

出國報告（出國類別：考察）

## 韓國海洋科學技術院(KIOST)與其他 海洋相關機構參訪

服務機關：國家海洋研究院

姓名職稱：陳建宏院長、楊文昌主任、張至維  
主任、嚴佳代主任、張桂肇副研究  
員、陳韻心助理研究員

派赴國家/地區：韓國

出國期間：111年12月18日至12月22日

報告日期：112年1月25日

# 摘要

面對海洋世紀的來臨，全球各沿海國家紛紛制定周詳的海洋戰略，並以發展海洋科學作為迎接海洋世紀的準備，企圖提高在國際海洋事務的競爭力中贏得先機。有鑑於此，我國位於亞洲太平洋之樞紐，先天地理優勢及優渥天然資源，具備發展海洋「藍色國土」的契機及潛力。為求海洋相關產業、學術及研究機構之國際合作再升級，本院規劃於 111 年度前往韓國海洋相關機構參訪，透過實地參觀、訪問及意見交流，除增加本院在國際上的能見度外，未來本院在執行海洋生態培育、管理及研究調查、海洋科學技術研究，促進海洋科技與海洋產業的發展、人員交流與國際海洋研究合作等重要工作事項建立協作關係及聯繫窗口，建立雙方系統性、制度化的合作。

# 目次

一、 目的.....	1
二、 行程說明.....	3
1. 參訪 Korea research council of Maritime Education(KOME) 韓國海洋教育研究會及 Haebom Data，海春數據公司.....	3
2. 參訪 National Marine Biodiversity Institute of Korea(MABIK) 國立海洋生物資源研究所.....	6
3. 參訪 National Maritime Museum of Korea(MMK) 國立海事博物館.....	13
4. 參訪 Korea Institute of Ocean Science & Technology(KIOST) 韓國海洋科學技術研究院.....	16
5. 參訪 Korea Maritime Institute(KMI) 韓國海事研究所.....	22
三、 心得及建議.....	26
附錄 交流資料	

## 一、目的

面對海洋世紀的來臨，全球各沿海國對其海洋發展的重視日益升高，有鑑於此，為求國際合作再升級，並建立雙方在海洋事務領域系統性、制度化的合作，本院擬規劃交流參訪行程，期能實地瞭解相關單位政策推動成效及運作狀況，同步進行實務經驗交流與人才培育之請益，以增強院內欠缺之視野並確認規劃目標。

本院正式成立於 108 年 4 月 24 日，組設五個中心與三個輔助單位，協助海洋委員會辦理海洋人力培育訓練、政策規劃、資源調查、科學研究、海洋產業及生態保育等研究發展業務，整合國家海洋研究量能、發揮研究群聚效益、活化產業競爭優勢、促進經濟永續發展；本院組織編制及各中心介紹詳如圖1、圖2。

### 國家海洋研究院組織架構圖

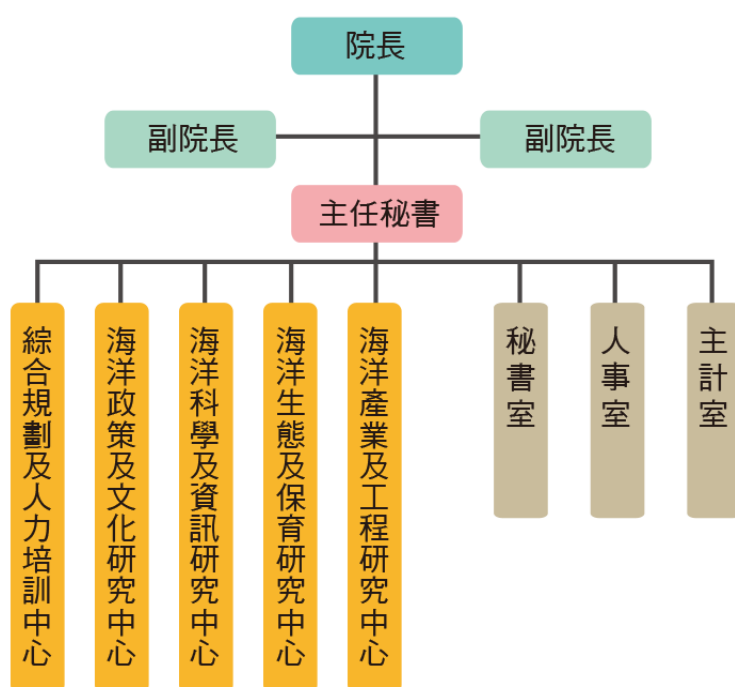


圖1. 本院組織編制



圖2. 本院各研究中心介紹

本次出國規劃參訪韓國海洋科學技術院(KIOST)、韓國海洋水產開發院(KMI)、國立海洋生物多樣性中心(MABIK)、海春數據公司(Haebom Data)、海事教育研究會(KOME)等5個海洋指標性機構，除進行議題請益交流外，雙方亦將攜手簽署合作備忘錄(MABIK、Haebom Data、KOME)。期盼在備忘錄的合作模式下，透過雙方核心優勢與專長，以共同的理念深化雙邊關係，在互助互信的基礎下，建構國際交流平台，提供更多的國際合作與交流的機會。參訪行程由陳院長建宏率隊，海洋科學及資訊研究中心楊主任文昌、海洋生態及保育研究中心張主任至維、綜合規劃及人力培訓中心嚴主任佳代、海洋政策及文化研究中心張副研究員桂肇、綜合規劃及人力培訓中心陳助理研究員韻心隨行，參訪行程如下表所示。

韓國行程表概要

日期	行程	地區
12月18日(日)	啟程：桃園-首爾仁川機場	高雄-桃園-首爾
12月19日(一)	1. 海春數據公司(Haebom Data) JOISS & NODASS 系統中/英/韓語言版、國際海洋科學開放數據教育競賽及國際海洋教育素養之議題討論 2. 海事教育研究會(KOME) OSS 海洋科學序列國際合作、國際海洋素養活動等之議題討論	首爾-舒川郡
12月20日(二)	國立海洋生物資源研究所(MABIK) 拜訪與簽約 海洋生態與生物多樣性調查數據資料交流、MABRIS & NODASS 系統中/英/韓語言版、海洋保育教育項目等之議題討論	舒川郡-釜山
12月21日(三)	1. 海洋科學技術院(KIOST) 拜訪 海洋科學開放數據資料交流、跨境海洋基礎調查與合作與海洋素養教育等合作之議題 2. 參訪國立海事博物館(MMK) 3. 韓國海事研究所(KMI) 拜訪 藍色經濟政策、海洋專業發展合作、海洋政策研究合作及學者交流項目之議題討論	釜山
12月22日(四)	返回：首爾仁川機場-桃園	釜山-首爾-桃園-高雄



海春數據公司(Haebom Data)成立於2022年，主要其目標是提供韓國最優質的海洋數據及資料服務，在數字化轉型時代中找到「藉由數據發現海洋的價值」之定位。目前，公司承接以海洋和教育相關的公共機構為客戶，提供開展與海洋資料庫（觀測、科學數據）網絡平台與內容相關開發項目的服務，具體說明如下：

1. 負責韓國海洋科學資料庫(JOISS(Jurisdictional Ocean Information Sharing System)/管轄海域海洋資訊聯合應用系統)建置與協助海洋水產部進行科普教育推廣。
2. 進行藍碳與溫室效應調查、資料標準化、水下滑翔機研發、大數據中心
3. 包含資料解釋與應用、Sealab海洋資料科學部落格、Haebom class海洋資料庫虛擬APP。

接待本團的人員主要為海洋教育研究會的會長Shin, chun hee、海春數據公司代表Song, Taeyoon及海洋教育團隊經理Park, Soyena。雙方依約在CONFERENCE HOUSE DALGAEBI的會議室進行會面與議題交流，首先由海春數據公司及海洋教育研究會介紹單位的沿革、現況及目標、任務推動等項目，接續再由本院進行自我介紹，增進雙方進一步的認識。同時，雙方在推動海洋教育工作與海洋大數據資料庫的應用廣泛進行交換意見，並認同許多國家在亞太地區對於海洋跨界合作的重視之觀點。雙方熱烈討論後，續由本院陳建宏院長與會長Shin, chun hee及代表Song, Taeyoon簽署雙方合作備忘錄、交換禮物及合影，完成簽約儀式。藉由MOU之簽署除推廣海洋素養及海洋大數據資料庫的應用外，另一項意義也顯示特別在COVID19之後，此項活動可以成為全球海洋素養合作的典範，未來雙方攜手協作展開跨國的合作模式、資源互惠，透過雙方核心優勢與研究專長，建構國際交流渠道。



사단법인 한국해양교육연구회  
Korea research council of Maritime Education

韓國海洋教育研究會  
[www.kome.kr](http://www.kome.kr)



海春數據公司  
[www.haebomdata.com](http://www.haebomdata.com)

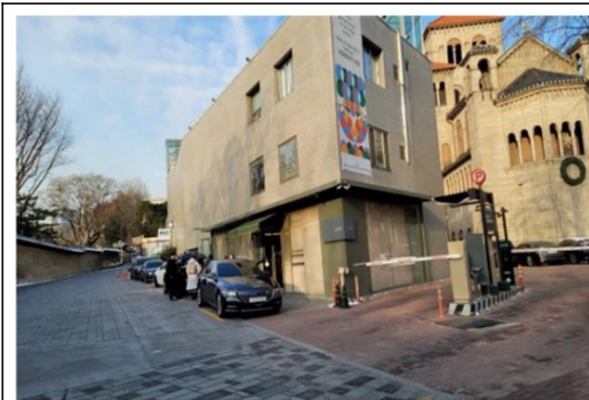


圖4.CONFERENCE HOUSE DALGAEBI 外觀



圖5.海春數據公司Park,Soyena進行簡報介紹



圖6.本院嚴主任佳代進行簡報介紹



圖7.雙方進行MOU簽署



圖8.KOME會長Shin,chun hee與本院陳院長完成簽署



圖9.hbd代表Song,Taeyoon與本院陳院長完成簽署



圖10.KOME、hbd、NAMR合作備忘錄簽署圓滿完成



[http://www.youtube.com/channel/UCjwa3NOKmQqK7RExnST2t\\_w](http://www.youtube.com/channel/UCjwa3NOKmQqK7RExnST2t_w)

圖11.韓國海洋教育YouTube頻道



## (二) 參訪國立海洋生物資源研究所(National Marine Biodiversity Institute of Korea, MABIK)

MABIK 成立於 2015 年，是海洋水產部下屬一個公共機構，旨在保護海洋生物資源和發展海洋生物產業，致力於保全並管理生物資源、支持海洋生物產業發展、傳遞公眾海洋生物價值等具體策略，為韓國唯一結合海洋生物資源研究、展示及教育的政府機構。為此，MABIK 的 13 個典藏庫已收集超過 50 萬件各式海洋生物標本，創立管理海洋生物典藏及遺傳資源的資料庫 (MBRIS, Marine Bio Resource Information System)，以及提供海洋生技產業所需粗萃物及相關資訊的海洋生物銀行 (MAGIC, Marine Genome Information Center)，並建置由超過 7000 件各式實體標本展示為主軸的海洋生物多樣性博物館 (SeaQrium)。

該機構依據韓國「海洋生態系統保護和管理法」第 40 條國家或地方政府可以建立和運營海洋生物資源中心，以有效保護海洋生物資源，故機構設有研究行政樓、展覽樓和教育樓等。作為韓國最早的海洋生物資源調查、研究、展示和教育基礎設施，如下圖所示。



圖 12. MABIK 外觀設施全景 (擷取官網資訊)

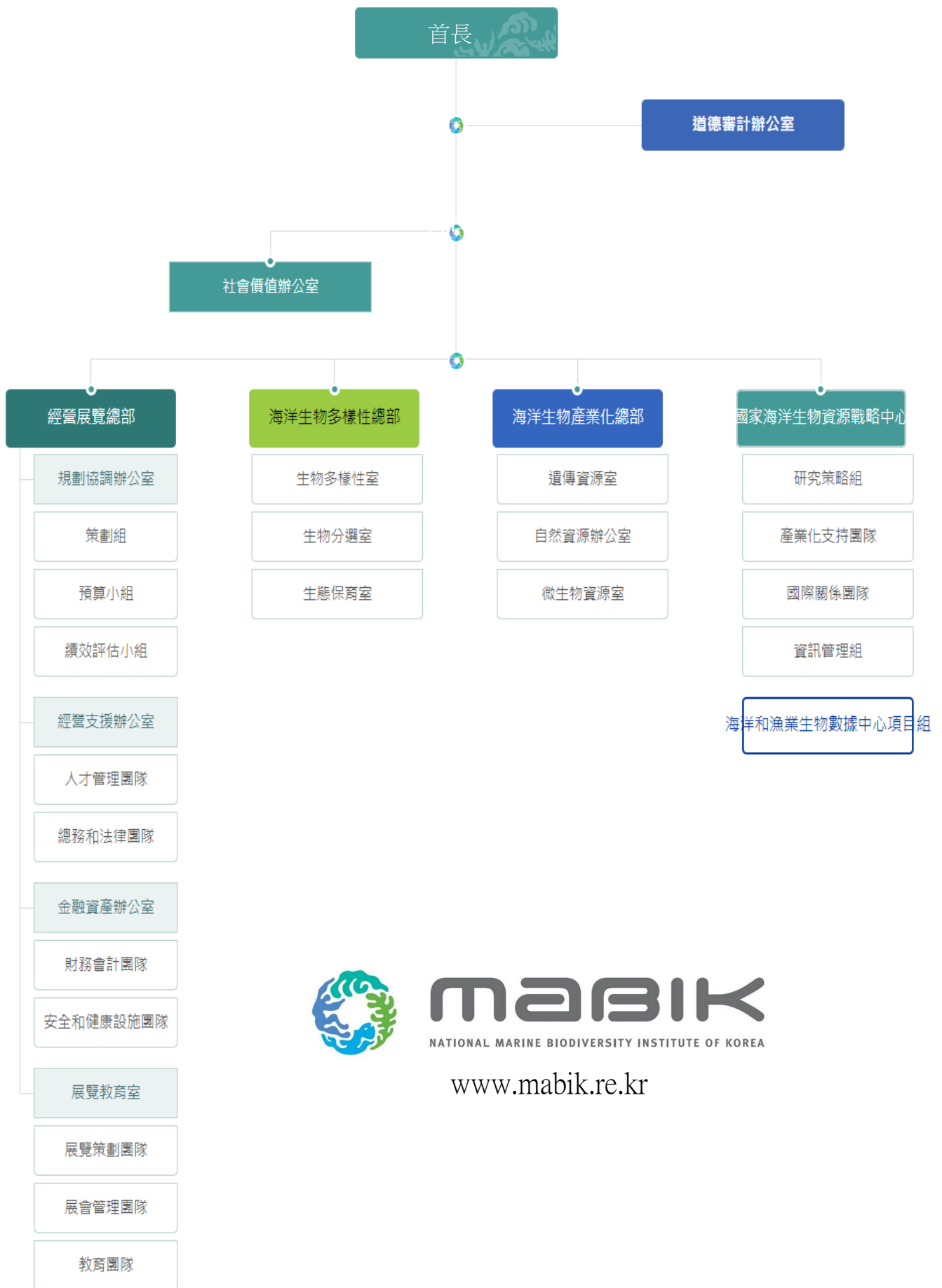


圖 13. 國立海洋生物資源研究所組織結構 (擷取官網資訊)

本團於 12 月 20 日上午拜會 MABIK 並與其簽署合作備忘錄，並參觀海洋生物物種典藏庫、各式實驗室以及海洋生物博物館，洽談未來海洋生物多樣性共同合作與資料庫資料交換等議題。當日由所長 Dr. Choi, Wan-Hyun (President) 率管理展示部 Park, Jeong-In (Head of Management and Exhibition Division)、計畫協調部 Dr. Lee, Dae-Sung (Head of Planning and Coordination Office)、海洋資源中心 Dr. An, Yong-Rock (General Manager of Marine Resource Center) 及管理支援室 Dr. Kim, Jong-Mun (Head of Management Support Office) 等各單位主管與會接待。

在雙方人員介紹及 MABIK 簡介影片播放後，我方由海洋生態及保育研究中心張至維主任進行本院組織架構及各中心業務職掌簡介，其中特別說明本院進行中的海洋生態及保育重點項目，包含：

- (一) 離岸風電場海域生態環境及水下聲景監測；
- (二) 抽砂對水質、底質、底棲及表層生態的潛在影響；
- (三) 岸際潮間帶及亞潮帶生物多樣性及環境 DNA 調查；



圖14.雙方欣賞形象影片增進瞭解



圖15.本院張主任至維進行簡報介紹



圖16.雙方進行合作議題討論



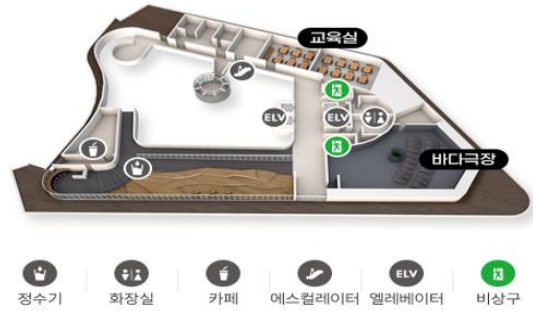
圖17.本院陳院長與所長Dr.Choi,Wan Hyun完成簽署

雙方熱烈討論後，續由本院陳建宏院長與 MABIK Choi 所長代表簽署雙方合作備忘錄、交換禮物及合影，完成簽約儀式。隨後，由海洋資源中心 An 主任陪同我方導覽簡介 MABIK 成立歷程及迄今已與國內外所建立的研究合作單位，並引導介紹典藏庫房、研究設施及海洋資源中心，其中亦由海洋天然物部門的 Dr. Baek, Kyung-Hwa (Principal Research Scientist of Department of Nature Products) 介紹 MAGIC 之分子生物學及天然物分析化學等研究項目、分析設備及系統服務；接續由管理支援室 Kim 主任陪同參觀 SeaQrium，重點式導覽解說四層樓的策展規劃及展示亮點，SeaQrium 樓層簡介如下圖說明。



**1F** 兒童體驗展示室

**2f** 海上劇院



一樓由兒童體驗展廳和4D影音室組成，可以觀賞到由兒童視平線和4D特效影音組成的室內體驗遊樂空間。

2樓設有海洋劇場和教育室，提供不分男女老少都可以觀看的視頻，開展各種海洋生物資源教育活動。

**3F** 海洋生物多樣性

**4F** 海洋生物多樣性



在由海洋哺乳類、爬行類、鳥類組成的3樓，可以看到從陸地回歸大海的海洋哺乳類生態，還有海龜和企鵝。

4樓由海洋生物的多樣性和互動媒體牆組成，介紹和體驗我們所知道或不知道的各種海洋生物。

圖 18. SeaQrium 各樓層簡介 (擷取官網資訊)



圖19. Yong Rock An介紹MABIK沿革及合作據點



圖20. 海洋生物標本檔案室



圖21. 標本保存及檔案歸類介紹



圖22. 不可勝數的珍貴海洋生物標本-1



圖23. 不可勝數的珍貴海洋生物標本-2



圖24. 不可勝數的珍貴海洋生物標本-3



圖25. 19. Yong Rock An與同仁介紹標本品項



圖26. 參觀中心部門實驗研究室



圖27.海洋生物部門室內研究室一隅



圖28.海洋生物部門同仁介紹日常的研究工作



圖29.海洋生物部門同仁介紹精密儀器設備



圖30.雙方交流相互請益



圖31. Kim主任陪同導覽參觀生物多樣性展示中心

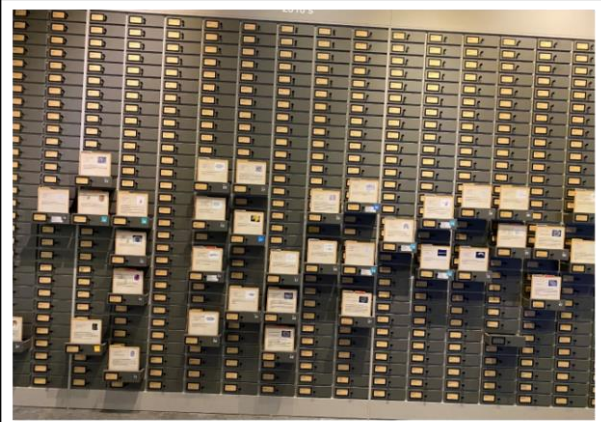


圖32.無脊椎動物生物記載展示牆



圖33.珍貴各類螃蟹標本展示牆



圖34.各類魚類介紹展示牆



圖35.哺乳動物、鳥類、爬行動物標本展示區-1

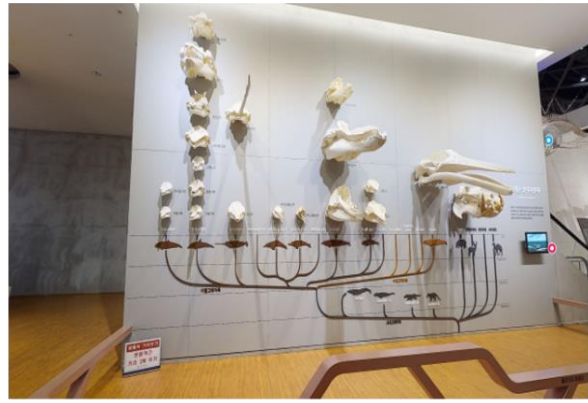


圖36.哺乳動物、鳥類、爬行動物標本展示區-2



圖37.海龜與蝦類標本



圖38.珍奇物種液態標本



圖39.保養品、保健食品的研發-1



圖40.保養品、保健食品的研發-2



圖41.Kim主任介紹韓國海蛇各種研究



圖42.海蛇標本

### (三) 參訪國立海事博物館(National Maritime Museum of Korea, MMK)

國立海事博物館 (National Maritime Museum of Korea) 為收集、管理、保存、調查、研究、教育和展示與海洋有關的歷史、考古、人文、民俗、藝術、科學、技術和工業遺產。2012 年 7 月為試營運時期，提供海洋文化、藝術、科技和產業發展的貢獻力量。2015 年 4 月 20 日，由法人成立，正式註冊。這座博物館位於韓國釜山影島區東三洞海事集群，是韓國唯一的國家級綜合性海洋博物館，展示海洋文化、歷史、科學和考古等專業資料，並提供高質量的海洋體驗項目，每年訪客達 100 萬人次以上，現今成為韓國的航海文化地標，展示來自韓國與世界各國珍貴的海洋文物，系統性地展示海洋的過去、現在和未來，並在教育和體驗海洋方面發揮關鍵作用。館內設施有 8 個常設展廳、專題展廳、擁有 5 萬冊海洋書籍的海洋圖書館和多媒體室、7 歲以下兒童博物館、室外圓形廣場、直徑 11 米、深 4.8 米的水族館、3D 影像館、4D 影院和戶外觀景台，提供參觀者可以遠眺整個釜山港及鄰近海岸線，欣賞釜山港內往來的各種船舶及周圍美麗遼闊的海景。



圖 43. 國立海事博物館外觀

液滴型態的建築設計，塑造海洋波浪形象的意象



由於本團此次拜訪時，適逢館內正進行整修無對外開放，館長金萬泰仍然熱情地迎接我們，介紹博物館歷史沿革與組織工作，並表示在港口城市釜山建立一座世界上難得一見的綜合性海事博物館，意義重大。博物館被定位為釜山的主要文化設施，幫助釜山市民和遊客接近海洋，並可以用作休閒空間。未來學家阿爾文托夫勒說：千變萬化的浩瀚大海，激發著我們勇往直前的挑戰精神，來來往往的蔚藍平靜的大海，治癒人們的心靈，提醒人們富足。短暫的拜訪國家海洋博物館，我們走出戶外就能看到與感受海洋，如同館長所言，海洋是生命之源和人類的發源地，是連結世界所有故事的可能。



圖 44. 國立海事博物館組織 (擷取官網資訊)



圖45.館長金泰萬與本院座談



圖46.本院陳院長與金泰萬館長交流請益



圖47.金泰萬館長贈致館藏出版品



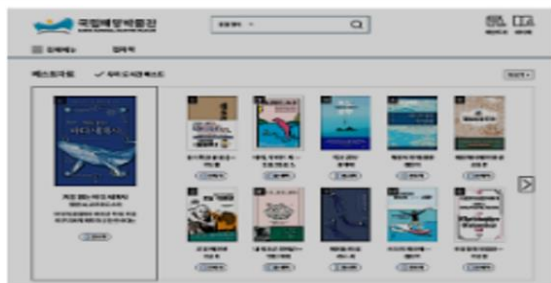
圖48.本院致贈伴手禮締結友誼



圖49.館外緊鄰釜山港



圖50.館外大型船渠意象裝置



해양전자도서관 이용 (전자책)

圖51.海事電子圖書



圖52.雙方合影留念

#### (四) 參訪韓國海洋科學技術院(Korea Institute of Ocean Science & Technology, KIOST)



韓國海洋科學技術院的設立，始於 1973 年韓國科學技術院 (Korea Institute of Science and Technology, KIST) 附屬研究所時代，作為韓國海洋科學研究基地的誕生，成立海洋開發研究院 (Korea ocean Research and Development Institute, KORDI)，是一所探索海洋新科學知識的海洋科技研究和教育機構。從設立與發展以來，隨著公務部門編組改造及法人研究機構的調整，因應 2011 年頒布「韓國海洋科學和技術法」於隔年正式成立韓國海洋科學技術 (Korea Institute of Ocean Science & Technology, KIOST)。

在政府政策的需要下，在研究和開發海洋科學技術方面發揮著至關重要的作用，得以跟上海洋產業發展趨勢。KIOST 的願景是透過建立基礎和應用海洋科技的創新與發展，實現韓國成為海洋強國。主要任務有：1. 進行基礎和應用研究，以促進沿海和海洋資源的有效利用；2. 對韓國的海洋和公海進行全面調查和研究；3. 在極地地區，特別是在南極洲進行科學研究；4. 支持並與其他政府機構、大學和民營企業合作開發海洋資源和保護海洋環境；5. 協調海洋研究項目的國際合作；6. 發展海岸與港灣工程、船舶與海洋工程、海上安全等相關技術，其組織由以下部門組成：物理海洋學、海洋化學、生物海洋學、海洋地質與地球物理學、極地研究中心、深海資源研究中心、海岸與港灣工程研究中心和 Changmok 海洋站。



圖 53. 海洋科學技術院 1 樓大廳

綜上所述，KIOST 在韓國沿海、周遭海域、熱帶地區與極地區域等相關科學研究、港灣與船舶和海洋工程、海上安全相關技術、資源探勘與海洋環境保護等多項領域皆有投入其關注。

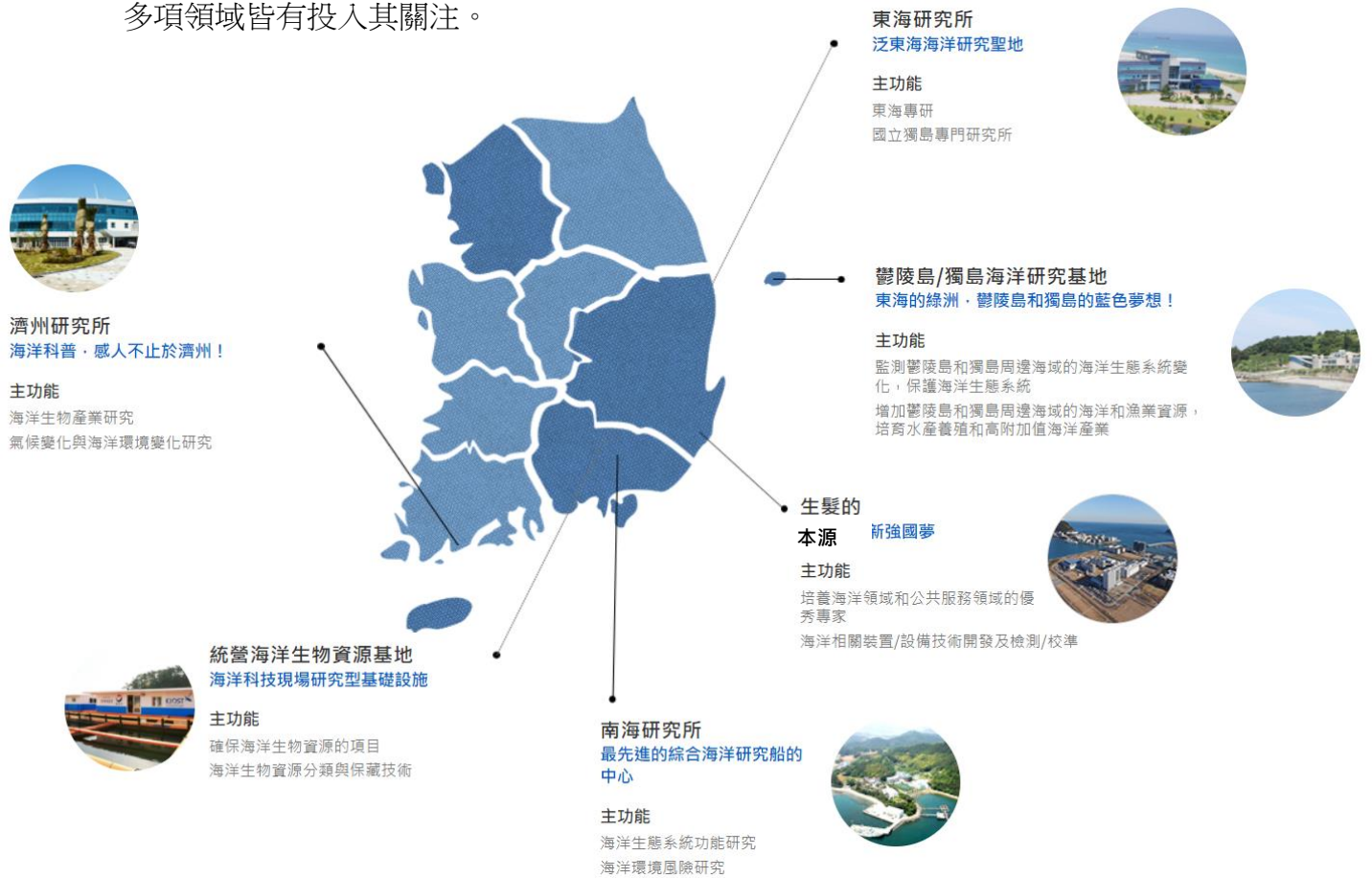


圖 54. 海洋科學技術院 國內基地規模 (擷取官網資訊)



圖 55. 海洋科學技術院 海外基地及海外合作中心 (擷取官網資訊)

KIOST 依據「韓國海洋科學和技術法」以法人形式進行組織運作，董事會以海洋水產部為主，董監事不超過 15 名，以科學技術情報通信及戰略和財政部為輔，組成理監事會。目前員工數約 1,100 名，年預算約有 7000 億韓元，在 KIOST 下設置院長、副院長各司其職管轄，組織架構整理如下圖所示。



圖 56. 海洋科學技術院組織 (擷取官網資訊)

參訪當天，KIOST 由副首長 Dr. Lee, Youn-Ho、國際合作司司長 Dr. Kwon, Suk-Jae、海洋環境研究中心首席研究科學家兼韓國海洋學會會長Dr. Kang, Dong-Jin、海洋環境及氣候研究部高級總監 Kang, Sok Kuh、海岸開發和海洋能源研究中心主任 Dr. Yi, Jin-Hak 等多位主管熱情迎接本團，在初步見面互遞名片與欣賞完雙方的影片介紹後，雙方立即進行合作議題的討論：1.研究船合作巡航機制；2.海洋資料庫之資料交換；3.研究員短期交換，可共同進行海洋生物與海洋科學取樣工作，合作建構數據擴大模擬規模；4.海洋素養與教育活動與經費支持；5.共同發表研究文章等意見交流。從討論過程中，感受到韓國政府隨著城市化及工業化的發展，更加重視對海洋的開發與利用，初期以基礎海洋報戶之方式轉變為整體之系統性規劃，朝向多元化新型產業技術之發展。本次的參訪不僅對於本院海洋科學研究未來發展具有重要的指標意義，更是期待臺、韓共同聯手打造亞太區域海洋科學研究合作機制，紮根海洋基礎調查、打造海洋產業發展與推動全民海洋教育。

R/V ISABU  
이사부호  
5,894톤 / '16.11. 취항



R/V ONNURI  
온누리호  
1,370톤 / '92.1. 취항



R/V EARDO  
이어도호  
357톤 / '92.3. 취항



R/V JANGMOK 1  
장목 1호  
41톤 / '05.11. 취항



R/V JANGMOK 2  
장목 2호  
35톤 / '12.3. 취항



圖 57. 海洋科學技術院 海洋研究船規模 (擷取官網資訊)



圖58.副首長Dr. Lee, Youn-Ho與本院陳院長意見交流



圖59.雙方針對海洋科學研究議題相互請益



圖60.本院楊主任進行簡報介紹



圖61.KIOST副主任Kim Jun Hyung介紹水下機器人技術



圖62.雙方針對研究議題簡略交流



圖63.本院與KIOST互贈禮品建立友誼



圖64.KIOST副主任Kim Jun Hyung進行整體介紹



圖65.KIOST副主任Kim Jun Hyung介紹設備展示的資訊



圖66.雙方合照留影



圖67.參觀KIOST水理實驗大樓



圖68.Dr.Sinjae Yoo解說水理大樓成立歷程及設備規模

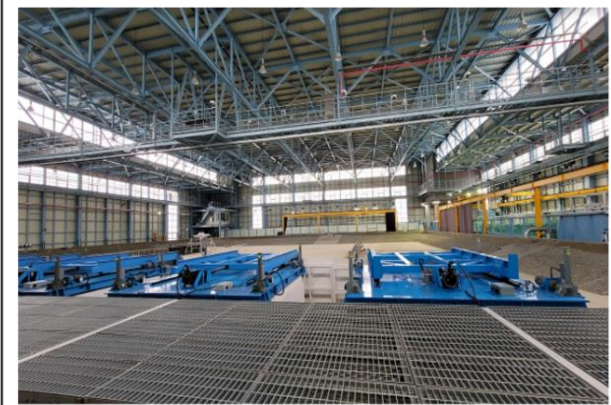


圖69.水理實驗大樓3維調頻水槽模擬設備

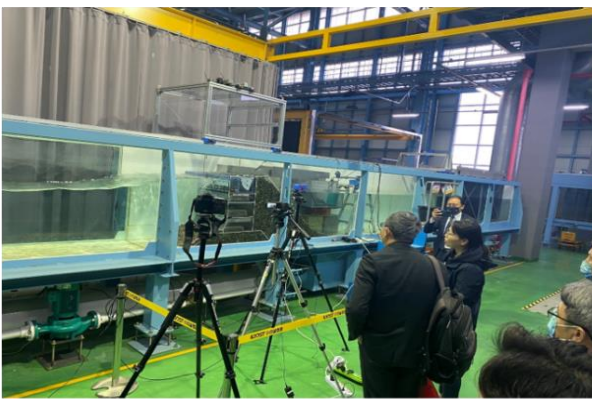


圖70.Dr.Sinjae Yoo 介紹二維調節器(Wave Flume)

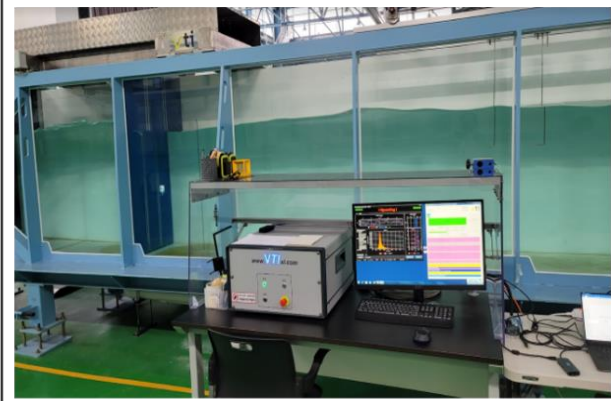


圖71.二維調節器(Wave Flume)監控儀器設備

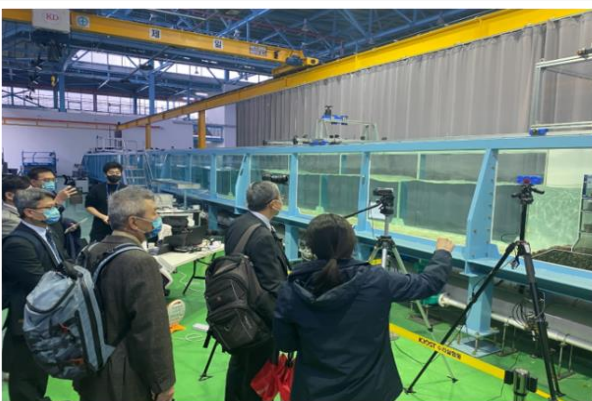


圖72.二維調節器現場演示-波浪水流過程-1

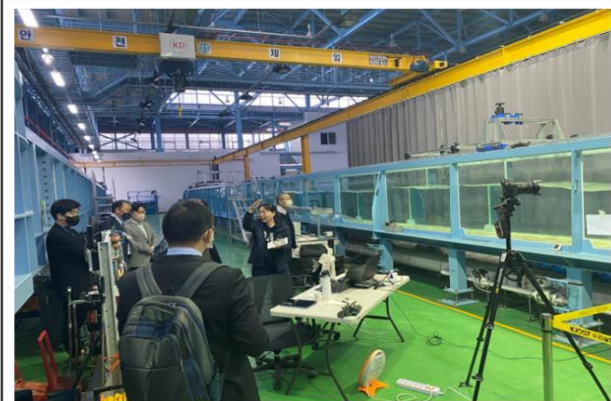


圖73.二維調節器現場演示-波浪水流過程-2



## (五) 韓國海事研究所(Korea Maritime Institute, KMI)

韓國海事研究所是政府資助的研究機構，隸屬於總理領導的經濟、人文和社會科學研究委員會，旨在為國家海洋和漁業政策的製定做出貢獻和國民經濟的發展。KMI 自 1997 年成立以來，以韓國海洋研究所為起點，將分散在多家研究機構的海洋水產政策部門整合為一體的機構，其前身為 1984 年成立的韓國海運技術院，發展成為綜合調查和研究海洋、漁業、航運、海洋事務、港口和國際物流等海洋和漁業各種任務的國家機構，為國家發展及增進國民便利做出貢獻的政策研究，其組織架構如圖。

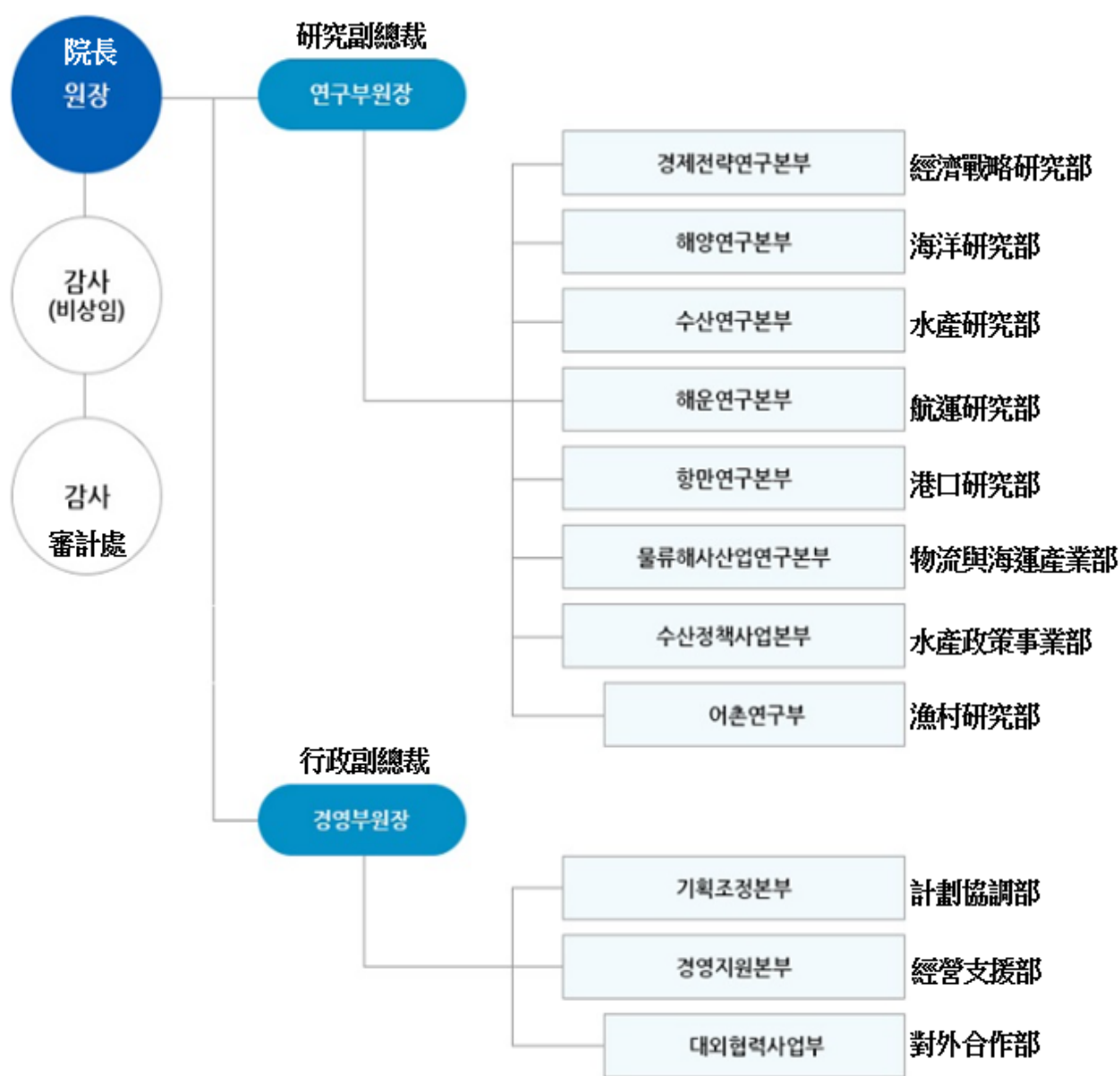


圖 74. 韓國海事研究所組織

KMI 目前人數 315 人(97 位博士，231 位研究員)，年預算約 4,500 萬美金，主要目標：1.引領藍色經濟的全球政策研究重點機構；2.推動區域經濟與海洋觀光；3.北極與南極研究；4.漁業、航運、海洋文化研究。除上述研發專案外，2009 年設立「海洋學院」向有關人士提供海洋教育課程，並於 2012 年隨著 FTA 協定的擴大而設立「FTA 支援中心」，增加對水產業的支持度，有效支援預計因 FTA 實施而受到損害的國內漁民，以及海外市場分析中心開啟 Mega FTA 時代 作為回應，提供水產品擴大出口和市場開發所需的國家和項目訊息。現階段 KMI 的主要任務是透過系統性與整合性的研究以協助海事及漁業領域的國家政策與經濟發展，另外該機構極具前瞻性的以發展成為世界頂尖的海事與漁業政策研究機構為主要願景。主要業務項目綜整如下：

### 研究與研究項目

- 海事、漁業、航運及港口政策的調查、研究和諮詢
- 國內外海事、漁業、航運及港口相關政策的比較研究
- 國際物流及多式聯運相關的調查與研究對航運和港口
- 開發研究所的宗旨，負責任的委託研究和與國內外相關研究機構的聯合研究
- 海事行業訊息
- 收集、分析和發布物流業的動態和資訊
- 建立國內外海事、漁業和港口數據資料庫
- 研討會、討論會與海事行業、學術界、研究機構和訊息進行交流和意見收集

### 研究項目基本方向

1. 世界級海洋與漁業基礎研究
2. 未來預測與研究成果商業化
3. 訊息資料彙集
4. 海洋與漁業整合與系統化研究
5. 提供政府政策訊息與趨勢和支持企業決策研究

會面當天由 Deputy President CHOI, Jee yeon 崔副部長、海洋研究本部 Cheng,Hyunwook 博士、Hyun Dae-song 博士及對外合作事業部 Minjung Lee 研究員熱情迎接本院的來訪，崔副部長表示 KMI 已成立 30 年，是韓國海洋政策、水產海運、國際合作等方面的智庫，在海洋政策方面也有地區海洋政策的合作，最近有發生很多海洋爭議性的問題，現正也加強這些議題的研究，並先從具體的議題開始合作。在初步見面互遞名片與欣賞完雙方的影片介紹後，雙方立即進行合作議題的討論：(1)藍色經濟政策交流：海洋產業發展綜合型研究、漁業政策與海運政策的資料協調及國家海洋科技政策發展研究；(2)海洋專業人才培育：國家海洋專業人才培育學院、海洋水產進修院負責海洋專業人才培育；(3)海洋政策及文化研究，有關地方創生研究-海岸漁村創生；(4)訪問學者交流的規劃；(5)海洋素養專案-以海洋素養為主推動地方創生，例如海洋環境教育有專屬的機構，特別培育海洋教育的老師。未來雙方也可合作辦理國際研討會或論壇，主題如海岸政策治理，互相邀請雙方相關領域的專家學者參與分享報告；海洋生態服務政策研究結合本院現有的海洋生物基礎研究，其他如產業、教育、環境、社會有關的永續發展。另外，本院出版的海洋探索期刊也希望能與 KMI 共同辦理特刊，參與雙邊編輯，鼓勵互相投稿。而韓國也面臨能源轉型與漁業的衝突，如海洋能源對於環境的破壞研究，期待雙方共同研議這些產業與環境永續發展的解方。

再者，KMI 通過與 UNESCAP、FAO、PEMSEA、WMU 等國際組織以及美國 EWC、德國 ISL 等先進的海洋和漁業研究機構、西班牙聯合研究中心、俄羅斯、中國和緬甸的合作研究，促進研究的進步。現階段也積極擴大海外合作研究基地，例如建立研究基地，追求提高研究能力的國際化以及與海洋相關的全球研究議程，因此，為求提升本院國際合作研究的能見度，我們也表達了高度誠意希冀未來有合作機會的時候。



[www.kmi.re.kr](http://www.kmi.re.kr)



圖75. Deputy President CHOI, Jee yeon及與會同仁



圖76.欣賞雙方官方影片介紹



圖77.本院張副研究員桂肇進行簡報介紹



圖78.雙方針對海洋政策研究議題相互請益



圖79.雙方針對海洋文化及地方創生議題交流



圖80.致贈禮品締結友誼



圖81.崔副部長贈送珍貴的研究成果資料



圖82.雙方合照留影

### 三、心得及建議

#### (一) 心得

21 世紀是以海洋為發展重點的世紀，海洋資源的開發及利用、海洋環境的安全及保護，已成為各沿海國經濟發展與科技競爭的重點。為因應新的情勢和新的挑戰，各國皆投入海洋研究與發展海洋技術，爭取海洋競爭的契機與主導地位。國際海洋的競爭實質上是海洋科技技術的競爭，是國家整體國力的競爭。我國四面環海，其國家發展與海洋息息相關，爰此，自民國 89 年以來，政府逐漸重視海洋政策與事務，陸續「開放海洋」、「海岸解嚴」，鼓勵國人親近海洋，蔡英文總統任內表示「立足臺灣、航向海洋」的期許，將過去海洋事務被分散在 23 個機關，為了強化海洋政策的整體性，民國 107 年 4 月 28 日成立「海洋委員會」，制定《海洋基本法》，提出「海洋政策白皮書」，積極鼓勵國人關注海洋議題。自詡為海洋國度的我們，現今面對國際日益複雜的政經情勢，海洋的調查與探測技術，發展海洋科技技術，邁向海洋、走進海洋，建設海洋國家已是我國既定的目標，同時加上我國周邊也有一定的海洋空間與蘊藏豐富的海洋資源之優勢，深耕海洋科技研發是我國永續生存與國際接軌的基石。然而，當我國擁有能控制一定程度的海洋空間，展現地區性的海上力量，區域內取得戰略優勢，友好的區域環境亦是促成我國成為海洋國家的基礎因素之一，因應國內外社會環境局勢變化積極推動我國海洋學術與實務研究至關重要，藉由獲得必要的國際學術研究支援和建立互利友好合作關係，讓我國的影響力在國際海洋秩序中發揮影響力和作用，深化與沿海國家之涉海合作，如海洋環境監測與保護、海洋科研與科技合作、海上搜救、北極研究等實務工作。

此次的韓國參訪，在韓國 17 個行政區域中(1 個特別市、6 個廣域市、1 個特別自治市、8 個道、1 個特別自治道)，有 12 個是靠海的，故一直以來都很注重海，海洋對韓國具有非同一般地意義，針對圍繞海洋的國內問題，政府有關單位不斷地關注海洋產業的發展、增長動力協助產業的發展、海洋環境的保護、海洋引發的自然災害之準備和資源掠奪。至此，在海洋水產部所屬單位於海洋事務政策研究方面，2009 年起召開了海事法、政治、經濟、工商管理等相关研究人員的研究會議，

或相關部門成立籌備委員會，討論業務推進計畫，起草了成立協會所需的程序和章程，並召開了成立大會和紀念研討會，通過跨領域協調和融合解決與海洋有關的、懸而未決的國家和社會問題，從而討論和提出政策備選方案，透過創新讓韓國擁有海洋領先的研發基礎和海洋科學應用與技術，進而成為一個繁榮的海洋國家。

由於海洋在韓國的民生經濟中佔有重要地位，韓國透過海洋經濟特區之設立，將港灣，造船，旅遊等各種海洋產業一併整合為韓國「藍色經濟」一重要面向。另外海洋科學研究亦為海洋經濟發展的重要環節，藉由產官學各方合作，利用科技的方式，使海洋各項領域均能有所發展。而在產業發展的同時，韓國通過多項環境保護相關法律並擬定基本管理計畫，強調人類活動與海洋環境具備相互影響之關係，海洋係必需發展並且重視的資源。

本次參訪對本院未來在執行海洋生態培育、管理及研究調查、海洋科學技術研究，促進海洋科技與海洋產業的發展、人員交流與國際海洋研究合作等重要工作事項建立協作關係及聯繫窗口，藉由參訪團隊從中汲取的寶貴經驗，參訪報告可供本院各研究中心規劃後續研究、產學合作等之資訊參考，其具體效益概述如下：

#### 1. 汲取他國經驗，轉化為適用本院未來進展

- (1) KOME、Haebom Data：辦理 JOISS(Jurisdictional Ocean Information Sharing System)海洋資料庫應用方案、海洋科學序列(Ocean Science Sequence,OSS)及海洋素養教育、海洋教育課程規劃、海洋科普推動。
- (2) MABIK：海洋生態與生物多樣性調查數據交換、海洋生態系統監測方案諮詢、魚類學和耳石測量學研究、海洋保育教育專案。
- (3) KIOST：海洋基礎調查與監測合作、海洋科學開放數據交換參與、科學巡航、海洋科普教育推廣。
- (4) KMI：海洋文化政策合作研究、地方創生合作與交流
- (5) MMK：海洋類圖書及豐富史料保存相關實務經驗之請益

#### 2. 建立夥伴關係，互惠互利長期合作學習

透過本次參訪，建立聯繫窗口，以利未來互相合作研究；並研擬研究員進行短期交流或參與研究工作，藉由雙邊互動累積研究量能，鏈結

海洋事務各種面向進行對應研究，也有助於強化我國與區域的緊密關係。

### 3. 形塑國家形象，拓展國際佈局

以本院形象影片及簡報，向參訪單位介紹國家海洋研究院之成立、組織、任務及研究性質，並藉由合作備忘錄之簽署，以期促進學術交流與合作，整合雙方內外資源，共同規劃具體合作項目與計畫方案。

### 4. 橋接科技研發需求，與國際產業接軌

藉由國際交流之機會，提升本院學研國際視野，以雙邊國際合作模式及機制，鋪建國際化協作環境，強化本院研究人員國際合作經驗與創新思維，達成鏈結及整合國際研發能量之綜效。

## (二) 建議

1. 韓國在海洋漁業、航運、造船、海洋科研等領域現已走上國際之列，尤其是造船產業國際競爭力不斷增強，讓世界看見韓國的「海洋力」，這與韓國政府調整海洋管理體制息息相關，證明韓國海洋管理體制是值得研究與學習的，後續可深入分析研究其管理體制的演變過程與特點，探討歸納改革後的借鏡意義。
2. 韓國政府重視海洋，善用沿岸的海港，政府所屬法人單位辦展活動展現國家海洋科技能量和人與海洋共存共榮的精神，也是發展經濟的策略，落實將想法化為實際行動，協助國家擬定海洋政策、保育海洋生態、善用海洋資源。我國在海洋領域上有許多專精的研究和發展，各領域間密切相關，但彼此鏈結和互動有限，與政府的對話，政策的建言，以及與金融投資業的關聯均可再加強，這些都是未來仍需努力的方向。
3. 與國土立足於有限面積的不同，海洋具有無限的發展潛力，未來的海洋空間將以新的功能和面貌取代陸地作為人類生活的中心，標榜著新時代的開啟，圍繞海洋的世界新秩序正在誕生，韓國地方政府利用沿海與海洋資源找到區域專業化的海洋和產業發展戰略，帶動地區經濟和創造就

業機會，讓政策需求使其切實可行。隨著人類對海洋的需求與認識不斷地深入以及海洋治理經驗的積累，國際社會形成了海岸帶治理、生態系統治理、海洋保護區等整體治理模式，對海洋的重視、理解和政策利用是直接關係到國家生存的問題。政府有關單位應積極與海洋直接或間接相關的各個領域之學者相互合作，利用海洋與島國要衝的地理優勢，摸索出自立繁榮與海洋共榮生存的策略，為國家海洋政策的制定和實踐研究的發展再添貢獻。

4. 因應本次參訪締結了雙方友誼，已建立各個窗口，期待未來雙邊共同推動跨國界區域性海洋科研工作，共享研究成果，同心齊力團結守護海洋。

## 致謝

海洋是人類繁榮的資源寶庫，同時亦在人類與萬物的演化關係中，乘載著維繫地球正常運轉之責，平衡物質循環與調節氣候及整個生態系統的運作，不僅如此，在政治、經濟與社會文化上，海洋也具有重要的意義。我國四面環海，是需要充分利用這樣的地緣政治環境，邁出新的一步。本次的參訪行程均圓滿順利，在此特別感謝海洋委員會各級長官的支持、韓國海洋教育研究會(KOME)、海春數據公司、國立海洋生物資源研究所(MABIK)、國立海事博物館(MMK)、海洋科學技術研究院(KIOST)、韓國海事研究所(KMI)等單位的接待配合，與國家海洋研究院締結合作備忘錄，提升本院之學術研究水準，發展多元國際經驗分享的夥伴關係，增進雙方的瞭解與友誼，致力發展互惠共榮、符合時代發展趨勢，創造實質交流成果。

## 附錄 交流資料

- KMI 簡介資料
- KIOST 水理實驗大樓簡介
- JOISS 第二屆海洋大數據競賽
- 合作備忘錄簽署內容



# ● KMI 簡介資料



## President's Message

한국해양수산개발원을  
**‘현장을 가까이 하는  
문제해결형 연구기관’**으로 만들겠습니다.

안녕하십니까.

한국해양수산개발원(KMI)은 국가의 해양수산 정책수립과 국민경제의 발전에 이바지함을 목적으로 설립된 국무총리 산하 경제인문사회연구회 소관 정부출연 연구기관입니다.

1984년 한국해양기술원을 시작으로 1997년 한국해양수산개발원이 통합 출범한 이래 해양, 수산, 해운, 해사, 항만, 국제물류 등 해양수산 제분야의 과제를 종합적·체계적으로 조사, 연구하는 국책연구기관으로 발전해왔습니다.

최근 우리 사회는 국내외적으로 예측하기 힘든 경제·사회적 도전에 직면하고 있습니다. 시와 빅데이터가 급격한 변화를 만들어내고 있으며, 팬데믹이 초래한 물류대란, 탄소중립으로의 전환, 수산업을 둘러싼 국내외 변화 등의 현상을 목도하고 있습니다.

이러한 도전을 이겨내기 위해 첨단기술과 과학에 대한 이해 위에서 정책을 연구하고, 현장을 가까이하며, 현안을 하나씩 해결해가는 문제해결형 연구기관이자, 세계적인 오피니언 리더가 될 수 있도록 KMI를 이끌어 가겠습니다.

KMI는 앞으로도 정부정책을 지원하고, 국민과 지역 사회로부터 신뢰를 얻을 수 있도록 최선의 노력을 다하겠습니다.

감사합니다.



원장 김 중 덕

## Vision of KMI



## 경영목표 및 추진전략 (FACT 전략)

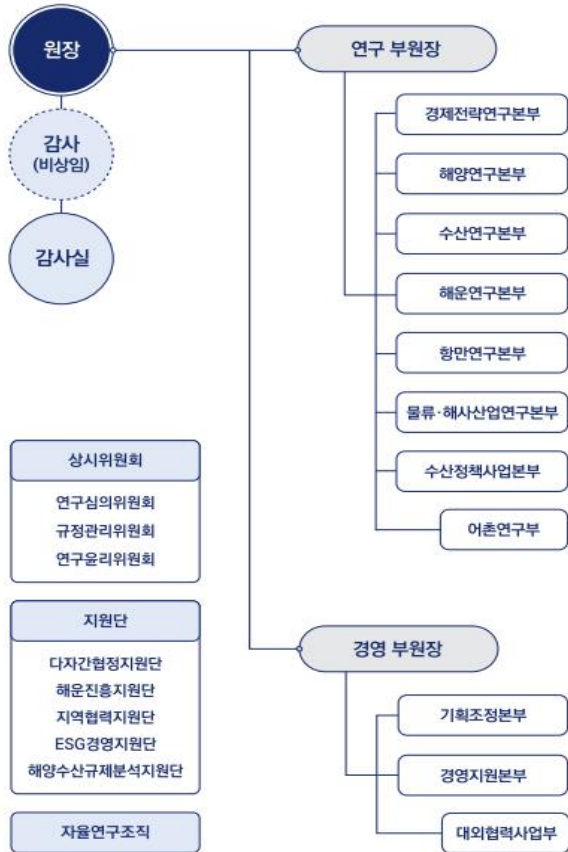
<b>Field</b>	<ul style="list-style-type: none"> <li>①-1 해양수산 현안·현장 연구 총력 추진</li> <li>①-2 정책 실효성 제고를 위한 기반 정비</li> <li>①-3 데이터 기반 분석 및 지원시스템 구축</li> </ul>
<b>Advancement</b>	<ul style="list-style-type: none"> <li>①-1 해양수산 디지털·친환경 연구 확대</li> <li>①-2 첨단 해양물류·항만 리더국가 비전 제시</li> <li>①-3 지역 혁신성장과 국토균형발전 전략 마련</li> </ul>
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>②-1 글로벌 연구 네트워크 확충</li> <li>②-2 학술연구 지원체계 구축</li> </ul>
<b>Top</b>	<ul style="list-style-type: none"> <li>③-1 ESG 기반 책임경영체제 강화</li> <li>③-2 내부 및 정책고객·시민과 소통 활성화</li> </ul>

## History

**KMI는 대한민국 해양수산 발전과 함께 해 왔습니다.**

지난 30여 년 동안 KMI는 수많은 정책대안을 제시함으로써 국가 해양수산정책을 선도하여 왔습니다. 앞으로도 우리나라 해양수산산업의 발전과 함께 할 것입니다.





### 연구보고서

**기본연구보고서**  
이론적·학술적 기초가 되거나 국가의 정책 수립, 경영전략 등 국가정책을 선도하기 위해 수행하는 연구보고서

**수시연구보고서**  
연구 환경 변화, 정책적 필요 등에 의해 발생할 수 있는 연구 수요에 탄력적으로 대응하는 연구보고서

**일반연구보고서**  
정부출연금으로 수행하는 중장기적 일반사업 성과를 중재 수행하는 연구보고서

### 학술지

**해양정책연구**  
해양·수산·해운·항만·물류 등 해양수산 전 분야를 포괄하는 국내 유일의 해양수산 관련 학술지 (연 2회, 2008년부터 한국연구재단 등재)

**KMI International Journal of Maritime Affairs and Fisheries**  
해양수산 분야 국내외 연구논문을 수록하여 국제협력 연구를 촉진하고, 해양정책 입안에 필요한 국제적인 시각과 분석자료를 제공하는 영문 학술지(연 2회)

### 총서

**학술총서**  
해양수산 및 제반분야 영역에 대하여 사회 과학자 또는 전문가의 위치에서 학술적 소견 및 학문적 발전에 기여할 수 있는 이론 등을 제시하는 총서

**정책총서**  
해양수산 분야별 미래 현안을 선제적으로 대응할 수 있는 혁신적이고 발전적인 해양수산분야의 정책적 아젠다를 알기 쉽게 설명하고 국가 정책을 제시하는 총서

**경제전략연구본부**  
해양수산 산업동향과 통계·데이터, 지역균형 및 해양관광·레저정책, 해양수산 남북협력 및 신북방 정책, 극지 중장기 전략 수립 등을 통해 종합적인 발전에 기여합니다.

**해양연구본부**  
연안 및 도서, 해양공간, 해양환경 및 생태계, 기후변화, 독도·해양영토, 해양법 등과 관련된 연구 및 정책·학술연구를 수행합니다.

**수산연구본부**  
수산물 공급, 스마트 양식 등 수산·양식산업 관련 연구 및 연근해어업, 수산자원 원양산업 등 국가 수산정책 전반에 관한 연구로 국민과 공감하는 수산업 실현에 기여합니다.

**해운연구본부**  
해운산업의 경쟁력 강화와 전략·서비스, 해상교통 등 해운정책, 해운금융 제도 및 발전방안, 빅데이터를 통한 해운시장 분석 및 전망을 연구합니다.

**항만연구본부**  
국내외 항만 개발과 항만의 관리·운영, 항만 물동량 예측 및 분석, 공공투자사업의 수립과 타당성 조사 및 활용 등 항만정책연구 활동을 수행합니다.

**물류·해사산업 연구본부**  
미래 물류기술·시스템 개발 및 활용 연구, 물류분야 해외진출 및 글로벌 공급사슬 연구, 해상 국제기구 및 해사인력 양성 등 물류의 선진화와 해사산업의 발전을 위해 적절한 정책 방안을 모색합니다.

**수산정책사업본부**  
수산물의 안정적 수급 체계의 구축, 수산식품 수출 진흥, FTA 이행 지원 및 협상 관련 조사·분석 및 연구를 수행합니다.

**어촌연구부**  
어촌 관련 정책 및 중장기 전략, 어촌사회 및 지역개발, 어촌경제 활성화, 어항분야 민간투자 활성화 및 재해예방 등 어촌의 발전을 위한 연구를 수행합니다.

**대외협력사업부**  
해양수산 국제개발협력 관련 정책 연구 및 정책 수립 지원 등 다양한 활동과 중국 관련 분석 및 조사·연구, 중국내 유관기관 등 업무협조체제 구축 등 글로벌한 연구활동을 지속합니다.

- KMI홈페이지 [kmi.re.kr](http://kmi.re.kr)
- KMI Youtube [youtube.com/c/KMI한국해양수산개발원](https://youtube.com/c/KMI한국해양수산개발원)
- KMI 공식 블로그(해운누리) [blog.naver.com/kmibada](http://blog.naver.com/kmibada)
- KMI 전자도서관 [library.kmi.re.kr](http://library.kmi.re.kr)
- 해양수산해외산업정보포털 [kmi.re.kr/globalnews](http://kmi.re.kr/globalnews)
- 수산물수출정보포털 [kfishinfo.net/kor](http://kfishinfo.net/kor)
- 극지e야기 [koreapolarportal.or.kr](http://koreapolarportal.or.kr)
- 수산업관측센터 [foc.re.kr](http://foc.re.kr)
- FTAI행지원센터 [fta.kmi.re.kr](http://fta.kmi.re.kr)
- 국제물류정보포털 [withlogis.co.kr](http://withlogis.co.kr)



KMI Homepage



KMI Youtube

# ● KIOST 水理實驗大樓簡介

Physical Experiment Building

## Supplementary facilities & Equipments



### Overhead cranes

- Crane A (Max capacity: 1 ton)  
- Used for Wave Flume I
- Crane B (Max capacity: 1 ton)  
- Used for Wave Flume II & Tilting Flow Channel

### Lights for photography

- LED / Metal halide lamp

### Data acquisition instruments

- Amplifiers (MGCplus / QuantuMx)
- Software (Catman)
- High speed camera (Photron)

### Sensors

- Capacitance-type wave gauge (Sewon, VTI)
- Acoustic doppler current meter (Nortek)
- Six-component loadcell (HBM)
- Miniature pressure gauge (SSK, Kistler)
- Uni-axial loadcell (Bongshin)

## Application Fields

- Coastal and offshore structures (Breakwater, Quay wall, Floating structure, etc.)
- Marine equipments (Underwater drone, Underwater monitoring device, etc.)
- Ocean energy (Tidal/Tidal current power devices, Offshore wind power devices, etc.)
- Coastal and ocean environments (Aquaculture, Sediment transport, Marine debris, etc.)



Physical Experiment Building  
(Behind the administrative building)



KIOST Korea Institute of Ocean Science and Technology  
(49111 KIOST, 385, Haeyang-ro, Yeongdo-gu, Busan city, KOREA)

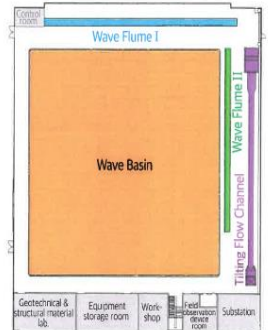


## Physical Experiment Building

- Artificially generates waves and currents using experimental facilities
- Reproduces physical processes that occurs in coastal and offshore zone

## Floor Guide

- B1 92 m<sup>2</sup>  
Pump Room, Reservoirs (A&B)
- 1F 3,777 m<sup>2</sup>  
Wave Basin  
Wave Flume I  
Wave Flume II  
Tilting Flow Channel  
Equipment storage room / Workshop / Field observation device room / Geotechnical & structural material lab. / laboratory
- 2F 136 m<sup>2</sup>  
Control room / Office / Meeting room
- Total area 4,005 m<sup>2</sup>



Physical Experiment Building

## Wave Basin



### Specifications

- Dimension : 45.3 m(L) X 44.5 m(W) X 1.2 m(H)
- Reservoir(A) capacity : 3,300 m<sup>3</sup>
- Water supply time : 80 minutes (per 1 m high)
- Water drainage time : 50 minutes (per 1 m high)

### Wave makers

- Uni-directional piston-type (7 Units x 4 m width)
- Regular & Irregular waves
- Maximum wave height : 0.35 m (Regular wave)
- Wave period : 0.7~5.0 s

Physical Experiment Building

## Wave Flume I



### Specifications

- Dimension : 50 m(L) X 1.2 m(W) X 1.6 m(H)
- Reservoir(B) capacity : 300 m<sup>3</sup>
- Water supply time : 30 minutes (per 1 m high)
- Water drainage time : 65 minutes (per 1 m high)

### Wave makers

- Piston-type
- Active Reflection Compensation (ARC)
- Regular, irregular, solitary and cnoidal waves
- Maximum wave height : 0.55 m (Regular wave)

### Water circulation system

- Range : 14 ~ 44 m
- Max flow rate : 0.06 m<sup>3</sup>/s

Physical Experiment Building

## Wave Flume II



### Specifications

- Dimension : 37 m(L) X 0.8 m(W) X 1.45 m(H)

### Wave makers

- Piston-type
- Active Reflection Compensation (ARC)

### Water circulation system

- Range : 13 ~ 31 m
- Max flow rate : 0.15 m<sup>3</sup>/s
- Bi-directional current generation system

### Special features

- Experiment with sediment is possible

Physical Experiment Building

## Tilting Flow Channel



### Specifications

- Dimension : 38 m(L) X 0.9 m(W) X 1.0 m(H)
- Maximum adjustable bed slope : 1:200
- Hinge-type tilting gate (channel end)
- Max flow rate : 0.65 m<sup>3</sup>/s

### Towing carriage

- Max speed : 2.5 m/s
- Calibration of a current meter is possible



● JOISS 第二屆海洋大數據競賽



### 'UN Ocean Decade' for Sustainable Development

The UN launched the 'UN Decade of Ocean Science for Sustainable Development', they said, "The restoration of the ocean to protect mankind and prevent climate change is a great challenge and task. Our efforts to prevent biodiversity loss, the implementation of the Paris Agreement on Climate Change, and the Earth's sustainable development goals all depend on the sea." In line with this, we are holding the '2nd JOISS Ocean Science Big Data Contest' to discover ideas and visualized insights using ocean big data on changes in the ocean near Korea and the impact of the ocean on real life due to climate change.

- ❖ CONTEST: The 2nd JOISS Ocean Science Big Data Contest
- ❖ HOST: Haebomdata Inc., The Korean Society of Oceanography
- ❖ SPONSORS: Ministry of Oceans and Fisheries, Korea research council of Maritime Education

### Metaverse Platform, SEALAB

SEALAB is a website, one of the ocean science communities, designed to grow into the only natural science community in South Korea that encompasses professional researchers and the public based on ocean data literacy.

As a metaverse platform, SEALAB plays a very important role in the 2nd JOISS Ocean Science Big Data Contest. From applying for registration, providing open data, forming networks, to announcing the results.

### Program (Mentoring)

- ❖ Period: 2022.10.03. – 2022.10.31.
- ❖ Mentor: Members of The Korean Society of Oceanography
- ❖ Mentee: 10 Highschool teams

Through mentoring program, mentor with mentees were allowed to use "zoom". The high school students were planned to refer to expert opinions on their works, data collections and graph interpretation.

## Program (Field Trip)

- ❖ Period: 2022.11.03
- ❖ Place: Lakaisandpine, Gangneung
- ❖ Participants: 10 Highschool teams



❖ During November 2 to 4, the Korea Ocean Society Autumn Academic Conference was held and lots of ocean academics were present, and through a field trip, the highschool participants had an opportunity to experience experts' careers and discuss about their results(portfolio) with the experts.



## Results

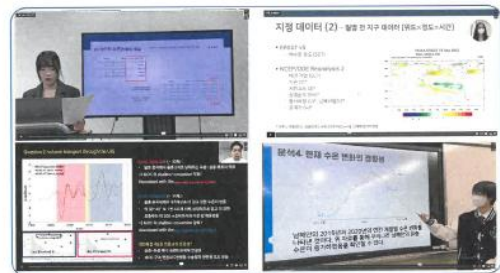
### ❖ Portfolio

- These are the portfolio with the results and it explains the study they have selected by analyzing and visualizing ocean data.





### ❖ Presentation Video

- These are the participants' speech videos and they are explaining the purpose of research, process of collection, method they gone through, and the results.



# ● KOME 合作備忘錄

**MEMORANDUM OF UNDERSTANDING  
BETWEEN  
NATIONAL ACADEMY OF MARINE RESEARCH  
AND  
KOREA RESEARCH COUNCIL OF MARITIME EDUCATION  
ON  
COLLABORATION IN RESEARCH AND TECHNOLOGY DEVELOPMENT**

WHEREAS National Academy of Marine Research (hereinafter referred to as "NAMR") and Korea Research Council of Maritime Education (hereinafter referred to as "KOME") share a common goal towards excellent scientific findings for greater understanding of the ocean.

WHEREAS another commonality that mandates of NAMR and KOME (hereinafter collectively referred to as "Parties") share is unbiased scientific knowledge supporting better management of the marine environment, both nationally and globally.

**NOW THEREFORE, NAMR AND KOME HAVE AGREED TO  
COLLABORATION UNDER THIS MOU AS FOLLOWS:**

**ARTICLE 1: OBJECTIVE**

- The purpose of this MOU is to provide a framework of exchange and cooperation where the Parties further their shared goals more efficiently and effectively.

**ARTICLE 2: COOPERATIVE ACTIVITIES**

- The activities of cooperation under this MOU are focused on, but not limited to, the following:
  - OSS international cooperation.
  - International Ocean Literacy Campaign and Education.
- The above list is not exhaustive and should not be taken to exclude or replace other forms of cooperation between the Parties on other issues of common interest.
- Where a Party is organizing a meeting with external participation at which policy matters related to this MOU will be discussed, the Party shall, where appropriate, invite the other Party.

**ARTICLE 3: OPERATION PROCEDURE**

- Cooperative activities – such as exchanges, assistance to the other Party or joint researches - subsequent to this MOU are, by and large, on voluntary, working-level and inter-personal basis.
- Such cooperative activities, however, could be prompted by Points of Contacts (hereinafter referred to as POCs) whom the signatories of this MOU shall nominate and notice to the other Party no later than a month after the conclusion. The chronological list of POCs will take form of an annex to this MOU.
- POCs shall be expected to identify topics of mutual interests, specify and pair leading participants. (hereinafter referred to as co-PIs) and/or render services against challenges intrinsic to international affairs.

**ARTICLE 4: IMPLEMENTING ARRANGEMENTS**

- In case when cooperative activities require more programmatic approach than one-time events, the Investigation Agreements (hereinafter referred to as IAs) could ensue from this MOU.
- IAs shall set forth common goal(s), objectives, co-PIs, source(s) of funding, division of tasks/responsibilities/ resources/costs, co-use/transfer of materials/equipment, co-ownership of expected deliverables and other conditions.

**ARTICLE 5: FINANCIAL RESOURCES**

- The MOU does not commit either party to exchange funds or other resources.
- Cooperative activities are subject to the availability of appropriated fund(s).

**ARTICLE 6: DISSEMINATION OF RESULTS**

- The widest possible dissemination of information, data and other results from cooperative activities subsequent to this MOU is encouraged, unless IA states otherwise.
- The Parties shall consult with each other regarding intellectual property rights (hereinafter referred to as IPR) that are likely to be generated from cooperative activities subsequent to this MOU.
- In no event will authorization of the Parties' name, emblem or any abbreviation thereof be granted for a commercial purpose.

**ARTICLE 7: GENERAL PROVISION**

- A mutual consent can invite 3rd party(s) – either individual or institution - from Taiwan, the Republic of Korea or even 3rd countries into cooperative activities subsequent to this MOU.
- This MOU is prepared in no other language than English, of which only the copy is effective.
- Any dispute arising out of or in connection with this MOU shall be settled amicably between/among parties.
- Should attempts at amicable negotiation fail, any such dispute shall, upon request by either party, be referred to arbitration in accordance with the UNCITRAL arbitration rules then prevailing.

**ARTICLE 8: LEGAL STATUS**

- As being a concurrence of intention to cooperate, this MOU does not create any legally binding obligation.
- Factual particulars additional to or resultant from this MOU such as the list of POCs, the list of IAs and so on - which thus do not conflict with any article and clause - may be documented as an annex to this MOU when necessary.
- Any difference between the Parties arising out of or in connection with this MOU shall be dealt in good faith and amicably between Parties.

**ARTICLE 9: VALIDITY**

- This MOU shall be effective upon the date of a signature by the later signatory and remain valid for four years from then on without automatic renewal/extension. This MOU shall be extended or renewed by mutual consent.
- This MOU could be terminated upon 6 months' written notice by either party. As of the day of termination of this MOU, IA(s) subsequent to this MOU shall automatically and accordingly cease to be effective.
- This MOU may be amended only by mutual agreement of the Parties reflected in writing.

IN WITNESS WHEREOF, the duly authorized representatives of the Parties affix their signatures below.

**For NAMR**

Chen, Jiahn-Horng  
President

Date: Dec. 19, 2022

**For KOME**

Shin, Chun-Hee  
President

Date: 2022. 12. 19

● Haebom Data 合作備忘錄



国家海洋研究院  
National Academy of Marine Research

**MEMORANDUM OF UNDERSTANDING  
BETWEEN  
HAEBOM DATA INC.  
AND  
NATIONAL ACADEMY OF MARINE RESEARCH  
ON  
COLLABORATION IN RESEARCH AND TECHNOLOGY DEVELOPMENT**

WHEREAS Haebom Data Inc. and National Academy of Marine Research (hereinafter referred to as "NAMR") share a common goal towards excellent scientific findings for greater understanding of the ocean.

WHEREAS another commonality that mandates of Haebom Data Inc. and NAMR (hereinafter collectively referred to as "Parties") share is unbiased scientific knowledge supporting better management of the marine environment, both nationally and globally.

**NOW THEREFORE, THE HAEBOM DATA INC. AND NAMR HAVE AGREED TO  
COLLABORATION UNDER THIS MOU AS FOLLOWS:**

**ARTICLE 1: OBJECTIVE**

1. The purpose of this MOU is to provide a framework of exchange and cooperation where the Parties further their shared goals more efficiently and effectively.

**ARTICLE 2: COOPERATIVE ACTIVITIES**

1. This MOU are focused on, but not limited to, the following:
  - a. JOISS & NODASS system English/Chinese/Korea Version.
  - b. International Ocean Science Open Data Contest.
  - c. International Ocean Literacy Education.
2. The above list is not exhaustive and should not be taken to exclude or replace other forms of cooperation between the Parties on other issues of common interest.
3. Where a Party is organizing a meeting with external participation at which policy matters related to this MOU will be discussed, the Party shall, where appropriate, invite the other Party.

**ARTICLE 3: OPERATION PROCEDURE**

1. Cooperative activities – such as exchanges, assistance to the other Party or joint researches - subsequent to this MOU are, by and large, on voluntary, working-level and inter-personal basis.
2. Such cooperative activities, however, could be prompted by Points of Contacts (herein after referred to as POCs) whom the signatories of this MOU shall nominate and notice to the other Party no later than a month after the conclusion. The chronological list of POCs will take form of an annex to this MOU.
3. POCs shall be expected to identify topics of mutual interests, specify and pair leading participants (hereinafter referred to as co-PIs) and/or render services against challenges intrinsic to international affairs.

**ARTICLE 4: IMPLEMENTING ARRANGEMENTS**

1. In case when cooperative activities require more programmatic approach than one-time events, the Investigation Agreements (hereinafter referred to as IAs) could ensue from this MOU.
2. IAs shall set forth common goal(s), objectives, co-PIs, source(s) of funding, division of tasks/responsibilities/resources/costs, co-use/transfer of materials/equipment, co-owner ship of expected deliverables and other conditions.

**ARTICLE 5: FINANCIAL RESOURCES**

1. The MOU does not commit either party to exchange funds or other resources.
2. Cooperative activities are subject to the availability of appropriated fund(s).

**ARTICLE 6: DISSEMINATION OF RESULTS**

1. The widest possible dissemination of information, data and other results from cooperative activities subsequent to this MOU is encouraged, unless IA states otherwise.
2. The Parties shall consult with each other regarding intellectual property rights (herein after referred to as IPR) that are likely to be generated from cooperative activities subsequent to this MOU.
3. In no event will authorization of the Parties' name, emblem or any abbreviation thereof be granted for a commercial purpose.

**ARTICLE 7: GENERAL PROVISION**

1. A mutual consent can invite 3rd party(s) – either individual or institution - from Taiwan, the Republic of Korea or even 3rd countries into cooperative activities subsequent to this MOU.
2. This MOU is prepared in no other language than English, of which only the copy is effective.
3. Any dispute arising out of or in connection with this MOU shall be settled amicably between/among parties.
4. Should attempts at amicable negotiation fail, any such dispute shall, upon request by either party, be referred to arbitration in accordance with the UNCITRAL arbitration rules then prevailing.

**ARTICLE 8: LEGAL STATUS**

1. As being a concurrence of intention to cooperate, this MOU does not create any legally binding obligation.
2. Factual particulars additional to or resultant from this MOU such as the list of POCs, the list of IAs and so on - which thus do not conflict with any article and clause - may be documented as an annex to this MOU when necessary.
3. As being a concurrence of intention to cooperate, this MOU does not create any legally binding obligation.
4. Any difference between the Parties arising out of or in connection with this MOU shall be dealt in good faith and amicably between Parties.

**ARTICLE 9: VALIDITY**

1. This MOU shall be effective upon the date of a signature by the later signatory and remain valid for four years from then on without automatic renewal/extension. This MOU shall be extended or renewed by mutual consent.
2. This MOU could be terminated upon 6 months' written notice by either party. As of the day of termination of this MOU, IA(s) subsequent to this MOU shall automatically and accordingly cease to be effective.
3. This MOU may be amended only by mutual agreement of the Parties reflected in writing.

IN WITNESS WHEREOF, the duly authorized representatives of the Parties affix their signatures below.

2022. 12. 19.

**For HAEBOM DATA INC.**

**For NAMR**



**Song, Tae-yoon**  
President



**Chen, Jiahn-Horng**  
President

● MABIK 合作備忘錄



國家海洋研究院  
National Academy of Marine Research



mabik  
NATIONAL MARINE BIODIVERSITY INSTITUTE OF KOREA

**MEMORANDUM OF UNDERSTANDING  
BETWEEN  
NATIONAL ACADEMY OF MARINE RESEARCH  
AND  
NATIONAL MARINE BIODIVERSITY INSTITUTE OF KOREA  
ON  
COLLABORATION IN RESEARCH AND TECHNOLOGY DEVELOPMENT**

**WHEREAS** National Academy of Marine Research (hereinafter referred to as “NAMR”) and National Marine Biodiversity Institute of Korea (hereinafter referred to as “MABIK”) share a common goal towards excellent scientific findings for greater understanding of the ocean.

**WHEREAS** another commonality that mandates of NAMR and MABIK (hereinafter collectively referred to as “Parties”) share is unbiased scientific knowledge supporting better management of the marine environment, both nationally and globally.

**NOW THEREFORE, NAMR AND MABIK HAVE AGREED TO COLLABORATION UNDER THIS MOU AS FOLLOWS:**

**ARTICLE 1: OBJECTIVE**

1. The purpose of this MOU is to provide a framework of exchange and cooperation where the Parties further their shared goals more efficiently and effectively.

**ARTICLE 2: COOPERATIVE ACTIVITIES**

1. This MOU are focused on, but not limited to, the following:
  - a. Marine ecology and biodiversity survey data exchange.
  - b. MBRIS & NODASS system English/Chinese/Korean version.
  - c. Marine conservation education project.
  - d. Visiting and exchange scholar programs.
2. The above list is not exhaustive and should not be taken to exclude or replace other forms of cooperation between the Parties on other issues of common interest.
3. Where a Party is organizing a meeting with external participation at which policy matters related to this MOU will be discussed, the Party shall, where appropriate, invite the other Party.



### **ARTICLE 3: OPERATION PROCEDURE**

1. Cooperative activities – such as exchanges, assistance to the other Party or joint researches - subsequent to this MOU are, by and large, on voluntary, working-level and inter-personal basis.
2. Such cooperative activities, however, could be prompted by Points of Contacts (hereinafter referred to as POCs) whom the signatories of this MOU shall nominate and notice to the other Party no later than a month after the conclusion. The chronological list of POCs will take form of an annex to this MOU.
3. POCs shall be expected to identify topics of mutual interests, specify and pair leading participants (hereinafter referred to as co-PIs) and/or render services against challenges intrinsic to international affairs.

### **ARTICLE 4: IMPLEMENTING ARRANGEMENTS**

1. In case when cooperative activities require more programmatic approach than one-time events, the Investigation Agreements (hereinafter referred to as IAs) could ensue from this MOU.
2. IAs shall set forth common goal(s), objectives, co-PIs, source(s) of funding, division of tasks/responsibilities/resources/costs, co-use/transfer of materials/equipment, co-ownership of expected deliverables and other conditions.

### **ARTICLE 5: FINANCIAL RESOURCES**

1. The MOU does not commit either party to exchange funds or other resources.
2. Cooperative activities are subject to the availability of appropriated fund(s).

### **ARTICLE 6: DISSEMINATION OF RESULTS**

1. The widest possible dissemination of information, data and other results from cooperative activities subsequent to this MOU is encouraged, unless IA states otherwise.
2. The Parties shall consult with each other regarding intellectual property rights (herein after referred to as IPR) that are likely to be generated from cooperative activities subsequent to this MOU.
3. In no event will authorization of the Parties' name, emblem or any abbreviation thereof be granted for a commercial purpose.

### **ARTICLE 7: GENERAL PROVISION**

1. A mutual consent can invite 3rd party(s) – either individual or institution - from Taiwan, the Republic of Korea or even 3rd countries into cooperative activities subsequent to this MOU.
2. This MOU is prepared in no other language than English, of which only the copy is effective.
3. As being a concurrence of intention to cooperate, this MOU does not create any legally binding obligation.
4. Any difference between the Parties arising out of or in connection with this MOU shall be dealt in good faith and amicably between Parties.

**ARTICLE 8: LEGAL STATUS**

1. As being a concurrence of intention to cooperate, this MOU does not create any legally binding obligation.
2. Factual particulars additional to or resultant from this MOU such as the list of POCs, the list of IAs and so on - which thus do not conflict with any article and clause - may be documented as an annex to this MOU when necessary.
3. An annex shall be considered part of this MOU. Unless the context otherwise requires, references to this MOU shall be construed as a reference to this MOU including the Annex hereto, as varied or amended in accordance with the terms of this MOU.

**ARTICLE 9: VALIDITY**

1. This MOU shall be effective upon the date of a signature by the later signatory and remain valid for four years from then on without automatic renewal/extension. This MOU shall be extended or renewed by mutual consent.
2. This MOU could be terminated upon 6 months' written notice by either party. As of the day of termination of this MOU, IA(s) subsequent to this MOU shall automatically and accordingly cease to be effective.
3. This MOU may be amended only by mutual agreement of the Parties reflected in writing.

IN WITNESS WHEREOF, the duly authorized representatives of the Parties affix their signatures below.

**For NAMR**

**For MABIK**



Chen, Jiahn-Hong  
President



Wan-Hyun Choi  
President

Date: DEC. 20, 2022

Date: 20. DEC, 2022