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## 1. EXECUTIVE SUMMARY

In this deliverable, Croatian Shipowners' Association Mare Nostrum (CSA) analyzed the user experience of the shipowners that are obligated to report to the Thetis - MRV System according to the Regulation (EU) 2015/757. Moreover, CSA analyzed the experience of the associate member, Croatian Register of Shipping which is the certified Verifier for the Croatian shipowners. Furthermore, CSA compared the EU MRV Regulation with IMO DCS and the homologue Chinese Regulation on ship Energy Consumption.

## 2. INTRODUCTION

With a goal of reducing CO2 emissions the European Union in 2015 created a system so called MRV Regulation which stands for monitoring, reporting, and verification (MRV) of CO2 emissions from the ships. The shipowners operating ships of over 5000GT which carry cargo for commercial purposes or passengers from or to European ports are obligated to report their data according to the Regulation. In July 2019, the European Commission published data regarding 10,880 ships which called at the EEA ports in 2018. Therefore, during both the GUTTA KO and 1<sup>st</sup> SC meeting, the European Maritime Safety Agency (EMSA) representative suggested that in this report CSA includes shipowners' user experience regarding reporting to the THETIS – MRV System.

Croatian shipowners that are obligated to report to the Thetis - MRV System and are also members of the CSA, sent their reporting materials to the Croatian Register of Shipping (CRS) who verified the reports of the following shipowners: Jadrolinija, Atlantska Plovidba, and Alpha Adriatic. The other two members of the Association, Jadroplov and Tankerska Plovidba sent their reports to the Bureau Veritas to verify their data in THETIS – MRV System. In order to analyze the reporting experience in THETIS – MRV System, CSA made a questionnaire for the shipowners who are obligated to report to the THETIS – MRV System and made an interview with CRS that is a verifier of the reports. Furthermore, CSA prepared a synoptic view of the main features of EU MRV vs. IMO DCS and vs. the China Regulation on Data Collection for Energy Consumption of Ships (China DC).

### 3. METHODOLOGY

The first part of this Report will include analysis of the reporting experience from the shipowners' as well as the verifying experience from the CRS. For that purpose, CSA created a questionnaire with 6 open-ended questions which will be displayed in the Annex of this Report. Also, CSA made face – to – face interview with CRS that is the certified verifier of the reports in the THETIS – MRV System. The base of the interview was the same questionnaire. The second part of this Report will include a table comparison of the EU MRV, IMO DCS and China DC.

#### 3.1 THETIS – MRV System experience

THETIS – MRV System is an Information System to support Regulation (EU) 2015/757. Basically, EMSA has developed a new module in THETIS, namely THETIS-MRV, enabling companies responsible for the operation of large ships calling EEA ports to report their CO2 emissions under the Regulation (EU) 2015/757 on Monitoring, Reporting, and Verification of CO2 from marine transport. Through this web-based application, all relevant parties foreseen by the Regulation can fulfill their monitoring and reporting obligations in a centralized and harmonized way. THETIS-MRV includes a mandatory and a voluntary module: through the mandatory module, companies will generate Emission Reports which will then be verified by Accredited Verifiers who will issue a Document of Compliance in the system; through the voluntary module, companies may draft their monitoring plans and the system will make them available for verifier' assessment.

The system has been available since 7 August 2017 and on 1 July 2019, it published the relevant data for 10,880 ships that called at EEA ports within 2018. Five shipowner members of the Association are obligated to report to the THETIS- MRV System. However, only two members answered the questionnaire regarding the THETISM RV System experience. The questionnaire was sent to the members of the Technical Committee of the Association through the email and the time frame to answer the questions was December 4-11, 2019. The interview method was used to analyze the verifier's experience and the meeting for face-to-face interview was held in Split on December 3, 2019. All respondents were informed about the purpose of this analysis on the meeting of the Technical Committee of the Association which was held in November 2019. In the further text of this Report, CSA will analyze the questionnaire responses from Jadrolinija

and Alpha Adriatic. Jadrolinija provides both national and cross-border transport between Italy and Croatia while Alpha Adriatic operates on international markets (bulk carriers and tankers). For the sake of this Report, CSA included the opinion and verifying experience from CRS which verified the reports of the following shipowners: Jadrolinija, Alpha Adriatic and Atlantska Plovidba.

### **3.1.1 Analysis of the Jadrolinija questionnaire responses**

Jadrolinija is Croatia's largest liner shipping company for the maritime transport of passengers and vehicles, with a hundred-year long tradition. The Company was founded on 20th January 1947 in Rijeka as a successor of various mergers of small-sized shipowners having taken place since 1872. The basic purpose of Jadrolinija is to connect major centers along the Croatian coast as well as numerous islands with the mainland. The carriage of passengers and vehicles is of a seasonal character and closely related to the travel and tourism industry. There are 3 spacious car – ferries: Marko Polo, Dubrovnik, and Zadar, operating on the international lines towards Italy (Ancona and Bari). 34 smaller car-ferries, 4 classic passenger ships, and 10 catamarans sail on the regular local car- ferry and ship lines in the Adriatic, divided into 3 districts: Rijeka, Zadar & Šibenik and Split & Dubrovnik. Jadrolinija reported following ships to the THETIS-MRV System: Dubrovnik, Marko Polo, Zadar, Koruča and Petar Hektorović. First, three ships are international ferries and its analysis has been done in a previous GUTTA Report (D.3.1.1.) while the last two ships operate on national coastal lines.

Regarding the possible difficulties that Jadrolinija could bare during the process of implementing the MRV Regulation, no one emerged from the interview and the questionnaire. Jadrolinija considers itself to have been well informed about Regulation (EU) 2015/757 and its obligations as defined in the meetings of the European Commission in 2015. Furthermore, Jadrolinija conducted a Monitoring plan for CO<sub>2</sub> emissions which was a base for realistic monitoring and reporting activities. The whole process of reporting according to the Regulation was made just in time without any obstacles. Also, the level of satisfaction regarding the ease of reporting to the Thetis-MRV System is high and the whole system is described as very easy to work with and reliable. When it comes to possible disadvantages of the system, Jadrolinija thinks the System is user-friendly, simple to use and reliable. All in all, Jadrolinija's reporting is transparent and the company is quite satisfied with the Thetis-MRV System.

### 3.1.2 Analysis of the Alpha Adriatic questionnaire responses

Alpha Adriatic is a joint-stock company founded in Pula in 1986 as part of the Uljanik Shipyard Group under the name Uljanik Plovidba. After privatization in 1998, it left the Uljanik Group and became an independent company, keeping its original name as proof of its strong maritime tradition in the Istria region. In 2003, its shares were included in the stock market and are today quoted on the Official Market of the Zagreb Stock Exchange, the highest-rated quotation in which stock can be included. The ownership structure is comprised of 4,200 exclusively private shareholders, primarily Croatian residents. The basic activity of the company is international maritime transport of bulk cargo and petroleum products and chemicals by modern, high-quality ships manned by Croatian seafarers. The company aspires to be a modern and stable firm directed by its method of management and orientation to the global market, taking care of its employees, safely satisfying the demands of the market, clients and international ecological standards, while also maximizing the revenues of the company. The company operates with 4 bulk carriers and 3 product carriers.

Alpha Adriatic reported the following ships to the THETIS – MRV System: Punta, Stoja and Veruda. All three ships are bulk carriers and operate all around the world. Regarding the possible difficulties that Alpha Adriatic could face during the process of implementing the MRV Regulation, there was no one. In fact, the company stated that all obligations and instructions regarding the Regulation were clear. When it comes to the level of satisfaction regarding the reporting to the THETIS-MRV System, Alpha Adriatic is not entirely satisfied. The company believes that the whole process of reporting to the THETIS-MRV System is quite time consuming. Every step is manual with limited possibilities of copy-pasting. As a good example regarding the ease of the reporting, Alpha Adriatic mentioned the US VGP System, <https://www.epa.gov/npdes/vessels-vgp>. According to the Alpha Adriatic, this kind of system also offers the possibility of uploading data via an Excel table and copy-pasting of data which makes the System very easy to work with<sup>1</sup>. To conclude, Alpha Adriatic is relatively satisfied with reporting to the THETIS-MRV System.

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<sup>1</sup> CSA note: Thetis MRV includes the possibility to upload data through XML files, cf. <http://www.emsa.europa.eu/emsa-homepage/341-implementation-tasks/ship-inspection-support/thetis-mrv/thetis-mrv-videos/3058-thetis-mrv-videos-companies.html>

### 3.1.3. Analysis of the verifying experience from Croatian Register of Shipping

Croatian Register of Shipping also known as CRS, is an independent classification society established in 1949. It is a non-profit organization working on the marine market, developing technical rules and supervising their implementation, managing risk and performing surveys on ships. CRS performs the following activities:

- classification of ships;
- statutory certification of ships on behalf of the National Maritime Administrations;
- statutory certification of recreational crafts;
- certification of materials and products;
- conformity assessment of recreational crafts;
- conformity assessment of marine equipment;
- conformity assessment of pressure vessels;
- certification/registration of quality management systems.

CRS mission in the field of classification and statutory certification is to promote the highest internationally adopted standards in the safety of life and property at sea and inland waterways, as well as in the protection of the sea and inland waterways environment. Also, HRB is a member of IACS and EU-recognized organization.

Since the CRS is an associated partner of CSA, this Report will include verifying experience and opinion of two verifiers, Mr. Vjeko Barač and Mr. Željko Škaro. Together with one more verifier, they were in charge of verifying emission reports, of ships under the responsibility of Jadrolinija, Alpha Adriatic and Atlantska Plovidba, following Regulation (EU) 2015/757. CRS is accredited by the Croatian Accreditation Agency (HAA), under EN ISO 14065, for assessment of monitoring plans and verification of emission reports. At the Ministry of Environment and Energy of the Republic of Croatia in Zagreb, the meetings of the European Sustainable Shipping Forum (ESSF) through videoconferences were organized. Through these videoconferences, CRS was instructed to the development of guidance documents to Regulation. All final MRV guidance documents are available on EU website: [ec.europa.eu/clima/policies/transport/shipping](https://ec.europa.eu/clima/policies/transport/shipping).

CRS staff followed the meetings and afterward, the Ministry awarded attendees with a paper of confirmation about attending the meetings of MRV subgroup on verification and accreditation and MRV subgroup on shipping monitoring. Attendees achieved competences for verifiers and they could train other colleagues about the verification process. However, all new verifiers should have passed the written exam to be able to verify shipowners' reports. CRS currently has three verifiers. By September 2017 the shipowners should have sent a monitoring plan, for each ship within scope, for assessment, according to which the verifiers could audit the data. Jadrolinija sent their verification report for verification at the beginning of 2019 which was a favorable situation for the verifier because he had enough time to check all data. However, another verifier had a very short amount of time to check and verify the data from Alpha Adriatic because of the delays in reporting.

Jadrolinija is a national provider of national and international transport and it has only two ships (Hektorović, Korčula) which operated more than 300 voyages in 2018 so for the rest three ships within the scope of Regulation (Marko Polo, Zadar, Dubrovnik), the company should have reported data regarding every single voyage made. This was a quite evident administration burden for the company and verifier faced the challenge of explaining that no aggregated data can be accepted for ships Hektorović and Korčula but rather, a specific data entry for every voyage is requested. Moreover, when collecting the data, shipowners faced difficulties when calculating the release of CO<sub>2</sub> emission which occurred in the port. However, by tracking the tank levels once a day and by monitoring diesel generators working hours in port, companies acted according to the guidelines and reported an average consumption estimate.

Verifiers highlighted the utility of online video tutorials regarding the usage of Thetis' MRV System. Furthermore, Jadrolinija voluntarily reported its Monitoring plan and CRS approved it. However, in the process of verification, the message about an outdated Monitoring plan occurred even though the plan wasn't changed and it couldn't expire<sup>2</sup>. CRS was able to verify the reports but the message about the error was still present. In video tutorials, this kind of error

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<sup>2</sup> CSA note: Monitoring Plans get automatically outdated after one year. This complies with the legal requirement that the plans have to be a review once a year. In case no change is required, the company just needs to click "Revalidate" and the plan is again marked as "Assessed".

situation is not mentioned<sup>3</sup> and verifiers suggest that some kind of additional user support is provided by EMSA<sup>4</sup>.

Besides user support, it would be useful to add an error explanation to propose a possible solution so that the whole reporting and verifying process is less time-consuming. On the other hand, verifiers praised the qualitative interface of the System. Also, shipowners benefit from the possibility of insight into the verification stage. Verifiers highlight that communication with shipowners is vastly important and they admitted that it was much more convenient for them to contact shipowners through direct communication (e-mail, telephone calls) than through the System. Also, verifiers called attention to the discrepancies between EU MRV and IMO DCS and to the fact that shipowners prefer to use the IMO DCS System. Therefore, a compromise in the alignment of the two systems is waited for.

### **3.2 Comparison of the EU Monitoring, Reporting and Verification, IMO Fuel Oil Data Collection System and the China Regulation on Data Collection for Energy Consumption of Ships**

The Third Greenhouse Gas (GHG) Study of the International Maritime Organization (IMO) estimated that GHG emissions from international shipping in 2012 accounted for some 2.2% of anthropogenic CO<sub>2</sub> emissions and that such emissions could grow between 50% and 250% by 2050. Although shipping is still widely considered the most energy-efficient transport mode, such projections exert put a lot of pressure on the industry to reduce its carbon emissions.

From the side of the IMO, the measures until 2015 on the climate change front included:

- Progressively stricter energy efficiency standards for new ships, which stated that the so-called Energy Efficiency Design Index (EEDI) of all newly built vessels from 2013

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<sup>3</sup> CSA note: It is mentioned in the Tutorial Videos for company as revalidating the plan is an action for the Company

<sup>4</sup> CSA note: The help desk is established and available to support end users. This issue was not brought forward, otherwise it would have been clarified

onwards had to be lower than specific values depending on ship type, size, and year of built;

- The requirement of all existing ships to adopt a Ship Energy Efficiency Management Plan (SEEMP) for monitoring performance improvements.

The so-called Energy Efficiency Operational Indicator (EEOI) was suggested as a tool for SEEMP Implementation, but only voluntarily and solely for monitoring the performance of individual ships. Earlier discussions on the possibility of adopting a market-based measure had been suspended in May 2013 following a highly political clash between developed and developing countries. The slow pace of decision-making at IMO was not appreciated by the EU, which was determined to see the international maritime shipping contributing to the headline target of the Europe 2020 Strategy to reduce by 2020 GHG emissions by at least 20% compared to 1990 levels, or by 30% in the case of comparable commitments by other developed countries and according-to-capabilities contributions by the developing ones.

Through IMO MEPC.304 (72) in April 2018, IMO adopted Initial strategy on reduction of GHG emissions from ships. The objective is reduction of a GHG emissions of at least 50% by 2050 and reduction of carbon intensity by at least 40% by 2030 (compared to 2008 levels). Also, the strategy aims to full decarbonisation in 21<sup>st</sup> century. However, both short- and mid-term further measures necessary to achieve these ambitions are partially still to be developed and agreed on international level.

Aiming at reducing CO<sub>2</sub> emissions from shipping at the EU level, a system for monitoring, reporting, and verification (MRV) of CO<sub>2</sub> emissions of ships were introduced in 2015 with the so-called 'MRV Regulation'. Its stated objective was to produce accurate information on the CO<sub>2</sub> emissions of large ships using EU ports and to incentivize energy efficiency improvements by making this information publicly available. On 1 July 2019, the European Commission published the relevant data for 10,880 ships that called at EU ports within 2018.

The International Maritime Organization (IMO) adopted a mandatory Fuel Oil Data Collection System (DCS) for international shipping, requiring ships of 5,000 gross tonnages or above to start collecting and reporting data to an IMO database from 2019. It was adopted by the IMO's Marine Environment Protection Committee (MEPC70) on 28th October 2016 as amendments to Chapter 4 of Annex VI of MARPOL, adding a new Regulation 22A on Collection and reporting of ship fuel oil consumption data and new appendices covering Information to be submitted to the IMO Ship Fuel Oil Consumption Database. These amendments came into force on 1 March 2018.

The EU scheme has focused on CO2 emissions from shipping activities to, from and within the EEA area, the IMO scheme covers emissions from shipping globally; China DC on Energy Consumption Regulation is based on conducting voyages to/ from/ between Chinese ports. At the end of 2018, the Chinese Maritime Safety Administration has issued a new regulation on data collection for the energy consumption of ships which came into force on 01 January 2019.

The regulation applies to ships:

- greater than 400 gross tonnages; or
- powered by main propulsion machinery greater than 750 kW of propulsion power calling China ports. Warships and fishing vessels have been exempted from this regulation.

As per the new regulation, every ship calling a Chinese port shall submit to the MSA the “Data Report Format for Energy Consumption of Ships“, containing information of the last voyage before leaving the port.

A ship may be exempted from the per voyage reporting and report to the MSA monthly if:

- trading within a fixed region and the time underway per voyage is 4 hours or less; or
- sailing on a fixed route and the time underway per voyage is 12 hours or less.

The ships which should report monthly, should still record their per voyage information (within logbook or specified record book) and submit them to The Chinese Maritime Safety Administration (China MSA) the aggregated data of the last calendar month within ten days of the next month. Inland ships shall record information on a per voyage basis but submit aggregated yearly data by April 01 for the previous calendar year (identical approach as with the IMO Data Collection System). All records must be kept on board for one year after the last entry has been made and be readily available for verification and inspection. The China MSA branch offices will be responsible to review the data and confirm that these have been submitted as required by the regulation. As per the regulation before leaving a Chinese port, ships must report the required data via a maritime information platform maintained by China MSA. The following table shows the comparisons between EU MRV, IMO DCS and China DC.

Table 1: Comparison of EU MRV Regulation, IMO DCS and China DC on Energy Consumption<sup>5</sup>

<sup>5</sup> References: <https://www.dnvgl.com/maritime/insights/topics/EU-MRV-and-IMO-DCS/index.html>, <https://www.dromon.com/wp-content/uploads/2019/01/Data-Collection-for-Energy.pdf>

COMPARISON	EU MRV Regulation	IMO DCS	China DC on Energy Consumption*
Applicability	Greater than 5000 GT conducting commercial voyages to/ from/ between EEA ports	Greater than 5000 GT conducting international voyages	Greater than 400 GT or greater than 750 kW main engine power and conducting voyages to/ from/ between Chinese ports. Fishing ships and warships excluded**
First reporting period	01 January 2018 to 31 December 2018	01 January 2019 to 31 December 2019.  Reporting to the Flag by end March 2020	Each time the ship leaves a Chinese port** Report the aggregated data of last calendar month to the fixed branch of China MSA of the related port of call before the 10th of each month
Monitoring plan	A separate document describing the methodology for data collection and reporting  Pre-defined format published by the European Commission (EC)  Subject to assessment by an independent accredited verifier. Deadline for submission of Monitoring plan was 31 Aug 2017 or 2 months	Data collection and reporting methodology shall be described in a SEEMP, Part II  SEEMP Part II is an integrated part of the Ship Energy Efficiency Management Plan, SEEMP  Confirmation of compliance by Flag/Recognized Organization (RO)	Methodology for collecting data fuel consumption in compliance with this Regulation  Data Report Format for the Energy Consumption of Ships  The international ships shall submit SEEMP to the authorized organizations for audit. If the SEEMP complies with Convention, the authorized

	after calling an EEA port if later than this date.	Deadline for submission of SEEMP Part II is 31 Dec 2018	organizations shall issue a Confirmation of Compliance  China MSA shall inspect the work of the authorized organizations on SEEMP audit, data verification and certification at regular intervals
Reporting details	<ul style="list-style-type: none"> <li>a. Fuel Oil Consumption</li> <li>b. Cargo Carried</li> <li>c. Distance travelled</li> <li>d. Time at sea</li> <li>e. Transport work based on actual cargo</li> <li>f. CO2 emissions</li> <li>g. Port of departure/ arrival</li> <li>h. Separate data to be collected for berthing and voyage</li> </ul>	<ul style="list-style-type: none"> <li>a. Fuel Oil Consumption</li> <li>b. Design deadweight as cargo proxy</li> <li>c. Distance travelled</li> <li>d. Hours underway</li> </ul>	<ul style="list-style-type: none"> <li>a. Ship particulars</li> <li>b. Data on transport work</li> <li>c. Fuel Oil Consumption</li> </ul>
Reporting to	<p>European Commission</p> <p>The company reports annual emissions to the EMSA data base ("THETIS MRV")</p>	<p>Flag state</p> <p>Annual emission report to be verified by Flag Admin./RO (such as DNV GL)</p>	<p>The Chinese Maritime Safety Administration</p> <p>Reports are verified by China MSA Branch Office</p>

	Annual report to be verified by an accredited verifier (such as DNV GL)	Flag State (or RO) reports to IMO data base	
Disclosure	European Commission will make data publicly available	Individual ship data will be kept confidential	Unknown

Source: CSA Mare Nostrum

Notes:

\*Specific requirements apply for ships flying the Chinese flag.

\*\*Specific requirements apply for ships:

1. Trading within a fixed region and the time underway per voyage is 4 hours or less; or
2. Sailing on fixed route and the time underway per voyage is 12 hours or less

On July 1, 2015 EU MRV Regulation entered into the force. IMO DCS entered into the force on March 1, 2018 and China DC on Energy Consumption regulation entered into the force on January 1, 2019. Reporting time according to the EU MRV Regulation is until April 30 and according to the China DC on Energy Consumption, until April 1. Moreover, China DC on Energy Consumption Regulation obliges monitoring on daily or voyage basis. Ships may be exempted from the per voyage reporting and report to the MSA on a monthly basis if ships are trading within a fixed region and the time underway per voyage is 4 hours or less or ships sailing on fixed route and the time underway per voyage is 12 hours or less. Also, fishing ships are excluded. When it comes to the reporting frequency, according to the China DC on Energy Consumption ships should report on voyage basis or monthly basis for voyage time below threshold or (inland ships) yearly. However, according to the EU MRV Regulation and IMO DCS ships should report data once a year for the previous year.

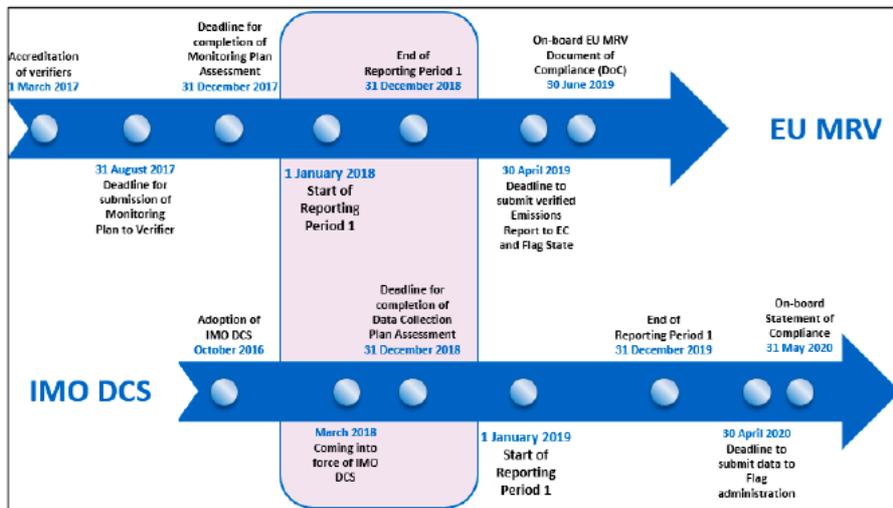
Furthermore, EU MRV Regulation as reporting format has Standardized format as per Commission Implementing Regulation (EU) 2016/1927. IMO DCS uses Standardized format as per MEPC.282(70) and Standardized format as per Annex to Regulation on Data Collection for Energy Consumption of Ships is used according to the China DC on Energy Consumption.

According to the China DC on Energy Consumption ships which occurred a transfer from one Administration to another or a change from one Company to another should report ship particulars, data on transport work, fuel consumption data and shore power consumption data.

All three systems use different reporting platforms. EU MRV Regulation developed THETIS' MRV System, IMO DCS uses IMO GISIS and ships that have to report according to the China DC on Energy Consumption report to the Maritime Information Platform of China MSA. Reports are verified by different verification authority. EU MRV Regulation delegated Third-party independent verifier, IMO DCS authorized flag state or recognized organization and the according to the China DC on Energy Consumption Regulation, verification to the organizations duly authorized by China MSA. Regarding certificate issued, EU MRV Regulation asks for Document of Compliance while IMO DCS asks for Statement of Compliance and Conformation of compliance is used in China DC on Energy Consumption Regulation. Regarding publication, EU MRV Regulation uses Distinctive public database, IMO DCS uses Anonymous public database. However, it is still unknown if any data will be publicly available according to the China DC on Energy Consumption Regulation.

In order to better understand the historical process of creating the Regulations and understand the implementation process, Figure below shows the differences in the timeline between EU MRV and IMO DCS.

Figure 1: Differences in timeline between EU MRV and IMO DCS



Source: Panagakos et al (2019)

The information in Fig.1 shows that EU MRV progressed a little bit faster. In particular, starting from January 1, 2019, all owners and operators of ships of 5.000 gross tonnages must collect fuel oil consumption data according to a methodology which should have been described and

included in the Ship Energy Efficiency Management Plan (SEEMP Part II). After the end of each year, these data need to be submitted to a Recognized Organization (RO) or Flag state. Then on a yearly basis (starting from May 31, 2020, onwards) RO or Flag State will issue annual DCS statements of compliance to shipowners which should be kept on board as long as it is valid. Prior to this SEEMP, Part II should have been submitted to an RO or Flag State by the latest December 31, 2018.

Similar to the IMO scheme the EU Monitoring, Reporting and Verification (MRV) regulation (whose first reporting period started 1 year before IMO DCS one) requires shipowners to submit a Monitoring Plan to an accredited verifier pointing out methods used to determine CO<sub>2</sub> emissions of each ship of 5.000 gross tonnage and above calling any EU port with first emission report (as aggregated data) to be published on June 30, 2019, by European Commission. The Chinese Maritime Safety Administration has issued at the end of 2018 a new regulation on data collection for the energy consumption of ships which came into force on January 1, 2019. Also, every ship calling a Chinese port shall submit to the MSA the “Data Report Format for Energy Consumption of Ships“, containing information of the last voyage before leaving the port. Per voyage information of the last calendar month should be recorded and submit to China MSA within ten days of the next month. As with the IMO Data Collection System, Inland ships shall record information on a per voyage basis but submit aggregated yearly data by April 1 for the previous calendar year. All records must be kept on board for a period of one year after the last entry has been made and be readily available for verification and inspection.

#### 4. CONCLUSION

In this Report analysis of reporting to the THETIS'MRV System was performed regarding two shipowners, Jadrolinija and Alpha Adriatic while the interview with CRS was conducted. Jadrolinija is quite satisfied with the reporting to the THETIS'MRV System while Alpha Adriatic believes that the System could be enhanced to be more user friendly. Table comparison of the EU MRV, IMO DCS and China DC on Energy Consumption Regulation differentiated basic points regarding scope, reporting period and reporting data. It could happen that shipowners that operate all around the world should report their data according to the all three, different systems. This would represent an additional administrative burden for the shipowners.