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Review article
UDK: 629.5.05
656.61.08

Accepted: 21th April 2006

COMPARATIVE ANALYSIS OF THE DESCRIPTIONS AND VALUES OF GEOGRAPHIC, OCEANOGRAPHIC AND METEOROLOGICAL PARAMETERS IN PILOTS OF THE EASTERN ADRIATIC COAST (published by various official publishers)

Together with the nautical chart a pilot is a navigational tool which the navigator uses in solving a navigational task. The pilot contains complex data obtained during long multidisciplinary researches in the sea. A special section of the pilot contains descriptions of geographic, oceanographic and weather data for the area covered by the pilot. The accuracy of the data and their optimal presentation in the pilot has a great significance for the safety of navigation. The approach to processing the data important for navigation and the description of an aquatorium may be various. Therefore the contents of the pilots in various countries may be different in some sections. In this paper the authors analysed, by means of method of comparison, the exactness of the description of data published in existing official national and foreign pilots, and differences in contents and values of certain parameters for the same areas are presented. Possible solutions have been presented which may reduce to minimum the observed differences and discrepancies in descriptions of certain parameters used by various publishers of official maritime publications.

***Key words**: navigational handbook, pilot, description and reliability of data*

1. INTRODUCTION

Geographic and traffic position of the Republic of Croatia determines the maritime orientation of the country especially of the ports situated along the long and indented coast and islands. Maritime industry as a business activity is, in broader sense, based on maritime traffic i.e. sea navigation. There is a constant

increase of traffic of all kinds of vessels. Statistics shows increased tonnage of all kinds of ships [12], and a high increase of vessels in nautical tourism [11]. In order to realise the goal of the voyage navigation has to be safe. The fact that about 20% of sea accidents of larger ships traffic in the Adriatic were caused by severe weather conditions and 40% of smaller ships and boats best illustrates the importance of knowing weather conditions [2].

Optimal comprehension of geographic, oceanographic and weather parameters and their presentation in navigation manuals is of great significance for the safety of maritime traffic. The research conducted among various participants of maritime transportation of the eastern Adriatic coast may suggest that pilot in its conventional, printed form is still used as a nautical book on vessels of various kinds and purposes [1]. Pilots of various publishers with various sources of data and approaches in describing and presenting geographic, oceanographic and weather parameters are in use. The diversity of the used sources of data and approaches in producing pilots cause qualitative and quantitative levels of reliability of certain publications. Other authors also recognise the problem of unsynchronised data in sea charts and navigational publications, and the need to solve the problem important for the safety of navigation [4]. The subject of this work is the analysis of deficiencies, and the problem may be summarised in several questions:

Are there differences in description of geographic oceanographic and weather parameters in pilots of the eastern Adriatic coast published by various official publishers, and what are their characteristics? Which are the causes of the differences and how to avoid them?

The objective of this paper was to obtain answers to these questions, and the answers are the result of comparative analysis of pilots of the eastern Adriatic published by official publishers of navigational charts and publications in Italy, France, Great Britain and Croatia.

2. THE AIM OF THE WORK

The aim of this work is to contribute to a better understanding of the necessity to establish a special infrastructure of hydrographic physical data which are parts of national infrastructure of (maritime) physical data, and which should allow for a more efficient production of geographic and information data bases and allow their exchange in accordance to the determined rules at national and world level.

3. THE CONCEPT OF A PILOT

Pilots and nautical charts are main publications used as manuals in safe maritime navigation A pilot describes the data which, due to technical reasons cannot be presented in a sea chart [1]. They are categorised as handbooks.

Various publishers use various names for this kind of manual. Thus the English publisher Admiralty, which covers all seas in their pilots, uses for all volumes the expression *Pilot* with the name of the sea, the American publisher uses for sailing directions the French term *Enroute* (navigational routes), the French publisher uses *Instructions Nautiques,* the Italian publisher uses *Portolano*. Such a manual in Croatia is called *Peljar*. The expression is linked to piloting service and pilot. A pilot is a person temporarily aboard, who in performing piloting service leads the ship from a certain position (pilot station) through a complicated navigational area to a berth in the port.

The pilot manual gives guidelines for choosing the route, basic instructions for the safe navigation, geographic data for the orientation, the values of weather and oceanographic parameters of which some have a positive or negative effect to the navigation. For certain areas, besides detailed descriptions of ports, bays and anchorages, there are also brief data about possible shelters for ships. Also, a pilot provides data for approaching, entering, stay, departures from the ports, performing commercial operations, offering services in ports, important notices to mariners and legal regulations for certain sea areas and ports. Although navigation hazards are shown in sea charts (rocks, wrecks, shoals etc.), they are also stated or described in the text of the Pilot. Lighthouses are described only if they are suitable for orientation. Therefore a sailor needs to use other navigational tools – sea charts, other nautical books, navigational devices and instruments [6].

3.1. Pilots and legal regulations

A pilot is a direct navigational tool which is present in all important national and international legal regulations dealing with maritime issues like the safety of navigation and of human lives at sea. In the Maritime Code of the Republic of Croatia, Rules for the technical control of maritime ships and Rules for statutory certification of boats and yachts it has been stipulated that a pilot is a compulsory manual, which along with navigational aids must be on the ship during the preparation of navigation and the navigation. The SOLAS Convention, Chapter V also requires a pilot as an obligatory publication for the planned voyage, and the Technical resolutions of the International Hydrographic Organisation, Chapter C stipulate detailed standards for the production of a pilot.

3.2. Pilots and modern maritime navigation

Fast development of technology has had a strong influence to maritime navigation and navigation in general. Significant changes occurred inside the ship, primarily in the command bridge, where various systems have been integrated into one functional unit aimed at improving safe and efficient conduct of the vessel. One of the elements of the integrated navigational system is the system of displaying electronic navigational charts and other information called ECDIS (Electronic Chart Display and Information System). The most recent changes of the SOLAS Convention of 2002, which provisions have been included into corresponding national regulations (Technical Rules of the Croatian Register of Shipping) allow using ECDIS system as fulfilled requirement for the existence of official sea charts aboard, provided it has been produced in accordance with the required standards. The officer of the watch will have substantially facilitated navigation using such electronic chart with the data about the position of the ship and additional information (contained in the pilot and other nautical books) from the same system. But in the situation when the information significant for the safe navigation are not available in any other way, the accuracy and the method of description of the data in a conventional handbook may be vital for the safety of ships and human lives. For those reasons the conventional printed pilot has not been legally replaced by another electronic tool and its updated edition has to find its place in the navigation-control station [1].

3.3. Current situation

Since the days of maritime navigation between geographically close cultural centres of the past, to present, geographically boundless modern maritime navigation, there has been a need for studying natural and geographical conditions which may influence the safety of navigation as a stimulating or limiting factor [12].

Nowadays there are organised national and international institutions which systematically measure geographic, oceanographic and weather parameters and make large data bases. One of the more important applications of the results of the researches is aimed at the safe navigation by adequate presentation of geographic, oceanographic and weather parameters in pilots for certain areas. Among them the most significant are official publishers of sea charts and manuals of the national hydrographic bureaus. We may say that each publisher has a different approach to the presentation of geographic, oceanographic and weather parameters in pilots.

The greatest contribution to the standardisation of the parameters presentation was given by the International Hydrographic Organisation adopting the IHO Technical Resolutions (Chapter C), the document which contains re-

commendations for producing all sections of a pilot and also recommendations for the presentation of geographic, oceanographic and weather parameters [1].

After analysing available bibliography and data bases in computer networks it may be noticed that the problem of the content of geographic, oceanographic and weather parameters in maritime pilots has not yet been satisfactorily analysed. Therefore this paper will be a contribution to this interesting topic.

3.4. IHO recommendations for producing a pilot

In one of its basic documents, Technical Resolutions, Chapter C, Sailing Directions, the International Hydrographic Organisation has given recommendations to national hydrographic offices for production of official sea charts and manuals, including pilots. The importance of producing pilots in compliance to the recommended standards is to facilitate navigators the use and understanding of pilots published by various publishers. The existence of detailed recommendations for all sections and descriptions in pilots prove how important manual is a pilot. In Chapter C of Technical Resolutions the recommendations are divided in three parts: general recommendations, recommendations for producing a pilot, and recommendations for production or description of individual parts of the content of the pilot. The importance of recommendations is given in three levels: recommended, strongly recommended and resolved [10].

4. PRESENTATION AND ANALYSIS OF THE DIFFERENCES IN VALUES OF SOME GEOGRAPHIC, OCEANOGRAPHIC AND WEATHER PARAMETERS IN PILOTS OF VARIOUS OFFICIAL PUBLISHERS

The research conducted among different groups of users of the pilot has shown that, when navigation along eastern coast of the Adriatic, they use pilots published by various publishers [1]. Some of the used pilots have been published by the recognised official publishers, and some by unknown private publishers. From the aspect of safety of navigation it is important that all data in pilots are accurate and correspond to the data of the official publisher of the Republic of Croatia, as the vessels are not legally required to use exclusively official navigational publications of the Republic of Croatia in Croatian aquatorium. The most significant values of geographic, oceanographic and weather parameters in pilots published by four official publishers of sea charts and manuals will be presented. The official publisher of the Republic of Croatia is Croatian Hydrographic Institute (HHI) located in Split. French official publisher is the Hydrographic and oceanographic navy service (SHOM), Department of nautical

notices and publications in Brest. The official publisher of Great Britain is The UK Hydrographic Office (Admiralty), situated in Taunton. The official publisher of Italy is the Hydrographic Institute, Istituto Idrografico della Marina (IIMG), situated in Genoa. These hydrographic bureaus publish pilots of the Adriatic in Croatian language.

4.1. Presentation of differences in values of some oceanographic parameters

Compared parameters were referring to the navigational areas of larger and large ships at which official pilots are mostly in use.

Table 1. Values of sea surface temperatures (1C) in the Strait of Otranto for various seasons

Publisher	Spring	Summer	Autumn	Winter
HHI	17.4	24.0	16.3	14.0
Admiralty	18.0	25.0	17.8	14.0
SHOM	17.9	25.3	19.1	14.3
IIMG	18.0	24.6	17.5	14.6

Source: Produced by the Author

Table 2. Mean values of resultant amplitudes of sea tides

Area	HHI	Admiralty	SHOM	IIMG
The Strait of Otranto	approx. 25 cm	approx. 30 cm	approx. 20 cm	approx. 20-40 cm
Northern Adriatic	50 – 70 cm	approx. 80 cm	60 – 85 cm	approx. 100 cm

Source: Produced by the Author

Table 3. Values of unlevelling of the mean sea level due to change of air pressure and wind – Eastern Adriatic coast

Level	HHI	Admiralty	SHOM	IIMG
Min. level	50 cm (Middle and Southern Adriatic) to 60 cm (N. Adriatic)	No data available	Description	Description
Max. level	80 to 150 cm (N. Adriatic)	30 - 60 cm (E. coast of Adriatic) over 100 cm (Venice)	50-100 cm to 150 cm (Venice)	to 150 cm (Venice)

Source: Produced by the Author

Table 4. Values of sudden extreme unlevelling of sea level – seši – Eastern Adriatic coast

Area	HHI	Admiralty	SHOM	IIMG
Middle Adriatic	Possibility of the event, causes and examples of amplitudes (Stari Grad 3 m, Vela Luka 5 m)	Possibility of the event, causes and the most recent example (Stari Grad 1997, min. level 2 m - max. level 2.7m)	Same as Admiralty	No data available, no information about possibility of the event

Source: Produced by the Author

Table 5. Values of directions and speed of sea currents (kn) in complex navigational areas

Area	HHI	Admiralty	SHOM	IIMG
Vela Vrata	0.5, with N gale and NE wind up to 2	With strong N wind up to 4	0.5, with N wind surface 3-4	0.4, with strong N wind up to 4
Pašmanski kanal	NW 1-2.5 SE 0.8-2	NW 1-2.5 SE 0.75-2	NW 1-2.5 SE 0.8-2	NW 0.8-2.5 SE 0.6-2

Kanal sv. Ante	summer 0.5 winter to 3	summer 0.5 winter up to 3	WSW summer 0.5 winter up to 3	W summer 0.5 winter up to 3
Passage Mali Ždrelac	to 4	4	variable up to 5	5
Rivanjski kanal	to 4	to 4	NW/SW to 4	to 4
Passage Proversa Mala	3-4	3-4	3-4	3-4
Rijeka Neretva	1-2, to 5	2-6, to 7	2-2.5, to 5	approx. 2.5, to 6-7
Pelješki kanal	approx. 1	0.5-1.5	E/W 0.5-1.5	approx. 1

Source: Produced by the Author

Table 6. Values of sea density (g/cm3), sea level amplitudes (m) and speed of currents (kn) in major Croatian ports

Parameter	Sea density in the port (g/cm^3)				Mean amplitudes of sea tides/highest level (m)				Currents/highest values due to wind or water inflow (kn)			
Publisher	[illegible]	[illegible]	[illegible]	IIMG	HHI	Admiralty	SHOM	IIMG	HHI	Admiralty	SHOM	IIMG
Pula	1.023-1.029	1.023-1.029	-	-	0.5-0.7/ to 1	-/to 2	-/to 2	-/ to 2	0.3/ to 1	descri ption	descri ption	descripti on
Raša	1.023-1.029	1.023-1.029	-	-	0.3-0.5/ to 1	-1.8	0.3-05/ to 1.8	-/ 1.8	0.3/ to 1	descri ption	0.3-0.5/ to 1	descripti on
Plomin	-	-	-	-	-	-	-/to 1	-/-	-	0.2-0.4 to 1	0.2-0.4/ to 1	-
Rijeka	1.023-1.029	1.023-1.029	-	-	0.3-0.5/ to 1	0.4 /descri pti.	0.3/ to 1	-/-	0.3/ to 0.8		0.3/ to 0.8	appr ox. 0.5
Zadar	1.024-1.029	1.024-1.029	-	-	0.2-0.4/ to 0.7	0.2 /-	-/ to 0.6	to 0.6	0.2/ to 0.5	2 NW	0 u put.lu ci	to 2
Šibenik	1.010-1.028	1.010-1.028	-	-	0.2-0.4 /to 1	0.2 /-	0.2-0.4 /to 1	-/-	0.5/ to 3	0.5-1.5	0.5-1.5	0.5/ to 3
Split- Sjeverna luka	1.022-1.029	1.022-1.029	-	-	0.2-03/ to 0.6	0.3 /-	0.2-03/ to 0.6	-	-/ to 1	descri ption	0.3-1.5	descripti on

Ploče	1.015-1.027	1.015-1.027	-	-	0.2-0.3/ to 1	-/-	0.3	-	2/ to3	2-3	2/ to 3	to 3
Metković	1.010-1.020	-	-	-	description	description	description	-	2/ to 6	2-2.5/ to 6	2-2.5/ to 5	2.5/ 6-7
Gruž	1.024-1.028	1.024-1.028	-		0.2-0.3/ to 0.5	0.1-0.3	-	-	weak/to 1.5	approx. 1/ description	approx. 1	approx. 1

Source: Produced by the Author

Analysing Tables 1 – 6 in which descriptions and values of several oceanographic parameters important for the safe navigation are presented, differences may be noticed in values and descriptions. Analysing pilots it may be observed that several sources were used for the presentation and descriptions of data. Most often those were pilots of various publishers, but also oceanographic atlases and other data bases. Also, for some parameters, like sea density, speed of sea currents and amplitude of sea level there are no data presented. The reason to this may be that the publisher does not have those data or that they did not follow IHO recommendations about parameters and their descriptions which need to be included in the pilot.

4.2. Presentation of differences in values of some geographic (hydrographic) parameters

Table 7. Values of sea depth above unmarked shoals hazardous for surface navigation in complex navigational areas

Area	Hazard	HHI	Admiralty	SHOM	IIMG
Pašmanski Kanal	Shoal ENE of island Sv. Katarina	3.5	3.5	3.5	3.5
	Shoal SW of the port Turanj	4.3	4.3	4.3	4.3
	I. Shoal S of light Babac	4.8	4.8	4.8	4.8
	II. Shoal S of light Babac	5.3	5.3	5.3	5.3

Passage Maknare	Shoal Bonaster	6.5	6.5	6.5	6.5
	Shoal Bela Njiva (N of the island Sestrunj)	4.3	4.3	4.3	4.3
Passage Proversa Mala	Minimum depth in the passage	4.7	4.7	4.7	-
Passage Mali Ždrelac	Minimum depth in the passage	4.0	3.8	4	4
Kaštela Bay	Shoal Galija	3.6	3.6	3.6	3.6
Neretva Estuary	Shoal Gumanac	1.9	1.9	1.9	1.9
Gruž Port	Shoal along quayside	4.5	4.5	4.5	4.5

Source: Produced by the Author

In Table 7 it is observed that the values of dangerous depths in more difficult navigational areas are almost identical in all pilots. The reason to this may be the fact that in sea charts those values are also precisely stated, and, being extremely important for the safety of navigation, their values are repeated in pilots, accompanied by instructions for navigation.

4.3. Presentation of differences in description of weather parameters

Table 8. Data about wind exposure or shelter in ports and anchorages of major Croatian ports

Port	HHI	Admiralty	SHOM	IIMG
Pula	North-easter is most frequent, may be very strong.	North-easter lasts up to three days.	North-easter always lasts continuously over three days	North-easter lasts sometimes over three days.
Rijeka	North-easter, frequently at intervals strong gale.	Souther more frequent in autumn and winter.	In spring and summer moderate SE and N winds prevail.	In spring and summer moderate SE and N winds prevail.

Zadar	NW winds cause waves and swell.	Frequent NNW storms in summer, cause rough sea.	In summer NW wind with short and strong strikes	In summer occasional sudden strong NNW winds.
Šibenik	North-easter and Souther as strong gale.	In winter North-easter and Souther are very strong.	North-easter and Souther are strong, occasionally gale.	In winter North-easter or SE winds are gale-like.
Split – Sjeverna Luka	In the whole area the North-easter may have gale force	North-easter and Souther occasionally appear strong in late autumn, winter and early spring.	In the area of Sjeverna luka North-easter may be very strong…	In the area of Sjeverna luka North-easter is very strong…
Ploče	Souther may have gale force, and North-easter even hurricane force.	North-easter and Souther are strong, more frequent in winter.	North-easter and Souther are frequent and strong in winter.	North-easter and Souther are strong.
Luka Gruž	Sheltered from all winds except W which may cause waves.	Sheltered from all winds and waves except W which make waves.	No descriptions for the port of Gruž, but for the larger area only.	Sheltered from all winds except W which cause rough sea.

Source: Produced by the Author

In Table 8 greater differences may be observed in the description of weather conditions in port areas. The differences are noticed in the method and the content of descriptions. There are also different seasons stated and duration of winds. In order to avoid such differences which appear in publishers' descriptions, sometimes for the same values of weather parameters, it would be suitable to add climatic tables for a particular area (port) if available. An example of a climatic table in compliance with the standards of the World Meteorological Organisation is shown in Table 9.

5. CONCLUSION

After the analysis of the values of some geographic, oceanographic and weather parameters presented in pilots of various official publishers it may be concluded that there is significant difference in values of oceanographic parameters, less difference in descriptions of weather conditions and the least dif-

Table 9. Climatic table for the area of Mali Lošinj pursuant to the standard of the World Meteorological Organisation

Month	Average pressure at MSL	Temperatures			Average humidity		Cloud cover	Precipitation		Wind distribution in percentage of total observations – Average of observations from 0700, 1400 i 2100																	No. of days with speed wind ≥ 10.8 m/s	No. of days with sp eed wind ≥ 17.2 m/s	No. of days with fog	No. of days with thunder
		Mean daily	Mean daily max.	Mean daily min.	0700	1400	Average daily	Average fall	No. of days with 1 mm or more	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Calm				
	hPa	ºC	ºC	ºC	%	%	Ok	mm																						
January	1013	7.8	10.3	5.7	76	66	5.2	56.1	6.9	9	16	7	3	3	5	6	4	8	5	3	5	4	5	5	9	4	2.3	0.2	0.1	0.3
February	1011	7.4	10.3	5.2	75	64	5.1	68.9	6.5	7	19	8	4	5	6	7	3	8	4	2	4	5	3	5	7	5	1.8	0.1	1.1	0.7
March	1010	9.9	13.3	7.5	78	62	5.2	71.1	6.9	5	14	9	6	4	5	5	5	14	6	3	5	5	3	3	5	4	2.1	0.3	1.3	0.5
April	1007	12.9	16.5	10.2	77	61	5.1	60.2	7.4	3	15	7	5	6	5	4	7	16	6	4	5	5	2	3	3	4	0.9	-	0.5	0.7
May	1008	17.3	21.2	14.3	77	59	4.7	62.7	6.9	3	14	6	5	4	4	3	4	16	5	5	7	8	4	2	4	6	0.5	-	0.2	0.7
June	1008	20.9	24.9	17.6	75	58	4.1	77.8	6.8	5	12	6	6	3	3	2	4	15	5	5	8	8	4	2	5	5	0.3	-	-	1.9
July	1009	24.4	28.8	20.9	70	51	2.6	28.4	3.4	7	13	6	9	6	3	1	2	9	3	6	10	9	5	2	5	4	0.1	0.1	0.1	1.5
August	1009	24.3	28.7	20.9	73	52	2.7	51.8	4.1	8	14	7	8	6	3	1	3	9	2	5	11	6	4	2	6	5	0.3	0.1	-	1.7
September	1010	20.7	24.6	17.9	78	60	4.0	100.7	7.1	7	11	6	7	8	4	4	6	12	4	4	10	5	2	1	5	4	0.3	0.1	0.2	2.9
October	1011	16.8	20.1	14.5	79	64	4.8	122.4	7.2	8	13	7	8	4	6	6	7	9	3	3	6	4	4	3	5	5	0.5	-	0.5	1.7
November	1011	12.0	14.6	10.1	76	67	5.6	109.6	8.7	7	22	5	7	2	6	4	5	7	3	3	5	4	4	3	8	5	1.5	-	-	1.5
December	1011	9.3	11.5	7.3	76	68	5.8	79.8	7.2	7	17	6	6	3	6	5	5	8	3	4	6	4	4	4	8	4	2.8	0.3	0.1	0.4
Means	1010	15.3	18.7	12.7	76	61	4.6	-	-	6	15-	7	6	4	5	4	5	11	4	4	7	6	4	3	6	5	-	-	-	-
Totals	-	-	-	-	-	-	-	889.6	78.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.4	1	4.1	14.4
Extreme	-	-	35.7	-4.4	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Croatian Meteorological and Hydrological Service, Maritime Meteorological Centre Split (based on the observations performed from 1981 to 1995).

ference in values of geographic (hydrographic) data. The reason for the differences in the presentation of values of oceanographic parameters may be because various sources (oceanographic data bases) were used for calculations of mean values of those parameters, and because of the fact that many of the values were probably estimated on fewer numbers of measurements or data for the broader area.

Despite the IHO standards for the production of pilots, differences may appear in the volume and the manner of description of geographic, oceanographic and weather parameters in pilots of various publishers. However, pilots should not contain differences in numerical values of geographic, oceanographic and weather parameters. Differences in the presentation of hydrographic data are much smaller than of oceanographic data, probably because each hydrographic value, especially the ones referring to minimum depths will be presented in the chart or a manual only if obtained during the measurements by adequate instruments and in compliance with hydrographic standards.

The differences noticed in these presentations clearly emphasise the need to perform systematic measurements, especially oceanographic and weather measurements, in order present the values of particular parameters in maritime publications with higher reliability. Besides collecting data, it is necessary to establish the infrastructure of hydrographic physical data as a part of national infrastructure of (maritime) physical data. Stable and reliable infrastructure should enable efficient development of hydrographic data base and allow their availability to various users under determined conditions and rules at national and international level. The need to establish the said infrastructure and data base has been recognised not only at national level, but also in the International Hydrographic Organisation, who has already initiated concrete activities, guided by the fact that only a precisely measured value, presented in suitable form and globally available to end users aboard will guarantee safe and sound navigation.

Since the analysis showed that navigators use pilots of different level of reliability and accuracy of data, and since the interest of any maritime country, including Croatia, is to provide safe navigation to ships, there is the need to require the use of the most reliable maritime publications.

One of the solutions would be to stipulate the requirement of using sea charts and manuals published by official publisher of the Republic of Croatia when navigating the territorial sea of the Republic of Croatia. Some European countries brought forward such regulations, and for practical reasons, in Croatia the obligation could refer only to vessels registered in the shipping register. Because of the restrictive feature of such measure, it could be in force until the reliability of navigational publications of other publishers reaches the appropriate lever, better than nowadays.

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Sažetak

KOMPARATIVNA ANALIZA OPISA I VRIJEDNOSTI GEOGRAFSKIH, OCEANOGRAFSKIH I METEOROLOŠKIH PARAMETARA KOD PELJARENJA ISTOČNOM OBALOM JADRANA (objavljeni u raznim službenim glasilima)

Peljar je uz pomorsku kartu osnovno navigacijsko pomagalo kojim se navigator služi pri rješavanju navigacijskog zadatka. Sadrži kompleksne podatke dobivene dugotrajnim multidisciplinarnim istraživanjima na moru. Posebnu cjelinu peljara čini opis geografskih, oceanografskih i meteoroloških podataka za područje koje obuhvaća sadržaj peljara. Točnost tih podataka i njihovo optimalno prikazivanje u peljaru imaju veliko značenje za sigurnost navigacije. Pristup obradi svih podataka važnih za plovidbu i opis određenog akvatorija može biti raznolik. Stoga se u peljarima raznih zemalja sadržaji u nekim segmentima razlikuju. U radu se komparativnom metodom analizira egzaktnost opisa podataka u postojećim službenim izdanjima domaćih i stranih peljara, prikazuju se razlike u sadržajima i vrijednostima pojedinih parametara za ista područja. Prezentiraju se moguća rješenja kojima bi se uočene razlike i neujednačenosti u opisu pojedinih parametara različitih izdavača službenih pomorskih publikacija svele na najmanju moguću mjeru.

***Ključne riječi**: navigacijski priručnik, peljar, opis i pouzdanost podataka*

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