

## FIG COMMISSION 4 – HYDROGRAPHY WORK PLAN (2019-2022) AND COMMISSION ACTIVITIES

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FIG Commission 4 - Hydrography

### Abstract

The International Federation of Surveyors (FIG) technical work is led by ten Commissions. Hydrography is represented by Commission 4. FIG Commission 4 is focusing on development and recognition of standards of competency, development of technical standards and guidelines, developing and promoting the need to manage the oceans and seas in a sustainable manner, and a comprehensive investigation of plastic pollution at source that is concerning global environmental problem (“Mapping the Plastic”). Through all its Working Groups, Commission 4 has been actively involved in implementing its policy by working in close cooperation with relevant organisations and institutions. Commission 4 is committed with the continuous collaboration between educational institutions, non-government organisations and the Young Surveyors Network in research and development, as well as, community engagement and the realisation of United Nations Sustainable Development Goal 14 (UN SDG 14).

### 1. Introduction

The International Federation of Surveyors (FIG) was founded in 1878 and is a United Nations and World Bank recognised non-government organisation of national member associations, cadastral and mapping agencies and ministries, universities and corporations from over 120 countries. FIG’s technical work is led by ten Commissions. The responsibilities and work plans of Commissions are approved by the General Assembly during the FIG Congress. The work of each Commission is led by the Chairperson who is elected for a four-year term of office by the General Assembly at the Congress. The Chairperson is assisted by the Commission Vice-Chairperson also appointed by the General Assembly. The Chair-Elect is elected by the General Assembly two years before the Congress. The Commission Chair is also assisted by a Vice-Chair of Administration who is in charge for the administration of the Commission. Every Commission has established at least three working groups on special topics. All member associations have the right to nominate a national delegate to each of the ten Commissions. The affiliates, academic members and corporate members have a right to nominate a correspondent to each commission. The responsibilities and privileges of national delegates are published in the Internal Rules.

### 2. FIG Commission 4 - Hydrography

For the term 2019-2022, the Chairperson of FIG Commission 4 is Mohd Razali Mahmud and the Vice-Chair is Gordon Johnston. The commission comprised of the following Working Group with its respective Chairs:

- a) WG 4.1 – Standards and Guidelines for Hydrography (Neil Hewitt)
- b) WG 4.2 – Blue Growth & UN Sustainable Development Goal 14 (Gordon Johnston)
- c) WG 4.3 – Mapping the Plastic (Simon Ironside)
- d) WG 4.4 – Marine Development and Administration (Abdullah Hisam Omar)

### 3. Working Groups

The following are a brief description on the work of each Working Groups for the term 2019-2022. For the full work plan, please visit [https://fig.net/organisation/comm/4/workplan\\_19-22.asp](https://fig.net/organisation/comm/4/workplan_19-22.asp).

#### ⇒ Standards and Guidelines for Hydrography (WG 4.1)

Working Group 4.1 has been in existence for a while compared to the other three working groups. It assists in the development and recognition of standards of competency. Also, the working group assists in the development of technical standards and guidelines. Furthermore, it assesses the impact of international standards on current industry practice. Moreover, the working group review standards from alternate reputable sources relevant to hydrography.

#### ⇒ Blue Growth & UN Sustainable Development Goal 14 (WG 4.2)

The Blue Economy involves the geodesy to delimit marine and coastal areas and their jurisdiction, measurement and monitoring of the coastal and ocean areas for habitat, access and security of food sources, and good environmental status. The Blue Economy is concerned with the revenues, taxes and socio-economic benefits that the coastal seas and marine areas can generate for the local communities and states. It is hydrography and associated spatial data that underpins this. In this specific contribution, surveyors do have a role to play, among the elements to note are : the Blue Economy is important as it provides a vital source of food and benefits from a host of industry sectors, technology and innovation; the UN SDG's, especially SDG 14, cannot be obtained without a much more systematic survey coverage of the oceans. The GEBCO Seabed 2030 project has this objective (refer to <https://seabed2030.gebco.net/>). Johnston (2019) summarised in his presentation at KL GeoHydro 2019, among which he mentioned that there is not enough survey data to support the initiatives of UN SDG's; more skilled staff and cost effective solutions are required to offset and mitigate the threats to our oceans; the rate of Blue Growth suggests more interest and benefits will come from our oceans, so it is imperative, according to Johnston, that we steward our natural resource wisely.

#### ⇒ Mapping the Plastic (WG 4.3)

This working group is a joint initiative of FIG Young Surveyors Network and FIG Commission 4. The 2019 Leadership Group is Chair Simon Ironside and Vice-Chair Melissa Harrington along with Gordana Jakovljević and Miro Govedarica. Mapping the Plastic brings together scientific, surveying, spatial and engineering skills and expertise to accurately determine the amount and type of plastic litter in the waterway. Mapping the Plastic will provide accurate data at specific locations to better inform land use control. The survey methodology uses high resolution satellite and drone data that will be processed using a developed algorithm to detect floating plastic in the surface water. Combined with the 'ground truthing' land surveying measurements, bathymetric depth data, and water current data, this information will enable the working group teams of volunteers to accurately map plastic concentrations at 'global hot spots'. The survey results will enable regulators to more fully understand the extent of the phenomenon they are facing and inform decision-making to address the problem(s).

#### ⇒ **Marine Development and Administration (WG 4.4)**

This working group is led by Abdullah Hisam Omar with members Dietrich Geoffrey Bengen, Isa Adekunle Hamid-Mosaku, Rizqi Abdulharis, Mohd Zaid Abdullah and Mohd Hilmi Abdullah. The working group assists in the development of institutional policy and framework. Apart from that, the group assists in the development of conceptual and technical standards, guidelines and practice. Furthermore, it assists in the land and sea governance for a marine cadastre. This working group also assists in the development of indigenous marine management systems. The needs for Sustainable Marine Administration and Development are important because marine spaces are often not managed by a single public institution but managed by several stakeholders thus creating complex, uncertain and conflicting situations in determining the resolution of authority area for true governance. The proper standards of marine space are needed for sustainable development as stated by the United Nations Sustainable Developments Goals.

#### **4. Cooperation with IHO**

FIG and IHO cooperate under a Memorandum of Understanding (MOU) which was signed in Athens in May 2004. Commission 4 offers ongoing support to the IHO on a number of initiatives. FIG actively participates in the IHO Hydrographic Services and Standards Committee (HSSC) and the activities of the International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC). FIG Commission 4 looks forward to assisting its capacity building and other initiatives through representation on the IHO Regional Hydrographic Commissions.

##### ⇒ **IBSC**

The International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) was formed in 1977. The role of the IBSC is to develop and up-date international standards of competence for hydrographic surveyors and to review the academic programme of educational institutions that are seeking IHO accreditation of their hydrographic training courses. The IBSC has ten members, four appointed by FIG, four appointed by IHO, and two appointed by ICA. Currently the four FIG representatives in the IBSC are Gordon Johnston, Adam Greenland, Sobri Syawie, and Harald Sternberg. Harald joined IBSC this year and replaces Keith McGowan Miller who steps down after an impressive 8 years on the Board. Both Gordon Johnston and Adam Greenland were the past chairman of IBSC. The work of the IBSC meets annually to review submissions from academic and naval institutions. The ten Board members are distributed worldwide so the only practical way to review and maintain the course submissions and the Standards, involves a two-week annual Board meeting plus the inter-sessional reviews of some 16-18 courses.

##### ⇒ **HSSC**

FIG Commission 4 provides support to the International Hydrographic Organisation through the work of its Hydrographic Services and Standards Committee (HSSC) by participating in HSSC working groups to review hydrographic standards and guidelines, most recent is the S-44 (IHO Standards for Hydrographic Surveys) (Edition 6.0.0, September 2020).

## 5. Activities

### ⇒ KL GeoHydro 2019 (Conference & Exhibition)

The first event of KL GeoHydro 2019 was held in Kuala Lumpur, Malaysia for two days from 18-19 November 2019. FIG is the main organiser for this event together with The Association of Authorised Land Surveyors Malaysia, Royal Institution of Surveyors Malaysia, Land Surveyors Board Malaysia, Department of Survey and Mapping Malaysia, National Hydrographic Centre Malaysia, Universiti Teknologi Malaysia and the Malaysian Hydrographic Societies. All four Working Group Chairs including the Chair of Commission 4 gave a presentation in this event. The topics of presentation by the Chairs are as follows: Hydrographic Surveyors Certification (WG 4.1), Blue Growth, Developing the Blue Economy and the Surveyors Contribution (WG 4.2), Mapping the Plastic – A Surveyor’s Response (WG 4.3) and Roles of Marine Cadastre for Nation Development: Potential, Requirement and Challenges (WG 4.4).

The next KL GeoHydro 2020 will be held from 7-8 December 2020 in Kuala Lumpur, Malaysia ([www.geoinfo.utm.my/klgeohydro/2020/](http://www.geoinfo.utm.my/klgeohydro/2020/)).



**Figure 1:** Standing second from Left to Right, Gordon Johnston (Vice-Chair of FIG Commission 4 and Chair of WG 4.2), follow by Mohd Razali Mahmud (Chairperson of FIG Commission 4), standing seventh from Left to Right, Simon Ironside (Chair of WG 4.3), follow by Neil Hewitt (Chair of WG 4.1) at the KL GeoHydro 2019.

### ⇒ FIG Working Week 2021

The FIG Working Week 2021 will be held in Utrecht, Netherlands from 21-25 June 2021. Commission 4 will be involved in the technical sessions. The theme of the working week is “Smart Surveyors for Land and Water Management: Challenges in a New Reality”. Please visit the event’s website at <https://fig.net/fig2021/index.htm>.

### ⇒ Annual Meeting

The annual meeting of Commission 4 was held in Kuala Lumpur on 18 November 2019 during the conference of KL GeoHydro 2019. The Chairperson of Commission 4 and all four of the Chair of the Working Groups attended the meeting. This year the annual meeting will be held virtually online, and it is hoped that most national delegates of Commission 4 will attend the online meeting.

## 4. Conclusions

Commission 4 will assist and participate in the United Nations programmes on guidance by the FIG Council and in circumstances where Commission expertise can contribute towards successful programme outcomes. Since its inception at the FIG Congress 2018 in Istanbul, the work of WG 4.3 on “Mapping the Plastic” has been very active and there is every indication that it’s workload will only increase. It has been formed to better understand plastic pollution in waterways by providing accurate and reliable information of the magnitude of the problem at source, thereby highlighting unsustainable practices, identifying infrastructure shortcomings and informing robust land use controls with the ultimate goal of eradicating the dumping of plastic waste into rivers.

## 5. Acknowledgements

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## 6. References

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