



2013

Batam Island, 27-29 August 2013

International Seminar and Workshop on Hydrography

Roles of Hydrography in Marine Industry and Resources Management

Seminar Proceeding



caris

PAGEO

Hydronav



Reviewer and Scientific Committee

Prof. Dr. Sjamsir Mira (Head of MHI)
Prof. Dr. Widyo Nugroho SULASDI (ITB)
Prof. Dr. Hasanuddin Z. Abidin (ITB)
Prof. Dr. Razali Mahmud (UTM-Malaysia)
Prof. Dr. -Ing. Delf Egge (HCU-Germany)

Editorial Board

Dr.rer.nat. Wiwin Windupranata, ST., Msi
Dr. Samsul Bachri, M.Eng



ISBN 978-602-9056-53-2 © 2013

Indonesian Hydrographic Society

Labtek IX-C 4th. Floor

Jl. Ganesha 10 Bandung 40132 - Indonesia

Phone/Fax: +62-22-2506451

Email: info@mhi.or.id

Website: <http://mhi.or.id>



SEMINAR PROCEEDING

International Seminar and Workshop on Hydrography

**Roles of Hydrography in Marine
Industry and Resources Management**

Batam Island, 27-29 August 2013

Steering Committee

Head of Geospatial Information Agency, **Dr. Asep Karsidi, MSc**
Head of National Land Agency, **Hendarman Supandji, S.H., M.H., C.N.**
Head of Hydro-Oceanographic Office, **Laksmi TNI Aan Kurnia, SSos**
Head of Indonesian Surveyor Association, **Ir. Budhy Andono Soenhadi, MCP**
Head of Indonesian Hydrographic Society, **Prof. Dr.-Ing. Sjamsir Mira**

Reviewer and Scientific Committee

Prof. Dr. Widyo Nugroho SULASDI (Bandung Institute of Technology)
Prof. Dr. Hasanuddin Z. Abidin (Bandung Institute of Technology)
Prof. Dr. Razali Mahmud (University of Technology Malaysia-Malaysia)
Prof. Dr.-Ing. Delf Egge (Hafen City University, Hamburg, Germany)

Organizing Committee

Chair	:	Dr. Ir. Samsul Bachri, M.Eng
Co-chair	:	Ir. Tri Patmasari, MSi
Finance	:	Sylvia Nayoan
Secretary	:	Ir. Nanang Henky Suharto
Co-secretary	:	Wiria Indraswari, SE
Sponsorship	:	Ir. Fuad Fachrudin
Publication	:	Ir. Syartoni Kamaruddin
Security and Permit	:	Kol. Laut Daryanto
	:	Letkol. Laut Nurriyadi
Coordinator of Seminar	:	Dr.rer.nat. Wiwin Windupranata, ST., MSi
Publication	:	Agung Pandi Nugroho, ST.
	:	Sella Lestari, ST, MT
Design	:	Auzan Kasyfu Ambara
Registration	:	Intan Hayatiningsih, ST, MSc
	:	Alifiya Ikhsani
	:	Apriliyana
Coordinator of Exhibition	:	Renny Rachmalia, ST.
Coordinator of Workshop	:	Kol. Laut. Trismadi
Co-coordinator	:	Drs. Win Islamudin Bale
Class Coordinator	:	Fajar Triady Mugiarto, ST, MT
Field Coordinator	:	Zein Khairudin, ST.

Organizer and Sponsor

Main Organizer

Indonesian Surveyor Association, Ikatan Surveyor Indonesia (ISI)
Indonesian Hydrographic Society, Masyarakat Hidrografi Indonesia (MHI)
Geospatial Information Agency, Badan Informasi Geospasial (BIG)
National Land Agency, Badan Pertanahan Nasional (BPN)
Naval Hydro-Oceanographic Office, Dinas Hidro-Oseanografi (DISHIDROS)

Co-Organizer

Bandung Institute of Technology, Institut Teknologi Bandung (ITB)
Batam State Polytechnic, Politeknik Negeri Batam (Poltek Batam)
Maritime University Raja Ali Haji, Universitas Maritim Raja Ali Haji (UMRAH)
Naval Hydro-Oceanographic Training Centre, Pusat Pendidikan Hidro-Oseanografi (PUSDIKHIDROS)
Riau Islands Province Government, Pemprov Kepulauan Riau
Batam Indonesia Free Zone Authority, Badan Pengusaha Batam (BP Batam)

Gold Sponsor



Silver Sponsor

PAGED

Workshop Sponsor

caris



KONGSBERG

Co-Sponsor
Hydronav

Dear Hydrographers and Distinguished Guests,

It is my great pleasure to have this opportunity to welcome many participations from countries all over the world. I am very pleased to be grateful for all of you to the International seminar and Workshop on Hydrography on behalf of the organising committee and all those who have contributed to this Seminar and workshop.

It was December 2012, when the Indonesian Surveyor Association (ISI) and Indonesian Hydrographic Society (MHI) began to initiate the first International Hydrography Seminar in Indonesia, since then the various preparations for the Seminar have progressed steadily, especially through the hard work of the Organising committee.

The objective this seminar is to share and perceive the development of science, technology as well as human resources on hydrography in the world. Furthermore, workshop is intended to develop the capacity of human resources on the ability of Hydrography.

Our Seminar's theme : " the roles of Hydrography for marine Industry " was selected partly due to the significant important for Indonesia which is an Archipelagic country, and has abundant marine resources.

I am sure that our Seminar and Workshop will contribute to a substantial progress in approaching the goals of sustainable development marine Industry in the local and global scale, one of the central problems of contemporary hydrography.

This event is organized by ISI and MHI incorporate with Geospatial Information Agency (BIG), Hydro-Oceanographic Office (DISHIDROS), Bandung Institute of Technology (ITB) and National Land Agency (BPN). Moreover, the contribution of KOSNBERG, CARIS, FUGRO, and other stakeholders who have provided significant assistance to run this seminar and workshop.

We sincerely this Seminar and workshop will be a forum for productive discussions and learning by all participations.

With the great success of seminar and workshop on Hydrography 2013, I sincerely wish that you have an enjoyable stay in Batam of Riau Islands Province and have nice time in this wonderful country



Samsul Bachri,
Chair of the Organising Committee

Dear All Participans,

First of all, I would like to thank to the Mighty God, Allah SWT and all supporting organizations and institutions which make this INTERNATIONAL SEMINAR AND WORKSHOP ON HYDROGRAPHY (ISWH 2013) happen. The event is organized by Indonesian Surveyor Association (ISI) and Indonesian Hydrographic Society (MHI) together with Geospatial Information Agency (BIG), Hydro-Oceanographic Office (DISHIDROS), Bandung Institute of Technology and National Land Agency (BPN). It is an honour for ISI and MHI to organize the first event of hydrographic-related seminar in Indonesia. The seminar is intended to identify development of science, technology as well as human resources in hydrography in the world, particularly Indonesia and ASEAN region to support sustainable development planning and maritime industry.

As it is defined by International Hydrographic Organization (IHO), hydrography is the branch of science which is dealing with measurement and description of the nature and configuration of seabed and the dynamics of water bodies. Hydrography plays an important role in any aspect of maritime and coastal development. It is related to basic knowledge of the geographical, geological and geophysical features of the seabed and coast, as well the currents, tides and certain physical properties of the sea water. In brief, Hydrography is the key to progress on all maritime activities, normally of great national economic importance.

In addition to supporting safe and efficient navigation of ships, hydrography underpins almost every other activity associated with the sea, including resource exploitation, environmental protection and management, maritime boundary delimitation, national marine spatial data infrastructures, recreational boating, maritime defence and security, tsunami flood and inundation modelling, coastal zone management, tourism and marine science.

Indonesia, with 17,508 islands, 81,000 km of coastline, and 3.1 million km² of maritime area is the largest archipelagic country in the world. Based on the United Nations Convention on the Law of the Sea 1982, Indonesia has a sovereign right to utilize and manage the Exclusive Economic Zone (EEZ) as large as 2.7 million km². Its coastal and marine area has a huge number of both renewable as well as unrenewable resources. In order to utilize and manage the marine and coastal resources properly, it is required to have an appropriate geospatial data infrastructure for planning, execution, and evaluation, which are regulated by law and public policy.

Bathymetry, seabed features, as well the currents, tides and certain physical properties of the sea water are types of marine and coastal geospatial information. Related to the Geospatial Information, Indonesian Government has produced a National Law Nr. 4/2011 about Geospatial Information to assure availability of and access to responsible and accurate geospatial information as well as to establish expediency of those geospatial information.

As the official Geospatial Information Agency in Indonesia, Geospatial Information Agency (Badan Informasi Geospasial-BIG) has deliver a National Act Planning through an inter-governmental agencies and departments coordination meeting to support efficient and effective spatial decision support system for national sustainable development planning.

In July 2002, the revised Chapter V of the IMO Safety of Life at Sea (SOLAS) Convention entered into force. Under the new Regulation 9, the Contracting Governments of SOLAS are now required to provide and maintain Hydrographic Services and products.

Many charts which were adequate a decade ago, may have to be recompiled using new survey data, collected to a higher degree of accuracy and providing improved coverage. This deficiency may not be limited to sparsely surveyed waters of developing nations, but may also apply to the coastal waters of major industrial states. The advent of accurate satellite navigation, has made poorly positioned historical data an even greater problem for navigators. Fortunately, new survey technologies have improved the precision to which modern hydrographic surveys can be conducted.

Hydro-Oceanographic Office (DISHIDROS) is IHO member and representative office in Indonesia since 18 October 1951 who is responsible and the only institution to produce nautical chart for ship navigation in Indonesia. It has missions to support surface and underwater information for national security and military purpose, to increase product quality based on international standards and rules to ensure ship navigation safety, to contribute to marine environmental protection and maritime boundary delineation, to maintain up to date, high quality and integrated hydro-oceanographic information.

Indonesian Surveyor Association (ISI) is a professional organization for surveyors which was established on 27 June 1972. It has a long history on supporting geodetic, surveying, mapping and geospatial information projects in Indonesia. ISI was created based on the same vision of surveying and mapping experts to place the human resources development as the key component for development of geospatial information science and technology. Since 2008, Indonesian's hydrographer society created an official organization to support hydrographic science and technology development as well as an exchange and discussion media for all hydrographic survey experts and companies in Indonesia. This organization was initiated by Prof. Dr. Ing. Sjamsir Mira and is named as *Masyarakat Hidrografi Indonesia* (MHI) or Indonesian Hydrographic Society.

Finally, I would like to great all participants of ISWH2013. Citing the Indonesian Navy motto, *Jalesveva Jayamahe*, ON THE SEA WE ARE GLORIOUS, I wish you to have a very nice seminar and workshop event

Cibinong, 17 August 2013
Head of Indonesian Surveyor Association

Ir. Budhy Andono Soenhadi, MCP

TABLE OF CONTENTS

	Page
Ship Detection based on Synthetic Aperture Radar Technique	Agustan Rubby Sidik Agustino 1
Mapping of Coastal Vulnerability Index on Coastal Erosion In The Perspective of Economy (Study Area: Kecamatan Muara Gembong, Kabupaten Bekasi)	Aldila Pradhana, S.T. Dr. rer. nat. Wiwin Windupranata, M.Si. Dr. Ir. Dwi Wisayantono, M.T. 9
The Spatio Temporal Dynamic of Diffuse Attenuation Coefficient In The Tropical Berau Estuary, East Kalimantan Indonesia	Wiwin Ambarwulan Widiatmaka 21
Mapping Multi Coastlines With Multi-Tidal Imageries	Fahmi Amhar Habib Subagio Tri Patmasari 29
Identification Problem of Marine Cadastre Indonesian Archipelagic Perspective	Yacob Astor Widyo Nugroho SULASDI S. Hendriatiningsih Dwi Wisayantono 33
The Comparison of Bathymetric Estimation from Three High Resolution Satellite Imagery	Samsul Bachri Muhammad Banda Selamat Vincentius P Siregar Sam Wouthuizen 43
The Progression of Multi-Dimensional Water Column Analysis in a Processing Environment	Corey M. Collins Andrew Hoggarth Matthew Holland 51
Variability of Sea Surface Temperature and Sea Surface Salinity in the Ambon Bay and its Relation to ENSO/IOD and Monsoon	Corry Corvianawatie* Mutiara Rachmat Putri Sri Yudawati Cahyarini Willem Merpy Tatipatta 55
The Calculation of Erosion and Sedimentation Rate in Coastal Zone Using Satellite Imageries (Case Study: Kecamatan Muara Gembong, Kabupaten Bekasi, West Java)	Dianlisa Ekaputri, S.T. Dr. rer. nat. Wiwin Windupranata, M.Si. Dr. Agung Budi Harto, M.Sc. 61
Reconstructing Disrupted Water Level Records in A Tide Dominated Region Using Data Mining Technique	Hidayat Fajar Setiawan Unggul Handoko 71
Initiative on Implementation of 3D Cadastre In Indonesia	Sri Karina, ST, DEA Deni Santo, ST Dr. Trias Aditya Dr. Eka Djunarsjah, MT 77
Geomatics Roles In Capacity Building For Hydrographic Mapping at Prigi Beach	Khomsin Yuwono Akbar Kurniawan 89
The Coastal Platform Morphodynamics Characteristics Belang Bay, North Sulawesi Province	Joyce Christian Kumaat Sontje Tonly Boy Kandoli Agnes Tenly Moningkey 93
Evaluation of Warm Water (thermal) dispersion using a numerical model at the Binceta Coast (North Sulawesi) in PLTU Development	Mahatma Lanuru 97
RV Baruna Jaya Marine Data Processing and Information Management	Imam Mudita Fineza Ilova Ratna Juwita 107
Study On The Other Possible Applications of The Available Tie Points of The Basepoints In Indonesia	Rorim Panday Sri Handoyo 117

Natural to anthropogenic influence of environmental change of Jakarta Bay: seismic reflection and sediment coring studies	Haryadi Permana Rina Zuraida Susilohadi Kresna Tri Dewi Nugroho Dwi Hananto Mustaba Ari. Suryoko Nazar Nurdin Eko Saputro Adi C. Sinaga Septriono Hary. Nugroho	125
Marine Geoscientific Survey for Possible Extend of Indonesia Legal Continental Shelf Beyond 200 M at North Papua – Indonesia : A Preliminary Results	Catur Purwanto Nugroho D. Hananto Mustafa Hanafi Hersenanto C. Widi Rahadian Rainer A. Troa Tumpal Bernhard Bisma J. Zakaria Ronald D. Michel Andi Wisnu LKI 2013 Expedition Team	131
20071Pseudo 3D Sismic Methods Using 2D Seismic Multichannel Data Taken From Offshore Karawang, West Java	Trevi Jayanti Puspasari, SSi Dr. Udrekh Sumirah, S.Si	135
Study The Changes of SSH Value Using Altimetry Satellite In The NKRI'S Outermost Islands (Case Study: Fani Island)	Dika Ayu Safitri Muhammad Taufik Yuwono	139
The Study of Sea Bottom Morphology and Bathymetric Mapping Using Worldview-2 Imagery	Iwan E. Setiawan Doddy M. Yuwono Vincentius P. Siregar Gatot H. Pramono	143
People and The Environmental Change: Impact and Aadaptation Model	Dewayany Sutrisno	151
Designing of Decission Support System For Maritime Boundary Management In South China Sea	Trismadi S. Sutisna K.B. Seminar Machfud	159
Hydrodynamic Condition of Kapuas Kecil River, Pontianak Based On Simulation Model	Iswiati Utamiputeri Mutiara Rachmat Putri Zainal Arifin	171