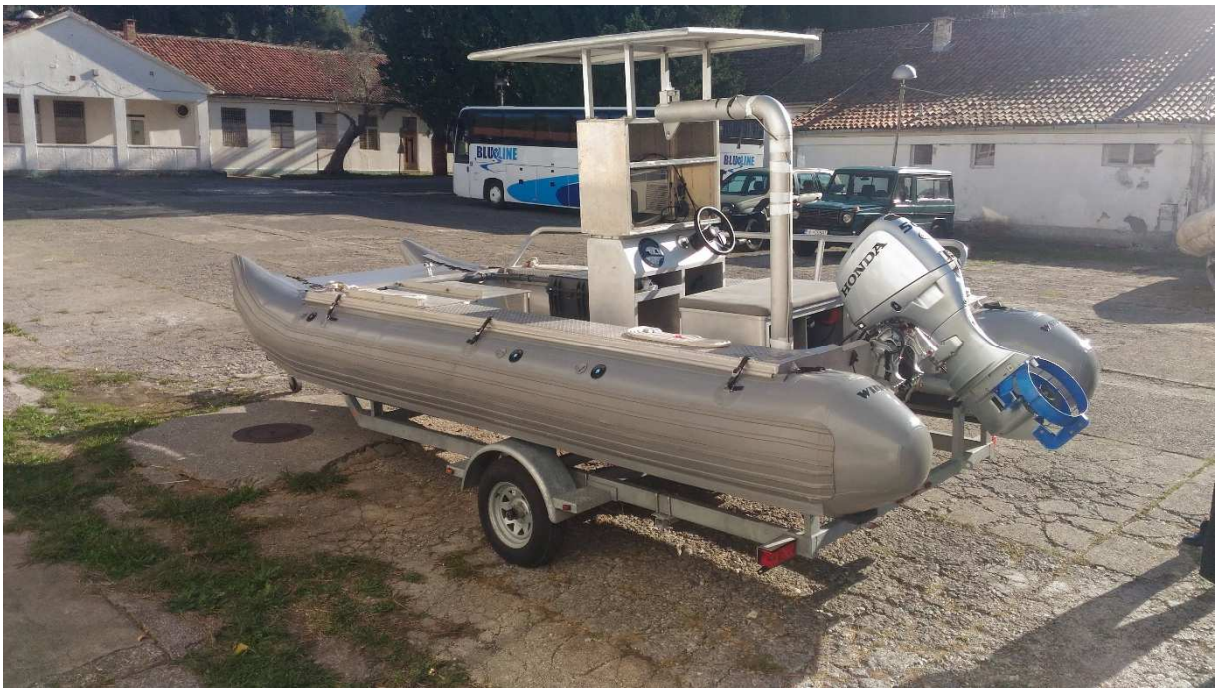
There is established MSI infrastructure that coordinates its activities with the Worldwide Navigation Warning Service (WWNWS) implemented globally by the IMO, WMO and IHO. The Maritime Safety Department (MSD) within Ministry of Transport and Maritime Affairs represents itself as the primary Navigational Warnings Authority and DoHO represents itself as the primary Notices to Mariners authority in Montenegro. Nevertheless, an appropriate service is being provided for Montenegro waters and DoHO is the point of contact for the MSI.

Two paper charts (INT3414 and INT3482) and four ENCs (GB401578, GB301578, HR3C0028, HR200034) covering Montenegro waters are produced and distributed by the UKHO and HHI. Currently there is no liaison between the DoHO, UKHO and HHI regarding with these charts.

4.6 Hydrographic Surveying

The Montenegro waters have not been surveyed to modern standards except for the survey of the Boka Bay. Surveys in small percentage (just small piers, marinas and ports) have carried out in according to S44-*IHO Standards for Hydrographic Surveys* done by DoHO during last 5 years. Most of the data contained in charts come from old bathymetric data, usually from digitization of reprinted nautical charts.

Montenegrin Navy has been conducting surveys with side scan sonar system particularly for underwater EOD operations by a rigid hull inflatable catamaran boat. Much of the data is most likely useful for hydrographic matters. This data is brought to the attention of and made available to the DoHO.



Rigid hull inflatable catamaran boat (ME Navy)

Status of Hydrographic Surveys

Length of coastline		294 kilometers	
Surface of national maritime		From 6265 to 7745 square kilometers	
	% surveyed adequately for present requirements	**% requiring resurvey at larger scale or to modern standards**	**% never systematically surveyed.**
Ports and Port Aproaches	80	20	-
Area with depths of less than 50 m.	2	98	98
Adjacent area with depths of less than 200 m.	<0.5	100	100
Area with depths greater than 200	-	100	100

4.7 Nautical Charting

According to the IHO-INTernational Chart Web Catalogue Montenegrin sovereign areas are currently covered by two charts (INT 3414 and INT 3482) belonging to the international portfolio. Croatia is producer nation for these charts.

Just one paper chart (National No: 641) and 7 ENCs covering Boka Bay, Budva and Bar belonging to the national portfolio has been produced by DoHO since 2009. The data from which the charts were compiled is noted as being old and imperfect.

Although there is no paper chart on the market, ENCs are distributed through PRIMAR. The existing ENCs, which contain navigationally significant information, promulgated with 3-month basis Notices to Mariners (NtMs).

Four ENCs (GB401578, GB301578, HR3C0028, HR200034) covering Montenegro sovereign area are currently produced and published by the UKHO and HHI.

The visiting team could not identify any formal arrangement for chart production or publication between the DoHO, UKHO and HHI.

Due to lack of paper chart production software, staff and limited ENC production software, Montenegro has poor national capability for nautical chart production at this stage.

4.8 Hydrographic Resources

The main hydrographic resource is DoHO within IHMS. DoHO is responsible for the operation of the 11 meters long survey launch. The survey launch is old and in bad maintenance condition, equipped with Norbit iWBM Portable Multi-beam Echo Sounder System. EdgeTech 4125 Side-scan Sonar System with the full suite of supporting devices is provided by Montenegrin Navy for the hydrographic surveys.

DoHO does not have the archive of raw survey data for the Montenegrin sovereign area which was previously collected by former SFRY Hydrographic Institute.

There are four permanent tide gauges (digital) installed in the country carried out by DoHO.

4.9 Personnel and Training

DoHO consists of a staff of 3 persons. However, they are well-motivated and highly professional with mixed specializations, grades and experience. The current manpower available to DoHO is summarized below.

Category	Numbers	Remarks
Hydrographic Surveyor Cat B	2	One staff member equivalent Cat B through experience
Hydrographic Cartographer Cat B	1	

4.10 Additional stakeholders

Directorate of Real Assets, Ministry of Sustainable Development and Tourism, Directorate of Hydrocarbons, Institute of Marine Biology in Montenegro are additional stakeholders due to their activities.

4.11 Contingency Plan

There is no contingency plan which can be used after the occurrence of a disaster affecting coastal areas under national jurisdiction to promulgate Maritime Safety Information and conduct a preliminary survey to confirm the principal transportation routes.

5. A Way Ahead

5.1 Maritime Safety Information (MSI)

MSI is considered by the IHO as the first phase in hydrographic capacity building. It was clear to the IHO Technical Team that there was no lack of understanding and coordination of MSI affairs under the SOLAS obligations. However, MSI training for new staff is needed. MSD or DoHO may benefit from valuable MSI training opportunities of the IHO Capacity Work Programme. To assist in this the MBSHC CB Coordinator should submit the MSI training requirement of Montenegro in the next CBSC meeting.

5.2 National Hydrographic Surveying and Charting

Montenegro has extensive hydrographic surveying needs. Surveys are inadequate and not done according to modern standards. The data from which the chart and ENCs were compiled is noted as being old, imperfect and come from digitization of reprinted old nautical charts. To assist in this the IHO Technical Team recommended that the IHMS to establish a Hydrographic Strategy Plan which includes a Charting Plan, a Survey Plan, a Training Plan and an Infrastructure Development Plan with the priorities and milestones.

5.3 Bilateral Arrangements for Surveying and Charting

Bilateral agreements with established hydrographic services are a valuable means of fulfilling SOLAS obligations for countries with a limited and/or developing hydrographic capability. The visiting team could not identify any formal arrangement regarding with hydrography and cartography.

5.4 National Hydrographic Authority

Although Ministry of Transport and Maritime Affairs is the lead authority for maritime safety, IHMS is the recognized point of contact for the IHO. So, the DoHO within in the IHMS seems to be the most appropriate body to be the National Hydrographic Authority. The IHMS should seek a formal arrangement in order to establish a national legal framework by means of a law, decree or equivalent.

5.5 National Hydrographic Committee

It was evident to the visiting team that Montenegro is already aware of the need of the effective cooperation and coordination of the national activities regarding with the hydrography. So, as a first step it is recommended that the regular meetings of the stakeholders, which can be called National Hydrographic Correspondence Group, under the chairmanship of IHMS are held to make best use of Montenegro's valuable hydrographic assets. This will prove a positive step towards the establishment of a formal National Hydrographic Committee (NHC) to build a solid maritime infrastructure to support the safety of navigation and the economic growth. It is recommended that the IHMS should seek a formal arrangement in order to establish a national legal framework by means of a law, decree or equivalent.

5.6 National Hydrographic Capability Development

Montenegro has limited national hydrographic and cartographic resources and lacks a legal arrangement and an investment on these issues.

Training is a continuing issue for IHMS with all of its technical training having, by necessity, to be conducted outside of Montenegro. To bring the current staff to a fully trained level requires the provision of one (1) IHO Cat A Hydrographic Course, one (1) IHO Cat B Hydrographic Course and one (1) IHO Cat B Cartographic Course. The new recruits, if provided, to DoHO will also require training to IHO Cat B level in their respective disciplines. It is recommended that the training be provided to the existing staff as a matter of priority with that for new recruits allowed for in future budgets or plans.

There are limited opportunities for international hydrographic training. A list of courses is contained in IHO publication C-47-*Training Courses in Hydrography and Nautical Cartography*, freely available from the IHO website. The list of the FIG/IHO/ICA recognized programmes in Hydrography and Nautical Cartography can be found in the IHO website under "Capacity Building". Short courses in the fundamentals of hydrographic data gathering are available through the IHO Capacity Building Programme and should be considered by Montenegro with the MBSHC CB Coordinator support.

It is an option for Montenegro to establish formal bilateral agreements with well-established hydrographic offices as an interim solution until the in-house chart and survey production is established.

An additional source of capacity building is to include clauses in commercial survey contracts in the country to include capacity building. This can be achieved by amending national regulations that control surveys in the national territorial waters and the EEZ.

5.7 Contingency Plan

All Coastal States should have contingency plans developed in advance in order to be prepared in case a disaster occurs. After the occurrence of a disaster affecting coastal areas under its jurisdiction, each State should promulgate Maritime Safety Information and conduct a preliminary survey to confirm the principal transportation routes, according to the extent of the damage. In response to the reconstruction of ports, each State should undertake hydrographic surveys so as to keep the charts updated. These actions should be coordinated with neighbouring States, Regional Hydrographic Commissions and others as appropriate. It is important that each Coastal State provides both a senior point of contact and a working point of contact for communication and coordination purposes; this could include the Ministry of Transport and Maritime Affairs and the IHMS which seem the most appropriate organizations so far. Contingency plan should contain the key elements which are stated in IHO Resolution 1/2005 as amended - *IHO Response to Marine Disasters, and Contribution to Prevention and Alert Systems*.

6. Technical Visit Conclusions

Based on discussions and the facts obtained, the following principal conclusions have been reached:

(1) There is generally good awareness of national hydrography in Montenegro and a desire to improve it. Most of the necessary components for addressing hydrographic issues, in relation to SOLAS Chap. V regulations in particular, are in place in Montenegro. Montenegro, as contracting Party to the SOLAS convention, IMO and IHO Member, is already in the position to increase its hydrographic capability.

(2) The establishment of the National Hydrographic Committee can provide the framework to enhance cooperation amongst the various stakeholders.

(3) The Institute of Hydrometeorology and Seismology of Montenegro (IHMS) is potentially the most effective means of improving awareness of hydrography within government and at national level. In the near future, it is expected DoHO within in the IHMS to take the main responsibility as the National Hydrographic Authority.

(4) The Montenegro government and in particular the IHMS should invest significant resources to the maintenance and the advancement of the DoHO for the safety of navigation in Montenegro's waters and the economic development and the marine environmental protection of the nation.

(5) MSI service is in place in order to support the safety of navigation, the safety of life at sea and the protection of the marine environment.

(6) Montenegro has extensive hydrographic surveying needs. Surveys are inadequate and not done according to modern standards. IHMS has a survey launch which is old and in bad maintenance condition not capable of meeting all of the nation's hydrographic immediate requirements.

(7) Montenegro has poor national capability for chart production. The charts covering Montenegro should be improved with data held in Montenegro.

(8) A capacity building plan is necessary in order to provide the human resources to the operation of the DoHO and achieve the goals envisioned by the IHMS.

(9) DoHO should go through a period of staff and equipment change which will need careful handling to allow the organization to maintain its output and prepare for the future.

(10) Some of paper charts and ENCs covering Montenegrin sovereign area are currently produced and published by UKHO and HHI but there is no Bilateral Arrangement reported between those parties.

(11) There is no contingency plan which can be used after the occurrence of a disaster affecting coastal areas under national jurisdiction to promulgate Maritime Safety Information and conduct a preliminary survey to confirm the principal transportation routes.

(12) There is no need for IHO Year Book Revision.

7. Technical Visit Recommended Actions

(1) Montenegro should consider the creation of a Hydrographic Correspondence Group which will meet annually or biannually at the first stage, under the leadership of Institute of Hydrometeorology and Seismology of Montenegro (IHMS), with the participation of:

- Ministry of Transport and Maritime Affairs
- Ministry of Sustainable Development
- The Navy
- The Directorate of Real Assets
- The Institute of Marine Biology in Montenegro
- Directorate of Hydrocarbons
- Department of Hydrography and Oceanography (DoHO)

(2) Then, Montenegro should consider to seek the establishment of National Hydrographic Committee (HNC) at the Government level and constantly engage with the relevant stakeholders in order to coordinate the hydrographic activities in a national level while contributing to the high-level awareness,

(3) Montenegro should consider that, if the responsibility of hydrography remains within the IHMS in particular DoHO-which seems the most appropriate organization so far:

- to constitute the Department of Hydrography and Oceanography legally as the National Hydrographic Authority (NHA),
- to allocate a specific budget to the IHMS, in particular DoHO, so it can get relevant charting and surveying systems/software and reach the “critical mass” in line with the new priorities.
- to expand the organisational structure of DoHO and increase the number of employee to meet the urgent needs of surveying and charting as soon as possible.
- to adopt a mid-term strategic plan for staff resources in hydrography, cartography and related training (at least for mid-term: 1 Cat A in hydrography, 1 Cat B in hydrography and one (1) IHO Cat B Cartography);
- to adopt a short-term strategic plan to invest on the survey boat and the chart production software.
- to allocate regular funding and travel support for the DoHO to fulfil the duties of the Department and to represent Montenegro in appropriate forums, and in particular, to attend relevant meetings of the MBSHC and IHO,

(4) DoHO to prepare a plan and a priority programme for the surveys,

(5) With the other ministries in charge the IHMS should design the procedure to get the data from foreign surveys carried out in the waters under its national jurisdiction. These data should be given to the national centre in charge of hydrography (DoHO).

(6) Whilst accepting that IHMS archive does not have any data from former SFRY Hydrographic Institute, It is recommended that Montenegro request Republic of Croatia to transfer archive survey data to IHMS as additional MSDI data.

(7) DoHO to prepare a plan for the creation of a cartographic capability to produce paper charts or IHMS to establish a formal bilateral agreement with a well-established Hydrographic Service to be the Primary Charting Authority (PCA) as an interim solution until the in-house paper chart production is established.

(8) DoHO to establish a programme for the revision of all the published charts of Montenegro.

(9) It is necessary to establish a formal routine flow with other countries for the charts covering Montenegro waters if charts are to be maintained to the standards required for safety of navigation. This is also important for legislation and royalty issues.

(10) In the future, national paper charts might also be considered by the IHO to replace INT paper charts (in accordance with S-11). Montenegro should therefore participate in the meetings of the Region F ICCWG Meetings of the Mediterranean and Black Sea Hydrographic Commission.

(11) IHMS to request that national hydrographic services with staff experienced in MBES methods be invited to Montenegro to review survey practices,

(12) IHMS to apply to the MBSHC for the short-term assistance of an established hydrographic service to develop the national hydrographic infrastructure for Montenegro and the participation in on job/board trainings that staff of the DoHO can gain the necessary training and professional experience.

(13) MBSHC CB coordinator to inform IHMS regarding the CB training opportunities in the region and elsewhere,

(14) DoHO to profit from the training opportunities as approved in the IHO CB Work Programme.

(15) Establish a Marine Spatial Data Infrastructure (MSDI), which will be integrated to the National Spatial Data Structure in the later stage, under the DoHO. In this way, DoHO could provide “much more than nautical charts” to all parties interested (wider use of hydrographic data, improved decision making, reducing duplication, improved data management, coast savings through efficiencies, etc.).

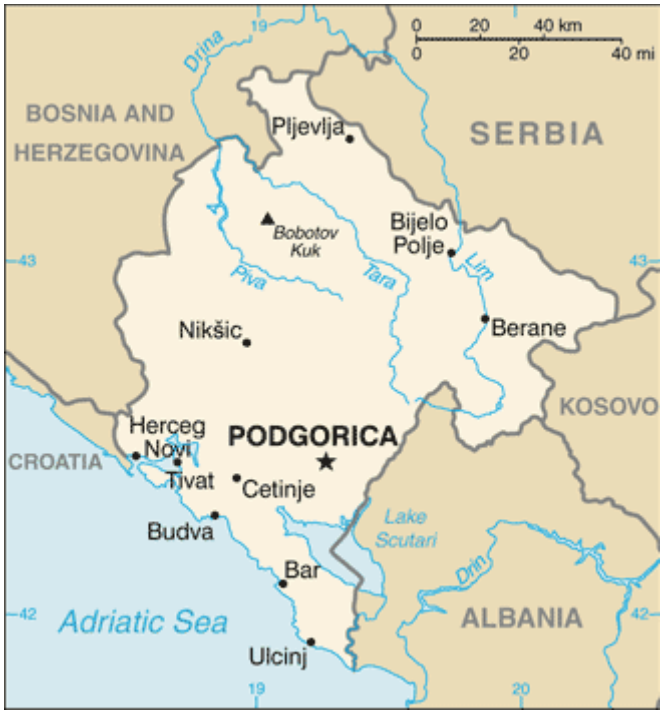
(16) Montenegro to consider and prepare a Contingency Plan that can be implemented in the event of a significant disaster occurring in the country and provide a senior point of contact for communication and coordination purposes; this could be the Director of the IHMS which seems the most appropriate organization so far.

(17) For interoperability, it is important that the DoHO adopts as soon as possible the relevant standards and be aware of the emerging S-100 compliant standards and get prepared to the new standard S-101 for ENC production.

General Description of Montenegro and Its Geography and Infrastructure

1. Introduction

The coast of Montenegro is about 294 kilometres in length. The country is bordering the Adriatic Sea, between Republic of Croatia, Bosnia and Herzegovina, Republic of Serbia and Republic of Albania. Podgorica is the largest city and the capital of Montenegro. It is also the economic and administrative centre. Boka bay is the most recognizable and touristic attractive part of country. Skadar Lake is the biggest lake in south-east Europe with a fluctuating surface area 229-370 km^2.



Map of Montenegro

2. Ports and Harbours

Port of Bar

The port of Bar is the main port in Montenegro located on the southern part Adriatic coast, south of the Skadar Lake. The Port of Bar is located at latitude of 42^o 05'N and longitude of 19^o 05' E. During the second half of last century, the Port of Bar was an important international trading station with the surrounding countries and up until today it has preserved its commercial nature. Operative cost is divided on five segments with following characteristics:

<u>Volujica cost:</u>

Length of coastline: 554.40 m

Waters depth: 14m

Maximum tonnage: 6t/m^2.

Type of construction: reinforced concrete wall.

<u>The old coast:</u>

Length of coastline: 280 m

Waters depth: 6.20m

Type of construction: concrete gravitational wall.

New petrolic berth:

Wheelbase between two docks: 66m

Waters depth: 13.5 m.

Berth 26 on pier 2:

Length of coastline: 239 m

Waters depth: 10.5 m

Type of construction: reinforced concrete construction

Maximum tonnage: 4t/m².

South coast of pier 3:

Length of coastline: 135m

Waters depth: 8.10 m

Type of construction: reinforced concrete construction

Maximum tonnage: 4t/m².

Operative coast on pier 4:

Length of coastline: 345 m

Waters depth: 6.5 m

Type of construction: concrete gravitational wall.

Port of Bar

Port of Kotor

The Port of Kotor is the second major port in Montenegro and it is only port for big cruisers.

Kotor is located in the south-eastern of the homonymous bay, where the sea reach deserve the land, with geographic coordinate 42° 25' N and 18° 47' E. The town is located at detritus of Skudra River which flows along its northern wall and sources Gurdic that springs from his southern wall. From the east it slopes tower Lovcen with mount St. Johan (260m), while the south sea links with the world. Kotor can be reached by car, bus, boat and plane-through airport in Tivat (8km), Podgorica (90km) and Cilipi, Croatia (73km), or by train via Bar (60km).

Kotor (6 633 inhabitants) is the seat of municipal, cultural, educational, scientific, health, economic and sports center. Kotor has a status of a permanent maritime border crossing and ports for international maritime traffic.

Kotor and Kotor port is located close the main road and it is associated with the places along the coast, as well as cities interior. The length of operational banks, which owns Port of Kotor in the harbour is 665m, of which 512 m is located in the western part while the 153 m facing with the river Skudra. The coast could be functionally divided into 5 berths as follows:

- Riva I, location of a length of about 150 m. The coast in this connection is equipped with 11 bollards. Riva I is a berth in the northern part of the river Skudra in a length of about 80 m,
- Riva II, berth of 100 m in length. With this coast is only a narrow strip width of 6 to 9 m, which ship may be used. River II is a berth in a length of about 70 m,
- Riva III, includes southern part of the waterfront in a length of about 250 m.

Operating river banks and river and Riva II are equipped with 10 bollards. The coast, total equipped 61 rubber fenders. The southern part of the coast toward the sea, there are connections for water, telephone and electricity available to the vessels.

Port of Kotor

3. Cruise Ship Operations

The Port of Kotor is the main centre of cruise ship activity in Montenegro. Almost two cruise ships per day in average came in Kotor.

Maximal size of cruiser which could be anchored in port of Kotor is 320 m, with draft no more than 7 m.

4. Offshore Oil and Gas

Montenegro currently imports all of the oil it consumes and does not have any oil producing company. Recent seismic surveys indicated the potential for oil production in Montenegrin waters.

5. Maritime Claims

Montenegro is still in process of demarcation, and does not have clearly defined borders. Negotiations continue to define the maritime zones with Albania, Croatia and Italy.

6. Defence including Coastguard

Montenegro does not have organized coast guard, and crucial function to control and protect Montenegrin waters has harbour master office, maritime police and navy.

Interior waters are under control maritime police and harbour master office

The Montenegrin Navy has 2 patrol boats and according law; they control contiguous zone between 12 and 24 nm.

7. Tourism and Coastal Recreational Amenities

Montenegro has natural attractive seashore with about 260 days of sunshine a year, making it a favourable destination for leisure and activities that expand in different parts of the country.

8. Education and Science

There do not appear to be any educational or scientific programmes sponsored by Montenegrin government requiring or including the gathering of hydrographic data.

9. Planned Maritime Developments in Montenegrin Waters

No significant maritime development project noted during the technical visit.

Annex B

Technical Visit Programme

Monday, 28 November 2016 Venue: Institute of Hydrometeorology and Seismology (IHMS), Podgorica	
09:00 – 10:00	Meeting with Luka Mitrović, director of IHMS, presentation by IHMS
10:00 – 10:00	Meeting wih representatives of -Ministry of Sustainable Development and Tourism, -Directorate of Hydrocarbons, -Directorate of Real Assets
12:00 – 13:30	Lunch break
13:30 – 17:00	Meeting with representatives of -Institute for Marine Biology, -Port of Kotor, -Montenegro Port Authority, -Port Authority Kotor
Tuesday, 29 November 2016 Venue: Montenegro Navy, Bar Maritime Safety Department of Montenegro, Bar	
09:00 – 11:00	Meeting with CAP (N) DarkoVuković, CINC of Montenegro Navy, presentation by Navy, visit to Navy harbour and technical equipment for military survey
11:00 – 13:00	Meeting with represantatives of -Ministry of Transport and Maritime Affairs, -Maritime Safety Department (MSD presentation), -Montenegro Navy, -Port Authority Bar and Port of Bar
13:00 – 13:30	Port of Bar and MSI Caostal Radio station, visit tours
13:30 – 15:00	Lunch break
15:00 – 17:00	Final meeting with representatives of IHMS

Annex C

List of Contacts

Name	Organization	Telephone	Postal Address
Mr.Vladimir Stjepcevic	Minister of Transport and Maritime Affairs Port Authority	Ph: +382 32 325 406 Fax:+382 32 325 404	vladamir.stjepcevic@luckauprava.gov.me
Mr.Novica Mijovic	Minister of Transport and Maritime Affairs Port State Control	Ph: +382 30312 733 Fax:+382 30 317 900	nofimijovic@gmail.com
Mr.Luka Mitrovic	IHMS Director	Ph: +382 20 655 183 Fax:+382 20 655 197	luka.mitrovic@meteo.co.me
Mr.Luka Calic	IHMS Head of Hydrographic Department	Ph: +382 20 655 183 Fax:+382 20 655 197	luka.calic@meteo.co.me
LCDR Branislav Gloginja	IHMS Hydrographic Surveyor	Ph:+382 20 655 197	branislav.gloginja@meteo.co.me
Mr.Radovan KANDIC	IHMS Hydrographic Sector	Ph: +382 20 655 183 Fax:+382 20 655 197	radovan.kandic@meteo.co.me