

# Impressum

NASE MORE, INTERNATIONAL JOURNAL OF MARITIME SCIENCE & TECHNOLOGY

NAŠE MORE, MEĐUNARODNI ZNANSTVENI ČASOPIS ZA MORE I POMORSTVO

FOUNDED IN 1919

ISSN 0469-6255

E-ISSN 1848-6320

DOI 10.17818/NM

UDK 656.6+338.48+008+001(05)=862

## EDITORIAL OFFICE

International Journal of Maritime Science & Technology  
University of Dubrovnik  
Ćira Carića 4  
20000 Dubrovnik, Croatia  
www.nasemore.com  
nasemore@unidu.hr

## FOUNDER AND PUBLISHER

University of Dubrovnik  
Branitelja Dubrovnika 29  
20000 Dubrovnik, Croatia

## EDITOR-IN-CHIEF

**Darijo Mišković**, PhD, University of Dubrovnik,  
Faculty of Maritime Studies, Croatia

## JUNIOR EDITOR

**Žarko Koboević**, PhD, University of Dubrovnik,  
Faculty of Maritime Studies, Croatia

## ASSOCIATE EDITORS

**Anamaria Bjelopera**, PhD, University of Dubrovnik, Faculty of Electrical Engineering and Applied Computing, Croatia  
**Ana Bratoš Cetinić**, PhD, University of Dubrovnik, Department of Applied Ecology, Croatia  
**Smiljko Rudan**, PhD, University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia

## INTERNATIONAL EDITORIAL BOARD

**Bojan Bešković**, PhD, University of Ljubljana, Faculty of Maritime Studies and Transport, Slovenia  
**Leszek Chybowski**, PhD, Maritime University of Szczecin, Szczecin, Poland  
**Kevin Cullinane**, University of Gothenburg, Sweden  
**Maro Ćorak**, PhD, University of Dubrovnik, Faculty of Maritime Studies, Croatia  
**Ivica Đurđević-Tomaš**, University of Dubrovnik, Faculty of Maritime Studies, Croatia  
**Alessandro Farina**, PhD, University of Pisa, Department of Civil and Industrial Engineering and University Centre of Logistic Systems, Italy  
**Vlado Frančić**, PhD, University of Rijeka, Faculty of Maritime Studies, Croatia  
**Jozef Gnap**, PhD, University of Žilina, The Faculty of Operation and Economics of Transport and Communications, Slovak Republic  
**Andrzej Grzadziela**, PhD, Polish Naval Academy, Poland  
**Nermin Hasanspahić**, PhD, University of Dubrovnik, Faculty of Maritime Studies, Croatia  
**Wang Huanxin**, PhD, Dalian Maritime University, China  
**Maro Jelić**, PhD, University of Dubrovnik, Faculty of Maritime Studies, Croatia  
**Mate Jurjević**, PhD, University of Dubrovnik, Faculty of Maritime Studies, Croatia

**Rudolf Kampf**, PhD, Faculty of Business in České Budejovice, Czech Republic  
**Josip Kasum**, PhD, University of Split, University Department for Forensic Science, Croatia  
**Miho Klaić**, PhD, University of Dubrovnik, Faculty of Maritime Studies, Croatia  
**Martin Lazar**, PhD, University of Dubrovnik, Faculty of Electrical Engineering and Applied Computing, Croatia  
**Nikolai Nikolaevich Maierov**, St. Petersburg State University of Aerospace Instrumentation (SUAI), Russia

**Irina Makarova**, PhD, Kazan Federal University, Russia  
**Francesc Xavier Martínez de Osés**, PhD, Universitat Politècnica de Catalunya, Barcelona Tech, Nautical Science and Engineering Department, Spain

**Josip Mikuš**, PhD, University of Dubrovnik, Department of Applied Ecology, Croatia  
**Ivona Milić-Beran**, PhD, University of Dubrovnik, Faculty of Maritime Studies, Croatia  
**Jakša Mišković**, PhD, University of Split, Faculty of Maritime Studies, Croatia  
**Peter Monka**, PhD, Technical University of Košice, Faculty of Manufacturing Technologies in Prešov, Slovak Republic

**Igor Nesteruk**, PhD, Institute of Hydromechanics, National Academy of Sciences of Ukraine, Ukraine

**Ivica Pavić**, PhD, University of Split, Faculty of Maritime Studies, Croatia

**Ivana Palunko**, PhD, University of Dubrovnik, Faculty of Electrical Engineering and Applied Computing, Croatia

**Marijana Pećarević**, PhD, University of Dubrovnik, Department of Applied Ecology, Croatia  
**Aleksandar Sladkowski**, PhD, Silesian University of Technology, Faculty of Transport, Poland  
**Ondrej Stopka**, PhD, Institute of Technology and Business in České Budějovice, Department of Transport and Logistics, Czech Republic  
**Nguyen Duy Trinh**, PhD, Ho Chi Minh City University of Transport, Vietnam

**Elen Twrdy**, PhD, University of Ljubljana, Faculty of Maritime Studies and Transport, Slovenia  
**Srđan Vujičić**, PhD, University of Dubrovnik, Faculty of Maritime Studies, Croatia

**Gong Xiang**, PhD, School of Naval Architecture and Ocean Engineering, Huazhong University of Science and Technology, China

**Kiên Đặng Xuân**, PhD, Ho Chi Minh City University of Transport, Vietnam

## EDITORIAL SECRETARY

**Davorka Turčinović**, mag. oec.

## ADVISORY BOARD - COMMERCE

**Božica Đurđević**, Croatian Radio, Dubrovnik  
**Mato Franković**, City of Dubrovnik, Dubrovnik  
**Ivo Klaić**, Dubrovnik-Neretva County, Dubrovnik

**Tomislav Macan**, Dubrovnik Airport, Dubrovnik  
**Marko Domijan**, Atlantska plovidba d.d., Dubrovnik  
**Željko Matic**, County Port Authority, Dubrovnik  
**Denis Orlić**, Society of Friends of Dubrovnik Antiques, Dubrovnik

## GRAPHIC DESIGN & EDITING

**Katarina Banović**, mag. oec.  
**Davorka Turčinović**, mag. oec.

## COVER DESIGN

**Marijana Lujo**, dipl. oec.

## COVER PHOTO

Lighthouse, G. Šebelić

## ENGLISH TRANSLATION AND PROOF-READING

**Jelena Žanić Mikuličić**, PhD

## PROOF READING

**Samanta Paronić**, PhD

## CLASSIFICATION OF ARTICLES

**Ana Pujó**, Sc. librarian

## WEB MASTER

**Stjepo Hladilo**, ing.

The Journal is printed in Croatia by Tiskara Zelina d.d., Zelina  
Edition: 75 copies  
Published three issues per year.

## ABSTRACTING AND INDEXING

WoS: ESCI, SCOPUS, EMBASE, GEOBASE, HRČAK, DOAJ, EBSCO PUBLISHING, PROQUEST, CABELL'S DIRECTORY, TRID

## SUBSCRIPTION

Subscription runs for full calendar year. One year subscription rate is 25,20 €. Orders can be placed at University of Dubrovnik (for Naše more); Privredna banka Zagreb, account number 1110135015, IBAN: HR08 2340 0091 1101 3501 5; SWIFT No: PBZGHR2X

The journal is completely published on the Internet.

The Journal is financially supported by the following institutions: Ministry of Science, Education and Youth, University of Dubrovnik, Atlantska plovidba d.d., Dubrovnik Tourist Board, Dubrovnik-Neretva County, Society of Friends of Dubrovnik Antiques.



© University of Dubrovnik. All rights reserved.



This work is licensed under a Creative Commons Attribution 4.0 International License.