

SDG17: Partnerships for the Goals



SDG 17.2.1 Relationships with regional NGOs and government for SDG policy

Have direct involvement in, or input into, national government or regional non-government organisations, SDG policy development - including identifying problems and challenges, developing policies and strategies, modelling likely futures with and without interventions, monitoring and reporting on interventions, and enabling adaptive management.

1. Research cooperation between National Taiwan Ocean University(NTOU) and European Union(EU)

The EU-mobility project BTU-NTOU 2020-2023 is a part of the EU ERASMUS+ program, and it strengthens the cooperation of researchers and students from both sides by mobilities on the topics of renewable energy and environmental issues related to rivers and seas. The project plans to exchange 2 students and 3 researchers to conduct short-term and long-term academic exchanges and sharing to deepen mutual understanding and strengthen the foundation of cooperation. Based on this foundation, it is expected to hold regular annual exchanges, joint courses, seminars, etc., to expand the possibilities of future cooperation.

Evidence: EU programme

http://ceoe.ntou.edu.tw/c_page.aspx?MID=23&PID=7186

<https://erasmus-plus.ec.europa.eu/>

2. Research cooperation between National Taiwan Ocean University (NTOU) and University of Brawijaya(BU)

NTOU and BU have long-term cooperation history. In 2021 both universities initiate the online courses and online lecturing in the field of fisheries. This solution solves the barrier build up by the distance and the pandemic. In April both universities also apply for the establishment of science and technology innovation center. Though there are no financial supports form the government, NTOU and BU further held an online meeting to match the professors from aquaculture, marine biology and fisheries fields to initiate the possible international co-research projects regarding the life underwater.

Evidence: Signing Ceremony of MoU between NTOU and BU



3. Provide Scholarship for excellent students from international sister universities

In 2021, despite facing the pandemic. All the university seeking another way to foster the original international cooperation. Fortunately online meeting technology were highly applied in higher education institution. Both NTOU and CSU held an online meeting to discuss the cooperation and the signing affairs of MOU. During the meeting both universities agrees although the covid pandemic caused many financial problem and many students are not as much opportunities as before to have qualified education. In this case NTOU offers good scholarships for the excellent students. To eliminate the financial-based talent loss.

Evidence: NTOU Scholarship Information

<https://oia.ntou.edu.tw/p/412-1022-10366.php?Lang=zh-tw>



4. High-end Maritime Industry-A Law&Policy Prospec

With three major themes: "Marine Legal Services", "Application and Innovation of Emerging Technologies in the Shipping Industry", "Ship Survey Services, Ship Management and Others" to build consensus from all walks of life as policy recommendations. Rao Ruizheng, dean of the School of Maritime Law and Policy, the seminar organizer and presenter, said that Taiwan's shipping has international influence, not only safeguarding my country's national economic interests, but even promoting the development of my country's foreign affairs and national defense security, so we are not only "protecting the country" , and the "National Defense Fleet". The purpose of this seminar is to create a good environment to support the development of Taiwan's shipping industry in the legal and policy aspects of the high-end maritime industry.

Evidence: The 6th International Symposium on Maritime Law and Politics in 2021

<https://mprp.ntou.edu.tw/p/404-1017-66587.php?Lang=zh-tw>



5. Research on the Social Impact and Legal Promotion of AI Applications in the Ocean

This research will analyze the impact of AI applications on issues such as marine pollution prevention, marine ecology and environmental conservation, and marine industry development on society, as well as make legal and policy research, analysis, and recommendations. This part will analyze how to assess and reduce the impact of AI applied to the ocean on society in terms of regulatory adjustment and policy planning and other soft infrastructure construction, such as employment, prejudice, ethics, regulations, etc., and propose solutions and feedback to AI in the ocean R&D. The specific expected results of this research and the expected results of related governance include a comprehensive review and comparison of my country's marine affairs-related policies, forward-looking policy recommendations for policy construction and legalization of AI application in the ocean, and research on my country's marine industry upgrading and AI. Development strategies and suggestions for law revisions, research and development of my country's marine industry upgrading and AI development strategies and suggestions for law revisions, and solutions for AI technology development and social impact.

Evidence: Research Output

<https://colp.ntou.edu.tw/p/412-1047-10786.php?Lang=zh-tw>

6. Marine Science and Technology Policy Program and Action Plan to Promote Implementation

Based on the existing "National Development Plan (110-113)", "2020 National Marine Policy White Paper", and the national marine science and technology policy development strategy blueprint, it will be possible to improve the national marine science and technology development strategy and communicate with sea-related agencies And reach a consensus, and then promote national policy and resource investment, so that my country's marine science and technology policy can be forward-looking and sustainable

Evidence: NTOU proposes 141 specific action plans for marine science and technology policy agenda

<https://mprp.ntou.edu.tw/p/404-1017-76062.php?Lang=zh-tw>

7. Cooperate with the government to promote the new southward policy, and actively promote academic and industry-university cooperation with Southeast and South Asian countries

(1)The research team of the Center of Excellence of Ocean Engineering (CEOE) of National Taiwan Oean University conducted an international cooperation project with King Mongkut’s University of Technology Thonburi (KMUTT) in Thailand. The title of this joint project is “Development of flood warning in the Upper Yom River Basin of Thailand”, and which was supported by the Ministry of Science and Technology (MOST) in Taiwan. Floods in Thailand are regular natural disasters that happen nearly every year during the monsoon season. The objective of the cooperation project was to assist the Thailand research team to build a simplified flood warning system that can exhibit real-time rainfall and discharge monitoring data and provide forecast results of river stage information. During the project period, experiences from Taiwan and Thailand teams in hydrological modeling and field measurement techniques were exchanged. A preliminary version of the watershed rainfall-runoff and channel flow model for flood forecast in the Upper Yom River Basin of Thailand was established to fulfill the goal of this first-stage joint research project.

(2)NTOU delegation led by the professors from the department of Education, transportation science and PE center visited Philippine universities for the research cooperation and admission recruitment. During their visit there are some sparkles ideas are inspired such as

A.To conduct the introduction meeting regularly according to the education system and time schedule for the admission.

B.To joint the alliance or association between Taiwan and Philippine universities.

C.Short-term exchange and visiting programs.

- (3) Intensive meeting with Viet Nam Economic and Cultural office in Taipei regarding the ocean economic and ocean science fields. Soon both discuss the possibilities to cooperate with the Vietnam academic, industrial and governmental cooperation. During these meetings, both agree to enhance the development of “Aquatic Aquarium New Southward International Industry-Academy Alliance “between Taiwan and Vietnam.
- (4) Invited the Prince of Songkla University to held an off-line table meeting regarding the future cooperation. After the covid-19 pandemic both universities held several online meeting regarding the admission and scholarships issues.
- (5) Despite the pandemic NTOU sign the MOU with via international post. The excellent NTOU alumni work in the university and express great passionate to build up the relationships.

8 The innovative ENDP won the 110th "Outstanding Technology Transfer Contribution Award" of the Ministry of Science and Technology.

In the past five years, the more than 200 ships equipped with the ENDPs, and the output value of the ENDPs exceeds more than hundreds of millions.

The innovative ENDP has obtained invention patents in Taiwan, the European Union and the United States. Because the patent is most helpful for the war ships, the inventor, Professor Young-Zehr Kehr of National Taiwan Ocean University is currently assisting the Hong Shen Propeller Company to apply for a cooperation plan with the United States. If this technology can be adopted by the US military, the ENDP will be smoothly promoted to the world.

Evidence:

- (1) Professor Young-Zehr Kehr of NTOU won the 2021 "Outstanding Technology Transfer Contribution Award" of the Ministry of Science and Technology. Contribution Award from the Ministry of Science and Technology

<https://wsts.nstc.gov.tw/STSWeb/Award/AwardMultiQuery.aspx?code=QA04>

<https://mprp.ntou.edu.tw/p/404-1017-65974.php?Lang=zh->

[tw&ct=1633590268&fbclid=IwAR3JrHII3_J2sLa0YE6q1S4y6WRHKgKRtG6Esf3fMJ81C77kZAt6rIN6uKU](https://mprp.ntou.edu.tw/p/404-1017-65974.php?Lang=zh-tw&ct=1633590268&fbclid=IwAR3JrHII3_J2sLa0YE6q1S4y6WRHKgKRtG6Esf3fMJ81C77kZAt6rIN6uKU)

(2) The innovative ENDP won the 110th "Outstanding Technology Transfer Contribution Award" of the Ministry of Science and Technology.



(12) **United States Patent**
Kehr

(16) **Patent No.:** US 10,155,575 B2
(45) **Date of Patent:** Dec. 18, 2018

(24) **DIFFUSER-TYPE ENDPLATE PROPELLER**
(71) Applicant: **Young-Zehr Kehr, Keelung (TW)**
(72) Inventor: **Young-Zehr Kehr, Keelung (TW)**
(73) Assignee: **National Taiwan Ocean University, Keelung (TW)**
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
(21) Appl. No.: **15944,685**
(22) Filed: **Jan. 3, 2018**
(35) **Prior Publication Date**
US 2014/0127074 A1 May 18, 2018

Related U.S. Application Data
(43) Continuation-in-part of application No. 14/151,827, filed on Jan. 10, 2014, now abandoned.

Foreign Application Priority Data
Jan. 7, 2013 (TW) 102120356 A

(51) **Int. Cl.**
B63H 1/25 (2006.01)
B63H 1/26 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC **B63H 1/26** (2013.01), **B63H 1/25** (2013.01), **B63H 1/24** (2013.01), **B63H 1/28** (2013.01), **B63H 1/29** (2013.01), **B63H 1/27** (2013.01), **B63H 1/26** (2013.01), **B63H 1/28** (2013.01), **B63H 1/29** (2013.01)

(53) **Field of Classification Search**
CPC .. **B63H 1/25**; **B63H 1/26**; **B63H 1/28**; **B63H 1/29**; **B63H 1/27**; **B63H 1/24**; **B63H 1/23**; **B63H 1/22**; **B63H 1/21**; **B63H 1/20**
(Continued)

(54) **References Cited**
U.S. PATENT DOCUMENTS
898,562 A 4/1982 Swanson
1,117,315 A 11/1914 Stueblich
(Continued)

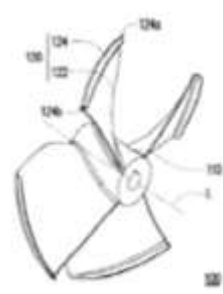
FOREIGN PATENT DOCUMENTS
CN 2388460 8/2010
CN 101390169 6/2011
(Continued)

OTHER PUBLICATIONS
K. De Jong, "On the Design of Optimum Ship Screw Propellers Including Propellers With End Plates," International Symposium on Propellers and Cavitation, Jan. 1992, pp. 1-6
(Continued)

Primary Examiner - Christopher Vorlier
(74) **Attorney, Agent, or Firm** - KIPRNET

(57) **ABSTRACT**
A diffuser-type endplate propeller driving a hull and including a propeller hub and a plurality of blades is provided. The propeller hub has an axis of rotation and is connected to a transmission shaft of the hull. A blade has a blade-body and an endplate. The blade-body is connected to the propeller hub and extends outward from the propeller hub to the corresponding endplate. The endplate bends from the corresponding blade-body to extend towards a axis of the hull, and the endplate has a leading edge and a trailing edge. A cylindrical surface is tangentially formed by the leading edges while the diffuser-type endplate propeller is rotated about the axis. Each of the endplates has a first tangent plane at the leading edge thereof, the cylindrical surface has a second tangent plane at the leading edge. An included angle is measured from the second tangent plane to the first tangent plane.

18 Claims, 21 Drawing Sheets



US 10,155,575 B2
Page 2

(51) **Int. Cl.**
B63H 1/18 (2006.01)
B63H 1/26 (2006.01)
B63H 1/20 (2006.01)
9,021,970 B2 5/2015 Kawakita
2009/0110539 A1 4/2009 Bell et al.
2009/0226323 A1 9/2009 Suzuki
2011/0217177 A1 9/2011 Rolla

(58) **Field of Classification Search**
USPC 416/191, 192, 195, 228, 235, 236 R,
416/236 A, 237, 440/49, 66, 68, 69
See application file for complete search history.

(56) **References Cited**
U.S. PATENT DOCUMENTS
1,597,175 A 8/1926 Boeing
2,099,229 A 11/1937 Fossenheim
7,426,742 A * 9/1947 Pawlowski B63H 1/16
416/189
2,498,170 A * 2/1950 Meier B63H 1/28
416/236 A
4,130,378 A * 12/1978 Eichler B63H 1/14
416/175
4,288,223 A * 9/1981 Gonzalez B63H 5/16
440/71
4,300,889 A 11/1981 Wormser
4,443,202 A 4/1984 Arma
4,632,636 A 12/1986 Smith
5,205,765 A 4/1993 Holden
6,352,408 B1 * 3/2002 Kilian B63H 1/14
416/191

FOREIGN PATENT DOCUMENTS
CN 01863306 1/2012
CN 102958000 3/2013
CN 103121502 5/2013
DE 1781084 2/1971
EP 0300683 1/1989
EP 1260432 11/2002
JP 538194689 11/1983
JP 560004878 2/1985
KR 1020120132082 12/2012
KR 101750704 5/2013
TW M293210 7/2006
WO 2010138073 12/2010
WO 2012053378 4/2012

OTHER PUBLICATIONS
Mariano Pérez Sobrino, et al., "Scale Effects in Model Tests With CLT Propellers," 27th Motor Ship Marine Propulsion Conference, Jan. 2005, pp. 1-27.
* cited by examiner

(3) Patent certificate



中華民國專利證書

發明第 I515147 號

發明名稱：擴散型端板螺漿

專利權人：國立臺灣海洋大學

發明人：柯永澤

專利權期間：自2016年1月1日至2033年6月6日止

上開發明業經專利權人依專利法之規定取得專利權

經濟部智慧財產局局長

王美花

中華民國



105 年 1 月 1 日

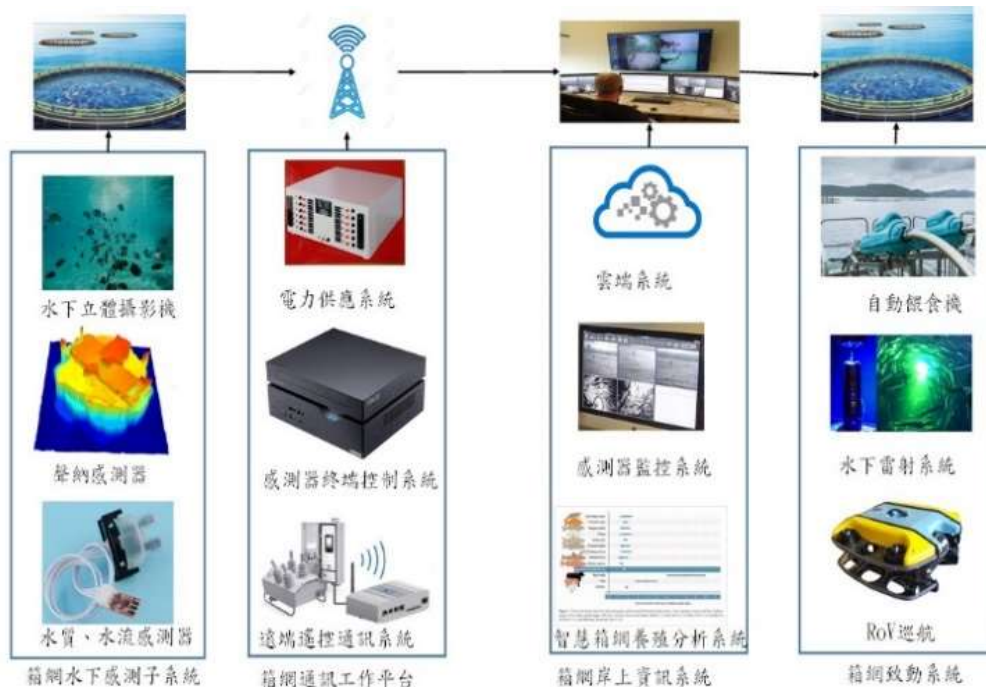
注意：專利權人未依法繳納年費者，其專利權自應繳年費期限屆滿後消滅。

9. Assist government to solve ocean issue by AI appliance

We promote fishery observation system to assist government monitoring fishery situation efficiently. We develop a cloud-based real-time smart aquaculture system. The system detect underwater creatures automatically, transmit data to cloud system and analysis system. And then we use the data to develop automatic feeder, underwater laser system and RoV cruise. The achievement solve ocean issue effectively and enhance building partnerships for the goals.

Evidence:

(1) A Cloud-Based Real-time Smart Aquaculture System. (multidisciplinary research project in department of computer science and engineering 、 department of electrical engineering 、 department of aquaculture)



(2) https://matching.org.tw/matching/index.php?action=product_detail&prod_no=P0000100001941

SDG 17.2.2 Cross sectoral dialogue about SDGs

Initiate and participate in cross-sectoral dialogue about the SDGs, e.g. conferences involving government or NGOs

1. International Forum on Global Sustainable Development, Taiwan Experience and Local Social Responsibility

In order to open the door to cross-disciplinary research on sustainable development, the Centre for Co-Education and the Taiwan Development Research Society co-hosted the International Forum on Global Sustainable Development, Taiwan Experience and Local Social Responsibility.

In addition to the in situ work, a visit by Ambassador H. E. Edwin Laurent and our algae research team explored solutions to the problem of climate change. The visit was organized by the Centre for Co-Education, the Secretariat, the Department of Food Science, the Department of Aquaculture, the Marine Centre, the Research and Development Office and the International Affairs Office.

Evidence: St. Lucia Ambassador Visits NTOU to Consider Solutions to Climate Change Issues
<https://mprp.ntou.edu.tw/p/406-1017-65031,r1031.php?Lang=zh-tw>



2. University Social Responsibility Project

(1) Project Results and Social Impact

- a. Promote local creative talent cultivation, academic cooperation, technology upgrading and diplomatic relations in Taiwan.
- b. To promote marine resource restoration and conservation in order to achieve sustainability.
- c. Increase fish sales channels for fishermen and increase the desire of youth to stay in the area.
- d. Cultural revival and health care in fishing villages.

Evidence: <https://usr.ntou.edu.tw/p/412-1090-9971.php?Lang=zh-tw>

(2) Taiwan-Japan Alliance of Local Revitalization and Social Practice Meeting

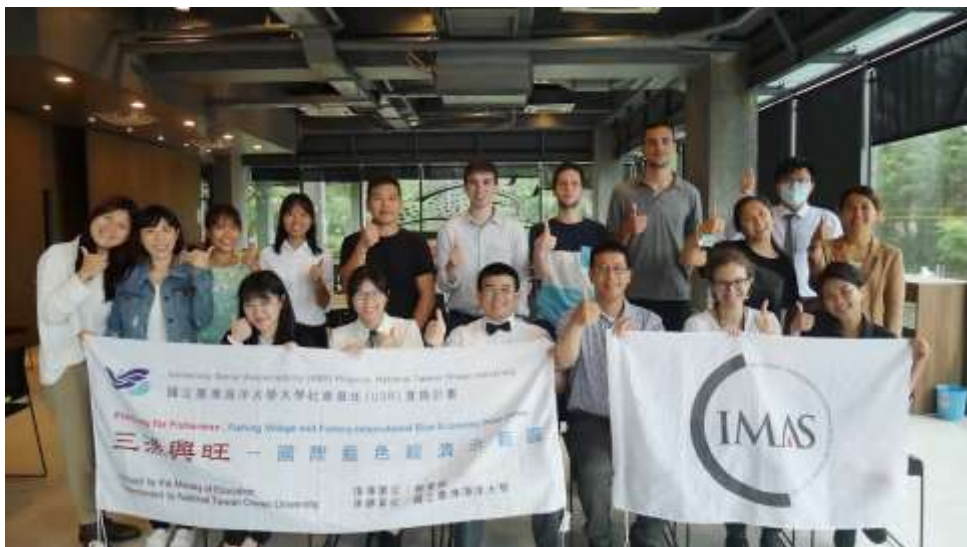
The Taiwan-Japan Alliance of Local Revitalization and Social Practice Meeting (Taiwan-Japan Alliance) is a platform to promote the exchange of social practice experiences between universities in Taiwan and Japan. In view of their similar geopolitical, economic and demographic structures, Taiwan and Japan are facing similar social structural problems. In both Taiwan and Japan, universities are important actors in responding to local issues by combining teaching and research with practical work in the field. The Consortium aims to build a platform for exchange between the two countries, to promote positive experience exchange, refinement and diffusion, and to maintain a real-time flow of information between member universities through a regular e-newsletter.

Evidence:

(1) A platform for the exchange of social practice experience between universities in Taiwan and Japan

<https://tja.center/zh-TW>

(2) Workshop for Ocean Development and Regional Revitalization: An International Exchange



(3) National Taiwan Ocean University - Kochi University Research Exchange Seminar

NTOU - KU Research Seminar

A Life Science Approach to Coral Study

Research life in Taiwan
in Japanese
An unique pattern of reproduction in the stony coral *Euphyllia ancora*
in English
Shinya Shikina
Assoc. Prof. National Taiwan Ocean University

Karyotyping and Cytogenetics of Scleractinian Corals
In English
Joshua Macarizas
Ph.D. student, Kochi University

March, 18th, 2021
(Thursday)
14:00-15:00 (Taiwan & Philippines Time)

高知大学 オンラインセミナー 2021年 3月18日

温かい国 台湾での研究生活

ナガレハナサンゴのユニークな生殖様式

識名信也
国立台湾海洋大学
海洋環境與生態研究所

野外養殖池 (40 m x 90 m) サンゴ飼育場のテーブル

サンゴ飼育用のテーブル テーブル上で飼育したナガレハナサンゴ

SDG 17.2.3 International collaboration data gathering for SDG

Participate in international collaboration on gathering or measuring data for the SDGs.

1. Following ‘The New Southbound Policy’, NTOU have signed agreements for being partner institutions with more than 10 universities and institutions in Southeast Asian countries. NTOU are also working on the Dual Degree Program with our partner institutions.

Evidence: National Taiwan Ocean University (NTOU) and Prince of Songkla University (PSU) of Thailand was hold an online exchange meeting on March 29, 2021. NTOU will provide five scholarships for students recommended by the university to study at NTOU in September 2021 to promote exchanges between Taiwan and Thailand.

<https://mprp.ntou.edu.tw/p/404-1017-57521.php?Lang=zh-tw>

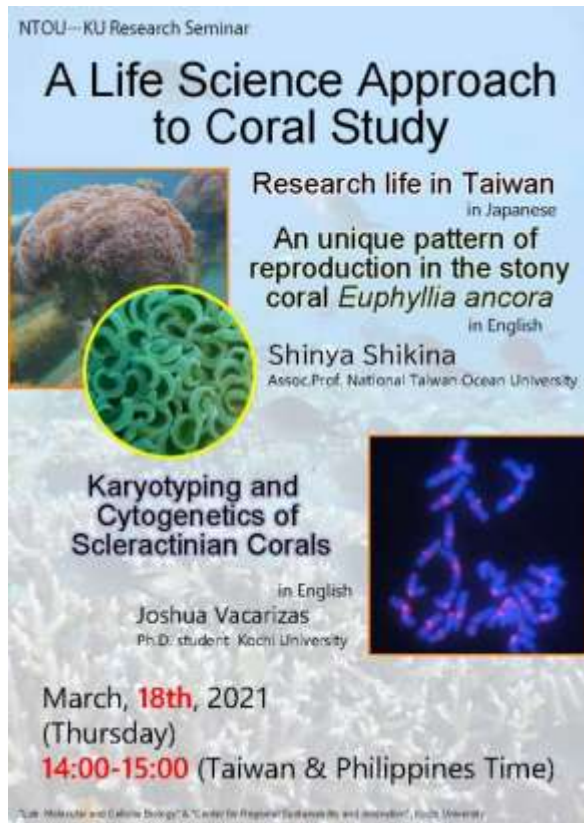


2. Research exchange seminar between NTOU and Kochi University, Japan.

Research exchange seminar between NTOU and Kochi University, Japan.: It focused on the study of coral reef. In 2021 There were 32 participants to join this seminar.

Evidence: Research Exchange Seminar

<https://usr-fishingvillage.ntou.edu.tw/files/14-1022-47945,r984-1.php?Lang=zh-tw>



3. Taiwan-Japan fishing harbor seed training workshop for regional revitalization.

It invited Japanese professional experts to share the regional revitalization in the fishing harbor of Tateyama, Chiba, Japan. In 2021 There were 75 participants to join the workshop.

Evidence: Seed training workshop for regional revitalization

<https://usr-fishingvillage.ntou.edu.tw/files/14-1022-47904,r984-1.php?Lang=zh-tw>



4. 2021 USR Joint Development Series of Activities- Session 6: The Dialogue Between International Experiences and The Local Practice

It focused on how to do the sustainable development for fishery industry, fishing villages, and the career development of fishermen. Furthermore, it also assisted the fishermen to face the marine resource exhaustion via other experiences in other countries.

Evidence: The Dialogue Between International Experiences and The Local Practice

https://www.youtube.com/watch?v=p3BBP5WLzxQ&list=PL9b_O0PpmEFjH6yKJXhI4CukkqXP_F_bxl&index=12

演講題目:從日本的昆布養殖史到應用及發展

U S R 國際鏈結及跨國合作深化:
國際經驗與在地實踐的對話

北前船による昆布輸送

北海道～日本海（敦賀、小浜）～京都・大阪で昆布運搬（西廻り航路）

- ⇒昆布問屋が発生
- ⇒おぼろ昆布やパッチラなどの削り昆布
- ⇒各地物産の誕生

松前（北前船出発地）：松前漬
酒田：鱈の昆布巻
富山：刺身の昆布ダ
米子：吾左衛門餅

⇒漬物顔色として沖縄（琉球王餅）へ
漬物：鮭・海鼠・フカヒレ
顔色：昆布・寒天など
琉球：清へ朝飯（ヨウ素不足対策）
地元でも利用。

・江戸末期には東廻り航路で密貿易
⇒長者丸漂流事件（時機物語）
⇒薩摩藩による蓄財・封墓

エッセイの海物語（江戸時代）

藤田大介 准教授
日本東京海洋大学
海洋生物資源学部門

陳柏蕨 博士後研究員
國立海洋大学
水産品産額推測施設暨檢驗中心

5. Transnational Biodiversity research

Transnational biodiversity research with Singapore, Malaysia and Indonesia. The research fields are as follows:

- (1) Diversity of crustaceans: The research on the diversity of crustaceans at NTOU has played an important role in the world. This year, we sort out the marine life survey conducted in Indonesia in cooperation with the University of Singapore. A total of 130 species of shrimp were collected. Among them, 11 species are new, and the other 23 species are newly recorded in Indonesia. In addition, in cooperation with scholars from Malaysia and Indonesia, in a trans-national collection study, it was found that the body color of the grass shrimp produced in Aceh Province, the most western part of Indonesia, was different from that of ordinary grass shrimp, and there was no obvious horizontal stripe on the body. The integrated taxonomic method combining morphological and molecular genetic characteristics, successfully identified the population of Aceh area as a new species of *Penaeus*. The result of this research is a major discovery in the fishery and aquaculture species of shrimp. We also cooperated with IFREMER, the French

marine research center, to assist in the identification of shrimp images obtained by deep-sea photography in the Indo-West Pacific, and compare with the physical specimens collected by trawling, integrating and providing a feasible direction for the current popular deep-sea image ecological analysis. The Taiwanese research station published two new species of shrimp, a new record of crab, and described for the first time the metamorphosis stage of a new species of shrimp discovered in recent years. They used specimens collected in Taiwan and around the world for the evolutionary phylogenetic analysis of the Pyramididae, Proterophyta, Heterospermidae, and even the entire higher taxonomic hierarchy of crustaceans. These multiple and different levels of research results keep NTOU's crustacean taxonomic evolution research dominant in Asia.

(2) Invasive species- hairy crabs: there are currently not many studies on the genomics of crustaceans. Our center researches and integrates different genomics study to deeply analyze the famous invasive species Chinese mitten crab (commonly known as hairy crab) to understand the gene regulation mechanism of crustacean environmental adaptation. We analyze genome and transcriptome of the classic hairy crab to understand the mechanism of environmental tolerance to strong osmotic nodes and the high fertility rate of this migratory organism. The results showed that the F-ATPase series of genes is responsible for the adaptability of this invasive crab. In addition, the transcriptome analysis showed that the development process of abdominal degeneration in crabs is regulated by Hox-gene from the megalophthalmosus seedling stage, and the gene regulation of sexual differentiation can also be understood from the integrated genomics analysis. This study has provided many genetic insights into understanding the evolutionary adaptations of crabs and even crustaceans.

6. Promote research cooperation with The University of Tokyo, Atmosphere and Ocean Research Institute (AORI).

The Center of Excellence for the Oceans(CEO) had also initiated collaboration with Atmosphere and Ocean Research Institute of the University of Tokyo, and an agreement for holding jointed annual symposiums and organizing jointed research cruises had been established. There were 8 research projects currently underway, with jointed research papers starting to come out since this year. Three papers cooperated with AORI were published in 2021.

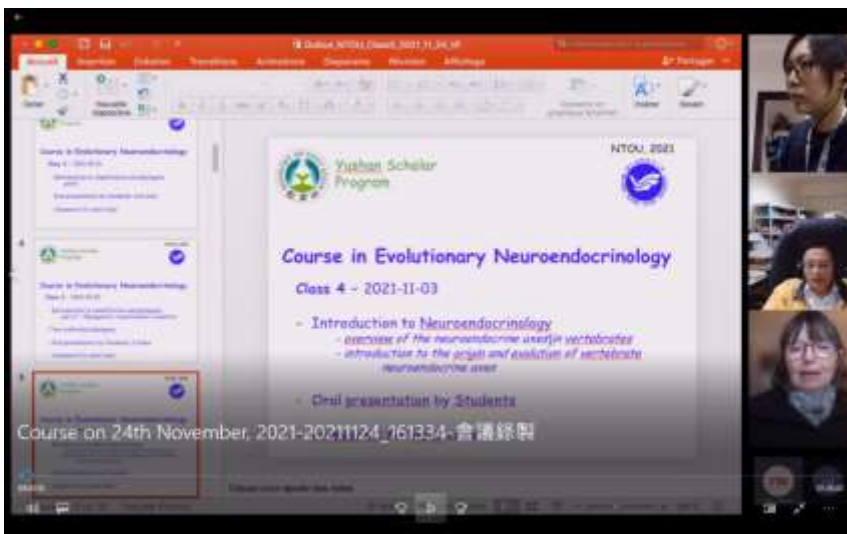
7. Integrate multiple laboratories in Taiwan and France with Yushan scholar Prof. S. Dufour to form a top marine biological physiology research team

The CEO center's team "Marine Biological Physiology Adaptation and Evolution" has long-term cooperation with Prof. Sylvie Dufour, the director of French National Center for Science Research (CNRS), and Biology of Aquatic Organisms and Ecosystems; (UMR BOREA). In cooperation with

Yushan scholar Prof. S. Dufour and multiple research laboratories in Taiwan and France (including National Taiwan Ocean University, Kaohsiung University of Science and Technology, National Museum of Natural History in Paris, Sorbonne University, and Normandy University) to formed a team for research in marine animal neuropeptides (NEMO, Neuropeptides of Marine Organisms). Three papers were published with Prof. S. Dufour in 2021.

Evidence:

Video Conference with Yushan scholar Prof. S. Dufour



8. International collaboration data gathering for SDG 17, SDG 4, SDG 7, SDG 13 and SDG 14

The Center of Excellence in Ocean Engineering (CEOE) integrates the University's and domestic and foreign resources in marine engineering and marine science research, equipment, and international cooperation to develop key technologies to solve domestic "ocean energy" and "river and sea disaster prevention" problems. In terms of international linkages, the Center cooperates with the Ludwig Franzius Institute of Hydraulic, Estuarine and Coastal Engineering in Leibniz University Hannover and actively exchanges and visits to promote EU projects.

Evidence:

(1)International Partnerships

http://ceoe.ntou.edu.tw/a_page.aspx?MID=4081

(2)EU programme

http://ceoe.ntou.edu.tw/c_page.aspx?MID=23&PID=7186

<https://erasmus-plus.ec.europa.eu/>

SDG 17.2.4 Collaboration for SDG best practice

Through international collaboration and research, review comparative approaches and develop international best practice on tackling the SDGs

1. international cooperation

The number of collaborative research programs between NTOU and international scholars is 14 in 2019, 15 in 2020, and 13 in 2021. The countries of cooperation include the United States, Canada, United Kingdom, France, Germany, Norway, Italy, Russia, Indonesia, Japan, South Korea, Philippines, New Zealand, and the Republic of Palau. NTOU seeks to bring in more and a wider range of strategic global partners for international collaborations through which to collect or measure data related to the SDGs and to develop programs or papers that address the SDGs. The key abstracts are as follows:

(1) The international alliance cooperation

The Six Japan National Universities (Chiba University, Niigata University, Kanazawa University, Okayama University, Nagasaki University and Kumamoto University) share many characteristics. Each university is known as one of the top comprehensive universities in Japan. In order to nurture the further development of highly trained graduates for leadership in a globalizing world, the Six National Universities have newly established a mechanism for cooperation: “SixERS.”

The University System of Taipei (National Taipei University, National Taipei University of Technology, Taipei Medical University, National Taiwan Ocean University) were established in 2011. Each university has a unique research and academic background that bounded as a well comprehensive alliance in Taipei.

Each alliance is integrated for perusing greater research energy and cooperation opportunity. In 2021 after several online meetings and negotiations 2 alliances signed the SixERS & UST alliance cooperation MOU eventually. Also both alliances are working with the mechanism to have a platform for the researchers to start up the joint research programs.

(2) The new online-mindset for international cooperation

The COVID-19 pandemic have fundamentally switched international cooperation. The tragedy forced all the faculty and the students to learn or to conduct meeting online. Crisis equals opportunity, it allows more people familiar with the online tech as well. It serves as a trigger for the officers and professors even easier to cooperate with international partners than usual. In late 2021 NTOU has many great opportunities to contact our sister universities facing the new crisis. It came up some great ideas and conclusion as follows:

- a The online cooperation is an unstoppable trend and we should embrace it
- b To conduct the ability to lecture online becomes essential for every university. This has been adopted that NTOU offers online courses for both local and international students during the quarantine.
- c To establish a virtual meeting to remain international academic mobility.
- d To conduct the Bilingual learning environment for the NTOU students. NTOU also offers more English-taught courses than ever.
- e Encourage students to join the online courses offered by sister universities.

Evidence:

(1) English-Taught Programs. The link is as below:

<https://oia.ntou.edu.tw/p/412-1022-9429.php?Lang=en>

(2) Professor Hwang Jiang-Shiou wins the Franco-Taiwanese scientific grand prize

Distinguished professor Jiang-Shiou Hwang, his bilateral cooperation with Lille University, France has achieved rich and outstanding academic achievements. Professor Hwang has published more than 330 scientific papers. Among them, 257 papers are international SCI papers. Particularly, he has been co-authoring more than 50 critical SCI papers with wide international influence. Several of his works have been used in international English textbooks. He has supervised 22 graduate students to receive their PhD degrees. Among them, he co-supervised seven graduate students to receive dual Ph.D. degrees both at National Taiwan Ocean University and Lille University, France. Currently, his laboratory accommodates seven PhD students from Taiwan as well as several other nationalities, one postdoc researcher, two research assistants, and two M.Sc. students.

Professors Hwang and Souissi met during the international conference WAC in Curitiba, Brazil in 1999. Since then, they themselves hosted the 8th and 9th WAC, respectively. They actively conducted transnational academic collaboration and have visited each other over 40 times. In 2005, NTOU and Université de Lille signed the FIT-ULille1-NTOU memorandum of understanding to promote the bilateral cooperation between the two universities. In 2017, the two universities upgraded their relationship to sister schools. Presently, Professor Hwang is proactively planning to increase and expand the depth and width of cooperation between the two universities. He also promotes the academic cooperation between NTOU and European countries – here particularly with France - and the United States, specifically in the promotion of academic collaboration and academic exchange in fields such as environment, marine biology, aquaculture, and sustainable Earth.

- (1) <https://ocean-news.ntou.edu.tw/p/406-1017-43818,r1031.php?Lang=zh-tw>
- (2) <https://tinyurl.com/y5lxxjkn>
- (3) <https://www.youtube.com/watch?v=XNl2SDhLgHQ&t=2s>
- (4) https://youtu.be/i_2Of-4PY8k



2. The 29th International Society for Business Innovation and Technology Management

The topic of 29th International Society for Business Innovation & Technology Management Conference is circular economy and sustainable production management. In order to achieve system reliability and improve efficiency, the conference will focus on sustainable development goals and sustainable consumption management in the supply chain management, industrial production and manufacturing processes. The participants to this conference were from Thailand, Philippines and Malaysia. They share and exchange their experiences in engineering and supply chain management systems.

3. Joint Symposium-Aging Population

The topic of joint symposium is focus on aging population. The symposium divided into four category Medicine & Life Sciences, Engineering & Technology, Natural Sciences, Social Sciences. The scholars shared their research related to aging population. Two professors from NTOU shared their research “Senior life under artificial intelligence technology: opportunities and challenges in 2045” and “Aging and erythrocyte rheology”. The aging society is a common problem today. People need more research and discussion to find solutions. UST and SixERS may continue to focus on related issues and share the observations and research results in the future.

4. Signature of Memorandum of Understanding between the College of Maritime Science and Management, National Taiwan Ocean University and Hong Kong Polytechnic University, Hong Kong, China.

The College of Maritime Science and Management, NTOU and the School of Business Administration of the Hong Kong Polytechnic University signed a memorandum of understanding on academic exchanges and cooperation.

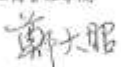
Evidence: Memorandum of Understanding

香港理工大學工商管理學院與國立臺灣海洋大學 海運暨管理學院學術交流合作協議書

香港理工大學工商管理學院與國立臺灣海洋大學海運暨管理學院為增進兩校間的學術與學生活動交流，促進雙方學術研究及教育發展以提昇雙方教學與研究質量，雙方一致同意達成如下協議：

- 一、 雙方本着平等互惠的原則，以實現雙方在教學與研究領域的合作。
- 二、 雙方一致同意下列條款，並努力使交流取得成效：
 - (一) 雙方互相派遣訪問學者或相關專業教師進行互訪、交流、短期講學或研究。
 - (二) 雙方互相派遣學生進行互訪、短期研修、實習或交流，及相輔發修課程。
 - (三) 雙方在各自的學術刊物上提供對方論文發表的機會。
 - (四) 雙方聯合舉辦學術研討會及專題研究講座。
 - (五) 雙方科學研究領域之合作與交流。
 - (六) 在雙方同意的前提下，展開其他事項之合作交流。
- 三、 關於協議書之執行，雙方同意如下：
 - (一) 本協議書中有關具體事項之實施，當由雙方進一步協商，並另訂施行要點及開始執行之日期。
 - (二) 有關上述交流合作之經費問題，根據具體情況另行商定。
- 四、 本協議書生效日期為 2017 年 1 月 1 日至 2021 年 12 月 31 日，有效期為 5 年，協定中有關內容的增刪或取消應經雙方同意修訂後實施；單方欲終止本協議，需於 3 個月前以書面形式正式通知另一方。但協議終止後，除了在雙方書面同意之下，不能影響已展開而尚未完成的合作，或改變任何一方所負有的法律責任。
- 五、 任何人士如非本協議一方將不可享有本協議中任何條款利益的權利。

香港理工大學
工商管理學院


院長 鄭大超教授

二〇一七年一月廿五日

國立臺灣海洋大學
海運暨管理學院


院長 蔡國忠教授

二〇一七年二月十三日

5. Public Forum 2021- Dilemmas and Coping Strategies for Developing Offshore Wind Power Industry in Taiwan

This forum is one of our serial activities relevant to the promotion of the offshore wind farm industry, which is organized by the "Project of Marine Industry Technology Promotion and Service Alliance (3/3)" sponsored by Ministry of Science and Technology. The project also hosts a lecture course entitled "Offshore Wind Power Industry Lectures" each week. We invite industrial experts in related fields to discuss various aspects of offshore wind power farms such as wind turbines, supporting structures, third-party verification, site selection, and special construction ships, etc. We

sincerely hope that through continuous efforts of the project team, the talents of offshore wind power can be successfully cultivated and the development of offshore industries would be exploited.

The electricity-generating source is planned to transfer from nuclear power plant to renewable energy particularly wind power and solar photovoltaics. The national goal of electricity generation using renewable energy has been set at 20%. The establishment of the offshore wind power industry has been actively triggered since 2016 and has progressed to the third stage, which will determine whether the 10GW installation capacity in 2035 can be successfully achieved. In this forum, we invite 6 domestic cutting-edge experts to discuss the obstacles encountered during the development of the offshore wind power industry in six aspects. The challenges, quality assurance for power infrastructure, key technologies for floating wind power, verification system, and risk transfer mechanism of wind farms would be presented. The coping strategies for those challenges would be proposed as well. We believe that the participants will have new and fruitful gains through this forum.

It is hoped that with the endeavor of this forum, offshore wind power industry in Taiwan can successfully alleviate all possible challenges from various aspects. Moreover, the competitiveness of wind power industries could be greatly promoted and consequently achieve the global target of carbon neutrality. The employment opportunities and relevant technologies could be developed as well.

Because the schedule of the forum is relatively compact, the Q&A session is combined into the comprehensive discussion in the morning and the afternoon. Our respected guests are invited to ask questions and discuss with the speakers to clarify any confusion. We wish to work together to seek fast-growing wind power industry in Taiwan.

Evidence:

(1) Forum Information

http://www.twnwea.org.tw/events_detail.aspx?PostID=1738

2021

我國發展離岸風電產業的 困境與因應對策論壇

11/23
星期二

國立臺灣海洋大學
延平技術大樓 B1 九淵演講廳

| | |
|-------------|--|
| 09:10-09:30 | -報到- 於延平技術大樓一樓入口大廳 |
| 09:30-09:50 | 【致歡迎詞/介紹貴賓/貴賓致詞】 主持人: 林成原 特聘教授 貴賓致詞: 王晨朔 船隊長/ 國際海洋 |
| 09:50-10:00 | 【致贈紀念品/大合照】 |
| 10:00-10:50 | 【離岸風電產業國產化的未來發展與挑戰】 講者: 林世豪 技術總監/ 達德能源 |
| 10:50-11:00 | -茶敘休息- |
| 11:00-11:50 | 【離岸風電船員的僱用現況分析與機會及挑戰】 講者: 吳心恩 主編/ 《離岸風電》雜誌 |
| 11:50-12:10 | 【上午場 綜合討論】 |
| 12:10-13:00 | -午餐休息- 於一樓TEC110、101、103等教室 |
| 13:00-13:40 | 【離岸風電下部基礎品質議題(銲接與防蝕)】 講者: 楊迅 品保經理/ 上緯新能源 |
| 13:40-14:10 | 【我國於浮式風電關鍵技術之佈局】 講者: 鍾承憲 博士/ 船舶中心 |
| 14:10-14:40 | 【離岸風電驗證制度的運作方式與擔當的角色責任】 講者: 詹育提 處長/ 驗船中心 再生能源處 |
| 14:40-15:10 | 【離岸風場風險轉移機制介紹】 講者: 林信宏 協理/ 富邦產險 |
| 15:10-15:30 | -茶敘休息- |
| 15:30-16:00 | 【下午場 綜合討論】 |
| 16:00- | 【閉幕】 |



報名網址: <https://reurl.cc/yeAdll> 或請掃



- 指導單位: 科技部「輪機產業技術提昇暨服務聯盟」計畫
- 主辦單位: 國立臺灣海洋大學 輪機工程學系、國際海洋股份有限公司
- 協辦單位: 洋民機械工程有限公司、銘宏船舶機械有限公司

(2) Forum Program

https://drive.google.com/file/d/16CHor0j_FIgkFRBP1JaRaLV5NbZCkjQA/view

6. The 16th Asian Biohydrogen, Biorefinery and Bioprocess Symposium

NTOU study contributes to the literature on evaluating the first production efficiency of technology of biohydrogen production by microalgae biomass and their economic impacts in Asian circular economies including China, India, Japan, Korea, Malaysia and Taiwan, and tries to figure out which microalgae biohydrogen technology owns higher production efficiency, and the economic benefits generated by microalgae technology improving in circular economy. This study utilizes a

confirmed soft-link methodology which combines data envelopment analysis (DEA) model (for evaluating hydrogen yield efficiency which is rarely utilized by scientific literature) and computer general equilibrium (CGE) model (for evaluating economic benefits) which incorporates circular economy mechanism for evaluating of biohydrogen production efficiency from microalgae biomass for entire biohydrogen supply chain simultaneously. Results could be critical and beneficial to decision makers for development of biohydrogen industry from microalgae and energy administration in the world.

Evidence:

(1) Forum Information

<https://www.ukm.my/abbs/>

7. The 6th International Conference on Ocean Law & Policy

The topic of this conference is "High-end Maritime Industry from Legal and Policy Perspectives". In addition to inviting domestic experts and scholars in the field of maritime law and politics to present their research results on high-end maritime service industry issues, this year we also invite scholars from foreign universities to share their research results by video and exchange with domestic experts and scholars. It is hoped that the interaction and exchange at this conference will bring constructive suggestions to the development of high-end maritime legal and political issues in Taiwan and abroad.

Evidence: Conference Information

<https://colp.ntou.edu.tw/p/406-1047-66274,r1034.php?Lang=zh-tw>



SDG 17.2.5 Collaboration with NGOs for SDGs

Collaborate with NGOs to tackle the SDGs through: student volunteering programmes, research programmes, or development of educational resources

1. Academic Symposium of the Taiwan Wind Energy Association

Taiwan Wind Energy Association is an important exchange and service platform for domestic wind energy industry, government and academia. Since 2014, academic seminars and results presentations of the Ministry of Science and Technology will be held every year. This seminar focuses on offshore wind power generation, wind power research and development and promotion plans, onshore wind power generation and small-scale wind power generation. Conduct practical exchanges with the industry and academia, and jointly discuss the latest developments in related engineering technologies and theories.

Evidence: Academic Symposium

https://windenergy.ntou.edu.tw/?page_id=1498



2. Smart Aquaculture Techniques Forum

Smart Aquaculture Techniques Forum: It provided fishermen to receive the new techniques and knowledge of aquaculture. There were 65 participants to join the forum in 2021.

Evidence: Local aquaculture industry are invited to join the event.

<https://ctl.ntou.edu.tw/files/11-1014-7524.php>



3. Strengthen the strategic alliance between departments and industries

- (1) The Department of Aquaculture has Executed 2021 Ministry of Education's "Training Program for Interdisciplinary Talents of Biomedicine and New Agriculture", and open summer course credit classes and inviting many lecturers from academia and industry to give about 100 lectures on campus. In addition, we hold off-campus industrial visits every year to help students understand the current state of the industry and to facilitate their future career planning.

Evidence: 2021 Marine Science and Technology Achievement Forum and Industry-Academia Media Conference

<https://fs.ntou.edu.tw/p/406-1073-66561,r267.php?Lang=zh-tw>

<https://mprp.ntou.edu.tw/p/404-1017-67404.php?Lang=zh-tw>



(2) The departments of the NTOU strengthen the linkage between the university and the manufacturers by transferring technology and creating value, or by implementing various cooperative projects.

4. 2021 Extracurricular Activities Diversity Sustainable and Student Self-Governed Promotion

NTOU has created more than 103 clubs and organizations in various field, such as Entertainment Clubs, Academic Clubs, Departmental Student Associations, Sport Clubs, Servicing Clubs, Friendship Clubs, Arts and Crafts Clubs and Volunteer groups. The gender of student leaders in clubs and organizations is 67 male and 36 female, and the gender ratio is 2:1. There are many types of clubs, suitable for both movement and stillness. It is suitable for students of this school to participate freely according to their own interests. It is not restricted by the department, grade, or gender. Students are encouraged to actively participate in their spare time. The Ministry of Education promotes activities such as community development plans and social services in primary and secondary schools, so as to cultivate students' enthusiasm for public welfare and service to the community.

Since 2003, NTOU has committed to promote the development of primary and secondary school clubs, so it encourages students using the characteristics and expertise of clubs to cooperate with local primary and secondary schools, to create a diverse learning environment on campus, and to promote the development of students' social education. So far, 14 clubs in NTOU have arranged eight services. For example, our services were held in Heping Elementary School, Zhengbin Elementary School, Zhongxiao Elementary School, Badou Elementary School, Anle Elementary School in Keelung City, Keelung Zhongshan High School, Keelung Girls' High School, Haida High School and Ruifang Middle School in New Taipei City. 134 volunteers (included 73 males, and 61 females) and 350

participants (included 190 males and 160 females), were involved in the programs. Our activities encouraged club members to participate in service courses, and the feedback were excellent.

Our students went to schools which located in Xinguang Elementary School in Jianshi Township, Hsinchu County, Sanzhan Elementary School in Xiulin Township, Hualien County, Gengfang Elementary School in Toucheng County, Yilan County, Penglai Elementary School in Suao Township, Yilan County, and Songluo Branch in Datong Elementary School in Datong Township, Yilan County etc. 101 volunteers from NTOU participated in five service activities, included 56 males and 45 females. served 221 people and provided 161 of service hours.

In order to promote the arts and cultural performances, our student clubs hold annual music performances, such as orchestra concerts in Keelung Cultural Center.

The Longgang Ecological Park located in our campus, which is an ecological environment with rich biological species. NTOU plays a significant roll in environmental education. During April, we have the Firefly season in Longgang Ecological Park, which attracts more than 1,500 people from New Taipei City, Taipei City and Keelung City to watch fireflies. This year, there were more than 2,500 people participated in our firefly season activities.

NTOU assists the student self-governed organizations development, encourages students to participate in various school significant meetings, and guides the student union in the election of the student union president. We provide different opportunities in public affairs, implements the spirit of student self-governance, and fulfills student leaders' civic responsibilities ability.

Student Association payed attention to campus issues and protect students' rights. Through the attendance of school meetings, student leaders can understand the school's policy related issues, such as students' teaching, administration and campus life in order to improve the quality of campus learning.

Connecting to the concept of the United Nations Sustainable Development Goals (SDGs) through student clubs engaged in community and environment services. We will continue to encourage student leaders participating in social services and to improve the quality of education and students' social ability. Hopes they can advocate themselves into social equity and justice.

Evidence: SDGs Promotion Programs

<https://stu.ntou.edu.tw/p/405-1023-76795,c10827.php?Lang=zh-tw>

SDG 17.4.1 Education for SDGs commitment to meaningful education

Have a commitment to meaningful education around the SDGs across the university, relevant and applicable to all students

education integrated across full curriculum

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Evidence: (1) SDGs Promotion Program Case Sharing



(2) SDGs Promotion Programs

<https://stu.ntou.edu.tw/p/405-1023-76795,c10827.php?Lang=zh-tw>

2. Disadvantaged students go to school smoothly

(1) The Financial Aid Project for Economically Disadvantaged University Students

To assist economically disadvantaged students in studying, we provide those students whose family's annual income lower than 60 %. Followings are variety of financial aid :

A. Grants (The subsidies that gives students pay for their tuition fees) : For those whose family's annual income lower than 700 thousands New Taiwan dollars (include interest income lower than 20 thousands New Taiwan dollars) and funded income lower than 6.5 million New Taiwan dollars can get grants by class intervals.

There are 5 intervals and the range of grant is from 5 thousands New Taiwan dollars to 16.5 thousands New Taiwan dollars. There are 197 students receive grants and 2,661,250 New Taiwan dollars are be subsidized in this program.

B. Living-cost stipends : Provide those who live with difficulties. Subsidy 6,000 New Taiwan dollars for cost of living every and do service-learning for 30 hours every month. There are 273 students receive living-cost stipends and 1,638,000 New Taiwan dollars are be subsidized in this program.

C. Emergency relief grants : For those students with family emergency, subsidy students from 6,000 to 20,000 New Taiwan dollars depends on the situation. There are 67 students receive emergency relief grants and 632,820 New Taiwan dollars are be subsidized in this program.

D. Dormitory fee waiver : For those students with low income proved can live in campus without dormitory fee and with low and middle income proved can live in campus in priority. There are 42 students live in campus without dormitory fee and 365,180 New Taiwan dollars are be subsidized in this program.

(2) Aid Program for Economically Disadvantaged University Students

NTOU held admission lectures for disadvantaged high school students. For the disadvantaged, the university provides priority admission. For friendly highs schools in Taipei. New Taipei and Keelung City and those with more disadvantaged students, we prioritized the promotion and held 21 sessions. Visitation for high schools and admission for the disadvantaged was held 5 times. University fair for the disadvantaged in senior high schools was held 12 times. Professors of various department in NTOU also actively promoted scholarship program to provide exemption for tuition and subsidy for life support.

mandatory education for all

1. Assist the primary and secondary schools and communities in Keelung to promote the rule of law education

Mainly in schools in the Keelung area to hold lectures on law, rule of law education and discuss related legal issues, and through discussions with teachers and instructors from various schools, so that the speakers can understand the legal knowledge taught in high schools, so as to improve the basic knowledge of students. Legal common sense and concepts. A total of six legal education activities were carried out and completed in 2021.

Evidence:

(1) To promote the rule of law education



(2)Legal Services Information

<https://ils.ntou.edu.tw/p/406-1048-53788,r1198.php?Lang=zh-tw>

optional education for all

1. 「SDGs United Nations Sustainable Development Goals」 Online Rewards Activity

(1) Project purpose:

The teachers of National Taiwan Ocean University have devoted themselves to professional research in their posts over the years. The library hopes to launch a prize-based contest to promote research results. First, to increase the exposure of research results, and to work with students to move forward together towards the goal of sustainable development in an entertaining way.

(2) method:

- Use the electronic resources purchased by the school to find information on SDGs-related topics.
- Use the google form to make 4 questions, and participants must answer all of them correctly to pass the test.
- Subject content: The subject is the journal literature published by the teachers and researchers of National Taiwan Ocean University.
- After the event, a lottery will be held, and the winner will be announced on the website.

Evidence: Quiz contest

<https://docs.google.com/forms/d/e/1FAIpQLSfQT1N3mZ1Wh-SfBHD1ZAsxaU5z8Q0cglLdUZ7fCik3qRCluQ/closedform?pli=1>



2. International Conference on Futures Thinking Towards Sustainable Development Goals

Facing the fast and challenging world nowadays, NTOU cooperate with many universities focusing on Futures Thinking towards Sustainable Development. The first step to shape the new world is the very first step to shape our new mind-set and vision. To shape the new mind-set and the vision, the universities and higher education institutes must go ahead and collaborate in advance. Since the UN SDG were announced in 2015, NTOU also dedicated in developing the clean ocean energy, in developing the climate change responding policy and technology and in providing quality Ocean education.

However, it is never an easy to change the world by little unit but the whole combination of people united. The conference serves as one of the most influential platforms for universities connecting and dedicating toward the Sustainable Development Goals. I believe it would allow the participants to have inspiring ideas and possibility to work together in near future.

There are many important issues and topic relating to the SDG discussed in this meeting. Such as Nutrition in the context of COVID-19(SDG 2) 、 Shaping Women Entrepreneurial Futures Thinking to achieve the United Nations Sustainable Goals (SDG 5) 、 Ocean Development and Cetacean Conservation: A Case from Taiwan(SDG 14) 、 Inter and Multidisciplinary Online Learning (SDG4) 、 Next Generation Foresight: Youth Futures and Intergenerational Fairness (SDG10) 、 Village Funds as a Policy for Poverty Alleviation (SDG 1)

Evidence: Conference Information

<https://www.csuprm.net/home>

International Conference on Futures Thinking Towards Sustainable Development Goals (ICFTSDGs)
December 17, 2021

Home Organizers About the Conference Program of Activities Speakers Registration Contact Us

Collaborators

Golden Gate University, Universiti Teknologi MARA, UMSU, National Ocean University, University of the Philippines, Philippine Futures Thinking Society, Association of Professional Futurists, CAGAYAN

3. 2021 The first maritime law and politics learning experience competition.

It shows the importance the school attaches to the development of maritime law and politics, and hopes that the students of high school vocational and tertiary institutions will gather the wisdom of the masses and create works with innovative thinking and novel presentation methods. I look forward to showing the Chinese people the importance and urgency of this issue for the development of my country's maritime law and politics through joint participation in the proposal. In order to enhance the marine awareness of the Chinese people and promote the enthusiasm of the Chinese people to participate in marine affairs. This event is also one of the school's participation in the school's 68-year anniversary series, to highlight the school's characteristics as an "international top marine institution of higher learning" and the school's voice and leadership in marine law and policy research and development.

Evidence: Event Information

<https://colp.ntou.edu.tw/p/406-1047-58798,r1034.php?Lang=zh-tw>



(3) Results Report

<https://drive.google.com/file/d/1t3gZ3U0J7nVjKWZdGiaDcXt6gCnbYxu-/view>

4. Taiwan Journal of the Law of the Sea

The exchange of law journals between Taiwan and China promotes bilateral jurisprudence exchanges, enhances the culture of academic institutions to study bilateral jurisprudence, and contributes to mutual understanding and the establishment of a rule of law state.

Evidence: Taiwan Journal of the Law of the Sea

<https://ils.ntou.edu.tw/p/405-1048-79494,c7497.php?Lang=zh-tw>

SDG 17.4.2 Education for SDGs specific courses on sustainability

Have dedicated courses (full degrees, or electives) that address sustainability and the SDGs.

1. Encourage teachers to offer SDGs professional courses and integrate into existing courses and teaching content.

Evidence: NTOU specific courses on sustainability

SDG 17.4.3 Education for SDGs in the wider community

Have dedicated outreach educational activities for the wider community, which could include alumni, local residents, displaced people.

Alumni

Local community

1. Collaborate with local community on generative programs

NTOU participate in the University Social Responsibility Practice (USR) program, and carry out related programs such as connecting with the community in the Heping Island/Seliao area.

Evidence: <https://www.hi-ntou.org/>

Local community

1. Establishment of a training mechanism for marine educators:

(1) Introduction

The Taiwan Marine Education Center was established to integrate national marine education resources, review and plan marine education policies and help promote local marine education. For four years, Taiwan Marine Education Center has worked continuously with local marine education centers and schoolteachers on projects entrusted to them by the Ministry of Education. It has identified several issues confronting the White Paper on Marine Education Policy (promulgated in 2007) since its implementation. First, marine educators were scattered everywhere without an integrated system; second, work conditions for marine educators varied significantly, leading to a big difference in teaching quality and lack of commonality; third, marine education promoted by local marine education centers lacked systematic integration in human resources; fourth, the Ministry of Education had not set up a central marine education counseling team; fifth, some grassroots teachers had not yet touched marine education.

To resolve the abovementioned issues, Taiwan Marine Education Center further conceived and proposed the "Training Mechanism for Marine Educators", hoping to achieve the following main objectives:

- a. Integrate the power of marine educators, including schoolteachers, volunteers from social education institutions, marine professionals and members of private marine organizations
- b. Build a professional culture for marine education and provide common competencies to improve the quality of marine educators.
- c. Assist cities/counties in setting up talent databases, promoting the systematic integration of human resources and forming marine education counseling teams.
- d. Develop marine educator facilitators in schools to build a sustainable mechanism for marine

education.

(2) Organization

The Marine Educator Training Plan divides marine educators into three levels. The organization of marine educators is described below:

a. Green Level Marine Educators

The Marine Educator Training Plan aims to attract more people to engage in marine education at their positions, excite their passion for marine services and expand their marine thoughts.

b. Blue Level Marine Educators

The Marine Educator Training Plan aims to enable Green Level marine educators or those with rich experience in promoting marine education to grow further, so as to engage more people in marine education. The purpose of training is to strengthen participants' professional culture and knowledge of marine education, so that they are able to help train Green Level marine educators and promote local marine education.

(3) Functions and Services

a. Green Level Marine Educators

(a) Purpose of Training

The Marine Educator Training Plan aims to attract more people to engage in marine education at their positions, excite their passion for marine services and expand their marine thoughts.

(b) Functions

Those who are qualified as Green Level marine educators are responsible for teaching courses on marine education or leading marine education activities, including (1) teaching in schools and promoting activities related to marine education, (2) tours conducted by social education institutions and promoting activities related to marine education, (3) NGOs and charity groups promoting activities related to marine education and (4) marine industrial visits and education.

(c) Services

Those who are qualified as Green Level marine educators are required to engage in promoting activities related to marine education, including (1) leading or participating in at least two activities related to marine education, (2) teaching marine education at least once every semester, (3) sharing experience in marine education (via social media or the Internet) at least twice every year and (4) participating in at least one enhancement workshop organized by Taiwan Marine Education Center for Green Level marine educators every two years.

b. Blue Level Marine Educators

(a) Purpose of Training

The Marine Educator Training Plan aims to enable Green Level marine educators or those rich in experience promoting marine education to grow further, so as to engage more people in marine education. The purpose of the training is to strengthen participants' professional culture and knowledge of marine education, so that they are able to help train Green Level marine educators and promote local marine education.

(b) Functions

Those who are qualified as Blue Level marine educators are responsible for planning marine education activities, guiding the development of marine education courses and teaching and leading the enhancement of marine educators' skills, including (1) joining local marine education counseling teams, (2) training Green Level marine educators, (3) planning and guiding marine education activities and (4) acting as speakers for marine education and consultants for marine education courses and development.

(c) Services

Those who are qualified as Blue Level marine educators are required to engage in promoting activities related to marine education, including (1) leading at least one marine education activity (research and development, promotion, seminar or forum) every year, (2) forming a marine education community of at least five members, (3) sharing experience in marine education (via social media or the Internet) at least four times every year and (4) participating in at least one skills enhancement workshop organized by Taiwan Marine Education Center for Blue Level marine educators every two years.

Evidence: Results of 2021 level 2 (Blue) Marine Educator Training Course

<https://tmec.ntou.edu.tw/p/405-1016-69314,c9829.php?Lang=en>

