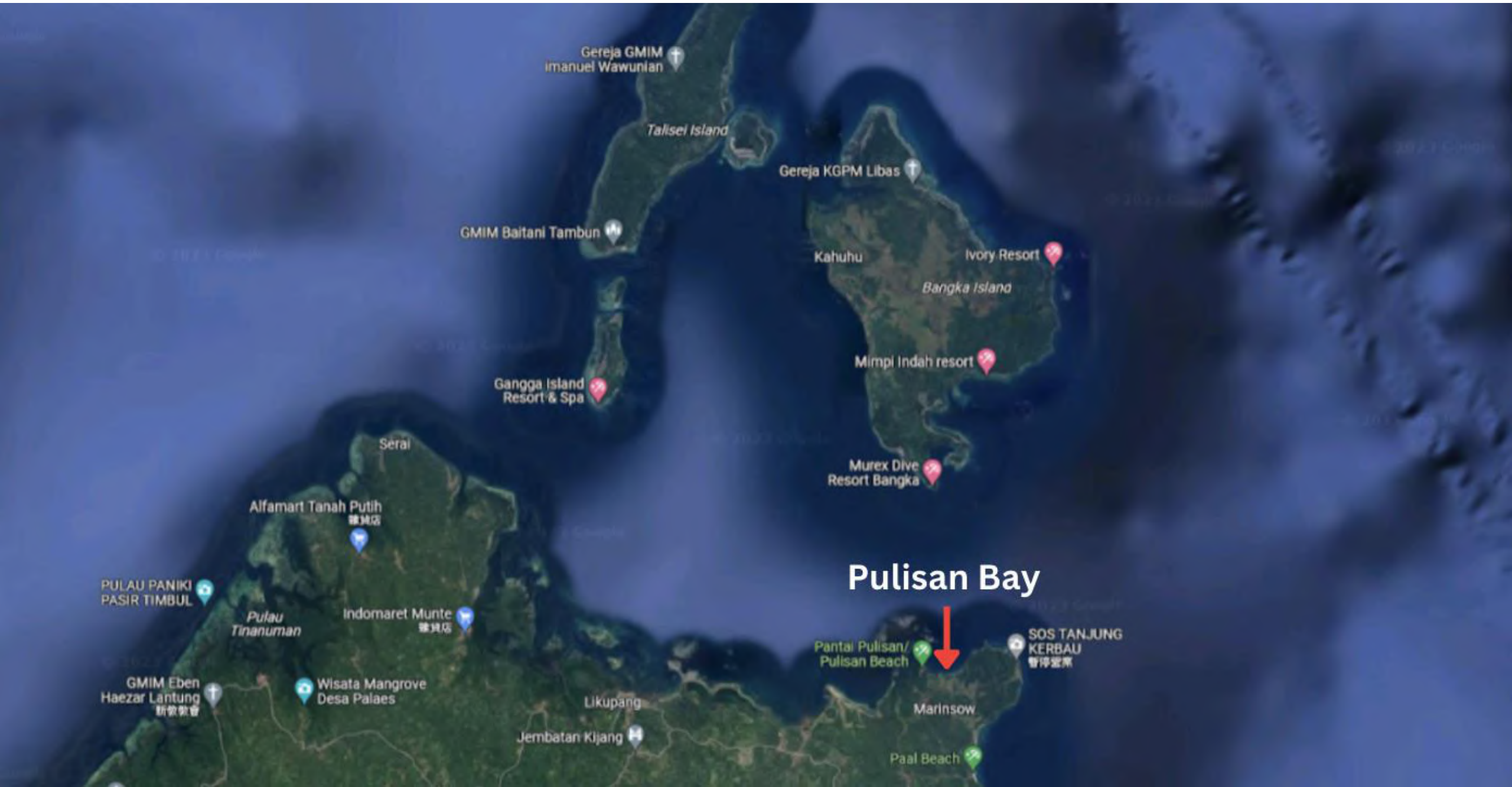
An aerial photograph of a tropical coastline. On the left, a steep, grassy hillside covered in dense green forest slopes down to a narrow, crescent-shaped white sand beach. The water is exceptionally clear, showing a vibrant turquoise color near the shore that deepens into a darker blue further out. A small, rocky islet with a sandy beach is visible in the distance. The overall scene is a pristine natural landscape.

Pulisanbay Research Outpost

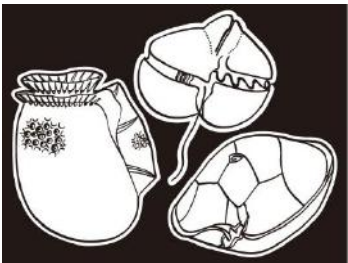
SEZ LIKUPANG | NORTH SULAWESI

At the heart of the Coral Triangle, the global epicenter of marine biodiversity

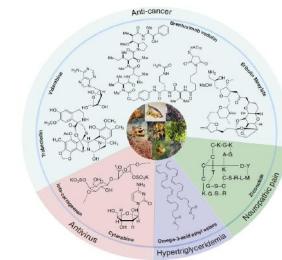


Research and Residential Units





**Team leader:
Dr. Leo CHAN**



**Coral reef ecosystem
Group leader: Leo**

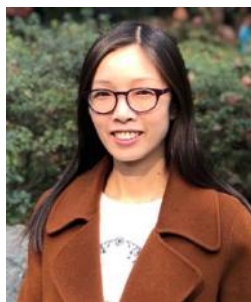


Dr. Leo Chan
Associate Director,
SKLMP;
Visiting Associate
Professor,
Department of
Biomedical
Sciences

Research interests:

Genetic resources and natural product discovery of marine microperiphyton; ecosystem disruptive toxic algae; underwater technology, and scientific safety diver training and accreditation system.

**Marine natural product
Group leader: Jiajun**



Dr. Jiajun Wu
Scientific officer of
SKLMP

Research interests:

Marine genetic resources and natural product discovery, biological activity assessment, structure-activity relationship, marine chemical ecology.

**Underwater technology
Group leader: Lawrence**



Mr. Lawrence CHAN
President of Ocean
Citizenship (NGO);

President and Founder of
Sea Dweller Underwater
Academy

Research interests:

Underwater survey and marine environmental monitoring technology for marine spatial planning and carbon neutral policy; aeroponic and mariculture, and scientific safety diver training.



DR. LEO^o
Let's Explore Ocean
PADI #323765



Dr. Chan Lai, Leo (陳荔)

Associate Director of State Key Laboratory of Marine Pollution

香港城市大學海洋污染國家重點實驗室副主任

Director of Shenzhen Key Laboratory for the Sustainable Use of Marine Biodiversity

深圳海洋生物多樣性可持續利用重點實驗室主任

Founder and President of Sea Dweller Union

潛者聯盟創始人

Open Water Scuba Instructor (開放水域水肺潛水員教練), Emergency First Response Instructor (緊急第一反應教練), Underwater Criminal Investigator (水中刑事偵察員), **Public Safety Diver Instructor (公共安全潛水員教練)**, Closed-Circuit Rebreather Diver (閉路式循環呼吸器潛水員), **Technical Diver (技術潛水員)** and Reef Check EcoDiver (珊瑚調查生態潛水員)



Ting HAN



SDUA Scientific Diving Training Director

PSAI Instructor Trainer (IT-1107)

PSAI Tec Diving Instructor:

- Trimix, Wreck, Cave,
- Narcosis Management, etc.

SSI Master Instructor (#64586)

SSI XR/TXR Instructor:

- Trimix, Wreck, Cave, etc.

SSI Free Diving Instructor lvl2

SSI Public Safety Diver Instructor

GoSideMount Instructor (#0052)

PADI MSDT (#277920)

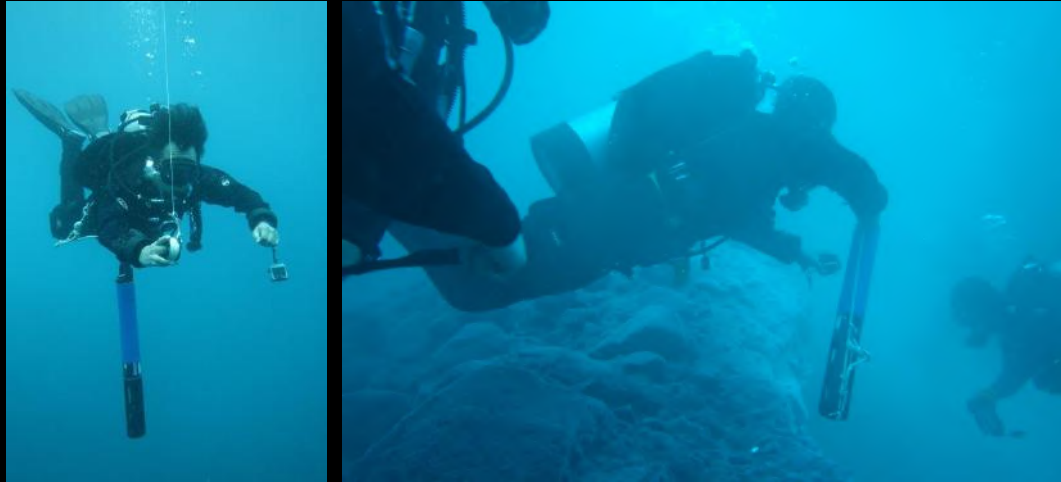
The Founder of Flag Blue Diving

- Ting is the first Chinese Rec, Tec and Free diving all-round Instructor.
- He has been trying almost all different kinds of diving and all aspects of Tec Diving since he became an instructor. He keeps trying to get involved in the most cutting-edge knowledge developing and diving practicing, devotes himself to become a versatile instructor which provides continuous improved professional diving training.
- Meanwhile Ting enthuses about underwater exploring, keeps doing deep air diving, deep trimix diving expeditions.
- As an active cave explorer, he has been exploring the underwater cave systems in Guangxi for man years and explored over dozens of virgin caves there.

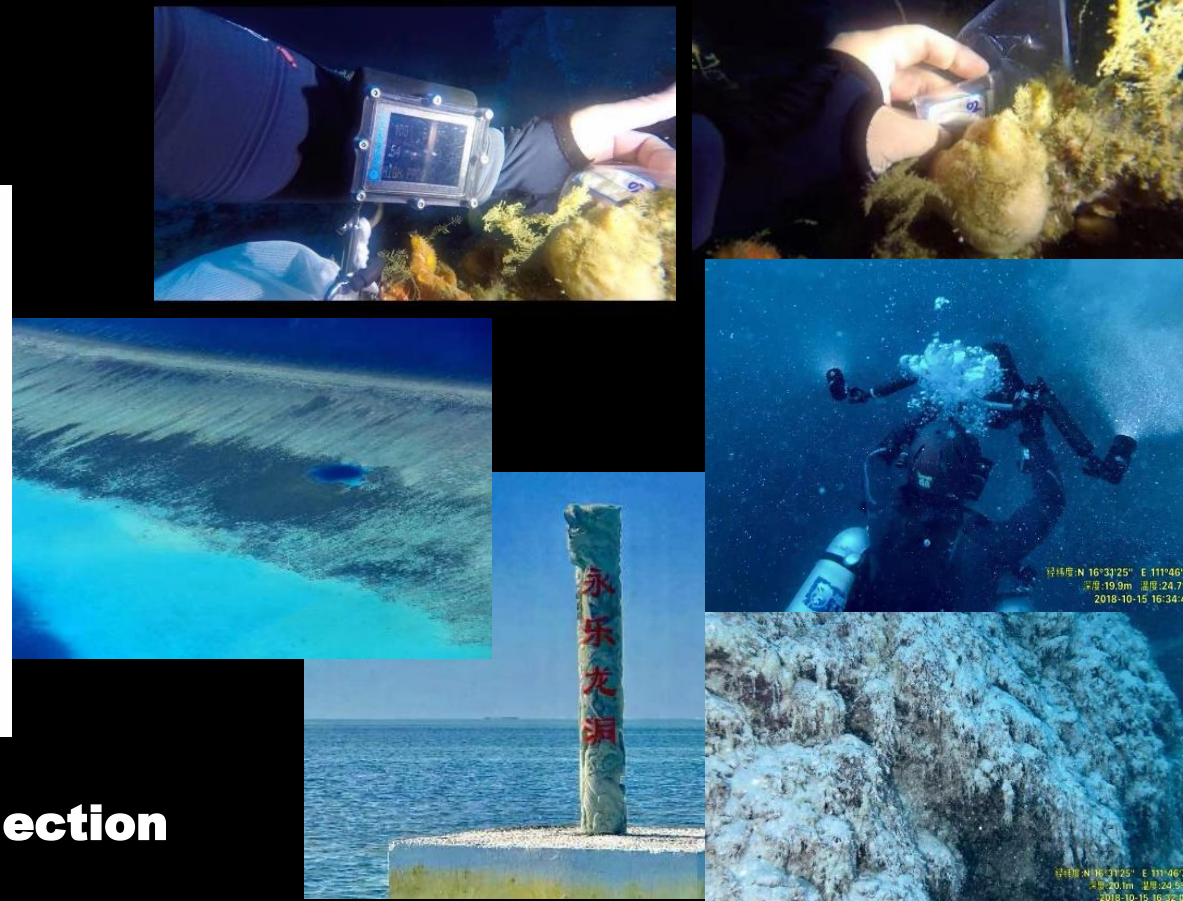
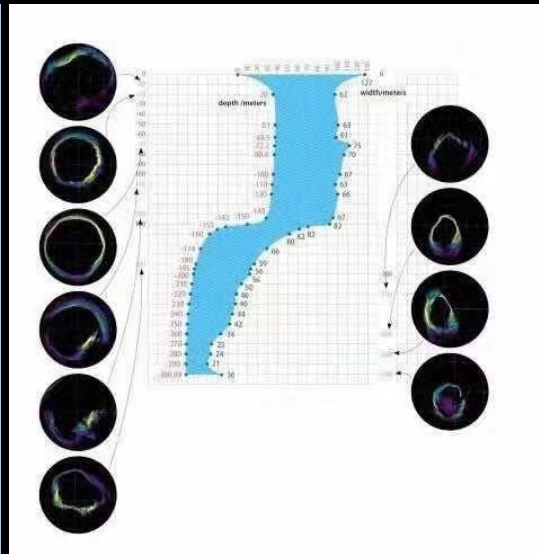


The Kueishantao system (KST)

- Shallow water hydrothermal vents: Located in the southernmost part of the Okinawa Trough off Taiwan



40/50/60/70/80/90/100+m
Twilight zone sample collection



Xisha Dragon Hole exploration and sample collection

Exploring the Ocean: Underwater space habitat

探索海洋：水下空间栖息地

On April 27th 2023, after completing 12.5 hours of deep cave diving, PSAI China's top technical diver Han Ting (Old Cat) successfully ascended in the Jiudun skylight in Du'an, Guangxi, and created the Asian cave diving of 277.4 meters depth record!

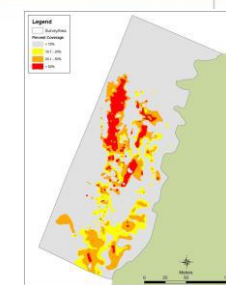
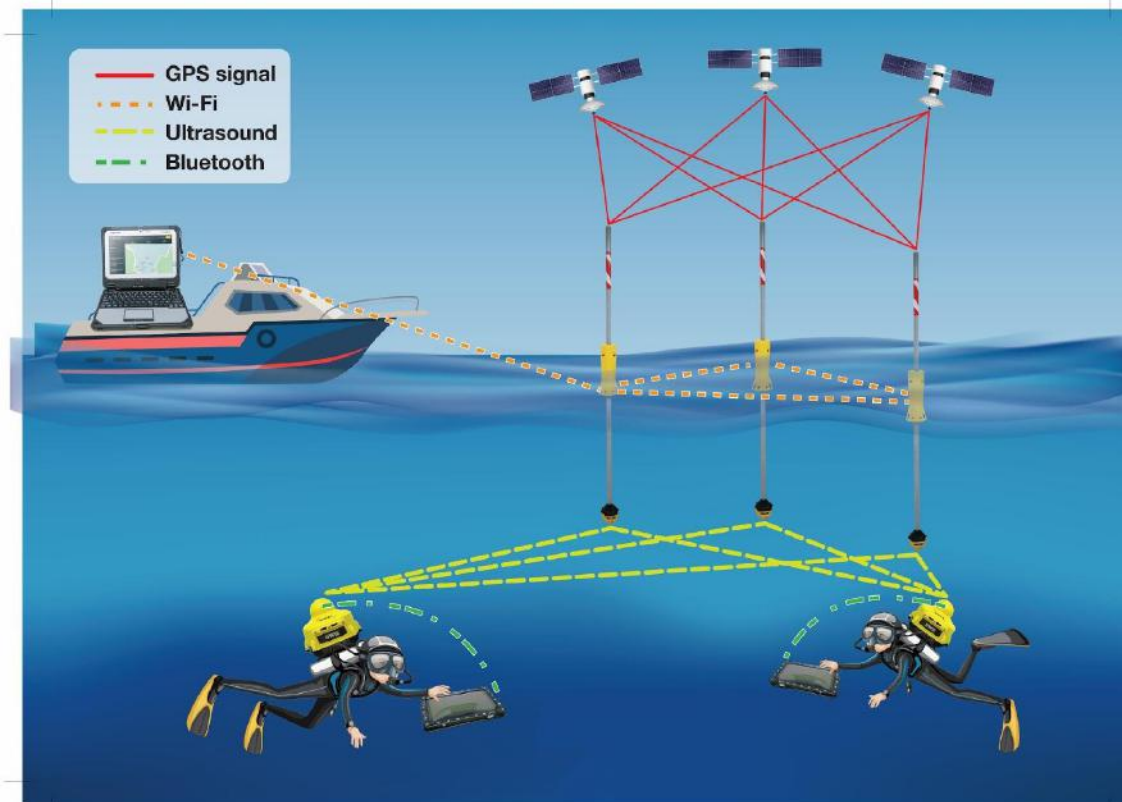


Portable Underwater Laboratory
便携式水下实验室

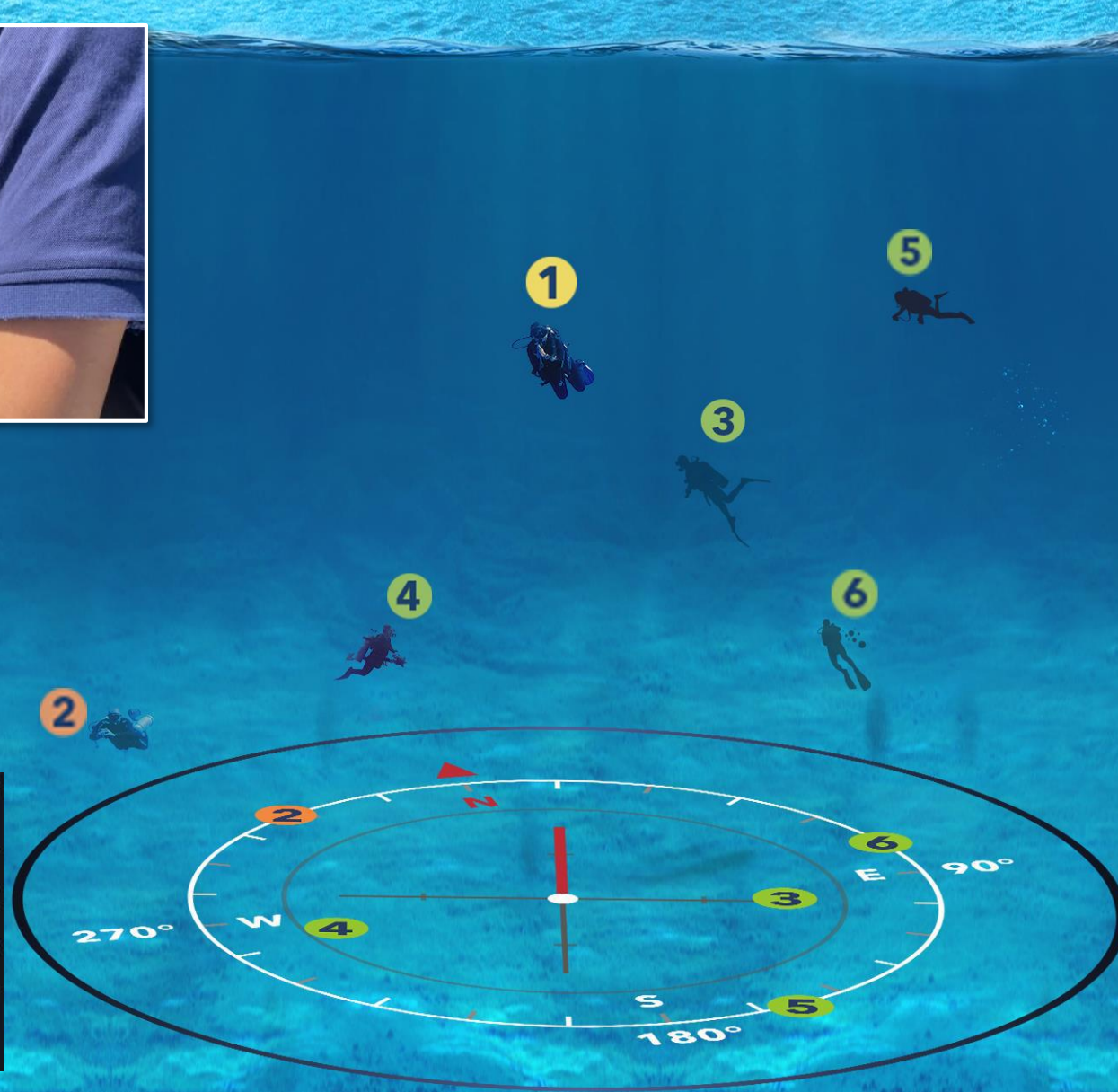




Underwater Survey Technology for marine spatial planning and carbon neutral policy



Underwater Communication and Navigation System for SAFE underwater research and scientific diving



Blue Molecules: From Sources to Clinical Reality

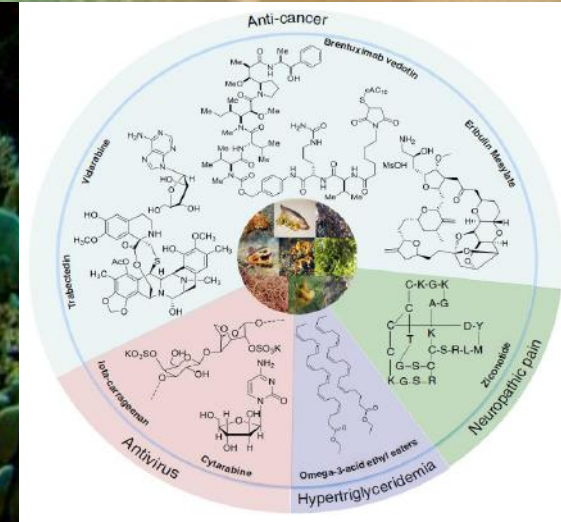


Pulisan Bay, North Sulawesi, Indonesia



BLUE MOLECULES:

Biomolecules derived from marine organisms



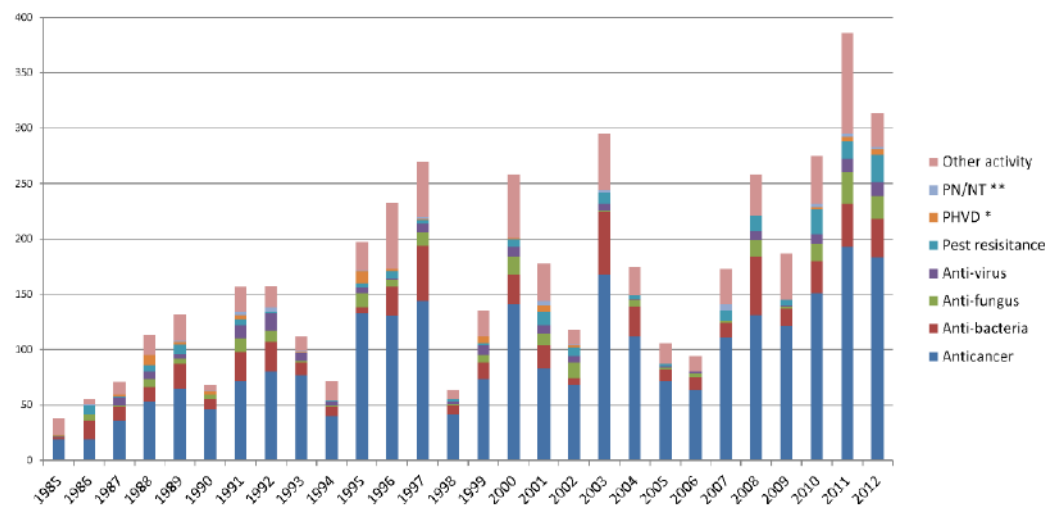
Blue Pharmacy
蓝色药库

Exploring the ocean for new drug developments: Blue Pharmacy

探索海洋的新藥開發：藍色藥庫

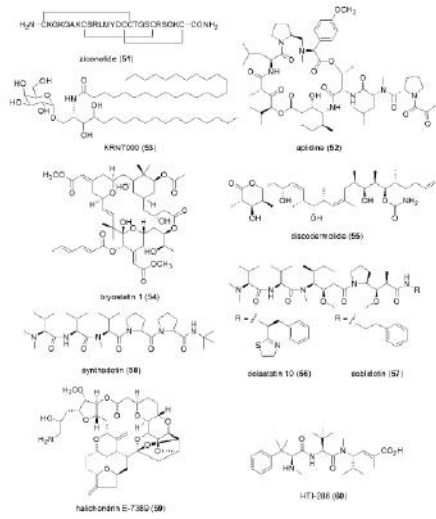


*Poison is in everything, and nothing is without poison.
The dosage makes it either a poison or a remedy.
(Paracelsus)*



Statistics of bioactivity of new marine natural products by year (* PHVD: Prevention of heart and vascular disease, ** PN/NT: Protection of neurons/neurotoxicity).

Marine organism-derived new drug



Marine natural products could be promisingly developed into potential therapeutic agents in the future. 海洋天然產物有望在未來發展成為潛在的治療藥物



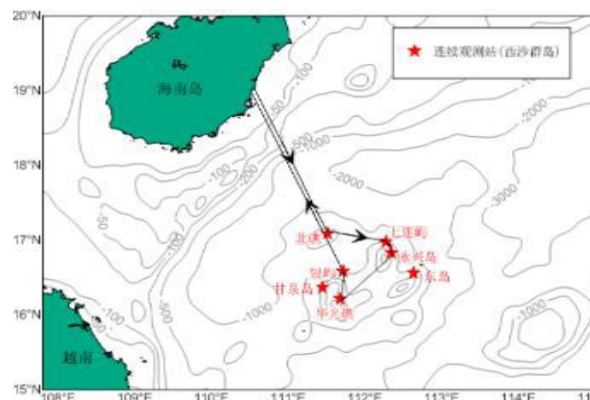
Dr. Lan LIU Prof.
School of Marine Sciences, Sun Yat-Sen University

Research Interest: Bioactive compounds from **Marine Fungi**

Project Leader: Marine Natural Product Library



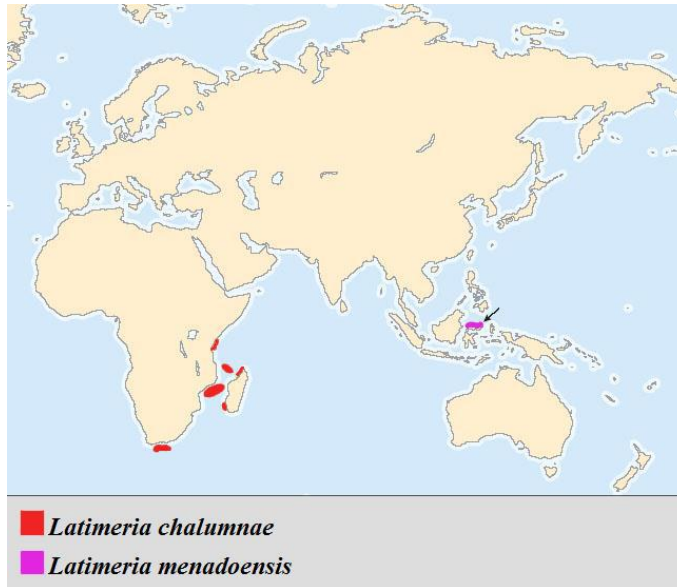
Samples from Xisha Islands



A preliminary study on morphological characteristics and geographical distribution of the living Indonesian coelacanth (*Latimeria menadoensis*)

Coelacanth fish, known as “*living fossil fish*” or “*sea kingfish*,” were believed to have been extinct for 70 million years until they were discovered in South Africa in 1938 under the scientific name *Latimeria chalumnae* (Smith 1939). Sixty years after its first discovery in Africa, Erdmann and Mehta reported the presence of coelacanths in the fish market in Manado, North Sulawesi, Indonesia, on September 18, 1997 (Erdmann et al. 1998). A year later, the second specimen as the holotype of Indonesian coelacanth, scientific name *Latimeria menadoensis*, was captured by Mr. Lamah Sonathan in the waters of Manado Tua, North Sulawesi (Erdmann 1999; Pouyaud et al. 1999). There were eight Indonesian coelacanth specimens with the Coelacanth Conservation Council (CCC) numbers 174, 175, 215, 225, 254, 287, 299, and 305. All information regarding Indonesian coelacanths has been reported previously (Syahailatua 2011; Iwata et al. 2019; Saruwatari et al. 2019). Even with their ancient morphology, a previous study reported that the coelacanth is a deep-water specialist living near steep rocky slopes or deep-sea caves and a nocturnal piscivorous predator (Fricke and Hissmann 2000).

Source: Environmental Science and Pollution Research (2023) 30:49368–49380





潛者水下學院

SEA DWELLER

UNDERWATER ACADEMY



- **Advancement of underwater scientific research in Asia Pacific Region through:**
 - ✓ **developing of scientific safety diving program**
 - ✓ **fostering of true partnership among marine environmental scientists and engineers who design, build, and use novel instruments and systems**
- **To promote and enhance the Standards for Scientific Diving Certification and Operation of Scientific Diving Programs; and**
- **To enhance our knowledge and pursue exploration of the complexity of the marine environment in innovative ways.**
- 從以下方面推進亞太地區的水中科學研究：
 - ✓ **科學安全潛水體系的發展；**
 - ✓ **促進海洋科學家和工程師們設計、開發並使用新型儀器與設備之間的合作夥伴關係**
- **促進和增強科學潛水課程的科學潛水鑒定和運行標準；及增強我們的知識和以創新的方式探索複雜海洋環境的追求**



潛者水下學院

SEA DWELLER

UNDERWATER ACADEMY



專業潛水訓練
Professional
Diving Training
Program

藍色公民培訓
Blue Citizen

潛水培訓課程與認證體系
Certification and
Accreditation

科學潛水培訓
Scientific Divers
Training
Program

SDUA潛水中心授權
Authorization of SDUA
training Centres

公共安全潛水及水中
罪案調查培訓
Public Safety Divers
Training Program

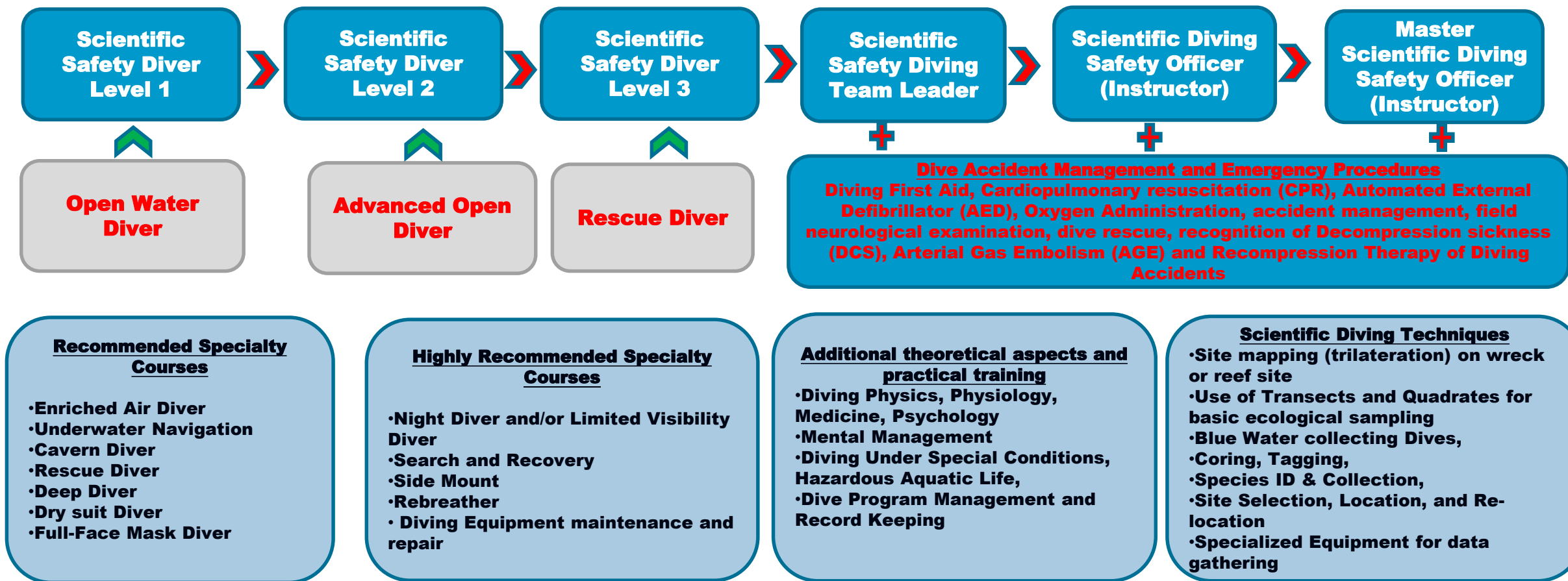
科學潛水保險
Professional Diving
Insurance

專業潛水訓練
Professional Diving Training

公眾教育與社會服務
Public Education and Community Services

Scientific Safety Diving (SSD) Program

科學安全潛水員培訓課程



Key thing is RECIPROCITY (資格互認)

There are strict administrative restrictions for diving with non-qualified colleagues
與不符資格的同事一起潛水有嚴格的管理限制

15 KEY SKILLS FOR INTRODUCTORY IN SCIENTIFIC DIVING

- **Tired divers towing** 水面疲憊潛水員拖帶
- **Underwater navigation** 水下導航
- **Transect deployment; survey simulation** 設置樣帶及模擬珊瑚普查
- **Multi-tasking at the same spot and depth** 懸浮時執行多重任務
- **No visibility alternate air source sharing along pre-set line** 低能見度潛伴氣源共享沿導繩潛行
- **Surface marker buoy deployment and safety stop** SMB上升及五米三分鐘安全停留
- **Heavy object carrying and offloading** 水下攜帶及卸下重物潛行
- **Lift bags application** 升用浮升袋水下攜帶及卸下重物潛行與上升
- **Unconscious diver rescues underwater** 水下無知覺潛水員救援
- **No visibility items searching and object identification** 零能見度搜索水底物件，靠觸覺辨別物件及記憶順序
- **Buddy disentanglements** 潛伴協助去除纏繞物
- **Net/Rope cutting by tools** 利用切割工具去除纏繞物
- **Gear removal and recovery while hovering** 懸浮除穿所有潛水裝備
- **Search and recovery** 探索與尋回墮下海中儀器
- **Written quiz underwater at the same spot and depth** 水下中性浮力完成理論題目

SCIENTIFIC DIVING SYSTEM:

Level 1: Introduction to Scientific Diving:

Level One Divers - allowed to participate on scientific diving projects under the direct supervision of a level three scientific diver to a depth of 10 meters.

Level 2: Intermediate Scientific Diving:

Level Two Divers - allowed to dive on their own to a depth of 20 meters, allowed to dive on scientific dives under the direct supervision of a level three scientific diver to 30 meters, allowed to dive nitrox.

Level 3: Advanced Scientific Diving:

Level Three Divers - allowed to dive on their own to a depth of 40 meters, allowed to dive nitrox, allowed to supervise level one and two scientific divers.

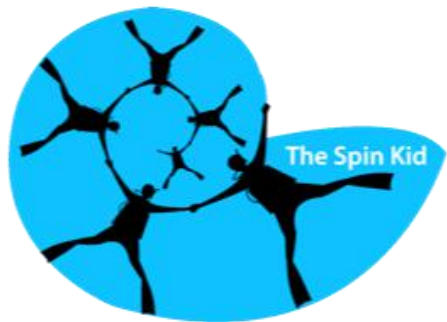
Open water diving instructors with Level 3 qualification can attend the Scientific Diving Safety Officer training.



***A worldwide
passport for
underwater
scientific research***



“The Spin Kid” and “Ocean Citizenship” Programs 哪吒計畫 及 浩海公民計畫 (2011-2022)



**To ignite passion for the protection of the marine environment;
and the pursuit of interest in the importance of marine science**

傳播保護海洋環境資源火種；點燃下一代追求海洋科學的興趣



**To nurture general public as “Citizen Marine Scientists” for the
protection of marine environment**

培養「市民海洋科學家」；普及海洋生態保育

There are 200 participants, with 60 and 30 trained as certified Open Water Divers and Advanced Open Water Divers, respectively. 兩個計畫共計成功培養開放水域潛水員60名，開放水域進階潛水員30名，參與活動人數累積超過200人次。





浩海公民

OCEAN CITIZENSHIP



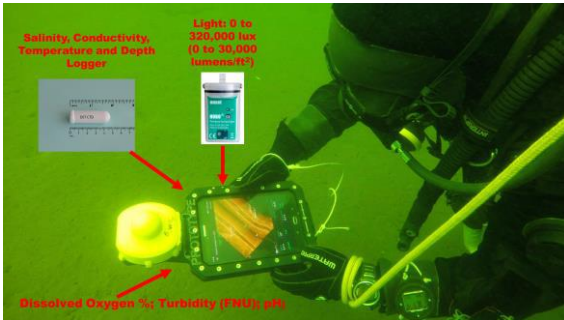
**Coral communities,
coastal and wetland
Clean-up, Conservation,
Restoration and
Education**



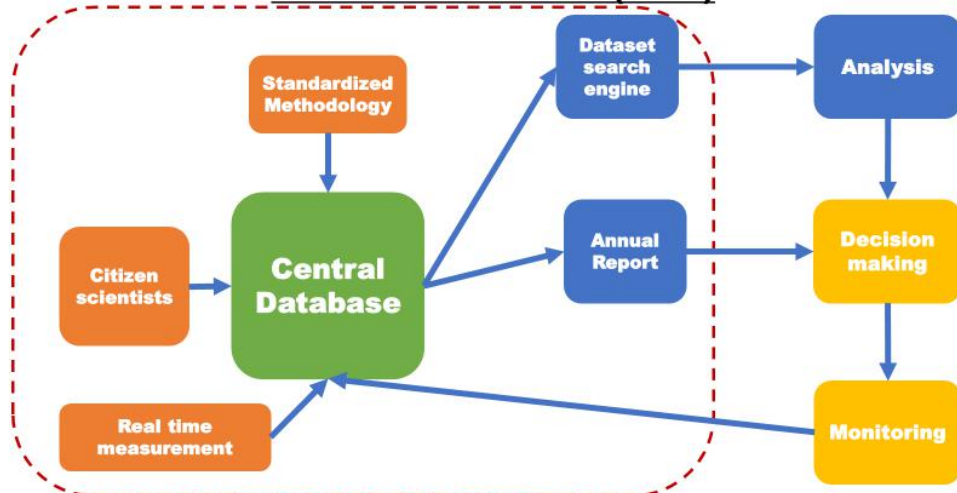
Global Oceans Local Divers (GOLD): SCUBA divers as Oceanographic samplers



Simple Idea but Big Vision



Global Ocean Data (GOD)



frontiers | Frontiers in Marine Science

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ORIGINAL RESEARCH article
Front. Mar. Sci., 29 September 2022
Sec. Ocean Observation
<https://doi.org/10.3389/fmars.2022.976771>

Citizen scientists' dive computers resolve seasonal and interannual temperature variations in the Red Sea

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SCUBA divers as oceanographic samplers: The potential of dive computers to augment aquatic temperature monitoring

Our Team Members



A diver is seen in the upper left quadrant of the image, swimming towards the right. A bright beam of light from the diver's torch illuminates the surrounding water and the large, dark rock formation on the right. The overall scene is dimly lit, with a greenish-blue tint, suggesting an underwater environment.

Thank you for your attention !

From birth, man carries the weight of gravity on his shoulders. 从人类诞生开始，无时无刻都承受着地心引力
He is bolted to earth. 身躯被牢牢地拴紧在大地上

But man has only to sink beneath the surface 但只要沉下水面
and he is free. 人类可以重获自由。

- Jacques Yves Cousteau

Photo by Anders Torstensson