Organizational and Legal Aspects of International Hydrographic Activity

Organizacijski i pravni aspekti međunarodne hidrografske djelatnosti

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Summary

Hydrographic activity has a strong international character. Products of hydrographic organizations are used for different purposes in the maritime industry, which is international in its very nature. That is the reason why it has been necessary on the international level to develop legislation that would give the industry an international character and frame. International conventions that regulate hydrographic activity are the United Nations Convention on the Law of the Sea (UNCLOS), International Convention for the Safety of Life at Sea (SOLAS) and the Convention on the International Hydrographic Organization. National regulations have great significance for the development of hydrographic activities. Although they are part of national law, such regulations indicate acceptance of the standards of the International Hydrographic Organization (IHO) and compatibility of products of national hydrographic organizations with accepted international standards. This paper analyses the international conventions which regulate hydrographic activity. It provides an overview of national legislation of important legal systems and Republic of Croatia concerning hydrographic activity. Changes to the Convention on International Hydrographic Organization are proposed.

KEY WORDS
hydrography
international law
hydrographic organizations

Sažetak

Hidrografska djelatnost ima jak međunarodni karakter, kao i pomorstvo u kojem proizvodi hidrografskih organizacija imaju različite namjene. Zbog toga je nužno na međunarodnoj razini razviti zakonodavstvo koje bi ovoj gospodarskoj grani dalo međunarodni karakter i okvir. Međunarodne konvencije koje reguliraju hidrografsku djelatnost su Konvencija Ujedinjenih naroda o pravu mora (UNCLOS), Međunarodna konvencija o zaštiti ljudskih života na moru (SOLAS) i Konvencija o Međunarodnoj hidrografskoj organizaciji. Nacionalni propisi iznimno su važni za razvoj hidrografske djelatnosti. Iako pripadaju nacionalnom zakonodavstvu, takvi propisi upućuju na usvajanje standarda Međunarodne hidrografske organizacije (IHO), kao i na kompatibilnost nacionalnih hidrografskih organizacija s usvojenim međunarodnim standardima.U radu se analiziraju međunarodne konvencije koje reguliraju hidrografsku djelatnost. Daje se pregled nacionalnih zakonodavstava važnih pravnih sustava i Republike Hrvatske vezano uz hidrografiju. Predlažu se izmjene u Konvenciji o Međunarodnoj hidrografskoj organizaciji.

KLJUČNE RIJEČI
hidrografija
međunarodno pravo
hidrografske organizacije

INTRODUCTION / *Uvod*

International Hydrographic activity has an extremely important role in maritime activities. It covers the activities of standardization in the field of hydrography and covers a wide range of activities from the international charts production to the training of personnel. The development of international standards for hydrographic survey significantly affects the uniformity of activities of hydrographic survey conducted by the national hydrographic organizations. These standards equalize the level of accuracy of data collection that will be in a suitable form shown on nautical charts and publications.

Regulations and standards for the hydrographic activity are contained in the UNCLOS, SOLAS, the IHO standards and

national regulations. Hydrographic activity is today part of an overall maritime policy of countries that have access to the sea. Due to its specificity, expressed international character, the importance of the coastal states and the high costs, the hydrographic activities on behalf of the state are performed exclusively by authorized national hydrographic organizations.[1]

With amendments to the SOLAS Convention of the 2002 (which came into force in 2004) contracting states have a legal obligation to conduct hydrographic research, produce and maintain up to date charts and navigational publications.[2]

Nautical chart is specially designed chart intended to meet the requirements for maritime navigation.[3] It (among other things) shows the depth of the sea, bottom types, the height of the terrain and various structures such as lighthouses or towers, the configuration and characteristics of the coast and navigational hazards.[4]

Content of nautical chart depends on its purpose and scale. Since the marks on one chart may appear more than once, their total number varies from a few dozen to approximately 50.000.[5] Charts are issued on the basis of data obtained by hydrographic survey. Accuracy of data collected directly related to the reliability of nautical charts. From data collection to processing and making of nautical charts it will take a certain time. During that time, changes occur in the area in which the survey was conducted. So International Maritime Organization (IMO) and IHO require that nautical charts are regularly maintained and refreshed. Reliability of maritime chart directly affects safety of navigation and hydrographic organizations are responsible for the collection and distribution of information important for the maintenance of charts.

It follows that the hydrographic activity has extremely international character and because of this fact, the international regulations and standards are one of its foundations.

THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA / *Konvencija Ujedinjenih naroda o pravu mora*

The UNCLOS 1982 is the most important legal document that on the global level governs a full range of questions about the law of the sea. It, among other things, regulates the delineation of coastal states in marine areas and the basic principles related to the safety of navigation. The UNCLOS also encourages the development of international and national hydrographic activities. In one part it is codification and in the other legislative Convention. In international law of the sea innovations such as economic zone have been introduced. In the delineation of the sea and also for the correct interpretation of the new regulations of the international law of the sea, it is important to have valid nautical charts. They are very important element of many technical and legal issues contained in UNCLOS. In addition to numerous questions the UNCLOS refers to the nautical charts in matters of sea belts, baselines, internal waters, estuaries, bays, harbors, anchorages, sea level, sea routes, separation schemes, closed and semi-closed sea, etc.[6]

The boundaries of the sea are determined from the baselines indicated on charts officially recognized by the coastal state.[7]

The basis for determining these limits are the baseline from which the outer boundary of the territorial sea, exclusive economic zone and epicontinental shelf is determined. The baselines for measuring the width of the territorial sea, are determined in accordance with articles 7, 9 and 10, or boundaries that are resulting from there, and the demarcation line, made in accordance with articles 12 and 15 are shown on charts of a scale or scales adequate for ascertaining their position. Instead, a list of geographical coordinates of points, specifying the geodetic data can be created.[8]

Convention in its provisions requires from coastal states to deposit one copy of each such chart (or a list of coordinates) to the UN Secretary General.[9]

With regard to the safety of navigation Convention explicitly requires from the coastal state to reveal in an appropriate manner any known danger to navigation.[10] According to provisions of UNCLOS, it also demands that maritime routes and separation schemes are indicated on charts.[11]

In attachment VI[12] of UNCLOS, UN encourages states to develop marine science, marine technology and ocean services, because ''the purpose of the Convention on the Law of the Sea is to establish a new regime for the sea and oceans which will contribute to achieving a just and equitable international economic order allowing the peaceful use of marine space, fair and effective management and exploitation of its resources, study, protection and preservation of the marine environment''[13].

All member states ''are encouraged to give adequate priority in their development plans to the improvement of marine science, marine technology and oceanographic service''.[14]

Within the legal system of the UN the particular attention is given for the international hydrographic activity through Open-ended Informal Consultative Process on Oceans and the Law of the Sea and its Division for Ocean Affairs and the Law of the Sea that annually report to the Secretary General on matters of law of the sea. The UN General Assembly on its 53rd meeting, held on the 24th of November 1998 adopted a resolution entitled ''Oceans and the Law of the Sea'', which in article 21 explicitly ''calls states on cooperation in the implementation of hydrographic surveys and nautical services in order to ensure

[1] Analysis of the IHO Yearbook for 2010th indicated that the national hydrographic organizations are owned by the state, and that on behalf of the states all tasks related to the hydrographic activity are performed. IHO: *IHO Yearbook 2010*, International Hydrographic Bureau, Monaco, 2010.

[2] Maratos, A., Weintrit, A.: *The IHO Supporting Maritime Demands. Report on the Occasion of Celebrating the World Hydrography Day with theme for this year: "Electronic Navigational Charts (ENCs): an Essential Element of Safety at Sea and Efficient Maritime Operations"*, TransNav'2007 - The 7th International Symposium on Navigation, Proceedings, p. 733 available on http://transnav.am.gdynia.pl/proceedings/pdfs/Art-XX-Maratos_Weintrit.pdf and Bermejo, F.: National Maritime Policies and Hydrographic Services, *The Hydrographic Journal*, Issue 98, 2000., available on http://www.hydrographicsociety.org/Articles/ journal/2000/98-3.htm

[3] IHO: S-32, *Hydrographic Dictionary*, Special Publication No. 32, Part 1, Vol. 1, 5th Edition, International Hydrographic Bureau, Monaco, 1994, p. 37.

[4] Forbes, V.: ECDIS and Potential Legal Implications: Proceeding with Caution, The Hydrographic Journal, No. 111, January 2004., *The Hydrographic Society*, University of East London, p. 4.

[5] Kasum, J.: *Contribution to optimization of reambulation by appliance of electronical and informatical technologies*, dissertation, unpublished, Faculty of maritime studies Rijeka, 2002, p.14.

[6] Maratos, A.: Nautical Charts and UNCLOS, *Hydro International*, Volume 12, Number 3, April 2008, available on http://www.hydro-international.com/issues/articles/id909-Nautical_Charts_and_UNCLOS.html.

[7] The coastal state may issue its own maritime charts, but can also use charts issued in other state. Rudolf, D.: *International Law of the Sea*, JAZU, Zagreb, 1985, p. 61.

[8] *UN convention on the law of the sea*, article 16. Para 1, Narodne novine, Međunarodni ugovori, No. 9/2000.

[9] Article 16 para. 2, article 75 para 2 and article 84 para 2 of UNCLOS.

[10] Article 24 para 2 of UNCLOS.

[11] Article 22 para 4, article 41 para 6 and article 53 para 10 of UNCLOS.

[12] Annex VI under the title ''Resolution on the developmentof national infrastructure in the field of marine scince, marine technology and ocean service'' as integral part of the Convention''.

[13] Preamble of Annex VI of UNCLOS.

[14] *ibidem*, T. 1.

safe navigation, as well as maximum uniformity of charts and nautical publications and coordinate their activities in order to make hydrographic and nautical information available at the global level".[15] This Resolution was adopted (among other things) also because of the importance of reliable hydrographic and nautical information in order to increase safety.[16]

It follows that the hydrographic activity is extremely important, and its core product – nautical chart – is much more than simple navigational aid tool.

THE INTERNATIONAL MARITIME ORGANIZATION REGULATIONS / *Propisi Međunarodne pomorske organizacije*

The IMO regulations, concerning the hydrographic activity are contained in Part V of the SOLAS Convention. Part V defines charts and navigational publications, regulates the hydrographic activity and owning and updating of nautical charts and nautical publications.

According to the SOLAS rules, nautical chart or nautical publication is a "chart or publication of special purpose, or specially compiled database from which such a chart or publication derived, which was officially issued by the government or by the authority of the authorized hydrographic office or the relevant government institutions and that is designed to meet the requirements of maritime navigation."[17] This Rule applies to paper and electronic charts. Explanation of the aforementioned regulation explicitly refers to that in their preparation the relevant resolutions and recommendations of the IHO should be followed.

Rule 9 (Hydrographic Services) regulates the hydrographic activity of member states of SOLAS Convention. Member states have a legal obligation to collection, compilation, processing, exchange and refreshing all nautical information necessary for safe navigation.[18] Member states are required to ensure the implementation of hydrographic survey, issue charts and publications and distribute notice to mariners.[19]

It also requires the greatest possible uniformity in the preparation of charts and publications and to coordinate activities at the highest possible degree in order to ensure timely, reliable and unambiguous availability of hydrographic and nautical information on the global level.[20] This Rule is also referred to the appropriate resolutions and recommendations of the IHO.

The SOLAS amendments give an obligation to the member states to issue nautical charts and publications, which was not prescribed till 2002. Until the revised regulations of SOLAS come into force, states are required only to conduct the hydrographic research and collaboration with other governments (in matters of safety of navigation) where this is necessary, but they could not have the obligation to produce nautical charts.[21]

Rule 19 (Requirements for marine navigational systems and equipment) requires of all vessels, regardless of size, to have nautical charts and publications and if possess the Electronic Chart Display and Information System (ECDIS) the vessel complies with the requirements of this Rule.[22]

Rule 27 (nautical charts and publications) prescribes that nautical charts and publications should be suitable and up to date.[23] IMO introduced the obligation to use updated nautical charts in 1980[24] because their updating has direct impact on the safety of navigation.

RESOLUTIONS AND RECOMMENDATIONS OF INTERNATIONAL HYDROGRAPHIC ORGANIZATION / *Rezolucije i preporuke Međunarodne hidrografske organizacije*

IHO is an intergovernmental consultative and technical organization.[25] The organization is consultative agency that has no authority over the hydrographic offices of the member states of the Convention on the IHO.[26] IHO originated from the International Hydrographic Bureau (IHB), which was established on the 21st of June in 1921 in Monaco.[27]

IHB was established as a permanent body to coordinate the work of the hydrographic office and the goal was "to make navigation around the world easier and safer by improving navigation charts and documents".[28] During the time, the role of IHB has changed. IHB has played a significant role in matters of standardization in hydrographic activities, development bathymetry at the global level and the development of marine science in general. Thus, with the IHO Convention, which came into force on the 22nd of September 1970, the name of organization was changed from IHB[29] into IHO.

IHB exists even today. Its role is regulated by the articles VII and IX Convention of IHO and refers to wide range of activities, from harmonization of cooperation of national hydrographic offices through technical and administrative issues, to cooperation with international organizations and related research institutions. It is also the name of the seat of the Organization. Today, 81 states are members of the IHO.[30]

Aims of IHO are:

a) harmonization of activities of national hydrographic organizations,
b) achievement of the greatest possible uniformity of nautical charts and documents,
c) acceptance of reliable and efficient methods of implementation and exploitation of hydrographic surveys and
d) the development of science in the field of hydrography and the techniques used in descriptive oceanography.[31]

Numerous activities of IHO can be performed from these goals, such as standardization, International charts making by the recommendations of the IHO, the radio-navigational warnings, digital databases and their presentation, training, technical assistance, depositing and sharing of charts and nautical publications, digital data bank of tides, the establishment of

[15] *"Oceans and the law of the sea"*, Para 21, p. 5, UN Document A/RES/53/32, 6th January 1999.
[16] *ibidem*, p. 2
[17] *SOLAS 2002*, Chapter V, Rule 2, Para 2., IMO, London, 2002.
[18] *ibidem*, Rule 9, Para 1.
[19] *ibidem*, Para 2.
[20] *ibidem*, Para 3 and 4.
[21] About development of Rule 9 see in *IMO and the Safety of Navigation*, 1998, p. 14, available on http://www.imo.org.
[22] *SOLAS 2002*, Chapter V, Rule 19. Para 2, Subpara 1.4.
[23] *ibidem*, Rule 27.
[24] IMO Safety of Navigation Circular Letter No. 99 (IMO SN/Circ.99), *Carriage of up-to-date charts*, 12. 06. 1980
[25] Pribičević, B.: Pomorska geodezija, Geodetski fakultet Sveučilišta u Zagrebu, Zagreb, 2005., p. 201.
[26] IHO: *M-1, Basic Documents of the International Hydrographic Organization (IHO)*, Revised version 2007, International Hydrographic Bureau, Monaco, 2007, General Regulations of the IHO, Article 1, p. 17.
[27] Maratos, Weintrit: *op. cit.*, p. 734.
[28] *ibidem.*
[29] About activities of IHB see in *IHO M-1*, p. 8 and 9.
[30] HO Member States, available on http://www.iho.int.
[31] *IHO M-1*, Convention on the IHO, Article 2, p. 7.

Regional hydrographic commissions, cooperation with many international bodies and issuing periodical publications.[32]

In addition to the development of standards in the field of hydrographic activities important positions have resolutions of IHO. All resolutions of IHO are given in the publication M-3 Resolutions of the International Hydrographic Organization. Publication M-3 is supplemented and updated according to the dynamics of adoption of new resolutions, amendments and deletion of existing ones. Resolutions of the IHO in Publication M-3 are organized into three programs.

Program 1 ''Corporate Affairs'' contains administrative, financial and administrative resolution.[33]

Program 2 ''Hydrographic Services and Standards'' contains a general resolutions, the resolutions of tides and sea water levels, and resolutions of charts and publications.[34] Resolutions relating to the charts are organized into three interrelated parts. The first part contains general resolutions. The second part relates to digital (electronic) navigational charts. Here is paid attention to the compliance of the charts with the standards of the IHO, data protection and also the principles of the Worldwide Electronic Navigational Chart Database are given to meet the requirements of SOLAS and IMO standards for ECDIS. The third part contains the resolutions relating to the preparation, supervision and regulation of the international charts.

Program 3 ''Inter Regional Co-ordination and Support'' contains resolutions of regional hydrographic commissions and capacity building with the aim of establishing and improving regional cooperation and coordination in a wide range of hydrographic activities.[35]

Certainly the most important place of the many activities of the IHO belongs to standardization in the field of nautical charts and publications. IHO has developed the International Hydrographic standards. IHO prescribes minimum standards of accuracy for hydrographic survey. These standards are contained in the publication ''IHO Standards for Hydrographic survey - SP-44 ''.[36] Standards classify area of hydrographic survey, the accuracy of measurement depth, degree of search the seabed, the size of the obstacles (features) that must be detected by these measurements, line spacing and accuracy of the position during the hydrographic survey.[37] Although standards regulate technical issues, their importance is that the data collected by these standards directly affect the accuracy of the data on products of hydrographic organizations. Although the IHO is ''only'' consultative and technical organization, its role is extremely important for standardization, development, directing and regional approach in the field of hydrographic activities.

Organizational and legal aspects of hydrographic organizations in the Republic of Croatia, Federal Republic of Germany, the United States and the United Kingdom / Organizacijski i pravni aspekti hidrografskih organizacija u Republici Hrvatskoj, Saveznoj Republici Njemačkoj, Sjedinjenim Američkim Državama i Ujedinjenom Kraljevstvu

Hydrographic organizations in the world are organized as government bodies, whose activities and legal status are regulated by their national law. Major role in the establishment of hydrographic organizations had maritime powers and their navies. Today, the national hydrographic organizations are mainly found in the ministry in charge of defense, maritime affairs, transport, environment, etc.[38]

Following part of this paper analysis the organizational and legal status of hydrographic organizations in the Republic of Croatia, Federal Republic of Germany, the United States and the United Kingdom.

CROATIAN HYDROGRAPHIC INSTITUTE / *Hrvatski hidrografski institut*

Hydrographic activity in the Republic of Croatia is performed by Croatian Hydrographic Institute (Hrvatski hidrografski institut – HHI) based in Split. The legal status of the HHI is regulated by the Hydrographic Activity Act.[39] According to the Act, hydrographic activity is one of special interest for the Republic of Croatia.[40] The Act consists of six parts which regulate the content, terms and conditions of hydrographic activity, and establishing the HHI.

The purpose of the hydrographic activity is hydro-navigational security of navigation in the sea areas in which Croatia has achieved sovereignty and sovereign rights.[41] HHI is responsible for conducting hydrographic surveys, hydrographic-navigational security of navigation, conducting national harmonization in the collection, processing and forwarding of maritime safety information in accordance with the recommendations of the IHO and IMO.

In the exclusive jurisdiction of the HHI are the works of design, construction, maintenance and issuance of official nautical charts and manuals, their alignment with the recommendations of the IHO and IMO, maintenance and storage of hydrographic originals.[42] HHI is also responsible for making charts, describing the sea border of the state, and conduct marine cadastre. It is also a Croatian representative in the IHO and other international organizations in the field of its activity, which has been working independently. The activities of hydrographic surveying, marine surveying and recording facilities in coast, sea, seabed and underwater, can, in addition to the HHI, perform other private organizations, but only with the approval of the relevant ministries, based on prior opinion issued by HHI.[43] The purpose of this so formulated regulation is to allow other private organizations engaged in the exploration and exploitation performing these functions, with the consent of the institutions authorized by the state to protect its own national interest.

Data obtained from researches of other private organizations are not considered as official.[44] Legislator admits as official only the data collected and processed by the HHI.

Activities of hydrographic surveying, marine geodesy and recording facilities must be done in a manner and under the conditions specified in the Act, but by the standards of the IHO and other standards under international agreements binding the Republic of Croatia, under the guidance of HHI, or other

[32] Pribičević: *op. cit.*, p. 202 – 204.
[33] IHO: *M-3, Resolutions of the International Hydrographic Organization, 2nd Edition – 2010*, Updated to May 2010, International Hydrographic Bureau, Monaco, 2010., p. 1 – 17.
[34] *ibidem*, p. 18 – 88.
[35] *ibidem*, p. 89 till 100
[36] Currently the 5th edition of standards is in force.
[37] IHO SP-44: *IHO Standards for Hydrographic Surveys 5th Edition*, International Hydrographic Bureau, Monaco, 2008, p.18
[38] IHO Yearbook 2010: *op. cit.*
[39] *Zakon o hidrografskoj djelatnosti*, Narodne Novine 68/1998.
[40] *ibidem*, Article 6.
[41] *ibidem*, Article 2.
[42] *ibidem*, Article 5, Para 4.
[43] *ibidem* Article 7 and 8.
[44] *ibidem*, Article 11.

legal institutions.[45] With this regulation legislator explicitly instructed to comply with the standards of the IHO and IMO in carrying out hydrographic activities and tasks that arise from it. This mentioned standards represent a legal obligation for anyone who carries out hydrographic activity in the Republic of Croatia.

THE FEDERAL MARITIME AND HYDROGRAPHIC AGENCY OF GERMANY / *Savezna Njemačka agencija za pomorstvo i hidrografiju*

Federal maritime and hydrographic agency (Bundesamt für Seeschiffahrt und Hydrographie - BSH) of Germany is responsible for the full range of tasks related to maritime affairs, and the implementation of hydrographic research and charts making in the German part of the North and Baltic Seas.[46] BSH is a government agency that is part of the Federal Ministry of transport, construction and urban development.[47]

The legal status of BSH is regulated by the Federal Act on the responsibilities in the maritime transportation (Gesetz über die Aufgaben des Bundes auf dem Gebiet der Seeschiffahrt – Seeaufgabengesetz). According to the Act, hydrographic activity, production and publication of official nautical charts and nautical publications and official distribution of navigational warnings and other information about the safety of navigation is in the exclusive jurisdiction of the BSH.[48]

Although the Act does not explicitly mention the standards by which it carries out hydrographic surveys, Article 9d indicates how official standards are those of IMO and other government organizations which are accepted by the relevant German institutions.[49] This general formulation covers also standards of IHO.[50]

The jurisdiction of the BSH is issuing permits for offshore activity (eg installation of offshore wind power plant, submerged pipelines and cables) in the German economic zone in the North and Baltic Sea.[51] Due to the constant changes in the seabed caused by currents that move sediment, BSH conducts periodic surveys in German territorial waters, updating necessary data for the production of reliable nautical charts.[52] BSH represents Germany in the IHO and is a member of the IHO Regional Commission for the Baltic and North Sea.

HYDROGRAPHIC SERVICE OF THE UNITED STATES / *Hidrografski ured Sjedinjenih Američkih Država*

Hydrographic activity in the United States is carried out by three organizations. For civilian use that activity is performed by National Oceanic Service (NOS), which is located within the National Oceanic and Atmospheric Administration (NOAA). NOS is part of the US Department of Commerce and is responsible for the full range of tasks related to research, protection and monitoring of the oceans and coasts of the United States.[53] Hydrographic activity has special place within which all hydrographic surveys are done. As part of the NOS is the Office of Coast Survey (OCS), which conduct hydrographic surveys, collects, processes and manages the data obtained and produces 1000 paper charts in the United States.[54]

Hydrographic research for the US Department of Defense and Department of Homeland Security is performed by the National Geospatial Intelligence Agency (NGA).One of the roles for NGA is to support military operations in sense of hydrographic data. NGA is a part of the US Department of Defense. It provides marine, aviation and topographic charts, sailing directions, lists of lights, notice to mariners, marine and geodetic data, products and services in their area of responsibility for the Armed Forces of the United States, other federal agencies, merchant marines and sailors in general.[55]

The third service responsible for hydrographic activity in the United States has been organized within the Department of the Navy and under the command of the US Navy. This service is called Commander, Naval Meteorology and Oceanography Command (CNMOC). CNMOC collect, analyses and displays oceanographic, meteorological, hydrological and geophysical data in function of support to the operations of the US Navy.[56] Within the CNMOC is the Naval Oceanographic Office (NAVOCEANO), which provides oceanographic, hydrographic, bathymetric, geophysical and acoustic data necessary for the successful implementation of military operations.[57] NAVOCEANO has seven research ships (for hydrographic surveys) and mobile air system for charting the coast. It conducts hydrographic surveys in accordance with the standards of the IHO for military operations.[58]

CNMOC is the military equivalent of civilian NOS, but it does not produce navigational charts and publications, although it has ships for oceanographic and hydrographic surveys. All three organizations are members of the IHO[59] and each of them is founded and operates under separate regulations. They mutually adjust its activities in matters of hydrographic surveys. Thus, on the basis of the US Hydrographic Services Improvement Act of 1998 as Amended in 2002, NOAA is responsible for ensuring complete geographical coverage of hydrographic services, maintenance of national hydrographic data base, and the development and implementation of international standards for hydrographic data and hydrographic services in collaboration with other federal agencies.[60] Within that Act the IHO standards were accepted also in the United States.

UNITED KINGDOM HYDROGRAPHIC OFFICE / *Hidrografski ured Ujedinjenog Kraljevstva*

United Kingdom Hydrographic Office (UKHO) is the most

[45] *ibidem*, Article 9.
[46] *A Prerequisite to the safety and efficiency of navigation*, available on a http://www.bsh.de/en/Marine_data/ Hydrographic_surveys_and_wreck_search/Hydrographic_surveys/index.jsp.
[47] *Gesetz über die Aufgaben des Bundes auf dem Gebiet der Seeschiffahrt – Seeaufgabengesetz*, BGBl. 2008 II S. 520, 2008., § 5 (1), p. 7.
[48] *ibidem*, § 1.9 (a) i § 1.10, p. 2.
[49] *ibidem*, § 9 (d), p. 13
[50] Hydrographic survey in the Baltic and the North Sea is carried out according to the IHO standard S-44 BSH: *Jahresbericht 2008*, Bundesamt für Seeschiffahrt und Hydrographie, Hamburg und Rostock, 2009., p. 44
[51] *ibidem*, p. 13
[52] *ibidem*, p. 29
[53] US Department of Commerce, National Oceanic and Atmospheric Administration: *About the National Ocean Service*, available on http://oceanservice.noaa.gov/about.
[54] US Department of Commerce, National Oceanic and Atmospheric Administration: *Getting Your Feet Wet: An Introduction to NOAA's National Ocean Service,* available on http://oceanservice.noaa.gov/about/nos_ overview.pdf, p. 2.
[55] IHO Yearbook 2010: *op. cit.*, p. 195.
[56] *ibidem*, p.197.
[57] *Naval Oceanographic Office*, available on http://www.public.navy.mil.
[58] van Norden, M. F., Ladner, R. W., Arroyo-Suarez, E. N.: Developing a concept of operations for military surveys to IHO standards without shore–based stations, *Proceedings of the Canadian Hydrographic Conference and National Surveyors Conference 2008,* p. 1.
[59] IHO Yearbook 2010: *op. cit.*, p. iii.
[60] United States of America Hydrographic Services Improvement Act of 1998 as Amended by H.R. 4883, the Hydrographic Services Improvement Act Amendments of 2002, SEC. 303 a) (4), (5) i (7), in IHO: M-16, *National Hydrographic Regulations, 1st edition 2007*, International Hydrographic Bureau, Monaco, 2010, p. 167 i 168.

famous national hydrographic organization in the world which was founded in 1795 for the needs of the Royal Navy. The role of UKHO had changed through the years. Today UKHO provides hydrographic information for the Royal Navy and the majority of the world's merchant fleet. It also has a central role in fulfilling the obligations of the United Kingdom to the SOLAS convention in terms of hydrographic services for the UK home waters.[61]

In legal terms UKHO is a government organization that since 1990 operates as an executive agency within the British Ministry of Defense. UKHO acts as the government's trade fund since 1st April of 1996.[62]

In matters of jurisdiction for the implementation of hydrographic surveys UKHO has a dual role, depending on whether it is about the research for needs of defense or civilian organizations. Hydrographic surveys for defense do special service (Royal Navy Surveying Service), with its own hydrographic ships.[63] UKHO uses this data and publishes charts, publications and special editions of the Royal Navy. Hydrographic surveys in the waters under British sovereignty (United Kingdom Home Waters) for civilian purposes are carried out under the Civil Hydrography Programme (CHP), which is managed by the Maritime and Coastguard Agency (MCA).[64] Under the jurisdiction of the MCA is also commercial research. UKHO provides planning, technical supervision and evaluation of the research and is responsible for archiving the data obtained.[65] UKHO together with MCA sets priorities for areas that will be surveyed.

PROPOSAL FOR DEVELOPMENT OF REGULATIONS CONCERNING HYDROGRAPHIC ACTIVITY / *Prijedlog za izradu propisa vezanih uz hidrografske djelatnost*I

Development trends of international and national regulations on hydrographic activities is difficult to predict with absolute certainty, however, they are largely visible from the new definition of hydrography.[66] According to this definition, hydrography enters the area of inland waterways, rivers and lakes. Since in the existing IHO standards are not regulated these questions, it is reasonable to expect the development of specific standards for these areas. The proposed development legislation should also address the procedural provisions related to the process of accession and discharge of states in the membership of the IHO. The process of accession for new member stat is prescribed in Article XX of the Convention on the IHO (1967).

IHO member can become "any maritime state which applies to the Government of the Principality of Monaco specifying the tonnage of its fleets, and whose admission is approved by two-thirds of the Member Governments".[67] This regulation explicitly calls maritime states and tonnage of their fleets. One should take into account that there are countries that are rich in water resources, but are not maritime states, nor have its fleet. It would therefore be justified to amend the said regulation and allow those interested states to join the IHO. This proposal is fully consistent with the new definition of hydrography, which was accepted by the IHO.

The Convention does not prescribe the process of dismissal from membership, except in the case of unilateral cancellation of the Member Government.[68] The Convention only regulates suspension in the case of non-payment of membership fee.[69] Therefore, it would be justified to develop such a regulation, because there are states that base its membership in the IHO on the legal succession of the former member state and are not maritime states, nor have significant water resources on the inland waterways. According to the existing regulations, the IHO has no mechanism of releasing the states from the membership.

CONCLUSION / *Zaključak*

International Hydrographic activity is regulated by the provisions of UNCLOS, SOLAS Convention, regulations and standards of IHO. UNCLOS in its provisions provides a framework for conducting hydrographic activities and encourages its development. SOLAS deals with issues of the relationship between safety at sea and hydrographic activities and introduces a legal obligation on member states to carry out hydrographic surveys. The most important role in the development of international hydrographic activity has the IHO, which deals with a wide range of issues related to this activity. Particularly important are the IHO Standards for Hydrographic survey. Their development is connected with the development of technology in the field of hydrography. The development of these standards is directly related to increasing the level of accuracy and reliability of nautical charts and publications. Their accuracy and reliability directly affects the safety of navigation. It also affects the fulfillment of the obligations of member states under the SOLAS Convention.

The analysis of legal and organizational aspects of hydrographic activity of the four chosen countries shows that their national laws led toward the application of IHO Standards in the field of hydrographic surveys. This is quite clear that the IHO member states actively participate in the design and development of international standards and regulations, which practically by default become their national regulations. It should also be noted that hydrographic activity of national hydrographic organizations requires extremely high financial costs. This means that the development of new regulations largely depend on the financial capabilities of the IHO member states. Notwithstanding the financial constraints the hydrographic activity in the future will play a very significant role in the overall maritime policy of coastal states.

[61] UKHO: *United Kingdom Hydrographic Office Framework Document 2007*, Taunton, England, 2007, p. 7.
[62] The United Kingdom Government Statutory Instruments (1996, No. 773): *Government Trading Funds - The Hydrographic Office Trading Fund Order 1996*, article 2; u ibidem, p. 21.
[63] UKHO: *United Kingdom Generic National Report to Regional Hydrographic Commission 2009*, Taunton, England, 2009, p. 8.
[64] *ibidem*, p. 5 i 6.
[65] To make obtained data usable and to satisfy the requirements for safe navigation, all surveys conducted by the CHP must at least correspond to the 1st A Order of IHO standards for hydrographic surveys. *ibidem*, p. 6.
[66] Recognizing the importance and the growing importance of internal waters, the IHO has on its the fourth IHB extraordinary conference, held in June 2009, adopted a new official definition of hydrography, which says: *"Hydrography is the branch of applied sciences which deals with the measurement and description of the physical features of oceans, seas, coastal areas, lakes and rivers, as well as with the prediction of their change over time, for the primary purpose of safety of navigation and in support of all other marine activities, including economic development, security and defence, scientific research, and environmental protection".* IHO: 4th Extraordinary International Hydrographic Conference Report of Proceedings, International Hydrographic Bureau, Monaco, 2009, proposal page 38.
[67] *Convention on the International Hydrographic Organization (1967), Article* XX, IHO: M-1, Basic Documents of the International Hydrographic Organization, p. 10.
[68] *ibidem*, Article XXII, para 1, p. 11
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