麥寮港 2025 環境報告書

Mailiao Industrial Harbor Environmental Report

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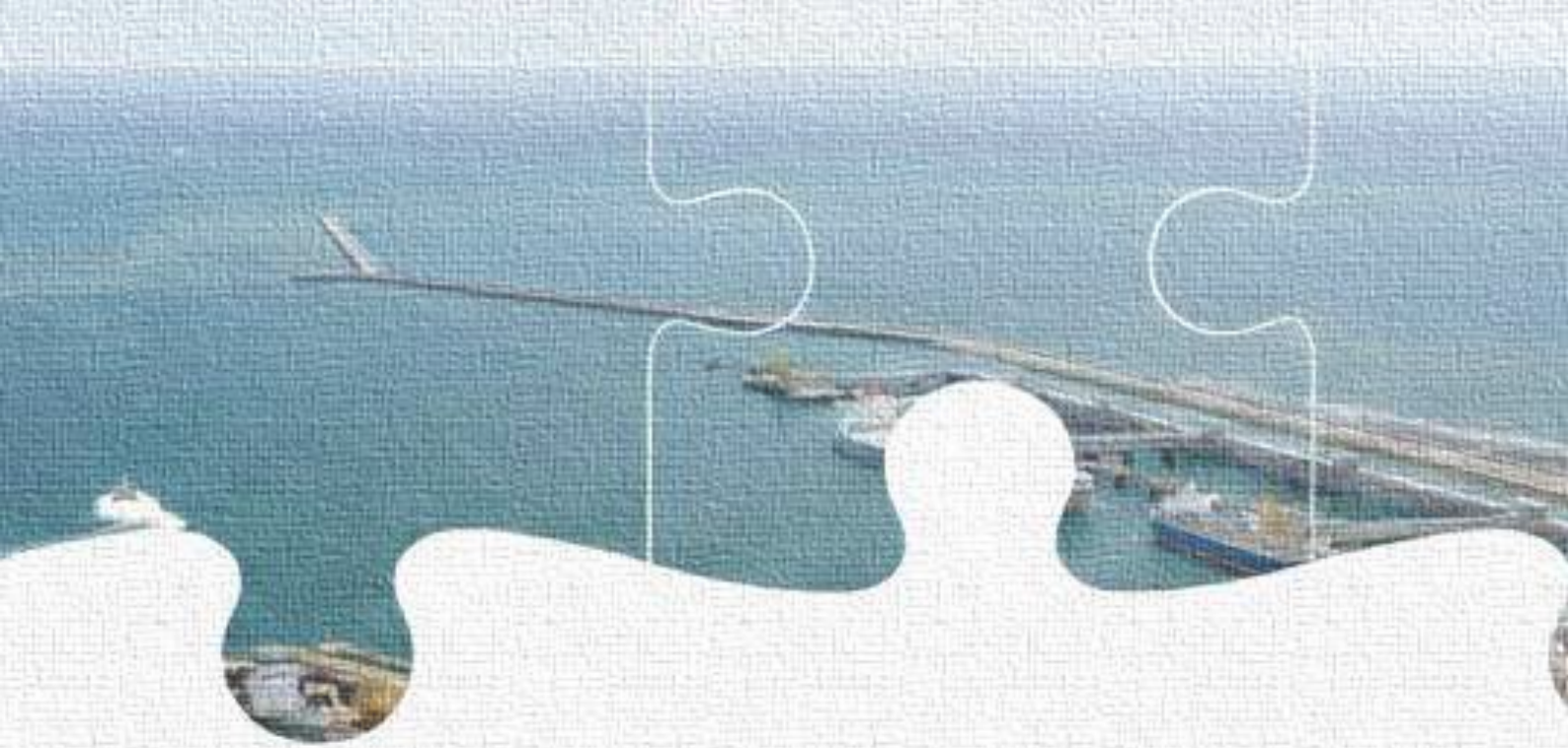

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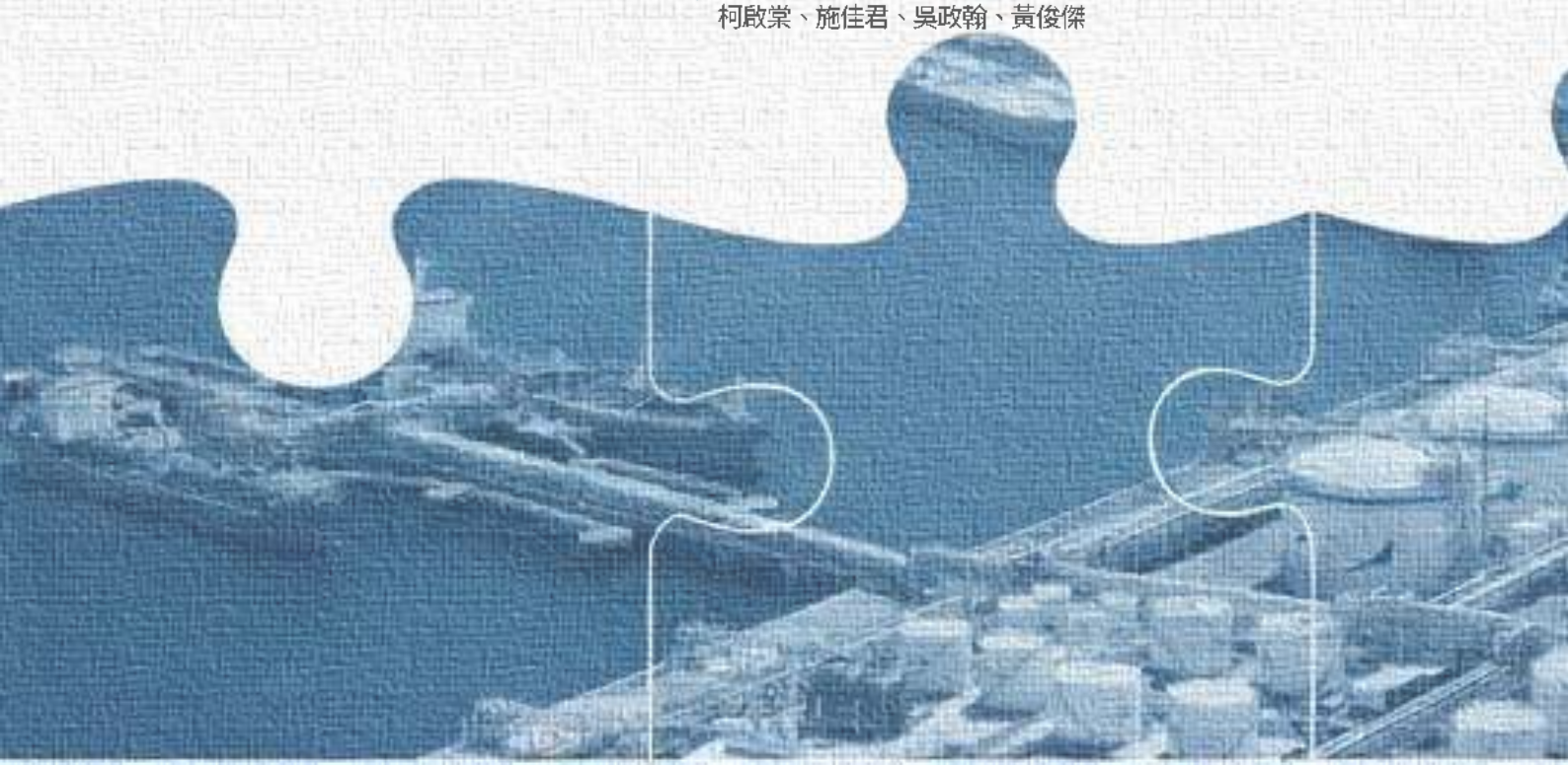


01

麥寮港
環境政策

麥寮港環境政策

麥寮工業區專用港管理股份有限公司深信環境保護與港口發展並重，身為工業專用港經營管理單位，對於港口環境保護與安全保障應負起責任，提供足夠的訓練，且所有用港人都必須遵循法規、了解制度，要求制度徹底的執行與不斷改善來確保政策與目標之達成。為達到港埠環境表現與政策的一致性，將採取下列原則：

遵行環境保護法令，致力環境友善作為
持續執行環境監測，維護港區環境清潔
落實環境教育訓練，提升全員環保意識
兼顧環境安全管理，達成永續經營目標

為達到本環境政策之承諾，我們根據港口對環境衝擊最大的十項環境議題，訂立以下環境目標，並負責每年檢視此環境政策，以符合承諾、持續改善並達成環境目標。另本環境政策將會有效傳達給員工、航商、及周邊居民，並已於麥寮港公司網頁開放閱覽。

1.氣候變遷減緩調適：	設置波浪觀測系統，加強潛在風險檢視，減低港區影響衝擊；持續掌握港區碳排放，定期盤查溫室氣體，規劃推動減碳方案
2.改善港埠空氣品質：	設置岸電設施、進港船舶全面採用低硫燃油、推廣船舶減速、持續推動綠色輸送、設置氣體回收系統，減少空污排放
3.轉換綠色能源效率：	打造綠色辦公環境(包含汰換節能燈具及推行無紙化電子作業流程等)與落實綠色能源政策(包含使用太陽能供電及雨水回收專案)
4.維護港區水域品質：	制訂麥寮港海洋污染防治及緊急應變計畫，持續執行港區水質監測，加強海域污染查察通報處理
5.強化疏濬養灘管理：	制定養灘計畫書，每年執行養灘作業，養灘期間進行水質監控
6.加強管制港埠垃圾：	強制在港船舶與港區辦公室執行垃圾分類，推動源頭減量與資源回收
7.管制船舶排放污水：	港區全面禁止船舶污水排放，提供廢油水收受服務，配合執法單位進行聯合稽查
8.拓展當地社區關懷：	響應國家海洋日，攜手社區漁苗放流復育、環保淨灘行動，深化多元互動之海洋環境生態教育
9.落實危險貨物管理：	訂定貨物裝卸程序書，裝卸期間圍設攔油索預防溢漏，配置警報偵測系統及專業除污船，定期執行緊急應變演練
10.重視船舶加油程序：	訂定船舶加油相關作業程序(包含岸上管路、車輛及海上油駁船加油等方式)，落實執行以確保環境與安全並重

麥寮工業區專用港管理股份有限公司 董事長 曹明

日期 114 年 7 月 8 日

02

董事長的話

董事長的話

隨著全球航運產業的發達，港口在進行港埠作業下，如未對環境善加保護，將對環境衝擊愈加劇烈。生態港埠（EcoPorts）概念近年來逐漸獲得歐、美等國際大港重視，而麥寮港從開港以來就一直主張著「環境保護與產業發展並重」的營運核心價值，才能確保永續發展。

麥寮港為國內最大的工業專用港，領頭示範環保先驅是我們的職責。麥寮港具備完善的環境管理政策，針對各項作業均有嚴密監控的管理作為，持續落實執行友善環境及生態保護措施，使得港域週遭水質維持相當乾淨，才得以有現今豐富的陸域及海域生態資源。

不論港埠運輸如何發展，綠色運輸無疑是因應全球航運發展的基本條件。麥寮港秉持著環境政策與表現一致性的原則，無時不忘兢兢業業、遵循環境保護法令及致力環境友善作為，並藉由貫徹執行及不斷審視、精進及改善，來確保政策與目標的達成。未來，麥寮港更期望除不斷提升營運績效與港埠服務品質外，經由推動歐盟生態港認證的機會，與國際交流互相學習，以建立節能減碳、低排放及環境友善的綠色港埠為目標。

麥寮工業區專用港管理股份有限公司　董事長　曹明

03

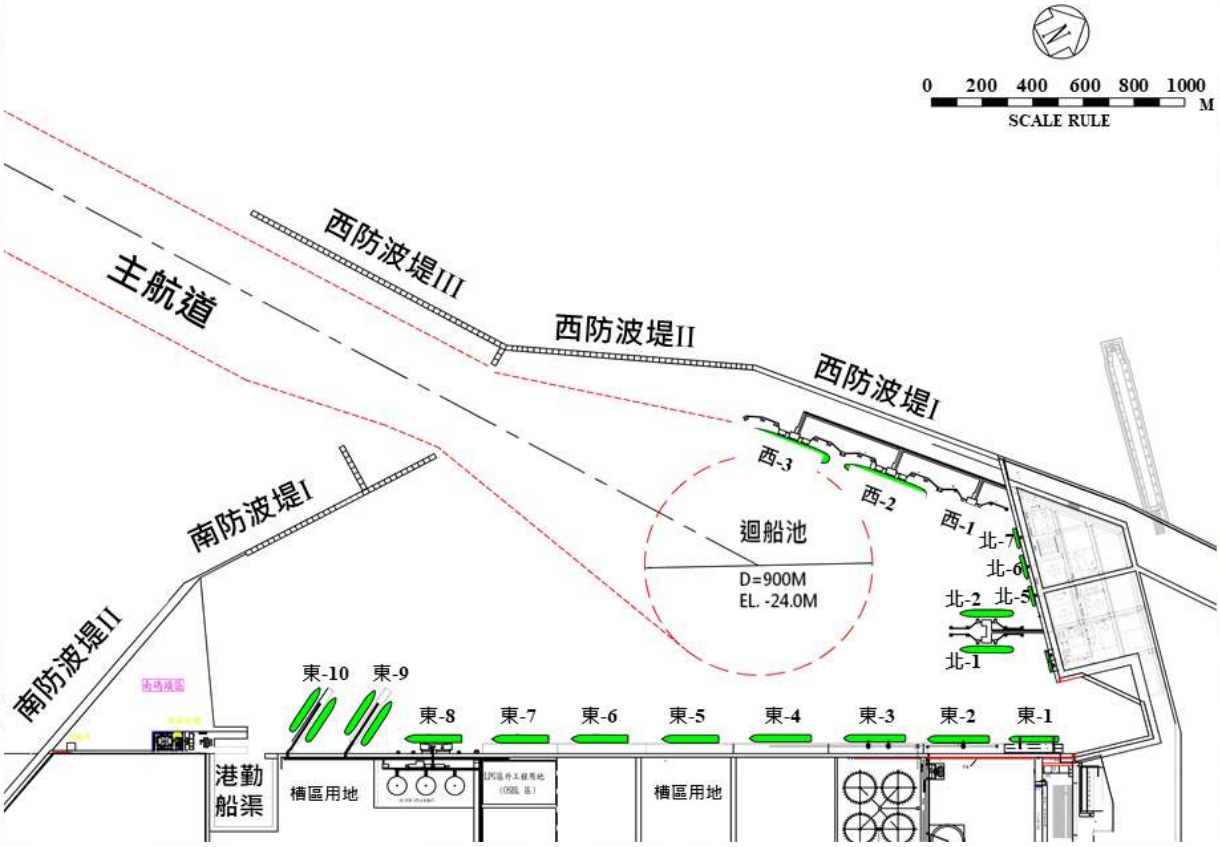
麥寮港
背景介紹

背景介紹

麥寮工業專用港(以下簡稱麥寮港)係位於雲林離島式基礎工業區之麥寮區，雲林離島式基礎工業區乃經濟部為因應我國基礎工業之發展，配合六輕及六輕擴大計畫用地需求，以提供國內既有及未來石化產業建廠及遷廠需要，所規劃在雲林縣外海以抽砂填海造地方式來開發之工業區，共分有麥寮區、新興區、台西區及四湖區等4區，其中麥寮區係由台塑企業進行造地之六輕計畫石化工業區，而麥寮港內之專用碼頭，則全為配合六輕計畫所施作。1993年7月7日奉行政院核定設置麥寮港，並於2001年3月1日正式營運。

麥寮港位於台灣本島西海岸的中央，東經120度08.9分、北緯23度46.9分，處於雲林離島式基礎工業區之麥寮區，為第一個民間自行投資興建之國際港口。北起濁水溪口南側，南臨新虎尾溪口，澎湖水道東側海岸。北距台中港約40浬、基隆港約150浬；南離高雄港約80浬。港口方向朝西偏南34°(約介於西南西與西南間)，進出港航道長約2500公尺、中潮位水深24公尺，可供30萬噸級船舶進出，為台灣最深港口。

麥寮港碼頭位置



麥寮港區現況

項目	說明
港口	朝西偏南34度 / 水深EL-24公尺 / 寬度390公尺
進出港航道	長約2,500公尺、中潮位水深24公尺
迴船池	直徑900公尺
碼頭	專用碼頭20席
港勤船渠	專供港勤船舶靠泊、加水及加油
機工廠及修船滑道	專供港勤船舶維修、檢驗及保養使用
港域面積	面積1,599.15公頃、港內水域476公頃、 陸域179.15公頃、港外水域944公頃
防波堤	西防波堤3,243公尺、南防波堤2,227公尺

主要商業活動

麥寮港2023~2024年業務統計

業務項目		2023年 (a)	2024年 (b)	年度業務相較(b-a)	
				量	比例(%)
進出港船舶	進港艘次(次)	1,916	1,852	-64	-3.34%
	進港總噸位(噸)	48,329,127	46,233,367	-2,095,760	-4.34%
	出港艘次(次)	1,915	1,856	-59	-3.08%
	出港總噸位(噸)	48,266,241	46,408,745	-1,857,496	-3.85%
貨物吞吐量	進港貨物(噸)	43,139,417	41,973,280	-1,166,137	-2.70%
	出港貨物(噸)	18,190,678	17,376,777	-813,901	-4.47%
	進出港貨物(噸)	61,330,095	59,350,057	-1,980,038	-3.23%
貨物裝卸量	總計(噸)	61,174,086	59,615,704	-1,558,382	-2.55%

主要貨物

麥寮港主要進出港貨物為油品、其次為化學品、礦石及散雜貨有關工業產品等。

麥寮港主要貨物

Petroleum石油
Crude oil 原油
LPG (Liquefied petroleum gas) 液化石油氣
Refined oil 成品油
Pyrites minerals/Ores 礦石礦物
Coal 煤炭
Sulphur 硫磺
Chemicals化學品
Sodium hydroxide 液鹼
Ethylene Glycol 單乙二醇
Dry bulk散雜貨
Coke石油焦
Industrial salt 工業鹽

近兩年推動重點

麥寮港響應港口永續與環境保護，並近年致力於綠色航運服務。

推動項目	執行重點
一、 高壓岸電系統設施	• 2023年5月啟用東3碼頭高壓岸電設施，岸電系統設計6.6kV/1800kW，可供20萬噸靠港散裝船及煤炭船使用，並提供在港期間使用岸電獎勵措施。 • 統計截至2024年底，期間共使用533小時，相較傳統使用硫油燃料方式，可減少92.34kL燃油、78公噸CO_2e排放，達溫室氣體減量、能源轉換及綠色航運推動之三贏局面。
二、 港口水下生態調查	• 麥寮港執行第二期海域生態調查，延續 2016 年首次調查成果，持續掌握港區水域生態變化，本次調查增發現增加物種共計249種，以軟體動物門螺貝類和海蛞蝓最多，並累計兩次調查發現397種生物，涵蓋2界11門161科244屬。 • 本次調查成果豐碩，新發現櫛水母、海綿及苔蘚動物等類群顯示港內人工構造物已有效發揮魚礁功能，並水質維持良好下，使原以沙岸為主的環境逐步演替為物種多樣、結構穩定的「類珊瑚礁生態系」。
三、 建置LNG卸收碼頭	• 於2023年獲環評許可建置LNG卸收碼頭及液化天然氣接收站，並自2025年12月動土開工，預計於2029年投入使用。 • 於南公用碼頭建置LNG卸收碼頭(約45公頃)，可容納液化天然氣容量26萬m^3的液化天然氣運輸船，另興建四座16~18萬公秉儲槽及氣化設施，以穩定天然氣源。
四、 拓展當地社區關懷	• **重視港口環境與社會議題，持續強化在地溝通與參與：** 1. 響應國家海洋日，辦理海洋環境生態教育活動，透過導覽參訪與互動學習，提升各界對港口永續與環境保護認知。 2. 攜手地方社區共同維護海洋環境及生態平衡，長期投入生態資源復育，定期推動淨灘行動，降低沿岸污染風險。 3. 推動敦親睦鄰與公益關懷活動，建立溝通平台，傾聽在地需求，強化港區與社區的信任與合作。 4. 打造寓教於樂的親子藝文平台，邀請兒童劇團及明華園總團公演，深化與在地鄉親之情感連結，實現藝文共榮與文化深耕。

04

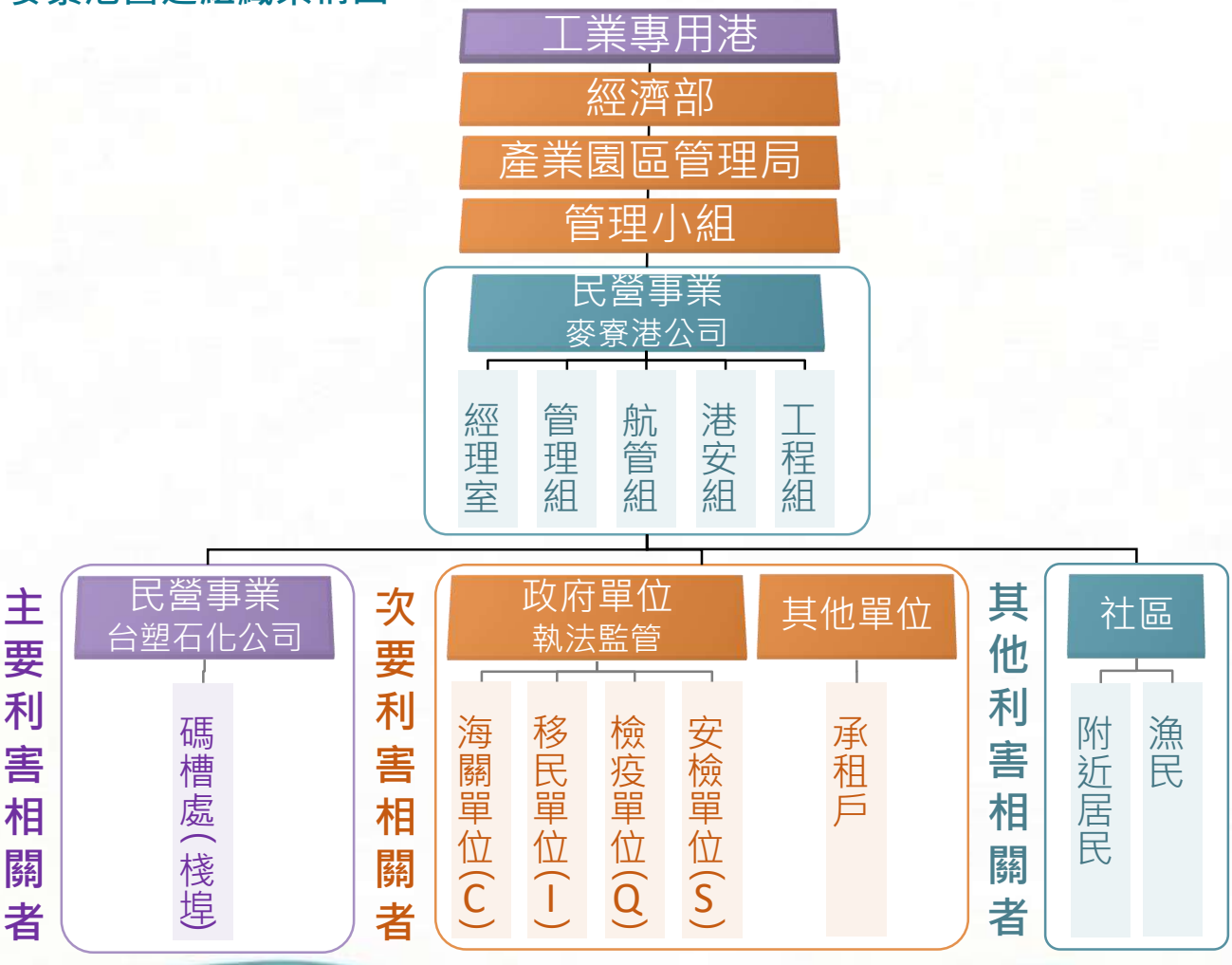
麥寮港
環境管理系統

組織架構及說明

麥寮港區範圍內環境議題涉及單位，除了麥寮工業區專用港管理股份有限公司(以下簡稱港口公司)，亦包含各面向之利害關係者，如主要利害相關者、次要利害相關者及其他利害相關者，其中主要利害相關者為台塑石化股份有限公司碼槽處(以下簡稱塑化公司碼槽處)；次要利害相關者可分為政府單位及其他單位，政府單位包含海關單位(如財政部關務署台中關業務二組麥寮業務課)、移民單位(如內政部移民署國境事務大隊台中港國境事務隊麥寮港分隊)、檢疫單位(如衛生福利部疾病管制署南區管制中心麥寮港辦事處)及安檢單位(如海洋委員會海巡署中部分署第四岸巡隊麥寮工業港安檢所)，其他單位則為港口承租戶；而其他利害相關者為社區，包含附近居民及漁民等。

麥寮港之港區範圍，無涉及公權力之實際經營管理業務，由港口公司負責港口經營及管理，涉及政府公權力之執行部分由管理小組辦理，另海關單位、移民單位、檢疫單位、安檢單位及承租戶等相關單位配合行政管理業務。

麥寮港營運組織架構圖



港口公司致力於麥寮港環境管理，為順利推動各項管理作業，港口公司依據執行之管理行動及面向，檢視利害相關者對象，並確實瞭解其需求及期望，據以為港口環境管理之推動考量；此外，港口公司亦透過定期召開協調會議、建立溝通群組、開放港區參訪、辦理宣導活動、發表綠港推動成果、刊登出版物、回復官網意見信箱等，與港口利害相關者建立良好溝通橋梁。

港口利害相關者說明

港口利害相關者		需求及期望	參與港口環境活動
主要	1.塑化公司碼槽處	• 減少或控制各項港口活動對環境影響 ✓能源效率 ✓港埠廢棄物	• 每月召開工安環保日會 • 定期開放員工及眷屬參訪港區, 宣導環境政策理念 • 每季邀集主要推動單位召開協調會議
次要	2.海關單位	• 政府單位執法監督(配合行政管理業務) • 符合環境及生態標準 ✓空氣品質	• 建立溝通群組(Line) • 定期會議及活動參與： ✓協調會議 ✓港口訓練 ✓宣導活動
	3.移民單位		
	4.檢疫單位		
	5.安檢單位		
	6.承租戶	• 良好口碑、風險防範	• 每月召集承攬商召開協議組織會議
其他	7.附近居民、漁民	• 落實環境及生態保護 ✓棲息地/(水域)生態系統	• 出版物刊登：環境政策及環境報告書 • 意見回復信箱(jeff-huang@fpcc.com.tw) • 社會回饋： ✓大型淨灘活動、魚苗放流措施 ✓研討會推廣綠色生態港埠 ✓邀請參觀港區宣導綠港推動成果

港口公司係由工業區內興辦工業人共同投資設立，並經濟部產業園區管理局(原經濟部工業局)於1995年5月2日，同意其對麥寮港之投資、興建及經營管理。

為降低廠商海運輸儲成本、提高產業競爭力、繁榮經濟，港口公司營運方針係提供快速、便捷之港埠功能，故組織以精簡、效率為主要考量旗下共設有管理組、航管組、港安組、工程組等四個組，而碼頭作業棧埠經營則由塑化公司碼槽處執掌，各單位執掌內容如下。

管理組	航管組	港安組	工程組	塑化公司碼槽處
管理與事務性業務推動及港灣業務費收取業務	進出港船舶監控、船席安排及港勤船舶調度	港區安全維護及港區環境整潔維持	港區工程推動及設施維護作業	碼頭進出口貨物裝卸

環境保護相關法規

港口公司遵守國際相關規範及公約，所依循之國際船舶公約包含防止船舶污染國際公約(MARPOL 73/78)、防止傾倒廢物等物質污染海洋公約(倫敦公約)、國際安全與無害環境拆船公約(香港公約)、管制船舶有害防污系統國際公約(AFS公約)、船舶壓艙水及沉積物管理國際公約(BWM公約)等。

港口公司遵守國內相關法規條例及環境管理作業，所依循之相關法律如下：

國內相關環境法規

法律類型	法規名稱	中央主管機關	地方主管機關
建港相關法律	產業創新條例	經濟部 產業發展署	雲林縣政府建設處
	經濟部事業廢棄物再利用管理辦法		雲林縣政府環境保護局
交通部門相關法律	船舶法	交通部航港局	麥寮港辦事處
	商港法		
	航業法		
內政部門相關法律	消防法	內政部消防署	雲林縣政府消防局
農業部門相關法律	野生動物保育法	農業部	雲林縣政府農業處
環保部門相關法律	海洋污染防治法	海洋委員會	
	海洋保育法		
	環境基本法	環境部	雲林縣政府環境保護局
	空氣污染防制法		
	水污染防治法		
	廢棄物清理法		
	資源回收再利用法		
	環境影響評估法		
	環境教育法		
	噪音管制法		
	室內空氣品質管理法		
	毒性及關注化學物質管理法		
	土壤及地下水污染整治法		
	氣候變遷因應法		
	公害糾紛處理法		雲林縣公害糾紛調處委員會
跨部門相關法律	災害防救法	內政部	雲林縣政府 (依災害類型不同所屬主管機關地方單位不同)

05

環境狀況

空氣品質

空氣品質

麥寮港是以服務雲林離島工業區為主要功能，有關整體空氣品質的保護工作不遺餘力，於整個台塑企業麥寮工業園區中，執行「六輕環境監測作業」係依據開發單位台塑企業提送環境部經審查通過之「六輕四期擴建計畫環境影響說明書」及「六輕四期擴建計畫環境影響調查報告書」中環境監測計畫所執行之環境監測作業，每季均將各項監測結果提送至六輕環境監督委員會審查，若有監測數據異常，用港單位台塑企業則提出因應對策並持續追蹤，每季各項監測結果與數據分析均彙編成監測報告函送環境部並於環境部網站上公開完整監測報告。

麥寮港與台塑企業之空氣品質監測站，係屬麥寮工業區聯合設置，於此彙整台塑企業設立之3座周界空氣品質連續自動監測站「台西(台西國中)、土庫(宏崙國小)及麥寮(麥寮中學)」及環境部設立於雲林縣轄內之3座空氣品質監測站「斗六、崙背、台西」，相關位置如下圖，彙整其近3年空氣品質監測資料，說明如後。

麥寮港區鄰近空氣品質監測站位置圖

麥寮港鄰近之6個空氣品質監測站中，監測項目包含二氧化硫(SO_2)、一氧化碳(CO)、臭氧(O_3)、粒徑小於等於十微米(μm)之懸浮微粒(PM_{10})、二氧化氮(NO_2)及非甲烷碳氫化合物(NMHC)，除一氧化碳(CO)及非甲烷碳氫化合物(NMHC)無空氣品質標準外，其餘測項皆符合法規標準值。

麥寮港空氣品質2022~2024年狀況

監測項目(單位)			SO_2	CO	$O_{3,\ max}$	$O_{3,\ 8hr}$	PM_{10}	NO_2	NMHC
空氣品質標準	2024.9.30前		20	-	120	60	50	30	-
	2024.9.30起		8	-	100	60	30	21	-
類別	測站	年度	ppb	ppm	ppb	ppb	μg / m^3	ppb	ppm
台塑企業自設監測站	麥寮站	2022	2.23	0.33	53.10	46.69	39.18	7.64	0.04
	台西站		2.07	0.32	52.52	46.51	31.06	7.25	0.03
	土庫站		2.30	0.35	53.51	45.55	35.22	8.34	0.05
	麥寮站	2023	1.81	0.30	54.13	47.84	43.78	7.55	0.04
	台西站		1.68	0.30	54.64	48.52	40.75	7.56	0.04
	土庫站		1.84	0.32	54.04	46.60	39.79	8.20	0.05
	麥寮站	2024	1.71	0.30	52.31	45.90	35.11	7.42	0.04
	台西站		1.58	0.30	49.35	43.88	34.47	7.75	0.04
	土庫站		1.66	0.30	51.41	44.85	36.40	7.83	0.05
環境部設立之監測站	崙背站	2022	1.50	0.24	50.46	42.89	35.50	6.51	-
	台西站		1.57	0.22	52.06	45.75	30.10	5.34	0.03
	斗六站		1.62	0.28	59.49	47.87	35.80	8.33	-
	崙背站	2023	1.38	0.24	51.98	44.50	42.00	6.38	0.04
	台西站		1.42	0.22	53.19	45.75	36.30	5.80	0.03
	斗六站		1.59	0.28	60.69	50.33	40.90	8.05	0.06
	崙背站	2024	1.25	0.24	51.66	44.21	40.40	6.36	0.04
	台西站		1.35	0.21	52.38	46.05	24.50	5.45	0.03
	斗六站		1.45	0.27	60.72	49.71	35.80	7.85	0.05

註： “—” 表示無監測資料或無空氣品質標準。

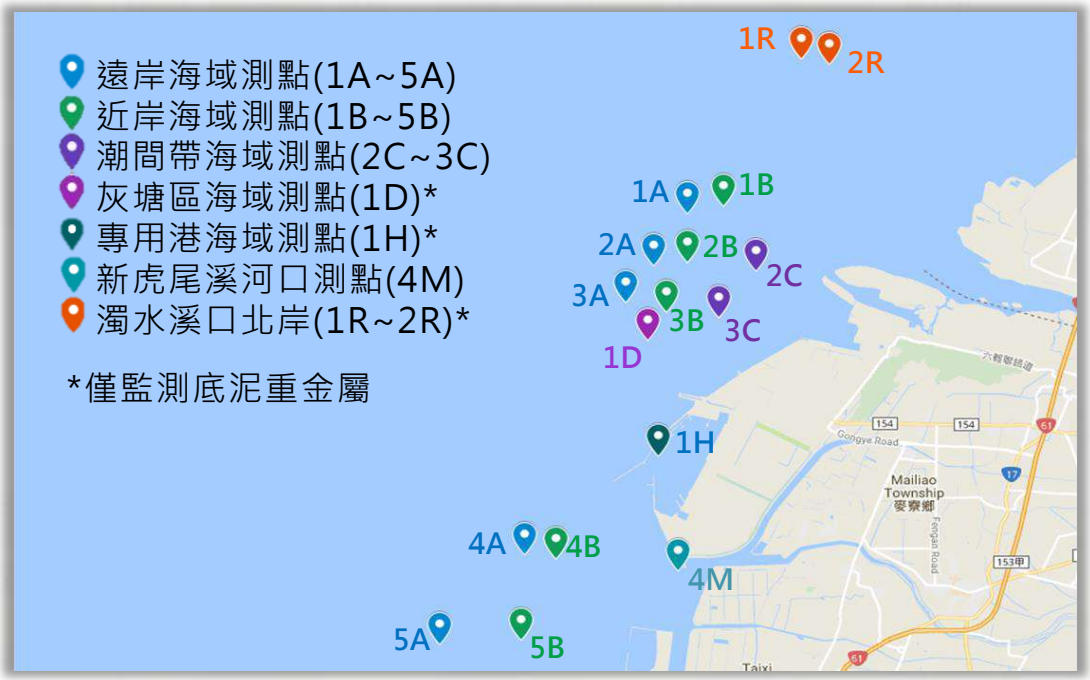
資料來源：環境部環境管理署環評監督-六輕環境監測資料(台塑企業「離島式基礎工業區石化工業綜合區開發案環境監測報告」) https://www.moenv.gov.tw/。

海域底泥及水質

水域水質　疏濬管理

為瞭解麥寮港對鄰近海域有無重大變化，港口公司於麥寮工業區附近海域，執行每季底泥重金屬及海域水質監測，分為遠岸海域測點(1A~5A)、近岸海域測點(1B~5B)、潮間帶海域測點(2C~3C)、新虎尾溪河口測點(4M)等13個監測點位，並於灰塘區海域測點(1D)、專用港海域測點(1H)、濁水溪口北岸測點(1R~2R)等4個監測點位，加強底泥重金屬監測。

麥寮附近海域底泥及水質調查測點位置圖



海域底泥

麥寮港區監測海域底泥項目包含鎘(Cd)、鉻(Cr)、銅(Cu)、鎳(Ni)、鉛(Pb)、鋅(Zn)、砷(As)、汞(Hg)等重金屬，2023年至2024年檢測結果均低於底泥品質標準下限值，海域底泥檢測結果合格率達100%。

過去部分測點之鎳及砷有超過標準下限值之情，然海域底泥重金屬含量多寡，受到許多因素影響，如海域沉積環境、底泥來源、粒徑大小、有機碳含量、地球化學作用與有無污染等(Luoma, 1990)。另依台灣海峽底泥相關調查結果，西南沿海底泥之鎳濃度範圍為16.2~95.2 mg/kg (Lee et al, 1998a)，高屏海域底泥之鎳濃度範圍為25.0~64.0 mg/kg、砷則為11.2~15.7 mg/kg (Hung, 2004 and 2009)，均超過標準下限值，顯示台灣西南海域底泥之鎳、砷元素濃度偏高實屬地質特性，非港區活動導致之嚴重環境影響。

底泥監測指標

單位 mg/kg		鎘 Cd	鉻 Cr	銅 Cu	鎳 Ni	鉛 Pb	鋅 Zn	砷 As	汞 Hg
底泥品質標準	下限值	0.65	76.0	50.0	24.0	48.0	140	11.0	0.23
	上限值	2.49	233	157	80.0	161	384	33.0	0.87
美國NOAA底泥生物危害標準	低效應範圍(ERL)	1.2	81	34	20.9	46.7	150	8.2	0.15
	中效應範圍(ERM)	9.6	370	270	51.6	218	410	70	0.71

麥寮港區2023~2024年海域底泥重金屬濃度範圍

	鎘 Cd (mg/kg)			鉻 Cr (mg/kg)			銅 Cu (mg/kg)			鎳 Ni (mg/kg)		
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
2023Q1	0.019	0.087	0.052	13.22	32.85	17.91	2.46	17.7	5.33	10	22.7	14.8
2023Q2	0.019	0.087	0.052	11.77	27.79	16.28	2.5	19.9	4.8	9.9	16.6	12.7
2023Q3	0.011	0.074	0.029	10.76	20.78	13.93	1.6	17.1	5.2	10.2	18.1	13.4
2023Q4	0.012	0.047	0.026	10.89	27.99	16.53	2.1	11.4	4.5	9.5	21.4	15.5
2024Q1	0.007	0.067	0.029	15.80	65.39	26.83	2.5	12.5	4.77	15	24.7	18.6
2024Q2	0.013	0.11	0.029	11.43	40.80	21.97	3.67	33.79	7.2	13.8	29	17.2
2024Q3	N.D.	0.17	N.D.	18.40	61.32	28.20	9.8	34.2	13.8	15.8	36.3	20.1
2024Q4	0.012	0.047	0.026	19.79	96.04	33.95	2.1	11.4	4.5	9.5	21.4	15.5

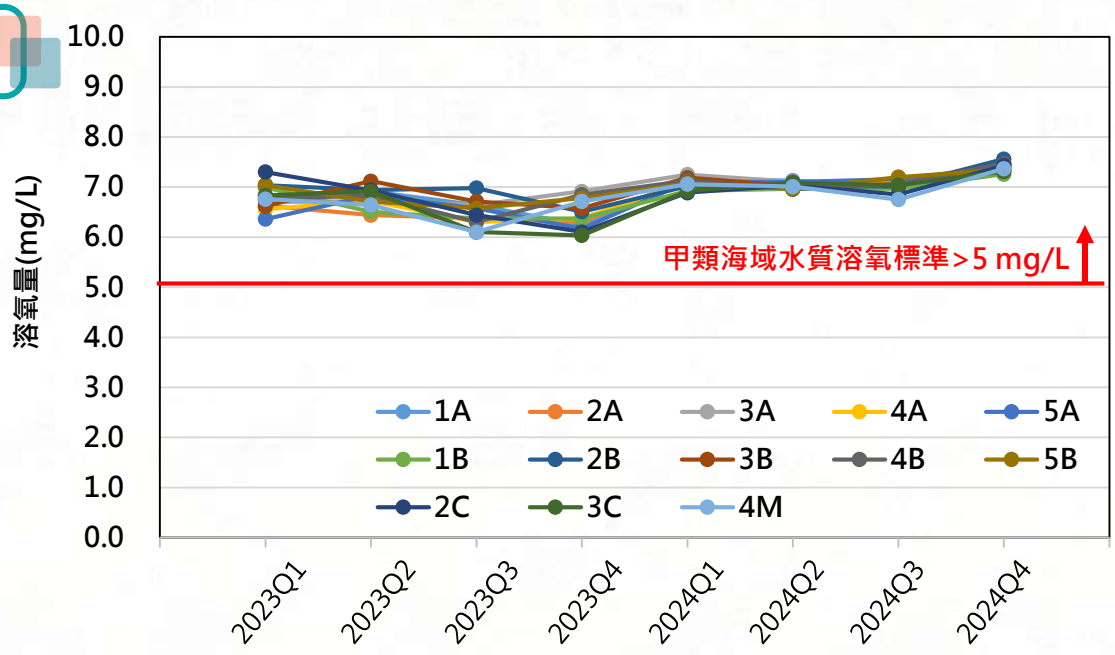
	鉛 Pb (mg/kg)			鋅 Zn (mg/kg)			砷 As (mg/kg)			汞 Hg (mg/kg)		
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
2023Q1	10.2	28.5	14.7	24.3	71.4	38.4	5.3	9.6	7.3	0.011	0.065	0.027
2023Q2	7.2	21.3	14	26.5	73.6	41.8	5	9.3	7.2	0.015	0.056	0.034
2023Q3	3.5	19.4	10	17.6	45.6	28.4	5.2	9.8	6.9	0.015	0.071	0.04
2023Q4	5.9	12.7	8.2	18	38.9	26.3	4.7	9.9	6.3	0.022	0.067	0.042
2024Q1	11.1	28.9	13.7	36.3	63.3	46.4	8.1	11.9	9.6	N.D.	0.09	N.D.
2024Q2	11.1	27.8	14.1	33.2	128.5	47.7	6.9	11.2	8.8	-	N.D.	N.D.
2024Q3	10.2	27.4	12.9	47.1	121.2	61.9	8.8	15.2	10.9	-	N.D.	N.D.
2024Q4	5.9	12.7	8.2	18	38.9	26.3	4.7	9.9	6.3	0.022	0.067	0.042

海域水質

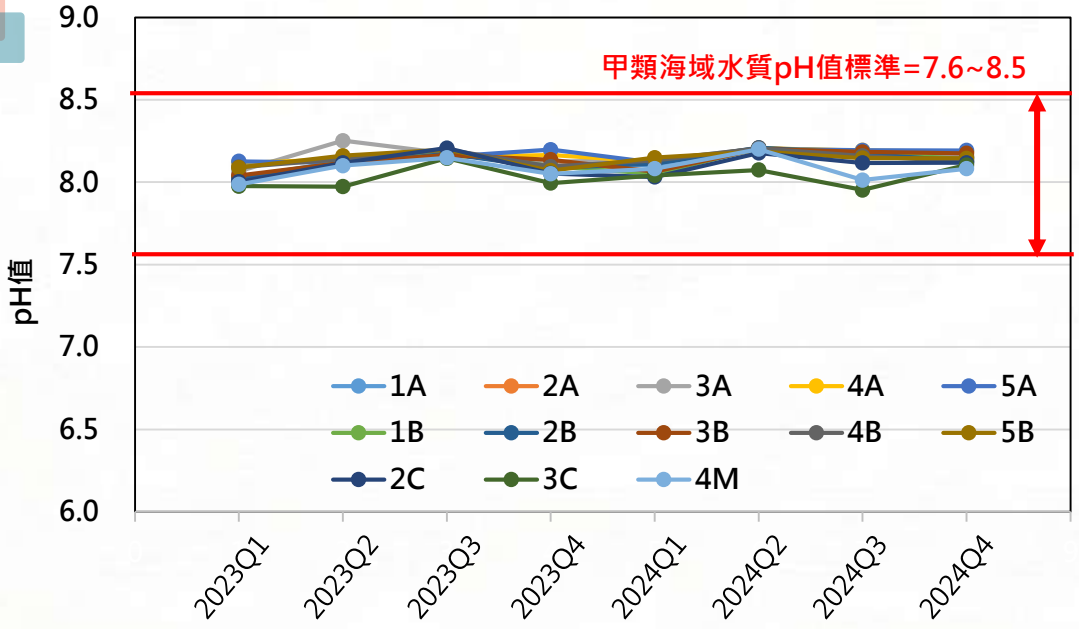
海域水質係受上游沖刷及漲退潮等非港區可控制之自然因素影響，為監測海洋水質有無重大變化，針對麥寮港區附近海域之13個監測點位，執行海域水質監測，項目包含溫度、鹽度、溶氧量、pH值、硝酸鹽、大腸桿菌群、生化需氧量、化學需氧量、氨氮、總磷、重金屬等，合計共29項。

麥寮港海域水質2023~2024年狀況

溶氧



酸鹼值

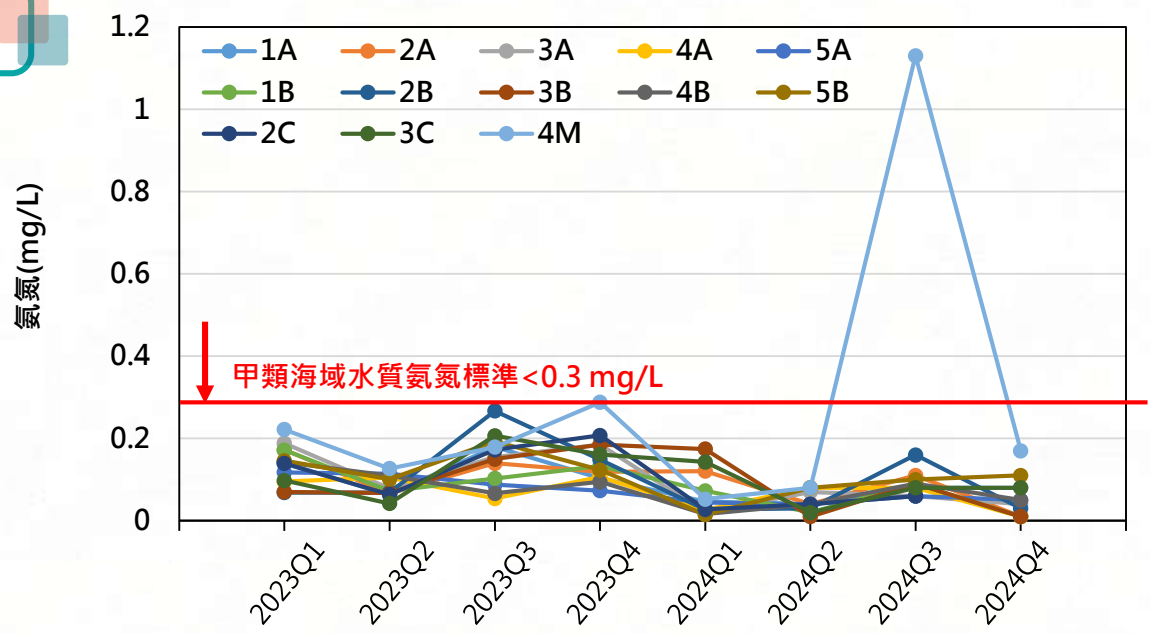


調查結果2023年至2024年各季溶氧(DO)、酸鹼值(pH)、氨氮(NH_3-N)及總磷(Phosphorus)，海域水質檢測合格率達97.4%，調查結果詳如附錄(一)。

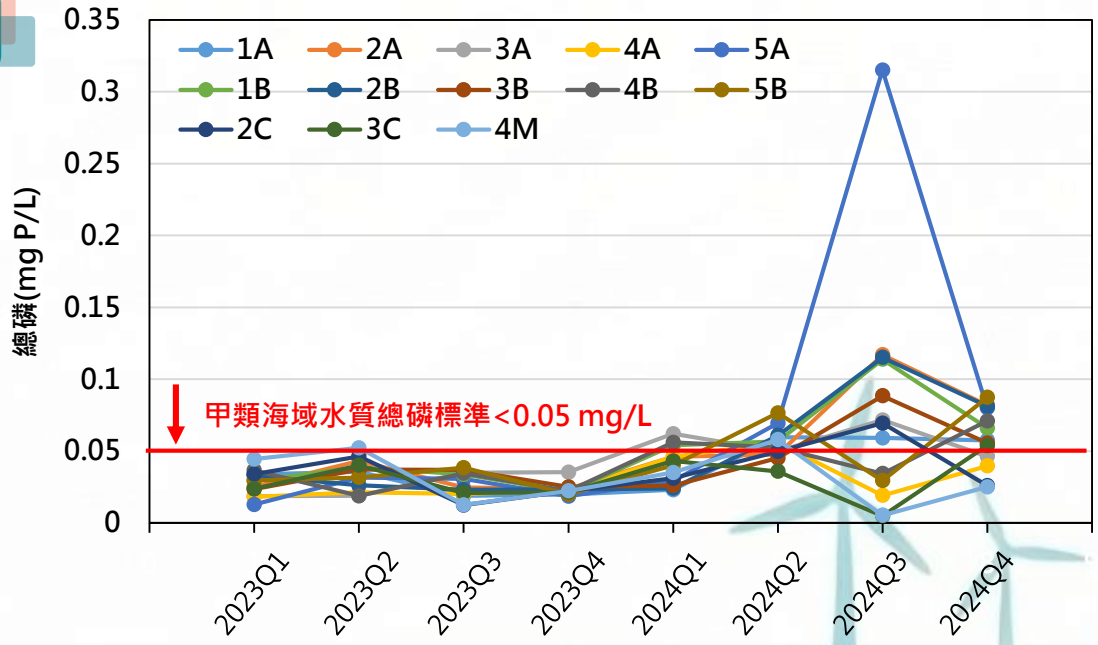
部分測站於2024年下半年，受凱米颱風(2024年7月)及山陀兒颱風(2024年9月)過境挾帶豐沛雨量影響，有助陸源性物質隨河川水入海中，經潮汐及海流作用擴散，致採樣氨氮、總磷濃度高於海域環境分類及海洋品質標準。

麥寮港海域水質2023~2024年狀況

氨氮



總磷



港域水質

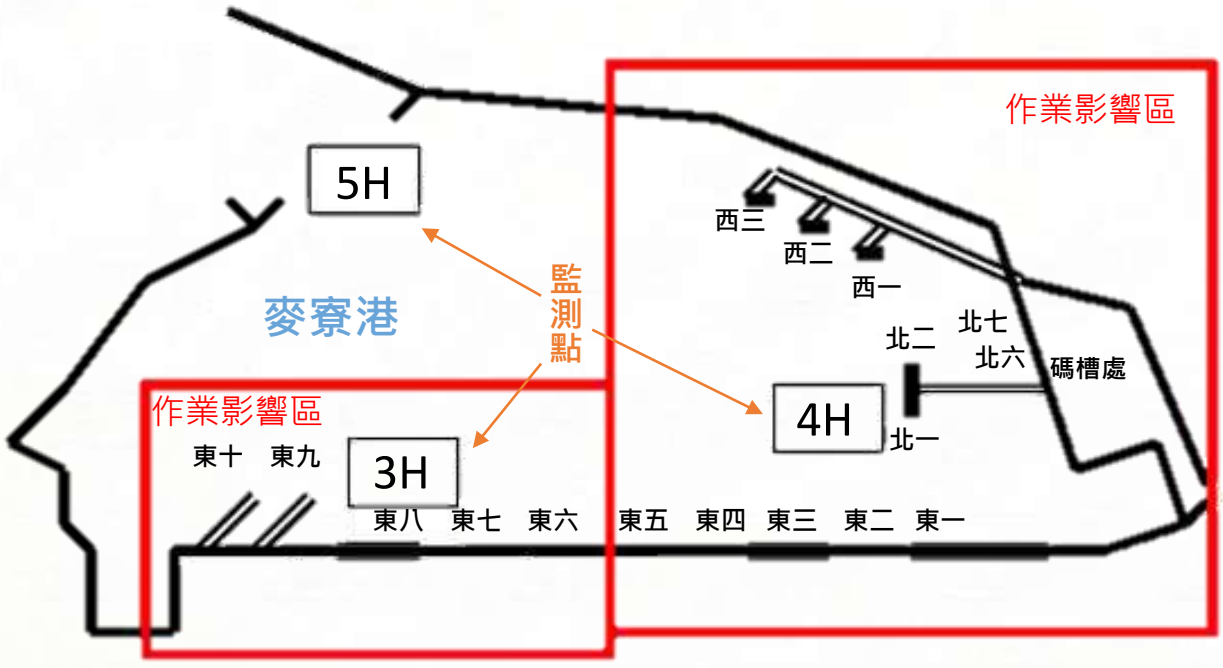
水域水質

麥寮港進出口貨物以工業原料為大宗，為避免化學品等物質於航運及進出港過程中對海洋造成危害，麥寮港對於港域水質的保護有一套完整的制度規範，並落實港域水質調查，於港區範圍內共有3個監測點，分別為3H~5H，水質調查項目包含溫度、鹽度、溶氧量、pH值、硝酸鹽、大腸桿菌群、生化需氧量、化學需氧量、氨氮、總磷、重金屬及揮發性有機物等共32個項目。

彙整2023年至2024年各季採樣調查結果，其中溶氧(DO)、酸鹼值(pH)、氨氮(NH_3-N)及總磷(Phosphorus)均符合「海洋污染防治法」第8條第1項所制定的「海域環境分類及海洋環境品質標準」之甲類海域水質標準，港域水質檢測合格率達99.7%，調查結果詳如附錄(二)。

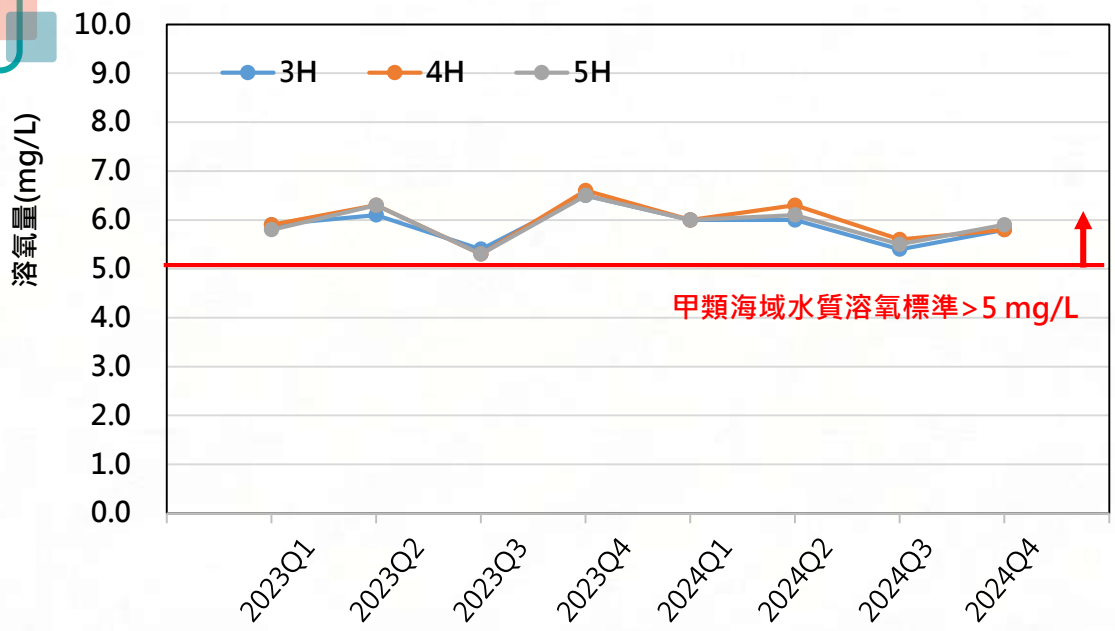
鄰近進港航道之3H及5H監測點，於2024年第四季調查測得總磷濃度高於甲類海域水質標準。經確認港口活動及鄰近廠區均未使用或生產排放含磷化學物質，亦未發現異常作業情形，且後續每季追蹤調查均符合水質標準，顯示該次超標情形應屬個案，與港口活動或鄰近廠區等特定來源無顯著關聯；另亦不可排除自然環境因素影響，包含山陀兒颱風於同年9月底過境期間，強降雨造成河川輸出陸源性營養鹽入海，進而影響港域水質之可能。

麥寮港港域水質監測點位置圖

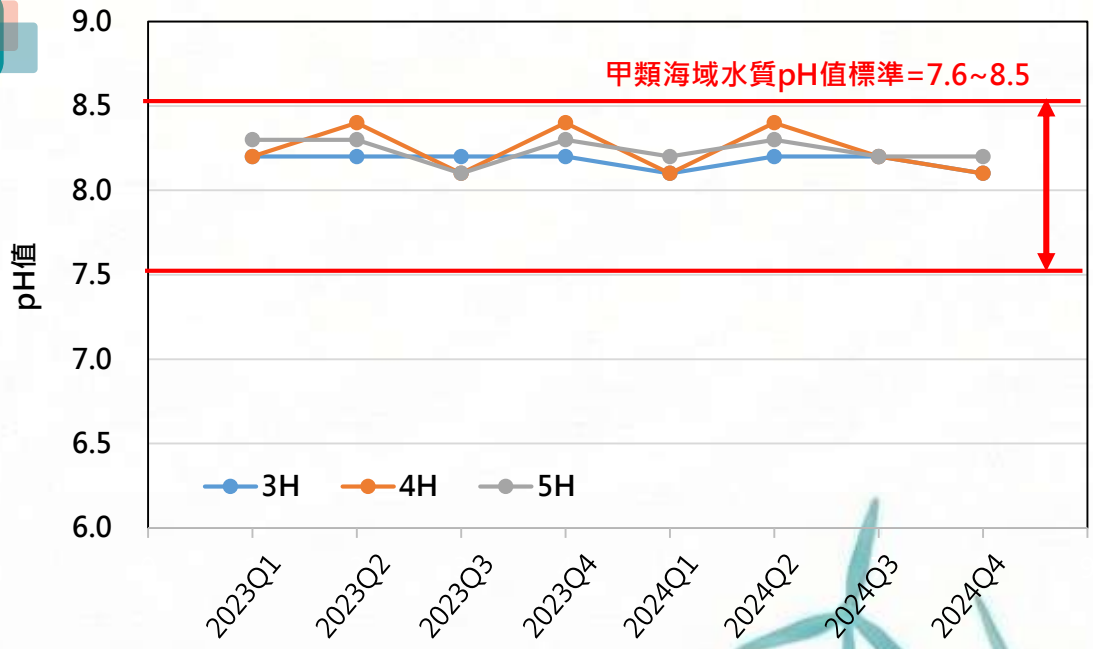


麥寮港港域水質2023~2024年狀況

溶氧

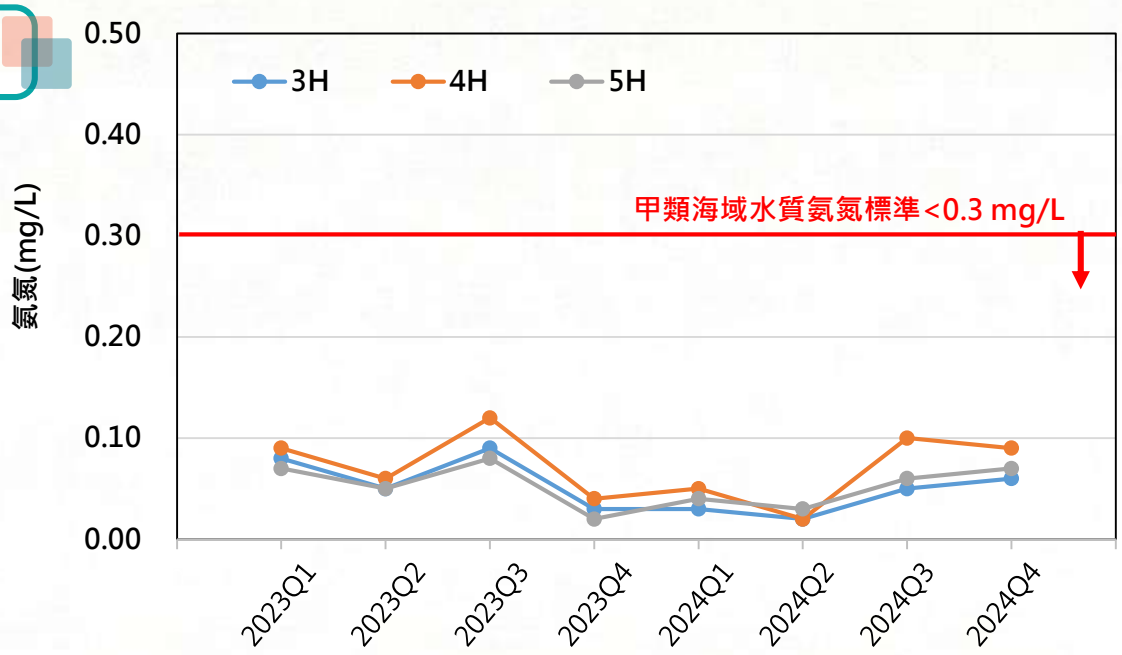


酸鹼值

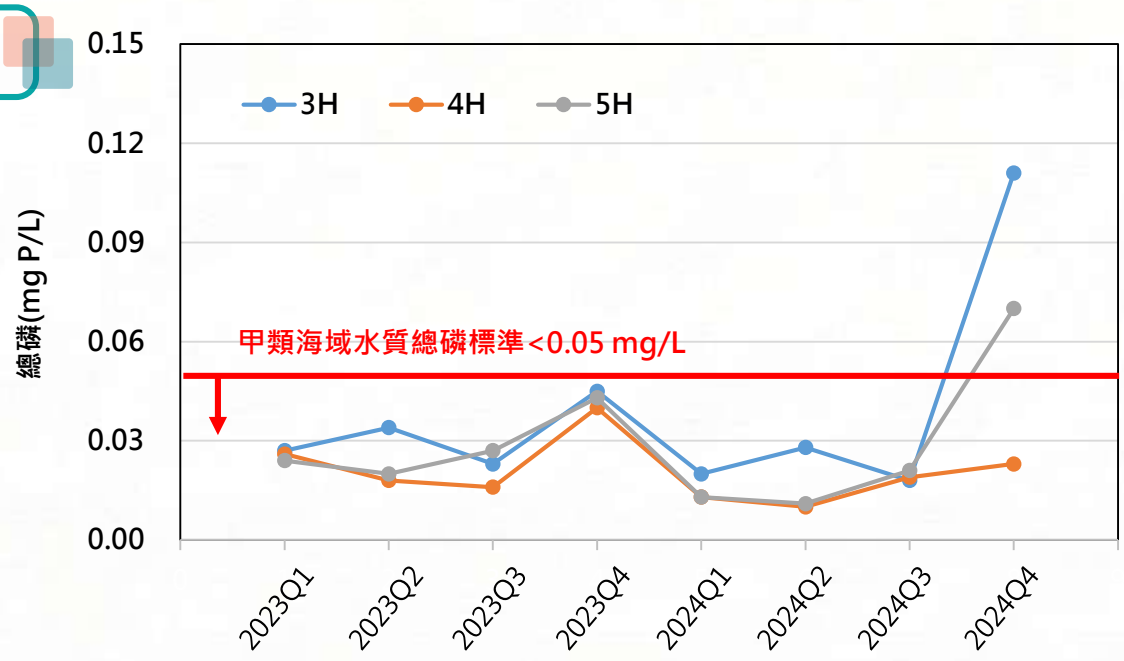


麥寮港港域水質2023~2024年狀況

氨氮



總磷



船舶污水及加油管制

此外，麥寮港對於海洋的重視與保護措施，包含針對所有洗艙水均須依規定回收處理、預防洩漏措施及預警洩漏情況發生時的應變措施，說明如下：

船艙預洗作業管制

因應麥寮工業區擴建計畫環境影響說明書定稿承諾及麥寮港海洋污染防治計畫書要求，管制載運進口(輸入)化學物質船舶，於麥寮港卸貨後應進行船艙預洗作業，所產生之洗艙水應依規定回收處理，避免有毒液體任意排放而造成海洋環境衝擊。

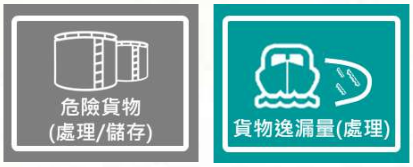
此外，麥寮港明確規定船艙預洗的作業範圍及作業方式，相關管制作業均明確規範於「麥寮港船艙預洗廢水追蹤管制電腦作業」，倘若船舶發生非屬同貨物載運等原因而未配合辦理時，將由「麥寮港船舶預洗艙廢水追蹤管制系統」追蹤至下一港口辦理結果替代，以善盡管理責任。

預防洩漏及應變措施

為防止海洋遭受污染，第一層首要管制為訂定良好船舶管制程序及作為，防範任何洩漏情形發生的可能，包含加油作業之各項程序管制、危險貨品裝卸之標示規定及卸貨原則，透過完善規定之訂定，加強預防任何洩漏發生。

另針對洩漏意外發生時之必要警示及應變措施訂定相關規定，加強第二層管制作為，以及時處理及預防洩漏污染擴大情形，包含執行油品及化學品裝卸作業時均應圍設攔油索、加油船舶各接管處須備妥污染防範設施及清除器材，以及發生漏油與異常時應立即停止作業的相關規定。前述措施皆明確規範於「麥寮工業專用港加油作業規定」及「麥寮工業專用港危險物品裝卸作業規定」中。

危險貨物管理



麥寮港進出港貨物以油品為首要，其他礦石礦物、化學品及散雜貨等工業原料為次之，港口公司落實危險貨物管理及裝卸貨物逸漏防範，包含訂定貨物裝卸程序書、定期執行船 / 岸安全及環保設施檢查、加強門禁管理及危險貨物巡查、要求船舶於裝卸貨物期間圍設攔油索、設置警報偵測系統、執行緊急應變演練及配置專業除污船等。

儲槽區污染預防措施

廠區儲槽為防止油料或油品洩漏，於儲槽底部與四周加強相關阻絕工程，包含不透水布與防溢堤，以減低油料或油品於大量洩漏時所造成之環境衝擊，同時，於儲槽底部與側邊設置平行於儲槽地面之測漏管與漏油監測器，以定期檢測或即時監測方式，來評估儲槽洩油潛勢，並依據洩油潛勢分層管理，以達到污染預防最終目的。

1. 防漏措施

1) 儲槽底板鋪設前，基礎級配夯實95%以上。
   目的：地坪夯實以降低土壤滲透率且防範儲槽不均勻下陷與傾斜。
2) 儲槽底板表面除銹與油漆且於底板與槽外壁接合部位施作防蝕層與玻璃纖維強化塑膠(Fiber-reinforced plastic, FRP)積層包覆。
   目的：防止儲槽鋼板銹蝕洩漏。

2. 阻絕措施

1) 儲槽底板鋪設前，先鋪設高密度聚乙烯(High-density polyethylene, HDPE)不透水布。
   目的：防止洩漏直接滲透造成地下水及土壤污染。
2) 儲槽基礎座外側設置鋼筋混凝土(Reinforced concrete, RC)基礎截流溝。
   目的：RC基礎截流溝可阻絕漏油流入土壤。
3) 儲槽外圍設置防溢堤。
   目的：防止洩漏直接滲透造成地下水及土壤污染。

3. 測漏措施

1) 儲槽基礎埋設水平傾斜偵測管

目的：洩漏物質會由水平傾斜偵測管流入RC基礎截流溝，PIT(污物坑)內洩漏偵測器發出訊號通知派員處理。

2) 設置油氣偵測器(針對油品儲槽)

目的：儲槽有洩漏情事即發出訊號並派員處理。

3) 設置地下水監測井長期監測水質

目的：了解地下水水位及水質變化，掌控儲槽是否有發生洩漏。

4) 儲槽本體沉陷監測

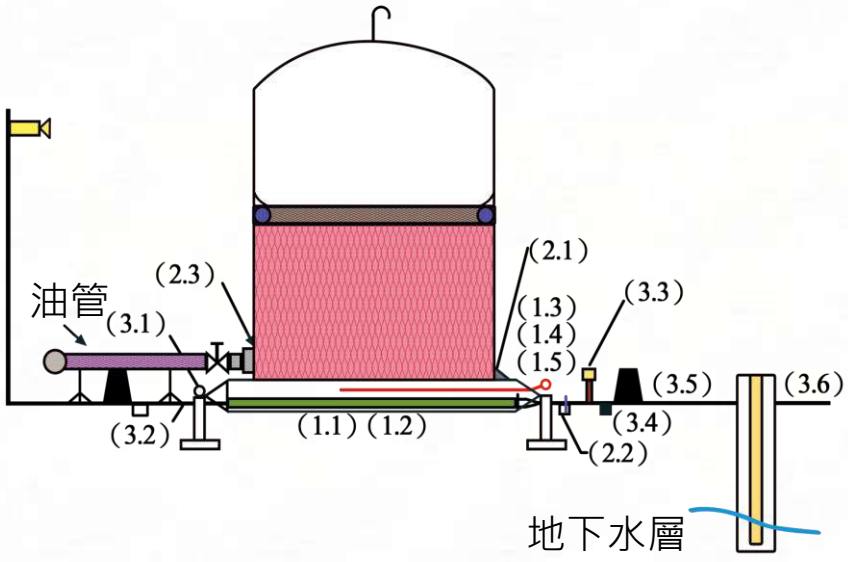
目的：了解儲槽本體高程變化，防範儲槽不均勻下陷與傾斜。

5) 儲槽RC基礎沉陷監測(針對RC基礎儲槽)

目的：了解基礎高程，防範基礎不均勻下陷與傾斜。

油槽洩漏防制及偵測措施

13萬公秉原油儲槽防漏措施示意說明圖



• 儲槽底板洩漏防制對策

1.1 儲槽基礎夯實
1.2 儲槽底板防漏層
1.3 排水管
1.4 油氣偵測管
1.5 水平傾斜偵測管

• 本體底板洩漏防制對策

2.1 底板防蝕工程
2.2 漏油偵測器
2.3 本體沉陷監測

• 槽體破漏防範對策

3.1 RC基礎沉陷監測
3.2 地坪夯實
3.3 氣體偵測器
3.4 兩污水排放
3.5 防溢堤
3.6 地下水監測井

土壤及地下水

鄰近港區之土壤採樣點共4個，於S18及S19點位監測包含土壤pH值、8種重金屬元素(鎘Cd、鉻Cr、銅Cu、鎳Ni、鉛Pb、鋅Zn、砷As、汞Hg)、20種揮發性有機物(苯、甲苯、乙苯、二甲苯、1,3-二氯苯、1,2-二氯苯、四氯化碳、氯仿、1,2-二氯乙烷、順-1,2-二氯乙烯、反-1,2-二氯乙烯、1,2-二氯丙烷、四氯乙烯、三氯乙烯、氯乙烯、六氯苯、3,3-二氯聯苯胺、2,4,6-三氯酚、2,4,5-三氯酚、五氯酚)及總石油碳氫化合物；S31及S32為監測丙烯腈。

港區鄰近土壤採樣點位置圖

依2023年與2024年監測結果，採樣點S18及S19測得之8種重金屬均符合土壤污染監測標準；另20種揮發性有機物中，僅甲苯有低於方法定量極限之微量測值，其餘物種均未檢出；總石油碳氫化合物最高測值44.3mg/kg，遠小於法規標準1,000mg/kg；S31及S32所監測之丙烯腈亦低於偵測極限，顯示港區附近土壤未有明顯遭受污染之情形。

港區鄰近採樣點之土壤重金屬濃度圖

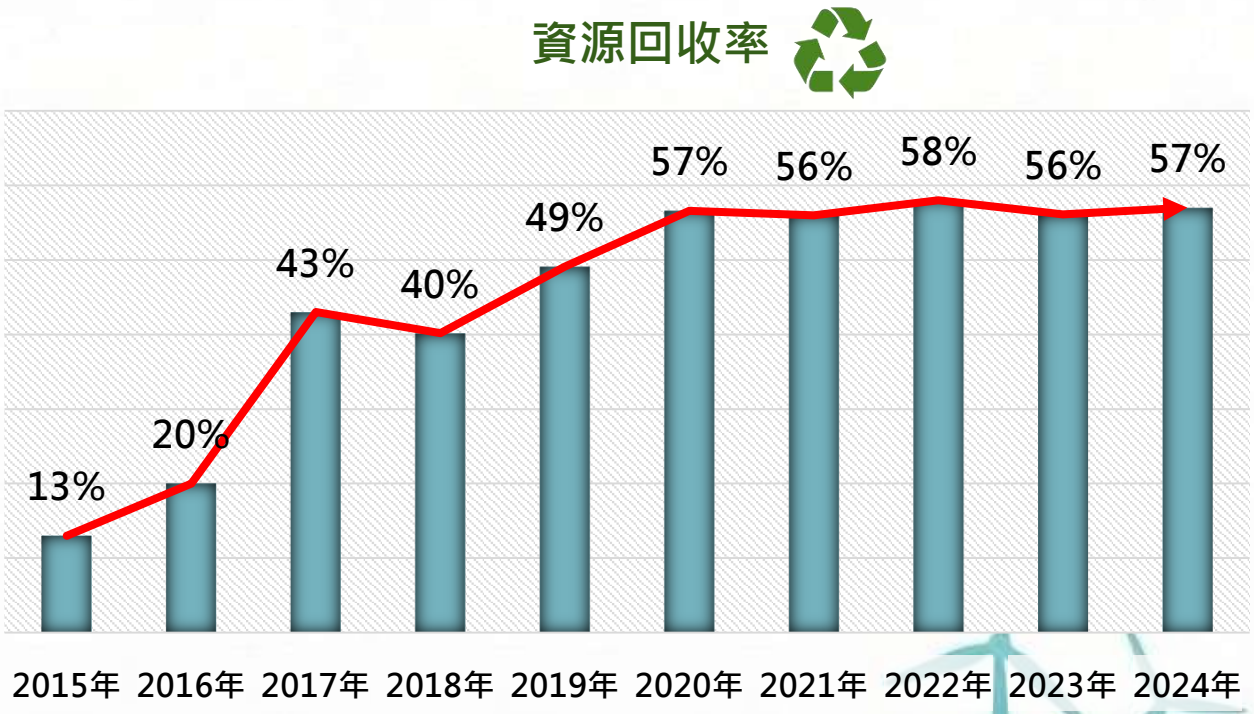
港埠廢棄物

麥寮港極重視港口環境之整潔，為維持港口環境之清潔且為妥善並有效處理廢棄物，港口公司依「廢棄物清理法」委託合格業者辦理清運，並訂定「麥寮工業專用港在港船舶垃圾清理作業規定」，詳細規定垃圾清運時間以供港口相關人員遵循，停港之船舶亦須依「麥寮港船舶垃圾清理通知單」內容執行垃圾分類，港口公司積極宣導垃圾分類的重要性並於辦公室設置垃圾分類回收桶以提升港口廢棄物之資源回收率。

一般廢棄物

回顧2015年至2024年的一般廢棄物管理情形，在港口公司與塑化公司碼槽處積極宣導並落實廢棄物妥善處理下，整體清運量由2015年的4,528.21公噸大幅降至2024年的2,644.71公噸，其中港口公司之清運量亦由285.8公噸減至116.3公噸；垃圾減量同時，整體資源回收率更由2015年的13%提升至2024年的57%，具體展現港口公司推動源頭垃圾減量及資源循環管理之成效。

2015~2024年麥寮港區(港口公司與塑化公司碼槽處)資源回收率



麥寮港針對港口廢棄物管理，推動並落實各面向作業。

1.源頭減廢

(1)在港船舶垃圾

- 船舶靠碼頭後，給予船方「麥寮港船舶垃圾清理通知單」，請船方依規定執行分類。
- 垃圾清理時間每日13:00~15:00。

(2)非在港船舶垃圾

- 利用集會向同仁及承包商宣導垃圾分類。
- 辦公室設置垃圾分類回收桶。

2.垃圾分類

(1)在港船舶垃圾

- 每日收取在港船舶垃圾，再請承包商垃圾清理人員依企業相關規定詳細分類。

(2)非在港船舶垃圾

- 每日將垃圾分類回收桶之垃圾或回收物清運至廢棄物回收料場，由清潔人員再次依企業相關規定詳細分類。

3.資源回收

港區垃圾(在港船舶垃圾及非在港船舶垃圾)分類後暫存於廢棄物回收料場。

- 資源回收廠商前來提運，並送各回收類處理廠再利用。
- 無法資源化或回收再利用的廢棄物送企業內南亞資源回收廠焚化或掩埋處理。

事業廢棄物

另彙整港口公司於2023年與2024年事業廢棄物種類及處理量如下表，包含有價、資源回收、一般事業廢棄物與廢油污水等。統計各項事業廢棄物之結餘量、產出量及清運量，其中有價種類主要係為廢鐵材，總清運量約2,796噸；資源回收種類包含廢岩棉、廢木材及廢皮帶，總清運量約284噸；一般事業廢棄物種類包含保冷材、油漆皮/渣、廢油泥、污泥混合物及泡沫原液，總清運量約3,241噸；廢油污水總清運量約776噸。

針對事業廢棄物，港口公司亦定期及不定期抽查廠商施工現場環境，避免廢棄物未依規定分類及暫存。

麥寮港區2023~2024年事業廢棄物種類及處理量

單位：噸

種類	有價	資源回收			一般事業廢棄物					廢油污水
項目	廢鐵材	廢岩棉	廢木材	廢皮帶	保冷材	油漆皮/渣	廢油泥	污泥混合物	泡沫原液	
結餘量	141	0	10	806	61	0	0	3,189	0	-
產出量	3,390	63	211	0	27	0	0	3,189	0	-
清運量	2,796	63	221	0	52	0	0	3,189	0	776

廢岩棉回收再利用流程

集中蒐集回收

清運至專業廠商處理

廢岩棉處理後再利用

疏濬管理

為保持航道及港口的深度，疏濬和淤砂的處理為必要的工作，港口公司依據「雲林離島式基礎工業區麥寮工業專用港變更計畫環境影響說明書」之審查結論，將外航道疏浚開挖之良質沉積物，回補麥寮工業區開發所造成之南岸侵蝕量，此拋砂作業已自2009年持續執行至今。

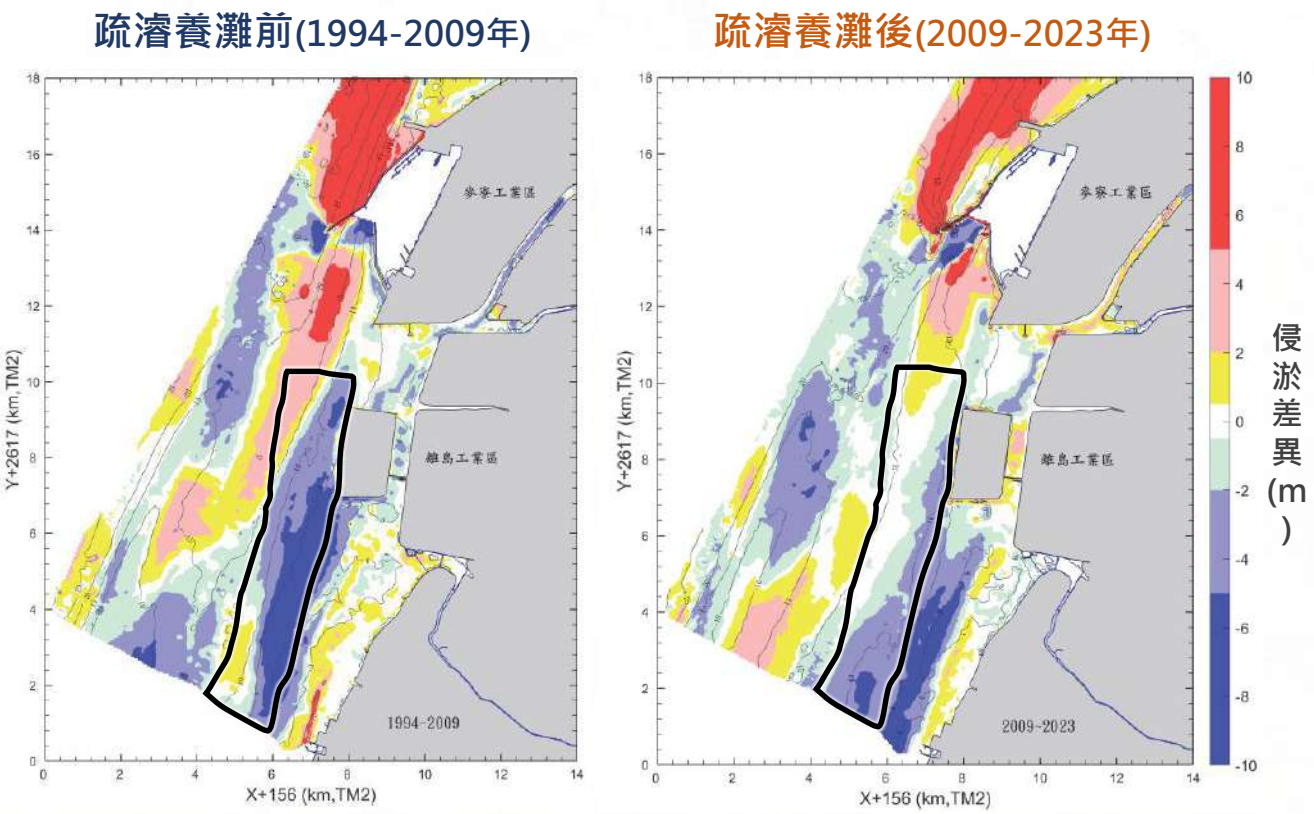
拋砂量乃依據專業研究機構之數值模擬結果，拋砂量60~100萬立方公尺可達輸砂平衡。

拋砂方式則為抽砂船疏濬航道淤砂，以溢流方式排除船艙上層之懸浮砂後，將沉積在船艙底部粒徑較大的良質砂，航行運至拋砂點投放。拋砂時間須避開牡蠣附苗期，並且在拋砂期間辦理水質監測，避免拋砂行為影響海域生態。

養灘區域相關位置圖

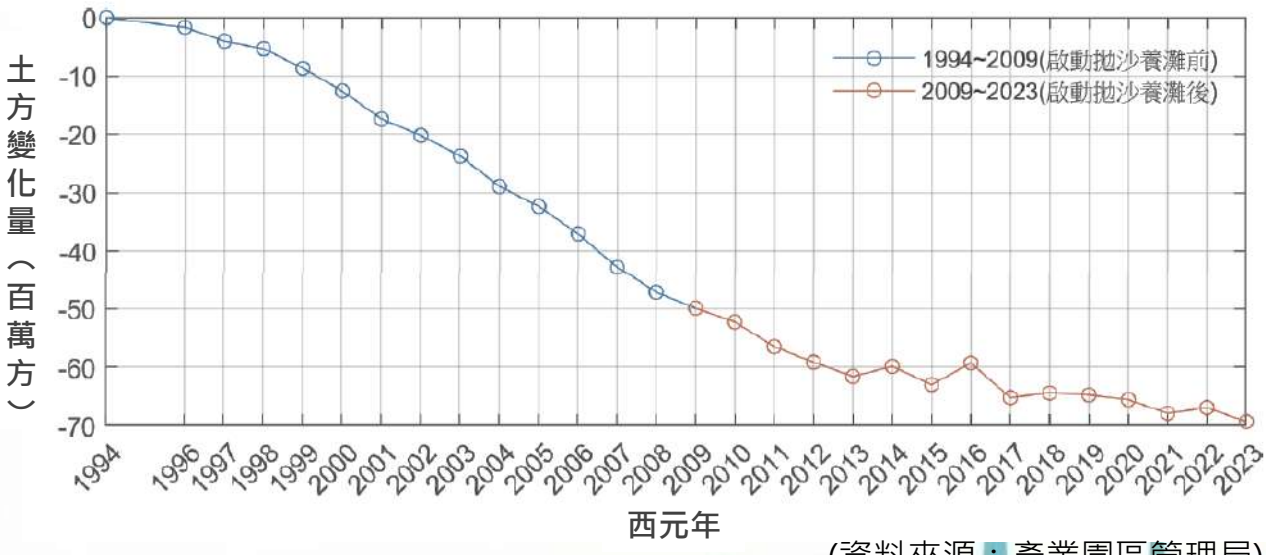
經由歷年水深地形測量結果，拋砂養灘計畫確實可補充侵蝕區的部分砂源，並有助減緩區域平面侵淤變化，如新興區南側10~15公尺水深區位，然而目前仍然呈現侵蝕狀態，因此未來仍將持續監測水深地形，並適時檢討拋砂養灘成效。

麥寮港疏濬養灘前14年、養灘後14年之侵淤差異圖



*註：黑框為拋沙養灘區域

麥寮港拋沙養灘區(上圖黑框區域)，1994~2023年之土方量變化



(資料來源：產業園區管理局)

氣候調適與綠色能源

氣候變遷 能源效率

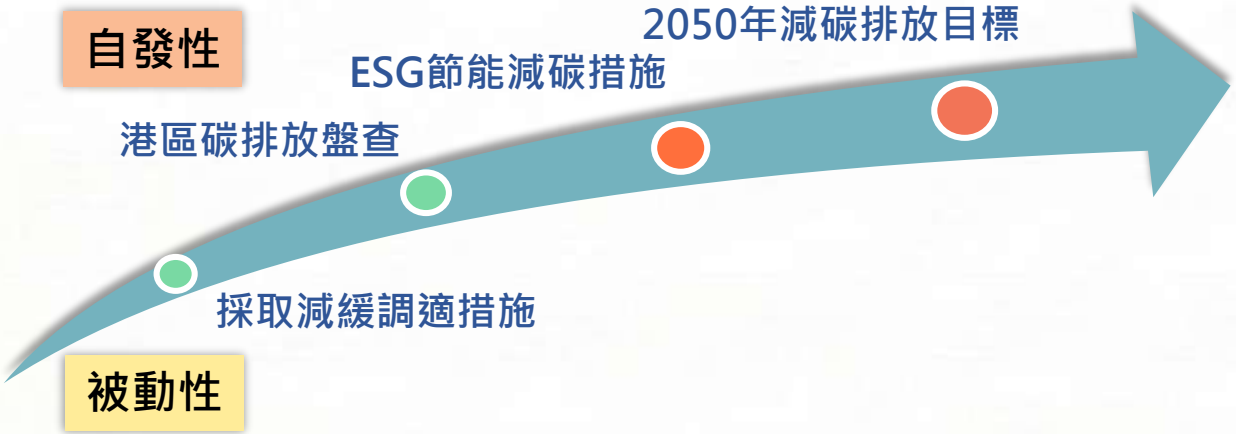
為因應全球氣候變遷及採取必要減緩調適策略，我國以善盡保護環境之責任為首，於2021年4月22日世界地球日宣示台灣2050淨零轉型目標，並於2023年2月15日修正原「溫室氣體減量及管理法」為「氣候變遷因應法」，期以溫室氣體減量與氣候變遷調適政策之方針，達2050年淨零排放之目標。

台塑企業展現推動空氣污染減量及環境永續之決心，於2021年邀集各領域專家辦理環境論壇會，並在環境部及各方見證下與雲林縣政府共同簽署「碳中和綠能技術與永續環境」宣言，推動製程能源耗用減量等節能改善措施，朝零廢棄生態循環園區邁進。

截至2024年台塑企業溫室氣體排放量已降至4,533萬噸，相較2007年減少達26%，提前達成2025年減碳20%的短期目標。

港區氣候變遷應變

氣候變遷對港口區域具重大而直接的影響，全球氣溫升高促使海冰融化/膨脹引起之海平面上升，可能導致頻繁且劇烈潮汐變化，亦造成更極端且強烈之風暴、海浪和氣候事件。為確保麥寮港的可持續性和安全性，港口公司採取相關調適措施以減緩潛在風險，並自發性執行港區活動碳排放盤查作業、推動ESG節能減碳措施，配合企業推動2050年減碳排放目標。



設置波浪觀測系統

麥寮港加強氣候變遷對港區潛在衝擊影響風險檢視，設立波浪觀測系統，委託高雄科技大學海岸水與環境中心執行「麥寮港波浪監測計畫」，於麥寮港北2及北5碼頭架設即時波浪監測站，透過音波式波浪觀測儀(Nortek Acoustic Wave and Current profiler, AWAC)即時監測港內波浪狀況，如最大浪高及尖峰週期等，提供操船及裝卸設備人員參考，並進行資料統計與分析，訂定適合麥寮港相關作業之波浪警報值，以預防及避免災損情形發生。

麥寮港即時波浪觀測站點

音波式波浪觀測儀

港勤船渠護岸道路加高改善工程

因應氣候變遷日益劇烈，海平面上升伴隨暴雨、暴潮及颱風影響，麥寮港區過往於朔望大潮或低氣壓水位抬升期間，易造成海水淹沒碼頭道路，影響人車通行安全。故麥寮港委託台灣世曦公司進行港勤船渠東南側及東北側碼頭面板及護岸加高評估，考量現行設計法規及推估鋼管樁鏽蝕速率至50年限，以確保設施結構安全無虞。麥寮港已於2019年完成護岸道路加高改善工程，有效解決過去每月漲退潮期間海水易淹沒碼頭之情形。

改善工程前

改善工程後

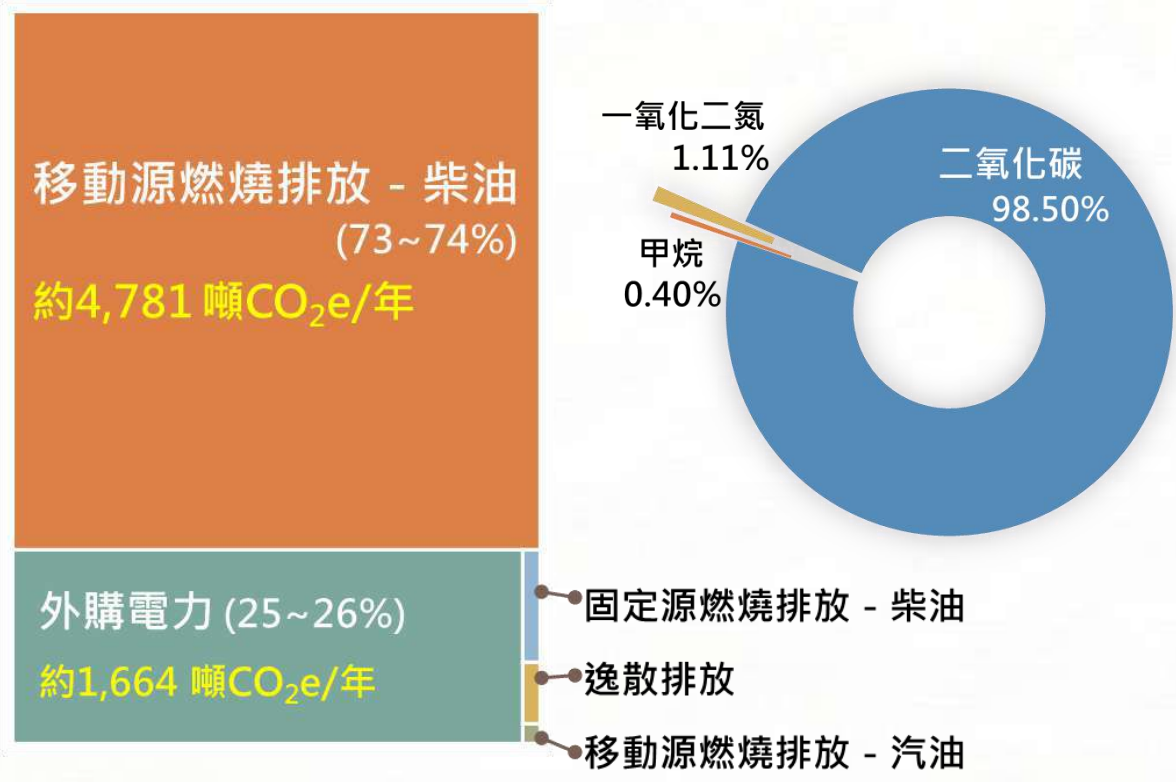
定期溫室氣體盤查

為掌握港區溫室氣體排放，港口公司定期盤查港區溫室氣體，針對直接溫室氣體排放及間接能源排放進行港區作業活動之計算，包含固定燃燒排放(柴油)、移動燃燒排放(柴油、汽油)、逸散排放(化糞池)、外購電力等排放源，依每月操作量計算二氧化碳(CO_2)、甲烷(CH_4)、氧化亞氮(N_2O)、氫氟碳化物(HFCs)、全氟化物(PFCs)、六氟化硫(SF_6)等6項溫室氣體排放量。

麥寮港於2023年與2024年溫室氣體排放，以使用柴油之移動源燃燒排放為首要來源，占港區溫室氣體排放73~74%，年均排放量約4,781噸CO_2e，其中港區拖船用油為主要作業活動；其次為外購電力使用占25~26%，年均排放量約1,664噸CO_2e；其餘作業活動排放量占比小於1%；另盤查2023年至2024年期間，港區活動溫室氣體排放占比，以二氧化碳(CO_2)為主要占98.50%，其次為氧化亞氮(N_2O)占1.11%及甲烷(CH_4)占0.40%。

銜接台塑企業2050年淨零排放願景，麥寮港持續深化綠色航運服務，以碳排放高峰2007年為基準年，透過提升岸電使用及能源設備轉換，全力邁向2030年減量35%之中期目標，展現維護環境永續的決心及行動力。

麥寮港2023~2024年溫室氣體盤查結果及氣體排放量占比

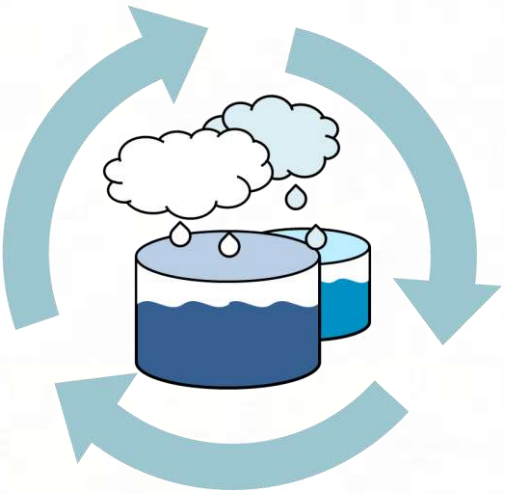


響應綠色辦公環境

落實港區綠色辦公，港口公司訂定綠色辦公35項措施檢點表，分別針對節省能資源(節約用電、水、油及紙)、源頭減量(分類及回收再利用)、綠色採購、環境綠美化及宣導倡議等5項指標施行，實際響應作為包含辦公室空調控溫、節能燈具及省水設施使用、辦公無紙化、推廣車輛共乘、落實資源回收分類、辦理環保知識培訓或演講等活動，亦運用綠生活素材於自有社群、媒體等資源宣傳港口公司同仁一起實踐綠生活。

雨水回收專案

推動永續水資源利用，麥寮港於港務大樓設置三個容量為20噸的雨水回收槽，透過雨水收集設備，提升雨水貯留再利用，以達節水功效。此外，於碼頭作業裝卸區設有防溢堤，可直接收集沖刷之雨水，另道路地表之雨水可經專用排放溝渠收集，亦可透過其陰井設計有效攔除污物及顆粒狀垃圾。



統計2023年至2024年麥寮港區累計雨水回收量，港務大樓達603公噸，另槽區達61萬7,296公噸，並經回收後雨水再利用率達100%。

港勤船舶低壓岸電設施

持續推動港勤船舶全面使用低壓岸電設施，比起傳統使用高硫油為燃料之方式，使用岸電可有效減少空氣污染物排放，強化綠色航運服務。

低壓岸電設施啟用至今，使用率達100%，並統計2023年至2024年期間，低壓岸電提供包含17艘港勤船舶於靠岸時使用，累計使用電量約477千度電，可減少約243公噸CO_2e之排放量。

生態保育

因應大環境的快速變遷，除避免各式人為活動可能導致的污染行為外，生態環境的保育及復育亦是刻不容緩。麥寮港重視海洋環境及海洋生態系的共生系統並積極投入海洋復育工作，包含為保護一級保育類物種白海豚的一系列保育措施以及豐富漁業資源的漁業資源復育，顯示港口公司不僅具有防治污染負責精神，對於生態保護及復育亦有積極作為，以下說明白海豚保育措施及漁苗放流的具體作為。

白海豚保育措施

中華白海豚自2008年8月被國際自然保護聯盟(International Union for Conservation of Nature, IUCN)公告為極度瀕危(Critically Endangered, CR)等級後受到重視，然台塑企業於2008年3月起即持續執行調查計畫，結果顯示中華白海豚的分佈主要在離岸3公里內、水深小於15公尺之狹長海域，且以南北向移動為主，雲林沿海活動的白海豚個體數占全台西岸族群量一半以上，且為重要育幼區，以下針對麥寮港對白海豚所執行的保育措施說明：

1. 進出船隻船速管制

貨運船在進出港口時加強觀測附近是否有中華白海豚出沒，若有發現白海豚出現在航道前則在不影響船隻航行安全之前提下，降低船速至6節以下(然因麥寮港之天候、海象因素，部份大型船隻須維持在7節以上，如遇海象條件平潮無橫流(高/低潮前後0.5小時以內)，能見度2,100 m以上、風速3級以下時，將由信號台通知引水人，由引水人以船舶航行安全為優先考慮，判斷是否採6 節以下船速進出港)。

2. 抽砂疏濬及拋砂船隻作業管制

進行航道抽砂疏濬作業前，將先確定港內沒有白海豚後才進行抽砂及拋砂作業。抽砂船的監控與管制由麥寮港信號台執行，說明如下：

1) 抽砂船隻以雷達及全球衛星定位系統(Global Positioning System)進行定位及導航。
2) 信號台利用雷達及船舶自動識別系統(Automatic Identification System)進行船位監控，並持續記錄船舶位置，接獲白海豚出現通報時立即通知抽砂船及附近商船降低船速並採取適當避讓措施。
3) 原規劃在抽砂船上設置監視記錄系統，以於作業時錄影，然考量原抽砂船效率較低，改由委託國外專業抽砂船進行抽砂，得減少航行次數並降低影響白海豚活動之機率。

3. 雲林附近海域水質酸鹼值(pH)

依近年來附近海域之監測結果，pH 值皆可維持在7.5~8.5 間，且各廠放流水pH 值亦可符合環境部法規要求，將持續監測雲林附近海域水質酸鹼值。

魚苗放流措施

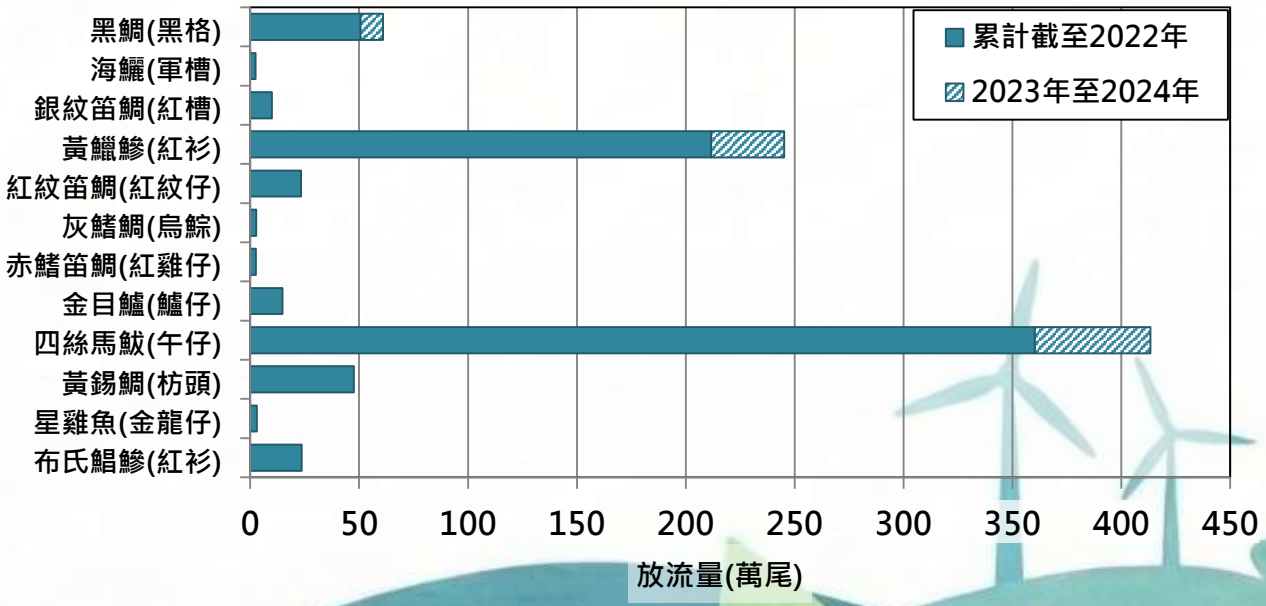
棲息地/生態系統(水域)　社區關係

用港單位台塑企業鑒於台灣地區沿岸資源日漸枯竭，為展現友善當地環境精神，多年來在雲林麥寮海域投入增殖放流之保育工作，響應政府漁業資源復育，豐富當地漁業資源，提高在地漁民漁獲。

自2008年辦理魚苗放流迄今，已執行逾15年，魚苗放流數近850萬尾，並獲雲林區漁會公開致贈「襄惠漁猷」之匾額。此外，為提升民眾生態保育觀念，積極推動保育宣導活動，聘請具海洋生態保育及漁業知識背景講師教授海洋保育課程，盼望藉此復育策略促進地方漁業永續發展，於2014年榮獲農委會「海洋奧斯卡」評選為海域增殖放流楷模。

台塑企業與雲林區漁會於箔子寮漁港辦理魚苗放流作業，邀請學童一同體驗，在政府機關共同見證下，2023年至2024年放流魚種包含黑鯛(黑棘鯛、黑格)、黃鱲鰺(紅衫)及四絲馬鮫(午仔)等。另雲林區漁會表示，經台塑企業長期投入海洋復育的工作，當地漁民反映漁獲量明顯增加，並希望魚苗放流作業持續辦理；此外，以往因過度捕撈，導致極少捕獲之高經濟價值魚類，在台塑企業持續委託雲林區漁會計畫性放流魚苗下，得以再現蹤跡。

2008~2024年魚苗放流累計總尾數統計圖



麥寮港海洋生態攝影

棲息地/生態系統(水域)

麥寮港地處雲林縣西海岸，位於以填海造地方式開發之雲林離島式基礎工業區內，為實地了解麥寮港港內外水下生態，分別於2016年4月至2017年9月與2023年4月至2024年9月委由國立高雄科技大學海岸水與環境中心調查麥寮港海洋生態，並進行海洋環境攝影。

最新水下生態調查及攝影，共分為6大區域：(A)港勤船渠、(B)固散碼頭(東1-5碼頭)、(C)油化碼頭(東6-10碼頭)、(D)西北棧橋碼頭、(E)南防波堤、及(F)西防波堤。環境攝影範圍則包含港內外海域環境監測作業、港埠運作如船舶進出港作業、碼頭裝卸作業、港區安全衛生及環境保護管理作業等，另亦針對鄰近地區綠色環境生態進行攝影，包含麥寮工業區綠色建設及鄰近地區綠色生態等。

經麥寮港水下生態調查，發現港內生物相當豐富，記錄到的種類有動物界的脊索動物、節肢動物、軟體動物、刺胞動物、棘皮動物、海綿動物、環節動物、苔癬動物、櫛水母動物、植物界的紅藻門及綠藻門等，涵蓋11門，共計發現397種生物，且相較2016年的首次執行，2023年4月至2024年9月期間的二次調查結果更為多元。

麥寮港水下海洋生態調查之6大區域

門別：脊索動物門
學名：金黃色海鞘
Polycarpa aurata
俗名：牛心海鞘、金口海鞘

門別：軟體動物門
學名：青鬍魁蛤
Barbatia virescens
俗名：青蚶

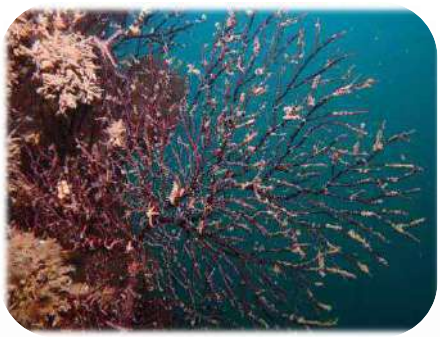
門別：環節動物門
學名：華美盤管蟲
Hydroides elegans
俗名：管蟲

門別：棘皮動物門
學名：海羽星
Feather stars

門別：刺胞動物門
學名：變色龍海扇
Paramuricea clavata

門別：節肢動物門
學名：薄荷蝦
Peppermint sp.

門別：刺胞動物門
學名：柏克花柳珊瑚
Anthogorgia bocki
Aurivillius



門別：苔蘚動物門
學名：別藻苔蟲
Biflustra perfragilis
MacGillivray

門別：軟體動物門
學名：焦泥峨螺
Cantharus melanostomus

麥寮港環境表現指標-港口公司

十大環境議題		指標項目	計算方式與原則	目標值		指標呈現 2023年	指標呈現 2024年
氣候變遷	一	港區溫室氣體管理	年度港區溫室氣體盤查 (範疇一及範疇二)	頻率	≧1次/年	1次/年 ■溫室氣體盤查量: 6,510.7噸CO_2e	1次/年 ■溫室氣體盤查量: 6,294.5噸CO_2e
			持續追蹤港區活動主要溫室氣體排放來源	頻率	≧1次/月	1次/月 ■主要來源: 移動燃燒排放-柴油	1次/月 ■主要來源: 移動燃燒排放-柴油
空氣品質	二	港勤船舶使用低污染燃料(超級柴油，含硫量<10 ppm)比例	•港勤船舶使用低污染燃料 (超級柴油)之艘數÷總港勤船舶之艘數×100% •港勤船舶低污染燃油使用量	100%		100% ■港勤船舶12艘，使用低污染燃料12艘 (每年視狀況汰舊更新船隻) ■港勤船舶低污染燃油1,808.127 kL	100% ■港勤船舶12艘，使用低污染燃料12艘 (每年視狀況汰舊更新船隻) ■港勤船舶低污染燃油1,728.387 kL
		港勤船舶使用岸電比例	使用岸電之港勤船舶(艘)÷總港勤船舶數量(艘)×100%	100%		100% ■港勤船舶12艘，使用岸電之船舶12艘 (每年視狀況汰舊更新船隻)	100% ■港勤船舶12艘，使用岸電之船舶12艘 (每年視狀況汰舊更新船隻)
		各空氣污染物之排放標準符合率	針對廢氣焚化爐後端之煙道檢測各空氣污染物(TSP、SO_2、NOx、VOCs)排放濃度低於法規排放標準	TSP	100%	100%	100%
				SO_2	100%	100%	100%
				NOx	100%	100%	100%
				VOCs	100%	100%	100%
		VOCs洩漏改善率	定期以GasFind IR監測設備元件，一發現洩漏立即對該元件進行處理或汰換	100%		無洩漏元件 ■發現洩漏元件數0顆 ■改善(含處理或汰換)0顆	無洩漏元件 ■發現洩漏元件數0顆 ■改善(含處理或汰換)0顆

麥寮港環境表現指標-港口公司

十大環境議題		指標項目	計算方式與原則	目標值		指標呈現 2023年	指標呈現 2024年
能源效率	三	雨水回收再利用率	根據雨水回收專案，統計港務大樓及槽區之每年雨水回收量及利用率(另港公司設置3個20噸雨水回收槽以達節水功效)	槽區	100%	100% ■雨水回收256,676噸	100% ■雨水回收360,620噸
				港務大樓	100%	100% ■雨水回收192噸	100% ■雨水回收411噸 (下半年因颱風降雨充沛，雨水回收量增加提升水資源循環利用，帶動綠化澆灌頻率成長)
水域水質	四	海域水質合格率	麥寮港外海水域品質測站監測值皆符合「海域環境分類及海洋品質標準」之比例	90% (因海域水質受上游沖刷與漲退潮等非港區可控制之自然因素影響，故目標值未設定為100%)		99.96%	97.42%
		港域水質合格率	麥寮港內水域品質測站監測值皆符合「海域環境分類及海洋品質標準」之比例	100%		100%	99.65% (因山陀兒颱風過境帶來豐沛降雨造成河川輸出陸源性營養鹽入海，致第四季監測總磷濃度較高)
疏濬管理	五	養灘後水質合格率	檢測拋砂養灘1小時後之水質濁度小於甲類海域中不影響牡蠣生存之濃度(50 NTU)	100%		100%	100%
		底泥品質合格率 (砷、鎘、鉻、銅、汞、鎳、鉛與鋅)	底泥品質符合「底泥品質指標之分類管理及用途限制辦法」底泥品質指標上限值	100%		100%	100%
港埠廢棄物	六	合格業者清理船舶廢油污水之執行率	委託合格業者執行廢油污水收受艘次÷受理廢油污水收受艘次×100%	100%		100% ■清理船舶廢油污水19次	100% ■清理船舶廢油污水22次
船舶排放(污水)	七	船舶污水閥上鎖管制	港口公司港安組人員登輪執行船舶安全衛生檢查時，均會前往機艙檢查對外污水閥是否已關閉上鎖管制	抽驗率	15%	16.6%	15.2%
				執行率	100%	100%	100%
		槽區廢水處理前後水質檢測合格率	合格次數/抽測次數	原廢水	100%	100% ■抽測365次	100% ■抽測366次
				放流水	100%	100% ■抽測365次	100% ■抽測365次

麥寮港環境表現指標-港口公司

十大環境議題		指標項目	計算方式與原則	目標值		指標呈現	
						2023年	2024年
危險貨物(處理/儲存)	九	發生災害次數	發生災害次數	0次		0次	0次
		貨物逸漏次數	貨物逸漏次數	0次		0次	0次
		貨物逸漏緊急應變演練次數	貨物逸漏緊急應變演練次數	港內	≥2次/年	2次/年	2次/年
				港外	≥1次/年	1次/年	1次/年
		港區巡查次數	港區巡查次數	≥5次/日		5次/日	5次/日
		港區安全聯合督導次數	港區安全聯合督導次數	≥5次/年		5次/年	5次/年
船舶加油	十	加油作業執行率	實際按「麥寮工業專用港加油作業規定」執行加油作業之比例	岸上管路	100%	100% ■燃料油加油量51,029 kL ■柴油加油量10,599 kL	100% ■燃料油加油量53,459 kL ■柴油加油量8,517 kL
				油駁船	100%	100% ■燃料油加油量81,838 kL ■柴油加油量3,064 kL	無油駁船加油作業
				車輛加油	100%	無車輛加油作業	無車輛加油作業
		加油作業佈放攔油索執行率	船岸加油管線接管前，實際按「麥寮工業專用港危險物品裝卸作業規定」中油品裝卸相關規定辦理之比例	100%		100%	100%
棲息地/生態系統(水域)	其他	船舶減速執行率 (配合環評承諾之白海豚保育措施，於可安全操船之天候海象條件下，降低船舶進出港的船速至6節以下)	執行海象條件確認次數÷平潮次數×100%	100%		100% ■海象條件確認1,413次	100% ■海象條件確認1,415次

麥寮港環境表現指標-港口主要利害相關者(塑化公司碼槽處)

十大環境議題		指標項目	計算方式與原則	目標值	指標呈現	
					2023年	2024年
能源效率	三	燈具汰換率	汰換LED燈具數量÷目標汰換燈具總量	100%	100% ■碼槽處: 汰換燈具共308盞	100% ■碼槽處: 汰換燈具共618盞
港埠廢棄物	六	資源回收率	一般廢棄物資源回收量÷一般廢棄物清運量×100%	10%	58% ■一般廢棄物資源回收量2,198.4噸 ■一般廢棄物清運量3,792.6噸	58% ■一般廢棄物資源回收量1,465.6噸 ■一般廢棄物清運量2,528.4噸

麥寮港環境表現指標-港口次要利害相關者
(政府單位: 海關單位、移民單位、檢疫單位、安檢單位；其他單位: 承租戶)

十大環境議題		指標項目	計算方式與原則	目標值		指標呈現	
						2023年	2024年
空氣品質	二	空氣品質之監測合格率 (空氣中乙醛、醋酸、乙腈與丙酮等餘393項物質)	利用移動式(FTIR)監測車1輛，嚴格控管各項常見之空污數值，並適時移動至適當採樣處，採樣數據依以下規定檢核港區空氣污染物濃度。 ■固定污染源空氣污染物排放標準附表的周界排放標準 ■勞工作業環境空氣中有害物容許濃度標準 ■「離島工業區臭味物質之臭味閥值」中鼎公司(1990) ■最大增量反應性(MIR)反應尺度資料表	頻率	≥1次/年	1次/年	1次/年
				合格率	100%	100%	100%
		到港船舶使用硫含量≤0.5%之低硫燃料比例 (麥寮港為空氣品質維護區，自主制定綠色運輸計畫)	管制到港船舶使用低硫燃油之船數÷總進港船數×100%	100%		100% ■進/出港船舶使用低硫燃油艘次1,916艘	100% ■進/出港船舶使用低硫燃油艘次1,852艘
		1~3期大型柴油車符合排煙檢測標準比例 (麥寮港為空氣品質維護區，自主制定綠色運輸計畫)	管制進港柴油車符合排煙標準÷總進港大型柴油車×100%	100%		100%	100%

麥寮港環境表現指標-港口其他利害相關者(社區: 附近居民、漁民)

十大環境議題		指標項目	計算方式與原則	目標值		指標呈現	
						2023年	2024年
社區之關係	八	活動場次	計算實際舉辦社區回饋活動，或參與研討會及推廣活動	國家海洋日	≥1場次/年	1場次/年 ●攤位導覽人數102人次	1場次/年 ●攤位導覽人數187人次
				參訪活動	≥1梯次/年	144梯次/年 ●參訪人數4,563人次	153梯次/年 ●參訪人數4,234人次
				其他活動	≥1場次/年	2 場次/年 ■1場次大型淨灘及1場次淨溪活動 (合計清理1,355公斤廢棄物)	2場次/年 ■ 1場次第46屆海洋工程研討會 ■ 1場次大型淨灘活動 (清理340公斤廢棄物)
					定期淨灘	2-3場次/週 ■ 每次出動小組3-5人 (清理110,000公斤廢棄物)	2-3場次/週 ■ 每次出動小組3-5人 (清理78,510公斤廢棄物)
		官網意見信函回覆比例	回覆信件數量÷投稿意見信件數量×100%	100%		100%	100%
棲息地/生態系統(水域)	其他	魚苗放流次數	漁業資源復育，於鄰近海域魚苗放流	≥1次/年		1次/年 ■放流52.9萬尾	1次/年 ■放流44.1萬尾

06

緊 急 應 變

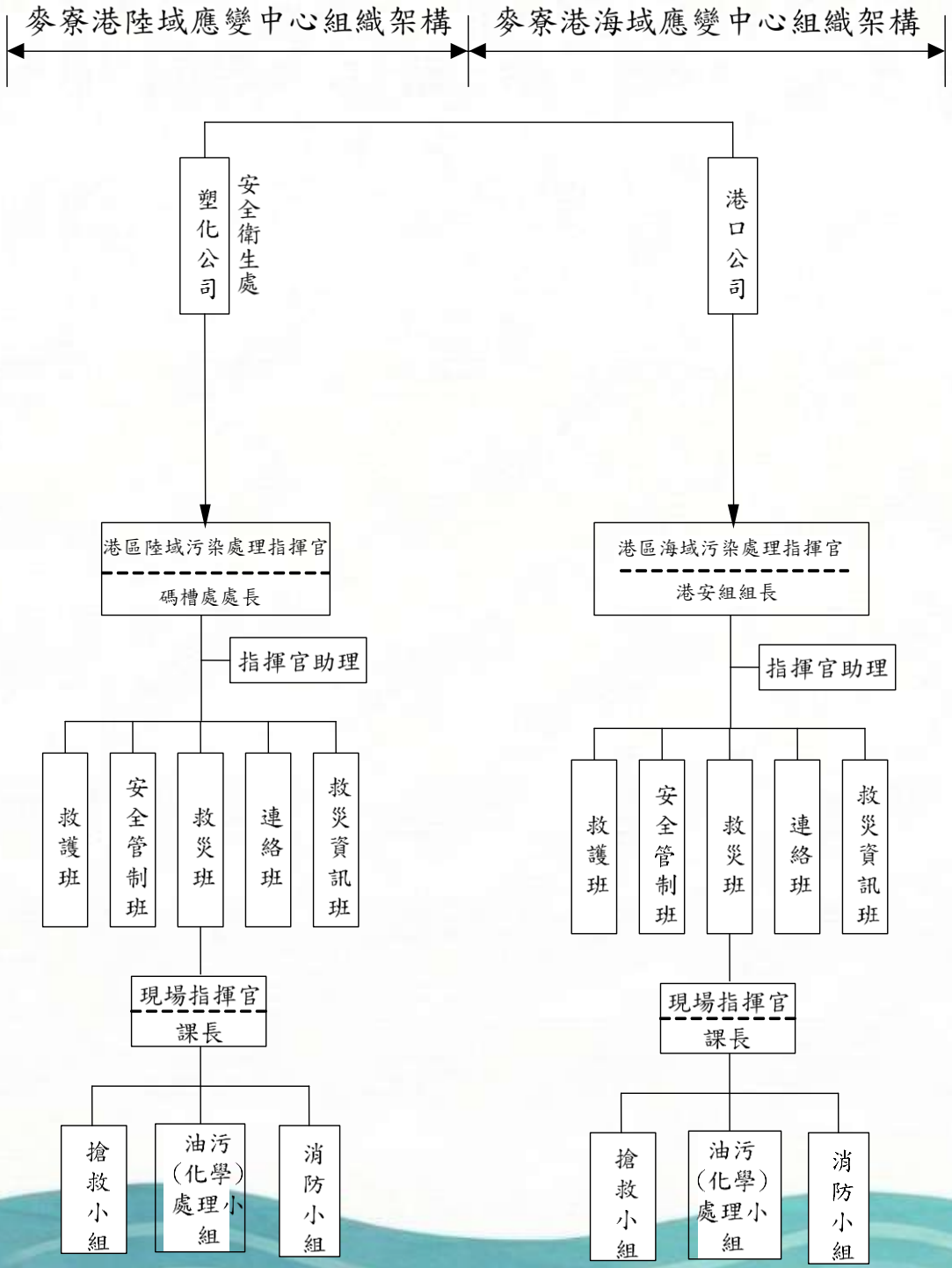
港區緊急應變

危險貨物(處理/儲存)　貨物逸漏量(處理)　水域水質

為預防及避免意外，並降低其發生時所造成的危害，麥寮港針對多種可能發生之意外狀況，定期進行緊急應變演練及加強海洋污染的緊急應變，並建置完善緊急應變組織架構，採取3階段應變作為以能及時且適切地處理應對。

此外，麥寮港亦規劃一套完善的警報系統設置於碼槽區，包含氣體偵測系統、儲槽區漏油偵測系統、監視器與目擊發現、機械設施警報系統與油槽二段警報系統等5種警報、預警措施，以隨時確認各種狀況。

港口公司緊急應變組織架構圖



定期緊急應變演練

港口公司為使所有成員均熟悉當意外狀況發生時的應變作為，依據「緊急應變計畫」定期進行模擬演練(每半年1次)。

緊急應變演練計畫內容包含演習程序、演習計畫書，整個緊急應變組織架構、運作流程圖、通報流程的說明，以及事後的復原作業及事故調查等，於演練中讓演練人員均穿著防護器具並了解各防護器具使用方式，以發現問題點及檢討改善，期望當真正發生災害時可以在最短的時間內控制災害，避免災害擴大，將損失及危害減至最低，亦希望所有人員均隨時建立起危機意識，落實製程安全管理，確保製程安全，避免災害發生，針對問題點持續檢討精進，預防類似異常再發生。

通報119消防隊

全體應變人員集合

管制進入火場人員

塑化消防隊進行滅火

海洋污染緊急應變

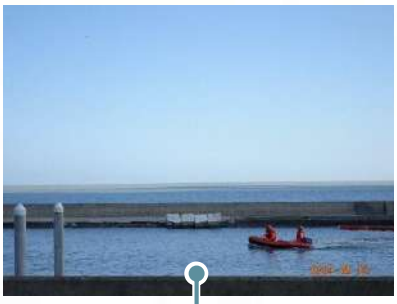
貨物逸漏量(處理)　水域水質

為防止、排除及減輕海洋油污染緊急事件，對麥寮港週遭環境生態及居民身體財產之影響，當有海洋油污染緊急事件發生之虞或發生時，立即進行通報及應變措施，並有效整合機關、企業與協力廠商各項資源，取得污染處理設備及材料與專業技術人員，以共同達成安全、即時且有效之應變作業。

因此，為強化港口作業人員之事故應變能力，麥寮港每年配合各主管機關，舉辦海洋油污染、化學品災害防治等各種操演，熟悉及健全海洋污染緊急事件通報系統；整合與協調機關、企業與協力廠商各項資源與應變作業，並建立聯防體系；強化海洋污染事件之緊急應變及處理能力；有效預防海難災害發生或減低海難災害損害，以提升港區事故之應變能力。

透過每年的海洋污染緊急應變，加強熟悉海洋污染緊急事件之通報流程及權責分工，以求最迅速之應變；建立各相關機關、企業與協力廠商對於海洋污染緊急事件發生時之處理聯繫及相互支援管道，並運用各項救災資源、人力及裝備，以強化整體救災能力，減輕對人體、生態、環境或財產的影響；加強相關業務人員、民眾防災應變教育、講習、訓練、演練及觀念宣導並建置配合海難緊急應變機制與程式。

海巡艇執行救援任務

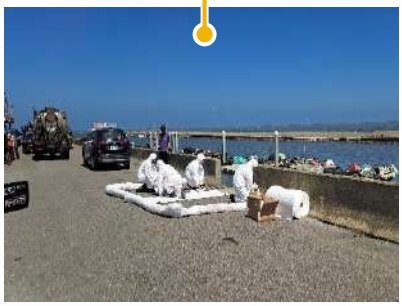


油污抽除作業

環保局進行採樣

圍設攔油索

油污清除區岸際暫存



麥寮海洋號

此外，為加強緊急應變能量，特別購置台灣第一艘外海型除污船－麥寮海洋號，「麥寮海洋號」為台灣第一艘除污船，由法國(ECOCEANE)船廠製造，2015年11月交船，全船為鋁合金打造，相較鋼構船重量輕，並具有碰撞無火花特性，安全性上更勝一籌；另採用專利的水流隧道系統技術，將海面上浮油吸入船內，以物理方式直接進行油水分離，取代傳統式汲油器。「麥寮海洋號」除配合演練作業外，亦配合海委會徵召調用，協助國內任何海域海洋污染事故處理。

截至2024年，實務執行案例如2021年6月協助處理中油高雄大林煉油廠外海輸油蛇管破漏事件、2023年7月協助處理帛琉籍貨櫃船ANGEL天使輪於高雄外海沉沒事故，將持續待命協助緊急事件。

麥寮海洋號演練情形

駕駛艙內航線設計

海上通訊系統

麥寮海洋號內部控制室(1)

麥寮海洋號內部控制室(2)

油污回收及過濾作業

07

環境行動實踐案例

設置商船高壓岸電設施

麥寮港推動空污減量措施，於東三碼頭設置高壓岸電設施(商船高壓岸電)，岸電系統設計6.6kV / 1800kW，可供20萬噸靠港散裝船及煤炭船等船隻使用，針對到港商船提供在港期間使用高壓岸電相關獎勵措施。

東三碼頭高壓岸電系統於2023年5月正式啟用，經台塑海運公司守輝輪於同年5月10日至5月17日執行岸電連船測試結果，在港期間使用岸電費用可節省原燃油成本約72%。統計自2023年啟用至2024年底，期間共使用岸電約533小時，比起傳統使用硫油為燃料方式，可減少使用約92.34kL燃油用量，有效提升空氣品質，達到空污減量、能源轉換及綠色航運推動之三贏局面。

調整配電盤參數及檢查線路

電纜插頭插入岸電箱插座

置入安全插銷

連結船側電纜箱與岸側插座

並聯岸電系統與船上發電機

岸電解聯退出供電系統

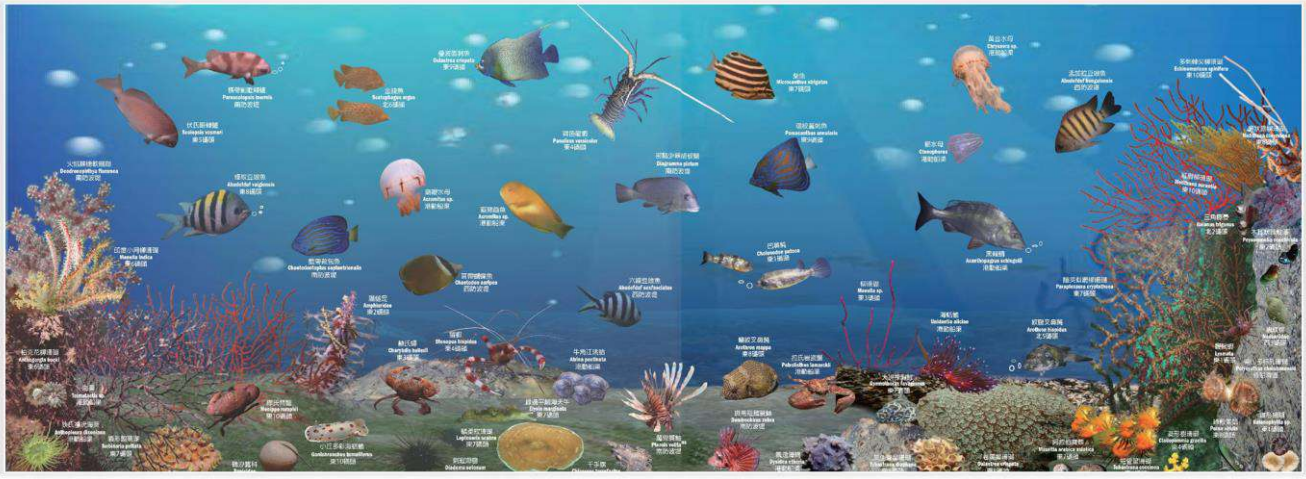
麥寮港水下生態調查

氣候變遷 水域水質 港埠發展(水域相關)

麥寮港為了解港區水下生態，於2023年4月至2024年9月，委託高雄科技大學海岸水與環境中心進行麥寮港海洋生態二次調查，範圍包含麥寮港港勤船渠、東1-5碼頭、東6-10碼頭、西北碼頭、西防 波堤與南防波堤等六大區域。

麥寮港內生物豐富，經2016年一次調查及本次調查結果，紀錄到的種類包含有動物界的脊索動物、節肢動物、軟體動物、刺胞動物、棘皮動物、海綿動物、環節動物、苔癬動物、櫛水母動物、植物界的紅藻門及綠藻門等，本次調查新增發現物種共計249種，以軟體動物門螺貝類和海蛞蝓最多，並累計兩次調查發現397種生物，涵蓋2界11門161科244屬。

台灣西部沿岸原生魚種「獅子魚」，在麥寮港良好的水質維護管理下，廣泛分布於港內主要調查區。其常見魚種包含鮋科(Scorpaenidae)之魔鬼簑鮋(Pterois volitans)、斑馬短鰭蓑鮋(Dendrochirus zebra)及觸角簑鮋(Pterois antennata)，展現港區豐富且穩定的生物多樣性 。



項目	2016年首次調查	2023年新增發現	累計發現物種
軟體動物 (螺貝類)	20種	69種	89種
脊索動物 (魚類)	92種	63種	155種
刺胞動物 (珊瑚類)	12種	40種	52種
節肢動物 (蝦蟹類)	20種	34種	54種
棘皮動物	3種	12種	15種
環節動物	1種	8種	9種
海綿動物、苔癬動物、櫛水母動物	未發現	8種、5種、2種	9種、5種、2種
植物界 (紅藻門和綠藻門)	未發現	8種	8種
合計	148種	249種	397種

08

綠 色 統 計

環境投資與成本

麥寮港對於環境議題所投入之成本主要可分為員工、環境維護與管理、環境監測與規劃、緊急應變、及溝通與出版物共5項，其目的在於增進員工環境意識、維護港區環境及改善品質、增加緊急應變能力，及提升民眾對於港埠之了解，各項成本說明如下：

- **員工：**與環境相關人員之人事費與環境相關之教育培訓等
- **環境維護與管理：**港區綠美化、疏濬與廢棄物清除等
- **環境監測與規劃：**空氣、噪音、水質、底泥、疏濬等相關環境監測及環境巡查，針對港口環境保護的目標或措施所作之規劃
- **緊急應變：**意外事故處理費、港區污染用之材料及危險品化驗檢定費等
- **溝通與出版物：**網站維護、宣傳活動與環境出版物等

合計麥寮港2023年與2024年對於環境議題所投入的成本分別為新台幣1,175,225,783元與新台幣1,207,044,655元，約3,176萬歐元與3,262萬歐元。詳細成本明細如下表。

麥寮港2023~2024年對於環境議題所投入之成本

單位：新台幣元

費用項目	2023年	2024年
員工	401,308,641	396,594,673
環境維護與管理	728,905,019	753,156,547
環境監測與規劃	39,573,185	51,765,079
緊急應變	490,000	490,000
溝通與出版物	4,948,938	5,038,356
合計	1,175,225,783	1,207,044,655

環境資產

為使麥寮港發展成為對環境友善之綠色港口，麥寮港對於環境議題投入相當的固定資產，以利於推動港埠發展與更新汰舊，合計2023年與2024年麥寮港對於環境議題所投入之固定資產分別為新台幣29,945,325元與新台幣10,689,802元，約110,797萬歐元與39,552萬歐元。

麥寮港2023~2024年對於環境議題所投資之資產

單位：新台幣元

年度	資產類別	項目	金額	合計
2023	機械及設備	港口公司雙迴路電源改善	16,453,345	29,945,325
		監視系統WiMESH建置	10,750,000	
		叉舉式電動堆高機	1,860,000	
		引擎式熱水高壓清洗機	248,000	
		液晶顯示器 22吋 LCD	1,980	
		貨櫃屋	632,000	
2024	機械及設備	東三碼頭岸電設備	5,762,105	10,689,802
		監視系統建置 (西堤管制門、海運庫房)	3,824,000	
		無人機干擾器	850,000	
		分離式冷氣機220V	146,297	
		全自動滾筒式洗衣機	84,400	
		程控殺菌飲水機	23,000	

09

創新與合作

參與及合作組織

政府機關

雲林縣環境保護局

- 配合雲林縣環保局執行麥寮港及在港船舶聯合稽查。
- 參與2023年度麥寮港海洋污染緊急應變演練。
- 港口公司與台塑公司等單位舉行2024年度雲林縣海洋生態敏感區污染及救難緊急應變演練。

衛生福利部疾病管制署

- 2024年推動麥寮港邊境防疫工作，榮獲衛福部評選為「年度防疫績優團體獎(非公務類)」。
- 2023及2024年辦理「日本腦炎暨登革熱防治」、「流感併發重症之防治」、「疫情之港區防治因應對策」等宣導，共計3場次
- 2023及2024年辦理「職場健康安全促進座談訓練」共計3場次。

交通部航港局中部航務中心

- 配合執行交通部航港局中部航務中心登輪執行麥寮港港口國管制(PSC)檢查及船旗國(FSC)檢查。

雲林縣消防局

- 參與2023年麥寮港海洋污染緊急應變演練。
- 參與2024年雲林縣海洋生態敏感區污染及救難緊急應變演練。

學術機構

國立高雄科技大學海岸水與環境中心

- 委託國立高雄科技大學執行「麥寮港波浪監測計畫」，分析港內波浪觀測數值，擬定船舶湧浪靠泊碼頭條件，以維持船舶及碼頭設施安全。提供塑化碼公司碼槽處波浪觀測數值，作為警示及暫停裝卸貨或拆管標準設定，以避免作業中卸料臂受波浪搖晃損壞，而發生貨品洩漏之意外事故。
- 委託辦理麥寮港海洋生態二次調查，調查範圍包含麥寮港港勤船渠、東1-5碼頭、東6-10碼頭、西北碼頭、西防波堤與南防波堤等六大區域。

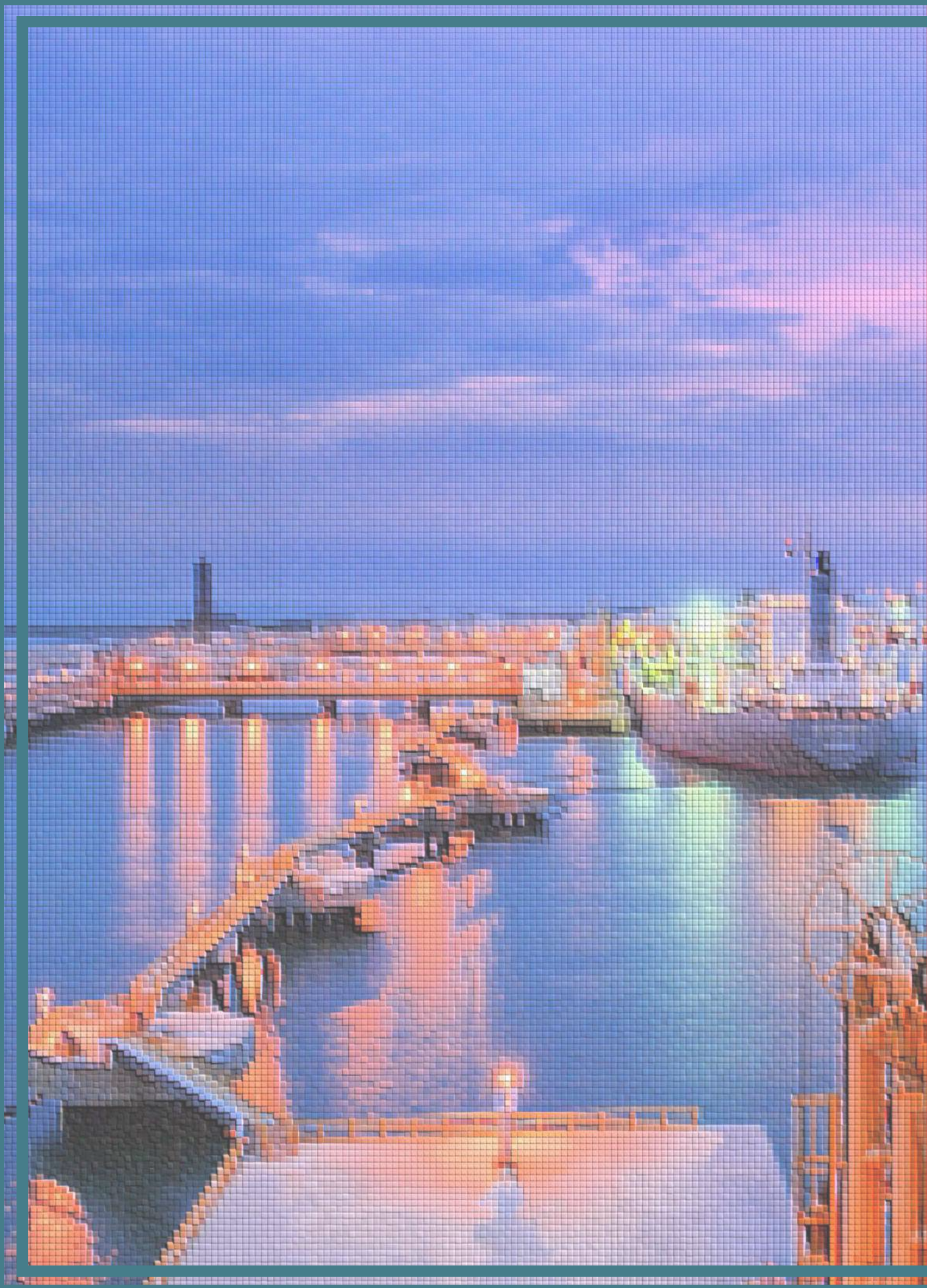
國立成功大學水工試驗所

- 為經濟部水利署與國立成功大學合設之專業試驗研究單位，長期受經濟部產業園區管理局委託執行雲林海岸地區環境監測計畫，迄今已超過20餘年，充分掌握雲林海岸環境變化趨勢。

財團法人/顧問公司

環興科技股份有限公司

- 環興科技股份有限公司接受麥寮港公司委託執行「麥寮港綠色生態港埠認證作業推動計畫」，輔導麥寮港公司向歐洲海港組織申請綠色生態港埠認證。



10

培　　訓

人員培訓

台塑企業有鑑於近年來環保意識抬頭，現今環境保護已成為民眾關心的一環，環境教育已成為新興的全民運動，然民眾仍普遍認為環境污染主要源自工廠或企業，故為此，本企業不斷改進以提升污染防制，更以讓民眾瞭解認識為義務，落實全面的企業環境教育，讓企業與員工有共同努力目標，期藉此提升員工環境素養及民眾對地方的認同感，讓大家深入了解本企業。

港口公司針對內部員工教育訓練共可分為五大項目，包含「安全、衛生、環保法規說明」、「衛教宣導」、「緊急消防操演」、「海洋污染緊急應變演練(含訓練)」及「 ISPS港口保全教育訓練(含訓練) 」，統計港口與塑化公司碼槽處訓練時數，2023年共10,990人小時，2024年共13,536人小時。

港口公司內部員工訓練項目內容

港口公司2023~2024年內部員工訓練情形

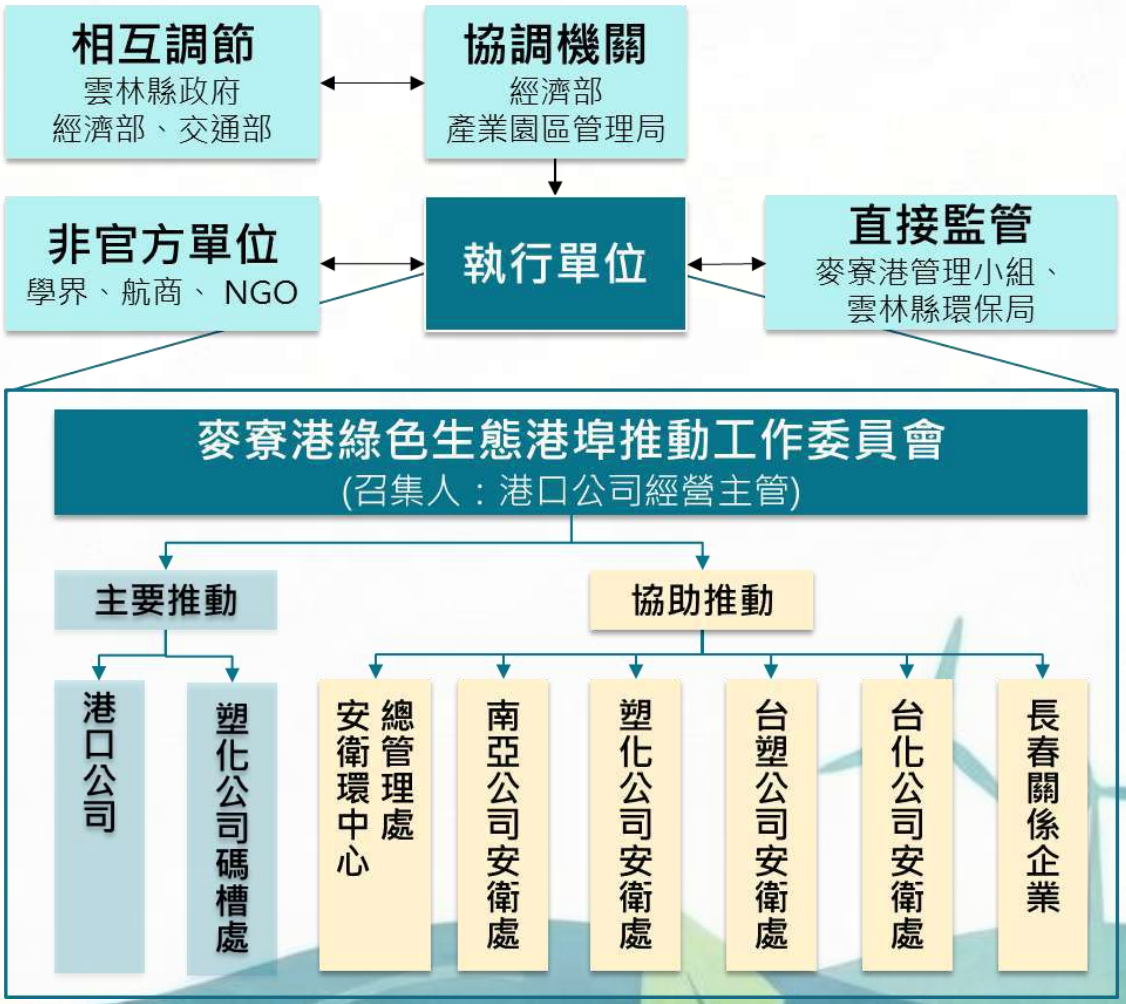
單位：人小時

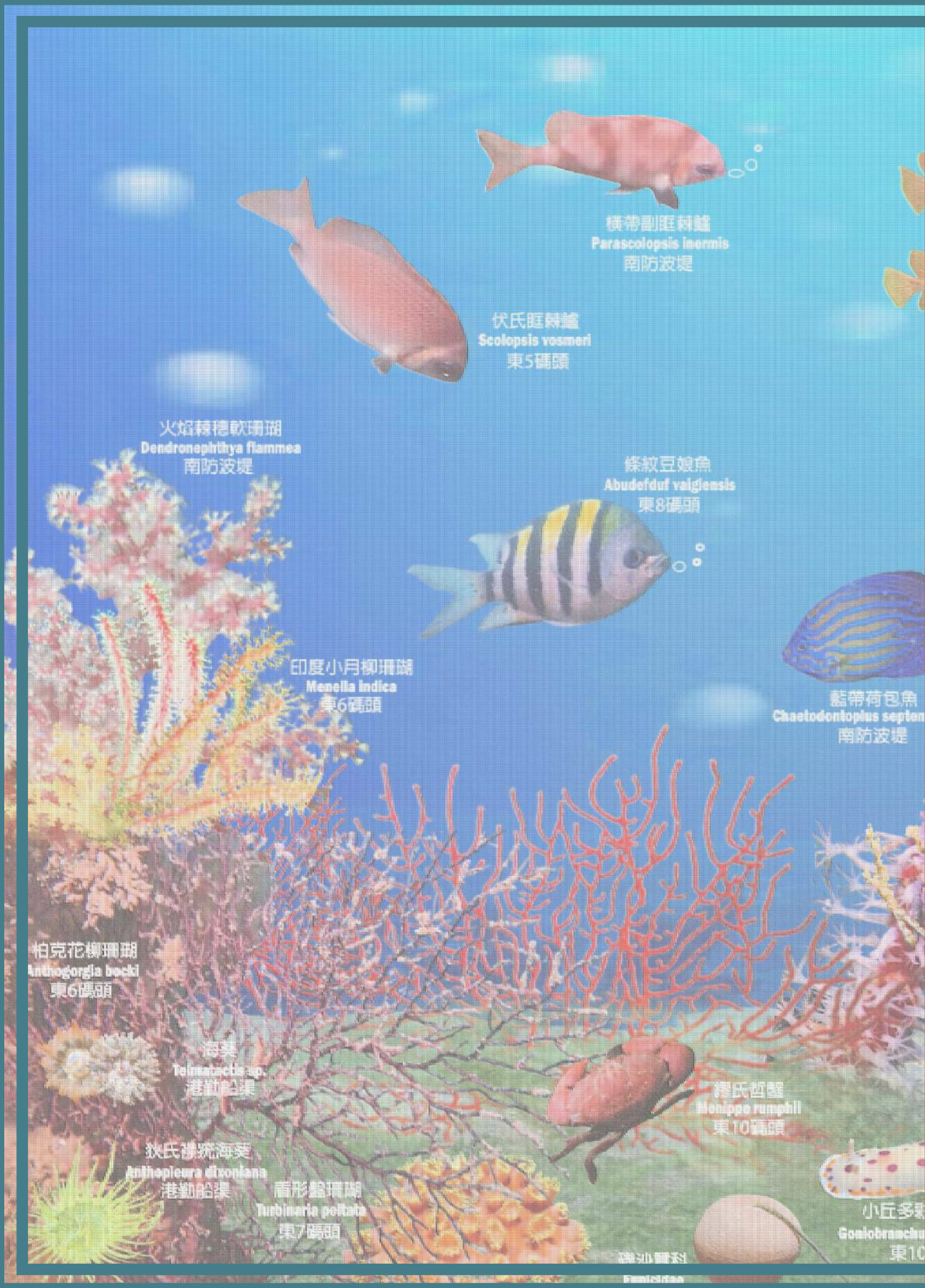
課程領域	港口公司		塑化公司碼槽處	
	2023年	2024年	2023年	2024年
安全、衛生、環保法規說明	1,184	1,296	3,600	3600
衛教宣導	164	72	3,360	3,864
緊急消防操演	180	504	120	120
海洋污染緊急應變演練(含訓練)	814	3,696	-	-
ISPS港口保全教育訓練(含訓練)	1,568	384	-	-
合計	3,910	5,952	7,080	7,584

為順利推動各項綠港工作，茲成立「麥寮工業專用港綠色生態港埠推動工作委員會」，由港口公司及塑化公司碼槽處主要推動，並由台塑企業總管理處安全衛生環保中心、南亞塑膠工業股份有限公司、台塑石化股份有限公司、台灣塑膠工業股份有限公司、台灣化學纖維股份有限公司等安全衛生處，及長春關係企業協助推動。並分為內部及外部之環境政策與環境理念溝通。

- 內部：
  1) 港口公司與塑化公司碼槽處於每月皆會召開工安環保日會議，並於會議中持續傳達環境政策與環境理念予全體員工。
  2) 定期開放員工及眷屬參訪港區並同時宣導環境政策理念。
- 外部：
  1) 麥寮港於每月皆會召集承攬商召開協議組織會議。
  2) 麥寮港網頁中設有綠色港埠之專屬頁面，並可於該頁面中取得環境政策與環境報告書之完整資訊。
  3) 於海洋工程研討會發表綠色港埠經驗與成果。
  4) 麥寮港每季邀集主要推動單位召開工作協調會議。
  5) 邀請機關團體、社區及學術單位參訪港區。

麥寮港環境議題之管理單位權責圖




橫帶副眶棘鱸
Parascolopsis inermis
南防波堤
伏氏眶棘鱸
Scolopsis vosmeri
東5碼頭
火焰棘穗軟珊瑚
Dendronephthya flammea
南防波堤
條紋豆娘魚
Abudefduf vaigiensis
東8碼頭
印度小月柳珊瑚
Menella indica
東6碼頭
藍帶荷包魚
Chaetodontoplus septen
南防波堤
柏克花柳珊瑚
Anthogorgia bocki
東6碼頭
海葵
Telmatactis sp.
港勤船渠
鐘氏哲蟹
Menippe rumphii
東10碼頭
狄氏褐疣海葵
Anthopleura dixoniana
港勤船渠
盾形蠹珊瑚
Turbinaria peltata
東7碼頭
小丘多彩
Goniobranchu
東10


耳帶蝴蝶魚
Chaetodon auripes
西防波堤
六線豆娘魚
西防波堤
陽燧足
Amphiuridae
東2礫頭
赫氏蟳
Charybdis helleri
獅蝦
Stenopus hispidus
東4礫頭
牛角江珧蛤
Atrina pectinata
港勤船渠
綠邊平鰓海天牛
Elysia marginata
東7礫頭
鱗柔枝珊瑚
Leptoseris scabra
東7礫頭
刺冠海膽

11

溝通與出版物

環境教育推廣與研討會

社區關係

國家海洋日

麥寮港響應國家海洋日，辦理海洋環境生態教育活動，透過導覽、參訪與互動學習，提升各界對港口永續與環境保護認知。

於2023年至2024年期間，受邀參與「2023年愛海手作 - 海廢化身藝術展」及「2024年海廢創意 - 大海更美麗」國家海洋日活動，藉由攤位導覽解說，推廣綠色生態港埠作為及經驗，回覆民眾所關心之環境議題，展現麥寮港過去幾年來對於港口生態維護之努力，更聆聽各方意見，作為後續推行方向；期間合計參訪攤位民眾約289人次。

第46屆海洋工程研討會

麥寮港為展現綠色生態港埠良好成效，參與第 46 屆海洋工程研討會(2024年11月21-22日)，積極投稿分享認證經驗，推廣介紹麥寮港永續經營理念，亦透過認證作業持續檢視港口現況及落實十大環境議題，傳達麥寮港長久以來致力於港口環境管理及生態保護，並與同領域專家學者交流。

社區回饋

社區關係

台塑企業致力維持良好環境工作環境，落實企業社會責任，並盡心盡力提升地方發展與強化軟硬體建設，發揮敦親睦鄰，廠鄉一家親的精神。

響應藝文活動與鄉親同樂

台塑企業支持藝文活動，透過「王詹樣公益信託」推動「臺灣特色文化發展計畫」，長期深耕地方、落實敦親睦鄰，於2023年至2024年期間，在雲林各鄉鎮合計辦理8場次兒童劇團及明華園總團公演，合計參與人數約9,900人；該項計畫持續多年，吸引大批鄉親參與，且為地方民眾高度支持的藝文活動。

共創行銷在地農特產

認購在地優質文旦，台塑企業推廣雲林良品，多年持續與在農民合作，每年認購約4萬8千台斤（約30噸）雲林斗六文旦，並於中秋佳節，透過遍佈全台的台亞加油站發送及推廣給更多消費者，提高在地農特產知名度，展現企業回饋精神，與雲林縣共存共榮。

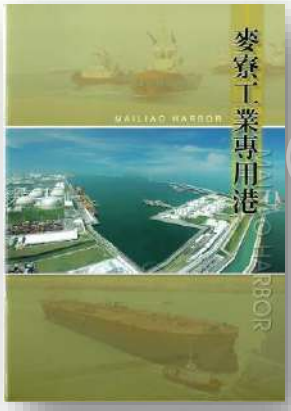
捐贈疫苗守護雲林學子

為提高雲林縣內國二學生抗癌防護力與保護力，台塑企業聯合雲林縣府推動9價HPV疫苗接種，替每位國二學生省下每人花一萬多元的預防保健支出，且施打HPV疫苗，可預防多項癌症疾病，並自106年學年度開始贊助，迄今疫苗施打已受惠27,846人次。

出版/宣傳物

麥寮工業專用港簡介

麥寮工業專用港簡介為介紹麥寮港之港口背景，包含港口位置、港口鳥瞰圖、設置沿革、營運特性、管理組織架構、營運船席概況等資訊。



台塑企業雙月刊

集結台塑企業動態，展現持續投入環境改善、企業永續、社區回饋及港口永續之心力，亦推廣藝文專欄等行動。

環保地圖

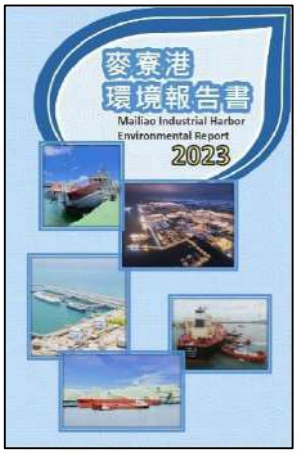
展現台塑麥寮六輕工業區堅持珍愛地球，友善環保的理念，投入完善先進的環保設施設備，具體落實環境監控，達到環保良好成效，並藉由環保地圖讓大家一起看見六輕環保與生態之美。

麥寮工業專用港統計要覽

麥寮工業專用港統計要覽為記錄麥寮港區每年進出港船舶、貨物、棧埠、財務、組織人事及港埠設施等資訊。

麥寮港環境報告書

展現麥寮港於2021年至2022年，在環境議題上的表現成果，及未來麥寮工業區專用港管理股份有限公司發展綠色港埠之環境政策、目標承諾及相關行動方案。



麥寮港海洋生態圖鑑

麥寮港海洋生態攝影計畫，針對麥寮港港內外水下生態，於2016年及2023年分別執行實地拍攝調查，調查範圍包含港勤船渠、東1-5碼頭、東6-10碼頭、西北碼頭、西防波堤與南防波堤等六大區域。

網際網路

麥寮港公司網站(中英文版)

定期更新麥寮港完整資訊，包含麥寮港設置目的、港埠設施、業務服務、營運狀況及港埠動態等資源與介紹，供民眾公開閱覽。

麥寮港網站中文版

麥寮港公司網站(中)

網址連結：
http://www.mlharbor.com.tw/j2mlh/zhtw/index.do

麥寮港網站英文版

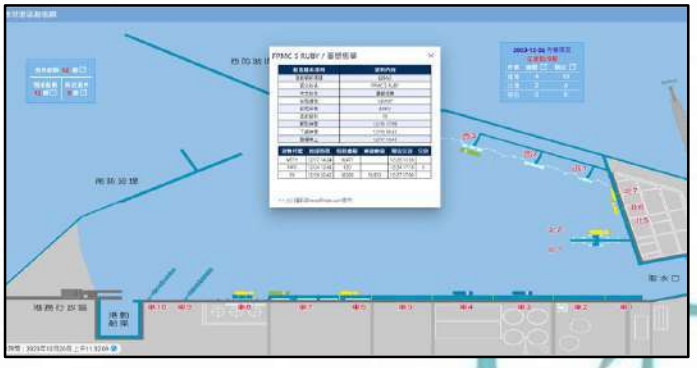
麥寮港公司網站(英)

網址連結：
http://www.mlharbor.com.tw/j2mlh/enus/index.do

麥寮港港區即時在港船舶動態

麥寮港在港船舶動態

網址連結：
https://www.mlberth.com.tw/DSS/published-harbor/map



Facebook專頁 - 台塑企業Formosa!

(圖片截自Facebook專頁)

台塑企業整合麥寮園區大小事，透過FB社交媒介即時發布環境信息，包含港區災防演習、環境教育、港域生態、空品提醒，擴大港口與利害關係者聯繫網。

台塑企業Formosa！

網址連結：
https://www.facebook.com/share/1AzZyXPATU/?mibextid=LQQJ4d

六輕之美||台塑企業麥寮六輕園區

從無到有，從荒蕪到繁榮，台塑企業秉持「義不容辭」的精神，重視園區所在地環境保護、提供鄉民完善健康照護、實踐敦親睦鄰社區回饋、委託專業產業促進當地漁業，敬邀各界共賞園區環境之美。

六輕之美
The Beauty of Mailiao Eco-industrial Park, FPG.

六輕之美

網址連結：
http://mailiao.fpg.com.tw/j2pk/sea.do

12

未來與展望

麥寮港為我國第一個由民營事業投資興建及經營管理的工業港，自2001年正式營運以來，已成為我國最大的工業專用港。

縱使麥寮港於建港階段已採取低衝擊的抽砂造地措施，盡量減少港灣構造物對海岸生態環境的可能影響，然而營運期間船舶進出港、靠泊碼頭、裝卸輸儲、加油補給等作業可能衍生的污染排放，及港區陸域活絡的重機械操作與配合槽區、倉棧等作業活動，仍難以避免造成港區環境品質的劣化。

為扭轉環境劣化的現象，配合國際發展綠色生態港埠的趨勢，麥寮工業區專用港管理股份有限公司積極推動綠色港埠措施，以降低港埠污染、維護環境生態、提升港灣營運效益和周邊社區利益。此外，已於2018年9月首次取得綠色生態港埠認證殊榮，未來將持續落實港埠環境政策、推動綠色生態港埠認證作業，朝向「綠色」、「生態」及「永續」發展。

附錄一、麥寮港海域水質調查結果

2023年第1季麥寮港海域水質調查結果(1/3)

測站	單位	甲類海域水質標準	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
(採樣)深度	公尺	(2018.02.13公告)	1.0	6.5	12.0	1.0	10.0	19.5	1.0	11.5	22.0	1.0	11.0	21.0
溫度	℃	—	18.5	18.5	18.6	18.5	18.5	18.5	18.7	18.7	18.7	19.7	19.8	19.8
鹽度	PSU	—	31.2	33.0	33.3	32.6	33.2	33.4	33.7	33.7	33.7	34.1	34.1	34.1
氫離子濃度指數(pH)	-	7.5~8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
溶氧量	mg/L	≥5.0	6.8	6.6	6.4	6.6	6.4	6.3	6.7	6.3	6.3	6.6	6.4	6.3
生化需氧量	mg/L	≤ 2	0.6	0.7	0.8	1.1	1.2	0.8	1.4	0.9	0.8	1.1	1.0	0.7
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	25	75	ND	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	17.8	20.8	23.1	21.5	20.6	26.8	15.3	18.0	14.5	10.4	23.4	14.3
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	0.7	ND	0.6	ND	0.7	ND	0.5	1.0	ND	ND	ND	0.5
葉綠素a	μg/L	—	2.1	1.3	1.3	1.5	1.0	0.9	0.7	0.7	0.6	0.7	0.9	0.7
總磷	mg/L	0.050	0.034	0.022	0.020	0.020	0.023	0.025	0.017	0.013	0.019	0.018	0.016	0.018
氨氮	mg/L	0.30	0.14	0.06	0.06	0.17	0.07	0.07	0.07	0.19	0.04	0.04	0.02	0.10
亞硝酸鹽氮	μg/L	—	27.94	22.92	23.42	28.11	21.58	21.58	17.06	15.56	18.57	6.19	5.52	4.68
硝酸鹽氮	mg/L	—	0.13	0.12	0.10	0.12	0.14	0.12	0.10	0.08	0.08	0.03	0.04	0.04
鎘	μg/L	5.0000	0.0107	0.0129	0.0141	0.0155	0.0141	0.0142	0.0295	0.0287	0.0150	0.0149	0.0124	0.0120
鉻	μg/L	—	0.29	0.27	0.57	0.35	0.41	0.42	0.74	0.63	0.30	0.23	0.23	0.21
鈷	μg/L	—	0.027	0.038	0.031	0.036	0.039	0.037	0.073	0.048	0.026	0.034	0.027	0.030
銅	μg/L	30.000	0.678	0.873	0.650	1.425	0.952	0.402	1.288	1.311	0.373	0.461	0.377	0.521
鎳	μg/L	100.000	0.318	0.299	0.290	0.359	0.369	0.345	0.765	0.627	0.245	0.336	0.323	0.299
鉛	μg/L	10.000	0.063	0.061	0.101	0.067	0.102	0.089	0.122	0.112	0.090	0.114	0.094	0.107
鋅	μg/L	500.00	0.51	1.35	0.84	1.05	1.03	1.27	2.19	1.99	0.70	1.34	0.85	0.85
鐵	μg/L	—	5.38	2.15	2.08	2.23	5.94	4.79	3.56	4.30	2.38	2.19	1.79	4.59
砷	μg/L	50.000	0.985	0.845	0.857	1.107	0.988	0.981	0.852	0.969	0.870	0.543	0.692	0.979
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	16.4	21.4	18.5	10.0	14.2	12.2	7.7	10.0	8.7	7.8	8.0	8.4
透明度	m	—	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
矽酸鹽	mg/L	—	0.69	0.45	0.44	0.47	0.49	0.30	0.34	0.35	0.38	0.24	0.21	0.20
總油脂量	mg/L	—	2.4	2.3	2.5	2.4	2.5	3.0	2.4	1.9	2.2	1.7	2.1	1.8

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第1季麥寮港海域水質調查結果(2/3)

測站	單位	甲類海域水質標準	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
(採樣)深度	公尺	(2018.02.13公告)	1.0	11.5	22.0	1.0	2.0	4.0	1.0	2.0	3.5	1.0	10.0	20.0
溫度	℃	—	20.2	20.2	20.3	18.6	18.6	18.6	18.8	18.8	18.8	18.6	18.5	18.5
鹽度	PSU	—	34.1	34.1	34.1	33.3	33.3	33.3	33.6	33.6	33.6	33.5	33.6	33.6
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
溶氧量	mg/L	≥5.0	6.2	6.4	6.3	7.0	6.7	6.7	7.0	7.0	7.0	6.6	6.6	6.6
生化需氧量	mg/L	≤ 2	0.9	0.6	0.6	0.8	1.2	0.9	1.3	0.4	0.7	1.1	1.0	1.1
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	20	ND	10	ND	ND	10	ND	ND	10
懸浮固體	mg/L	—	21.2	18.8	16.4	40.2	74.3	78.8	57.0	62.0	64.1	22.0	29.5	24.8
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND
礦物性油脂	mg/L	2.0	0.5	0.5	ND	ND	0.6	ND	ND	0.7	ND	1.0	0.9	1.1
葉綠素a	μg/L	—	0.1	0.4	0.6	1.6	1.8	1.6	1.6	1.5	1.3	1.2	0.9	0.9
總磷	mg/L	0.050	0.013	0.008	0.006	0.024	0.027	0.029	0.033	0.032	0.031	0.021	0.024	0.021
氨氮	mg/L	0.30	0.08	0.10	0.12	0.05	0.03	0.17	0.06	0.07	0.04	0.07	0.07	0.07
亞硝酸鹽氮	μg/L	—	8.03	4.18	5.69	28.44	27.44	26.60	22.92	22.25	21.92	28.78	21.58	21.25
硝酸鹽氮	mg/L	—	0.03	0.03	0.02	0.11	0.10	0.11	0.12	0.12	0.09	0.11	0.10	0.10
鎘	μg/L	5.0000	0.0155	0.0144	0.0121	0.0136	0.0123	0.0142	0.0123	0.0120	0.0166	0.0110	0.0126	0.0136
鉻	μg/L	—	0.34	0.28	0.23	0.43	0.38	0.31	0.27	0.21	0.23	0.27	0.33	0.23
鈷	μg/L	—	0.034	0.038	0.021	0.045	0.033	0.027	0.033	0.033	0.029	0.028	0.030	0.029
銅	μg/L	30.000	0.571	0.755	0.253	0.509	0.627	0.464	0.621	0.435	0.325	0.447	0.703	0.476
鎳	μg/L	100.000	0.390	0.343	0.245	0.485	0.506	0.341	0.357	0.330	0.324	0.201	0.300	0.353
鉛	μg/L	10.000	0.106	0.120	0.078	0.064	0.054	0.029	0.050	0.032	0.080	0.031	0.059	0.120
鋅	μg/L	500.00	1.38	1.29	0.70	1.05	1.08	0.98	1.06	1.04	0.82	0.75	0.97	1.02
鐵	μg/L	—	5.83	2.09	1.84	3.94	4.12	2.38	2.30	3.59	2.81	1.11	2.14	4.44
砷	μg/L	50.000	0.827	0.705	0.864	0.881	0.978	0.785	0.996	0.991	0.797	0.757	0.723	0.741
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	5.5	6.7	5.7	59.7	96.1	90.7	42.6	66.0	50.4	14.9	22.9	22.0
透明度	m	—	2.0	2.0	2.0	0.5	0.5	0.5	0.4	0.4	0.4	1.0	1.0	1.0
矽酸鹽	mg/L	—	0.28	0.30	0.22	0.44	0.49	0.39	0.28	0.30	0.39	0.35	0.35	0.42
總油脂量	mg/L	—	1.8	1.6	1.5	2.2	2.2	2.4	2.1	2.2	2.0	2.2	2.6	2.4

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第1季麥寮港海域水質調查結果(3/3)

測站	單位	甲類海域水質標準	4B	4B	4B	5B	5B	5B	2C	3C	4M
(採樣)深度	公尺	(2018.02.13公告)	1.0	10.5	20.0	1.0	10.0	19.0	1.0	1.0	1.0
溫度	℃	—	19.6	19.4	19.2	19.8	19.7	19.7	18.8	19.2	18.9
鹽度	PSU	—	33.9	34.0	33.9	34.0	34.0	33.9	33.3	33.6	33.1
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0
溶氧量	mg/L	≥5.0	6.4	6.8	6.5	7.0	6.4	6.7	7.3	6.8	6.8
生化需氧量	mg/L	≤ 2	1.4	1.0	0.8	1.4	1.2	0.7	1.1	0.5	1.7
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	15	ND	25
懸浮固體	mg/L	—	19.5	60.0	38.0	14.0	19.0	24.2	52.8	74.2	23.2
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	0.9	1.1	0.6	0.8	1.1	1.1	0.5	0.8	0.9
葉綠素a	μg/L	—	0.9	1.6	0.6	1.8	1.0	1.0	2.8	1.8	1.8
總磷	mg/L	0.050	0.023	0.024	0.036	0.024	0.021	0.029	0.034	0.024	0.044
氨氮	mg/L	0.30	0.08	0.14	0.14	0.14	0.15	0.08	0.14	0.10	0.22
亞硝酸鹽氮	μg/L	—	12.88	17.90	14.05	14.39	13.89	10.71	23.59	18.90	23.42
硝酸鹽氮	mg/L	—	0.06	0.07	0.06	0.07	0.05	0.05	0.13	0.07	0.12
鎘	μg/L	5.0000	0.0166	0.0141	0.0197	0.0241	0.0153	0.0127	0.0134	0.0167	0.0175
鉻	μg/L	—	0.28	0.25	0.30	0.33	0.25	0.27	0.38	0.25	0.66
鈷	μg/L	—	0.039	0.062	0.043	0.057	0.048	0.056	0.045	0.043	0.066
銅	μg/L	30.000	0.858	0.728	0.497	1.071	1.266	0.488	0.411	0.354	0.526
鎳	μg/L	100.000	0.421	0.374	0.372	0.752	0.497	0.335	0.295	0.374	0.538
鉛	μg/L	10.000	0.134	0.143	0.126	0.131	0.107	0.125	0.078	0.064	0.171
鋅	μg/L	500.00	1.62	2.08	2.50	2.23	1.59	2.35	1.37	1.40	1.68
鐵	μg/L	—	2.75	4.03	2.58	6.78	5.23	3.20	6.60	1.99	6.19
砷	μg/L	50.000	0.961	0.819	0.692	0.689	0.980	1.041	1.281	1.011	0.802
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	12.0	82.6	32.4	9.4	8.8	11.9	79.3	87.8	19.3
透明度	m	—	1.0	1.0	1.0	1.2	1.2	1.2	0.5	0.3	0.5
矽酸鹽	mg/L	—	0.24	0.28	0.32	0.28	0.39	0.27	0.42	0.40	0.65
總油脂量	mg/L	—	1.9	2.4	2.3	1.6	1.7	2.0	2.0	2.2	2.7

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第2季麥寮港海域水質調查結果(1/3)

測站	單位	甲類海域水質標準	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
(採樣)深度	公尺	(2018.02.13公告)	1.0	7.5	14.0	1.0	10.0	19.0	1.0	12.0	23.0	1.0	10.0	20.0
溫度	℃	—	22.9	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	23.0	23.1	23.1
鹽度	PSU	—	34.0	34.0	34.1	34.2	34.2	34.2	34.4	34.3	34.3	34.4	34.4	34.4
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.3	8.1	8.1	8.1	8.1	8.1
溶氧量	mg/L	≥5.0	6.5	6.3	6.9	6.4	6.4	6.3	6.1	6.7	6.5	6.1	6.5	6.7
生化需氧量	mg/L	≤ 2	1.1	1.5	1.1	1.4	1.0	0.9	1.2	1.2	1.4	1.3	1.2	1.1
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	15	ND	ND	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	18.8	17.0	16.9	11.7	14.4	11.7	12.9	7.7	12.6	11.0	9.2	9.7
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	0.5	0.5	ND	ND	ND	0.5	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	2.2	0.7	1.8	1.9	2.4	0.3	1.6	1.3	1.3	1.5	0.1	0.9
總磷	mg/L	0.050	0.036	0.029	0.029	0.033	0.032	0.043	0.019	0.019	0.016	0.020	0.021	0.021
氨氮	mg/L	0.30	0.06	0.05	0.06	0.03	0.07	0.06	0.07	0.06	0.08	0.10	0.09	0.08
亞硝酸鹽氮	μg/L	—	14.10	36.90	12.70	12.10	12.10	9.90	10.90	9.90	8.50	7.50	6.70	8.10
硝酸鹽氮	mg/L	—	0.12	0.10	0.10	0.06	0.15	0.08	0.16	0.11	0.11	0.06	0.05	0.05
鎘	μg/L	5.0000	0.0203	0.0207	0.0218	0.0098	0.0230	0.0130	0.0154	0.0225	0.0197	0.0132	0.0118	0.0148
鉻	μg/L	—	0.60	0.81	0.60	0.55	0.61	0.30	0.29	0.82	0.19	0.15	0.07	0.10
鈷	μg/L	—	0.035	0.043	0.028	0.026	0.045	0.032	0.031	0.041	0.060	0.029	0.024	0.026
銅	μg/L	30.000	0.719	0.420	0.709	0.489	0.416	0.553	0.829	0.999	0.578	1.755	0.905	0.474
鎳	μg/L	100.000	0.193	0.230	0.189	0.167	0.278	0.169	0.217	0.330	0.464	0.228	0.173	0.190
鉛	μg/L	10.000	0.021	0.049	0.122	0.095	0.151	0.168	0.145	0.162	0.179	0.048	0.033	0.065
鋅	μg/L	500.00	0.87	1.11	0.82	0.72	1.06	1.43	1.14	1.89	1.95	0.87	0.72	0.74
鐵	μg/L	—	3.06	2.36	1.85	3.04	2.35	1.82	3.68	2.85	4.17	3.07	5.42	2.77
砷	μg/L	50.000	0.891	1.146	0.756	1.116	1.169	1.096	0.996	1.375	0.983	1.170	0.867	1.547
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	13.6	8.2	11.3	13.2	10.9	12.8	14.3	9.4	9.6	12.7	15.1	12.9
透明度	m	—	1.3	0.0	0.0	2.0	0.0	0.0	2.3	0.0	0.0	3.0	0.0	0.0
矽酸鹽	mg/L	—	0.16	0.12	0.18	0.17	0.15	0.12	0.15	0.17	0.17	0.33	0.21	0.22
總油脂量	mg/L	—	2.6	2.9	2.4	2.4	2.8	2.2	2.2	2.5	2.6	2.8	2.4	2.5

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第2季麥寮港海域水質調查結果(2/3)

測站	單位	甲類海域水質標準	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
(採樣)深度	公尺	(2018.02.13公告)	1.0	11.0	21.5	1.0	2.0	4.0	1.0	2.0	4.5	1.0	11.0	22.0
溫度	℃	—	23.2	23.2	23.2	23.1	23.1	23.3	23.0	23.0	23.1	22.8	22.8	22.8
鹽度	PSU	—	34.5	34.5	34.5	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
溶氧量	mg/L	≥5.0	6.5	6.6	6.8	6.3	6.3	6.5	6.9	6.9	6.7	6.9	7.0	7.1
生化需氧量	mg/L	≤ 2	1.2	1.2	1.4	1.3	1.2	1.1	1.0	1.3	1.2	1.4	1.6	1.3
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	10.4	18.1	18.1	24.3	29.2	32.3	31.7	33.0	30.2	10.2	14.2	10.8
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	0.6	ND	ND	ND	ND	0.6	0.9	ND
葉綠素a	μg/L	—	1.0	0.4	0.4	2.8	1.6	2.1	1.9	3.0	0.7	1.5	1.8	1.6
總磷	mg/L	0.050	0.030	0.031	0.018	0.039	0.030	0.026	0.026	0.020	0.016	0.037	0.030	0.035
氨氮	mg/L	0.30	0.09	0.11	0.08	0.07	0.07	0.06	0.06	0.06	0.07	0.07	0.07	0.04
亞硝酸鹽氮	μg/L	—	8.70	48.30	6.90	10.10	11.70	12.50	9.30	9.70	8.90	11.30	12.10	15.50
硝酸鹽氮	mg/L	—	0.05	0.03	0.05	0.11	0.09	0.07	0.06	0.07	0.06	0.18	0.17	0.18
鎘	μg/L	5.0000	0.0152	0.0215	0.0112	0.0225	0.0221	0.0173	0.0148	0.0123	0.0192	0.0200	0.0224	0.0125
鉻	μg/L	—	0.09	0.16	0.09	0.59	0.67	0.59	0.58	0.57	0.71	0.26	0.22	0.11
鈷	μg/L	—	0.038	0.069	0.043	0.030	0.036	0.029	0.034	0.037	0.042	0.034	0.060	0.030
銅	μg/L	30.000	0.906	0.226	0.243	0.755	0.407	0.632	0.493	1.007	0.806	1.002	0.913	0.424
鎳	μg/L	100.000	0.307	0.340	0.188	0.151	0.282	0.175	0.175	0.297	0.221	0.206	0.482	0.204
鉛	μg/L	10.000	0.098	0.121	0.099	0.097	0.150	0.116	0.100	0.157	0.151	0.140	0.115	0.094
鋅	μg/L	500.00	1.10	1.75	0.98	0.75	1.42	1.13	1.31	1.19	1.54	1.34	1.80	0.99
鐵	μg/L	—	3.50	3.11	1.26	3.61	2.41	2.85	2.40	5.83	4.60	2.36	4.72	4.16
砷	μg/L	50.000	1.166	1.099	1.050	0.698	0.625	0.824	0.830	1.226	1.212	1.190	1.293	0.921
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	11.5	12.3	14.0	18.7	17.3	19.6	22.1	25.7	24.1	9.5	10.6	12.6
透明度	m	—	2.5	0.0	0.0	1.0	0.0	0.0	0.8	0.0	0.0	2.3	0.0	0.0
矽酸鹽	mg/L	—	0.26	0.19	0.24	0.20	0.17	0.33	0.17	0.12	0.10	0.21	0.13	0.10
總油脂量	mg/L	—	2.7	2.6	2.1	2.6	2.9	2.3	2.6	2.2	2.4	1.9	2.6	2.1

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第2季麥寮港海域水質調查結果(3/3)

測站	單位	甲類海域水質標準	4B	4B	4B	5B	5B	5B	2C	3C	4M
(採樣)深度	公尺	(2018.02.13公告)	1.0	10.0	20.0	1.0	10.5	20.0	1.0	1.0	1.0
溫度	℃	—	23.2	23.0	23.0	23.5	23.2	23.2	23.2	24.0	23.0
鹽度	PSU	—	34.3	34.3	34.3	34.5	34.4	34.4	34.2	34.1	34.2
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.2	8.1	8.1	8.0	8.1
溶氧量	mg/L	≥5.0	6.8	6.5	6.3	6.7	6.5	6.7	6.9	6.9	6.6
生化需氧量	mg/L	≤ 2	1.2	1.3	1.1	1.4	1.0	1.1	1.0	1.1	1.7
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	11.1	8.0	9.0	9.5	8.4	7.0	24.8	24.1	10.1
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	0.5	ND	ND	ND
葉綠素a	μg/L	—	1.3	1.5	1.3	1.6	1.8	0.3	3.0	1.6	1.5
總磷	mg/L	0.050	0.014	0.013	0.019	0.010	0.030	0.032	0.046	0.040	0.052
氨氮	mg/L	0.30	0.10	0.11	0.10	0.10	0.09	0.08	0.06	0.04	0.13
亞硝酸鹽氮	μg/L	—	8.10	8.30	7.10	4.10	3.70	6.50	12.30	13.70	15.90
硝酸鹽氮	mg/L	—	0.06	0.05	0.05	0.06	0.05	0.03	0.07	0.17	x
鎘	μg/L	5.0000	0.0145	0.0174	0.0294	0.0127	0.0109	0.0284	0.0127	0.0090	0.0143
鉻	μg/L	—	0.10	0.52	0.32	0.15	0.88	0.08	0.20	0.50	0.05
鈷	μg/L	—	0.032	0.063	0.050	0.040	0.028	0.043	0.054	0.058	0.042
銅	μg/L	30.000	1.121	1.018	1.414	0.433	0.927	1.179	0.288	1.075	0.457
鎳	μg/L	100.000	0.175	0.416	0.513	0.360	0.182	0.223	0.356	0.757	0.621
鉛	μg/L	10.000	0.069	0.099	0.156	0.059	0.069	0.067	0.015	0.090	0.076
鋅	μg/L	500.00	0.77	1.25	3.51	0.86	0.73	1.48	1.34	2.23	0.87
鐵	μg/L	—	5.09	3.40	5.56	5.39	2.18	3.20	2.93	7.52	3.76
砷	μg/L	50.000	1.358	0.946	1.149	0.825	0.923	0.897	0.943	1.021	1.025
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	13.3	11.8	12.2	12.1	10.2	9.9	20.1	12.7	13.1
透明度	m	—	2.0	0.0	0.0	2.0	0.0	0.0	0.6	0.7	1.2
矽酸鹽	mg/L	—	0.29	0.20	0.32	0.17	0.24	0.27	0.15	0.18	0.37
總油脂量	mg/L	—	2.6	2.7	2.4	2.9	1.1	1.8	2.5	2.1	2.3

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

2023年第3季麥寮港海域水質調查結果(1/3)

測站	單位	甲類海域水質標準	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
(採樣)深度	公尺	(2018.02.13公告)	1	7.5	14.5	1	10	19.5	1	12	23.5	1	12	23.5
溫度	℃	—	30.6	30.5	30.5	30.5	30.3	30.3	30.3	30.2	30.2	30.4	30.3	30.3
鹽度	PSU	—	33.7	32.9	33.4	32.8	33.2	33.6	33.9	33.8	33.8	33.8	33.8	33.8
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.1	8.1	8.2	8.1	8.2	8.2	8.1	8.2	8.1
溶氧量	mg/L	≥5.0	6.6	6.5	6.5	6.2	6.2	6.4	6.6	6.1	6.6	6.3	6.2	6.2
生化需氧量	mg/L	≤ 2	1.2	1.2	0.9	1.1	1.1	0.9	1.1	1.1	1.0	1.1	0.8	1.0
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	22.3	21.1	24.3	15.7	13.1	14.5	12.8	15.3	8.4	17.4	22.4	12.1
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	3.4	1.8	0.9	1.6	1.3	2.4	0.7	0.4	2.2	1.3	0.6	0.3
總磷	mg/L	0.050	0.019	0.011	0.016	0.025	0.012	0.020	0.013	0.035	0.032	0.020	0.020	0.013
氨氮	mg/L	0.30	0.12	0.18	0.15	0.08	0.14	0.11	0.13	0.15	0.09	0.05	0.04	0.05
亞硝酸鹽氮	μg/L	—	35.50	21.42	21.86	25.82	20.98	16.58	11.30	18.78	13.50	12.62	10.86	10.86
硝酸鹽氮	mg/L	—	0.19	0.13	0.15	0.17	0.15	0.11	0.13	0.12	0.08	0.11	0.08	0.13
鎘	μg/L	5.0000	0.0574	0.0336	0.0402	0.0172	0.0512	0.0151	0.0158	0.0118	0.0579	0.0122	0.0204	0.0138
鉻	μg/L	—	0.26	0.35	0.52	0.38	0.40	0.32	0.29	0.40	0.45	0.51	0.32	0.34
鈷	μg/L	—	0.050	0.043	0.057	0.043	0.032	0.031	0.037	0.022	0.039	0.026	0.032	0.025
銅	μg/L	30.000	0.865	0.793	1.586	0.789	0.929	0.923	0.817	0.458	0.950	1.020	1.169	0.917
鎳	μg/L	100.000	0.566	0.426	0.728	0.332	0.323	0.351	0.338	0.240	0.399	0.356	0.311	0.268
鉛	μg/L	10.000	0.055	0.061	0.070	0.060	0.060	0.057	0.065	0.061	0.059	0.090	0.074	0.085
鋅	μg/L	500.00	2.16	2.04	1.98	2.54	2.78	1.61	1.76	1.03	2.30	1.48	1.72	1.29
鐵	μg/L	—	1.81	2.13	3.39	3.21	2.26	3.24	3.48	2.86	4.83	1.66	2.26	2.69
砷	μg/L	50.000	1.259	1.272	0.880	0.913	1.087	1.110	0.778	1.369	1.105	1.639	0.969	0.973
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	21.7	23.9	14.9	22.2	15.7	13.0	7.5	7.8	3.1	15.5	16.1	10.8
透明度	m	—	0.8	0.8	0.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
矽酸鹽	mg/L	—	0.35	0.47	0.20	0.52	0.26	0.37	0.11	0.42	0.09	0.28	0.11	0.35
總油脂量	mg/L	—	2.3	2.6	2.0	2.5	2.1	1.2	1.9	1.0	0.6	ND	0.9	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第3季麥寮港海域水質調查結果(2/3)

測站	單位	甲類海域水質標準	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
(採樣)深度	公尺	(2018.02.13公告)	1	11	21.5	1	4.5	2.5	1	2	3.5	1	11	21.5
溫度	℃	—	30.2	30.1	30.1	31.2	31.3	31.2	30.9	30.9	31.0	30.6	30.4	30.4
鹽度	PSU	—	33.8	33.8	33.8	33.7	33.7	33.7	33.7	33.7	33.7	33.8	33.8	33.8
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.2	8.1	8.2	8.2	8.2	8.1	8.2	8.2	8.2	8.2	8.2
溶氧量	mg/L	≥5.0	6.4	6.6	6.6	6.2	6.4	6.4	6.5	6.6	7.0	6.7	6.0	6.4
生化需氧量	mg/L	≤ 2	0.9	0.9	1.2	1.4	1.0	1.3	0.8	1.0	1.0	1.0	1.2	0.8
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	17.9	17.2	8.6	35.2	36.7	37.1	27.9	31.0	34.8	11.8	11.3	17.2
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	1.2	ND	0.6	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.3	0.3	0.3	3.7	2.2	2.1	2.5	3.1	2.4	0.9	1.9	1.3
總磷	mg/L	0.050	0.031	0.010	0.011	0.034	0.011	0.011	0.018	0.018	0.023	0.035	0.024	0.037
氨氮	mg/L	0.30	0.09	0.07	0.02	0.10	0.01	0.03	0.15	0.12	0.27	0.08	0.10	0.15
亞硝酸鹽氮	μg/L	—	17.90	22.74	17.90	16.14	17.90	16.14	17.02	15.26	19.22	20.10	17.02	19.66
硝酸鹽氮	mg/L	—	0.14	0.12	0.14	0.07	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.11
鎘	μg/L	5.0000	0.0159	0.0382	0.0449	0.0187	0.0218	0.0121	0.0152	0.0170	0.0428	0.0531	0.0151	0.0137
鉻	μg/L	—	0.29	0.21	0.21	0.33	0.30	0.28	0.23	0.38	0.26	0.29	0.28	0.46
鈷	μg/L	—	0.024	0.036	0.045	0.032	0.028	0.025	0.044	0.038	0.031	0.026	0.027	0.028
銅	μg/L	30.000	0.859	0.743	0.836	1.032	0.991	0.877	0.739	0.846	0.817	0.842	0.641	0.820
鎳	μg/L	100.000	0.240	0.210	0.187	0.295	0.292	0.286	0.353	0.179	0.268	0.331	0.280	0.326
鉛	μg/L	10.000	0.076	0.060	0.053	0.060	0.066	0.057	0.063	0.037	0.058	0.057	0.062	0.065
鋅	μg/L	500.00	1.20	1.19	0.92	1.37	1.35	0.99	1.39	0.73	1.56	1.53	1.18	2.15
鐵	μg/L	—	1.97	1.46	1.16	3.52	1.80	1.82	3.07	5.24	5.20	2.54	2.39	2.67
砷	μg/L	50.000	1.009	1.029	0.957	0.982	0.866	1.259	1.230	0.971	0.947	0.977	1.044	1.300
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	10.0	11.8	8.5	30.9	30.2	38.3	37.2	47.7	51.2	11.4	10.0	12.6
透明度	m	—	1.8	1.8	1.8	0.9	0.9	0.9	0.5	0.5	0.5	2.0	2.0	2.0
矽酸鹽	mg/L	—	0.36	0.03	0.21	0.17	0.24	0.11	0.27	0.12	0.19	0.52	0.18	0.65
總油脂量	mg/L	—	0.7	1.1	ND	2.8	2.8	2.5	2.1	2.2	2.0	1.2	1.5	0.8

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第3季麥寮港海域水質調查結果(3/3)

測站	單位	甲類海域水質標準	4B	4B	4B	5B	5B	5B	2C	3C	4M
(採樣)深度	公尺	(2018.02.13公告)	1	10	19.5	1	10.5	19.5	1	1	1
溫度	℃	—	30.4	30.3	30.3	30.4	30.3	30.3	31.6	31.6	31.1
鹽度	PSU	—	33.8	33.8	33.8	33.6	33.8	33.8	33.5	33.7	33.3
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.1	8.1
溶氧量	mg/L	≥5.0	5.9	5.9	6.3	6.5	6.2	6.6	6.4	6.1	6.1
生化需氧量	mg/L	≤ 2	0.8	1.0	0.9	0.9	0.9	0.8	1.2	0.8	1.2
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	12.3	14.9	10.8	13.8	14.6	16.7	24.3	39.7	29.1
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	1.8	2.1	0.6	1.6	2.1	2.7	8.4	2.8	4.7
總磷	mg/L	0.050	0.027	0.014	0.035	0.016	0.038	0.011	0.012	0.021	0.013
氨氮	mg/L	0.30	0.04	0.05	0.07	0.06	0.19	0.07	0.17	0.21	0.18
亞硝酸鹽氮	μg/L	—	14.82	13.50	11.74	4.70	9.98	9.54	13.94	16.58	30.66
硝酸鹽氮	mg/L	—	0.08	0.10	0.13	0.07	0.07	0.09	0.08	0.16	0.25
鎘	μg/L	5.0000	0.0334	0.0145	0.0441	0.0282	0.0129	0.0354	0.0319	0.0394	0.0124
鉻	μg/L	—	0.32	0.31	0.27	0.40	0.30	0.37	0.32	0.51	0.34
鈷	μg/L	—	0.034	0.036	0.025	0.037	0.031	0.035	0.026	0.049	0.035
銅	μg/L	30.000	0.779	1.058	1.003	1.534	0.875	0.909	0.772	0.726	0.975
鎳	μg/L	100.000	0.322	0.469	0.454	0.367	0.379	0.296	0.233	0.454	0.449
鉛	μg/L	10.000	0.089	0.086	0.082	0.089	0.082	0.077	0.058	0.062	0.081
鋅	μg/L	500.00	1.70	2.56	2.11	1.91	1.48	1.63	1.34	3.16	1.39
鐵	μg/L	—	3.59	3.85	1.93	3.75	1.97	2.73	3.43	4.77	2.26
砷	μg/L	50.000	1.034	1.211	1.131	1.092	0.923	1.050	1.112	1.479	1.467
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	12.6	4.4	13.7	15.5	24.6	13.1	32.5	43.8	45.9
透明度	m	—	1.8	1.8	1.8	1.8	1.8	1.8	0.5	0.5	0.5
矽酸鹽	mg/L	—	0.08	0.21	0.08	0.13	0.25	0.51	0.04	0.27	0.40
總油脂量	mg/L	—	0.7	1.0	0.8	ND	0.9	ND	1.8	ND	0.7

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第4季麥寮港海域水質調查結果(1/3)

測站	單位	甲類海域水質標準	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
(採樣)深度	公尺	(2018.02.13公告)	1	8	16	1	11	21	1	12	24	1	12	24
溫度	℃	—	26.0	25.8	25.8	26.2	25.8	25.7	25.9	25.7	25.7	26.7	25.9	25.9
鹽度	PSU	—	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.8	34.2	34.1	34.1
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1
溶氧量	mg/L	≥5.0	6.1	6.2	6.1	6.0	6.3	6.2	6.9	6.3	6.2	6.4	6.2	6.0
生化需氧量	mg/L	≤ 2	1.3	1.1	0.9	1.1	1.1	0.9	1.1	1.1	1.0	1.2	0.9	0.8
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	50	50	25	ND	ND	ND
懸浮固體	mg/L	—	14.8	23.0	18.8	13.9	20.2	16.8	12.3	23.7	18.7	19.7	18.1	21.5
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.7	0.4	0.6	0.7	0.6	0.9	0.9	0.7	0.9	0.9	0.7	0.4
總磷	mg/L	0.050	0.020	0.019	0.019	0.020	0.020	0.024	0.019	0.035	0.018	0.022	0.017	0.019
氨氮	mg/L	0.30	0.10	0.07	0.10	0.07	0.06	0.12	0.18	0.16	0.09	0.06	0.11	0.06
亞硝酸鹽氮	μg/L	—	23.35	15.50	18.15	17.10	9.55	12.80	9.15	9.80	12.50	8.05	8.10	8.50
硝酸鹽氮	mg/L	—	0.24	0.11	0.12	0.12	0.11	0.11	0.11	0.13	0.13	0.11	0.12	0.10
鎘	μg/L	5.0000	0.0091	0.0099	0.0178	0.0153	0.0107	0.0156	0.0127	0.0076	0.0148	0.0183	0.0247	0.0169
鉻	μg/L	—	0.25	0.76	0.23	0.25	0.30	0.19	0.38	0.40	0.43	0.35	0.31	0.21
鈷	μg/L	—	0.022	0.023	0.022	0.065	0.022	0.042	0.034	0.021	0.047	0.041	0.034	0.028
銅	μg/L	30.000	0.278	0.823	0.694	0.166	0.690	0.693	0.992	0.568	1.127	0.835	0.771	0.683
鎳	μg/L	100.000	0.428	0.292	0.334	0.305	0.377	0.403	0.422	0.299	0.683	0.389	0.353	0.381
鉛	μg/L	10.000	0.081	0.064	0.082	0.095	0.075	0.082	0.103	0.081	0.072	0.081	0.063	0.083
鋅	μg/L	500.00	2.99	1.86	1.79	0.98	1.84	2.17	2.65	2.10	1.51	2.82	2.02	2.06
鐵	μg/L	—	1.64	2.93	4.17	5.39	4.00	6.83	4.69	4.19	3.74	4.49	1.99	2.33
砷	μg/L	50.000	0.713	0.704	1.154	1.000	1.095	1.380	1.342	1.065	1.671	1.205	1.239	0.655
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	17.3	18.2	19.2	9.3	14.2	12.2	7.7	10.0	8.7	8.1	8.3	8.5
透明度	m	—	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.0	1.0	1.0
矽酸鹽	mg/L	—	0.13	0.10	0.12	0.12	0.34	0.10	0.27	0.33	0.31	0.26	0.31	0.29
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第4季麥寮港海域水質調查結果(2/3)

測站	單位	甲類海域水質標準	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
(採樣)深度	公尺	(2018.02.13公告)	1	24	12.5	1	4	7.5	1	3	5.5	1	12	23.5
溫度	℃	—	27.0	25.9	25.9	25.8	25.8	25.8	25.8	25.8	25.9	26.1	25.8	25.7
鹽度	PSU	—	34.3	34.2	34.3	33.6	33.6	33.6	33.6	33.6	33.6	34.0	34.0	33.9
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
溶氧量	mg/L	≥5.0	6.2	6.0	6.1	6.2	6.2	6.4	6.5	6.4	6.4	6.6	6.2	6.0
生化需氧量	mg/L	≤ 2	0.9	1.3	0.9	1.4	1.3	1.0	0.8	1.0	0.9	1.0	1.1	0.9
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	10	45	15	40	35	35	50	40	30
懸浮固體	mg/L	—	21.9	18.7	18.9	18.9	11.2	14.4	12.3	14.0	17.0	18.8	18.4	14.4
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.6	0.6	0.6	0.7	0.4	0.7	0.4	0.7	0.1	0.9	0.9	0.6
總磷	mg/L	0.050	0.018	0.019	0.018	0.020	0.020	0.021	0.021	0.023	0.020	0.020	0.025	0.023
氨氮	mg/L	0.30	0.07	0.04	0.07	0.12	0.09	0.13	0.10	0.13	0.15	0.18	0.13	0.13
亞硝酸鹽氮	μg/L	—	5.30	4.85	4.85	22.85	20.05	20.20	18.50	20.05	18.00	13.40	15.70	11.40
硝酸鹽氮	mg/L	—	0.09	0.08	0.08	0.16	0.16	0.17	0.18	0.17	0.17	0.12	0.11	0.14
鎘	μg/L	5.0000	0.0146	0.0104	0.0165	0.0142	0.0100	0.0060	0.0085	0.0074	0.0106	0.0188	0.0142	0.0098
鉻	μg/L	—	0.30	0.26	0.27	0.39	0.28	0.43	0.26	0.25	0.33	0.33	0.29	0.30
鈷	μg/L	—	0.032	0.015	0.027	0.032	0.024	0.051	0.028	0.023	0.027	0.027	0.036	0.028
銅	μg/L	30.000	0.584	0.285	0.528	0.965	0.717	0.563	0.514	0.451	1.076	1.042	0.745	0.579
鎳	μg/L	100.000	0.453	0.232	0.499	0.522	0.364	0.550	0.381	0.547	0.372	0.448	0.396	0.328
鉛	μg/L	10.000	0.076	0.029	0.084	0.074	0.066	0.092	0.074	0.111	0.094	0.078	0.060	0.055
鋅	μg/L	500.00	2.10	1.77	2.11	2.00	1.89	0.89	1.81	1.90	2.71	2.25	1.81	2.13
鐵	μg/L	—	3.53	1.89	3.25	3.32	4.84	5.27	3.52	2.86	6.37	4.44	3.99	4.74
砷	μg/L	50.000	0.727	0.737	0.883	0.901	0.789	0.859	0.925	0.691	0.989	1.063	0.902	0.935
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	5.6	5.4	7.0	10.0	16.1	19.2	12.6	16.0	10.4	14.9	22.9	22.0
透明度	m	—	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.7	0.7	0.7
矽酸鹽	mg/L	—	0.37	0.14	0.06	0.29	0.36	0.39	0.12	0.41	0.55	0.27	0.31	0.53
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第4季麥寮港海域水質調查結果(3/3)

測站	單位	甲類海域水質標準	4B	4B	4B	5B	5B	5B	2C	3C	4M
(採樣)深度	公尺	(2018.02.13公告)	1	10	18	1	10	19	0.5	0.5	0.5
溫度	℃	—	25.7	25.7	25.7	25.7	25.7	25.7	26.6	26.9	25.8
鹽度	PSU	—	33.6	33.7	33.7	33.7	33.7	33.7	33.6	33.5	33.4
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.1
溶氧量	mg/L	≥5.0	6.8	6.6	6.2	6.8	6.6	6.2	6.1	6.0	6.7
生化需氧量	mg/L	≤ 2	0.9	0.8	1.0	0.9	0.9	0.8	1.2	0.7	1.2
大腸桿菌群	CFU/100ml	≤ 1000	30	20	ND	20	ND	ND	45	40	90
懸浮固體	mg/L	—	17.5	11.4	13.9	19.0	14.3	20.5	21.5	18.6	16.5
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.9	0.7	0.4	0.7	0.3	0.1	0.6	0.9	1.0
總磷	mg/L	0.050	0.019	0.022	0.020	0.020	0.019	0.018	0.022	0.021	0.022
氨氮	mg/L	0.30	0.09	0.09	0.09	0.09	0.12	0.08	0.21	0.16	0.29
亞硝酸鹽氮	μg/L	—	19.60	19.50	11.50	16.80	17.70	21.35	25.00	20.45	28.50
硝酸鹽氮	mg/L	—	0.19	0.20	0.17	0.17	0.16	0.17	0.17	0.22	0.23
鎘	μg/L	5.0000	0.0243	0.0258	0.0141	0.0202	0.0074	0.0131	0.0117	0.0130	0.0165
鉻	μg/L	—	0.26	0.27	0.25	0.31	0.25	0.36	0.29	0.30	0.33
鈷	μg/L	—	0.029	0.025	0.021	0.029	0.020	0.029	0.028	0.030	0.043
銅	μg/L	30.000	1.116	0.968	0.761	1.178	0.955	0.989	0.664	0.827	1.391
鎳	μg/L	100.000	0.475	0.362	0.332	0.408	0.340	0.446	0.420	0.358	0.439
鉛	μg/L	10.000	0.097	0.075	0.064	0.081	0.090	0.072	0.080	0.085	0.074
鋅	μg/L	500.00	2.26	1.82	1.58	2.14	2.04	1.87	1.76	2.52	2.73
鐵	μg/L	—	6.05	2.64	4.01	6.15	4.43	4.12	4.18	4.63	5.40
砷	μg/L	50.000	0.938	1.162	0.876	1.141	0.794	1.256	0.925	0.953	1.423
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	15.2	10.8	16.8	9.8	8.9	13.2	29.3	37.8	20.8
透明度	m	—	0.5	0.5	0.5	0.2	0.2	0.2	0.5	0.3	0.2
矽酸鹽	mg/L	—	0.28	0.38	0.31	0.10	0.08	0.15	0.49	0.50	0.16
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第1季麥寮港海域水質調查結果(1/3)

測站	單位	甲類海域水質標準	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
(採樣)深度	公尺	(2018.02.13公告)	0.5	7	13.5	0.5	9.5	18.5	0.5	12	23.5	0.5	11	21.5
溫度	℃	—	20.6	20.5	20.5	20.5	20.7	20.6	21.1	21.1	21.0	20.8	20.8	20.8
鹽度	PSU	—	34.5	34.5	34.5	34.2	34.2	34.2	34.5	34.5	34.5	34.5	34.5	34.5
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
溶氧量	mg/L	≥5.0	7.2	7.2	7.2	7.2	7.1	7.2	7.3	7.3	7.3	7.1	7.1	7.1
生化需氧量	mg/L	≤ 2	0.4	0.5	0.5	0.5	0.5	0.4	0.3	0.5	0.3	0.4	0.3	0.2
大腸桿菌群	CFU/100ml	≤ 1000	0	2	3	5	2	9	6	9	6	0	7	7
懸浮固體	mg/L	—	9.0	21.0	7.2	13.0	16.4	36.6	37.2	37.6	36.8	37.0	17.6	19.0
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	ND	ND	ND	ND	ND	3.3	2.9	ND	ND	1.3	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.1	0.2	0.2	1.6	1.2	1.2	0.2	0.1	0.1	0.2	0.1	ND
總磷	mg/L	0.050	0.023	0.019	0.018	0.034	0.046	0.035	0.062	0.013	0.011	0.013	0.046	0.032
氨氮	mg/L	0.30	ND	0.01	0.05	0.12	0.10	0.12	ND	0.02	0.01	0.01	0.03	0.01
亞硝酸鹽氮	μg/L	—	5.00	6.00	5.00	4.00	5.00	8.00	2.00	1.00	3.00	7.00	14.00	4.00
硝酸鹽氮	mg/L	—	0.01	0.03	0.01	0.02	0.01	0.02	0.01	ND	0.01	0.00	0.01	ND
鎘	μg/L	5.0000	0.0948	0.0884	0.0452	0.0376	0.0354	0.0347	0.0344	0.0235	0.0236	0.0177	0.0119	0.0229
鉻	μg/L	—	0.02	0.03	ND	ND	ND	ND	ND	ND	ND	ND	0.04	0.04
鈷	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.050	ND
銅	μg/L	30.000	0.291	0.115	0.425	0.208	0.141	0.141	0.273	0.135	0.586	0.361	0.833	0.164
鎳	μg/L	100.000	1.264	0.472	0.333	0.240	0.313	0.311	0.327	0.294	0.360	0.303	0.785	0.392
鉛	μg/L	10.000	0.022	0.018	0.023	0.022	0.023	0.018	0.120	0.017	0.016	0.033	0.125	0.011
鋅	μg/L	500.00	0.44	0.40	0.43	0.39	0.46	0.45	0.42	0.43	2.72	0.70	4.40	0.62
鐵	μg/L	—	98.42	21.94	72.40	98.98	84.85	108.21	77.88	59.04	82.96	40.83	2.08	71.14
砷	μg/L	50.000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	8.5	4.6	8.1	19.6	7.2	21.1	7.2	5.2	6.3	5.9	7.2	5.7
透明度	m	—	0.8	0.8	0.8	1.0	1.0	1.0	1.5	1.5	1.5	1.2	1.2	1.2
矽酸鹽	mg/L	—	0.19	0.09	0.22	0.30	0.27	0.28	0.16	0.22	0.23	0.28	0.24	0.16
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第1季麥寮港海域水質調查結果(2/3)

測站	單位	甲類海域水質標準	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
(採樣)深度	公尺	(2018.02.13公告)	0.5	11	21.5	0.5	4.5	2.5	0.5	6.5	12.5	0.5	11	21.5
溫度	℃	—	21.0	21.0	21.0	20.8	20.7	20.7	20.8	20.8	20.8	20.6	20.7	20.6
鹽度	PSU	—	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.4	34.4	34.4
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.0	8.1
溶氧量	mg/L	≥5.0	7.1	7.1	7.1	6.9	6.9	6.9	7.0	7.0	7.0	7.2	7.2	7.2
生化需氧量	mg/L	≤ 2	0.4	0.3	0.3	1.0	0.8	0.4	0.4	0.7	0.4	0.3	0.3	0.5
大腸桿菌群	CFU/100ml	≤ 1000	6	13	10	2	10	4	1	3	7	3	7	7
懸浮固體	mg/L	—	20.0	18.8	19.4	40.2	10.8	42.0	31.0	11.0	20.2	17.2	17.6	4.6
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	1.4	ND	1.6	ND	3.5	4.9	4.1	1.5	2.1	1.7	2.3	1.9
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.1	0.2	ND	0.3	0.3	0.7	0.4	0.5	0.5	0.7	0.7	0.5
總磷	mg/L	0.050	0.029	0.022	0.022	0.020	0.027	0.054	0.022	0.024	0.021	0.026	0.025	0.024
氨氮	mg/L	0.30	0.04	0.01	0.03	0.04	0.03	0.07	0.03	0.02	0.02	0.04	0.17	0.06
亞硝酸鹽氮	μg/L	—	15.00	14.00	6.00	3.00	5.00	4.00	1.00	5.00	13.00	5.00	13.00	21.00
硝酸鹽氮	mg/L	—	0.01	ND	ND	0.01	ND	ND	0.01	ND	ND	ND	0.01	0.02
鎘	μg/L	5.0000	0.0095	0.0220	0.0071	0.0290	0.0427	0.0401	0.0323	0.0411	0.0422	0.0228	0.0259	0.0182
鉻	μg/L	—	0.01	0.06	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
鈷	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
銅	μg/L	30.000	0.123	0.419	0.083	0.320	0.194	0.188	0.157	0.216	0.191	0.136	0.109	0.132
鎳	μg/L	100.000	0.167	0.752	0.208	1.128	0.317	0.257	0.239	0.265	0.263	0.320	0.324	0.265
鉛	μg/L	10.000	0.007	0.018	0.006	0.017	0.020	0.023	0.019	0.023	0.021	0.014	0.017	0.015
鋅	μg/L	500.00	0.33	0.83	0.30	1.04	0.55	0.45	0.39	0.48	0.36	0.38	0.36	0.59
鐵	μg/L	—	79.02	56.87	56.51	286.18	216.37	199.52	97.62	149.26	186.51	58.52	37.67	53.44
砷	μg/L	50.000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	6.2	8.0	6.3	20.6	22.4	14.3	12.6	7.4	5.5	9.2	4.4	11.3
透明度	m	—	1.0	1.0	1.0	0.6	0.6	0.6	0.8	0.8	0.8	1.3	1.3	1.3
矽酸鹽	mg/L	—	0.20	0.18	0.26	0.11	0.18	0.20	0.21	0.16	0.21	0.23	0.10	0.25
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第1季麥寮港海域水質調查結果(3/3)

測站	單位	甲類海域水質標準	4B	4B	4B	5B	5B	5B	2C	3C	4M
(採樣)深度	公尺	(2018.02.13公告)	0.5	10.5	20.5	0.5	10.5	20.5	0.5	0.5	0.5
溫度	℃	—	21.5	21.3	21.3	21.9	21.5	21.4	20.9	20.8	20.8
鹽度	PSU	—	34.5	34.5	34.5	34.5	34.5	34.6	34.4	34.1	34.5
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1
溶氧量	mg/L	≥5.0	7.1	7.1	7.1	7.0	7.1	7.0	6.9	6.9	7.1
生化需氧量	mg/L	≤ 2	0.5	0.5	1.2	0.5	0.5	0.5	0.4	0.8	ND
大腸桿菌群	CFU/100ml	≤ 1000	0	7	5	2	0	1	4	5	1
懸浮固體	mg/L	—	14.4	6.2	5.2	16.6	5.8	8.6	12.4	8.0	18.8
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
酚類	μg/L	5.0	2.2	ND	2.6	1.9	ND	ND	1.5	2.1	2.6
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.3	0.1	0.2	0.3	0.3	0.4	1.4	2.9	0.6
總磷	mg/L	0.050	0.019	0.056	0.053	0.029	0.040	0.021	0.031	0.043	0.035
氨氮	mg/L	0.30	0.01	0.02	0.01	0.01	0.01	0.00	0.03	0.14	0.05
亞硝酸鹽氮	μg/L	—	10.00	10.00	23.00	4.00	1.00	11.00	2.00	25.00	14.00
硝酸鹽氮	mg/L	—	0.01	0.01	ND	0.01	0.01	0.01	0.60	0.03	0.02
鎘	μg/L	5.0000	0.0214	0.0205	0.0163	0.0164	0.0179	0.0191	0.0401	0.0237	0.0154
鉻	μg/L	—	0.02	0.03	0.03	0.06	0.04	0.04	ND	ND	0.05
鈷	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
銅	μg/L	30.000	0.131	0.117	0.086	0.120	0.120	0.158	0.379	0.201	0.156
鎳	μg/L	100.000	0.358	0.367	0.385	0.418	0.409	0.369	0.542	0.262	0.384
鉛	μg/L	10.000	0.012	0.012	0.028	0.011	0.024	0.015	0.034	0.022	0.013
鋅	μg/L	500.00	0.60	0.57	0.64	0.61	0.63	0.57	1.25	0.43	0.62
鐵	μg/L	—	42.09	35.34	34.94	31.63	57.68	46.35	226.94	317.83	35.19
砷	μg/L	50.000	ND	ND	ND	ND	ND	ND	ND	ND	ND
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	3.9	3.3	2.4	2.5	3.6	3.4	22.5	54.6	5.1
透明度	m	—	1.5	1.5	1.5	1.5	1.5	1.5	0.5	0.5	0.8
矽酸鹽	mg/L	—	0.04	0.14	0.16	0.30	0.19	0.15	0.14	0.31	0.19
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

2024年第2季麥寮港海域水質調查結果(1/3)

測站	單位	甲類海域水質標準	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
(採樣)深度	公尺	(2018.02.13公告)	0.5	8	15	0.5	11.5	22	0.5	11.5	22	0.5	11.5	22
溫度	℃	—	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.4	27.5	27.5	27.4	27.4
鹽度	PSU	—	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
溶氧量	mg/L	≥5.0	7.1	7.1	7.1	7.0	7.0	7.0	7.1	7.1	7.1	7.0	7.0	7.0
生化需氧量	mg/L	≤ 2	1.4	1.3	ND	0.3	0.3	0.5	0.3	1.0	1.1	0.5	0.4	0.7
大腸桿菌群	CFU/100ml	≤ 1000	11	10	10	ND	24	21	24	17	29	22	ND	ND
懸浮固體	mg/L	—	6.0	9.0	7.5	20.0	4.0	13.5	18.0	8.5	11.0	20.0	9.0	12.5
氰化物	μg/L	10.0	ND	ND	ND	ND	ND	ND	ND	ND	10.0	6.0	8.0	6.0
酚類	μg/L	5.0	6.0	21.9	31.7	4.7	11.6	1.5	2.6	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.2	0.2	0.3
總磷	mg/L	0.050	0.060	0.037	0.024	0.020	0.033	0.048	0.022	0.029	0.050	0.024	0.018	0.056
氨氮	mg/L	0.30	0.04	0.01	0.01	0.04	0.02	0.02	0.07	0.03	0.04	0.08	0.01	0.01
亞硝酸鹽氮	μg/L	—	0.00	0.00	0.00	0.00	0.00	ND	0.00	0.00	0.00	ND	0.00	0.00
硝酸鹽氮	mg/L	—	0.02	0.01	ND	ND	ND	ND	0.01	ND	0.01	0.01	0.01	0.01
鎘	μg/L	5.0000	0.0578	0.0422	0.0570	0.0386	0.0497	0.0295	0.0556	0.0217	0.0230	0.0263	0.0273	0.0253
鉻	μg/L	—	0.18	0.15	0.15	0.14	0.17	0.11	0.18	0.14	0.13	0.11	0.11	0.12
鈷	μg/L	—	0.115	0.105	0.090	0.095	0.089	0.095	0.080	0.077	0.076	0.049	0.047	0.046
銅	μg/L	30.000	1.304	1.041	0.714	0.919	0.833	0.906	0.997	1.261	1.477	1.283	1.175	1.888
鎳	μg/L	100.000	1.501	0.866	0.970	0.685	0.682	1.208	1.318	0.835	1.464	0.423	0.680	0.949
鉛	μg/L	10.000	0.706	0.625	0.524	0.676	0.710	0.716	0.696	0.830	0.717	0.445	0.481	0.396
鋅	μg/L	500.00	22.62	21.05	16.39	21.68	18.60	19.99	29.17	17.90	17.25	12.81	9.48	16.26
鐵	μg/L	—	82.71	65.47	54.81	56.70	56.13	49.48	70.63	50.99	49.75	41.18	44.97	39.36
砷	μg/L	50.000	0.197	0.181	0.128	0.118	0.121	0.119	0.162	0.090	0.101	0.128	0.097	0.092
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	2.9	3.5	2.3	1.8	3.7	2.4	4.9	2.0	2.5	2.0	2.2	2.1
透明度	m	—	1.0	1.0	1.0	2.0	2.0	2.0	1.8	1.8	1.8	2.0	2.0	2.0
矽酸鹽	mg/L	—	0.12	0.12	0.27	0.14	0.07	ND	0.09	0.14	0.11	0.12	0.13	0.10
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第2季麥寮港海域水質調查結果(2/3)

測站	單位	甲類海域水質標準	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
(採樣)深度	公尺	(2018.02.13公告)	0.5	12	23	0.5	4	6	0.5	3.5	6	0.5	11.5	22
溫度	℃	—	27.5	27.4	27.4	27.7	27.7	27.7	27.7	27.7	27.7	27.6	27.6	27.6
鹽度	PSU	—	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
溶氧量	mg/L	≥5.0	7.1	7.1	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
生化需氧量	mg/L	≤ 2	0.3	ND	0.3	0.2	ND	0.6	0.4	1.4	1.1	0.8	0.1	0.6
大腸桿菌群	CFU/100ml	≤ 1000	ND	13	19	52	38	ND	20	52	62	10	ND	ND
懸浮固體	mg/L	—	2.0	4.0	13.0	13.5	10.0	9.5	10.5	21.0	2.0	29.0	10.0	6.5
氰化物	μg/L	10.0	7.0	6.0	6.0	ND	ND	ND	9.0	6.0	6.0	ND	5.0	6.0
酚類	μg/L	5.0	2.6	ND	ND	1.4	ND	ND	ND	3.1	2.0	ND	6.9	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.2	0.2	0.2	1.4	0.9	1.5	1.4	1.4	1.5	0.4	0.5	0.5
總磷	mg/L	0.050	0.068	0.069	0.030	0.057	0.037	0.036	0.028	0.061	0.046	0.030	0.045	0.041
氨氮	mg/L	0.30	0.04	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.02	0.01	0.01	0.01
亞硝酸鹽氮	μg/L	—	0.00	0.00	0.00	0.00	ND	ND	0.00	ND	0.00	0.00	0.00	ND
硝酸鹽氮	mg/L	—	0.01	0.01	0.01	ND	0.01	ND	0.01	ND	0.01	0.02	0.01	0.01
鎘	μg/L	5.0000	0.0304	0.0203	0.1210	0.0308	0.0618	0.0317	0.0333	0.0283	0.0414	0.0424	0.0262	0.0357
鉻	μg/L	—	0.07	0.07	0.02	0.13	0.20	0.23	0.25	0.26	0.26	0.20	0.26	0.17
鈷	μg/L	—	0.046	0.036	0.046	0.174	0.175	0.172	0.180	0.198	0.183	0.092	0.094	0.090
銅	μg/L	30.000	0.698	0.534	0.620	1.561	1.500	1.611	1.231	1.946	1.175	1.338	1.458	1.234
鎳	μg/L	100.000	0.415	0.426	0.658	1.485	2.344	1.221	1.931	1.282	1.711	1.643	1.615	1.273
鉛	μg/L	10.000	0.553	0.409	0.781	0.481	0.713	0.491	0.865	0.892	0.787	0.693	0.663	0.676
鋅	μg/L	500.00	11.41	10.32	21.54	24.07	15.63	26.11	29.32	39.13	40.56	31.84	26.72	26.04
鐵	μg/L	—	26.03	25.80	45.87	107.85	106.04	104.68	158.17	184.14	165.00	65.08	217.03	69.52
砷	μg/L	50.000	0.065	0.036	ND	0.112	0.274	0.148	0.269	0.387	0.323	0.170	0.361	0.137
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	2.4	2.3	1.5	4.1	0.4	3.5	4.5	6.2	5.7	3.2	2.9	3.1
透明度	m	—	2.2	2.2	2.2	1.3	1.3	1.3	1.0	1.0	1.0	2.0	2.0	2.0
矽酸鹽	mg/L	—	0.06	0.19	0.10	0.14	0.17	0.18	ND	0.12	0.17	0.16	0.09	0.08
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第2季麥寮港海域水質調查結果(3/3)

測站	單位	甲類海域水質標準	4B	4B	4B	5B	5B	5B	2C	3C	4M
(採樣)深度	公尺	(2018.02.13公告)	0.5	9	17	0.5	10	19	0.5	0.5	0.5
溫度	℃	—	27.6	27.6	27.6	27.6	27.6	27.6	28.1	28.8	27.9
鹽度	PSU	—	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.4	34.5
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.1	8.2
溶氧量	mg/L	≥5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.0
生化需氧量	mg/L	≤ 2	1.2	1.3	1.2	0.2	ND	0.3	1.2	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	63	50	ND
懸浮固體	mg/L	—	16.5	4.5	10.0	4.0	15.0	2.5	9.0	4.0	6.0
氰化物	μg/L	10.0	10.0	5.0	ND	ND	8.0	9.0	8.0	8.0	6.0
酚類	μg/L	5.0	ND	1.7	ND	ND	ND	1.4	8.3	12.2	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.6	0.5	0.5	0.3	0.4	0.3	2.0	2.8	1.1
總磷	mg/L	0.050	0.053	0.035	0.046	0.065	0.077	0.037	0.050	0.036	0.058
氨氮	mg/L	0.30	0.01	0.04	0.02	0.03	0.08	0.04	0.04	0.02	0.08
亞硝酸鹽氮	μg/L	—	ND	ND	0.00	0.00	0.00	0.00	0.01	0.00	0.00
硝酸鹽氮	mg/L	—	0.01	0.01	ND	0.02	0.02	0.01	0.01	0.02	0.02
鎘	μg/L	5.0000	0.0208	0.0710	0.0339	0.0347	0.0688	0.0416	0.0238	0.0377	0.0312
鉻	μg/L	—	0.14	0.11	0.15	0.19	0.06	0.25	0.15	0.16	0.29
鈷	μg/L	—	0.081	0.101	0.105	0.123	0.141	0.162	0.336	0.743	0.304
銅	μg/L	30.000	1.595	2.246	0.628	1.893	1.908	2.256	4.077	2.114	1.156
鎳	μg/L	100.000	0.647	1.224	0.792	1.102	4.173	1.250	1.057	1.578	1.308
鉛	μg/L	10.000	0.307	0.526	0.307	0.616	0.695	0.952	0.492	0.570	0.751
鋅	μg/L	500.00	22.24	25.44	21.55	17.33	9.36	17.55	22.56	24.62	26.19
鐵	μg/L	—	93.07	95.94	84.34	130.15	126.28	203.53	72.93	144.09	331.98
砷	μg/L	50.000	0.168	ND	0.153	0.350	0.115	0.387	0.144	0.279	0.593
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	3.7	3.0	2.9	1.6	2.6	2.0	2.1	5.3	8.3
透明度	m	—	2.2	2.2	2.2	2.5	2.5	2.5	0.7	0.5	0.5
矽酸鹽	mg/L	—	0.20	0.69	0.09	0.16	0.18	0.22	0.16	0.10	0.21
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第3季麥寮港海域水質調查結果(1/3)

測站	單位	甲類海域水質標準	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
(採樣)深度	公尺	(2018.02.13公告)	0.5	16	8.5	0.5	10	20	0.5	12	23	0.5	12	23
溫度	℃	—	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.8	29.8	29.8	29.8	29.7
鹽度	PSU	—	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	33.2	33.2	33.2
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
溶氧量	mg/L	≥5.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
生化需氧量	mg/L	≤ 2	2.1	1.8	0.6	1.0	1.0	2.2	1.4	1.6	1.9	0.9	1.5	2.4
大腸桿菌群	CFU/100ml	≤ 1000	ND	13	116	51	81	196	43	89	74	211	19	40
懸浮固體	mg/L	—	9.5	5.0	26.0	7.5	8.5	8.0	5.5	5.5	3.5	2.5	5.5	5.5
氰化物	μg/L	10.0	4.0	4.0	4.0	8.0	ND	10.0	5.0	7.0	4.0	ND	10.0	ND
酚類	μg/L	5.0	ND	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.2	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.1
總磷	mg/L	0.050	0.048	0.059	0.059	0.069	0.117	0.057	0.049	0.052	0.072	ND	0.012	0.019
氨氮	mg/L	0.30	0.08	0.04	0.07	0.06	0.11	0.04	0.04	0.01	0.06	0.07	0.06	0.08
亞硝酸鹽氮	μg/L	—	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
硝酸鹽氮	mg/L	—	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01
鎘	μg/L	5.0000	0.0856	0.0327	0.0615	0.0533	0.0320	0.0430	0.0521	0.0941	0.0395	0.0954	0.0331	0.0672
鉻	μg/L	—	0.11	0.12	0.12	0.19	0.14	0.15	0.21	0.33	0.35	0.61	1.13	0.58
鈷	μg/L	—	0.192	0.190	0.195	0.213	0.193	0.196	0.125	0.114	0.112	0.137	0.133	0.114
銅	μg/L	30.000	1.237	1.699	1.474	2.941	1.875	1.553	1.245	1.752	1.581	2.322	1.617	0.882
鎳	μg/L	100.000	1.529	0.886	2.362	1.545	2.200	1.380	1.080	1.127	1.341	1.303	1.923	0.888
鉛	μg/L	10.000	0.470	0.570	0.527	0.607	0.497	0.547	0.384	0.441	0.382	0.442	0.357	0.178
鋅	μg/L	500.00	25.88	22.35	17.97	26.04	20.28	20.25	13.77	13.08	17.00	20.11	25.27	12.81
鐵	μg/L	—	229.86	276.16	215.08	272.35	258.94	258.15	140.41	121.52	117.32	149.72	144.33	110.82
砷	μg/L	50.000	0.314	0.378	0.326	0.570	0.477	0.401	0.333	0.311	0.229	0.277	0.152	0.185
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	ND	0.00
濁度	NTU	—	15.9	17.3	16.6	14.3	16.9	16.3	8.3	7.7	9.5	9.5	7.5	7.3
透明度	m	—	0.5	0.5	0.5	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0	1.0
矽酸鹽	mg/L	—	1.78	0.44	0.33	0.39	0.38	0.29	0.30	0.14	0.25	0.31	0.32	0.32
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第3季麥寮港海域水質調查結果(2/3)

測站	單位	甲類海域水質標準	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
(採樣)深度	公尺	(2018.02.13公告)	0.5	12	23	0.5	3	5	0.5	3	5.7	0.5	11.5	22
溫度	℃	—	29.6	29.6	29.6	30.0	29.9	29.9	30.0	30.0	30.0	30.0	29.9	29.9
鹽度	PSU	—	33.2	33.2	33.2	32.6	32.6	32.6	32.6	32.6	32.6	32.7	32.7	32.7
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
溶氧量	mg/L	≥5.0	7.2	7.2	7.2	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.1
生化需氧量	mg/L	≤ 2	0.7	0.6	0.8	1.7	2.2	1.7	2.1	0.9	1.3	0.5	1.8	1.1
大腸桿菌群	CFU/100ml	≤ 1000	42	36	26	92	66	234	102	96	4	84	61	147
懸浮固體	mg/L	—	7.5	2.5	1.0	25.5	44.0	42.5	9.5	13.0	12.5	3.5	5.0	1.0
氰化物	μg/L	10.0	10.0	2.0	ND	ND	7.0	6.0	10.0	ND	2.0	8.0	8.0	6.0
酚類	μg/L	5.0	ND	ND	1.4	2.5	1.9	1.4	ND	ND	2.0	ND	ND	2.1
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.2	0.1	0.1	0.7	0.9	0.8	0.9	0.8	0.9	0.2	0.2	0.2
總磷	mg/L	0.050	0.315	0.002	0.015	0.113	0.114	0.081	0.076	0.115	0.070	0.061	0.088	0.012
氨氮	mg/L	0.30	0.05	0.06	0.03	0.03	0.09	0.06	0.15	0.16	0.07	0.04	0.06	0.09
亞硝酸鹽氮	μg/L	—	ND	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01
硝酸鹽氮	mg/L	—	0.01	0.02	0.01	0.01	ND	ND	0.03	0.03	0.01	0.03	0.02	0.01
鎘	μg/L	5.0000	0.0465	0.0393	0.0511	0.0491	0.0380	0.0442	0.0500	0.0532	0.0633	0.0318	0.0324	0.0454
鉻	μg/L	—	0.68	0.86	0.68	0.18	0.42	0.40	0.50	0.50	0.58	0.46	0.46	0.59
鈷	μg/L	—	0.138	0.129	0.154	0.458	0.447	0.359	0.497	0.495	0.559	0.139	0.126	0.128
銅	μg/L	30.000	1.136	0.990	1.217	2.488	1.799	1.940	2.133	2.773	2.481	1.553	1.106	1.139
鎳	μg/L	100.000	1.308	1.279	1.287	2.526	2.000	1.761	1.964	2.995	2.104	1.083	1.054	1.314
鉛	μg/L	10.000	0.389	0.354	0.842	1.463	1.348	1.059	1.238	1.150	1.413	0.349	0.290	0.260
鋅	μg/L	500.00	12.48	13.06	19.97	29.79	31.78	19.83	29.17	27.80	34.86	16.16	14.41	16.66
鐵	μg/L	—	188.41	197.09	192.96	681.53	708.95	601.16	726.65	693.53	744.46	197.14	162.45	142.40
砷	μg/L	50.000	0.411	0.339	0.343	0.629	0.908	0.594	1.023	0.978	0.969	0.334	0.343	0.226
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	0.00	ND	ND	ND	ND	ND
濁度	NTU	—	12.6	10.3	10.3	67.9	72.5	60.5	67.1	66.9	75.6	9.8	11.4	10.9
透明度	m	—	1.0	1.0	1.0	0.3	0.3	0.3	0.3	0.3	0.3	1.0	1.0	1.0
矽酸鹽	mg/L	—	0.30	0.26	0.26	0.37	0.44	0.43	0.40	0.32	0.82	0.34	0.31	0.32
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第3季麥寮港海域水質調查結果(3/3)

測站	單位	甲類海域水質標準	4B	4B	4B	5B	5B	5B	2C	3C	4M
(採樣)深度	公尺	(2018.02.13公告)	0.5	9	17	0.5	10	19	0.2	0.5	0.5
溫度	℃	—	29.8	29.8	29.8	29.9	29.8	29.8	30.5	32.0	30.2
鹽度	PSU	—	32.6	32.6	32.6	32.7	32.7	32.7	32.5	32.3	29.4
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.0	8.0
溶氧量	mg/L	≥5.0	7.1	7.1	7.1	7.2	7.2	7.2	6.9	7.0	6.8
生化需氧量	mg/L	≤ 2	2.5	1.0	1.7	1.6	1.3	2.6	1.5	1.7	1.5
大腸桿菌群	CFU/100ml	≤ 1000	9	11	14	7	105	ND	85	104	72
懸浮固體	mg/L	—	7.5	7.0	5.5	3.0	0.5	2.0	7.0	16.0	5.5
氰化物	μg/L	10.0	3.0	6.0	6.0	9.0	8.0	7.0	2.0	9.0	5.0
酚類	μg/L	5.0	ND	ND	ND	ND	1.4	1.7	ND	3.0	2.2
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.2	0.2	0.1	0.3	0.2	0.2	2.5	3.0	1.8
總磷	mg/L	0.050	ND	0.034	0.009	0.014	0.023	0.029	0.069	0.005	0.005
氨氮	mg/L	0.30	0.08	0.09	0.07	0.10	0.08	0.08	0.06	0.08	1.13
亞硝酸鹽氮	μg/L	—	0.01	0.00	0.00	0.01	0.00	ND	0.00	0.00	0.02
硝酸鹽氮	mg/L	—	0.01	0.02	0.01	0.01	0.02	0.04	0.01	0.02	0.06
鎘	μg/L	5.0000	0.2078	0.1443	0.0452	0.1107	0.0431	0.0518	0.0516	0.0484	0.0353
鉻	μg/L	—	0.74	0.79	0.62	0.87	0.92	1.10	0.80	1.04	0.91
鈷	μg/L	—	0.157	0.184	0.158	0.149	0.163	0.175	0.028	0.622	0.283
銅	μg/L	30.000	1.165	1.696	1.212	1.293	1.745	1.959	0.847	1.738	1.282
鎳	μg/L	100.000	1.441	1.776	1.493	1.839	1.581	1.723	1.279	2.057	2.238
鉛	μg/L	10.000	0.759	0.691	0.432	0.408	0.417	1.134	0.107	0.933	0.454
鋅	μg/L	500.00	24.41	28.86	17.79	13.30	22.18	19.97	13.57	26.48	17.88
鐵	μg/L	—	179.97	203.09	153.89	173.56	174.85	209.08	7.42	522.90	164.72
砷	μg/L	50.000	0.289	0.333	0.263	0.370	0.370	0.249	0.025	0.836	0.134
汞	μg/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	6.8	6.6	6.4	16.7	20.1	14.8	57.2	43.3	14.5
透明度	m	—	0.8	0.8	0.8	1.0	1.0	1.0	0.3	0.3	0.5
矽酸鹽	mg/L	—	0.41	0.35	0.30	0.65	0.34	0.30	0.45	0.29	1.05
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第4季麥寮港海域水質調查結果(1/3)

測站	單位	甲類海域水質標準	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
(採樣)深度	公尺	(2018.02.13公告)	0.5	16	8.5	0.5	11	21	0.5	13	25	0.5	12	23
溫度	℃	—	27.2	27.0	27.0	27.0	26.9	26.9	27.1	26.9	26.9	27.1	26.9	26.9
鹽度	PSU	—	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.2	8.2	8.1	8.1	8.2	8.2	8.1	8.2	8.2	8.2
溶氧量	mg/L	≥5.0	7.2	7.3	7.3	7.4	7.4	7.5	7.4	7.2	7.3	7.4	7.5	7.3
生化需氧量	mg/L	≤ 2	0.2	0.3	ND	0.3	1.0	1.6	1.1	1.3	0.9	1.1	0.9	0.8
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	17	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	20.5	40.0	30.0	10.0	30.5	37.5	13.0	21.5	85.0	33.5	31.0	24.5
氰化物	μg/L	10.0	5.0	5.0	4.0	7.0	7.0	4.0	6.0	2.0	8.0	3.0	3.0	8.0
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.4	0.5	0.4	1.0	1.0	0.8	0.3	0.4	0.4	0.3	0.3	0.3
總磷	mg/L	0.050	0.039	0.057	0.057	0.052	0.031	0.082	0.018	0.046	0.046	0.031	0.039	0.040
氨氮	mg/L	0.30	0.02	0.08	0.03	ND	0.01	ND	0.04	ND	0.02	0.01	ND	0.01
亞硝酸鹽氮	μg/L	—	1.20	0.90	0.80	0.80	0.70	0.90	0.70	0.70	0.70	0.60	0.20	0.30
硝酸鹽氮	mg/L	—	0.03	0.02	0.02	0.02	0.01	0.02	0.02	0.03	0.03	0.01	0.01	0.01
鎘	μg/L	5.0000	0.0423	0.0341	0.0452	0.0960	0.0603	ND	ND	ND	0.0607	ND	ND	ND
鉻	μg/L	—	0.05	0.06	0.05	0.10	0.04	ND	ND	0.08	0.04	0.05	0.06	0.06
鈷	μg/L	—	ND	ND	0.037	0.056	ND	ND	ND	ND	ND	ND	ND	ND
銅	μg/L	30.000	1.332	0.786	1.260	0.249	0.305	0.040	ND	0.807	0.776	1.151	0.604	1.363
鎳	μg/L	100.000	1.648	0.714	1.323	ND	0.577	ND	ND	1.126	0.712	1.450	0.703	2.860
鉛	μg/L	10.000	0.168	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.185
鋅	μg/L	500.00	12.85	7.28	12.07	1.11	2.04	0.54	0.48	7.20	7.51	11.74	7.28	11.17
鐵	μg/L	—	18.36	6.82	7.24	22.13	2.29	0.51	0.44	7.81	7.03	7.46	6.71	10.70
砷	μg/L	50.000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
汞	μg/L	1.00	0.01	0.04	ND	ND	0.15	ND	0.12	ND	0.26	0.15	0.02	0.05
濁度	NTU	—	24.1	18.8	11.7	21.2	28.2	14.9	10.5	11.4	9.5	7.6	10.6	4.6
透明度	m	—	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
矽酸鹽	mg/L	—	0.55	0.55	0.48	0.31	0.41	0.22	0.31	0.37	0.46	0.49	0.20	0.41
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第4季麥寮港海域水質調查結果(2/3)

測站	單位	甲類海域水質標準	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
(採樣)深度	公尺	(2018.02.13公告)	0.5	11.5	22	0.5	3.5	6.5	0.5	3.5	6.5	0.5	12	23
溫度	℃	—	27.1	26.9	26.9	27.2	27.1	27.2	27.1	27.1	27.1	27.2	26.9	27.0
鹽度	PSU	—	33.7	33.8	33.8	33.6	33.6	33.6	33.6	33.6	33.6	33.7	33.7	33.7
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.1	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.2
溶氧量	mg/L	≥5.0	7.4	7.4	7.3	7.1	7.2	7.3	7.6	7.4	7.3	7.4	7.4	7.4
生化需氧量	mg/L	≤ 2	0.8	0.8	0.4	0.5	1.7	0.6	0.3	0.8	0.4	1.2	0.3	0.3
大腸桿菌群	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	9.0	8.5	16.5	87.5	72.5	71.0	76.5	76.5	88.5	66.5	17.0	20.0
氰化物	μg/L	10.0	4.0	7.0	4.0	5.0	7.0	3.0	4.0	6.0	4.0	8.0	7.0	2.0
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.4	0.2	0.2	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.3	0.5
總磷	mg/L	0.050	0.080	0.019	0.027	0.048	0.066	0.045	0.049	0.081	0.027	0.028	0.055	0.035
氨氮	mg/L	0.30	0.03	0.05	0.05	0.01	ND	ND	ND	0.03	0.02	0.01	0.01	0.01
亞硝酸鹽氮	μg/L	—	0.30	0.40	0.50	1.50	1.20	1.60	1.60	1.70	2.40	0.80	0.70	0.80
硝酸鹽氮	mg/L	—	0.01	0.02	0.02	0.03	0.04	0.04	0.06	0.04	0.04	0.02	0.02	0.02
鎘	μg/L	5.0000	ND	0.0451	ND	0.0358	0.0337	0.0938	ND	ND	ND	0.0333	ND	0.0345
鉻	μg/L	—	0.09	0.07	0.05	0.03	ND	ND	ND	ND	ND	0.04	0.04	0.05
鈷	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.035
銅	μg/L	30.000	0.560	0.734	0.789	0.953	0.645	0.519	ND	ND	ND	0.802	0.685	0.882
鎳	μg/L	100.000	0.888	0.940	1.162	1.484	0.883	0.708	ND	ND	ND	1.343	0.719	1.090
鉛	μg/L	10.000	ND	0.207	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	μg/L	500.00	6.66	6.41	8.58	12.01	10.51	9.37	0.55	0.56	0.89	9.88	14.49	14.10
鐵	μg/L	—	6.80	7.88	7.30	6.63	5.61	5.40	0.42	0.78	0.50	7.08	8.35	7.28
砷	μg/L	50.000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
汞	μg/L	1.00	ND	0.04	ND	ND	0.01	ND	0.04	0.13	ND	ND	0.01	0.02
濁度	NTU	—	5.7	4.5	8.2	55.8	35.5	37.1	54.5	59.6	48.5	23.8	17.6	19.9
透明度	m	—	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0
矽酸鹽	mg/L	—	0.28	0.20	0.21	0.29	0.53	0.43	0.38	0.35	0.34	0.22	0.51	0.26
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2024年第4季麥寮港海域水質調查結果(3/3)

測站	單位	甲類海域水質標準	4B	4B	4B	5B	5B	5B	2C	3C	4M
(採樣)深度	公尺	(2018.02.13公告)	0.5	9	17	0.5	10	19	0.5	0.5	0.5
溫度	℃	—	27.1	27.0	27.0	27.0	27.0	27.0	27.3	27.2	27.4
鹽度	PSU	—	33.4	33.4	33.4	33.7	33.7	33.6	33.3	33.2	32.9
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
溶氧量	mg/L	≥5.0	7.4	7.3	7.5	7.4	7.4	7.4	7.4	7.3	7.4
生化需氧量	mg/L	≤ 2	1.5	1.2	1.4	1.1	1.1	1.1	0.5	1.6	0.2
大腸桿菌群	CFU/100ml	≤ 1000	ND	14	ND	ND	ND	ND	ND	ND	ND
懸浮固體	mg/L	—	46.0	104.5	49.5	113.0	139.5	130.0	10.0	21.0	70.5
氰化物	μg/L	10.0	7.0	4.0	3.0	6.0	7.0	5.0	4.0	ND	7.0
酚類	μg/L	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
礦物性油脂	mg/L	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
葉綠素a	μg/L	—	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.5	1.8
總磷	mg/L	0.050	0.046	0.052	0.071	0.087	0.032	0.023	0.026	0.054	0.025
氨氮	mg/L	0.30	0.02	0.01	0.05	0.11	0.09	0.11	ND	0.08	0.17
亞硝酸鹽氮	μg/L	—	2.30	2.40	2.10	1.90	1.30	1.20	2.70	3.10	3.20
硝酸鹽氮	mg/L	—	0.05	0.05	0.05	0.03	0.03	0.03	0.07	0.07	0.08
鎘	μg/L	5.0000	0.0633	0.0433	0.0417	0.0466	0.0412	0.0483	0.0340	ND	0.0614
鉻	μg/L	—	0.06	0.06	0.07	0.05	0.07	0.04	0.06	0.06	0.06
鈷	μg/L	—	0.037	ND	ND	0.035	ND	ND	0.036	ND	ND
銅	μg/L	30.000	1.294	0.732	0.711	1.143	1.082	1.669	0.925	0.619	1.469
鎳	μg/L	100.000	2.163	0.921	1.563	1.373	1.112	2.581	0.971	0.938	1.967
鉛	μg/L	10.000	ND	ND	ND	0.211	ND	ND	ND	ND	ND
鋅	μg/L	500.00	12.44	9.45	12.28	30.32	24.69	14.07	8.27	7.88	26.64
鐵	μg/L	—	7.29	6.14	6.43	6.70	6.46	7.03	6.66	6.29	14.67
砷	μg/L	50.000	ND	ND	ND	ND	ND	ND	ND	ND	ND
汞	μg/L	1.00	ND	0.03	ND	ND	ND	ND	ND	ND	ND
濁度	NTU	—	35.0	4.8	15.9	55.9	94.0	48.3	42.6	33.3	31.1
透明度	m	—	0.8	0.8	0.8	0.5	0.5	0.5	0.5	0.8	0.8
矽酸鹽	mg/L	—	0.40	0.57	0.97	0.41	0.50	0.35	0.33	0.52	0.75
總油脂量	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

附錄二、麥寮港港域水質調查結果

2023年第1季麥寮港港域水質調查結果

測項	單位	甲類海域水質標準 (2018/02/13修正公告)	3H			4H			5H		
			表層	中層	底層	表層	中層	底層	表層	中層	底層
深度	公尺		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
溫度	℃		17.2	17.1	17.0	16.9	16.6	16.5	17.0	16.8	16.7
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.3
鹽度	PSU		31.6	31.7	31.5	31.5	31.4	31.4	31.7	31.6	31.5
懸浮固體	mg/L		4.6	5.5	8.1	8.1	3.7	5.0	4.4	5.1	3.7
化學需氧量	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
生化需氧量	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
溶氧量	mg/L	≥5.0	5.8	5.9	5.9	5.8	5.8	5.9	5.7	5.8	5.8
氰化物	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
硝酸鹽氮	mg/L		0.26	0.25	0.26	0.26	0.26	0.26	0.26	0.26	0.27
亞硝酸鹽氮	mg/L		0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02
氨氮	mg/L	0.3	0.05	0.08	0.07	0.09	0.07	0.07	0.07	0.06	0.07
總磷	mg/L	0.05	0.020	0.027	0.023	0.022	0.026	0.023	0.022	0.022	0.024
總有機碳	mg/L		<1.0	<1.0	1.1	<1.0	<1.0	1.0	<1.0	1.2	<1.0
礦物性油脂	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
葉綠素a	g/m^3		0.7	0.7	0.8	0.7	1.0	0.5	0.7	1.5	1.2
酚類	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	<10	<10	<10	<10	<10	<10	<10	<10	<10
鈷	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
鐵	mg/L		0.015	0.014	0.021	0.016	0.019	0.015	0.017	0.017	0.015
砷	mg/L	0.05	0.0015	0.0017	0.0018	0.0019	0.0017	0.0015	0.0015	0.0017	0.0019
汞	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	mg/L	0.5	0.006	0.013	0.013	0.007	0.011	0.011	<0.0050	0.010	0.009
總鉻	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鉛	mg/L	0.01	<0.0010	0.0019	0.0018	<0.0010	<0.0010	<0.0010	ND	<0.0010	<0.0010
銅	mg/L	0.03	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.003	0.002
鎘	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎳	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。

2023年第2季麥寮港港域水質調查結果

測項	單位	甲類海域水質標準 (2018/02/13修正公告)	3H			4H			5H		
			表層	中層	底層	表層	中層	底層	表層	中層	底層
深度	公尺		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
溫度	℃		27.5	27.3	26.9	26.9	26.7	26.2	26.9	26.6	26.2
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.1	8.4	8.4	8.4	8.2	8.3	8.2
鹽度	PSU		31.3	31.4	31.1	31.1	31.0	31.2	31.3	31.1	31.1
懸浮固體	mg/L		3.8	3.9	4.1	6.5	3.8	4.0	4.3	3.9	4.0
化學需氧量	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
生化需氧量	mg/L	≤ 2	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0
溶氧量	mg/L	≥5.0	6.1	6.1	6.1	6.3	6.3	6.2	6.1	6.3	6.3
氰化物	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
硝酸鹽氮	mg/L		0.26	0.29	0.26	0.26	0.22	0.25	0.26	0.26	0.27
亞硝酸鹽氮	mg/L		<0.01	<0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
氨氮	mg/L	0.3	0.05	0.05	0.04	0.06	0.05	0.05	0.04	0.05	0.05
總磷	mg/L	0.05	0.034	0.033	0.020	0.016	0.017	0.018	0.020	0.018	0.018
總有機碳	mg/L		1.4	1.2	<1.0	1.3	1.0	1.4	1.0	<1.0	1.2
礦物性油脂	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
葉綠素a	g/m^3		1.9	2.6	2.3	2.0	2.0	2.5	2.4	2.0	2.1
酚類	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	70	<10	80	50	45	150	55	85	15
鈷	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
鐵	mg/L		0.024	0.025	0.022	0.024	0.024	0.025	0.024	0.024	0.025
砷	mg/L	0.05	0.0012	0.0014	0.0014	0.0012	0.0012	0.0012	0.0014	0.0013	0.0011
汞	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	mg/L	0.5	0.007	0.012	0.009	0.013	0.008	0.017	0.009	0.011	0.009
總鉻	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鉛	mg/L	0.01	ND	ND	ND	ND	ND	<0.0010	ND	ND	ND
銅	mg/L	0.03	0.001	0.002	0.001	0.002	0.003	0.002	0.001	0.002	0.001
鎘	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎳	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

2023年第3季麥寮港港域水質調查結果

測項	單位	甲類海域水質標準 (2018/02/13修正公告)	3H			4H			5H		
			表層	中層	底層	表層	中層	底層	表層	中層	底層
深度	公尺		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
溫度	℃		29.1	28.4	27.8	29.5	28.9	28.0	29.0	28.3	27.8
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.1	8.1	8.0	8.1	8.1	8.0	8.0
鹽度	PSU		30.4	30.6	30.8	30.5	30.6	30.7	30.4	30.7	30.6
懸浮固體	mg/L		5.8	5.2	6.2	11.4	5.2	8.2	6.9	7.3	4.2
化學需氧量	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
生化需氧量	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
溶氧量	mg/L	≥5.0	5.4	5.3	5.2	5.2	5.3	5.2	5.3	5.2	5.2
氰化物	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
硝酸鹽氮	mg/L		0.24	0.24	0.24	0.27	0.23	0.24	0.24	0.24	0.25
亞硝酸鹽氮	mg/L		0.01	0.01	0.01	0.01	0.01	0.01	0.01	<0.01	<0.01
氨氮	mg/L	0.3	0.09	0.07	0.06	0.07	0.12	0.06	0.07	0.06	0.08
總磷	mg/L	0.05	0.023	0.017	0.015	0.013	0.016	0.014	0.016	0.027	0.017
總有機碳	mg/L		1.1	1.1	1.1	1.4	1.2	1.0	1.1	1.4	1.2
礦物性油脂	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
葉綠素a	g/m^3		0.7	0.8	0.7	0.5	0.7	0.8	0.6	0.8	0.7
酚類	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	95	90	<10	30	95	90	85	90	15
鈷	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
鐵	mg/L		0.005	0.005	0.005	0.005	0.005	0.006	0.005	0.006	0.006
砷	mg/L	0.05	0.0018	0.0018	0.0018	0.0016	0.0019	0.0018	0.0019	0.0016	0.0018
汞	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	mg/L	0.5	0.005	0.006	0.011	0.012	0.006	0.006	<0.0050	0.006	<0.0050
總鉻	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鉛	mg/L	0.01	ND	ND	<0.0010	<0.0010	ND	ND	ND	ND	ND
銅	mg/L	0.03	0.001	0.001	0.002	0.002	0.001	0.001	<0.0010	0.001	<0.0010
鎘	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎳	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

2023年第4季麥寮港港域水質調查結果

測項	單位	甲類海域水質標準 (2018/02/13修正公告)	3H			4H			5H		
			表層	中層	底層	表層	中層	底層	表層	中層	底層
深度	公尺		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
溫度	℃		27.2	26.9	26.6	26.3	26.1	25.8	26.9	26.5	26.3
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.1	8.3	8.4	8.4	8.2	8.3	8.2
鹽度	PSU		31.4	31.3	31.1	31.2	31.1	31.2	31.3	31.1	31.0
懸浮固體	mg/L		7.1	11.6	8.1	13.0	11.8	11.4	11.1	9.6	10.4
化學需氧量	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
生化需氧量	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
溶氧量	mg/L	≥5.0	6.5	6.4	6.4	6.5	6.6	6.5	6.5	6.4	6.4
氰化物	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
硝酸鹽氮	mg/L		0.25	0.26	0.25	0.22	0.22	0.21	0.23	0.25	0.26
亞硝酸鹽氮	mg/L		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
氨氮	mg/L	0.3	0.02	0.02	0.03	0.04	ND	ND	0.02	ND	ND
總磷	mg/L	0.05	0.039	0.045	0.039	0.038	0.040	0.020	0.020	0.028	0.043
總有機碳	mg/L		1.2	<1.0	<1.0	1.1	<1.0	<1.0	1.1	1.0	<1.0
礦物性油脂	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
葉綠素a	g/m^3		0.7	0.6	0.6	0.8	0.7	0.9	0.6	0.8	1.1
酚類	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	70	65	90	35	50	95	80	70	20
鈷	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
鐵	mg/L		0.066	0.064	0.065	0.075	0.057	0.059	0.064	0.066	0.066
砷	mg/L	0.05	0.0014	0.0015	0.0015	0.0015	0.0014	0.0016	0.0015	0.0016	0.0014
汞	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	mg/L	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
總鉻	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鉛	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
銅	mg/L	0.03	0.002	0.002	0.001	0.003	0.001	0.002	0.002	0.001	0.003
鎘	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎳	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

2024年第1季麥寮港港域水質調查結果

測項	單位	甲類海域水質標準 (2018/02/13修正公告)	3H			4H			5H		
			表層	中層	底層	表層	中層	底層	表層	中層	底層
深度	公尺		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
溫度	℃		20.3	19.8	19.4	19.7	19.5	19.4	20.0	19.8	19.5
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.0	8.1	8.1	8.1	8.2	8.1	8.0
鹽度	PSU		33.2	33.0	32.8	33.0	33.0	32.9	33.0	32.9	32.8
懸浮固體	mg/L		4.7	6.4	5.7	9.7	4.4	7.5	10.1	6.2	4.4
化學需氧量	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
生化需氧量	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
溶氧量	mg/L	≥5.0	6.0	5.9	5.7	6.0	5.6	5.6	6.0	5.8	5.7
氰化物	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
硝酸鹽氮	mg/L		0.23	0.24	0.25	0.25	0.24	0.23	0.23	0.25	0.25
亞硝酸鹽氮	mg/L		0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.03	0.03
氨氮	mg/L	0.3	0.02	0.03	0.03	0.05	0.03	0.04	0.04	0.03	0.03
總磷	mg/L	0.05	0.011	0.020	0.011	0.013	0.009	0.011	0.013	0.010	0.013
總有機碳	mg/L		<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
礦物性油脂	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
葉綠素a	g/m^3		3.7	4.3	4.8	5.1	5.0	4.4	4.1	4.0	4.2
酚類	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	<10	<10	<10	<10	<10	<10	<10	<10	<10
鈷	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
鐵	mg/L		0.042	0.064	0.035	0.084	0.032	0.057	0.085	0.058	0.032
砷	mg/L	0.05	0.0013	0.0010	0.0012	0.0014	0.0019	0.0013	0.0012	0.0014	0.0014
汞	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	mg/L	0.5	0.010	0.010	0.010	0.016	0.007	0.010	0.011	0.010	0.009
總鉻	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鉛	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
銅	mg/L	0.03	0.001	<0.0010	<0.0010	0.001	<0.0010	0.001	0.001	0.001	<0.0010
鎘	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎳	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

2024年第2季麥寮港港域水質調查結果

測項	單位	甲類海域水質標準 (2018/02/13修正公告)	3H			4H			5H		
			表層	中層	底層	表層	中層	底層	表層	中層	底層
深度	公尺		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
溫度	℃		27.0	26.9	26.7	26.2	26.0	25.7	26.6	26.4	26.1
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.1	8.4	8.4	8.4	8.3	8.3	8.2
鹽度	PSU		31.5	31.4	31.3	31.3	31.1	31.4	31.5	31.3	31.2
懸浮固體	mg/L		3.1	2.4	7.8	3.4	3.8	2.8	3.3	1.8	3.5
化學需氧量	mg/L		ND	ND	ND	ND	ND	2.9	ND	ND	3.1
生化需氧量	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
溶氧量	mg/L	≥5.0	5.9	5.9	6.0	6.3	6.1	6.0	6.0	6.0	6.1
氰化物	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
硝酸鹽氮	mg/L		<0.05	ND	ND	<0.05	ND	<0.05	ND	<0.05	<0.05
亞硝酸鹽氮	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
氨氮	mg/L	0.3	0.02	ND	0.02	0.02	0.02	ND	0.02	0.03	0.02
總磷	mg/L	0.05	0.010	0.015	0.028	0.010	0.009	0.009	0.011	0.010	0.009
總有機碳	mg/L		1.3	<1.0	1.3	1.3	1.4	1.4	1.3	1.3	1.3
礦物性油脂	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
葉綠素a	g/m^3		5.0	5.1	5.1	4.9	5.0	5.1	4.6	4.9	5.0
酚類	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	<10	<10	<10	<10	<10	<10	<10	<10	<10
鈷	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
鐵	mg/L		0.012	0.011	0.010	0.010	0.015	0.013	0.010	0.013	0.010
砷	mg/L	0.05	0.0018	0.0013	0.0012	0.0013	0.0010	0.0014	0.0015	0.0014	0.0012
汞	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	mg/L	0.5	0.013	0.012	0.019	0.021	0.013	0.014	0.018	0.014	0.015
總鉻	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鉛	mg/L	0.01	ND	ND	0.0010	0.0010	<0.0010	ND	<0.0010	ND	ND
銅	mg/L	0.03	0.002	0.002	0.003	0.003	0.002	0.001	0.003	0.002	0.003
鎘	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎳	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

2024年第3季麥寮港港域水質調查結果

測項	單位	甲類海域水質標準 (2018/02/13修正公告)	3H			4H			5H		
			表層	中層	底層	表層	中層	底層	表層	中層	底層
深度	公尺		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
溫度	℃		32.6	31.8	30.2	32.2	31.6	30.1	32.6	31.8	30.4
氫離子濃度指數(pH)	-	7.5~8.5	8.2	8.2	8.1	8.2	8.2	8.2	8.2	8.1	8.1
鹽度	PSU		31.8	31.5	31.7	31.6	31.2	31.8	31.8	31.6	31.3
懸浮固體	mg/L		2.7	3.8	3.5	3.6	4.9	4.4	2.6	2.6	4.4
化學需氧量	mg/L		ND	ND	2.9	ND	ND	ND	ND	3.4	3.2
生化需氧量	mg/L	≤ 2	1.0	1.2	1.3	1.3	1.2	1.3	1.2	1.3	1.1
溶氧量	mg/L	≥5.0	5.4	5.3	5.2	5.6	5.6	5.4	5.5	5.4	5.3
氰化物	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
硝酸鹽氮	mg/L		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
亞硝酸鹽氮	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
氨氮	mg/L	0.3	0.04	0.05	0.04	0.10	0.09	0.08	0.06	0.06	0.05
總磷	mg/L	0.05	0.018	0.016	0.018	0.017	0.019	0.016	0.021	0.014	0.017
總有機碳	mg/L		1.2	1.3	1.4	1.6	1.1	1.2	1.3	1.9	1.4
礦物性油脂	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
葉綠素a	g/m^3		1.7	1.8	1.5	1.5	1.7	1.9	1.2	1.2	1.7
酚類	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	460	850	490	930	410	810	460	370	490
鈷	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鐵	mg/L		0.019	0.004	0.010	0.004	0.005	0.011	0.013	0.003	0.009
砷	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND
汞	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	mg/L	0.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	ND	ND	ND
總鉻	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鉛	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
銅	mg/L	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎘	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎳	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

2024年第4季麥寮港港域水質調查結果

測項	單位	甲類海域水質標準 (2018/02/13修正公告)	3H			4H			5H		
			表層	中層	底層	表層	中層	底層	表層	中層	底層
深度	公尺		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
溫度	℃		22.4	21.6	21.0	22.1	21.6	21.2	22.7	22.0	21.8
氫離子濃度指數(pH)	-	7.5~8.5	8.1	8.1	8.0	8.1	8.1	8.1	8.2	8.2	8.1
鹽度	PSU		32.3	32.2	32.0	32.2	32.1	32.0	32.4	32.3	32.2
懸浮固體	mg/L		10.2	10.1	10.2	9.2	10.4	10.3	10.0	10.3	9.3
化學需氧量	mg/L		4.2	5.4	4.3	4.2	4.0	ND	ND	5.4	ND
生化需氧量	mg/L	≤ 2	1.6	1.8	1.6	1.8	1.8	1.7	1.8	1.9	1.7
溶氧量	mg/L	≥5.0	5.8	5.7	5.6	5.8	5.6	5.6	5.9	5.8	5.7
氰化物	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
硝酸鹽氮	mg/L		0.11	0.10	0.12	0.10	0.11	0.09	0.11	0.11	0.11
亞硝酸鹽氮	mg/L		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
氨氮	mg/L	0.3	0.06	0.06	0.06	0.06	0.06	0.09	0.06	0.06	0.07
總磷	mg/L	0.05	0.028	0.111	0.022	0.019	0.023	0.020	0.020	0.070	0.024
總有機碳	mg/L		1.1	1.3	1.0	1.2	1.1	1.0	0.9	0.7	1.1
礦物性油脂	mg/L	2	<1.0	1.2	1.0	1.0	1.2	1.6	<1.0	1.1	2.0
葉綠素a	g/m^3		2.6	2.5	2.6	2.6	2.2	2.8	2.9	2.7	2.9
酚類	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
大腸桿菌群	CFU/100ml	≤ 1000	<10	<10	10	10	<10	<10	<10	<10	<10
鈷	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鐵	mg/L		0.290	0.295	0.285	0.316	0.295	0.243	0.258	0.322	0.235
砷	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND
汞	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
鋅	mg/L	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
總鉻	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND
鉛	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
銅	mg/L	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎘	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
鎳	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

***註：當測定值低於方法偵測極限(MDL)時，以「ND 」表示。**

若您針對本報告書內有任何需要提供進一步的訊息
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海岸水與環境中心
Coastal Water and Environment Center

環興科技股份有限公司
SINOTECH ENGINEERING SERVICES, LTD.

Mailiao Industrial Harbor

Environmental Report

2025

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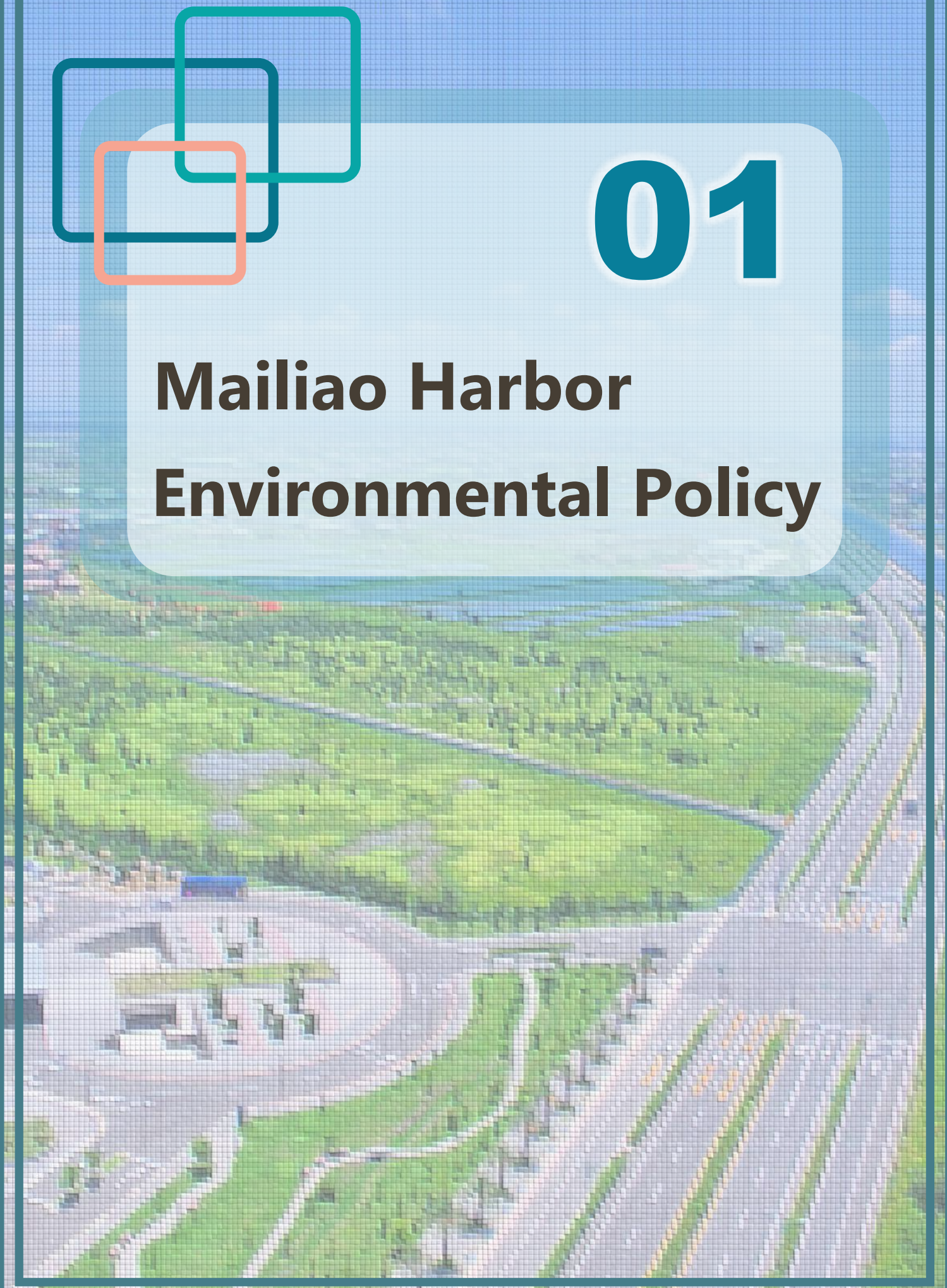
01

Mailiao Harbor Environmental Policy



Mailiao Harbor Environmental Policies

Mailiao Harbor Administration Corporation firmly believes that environmental protection is as important as economic development of the harbor. As the administrative entity of the Mailiao Harbor, we take on the responsibility of protecting the environment and the safety of our employees. We strive to achieve our environmental goals by providing sufficient training and assuring the compliance of relevant regulations by all stakeholders.

The following principles are promoted to ensure the conformity of our environmental performance and government policies.

Comply with Environmental Regulations, Dedicate to Eco-Friendly Actions.

Proceed with Environmental Monitoring, Maintain Cleanness of the Harbor.

Environmental Education and Training, Heighten Environmental Awareness.

Safety and Environment Management, Achieve Sustainable Development.

The following objectives have been established to tackle the top 10 major harbor environmental issues. The environmental policies need to be reviewed annually to improve our actions and fulfill our commitment to environmental protection. In addition, all staffs working in the harbor, ship companies and local residents should be informed of these environmental policies. At the same time, the environmental policies are announced on our official website.

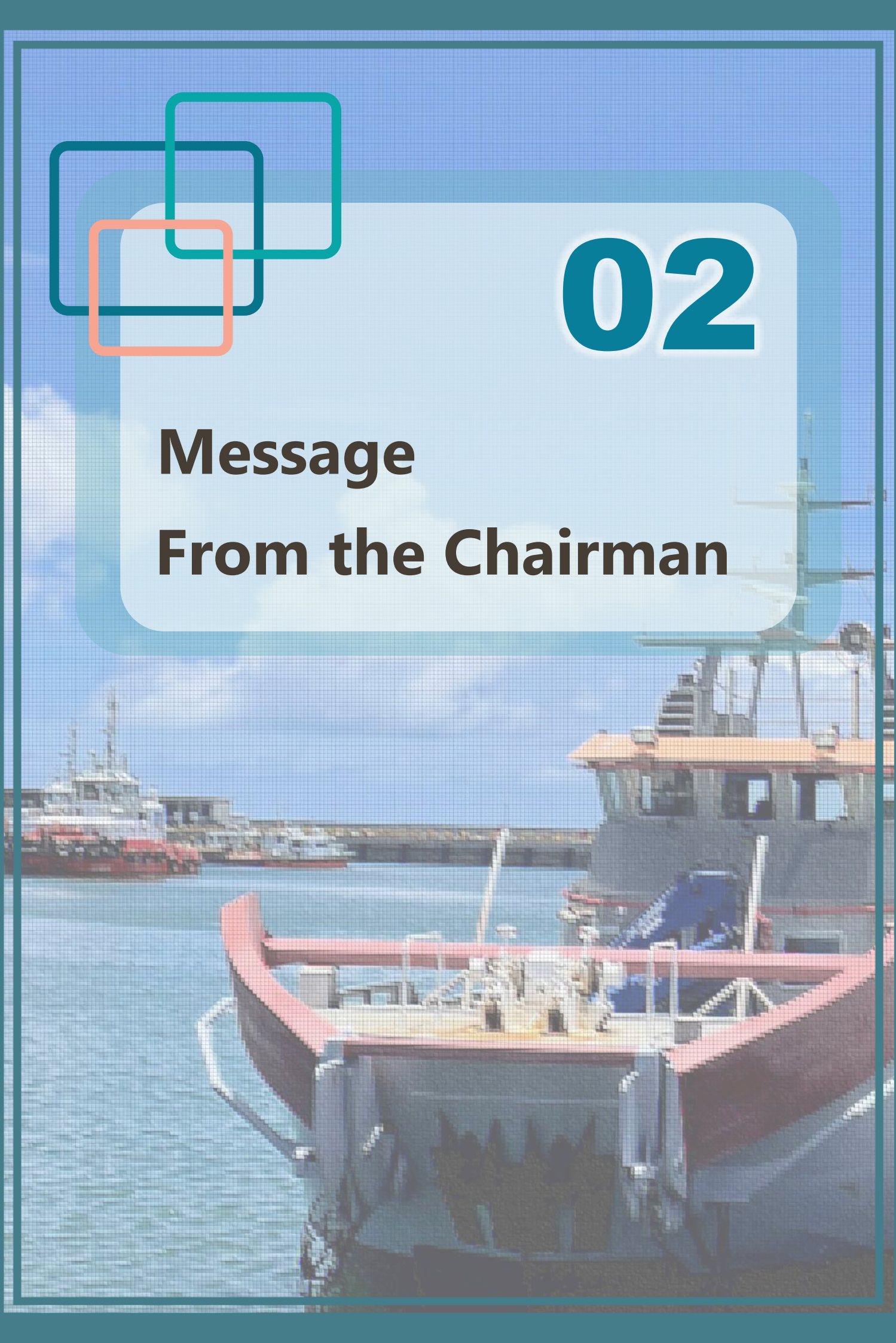
1. **Climate Change Adaptation and Mitigation**
   Establishing wave observation systems to enhance potential risk detection and reduce the impact on the port. Periodic inventory of greenhouse gases to grasp the carbon emissions status of Mailiao Harbor and promote carbon reductions.
2. **Improve Air Quality in Harbor.**
   Supply Alternative Maritime Power. Only low-sulfur fuel is allowed in harbor. Enforcing boats to travel at a lower velocity. Promoting green transportation. Setting up gas recycling system. Reduction of Air pollutant emission.
3. **Transforming Green Energy Efficiency**
   Creating a green office environment (including replacing energy-efficient lighting and creating a paperless office environment) and implementing green energy policies (including promoting solar energy green power supply and implementing rainwater harvesting projects).
4. **Maintaining Water Quality.**
   Develop ocean pollution prevention and emergency plan. Regular water quality monitoring. Improve marine pollution identification and reporting mechanism.
5. **Strengthen Dredging and Dumping Management:**
   Make the dredging and dumping plan according to EIA promise. Monitoring the water quality during dredging and dumping process.
6. **Waste Management.**
   Enforce recycling on docked ships and office buildings. Encourage waste reduction and recycling.
7. **Wastewater Discharge Prohibition.**
   Prohibit wastewater discharge from all vessels in port. Launching wastewater collection services. Integrate harbor inspection with law enforcement units.
8. **Relationship with local community**
   Support National Ocean Day initiatives, collaborate with local communities on fish fry release and beach cleanup efforts, and promote a variety of interactive marine environmental education programs.
9. **Strict Management of Dangerous Cargo.**
   Establish the regulations governing dangerous goods loading and unloading at Mailiao Harbor administration. Deploying oil boom to prevent leaking oil from spreading. Setting up alarm and detection systems. Employing GasFindIR and professional decontamination vessels. Reinforce emergency drills.
10. **Careful Attention to Ship Refueling Procedures.**
    Introduction of vessel refueling operation procedures to protect both the environment and workers' safety.

Chairman of Mailiao Harbor Administration Corporation Mihn Tsao

Date July 8 2025

02

Message From the Chairman



A Word from the Chairman of the Board

Amidst continual development of the global shipping industry, port operations will have a devastating effect on the environment if relevant protection measures are disregarded. In recent years, the concept of "EcoPorts" has received the attention of major international ports, including those in Europe and North America. The Mailiao Harbor in Taiwan has also focused on this concept since its opening, upholding equal emphasis on environment preservation and industrial development, to ensure sustainable development.

The Mailiao Harbor is Taiwan's largest industrial port and a pioneer in promoting environmental protection, where the harbor leads by example. The harbor possesses complete environment management policies, monitors all of its operations via strict management and control, and implements environmentally friendly and ecological protection-oriented measures, maintaining clean water surrounding the harbor and a wealth of terrain and marine ecological resources.

Regardless of various focuses on transportation development for port operations, green transportation has undoubtedly become the basic foundation in response to the development trend of global shipping industry. The Mailiao Harbor operates in a cautious and conscientious manner, complies with applicable environmental policies strictly, and engages in environmentally friendly endeavors. In addition, it implements relevant plans, performs reviews persistently, and refines and improves its plans to ensure the adequate execution of its policies and goals. In the future, the harbor will continue to elevate its operating performance and port service quality as well as apply for the European Union EcoPorts Certification to facilitate international exchanges and learning, transforming into a green port that saves energy, reduces carbon, emits minimal pollution, and practices environmental protection.

Chairman of Mailiao Harbor Administration Corporation

03

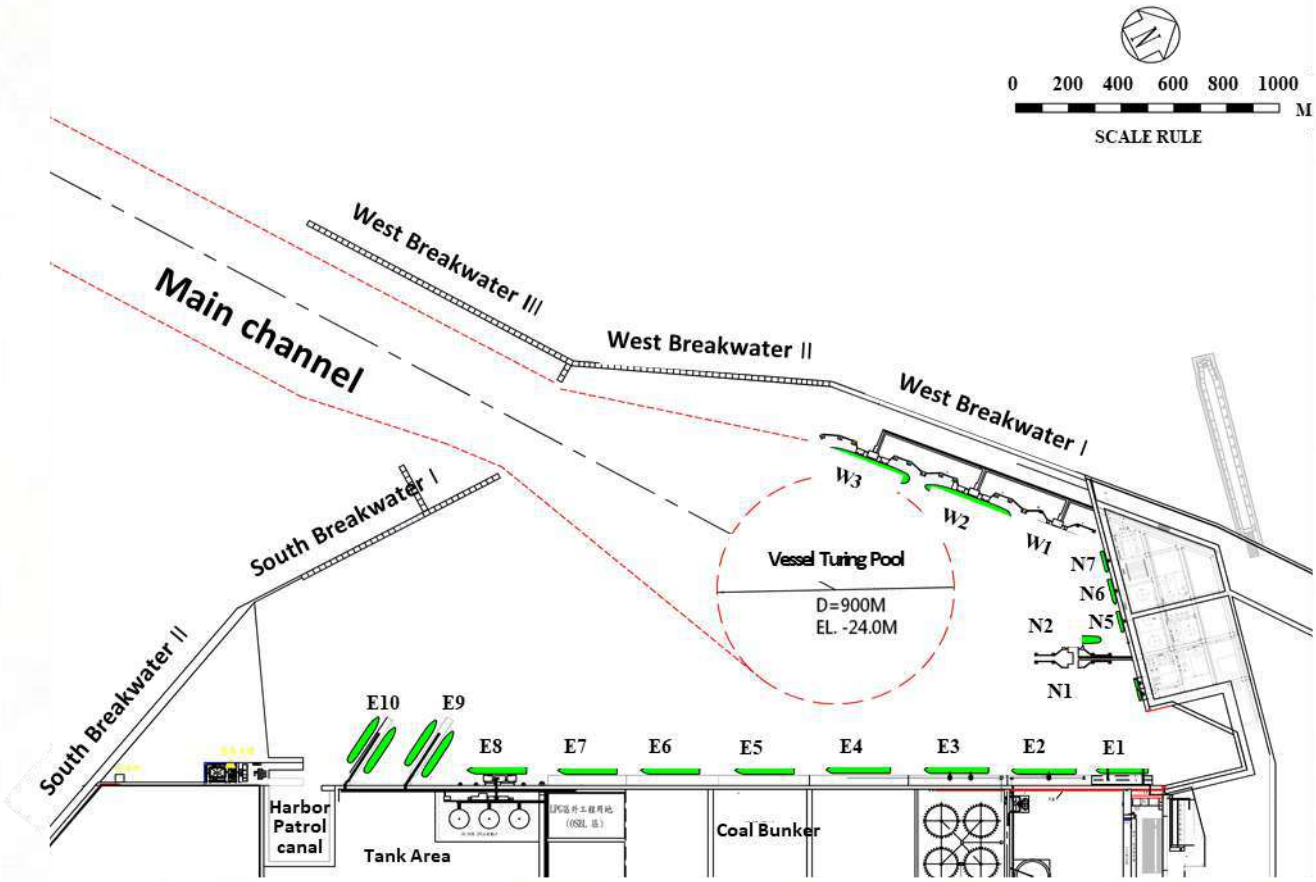
Background and Introduction

Introduction

Mailiao Industrial Harbor (hereinafter referred to as Mailiao Harbor) is located in the Mailiao area of the Yunlin Offshore Industrial Zone, Taiwan. The Yunlin Offshore Industrial Zone was developed by the Ministry of Economic Affairs to enhance basic industries in our country. Yunlin Offshore Industrial Zone is planned to provide the land needed for the expansion project of Mailiao Industrial Park; it is expected to meet current and future needs of the petrochemical industry for plant construction and relocation. The plan included extracting sand from the sea areas near Yunlin County for landfilling, to create land for the development of the Yunlin Offshore Industrial Zone. The industrial zone was divided into the Mailiao, Hsin Hsing, Taixi, and Sihu zones; the land area of the petrochemical industrial zone in the Mailiao zone was created by the Formosa Plastics Group by landfilling; and the appropriated berths in the Mailiao Harbor were built for the use of the Mailiao Industrial Zone. The Executive Yuan approved the construction of Mailiao Harbor on July 7, 1993. The harbor officially began operations on March 1, 2001.

Mailiao Harbor is located at the central point of Taiwan's west coast (120°08.9' E, 23°46.9' N). Situated in the Yunlin Offshore Industrial Zone, Mailiao Harbor is the first international harbor in Taiwan funded and built by nongovernmental corporates. To the north lies the south bank of the Zhuoshui River Estuary; to the south lies the Hsinhuwei River Estuary; and to the west is the Penghu Channel. The Port of Taichung and the Port of Keelung is approximately 40 and 150 nautical miles north of the harbor, respectively; and the Port of Kaohsiung is about 80 nautical miles south of the harbor. The harbor entry faces west with a 34° angle to the south (between west-south-west and south-west), and the waterway at mid-tide is 24 m deep. It is the deepest harbor in Taiwan, capable to accommodate a 300,000-ton vessel.

Location of the Appropriated Berths in the Mailiao Harbor



Status of Mailiao Harbor

Item	Information
Harbor	Faces west with a 34° angle to the south; water depth EL-24 m; width 390 m
Entering/exiting channels	Channel length approximately 2,500 m; water depth 24 m at mid-tide
Vessel turning pool	Diameter 900 m
Berth	Supporting 20 appropriated berths
Harbor patrol canal	For mooring, water refilling, and refueling of harbor craft boats
Factory and repairing slipway	For repair, inspection, and maintenance of harbor craft boats
Harbor area	A total area of 1599.15 ha; interior harbor area 476 ha; terrestrial area 179.15 ha; exterior harbor water area 944 ha
Breakwater	West breakwater 3,243 m; south breakwater 2,227 m

Primary Commercial Activities

Operations statistics of Mailiao Harbor in 2023 and 2024

Item		2023 (a)	2024 (b)	Annual business comparison (b-a)	
				Actual number	%
Incoming and outgoing vessels	No. of incoming vessels (vessel)	1,916	1,852	-64	-3.34%
	Gross tonnage of import (ton)	48,329,127	46,233,367	-2,095,760	-4.34%
	No. of outgoing vessels (vessel)	1,915	1,856	-59	-3.08%
	Gross tonnage of export (ton)	48,266,241	46,408,745	-1,857,496	-3.85%
Cargo throughput	Tonnage of imports (metric ton)	43,139,417	41,973,280	-1,166,137	-2.70%
	Tonnage of exports (metric ton)	18,190,678	17,376,777	-813,901	-4.47%
	Tonnage of imports and exports (metric ton)	61,330,095	59,350,057	-1,980,038	-3.23%
Loading/ unloading volume	Total (metric ton)	61,174,086	59,615,704	-1,558,382	-2.55%

Main Cargo

Incoming and outgoing goods at Mailiao Harbor are primarily oil-based products, followed by chemicals, ores, and dry bulk cargo of related industrial goods.

Primary goods in Mailiao Harbor

Petroleum
Crude oil
LPG (Liquefied petroleum gas)
Refined oil
Pyrites minerals/Ores
Coal
Sulphur
Chemicals
Sodium hydroxide
Ethylene Glycol
Dry bulk
Coke
Industrial salt

Recent Key Initiatives

Mailiao Harbor is committed to port sustainability and environmental protection, with a strong focus on advancing green services to shipping in recent years.

Key Projects	Execution Focus
High-Voltage Onshore Power Supply (HV OPS) Facilities	• In May 2023, the High-Voltage Onshore Power Supply (HV OPS) facility at Wharf E3 was officially commissioned. Designed with a capacity of 6.6 kV/1,800 kW, the system serves 200,000-DWT bulk carriers and coal vessels, supported by incentive programs for vessels utilizing shore power while at berth. • As of the end of 2024, the system had accumulated 533 hours of usage. Compared to conventional heavy fuel oil consumption, this initiative successfully reduced fuel consumption by 92.34 kL and CO_2e emissions by 78 tons. This achievement represents a triple-win for greenhouse gas reduction, energy transition, and the advancement of green services to shipping.
Underwater Ecological Surveys and Biodiversity Achievements	• Following the 2016 baseline, the second phase of the marine ecological survey was conducted to monitor long-term changes in the harbor's aquatic ecosystem. This survey identified 249 new species, dominated by mollusks (gastropods) and sea slugs. To date, a cumulative total of 397 species across 11 phyla and 161 families have been recorded. • The discovery of new taxa, including ctenophores, sponges, and bryozoans, indicates that harbor structures have effectively functioned as artificial reefs. Coupled with stable water quality, the original sandy shore environment has successfully transitioned into a diverse and stable "coral-reef-like ecosystem."
Development of LNG Receiving Terminal and Infrastructure	• In 2023, environmental impact assessment approval was granted for the construction of an LNG receiving terminal and regasification station. The project officially broke ground in December 2025 and is scheduled for completion and commissioning by 2029. • The 45-hectare LNG terminal at South Public Wharf is designed to accommodate 260,000 m^3 carriers. It features four 160,000–180,000 kl storage tanks and regasification facilities, ensuring a stable and secure natural gas supply.
Enhancing Community Outreach and Engagement	• **Prioritizing Port Environmental and Social Issues：** 1. In response to National Ocean Day, Mailiao Harbor promoted marine eco-education activities, enhancing public awareness of port sustainability and environmental protection through guided tours, visits, and interactive learning. 2. In collaboration with local communities, the harbor maintains marine balance via long-term restoration and regular beach cleaning, mitigating pollution risks. 3. Dedicated communication platforms and "good neighbor" initiatives foster deep-rooted trust by actively addressing local needs. 4. Hosting renowned troupes like Ming Hwa Yuan creates family-friendly platforms that deepen ties with residents and promote cultural heritage.

04

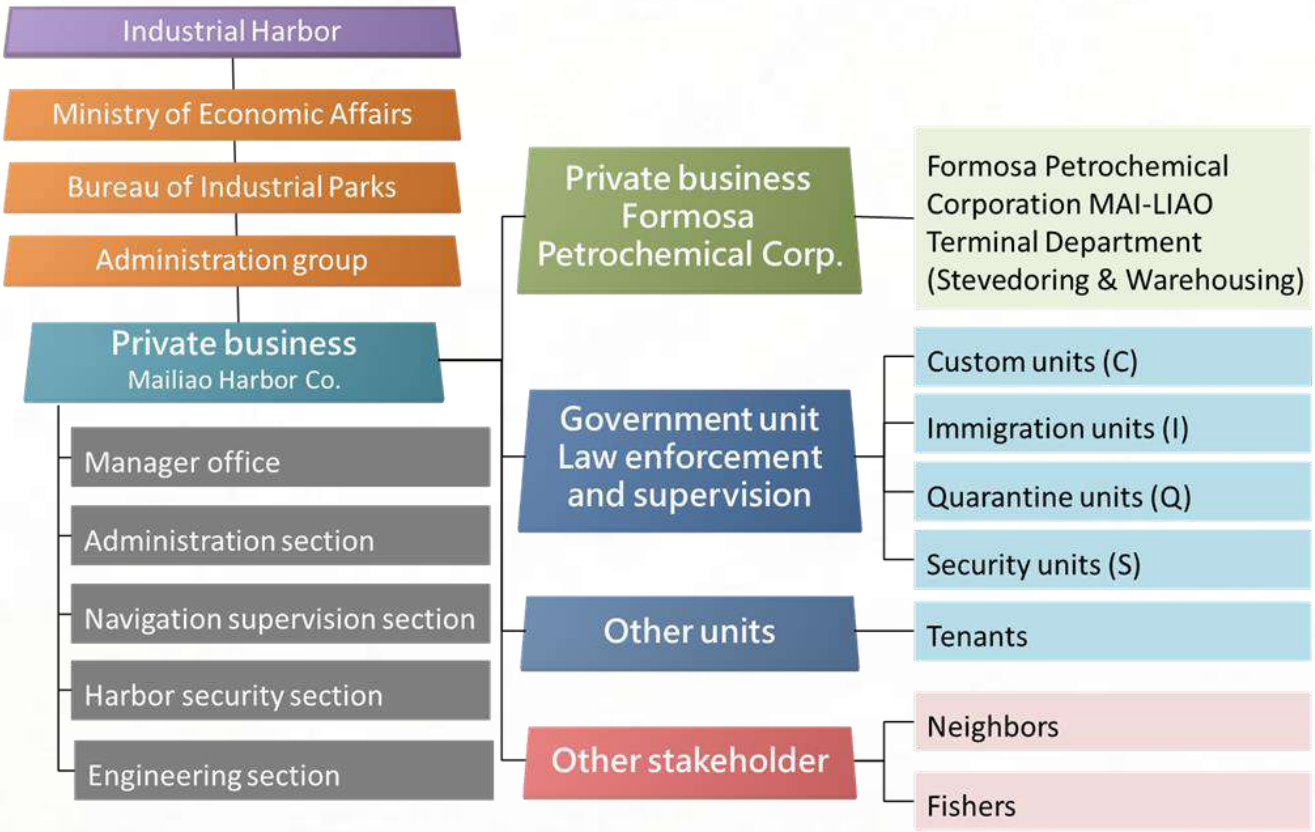
Environmental Management

Organizational Structure and Explanations

The environmental preservation of Mailiao Harbor is the responsibility of the Mailiao Harbor Administration Corporation (hereinafter referred to as the "MHAC"), primary stakeholders, secondary stakeholders, and other stakeholders. The primary stakeholder in this case is the Formosa Petrochemical Corporation MAI-LIAO Terminal Department. Secondary stakeholders can be divided into government units and other units. Government units are customs units (e.g., the Customs Administration, Ministry of Finance, Taichung Customs Business Group 2, Mailiao Business Division), immigration units (e.g., Mailiao Branch, Taichung Port Brigade, Border Affairs Corps, National Immigration Agency, Ministry of the Interior), quarantine units (e.g., the Mailiao Harbor Office, Southern Region Control Center, Taiwan Centers for Disease Control), and security units (e.g., Mailiao Industry Harbor Security Office, Fourth Coastal Guard, Central Branch, Coast Guard Administration, and Ocean Affairs Council). Other units are harbor tenants. Other stakeholders are fishers and neighbors.

The MHAC operates and manages Mailiao Harbor, whereas the management team exercises governmental authority. The customs unit, immigration unit, quarantine unit, security unit, and tenants cooperate with administrative management personnel.

Organizational Structure of Mailiao Harbor Operations



The MHAC is committed to environmental management in Mailiao Harbor. In order to smoothly carry out various management operations, the MHAC evaluates the stakeholders based on the implemented management actions and orientations, and truly understands their needs and expectations. This forms the basis for considering the promotion of port environmental management. In addition, the MHAC also establishes effective communication bridges with stakeholders through regular coordination meetings, communication groups, harbor visiting , advocacy activities, publication of green port promotion achievements, publication of environmental report, and responding to feedback in the official email.

The needs and expectations of the stakeholders of Mailiao Harbor

Stakeholders	Needs and Expectations	engagement of stakeholders with the environmental port activities
[Primary stakeholder]		
1. Private business Formosa Petrochemical Corp.	• Reduce or contain the environmental impact at the harbor ✓ Energy and resource consumption ✓ General waste recycling rate	• The regular meeting of the industrial safety and the environmental protection every month • Harbor visiting for the employee and their family • The coordination meeting for Eco-ports every quarter
[Secondary stakeholder]		
2. Custom units	• Government unit Law enforcement and supervision	• Stay connected via instant messaging (Line) • The regular meeting and activity: ✓ Stakeholder consultative meeting ✓ Training ✓ Advocacy
3. Immigration units		
4. Quarantine units		
5. Security units		
6. Tenants	• Good reputation, risk prevention	• The regular meeting with contractors every month
[Non-stakeholder]		
7. fishers and neighbors	• Environmental and Ecological Conservation ✓ Air quality ✓ Habitat/(marine) ecosystem	• Publications on Official Websites: environmental policy and the environmental report • Official email (jeff huang@fpcc.com.tw) • Contribute to the society: ✓ Call for large-scale beach cleaning ✓ Measures of fry releasing ✓ Conferences to promote Eco-ports ✓ Invitation to visit the harbor

The Mailiao Harbor Co. was jointly founded by industrialists within the industrial zone. On May 2, 1995, the Industrial Development Bureau of the Ministry of Economic Affairs approved the funding, construction, and operation of Mailiao Industrial Harbor by the Mailiao Harbor Co.

The operational goal of the Mailiao Harbor Co. was to provide prompt and convenient port functions to reduce the freight and warehousing costs for businesses, enhance industrial competitiveness, and stimulate the economy. Thus, simplicity and efficiency are the foremost considerations of the organization. The internal organizations of the Mailiao Harbor Co. include the port engineering, port security, port traffic control, and administration sections. The stevedoring operations at the wharves are managed by the Formosa Petrochemical Terminal Department. The responsibilities of the various organizational units are as follows.

Administration section

- Manage and implement business operations, and collect harbor fees.

Port traffic control section

- Monitor vessels entering and exiting the harbor, allocate berths, and dispatch boats for harbor patrol.

Port security section

- Maintain security in the harbor area and maintain environmental cleanliness.

Port engineering section

- Manage harbor area constructions and maintain harbor facilities.

Formosa Petrochemical Corporation MAI-LIAO Terminal Department

- Perform stevedoring of incoming and outgoing cargo at the wharves.

Regulations Governing Environmental Protection

The MHAC follows relevant international regulations and conventions, including the International Convention for the Prevention of Pollution From Ships (MARPOL 73/78), the London Convention (Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter), the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention), and the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

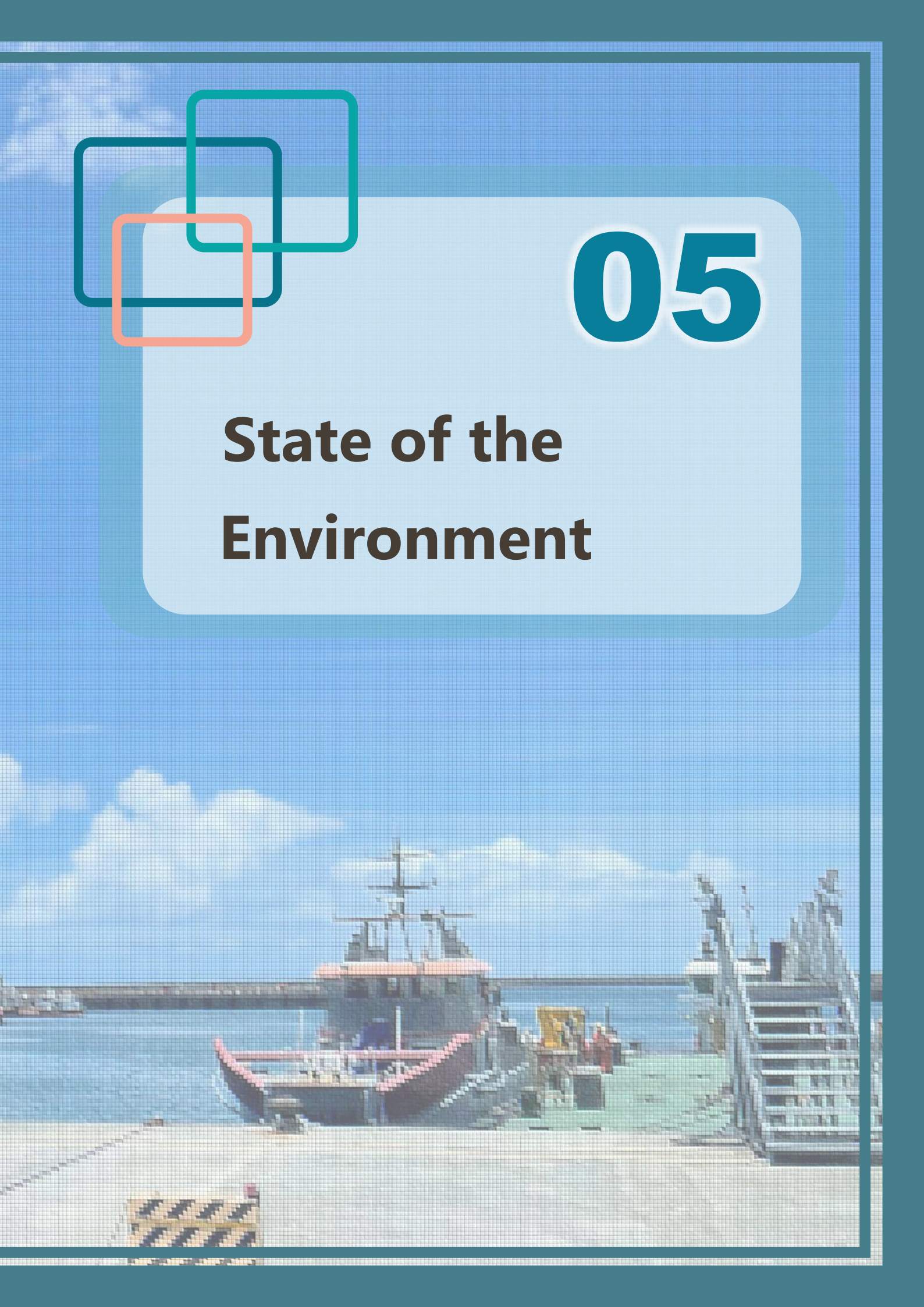
The MHAC follows relevant national regulations and environmental management practices, which are as follows:

National environmental regulations governing Mailiao Harbor

Type of laws	Regulation name/s	Central authority	Local authority
Laws related to harbor construction	Statute for Industrial Innovation	Industrial Development Administration Ministry of Economic Affairs	Yunlin County Government
	Regulations Governing Administration of Reuse of Enterprise Waste		Environmental Protection Bureau, Yunlin County
Laws governing transportation departments	The Law of Ships	Maritime Port Bureau, Ministry of Transportation and Communications	Mailiao Harbor Office
	The Commercial Port Law		
	Shipping Act		
Laws governing interior departments	Fire Services Act	National Fire Agency, Ministry of the Interior	Fire Department, Yunlin County
Laws governing agricultural departments	Wildlife Conservation Act	Council of Agriculture, Executive Yuan	Agriculture Bureau, Yunlin County
Laws governing environmental protection departments	Marine Pollution Control Act	Ocean Affairs Council	
	Marine Conservation Act		
	Basic Environment Act	Ministry of Environment	Environmental Protection Bureau, Yunlin County
	Air Pollution Control Act		
	Water Pollution Control Act		
	Waste Disposal Act		
	Resource Recycling Act		
	Environmental Impact Assessment Act		
	The Environmental Education Act		
	Noise Control Act		
	Indoor Air Quality Act		
	Toxic and Concerned Chemical Substances Control Act		
	Soil and Groundwater Pollution Remediation Act		
	Climate Change Response Act		
	Public Nuisance Dispute Mediation Act		Public Nuisance Arbitration Committee, Yunlin County
Laws related to cross-departments	Disaster Prevention and Protection Act	Ministry of the Interior	Yunlin County Government (The competent authority or local units differ based on disaster type)

05

State of the Environment

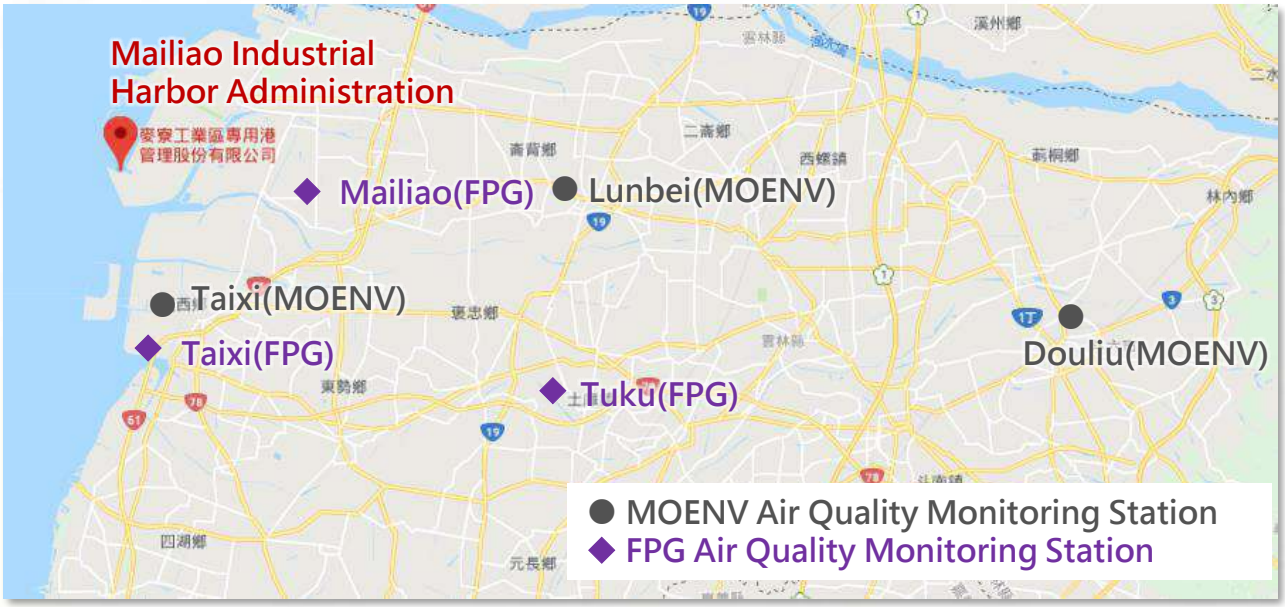


Air Quality

The primary function of Mailiao Harbor is to service the Yunlin Offshore Industrial Zone. It has spared no effort in protecting overall air quality. In the Formosa Plastics Group Sixth Naphtha Cracking Complex, the implementation of “Environmental Monitoring of Sixth Naphtha” was based on the environmental monitoring plans included in the “Environmental Impact Statement of the 6th Naphtha Expansion Project” and the “Environmental Impact Report of the 6th Naphtha Expansion Project.” The aforementioned Statement and Report were proposed by Formosa Plastics Group (hereinafter referred to as the “FPG”) and approved by the Ministry of Environment (hereinafter referred to as the “MOENV”)Each quarter, the monitoring results are sent to the 6th Naphtha Environmental Monitoring Committee for review; if the monitoring data are abnormal, the Formosa Plastics Group proposes response measures and keeps track of the situation. The monitoring and data analysis results of each quarter are compiled into a monitoring report and sent to the MOENV; the complete report is published on the MOENV website.

The air quality monitoring stations of Mailiao Harbor and Formosa Plastics Group are joint setups of Mailiao Industrial Zone. The air quality data monitored over the years from the three nearby air quality auto-monitoring stations at Taixi (Taixi Junior High School), Tuku (Honglun Elementary School), and Mailiao (Mailiao Junior High School) that were set up by the Formosa Plastics Group, along with the data from the three nearby air quality monitoring stations at Douliu, Lunbei, and Taixi in Yunlin County set up by the MOENV, were also compiled. The locations of these air quality monitoring stations are illustrated in the following figure, and the air quality monitoring data are presented and explained in the following table:

Location of air quality monitoring stations near Mailiao Harbor



Mailiao Harbor is in the vicinity of six air quality monitoring stations; they monitor the levels of sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), suspended particulates with a particle size of 10 microns or less (PM_{10}), nitrogen dioxide (NO_2), and nonmethane hydrocarbons (NMHC). Except for carbon monoxide (CO) and non-methane hydrocarbons (NMHC), the concentrations of the rest of the items are far below the regulated standards.

Air quality monitoring results over the years

Monitored item (unit)			SO_2	CO	$O_{3,\ max}$	$O_{3,\ 8hr}$	PM_{10}	NO_2	NMHC
Air quality standard (Applicable before 9/18/2020)			**30**	**-**	**120**	**-**	**65**	**50**	**-**
Air quality standard (Applicable starting 9/18/2020)			**20**	**-**	**120**	**60**	**50**	**30**	**-**
Type	Station	Year	ppb	ppm	ppb	ppb	μg／m^3	ppb	ppm
FPG monitoring stations	Mailiao	**2022**	2.23	0.33	53.10	46.69	39.18	7.64	0.04
	Taixi		2.07	0.32	52.52	46.51	31.06	7.25	0.03
	Tuku		2.30	0.35	53.51	45.55	35.22	8.34	0.05
	Mailiao	**2023**	1.81	0.30	54.13	47.84	43.78	7.55	0.04
	Taixi		1.68	0.30	54.64	48.52	40.75	7.56	0.04
	Tuku		1.84	0.32	54.04	46.60	39.79	8.20	0.05
	Mailiao	**2024**	1.71	0.30	52.31	45.90	35.11	7.42	0.04
	Taixi		1.58	0.30	49.35	43.88	34.47	7.75	0.04
	Tuku		1.66	0.30	51.41	44.85	36.40	7.83	0.05
MOENV monitoring stations	Lunbei	**2022**	1.50	0.24	50.46	42.89	35.50	6.51	-
	Taixi		1.57	0.22	52.06	45.75	30.10	5.34	0.03
	Douliu		1.62	0.28	59.49	47.87	35.80	8.33	-
	Lunbei	**2023**	1.38	0.24	51.98	44.50	42.00	6.38	0.04
	Taixi		1.42	0.22	53.19	45.75	36.30	5.80	0.03
	Douliu		1.59	0.28	60.69	50.33	40.90	8.05	0.06
	Lunbei	**2024**	1.25	0.24	51.66	44.21	40.40	6.36	0.04
	Taixi		1.35	0.21	52.38	46.05	24.50	5.45	0.03
	Douliu		1.45	0.27	60.72	49.71	35.80	7.85	0.05

- Note: "–" denotes no monitoring data or no air quality standar
- Data source: Environmental Impact Assessment supervision–Sixth Naphtha Environmental Monitoring data, MOENV, Executive Yuan (Environmental Monitoring Report for the "Offshore Industrial Zone Petrochemicals Industry Comprehensive Area Development Project," a subsidiary of FPG) https://www.moenv.gov.tw/

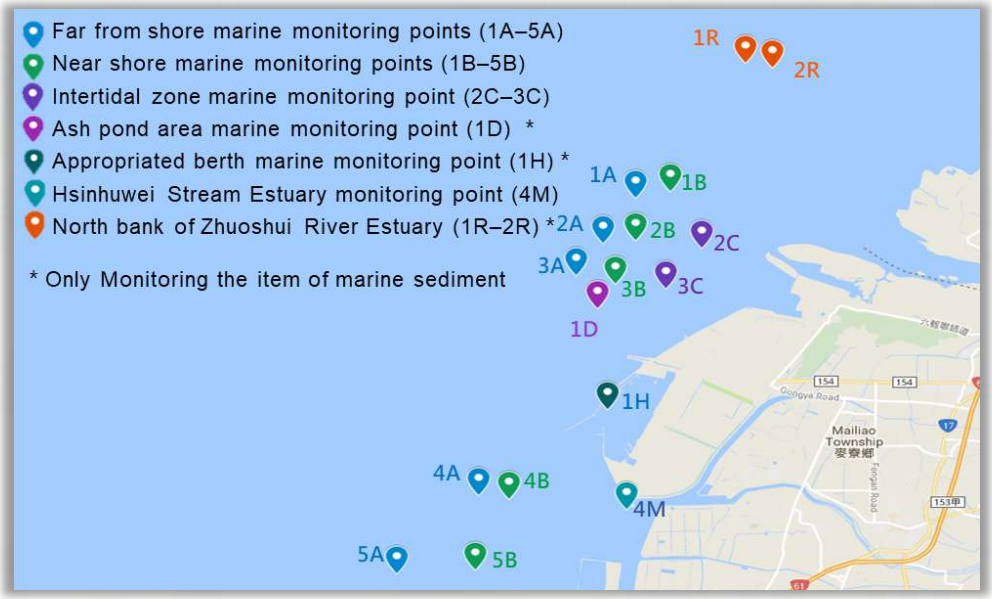
Marine Sediment and Water Quality

Water quality

Dredging operations

The marine sediment monitoring points near Mailiao Harbor are situated in the sea area near the Mailiao Industrial Zone. A total of 17 monitoring points exist, and they are classified into far from shore (1A–5A), near shore (1B–5B), intertidal zone (2C–3C), ash pond area (1D), appropriated berths (1H), Hsinhuwei Stream Estuary (4M), and north bank of Zhuoshui River Estuary (1R–2R).

Marine sediment and water quality monitoring stations



Sediment

The monitored items are the heavy metals Cd, Cr, Cu, Ni, Pb, Zn, As, and Hg. During 2023 to 2024, all pollutants were below the lower threshold and quality test qualification rate was 100%.

The monitoring of heavy metals in the sediment of Mailiao Harbor revealed that, except for some gauging stations with Ni and As concentrations exceeding the lower threshold of sediment quality. However, the concentration of heavy metals in sediment is affected by several factors, such as the marine sedimentary environment, the sediment source, particle size, the amount of organic carbon, geochemical functions, and whether contamination exists (Luoma, 1990). According to the sediment research related to the Taiwan Strait, the Ni concentration in the sediment of the southwest coast of Taiwan was 16.2–95.2 mg/kg, exceeding the upper limit (Lee et al., 1998a). The Ni concentration in the ocean sediment in Kaohsiung and Pingtung ranged from 25 to 64 mg/kg; all concentrations in this range are below the lower limit. The concentration of As was 11.2–15.7 mg/kg (Hung, 2004 and 2009); this range exceeded the lower limit, revealing that the high concentrations of Ni and As in the sediment in the southwest ocean of Taiwan were the result of geological characteristics rather than harbor activities.

Sediment monitoring indices

Unit: mg/kg		Cd	Cr	Cu	Ni	Pb	Zn	As	Hg
Sediment Quality Guidelines	Lower limit	0.65	76.0	50.0	24.0	48.0	140	11.0	0.23
	Upper limit	2.49	233	157	80.0	161	384	33.0	0.87
Sediment Biohazard Guidelines (NOAA, U.S.)	ERL	1.2	81	34	20.9	46.7	150	8.2	0.15
	ERM	9.6	370	270	51.6	218	410	70	0.71

Sediment heavy metal concentration range of monitoring stations at the Mailiao sea area

	Cd (mg/kg)			Cr (mg/kg)			Cu (mg/kg)			Ni (mg/kg)		
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
2023Q1	0.019	0.087	0.052	13.22	32.85	17.91	2.46	17.7	5.33	10	22.7	14.8
2023Q2	0.019	0.087	0.052	11.77	27.79	16.28	2.5	19.9	4.8	9.9	16.6	12.7
2023Q3	0.011	0.074	0.029	10.76	20.78	13.93	1.6	17.1	5.2	10.2	18.1	13.4
2023Q4	0.012	0.047	0.026	10.89	27.99	16.53	2.1	11.4	4.5	9.5	21.4	15.5
2024Q1	0.007	0.067	0.029	15.80	65.39	26.83	2.5	12.5	4.77	15	24.7	18.6
2024Q2	0.013	0.11	0.029	11.43	40.80	21.97	3.67	33.79	7.2	13.8	29	17.2
2024Q3	N.D.	0.17	N.D.	18.40	61.32	28.20	9.8	34.2	13.8	15.8	36.3	20.1
2024Q4	0.012	0.047	0.026	19.79	96.04	33.95	2.1	11.4	4.5	9.5	21.4	15.5

	Pb (mg/kg)			Zn (mg/kg)			As (mg/kg)			Hg (mg/kg)		
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
2023Q1	10.2	28.5	14.7	24.3	71.4	38.4	5.3	9.6	7.3	0.011	0.065	0.027
2023Q2	7.2	21.3	14	26.5	73.6	41.8	5	9.3	7.2	0.015	0.056	0.034
2023Q3	3.5	19.4	10	17.6	45.6	28.4	5.2	9.8	6.9	0.015	0.071	0.04
2023Q4	5.9	12.7	8.2	18	38.9	26.3	4.7	9.9	6.3	0.022	0.067	0.042
2024Q1	11.1	28.9	13.7	36.3	63.3	46.4	8.1	11.9	9.6	N.D.	0.09	N.D.
2024Q2	11.1	27.8	14.1	33.2	128.5	47.7	6.9	11.2	8.8	-	N.D.	N.D.
2024Q3	10.2	27.4	12.9	47.1	121.2	61.9	8.8	15.2	10.9	-	N.D.	N.D.
2024Q4	5.9	12.7	8.2	18	38.9	26.3	4.7	9.9	6.3	0.022	0.067	0.042

Marine water quality

Marine water quality is subject to the influence of natural factors such as upstream scour and rising and ebbing tides that are cannot be controlled by the harbor. The marine water quality monitoring points are situated in the sea area near the Mailiao Industrial Zone. A total of 13 monitoring points are setting up to monitor 29 monitoring items such as temperature, salinity, dissolved oxygen, pH value, nitrate, E-coli, biochemical oxygen demand, chemical oxygen demand, ammonia nitrogen, total phosphorus, heavy metals, and volatile organics.

Marine water quality of Mailiao Harbor in 2023 and 2024

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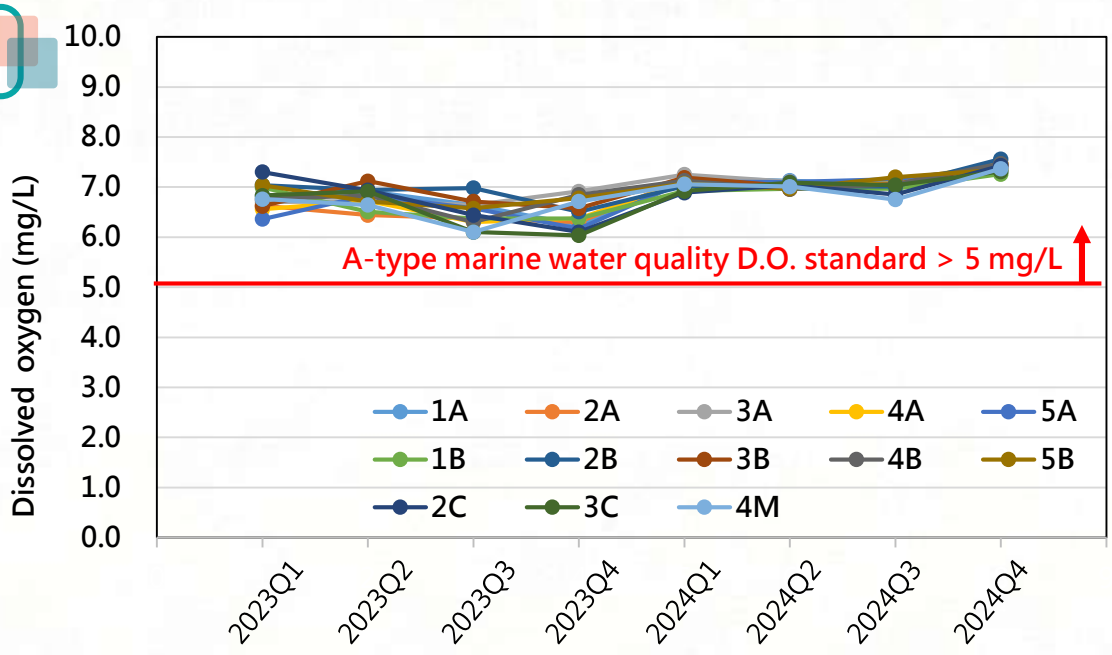
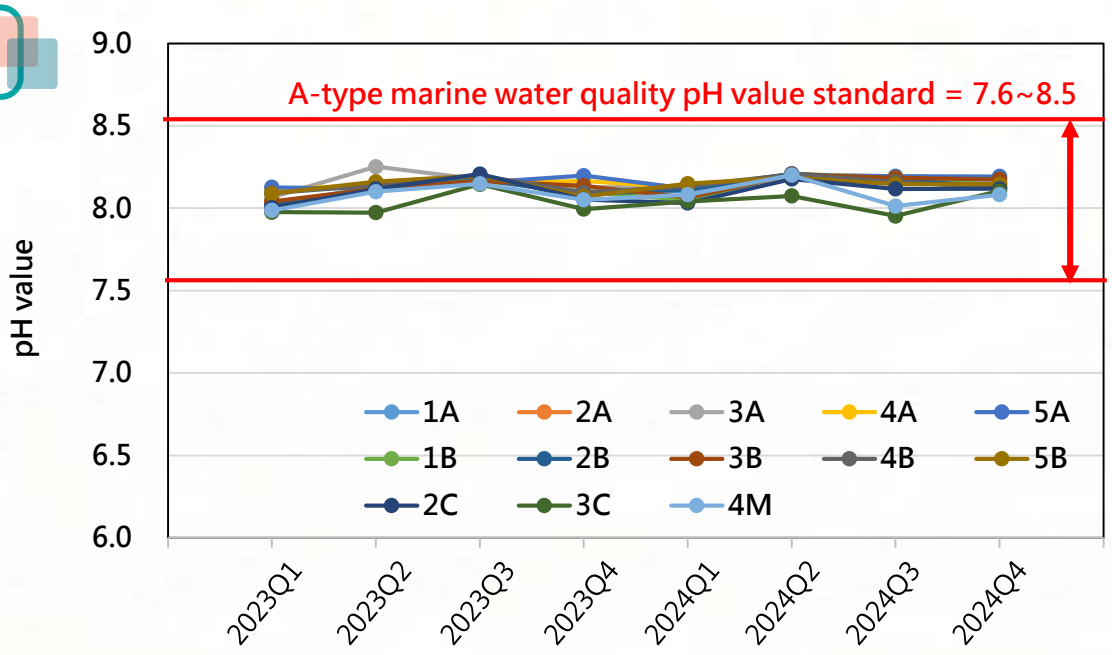


pH

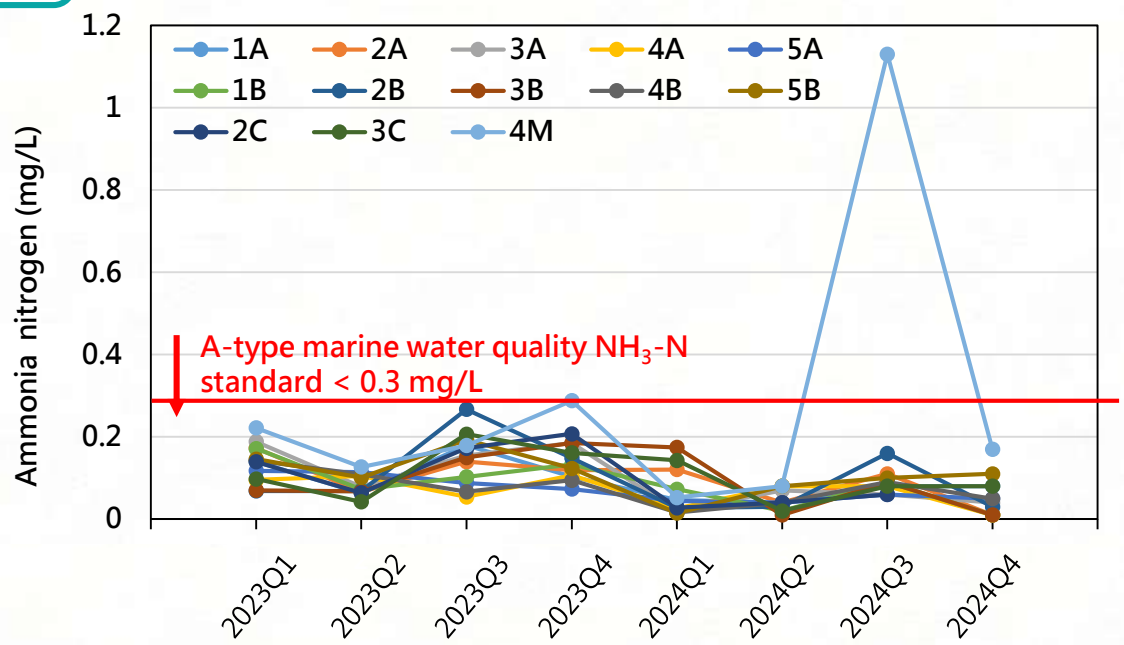


During 2023–2024, quarterly monitoring of DO, pH, NH_3-N, and Total Phosphorus achieved a 97.4% compliance rate with marine water quality standards (refer to Appendix I for details).

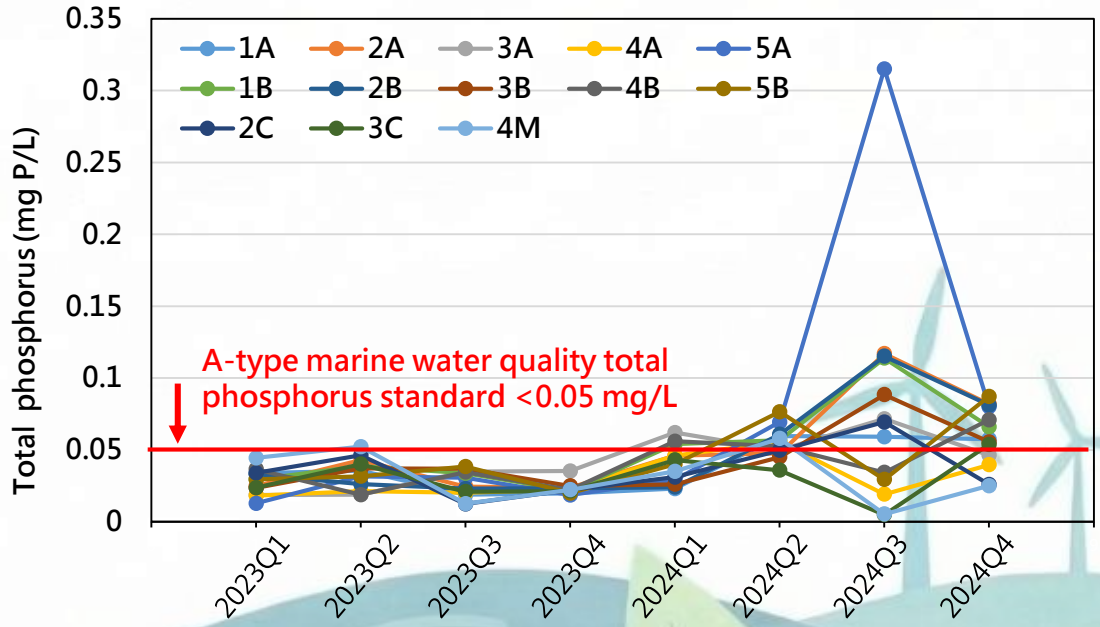
In the second half of 2024, typhoons Gaemi (July) and Krathon (September) brought heavy rainfall, increasing land-based nutrient runoff into the sea. Due to tidal and current dispersion, elevated concentrations of NH_3-N and Total Phosphorus were recorded at certain stations, occasionally exceeding environmental standards.

Marine water quality of Mailiao Harbor in 2023 and 2024

NH_3-N



Total Phosphorus



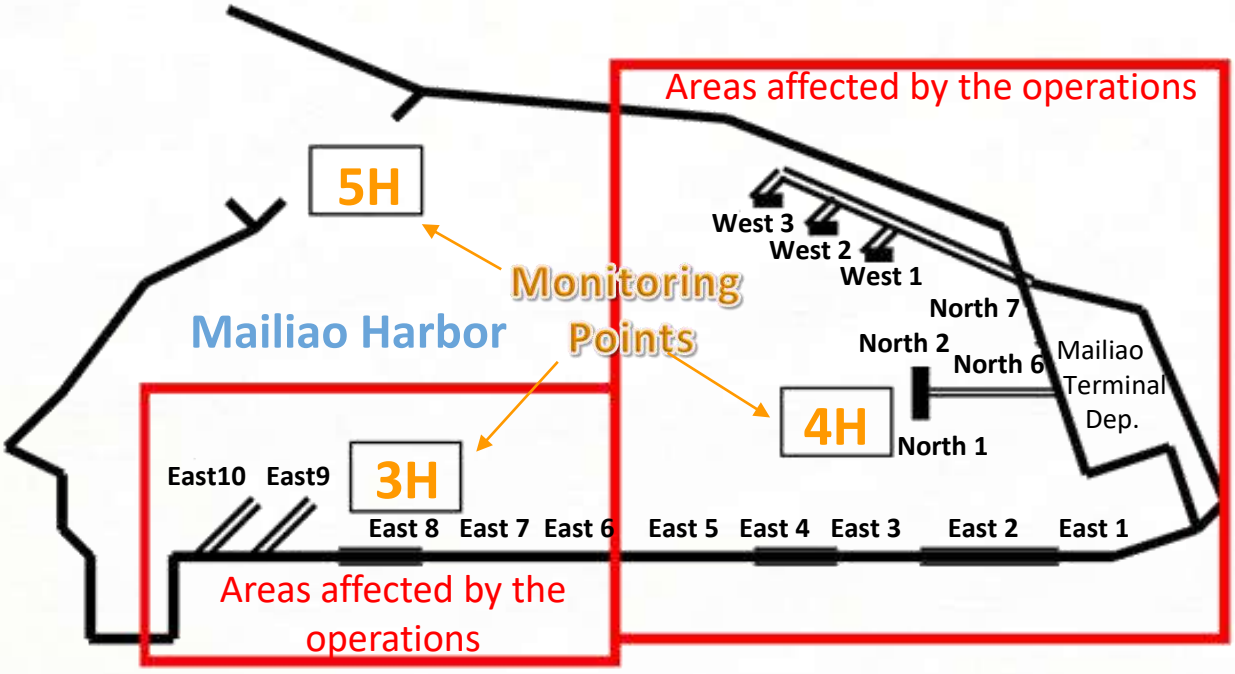
Harbor Area Water Quality

The incoming and outgoing cargoes at Mailiao Harbor are primarily industrial raw materials. To prevent chemical goods from polluting the sea when entering or exiting the harbor, a set of comprehensive guidelines has been formulated and implemented at Mailiao Harbor for water quality protection, including water quality assessment. Quarterly surveys are conducted at three stations (3H–5H) covering 32 parameters, including DO, pH, NH_3-N, nutrients, heavy metals, and VOCs.

Quarterly sampling results from 2023 to 2024 indicate that DO, pH, NH_3-N, and Total Phosphorus consistently met the Category A Marine Water Quality Standards (established under Article 8, Paragraph 1 of the Marine Pollution Control Act). The overall compliance rate reached 99.7%, as detailed in Appendix II.

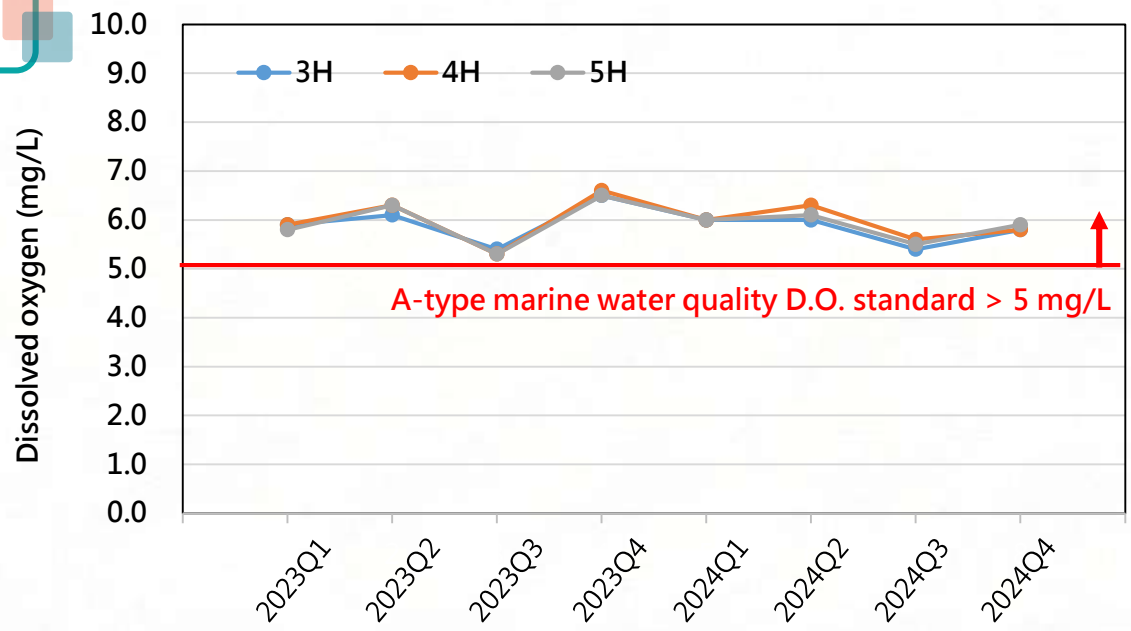
Although Total Phosphorus concentrations at monitoring stations 3H and 5H near the approach channel exceeded standards during the Q4 2024 survey, a thorough investigation confirmed that neither port operations nor neighboring industrial plants utilize or discharge phosphorus-containing chemicals, and no operational anomalies were detected during this period. Given that subsequent quarterly follow-up surveys returned to compliant levels, this elevation is identified as an isolated incident with no significant correlation to specific port activities or industrial sources; furthermore, natural environmental factors cannot be ruled out, particularly the passage of Typhoon Krathon in late September 2024, where torrential rainfall likely triggered an influx of land-based nutrients from river discharge into the sea, temporarily impacting harbor water quality.

Location of sea water quality monitoring points at Mailiao Harbor

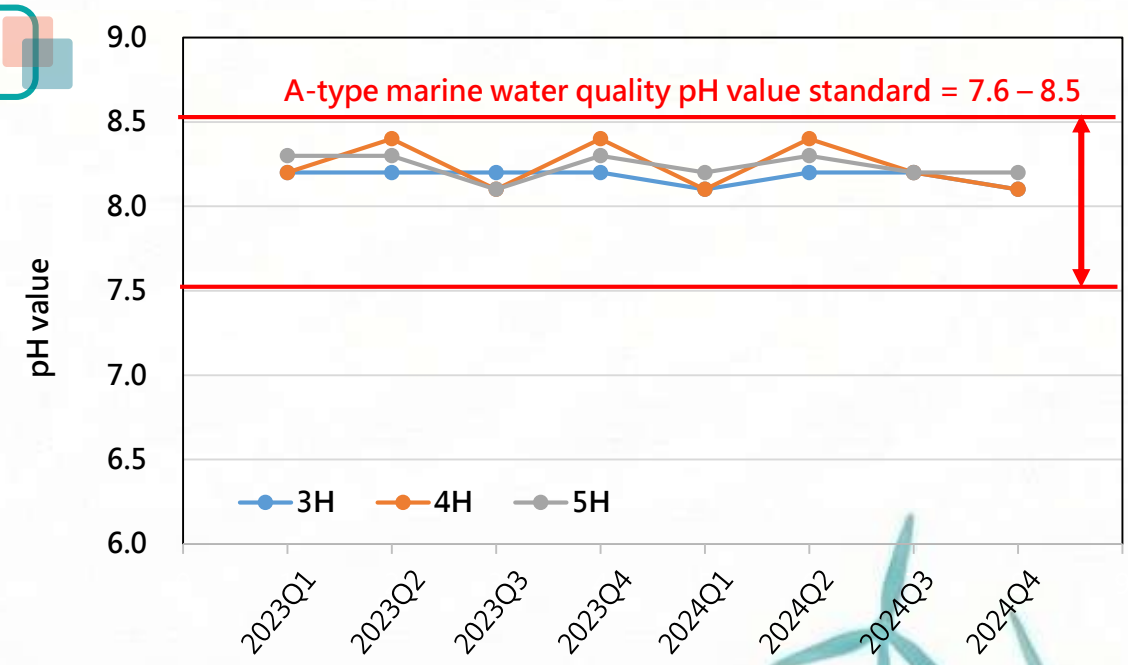


Harbor area water quality of Mailiao Harbor in 2023 and 2024

D.O.

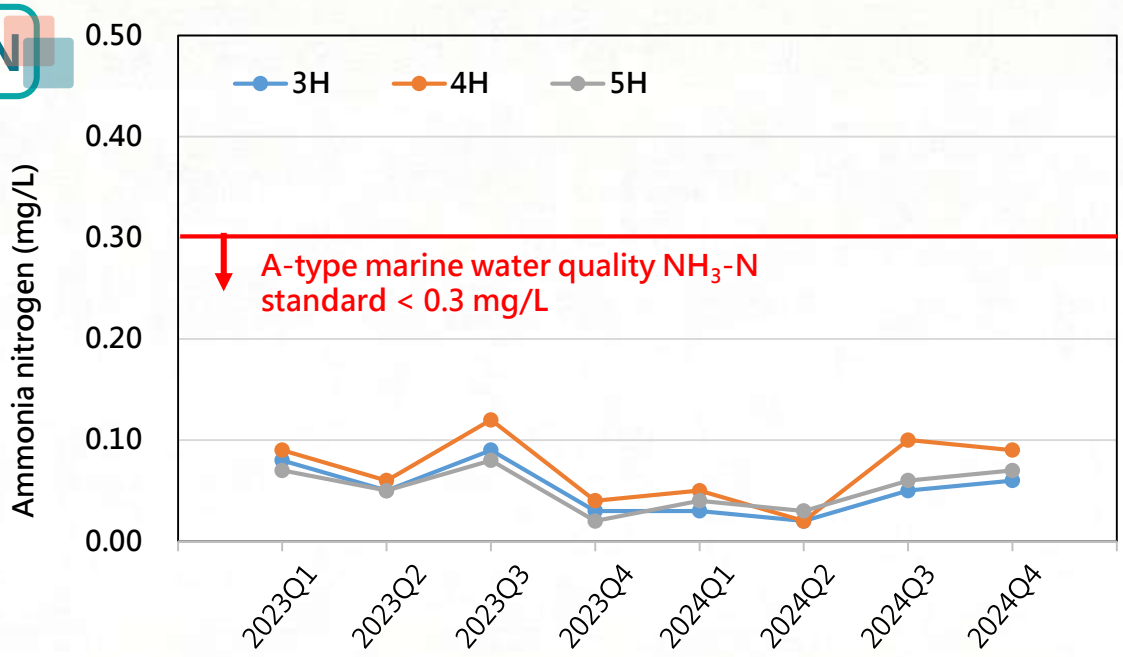


pH

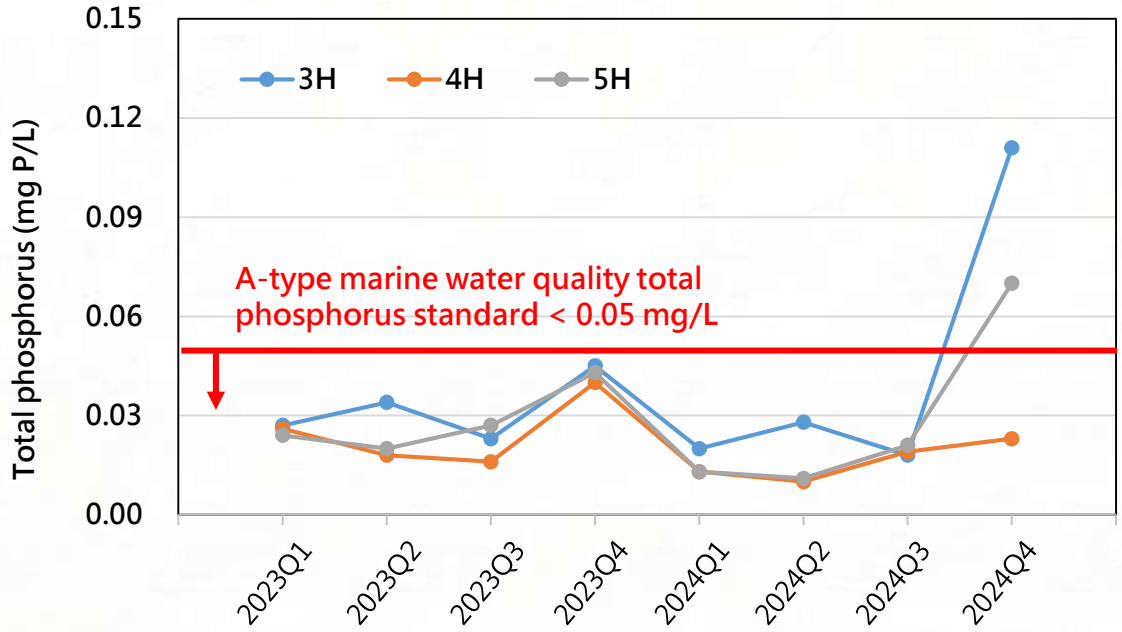


Harbor area water quality of Mailiao Harbor in 2023 and 2024

NH_3-N



Total Phosphorus



Ship Discharge and Bunkering

Additionally, Mailiao Harbor highly values the sea and implements several protection measures, such as requiring all cabin-washing water to be recycled as per the regulations; other requirements include leakage prevention measures and response measures in case of leakage, and they are explained as follows:

Regulations governing cabin prewashing operations

To fulfill the commitment included in the finalized Environmental Impact Statement of the 6th Naphtha Expansion Project and to meet the requirements of the Mailiao Harbor Marine Pollution Control Plan, the harbor has put in place controls for transportation of importing (incoming) chemical cargo vessels. To prevent randomly discharged toxic liquids from polluting the marine environment, the vessels must conduct cabin prewashing operations after unloading their cargo, and the water used must be treated and recycled as per the regulations. Hence, the harbor has clearly defined the scope and method for cabin prewashing. These control operations are clearly defined in the “computer-based tracking and control operations of cabin prewashing wastewater in Mailiao Harbor.” If the control operations are not conducted because the shipped goods are in a different category, then the “Mailiao Harbor cabin prewashing wastewater tracking and control system” is adopted instead to track the vessel to the next port and replace the operating results of Mailiao Harbor with those of the next port, thereby fulfilling management responsibilities.

Leakage prevention and response measures

To prevent marine pollution, two levels of regulations have been established. Level 1 regulations are to formulate appropriate regulations to prevent any possibility of leakage, which include regulations on refueling, standards in the stevedoring of dangerous goods, and unloading guidelines. Level 2 regulations are to formulate response measures to be taken during a leakage event, including immediate treatment and preventing leaks from spreading. Relevant guidelines include the mandatory use of an oil boom to surround the vessel during the stevedoring of oil-based products and chemicals, the installation of pollution prevention facilities and cleaning equipment at all connecting points of the refueling pipeline in the refueling ship during refueling, and the immediate termination of operations in case of oil leakage and any abnormalities. The aforementioned measures are clearly defined in the “Regulations Governing Vessel Refueling at Mailiao Industrial Harbor Administration” and the “Regulations Governing Dangerous Goods Loading and Unloading at Mailiao Industrial Harbor Administration.”

Management of dangerous Cargo

Because Mailiao Harbor is located near the Mailiao Industrial Zone, the possibility of harbor area soil being polluted cannot be ruled out. To prevent pollution of soil and groundwater, the MHAC has implemented pollution prevention measures in the storage tank area. These measures are complemented by the oil and terminal departments, and are explained as follows:

Pollution prevention measures for the storage tank area

To prevent leakage of oil or oil-based products and to reduce the environmental impact incurred by such incidents, the bottom of the storage tanks in the factory area and the surrounding areas are reinforced with barrier constructions, including waterproof material and spill dikes. Leakage test tubes and oil leakage monitors are installed parallel to the bottom and side of the storage tanks. Regular inspection or real-time monitoring is conducted to assess the potential of oil leakage on or near the storage tanks. Oil leakages are managed at various levels based on the leakage potential to achieve the ultimate goal of pollution prevention.

1. Leakage prevention measures

1) Before laying the floorboard of the storage tanks, check that the base has at least 95% compaction.
   Purpose: Floor compaction reduces soil permeability and prevents uneven sinking or tilting of storage tanks.
2) Remove rust and paint the tank floor, as well as apply an anti-corrosion layer and fiber-reinforced plastic (FRP) coating to the joint connecting the floor and exterior wall.
   Purpose: To prevent leakage caused by the corrosion of storage tank steel plates.

2. Barrier measures

1) Before laying the floorboard of the storage tanks, lay high density polyethylene (HDPE) waterproof material.
   Purpose: Prevent leaks from directly permeating the ground and causing groundwater and soil pollution.
2) Construct an interceptor ditch with a reinforced concrete (RC) base on the exterior of the storage tank base.
   Purpose: An RC interceptor ditch can stop leaked oil from flowing into the soil.
3) Construct a spill dike near the storage tank.
   Purpose: To prevent leaks from directly permeating the ground and causing groundwater and soil pollution.

3. Leak test measures

1) Bury horizontal tilt detection tubes at the base of the storage tank.
   Purpose: If leakages flow into the RC interceptor ditch through the tilt detection tubes, then the leak sensor inside the PIT sends an alert signal to staff.
2) Install fuel gas detector (for the oil-based product storage tank).
   Purpose: To send an alert signal to staff immediately when the storage tank leaks.
3) Install a groundwater monitoring well for long-term monitoring of water quality.
   Purpose: To determine whether the storage tank is leaking by understanding the water level and water quality changes in groundwater.
4) Monitor sinking of the storage tank.
   Purpose: To determine changes in elevation of the storage tank, and prevent uneven sinking and tilting of the storage tank.
5) Monitor sinking of the RC interceptor ditch of the storage tank (for storage tanks with an RC base).
   Purpose: To determine the base elevation and prevents the base from uneven sinking and tilting.

Oil tank leakage prevention and detection measures

1. Leakage prevention measures for storage tank floor
- 1.1 Compaction of storage tank base
- 1.2 Leak prevention layer on storage tank base
- 1.3 Drainage tube
- 1.4 Fuel gases detector tube
- 1.5 Horizontal inclinometer tube

2. Leakage prevention measures for the body floor
- 2.1 Anti-corrosion engineering for the floor
- 2.2 Oil leak detector
- 2.3 Monitors for body sinking

3. Breakage and leakage prevention measures for the tank body
- 3.1 RC base sinking monitor
- 3.2 Floor compaction
- 3.3 Gas detector
- 3.4 Rain and wastewater drainage
- 3.5 Spill dike
- 3.6 Groundwater monitoring well

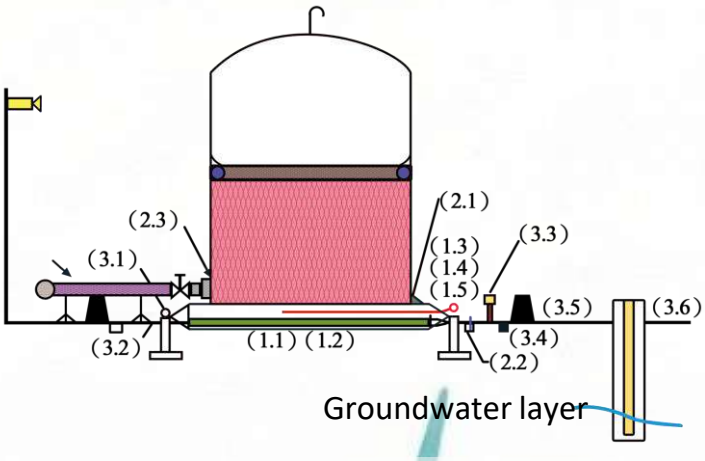


Diagram of leakage prevention measures for a 130,000 kiloliter crude oil storage tank

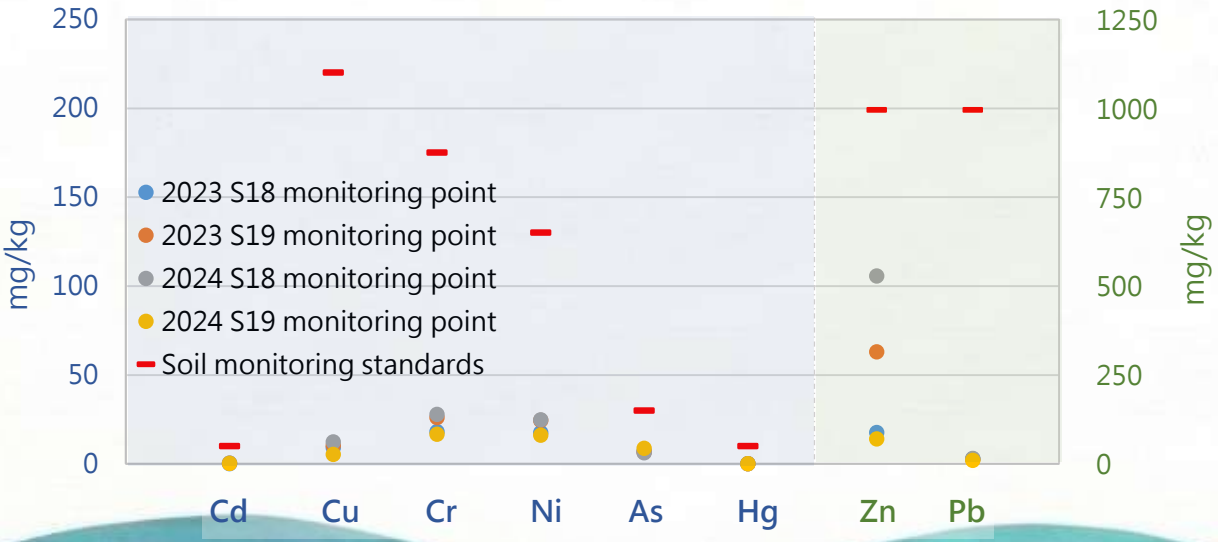
Soil and groundwater

Four soil monitoring points exist near the harbor. Points S18 and S19 monitor soil pH value, eight types of heavy metal element (i.e., cadmium [Cd], chromium [Cr], copper [Cu], nickel [Ni], lead [Pb], zinc [Zn], arsenic [As], and mercury [Hg]), 20 types of volatile organic substances (benzene, toluene, ethylbenzene, xylene, 1,3-dichlorobenzene, 1,2-dichlorobenzene, carbon tetrachloride, chloroform, 1,2-dichloroethane, cis-1,2-dichlorobenzene ethylene, trans-1,2-dichloroethylene, 1,2-dichloropropane, tetrachloroethylene, trichloroethylene, vinyl chloride, hexachlorobenzene, 3,3-dichlorobenzidine, 2,4,6- Trichlorophenol, 2,4,5-trichlorophenol, and pentachlorophenol), and total petroleum hydrocarbons. Points S31 and S32 monitor acrylonitrile.

Mailiao Harbor soil sampling locations map

According to the 2023 and 2024 soil monitoring data, the eight types of heavy metal monitored at stations S18 and S19 were within the limits of soil pollution monitoring standards. None of the 20 types of volatile organic substances were detected. The highest value for total petroleum hydrocarbons was 44.3 mg/kg, which was far lower than the regulatory standard of 1,000 mg/kg. Acrylonitrile, monitored at S31 and S32, was below the detection limit, showing that the soil near the harbor did not suffer any significant pollution.

Heavy metals concentration in soil at monitoring points near the harbor



Harbor waste

Garbage/ Port waste

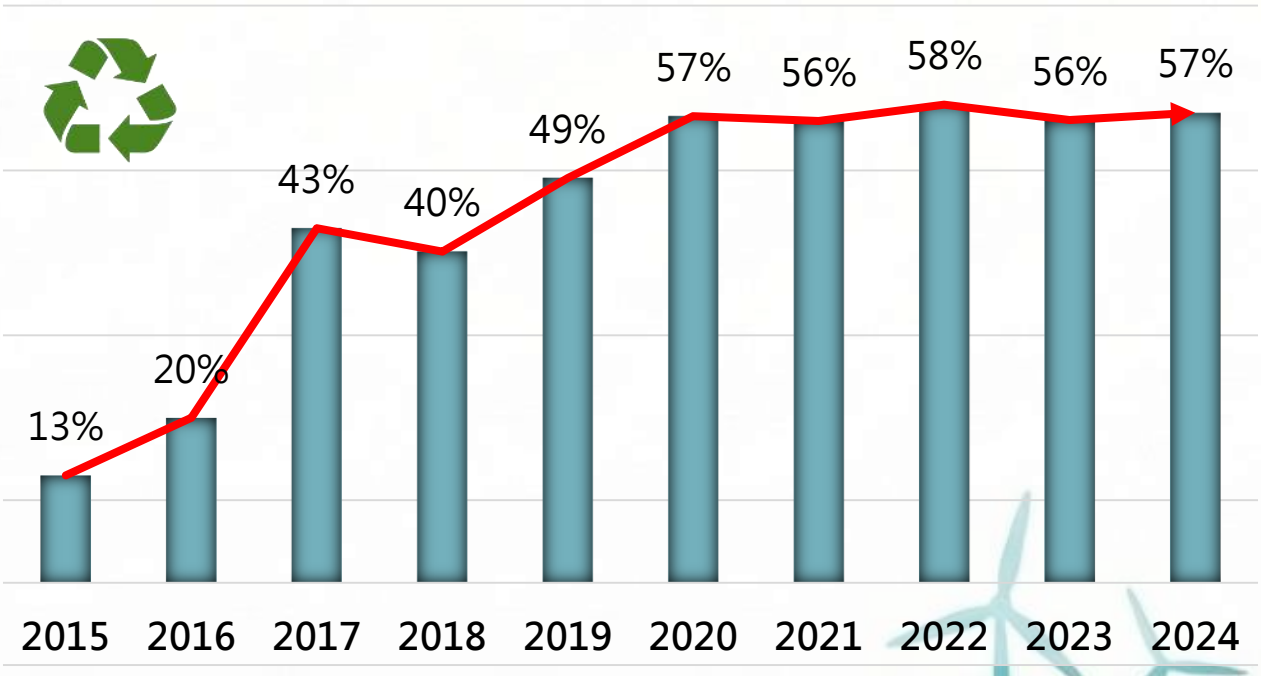
Mailiao Harbor greatly emphasizes a clean harbor environment. To maintain cleanliness at the harbor and ensure appropriate treatment of waste, the harbor commissioned qualified operators for waste disposal according to the Waste Disposal Act, and clearly defined waste disposal timings to be followed by relevant harbor personnel. Vessels moored at the harbor must comply with the “Notification Form of Garbage Removal from the Vessels Berthing at Mailiao Industrial Harbor” when sorting waste. The Mailiao Harbor Co. actively promotes the importance of sorting waste and has installed waste sorting bins at all offices to enhance the recycling rate of waste at the harbor.

General Waste

A review of general waste management from 2015 to 2024 demonstrates significant progress through active promotion and rigorous disposal protocols by the MHAC and the Formosa Petrochemical Corp. MAI-LIAO Terminal Department. Total waste removal dropped substantially from 4,528.21 tons in 2015 to 2,644.71 tons in 2024, with the MHAC’s specific volume decreasing from 285.8 tons to 116.3 tons. Alongside this reduction, the overall recycling rate soared from 13% in 2015 to 57% in 2024. These results highlight the MHAC 's success in advancing source reduction and resource circulation management.

Recycling status in 2015 to 2024

(MHAC and the Formosa Petrochemical Corp. MAI-LIAO Terminal Department)



The various operations are explained as follows.

1. Waste reduction at source

1) Garbage produced by vessels berthing at the harbor

- After a vessel berths at the wharf, the “Notification Form of Garbage Removal from the Vessels Berthing at Mailiao Industrial Harbor” is sent to the shipper, requesting the shipper to sort garbage according to the regulations.
- Garbage removal time is 13:00–15:00 daily.

2) Garbage produced by vessels offshore

- Promote garbage sorting to related workers and contractors during meetings.
- Set up waste sorting bins at offices.

2. Waste sorting

1) Garbage produced by vessels berthing at the harbor

- Collect the garbage produced by vessels berthing at the harbor every day, and ask the cleaning personnel to sort the garbage according to company regulations.

2) Garbage produced by vessels offshore

- Dispose and transport the garbage in the garbage sorting bins every day to the waste collection yard, and ask the cleaning personnel to re-sort the garbage according to company regulations.

3. Recycling

After sorting, the garbage at the harbor area (harbor vessel and offshore vessel garbage), are temporarily kept at the waste collection yard.

- According to the type of garbage, recycling firms collect the recyclable wastes, and transport them to various recycling plants for recycling and reuse.
- Garbage that cannot be recycled is transported to a subsidiary of the Formosa Petrochemical Corporation, the Nan Ya recycling plant, for incineration or landfill.

Industrial Waste

The following table details the types and amounts of industrial waste processed by the MHAC in 2023 and 2024. The MHAC processed industrial waste including valuable waste, recyclables, general industrial waste, and waste oil and sewage. The harbor maintains a comprehensive tracking system for industrial waste, encompassing balances, generation, and removal volumes across various categories. Key initiatives include the recovery of valuable recyclables, primarily scrap metal, with a total removal volume of approximately 2,796 tons, alongside other resource recycling materials such as waste rock wool, waste wood, and waste belts totaling approximately 284 tons. General industrial waste, comprising insulation materials, paint chips and sludge, oily sludge, sludge mixtures, and foam liquid concentrates, reached a total removal volume of approximately 3,241 tons, while the disposal of oily wastewater was recorded at approximately 776 tons.

Regarding industrial waste, the MHAC conducts regular, random inspections of manufacturers' construction site environment to ensure that waste is appropriately categorized and temporarily stored according to regulations.

MHAC industrial waste types and processing volume in 2023 and 2024

Type	Valuable	Resource recycling			General industrial waste					Waste oil Sewage
Item	Waste ferrous materials	Waste rock wool	Waste wood	Waste leather belts	Cold insulation	Paint waste	Waste oil	Sludge mix	Primary foaming liquid	
Balance	141	0	10	806	61	0	0	3,189	0	-
Output	3,390	63	211	0	27	0	0	3,189	0	-
Clearance	2,796	63	221	0	52	0	0	3,189	0	776

(unit: metric ton)

Recycling and Reuse Process of Waste Rock Wool

Centralized Collection for Recycling

Transportation to Specialized Facilities for Processing

Reuse of processed waste rock wool

Dredging management

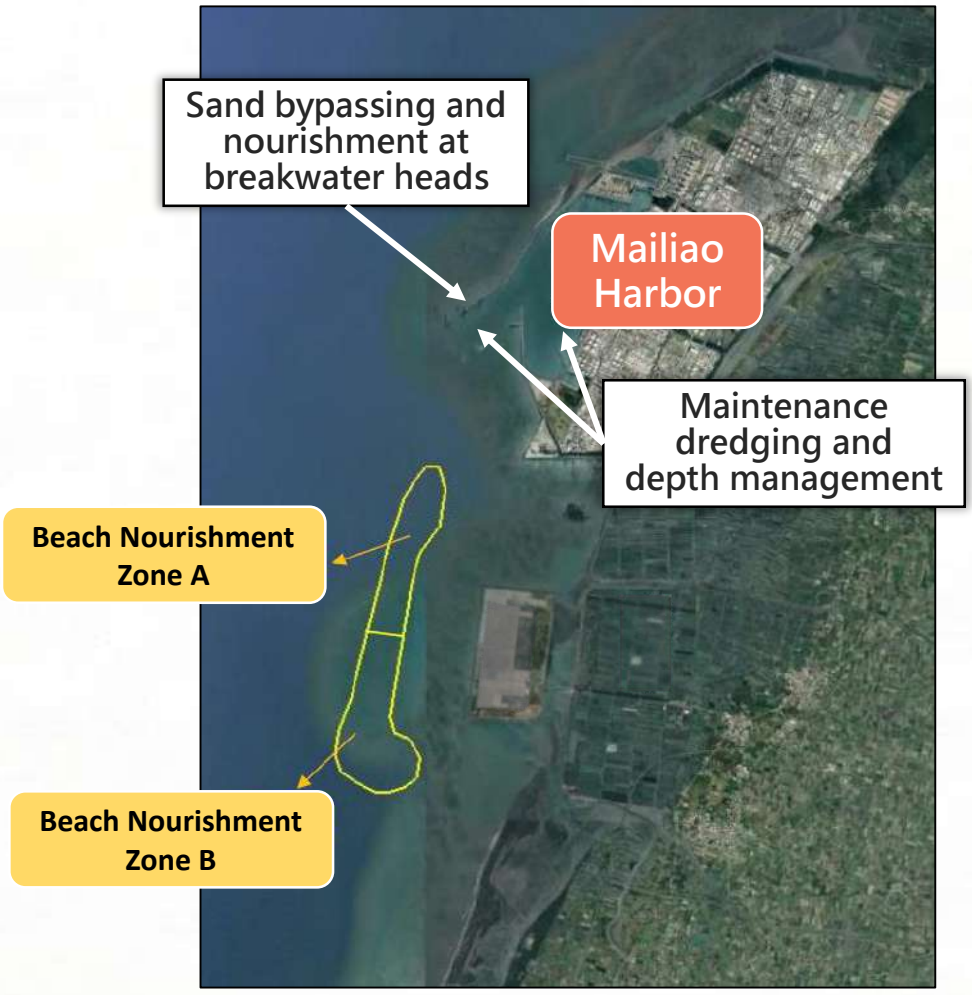
Dredging operations

To maintain the course and depth of the harbor, dredging and silting are mandatory. According to the review conclusions of the "Environmental Impact Statement of the Mailiao Harbor Transformation Plan in Yunlin Offshore Industrial Zone," Mailiao Harbor uses sediments of sound quality from external channel dredging excavation to cover erosion at the south bank caused by development of Mailiao Industrial Park. This landfill operation, which began in 2009, is ongoing.

The landfill volume is based on the numerical simulation results obtained by professional research institutes. The simulation results estimated that a throwing amount of 600,000 to 1,000,000 m^3 of sand could achieve sand transport balance.

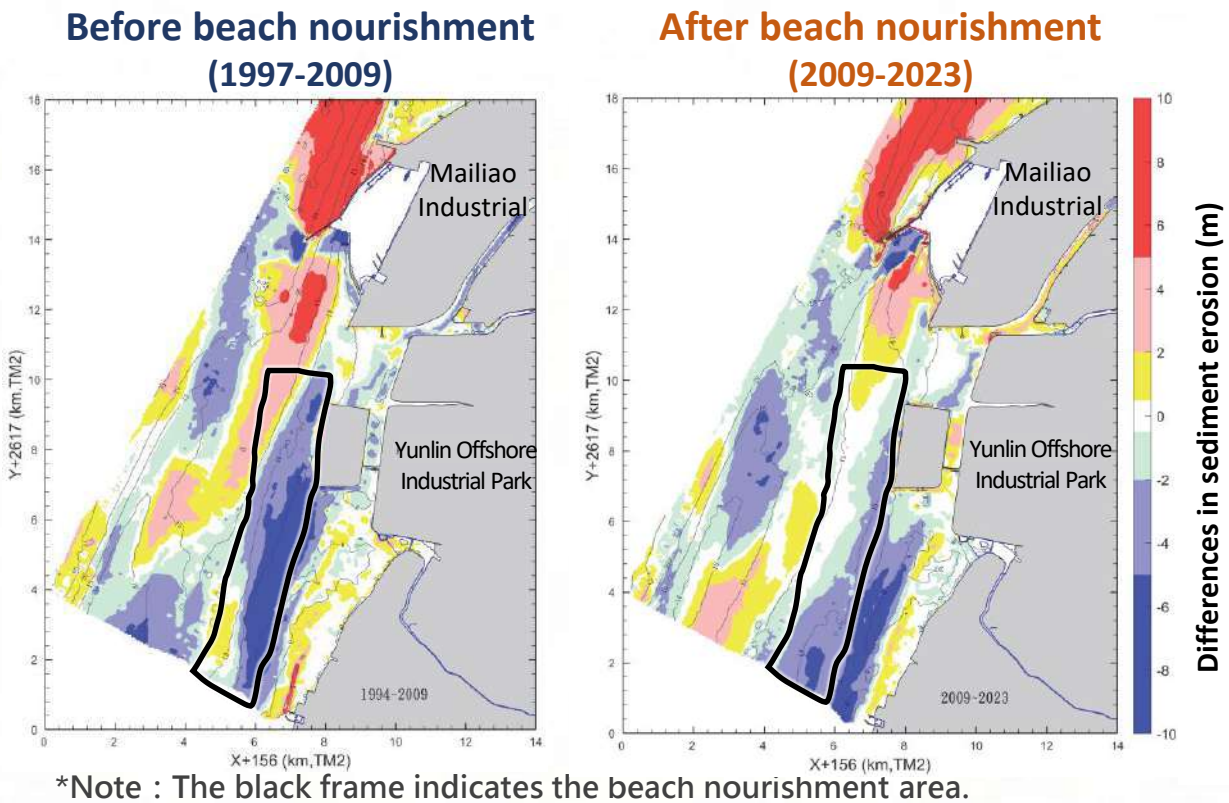
The landfill method used a sand dredger to dredge channel silt, and then the suspended sand in the upper layer of the cabin was eliminated using the overflow method; finally, superior-quality sand with larger particles that settled at the bottom of the cabin was transported and dumped at the landfill site. Landfilling is paused during oyster spawning, and water quality monitoring is conducted during landfilling to prevent the activity from affecting the marine ecology.

Layout Plan of Beach Nourishment



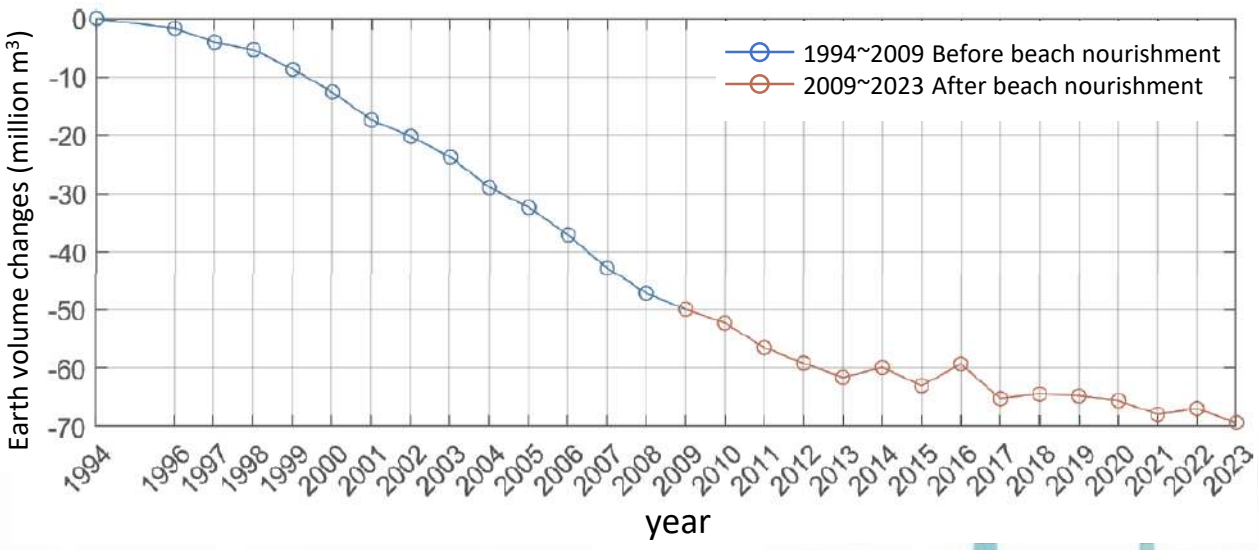
The survey results of water depth topography over the years have indicated that landfill and beach nourishment could make up for a part of the sand source of the eroded area, and help to reduce regional changes in plane siltation. For example, the south side of the Hsin Hsing Zone, which has a depth of 10–15 m, continues to show erosion. The water depth and topography will continue to be monitored, and the effectiveness of landfill and beach nourishment shall be reviewed periodically.

Comparison of Mailiao Harbor 14 years before beach nourishment and 14 years after beach nourishment



*Note：The black frame indicates the beach nourishment area.

Earth volume changes from 1999 to 2023 (the beach nourishment area)



(Date source: Bureau of industrial Parks, Ministry of Economic Affairs, 2024)

Climate Adaptation and Green Energy

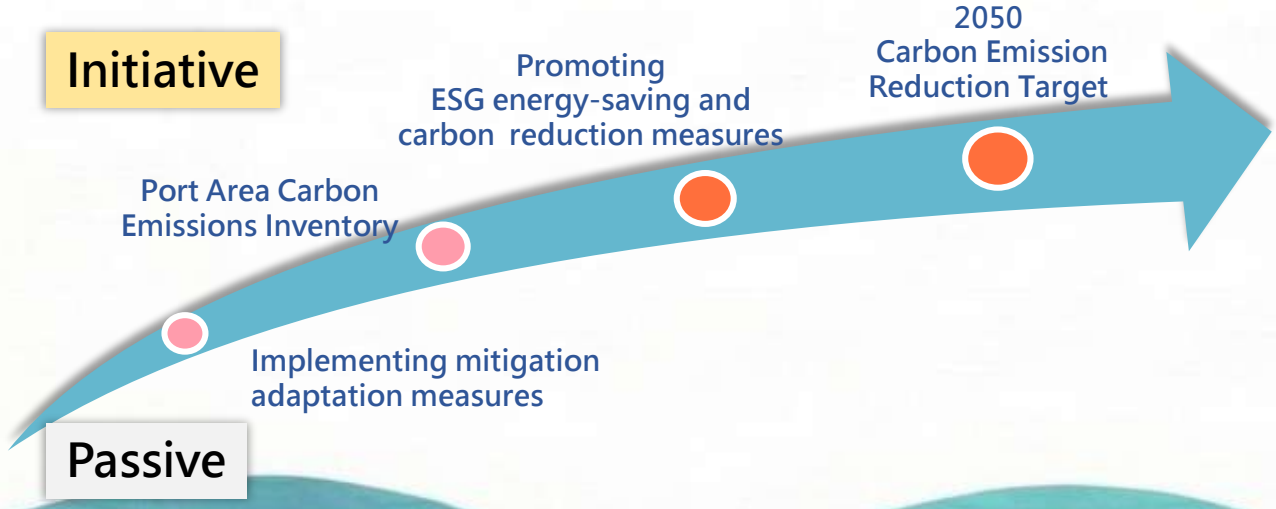
In response to global climate change and the need to implement necessary mitigation and adaptation strategies, our country takes the responsibility of environmental protection as a priority. On April 22, 2021, Earth Day, Taiwan declared its goal to achieve net-zero emissions by 2050 and amended the original “Greenhouse Gas Reduction and Management Act" to the "Climate Change Response Act" on February 15, 2023. The aim is to reach net-zero emissions goal by the policies for greenhouse gas (GHG) reduction and climate change adaptation.

In 2021, Formosa Plastics Group (FPG) hosted an environmental forum with multi-disciplinary experts and, witnessed by the Ministry of Environment and various stakeholders, signed the "Carbon Neutrality and Green Energy Technology for Sustainable Environment" declaration with Yunlin County Government. This initiative promotes energy-saving improvements, such as reducing energy consumption in production processes, to advance towards a "Zero-Waste Eco-Cycle Park.“

As of 2024, FPG's greenhouse gas (GHG) emissions have decreased to 45.33 million tonnes, representing a 26% reduction compared to 2007 levels. This achievement surpasses the short-term goal of a 20% reduction by 2025 ahead of schedule.

Port Area Climate Change Adaptation

Climate change has major impacts on port areas. Rising global temperatures cause sea ice to melt/expand, leading to higher sea levels and increased tidal fluctuations, storms, waves, and extreme weather. To ensure Mailiao Harbor's sustainability and safety, the port company has taken adaptation measures. This includes conducting a carbon emissions inventory, promoting energy-saving measures, and aiming to reduce carbon emissions by 2050.



Wave monitoring system

Mailiao Harbor has strengthened its assessment of potential impacts and risks from climate change on the port area by establishing a wave monitoring system. The port has commissioned professionals from National Kaohsiung University of Science and Technology to implement the "Mailiao Harbor Wave Monitoring Program." Real-time wave monitoring stations have been set up at North Piers 2 and 5, utilizing the Nortek Acoustic Wave and Current profiler (AWAC) to monitor wave conditions. The information is provided to ship operators and loading/unloading equipment personnel for reference, and data is statistically analyzed to establish appropriate wave alert values specifically for Mailiao Harbor's operations. This proactive approach aims to prevent and mitigate potential damages caused by adverse wave conditions.

Wave observation station site

Nortek AWAC

Wharf Revetment Elevation Works

With climate change becoming increasingly severe, rising sea levels accompanied by heavy rain, storm surges, and the impacts of typhoons, the Port area has historically been prone to sea water flooding on the dock roads during spring and neap tides or periods of elevated water levels due to low pressure, which affects the safety of vehicular and pedestrian traffic. Therefore, the MHAC commissioned CECI Engineering Consultants to conduct an assessment of raising the dock face panels and revetments on the southeast and northeast sides of the port's quay area. This assessment considered current design regulations and estimated the corrosion rate of steel piles up to a 50-year limit, ensuring the safety and integrity of the facility's structure. The revetment road elevation project, completed in 2019, successfully resolved the prior problem of dock flooding caused by monthly tidal cycles.

Wharf revetment road elevation improvement

Before improvement work

After improvement work

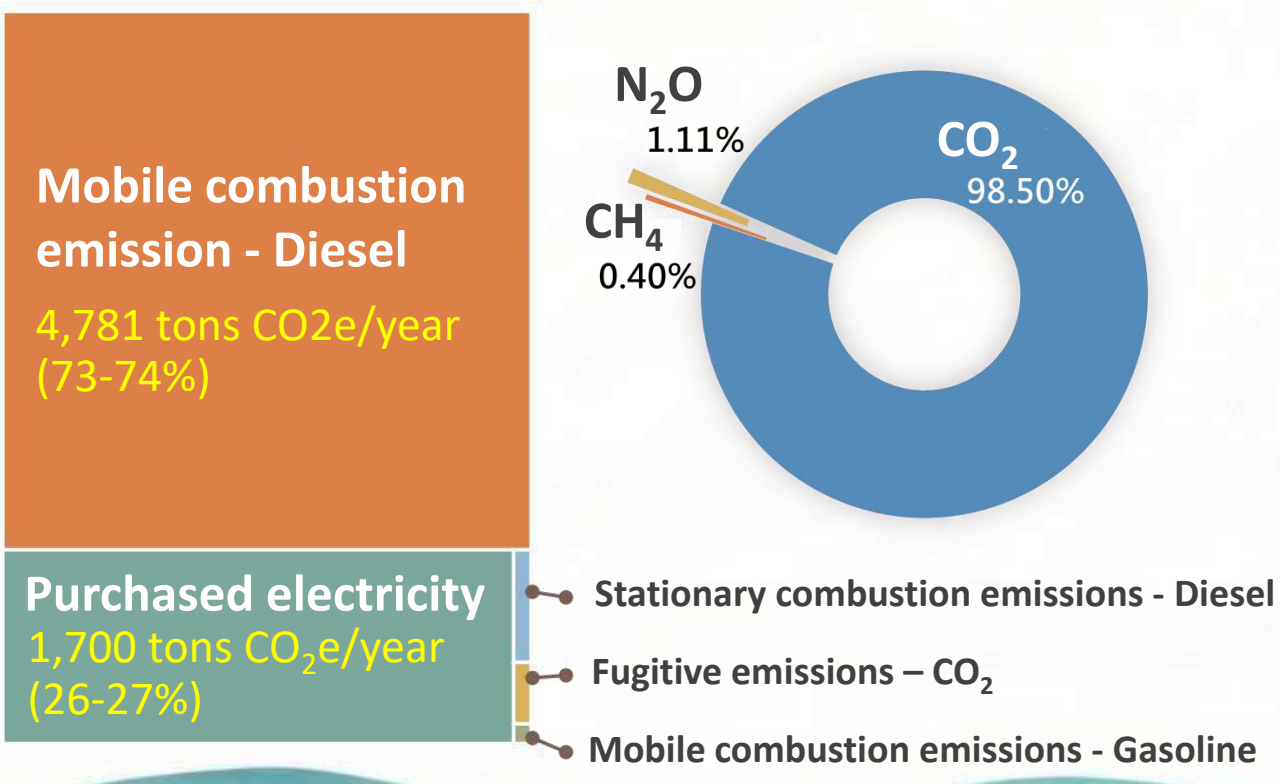
Regular GHG inventory

To monitor GHG emissions in the port area, the port company conducts regular GHG inventories of GHG emitted within the port area. This includes calculating emissions from direct GHG sources and indirect energy sources related to port operations, such as fixed combustion emissions (diesel), mobile combustion emissions (diesel, gasoline), fugitive emissions (from septic tanks), and purchased electricity. The emissions inventory covers six GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

In 2023 and 2024, GHG emissions at Mailiao Harbor were primarily from mobile sources using diesel fuel, accounting for 73-74% of the port area's GHG total emission, with an annual emission of approximately 4,781 metric tons of CO2e. The main operational activity contributing to these emissions is the use of diesel fuel in port tugboats. The second-largest source is purchased electricity consumption, accounting for 25-26% of emissions, with an annual emission of about 1,664 metric tons of CO2e. Other operational activities' emissions account for less than 1% of the total. Furthermore, the GHG emissions during 2023 and 2024 were mainly composed of carbon dioxide (CO_2) at 98.50%, followed by nitrous oxide (N_2O) at 1.11% and methane (CH_4) at 0.40%.

In alignment with Formosa Plastics Group's 2050 carbon emission reduction goal, Mailiao Harbor continues to advance its green shipping services. Using the 2007 carbon emission peak as the baseline, the harbor is committed to a 35% reduction by 2030. This mid-term goal is being driven by expanding Onshore Power Supply and upgrading energy equipment, demonstrating a firm commitment to environmental sustainability and proactive climate action.

GHG inventory results and emission percentages for 2023 to 2024

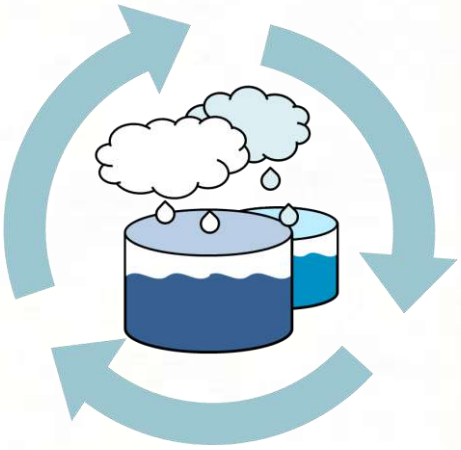


Green office environment practices

To implement green practices in the port area, the port company has developed a checklist of 35 measures for green office initiatives. These measures are categorized into five indicators: energy and resource conservation (such as reducing electricity, water, oil, and paper usage), waste reduction at the source (including sorting and recycling), green procurement, environmental beautification, and advocacy. The implementation includes actions like regulating office air conditioning temperatures, using energy-saving lighting and water-saving facilities, paperless office practices, promoting carpooling, enforcing waste recycling and sorting, organizing environmental knowledge training or lectures, and utilizing green lifestyle materials for promoting green living among the port company's employees through internal community and media resources.

Rainwater harvesting project

Promoting sustainable water resource utilization, Mailiao Harbor has installed three rainwater collection tanks with a capacity of 20 tons each at the port administration building. Through rainwater collection equipment, rainwater retention and reuse have been enhanced to achieve water-saving benefits. Additionally, spill-proof barriers are installed in the dock operation and unloading area to directly collect runoff rainwater. Rainwater from road surfaces is collected through dedicated discharge channels, and the design of catch basins effectively removes pollutants and solid waste particles.



From 2023 to 2024, the cumulative rainwater collection in the Mailiao Harbor area has been measured. The port administration building collected 603 metric tons of rainwater, while the tank area collected 617,296 metric tons. The rainwater reuse rate after collection reached 100%.

Low-Voltage Onshore Power Supply

The harbor actively promotes the comprehensive use of Low-Voltage Onshore Power Supply (LV-OPS) for harbor craft. Compared to traditional high-sulfur fuel, OPS significantly reduces air pollutant emissions and strengthens green shipping services.

Since its commissioning, the LV-OPS system has maintained a 100% utilization rate. From 2023 to 2024, the facility provided shore power for 17 harbor craft, totaling approximately 477 MWh (477,000 kWh) of electricity consumption and successfully reducing approximately 243 tons of CO_2e emissions.

Ecological conservation

In response to rapid changes to the environment, in addition to avoiding the pollution that could be caused by various types of human activities, Mailiao Harbor considers ecological conservation and regeneration urgent and critical. The harbor places great emphasis on the marine environment and the symbiotic system of the marine ecosystem, and actively participates in marine regeneration work, including conservation measures for the protection of the critically endangered white dolphin and regeneration of fishery resources. Thus, the Mailiao Harbor Company not only shows a responsible spirit for pollution prevention, but also is active in ecological conservation and regeneration. The white dolphin conservation measures and release of fry are detailed in the following paragraphs.

White dolphin conservation measures

The International Union for Conservation of Nature declared the Chinese white dolphin critically endangered (CR) in August 2008. However, since March 2008, Formosa Plastics Group has continually run a survey project, and the results obtained so far indicate that the Chinese white dolphin is mainly found in long and narrow sea area within 3 km offshore, in water less than 15 m in depth, and primarily moving in a north–south direction. The number of white dolphins along the Yunlin coast constitutes more than half of the species' number along Taiwan's west coast; this is also a vital nursery area. The white dolphin conservation measures implemented by Mailiao Harbor are explained as follows.

1. Regulation of incoming and outgoing vessel speed

Cargo carriers entering and exiting the harbor should be alert for white dolphins. If white dolphins are sighted ahead, then the vessel must reduce its speed to less than 6 knots provided it does not affect navigational safety; however, because of weather and sea conditions, some large vessels must maintain a speed of more than 7 knots. For instance, if the sea condition is a flat tide with no flow (within 0.5 hr before and after a high or low tide), and the visibility is more than 2,100 m with a wind speed of less than 3, then the signal station would inform the pilot, who would first consider the navigational safety before deciding whether to enter the harbor at under 6 knots.

2. Regulation of sand dredging and landfill vessels

Before dredging the channel for sand, the work boats should ensure that no white dolphins are in the harbor before performing sand extraction and landfill operations. The monitoring and regulation of sand extraction vessels are conducted by the Mailiao Harbor signal station, which is explained as follows:

1) Sand extraction vessels use radar and a global positioning system for vessel positioning and navigation.
2) The signal station uses radar and an automatic identification system on vessels to monitor their position, which it continues to record. Upon receiving a report of a white dolphin sighting, the signal station immediately informs the sand extraction vessel and nearby merchant vessels to reduce vessel speed and implement appropriate collision avoidance measures.
3) Originally, a plan existed to install monitoring recorder systems on sand extraction vessels to record operations. However, considering the low efficiency of the original sand extraction vessels, sand extraction operations were commissioned to foreign professional sand extraction vessels, enabling a reduction in the number of sailings as well as reducing the probability of affecting white dolphin activities.

3. The pH value of marine water quality near Yunlin

According to the monitoring results of water quality in nearby sea areas, the pH can be maintained between 7.5–8.5, and the pH value of discharged water by various factories can conform to the legal requirements of the MOENV. The pH value of seawater near Yunlin will be continuously monitored.

Fry releasing program

Habitat/Ecosystem loss (water)

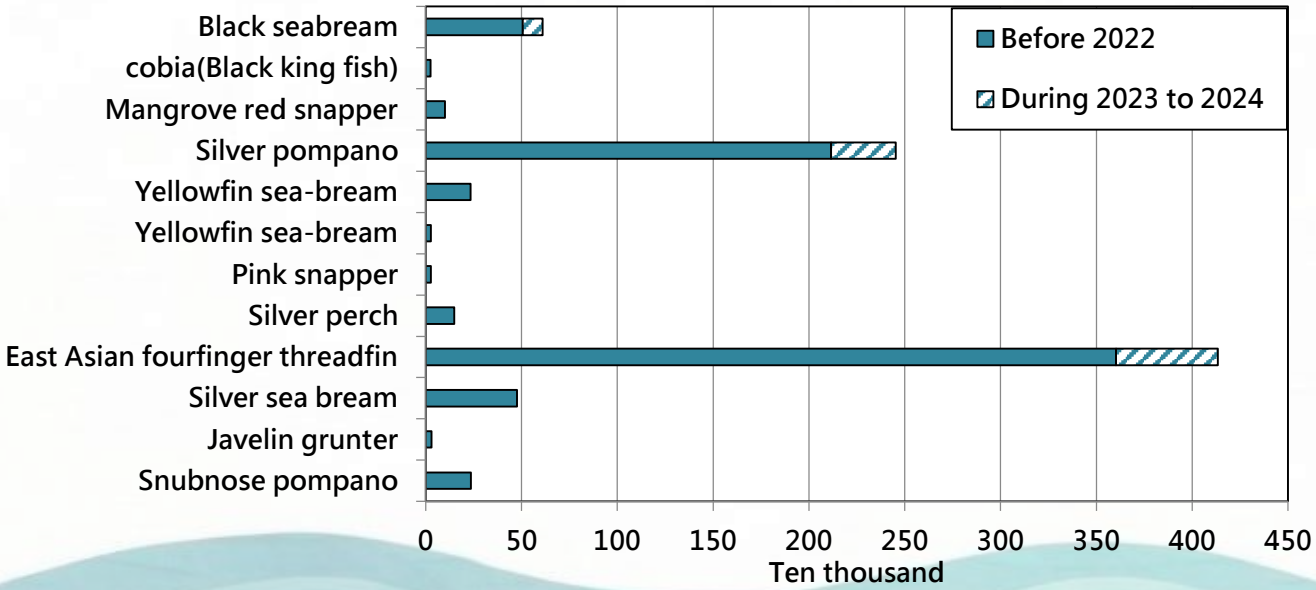
Relationship with local community

Because of the depletion of coastal resources in Taiwan, and in order to exhibit friendliness to local environment, Formosa Plastics Group has promoted the proliferation and release of fry for conservation purposes in the Yunlin Mailiao marine area for many years.

Aligning with government fishery regeneration goals, this 15-year initiative has released nearly 7 million fry since 2008, significantly enriching local stocks and catches. Additionally, to enhance the ecology conservation concept of the masses, conservation activities have actively been promoted; lecturers with a background in marine ecology conservation as well as knowledge of fisheries were hired to teach conservation lessons with the expectation that this regeneration strategy would be used to stimulate sustainable development of local fisheries. In 2014, Formosa Plastics Group was awarded the “Marine Oscar”, an award set by the Council of Agriculture, as the model for marine resources proliferation and fry release.

Collaborating with the Yunlin County Fishermen's Association and local schools, Formosa Plastics Group conducted fish fry release programs at Boziliao Fishing Port. Between 2023 and 2024, species such as Black Sea Bream, Pompano, and Fourfinger Threadfin were released. This long-term initiative has significantly increased local fish stocks and led to the reappearance of high-value species previously lost to overfishing, gaining strong support from the local fishing community.

Statistical diagram of the total amount of fry released during 2008~2024



Marine Ecology Photography project

Habitat/Ecosystem loss (water)

Located on the west coast of Yunlin County within the reclaimed Yunlin Offshore Industrial Park, Mailiao Harbor has conducted comprehensive underwater ecological surveys. To assess marine life both inside and outside the harbor, the Center for Coastal Water and Environment at National Kaohsiung University of Science and Technology was commissioned to perform ecological investigations and environmental underwater photography during two key periods: April 2016–September 2017 and April 2023–September 2024.

The underwater marine ecology in six main areas inside and outside Mailiao Harbor were photographed: (A)Harbor Patrol canal; (B)Bulk Cargo Terminal (East Berths 1-5); (c)Oil and Chemical Terminal (East Berths 6-10); (D)Northwest Pier Wharf; (E)South Breakwater; (F)West Breakwater. Also photographed were the marine environment monitoring operation process inside and outside the harbor, and harbor operations such as vessels entering and exiting the harbor, stevedoring operations at the wharves, and harbor health, safety, and environmental protection management operations. The green ecological environment in adjacent areas, such as the green and environmental construction of the Mailiao Industrial Zone, was also recorded.

Underwater surveys reveal a thriving ecosystem within Mailiao Harbor, identifying 397 species across 11 phyla. Recorded groups include Chordata, Arthropoda, Mollusca, Cnidaria, Echinodermata, Porifera (sponges), Annelida, Bryozoa, and Ctenophora, along with Rhodophyta (red algae) and Chlorophyta (green algae). Compared to the initial 2016 survey, the findings from April 2023 to September 2024 demonstrate a significant increase in biological diversity.

The six main underwater ecological areas of Mailiao Harbor

Phylum: *Chordata*
Scientific name:
Polycarpa aurata

Phylum: *Mollusca*
Scientific name:
Barbatia virescens

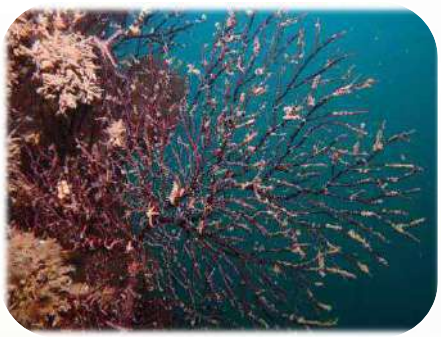
Phylum: *Annelida*
Scientific name:
Hydroides elegans

Phylum: *Echinodermata*
Scientific name:
Feather stars

Phylum: *Cnidaria*
Scientific name:
Paramuricea clavata

Phylum: *Arthropoda*
Scientific name:
Peppermint sp.

Phylum: *Cnidaria*
Scientific name:
Anthogorgia bocki
Aurivillius



Phylum: *Bryozoa*
Scientific name:
Biflustra perfragilis
MacGillivray

Phylum: *Mollusca*
Scientific name:
Cantharus
melanostomus

Environmental performance indices - Port authority

Issues		Index item	Calculation method	Index target	Index result	
					2023	2024
Climate change	1	Greenhouse Gas Management in Port Area	Annual Port Area Greenhouse Gas Inventory (Scope 1and 2)	≥1 time/year	1 time/year ■Greenhouse gas inventory: 6,510.7 tons CO2e	1 time/year ■Greenhouse gas inventory: 6,294.5 tons CO2e
			Continuously track the main sources of greenhouse gas emissions in the port area	≥1 time/month	1 time/month ■Primary Source Tracking; Mobile Combustion Emissions - Diesel	1 time/month ■Primary Source Tracking; Mobile Combustion Emissions - Diesel
Air quality	2	Ratio of harbor craft boats using low-emission fuel and the usage volume (super diesel; sulfur content <10 ppm):	•Number of harbor craft boats using low-emission fuel (super diesel) ÷ Total number of harbor craft boats × 100% •Volume of low-emission fuel used by harbor craft boats	100%	100% ■Harbor craft boats: 12; harbor craft boats using low-emission fuel: 12 ■Low-emission fuel used by harbor craft boats: 1,808.127 kL (The boats are replaced with new ones annually as needed.)	100% ■Harbor craft boats: 12; harbor craft boats using low-emission fuel: 12 ■Low-emission fuel used by harbor craft boats: 1,728.387 kL (The boats are replaced with new ones annually as needed.)
		Ratio of harbor craft boats using shore power	Number of harbor craft boats using shore power (vessel) ÷ Total number of harbor craft boats (vessel) × 100%	100%	100% ■Harbor craft boats: 12; boats using shore power: 12 (The boats are replaced with new ones annually as needed.)	100% ■Harbor craft boats: 12; boats using shore power: 12 (The boats are replaced with new ones annually as needed.)
		Emission standards for air pollution control equipment	Conduct flue detection for air pollutants (i.e., TSP, SO2, NOx, and VOCs) in waste gas at the rear of the incinerator.	TSP 100%	100%	100%
				SO_2 100%	100%	100%
				NOx 100%	100%	100%
				VOCs 100%	100%	100%
		Rate of appropriate volatile organic compound (VOC) leakage handling	Periodically use GasFind IR; once leakage is discovered, immediately repair or change the component.	100%	■Number of leaking components: 0 ■Number of appropriately handled components (including repaired or changed): 0	■Number of leaking components: 0 ■Number of appropriately handled components (including repaired or changed): 0

Environmental performance indices - Port authority

Issues		Index item	Calculation method	Index target		Index result	
						2023	2024
Energy Consumption	3	Rainwater harvesting	According to the rainwater harvesting project, the annual volume of rainwater harvested and usage rate at the harbor administration building and trough area are calculated. Water conservation measures: The harbor company installed three water harvesting troughs (20 tons ×3) for rainwater harvesting and reuse in the harbor operations administration area	Trough area	100%	100% ■rainwater harvesting volume: 256,676 tons	100% ■rainwater harvesting volume: 360,620 tons
				Harbor	100%	100% ■rainwater harvesting volume: 192 tons	100% ■rainwater harvesting volume: 411 tons (Abundant rainfall from typhoons increased rainwater harvesting, boosting water recycling and enabling more frequent landscaping irrigation.)
Water quality	4	Qualification rate of marine water quality	Ratio of the monitoring results from the marine water quality monitoring stations outside Mailiao Harbor conforming to the marine environment classification and ocean environment quality standard .	90% (Marine water quality qualification rate is not set to 100% because it is subject to the influence of natural factors such as upstream scour and rising and ebbing tides that are cannot be controlled by the harbor.)		99.96%	97.42%
		Harbor water quality qualification rate	Ratio of the monitoring results from the marine water quality monitoring stations inside Mailiao Harbor conforming to the marine environment classification and ocean environment quality standard.	100%		100%	99.65% (Heavy rainfall from Typhoon Krathon increased land-based nutrient runoff, which contributed to higher Total Phosphorus concentrations in Q4.)
Management of dredging	5	Qualification rate of water quality after beach nourishment	Test for water turbidity 1 hour after landfill and beach nourishment operations to determine whether the turbidity level falls below the level of Class A marine environment (i.e., 50 NTU), a level that does not affect the survival of oysters	100%		100%	100%
		Qualification rate of sediment quality (Ar, Cd, Cr, Cu, Hg, Ni, Pb, and Zn)	Sediment quality satisfying the upper limit of sediment quality indices in the “Regulations Governing the Classified Management of Sediment Quality and Usage Restrictions.”	100%		100%	100%

Environmental performance indices - Port authority

Issues		Index item	Calculation method	Index target		Index results 2023	Index results 2024
Harbor waste	6	Implementation rate of ship waste oil and sewage cleanup by qualified businesses	The number of ships commissioning qualified businesses to collect waste oil and sewage ÷ the number of ships whose waste oil and sewage are collected × 100%	100%		100% ■Number of ship cleaning operations conducted: 19	100% ■Number of ship cleaning operations conducted: 22
Vessel discharge (sewage)	7	Locking of vessel sewage valve	When conducting vessel safety and sanitation inspections, the port security section personnel check whether the external sewage valve has been closed and locked.	Sampling rate	15%	16.6%	15.2%
				locking of vessel sewage valve	100%	100%	100%
		Water quality test in trough area before and after sewage processing	Raw qualification rate of sewage collection = Raw number of qualification in sewage collection test/number of sampling tests Qualification rate of sewage discharge = Number of qualification in sewage discharge test/number of sampling tests	Raw qualification rate of sewage collection	100%	100% ■Number of sampling tests: 365	100% ■Number of sampling tests: 366
				Qualification rate of sewage discharge	100%	100% ■Number of sampling tests: 365	100% ■Number of sampling tests: 366
Hazardous goods (handling/ storage)	9	Total number of disasters		0 disaster		■Number of disasters: 0	■Number of disasters: 0
		Number of spill incidents		zero times		zero times	zero times
		Number of drills for emergency responses to spills		Within the harbor	≥2 times/year	2 times/year	2 times/year
				Outside the harbor	≥1 time/year	1 time/year	1 time/year
		Number of times the harbor area has been patrolled		≥5 times/day		5 times/day	5 times/day
		Frequency of joint supervision for harbor safety		≥5 times/year		5 times/year	5 times/year

Environmental performance indices - Port authority

Issues		Index item	Calculation method	Index target		Index results	
						2023	2024
Vessel refueling	10	Implementation rate of refueling operations	Ratio of refueling operations performed according to the “Regulations Governing Refueling Operations at Mailiao Harbor.	Onshore pipeline	100%	100% ■fuel refueling volume:51,029kL ■diesel refueling volume: 10,599kL	100% ■fuel refueling volume:53,459kL ■diesel refueling volume: 8,517kL
				Oil barge	100%	100% ■fuel refueling volume:81,838kL ■diesel refueling volume: 3,064kL	No Oil barge refueling operations
				Vehicle	100%	No vehicle refueling operations	No vehicle refueling operations
		Implementation rate of refueling operations using an oil boom	Before a refueling vessel is connected to the pipeline during onshore refueling operations, the ratio of harbor staff performing the loading and unloading of oil-based products in accordance with related regulations in the “Regulations Governing the Loading and Unloading of Dangerous Goods at Mailiao Industrial Harbor.”	100%		100%	100%
Habitat/ (marine) ecosystem	Others	White dolphin conservation measures (in accordance with the commitment made in the environmental impact assessment, under weather and sea conditions that are safe for navigation, vessels should reduce speed to below 6 knots; calculate the implementation rate of vessels complying with speed restriction guidelines)	Number of times sea conditions were confirmed ÷ number of flat tides × 100%	100%		100% ■Number of sea-state assessments:1,413	100% ■Number of sea-state assessments:1,415

Environmental performance indices - Primary stakeholder
(Formosa Petrochemical Corporation MAI-LIAO Terminal Department)

Issues		Index item	Calculation method	Index target	Index results	
					2023	2024
Energy Consumption	3	Exchange rate of lighting equipment	Total number of lamps changed ÷ Total number of lamps = Lamp exchange rate	100%	100% ■Replacement of 308 lamps	100% ■Replacement of 618 lamps
Harbor waste	6	General waste recycling rate	General waste recycling volume ÷ general waste volume removed × 100%	10%	58% ■General waste volume: 2,198.4 tons ■General waste removed: 3,792.6 tons	58% ■General waste volume: 1,165.6 tons ■General waste removed: 2,528.4 tons

Environmental performance indices - Secondary stakeholder
(Government units: customs units, immigration units, quarantine units, security units; Other units: harbor tenants)

Issues		Index item	Calculation method	Index target		Index results	
						2023	2024
Air quality	2	Qualification rate of air quality (393 items, including acetaldehyde, acetic acid, acetonitrile, and acetone in the air)	Two monitoring vehicles are used to strictly control the values of various common air pollution indices. They periodically move to appropriate areas for sampling, and the sampled data are checked according to the following regulations governing harbor air pollutant concentrations. ■ The appendix table of the standards for the emissions at peripheral boundaries, which is attached to the fixed pollution source air pollutants emission standards. ■ Permissible concentration of hazardous substances in the air in a working environment with workers. ■ “Odor threshold of odorous substances at offshore industrial zone,” (CTCI, 1990). ■ Maximum incremental reactivity scale.	Monitoring frequency	≥1 time/year	1 time/year	1 time/year
				Qualification rate	100%	100%	100%

Environmental performance indices - Secondary stakeholder

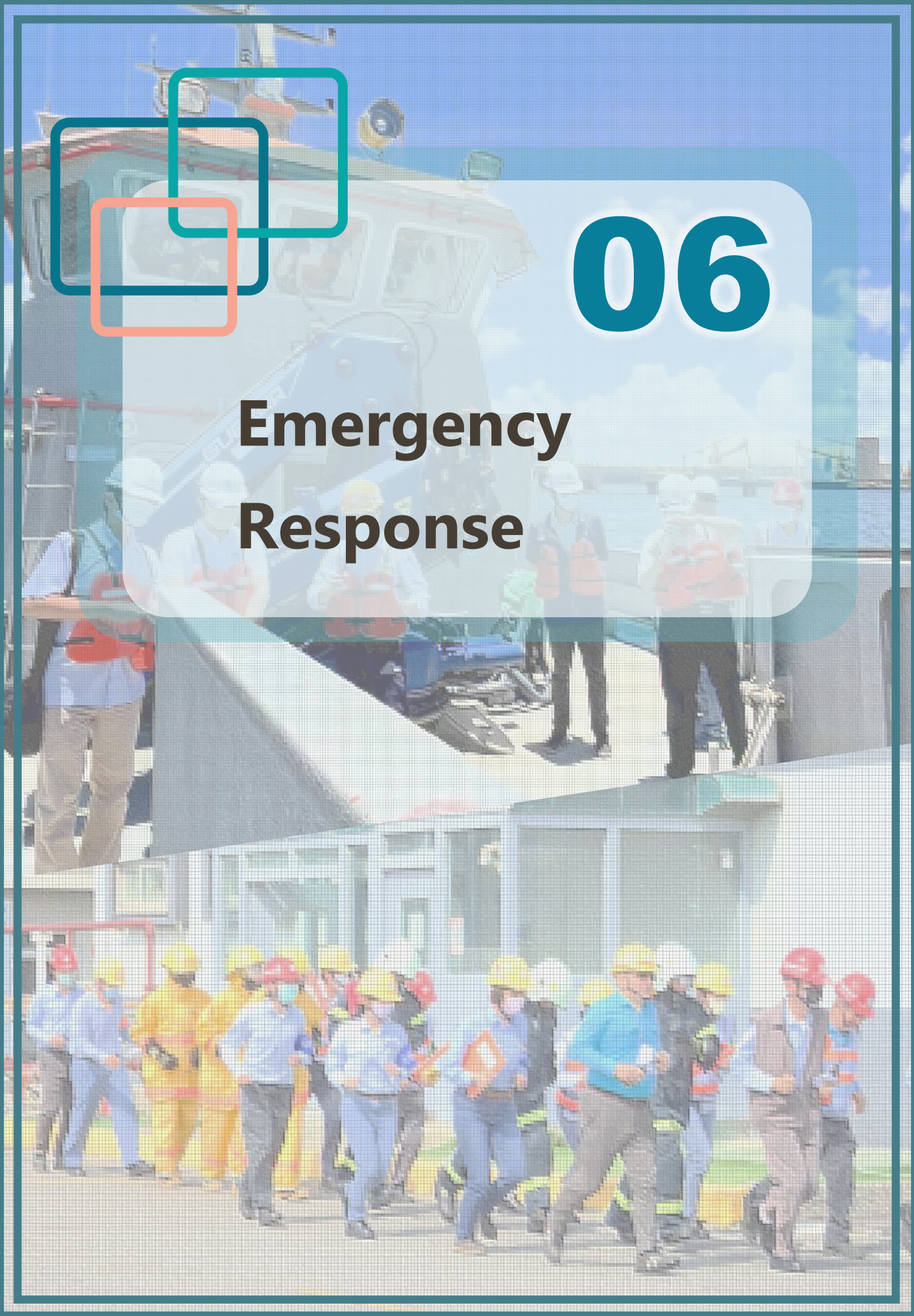
(Government units: customs units, immigration units, quarantine units, security units; Other units: harbor tenants)

Issues		Index item	Calculation method	Index target	Index results	
					2023	2024
Air quality	2	Proportion of inbound ships using low-sulfur fuel (sulfur concentration: ≤0.5%) (Mailiao Harbor is an air quality maintenance zone, and its competent authority autonomously established a green transportation project)	The number of inbound ships using low-sulfur fuel ÷ the total number of inbound ships × 100%	100%	100% ■inbound ships using low-sulfur fuel: 1,916	100% ■inbound ships using low-sulfur fuel: 1,852
		Proportion of large diesel-powered vehicles conforming to emission standards in Q1–Q3 (Mailiao Harbor is an air quality maintenance area, and its competent authority autonomously established a green transportation project)	The number of inbound diesel-powered vehicles conforming to emission standards ÷ the total number of inbound diesel-powered vehicles × 100%	100%	100%	100%

Environmental performance indices - Other stakeholders

(Neighbors and fishers)

Issues		Index item	Calculation method	Index target		Index results	
						2023	2024
community relations	8	Number of activities	Calculate the number of community feedback activities, or participation in seminars and promotional activities	National Oceans day	≥ 1 event/year	1 event/year ■ Booth Engagement: 102	1 event/year ■ Booth Engagement: 187
				Visiting	≥ 1 session/year	144 sessions/year ■Total visitors: 4,563	153 sessions/year ■Total visitors: 4,234
		Number of activities	Calculate the number of community feedback activities, or participation in seminars and promotional activities	Others	≥ 1 time/year	2 times/year ■Beach Cleanups: 1 ■River Cleanups: 1 (1,355 kg of waste removed)	2 times/year ■Conferences: 1 ■Beach Cleanups: 1 (340 kg of waste removed)
					Regular beach cleanups	2-3 times/week ■ 3-5 personnel per team (110,000 kg of waste removed)	2-3 times/week ■ 3-5 personnel per team (78,510 kg of waste removed
		Response rate to official website opinion letters	Number of reply letters ÷ number of submission letters × 100%	100%		100%	100%
Habitat/ (marine) ecosystem	Other	Regeneration of fishery resources (release of fry into adjacent sea areas)	Times of fry releasing	Release of fry : ≥ 1 time/year		1 time/year ■529,000 fry in total	1 time/year ■441,000 fry in total



06

Emergency Response

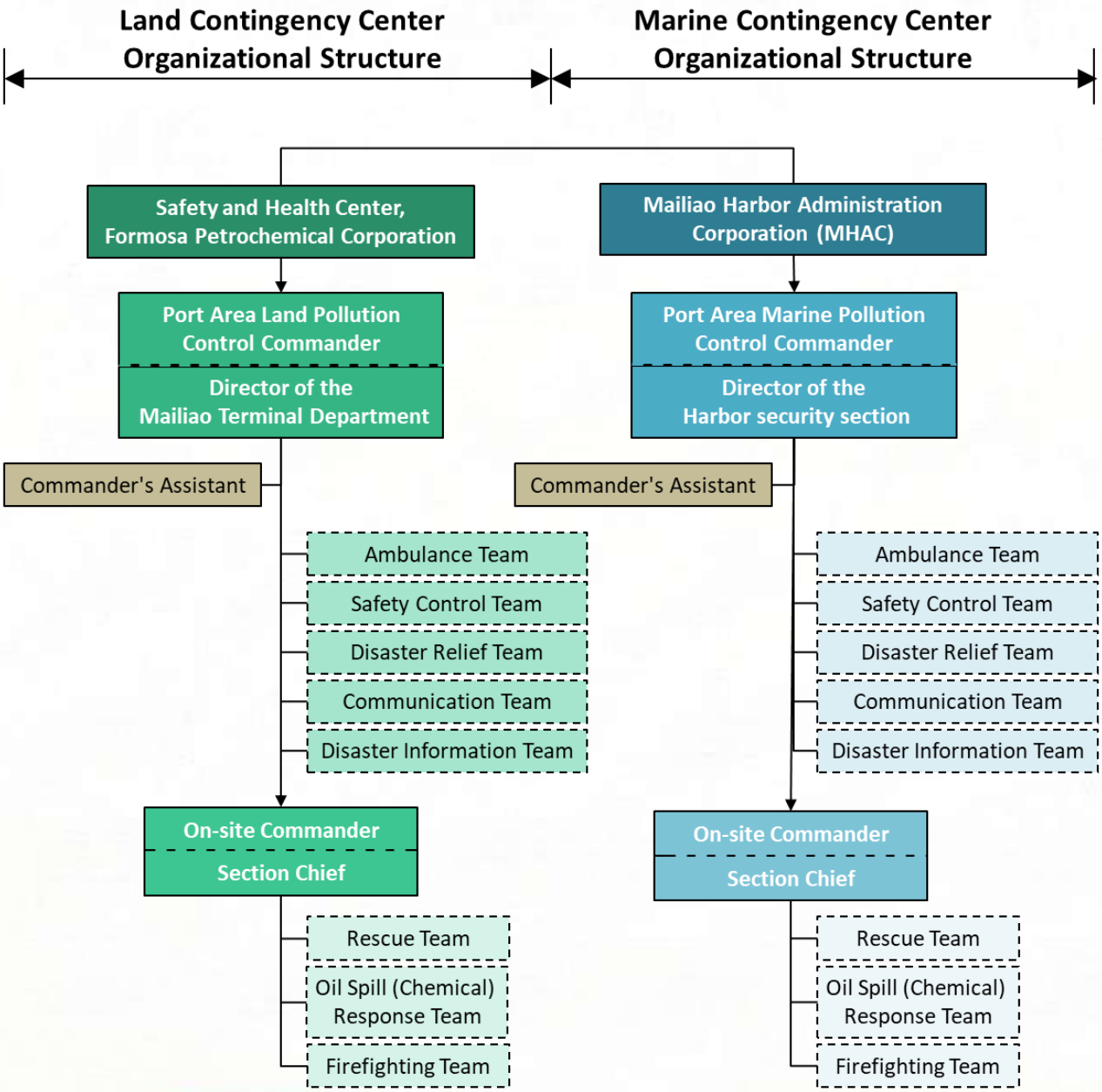
Harbor emergency response

Hazardous cargo (handling/storage) | Cargo Spillage (handling) | Water quality

To prevent and mitigate accidents, as well as reduce the harm caused by them, Mailiao Port conducts regular emergency response drills for various potential accidents and strengthens emergency response measures for marine pollution. A comprehensive emergency response organizational structure has been established, adopting a three-stage response approach to ensure timely and appropriate handling of emergencies.

Mailiao Harbor has established a comprehensive alarm and early warning system in the terminal area. This includes five key protective measures: gas detection, tank leak detection, CCTV surveillance, mechanical failure alarms, and a two-stage tank high-level alarm system, ensuring real-time monitoring of all operational conditions.

MHAC emergency response organization structure



Regular emergency response drills

To familiarize all staff members with emergency response operations during an accident, the harbor regularly implements simulation drills (every 6 months) according to the “Emergency Response Plan”.

The emergency response drill plan includes the drill process and drill manual; explanations for the complete emergency response organization structure, operations flowchart, and notification process; and recovery operations and accident investigations after an accident. During the drill, all participating personnel must wear protective gear; thus, they learn how to use the various types of protective gear, and determine any problems for review. The drills are practiced in the hope of controlling a disaster in the shortest time possible after its occurrence, to prevent the disaster from spreading, and to minimize damage and threats. The drills are also hoped to instill disaster awareness in all staff, achieve process safety management, ensure process safety, and prevent disasters. Moreover, the identified areas of problem will be continually reviewed and improved to prevent similar abnormal events from reoccurring.

Notify the 119 Fire Department

Assemble all response personnel

Activate the Emergency Command Center

Fire Brigade for firefighting operations

Emergency response for marine pollution

Cargo Spillage (handling)

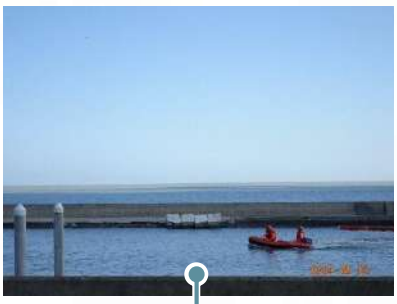
Water quality

To mitigate the impact of marine oil pollution on the ecosystem and public safety at Mailiao Harbor, immediate notification and response measures must be initiated upon any incident. By integrating resources from government and private sectors, the harbor ensures the rapid deployment of equipment and expertise for a coordinated and effective recovery operation.

To strengthen the accident response proficiency of harbor staff, Mailiao Harbor coordinates annually with various authorities to conduct diverse drills, including marine oil pollution and chemical disaster prevention. These exercises are designed to familiarize personnel with the emergency notification system and ensure its continuous improvement. Furthermore, the harbor integrates resources and response operations from government bodies and private enterprises to establish a robust joint defense system. These measures collectively enhance the harbor's emergency handling capabilities, effectively preventing marine accidents and minimizing damage to ensure the overall safety and resilience of the harbor area.

These response operations have significantly improved staff proficiency in notification processes and clarified responsibilities for rapid emergency response. They have established stronger communication and mutual support channels between authorities and private businesses, ensuring that labor and equipment are effectively integrated to enhance overall disaster resilience and minimize impacts on human health, ecology, and property. Furthermore, these initiatives have raised crisis awareness among personnel and the public through specialized workshops, training, and drills, ultimately resulting in a well-coordinated emergency response system with standardized procedures.

Vessel rescue mission



Oil recovery and pumping

Sampling and analysis

Oil Boom Deployment

Shoreline Waste Temporary Storage

Mailiao Ocean

Furthermore, to enhance the emergency response capacity of the harbor, Mailiao Harbor purchased Taiwan's first offshore pollution cleanup vessel, named "Mailiao Ocean" It was manufactured by Ecoceane (France), and delivered to Taiwan in November 2015. The entire vessel is made of aluminum alloy, and it is lighter than a steel vessel. It features spark-free performance in collision accidents, providing superior safety. In the place of traditional oil skimmers, the vessel uses patented water tunnel system technology to suck oil floating on the ocean surface into the vessel, and then uses a physical method to separate the oil from water directly. The vessel can be moved to any other sea areas in Taiwan on the demand of the Ocean Affairs Council to assist in treating marine pollution in such areas.

As of 2024, Mailiao Harbor has a proven record of emergency assistance, including the 2021 CPC Dalin hose leak and the 2023 sinking of the Palau-flagged vessel ANGEL off Kaohsiung. The harbor remains on standby for rapid response to maritime incidents.

Drill of oil spill collection by the vacuum drainage system of Mailiao Ocean

Passage planning in the pilot cabin

Marine communication system

Control room in Mailiao Ocean (1)

Control room in Mailiao Ocean (2)

Oil collection operation

07

Examples of Environmental Practice

Underwater Ecological Surveys and Biodiversity Achievements

From April 2023 to September 2024, Mailiao Harbor commissioned the Coastal Water and Environment Center at National Kaohsiung University of Science and Technology to conduct the Phase II Marine Ecological Survey. This comprehensive assessment spanned six key zones: the Service Vessel Basin, East Piers 1-5, East Piers 6-10, Northwest Pier, West Breakwater, and South Breakwater.

The biological diversity within Mailiao Harbor is remarkably rich. Comparing the 2016 baseline with the current Phase II survey, identified species span across the animal kingdom (including Chordata, Arthropoda, Mollusca, Cnidaria, Echinodermata, Porifera, Annelida, Bryozoa, and Ctenophora) and the plant kingdom (Rhodophyta and Chlorophyta). This latest assessment identified 249 newly recorded species, primarily Mollusks (Gastropods and Sea Slugs). To date, the cumulative findings across both surveys total 397 species, encompassing 2 kingdoms, 11 phyla, 161 families, and 244 genera.

Species Statistics of Marine Ecological Surveys in Mailiao Harbor

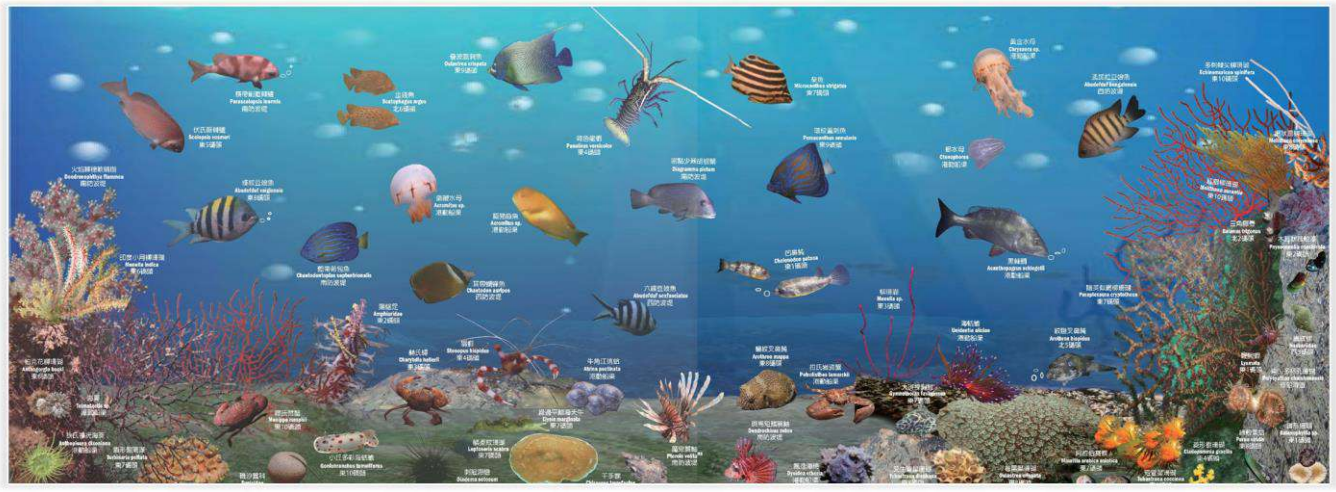
(Unit: species)

Item	Phase I	Phase II	Cumulative Total
Mollusca (Gastropods & Bivalves)	20	69	89
Chordata (Fishes)	92	63	155
Cnidaria (Corals)	12	40	52
Arthropoda (Crustaceans)	20	34	54
Echinodermata	3	12	15
Annelida	1	8	9
Porifera	Not Recorded	8	9
Bryozoa	Not Recorded	5	5
Ctenophora	Not Recorded	2	2
Plantae (Rhodophyta & Chlorophyta)	Not Recorded	8	8
Total	**148**	**249**	**397**

Thanks to the consistent water quality management at Mailiao Harbor, the Lionfish—an indigenous species to the Indo-Pacific waters and Taiwan's west coast—is widely distributed across the primary survey zones. Documented species include diverse members of the Scorpaenidae family, specifically the Red Lionfish (Pterois volitans), the Zebra Lionfish (Dendrochirus zebra), and the Broad-barred Firefish (Pterois antennata). Unlike in regions where they are invasive, these lionfish are a natural and integral part of the local ecosystem, and their thriving presence underscores the richness and stability of the harbor's marine environment.

The widespread distribution of these sensitive predators serves as a critical biological indicator, reflecting the long-term success of the harbor's pollution control and habitat preservation efforts. As a native species, the health of the Lionfish population provides a reliable gauge of the local ecological balance. By maintaining high standards of environmental stewardship, Mailiao Harbor has created a resilient sanctuary for native marine life, successfully harmonizing industrial operations with sustainable biodiversity conservation.

Mailiao Harbor Marine Ecological Guidebook



Installation of High-Voltage OPS Facilities for Commercial Vessels

To reduce air pollution, Mailiao Harbor installed a 6.6kV/1800kW High-Voltage Shore Power (HVSP) system at East Pier 3, specifically designed for 200,000 DWT bulk and coal carriers. Since its official launch in May 2023, the harbor has actively promoted this green infrastructure by offering specialized incentive programs to encourage calling commercial vessels to switch from auxiliary engines to shore power during their stay.

The system's efficiency was validated by the vessel FPMC B SHINE (owned by Formosa Plastics Marine Corporation), which achieved a 72% reduction in fuel costs during a pilot test in May 2023. From its launch through late 2024, the system accumulated 533 operational hours, saving approximately 92.34 kL of heavy fuel oil. This initiative has effectively improved local air quality while achieving a triple-win outcome for air pollution reduction, energy transition, and the advancement of green shipping.

System Optimization and Circuit Inspection

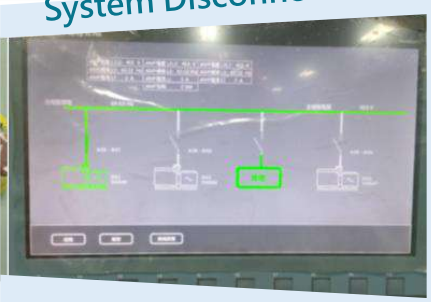
Power Connection (Shore Power Socket)

Inserting the safety locking pins

Ship-to-Shore Cable Coupling

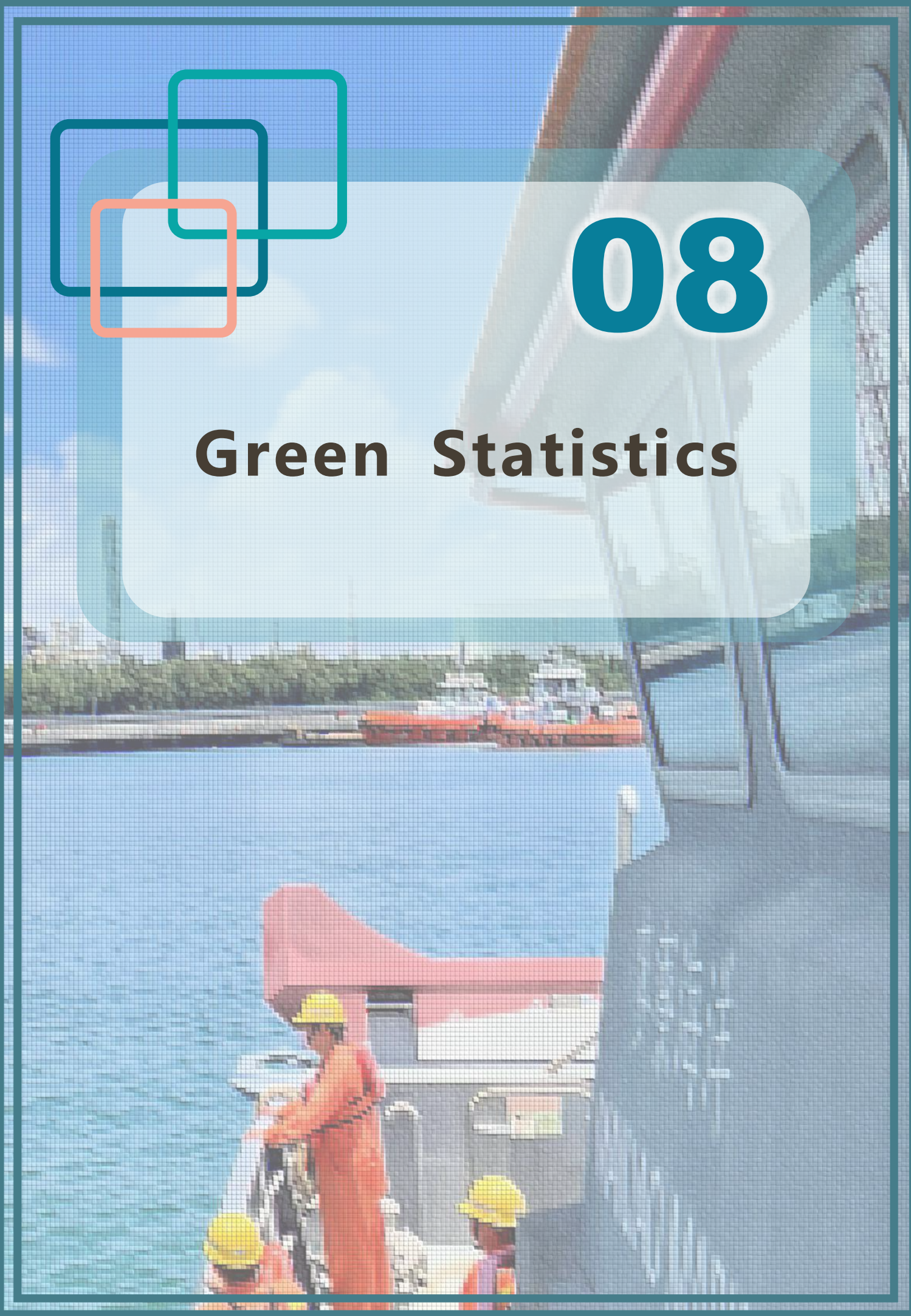
Synchronizing and Paralleling

System Disconnection



08

Green Statistics



Environmental Investment and Costs

The costs of investment for Mailiao Harbor in environmental issues could be classified into employees, environmental maintenance and management, environmental monitoring, emergency response, and communication and publications. The goal was to enhance the environmental awareness of employees, maintain harbor area environment and enhance quality, increase emergency response ability, and enhance public understanding of the harbor. The various costs are explained as follows:

- **Employees:** The staff costs for hiring employees handling environmental affairs and the expenses of environmental education and training
- **Environmental maintenance and management:** Harbor area landscaping, waste removal, and harbor dredging
- **Environmental monitoring and planning:** Environmental monitoring such as air, noise, water quality, sediment, dredging, and environmental patrol; planning focused on the harbor's environmental protection objectives or measures
- **Emergency response:** Accident handling expenses, and verification expenses for materials and dangerous substances polluting the harbor area
- **Communications and publications:** Website maintenance, promotional activities, and environmental publications

The total costs of investment for Mailiao Harbor in 2023 and 2024 were NT$ 1,175,225,783 and NT$ 1,207,044,655 respectively, equaling approximately 31.76 million Euros and 32.62 million Euros. The following table presents the detailed cost breakdown.

The cost of investment of Mailiao Harbor toward environmental issues in 2023 and 2024

(Unit: NT$)

Expenses	2023	2024
Employees	401,308,641	396,594,673
Environmental maintenance and management	728,905,019	753,156,547
Environmental monitoring and planning	39,573,185	51,765,079
Emergency response	490,000	490,000
Communications and publications	4,948,938	5,038,356
Total	1,175,225,783	1,207,044,655

Environmental Assets

To develop the harbor into an environmentally friendly green port, Mailiao Harbor invested considerable fixed assets toward tackling environmental issues to promote harbor development and renewal. The total amount of fixed assets invested by Mailiao Harbor toward environmental issues in 2023 and 2024 was NT$ 29,945,325 and NT$ 10,689,802 respectively, equaling approximately 1,107.97 million Euros and 395.52 million Euros .

Assets invested by Mailiao Harbor toward environmental issues in 2023 and 2024

(Unit: NT$)

Year	Type of asset	Item	Amount	Total
2023	Machine and equipment	Dual-Circuit Power System Improvement	16,453,345	29,945,325
		WiMESH-enabled Surveillance System Deployment	10,750,000	
		Electric Forklift	1,860,000	
		Engine-Powered Hot Water High-Pressure Washer	248,000	
		22-inch LCD Monitor	1,980	
		Container House	632,000	
2024	Machine and equipment	Onshore Power Supply Facilities at East Pier 3	5,762,105	10,689,802
		Surveillance System Installation (West Embankment Control Gate & Marine Warehouse)	3,824,000	
		Anti-Drone Jammer	850,000	
		Split-Type Air Conditioner (220V)	146,297	
		Automatic Drum-Type Washing Machine	84,400	
		Program-Controlled UV Sterilizing Water Dispenser	23,000	

09

Innovation and Cooperation

Participating and Collaborating Organizations

Government authorities

Environmental Protection Bureau, Yunlin County

- Collaborated with Yunlin County's Environmental Protection Bureau to inspect Mailiao Harbor and its ships.
- Participated in the 2023 Emergency Drill for marine pollution held in Mailiao Harbor.
- Coordinated the 2024 Yunlin Joint Emergency Drill for marine pollution and rescue, in collaboration with Mailiao Harbor and Formosa Plastics Group.

Taiwan Centers for Disease Control

- Awarded the "2024 Anti-Epidemic Merit Group Award (Non-Governmental Section)" by the Ministry of Health and Welfare for excellence in border quarantine.
- In 2023 and 2024, hosted the "Infectious Disease Prevention and Harbor Pandemic Response Promotion Event" over 3 sessions, covering Japanese Encephalitis, Dengue Fever, and Severe Influenza.In 2023 and 2024, organized the "Workplace Health and Safety Promotion Training" with 3 sessions held.

Maritime and Port Bureau, Ministry of Transportation and Communications Central Taiwan Maritime Affairs Center

- Facilitated on-board PSC and FSC inspections at Mailiao Harbor in coordination with the MPB Central Taiwan Maritime Affairs Center.

Yunlin County Fire Department

- Participated in the 2021 Emergency Drill for marine pollution held in Mailiao Harbor.
- Participated in the 2024 Yunlin County Emergency Response Drill for pollution and rescue in marine ecologically sensitive areas.

Academic institutions

Coastal Water and Environment Center, National Kaohsiung University of Science and Technology

- The university was tasked with conducting the Wave Monitoring Plan in Mailiao Harbor. Analyzing the measured wave data, the university developed guidelines for ship docking during swells, with the goal of ensuring ship and harbor facility safety. It provided measured wave data to the MAI-LIAO Terminal Department as a reference for issuing warnings, halting loading/unloading operations, or disconnecting hoses when necessary. This proactive approach prevents loading arm breakage and spills due to wave-induced stresses.
- Conducted the 2nd Marine Ecological Survey of Mailiao Harbor, covering six major areas: the Service Vessel Basin, East Piers 1-5, East Piers 6-10, Northwest Pier, West Breakwater, and South Breakwater.

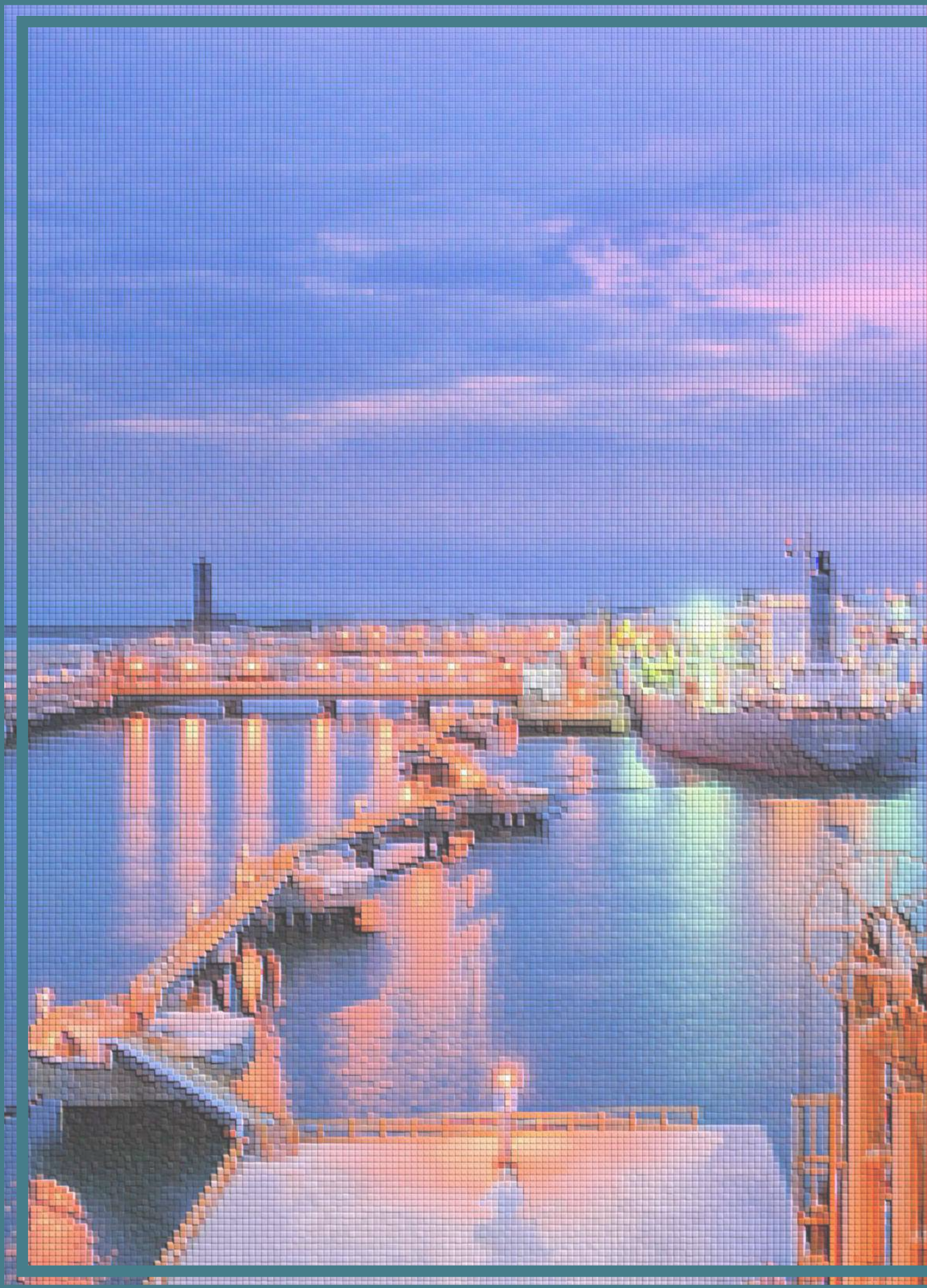
Taiwan Hydraulics Laboratory, National Cheng Kung University

- This specialized research institution was formed through collaboration between the Water Resources Agency, Ministry of Economic Affairs, and National Cheng Kung University. It has been commissioned by the Industrial Development Bureau, Ministry of Economic Affairs, for over 20 years to conduct the Environmental Monitoring Plan in Yunlin's coastal areas

Foundations and consulting companies

Sinothch Engineering Services, Ltd.

- Sinotech Engineering Services, Ltd. was commissioned by MHAC to conduct the Green Port/EcoPort Certification Plan for Mailiao Harbor, helping Mailiao Harbor Administration Corporation apply for certification as a green, ecofriendly port from the European Sea Ports Organization.



10

Training

Employee Training

Increasing environmental awareness in recent years has prompted Formosa Plastics Group, to recognize environmental protection as a public concern. Today, environmental education is an emerging public movement. However, the public generally considers factories or businesses to be the main sources of environmental pollution. Therefore, this company constantly improves and enhances its measures of pollution prevention, and believes that its duty is to educate the public. Thus, implementing comprehensive corporate environmental education provides the company and its workers with a joint target, namely to enhance the environmental literacy of its employees and the people's sense of identification with this place, thereby enabling everyone to learn more about this company.

Employee training and education in Mailiao harbor can be divided into five parts: "Safe, health and environmental regulations" "Health education advocacy" "Emergency fire drill" "Marine pollution emergency response training" "ISPS harbor preservation education training". The total training hours is 10,990 man-hour in 2023 and 13,536 man-hour in 2024.

Mailiao harbor employee training contents

Employee training situation from 2023 to 2024

(Unit: man-hour)

Curriculum Field	Mailiao Harbor		Terminal Department	
	2023	2024	2023	2024
Safe, health and environmental regulations	1,184	1,296	3,600	3600
Health education advocacy	164	72	3,360	3,864
Emergency fire drill	180	504	120	120
Marine pollution emergency response training	814	3,696	-	-
ISPS harbor preservation education training	1,568	384	-	-
Total	3,910	5,952	7,080	7,584

Furthermore, the "Mailiao Harbor Working Committee for the Promotion of a Green Ecological Port" was formed to advance a variety of green port work. This committee comprised major unit and assistant unit. Major unit include the Mailiao Harbor Administration Corporation; Mailiao Terminal Department, Formosa Petrochemical Corporation. Assistant unit include the Safety, Health and Environmental Center of the Group Administration of Formosa Plastics Group; the Safety and Health Management Office of Nan Ya Plastics Corporation; the Safety and Health Management Office of Formosa Petrochemical Corporation; the Safety and Health Management Office of Formosa Plastics Group; the Safety and Health Management Office of Formosa Chemicals & Fibre Corporation; and the Chang Chun Group. Mailiao harbor's environmental policy and its concept to the internal members and the public was as follows.

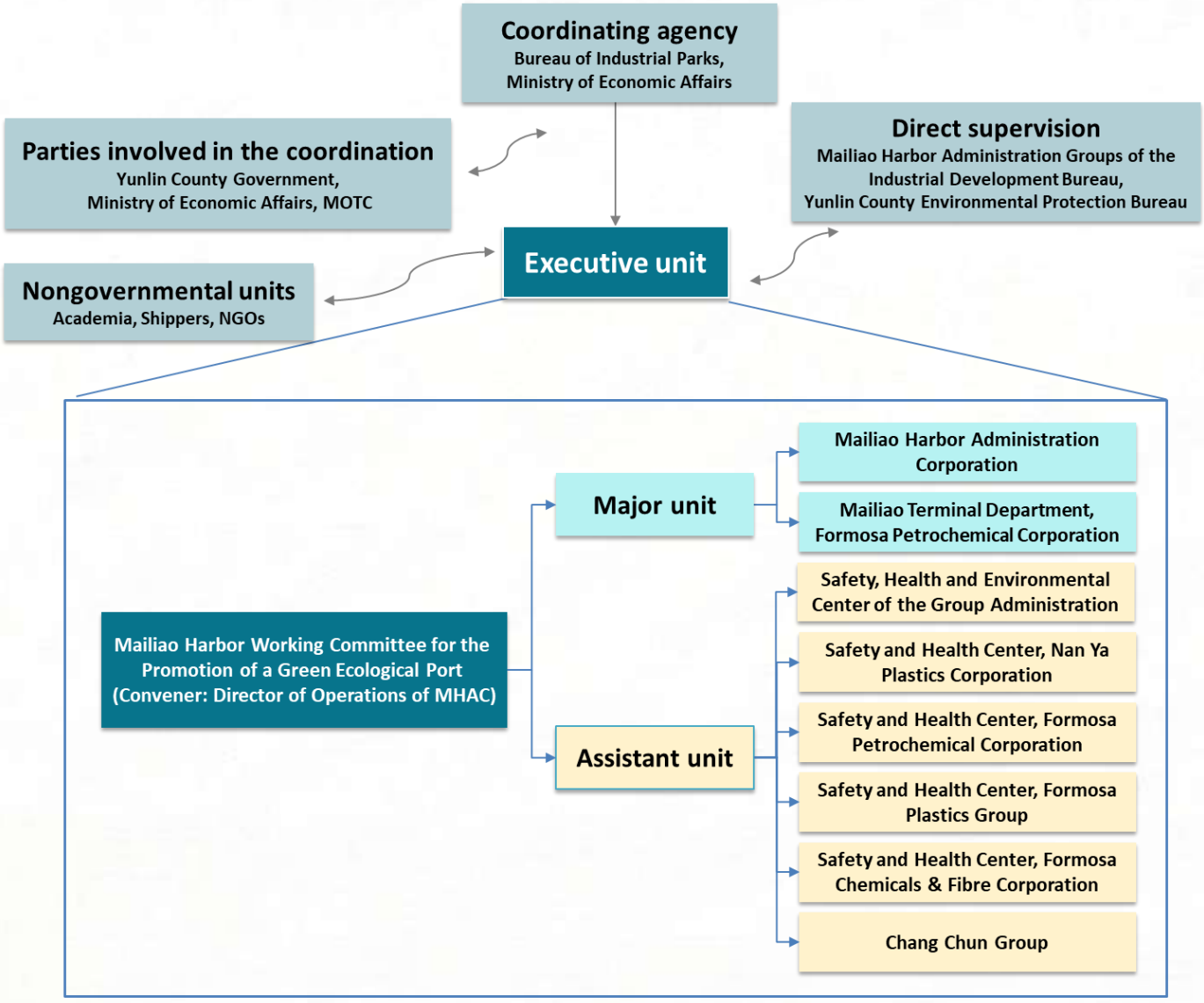
- Internal

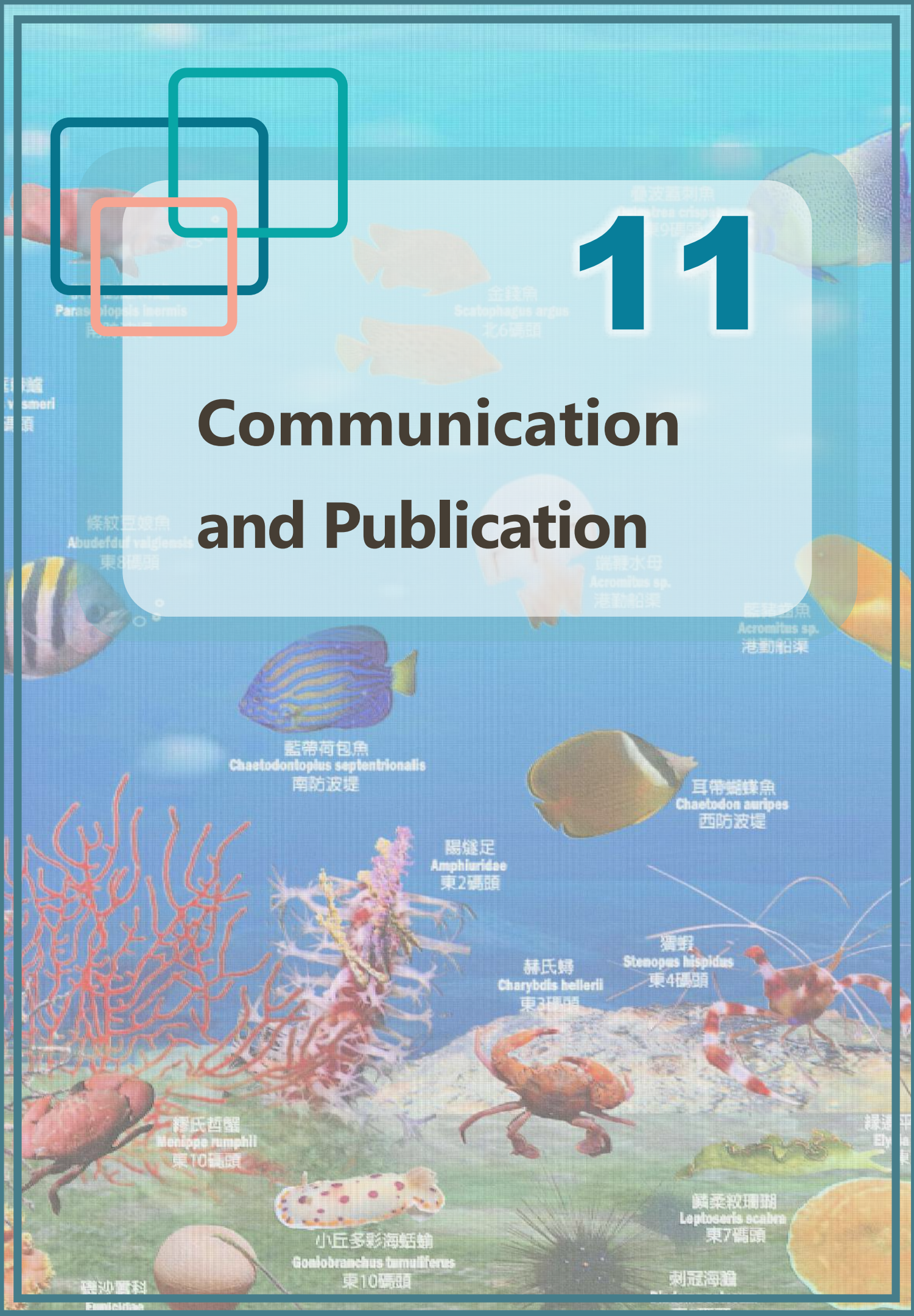
  1) We have held the regular meeting of the industrial safety and the environmental protection every month. We continue to convey the environmental policy and the concept to the employee at the meeting.

  2) We invited the employee and their family to visit the harbor regularly that we can communicate the concept of the environmental policy.

- External (the public)
  1) We have held the regular meeting with contractors every month.
  2) The exclusive page of the Eco-Parts, including the environmental policy and the environmental report, has shown on our official website.
  3) The experience of the Eco-Ports certification of our harbor was published on the 40th Ocean Engineering Conference of Taiwan.
  4) We have hosted the coordination meeting for Eco-ports every quarter at least.
  5) We continue to invite the government groups, the local communities, and the academic institutions to visit our harbor.

Organizational Responsibility for Environmental Issues





11

Communication and Publication

Environmental Promotion

Relationship with local community

National Oceans Day

In response to National Ocean Day, Mailiao Harbor promoted marine eco-education activities, enhancing public awareness of port sustainability and environmental protection through guided tours, visits, and interactive learning.

Between 2023 and 2024, Mailiao Harbor was invited to participate in National Oceans Day events, including the "2023 Love the Ocean: Ocean Waste as Art Exhibition" and the "2024 Ocean Waste Creativity: Making the Ocean More Beautiful" exhibition. Through booth presentations and guided tours, Mailiao Harbor promoted its green port initiatives and shared practical experiences, addressing environmental issues of public concern. These events showcased Mailiao Harbor's long-term dedication to ecological preservation while providing a platform to gather diverse feedback for future improvements. During this period, the harbor's exhibition booths attracted a total of approximately 289 visitors.

Ocean Engineering Conference in Taiwan

Mailiao Harbor showcased its green port success at the 46th Ocean Engineering Symposium in 2024. It actively contributed submissions to share its certification experiences, promote the sustainable management philosophy of Mailiao Harbor, and continuously review the port's current status and implementation of the ten major environmental issues through certification operations. This effort aims to convey Mailiao Harbor's long-standing commitment to port environmental management and ecological protection, as well as facilitate exchanges with experts and scholars in the field.

Community Activities

Relationship with local community

In order to maintaining a good environment, Formosa Plastics Group is committed to community engagement and contributes significantly to society, fulfilling its corporate responsibility of fostering neighborly relations.

Cultural Enrichment and Community Relations

Formosa Plastics Group actively supports cultural initiatives through the "Wang Jhan-yang Social Welfare Trust" and its "Development of Taiwan's Featured Culture Project." With a long-term commitment to local communities and corporate social responsibility, Formosa Plastics Group hosted eight performances by children's theater groups and the Ming Hwa Yuan Arts & Cultural Group across various townships in Yunlin from 2023 to 2024. These events drew approximately 9,900 participants. This multi-year initiative has consistently attracted large audiences and remains a highly supported cultural highlight for local residents.

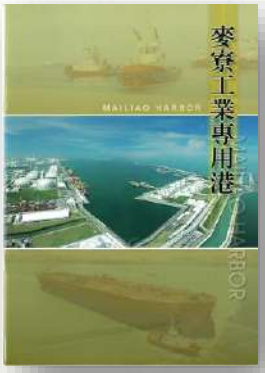
Supporting Local Agriculture

In support of Yunlin's agricultural sector, Formosa Plastics Group has consistently collaborated with local growers to purchase 30 tons of Douliu pomelos each year. By leveraging the nationwide presence of Formosa Oil gas stations, the group effectively promotes these "Yunlin Good Products" to a broader audience during the Mid-Autumn Festival. This effort highlights the enterprise's spirit of giving back to the community and its dedication to the sustainable development of the local economy.

HPV Vaccination Program for Students

In partnership with the Yunlin County Government, Formosa Plastics Group has sponsored 9-valent HPV vaccinations for 8th-grade students since 2017. By covering healthcare costs exceeding NT$10,000 per person, the program effectively prevents multiple cancers. To date, 27,846 students have benefited from this initiative, highlighting the Group's proactive role in local public health enhancement.

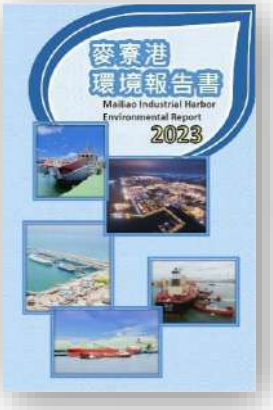
Publications



Mailiao Harbor introduction

The Mailiao Harbor introduction introduces the background information of the harbor, including the harbor's location, an aerial view of the harbor, the harbor's history, operations characteristics, administration organization structure, and berths on operation.

Key statistics of Mailiao Harbor



The key statistics of Mailiao Harbor includes the information of the number of vessels and the amount of cargo entering and exiting the port every year, and facts about stevedoring, financial affairs, organizational staff, and port facilities.

Environmental report

The report described Mailiao Harbor's ecological efforts from 2021 to 2022 and the Mailiao Harbor Administration Corporation's environmental policy, objectives, pledges, and action plans for green port development.

Formosa Plastics Group Magazine

Bringing together the latest developments of Formosa Plastics Group, showcasing its ongoing efforts in environmental improvement, corporate sustainability, community contributions, and port sustainability. It also promotes related arts and culture columns and other initiatives.

Environmental protection map

The map presents the Formosa Petrochemical Corporation persistence in care for the Earth, advertisement of ecological and conservation concepts, and dedication to comprehensive and advanced facilities for environmental protection.

Mailiao Harbor Marine Ecological Guidebook

The Mailiao Harbor Marine Ecology Photography Project conducted underwater ecological surveys and field filming in 2016 and 2023. The scope of the investigation covered six major areas: the Service Boat Basin, Wharves E1-E5, Wharves E6-E10, the Northwest Wharf, the West Breakwater, and the South Breakwater.

Websites

Mailiao Harbor website

The information found there includes the purpose of establishing the harbor, harbor operations, services, harbor status, and harbor news. The website is available to the public.

Mailiao Harbor website(CH)

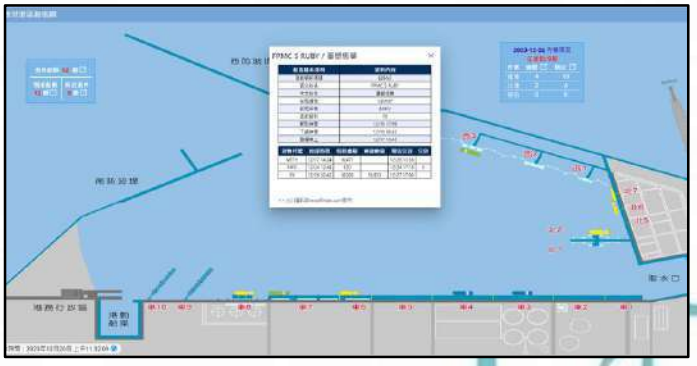
http://www.mlharbor.com.tw/j2mlh/zhtw/index.do

Mailiao Harbor website(EN)

http://www.mlharbor.com.tw/j2mlh/enus/index.do

Mailiao Harbor real-time movement of vessels

https://www.mlberth.com.tw/DSS/published-harbor/map



Facebook - Formosa Plastics Group!

(From: Facebook)

Formosa Plastics Group integrates various matters related to the Mailiao Industrial Park and provides real-time environmental information through Facebook social media. This information includes port disaster prevention drills, environmental education, harbor ecosystem updates, and air quality alerts, thereby expanding the network of communication with stakeholders connected to the port.

https://www.facebook.com/share/1AzZyXPATU/?mibextid=LQQJ4d

The beauty of Mailiao Eco-industrial Park, FPG

Formosa Plastics Group transforms desolation into prosperity, embracing the spirit of responsibility by prioritizing environmental protection, offering healthcare to locals, engaging with the community, and supporting the fishing industry. Join us in celebrating the beauty of Mailiao Eco-industrial Park!

六輕之美
The Beauty of Mailiao Eco-industrial Park, FPG.

http://mailiao.fpg.com.tw/j2pk/sea.do

12

Future Prospects

Mailiao Harbor is the first industrial harbor in Taiwan funded and managed by enterprises. It officially began operations in 2001, and since then, has become the largest industrial harbor in the country.

Even though Mailiao Harbor already used low impact sand extraction and landfilling measures during the harbor construction stage to minimize potential impacts on marine and coastal ecology, pollution discharge during operations such as vessels entering and exiting the harbor, mooring, stevedoring warehousing, and refueling, remain unavoidable. Other operations that could generate pollution include moving heavy machinery on harbor land at the terminal and warehousing areas, which may deteriorate the environmental quality of the harbor.

To reverse environmental deterioration and maintain the international trend of green, ecofriendly ports, the Mailiao Harbor Administration Corporation has actively implemented measures for green port implementation, namely reducing pollution in the harbor, maintaining the ecosystem, improving the operational effectiveness of the harbor, and increasing benefits to local communities. Certified as a green, ecofriendly port for the first time in September 2018, it will continue its efforts to implement environmental policy for harbors and to promote green, ecofriendly certification with the aim of green, ecofriendly, and sustainable port development.

Appendix 1 - monitoring results of marine water quality near Mailiao

2023 Q1 monitoring results of marine water quality near Mailiao (1/3)

Station	Units	A type marine water quality standard (2018.02.13~)	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
Depth	meter		1.0	6.5	12.0	1.0	10.0	19.5	1.0	11.5	22.0	1.0	11.0	21.0
Tepm.	℃	—	18.5	18.5	18.6	18.5	18.5	18.5	18.7	18.7	18.7	19.7	19.8	19.8
Salinity	PSU	—	31.2	33.0	33.3	32.6	33.2	33.4	33.7	33.7	33.7	34.1	34.1	34.1
pH	-	7.5~8.5	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
D.O.	mg/L	≥5.0	6.8	6.6	6.4	6.6	6.4	6.3	6.7	6.3	6.3	6.6	6.4	6.3
B.O.D.	mg/L	≤ 2	0.6	0.7	0.8	1.1	1.2	0.8	1.4	0.9	0.8	1.1	1.0	0.7
E. coli	CFU/100ml	≤ 1000	ND	ND	25	75	ND	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	17.8	20.8	23.1	21.5	20.6	26.8	15.3	18.0	14.5	10.4	23.4	14.3
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	1.58	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	0.7	ND	0.6	ND	0.7	ND	0.5	1.0	ND	ND	ND	0.5
Chlorophyll a	μg/L	—	2.1	1.3	1.3	1.5	1.0	0.9	0.7	0.7	0.6	0.7	0.9	0.7
Total phosphorus	mg/L	0.05	0.034	0.022	0.020	0.020	0.023	0.025	0.017	0.013	0.019	0.018	0.016	0.018
NH3-N	mg/L	0.3	0.14	0.06	0.06	0.17	0.07	0.07	0.07	0.19	0.04	0.04	0.02	0.10
Nitrite nitrogen	μg/L	—	27.94	22.92	23.42	28.11	21.58	21.58	17.06	15.56	18.57	6.19	5.52	4.68
Nitrate nitrogen	mg/L	—	0.13	0.12	0.10	0.12	0.14	0.12	0.10	0.08	0.08	0.03	0.04	0.04
Cd	μg/L	5	0.0107	0.0129	0.0141	0.0155	0.0141	0.0142	0.0295	0.0287	0.0150	0.0149	0.0124	0.0120
Cr	μg/L	—	0.03	0.04	0.03	0.04	0.04	0.04	0.07	0.05	0.03	0.03	0.03	0.03
Co	μg/L	—	0.678	0.873	0.650	1.425	0.952	0.402	1.288	1.311	0.373	0.461	0.377	0.521
Cu	μg/L	30	0.318	0.299	0.290	0.359	0.369	0.345	0.765	0.627	0.245	0.336	0.323	0.299
Ni	μg/L	100	0.063	0.061	0.101	0.067	0.102	0.089	0.122	0.112	0.090	0.114	0.094	0.107
Pb	μg/L	10	0.508	1.349	0.836	1.054	1.031	1.266	2.188	1.985	0.696	1.343	0.847	0.853
Zn	μg/L	500	5.38	2.15	2.08	2.23	5.94	4.79	3.56	4.30	2.38	2.19	1.79	4.59
Fe	μg/L	—	0.98	0.85	0.86	1.11	0.99	0.98	0.85	0.97	0.87	0.54	0.69	0.98
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	16.4	21.4	18.5	10	14.2	12.2	7.66	9.96	8.7	7.78	8.04	8.38
Turbidty	NTU	—	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
Transparency	m	—	0.7	0.4	0.4	0.5	0.5	0.3	0.3	0.3	0.4	0.2	0.2	0.2
Silicate	mg/L	—	2.40	2.30	2.50	2.40	2.50	3.00	2.40	1.90	2.20	1.70	2.10	1.80
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q1 monitoring results of marine water quality near Mailiao (2/3)

Station	Units	A type marine water quality standard (2018.02.13~)	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
Depth	meter		1.0	11.5	22.0	1.0	2.0	4.0	1.0	2.0	3.5	1.0	10.0	20.0
Tepm.	℃	—	20.2	20.2	20.3	18.6	18.6	18.6	18.8	18.8	18.8	18.6	18.5	18.5
Salinity	PSU	—	34.1	34.1	34.1	33.3	33.3	33.3	33.6	33.6	33.6	33.5	33.6	33.6
pH	-	7.5~8.5	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
D.O.	mg/L	≥5.0	6.2	6.4	6.3	7.0	6.7	6.7	7.0	7.0	7.0	6.6	6.6	6.6
B.O.D.	mg/L	≤ 2	0.9	0.6	0.6	0.8	1.2	0.9	1.3	0.4	0.7	1.1	1.0	1.1
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	20	ND	10	ND	ND	10	ND	ND	10
S.S.	mg/L	—	21.2	18.8	16.4	40.2	74.3	78.8	57.0	62.0	64.1	22.0	29.5	24.8
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.18	ND	ND
Mineral oil	mg/L	2	0.5	0.5	ND	ND	0.6	ND	ND	0.7	ND	1.0	0.9	1.1
Chlorophyll a	μg/L	—	0.1	0.4	0.6	1.6	1.8	1.6	1.6	1.5	1.3	1.2	0.9	0.9
Total phosphorus	mg/L	0.05	0.013	0.008	0.006	0.024	0.027	0.029	0.033	0.032	0.031	0.021	0.024	0.021
NH3-N	mg/L	0.3	0.08	0.10	0.12	0.05	0.03	0.17	0.06	0.07	0.04	0.07	0.07	0.07
Nitrite nitrogen	μg/L	—	8.03	4.18	5.69	28.44	27.44	26.60	22.92	22.25	21.92	28.78	21.58	21.25
Nitrate nitrogen	mg/L	—	0.03	0.03	0.02	0.11	0.10	0.11	0.12	0.12	0.09	0.11	0.10	0.10
Cd	μg/L	5	0.0155	0.0144	0.0121	0.0136	0.0123	0.0142	0.0123	0.0120	0.0166	0.0110	0.0126	0.0136
Cr	μg/L	—	0.03	0.04	0.02	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Co	μg/L	—	0.571	0.755	0.253	0.509	0.627	0.464	0.621	0.435	0.325	0.447	0.703	0.476
Cu	μg/L	30	0.390	0.343	0.245	0.485	0.506	0.341	0.357	0.330	0.324	0.201	0.300	0.353
Ni	μg/L	100	0.106	0.120	0.078	0.064	0.054	0.029	0.050	0.032	0.080	0.031	0.059	0.120
Pb	μg/L	10	1.380	1.295	0.700	1.048	1.080	0.980	1.062	1.036	0.819	0.749	0.969	1.023
Zn	μg/L	500	5.83	2.09	1.84	3.94	4.12	2.38	2.30	3.59	2.81	1.11	2.14	4.44
Fe	μg/L	—	0.83	0.70	0.86	0.88	0.98	0.78	1.00	0.99	0.80	0.76	0.72	0.74
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	5.47	6.65	5.69	59.7	96.1	90.7	42.6	66	50.4	14.9	22.9	22
Turbidty	NTU	—	2.0	2.0	2.0	0.5	0.5	0.5	0.4	0.4	0.4	1.0	1.0	1.0
Transparency	m	—	0.3	0.3	0.2	0.4	0.5	0.4	0.3	0.3	0.4	0.4	0.3	0.4
Silicate	mg/L	—	1.80	1.60	1.50	2.20	2.20	2.40	2.10	2.20	2.00	2.20	2.60	2.40
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q1 monitoring results of marine water quality near Mailiao (3/3)

Station	Units	A type marine water quality standard (2018.02.13~)	4B	4B	4B	5B	5B	5B	2C	3C	4M
Depth	meter		1.0	10.5	20.0	1.0	10.0	19.0	1.0	1.0	1.0
Tepm.	℃	—	19.6	19.4	19.2	19.8	19.7	19.7	18.8	19.2	18.9
Salinity	PSU	—	33.9	34.0	33.9	34.0	34.0	33.9	33.3	33.6	33.1
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0
D.O.	mg/L	≥5.0	6.4	6.8	6.5	7.0	6.4	6.7	7.3	6.8	6.8
B.O.D.	mg/L	≤ 2	1.4	1.0	0.8	1.4	1.2	0.7	1.1	0.5	1.7
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	15	ND	25
S.S.	mg/L	—	19.5	60.0	38.0	14.0	19.0	24.2	52.8	74.2	23.2
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	0.9	1.1	0.6	0.8	1.1	1.1	0.5	0.8	0.9
Chlorophyll a	μg/L	—	0.9	1.6	0.6	1.8	1.0	1.0	2.8	1.8	1.8
Total phosphorus	mg/L	0.05	0.023	0.024	0.036	0.024	0.021	0.029	0.034	0.024	0.044
NH3-N	mg/L	0.3	0.08	0.14	0.14	0.14	0.15	0.08	0.14	0.10	0.22
Nitrite nitrogen	μg/L	—	12.88	17.90	14.05	14.39	13.89	10.71	23.59	18.90	23.42
Nitrate nitrogen	mg/L	—	0.06	0.07	0.06	0.07	0.05	0.05	0.13	0.07	0.12
Cd	μg/L	5	0.0166	0.0141	0.0197	0.0241	0.0153	0.0127	0.0134	0.0167	0.0175
Cr	μg/L	—	0.04	0.06	0.04	0.06	0.05	0.06	0.04	0.04	0.07
Co	μg/L	—	0.858	0.728	0.497	1.071	1.266	0.488	0.411	0.354	0.526
Cu	μg/L	30	0.421	0.374	0.372	0.752	0.497	0.335	0.295	0.374	0.538
Ni	μg/L	100	0.134	0.143	0.126	0.131	0.107	0.125	0.078	0.064	0.171
Pb	μg/L	10	1.617	2.084	2.502	2.229	1.590	2.348	1.368	1.398	1.678
Zn	μg/L	500	2.75	4.03	2.58	6.78	5.23	3.20	6.60	1.99	6.19
Fe	μg/L	—	0.96	0.82	0.69	0.69	0.98	1.04	1.28	1.01	0.80
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	12	82.6	32.4	9.39	8.75	11.9	79.3	87.8	19.3
Turbidty	NTU	—	1.0	1.0	1.0	1.2	1.2	1.2	0.5	0.3	0.5
Transparency	m	—	0.2	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.6
Silicate	mg/L	—	1.90	2.40	2.30	1.60	1.70	2.00	2.00	2.20	2.70
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q2 monitoring results of marine water quality near Mailiao (1/3)

Station	Units	A type marine water quality standard (2018.02.13~)	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
Depth	meter		1.0	7.5	14.0	1.0	10.0	19.0	1.0	12.0	23.0	1.0	10.0	20.0
Tepm.	℃	—	22.9	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	23.0	23.1	23.1
Salinity	PSU	—	34.0	34.0	34.1	34.2	34.2	34.2	34.4	34.3	34.3	34.4	34.4	34.4
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.3	8.1	8.1	8.1	8.1	8.1
D.O.	mg/L	≥5.0	6.5	6.3	6.9	6.4	6.4	6.3	6.1	6.7	6.5	6.1	6.5	6.7
B.O.D.	mg/L	≤ 2	1.1	1.5	1.1	1.4	1.0	0.9	1.2	1.2	1.4	1.3	1.2	1.1
E. coli	CFU/100ml	≤ 1000	ND	ND	15	ND	ND	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	18.8	17.0	16.9	11.7	14.4	11.7	12.9	7.7	12.6	11.0	9.2	9.7
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	0.5	0.5	ND	ND	ND	0.5	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	2.2	0.7	1.8	1.9	2.4	0.3	1.6	1.3	1.3	1.5	0.1	0.9
Total phosphorus	mg/L	0.05	0.036	0.029	0.029	0.033	0.032	0.043	0.019	0.019	0.016	0.020	0.021	0.021
NH3-N	mg/L	0.3	0.06	0.05	0.06	0.03	0.07	0.06	0.07	0.06	0.08	0.10	0.09	0.08
Nitrite nitrogen	μg/L	—	14.10	36.90	12.70	12.10	12.10	9.90	10.90	9.90	8.50	7.50	6.70	8.10
Nitrate nitrogen	mg/L	—	0.12	0.10	0.10	0.06	0.15	0.08	0.16	0.11	0.11	0.06	0.05	0.05
Cd	μg/L	5	0.0203	0.0207	0.0218	0.0098	0.0230	0.0130	0.0154	0.0225	0.0197	0.0132	0.0118	0.0148
Cr	μg/L	—	0.04	0.04	0.03	0.03	0.05	0.03	0.03	0.04	0.06	0.03	0.02	0.03
Co	μg/L	—	0.719	0.420	0.709	0.489	0.416	0.553	0.829	0.999	0.578	1.755	0.905	0.474
Cu	μg/L	30	0.193	0.230	0.189	0.167	0.278	0.169	0.217	0.330	0.464	0.228	0.173	0.190
Ni	μg/L	100	0.021	0.049	0.122	0.095	0.151	0.168	0.145	0.162	0.179	0.048	0.033	0.065
Pb	μg/L	10	0.873	1.110	0.821	0.724	1.065	1.428	1.140	1.885	1.950	0.872	0.723	0.744
Zn	μg/L	500	3.06	2.36	1.85	3.04	2.35	1.82	3.68	2.85	4.17	3.07	5.42	2.77
Fe	μg/L	—	0.89	1.15	0.76	1.12	1.17	1.10	1.00	1.38	0.98	1.17	0.87	1.55
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	13.6	8.2	11.3	13.2	10.9	12.8	14.3	9.4	9.6	12.7	15.1	12.9
Turbidty	NTU	—	1.3	0.0	0.0	2.0	0.0	0.0	2.3	0.0	0.0	3.0	0.0	0.0
Transparency	m	—	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2
Silicate	mg/L	—	2.63	2.88	2.43	2.35	2.77	2.22	2.16	2.48	2.60	2.84	2.45	2.52
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q2 monitoring results of marine water quality near Mailiao (2/3)

Station	Units	A type marine water quality standard (2018.02.13~)	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
Depth	meter		1.0	11.0	21.5	1.0	2.0	4.0	1.0	2.0	4.5	1.0	11.0	22.0
Tepm.	℃	—	23.2	23.2	23.2	23.1	23.1	23.3	23.0	23.0	23.1	22.8	22.8	22.8
Salinity	PSU	—	34.5	34.5	34.5	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.2
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
D.O.	mg/L	≥5.0	6.5	6.6	6.8	6.3	6.3	6.5	6.9	6.9	6.7	6.9	7.0	7.1
B.O.D.	mg/L	≤ 2	1.2	1.2	1.4	1.3	1.2	1.1	1.0	1.3	1.2	1.4	1.6	1.3
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	10.4	18.1	18.1	24.3	29.2	32.3	31.7	33.0	30.2	10.2	14.2	10.8
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	0.6	ND	ND	ND	ND	0.6	0.9	ND
Chlorophyll a	μg/L	—	1.0	0.4	0.4	2.8	1.6	2.1	1.9	3.0	0.7	1.5	1.8	1.6
Total phosphorus	mg/L	0.05	0.030	0.031	0.018	0.039	0.030	0.026	0.026	0.020	0.016	0.037	0.030	0.035
NH3-N	mg/L	0.3	0.09	0.11	0.08	0.07	0.07	0.06	0.06	0.06	0.07	0.07	0.07	0.04
Nitrite nitrogen	μg/L	—	8.70	48.30	6.90	10.10	11.70	12.50	9.30	9.70	8.90	11.30	12.10	15.50
Nitrate nitrogen	mg/L	—	0.05	0.03	0.05	0.11	0.09	0.07	0.06	0.07	0.06	0.18	0.17	0.18
Cd	μg/L	5	0.0152	0.0215	0.0112	0.0225	0.0221	0.0173	0.0148	0.0123	0.0192	0.0200	0.0224	0.0125
Cr	μg/L	—	0.04	0.07	0.04	0.03	0.04	0.03	0.03	0.04	0.04	0.03	0.06	0.03
Co	μg/L	—	0.906	0.226	0.243	0.755	0.407	0.632	0.493	1.007	0.806	1.002	0.913	0.424
Cu	μg/L	30	0.307	0.340	0.188	0.151	0.282	0.175	0.175	0.297	0.221	0.206	0.482	0.204
Ni	μg/L	100	0.098	0.121	0.099	0.097	0.150	0.116	0.100	0.157	0.151	0.140	0.115	0.094
Pb	μg/L	10	1.103	1.755	0.976	0.749	1.423	1.128	1.309	1.187	1.537	1.337	1.804	0.986
Zn	μg/L	500	3.50	3.11	1.26	3.61	2.41	2.85	2.40	5.83	4.60	2.36	4.72	4.16
Fe	μg/L	—	1.17	1.10	1.05	0.70	0.63	0.82	0.83	1.23	1.21	1.19	1.29	0.92
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	11.5	12.3	14	18.7	17.3	19.6	22.1	25.7	24.1	9.5	10.6	12.6
Turbidty	NTU	—	2.5	0.0	0.0	1.0	0.0	0.0	0.8	0.0	0.0	2.3	0.0	0.0
Transparency	m	—	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.1
Silicate	mg/L	—	2.72	2.63	2.10	2.60	2.85	2.30	2.60	2.15	2.45	1.87	2.60	2.13
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q2 monitoring results of marine water quality near Mailiao (3/3)

Station	Units	A type marine water quality standard (2018.02.13~)	4B	4B	4B	5B	5B	5B	2C	3C	4M
Depth	meter		1.0	10.0	20.0	1.0	10.5	20.0	1.0	1.0	1.0
Tepm.	℃	—	23.2	23.0	23.0	23.5	23.2	23.2	23.2	24.0	23.0
Salinity	PSU	—	34.3	34.3	34.3	34.5	34.4	34.4	34.2	34.1	34.2
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.2	8.1	8.1	8.0	8.1
D.O.	mg/L	≥5.0	6.8	6.5	6.3	6.7	6.5	6.7	6.9	6.9	6.6
B.O.D.	mg/L	≤ 2	1.2	1.3	1.1	1.4	1.0	1.1	1.0	1.1	1.7
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	11.1	8.0	9.0	9.5	8.4	7.0	24.8	24.1	10.1
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	0.5	ND	ND	ND
Chlorophyll a	μg/L	—	1.3	1.5	1.3	1.6	1.8	0.3	3.0	1.6	1.5
Total phosphorus	mg/L	0.05	0.014	0.013	0.019	0.010	0.030	0.032	0.046	0.040	0.052
NH3-N	mg/L	0.3	0.10	0.11	0.10	0.10	0.09	0.08	0.06	0.04	0.13
Nitrite nitrogen	μg/L	—	8.10	8.30	7.10	4.10	3.70	6.50	12.30	13.70	15.90
Nitrate nitrogen	mg/L	—	0.06	0.05	0.05	0.06	0.05	0.03	0.07	0.17	x
Cd	μg/L	5	0.0145	0.0174	0.0294	0.0127	0.0109	0.0284	0.0127	0.0090	0.0143
Cr	μg/L	—	0.03	0.06	0.05	0.04	0.03	0.04	0.05	0.06	0.04
Co	μg/L	—	1.121	1.018	1.414	0.433	0.927	1.179	0.288	1.075	0.457
Cu	μg/L	30	0.175	0.416	0.513	0.360	0.182	0.223	0.356	0.757	0.621
Ni	μg/L	100	0.069	0.099	0.156	0.059	0.069	0.067	0.015	0.090	0.076
Pb	μg/L	10	0.770	1.250	3.514	0.856	0.726	1.483	1.339	2.233	0.873
Zn	μg/L	500	5.09	3.40	5.56	5.39	2.18	3.20	2.93	7.52	3.76
Fe	μg/L	—	1.36	0.95	1.15	0.83	0.92	0.90	0.94	1.02	1.03
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	13.3	11.8	12.2	12.1	10.2	9.9	20.1	12.7	13.1
Turbidty	NTU	—	2.0	0.0	0.0	2.0	0.0	0.0	0.6	0.7	1.2
Transparency	m	—	0.3	0.2	0.3	0.2	0.2	0.3	0.1	0.2	0.4
Silicate	mg/L	—	2.60	2.67	2.38	2.90	1.10	1.83	2.50	2.13	2.30
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q3 monitoring results of marine water quality near Mailiao (1/3)

Station	Units	A type marine water quality standard (2018.02.13~)	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
Depth	meter		1.0	7.5	14.5	1.0	10.0	19.5	1.0	12.0	23.5	1.0	12.0	23.5
Tepm.	℃	—	30.6	30.5	30.5	30.5	30.3	30.3	30.3	30.2	30.2	30.4	30.3	30.3
Salinity	PSU	—	33.7	32.9	33.4	32.8	33.2	33.6	33.9	33.8	33.8	33.8	33.8	33.8
pH	-	7.5~8.5	8.2	8.2	8.2	8.1	8.1	8.2	8.1	8.2	8.2	8.1	8.2	8.1
D.O.	mg/L	≥5.0	6.6	6.5	6.5	6.2	6.2	6.4	6.6	6.1	6.6	6.3	6.2	6.2
B.O.D.	mg/L	≤ 2	1.2	1.2	0.9	1.1	1.1	0.9	1.1	1.1	1.0	1.1	0.8	1.0
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	22.3	21.1	24.3	15.7	13.1	14.5	12.8	15.3	8.4	17.4	22.4	12.1
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	3.4	1.8	0.9	1.6	1.3	2.4	0.7	0.4	2.2	1.3	0.6	0.3
Total phosphorus	mg/L	0.05	0.019	0.011	0.016	0.025	0.012	0.020	0.013	0.035	0.032	0.020	0.020	0.013
NH3-N	mg/L	0.3	0.12	0.18	0.15	0.08	0.14	0.11	0.13	0.15	0.09	0.05	0.04	0.05
Nitrite nitrogen	μg/L	—	35.50	21.42	21.86	25.82	20.98	16.58	11.30	18.78	13.50	12.62	10.86	10.86
Nitrate nitrogen	mg/L	—	0.19	0.13	0.15	0.17	0.15	0.11	0.13	0.12	0.08	0.11	0.08	0.13
Cd	μg/L	5	0.0574	0.0336	0.0402	0.0172	0.0512	0.0151	0.0158	0.0118	0.0579	0.0122	0.0204	0.0138
Cr	μg/L	—	0.05	0.04	0.06	0.04	0.03	0.03	0.04	0.02	0.04	0.03	0.03	0.03
Co	μg/L	—	0.865	0.793	1.586	0.789	0.929	0.923	0.817	0.458	0.950	1.020	1.169	0.917
Cu	μg/L	30	0.566	0.426	0.728	0.332	0.323	0.351	0.338	0.240	0.399	0.356	0.311	0.268
Ni	μg/L	100	0.055	0.061	0.070	0.060	0.060	0.057	0.065	0.061	0.059	0.090	0.074	0.085
Pb	μg/L	10	2.161	2.043	1.975	2.543	2.783	1.610	1.764	1.031	2.299	1.481	1.715	1.291
Zn	μg/L	500	1.81	2.13	3.39	3.21	2.26	3.24	3.48	2.86	4.83	1.66	2.26	2.69
Fe	μg/L	—	1.26	1.27	0.88	0.91	1.09	1.11	0.78	1.37	1.10	1.64	0.97	0.97
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	21.7152	23.9424	14.8944	22.1676	15.6948	13.0152	7.482	7.7604	3.132	15.486	16.1124	10.8228
Turbidty	NTU	—	0.8	0.8	0.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Transparency	m	—	0.3	0.5	0.2	0.5	0.3	0.4	0.1	0.4	0.1	0.3	0.1	0.4
Silicate	mg/L	—	2.30	2.60	2.00	2.50	2.10	1.20	1.90	1.00	0.60	ND	0.90	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q3 monitoring results of marine water quality near Mailiao (2/3)

Station	Units	A type marine water quality standard (2018.02.13~)	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
Depth	meter		1.0	11.0	21.5	1.0	4.5	2.5	1.0	2.0	3.5	1.0	11.0	21.5
Tepm.	℃	—	30.2	30.1	30.1	31.2	31.3	31.2	30.9	30.9	31.0	30.6	30.4	30.4
Salinity	PSU	—	33.8	33.8	33.8	33.7	33.7	33.7	33.7	33.7	33.7	33.8	33.8	33.8
pH	-	7.5~8.5	8.1	8.2	8.1	8.2	8.2	8.2	8.1	8.2	8.2	8.2	8.2	8.2
D.O.	mg/L	≥5.0	6.4	6.6	6.6	6.2	6.4	6.4	6.5	6.6	7.0	6.7	6.0	6.4
B.O.D.	mg/L	≤ 2	0.9	0.9	1.2	1.4	1.0	1.3	0.8	1.0	1.0	1.0	1.2	0.8
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	17.9	17.2	8.6	35.2	36.7	37.1	27.9	31.0	34.8	11.8	11.3	17.2
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	1.2	ND	0.6	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.3	0.3	0.3	3.7	2.2	2.1	2.5	3.1	2.4	0.9	1.9	1.3
Total phosphorus	mg/L	0.05	0.031	0.010	0.011	0.034	0.011	0.011	0.018	0.018	0.023	0.035	0.024	0.037
NH3-N	mg/L	0.3	0.09	0.07	0.02	0.10	0.01	0.03	0.15	0.12	0.27	0.08	0.10	0.15
Nitrite nitrogen	μg/L	—	17.90	22.74	17.90	16.14	17.90	16.14	17.02	15.26	19.22	20.10	17.02	19.66
Nitrate nitrogen	mg/L	—	0.14	0.12	0.14	0.07	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.11
Cd	μg/L	5	0.0159	0.0382	0.0449	0.0187	0.0218	0.0121	0.0152	0.0170	0.0428	0.0531	0.0151	0.0137
Cr	μg/L	—	0.02	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.03
Co	μg/L	—	0.859	0.743	0.836	1.032	0.991	0.877	0.739	0.846	0.817	0.842	0.641	0.820
Cu	μg/L	30	0.240	0.210	0.187	0.295	0.292	0.286	0.353	0.179	0.268	0.331	0.280	0.326
Ni	μg/L	100	0.076	0.060	0.053	0.060	0.066	0.057	0.063	0.037	0.058	0.057	0.062	0.065
Pb	μg/L	10	1.203	1.186	0.922	1.368	1.346	0.995	1.391	0.727	1.559	1.532	1.179	2.152
Zn	μg/L	500	1.97	1.46	1.16	3.52	1.80	1.82	3.07	5.24	5.20	2.54	2.39	2.67
Fe	μg/L	—	1.01	1.03	0.96	0.98	0.87	1.26	1.23	0.97	0.95	0.98	1.04	1.30
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	10.0224	11.7624	8.526	30.9372	30.2412	38.28	37.236	47.676	51.156	11.4492	9.9528	12.5976
Turbidty	NTU	—	1.8	1.8	1.8	0.9	0.9	0.9	0.5	0.5	0.5	2.0	2.0	2.0
Transparency	m	—	0.4	0.0	0.2	0.2	0.2	0.1	0.3	0.1	0.2	0.5	0.2	0.6
Silicate	mg/L	—	0.70	1.10	ND	2.80	2.80	2.50	2.10	2.20	2.00	1.20	1.50	0.80
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q3 monitoring results of marine water quality near Mailiao (3/3)

Station	Units	A type marine water quality standard (2018.02.13~)	4B	4B	4B	5B	5B	5B	2C	3C	4M
Depth	meter		1.0	10.0	19.5	1.0	10.5	19.5	1.0	1.0	1.0
Tepm.	℃	—	30.4	30.3	30.3	30.4	30.3	30.3	31.6	31.6	31.1
Salinity	PSU	—	33.8	33.8	33.8	33.6	33.8	33.8	33.5	33.7	33.3
pH	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.1	8.1
D.O.	mg/L	≥5.0	5.9	5.9	6.3	6.5	6.2	6.6	6.4	6.1	6.1
B.O.D.	mg/L	≤ 2	0.8	1.0	0.9	0.9	0.9	0.8	1.2	0.8	1.2
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	12.3	14.9	10.8	13.8	14.6	16.7	24.3	39.7	29.1
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	1.8	2.1	0.6	1.6	2.1	2.7	8.4	2.8	4.7
Total phosphorus	mg/L	0.05	0.027	0.014	0.035	0.016	0.038	0.011	0.012	0.021	0.013
NH3-N	mg/L	0.3	0.04	0.05	0.07	0.06	0.19	0.07	0.17	0.21	0.18
Nitrite nitrogen	μg/L	—	14.82	13.50	11.74	4.70	9.98	9.54	13.94	16.58	30.66
Nitrate nitrogen	mg/L	—	0.08	0.10	0.13	0.07	0.07	0.09	0.08	0.16	0.25
Cd	μg/L	5	0.0334	0.0145	0.0441	0.0282	0.0129	0.0354	0.0319	0.0394	0.0124
Cr	μg/L	—	0.03	0.04	0.02	0.04	0.03	0.03	0.03	0.05	0.03
Co	μg/L	—	0.779	1.058	1.003	1.534	0.875	0.909	0.772	0.726	0.975
Cu	μg/L	30	0.322	0.469	0.454	0.367	0.379	0.296	0.233	0.454	0.449
Ni	μg/L	100	0.089	0.086	0.082	0.089	0.082	0.077	0.058	0.062	0.081
Pb	μg/L	10	1.703	2.563	2.114	1.914	1.479	1.630	1.338	3.158	1.388
Zn	μg/L	500	3.59	3.85	1.93	3.75	1.97	2.73	3.43	4.77	2.26
Fe	μg/L	—	1.03	1.21	1.13	1.09	0.92	1.05	1.11	1.48	1.47
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	12.5976	4.35	13.746	15.5208	24.6036	13.1196	32.538	43.848	45.936
Turbidty	NTU	—	1.8	1.8	1.8	1.8	1.8	1.8	0.5	0.5	0.5
Transparency	m	—	0.1	0.2	0.1	0.1	0.3	0.5	0.0	0.3	0.4
Silicate	mg/L	—	0.70	1.00	0.80	ND	0.90	ND	1.80	ND	0.70
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q4 monitoring results of marine water quality near Mailiao (1/3)

Station	Units	A type marine water quality standard (2018.02.13~)	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
Depth	meter		1.0	8.0	16.0	1.0	11.0	21.0	1.0	12.0	24.0	1.0	12.0	24.0
Tepm.	℃	—	26.0	25.8	25.8	26.2	25.8	25.7	25.9	25.7	25.7	26.7	25.9	25.9
Salinity	PSU	—	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.8	34.2	34.1	34.1
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1
D.O.	mg/L	≥5.0	6.1	6.2	6.1	6.0	6.3	6.2	6.9	6.3	6.2	6.4	6.2	6.0
B.O.D.	mg/L	≤ 2	1.3	1.1	0.9	1.1	1.1	0.9	1.1	1.1	1.0	1.2	0.9	0.8
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	50	50	25	ND	ND	ND
S.S.	mg/L	—	14.8	23.0	18.8	13.9	20.2	16.8	12.3	23.7	18.7	19.7	18.1	21.5
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.7	0.4	0.6	0.7	0.6	0.9	0.9	0.7	0.9	0.9	0.7	0.4
Total phosphorus	mg/L	0.05	0.020	0.019	0.019	0.020	0.020	0.024	0.019	0.035	0.018	0.022	0.017	0.019
NH3-N	mg/L	0.3	0.10	0.07	0.10	0.07	0.06	0.12	0.18	0.16	0.09	0.06	0.11	0.06
Nitrite nitrogen	μg/L	—	23.35	15.50	18.15	17.10	9.55	12.80	9.15	9.80	12.50	8.05	8.10	8.50
Nitrate nitrogen	mg/L	—	0.24	0.11	0.12	0.12	0.11	0.11	0.11	0.13	0.13	0.11	0.12	0.10
Cd	μg/L	5	0.0091	0.0099	0.0178	0.0153	0.0107	0.0156	0.0127	0.0076	0.0148	0.0183	0.0247	0.0169
Cr	μg/L	—	0.02	0.02	0.02	0.07	0.02	0.04	0.03	0.02	0.05	0.04	0.03	0.03
Co	μg/L	—	0.278	0.823	0.694	0.166	0.690	0.693	0.992	0.568	1.127	0.835	0.771	0.683
Cu	μg/L	30	0.428	0.292	0.334	0.305	0.377	0.403	0.422	0.299	0.683	0.389	0.353	0.381
Ni	μg/L	100	0.081	0.064	0.082	0.095	0.075	0.082	0.103	0.081	0.072	0.081	0.063	0.083
Pb	μg/L	10	2.991	1.863	1.795	0.984	1.841	2.174	2.653	2.101	1.508	2.823	2.024	2.057
Zn	μg/L	500	1.64	2.93	4.17	5.39	4.00	6.83	4.69	4.19	3.74	4.49	1.99	2.33
Fe	μg/L	—	0.71	0.70	1.15	1.00	1.10	1.38	1.34	1.07	1.67	1.21	1.24	0.65
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	17.3	18.2	19.2	9.32	14.2	12.2	7.66	9.96	8.7	8.1	8.3	8.5
Turbidty	NTU	—	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.0	1.0	1.0
Transparency	m	—	0.1	0.1	0.1	0.1	0.3	0.1	0.3	0.3	0.3	0.3	0.3	0.3
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q4 monitoring results of marine water quality near Mailiao (2/3)

Station	Units	A type marine water quality standard (2018.02.13~)	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
Depth	meter		1.0	24.0	12.5	1.0	4.0	7.5	1.0	3.0	5.5	1.0	12.0	23.5
Tepm.	℃	—	27.0	25.9	25.9	25.8	25.8	25.8	25.8	25.8	25.9	26.1	25.8	25.7
Salinity	PSU	—	34.3	34.2	34.3	33.6	33.6	33.6	33.6	33.6	33.6	34.0	34.0	33.9
pH	-	7.5~8.5	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
D.O.	mg/L	≥5.0	6.2	6.0	6.1	6.2	6.2	6.4	6.5	6.4	6.4	6.6	6.2	6.0
B.O.D.	mg/L	≤ 2	0.9	1.3	0.9	1.4	1.3	1.0	0.8	1.0	0.9	1.0	1.1	0.9
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	10	45	15	40	35	35	50	40	30
S.S.	mg/L	—	21.9	18.7	18.9	18.9	11.2	14.4	12.3	14.0	17.0	18.8	18.4	14.4
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.6	0.6	0.6	0.7	0.4	0.7	0.4	0.7	0.1	0.9	0.9	0.6
Total phosphorus	mg/L	0.05	0.018	0.019	0.018	0.020	0.020	0.021	0.021	0.023	0.020	0.020	0.025	0.023
NH3-N	mg/L	0.3	0.07	0.04	0.07	0.12	0.09	0.13	0.10	0.13	0.15	0.18	0.13	0.13
Nitrite nitrogen	μg/L	—	5.30	4.85	4.85	22.85	20.05	20.20	18.50	20.05	18.00	13.40	15.70	11.40
Nitrate nitrogen	mg/L	—	0.09	0.08	0.08	0.16	0.16	0.17	0.18	0.17	0.17	0.12	0.11	0.14
Cd	μg/L	5	0.0146	0.0104	0.0165	0.0142	0.0100	0.0060	0.0085	0.0074	0.0106	0.0188	0.0142	0.0098
Cr	μg/L	—	0.03	0.02	0.03	0.03	0.02	0.05	0.03	0.02	0.03	0.03	0.04	0.03
Co	μg/L	—	0.584	0.285	0.528	0.965	0.717	0.563	0.514	0.451	1.076	1.042	0.745	0.579
Cu	μg/L	30	0.453	0.232	0.499	0.522	0.364	0.550	0.381	0.547	0.372	0.448	0.396	0.328
Ni	μg/L	100	0.076	0.029	0.084	0.074	0.066	0.092	0.074	0.111	0.094	0.078	0.060	0.055
Pb	μg/L	10	2.104	1.770	2.109	2.001	1.885	0.891	1.810	1.902	2.709	2.246	1.812	2.134
Zn	μg/L	500	3.53	1.89	3.25	3.32	4.84	5.27	3.52	2.86	6.37	4.44	3.99	4.74
Fe	μg/L	—	0.73	0.74	0.88	0.90	0.79	0.86	0.93	0.69	0.99	1.06	0.90	0.93
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	5.6	5.4	7	10	16.1	19.2	12.6	16	10.4	14.9	22.9	22
Turbidty	NTU	—	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.7	0.7	0.7
Transparency	m	—	0.4	0.1	0.1	0.3	0.4	0.4	0.1	0.4	0.6	0.3	0.3	0.5
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q4 monitoring results of marine water quality near Mailiao (3/3)

Station	Units	A type marine water quality standard (2018.02.13~)	4B	4B	4B	5B	5B	5B	2C	3C	4M
Depth	meter		1.0	10.0	18.0	1.0	10.0	19.0	0.5	0.5	0.5
Tepm.	℃	—	25.7	25.7	25.7	25.7	25.7	25.7	26.6	26.9	25.8
Salinity	PSU	—	33.6	33.7	33.7	33.7	33.7	33.7	33.6	33.5	33.4
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.1
D.O.	mg/L	≥5.0	6.8	6.6	6.2	6.8	6.6	6.2	6.1	6.0	6.7
B.O.D.	mg/L	≤ 2	0.9	0.8	1.0	0.9	0.9	0.8	1.2	0.7	1.2
E. coli	CFU/100ml	≤ 1000	30	20	ND	20	ND	ND	45	40	90
S.S.	mg/L	—	17.5	11.4	13.9	19.0	14.3	20.5	21.5	18.6	16.5
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.9	0.7	0.4	0.7	0.3	0.1	0.6	0.9	1.0
Total phosphorus	mg/L	0.05	0.019	0.022	0.020	0.020	0.019	0.018	0.022	0.021	0.022
NH3-N	mg/L	0.3	0.09	0.09	0.09	0.09	0.12	0.08	0.21	0.16	0.29
Nitrite nitrogen	μg/L	—	19.60	19.50	11.50	16.80	17.70	21.35	25.00	20.45	28.50
Nitrate nitrogen	mg/L	—	0.19	0.20	0.17	0.17	0.16	0.17	0.17	0.22	0.23
Cd	μg/L	5	0.0243	0.0258	0.0141	0.0202	0.0074	0.0131	0.0117	0.0130	0.0165
Cr	μg/L	—	0.03	0.02	0.02	0.03	0.02	0.03	0.03	0.03	0.04
Co	μg/L	—	1.116	0.968	0.761	1.178	0.955	0.989	0.664	0.827	1.391
Cu	μg/L	30	0.475	0.362	0.332	0.408	0.340	0.446	0.420	0.358	0.439
Ni	μg/L	100	0.097	0.075	0.064	0.081	0.090	0.072	0.080	0.085	0.074
Pb	μg/L	10	2.258	1.815	1.580	2.139	2.042	1.868	1.760	2.516	2.730
Zn	μg/L	500	6.05	2.64	4.01	6.15	4.43	4.12	4.18	4.63	5.40
Fe	μg/L	—	0.94	1.16	0.88	1.14	0.79	1.26	0.92	0.95	1.42
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	15.2	10.8	16.8	9.8	8.9	13.2	29.3	37.8	20.8
Turbidty	NTU	—	0.5	0.5	0.5	0.2	0.2	0.2	0.5	0.3	0.2
Transparency	m	—	0.3	0.4	0.3	0.1	0.1	0.1	0.5	0.5	0.2
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q1 monitoring results of marine water quality near Mailiao (1/3)

Station	Units	A type marine water quality standard (2018.02.13~)	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
Depth	meter		0.5	7.0	13.5	0.5	9.5	18.5	0.5	12.0	23.5	0.5	11.0	21.5
Tepm.	℃	—	20.6	20.5	20.5	20.5	20.7	20.6	21.1	21.1	21.0	20.8	20.8	20.8
Salinity	PSU	—	34.5	34.5	34.5	34.2	34.2	34.2	34.5	34.5	34.5	34.5	34.5	34.5
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
D.O.	mg/L	≥5.0	7.2	7.2	7.2	7.2	7.1	7.2	7.3	7.3	7.3	7.1	7.1	7.1
B.O.D.	mg/L	≤ 2	0.4	0.5	0.5	0.5	0.5	0.4	0.3	0.5	0.3	0.4	0.3	0.2
E. coli	CFU/100ml	≤ 1000	0	2	3	5	2	9	6	9	6	0	7	7
S.S.	mg/L	—	9.0	21.0	7.2	13.0	16.4	36.6	37.2	37.6	36.8	37.0	17.6	19.0
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	ND	ND	ND	ND	ND	3.27	2.86	ND	ND	1.31	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.1	0.2	0.2	1.6	1.2	1.2	0.2	0.1	0.1	0.2	0.1	ND
Total phosphorus	mg/L	0.05	0.023	0.019	0.018	0.034	0.046	0.035	0.062	0.013	0.011	0.013	0.046	0.032
NH3-N	mg/L	0.3	ND	0.01	0.05	0.12	0.10	0.12	ND	0.02	0.01	0.01	0.03	0.01
Nitrite nitrogen	μg/L	—	5.00	6.00	5.00	4.00	5.00	8.00	2.00	1.00	3.00	7.00	14.00	4.00
Nitrate nitrogen	mg/L	—	0.01	0.03	0.01	0.02	0.01	0.02	0.01	ND	0.01	0.00	0.01	ND
Cd	μg/L	5	0.0948	0.0884	0.0452	0.0376	0.0354	0.0347	0.0344	0.0235	0.0236	0.0177	0.0119	0.0229
Cr	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	ND
Co	μg/L	—	0.291	0.115	0.425	0.208	0.141	0.141	0.273	0.135	0.586	0.361	0.833	0.164
Cu	μg/L	30	1.264	0.472	0.333	0.240	0.313	0.311	0.327	0.294	0.360	0.303	0.785	0.392
Ni	μg/L	100	0.022	0.018	0.023	0.022	0.023	0.018	0.120	0.017	0.016	0.033	0.125	0.011
Pb	μg/L	10	0.441	0.398	0.429	0.389	0.460	0.449	0.416	0.433	2.720	0.703	4.402	0.617
Zn	μg/L	500	98.42	21.94	72.40	98.98	84.85	108.21	77.88	59.04	82.96	40.83	2.08	71.14
Fe	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	8.52	4.55	8.05	19.6	7.24	21.1	7.24	5.23	6.34	5.94	7.19	5.72
Turbidty	NTU	—	0.8	0.8	0.8	1.0	1.0	1.0	1.5	1.5	1.5	1.2	1.2	1.2
Transparency	m	—	0.2	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q1 monitoring results of marine water quality near Mailiao (2/3)

Station	Units	A type marine water quality standard (2018.02.13~)	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
Depth	meter		0.5	11.0	21.5	0.5	4.5	2.5	0.5	6.5	12.5	0.5	11.0	21.5
Tepm.	℃	—	21.0	21.0	21.0	20.8	20.7	20.7	20.8	20.8	20.8	20.6	20.7	20.6
Salinity	PSU	—	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.4	34.4	34.4
pH	-	7.5~8.5	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.0	8.1
D.O.	mg/L	≥5.0	7.1	7.1	7.1	6.9	6.9	6.9	7.0	7.0	7.0	7.2	7.2	7.2
B.O.D.	mg/L	≤ 2	0.4	0.3	0.3	1.0	0.8	0.4	0.4	0.7	0.4	0.3	0.3	0.5
E. coli	CFU/100ml	≤ 1000	6	13	10	2	10	4	1	3	7	3	7	7
S.S.	mg/L	—	20.0	18.8	19.4	40.2	10.8	42.0	31.0	11.0	20.2	17.2	17.6	4.6
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	1.41	ND	1.62	ND	3.45	4.90	4.10	1.45	2.09	1.70	2.28	1.91
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.1	0.2	ND	0.3	0.3	0.7	0.4	0.5	0.5	0.7	0.7	0.5
Total phosphorus	mg/L	0.05	0.029	0.022	0.022	0.020	0.027	0.054	0.022	0.024	0.021	0.026	0.025	0.024
NH3-N	mg/L	0.3	0.04	0.01	0.03	0.04	0.03	0.07	0.03	0.02	0.02	0.04	0.17	0.06
Nitrite nitrogen	μg/L	—	15.00	14.00	6.00	3.00	5.00	4.00	1.00	5.00	13.00	5.00	13.00	21.00
Nitrate nitrogen	mg/L	—	0.01	ND	ND	0.01	ND	ND	0.01	ND	ND	ND	0.01	0.02
Cd	μg/L	5	0.0095	0.0220	0.0071	0.0290	0.0427	0.0401	0.0323	0.0411	0.0422	0.0228	0.0259	0.0182
Cr	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Co	μg/L	—	0.123	0.419	0.083	0.320	0.194	0.188	0.157	0.216	0.191	0.136	0.109	0.132
Cu	μg/L	30	0.167	0.752	0.208	1.128	0.317	0.257	0.239	0.265	0.263	0.320	0.324	0.265
Ni	μg/L	100	0.007	0.018	0.006	0.017	0.020	0.023	0.019	0.023	0.021	0.014	0.017	0.015
Pb	μg/L	10	0.330	0.826	0.300	1.040	0.548	0.454	0.389	0.481	0.355	0.376	0.357	0.593
Zn	μg/L	500	79.02	56.87	56.51	286.18	216.37	199.52	97.62	149.26	186.51	58.52	37.67	53.44
Fe	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	6.15	8.04	6.32	20.6	22.4	14.3	12.6	7.43	5.51	9.17	4.39	11.3
Turbidty	NTU	—	1.0	1.0	1.0	0.6	0.6	0.6	0.8	0.8	0.8	1.3	1.3	1.3
Transparency	m	—	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q1 monitoring results of marine water quality near Mailiao (3/3)

Station	Units	A type marine water quality standard (2018.02.13~)	4B	4B	4B	5B	5B	5B	2C	3C	4M
Depth	meter		0.5	10.5	20.5	0.5	10.5	20.5	0.5	0.5	0.5
Tepm.	℃	—	21.5	21.3	21.3	21.9	21.5	21.4	20.9	20.8	20.8
Salinity	PSU	—	34.5	34.5	34.5	34.5	34.5	34.6	34.4	34.1	34.5
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1
D.O.	mg/L	≥5.0	7.1	7.1	7.1	7.0	7.1	7.0	6.9	6.9	7.1
B.O.D.	mg/L	≤ 2	0.5	0.5	1.2	0.5	0.5	0.5	0.4	0.8	ND
E. coli	CFU/100ml	≤ 1000	0	7	5	2	0	1	4	5	1
S.S.	mg/L	—	14.4	6.2	5.2	16.6	5.8	8.6	12.4	8.0	18.8
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total phenols	μg/L	5	2.17	ND	2.56	1.93	ND	ND	1.52	2.06	2.62
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.3	0.1	0.2	0.3	0.3	0.4	1.4	2.9	0.6
Total phosphorus	mg/L	0.05	0.019	0.056	0.053	0.029	0.040	0.021	0.031	0.043	0.035
NH3-N	mg/L	0.3	0.01	0.02	0.01	0.01	0.01	0.00	0.03	0.14	0.05
Nitrite nitrogen	μg/L	—	10.00	10.00	23.00	4.00	1.00	11.00	2.00	25.00	14.00
Nitrate nitrogen	mg/L	—	0.01	0.01	ND	0.01	0.01	0.01	0.60	0.03	0.02
Cd	μg/L	5	0.0214	0.0205	0.0163	0.0164	0.0179	0.0191	0.0401	0.0237	0.0154
Cr	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Co	μg/L	—	0.131	0.117	0.086	0.120	0.120	0.158	0.379	0.201	0.156
Cu	μg/L	30	0.358	0.367	0.385	0.418	0.409	0.369	0.542	0.262	0.384
Ni	μg/L	100	0.012	0.012	0.028	0.011	0.024	0.015	0.034	0.022	0.013
Pb	μg/L	10	0.595	0.572	0.637	0.613	0.629	0.569	1.250	0.434	0.617
Zn	μg/L	500	42.09	35.34	34.94	31.63	57.68	46.35	226.94	317.83	35.19
Fe	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	3.89	3.25	2.44	2.54	3.55	3.36	22.5	54.6	5.05
Turbidty	NTU	—	1.5	1.5	1.5	1.5	1.5	1.5	0.5	0.5	0.8
Transparency	m	—	0.0	0.1	0.2	0.3	0.2	0.2	0.1	0.3	0.2
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q2 monitoring results of marine water quality near Mailiao (1/3)

Station	Units	A type marine water quality standard (2018.02.13~)	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
Depth	meter		0.5	8.0	15.0	0.5	11.5	22.0	0.5	11.5	22.0	0.5	11.5	22.0
Tepm.	℃	—	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.4	27.5	27.5	27.4	27.4
Salinity	PSU	—	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5
pH	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
D.O.	mg/L	≥5.0	7.1	7.1	7.1	7.0	7.0	7.0	7.1	7.1	7.1	7.0	7.0	7.0
B.O.D.	mg/L	≤ 2	1.4	1.3	ND	0.3	0.3	0.5	0.3	1.0	1.1	0.5	0.4	0.7
E. coli	CFU/100ml	≤ 1000	11	10	10	ND	24	21	24	17	29	22	ND	ND
S.S.	mg/L	—	6.0	9.0	7.5	20.0	4.0	13.5	18.0	8.5	11.0	20.0	9.0	12.5
Cyanide	μg/L	10	ND	ND	ND	ND	ND	ND	ND	ND	10	6	8	6
Total phenols	μg/L	5	5.99	21.93	31.71	4.74	11.60	1.54	2.60	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.2	0.2	0.3
Total phosphorus	mg/L	0.05	0.060	0.037	0.024	0.020	0.033	0.048	0.022	0.029	0.050	0.024	0.018	0.056
NH3-N	mg/L	0.3	0.04	0.01	0.01	0.04	0.02	0.02	0.07	0.03	0.04	0.08	0.01	0.01
Nitrite nitrogen	μg/L	—	0.00	0.00	0.00	0.00	0.00	ND	0.00	0.00	0.00	ND	0.00	0.00
Nitrate nitrogen	mg/L	—	0.02	0.01	ND	ND	ND	ND	0.01	ND	0.01	0.01	0.01	0.01
Cd	μg/L	5	0.0578	0.0422	0.0570	0.0386	0.0497	0.0295	0.0556	0.0217	0.0230	0.0263	0.0273	0.0253
Cr	μg/L	—	0.11	0.11	0.09	0.10	0.09	0.10	0.08	0.08	0.08	0.05	0.05	0.05
Co	μg/L	—	1.304	1.041	0.714	0.919	0.833	0.906	0.997	1.261	1.477	1.283	1.175	1.888
Cu	μg/L	30	1.501	0.866	0.970	0.685	0.682	1.208	1.318	0.835	1.464	0.423	0.680	0.949
Ni	μg/L	100	0.706	0.625	0.524	0.676	0.710	0.716	0.696	0.830	0.717	0.445	0.481	0.396
Pb	μg/L	10	22.621	21.049	16.390	21.676	18.600	19.994	29.170	17.897	17.246	12.805	9.484	16.260
Zn	μg/L	500	82.71	65.47	54.81	56.70	56.13	49.48	70.63	50.99	49.75	41.18	44.97	39.36
Fe	μg/L	—	0.20	0.18	0.13	0.12	0.12	0.12	0.16	0.09	0.10	0.13	0.10	0.09
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	2.85	3.5	2.28	1.81	3.71	2.36	4.89	2.03	2.47	1.96	2.22	2.05
Turbidty	NTU	—	1.0	1.0	1.0	2.0	2.0	2.0	1.8	1.8	1.8	2.0	2.0	2.0
Transparency	m	—	0.1	0.1	0.3	0.1	0.1	ND	0.1	0.1	0.1	0.1	0.1	0.1
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q2 monitoring results of marine water quality near Mailiao (2/3)

Station	Units	A type marine water quality standard (2018.02.13~)	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
Depth	meter		0.5	12.0	23.0	0.5	4.0	6.0	0.5	3.5	6.0	0.5	11.5	22.0
Tepm.	℃	—	27.5	27.4	27.4	27.7	27.7	27.7	27.7	27.7	27.7	27.6	27.6	27.6
Salinity	PSU	—	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5
pH	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
D.O.	mg/L	≥5.0	7.1	7.1	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
B.O.D.	mg/L	≤ 2	0.3	ND	0.3	0.2	ND	0.6	0.4	1.4	1.1	0.8	0.1	0.6
E. coli	CFU/100ml	≤ 1000	ND	13	19	52	38	ND	20	52	62	10	ND	ND
S.S.	mg/L	—	2.0	4.0	13.0	13.5	10.0	9.5	10.5	21.0	2.0	29.0	10.0	6.5
Cyanide	μg/L	10	7	6	6	ND	ND	ND	9	6	6	ND	5	6
Total phenols	μg/L	5	2.60	ND	ND	1.43	ND	ND	ND	3.11	1.98	ND	6.92	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.2	0.2	0.2	1.4	0.9	1.5	1.4	1.4	1.5	0.4	0.5	0.5
Total phosphorus	mg/L	0.05	0.068	0.069	0.030	0.057	0.037	0.036	0.028	0.061	0.046	0.030	0.045	0.041
NH3-N	mg/L	0.3	0.04	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.02	0.01	0.01	0.01
Nitrite nitrogen	μg/L	—	0.00	0.00	0.00	0.00	ND	ND	0.00	ND	0.00	0.00	0.00	ND
Nitrate nitrogen	mg/L	—	0.01	0.01	0.01	ND	0.01	ND	0.01	ND	0.01	0.02	0.01	0.01
Cd	μg/L	5	0.0304	0.0203	0.1210	0.0308	0.0618	0.0317	0.0333	0.0283	0.0414	0.0424	0.0262	0.0357
Cr	μg/L	—	0.05	0.04	0.05	0.17	0.17	0.17	0.18	0.20	0.18	0.09	0.09	0.09
Co	μg/L	—	0.698	0.534	0.620	1.561	1.500	1.611	1.231	1.946	1.175	1.338	1.458	1.234
Cu	μg/L	30	0.415	0.426	0.658	1.485	2.344	1.221	1.931	1.282	1.711	1.643	1.615	1.273
Ni	μg/L	100	0.553	0.409	0.781	0.481	0.713	0.491	0.865	0.892	0.787	0.693	0.663	0.676
Pb	μg/L	10	11.412	10.319	21.544	24.075	15.631	26.114	29.315	39.128	40.564	31.839	26.723	26.037
Zn	μg/L	500	26.03	25.80	45.87	107.85	106.04	104.68	158.17	184.14	165.00	65.08	217.03	69.52
Fe	μg/L	—	0.06	0.04	ND	0.11	0.27	0.15	0.27	0.39	0.32	0.17	0.36	0.14
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	2.38	2.34	1.52	4.08	0.41	3.47	4.5	6.18	5.69	3.2	2.92	3.13
Turbidty	NTU	—	2.2	2.2	2.2	1.3	1.3	1.3	1.0	1.0	1.0	2.0	2.0	2.0
Transparency	m	—	0.1	0.2	0.1	0.1	0.2	0.2	ND	0.1	0.2	0.2	0.1	0.1
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q2 monitoring results of marine water quality near Mailiao (3/3)

Station	Units	A type marine water quality standard (2018.02.13~)	4B	4B	4B	5B	5B	5B	2C	3C	4M
Depth	meter		0.5	9.0	17.0	0.5	10.0	19.0	0.5	0.5	0.5
Tepm.	℃	—	27.6	27.6	27.6	27.6	27.6	27.6	28.1	28.8	27.9
Salinity	PSU	—	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.4	34.5
pH	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.1	8.2
D.O.	mg/L	≥5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.0
B.O.D.	mg/L	≤ 2	1.2	1.3	1.2	0.2	ND	0.3	1.2	ND	ND
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	63	50	ND
S.S.	mg/L	—	16.5	4.5	10.0	4.0	15.0	2.5	9.0	4.0	6.0
Cyanide	μg/L	10	10	5	ND	ND	8	9	8	8	6
Total phenols	μg/L	5	ND	1.65	ND	ND	ND	1.42	8.33	12.19	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.6	0.5	0.5	0.3	0.4	0.3	2.0	2.8	1.1
Total phosphorus	mg/L	0.05	0.053	0.035	0.046	0.065	0.077	0.037	0.050	0.036	0.058
NH3-N	mg/L	0.3	0.01	0.04	0.02	0.03	0.08	0.04	0.04	0.02	0.08
Nitrite nitrogen	μg/L	—	ND	ND	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Nitrate nitrogen	mg/L	—	0.01	0.01	ND	0.02	0.02	0.01	0.01	0.02	0.02
Cd	μg/L	5	0.0208	0.0710	0.0339	0.0347	0.0688	0.0416	0.0238	0.0377	0.0312
Cr	μg/L	—	0.08	0.10	0.11	0.12	0.14	0.16	0.34	0.74	0.30
Co	μg/L	—	1.595	2.246	0.628	1.893	1.908	2.256	4.077	2.114	1.156
Cu	μg/L	30	0.647	1.224	0.792	1.102	4.173	1.250	1.057	1.578	1.308
Ni	μg/L	100	0.307	0.526	0.307	0.616	0.695	0.952	0.492	0.570	0.751
Pb	μg/L	10	22.235	25.438	21.550	17.333	9.361	17.546	22.559	24.621	26.190
Zn	μg/L	500	93.07	95.94	84.34	130.15	126.28	203.53	72.93	144.09	331.98
Fe	μg/L	—	0.17	ND	0.15	0.35	0.11	0.39	0.14	0.28	0.59
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	3.68	2.98	2.92	1.64	2.63	2.04	2.12	5.28	8.3
Turbidty	NTU	—	2.2	2.2	2.2	2.5	2.5	2.5	0.7	0.5	0.5
Transparency	m	—	0.2	0.7	0.1	0.2	0.2	0.2	0.2	0.1	0.2
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q3 monitoring results of marine water quality near Mailiao (1/3)

Station	Units	A type marine water quality standard (2018.02.13~)	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
Depth	meter		0.5	16.0	8.5	0.5	10.0	20.0	0.5	12.0	23.0	0.5	12.0	23.0
Tepm.	℃	—	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.8	29.8	29.8	29.8	29.7
Salinity	PSU	—	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	33.2	33.2	33.2
pH	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
D.O.	mg/L	≥5.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
B.O.D.	mg/L	≤ 2	2.1	1.8	0.6	1.0	1.0	2.2	1.4	1.6	1.9	0.9	1.5	2.4
E. coli	CFU/100ml	≤ 1000	ND	13	116	51	81	196	43	89	74	211	19	40
S.S.	mg/L	—	9.5	5.0	26.0	7.5	8.5	8.0	5.5	5.5	3.5	2.5	5.5	5.5
Cyanide	μg/L	10	4	4	4	8	ND	10	5	7	4	ND	10	ND
Total phenols	μg/L	5	ND	2.84	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.2	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.1
Total phosphorus	mg/L	0.05	0.048	0.059	0.059	0.069	0.117	0.057	0.049	0.052	0.072	ND	0.012	0.019
NH3-N	mg/L	0.3	0.08	0.04	0.07	0.06	0.11	0.04	0.04	0.01	0.06	0.07	0.06	0.08
Nitrite nitrogen	μg/L	—	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Nitrate nitrogen	mg/L	—	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01
Cd	μg/L	5	0.0856	0.0327	0.0615	0.0533	0.0320	0.0430	0.0521	0.0941	0.0395	0.0954	0.0331	0.0672
Cr	μg/L	—	0.19	0.19	0.19	0.21	0.19	0.20	0.12	0.11	0.11	0.14	0.13	0.11
Co	μg/L	—	1.237	1.699	1.474	2.941	1.875	1.553	1.245	1.752	1.581	2.322	1.617	0.882
Cu	μg/L	30	1.529	0.886	2.362	1.545	2.200	1.380	1.080	1.127	1.341	1.303	1.923	0.888
Ni	μg/L	100	0.470	0.570	0.527	0.607	0.497	0.547	0.384	0.441	0.382	0.442	0.357	0.178
Pb	μg/L	10	25.883	22.349	17.967	26.040	20.281	20.246	13.766	13.081	17.004	20.114	25.272	12.814
Zn	μg/L	500	229.86	276.16	215.08	272.35	258.94	258.15	140.41	121.52	117.32	149.72	144.33	110.82
Fe	μg/L	—	0.31	0.38	0.33	0.57	0.48	0.40	0.33	0.31	0.23	0.28	0.15	0.18
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.007	ND	0.002
Hg	μg/L	1	15.9	17.3	16.6	14.3	16.9	16.3	8.31	7.65	9.5	9.51	7.52	7.32
Turbidty	NTU	—	0.5	0.5	0.5	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0	1.0
Transparency	m	—	1.8	0.4	0.3	0.4	0.4	0.3	0.3	0.1	0.3	0.3	0.3	0.3
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q3 monitoring results of marine water quality near Mailiao (2/3)

Station	Units	A type marine water quality standard (2018.02.13~)	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
Depth	meter		0.5	12.0	23.0	0.5	3.0	5.0	0.5	3.0	5.7	0.5	11.5	22.0
Tepm.	℃	—	29.6	29.6	29.6	30.0	29.9	29.9	30.0	30.0	30.0	30.0	29.9	29.9
Salinity	PSU	—	33.2	33.2	33.2	32.6	32.6	32.6	32.6	32.6	32.6	32.7	32.7	32.7
pH	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
D.O.	mg/L	≥5.0	7.2	7.2	7.2	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.1
B.O.D.	mg/L	≤ 2	0.7	0.6	0.8	1.7	2.2	1.7	2.1	0.9	1.3	0.5	1.8	1.1
E. coli	CFU/100ml	≤ 1000	42	36	26	92	66	234	102	96	4	84	61	147
S.S.	mg/L	—	7.5	2.5	1.0	25.5	44.0	42.5	9.5	13.0	12.5	3.5	5.0	1.0
Cyanide	μg/L	10	10	2	ND	ND	7	6	10	ND	2	8	8	6
Total phenols	μg/L	5	ND	ND	1.41	2.52	1.88	1.38	ND	ND	2.03	ND	ND	2.05
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.2	0.1	0.1	0.7	0.9	0.8	0.9	0.8	0.9	0.2	0.2	0.2
Total phosphorus	mg/L	0.05	0.315	0.002	0.015	0.113	0.114	0.081	0.076	0.115	0.070	0.061	0.088	0.012
NH3-N	mg/L	0.3	0.05	0.06	0.03	0.03	0.09	0.06	0.15	0.16	0.07	0.04	0.06	0.09
Nitrite nitrogen	μg/L	—	ND	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01
Nitrate nitrogen	mg/L	—	0.01	0.02	0.01	0.01	ND	ND	0.03	0.03	0.01	0.03	0.02	0.01
Cd	μg/L	5	0.0465	0.0393	0.0511	0.0491	0.0380	0.0442	0.0500	0.0532	0.0633	0.0318	0.0324	0.0454
Cr	μg/L	—	0.14	0.13	0.15	0.46	0.45	0.36	0.50	0.50	0.56	0.14	0.13	0.13
Co	μg/L	—	1.136	0.990	1.217	2.488	1.799	1.940	2.133	2.773	2.481	1.553	1.106	1.139
Cu	μg/L	30	1.308	1.279	1.287	2.526	2.000	1.761	1.964	2.995	2.104	1.083	1.054	1.314
Ni	μg/L	100	0.389	0.354	0.842	1.463	1.348	1.059	1.238	1.150	1.413	0.349	0.290	0.260
Pb	μg/L	10	12.485	13.060	19.968	29.788	31.782	19.827	29.168	27.805	34.858	16.161	14.410	16.660
Zn	μg/L	500	188.41	197.09	192.96	681.53	708.95	601.16	726.65	693.53	744.46	197.14	162.45	142.40
Fe	μg/L	—	0.41	0.34	0.34	0.63	0.91	0.59	1.02	0.98	0.97	0.33	0.34	0.23
As	μg/L	50	ND	ND	ND	ND	ND	ND	0.002	ND	ND	ND	ND	ND
Hg	μg/L	1	12.6	10.3	10.3	67.9	72.5	60.5	67.1	66.9	75.6	9.78	11.4	10.9
Turbidty	NTU	—	1.0	1.0	1.0	0.3	0.3	0.3	0.3	0.3	0.3	1.0	1.0	1.0
Transparency	m	—	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.8	0.3	0.3	0.3
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q3 monitoring results of marine water quality near Mailiao (3/3)

Station	Units	A type marine water quality standard (2018.02.13~)	4B	4B	4B	5B	5B	5B	2C	3C	4M
Depth	meter		0.5	9.0	17.0	0.5	10.0	19.0	0.2	0.5	0.5
Tepm.	℃	—	29.8	29.8	29.8	29.9	29.8	29.8	30.5	32.0	30.2
Salinity	PSU	—	32.6	32.6	32.6	32.7	32.7	32.7	32.5	32.3	29.4
pH	-	7.5~8.5	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.0	8.0
D.O.	mg/L	≥5.0	7.1	7.1	7.1	7.2	7.2	7.2	6.9	7.0	6.8
B.O.D.	mg/L	≤ 2	2.5	1.0	1.7	1.6	1.3	2.6	1.5	1.7	1.5
E. coli	CFU/100ml	≤ 1000	9	11	14	7	105	ND	85	104	72
S.S.	mg/L	—	7.5	7.0	5.5	3.0	0.5	2.0	7.0	16.0	5.5
Cyanide	μg/L	10	3	6	6	9	8	7	2	9	5
Total phenols	μg/L	5	ND	ND	ND	ND	1.35	1.72	ND	2.97	2.20
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.2	0.2	0.1	0.3	0.2	0.2	2.5	3.0	1.8
Total phosphorus	mg/L	0.05	ND	0.034	0.009	0.014	0.023	0.029	0.069	0.005	0.005
NH3-N	mg/L	0.3	0.08	0.09	0.07	0.10	0.08	0.08	0.06	0.08	1.13
Nitrite nitrogen	μg/L	—	0.01	0.00	0.00	0.01	0.00	ND	0.00	0.00	0.02
Nitrate nitrogen	mg/L	—	0.01	0.02	0.01	0.01	0.02	0.04	0.01	0.02	0.06
Cd	μg/L	5	0.2078	0.1443	0.0452	0.1107	0.0431	0.0518	0.0516	0.0484	0.0353
Cr	μg/L	—	0.16	0.18	0.16	0.15	0.16	0.18	0.03	0.62	0.28
Co	μg/L	—	1.165	1.696	1.212	1.293	1.745	1.959	0.847	1.738	1.282
Cu	μg/L	30	1.441	1.776	1.493	1.839	1.581	1.723	1.279	2.057	2.238
Ni	μg/L	100	0.759	0.691	0.432	0.408	0.417	1.134	0.107	0.933	0.454
Pb	μg/L	10	24.412	28.857	17.792	13.301	22.176	19.973	13.566	26.480	17.878
Zn	μg/L	500	179.97	203.09	153.89	173.56	174.85	209.08	7.42	522.90	164.72
Fe	μg/L	—	0.29	0.33	0.26	0.37	0.37	0.25	0.02	0.84	0.13
As	μg/L	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	6.77	6.56	6.44	16.7	20.1	14.8	57.2	43.3	14.5
Turbidty	NTU	—	0.8	0.8	0.8	1.0	1.0	1.0	0.3	0.3	0.5
Transparency	m	—	0.4	0.4	0.3	0.7	0.3	0.3	0.5	0.3	1.1
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q4 monitoring results of marine water quality near Mailiao (1/3)

Station	Units	A type marine water quality standard (2018.02.13~)	1A	1A	1A	2A	2A	2A	3A	3A	3A	4A	4A	4A
Depth	meter		0.5	16.0	8.5	0.5	11.0	21.0	0.5	13.0	25.0	0.5	12.0	23.0
Tepm.	℃	—	27.2	27.0	27.0	27.0	26.9	26.9	27.1	26.9	26.9	27.1	26.9	26.9
Salinity	PSU	—	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7
pH	-	7.5~8.5	8.1	8.1	8.2	8.2	8.1	8.1	8.2	8.2	8.1	8.2	8.2	8.2
D.O.	mg/L	≥5.0	7.2	7.3	7.3	7.4	7.4	7.5	7.4	7.2	7.3	7.4	7.5	7.3
B.O.D.	mg/L	≤ 2	0.2	0.3	ND	0.3	1.0	1.6	1.1	1.3	0.9	1.1	0.9	0.8
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	17	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	20.5	40.0	30.0	10.0	30.5	37.5	13.0	21.5	85.0	33.5	31.0	24.5
Cyanide	μg/L	10	5	5	4	7	7	4	6	2	8	3	3	8
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.4	0.5	0.4	1.0	1.0	0.8	0.3	0.4	0.4	0.3	0.3	0.3
Total phosphorus	mg/L	0.05	0.039	0.057	0.057	0.052	0.031	0.082	0.018	0.046	0.046	0.031	0.039	0.040
NH3-N	mg/L	0.3	0.02	0.08	0.03	ND	0.01	ND	0.04	ND	0.02	0.01	ND	0.01
Nitrite nitrogen	μg/L	—	1.20	0.90	0.80	0.80	0.70	0.90	0.70	0.70	0.70	0.60	0.20	0.30
Nitrate nitrogen	mg/L	—	0.03	0.02	0.02	0.02	0.01	0.02	0.02	0.03	0.03	0.01	0.01	0.01
Cd	μg/L	5	0.0423	0.0341	0.0452	0.0960	0.0603	ND	ND	ND	0.0607	ND	ND	ND
Cr	μg/L	—	ND	ND	0.04	0.06	ND	ND	ND	ND	ND	ND	ND	ND
Co	μg/L	—	1.332	0.786	1.260	0.249	0.305	0.040	ND	0.807	0.776	1.151	0.604	1.363
Cu	μg/L	30	1.648	0.714	1.323	ND	0.577	ND	ND	1.126	0.712	1.450	0.703	2.860
Ni	μg/L	100	0.168	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.185
Pb	μg/L	10	12.851	7.282	12.074	1.114	2.043	0.540	0.480	7.199	7.512	11.739	7.283	11.168
Zn	μg/L	500	18.36	6.82	7.24	22.13	2.29	0.51	0.44	7.81	7.03	7.46	6.71	10.70
Fe	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
As	μg/L	50	0.007	0.036	ND	ND	0.152	ND	0.118	ND	0.265	0.153	0.023	0.050
Hg	μg/L	1	24.1	18.8	11.7	21.2	28.2	14.9	10.5	11.4	9.48	7.61	10.6	4.59
Turbidty	NTU	—	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
Transparency	m	—	0.6	0.6	0.5	0.3	0.4	0.2	0.3	0.4	0.5	0.5	0.2	0.4
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q4 monitoring results of marine water quality near Mailiao (2/3)

Station	Units	A type marine water quality standard (2018.02.13~)	5A	5A	5A	1B	1B	1B	2B	2B	2B	3B	3B	3B
Depth	meter		0.5	11.5	22.0	0.5	3.5	6.5	0.5	3.5	6.5	0.5	12.0	23.0
Tepm.	℃	—	27.1	26.9	26.9	27.2	27.1	27.2	27.1	27.1	27.1	27.2	26.9	27.0
Salinity	PSU	—	33.7	33.8	33.8	33.6	33.6	33.6	33.6	33.6	33.6	33.7	33.7	33.7
pH	-	7.5~8.5	8.2	8.1	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.2
D.O.	mg/L	≥5.0	7.4	7.4	7.3	7.1	7.2	7.3	7.6	7.4	7.3	7.4	7.4	7.4
B.O.D.	mg/L	≤ 2	0.8	0.8	0.4	0.5	1.7	0.6	0.3	0.8	0.4	1.2	0.3	0.3
E. coli	CFU/100ml	≤ 1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	9.0	8.5	16.5	87.5	72.5	71.0	76.5	76.5	88.5	66.5	17.0	20.0
Cyanide	μg/L	10	4	7	4	5	7	3	4	6	4	8	7	2
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.4	0.2	0.2	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.3	0.5
Total phosphorus	mg/L	0.05	0.080	0.019	0.027	0.048	0.066	0.045	0.049	0.081	0.027	0.028	0.055	0.035
NH3-N	mg/L	0.3	0.03	0.05	0.05	0.01	ND	ND	ND	0.03	0.02	0.01	0.01	0.01
Nitrite nitrogen	μg/L	—	0.30	0.40	0.50	1.50	1.20	1.60	1.60	1.70	2.40	0.80	0.70	0.80
Nitrate nitrogen	mg/L	—	0.01	0.02	0.02	0.03	0.04	0.04	0.06	0.04	0.04	0.02	0.02	0.02
Cd	μg/L	5	ND	0.0451	ND	0.0358	0.0337	0.0938	ND	ND	ND	0.0333	ND	0.0345
Cr	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.04
Co	μg/L	—	0.560	0.734	0.789	0.953	0.645	0.519	ND	ND	ND	0.802	0.685	0.882
Cu	μg/L	30	0.888	0.940	1.162	1.484	0.883	0.708	ND	ND	ND	1.343	0.719	1.090
Ni	μg/L	100	ND	0.207	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	μg/L	10	6.663	6.408	8.576	12.005	10.514	9.372	0.550	0.556	0.894	9.878	14.491	14.098
Zn	μg/L	500	6.80	7.88	7.30	6.63	5.61	5.40	0.42	0.78	0.50	7.08	8.35	7.28
Fe	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
As	μg/L	50	ND	0.040	ND	ND	0.009	ND	0.045	0.133	ND	ND	0.006	0.023
Hg	μg/L	1	5.72	4.53	8.21	55.8	35.5	37.1	54.5	59.6	48.5	23.8	17.6	19.9
Turbidty	NTU	—	1.5	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0
Transparency	m	—	0.3	0.2	0.2	0.3	0.5	0.4	0.4	0.4	0.3	0.2	0.5	0.3
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q4 monitoring results of marine water quality near Mailiao (3/3)

Station	Units	A type marine water quality standard (2018.02.13~)	4B	4B	4B	5B	5B	5B	2C	3C	4M
Depth	meter		0.5	9.0	17.0	0.5	10.0	19.0	0.5	0.5	0.5
Tepm.	℃	—	27.1	27.0	27.0	27.0	27.0	27.0	27.3	27.2	27.4
Salinity	PSU	—	33.4	33.4	33.4	33.7	33.7	33.6	33.3	33.2	32.9
pH	-	7.5~8.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
D.O.	mg/L	≥5.0	7.4	7.3	7.5	7.4	7.4	7.4	7.4	7.3	7.4
B.O.D.	mg/L	≤ 2	1.5	1.2	1.4	1.1	1.1	1.1	0.5	1.6	0.2
E. coli	CFU/100ml	≤ 1000	ND	14	ND	ND	ND	ND	ND	ND	ND
S.S.	mg/L	—	46.0	104.5	49.5	113.0	139.5	130.0	10.0	21.0	70.5
Cyanide	μg/L	10	7	4	3	6	7	5	4	ND	7
Total phenols	μg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mineral oil	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorophyll a	μg/L	—	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.5	1.8
Total phosphorus	mg/L	0.05	0.046	0.052	0.071	0.087	0.032	0.023	0.026	0.054	0.025
NH3-N	mg/L	0.3	0.02	0.01	0.05	0.11	0.09	0.11	ND	0.08	0.17
Nitrite nitrogen	μg/L	—	2.30	2.40	2.10	1.90	1.30	1.20	2.70	3.10	3.20
Nitrate nitrogen	mg/L	—	0.05	0.05	0.05	0.03	0.03	0.03	0.07	0.07	0.08
Cd	μg/L	5	0.0633	0.0433	0.0417	0.0466	0.0412	0.0483	0.0340	ND	0.0614
Cr	μg/L	—	0.04	ND	ND	0.04	ND	ND	0.04	ND	ND
Co	μg/L	—	1.294	0.732	0.711	1.143	1.082	1.669	0.925	0.619	1.469
Cu	μg/L	30	2.163	0.921	1.563	1.373	1.112	2.581	0.971	0.938	1.967
Ni	μg/L	100	ND	ND	ND	0.211	ND	ND	ND	ND	ND
Pb	μg/L	10	12.445	9.451	12.278	30.321	24.693	14.066	8.269	7.879	26.642
Zn	μg/L	500	7.29	6.14	6.43	6.70	6.46	7.03	6.66	6.29	14.67
Fe	μg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
As	μg/L	50	ND	0.025	ND	ND	ND	ND	ND	ND	ND
Hg	μg/L	1	35	4.8	15.9	55.9	94	48.3	42.6	33.3	31.1
Turbidty	NTU	—	0.8	0.8	0.8	0.5	0.5	0.5	0.5	0.8	0.8
Transparency	m	—	0.4	0.6	1.0	0.4	0.5	0.4	0.3	0.5	0.8
Silicate	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total oil	mg/L	—	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

Appendix 2 - monitoring results of harbor area water quality

2023 Q1 monitoring results of harbor area water quality

Monitoring items	Units	A type marine water quality standard (2018.02.13~)	3H			4H			5H		
Depth	m		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
Tepm.	℃	—	17.2	17.1	17.0	16.9	16.6	16.5	17.0	16.8	16.7
pH	-	7.5~8.5	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.3
Salinity	PSU	—	31.6	31.7	31.5	31.5	31.4	31.4	31.7	31.6	31.5
S.S.	mg/L	—	4.6	5.5	8.1	8.1	3.7	5.0	4.4	5.1	3.7
C.O.D.	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
B.O.D.	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
D.O.	mg/L	≥5.0	5.8	5.9	5.9	5.8	5.8	5.9	5.7	5.8	5.8
Cyanide	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/L	—	0.26	0.25	0.26	0.26	0.26	0.26	0.26	0.26	0.27
Nitrite-N	mg/L	—	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02
NH3-N	mg/L	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total phosphorus	mg/L	0.05	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02
T.O.C.	mg/L	—	<1.0	<1.0	1.1	<1.0	<1.0	1.0	<1.0	1.2	<1.0
Mineral oil	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorophyll a	g/m^3	—	1	1	1	1	1	1	1	2	1
Total phenols	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli	CFU/100ml	≤ 1000	<10	<10	<10	<10	<10	<10	<10	<10	<10
Co	mg/L	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fe	mg/L	—	0.015	0.014	0.021	0.016	0.019	0.015	0.017	0.017	0.015
As	mg/L	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hg	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	0.5	0.0	0.0	0.0	0.0	0.0	0.0	<0.0050	0.0	0.0
Total Cr	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	0.01	<0.0010	0.00	0.00	<0.0010	<0.0010	<0.0010	ND	<0.0010	<0.0010
Cu	mg/L	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cd	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q2 monitoring results of harbor area water quality

Monitoring items	Units	A type marine water quality standard (2018.02.13~)	3H			4H			5H		
Depth	m		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
Tepm.	℃	—	27.5	27.3	26.9	26.9	26.7	26.2	26.9	26.6	26.2
pH	-	7.5~8.5	8.2	8.2	8.1	8.4	8.4	8.4	8.2	8.3	8.2
Salinity	PSU	—	31.3	31.4	31.1	31.1	31.0	31.2	31.3	31.1	31.1
S.S.	mg/L	—	3.8	3.9	4.1	6.5	3.8	4.0	4.3	3.9	4.0
C.O.D.	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
B.O.D.	mg/L	≤ 2	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0
D.O.	mg/L	≥5.0	6.1	6.1	6.1	6.3	6.3	6.2	6.1	6.3	6.3
Cyanide	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/L	—	0.26	0.29	0.26	0.26	0.22	0.25	0.26	0.26	0.27
Nitrite-N	mg/L	—	<0.01	<0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
NH3-N	mg/L	0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1
Total phosphorus	mg/L	0.05	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
T.O.C.	mg/L	—	1.4	1.2	<1.0	1.3	1.0	1.4	1.0	<1.0	1.2
Mineral oil	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorophyll a	g/m^3	—	2	3	2	2	2	3	2	2	2
Total phenols	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli	CFU/100ml	≤ 1000	70	<10	80	50	45	150	55	85	15
Co	mg/L	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fe	mg/L	—	0.024	0.025	0.022	0.024	0.024	0.025	0.024	0.024	0.025
As	mg/L	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hg	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Cr	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	0.01	ND	ND	ND	ND	ND	<0.0010	ND	ND	ND
Cu	mg/L	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cd	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q3 monitoring results of harbor area water quality

Monitoring items	Units	A type marine water quality standard (2018.02.13~)	3H			4H			5H		
Depth	m		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
Tepm.	℃	—	29.1	28.4	27.8	29.5	28.9	28.0	29.0	28.3	27.8
pH	-	7.5~8.5	8.2	8.2	8.1	8.1	8.0	8.1	8.1	8.0	8.0
Salinity	PSU	—	30.4	30.6	30.8	30.5	30.6	30.7	30.4	30.7	30.6
S.S.	mg/L	—	5.8	5.2	6.2	11.4	5.2	8.2	6.9	7.3	4.2
C.O.D.	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
B.O.D.	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
D.O.	mg/L	≥5.0	5.4	5.3	5.2	5.2	5.3	5.2	5.3	5.2	5.2
Cyanide	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/L	—	0.24	0.24	0.24	0.27	0.23	0.24	0.24	0.24	0.25
Nitrite-N	mg/L	—	0.01	0.01	0.01	0.01	0.01	0.01	0.01	<0.01	<0.01
NH3-N	mg/L	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total phosphorus	mg/L	0.05	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.03	0.02
T.O.C.	mg/L	—	1.1	1.1	1.1	1.4	1.2	1.0	1.1	1.4	1.2
Mineral oil	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorophyll a	g/m^3	—	1	1	1	1	1	1	1	1	1
Total phenols	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli	CFU/100ml	≤ 1000	95	90	<10	30	95	90	85	90	15
Co	mg/L	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fe	mg/L	—	0.005	0.005	0.005	0.005	0.005	0.006	0.005	0.006	0.006
As	mg/L	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hg	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	0.5	0.0	0.0	0.0	0.0	0.0	0.0	<0.0050	0.0	<0.0050
Total Cr	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	0.01	ND	ND	<0.0010	<0.0010	ND	ND	ND	ND	ND
Cu	mg/L	0.03	0.00	0.00	0.00	0.00	0.00	0.00	<0.0010	0.00	<0.0010
Cd	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2023 Q4 monitoring results of harbor area water quality

Monitoring items	Units	A type marine water quality standard (2018.02.13~)	3H			4H			5H		
Depth	m		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
Tepm.	℃	—	27.2	26.9	26.6	26.3	26.1	25.8	26.9	26.5	26.3
pH	-	7.5~8.5	8.2	8.2	8.1	8.3	8.4	8.4	8.2	8.3	8.2
Salinity	PSU	—	31.4	31.3	31.1	31.2	31.1	31.2	31.3	31.1	31.0
S.S.	mg/L	—	7.1	11.6	8.1	13.0	11.8	11.4	11.1	9.6	10.4
C.O.D.	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
B.O.D.	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
D.O.	mg/L	≥5.0	6.5	6.4	6.4	6.5	6.6	6.5	6.5	6.4	6.4
Cyanide	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/L	—	0.25	0.26	0.25	0.22	0.22	0.21	0.23	0.25	0.26
Nitrite-N	mg/L	—	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
NH3-N	mg/L	0.3	0.0	0.0	0.0	0.0	ND	ND	0.0	ND	ND
Total phosphorus	mg/L	0.05	0.04	0.05	0.04	0.04	0.04	0.02	0.02	0.03	0.04
T.O.C.	mg/L	—	1.2	<1.0	<1.0	1.1	<1.0	<1.0	1.1	1.0	<1.0
Mineral oil	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorophyll a	g/m^3	—	1	1	1	1	1	1	1	1	1
Total phenols	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli	CFU/100ml	≤ 1000	70	65	90	35	50	95	80	70	20
Co	mg/L	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fe	mg/L	—	0.066	0.064	0.065	0.075	0.057	0.059	0.064	0.066	0.066
As	mg/L	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hg	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Cr	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cu	mg/L	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cd	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q1 monitoring results of harbor area water quality

Monitoring items	Units	A type marine water quality standard (2018.02.13~)	3H			4H			5H		
Depth	m		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
Tepm.	℃	—	20.3	19.8	19.4	19.7	19.5	19.4	20.0	19.8	19.5
pH	-	7.5~8.5	8.1	8.1	8.0	8.1	8.1	8.1	8.2	8.1	8.0
Salinity	PSU	—	33.2	33.0	32.8	33.0	33.0	32.9	33.0	32.9	32.8
S.S.	mg/L	—	4.7	6.4	5.7	9.7	4.4	7.5	10.1	6.2	4.4
C.O.D.	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
B.O.D.	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
D.O.	mg/L	≥5.0	6.0	5.9	5.7	6.0	5.6	5.6	6.0	5.8	5.7
Cyanide	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/L	—	0.23	0.24	0.25	0.25	0.24	0.23	0.23	0.25	0.25
Nitrite-N	mg/L	—	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.03	0.03
NH3-N	mg/L	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total phosphorus	mg/L	0.05	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
T.O.C.	mg/L	—	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mineral oil	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorophyll a	g/m^3	—	4	4	5	5	5	4	4	4	4
Total phenols	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli	CFU/100ml	≤ 1000	<10	<10	<10	<10	<10	<10	<10	<10	<10
Co	mg/L	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fe	mg/L	—	0.042	0.064	0.035	0.084	0.032	0.057	0.085	0.058	0.032
As	mg/L	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hg	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Cr	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cu	mg/L	0.03	0.00	<0.0010	<0.0010	0.00	<0.0010	0.00	0.00	0.00	<0.0010
Cd	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q2 monitoring results of harbor area water quality

Monitoring items	Units	A type marine water quality standard (2018.02.13~)	3H			4H			5H		
Depth	m		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
Tepm.	℃	—	27.0	26.9	26.7	26.2	26.0	25.7	26.6	26.4	26.1
pH	-	7.5~8.5	8.2	8.2	8.1	8.4	8.4	8.4	8.3	8.3	8.2
Salinity	PSU	—	31.5	31.4	31.3	31.3	31.1	31.4	31.5	31.3	31.2
S.S.	mg/L	—	3.1	2.4	7.8	3.4	3.8	2.8	3.3	1.8	3.5
C.O.D.	mg/L	—	ND	ND	ND	ND	ND	2.9	ND	ND	3.1
B.O.D.	mg/L	≤ 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
D.O.	mg/L	≥5.0	5.9	5.9	6.0	6.3	6.1	6.0	6.0	6.0	6.1
Cyanide	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/L	—	<0.05	ND	ND	<0.05	ND	<0.05	ND	<0.05	<0.05
Nitrite-N	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
NH3-N	mg/L	0.3	0.0	ND	0.0	0.0	0.0	ND	0.0	0.0	0.0
Total phosphorus	mg/L	0.05	0.01	0.02	0.03	0.01	0.01	0.01	0.01	0.01	0.01
T.O.C.	mg/L	—	1.3	<1.0	1.3	1.3	1.4	1.4	1.3	1.3	1.3
Mineral oil	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorophyll a	g/m^3	—	5	5	5	5	5	5	5	5	5
Total phenols	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli	CFU/100ml	≤ 1000	<10	<10	<10	<10	<10	<10	<10	<10	<10
Co	mg/L	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fe	mg/L	—	0.012	0.011	0.010	0.010	0.015	0.013	0.010	0.013	0.010
As	mg/L	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hg	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Cr	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	0.01	ND	ND	0.00	0.00	<0.0010	ND	<0.0010	ND	ND
Cu	mg/L	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cd	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q3 monitoring results of harbor area water quality

Monitoring items	Units	A type marine water quality standard (2018.02.13~)	3H			4H			5H		
Depth	m		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
Tepm.	℃	—	32.6	31.8	30.2	32.2	31.6	30.1	32.6	31.8	30.4
pH	-	7.5~8.5	8.2	8.2	8.1	8.2	8.2	8.2	8.2	8.1	8.1
Salinity	PSU	—	31.8	31.5	31.7	31.6	31.2	31.8	31.8	31.6	31.3
S.S.	mg/L	—	2.7	3.8	3.5	3.6	4.9	4.4	2.6	2.6	4.4
C.O.D.	mg/L	—	ND	ND	2.9	ND	ND	ND	ND	3.4	3.2
B.O.D.	mg/L	≤ 2	1.0	1.2	1.3	1.3	1.2	1.3	1.2	1.3	1.1
D.O.	mg/L	≥5.0	5.4	5.3	5.2	5.6	5.6	5.4	5.5	5.4	5.3
Cyanide	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/L	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrite-N	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
NH3-N	mg/L	0.3	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Total phosphorus	mg/L	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
T.O.C.	mg/L	—	1.2	1.3	1.4	1.6	1.1	1.2	1.3	1.9	1.4
Mineral oil	mg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorophyll a	g/m^3	—	2	2	2	2	2	2	1	1	2
Total phenols	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli	CFU/100ml	≤ 1000	460	850	490	930	410	810	460	370	490
Co	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fe	mg/L	—	0.019	0.004	0.010	0.004	0.005	0.011	0.013	0.003	0.009
As	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	0.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	ND	ND	ND
Total Cr	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cu	mg/L	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cd	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

2024 Q4 monitoring results of harbor area water quality

Monitoring items	Units	A type marine water quality standard (2018.02.13~)	3H			4H			5H		
Depth	m		1.0	10.0	20.0	1.0	10.0	20.0	1.0	10.0	20.0
Tepm.	℃	—	22.4	21.6	21.0	22.1	21.6	21.2	22.7	22.0	21.8
pH	-	7.5~8.5	8.1	8.1	8.0	8.1	8.1	8.1	8.2	8.2	8.1
Salinity	PSU	—	32.3	32.2	32.0	32.2	32.1	32.0	32.4	32.3	32.2
S.S.	mg/L	—	10.2	10.1	10.2	9.2	10.4	10.3	10.0	10.3	9.3
C.O.D.	mg/L	—	4.2	5.4	4.3	4.2	4.0	ND	ND	5.4	ND
B.O.D.	mg/L	≤ 2	1.6	1.8	1.6	1.8	1.8	1.7	1.8	1.9	1.7
D.O.	mg/L	≥5.0	5.8	5.7	5.6	5.8	5.6	5.6	5.9	5.8	5.7
Cyanide	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/L	—	0.11	0.10	0.12	0.10	0.11	0.09	0.11	0.11	0.11
Nitrite-N	mg/L	—	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
NH3-N	mg/L	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total phosphorus	mg/L	0.05	0.03	0.11	0.02	0.02	0.02	0.02	0.02	0.07	0.02
T.O.C.	mg/L	—	1.1	1.3	1.0	1.2	1.1	1.0	0.9	0.7	1.1
Mineral oil	mg/L	2	<1.0	1	1	1	1	2	<1.0	1	2
Chlorophyll a	g/m^3	—	3	3	3	3	2	3	3	3	3
Total phenols	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli	CFU/100ml	≤ 1000	<10	<10	10	10	<10	<10	<10	<10	<10
Co	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fe	mg/L	—	0.290	0.295	0.285	0.316	0.295	0.243	0.258	0.322	0.235
As	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Cr	mg/L	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cu	mg/L	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cd	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Noote：When the measured value is below the method detection limit (MDL), it is indicated as "ND ".

If you have any inquiries regarding this report, please contact us.

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