

**19TH MEETING OF THE SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION
(SWPHC19)
VTC, 23-25 February 2022**

NATIONAL REPORT FROM INDONESIA TO THE SWPHC-19

References:

- A. IHO Resolution 2/1997 as amended
- B. IHO Circular Letter 20/2019, The IHO Online Form System for responses to Circular Letters and input to IHO Publications (P-5 and C-55)
Online system for P-5 (Yearbook)
Online system for C-55 (Status of Surveys and Charting Worldwide)

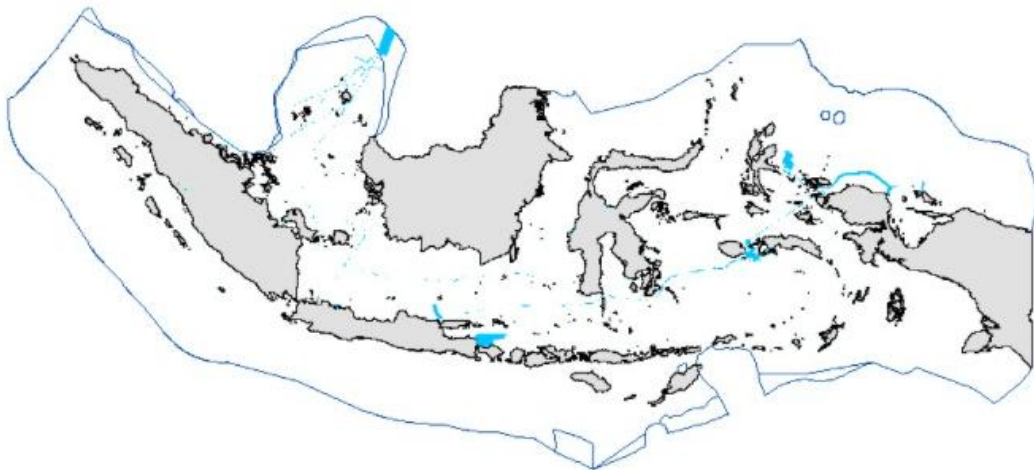
Executive summary

1. HYDROGRAPHIC OFFICE / SERVICE

- a) Name of the institution: Pushidrosal (Indonesian Navy Hydro-Oceanography Center)
- b) Description: Pushidrosal responsible for conducting hydrography and oceanography activities, including surveys, research, nautical charting, publications, marine environments and navigation safety of shipping, both for military and public purposes.
- c) Submitted by: infohid@pushidrosal.id
Detailed information to update IHO Publication P-5 (*Yearbook*) is submitted in Annex A.

2. SURVEYS

- a) Coverage: (Survei coverage during 2021)



- b) New technologies and /or equipment. Pushidrosal enables 8 portable MBES and 6 hull mounted MBES also Autonomous Underwater Vehicle (AUV) and Unmanned Surface Vessel (USV). More specifically, Pushidrosal utilizes MBES Kongsberg EM 2040 (3), Reson Teledyne T-20 (1), Reson Teledyne T-50P (4), AUV Hugin 1000 and Z-Boat 1800-RP.
- c) Modern survey ships. Pushidrosal has 2 modern survey vessel as multipurpose research vessel commissioned in 2015 (KRI Rigel 933 and KRI Spica 934). The ship also assigned for search and rescue missions. These ships equipped with an AUV which has

capability to take underwater images from 1,000 meters depth and send data periodically by using supervised mode. Another equipment which has been fitted on KRI Rigel and KRI Spica is remotely operated vehicle (ROV) which equipped with artificial arms to provide visual information and grab samples from the bottom of the ocean.

d) Crowdsourced and satellite-derived bathymetry



SDB Area (until 2021): 34,420 Km²

The SDB method utilize only when the survey teams could not successfully survey those areas due to the obstacles including shoal, rocks, extremely shallow water, etc.

e) Challenges and achievements.

Since the demand of hydrographic data and e-products have significantly increased in the past decade, Pushidrosal has developed a marine spatial data infrastructure in order to provide and disseminate updated hydrographic data and e-products to mariners so they able to access them with ease and no time.

Detailed information about surveys to update IHO Publications P-5 (*Yearbook*) and C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is submitted in Annexes A and B, respectively.

3. New charts & updates. Currently Pushidrosal has 581 number of paper charts and 558 ENC cell. ENC production are based on paper charts. Indonesia 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, C-MAP, and Primar. We also produced and maintain INT Chart, especially to cover the Indonesian Archipelagic Sea Lane (IASL). Other chart products are for the internal uses of the Navy, and also to support tourism sector, environment, and maritime sector. Since 2017 Pushidrosal produced leisure charts called "Yacht Recreation" chart. Our ENC is also utilized by cruise vessel visiting Indonesia. Our main problems are the availability of recent survey data, especially in some remote islands where tourism industry and local economy is growing.

Detailed information about charting to update IHO Publications P-5 (*Yearbook*) and C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is submitted in Annexes A and B, respectively.

4. NEW PUBLICATIONS & UPDATES

a) New Publications

- 1) Catalogue of Indonesia Charts and Publications
- 2) Chart Number 1
- 3) Nautical Almanac
- 4) Indonesia Tidal Stream Atlases
- 5) Indonesia Tide Tables
- 6) Indonesian Notices to Mariners
- 7) Sailing Direction Section I
- 8) Sailing Direction Section II
- 9) Sailing Direction Section III
- 10) Sailing Direction Section IV
- 11) Indonesia List of Lights
- 12) Indonesia Port Information
- 13) Indonesia List of Submarine Pipelines and Cables
- 14) Indonesia List of Wrecks
- 15) Mine Areas (from World War era) of Indonesian Waters
- 16) Indonesia List of Radio Signals
- 17) IALA "A" Maritime Buoyage System
- 18) Current Charts Indonesian Water Eastern Region
- 19) Current Charts Indonesian Water Western Region
- 20) Indonesia Distance Tables
- 21) Indonesia List of Buoys
- 22) The Astronomical Almanac

b) Updated publications:

- 1) Indonesia Tide Tables
- 2) Indonesia Tidal Stream Atlases
- 3) Nautical Almanac
- 4) Indonesia Notices to Mariners
- 5) Catalogue of Indonesia Charts and Publications
- 6) Catalogue of Indonesia Electronic Navigational Charts

c) Means of delivery, e.g paper, digital.

Delivery of Nautical Chart is both in paper and digital based. Meanwhile, all nautical publications are in paper based.

d) Challenges and achievements.

Since the demand of hydrographic data and e-products have significantly increased in the past decade, Pushidrosal has developed a marine spatial data infrastructure in order to provide and disseminate updated hydrographic data and e-products to mariners with ease and no time.

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

5. MSI

- a) Statistics on work of the National Coordinator.

(Held by Directorate General of Sea Transportation.)

- b) New infrastructure in accordance with GMDSS Master Plan.

In Indonesia, infrastructure of GMDSS under Transportation Ministry – Directorate General of Sea Transportation. In carrying out responsibilities to inform mariners in Indonesian waters concerning safety of navigation, Pushidrosal compiles information from the mariners and all Indonesian port authorities. Information from the mariners and port authorities 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 HidroIndo (HI) for general ship, and wire navigation (KN) for Indonesian Navy ships or notice to mariners (NTM). KN / HI issued at any time when marine accident happens, notice to mariners is published weekly on Friday.

6. C-55

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7. CAPACITY BUILDING

- a) Offer of and/or demand for Capacity Building

Since 1993 Indonesian Naval Hydrographic and Oceanographic Centre, Conducted “*Nautical Charting Hydrography and Coastal Zone Management*” Course

- b) 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 Assesment (FIG-IHO-ICA-Cat B) in UK.
- (g) EAHC CB (A Week Training)
 - (1) ENC Production;
 - (2) Maritime Delimitation;
 - (3) Seabed Classification;
 - (4) Satellite Derived Bathymetry (SDB) and LIDAR;
 - (5) Hydrographic Survey for Disaster Management and Relief;
 - (6) Hydrographic Survey for Inundation Mapping;
 - (7) Maritime Safety Information (MSI);
 - (8) Hydrographic Training for Trainer (TFT);
 - (9) Cat. B Marine Geospatial Information Programme;

- (10) SeaBed Classification and Multi Beam Survey;
- (11) Digital Reference Tool for Cartographers;

2) Training Needed

- (a) Training for Trainers Hydrographic Course;
- (b) Hydrographic Course (Cat A).
- (c) Training on Electronic Navigational Charts

3) Training Offered

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

c) 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 Aeronautic and Space (LAPAN);
- 2) Development of Hydrographic 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 Assosiation (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) General

1) **Tides.** The tidal observation is conducted by two methods, firstly during survey based on the 29 days observation and the data directly downloaded on site. Secondly, fix-mounted tidal stations are operated non stop every day and the tidal data is transferred to the command post (Pushidrosal) by telemetry method continuously. In addition, Pushidrosal has secondary tidal data from other National Agencies as well.

2) **Currents.** Currents observation integrated with the hydrography 18 locations, with the static method measurement and several disaster reliefs at Palu Bay and Sunda Strait with hull-mounted ADCPs. Current data that obtained from the survey is 15 or 29-day observational data. The tools that used for measurement are Current Meter Valeport 106 and ADCP.

3) **CTD.** CTD (Conductivity, Temperature and Depth) is the primary tool for determining essential physical properties of seawater, including conductivity, temperature, and depth of the sea also sound velocity. This tool provides an accurate and comprehensive representation of the distribution and variation of water temperature, salinity, and density to understand how the oceans affect life. The tools that used for measurement are CTD Alec ASTD and CTD Midas., Midas Valeport SVK-2, CTD AML Minos, CTD AML Oceanographic.

4) **Sediments.** Sediment data is collected to determine the type of seabed and sedimentation rate. The data taken are suspended load and bedload.

5) **Water Clarity.** Observation of sea water transparency is conducted in coastal and inland waters by lowering a secchi disk into the water until the maximum depth of a secchi disk is visible to the eyes. The brightness data obtained is the maximum depth data secchi disk that can still be seen by the eye and expressed with the meter in accordance with the length of the rope from sea level to secchi disk. Observations is done only in the afternoon. The weather and cloud conditions must be recorded. The purpose of the observation is to determine the clarity of the water of the area of interest.

b) Tide gauge network

Pushidrosal also conducts tidal observation activities in real time at 8 locations (Sorong, Asembagus, Dabo Singkep, Bawean, Ancol, Tanjung Medang, Tolop, and Nipa island). This observation is part of a large national scheme with a total of 187 collaboration stations between ministries and institutions.

1) **Telemetry Technology using Real Time Uninterrupted Water Sensor.**

This tide meter uses a radar system equipped with an ultrasonic sensor that will read the sea level based on the water height and measures the tidal data in real time every second, minute or hour. The telemetry sensors placed in the outermost island and sensitive navigation area.

2) **Transfer and download tidal data.** The tidal data will be processed in logger and then be transmitted to storage data. The data can be downloaded using electronic devices (multiple acces) with GPRS network system. The downloaded tide data is real time with variations of data per second, minute and hour as needed. Data resulted from this tool is graphics and numerical with accuracy up to mm.

3) **Synchronization and Field Calibration.** This tide measurement tool is designed in a simple way enables the process of calibration and field data synchronization easier. The calibration process has done by comparing the reading of the tool and manual reading on the tide pole. The result from this instrument, which is the distance from the sensor to the surface of the water, is automatically converted by logger and calculating the reading offset of the tool with the tide pole manual readings.

4) **Ultrasonic Sensor Logger Data.** This long period telemetry tool is equipped with Data Logger that serves as the processor. The system components consist of data logger, ultrasonic sensor, GPS timing, solar cell power supply system and free maintenance battery, also wireless communication. Ultrasonic sensor has a 42 KHz frequency and 1 millimeter resolution measurement with 10 Hz sampling rate data. Controlled time-monitoring system diagram with GPS time is to minimize time drift, the magnitude significantly distorts the observations on conventional systems using the usual clock. Data logger is equipped with a micro controller that can manage sensors, data storage and transmission as well as timing accuracy. Power consumption is quite efficient with a total of 1.5 Watt Hour, so the use of 12 Volt 24 AH battery voltage will be able to survive for 30 days although there is no solar radiation on solar cell. The sensor that used in this tidal gauge is an Ultrasonic Sensor with a 200,000 hour lifetime. Maximum sensor distance to sea level is 10 meters. The sensor should be set perpendicular to the instrument, so the data will match according to the measurement of the water level on the tide pole.

- c) New equipment
 - 1) Currents
 - (a) Current Meter Valeport 106.
 - (b) Current Meter ADCP Nortek.
 - (c) Current Meter ADCP Sontek.
 - (d) Current Meter ADCP Teledy.
 - (e) Ocean Surveyor Vessel-Mount ADCP (Lounge Range 3D Current Profiling).
 - 2) Tides
 - (a) Thalimedes.
 - (b) Tide Master Valeport Press.
 - 3) Waves
 - (a) SBE 26.
 - (b) SBE 26 Plus.
 - (c) RBR Duo.
 - 4) CTD.
 - (a) CTD Midas.
 - (b) CTD Minos.
 - (c) CTD Alec Astd.
 - (d) CTD AML Plus X.
 - 5) Sediments
 - (a) Bottle Nansen.
 - (b) Grab Sampler.
 - (c) Coring.
- d) Challenges and achievements
 - 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 parallel with hydrography and oceanography activities, these tides and currents data as periodical data.
 - 2) Lack of collaboration in data oceanography exchange between government institutions or agencies.

9. SPATIAL DATA INFRASTRUCTURES

- a) Pushidrosal has a system information called Indonesian Hydrographic Data Center (IHDC). As a portal, this system can be used to display important and actual information related to the hydro-oceanographic data in Indonesia, such as survey data, research, nautical charts, publications, marine environment implementation and navigation safety for both military and public. For the safety of navigation, Pushidrosal has sole authority and legality in preparing and providing hydro-oceanographic data on nautical chart (paper

chart and ENC) and nautical publications.

b) Connection with NSDI. The IHDC does not connect directly to other spatial data infrastructures.

10. OTHER ACTIVITIES

a) Participation in IHO Working Groups. Pushidrosal active in several IHO Working Groups, such as:

- 1) Data Quality Working Group (DQWG) IHO
- 2) Marine Spatial Data Infrastructure Working Group (MSDIWG) IHO
- 3) Nautical Cartography Working Group (NCWG) IHO
- 4) S-100 Working Group IHO
- 5) Hydrographic Services and Standard Committee (HSSC) Working Group IHO
- 6) Nautical Information Provision Working Group (NIPWG) IHO
- 7) Tides, Water Level and Current Working Group (TWCWG) IHO
- 8) ENC Standards Maintenance Working Group (ENCWG)
- 9) Advisory Board on the Law of the Sea (ABLOS)

b) Meteorological Data Collection

- 1) Automatic Weather Station (AWS) Data Telemetry. AWSs are installed in certain places to obtain meteorological data in real time with telemetry data transferring method. Therefore, it enables Pushidrosal to access, analyze and process the meteorological data in order to publish it in nautical publications.
- 2) Meteorological Data from Pushidrosal Laboratory. Pushidrosal laboratory data is also used to enrich meteorological data in Pushidrosal. This data is obtained from the AWS and Sun Shine Recorder data tapes on the Laboratory. The data can be adjusted time depending on our needs.
- 3) Climatology Data from Meteorology and Climatology Agency (BMKG). Climatological data is obtained when the Survey Team request a climatological data at BMKG Meteorological Station nearest the survey area as a secondary data. The secondary data will be compared to an observed data during survey.

c) Geospatial Studies

To develop Marine Spatial Data Infrastructure, Pushidrosal always enhance the geospatial hydro-oceanography information system as well as prepare the human resources in order to give the best contribution in providing the accurate and updated hydro-oceanographic data to safety of navigation with ease of access to public.

d) Disaster Prevention

Pushidrosal conducted TRDC in hydrography survey for disaster management relief in Jakarta, Indonesia in 2017 under IHO and EAHC Capacity Building Program. The objective of this program is aiming to develop perspective among the participants in the fundamental issues of hydrographic survey for disaster management and relief. The primary materials of the training include the following primary subjects:

- 1) National missions, policies, and programs related to disaster relief and management in Indonesia.

2) Technical and Societal aspects of the full cycle of disaster relief management, that entail:

- (a) Recovery;
- (b) Risk identification and assessment;
- (c) Prevention and mitigation; and
- (d) Preparedness

e) Environmental protection

Pushidrosal active in supporting 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 hydro-oceanographic data along Indonesia coastline.

f) Astronomical observations

Pushidrosal has bilateral agreement with UKHO to reproduce astronomical data.

g) Magnetic/Gravity surveys

Indonesia conducted magnetic survey in the Indonesia waters to support engineering project for national development such as, submarine pipe and cable laying, harbours construction, port development and searching shipwreck also sea mine buried from World War II.

h) MSDI Progress

Pushidrosal continue to develop Indonesia Hydrographic Data Center (IHDC) 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. IHDC provides Hydro-oceanographic data including information on seabed, geology, infrastructure (e.g., shipwrecks, offshore installations, submarine pipelines, cables), delimitation zone, areas of conservation and marine habitats.

i) International

Pushidrosal actively contributing in international affairs with others international hydrography offices or agencies to share data and information concerning development of hydrography and oceanography technology and survey method, sharing data and information for updating nautical charts and others publication.

j) Others

Instead of providing Maritime Safety Information, Pushidrosal also support Indonesian Government Policy to develop maritime sectors, including provide necessary data and information of Map Policy project, sharing information with other Government bodies like Department of Internal Affairs, Ministry of Foreign Affairs, Ministry of Marine and Fisheries, etc.

11. CONCLUSIONS

a) Areas of significant achievement

Pushidrosal's priority of hydrographic survey program to conduct hydro-oceanographic survey in the Archipelagic Sea Lanes (ASL), archipelagic water, coastal area, Ports, Port Approach, river waterways, channels and lakes.

b) Areas of particular concern

Updating hydro-oceanographic data in the Indonesian ASL and conduct investigation survey for navigation hazard to make sure safety of navigation on the Indonesia Waters.

c) Any other matters of interest to the SWPHC

Indonesia actively carrying out capacity building program in EAHC, with this, Pushidrosal want to share the experience with SWPHC member states. Pushidrosal had several times being host on the implementation of capacity building programs, such as:

- 1) Training in ENC Production – 2010
- 2) Training in Maritime Delimitation – 2014
- 3) Training in Seabed Classification – 2015
- 4) Training in Hydrographic Survey for Disaster Management and Relief – 2017
- 5) Training in The Use of GNSS for tide correction, 2018.
- 6) Training in MSI, 2019

Pushidrosal proposes ocean going multi purpose research vessel that can be configured to a variety of roles including hydro-oceanographic survey in deep sea areas, submarine support, diving operations, ROV and UAV deployment, search & rescue. Supported by sophisticated survey instruments as well as space and communication technology, enable hydrographic surveyors to observe and monitor our oceans better than ever.

Input to the IHO Publication P-5 (*Yearbook*)*Country : Indonesia**Organization: Indonesian Navy Hydro-Oceanographic Center (PUSHIDROSAL)*

Contact information/ Informations de contact / Información de contacto	
-National Hydrographer orequivalent -Directeur du servicehydrographique ou équivalent -Director del Servicio Hidrográfico o equivalente	Chief Hydrographer Vice Admiral Nurhidayat Tel: + 62 21 64 71 48 09 Fax: + 62 21 64 71 48 19 E-mail: infohid@pushidrosal.id Agency address: Jalan Pantai Kuta V/1, Ancol Timur,JAKARTA, 14430, Indonesia
-Head of the Hydrographic Office (if different from theperson indicated above) -Directeur du Service Hydrographique (si différentde la personne indiquée ci- dessus) -Director del Servicio Hidrográfico (si diferente dela persona indicada anteriormente)	-
-Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	-
-Web site -site web -sitio web	http://www.pushidrosal.id/ and http://imagic.pushidrosal.id/
Country information / Informations sur le pays/ Información sobre el país	
-Declared National Tonnage -Tonnage national déclaré -Tonelaje NacionalDeclarado	Tonnage: 12.944.000 Date: 2017
-National day -Fête nationale -Fiesta nacional	17 th August
-Date of establishment andRelevant National Legislation	31 st March 1951

-Date de mise en place et législation nationale pertinente -Fecha de constitución y legislación nacional Pertinente	
-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 (Associate Member)
Agency information/ Information sur l'agence/ Información sobre la agencia	
-Top level parent organisation -Organisme mère -Organización asociada de nivel superior	Indonesian Navy, Indonesian Armed Forces, Ministry of Defence
-Principal functions of the organisation or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o Departamento	Conducting hydro-oceanographic 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	1.218 persons

-Number of INT charts published -Nombres de cartes INT publiées -Número de cartas INT publicadas	-			
-Total number of paper charts published-Nombre total de cartes papier publiées-Número total de cartas de papel publicadas	581			
-Number of ENC cells published -Nombres de cellules ENC publiées -Número de células ENC publicadas	558			
-Number of Other charts -Nombre d'Autres cartes -Número de Otras cartas	333			
-Type of publications produced -Type d'ouvrages produits -Tipo de publicaciones producidas	<p>Nautical Charts Indonesia Tide Tables Indonesia Tidal Stream Atlases Notices to Mariners (weekly) Sailing Directions (Region I – IV) Indonesia List of Lights Indonesia Port Information Nautical Almanac Indonesia List of Submarine Pipelines and Cables List of Wrecks in Indonesia Waters Mine Areas (from World War era) of Indonesia Waters Indonesia List of Radio Signals IALA “A” Maritime Buoyage System Current Charts Indonesian Waters Eastern Region Current Charts Indonesian Waters Western Region Indonesia Distance Tables The Astronomical Almanac Catalogue of Indonesia Charts and Publications Catalogue of Indonesia Electronic Navigational Charts</p>			
-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

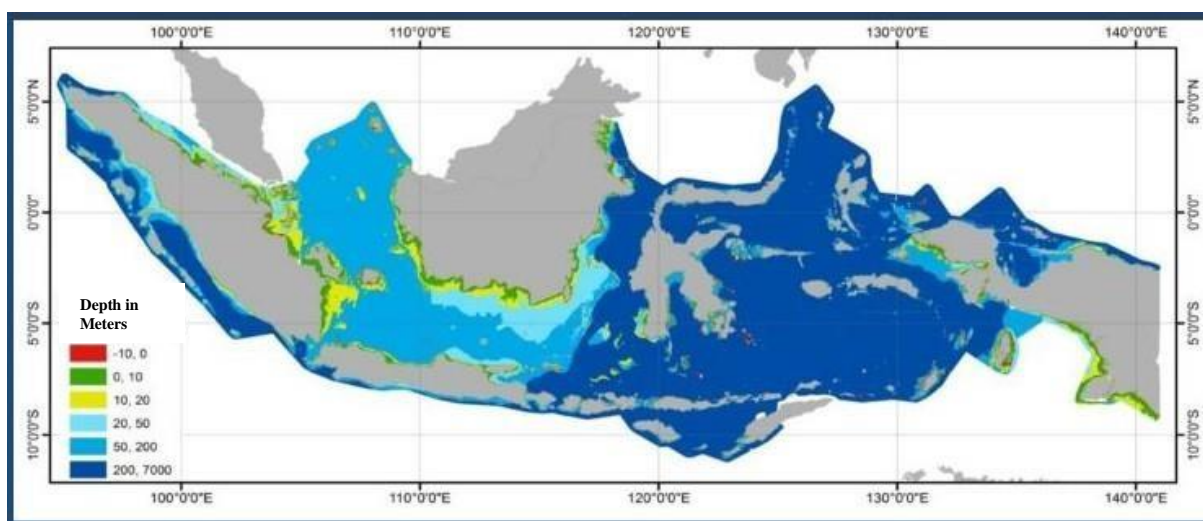
	KRI Dewa Kembar-932	2800	1965	72
	KRI Rigel- 933	515	2015	47
	KRI Spica- 934	515	2015	47
	KRI Pollux- 935	220	2021	35
	KRI Pulau Romang-723	482	1971	46
	KAL Aries	50	1960	20
	KAL Vega	50	2007	20
	KAL Antares	50	2015	6
-Other information of interest -Autres informations utiles -Otra información de interés				

National MSI Self-Assessment

*Country: Indonesia**Organization: Indonesian Navy Hydro-Oceanography Center
(PUSHIDROSAL)*

1. Maritime area

Indonesia is an archipelagic state extending about 5,120 kilometres (3,181 Mile) from east to west and 1,760 kilometres (1,094 Mile) from north to south. Indonesia has total land area of 1,904,569 square kilometres (735,358 sq mi), Including 93,000 square kilometres (35,908 sq mi) of inland seas (straits, bays, and other bodies of water). The additional surrounding sea areas bring Indonesia's generally recognised territory (land and sea) to about 6,4 million km². The government, however, also claims an exclusive economic zone, which brings the total area to about 8,3 million km². Indonesia waters have various depth with percentage as shown below:



Depth Ranges	Percentage
D < 10 m	4.44
10 m < D < 20 m	4.51
20 m < D < 50 m	6.75
50 m < D < 200 m	26.70
D > 200 m	57.60

Indonesia has maritime boundaries with 10 neighbouring countries including: India, Thailand, Malaysia, Singapore, Vietnam, Philippine, Palau, Papua New Guinea, Timor Leste and Australia.

2. Operational Points of Contact for the National Coordinator

INSTITUTION	TELEPHONE	FACSIMILE	EMAIL
Pushidrosal	+62 21 6471 4809	+62 21 6471 4819	infohid@pushidrosal.id

3. GMDSS Master Plan

In Indonesia, GMDSS infrastructure is under responsibility of Marine Transportation Department of Minister of Transportation

4. NAVTEX Coverage: -

5. Operational Issues:

GMDSS infrastructure is under responsibility of Marine Transportation Department of Minister of Transportation.

6. Contingency Planning

Pushidrosal provides the emergency hydrographic survey team to handle marine accident and support disaster management-relief in order to reduce the number of risk and casualties.

7. Capacity Building

- a) Cartography Course Cat C
- b) Training in ENC Production – 2010
- c) Training in Maritime Delimitation – 2014
- d) Training in Seabed Classification – 2015
- e) Training in Hydrographic Survey for Disaster Management and Relief – 2017
- f) Training the use of GNSS for tides correction for survey – 2018
- g) Training in Maritime Safety Information (MSI) - 2019

8. Other Activities

Pushidrosal active in several IHO Working Groups, such as:

- a) Data Quality Working Group (DQWG) IHO
- b) Marine Spatial Data Infrastructure (MSDI) Working Group (WG) IHO
- c) Nautical Cartography Working Group (NCWG) IHO
- d) S-100 Working Group IHO
- e) Hydrographic Services and Standard Committee (HSSC) Working Group IHO
- f) Nautical Information Provision Working Group (NIPWG) IHO
- g) Tides, Water Level and Current Working Group (TWCWG) IHO
- h) ENC Standards Maintenance Working Group (ENCWG)
- i) Advisory Board on the Law of the Sea (ABLOS)

9. National Maritime

Website

www.pushidrosal.id

Yes, we put the date and time of the last update in our website.

10. Recommendations: -

11. Summary

Pushidrosal is continuing to update bathymetric data in Indonesia waters and collaborate with other national agencies for additional data. Our priority program is proposing ocean going multipurpose research vessel equipped by sophisticated survey technology.