

專訪鯨豚保育先鋒周蓮香教授

# 守護 來自深海的大朋友

## Protecting Our Friends from the Deep Sea

An Interview with Prof. Lien-siang Chou,  
a Pioneer in Whale/Dolphin Conservation

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高山林立的台灣，擁有豐沛的水資源，河川水系從高山流向平原、匯入大海，物種生態又進入了另一個領域。得天獨厚的台灣，被海洋這充沛廣袤的生態系統包圍著，但對這最親近的鄰國，究竟了解多少？大海資源像是取之不盡、用之不竭，從海洋中獲得恩惠的人們，可曾們心自問，是否對大海感恩回饋？對海洋中的大型哺乳動物，又付出多少關懷？

海洋中的大型哺乳動物是食物鏈的上層，是指標性物種。只是，這些身形龐大或可愛靈巧的鯨豚們，長久以來被漁民視為漁獲，在國際鯨豚保育觀念抬頭時，台

Taiwan has many mountains and rich water resources. The rivers flow from the mountains to plains before they join the sea, taking life forms with them. Although we live in Taiwan, an island surrounded by the sea, we actually know little about it. The sea offers virtually unlimited resources, but how often do we, whose livelihoods are supported by the sea, ask ourselves what we have done for the sea? And what have we done for the large mammals in the sea?

The large mammals in the sea are at the top level of the food chain and are the indicator species. However, the beautiful whales and dolphins have long been treated as



悠遊海中的鯨豚的優美身軀／吳柏林攝  
The elegant figure of whales and leaping pigsatona / by Po-in Chi

漁人仍在宰殺。1990年春天，澎湖屠殺海豚事件經美國 Earth Trust 組織披露於國際媒體後，各地保育團體譁動的聲浪排山倒海而來，終於點燃了台灣鯨豚保育的引線。同年8月在前一年通過的野生動物保育法下增列「鯨目」，從此，鯨豚在台灣保育歷程中，總算有了地位。

這樁國際事件不僅改變了鯨豚在台灣命運，也影響了周蓮香教授。窈窕嬌小卻韌性十足的周教授，選擇與世界上最大的哺乳類動物做朋友，甘願為牠們奔波、操勞。

another catch by fishers and Taiwanese fishers were still catching them when the world had started protecting them. In the spring of 1990, dolphin-killing in Penghu was exposed by the U.S. Earth Trust on the international media, and the world protested against it. Finally, this triggered whale and dolphin conservation in Taiwan in August as all cetaceans were added to the list of protected species under the Wildlife Conservation Act which was passed a year before.

This international incident didn't only change the fate of whales and dolphins in Taiwan but also affected Prof. Chou. This slim and tenacious lady chose to be the friend of the largest mammals in the world and serve them.



### 鯨豚保育 萬事起頭難

「台灣雖以海洋國家自許，但坦白說，我們對海洋文化的投入與努力，還很淺薄。」周教授語重心長的說。

長年來，台灣的保育研究較重視陸域，對於最親近的海洋，除了農漁業所需的研究外，幾乎寥寥可數。一個四面環海的國家，卻是在近年才開始研究海洋中有經濟價值的生物，並且在經費短缺的情況下，許多重要研究無法深入，常令學者感到遺憾。

周蓮香教授原從事陸地生物研究，很清楚箇中差異，因此感觸特別深。海洋研究要有大規模的進展，是件相當困難的事。要投入比陸上研究多上10倍的經費及人力，但在茫茫大海做研究，談何容易，往往結果並不那麼豐碩，是個吃力不討好的工作。

但盡說海洋研究的難度極高，周教授卻揮霍著圓她愛上了這海中的智慧精靈——鯨豚。

### Difficult Initial Efforts

"Although Taiwan is a maritime country, we haven't done nearly enough for our seas," said Prof. Chou with a sense of worry.

For many years, Taiwan's conservation has focused on land rather than the sea, and studies were only conducted for economic purposes. This country surrounded by water only started researching life-forms with economic values recently, and many important studies cannot be carried out due to a lack of funding.

Prof. Chou originally studied land life-forms and understood the differences involved. Marine research in large-scaled, requests great effort and at least 10 times as much as the funding and manpower for land research. Marine research is a difficult job since it is inaccessible and offers no guaranteed results.

Despite its difficulty, Prof. Chou still chose to fall in love with the smart sea creatures—whales and dolphins.



「1994年，第一頭擱淺於台灣的偽虎鯨，在宜蘭蘇澳灣被發現，我與研究生僅帶著幾把實驗課用的小解剖刀，在寒風凜冽、冬雨連綿的海灘上，用那5公分長、1公分寬的小刀，為身長約5公尺的偽虎鯨解剖，其慘狀可想而知。」回想這段過去，周教授雖不以為苦，但也透露出海洋研究學者所面臨設備缺乏的窘境。

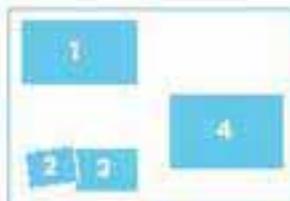
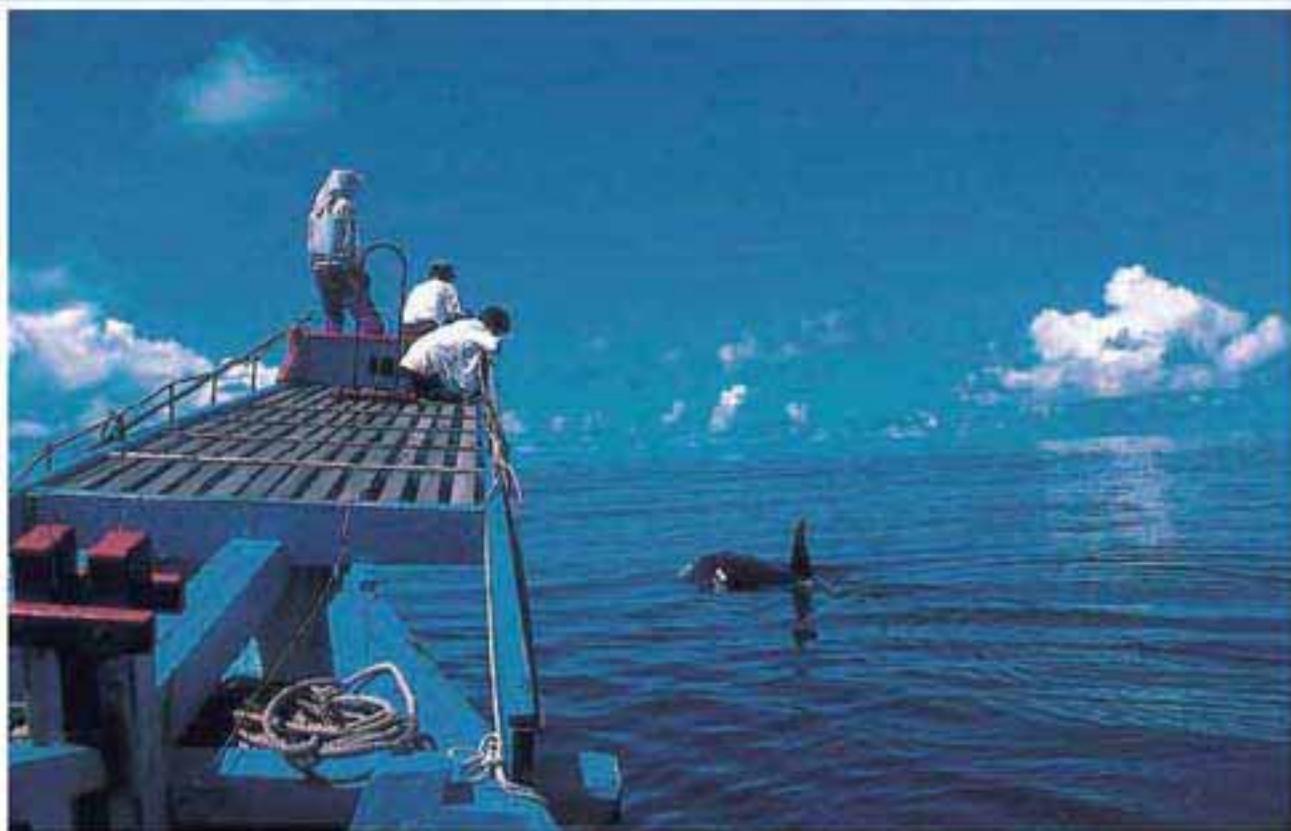
從事研究初期，她土法煉鋼，出版鯨豚圖鑑、拯救擱淺鯨豚、與國內外專家共同為鯨豚尋找最佳中文譯名，有些工作雖然在克難環境下進行，但終於在專家與志工們無私付出及努力下，露出曙光。

在台灣，鯨豚保育與漁業經濟常有衝突，也有人認為海豚常成群結隊出沒，數量龐大何須保護，其實都是謬誤。像真海豚愛熱鬧，一次出現一百隻不稀奇，但這樣就以為海豚很多不用保護，是不正確的觀念，很多數量極少的鯨豚，在茫茫大海中找尋牠的影蹤，說不定一輩子都遇不到。

"In 1994, the first *Pseudorca crassidens* that was stranded in Taiwan's shore was found in Miyue Bay in Yilan. On that cold and rainy day, my research students and I dissected the whale on the beach with 5cm long and 1cm wide dissect blades. You can imagine how clumsy we were." Prof. Chou didn't take that experience as a painful one, but it certainly shows how marine researchers have to work with insufficient gear.

Prof. Chou started from scratch; she published whale/dolphin handbooks, saved stranded whales/dolphins, and worked with international experts to determine the best translated Chinese names for the creatures. Hard work has certainly paid off.

In Taiwan, whale/dolphin conservation and fishery are often in conflict. Some may think that a large pod of dolphins seen together is the proof of their vast population. This is a mistaken belief, however; since dolphins tend to get together in groups, but their population is shrinking. There is a good chance that we can never see them in the sea no matter how hard we look for them.



1. 研究鯨豚多年的周教授(左二)，為鯨豚保育工作付出不遺餘力／周教授提供  
Professor Chou who has done research on whales and sucking pigs for many years, and contribute lot for protecting activities on whales and sucking pigs. / Photo provided by Professor Chou

2-3. 對身軀龐大鯨豚的進行解剖、研究，每一項都是艱辛繁重的工作／周教授提供  
A dissection of huge whales in order to do the further research, and every steps is hard. / Photo provided by Professor Chou

4. 美麗的鯨豚，與人類應有著美麗的相遇／曾建威攝  
Beautiful whales and sucking pigs are supposed to cross human being's path. / by Chien-chen Yeh

## 了解 才能真心疼惜

周教授認為，賞鯨是接觸鯨豚的最佳管道，看圖鑑、紀錄片，都比不上親眼所見的震撼。民眾在賞鯨過程中感動，對推動保育觀念絕對是助力。1997年，花蓮石梯坪出現台灣第一艘賞鯨船後，揭開了賞鯨的序幕。隨著媒體宣傳以及東海岸海上鯨豚調查結果公布，賞鯨業在東海岸如燎原般迅速擴展，帶動了宜蘭、花蓮及台東的觀光人潮，連帶餐飲業、飯店業都互惠其利。

台灣海域鯨豚的多樣性，精采絕倫。全世界共計有85種鯨豚，台灣就有30餘種的發現紀錄，東部海域鯨豚的發現率（非通樣性）在7~9成，其中以瑞氏海豚、長吻飛旋海豚、熱帶斑海豚為最常見的種類，瓶鼻海豚、弗氏海豚及偽虎鯨為次常見種。東海岸最難能可貴的是有許多中大型鯨類，像是神祕害羞的露脊鯨會在深海現蹤；珍貴稀有的大翅鯨於初春出現；夏天有機會見到抹香鯨、虎鯨、頓航鯨，許多賞鯨遊客見到出水嬉戲的鯨豚，莫不驚喜連連，保育觀念亦會深植心頭。

遺憾的是，賞鯨這件寓教於樂的美事，卻因為發展初期未能掌握管控先機，利權吸引過多船隻，加上業者水平參差不齊，賞鯨變成了擾鯨。

## Understanding Leads to Cherishing

In stead of books or documentaries, Prof. Chou believes that "whale/dolphin watching" is the best way to get in touch with them. Nothing is better than seeing them with one's own eyes, and such experience definitely promotes conservation. In 1997, the first whale-watching boat in Taiwan was launched in Hualien, marking the start of this activity. Through the media and east coast whale/dolphin survey, the whale watching business grew rapidly and benefited the tourism, restaurants, and hotels in Yilan, Hualien, and Taitung.

The diversity of the whales and dolphins in Taiwan's waters is quite high. Among 85 species of whales and dolphins in the world, 30 species were recorded in Taiwan. The discovery rate in the east coast is between 70-90% for whales such as *Grampus griseus*, *Stenella longirostris*, *Stenella attenuata*, *Lagenodelphis hosei*, and *Pseudorca crassidens*. Sometimes middle or larger whales such as the shy *Ziphiidae* can also be seen there, the rare *Megaptera novaeangliae* can be seen in early spring, and *Physeter macrocephalus*, *Orcinus Orca*, and *Globicephala melas* can also be seen in summer, surprising and educating the tourists.

Whale-watching was supposed to be a meaning effort, but the lack of management and great profits have attracted too many competitors, turning this event into a hassle for whales.





「其實，賞鯨船與鯨豚的互動關係，才是關鍵。就像是窈窕淑女君子好逑，莽夫追女友追得太緊，容易把對方嚇到，久了就會躲避，賞鯨也是。要了解鯨豚的作息、個性，像是宜蘭外海常見的飛旋海豚，牠們習慣白天睡覺，晚上才出來覓食，白天漁船造訪就容易打擾牠們的睡眠。而神經比較大條的瑞氏海豚，有時在5公尺近距離觀察牠們也泰然自若。」

海豚的智商相當高，且聽覺很敏感，鯨豚類在海裡主要靠「回聲定位」來偵察四周環境及溝通，因此能分辨漁船的引擎聲、人類說話的聲音等，甚至可隱約分辨出船隻大小、船身材質等等，十分特殊。

"In fact, the interaction between the boats and the whales and dolphins is the key. It's just like a girl would be scared away if the admirer cher too hard. The same goes for whale watching. You need understand how they live, for example, *Stenella attenuata* that is commonly seen in Yilan waters sleep in the day and feed in the night, and visiting them in the day time would bother them. As for *Grampus griseus* that are more obtuse, they can tolerate our existence even from 5 meters away."

Dolphins have a high IQ and great hearing. They basically use their own sonar system to navigate in the sea, so they can distinguish the sound of boat engines, human speeches, boat size, or even boat material. They also



鯨豚會記住不友善的船隻，逃得遠遠的，嚴重一點的騷擾甚至會導致鯨豚過度緊張，影響生育意願，時間一久對族群繁衍也會產生衝擊，也因此賞鯨業者如果惡意追逐鯨豚，久了就會遇不到鯨豚，進而影響遊客登船意願，生計大受影響。所以，賞鯨業者對鯨豚尊重、與鯨豚培養感情，當船家帶著遊客造訪，鯨豚也會出來打招呼，就是人與野生動物友善互動的最好模式。

### 保育路漫長 充滿挑戰

台灣的鯨豚保育歷程邁入第18年，某些方面雖可說漸入佳境，但尚教授認為仍有許多嚴峻的挑戰及亟需克服的難題，她以感性的口吻說，心中有3個夢想，希望有朝一日可以達成。首先是推動海洋哺乳動物保護法，台灣雖有野生動物保護法，但海洋狀況與陸地不同，兩者的規劃管理、研究保育的條件也大相逕庭，如果用一套標準看待兩者，推動海洋動物保育之路仍會荊棘滿布。

remember and stay away from the unfriendly boats. Worse harassments would cause stress on them and even affect their willingness of protection. Therefore, boats that chase down whales and dolphins too hard will not see them, and eventually they'll lose business because the tourists don't see what they pay for. So, the best way for us to interact with wild life is to respect them and be friends with them. They will come out and greet us once we have established a good relationship with them.

### The Long, Difficult Journey of Conservation

This is the 18<sup>th</sup> year of Taiwan's whale and dolphin conservation. Although we are seeing some improvements, Prof. Chou still believes there are many challenges and difficulties ahead of us. She has three dreams that she wishes to achieve someday. First of all, she wishes to implement a marine mammal conservation act. Although Taiwan has Wildlife Conservation Law, it doesn't apply well to the sea since the two require different planning and research/conservation conditions.

其次是劃分鯨豚重要棲地為海洋保護區，陸地上常見到特定生物的保護區，像是樹蛙、蝴蝶等，而海洋野生動物尚無專屬保護區。以中華白海豚為例，因物種習性使然，喜歡於沿岸出沒，然而近海是過度開發且污染嚴重的地帶，嚴重威脅中華白海豚的生存空間。可惜的是，鄰近的香港投入中華白海豚的研究已10幾年，在經費充裕下保育成果顯著，就連中國大陸在經濟崛起後，一口氣成立6個海豚保護區，反觀台灣，為中華白海豚盡的保育工作已遠遠落後了。

最後則是成立鯨豚收容中心，台灣經常發生鯨豚擱淺事件，一年估計有40次，其中40%是活體擱淺，將身體未復元的鯨豚送回大海，等於是送牠上黃泉路，靠肺呼吸的鯨豚會因體力不支，無法浮出水面呼吸而淹死。所以台灣亟需完善的鯨豚收容中心，除了為牠們打造休養生息的地方，還可做為鯨豚保育的最佳現場。目前台灣可讓鯨豚養傷的有車城的國立海洋生物博物館、台南縣四草台江鯨豚館等處，但無奈的是，鯨豚擱淺常發生在北台灣，因此，北部需尋覓適合收容的場所。

The second dream is to draw out the important conservation habitats for whales and dolphins. Conservation areas for certain species such as tree frogs or butterflies are common on land, but they are not seen for the sea. Take *Scusa chinensis* for example, they are often seen along the banks, which are often over-developed and polluted, threatening the well-being of the species. Regrettably, Hong Kong has already invested in the research on this species for a decade and is seeing good results, and even China is catching up by establishing six dolphin protected area. Taiwan, however, is still lagging behind.

The third dream is to set up a whale and dolphin shelter. Whale and dolphin stranding is common in Taiwan (with about 40 incidents per year), 40% of which were stranded alive, sending a weak whale or dolphin right back to the sea is the same as killing it since it would be too weak to resurface for oxygen. This is why Taiwan desperately needs a adequate whale/dolphin shelter where live stranded cetaceans can rest and be protected. Currently, the facilities in Taiwan that can accommodate include National Museum of Marine Biology and Aquarium in Hengchun and Whale-Dolphin Museum in Tainan County. Unfortunately, stranding often occurs in northern Taiwan.



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1. 人類與鯨豚的相處，最佳的方式是賞鯨。而賞鯨的永續發展一直是保育學者關注的一環／齊柏林攝  
One way to get along with whales and sucking pigs is to view and admire them. The sustainable development of whale watching has been an important focus for scholars / by Po-lin Chi
2. 台灣曾為鯨豚保育的養荒地，在許多專家學者及志工的努力下，逐漸開花結果／周教授提供  
Taiwan used to be a place where people do not care about protecting whales and sucking pigs, and under lots efforts of scholars and volunteers, situation changes / Photo provided by Professor Chou

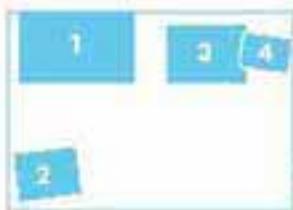


「我認為許多人已經明瞭鯨豚保育的意義與價值，也想好好認識牠們，將保育觀念傳給下一代，中華鯨豚協會經常安排小學校園中的嘉年華等活動，就是希望孩子在玩樂中學習。一般的動物園裡沒有鯨豚，出海賞鯨常常是匆匆一瞥，無法近距離觀察。如果有收容中心好好照顧，亦能開放民眾參觀，兼具教育意義，只是收容中心須具備專業水池、過濾器等設備，但這需要龐大經費支持，談何容易。」周教授感慨道。

由於動物學家的工作與職責，常與國家公園的任務息息相關。周教授不禁想，倘若將國家公園的力量與資源與海洋保育結合，成立以中華白海豚棲地為主的海洋國家公園，不僅可解決法令、資源整合運用等難題，亦為物種保育樹立典範。就好比玉山國家公園是高山型國家公園、太魯閣國家公園以峽谷地形享譽國際、霧明山

“I believe many people now understand the meaning and value of whale/dolphin conservation, want to know the creatures well, and want to teach their children about conservation. Taiwan Cetacean Society is working on this by holding activities to educate children. We can't see whales or dolphins in the zoo, and the sea encounters are often too short. If we can have shelters that take care of the creatures and let the public observe them, it will be a meaningful experience. However, such facilities require a huge amount of money,” sighed Chou.

Zoologists often work on tasks relevant to national parks. Being a zoologist countries Prof. Chou couldn't help but to wonder what if the national parks could work on marine conservation. A marine national park based on the habitat of *Stusa chinensis* would solve the problems with laws or resources, but would also set an example, just like how YSNP is known for its mountains, how Taroko is known for



1. 美麗的虎鯨／蘇芳傑攝  
Beautiful Orca / by Fang-chie Gu
2. 周教授陪同 Dr. Yamada 赴港研究鯨骨／周教授提供  
This picture is about doing research on whales' bones with Dr. Yamada in Pengoading / Photo provided by Professor Chou
3. 龐氏海豚／葉建城攝  
Grampus griseus / by Chien-chen Yeh
4. 愈來愈多有志之士投身鯨豚研究的行列／周教授提供  
There are more and more people involve in the field of research on whales and sucking pigs / Photo provided by Professor Chou



國家公園保護的是珍貴的火山地形，金門國家公園則因人文古蹟而成立。

「如果可以依海洋野生動物的棲地，規劃一處鯨豚生態系國家公園，相信對保育研究及稀有物種的保護更有幫助。」周教授表示。

鯨豚研究與保育工作需要群策群力，需要不同背景及專業人士通力合作，才能完成不可能的任務。在許多專家學者的努力下，台灣與海洋終於建立了密切互動，從一無所知，到漸漸熟悉，或許與國際保育的腳步相比有些落後，但只要開始就不算遲，但也期許在未來的保育路上，能走得更精進、寬廣，真正做到人類與海洋間保持平衡、邁向永續且豐盛的未來。

its canyons, how YMSNP is known for its volcanic terrain, and how KMNP is known for its historical ruins.

“A national park for whales and dolphins in a marine wildlife habitat would surely facilitate the relevant research and conservation,” stated Prof. Chou.

Whale/dolphin research and conservation requires teamwork in which experts of different fields join together in order to achieve the impossible. With the help from many scholars and professionals, people in Taiwan have finally established close interactions with the sea. From knowing nothing to knowing something, our improvement may seem lagging behind when compared the cetacean conservation in other countries, it is certainly never too late to start. It is wished that in the future of the conservation effort, we can do better and create a win-win situation for both mankind and the sea by reaching a true balance.

## 周蓮香教授小檔案 About Prof. Lien-siang Chou



學歷 美國加州大學爾灣分校  
博士

現職 台灣大學生態與生物演化  
研究所教授

專長 動物行為學、生態學、演化  
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近年研究主題  
鯨類生態與保育、棕樹科榕小蜂  
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Education

PhD, University of California, Davis

Current Position: Professor at the Institute of Ecology  
and Evolutionary Biology, NTU

Specialism:

Animal Behaviour, Ecology and Evolutionary Biology

Recent Research Topics:

Whale and Dolphin Conservation studies

Ecology of the mutualism between fig tree and fig wasp

Ecological studies on the Branchiopoda

Experiences:

Honorary chairman of the Taiwan Cetacean Society

Director of Whale and Dolphin Research Lab, NTU

Awards:

Excellent in Teaching Award, NTU, 2008

Mentioned Personnel award on Forestry and Nature

Conservation, Council of Agriculture, Executive Yuan,

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