



INTERNATIONAL HYDROGRAPHIC ORGANIZATION

NATIONAL REPORT FROM INDONESIA TO THE NIOHC

1. Hydrographic Office/Service.

a. Name of the institution: Pushidrosal (Indonesian Navy Hydrographic and Oceanographic Center)

b. Description: Pushidrosal is national hydrographic office of Indonesia under Indonesian Navy Head Quarters. According to the Presidential Decree of the Republic of Indonesia Number 62/2016 as an amendment of Presidential Decree of the Republic of Indonesia Number 10/2010 about the organization of Indonesian Armed Forces. The objectives of Pushidrosal is to carry out hydro-oceanographic surveys, marine research, nautical chart and production, nautical publication dissemination, and marine environment analysis to support safety of navigation also to provide data and information for national defense and public civilian needs.

c. Submitted by: infohid@pushidrosal.id;

Detailed information to update IHO Publication P-5 (*Yearbook*) is submitted in Annex A.

2. Surveys.

a. Coverage of new surveys: Since the last meeting in April 2018, Pushidrosal have continued a series of surveys within Indonesia's waters, such as in Bengkulu, Enggano Island, Natuna Sea, Karimata Strait, Java Sea, Bali Sea, Makassar Strait, Bone Gulf, Peleng Strait, Arafura Sea and Lake Toba. Pushidrosal also conducted hydrographic survey for disaster relief in the Bay of Palu following the Palu earthquake as well as deliver the similar mission to respond Krakatoa eruption in Sunda Strait.

b. New technologies and /or equipment. Pushidrosal employ 8 portable MBES and 6 hull mounted MBES, and recently using Kongsberg EM 2040 (3), Reson Teledyne T-20 (1) and Reson Teledyne T-50P (4).

c. Modern Survey Ships. Pushidrosal has 2 (KRI Rigel 933 and KRI Spica 934) modern survey vessel as multipurpose research vessel commissioned in 2015. The ships are able to be assigned for search and rescue missions. Each ship is equipped with AUV (autonomous underwater vehicle) which has capability to take underwater images from 1,000 meters depth and send data periodically by using supervised mode. The other equipment which has been fitted on each ship is remotely operated vehicle (ROV) which equipped with

mechanic arms to provide visual information and take samples from the bottom of the ocean up to 500 m of depth.

3. New Charts & Updates.

At present Pushidrosal has 580 number of paper charts and 520 ENC cells. ENC production are based on paper charts. Indonesia is striving to migrate to the Hydrographic Production Database to improve chart and ENC's quality and consistency. Paper charts are distributed locally by Pushidrosal Cooperation, but ENC are distributed locally and internationally through UKHO VAR, C-MAP and Primar. We also produced and maintain INT Chart, particularly to cover the Indonesian Archipelagic Sea Lane (IASL). Additional chart products are for the internal consumptions of the Navy, and also to support tourism sector, environment, and maritime sector. Since 2017 we produced leisure charts called "Yacht Recreation" chart. Our ENC is also utilized by cruise vessel visiting Indonesia. Our main problem are the readiness of recent survey data, especially in some remote islands where tourism industry and local economy is growing.

4. New Publications & Updates.

Pushidrosal list of publication

Number	Publication	Remarks
1	Indonesian Nautical Charts	Numbers, coverage's and editions can be seen in Indonesian nautical chart catalogue. Edition 2017
2	Indonesian Books and Nautical Charts Catalogue	Edition 2017
3	Chart Number 1	Edition 2016
4	Electronic Navigational Chart (ENC)	Numbers, coverage's and editions can be seen in Pushidrosal Website
5	Nautical Almanac	Edition 2019
6	Tidal Stream Tables	Edition 2019
7	Tide Tables	Edition 2019
8	Sailing Handbook	Edition 2018
9	Sailing Direction Region I	Edition 2018
10	Sailing Direction Region II	Edition 2015
11	Sailing Direction Region III	Edition 2016
12	Sailing Direction Region IV	Edition 2017
13	Indonesian Lights Light	Edition 2017
14	Indonesian Port Information	Edition 2016
15	List of Submarine Pipelines and Cables Indonesia Waters	Edition 2017
16	List of Wrecks Indonesia Waters	Edition 2018
17	Former Mine Areas Indonesia Waters	Edition 2017
18	List of Coastal Indonesian Radio Station	Edition 2015
19	IALA A Maritime Buoyage System	Edition 2016

20	Current Charts Indonesian Waters Eastern Region	Edition 2014
21	Current Charts Indonesian Waters Western Region	Edition 2014
22	Tracks and Distance Between Ports in Indonesia	Edition 2015
23	The Rise and Set of The Sun and The Moon Time Table in Indonesia Archipelago	Edition 2018
24	Indonesia List of Buoys	Edition 2018

Delivery of all publications is still in paper form with direct purchase to the store. For details see: <http://www.pushidrosal.id/buku-nautika/51/> and <http://eshop.pushidrosal.id/>

5. Maritime Safety Information (MSI).

In Indonesia, infrastructure of GMDSS is under Directorate General of Sea Transportation. In carrying out responsibilities to inform mariners in Indonesia waters concerning safety of navigation, Pushidrosal compile information from the mariners and all Indonesia ports authority regarding sea accident in Indonesia waters. Information from the mariners and ports authority be included into Radio Navigational Warning and send that information to Jakarta Radio. Jakarta Radio will inform it to all mariners which are sailing in Indonesia waters. Every marine accident that resulted in shipping hazards such as sinking, crashing, collision and missing contact vessel will be reported through Kawat Navigasi (KN) for Indonesian Navy Ships and beyond Indonesian Navy Ships use Hidro-Indo (HI) or Indonesian Notices to Mariners (IDNM). KN/HI issued at any time when there was a sea accident happened, notices to mariners published weekly. The other side Pushidrosal also send navigational warning to coordinator of Navarea XI in Japan via email.

6. C-55.

The table with the latest information to update IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is provided in Annex B.

7. Capacity Building.

- a) Training received, needed, offered:
 - 1) Training received
 - (a) MCDA Training Course in UK
 - (b) Oceanography Course in India
 - (c) Hydrographic Course Cat – B Japan
 - (d) Master of Science in USA
 - (e) Long Hydrography Course in India
 - (f) 10th Course in Marine Cartography and Data Assessment (FIG-IHO-ICA-Cat B) in UK.
 - (g) EAHC CB (A Week Training)
 - ENC Production;
 - Maritime Delimitation;

- Seabed Classification;
- Satellite Derived Bathymetry (SDB) and LIDAR;
- Hydrographic Survey for Disaster Management and Relief;
- Hydrographic Survey for Inundation Mapping;
- Maritime Safety Information (MSI);
- Hydrographic Training for Trainer (TFT);
- Cat. B Marine Geospatial Information Program;
- Seabed Classification and Multibeam Survey;
- Digital Reference Tool for Cartographers;

2) Training Needed

- (a) Training for Trainers Hydrographic Course;
- (b) Hydrographic Course (Cat A).

3) Training Offered

Nautical Charting Hydrographers and Cartographers to Support Port Management and Coastal Engineering at Cat B Level.

b) Status of national, bilateral, multilateral or regional development projects with a hydrographic component. (In progress, planned, under evaluation or study)

- 1) Research in Satellite Derived Bathymetry collaboration with Indonesia National Institute of Aeronautics and Space (LAPAN);
- 2) Development of Hydrography Data Center cooperation with other national Institution and agencies;
- 3) Development of Malacca Straits ENC collaboration with Singapore Maritime Port Authority (MPA), National Hydrography Service of Malaysia; Japan Hydrography Association (JHA) and Malacca Strait Council (MSC)
- 4) Development of Marine Geospatial Database collaboration with Indonesia Geospatial Agencies (BIG).
- 5) Development of conservation area (protected area for marine conservation) collaboration with Ministry of Marine and Fisheries.

8. Oceanographic activities.

a. Tide gauge network. Pushidrosal also conducts tidal measurement in real time at 10 locations and the newest location at Tanjung Medang related to the Malacca Strait Council survey. This observation is a part of large national scheme with a total of 187 collaboration stations from ministries and institutions.

b. Problems encountered.

- 1) Tides and currents permanent observation station in Indonesia waters is still very limited due to vast of Indonesia water territory. Pushidrosal carry out tides and currents observation as a periodical data that parallel with hydrographic and oceanographic activities.

- 2) Lack of collaboration between ministries and institution in data exchange between government institutions or agencies.

9. Other Activities.

a. Participation in IHO working groups. Pushidrosal active in several IHO working groups, such as:

- 1) S-100 working group IHO (S-100 WG).
- 2) ENC standards maintenance working group (ENCWG).
- 3) Nautical cartography working group (NCWG).
- 4) Data quality working group (DQWG).
- 5) Tides, water level and current working group (TWCWG).
- 6) Hydrographic dictionary working group (HDWG).
- 7) Marine spatial data infrastructure working group (MSDIWG).
- 8) Strategic plan review working group.

b. Meteorological data collection. Meteorological data in real time at distant places can be accessed directly accessible on Pushidrosal at the moment. Pushidrosal placed AWS in various representative place to collect meteorological data. Not only meteorological and climatological data from field survey, Pushidrosal also used meteorological data from Pushidrosal laboratory as an enrichment. This data is obtained from the AWS and Sun Shine Recorder data tapes on the laboratory. Time step of the data can be adjusted depend on necessities. Pushidrosal uses climatological data from BMKG meteorological station in order to compare with a field survey result data.

c. Geospatial studies. To develop marine spatial data infrastructure Pushidrosal conducted training geospatial hydrographic and oceanographic system information. Those system information created to publish maritime safety information to support government marine development program, such as: to provide system information for navigate from port to port with safe.

d. Environmental protection. Pushidrosal actively deliver support to backup Indonesia government for marine environmental protection program, such as surveying marine conservation area with others government agencies and drawing into nautical charts, cultivate mangrove plants in coastal area, updating hydrographic and oceanographic data along Indonesia coastline.

e. MSDI progress. Pushidrosal establish and develop Indonesian Marine Geospatial Information Center (IMGIC) as implementation of global marine spatial data infrastructure (MSDI). It is the component of the National SDI that encompasses marine, chart catalogue, coastal geographic and business information in its widest sense. IMGIC provide marine data include information on seabed bathymetry (topography), geology, infrastructure (e.g. wrecks, offshore installations, pipelines, cables); administrative and legal boundaries, areas of conservation and marine habitats and oceanography.

f. International. Pushidrosal active in International affairs with others International hydrographic offices or agencies to sharing data and information regarding development of hydrographic and oceanographic technology and

survey method, sharing data and information for updating nautical charts and others publication.

j. Pushidrosal also support Indonesian government policy to develop maritime sectors, including providing required data and information of map policy project, sharing information with other government bodies like Ministry of Internal Affairs, Ministry of Foreign Affairs, Ministry of Marine and Fisheries, etc.

Pushidrosal undertaking research in Satellite Derived Bathymetry (SDB) partnership with Indonesia National Institute for Aeronautic and Space or LAPAN. The objective of this research is to develop, analyze and conduct processing data bathymetry from satellite image to support updating bathymetry data in nautical charts especially in the area that is not covered by survey vessel.

10. Conclusions.

Pushidrosal's priority of hydrographic survey program are to conduct surveys in the Archipelagic Sea Lanes (ASL), archipelagic water, coastal area, ports, port approach, the river waterways and channel. Updating hydrographic and oceanographic data in the Indonesian archipelagic sea lanes (ASL) and conduct investigation survey for navigation hazard to make sure safety of navigation all around Indonesia waters.

Pushidrosal proposed for providing ocean going survey vessel with basic platform that can be configured to a variety of roles that include hydrographic oceanographic survey in the deep sea area, submarine support, diving operations, ROV and UAV deployment, search & rescue. With the development of modern instruments, as well as space and communication technology, significant changes have taken place in surveying and charting science and techniques, surveyors using multiple tools to observe and monitor our oceans.


 Chief Hydrographer,
 Rear Admiral Dr. Harjo Susmoro


Input to the IHO Publication P-5 (Yearbook)

Country: Indonesia
 Organization: Indonesian Navy Hydrographic and Oceanographic Center (PUSHIDROSAL)

Contact information/ Informations de contact / Información de contacto	
-National Hydrographer or equivalent -Directeur du service hydrographique ou équivalent -Director del Servicio Hidrográfico o equivalente	Post: Name: Rear Admiral Dr. Harjo Susmoro Postal address: Jalan Pantai Kuta V/1, Ancol Timur, Jakarta Utara 14430. Indonesia Tel: +62 21 64 71 48 09 Fax: +62 21 64 71 48 19 Email: infohid@pushidrosal.id or infohid@dishidros.go.id
-Head of the Hydrographic Office (if different from the person indicated above) -Directeur du Service Hydrographique (si différent de la personne indiquée ci-dessus) -Director del Servicio Hidrográfico (si diferente de la persona indicada anteriormente)	Post: Name: Rear Admiral Dr. Harjo Susmoro Postal address: Jalan Pantai Kuta V/1, Ancol Timur, Jakarta Utara 14430. Indonesia Tel: +62 21 64 71 48 09 Fax: +62 21 64 71 48 19 Email: infohid@pushidrosal.id or infohid@dishidros.go.id
-Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	-
-Web site -site web -sitio web	www.pushidrosal.id
Country information / Informations sur le pays/ Información sobre el país	
-Declared National Tonnage -Tonnage national déclaré -Tonelaje Nacional Declarado	Tonnage: 12. 944.000 Date: 2017
-National day -Fête nationale -Fiesta nacional	17 th August
-Date of establishment and Relevant National Legislation -Date de mise en place et législation nationale pertinente -Fecha de constitución y legislación nacional pertinente	31 st March 1951

-Date first joined IHO -Date d'adhésion à l'OHI -Fecha de adhesión a la OHI	18 th October 1951
-Date ratification Convention -Date de ratification de la Convention -Fecha de ratificación de la Convención	28 th November 1968
-Remarks on membership -Remarques sur l'adhésion -Comentarios sobre la adhesión	Member of IHO, EAHC, NIOHC and SWPHC
Agency information/ Information sur l'agence/ Información sobre la agencia	
-Top level parent organisation -Organisme mère -Organización asociada de nivel superior	Indonesia Navy Headquarters, Indonesia Armed Forces Headquarters
-Principal functions of the organisation or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o departamento	Conducting hydrography and oceanography survey, produce nautical charts and nautical publications, marine research and marine environmental protection to serve public and military requirements.
-Annual operating budget -Budget annuel -presupuesto annual	US \$ 4,304,286.36
-Total number of staff employed -Effectifs totaux -Número total de personal empleado	1.230 persons
-Number of INT charts published -Nombres de cartes INT publiées -Número de cartas INT publicadas	68
-Total number of paper charts published-Nombre total de cartes papier publiées-Número total de cartas de papel publicadas	580
-Number of ENC cells published -Nombres de cellules ENC publiées -Número de células ENC publicadas	520

-Number of Other charts -Nombre d'Autres cartes -Número de Otras cartas	150			
-Type of publications produced -Type d'ouvrages produits -Tipo de publicaciones producidas	Nautical Charts, Tide and Tidal Stream Tables, Notice to Mariners (Weekly), Sailing Directions, List of Lights, Port Information, Nautical Almanac			
-Detail of surveying vessels/ aircraft -Détail des bâtiments hydrographiques / aéronefs -Detalle de los buques hidrográficos / aeronaves	-Name -Nom -Nombre	-Displacement -Déplacement -Desplazamiento	-Date Launched -Date de mise en service -Fecha de botado	-Number of crew -Nombre de l'équipage -Tripulación
	KRI Dewa Kembar	2800	1965	109
	KRI Rigel	515	2015	48
	KRI Spica	515	2015	48
	KRI Pulau Rote	516	1971	32
	KRI Pulau Romang	516	1971	32
	KRI Pulau Rempang	516	1973	32
	KAL Aries	50	1960	11
	KAL Vega	50	2007	20
	-Other information of interest -Autres informations utiles -Otra información de interés			



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 Rear Admiral Dr. Harjo Susmoro

Input to the IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*)

Country: Indonesia

C-55 Summary for:				Comments on Charts:
Country:	Indonesia			
Country Iso Code:	IDN			
Country SubCode:	ID			
INT Region:	K			
Country/Depend:				
Last updated:	15 February 2018			
Provided by:	Indonesian Navy, Hydrographic and Oceanographic Center (Pushdirosal)			
Chart coverage	Passage (%)	Coastal (%)	Port (%)	Comments on Surveys: - Limitation of Platform Capability - 50% bathymetry data source from historic sounding data - Pushidrosal still continue to update bathymetry data in Indonesia waters and collaborate with other national agency for any additional data. Our priority program is to proposed requirement on new ocean going survey ship with modern technology.
INT	100	19.3		
RNC	-	36.5	2	
ENC	100	49.9	1.5	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			100	
Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	
0-200m	100	50	-	
> 200m	50	100	-	

MSI	Y/N	Comments on MSI:
Local warning	Yes	
Coastal warning	Yes	
Nav warning	Yes	
Port warning	Yes	
GMDSS	Y/N	Comments on GMDSS:
Master Plan	No	

Area A1	No	
Area A2	No	
Area A3	No	
NAVTEX	No	
SafetyNet	No	


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Rear Admiral Dr. Harjo Susmoro