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Indiscriminate fishing and poor mariculture practices are damaging marine habitats and populations across the world's oceans, endangering species and future food supply. This guidebook provides information on the environmental impacts associated with the 67 most common types of seafood sold in Hong Kong. It is aimed particularly at increasing understanding in the seafood trade of the issues, and provides guidance on how to reduce the negative effects of consuming seafood.

濫捕和欠佳的海產養殖方式，破壞全球的海洋生態環境，威脅海洋生物，甚至令一些物種面臨絕種，影響日後的食物供應。本指南列出食用本港常見67種海鮮所帶來的環境影響，藉此增加大家對海鮮買賣問題的認識，同時提出解決方法，減輕相關影響。

世界自然基金會的使命是透過以下途徑，遏止自然環境惡化，建立人類與大自然和諧共存的未來：

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- 確保可再生的自然資源獲得善用
- 宣揚減少污染和避免浪費

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- Conserving the world's biological diversity
- Ensuring that the use of renewable natural resources is sustainable
- Promoting the reduction of pollution and wasteful consumption

有關本會的海鮮選擇大行動詳情，請瀏覽 wwf.org.hk/seafood。


For more information about WWF's Seafood Choice Initiative, please go to wwf.org.hk/seafood.



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環保海鮮指南
WWF Sustainable Seafood Guidebook





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環保海鮮指南

Sustainable Seafood Guidebook



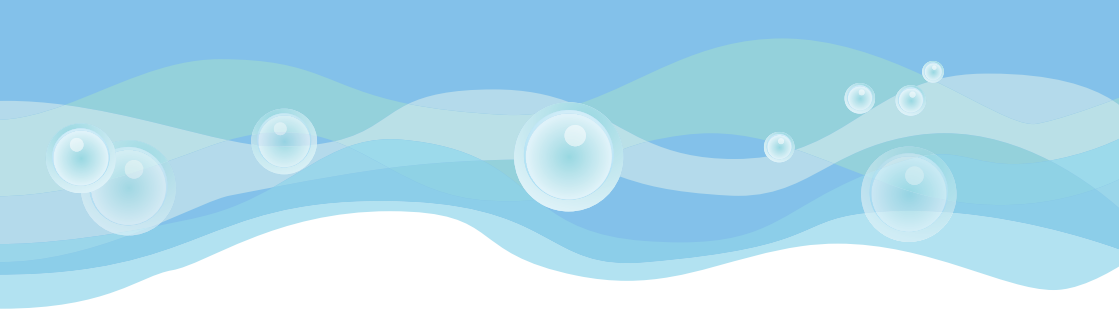


Conservation Partner

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Shrimp	S China Sea	179	Shark	Global	203



環保海鮮指南

今天的選擇，締造明天的海洋

Sustainable Seafood Guidebook

For the Future of Our Oceans

鳴謝

本人謹此感謝JNC Nature Fund自2006年起，連續3年支持本會，令我們順利出版《環保海鮮指南》，以配合本會推行的「海鮮選擇大行動」。

特別鳴謝首席研究員及海鮮品種評估員楊頌恩，並感謝鄭力存博士為製作《海鮮選擇指引》及本書提供指導。感謝多位本地及國際海洋專家，包括Christine Absil、Katherine Bostick、Marcus Burgener、陳德全、張偉龍、Shelley Clarke、鄭力存、Phaedra Doukakis、Maren Esmark、Lorraine Hitch、Kenneth Kassen、郭啟賢、Richard Leck、Kenneth Leung、Meredith Lopuch、Duncan Leadbitter、劉敏、Lida Pet-Soede、薛綺雯、單錦城、Katherine Short、Seremaia Tuqiri、Chavalit Vidthayanon、Nathan Walker，以及邱倩婷提供專業意見，使海鮮品種的技術評估結果更為精確。

本書照片分別由Tantyo Bangun / WWF-Canon、Jo Benn / WWF-Canon、Jason Bubens / WWF-Canon、Marcus Burgener / WWF-Canon、蔡健生、鄭力存、COLTO(p.83)、Terry Domic / WWF-Canon、Jürgen Freund / WWF-Canon、Michel Gunther / WWF-Canon、Cat Hollowy / WWF-Canon、Ian Hudson / WWF-Canon、Mike Jackson / WWF-Canon、Hartmut Jungius / WWF-Canon、James W. Latourette / WWF-Canon、劉兆強、李曉恩、Pat Melecha, NOAA, NMFS (p.88及海報)、馬澤濤、Adam Oswell / WWF-Canon、Kevin Schafer / WWF-Canon、石靜韻、Jorge Sierra / WWF-Canon、Michael Sutton / WWF-Canon、杜偉倫、邱淑述、楊頌恩慷慨提供。

鳴謝陳慕潔、林潔珩、李秀芳、李敬賢、李曉恩、Richard Lord、陸婉嫻、林偉基、曾幗屏、黃麗媚及易珮華協助製作本書。

世界自然基金會香港分會
高級環境保護主任(海洋)
朱炳盛

Acknowledgements

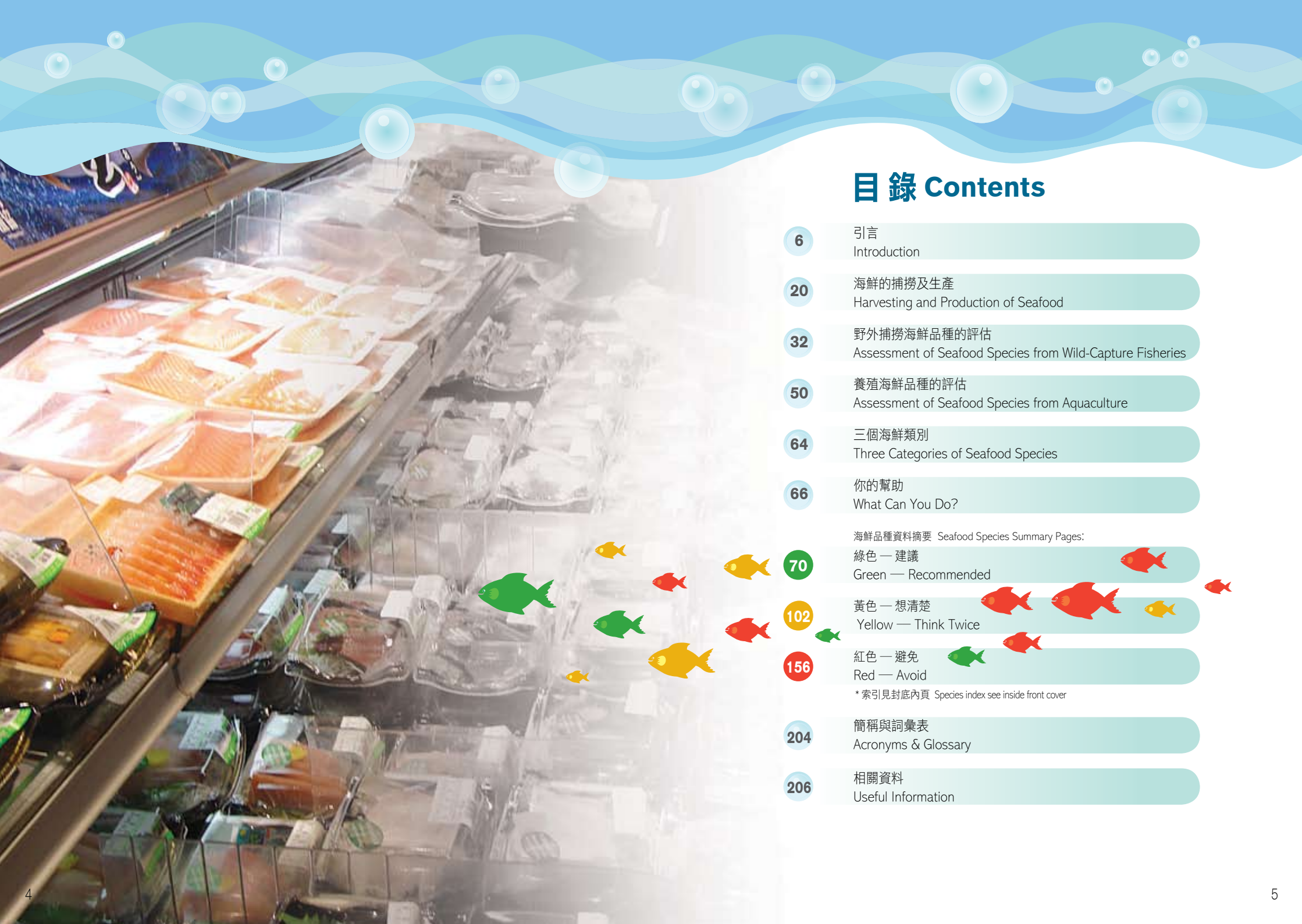
Completion of this Sustainable Seafood Guidebook under WWF's global Seafood Choice Initiative would not have been possible without the generous support from the JNC Nature Fund since 2006.

I would like to express special thanks to Ariel Yeung for being the principal researcher and assessor of the seafood species and Dr. Andy Cornish for his guidance throughout the production of WWF's Seafood Guide and this book. I am also grateful for the professional input from a number of local and international marine experts in making the technical assessments of the seafood species accurate. They include Christine Absil, Katherine Bostick, Marcus Burgener, Thierry Chan, William Cheung, Shelley Clarke, Andy Cornish, Phaedra Doukakis, Maren Esmark, Lorraine Hitch, Kenneth Kassen, Rock Kwok, Richard Leck, Kenneth Leung, Meredith Lopuch, Duncan Leadbitter, Min Liu, Lida Pet-Soede, Yvonne Sadovy, Paul Shin, Katherine Short, Seremaia Tuqiri, Chavalit Vidthayanon, Nathan Walker, and Cynthia Yau.

The photographs are generously contributed by Tantyo Bangun / WWF-Canon, Jo Benn / WWF-Canon, Jason Bubens / WWF-Canon, Marcus Burgener / WWF-Canon, Wallace Choi, Andy Cornish, COLTO(p.83), Terry Domic / WWF-Canon, Jürgen Freund / WWF-Canon, Michel Gunther / WWF-Canon, Cat Hollowy / WWF-Canon, Ian Hudson / WWF-Canon, Mike Jackson / WWF-Canon, Hartmut Jungius / WWF-Canon, James W. Latourette / WWF-Canon, Tobi Lau, Li Hiu Yan, Pat Melecha, NOAA, NMFS (p.88 and poster), Guillermo Moreno, Adam Oswell / WWF-Canon, Kevin Schafer / WWF-Canon, Ellen Shek, Jorge Sierra / WWF-Canon, Michael Sutton / WWF-Canon, Allan To, Alex Yau, Ariel Yeung.

Gratitude is owed to Margaret Chan, Elbe Lam, Charis Lee, King Yin Lee, Hiu Yan Li, Richard Lord, Loretta Luk, Adam Minu, Agnes Tsang, Josephine Wong and Clarice Yik for their dedicated support in producing this book.

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引言

香港的海鮮食用量

香港人熱愛海鮮的程度，遠遠超出我們所能想像。2007年聯合國糧食及農業組織(下稱FAO)的報告指出，港人於2005年共吃掉約428,000噸海鮮，即平均每名香港人在一年內吃掉62公斤海鮮，較全球平均高出3.6倍，較中國內地高出兩倍。香港的人均海鮮食用量在亞洲排行第三，全球排行第10。香港地方雖小，但人口接近700萬，且不斷增加，對海產需求極大。



Introduction

Seafood consumption in Hong Kong

People in Hong Kong love seafood. In 2007, the Food and Agriculture Organisation of the United Nations (FAO) reported that people in Hong Kong consumed about 428,000 tonnes of seafood in 2005, meaning that every single person in Hong Kong had eaten 62 kg of seafood in that year alone. That is 3.6

times higher than the global average, and more than double mainland China's per capita consumption. It makes Hong Kong the third largest per capita consumer of seafood in Asia, and the 10th largest in the world. So while Hong Kong may be a small place, with a population of nearly seven million and growing, it eats considerable quantities of seafood.



本地的海鮮供應

百多年前，香港只是一條細小的漁村，但鄰近的海洋資源豐富，擁有近千種魚類品種，當中逾230種棲居在珊瑚生境中，故本地漁業能迅速發展。南中國海亦是全球最重要的捕魚水域之一。

二次大戰後，漁業發展開始蓬勃，愈來愈多野生海鮮品種遭捕撈。不幸地，隨著人口激增，為應付需求，業界著眼於盡量增加產量，加上科技發展，如70年代引進的機械引擎和漁網，而且管理不足等，最終導致過度捕撈。香港

的海鮮品種捕撈量於80年代末期達至高峰，於90年代開始滑落。90年代末期進行的一項研究顯示，在17種具重要商業價值的海鮮品種中，12種已遭過度捕撈，其餘的亦已推至不能持續捕撈的邊緣，而底拖網漁船捕撈到的海產每條平均只僅重10克。時至今日，本港水域的漁獲，僅佔全港海產總生產量約10-15%。

本港水域對開的南中國海，最近數十年亦出現同樣情況。研究顯示，在那裡捕獲的大部分都是幼魚，漁民亦需在海上花更長時間，方可捕獲同等重量的海產。



Local seafood supply

The seas around Hong Kong contain rich resources - the city first developed as a fishing port more than a century ago - with nearly 1,000 marine fish species, of which more than 230 live in or close to reefs. The South China Sea beyond Hong Kong is also one of the most important fishing grounds in the world.

After World War II, the fisheries industry started to develop and the exploitation of wild-caught seafood species

increased. Unfortunately, the emphasis on maximising production to meet the demands of a fast-growing population, alongside technological developments such as the introduction of mechanical engines and nets in the 1970s and lack of management led to overfishing. The amount of seafood caught in Hong Kong reached its peak in the late 1980s and began to decline in the 1990s. A study from the late 1990s reported that 12 out of the 17 most commercially important seafood species were overfished, with the

others pushed to the limit of sustainability. The average weight of animals caught by bottom trawlers was only about 10 grams. Today, the fishing boats of Hong Kong only supply about 10-15% of the total seafood consumed here.

The South China Sea outside Hong Kong waters appears



香港的海產養殖業始於40年代，最初主要在新界的魚塘養殖生魚、鯉魚和鯪魚等淡水魚類，自60年代末期開始，人們開始在不當風的海灣中，設置如戶外魚排等浮式網箱養殖海魚，以防魚排受到颱風和其他惡劣天氣影響。這種養魚方法沿用至今，主要養殖斑類、鯛魚和真鯛魚。然而養殖業亦遭同樣的命運，生產量從1991年高峰期的3,860噸一

直大幅下降。其他因素如來自中國及東南亞國家的競爭、海水污染、以及城市發展等都對本地養魚業構成負面影響。

結果，本地出產的海產(捕撈及養殖)，都不能滿足本地對海產的需求。我們平日所見及食用到的海鮮大多來自世界各地30多個區域，近至珠三角地區，遠至南極。



grass carp, which were raised in ponds in the New Territories. Sea species began to be farmed in the late 1960s, in open floating cages, located in sheltered bays so they could withstand typhoons and other severe weather. It is a farming method that is still used today, mainly for grouper, bream and snapper. Production has declined quickly in the last couple of decades from its 1991 peak of 3,860 tonnes, with competition from other places such as mainland China and Southeast Asia, the pollution of seawater and urban development, among other factors, all taking their toll.

to have been going the same way in recent decades. Research shows that most fish caught there are small juveniles, and fishermen are having to spend longer time at sea to catch the same quantity of fish.

Aquaculture, or fish farming, got its start in Hong Kong in the 1940s. Initially the focus was on freshwater fish such as snakehead, carp and

The result is that our demand for seafood is much more than our local fishing boats can harvest and our local fish farms can produce. Seafood eaten in Hong Kong comes from more than 30 areas around the globe - some as close as the Pearl River Delta in mainland China, some as far away as Antarctica.

全球海鮮的供應

FAO的資料顯示，2000至2005年間的全球野生漁獲量介乎9,100萬至9,600萬噸之間，當中約九成來自海洋，其餘的來自內陸湖泊及河流。2005年漁獲量最豐富的四種魚類分別為鯷魚、阿拉斯加鱈魚、藍鱈魚及鯉魚。全球三大捕魚國分別為中國內地、秘魯及美國。

FAO亦報告，於2005年，全球僅有23%野生海產品種的捕撈量屬低至中級，



即捕撈量仍有增加的空間。超過半數（約52%）野生海鮮品種已達捕撈上限，即捕撈量不能再增加。其餘約25%的野生海產品種已遭過度捕撈，耗盡或種群數量正在回復中（原因是牠們過去曾遭過度捕撈，所以有關的捕魚活動少於種群可承受者）。近年全球的野生海產生產量並無增長，這可能是因為目前的捕撈作業方式或已將全球野生海鮮的產量推至極限。

這還不算是最令人憂心的發展：一篇2006年《科學》期刊的文章指出，過去50年，逾九成具商業價值的掠食性大魚，包括藍鰭吞拿魚、劍魚及大西洋鱈魚差不多已遭捕光，即不可再被商業捕撈。另一篇近期同樣在《科學》期刊的文章則警告，若不馬上採取行動，全球的主要漁業資源將於本世紀中葉崩潰。捕魚及相關活動已令愈來愈多海

Global seafood supply

According to FAO, the global quantity of wild-caught fish harvested between 2000 and 2005 amounted to between 91 to 96 million tonnes. Of



that, about 90% came from the oceans with the remainder coming from inland lakes and rivers. The top four seafood species caught in 2005 were anchovies, Alaskan pollock, blue whiting and skipjack tuna. The top three fishing countries were mainland China, Peru and the USA.

FAO also reported in 2005 that only about 23% of the world's wild seafood species were under-fished or moder-

ately fished, meaning there is still the potential to catch more. More than half (about 52%) of wild seafood stocks were already fished to their maximum limit with no room for further expansion. The rest (about 25%) of the wild-caught seafood stocks were overfished, depleted or recovering from depletion, meaning that they were operating below the optimum capacity because of overfishing in the past. There has been no global growth in wild seafood production in recent years; current fishing practices may have pushed global wild-caught fish production to its limits.

But that is not even the most worrying development. According to a 2006 study in the journal *Science*, more than 90% of commercially important large predatory fish, including bluefin tuna, swordfish and Atlantic cod, have already been fished out in the past 50 years, meaning that their populations have almost collapsed for commercial purposes. Another recent study in the same journal warned that the major marine fish stocks of the world would



洋魚類包括鯊魚、蘇眉和斑類等，相繼被國際公約或組織列為受保護或瀕危物種。

由於野生海鮮的產量已達極限，海產養殖業便迅速發展以滿足龐大的需求。全球養殖場出產的魚類，由2000年的3,600萬噸，上升至2005年的4,800萬噸，當中約四成為海洋物種。2005年養殖場產量最高的四個品種類別分別是蠔、蜆、蝦及三文魚，中國內地的產量約佔全球七成。然而，FAO表示，全球海

產養殖業的增長速度或已達上限。

海產養殖業急速發展，同樣嚴重影響海洋環境。2001年，刊登於《環境管理》期刊的研究估計，約150萬公頃生態敏感的沿岸地帶，包括紅樹林、濕地沼澤及農地被改建為養蝦場。逃脫的養殖品種，如三文魚等，會為野生種群帶來問題。養殖業帶來的其他問題包括：捕撈其他海洋生物以養殖海產，以及從養殖場傳播至自然環境的疾病和寄生蟲等。

collapse by the middle of this century if urgent action is not taken. Because of fishing and activities associated with it, more marine fish, including sharks, humphead wrasse and groupers, have recently been listed as protected or endangered by international conventions or organisations.

With wild seafood production reaching its limit, aquaculture has been rapidly developing in the hope of filling the gap in demand. The amount of fish produced by farming globally increased from 36 to 48 million tonnes between 2000 and 2005, of which about 40% were marine species. Oyster, clam, shrimp and salmon were the top four groups of farmed species in 2005, with mainland China accounting for about 70% of the world's total production. However, FAO reports that the rate of growth of global aquaculture may also have reached its limit.

The rapid development of aquaculture has also had a big impact on the marine environment. A 2001 study in the journal *Environmental Management* estimated that about 1.5 million hectares of sensitive coastal areas including mangroves, wetland marshes and agricultural lands have been converted to shrimp farms. Escaped farmed individuals such as salmon can create problems for wild populations. Other problems include the use of marine organisms to feed the farmed species, and the spread of diseases and parasites from aquaculture farms to the natural environment.





現時本港食用可持續海鮮的狀況

海鮮從世界各地源源不絕輸入香港，但許多人不知道，我們無止境的食

慾對海鮮和海洋生態造成什麼影響。根據世界自然基金會香港分會2005年進行的調查顯示，本港超過七成操廣東話人士，並不知道自己食用的海鮮來源、生產過程、以及其對環境造成的影響。調查亦顯示，97%受訪者願意停止或減少食用瀕危海洋生物，七成表示若有指引解釋食用海鮮對環境的影響，他們願意跟從。

有見及此，世界自然基金會香港分會於2007年發起海鮮選擇大行動，行動目標包括：

- 1 提供可靠資料，解釋食用香港及華南地區常見的海鮮品種對環境構成的影響；
- 2 改變消費者和海鮮業界的行為，向他們灌輸「可持續」的消費概念；及
- 3 推廣海洋管理委員會(MSC)的野生海鮮生態標籤，讓消費者輕易作出明智選擇。

Sustainable seafood consumption in Hong Kong

While Hong Kong enjoys a continuous supply of seafood from all over the world, many people here are not aware of the effects our gargantuan appetite for seafood can have. According to a 2005 WWF Hong Kong survey,



more than 70% of Cantonese-speaking people in Hong Kong did not know

the origin of the seafood they ate, how it was produced, and the environmental impacts associated with its production. In the same study, 97% of people said that they would stop or cut down on eating threatened marine seafood species, and 70% said that if guidance were available to show how their seafood consumption affected the environment, they would follow it.

With that in mind, in 2007 WWF Hong Kong started the WWF Seafood Choice Initiative with the following objectives:

- 1 To provide credible information on the environmental impact of consuming seafood commonly available in Hong Kong and South China;
- 2 To influence the behaviour of consumers and the seafood industry towards sustainable consumption; and
- 3 To promote the MSC (Marine Stewardship Council) eco-labelling system for wild-caught seafood species to help consumers make a smart choice.

2007年初，世界自然基金會香港分會推出東亞區首份海鮮指引——「海鮮選擇指引」(<http://wwf.org.hk/seafood>)——列出60多種在街市、超市、海鮮酒家及凍肉店常見的海鮮品種，目的為協助本港市民選擇環保海鮮，避免食用以破壞海洋環境的方式捕撈或生產的品種。指引根據嚴格標準，評估野生及養殖海產品種生產的可持續性，並經本地及國際專家核實結果。

世界自然基金會希望為市民提供更多關於選擇指引中的品種的資料，故製作了這本《環保海鮮指南》。



In early 2007, WWF released the first seafood guide in East Asia (<http://wwf.org.hk/seafood>). The WWF Hong Kong Seafood Guide listed more than 60 commonly available seafood species found in wet markets, supermarkets, seafood restaurants and frozen food shops. Its aim is to help people in Hong Kong choose sustainable seafood and avoid seafood that is harvested or produced in ways that

damage the marine environment. The guide uses rigorous criteria to assess the sustainability of both wild-caught and farmed seafood species, and its assessments are reviewed by local and international experts.

The next step was to provide more detailed information on all of the species in the seafood guide - hence this, the Sustainable Seafood Guidebook.

海鮮的捕撈及生產

我們進食的海鮮除了從海洋捕撈外，亦由魚類或貝類養殖場生產提供，即「海產養殖」。



Harvesting and production of seafood

The seafood we consume is harvested from the sea or produced by fish or shellfish farms, a process also known as marine aquaculture or mariculture.



捕撈野生海產的方式

捕撈野生海產的方式有很多，使用的工具亦各有不同，以下是最常見的方式：

挖掘捕撈

漁民把附有袋子的重型金屬網箱放在海床上拖行，挖掘海床的沙泥，將貝類撈至袋子中。挖採活動作業時，細小的海洋生物及泥沙會穿過網箱，而體積較大的海洋生物會落入袋中。這種方法主要用來捕捉棲居海床的貝類海產，如帶子。

Fishing methods for wild-caught seafood

There are many ways of catching fish in the wild, and many different types of fishing gear are used. The following are the most common:

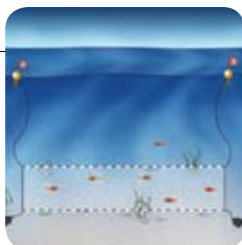
Dredging

Heavy metal frames with bags attached to them are dragged along the seabed to stir up shellfish so they can be caught in the bags. Mud, sand and other marine organisms will pass through the mesh if they are small enough and large animals will go into the bags. This method is commonly used to catch shellfish that live on the seafloor, such as scallops.



刺網捕魚

刺網就像掛在海中不同深處的長方形窗簾，頂部綁有浮標，底部則由鉛塊墜下。由於刺網難以被魚類看見，魚群游動時往往會觸動網片，當牠們退後時，如只有頭部能穿過網孔，魚鰓會被刺網眼纏著而無法逃脫。通常馬頭等魚類就是用刺網捕捉的。

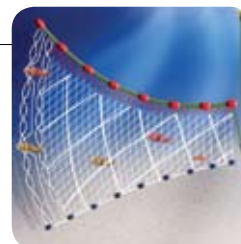


Gill netting

Gill nets are rectangular curtains that hang in the sea at different depths. Floats are tied to the top and weights to the bottom. Since the nets are almost invisible to fish, they swim into them and get trapped in holes that are big enough for their heads to pass through but not their bodies. When they try to swim out backwards, their gills become entangled. Gill netting is commonly used to catch fish such as horsehead.

三層刺網捕魚

這種刺網漁具有三層魚網，由大至極小的網孔縫合而成，可以用來捕捉不同大小的魚類。

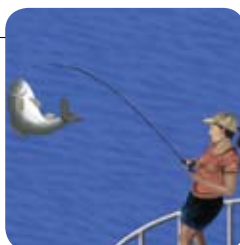


Trammel gill-netting

Instead of one layer of nets, trammel gill nets have three layers, with holes ranging from large to very small that can catch fish of a range of different sizes.

竿釣

將附有魚餌的釣鉤綁在魚竿和釣線上，用來吸引魚類，有時魚餌亦會被拋進水中，吸引更大群魚爭相啄食。漁民會徒手或運用機器收集上釣的漁獲。利用釣鉤和釣線垂釣的魚類包括東星斑、西星斑及杉斑。



Hook and lining

Hooks with bait are tied to fishing lines and rods. Bait is used to attract fish; sometimes bait is thrown into the water to create a feeding frenzy and attract more fish. Hooked fish are gathered by hand or using machines. Hook and lining is commonly used to catch leopard coral trout, square-tailed coral trout and camouflage grouper.

鈎釣

屬於利用釣鉤及釣線的捕魚法，透過垂直抽動魚線來吸引魚類，通常用來捕捉魷魚。



Jigging

A type of hook and lining where the line is moved in a vertical motion to attract fish. Jigging is commonly used to catch squid.

手釣

屬於利用釣鉤及釣線的捕魚法，但此種捕魚方法並不使用魚竿，只需手握釣線捕魚。這種方法主要用來捕捉石狗公及花頭梅。

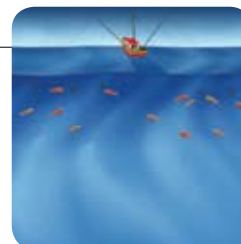


Hand lining

A type of hook and lining that does not use rods: fishermen simply hold the lines in their hands. Hand lining is commonly used to catch rockfish and longfin grouper.

拖釣 ●

釣線架設在行駛中的漁船後或兩旁，是另一種利用釣鉤及釣線的捕魚法。



● Trolling

Another type of hook and lining, this time with fishing lines set behind or alongside while the fishing boat is on the move.

延繩捕魚 ●

一如其名，延繩釣法利用由1至80公里不等的長釣延繩，每隔固定的距離繫上有魚鉤和魚餌的短釣線來捕魚。長釣延繩可投放於不同深度的位置，以捕捉不同種類的魚類。漁民通常利用延繩釣法捕捉紅衫魚及大眼雞。



● Long lining

Long lining, as the name suggests, involves long fishing lines - from one to 80 kilometers. Attached to them are shorter lines with baited hook tied at fixed intervals. Long lines can be set at different depths to catch different species. Long lining is commonly used to catch golden threadfin bream and bigeye.

浮延繩捕魚 ●

延繩釣法的一種，長釣延繩設在貼近水面的海洋，以捕捉藍鰹吞拿魚、黃鰹吞拿魚及劍魚。

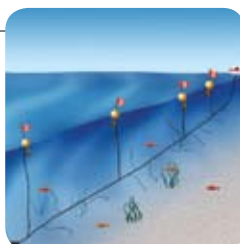


● Pelagic long-lining

A specific type of long lining, where the long lines are set near the surface of the water to catch open water fish such as bluefin tuna, yellowfin tuna and swordfish.

底延繩捕魚 ●

這種延繩釣法將長釣延繩置於海床，用以捕捉如銀鱈魚及雪花鱸魚等魚類。

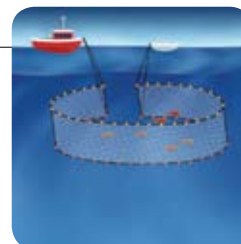


● Bottom long-lining

A type of long lining where the long lines are set near the seabed to catch fish such as black cod and Chilean sea bass.

圍網捕魚

圍網捕魚是利用網具圍捕魚群的捕魚方式。當目標魚類被圍牆般的漁網包圍後，漁民會把網底抽起成袋狀，然後困起魚類。沙甸魚、三文魚和吞拿魚等群游性魚類就是以這種方法捕捉。



Purse seining

Purse seine nets are used as walls to encircle fish. After the fish are surrounded, the bottom end of the purse seine net is pulled up and closed to form a bag that traps the fish. Schooling fish, such as sardines, salmon and tuna are commonly caught by this method.

陷阱網具及漁籠

漁民把木、金屬線或塑膠製造的陷阱網具和漁籠放到海床中捕魚，有時亦會用上魚餌。海洋生物往往會被活活困在陷阱或漁具中。漁民通常以這種方式捕捉龍蝦和泥鰻。



Traps and pots

Traps and pots made of wood, metal wire or plastic are placed on the seafloor to catch fish, sometimes using bait. The captured animals are usually still alive in the traps or pots when they are harvested. Traps and pots are commonly used to catch lobsters and white-spotted rabbitfish.

拖網

漁船拖動圓錐形的漁網捕撈魚蝦。漁網底部加有重物，盡量擴大漁網網口。設置在不同水深的拖網，可捕捉多種不同的海洋生物。

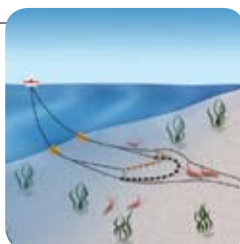


Trawling

Cone-shaped nets are towed by fishing boats to catch fish and shrimp. Weights are attached to the bottom of the entrance to the nets to maximise their size. Trawling can catch a variety of marine animals, depending on the depth at which the nets are used.

底拖網

這種拖網法把網放在海床上，並加上重物，藉攪動泥沙以捕捉棲身當中的魚蝦。有些漁民甚至採用重型的石斗、鐵鏈及輪子，讓拖網能在凹凸不平的岩石海床上拖行，無需擔心漁網破損，或被岩石阻礙前進。這種方式通常用來捕捉蝦、牛鰵和馬蹄蟹。

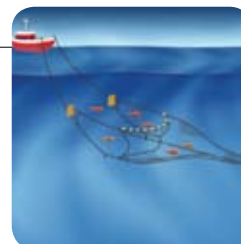


Bottom trawling

A type of trawling that sets the nets on the seafloor. Heavy weights are attached to the nets to stir up the sand or mud so that fish and shrimp living there can be caught. Sometimes heavy rockhoppers are used, chains with roller wheels that allow the net to roll over rough, rocky seabeds without damaging the nets or being stopped by the rocks. Shrimp, flathead and horseshoe crab are commonly caught by this method.

中層拖網

這種拖網捕魚法是將漁網架設在水面或水中。白倉通常就是以這種方法捕捉。



Mid-water trawling

A type of trawling where the nets are set at the surface or within the water column of the sea. Silver pomfret are commonly caught by this method.

徒手捕捉

漁民徒手捕捉行動緩慢的海洋生物。他們利用潛水裝備及套索等，捕捉棲居在離水面略深位置的生物。鮑魚和海膽通常都是徒手捕捉的。



Handpicking

Fishermen harvest seafood by hand because the animals in question are slow-moving. Diving equipment and nooses are used to help collect the animals when they live more than an arm's length from the surface of the water. Handpicking is commonly used to catch abalone and sea urchins.

海產養殖方式

養魚戶和貝類養殖場把海產飼養至一定大小後，便會出售作為食物。有些在孵育場生產幼苗，其他則從野生種群中撈魚苗。這本書介紹的海鮮品種的養殖系統，最常見的如下：

浮式網箱或養殖欄

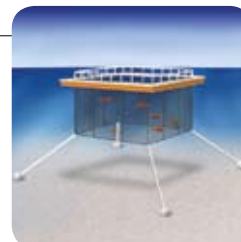
養魚戶利用網箱或養殖欄將魚類困在不當風的地區。網箱或養殖欄以重物固定在海床上，而它們的大小則視乎養殖場規模而定。三文魚、老虎斑及紅魷通常以這種方式飼養。

Aquaculture or fish farming methods

Fish and shellfish farms keep and feed animals until they are big enough to sell as food. Some use hatcheries to supply young; others take juveniles from wild populations. The following are the fish farming systems most commonly used to produce the seafood species in this guide:

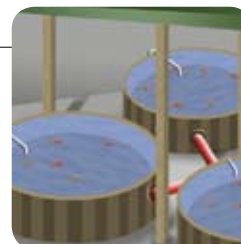
Floating open net cages or pens

Cages or pens are used to keep fish in sheltered areas. The size of the cages or pens depends on the size of the farm. They are stabilised by heavy weights on the seafloor. Salmon, tiger grouper and mangrove snapper are commonly raised this way.



室內魚池

漁民興建室內魚池來飼養鹹水魚及其他動物，水源主要是抽取海水，或混入了鹽的淡水，通常配備冷暖裝置控制水溫。養殖場可以收集及處理廢水，但有時亦會將未經處理的污水排放到主要排水系統中。多寶魚是這種魚池的常見飼養物種。



Indoor ponds

Ponds are built indoors to raise saltwater fish and other animals; water is extracted from the sea or freshwater is mixed with salt. They usually come with heaters or coolers to control water temperature. Waste water can be contained and treated by the farm, but it is sometimes discharged into the main drainage system without any treatment. Turbot are commonly farmed in these ponds.

戶外魚塘

養魚戶於沿岸或潮間帶地區闢建池塘，飼養魚類和其他動物，同樣抽取海水或以淡水摻雜鹽使用。養魚場可以收集和處理廢水，但更常見的情況是將未經處理的廢水排入主污水渠系統。這類魚塘主要養殖蝦和青蟹。

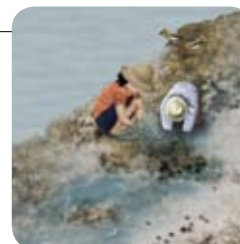


Outdoor ponds

Ponds are built outdoors at coastal or intertidal areas to keep fish and other animals; again, water is extracted from the sea or freshwater is mixed with salt. Waste water can be contained and treated by the farm, but again, it is sometimes discharged into the main drainage system without any treatment. Shrimp and mud crabs are commonly raised in these ponds.

戶外泥灘或泥岸

天然的泥灘或泥岸可以用來飼養貝類，且無需改變原有地貌。在這些地方飼養的品種包括象拔蚌及蜆等貝類，養殖戶亦會主動去除其他非飼養品種，防止牠們與養殖品種爭奪空間及食物。

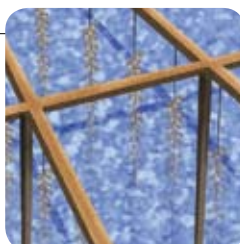


Outdoor mudflats or muddy shores

Natural outdoor mudflats or muddy shores can be used to raise shellfish without changing the landscape. Shellfish like geoduck clams and clams are farmed there, while other non-farmed animals are actively removed to prevent them competing with the farmed species for space and food.

浮水魚排養殖貝類

濾食動物是從海水中得到食物的生物，漁民會把牠們固定在繩索、膠盤，或懸浮在魚排的網籠中。蠔和帶子主要以這種方法養殖。



Floating rafts shellfish culture

Filter feeders - creatures that can obtain food from seawater - are kept on ropes, plastic trays or mesh bags suspended from floating rafts. Oysters and scallops are commonly raised this way.

野外捕撈海鮮品種的評估



來源

野生海產源自大海，自然可在多過一個地方、地區或國家撈獲到。由於各國可能會用不同方式去捕撈同一個品種，而各地的漁業管理體系亦可能有異，故此要評估其生產方法是否符合可持續原則，必須知道海鮮的來源地。

出售方式

海產的出售方式繁多，包括活全魚、冰鮮魚、急凍後全隻出售、冷凍魚塊甚至是乾貨不等。

捕撈方式

人類捕撈海鮮作食糧，已有上千年歷史，並發展出多種捕撈方式。隨著近數十年的科技發展，捕魚活動已由機械操作，不再完全受制於天氣等因素。常見的捕撈方式包括挖掘捕撈、刺網捕魚、竿釣、鈎釣、手釣、拖釣、延繩捕魚、圍網捕魚、利用陷阱網具和漁籠、拖網和徒手捕捉，詳細資料見「捕撈方式」部分(請見第20頁)。

俗名

海鮮品種在不同地方或會有不同的俗名，本書採用香港普遍使用或FAO使用的名稱。

學名

學名是分類學家給予動植物的名稱，各物種只有一個拉丁學名，是稱呼海鮮品種最統一的方法。

Assessment of seafood species from wild-capture fisheries

In order to determine the sustainability of wild-caught seafood species, WWF checked each against a set of criteria listed below. For detailed information about individual seafood species, consult the summary pages from p.71 onwards.

Common name

The common name of seafood species can change from place to place. The common names used in this book are those mainly used in Hong Kong or listed by FAO.

Scientific species name

Scientific species names are given to plant and animal species by taxonomists. Each species has only one scientific name in Latin. This is the most consistent way to refer to a seafood species.

Origin

Harvested from the seas, wild-caught seafood species can be naturally found in more than one place,

region or country. As different fishing methods are used in different places to catch the same seafood species, and countries have differing fisheries management systems, it is vital to know where the seafood comes from in order to assess whether it is sustainably produced.

Mainly sold as

Seafood species are sold in many forms. They include live whole animals, freshly chilled whole animals, processed frozen fillet and even dried seafood.

Fishing method

People have been harvesting seafood for millennia and have developed numerous fishing methods. Technological advances in recent decades mean that fishing is now a mechanical operation, rather than one that is dependent on the elements. Fishing methods commonly used include dredging, gill netting, hook and lining, jigging, hand lining, trolling, long lining, purse seining, traps and pots, trawling, and handpicking. These meth-

野外捕撈海鮮品種的評估

魚類的生態特徵

海洋環境不停改變，魚類和貝類各發展出特別的生態和行為特徵才能在海中生存，然而這些特徵或會使牠們更易成為捕撈目標，列舉部分如下：

野生種群的狀況

海鮮品種能否存活，取決於其數量是否可維持在特定的水平，即捕撈速度不能快於種群數目恢復的速度。根據FAO的定義，可持續漁業是指，我們這一

特 徵	內 容
① 性成熟期	需要一段長時間（如至少五年）才達致成熟期的海鮮品種，牠們極易受漁業影響，因為牠們大部分於可進行繁殖前已被捕撈。
② 性別轉變	隨著年齡和體積增加而轉換性別的魚類易受漁業影響，因為過度捕撈其中一個性別會導致性別比例失衡，導致繁殖出現困難。
③ 群聚 (繁殖或覓食)	部分品種會在特定時間及地點聚集來繁殖和覓食，容易被漁民預測去向，成為唾手可得的獵物，數目可迅速減少。
④ 地理分佈	只棲居在特定地方的海鮮品種易受捕魚活動威脅，過度捕撈能直接威脅其生存。
⑤ 稀有度	數量稀少的物種自然容易受捕魚活動威脅：捕撈少量已可嚴重影響整個種群。
⑥ 遷徙	<p>部分魚類為繁殖或覓食，會在海洋中游移一段長距離。牠們途經多國的水域及海洋，令人難以管理其漁業。</p> <p>有些魚類為了繁殖，會從海洋遷徙回河流（或由河流遷徙到海洋），牠們極易被漁民發現和捕捉。</p>
⑦ 生長速度	生長緩慢的品種極易受捕魚活動威脅。

Assessment of seafood species from wild-capture fisheries

ods are described in detail in the fishing methods section (see p.21).

changing marine environment, fish and shellfish have developed special biological or behavioural characteristics that may make them more sensitive to fishing. Here are some of them:

Biology

In order to survive in the ever-

Characteristics	Description
① Age of sexual maturity	Species that take a long time, e.g five years or more, to reach maturity are particularly susceptible to being caught before they can reproduce.
② Sex change	When fish change sex during their lives, they will be vulnerable to fishing activities because overfishing of either sex will unbalance the gender ratio, and lead to reproduction difficulties.
③ Aggregation (to reproduce or feed)	Some species will gather together at predictable times and places to reproduce or feed. This makes them an easy catch, and stocks can be decimated rapidly.
④ Geographic distribution	Seafood species that are endemic only to a particular place are vulnerable to fishing pressure. Overfishing in that place can threaten the survival of the species.
⑤ Rarity	Naturally rare seafood species are very sensitive to fishing: the removal of even small numbers of animals can have a big impact on the entire population.
⑥ Migration	<p>Some fish travel long distances in the ocean to reproduce or search for food. Since they may travel through the waters of many countries and through international waters, the management of these species is particularly difficult.</p> <p>Some fish will even migrate from the seas to the rivers or vice versa to reproduce. Since these species travel at predictable times and through specific areas fishermen can easily find and catch them.</p>
⑦ Growth rate	Slow-growing species are usually more vulnerable to fishing pressure.



代的捕魚活動，不會導致下一代的生物或經濟生產力、生物多樣性，或海洋生態系統結構和功能出現不良轉變。當捕撈速度較海鮮品種的種群復原速度快，即表示該魚群被過度捕撈，而有關的捕撈活動亦不符合可持續原則。相反，若一個品種的種群恢復速度較捕撈速度快，則表示魚群捕撈量符合可持續原

則。若捕魚速度與種群恢復速度相約，即表示魚群被完全捕撈，雖然尚符合可持續原則，但必須小心管理。

這些動物生活在海洋中，我們難以估計其種群的恢復速度，而計算珍稀、高遷徙性或深海品種的數目更困難。部分海產的數目水平更會因海水溫度、鹽

Status of wild populations

In order to ensure the long-term survival of seafood species, it is important to maintain their populations at a size where they are not fished faster than the rate at which they can regenerate. According to FAO, sustainable fishing means fishing activities that do not cause or lead to undesirable changes in biological and economic productivity, biological

diversity, or marine ecosystem structure and functioning from one human generation to the next. When the fishing rate is higher than the rate at which a seafood species can regenerate, stocks are considered as overfished and the fisheries are unsustainable. Conversely, when the

regeneration rates of seafood species are higher than the rate at which they are fished, stocks are under-fished and the fisheries are sustainable. When fishing rates are around the rate that the species can regenerate, the stocks are fully fished and the fisheries are also sustainable but need to be carefully managed.

As these animals live in the sea, it is not easy to estimate the rate at which they regenerate. It is even harder with species that are naturally rare, highly migratory or live in the deep seas. The numbers of individuals of any species can also be greatly affected by changes in sea conditions: seawater temperature, salinity, water current direction and so on. Nevertheless, some accepted methods to estimate the status of wild populations of seafood species include: a) monitoring changes in the quantity of a species landed by fishermen; b) monitoring changes in the sizes of those species that are landed; and c) sampling the number of a species in a given area of the sea and then calcu-



度、水流方向等海洋環境的轉變，而產生大幅度的波動。專家接納及採用的海鮮品種野生種群狀況評估方法包括：a)監察漁獲量的改變；b)監察漁獲品種體型的改變；以及c)以品種在特定海洋範圍的數目為樣本，計算種群總數。

意外捕撈

由於我們喜歡食用的海鮮品種通常與其他海洋生物一起棲居，漁民在捕撈海鮮品種時，往往把其他海洋生物意外地一併捕撈。這些被誤捕的物種包括海棉、海星或海膽，但亦可能是具商業價值的魚類，如斑類或鯛魚類的幼魚，有

時連海龜、信天翁、鯊魚和海豚等瀕危物種亦不能倖免。

不符合可持續原則的捕魚方式造成大量意外捕撈的漁獲及危害海洋生物。沒用的誤捕漁獲會被丟回海中，但這些生物在漁網內已被淹死、壓傷或受到太大壓力而不能生存。尚未達致成熟期的誤捕海產被禁止出售，漁民因此有時把牠們拋回海中。意外捕撈浪費大量海洋資源，以熱帶捕蝦業為例，誤捕物種的重量是蝦的7至20倍。漁民如使用網孔細小的漁具，例如中層拖網和底拖網捕魚，所有生物往往會被一網打盡，製造

Assessment of seafood species from wild-capture fisheries

lating the size of the total population.

Bycatch

Since species we like to eat usually live alongside other marine organisms, these species are also caught by fishermen and are called bycatch. They can be unwanted animals like sponges, starfish or sea urchins but can also be the young of commercially important seafood species such as grouper, snapper or sea bream. Sometimes, even endangered species like marine turtles, al-

batrosses, sharks and dolphins are caught.

Unsustainable fishing practices generate large amounts of bycatch and can endanger marine animals. Unwanted organisms may be thrown back into the sea, but many may not survive because they have drowned, have been crushed in the fishing nets or are too stressed to survive. Sometimes when juvenile animals are caught but are not allowed to be sold, they are also thrown back. It is all a huge waste; for example, the weight of unwanted organisms in tropical shrimp fisheries can be seven to 20 times the weight of the shrimp caught. Fishing methods like mid-water and bottom trawling usually generate a large amount of unwanted bycatch as these techniques are non-selective.



The young of commercially important species are sold as food where regulations allow or converted into feed for fish farms; many farmed fish or shellfish still require essential nu-

野外捕撈海鮮品種的評估

大量意外捕撈的漁獲。

若法例容許，漁民會將具商業價值幼魚當作食物出售。否則，幼魚有時會當作養魚飼料出售，因為許多養殖魚類或貝類仍需透過進食海魚吸取所需養分。這種做法不但減慢具商業價值的魚類的繁殖速度，對已遭過度捕撈的品種更造成嚴重影響。

不符合可持續發展原則的漁業，每年造成大量瀕危物種，如海龜、海豚、信天翁和鯊魚等意外死亡。延繩捕魚和底拖網把海龜一併捕撈；鯨魚和海豚被漁網纏住溺死；信天翁被延繩的魚餌吸引，在啄食時溺死。因底拖網輾過海底

而遭破壞的深海珊瑚，需要數個世紀才能復原。這些不良的作業方式直接威脅多種瀕危物種的生存。

良好的作業方式利用經改良的技術，可協助漁民集中捕撈目標品種，避免意外捕撈到其他生物，特別是瀕危物種。底拖網船可以安裝如海龜逃脫器或減少意外捕撈裝置，讓被困的海龜及其他非目標生物逃離漁網。各種革命性的捕魚器材，如延繩捕魚使用的圓形鉤等，能快速、安全地釋放海龜；繫於延繩上的避鳥繩索亦能減少信天翁等海鳥意外被殺。網孔較大的漁網讓細小魚類和其他動物能逃離漁網，同時能捕捉到目標海鮮品種。



Assessment of seafood species from wild-capture fisheries

trients from marine fish. This compromises the regeneration rates of commercially important species, and if a species is overfished it can further affect already depleted populations.

Each year many endangered species like marine turtles, dolphins, albatrosses and sharks are accidentally killed by unsustainable fishing. Turtles are caught by fishing methods like long lining and bottom trawling. Whales and dolphins are entangled in fishing nets and drown. Albatrosses are attracted by long-line bait and drown when they take it and get hooked. Bottom trawling at seamounts - mountains on the seafloor - destroys deep-sea coral reefs that take centuries to recover. These poor fishing practices directly threaten the survival of many endangered species.

Good fishing practices minimise the amount of bycatch and avoid catching endangered species. Improved technology can help fishermen focus on the species they are after and avoid



bycatch, particularly of endangered species. Equipment such as Marine Turtle Exclusion Devices (MTEDS) and Bycatch Reduction Devices (BRDS) can be installed on bottom trawlers to allow trapped marine turtles and other unwanted organisms to escape from the nets. Innovative fishing gear such as circle hooks for long lining can help to release hooked marine turtles quickly and safely, and bird streamer liners deployed on long-lining vessels reduce the chances of sea birds like albatrosses being accidentally killed. Nets with big holes allow smaller fish and other animals to escape from the nets, while still catching the seafood species that fishermen want.

野外捕撈海鮮品種的評估

對環境的影響

海床是海鮮品種及其他海洋生物的重要棲居環境，當捕魚活動令海床環境改變，海洋生物覓食和棲息的生境便會受到破壞。

部分海洋生境，包括熱帶珊瑚礁、海草床、深海海底山脊及深海珊瑚礁等，十分容易受到捕魚活動影響。這些生境孕育多樣化的海洋生物，是牠們重要的覓食、產卵和孕育地。沙質、岩石或泥濘海床受捕魚活動影響較少，但亦

會被無節制的作業方式破壞。

不同的捕魚活動對海床造成不同影響。魚鈎和魚線、圍網、拖釣和中層拖網等漁具不會觸碰到海床，故不構成影響。陷阱網具和魚籠、底延繩捕魚、刺網和徒手捕捉等活動，除非於珊瑚礁或海草叢進行，因漁具與海床的接觸有限，所以影響相對較少。對海床造成最大破壞的捕魚工具是底拖網和挖掘器，它們用重物攪起沙泥，把海產和其他海洋生物一網打盡，就像一輛蒸汽壓路機穿過森林一樣，破壞途經的一切。



Assessment of seafood species from wild-capture fisheries

Impacts on the environment

The seabed is an important environment for marine organisms, including seafood species, to live in. When the seabed is altered by fishing, the habitats that species rely on for food and shelter are damaged.

Some marine habitats, such as tropical coral reefs, seagrass beds, deep-water seamounts and deep-sea coral reefs are very sensitive to fishing activities. These habitats boast a high diversity of marine life, and they are important feeding, spawning and nursery grounds for many marine organisms. Sandy, rocky or muddy seabeds are less sensitive to fishing activities, but uncontrolled fishing can still damage them.

Different fishing methods will have different impacts on the seafloor. Fishing gear such as hook and line, purse seines, trolls and mid-water trawls do not touch the seafloor and do not affect it. Traps and cages, bottom long-lines,



gill nets and handpicking will involve limited contact with the seabed and the impact will be relatively mild, unless they are at sensitive marine habitats like coral reefs and seagrass beds. The most destructive fishing gears are bottom trawls and dredges because they use heavy weights to stir up the seabed so that seafood species and other marine organisms can be caught in the nets. These techniques are a bit like running a steamroller through a forest: they destroy everything in their path.

Fisheries management

In the past, people thought marine resources were inexhaustible and there was no limit to what could be caught. The collapse of a major traditional fish-



漁業管理

過去，人們以為魚類等海洋資源取之不竭，能予取予求，亦不設漁獲限制。然而，當加拿大大淺灘捕捉大西洋鱈魚這個主要的傳統漁業崩潰後，人們便驚醒可持續漁業是漁業管理的關鍵模式。

根據FAO的定義，漁業管理是確保漁業能持續地捕撈海鮮品種的綜合步驟，當中過程包括蒐集和分析相關物種的資料，然後計劃捕撈的數量與方法，並制定相關條例。接著，各漁業管理機構如政府部門，會從本地、國家以至地區層

面規管漁民的活動，例如香港的漁農自然護理署（簡稱「漁護署」）管理本地的漁業活動，而中國政府則負責大陸水域的漁業活動。

如果漁民在公海捕魚，地區漁業管理組織就有責任規管這類活動。這些組織由關注在相關公海進行捕魚活動的國家組成，不論該國漁民有否在該處捕魚均可參與。目前全球共有13個地區性漁業管理組織，主要處理如藍鰭吞拿魚、黃鰭吞拿魚、雪花鱸魚及鯊魚等海鮮品種的漁業事宜。

ery, the Atlantic cod fishery at Grand Bank in Canada, made people realise that fisheries management is the key to sustainable fishing.

According to the FAO definition, fisheries management is an integrated process to ensure that seafood species can continue to be harvested. The process involves first gathering and analysing information about the species in question. That information is then used to plan how much can be caught and how to catch it, measures that are enshrined in regulations. Fisheries management organisations, such as government departments, will then regulate the activities of fishermen. That can happen at local, national and regional level. For example, the Agriculture, Fisheries and Conservation Department (AFCD) manages fishing activities in Hong Kong, while the mainland Chinese government is responsible for fisheries in mainland waters.

When seafood species are caught in international waters not owned by any particular country (also known as the high seas), regional fisheries management organisations are responsible for regulating the activities of fishermen. These organisations are formed by countries that have an interest in species that are caught in the relevant international seas, whether or not fishermen from those countries actually fish there. Currently there are 13 regional fisheries management organisations in the world, mainly focusing on species like bluefin tuna, yellowfin tuna, Chilean sea bass, and sharks.



野外捕撈海鮮品種的評估

不同國家或地區各有管理捕魚活動的方式，以下是一些基本措施：

管理體系的措施	內 容
1 實施漁民牌照制	控制批准捕撈指定海鮮品種的漁民數目。牌照制是所有漁業管理體系的基本要素。
2 評估海鮮數量	包括估計海鮮品種數量及狀況，務求準確制訂捕撈配額。
3 制定捕撈配額	捕撈配額根據海鮮數量評估的結果，釐定物種的可捕撈量，以確保該品種有足夠數目繁殖。
4 限制捕魚方法	限制破壞力較大的捕魚方法，如禁止利用炸藥、電力或山埃等化學品捕魚；並禁止在敏感的海洋生境，如珊瑚礁、海草床及海洋保護區等進行底拖網捕魚。
5 監管意外捕撈	可從數方面減輕意外捕撈的影響： 1. 漁民可在漁船上安裝如海龜脫逃器、減少意外捕撈裝置和避鳥繩索等裝置，避免捕獲瀕危物種；也可加大網孔，容許幼小的動物逃離漁網。 2. 監管誤捕發生時，需要保留或掉棄回大海的海洋生物數目。 3. 體形小於規定下限的動物須放回海洋。
6 進行科學研究	我們食用過許多海鮮品種，但仍未能充分了解牠們。科學研究有助進一步認識牠們，能為當局提供指引，制定捕撈配額。
7 規劃海洋保護區	將部分水域劃為禁捕區，不准捕魚。在繁殖季節關閉捕魚區域，亦有助保護物種，避免過度捕撈。

Assessment of seafood species from wild-capture fisheries

Different countries or regions have different ways of managing the activities of fishermen, but here are some of the basic components:

Component of the management system	Description
1 Licensing of fishermen	This controls the number of fishermen who are permitted to catch specific kinds of seafood. Licensing is the fundamental element of any fisheries management system.
2 Stock assessment	This involves estimating the quantity and status of seafood species in the sea so that fishing quotas can be set accurately.
3 Fishing quota	Based on the results of stock assessments, fishing quotas determine what quantity of a particular species can be caught while ensuring that enough are left for the species to regenerate.
4 Fishing method restrictions	These are restrictions on some of the more destructive fishing methods. For example, the use of explosives, electricity and chemicals like cyanide is prohibited. Bottom trawling could be banned in sensitive marine habitats like coral reefs, seagrass beds, and marine protected areas.
5 Bycatch controls	There are several ways of limiting the effects of bycatch: 1. Fishermen install special devices on their boats, such as MT EDs, BRDs and bird-streamer lines, to avoid catching endangered species. Minimum mesh sizes allow young animals to escape from fishing nets. 2. Controls are set on the amount of unwanted marine organisms that can be caught or thrown back into the sea. 3. Animals smaller than the minimum permitted size have to be released back into the sea.
6 Scientific research	Although we consume many seafood species, we still do not understand the biology of many. Scientific research can help us to learn more about them and provide guidance when it comes to setting fishing quotas.
7 Marine protected areas	These include areas designated as no-take zones where no fishing is permitted. Closing fishing areas during mating periods can also help to protect species from overfishing.

野外捕撈海鮮品種的評估

管理完善、且符合可持續原則的漁業在規管時，都會推行上述所有或大部分措施，從而監控漁業管理活動，但並非所有漁業都會這麼做。即使有嚴格規定，但管理不善的漁業仍可能不會執行。良好的漁業可以向如海洋管理委員會申請生態標籤，證明其作業方式符合可持續原則，協助消費者選擇以環保方式捕撈的海鮮。

海洋管理委員會

海洋管理委員會(MSC)是全球性的獨立非牟利組織，旨在與漁業界合作，嘗試挽救全球漁業危機。MSC所制定的環境



標準讓我們分辨哪些漁業符合可持續原則及管理完善。漁業接受獨立評估，證明其運作符合MSC的標準後，即可採用MSC認證的生態標籤。

MSC於1997年由世界自然基金會與當時全球最大海鮮買商聯合利華(Unilever)共同創辦，並於1999年成為獨立組織。



MSC的三大可持續漁業原則：

- 1 漁業運作模式不可引致過度捕撈的情況，或令已遭開發的種群的數目減少；若種群的數目已開始減少，有關的捕撈模式必須協助種群數目水平回升。
- 2 漁業運作模式須維持有關生態系統的結構、生產力、功能和多樣性，包括生態環境本身，依賴生態環境存活和在生態上有關連的物種。
- 3 漁業應受有效的管理體系監管，有關體系須遵從地區、國家及國際法律和標準，結合制度和運作架構，制定負責任的漁業運作模式並符合可持續發展的標準。

Assessment of seafood species from wild-capture fisheries

Well-managed, sustainable fisheries control their fishing activities by incorporating all or most of these components into their management systems, but not all fisheries do so. Even if the regulations are strict, in badly managed fisheries they may not be enforced. Good fisheries can prove their sustainability with eco-labelling, for instance from the Marine Stewardship Council, to allow consumers to choose seafood that is harvested in an environmentally friendly way.

Marine Stewardship Council

The Marine Stewardship Council (MSC) is an independent, global, non-profit organisation that works with the fisheries industry to try to reverse the global fisheries crisis. MSC has developed an environmental standard for sustainable and well-managed fisheries. Fisheries are independently assessed to prove they meet the standards set by MSC, and are then able to use MSC-certified eco-labelling.

MSC was first established in 1997 by WWF and Unilever, the world's largest buyer of seafood, and became independent in 1999.



MSC's three principles of sustainable fishing are:

- 1 Fishing must be conducted in a manner that does not lead to overfishing or depletion of exploited populations and, for those populations that are depleted, fishing must be conducted in a manner that demonstrably leads to their recovery.
- 2 Fishing operations should allow the structure, productivity, function and diversity of the ecosystem on which the fishery depends to be maintained, including the habitat itself and associated dependent and ecologically related species.
- 3 Fisheries should be subject to an effective management system that respects local, national and international laws and standards, and incorporates institutional and operational frameworks that require them to be responsible and sustainable.

養殖海鮮品種的評估

在評估來自海產養殖場的海鮮品種是否符合可持續原則時，我們採用了下列的標準。個別海鮮品種的詳細資料載於摘要頁（第70頁起）。

俗名

海鮮品種在不同地方或會有不同的俗名，本書使用的是香港普遍採用或FAO使用的名稱。

學名

學名是分類學家給予動植物的名稱，各物種只有一個拉丁學名，是稱呼海鮮品種最統一的方法。

來源

許多國家都有養魚場，同一種海鮮品種可以在多於一個地方、地區或國家飼養。由於各國養殖同一品種的技術或有不同，而各地規例亦可能有異，故次要評估海鮮生產方法是否符合可持續原則，必須知道牠的來源地。

養殖方法

人類養殖食用魚類已有悠久歷史，發展出許多不同的養殖方法。過去人類只能在魚塘中飼養淡水魚，但隨著近數十年來的科技發展，海產養殖已能生產



許多海鮮品種，使用的方法包括室內魚池、戶外魚塘、浮式網箱、戶外泥灘和浮水魚排等，詳細資料見「海產養殖方式」部分（請見第28頁）。

養殖海鮮品種的情況

養殖業發展初期，在魚塘中養殖的魚類數量十分少，無需餵飼魚類亦能生長。以華南的養魚戶為例，他們在同一個水池中養鴨和多種魚類，鴨糞為池中植物提供營養，植物成為魚類的食糧。不同種類的魚的食物各有不同，故可以一起飼養，例如鯉魚進食泥生植物、鯢魚則吃池塘中的浮游生物。這種養魚方式稱為「粗放式養殖」。養魚材料來自

Assessment of seafood species from aquaculture

In order to determine the sustainability of farmed seafood species, WWF checked each species against a set of criteria listed below. For detailed information about individual seafood species, consult the summary pages from p.71 onwards.

Common name

The common name of seafood species can change from place to place. The common names used in this book are those mainly used in Hong Kong or listed by FAO.

Scientific species name

Scientific names are given to plant and animal species by scientists. Each species will only have one scientific name in Latin. This is the most consistent way to refer to a seafood species.

Origin

Fish farms can be found in many countries and the same seafood species can be cultured in more than one place, region or country. As countries may use different farming techniques to raise the same species, and may have different regulations on aquaculture, it is vital to know where it comes from in order to assess whether it is sustainably produced.

Culture method

People have been culturing fish for food for centuries and have developed numerous ways of doing so. In the past, only freshwater fish were raised in ponds but with the development of new technologies in recent decades, many seafood species are now produced using mariculture. Culture methods for seafood species include indoor ponds, outdoor ponds, floating open net cages, outdoor open mudflats and floating rafts. These are described in detail in the aquaculture or fish farming methods section (see p.29).

養殖海鮮品種的評估

大自然，不會浪費，有助保護環境。然而，這種方式只能生產小量魚類，故其後發展出密集的養殖方式，以滿足不斷增加的海鮮需求。

近數十年來，密集的養殖方式利用先進科技，在較小的範圍飼養大量海產，大大增加產量，亦導致過度擠迫的情況。

部分海產品種，如黃魴鯉等天生喜歡群居，所以較適應擠迫的環境。然而，斑類、鯛魚等不習慣群居的魚類，在擠迫的環境中會感到緊張，並容易受細菌及寄生蟲感染，增加病菌傳播的機

會。因此，減低養殖物種的密度屬良好的養殖方式。

海鮮品種需在潔淨和新鮮海水中生活，許多養殖場均建在沿岸地區，或把魚排設置海上。陸上養殖場可以透過潮汐直接引進海水，或把海水抽進場中。許多沿岸地區，如珊瑚礁、紅樹林和海草床等，通常是具商業價值物種的產卵及育苗場，以及其他海洋生物的棲息地屬敏感生態環境。在毗鄰設置養魚場可對這些海洋生物構成嚴重影響。

良好的養殖模式應善用天然環境，對環境只會作出輕微，以減低對環境



Assessment of seafood species from aquaculture



Condition of farmed seafood species

Originally, farmed fish were raised in small numbers in ponds where all their food could be generated naturally. For example, fish farmers in south China would raise ducks and different types of fish together in the same ponds. The ducks produced waste that provided nutrients to the plants in the ponds. These in turn provided food to the fish. Several types of fish could be raised together because they ate different types of food: carp would feed on plants that live in mud for instance, while grass carp would eat plankton in the water column of the pond. This type of fish culture system is known as extensive farming and it is environmentally friendly because all the materials needed to raise the fish are produced

naturally and are consumed. However, since it could only produce small quantities of fish, new types of intensive aquaculture evolved to cope with the increasing demand for seafood.

In recent decades, advanced technology has allowed intensive farming systems to raise large quantities of seafood species in relatively small areas. The result has been large increases in production. However, it has also led to a problem: overcrowding.

Some species of seafood, such as pompano, naturally live in big groups and are therefore not sensitive to crowded conditions. However, many other species, such as grouper, bream and snapper do not naturally live in big groups. They are easily stressed when too many of them are put together and this makes them more susceptible to diseases and parasites, as well as increasing the chances of those diseases and parasites spreading. So it is good farming practice to reduce the density of the animals.

養殖海鮮品種的評估

的影響。相反，差劣的養殖模式會毀壞重要生境來改闢養殖場。紅樹林多為平地，易於改建為養殖場，印度、泰國及中國大陸許多養蝦場的前身都是紅樹林。



飼料

野生海鮮品種能在自然環境中自行覓食，但大部分養殖品種都需倚賴外界提供食物，方可成長。海鮮品種所需的食物種類各有不同，例如鮑魚是食草生物，以植物為食；斑類、三文魚和鯛魚等是食肉生物，一般需要進食魚肉，以吸取蛋白質。象拔蚌、蜆和蠔等人工養殖的貝類則為濾食性生物，可以從海水中獲得食物，無需外界供給飼料。

Assessment of seafood species from aquaculture

Since seafood species require clean and fresh seawater to live in, many fish farms are close to the coast, or have pens floating in the sea. When the farms are on land, seawater can be flushed directly into the farms by tides, or can be pumped into them from the sea. However, many coastal areas contain sensitive ecosystems like coral reefs, mangroves and seagrass beds. They are often important spawning and nursery grounds for commercially important seafood species and are home to many other marine organisms. Putting fish farms at or near these areas can impact them negatively.

Good farming practices make use of natural marine environments without altering them by reducing their impact. Bad practices destroy these important marine habitats and convert them into farms. Mangroves are particularly susceptible to this type of conversion because they are usually flatlands that can be converted easily into farms. Many shrimp farms in India, Thailand and mainland China



were originally mangroves.

Feed

Wild seafood species can obtain food from their natural environment but most farmed seafood species need an external supply of food for them to grow. Different seafood species need different types of food. For example, abalone are herbivores - plant-eaters - while carnivores species like grouper, salmon and snapper need protein from meat, usually fish, to grow. Farmed shellfish such as geoduck clams, clams and oysters are the exception - they do not require an external food supply because they are filter feeders and can obtain the

養殖海鮮品種的評估

有些漁民會捕捉野生魚類，為斑類、三文魚和鯛魚等食肉魚類提供蛋白質。黃豆等植物雖含蛋白質，但缺乏海洋生物獨有的重要養份。從海產養殖場採用野生魚類以作飼料的捕撈方式，我們可判斷它們的優劣：良好的養殖作業方式不會選擇過度捕撈的魚類作為飼料，劣等作業方式卻不會理會海洋資源的可持續性，任意使用已遭過度捕撈的魚類。很多被捕作魚糧的魚類價值不高，但當中仍有大部分都是具商業價值

品種的幼魚。這些被捕作魚糧的物種中，有些是故意捕撈的目標，有些則是被漁民誤捕。劣等的作業方式令那些已遭過度捕撈的海產數量進一步下降。目前只有極少數野生魚類是以符合可持續原則的方式捕撈，數量根本無法滿足養魚場的龐大需求。

食肉性的養殖物種消耗大量飼料才能生長至適合市場需要的大小，是需要大量捕撈野生魚類的另一原因。例如，



Assessment of seafood species from aquaculture



or obtained from the bycatch of wild-caught fisheries. These poor practices will lead to further depletion of seafood species that are already overfished. Currently only few wild species are sustainably caught for aquaculture and they cannot meet the huge demand from fish farms.

food they need from the seawater.

Some fishermen catch wild fish to provide protein for carnivorous seafood species like grouper, salmon and snapper. Although plants like soy can also provide protein to farmed seafood species, they lack some essential nutrients that are only found in marine species. In good farming practices, these wild fish are harvested in ways that will not lead to overfishing; bad practices involve collecting these fish unsustainably. Although wild fish caught for fish meal are usually low-value species, many of them are the young of commercially important species. They are either deliberately caught by fishermen

Another reason for the need of a large amount of wild fish taken for fish feed is that carnivorous farmed seafood species need large quantities of feed to grow to marketable size. For example, it takes four kilograms of protein - usually fish - to produce one kilogram of salmon. Good fish farming practices will develop ways to minimise the amount of animal protein used in fish feed.

Source of fry

Intensive farming of seafood species requires a large number of fry, or juvenile individuals. There are two ways to obtain fry for aquaculture: producing them in hatcheries and collecting them in the wild.

養殖海鮮品種的評估

養殖場一般需要四公斤的蛋白質(通常來自魚類)，方可生產一公斤三文魚。良好的養殖模式會盡量減少在魚糧中使用野生魚類。

魚苗來源

密集式飼養海產需要大量魚苗或幼魚。生產魚苗的方式有兩種：在人工孵育場生產和採集野生幼苗。



最佳的養殖方式是採用產自發展完善的閉合循環孵育場的魚苗，表示成魚和幼魚均來自該孵育場，無需從野外捕撈任何魚類。可惜，當孵育技術未能提供足夠魚苗、滿足龐大需求，或從孵育場購買魚苗的成本過高時，養魚戶或會從野外捕撈魚苗。

有些養魚戶會採用名為「養成技術」的方法，即在野外捕捉幼魚回來飼養至可出售的大小。這種方式會導致一些野生幼魚永無繁殖的機會，故不符合

可持續原則。最壞的情況是，魚苗可能來自已遭過度捕撈的野外種群，甚至是瀕危物種。地中海地區許多的藍鰭吞拿魚，以及東南亞地區多種斑類和蘇眉均以這種方式養殖出來。

對環境的影響

世界各地都有養殖海鮮的活動，但並非所有養殖的海鮮都屬當地的原產品種，包括那些相當受歡迎的品種。例如，白蝦原產自拉丁美洲，現時卻在中國內地等亞洲地區養殖。如果養殖的方式欠佳，或會導致大量外來品種逃脫。

Assessment of seafood species from aquaculture

The best aquaculture practices use fry from well-developed closed-cycle hatcheries, meaning that both adults and young are produced from hatcheries, so there is no need to collect any fish from the wild. Unfortunately, when hatchery technology cannot provide an adequate number of juveniles to meet the huge demand, or the cost of buying fry from hatcheries is too high, farmers collect fry from the wild.

it is often unsustainable. The problem is that individuals caught in this way will never have the chance to reproduce. In the worst cases, fry are collected from wild populations that are already depleted, or even from endangered species. Many bluefin tuna from the Mediterranean Sea and many grouper and hump-head wrasse from Southeast Asia come from grow-out farms.

Impacts on the environment

The practice of collecting small juveniles from the wild and raising them to market sizes is called "grow-out" and

Seafood species are farmed in many countries but not all of them



養殖海鮮品種的評估

當這些外來品種開始在當地海洋環境棲居後，便會與原生品種爭奪食物和空間，若牠們較原生品種更能適應環境，或會威脅後者的存活。

即使養殖的屬原生品種，亦有可能威脅當地的野生種群，因為養殖品種可發展出其他特性，如生長速度較快及較早達至性成熟期等。若牠們逃離養殖場，容易掠奪本地野生品種的食物、生存空間和繁殖機會。以挪威的三文魚為例，部分河流中高達七成的三文魚均是逃脫的養殖品種後代。

養殖方式欠佳不僅引發養殖品種逃

脫的問題，亦會污染自然環境。密集地養殖海產需要大量食物，亦產生許多廢物。養殖場內飽受壓力的生物特別容易患病或出現寄生蟲，排放污水前，必須先去除污水內的病菌或寄生蟲。良好的養殖模式會把污水處理及循環再用，或把污水運往當地的污水處理設施。部分養殖場卻把污水排放到鄰近地方或海洋中，絕不符合可持續原則。

海產養殖管理

各地的養殖規例並不相同，有些國家劃出養殖海產專區，並規定養殖場進行評估，確保不會破壞周遭的自然環



Assessment of seafood species from aquaculture

are native to those areas, including some popular species. White shrimp, for example, come from Latin America but are now farmed in Asia, including mainland China. Bad farming practices can mean that large numbers of these non-native species escape. When they start to live in the local marine environment they compete with native species for food and space, and if they can better adapt to that environment than local species, they may threaten the survival of native species.

Even species that are native to the area where they are being farmed can threaten local wild populations because farmed species can artificially

develop characteristics such as faster growth rate and rapid sexual maturation. When they escape from farms, they can easily out-compete local individuals for food, space and opportunities for reproduction. For example, in Norway, up to 70% of the salmon in some rivers are the offspring of escaped farmed salmon.

Apart from the issue of escape, bad farming practices can pollute the natural environment. Intensive farming of seafood species uses large quantities of food and produces much waste. Good farming practices treat waste water and reuse treated water, or have a way of transferring waste water to local

sewage treatment facilities.

But some farms unsustainably release waste into the surrounding environment, or discharge it into the sea. Because stressed animals in fish farms are more likely to be affected by diseases or parasites, it is important that these diseases or parasites





境。管理完善的養殖場會致力防止養殖物種逃脫避免引入外來品種，同時防止傳播病菌及寄生蟲，亦會避免把廢水排入自然環境中。

市面上有數種為養殖海產而設的標籤及認證體制，包括各國的有機認證體

制、全球養殖聯盟（Global Agriculture Alliance），以及全球良好農業規範（Globalgap）等等，但目前並無符合FAO標準的國際認可標準。各標籤或認證體制的準則不同，目標對象亦各異。在香港，本地經營的養殖場可以參加「優質養魚場計劃」，其主要目標是控制重金屬及藥物的運用。有關計劃雖能改善本地的養殖運作模式，但管理範圍有限，未能解決上述所有問題。

a negative impact on the surrounding natural environment. Well-run farms work to prevent farmed animals from escaping, to avoid introducing non-native species, to prevent the spread of diseases and parasites and to avoid discharging polluted waste water into the natural environment.

There are several labelling and certification systems for farmed seafood, including the organic certification systems of various countries, the Global Aquaculture Alliance, Globalgap amongst others. However, there is currently no internationally recognised standard that meets FAO standards. Each labelling or certification system has its own criteria and addresses different issues. In Hong Kong, locally operated fish farms can sign up to the Accredited Fish Farm Scheme (AFFS), which focuses mainly on controlling the use of heavy metals and drugs. The scheme has improved local farming practices, although its limited scope means that it has not fully addressed all of the issues mentioned above.

are removed before waste water gets discharged.

Mariculture management

Different countries and regions have different aquaculture regulations. Some countries have areas designated for the farming of seafood species and require farms to conduct assessments to make sure they will not have

三個海鮮類別

根據上一章羅列的標準，專家對各種海鮮進行評估，並分成三個類別：**綠色** - 「**建議**」、**黃色** - 「**想清楚**」，以及 **紅色** - 「**避免**」。

建議

這類海鮮可以放心食用。牠們來自管理妥善的漁業，或符合環保原則經營的海鮮養殖場。

想清楚

建議海鮮愛好者重新考慮他們的選擇。這類海鮮的捕撈或養殖方法，以及漁業管理制度仍有不妥善，需求增加或會對這些品種構成生存壓力，甚至破壞海洋環境。

避免

這個類別的品種已遭過度捕撈，或是以破壞生態的方式捕捉或養殖，有關的漁業管理亦欠妥善，繼續食用會損害海洋環境，請愛好海鮮的人士避免食用。

Three categories of seafood species

After assessing each seafood species against the criteria in the previous section, they were classified into three categories: **Green** - “**Recommended**”, **Yellow** – “**Think Twice**” and **Red** – “**Avoid**”.

Recommended

Species in this category are the best to order - they are farmed or caught from responsible aquaculture operations or well-managed fisheries.

Think Twice

Seafood lovers are advised to reconsider their choice; increasing demand for these species may affect both their sustainability and the marine environment. There are still some issues with fishing and farming methods, or with fisheries management.

Avoid

Seafood eaters should abstain from eating species listed in this category as they are overfished, caught or farmed in an ecologically unfriendly way, or the fisheries are not well managed. Consumption of these seafood species is harmful to the marine environment.

你的幫助

每一個人都能為推動環保海鮮出一分力，你的貢獻無論大小都同樣重要。

海鮮供應商

1. 制訂採購政策增加環保海鮮的比例，甚至只購入符合可持續生產原則的海鮮則更佳。
2. 採購及出售更多本會《海鮮選擇指引》「建議」的海鮮品種，特別是經由海洋管理委員會 (MSC) 認證的海鮮產品。
3. 逐步減少「避免」類別中的海鮮品種，並讓顧客明白箇中原因。
4. 在以可持續原則生產的魚翅未在市面普及前，停止進口或售賣魚翅產品。
5. 通知世界自然基金會你推動環保海鮮的實際行動，讓我們把正面信息宣揚開去。



酒樓

1. 向顧客推介環保海鮮菜單。第一步是制訂採購政策，增加環保海鮮的比例，或只購入以可持續方式生產的海鮮。
2. 提供更多本會《海鮮選購指引》「建議」的海鮮品種，特別是經海洋管理委員會 (MSC) 認證的海鮮產品，並相應地修改菜單。
3. 逐步減少「避免」類別的海鮮品種，並讓顧客明白箇中原因。
4. 支持售賣環保海鮮的供應商。
5. 停止供應魚翅。在以可持續原則生產的魚翅未在市面普及前，暫以人工魚翅為代替品。
6. 通知世界自然基金會你推動環保海鮮的實際行動，讓我們把正面信息宣揚開去。

What can you do?

To support the sustainable seafood movement, every one of us has an important role to play. Here are some of the things that you can do.

Traders

1. Make it a policy to increase the proportion of seafood you sell that is sustainable, or, better still, switch to sourcing only sustainable seafood.
2. Source and sell more seafood species in the "Recommended" category of the WWF Seafood Guide, particularly MSC-certified products.
3. Phase out seafood species in the "Avoid" category and explain to your customers why you are doing so.
4. Stop importing or selling shark fin products until sustainable shark fishery products are available.
5. Tell WWF what you have been doing so we can inform potential customers.



Restaurants

1. Introduce customers to environmentally friendly seafood menus. Your first step is to establish a policy to increase the proportion of seafood you sell that is sustainable, or switch to sourcing only sustainable seafood.
2. Offer more seafood species in the "Recommended" category of the WWF Seafood Guide, particularly MSC-certified products, and update your menu accordingly.
3. Phase out seafood species in the "Avoid" category and explain to your customers why you are doing it.
4. Support traders who supply sustainable seafood.
5. Stop offering shark fin. Provide artificial shark fin substitutes until sustainably harvested shark fin products are available.
6. Tell WWF what you have been doing so that we can inform potential customers.

你的幫助

個人消費者

1. 購買海鮮或點菜前，查看本會的《海鮮選擇指引》，選擇「建議」類別的品種，不要食用「避免」類別的品種。
2. 支持供應環保海鮮的食肆及酒樓。
3. 停止食用魚翅，改吃人工魚翅。
4. 向朋友推廣食用符合可持續原則生產的環保海鮮。



企業消費者

1. 為公司宴會訂立食用環保海鮮政策，停止食用「避免」類別海鮮，或只食用「建議」類別海鮮品種。
2. 制訂政策規定公司宴會停止食用魚翅，可改以人工魚翅代替。
3. 向員工解釋公司保護海洋生態環境的實際行動，以及其重要意義。
4. 通知世界自然基金會你的實際行動，讓我們把正面信息宣揚開去。



What can you do?

Individual consumers

1. Check against the WWF Seafood Guide before buying or ordering seafood. Choose species from the "Recommended" category and stop consuming those in the "Avoid" category.
2. Support food stores and restaurants that offer sustainable seafood choices to their customers.
3. Stop eating shark fin. Consider eating artificial shark fin products instead.
4. Tell your friends about sustainable seafood consumption.

Corporate consumers

1. Establish a company policy to stop consuming all seafood species in the "Avoid" category or, better still, only eat those from the "Recommended" category for all corporate sponsored dining activities.
2. Make it a company policy to stop consuming shark fin at corporate events. Consider serving artificial shark fin products instead.
3. Tell your staff about what you are doing as a company to protect the marine environment, and why it is important to do so.
4. Tell WWF what you have been doing.





建議

來源地：美國阿拉斯加

一般出售方式：冷藏魚柳及罐頭

捕撈方法：刺網、圍網及拖釣

生態特徵

阿拉斯加太平洋三文魚在河流出生，遷徙到海洋成長，四、五歲便成熟至可繁殖，牠們於五月至九月間集體洄游出生的河流繁殖。三文魚聚集繁殖的時間和地點容易預測，漁民幾乎可以把整個魚群捕光，故此牠們極易受漁業壓力影響。

野生種群狀況

阿拉斯加太平洋三文魚漁業資源已遭完全開發。

意外捕撈

捕撈阿拉斯加太平洋三文魚的方法產生少量意外漁獲，包括石魚和其他底棲類生物。

對環境的影響

由於漁具觸碰到海床的機會不大，故對海床影響十分有限。

● *Oncorhynchus keta*, *O. tshawytscha*, *O. kisutch*,
O. gorbuscha, *O. nerka*

漁業管理

阿拉斯加太平洋三文魚漁業的管理措施包括進行年度漁業資源評估，限制捕撈牌照數目、設立捕撈配額及規管漁具，以及實行季節性休漁期，讓魚類能安全地產卵，同時保護重要的生態環境。管理制度行之有效，更獲海洋管理委員會（MSC）認證。

摘要

阿拉斯加太平洋三文魚有既定繁殖模式，容易受漁業壓力影響，但魚群數目水平尚算健康，而其漁業資源已遭完全開發（解釋請見第204頁）。漁業的意外漁獲甚少，對海床影響輕微。阿拉斯加太平洋三文魚漁業經海洋管理委員會（MSC）認證，其管理體系行之有效。



Recommended

● *Oncorhynchus keta*, *O. tshawytscha*, *O. kisutch*,
O. gorbuscha, *O. nerka*

Origin: Alaska, USA

Mainly sold as: Frozen fillet and canned fish

Fishing method: Gill netting, purse seining and trolling

Biology

Alaskan Pacific salmon are born in rivers and migrate to the sea to grow until mature at about four or five years of age. When mature, they swim back in groups to the river where they were born to reproduce between May and September. Since Pacific salmon gather to reproduce at predictable times and places, fishermen can catch almost every fish, making them vulnerable to fishing pressure.

Status of wild populations

Pacific salmon in Alaska are fully fished.

Bycatch

The methods used to catch Alaskan Pacific salmon create small quantities of bycatch, consisting of rockfish and other bottom-living species.

Impacts on the environment

The fishing methods used have little impact on the seabed because contact between fishing gear and the seafloor is minimal.

Fisheries management

The Alaskan Pacific salmon fishery has management measures in place that include annual stock assessments, limiting the number of fishing licenses, setting fishing quotas and placing restrictions on fishing gear, and seasonal closure to protect spawning fish and important habitats. The fishery is well managed and is certified by MSC.

Summary

Alaskan Pacific salmon's predictable mating patterns make the species vulnerable to fishing pressure but stocks are considered healthy although fully fished (see p.205 for explanation). The fishery generates a small amount of bycatch and has little impact on the seabed. The Alaskan Pacific salmon fishery is MSC-certified and its management systems are effective.



• *Sardina pilchardus*

來源地: 葡萄牙

一般出售方式: 冰鮮魚及罐頭

捕撈方法: 圍網

生態特徵

沙甸魚屬群游性魚類，習慣聚集一起覓食和繁殖。沙甸魚種群的數量容易受海水溫度、氣候和水流等因素影響，數目差異很大，故此易受漁業壓力影響。

野生種群狀況

沙甸魚漁業是葡萄牙最重要的漁業之一，其漁業資源已遭完全開發，漁獲量保持穩定水平。

意外捕撈

圍網捕魚能有效挑選出目標的漁獲品種，因此意外捕撈量不高。

對環境的影響

圍網這捕撈方法對海床的影響輕微。

漁業管理

葡萄牙採取的漁業管理措施包括進行漁業資源評估、限制捕撈牌照數目、實施漁獲品種體積限制及設立捕撈配額，執法良好，能有效確保漁業長遠的可持續性。

摘要

葡萄牙水域的沙甸魚魚群已遭完全開發，易受漁業壓力影響。漁民以圍網捕撈沙甸魚，意外漁獲量少，不會破壞海床生態環境。葡萄牙沙甸魚捕撈業的管理體系成效顯著。

• *Sardina pilchardus*

Origin: Portugal

Mainly sold as: Fresh and canned fish

Fishing method: Purse seining

Biology

Sardines are schooling fish and they feed and reproduce in big groups. Sardine populations can fluctuate greatly, as they are affected by factors including seawater temperature, climate and water currents. These characteristics make the species sensitive to fishing pressure.

Status of wild populations

Sardine populations are fully fished and a stable quantity of them is landed in Portugal, where it is one of the most important fisheries.

Bycatch

Purse seining is a highly selective method which has a relatively low bycatch rate.

Impacts on the environment

Purse seining has little or no impact on the seabed.

Fisheries management

Management measures including stock assessments, fishing licences,

minimum catch size and fishing quotas are in place in Portugal, and enforcement of these measures is strong. They are considered effective in ensuring the long-term sustainability of the fishery.

Summary

Sardines stocks in Portuguese waters are considered fully fished and the species is sensitive to fishing pressure. Sardines are caught by purse seines, a fishing method that generates a relatively small amount of bycatch and does not damage the seabed. The management systems covering the Portuguese sardine fishery are effective.

● *Plectropomus leopardus*

來源地: 澳洲昆士蘭

一般出售方式: 活魚，原條出售

捕撈方法: 手釣

◉ 生態特徵

東星斑成長後會改變性別，並聚集在漁民可預測的地方繁殖，極易受漁業壓力影響。

◉ 野生種群狀況

澳洲東星斑的種群數量水平尚算健康，自1996年起一直維持在相同水平。澳洲東星斑的漁獲屬完全開發類別。

◉ 意外捕撈

漁民利用釣鉤及釣線捕魚，並會把其他誤捕品種放回海中，故意外漁獲甚少。

◉ 對環境的影響

釣鉤及釣線極少觸碰到海床，故這種捕撈方法對海床影響輕微。

◉ 漁業管理

漁業監管大致良好，措施包括設立海洋保護區、漁業資源評估、捕撈配額、捕撈牌照限制、規管漁具及漁獲品種體積（東星斑於東南亞的漁業管理情況，請見第170頁）。

摘 要

東星斑的生態特徵使牠們極易受漁業壓力影響。不過魚群數量維持於健康水平，漁業資源屬完全開發類別。澳洲東星斑漁業的意外捕撈量少，對海床生態系統影響有限，並設有健全的漁業管理體制。

● *Plectropomus leopardus*

Origin: Queensland, Australia

Mainly sold as: Live fish

Fishing method: Hook and lining

◉ Biology

Leopard coral trout change sex when they grow up and aggregate at predictable locations to reproduce, meaning that fishermen can target the species easily. This makes leopard coral trout very vulnerable to targeted fishing.

◉ Status of wild populations

Australian leopard coral trout populations are relatively healthy and have remained at the same level since 1996. Stocks of Australian leopard coral trout are fully fished.

◉ Bycatch

The use of hook and line and the release of other species that are caught results in a low amount of bycatch.

◉ Impacts on the environment

Hook and lining has little impact on the seafloor because contact between the seabed and the hooks is minimal.

◉ Fisheries management

This fishery is generally well managed, with management measures including

protected areas, stock assessments, fishing quotas, licensing and restrictions on gear and fish size (but see p.171).

Summary

The biological characteristics of leopard coral trout make it very vulnerable to targeted fishing. However, stocks are considered healthy and fully fished. Australian leopard coral trout fisheries generate a low amount of bycatch and have limited impact on the seabed ecosystem. A sound fishery management system is in place.



• *Anthocidaris crassispina*

來源地: 南中國海，包括香港水域
一般出售方式: 活海膽，原隻出售
捕撈方法: 徒手捕捉

● 生態特徵

海膽的成長迅速，天生較能承受漁業壓力。

● 野生種群狀況

經常見於本港沿岸地區。

● 意外捕撈

漁民徒手捕捉海膽，不會意外捕捉到其他海洋生物。

● 對環境的影響

徒手捕捉海膽，與海床接觸有限，對海床影響輕微。

● 漁業管理

雖然本港和南中國海的海膽漁業體系效果不彰，但我們仍可經常在這些地方見到大量海膽。

為了確保這漁業的可持續性，有關當局應引入針對海膽特性的管理措施，以保護這個漁業的長遠發展。

摘要

海膽天生較能承受漁業壓力，亦沒出現過度捕撈的情況。徒手捕捉海膽不會產生意外漁獲，對海床影響輕微。唯香港和南中國海的漁業管理措施成效不彰。



• *Anthocidaris crassispina*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Live sea urchin
Fishing method: Handpicking

● Biology

Sea urchins grow quickly and are not naturally vulnerable to fishing pressure.

● Status of wild populations

They are commonly found in coastal areas of Hong Kong.

● Bycatch

As sea urchins are handpicked by fishermen there is no bycatch.

● Impacts on the environment

Handpicking has little impact on seabed because contact with the seabed is minimal.

● Fisheries management

Sea urchins are still common and abundant although the fishery management systems for this species in Hong Kong and the South China are very weak. To ensure the long-term sustainability of the sea urchin fishery, fisheries management

should introduce species-specific measures designed to protect the long-term viability of this fishery.

Summary

There are no biological characteristics that make sea urchins vulnerable to fishing pressure and they are not overfished. Handpicking of sea urchins has no bycatch and has little impact on the seabed. However, the fishery management measures in place for sea urchins in Hong Kong and the South China Sea are weak.



• *Chlamys farreri*, *Argopecten irradians*,
Patinopecten yessoensis

來源地: 中國

一般出售方式: 活帶子及冰鮮帶子, 原隻出售

養殖方法: 懸垂漁網

貝類養殖環境

在養殖場中的帶子的密度較在自然環境高, 故容易傳播疾病和寄生蟲。

飼料

帶子屬濾食性生物, 無需餵飼。漁民會在其成長初期提供營養補充品。

帶子苗來源

帶子幼苗來自中國的人工孵育場。

對環境的影響

浮游生物在海水中吸取大量養份, 被帶子吃掉後有助減低海水污染, 但若養殖數量過多仍會因過多排泄物而污染環境。中國養殖的帶子屬當地原生品種, 故沒有引入外來品種的風險。

海產養殖管理

養殖戶只可在中國指定範圍建立養殖

場, 並須獲得政府部門的認證, 方可生產帶子出口。養殖場多由當地人經營, 惠及當地社群。中國有法例監管養殖海洋生物, 但若能加強執法, 應可更有效處理養殖業的潛在影響。

摘要

中國的養殖戶以懸垂漁網飼養帶子。帶子能在水中吸取食物, 無需餵飼。帶子幼苗多來自發展完善的人工孵育場。不過, 養殖業的運作或會對環境構成影響, 包括排泄物污染、養殖過多帶子等。目前的養殖管理措施理論上有效, 唯執行方面仍有改善空間。



• *Chlamys farreri*, *Argopecten irradians*,
Patinopecten yessoensis

Origin: China

Mainly sold as: Live and fresh whole scallop

Culture method: Vertical hanging nets

Condition of the farmed shellfish

Scallops are stocked much more densely in farms than in the natural environment and this can allow diseases and parasites to spread easily.

Feed

Scallops are filter feeders, therefore no feed is needed. Food supplements are provided to scallop seedlings in their early stages.

Source of fry

Scallop seedlings come from artificial hatcheries in mainland China.

Impacts on the environment

Plankton consume excessive nutrients in seawater and by consuming them, scallops can help reduce seawater pollution. However, farming too many scallops can still pollute the surrounding environment through their faeces. As the scallops species that are farmed in China naturally occur there, there is no risk of introducing exotic species.

Mariculture management

Fish farms can only be set up in certain designated places in China and producing scallops for export requires certification from the authorities. The industry is beneficial to local communities as farms are owned by local people. There are regulations governing the farming of marine species in mainland China but the potential impacts of farming could be better addressed if enforcement were increased.

Summary

Scallops are cultured in vertical hanging nets in mainland China. No feed is required to farm scallops as they can obtain food from the water column, and scallop seedlings come from well-developed artificial hatcheries. Nevertheless, farming may have some impact on the environment, including pollution caused by faeces from stocking too many individuals. The current farming management measures are theoretically effective, but enforcement could be improved.



● *Amusium balloti*

來源地: 澳洲東部及西部

一般出售方式: 活、冷藏及解凍帶子

捕撈方法: 底挖掘

生態特徵

帶子生長迅速，一年內達成熟期。帶子種群會受水流和水溫轉變等外來因素影響，故在一些年份較容易受漁業壓力威脅。

野生種群狀況

澳洲東部及西部的帶子漁業資源已被完全開發。

意外捕撈

挖掘捕撈可能捕撈大量意外漁獲，但帶子多群集活動，只會在特定地方出現，故被丟棄或非目標品種的漁獲數量甚少。漁民亦採用特別儀器，防止誤捕海龜。

對環境的影響

挖掘漁具通常會嚴重影響海床，但帶子生長於沙質海床，故對海床影響輕微，漁民亦只可在指定範圍捕撈帶子。

漁業管理

澳洲帶子捕撈業採用的管理措施包括捕撈牌照限制、設立捕撈配額、休漁期、漁業資源評估、規管漁具及漁獲品種體積等。澳洲東部及西部的帶子捕撈業管理均見完善。

摘要

外在環境轉變或會影響帶子對漁業的承受能力。澳洲東部和西部的帶子漁業資源均已遭完全開發。兩地的漁民均採用底挖網捕撈帶子，但由於管理得宜，意外捕撈的非目標品種的漁獲數量甚少，對海床環境的影響亦輕微。有關的漁業管理體制能有效保護種群。



● *Amusium balloti*

Origin: Eastern and western Australia

Mainly sold as: Fresh, frozen and defrosted scallop

Fishing method: Bottom dredging

Biology

Scallops grow quickly and become mature in a year. However, scallop populations can be affected by external conditions such as changes of seawater currents and temperature, making them more sensitive to fishing pressure in some years than others.

Status of wild populations

The stocks of eastern and western Australian scallops are fully fished.

Bycatch

Although bottom dredging can potentially generate large amounts of undesirable bycatch, the discarded catch and bycatch from these fisheries are minimal because scallops will aggregate together and can only be found in certain areas. Special devices are used to prevent marine turtles getting caught.

Impacts on the environment

Usually, bottom dredging has a big impact on the seabed, but the impact of scallop fishing is small because the

seabed in question is sand. Scallop fishing is only allowed at designated areas.

Fisheries management

Australian scallop fisheries adopt management measures including licensing, harvest quotas, closed seasons, stock assessments and restrictions on gear types and minimum scallop size. Scallop fisheries in both eastern and western Australia are well managed.

Summary

External environmental variations can potentially affect the vulnerability of scallops to fishing pressure. The stocks in eastern and western Australia are fully fished. Although fishermen in both areas use dredging to catch scallops, good management practices mean that they generate minimal amounts of bycatch and discarded animals. Damage to seabed habitats is also small. The management systems of these fisheries are effective in protecting stocks.



• *Dissostichus eleginoides*

來源地: 英屬南喬治亞島
一般出售方式: 新鮮及冷藏魚柳
捕撈方法: 底延繩

生態特徵

雪花鱸魚成長緩慢，要六至九年方可繁殖，壽命可長達50歲，故極易受漁業壓力影響。

野生種群狀況

非法捕撈雪花鱸魚的情況十分嚴重，但這個問題在位於南半球海域的英屬南喬治亞島卻甚輕微。英屬南喬治亞島的雪花鱸魚數目水平穩定，其漁業資源已被完全開發。

意外捕撈

底延繩捕魚時會意外殺害漂泊信天翁和灰頭信天翁等瀕危海鳥品種，但透過禁止在海鳥繁殖期捕魚，和分散鳥類對魚餌的注意力等漁業管理措施，2006年及2007年的意外漁獲量已降至零。

對環境的影響

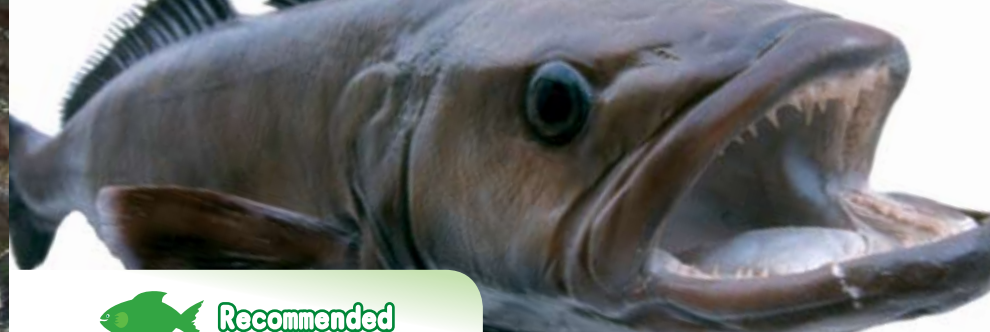
底延繩會破壞如深海珊瑚的海底動物群族，對海床有若干影響。

漁業管理

英屬南喬治亞島實施的管理措施包括漁業資源評估、限制捕撈牌照、實行減少意外漁獲的措施和設立捕撈配額。雪花鱸魚的漁業管理制度行之有效，更獲MSC認證。(雪花鱸魚於其他地區的漁業管理情況，請見第182頁)

摘要

英屬南喬治亞島的雪花鱸魚的漁業資源已被完全開發，牠們的生理特徵令其易受漁業壓力威脅。當局已採取行動，將瀕危鳥類的意外捕捉量減至極低水平。此漁業採用的捕魚方法對海床有若干影響，並已獲MSC認證，其管理措施能有效地維持雪花鱸魚的數量在可持續的水平。



• *Dissostichus eleginoides*

Origin: South Georgia, UK
Mainly sold as: Fresh and frozen fillet
Fishing method: Bottom long-lining

Biology

Chilean sea bass grow slowly and take about six to nine years to reach maturity. They have a long life span of up to 50 years. These biological characteristics make them vulnerable to fishing pressure.

Status of wild populations

Although illegal fishing of Chilean sea bass is a massive problem, it is low in South Georgia, an island on the Southern Ocean. South Georgia's Chilean sea bass stocks are stable and fully fished.

Bycatch

Although endangered sea bird species such as wandering and grey-headed albatrosses can be accidentally killed using bottom long-lining, bycatch was reduced to zero in 2006 and 2007 by using measures that include not fishing during the sea bird breeding period and scaring birds away from the baited hooks.

Impacts on the environment

Bottom long-lining has some impact on the seabed because it damages benthic

fauna like deep-sea corals.

Fisheries management

Management measures including stock assessments, licensing, bycatch reduction and fishing quotas are in place in South Georgia, and measures have been taken to reduce illegal fishing. The Chilean sea bass fishery is certified by MSC and is well managed (but see p.183).

Summary

The stock of Chilean sea bass in South Georgia is fully fished. The species is biologically vulnerable to fishing pressure. Actions have been taken to reduce the bycatch of endangered sea birds to extremely low levels although the fishing method used there has some impact on the seabed. The Chilean sea bass fishery is MSC-certified and the management measures are effective in maintaining the sustainability of the species.



• *Panopea generosa*, *P. abrupta*

來源地: 北美洲（美國華盛頓州，以及加拿大英屬哥倫比亞）

一般出售方式: 活蚌及冰鮮蚌，原隻出售

養殖方法: 戶外泥岸

貝類養殖環境

在養殖場中的象拔蚌密度較在自然環境高，成年的象拔蚌或會競爭空間。

飼料

象拔蚌屬濾食性生物，可以從水中吸取食物，無需餵飼。

蚌苗來源

養殖戶須捕捉野生成蚌來人工繁殖蚌苗，但所需數量有限，對環境影響輕微。

對環境的影響

象拔蚌屬原生品種，並無引入外來物種的風險。養殖戶不可給牠們餵飼藥物，而象拔蚌的養殖場亦與野生種群分隔。不過養殖的象拔蚌或會與其他棲居泥沼的生物爭奪生存空間，令海鳥的食物減少。

海產養殖管理

當局限制象拔蚌養殖場的選址，養殖戶亦必須領有牌照。開設養殖場前必須制定策略計劃，包括進行影響評估和研究環境的可持續性。美國和加拿大象拔蚌養殖業的管理措施成效顯著。

摘要

象拔蚌在北美洲的泥岸中養殖，無需餵飼，養殖場僅輕微地改變該地的天然地貌。養殖戶捕撈野生成蚌繁殖蚌苗，但不影響野生種群。象拔蚌養殖業對環境的影響輕微，而目前的管理措施行之有效。



• *Panopea generosa*, *P. abrupta*

Origin: North America (Washington, USA, and British Columbia, Canada)

Mainly sold as: Live and fresh whole clam

Culture method: Outdoor muddy shores

Condition of the farmed shellfish

Competition for space occurs among adult geoduck clams as they are stocked much more densely in farms than in the natural environment.

Feed

Since geoduck clams are filter feeders and can obtain food from the water columns no feed is required.

Source of fry

Although adult stocks are obtained from the wild to provide artificial seedlings, such practices have only minimal impact on wild stocks as only a few individuals need to be used.

Impacts on the environment

As geoduck clams are native species, there is no risk of invasive species being introduced. Farmers are not allowed to give them any drugs, and the habitats of farmed individuals are kept separate from wild populations. Farmed geoduck clams, however, may compete with other mudflat-dwelling species

that provide food for seabirds.

Mariculture management

There are restrictions on the location of geoduck clam farms and permits are required to farm them. Strategic planning, including impact assessments, and research into environmental sustainability are required before a geoduck clam farm can be set up. Geoduck clam farming is effectively managed in both the USA and Canada.

Summary

Geoduck clams are cultured in muddy shores in North America. The farms cause minimal alteration to the natural environment and no feed is required. Harvesting of wild adults for seedlings does not affect the wild populations and the environmental impact of geoduck clams farming is minimal. The management measures currently in place are effective.



• *Ruditapes philippinarum*, *Cyclina sinensis*, *Tegillarca granosa*, *Meretrix meretrix*, *Paphia euglypta*

來源地: 中國

一般出售方式: 活蜆及冰鮮蜆, 原隻出售

養殖方法: 戶外泥灘

貝類養殖環境

養殖場中的蜆的密度遠較在自然泥灘高, 疾病和寄生蟲會在養殖品種上出現。

飼料

蜆進食海水中的單細胞海藻等微生物, 無需餵飼, 會輔以其他補充食物包括玉蜀黍粉和蛋黃。

蜆苗來源

捕撈成蜆來繁殖幼苗的數量並不多, 對野生種群影響亦不大。

對環境的影響

在泥灘養蜆的養殖方式, 對自然環境的改動較少。養殖的蜆類屬於當地品種, 並無養殖品種逃至自然環境的風險。

海產養殖管理

中國養蜆場需要在特別指定的地方建立。出售可供食用的蜆類, 必須獲官方的安全證明。養蜆業屬當地社區的重要經濟活動, 養殖場員工主要為當地居民。不過, 現在的養蜆場並無積極措施清理鄰近堆積的廢物。

摘要

蜆類多在中國的泥灘上飼養, 並以過濾海水中的微生物為食糧, 無需以魚類餵飼。只有少數成熟的蜆被捕撈來繁殖蜆苗, 對野生種群影響輕微。然而, 經營泥灘養殖場引致的水源污染或會影響環境, 但程度並不嚴重。養蜆場是當地居民的重要收入來源。



• *Ruditapes philippinarum*, *Cyclina sinensis*, *Tegillarca granosa*, *Meretrix meretrix*, *Paphia euglypta*

Origin: China

Mainly sold as: Live and fresh whole clam

Culture method: Outdoor mud flats

Condition of the farmed shellfish

Clams are stocked much more densely in farms than on natural mud flats, and diseases and parasites are found on cultured individuals.

Feed

Clams filter micro-organisms such as single-celled algae from seawater as their food, so there is no need to feed them. Supplements including maize powder and egg yolk are also used to feed clams.

Source of fry

Since only a few adult clams are collected from the wild to produce seedlings, the impact of this practice on wild populations is small.

Impacts on the environment

Clams are farmed on mud flats with little alteration to the natural landscape. Farmed clams are from local species and there is little risk of farmed individuals escaping into the wild.

Mariculture management

Clam farms in China operate on designated areas. Official certification that clams are safe for consumption is required before they can be sold. Local villagers are employed to run clam farms and farming is an important economic activity for local communities. However, existing clam farms do not have proactive measures to clear the waste that accumulates near them.

Summary

Clams are cultured on mud flats in China and need no feed as they filter micro-organisms from seawater. Farming of clams has limited impact on the wild populations since only a few mature clams are collected for seedlings. Water pollution around the mud flats may have an impact on the environment but only on a limited scale. Clam farms are an important source of income for local villagers.



• *Anoplopoma fimbria*

來源地: 北美洲（美國阿拉斯加、加拿大英屬哥倫比亞）

一般出售方式: 冷藏或解凍魚柳

捕撈方法: 底延繩（美國），陷阱網具（加拿大）

生態特徵

銀鱈魚的體長可達106公分，可活至114年，要生長五至六年方可繁殖，令牠們容易受漁業壓力影響。

野生種群狀況

在美國阿拉斯加和加拿大英屬哥倫比亞的銀鱈魚的漁業資源已遭完全開發。

意外捕撈

底延繩和陷阱網具捕魚的意外捕撈量均不多。

對環境的影響

兩種捕魚方法的漁具都極少觸碰到海床，對海床的影響均甚低。

漁業管理

阿拉斯加及英屬哥倫比亞的銀鱈魚漁業管理措施包括漁業資源評估、捕撈牌照

制度、捕撈配額、對捕魚器具的限制、季節性休漁期及生境保護等，管理制度完善，阿拉斯加銀鱈魚捕撈業更獲海洋管理委員會（MSC）認證。

摘要

銀鱈魚因其生態特徵，容易受漁業壓力威脅。美國阿拉斯加和加拿大英屬哥倫比亞的漁業資源已遭完全開發。有關漁業的意外漁獲甚少，對海床生態系統影響非常輕微。美國和加拿大的漁業管理體系均屬健全，阿拉斯加銀鱈魚捕撈業更獲海洋管理委員會（MSC）認證。



• *Anoplopoma fimbria*

Origin: North America (Alaska, USA, and British Columbia, Canada)

Mainly sold as: Frozen or defrosted fillet

Fishing method: Bottom long-lining (USA), traps (Canada)

Biology

Black cod can be up to 106 centimetres in length and live up to 114 years. It takes a relatively long time, around five to six years, for them to become sexually mature. This makes them susceptible to fishing pressure.

Status of wild populations

Black cod stocks are fully fished in Alaska, USA and British Columbia, Canada.

Bycatch

Bottom long-lining and trapping result in a low quantity of bycatch.

Impacts on the environment

Both fishing methods have little impact on the seabed because there is limited contact between fishing gear and the seafloor.

Fisheries management

Management measures in place in the black cod fisheries of Alaska and British Columbia include stock assessments, licensing, fishing quotas, restrictions

on gear, seasonal closure and habitat protection. The fisheries are well managed and the Alaskan black cod fishery is certified by MSC.

Summary

Black cod are vulnerable to fishing pressure because of their biological characteristics. Stocks in Alaska, USA and British Columbia, Canada are considered fully fished. The fisheries generate a low amount of bycatch and have limited impact on the seabed ecosystem. The management systems of the fisheries in both the USA and Canada are sound and the Alaskan black cod fishery is MSC-certified.





• *Todarodes pacificus*, *Ommastrephes bartramii*, *Illex argentinus*, *Nototodarus gouldi*, *N. sloanii*

來源地: 西北太平洋、西南大西洋及紐西蘭

一般出售方式: 冷藏魷魚

捕撈方法: 鈎釣，中層拖網

生態特徵

魷魚屬於生長迅速的品種，幾個月內已可繁殖，大部分的壽命只有10至18個月。

野生種群狀況

西南大西洋及紐西蘭的魷魚漁業資源屬未完全開發類別。在西北太平洋的魷魚 *Ommastrephes bartramii* 漁業資源已被完全開發。

意外捕撈

垂釣魷魚能有效選擇獵物，意外捕撈量極低。

對環境的影響

鈎釣和中層拖網均只會意外觸碰到海床，對海床的影響輕微。

漁業管理

紐西蘭、福克蘭群島和阿根廷採用的漁業管理措施包括漁業資源評估、設立捕

撈牌照限制及捕撈配額。此外，若魷魚捕撈量過多，福克蘭群島甚至會暫停有關漁業。日本等國家已制定針對西北太平洋的魷魚的漁業管理措施，唯在公海進行的捕撈活動並不受任何措施監管。

摘要

魷魚生長迅速，壽命短。西南大西洋和紐西蘭的魷魚漁業資源屬未完全開發類別，而北太平洋地區的漁業資源則屬完全開發類別。魷魚捕撈業的意外漁獲量少，捕撈方法對海床影響輕微。西南大西洋和紐西蘭的魷魚捕撈業管理措施健全，唯西北太平洋區的措施並未完善。



• *Todarodes pacificus*, *Ommastrephes bartramii*, *Illex argentinus*, *Nototodarus gouldi*, *N. sloanii*

Origin: Northwest Pacific, southwest Atlantic and New Zealand

Mainly sold as: Frozen squid

Fishing method: Jigging, mid-water trawling

Biology

Squid are fast growing species and become sexually mature in a few months. Many species only have a life span of between 10 and 18 months.

Status of wild populations

The populations of squid in the southwest Atlantic and New Zealand are considered under-fished. In the northwest Pacific the stock of *Todarodes pacificus* is fully fished.

Bycatch

Squid jigging is a highly selective fishing method that has a low bycatch rate.

Impacts on the environment

Jigging and mid-water trawling have little impact on the seabed because there is only accidental contact.

Fisheries management

Management measures including stock assessments, licensing and fishing quotas are in place in New Zealand, the Falkland Islands and Argentina. In addition to these measures, the Falk-

land Islands fishery can be closed if too many squid are caught. Some fishery management measures are in place for northwest Pacific squid in countries like Japan, but there is no management in international waters.

Summary

Squid grow quickly and have a short life span. The stocks of squid in the southwest Atlantic and New Zealand are considered under-fished; some stocks in the northwest Pacific are fully fished. Squid fisheries generate a low amount of bycatch and the fishing methods have a limited impact on the seabed. The fishery management for squid species in the southwest Atlantic and New Zealand are sound; in the northwest Pacific they are partially effective.



• *Haliotis discus*, *H. gigantea*, *H. asinina*, *H. diversicolor*

來源地: 中國
一般出售方式: 活鮑魚
養殖方法: 室內養殖池

貝類養殖環境

養殖戶或會在一個養殖池內飼養大量鮑魚，水質可能因此受到影響。

飼料

鮑魚的主要食糧是植物，以海藻為主，故無需捕撈魚類來餵飼。牠們的飼料偶然會混合了包括豆、海草、維他命及礦物的乾粉末。

鮑魚苗來源

鮑魚苗通常由發展完善的繁育場生產，無需採集野生幼苗。福建省是中國主要的鮑魚苗出產地。

對環境的影響

鮑魚養殖場抽取海水使用，部分養殖場會把水過濾後再用。鮑魚在室內飼養，沒有養殖動物逃到自然環境的風險；但亦有報告指飼養過程會把未經處理的污水、剩餘

飼料和排泄物直接排到大海，或會污染水源。

海產養殖管理

鮑魚養殖場在陸上經營，並不涉及改建自然環境，通常由規模較大的公司經營，僱用當地人士打理，屬一門惠及當地社群的工業。

摘要

鮑魚主要在陸上的室內養殖池飼養，以植物為主要食糧。飼養過程產生的水源污染或會破壞自然環境，但其影響有限，不存在鮑魚逃到自然環境的風險。中國的鮑魚養殖場多僱用當地工人，令當地經濟受惠。



• *Haliotis discus*, *H. gigantea*, *H. asinina*, *H. diversicolor*

Origin: China
Mainly sold as: Live abalone
Culture method: Indoor pools

Condition of the farmed shellfish

Abalone farms may raise a large number of abalone in one pool, and this may affect the health of the animals.

Feed

Abalone eat plants, mainly algae, and require no wild-caught fish feed. Sometimes they are also fed dry powdered feed made of beans, seaweed, vitamins and minerals.

Source of fry

Abalone seedlings are normally produced by well-developed hatcheries and there is no need to collect small juveniles from the wild. Fujian province is the main provider of juvenile abalone in mainland China.

Impacts on the environment

Seawater is pumped into abalone farms and some farms filter the water for reuse. Since abalone are kept in indoor areas, there is little risk of them escaping into the wild. There are reports of effluent, excess feed and faeces of

abalone being directly discharged into the open sea without treatment. Such practices may cause water pollution.

Mariculture management

Abalone farms are land-based operations and the sites are not converted from natural landscapes. This type of aquaculture is usually run by large companies employing local people and is seen as a business that is beneficial to the local community.

Summary

Abalone are mainly cultured in land-based indoor pools and feed on plants. Water pollution could be an issue but it has only limited impact on the natural environment. There is little risk of abalone escaping into the wild. Abalone farms in China employ local workers and contribute positively to the local economy.



• *Haliotis laevis*, *H. rubra*, *H. roei*

來源地: 澳洲

一般出售方式: 急凍、罐裝鮑魚

捕撈方法: 徒手捕捉

生態特徵

鮑魚需生長兩至三年方達成熟期，然後聚集一起繁殖，漁業壓力對牠們的影響屬中等。

野生種群狀況

澳洲鮑魚的漁業資源已被完全開發，黑邊鮑和青邊鮑的漁獲量相對穩定。

意外捕撈

漁民採用非常精確和具選擇性的捕撈方法，故意外漁獲相當少。

對環境的影響

潛水員徒手捕捉鮑魚，對海床影響輕微。

漁業管理

澳洲鮑魚捕撈業管理完善，措施包括漁業資源評估、設立捕撈配額和漁獲品種

體積限制。最近更引入基因科技，以打擊非法捕撈活動。

摘要

黑邊鮑、青邊鮑和羅氏鮑的生態特徵令牠們較易受漁業壓力影響，但牠們的數量尚算處於健康水平，漁業資源屬完全開發類別。漁業的意外漁獲極少，對海床生態系統影響十分有限。漁業管理制度健全。



• *Haliotis laevis*, *H. rubra*, *H. roei*

Origin: Australia

Mainly sold as: Frozen, canned abalone

Fishing method: Handpicking

Biology

Abalone take two to three years to become sexually mature and adult abalone will aggregate together to reproduce. This makes them moderately vulnerable to fishing pressure.

Status of wild populations

Stocks of Australian abalone are fully fished. Catches of blacklip and greenlip abalone are relatively stable.

Bycatch

The amount of bycatch from Australian abalone fisheries is very low because a precise and selective fishing method is used.

Impacts on the environment

Handpicking by divers has little impact on the seabed.

Fisheries management

Australian abalone fisheries are well managed. Fishing is subject to mea-

sures including stock assessments, catch quotas and size restrictions. Fisheries have recently introduced genetic technologies to combat illegal abalone harvesting.

Summary

The biological characteristics of blacklip, greenlip and Roe's abalone make them moderately susceptible to fishing pressure, but stocks are considered healthy and fully fished. Fisheries generate a very low amount of bycatch and have limited impact on the seabed ecosystem. The management of fisheries is sound.



• *Panulirus cygnus*

來源地: 西澳洲

一般出售方式: 活龍蝦及冷藏龍蝦，原隻出售

捕撈方法: 龍蝦籠

生態特徵

西澳洲龍蝦生長速度緩慢，成長期為五年之久。水温等外在因素可以影響幼龍蝦孵化的數目。這些特徵使西澳洲龍蝦易受漁業壓力影響。

野生種群狀況

西澳洲龍蝦種群的數目處於健康水平，其漁業資源屬完全開發類別。

意外捕撈

八爪魚是主要的意外漁獲，此外還有少量其他底棲魚類品種。

對環境的影響

龍蝦籠主要放置在岩石海床，對環境影響不大。

漁業管理

此海鮮品種的漁業管理體制健全，且行之

有效。漁民必須申領捕撈牌照，牌照的數目有限，同時設有每年捕撈配額，漁獲品種體積亦受限制。龍蝦捕撈業獲海洋管理委員會（MSC）認證。

摘要

這個品種的成長速度緩慢，易受外在環境因素影響，故較易受漁業壓力威脅。西澳洲龍蝦的數目處於健康水平，其漁業資源已被完全開發。西澳洲龍蝦捕撈業的意外漁獲甚少，對海床生態系統影響輕微，更獲海洋管理委員會(MSC)認證，管理完善。



• *Panulirus cygnus*

Origin: Western Australia

Mainly sold as: Live lobster and frozen lobster

Fishing method: Pot traps

Biology

The growth of western Australian rock lobster is slow - it takes them about five years to become adult. External factors such as water temperature can affect the number of eggs that grow into juvenile lobsters. These characteristics make western Australian rock lobster susceptible to fishing pressure.

Status of wild populations

The populations of western Australian rock lobster are considered to be healthy and are fully exploited.

Bycatch

Octopuses are the major bycatch, along with small amounts of other bottom-living fish species.

Impacts on the environment

As the pots are usually placed on rocky seabeds, they cause little damage to the environment.

Fisheries management

The fishery management system of this species is sound and effective. Fisher-

men are required to obtain licences and their number is limited. There is an annual quota for the number of animals caught and the size of the lobsters caught is also regulated. The fishery is certified by MSC.

Summary

This species is susceptible to some fishing pressure since it grows slowly and is sensitive to external environmental factors. The stocks of western Australian rock lobster are considered healthy and fully fished. The fishery generates a low amount of bycatch and has little impact on the seabed ecosystem. The western Australian rock lobster fishery is MSC-certified and management is sound.



Wild Caught



• *Panulirus ornatus*

來源地: 東澳洲

一般出售方式: 活龍蝦及冷藏龍蝦原隻出售

捕撈方法: 徒手捕捉

生態特徵

東澳洲龍蝦生長約兩年半後方可繁殖，漁業壓力對牠們的影響屬中等。

野生種群狀況

東澳洲龍蝦的漁業資源已被完全開發；2006年昆士蘭的總漁獲量約為188公噸。

意外捕撈

東澳洲龍蝦捕撈業的意外漁獲極少，主要為其他龍蝦品種。

對環境的影響

潛水員徒手或用套索捕捉龍蝦，幾乎不用接觸海床，對海床影響不大。

漁業管理

東澳洲龍蝦捕撈業的管理措施包括設立海洋保護區和捕撈牌照限制、制定捕撈配額、規管漁具和漁獲品種體積等。當地更

額外監管閒釣活動，如禁止捕撈正在繁殖的雌龍蝦等。這海鮮品種的捕撈業受到良好監管。

摘要

東澳洲龍蝦不易受漁業壓力影響，唯牠們的成熟期較晚。此品種的漁業資源已遭完全開發。漁業的意外漁獲極少，對環境影響有限。漁業管理制度完善，且能有效保護其種群。



• *Panulirus ornatus*

Origin: Eastern Australia

Mainly sold as: Live lobster and frozen lobster

Fishing method: Handpicking

Biology

Eastern Australian rock lobsters reach sexual maturity at about two and a half years of age, which makes them moderately vulnerable to fishing pressure.

Status of wild populations

Stocks of eastern Australian rock lobster are considered fully fished; the total catch in Queensland was about 188 tonnes in 2006.

Bycatch

The amount of bycatch from eastern Australian rock lobster fishing is very low - mainly other rock lobster species.

Impacts on the environment

Handpicking or divers using nooses has little impact on the environments, as contact with the seabed is minimal.

Fisheries management

Eastern Australian rock lobster fishing is subject to management measures including protected areas, licensing, fishing quotas, gear and size restrictions. There are additional regulations in

place for recreational fishermen - taking breeding females is prohibited, for example. The fisheries of this species are well managed.

Summary

Eastern Australian rock lobsters are not susceptible to fishing pressure; only their relatively late maturity can be an issue. Stocks of the species are fully fished. Fisheries produce a very low amount of bycatch and have limited impact on the environment. Fishery management is sound and is effective in protecting stocks.



● *Crassostrea gigas*, *C. rivularis*

來源地: 中國

一般出售方式: 活蠔及冰鮮蠔，原隻出售

養殖方法: 懸垂線或垂直短混凝土塊

貝類養殖環境

由於在養殖場中的蠔密度較在自然環境高，故較容易傳播疾病和寄生蟲。

飼料

蠔是濾食性生物，可以從水中得到食物，無需餵飼。

蠔苗來源

蠔苗來自中國的人工孵育場。

對環境的影響

浮游生物在海水中吸取大量養分，被蠔吃掉後有助減低海水污染。但若養殖數量過多仍會污染環境。中國養殖的蠔並非外來品種，不構成外來品種入侵的風險。

海產養殖管理

在中國，養蠔場只能在指定的地方設立，而且必須獲得當局認證，方可出口養殖蠔類。養蠔場多由當地人經營，故能惠及當地社群。中國有法例規管海洋品種的養殖，但須加強執法，才能更有效規管養蠔場的潛在影響。

摘要

中國的養殖戶用懸垂線，或在潮間帶插放垂直短混凝土塊的方法養殖蠔。蠔能在水中吸取食物，無需餵飼，蠔苗多來自人工孵育場。然而，養殖場的運作可能影響環境，包括飼養數量過多，導致排泄物污染水質。目前的養殖管理措施理論上有效，但落實工作仍有改善空間。



● *Crassostrea gigas*, *C. rivularis*

Origin: China

Mainly sold as: Live and fresh whole oyster

Culture method: Vertical hanging lines or short vertical concrete stones

Condition of the farmed shellfish

Oysters are stocked much more densely in farms than in the natural environment and this allows diseases and parasites to spread easily.

Feed

Oysters are filter feeders and obtain food from the water column therefore no feed is needed.

Source of fry

Oyster seedlings come from artificial hatcheries in mainland China.

Impacts on the environment

Plankton consume excessive nutrients in seawater and by consuming plankton oysters can help reduce seawater pollution. However, farming too many oysters can still pollute the surrounding environment. As the oyster species that are farmed in China naturally occur there, there is no risk of introducing exotic species.

Mariculture management

Fish farms can only be set up in certain designated places in China and producing oysters for export requires certification from the relevant authorities. Farms are owned by locals, so the industry is beneficial to local communities. There are regulations governing the farming of marine species in mainland China but the potential impact of farming could be better addressed if enforcement were tightened.

Summary

Oysters are cultured in vertical hanging lines or by the insertion of short vertical concrete stones in tidal zones in mainland China. No feed is required to farm oysters as they can obtain food from the water column, and oyster seedlings come from artificial hatcheries. Nevertheless, farms may have an impact on the environment, including pollution from faeces caused by stocking too many individuals. The current farming management measures are theoretically effective, but enforcement could be better.



● *Salmo salar*

來源地: 挪威

一般出售方式: 冰鮮及冷藏魚柳

養殖方法: 浮式網箱

魚類養殖環境

網箱內的大西洋三文魚密度極高，容易傳播疾病和寄生蟲。

飼料

大西洋三文魚屬肉食性魚類，養殖戶通常以野生魚類作飼料。專家尤其關注作為三文魚飼料的秘魯和智利的鯷魚數量，能否維持於可持續的健康水平。

魚苗來源

魚苗來自挪威發展完善的人工孵育場。

對環境的影響

網箱與自然環境只有一網之隔，過剩飼料和魚類排泄物會直接排到海中，特別經由養殖場底部。逃脫的養殖品種會對野生種群構成影響。例如，在一些河流，高達70%的三文魚為養殖三文魚的後代。

海產養殖管理

挪威政府嚴格規定網箱的放置地點，養殖業能惠及當地社區。當地就養殖業造成的環境影響而實施的規管條例，部分成效顯著，如防止疾病傳播、養殖品種逃脫，或把逃脫魚類捕回等，唯仍未能全面解決食物和排泄物過剩所引致的問題。

摘要

挪威的養殖戶採用浮水網箱飼養三文魚，以野生幼魚作為飼料，這樣會影響其他野生魚類種群。三文魚養殖場對環境的影響包括污染水源，以及傳播疾病至野外。三文魚魚苗來自人工孵育場，但逃脫的魚類仍會影響其野生種群。目前採用的管理措施未能徹底解決上述問題。



● *Salmo salar*

Origin: Norway

Mainly sold as: Fresh and frozen fillet

Culture method: Floating net cages

Condition of the farmed fish

The high density of Atlantic salmon in net cages can allow diseases and parasites to spread easily.

Fish Feed

As Atlantic salmon are carnivorous, wild fish are commonly used as feed. In particular, there is concern about the sustainability of the Peruvian and Chilean anchovies that are used to feed them.

Source of fry

Fry come from well-developed artificial hatcheries in Norway.

Impacts on the environment

As the net is the only barrier between the cage and the natural environment, excessive fish feed and faeces will go directly into the sea, particularly underneath the farms. Individuals have escaped and affected wild populations. For example, up to 70% of the salmon in some rivers are the offspring of escaped farmed salmon.

Mariculture management

Floating net cages are installed in ways

that have only minimal impact on the seabed. There are strict regulations governing the location of net cages in Norway, and the industry is beneficial to local communities. Some regulations to control the impact on the natural environment are effective, such as those aimed at preventing the spread of disease and stopping individuals from escaping or recapturing them, but the impact of excess food and faeces has not been fully addressed.

Summary

Atlantic salmon are cultured in floating open-water net cages in Norway. The use of wild-caught fish as feed affects other wild fish populations. Atlantic salmon farms have some impact on the environment, causing pollution and spreading diseases to the wild. Although farmed Atlantic salmon are produced from hatcheries, escaped individuals affect wild salmon stocks. The management measures currently in place to address these issues are partially effective.



• *Priacanthus macracanthus*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮魚，原條出售
捕撈方法: 延繩及刺網

生態特徵

大眼雞生長迅速，17個月內便可繁殖，能夠承受漁業壓力。

野生種群狀況

南中國海的大眼雞蘊藏量豐富，但魚群已遭過度捕撈。南中國海北部的漁業資源調查顯示，大眼雞數目顯著下降，漁獲主要為幼魚。

意外捕撈

南中國海的延繩釣法利用小鈎捕撈，意外漁獲相對較少，但若刺網網孔太小，仍會把幼魚一併捕獲。

對環境的影響

漁具較少觸碰到海床，對海床影響輕微。

漁業管理

監管本港和南中國海大眼雞漁業的措

施並不足夠。香港並沒限制漁獲品種的體積，亦未設有捕撈牌照制度和捕撈配額體系。中國雖有管理措施，惜執法不力，兩地的漁業管理成效不彰。

摘要

大眼雞並非特別容易受漁業壓力影響，但魚群已遭過度捕撈。此漁業採用的捕撈方法對海床生態系統影響輕微，而意外漁獲量則視乎捕撈方式而定。現存的漁業管理體系普遍成效不彰。



• *Priacanthus macracanthus*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole fish
Fishing method: Long lining and gill netting

Biography

Bigeye grow quickly and become mature in less than 17 months. They are not particularly vulnerable to fishing pressure.

Status of wild populations

Although bigeye are abundant in the South China sea, their stocks are overfished. Surveys of fish stocks in the northern South China Sea found that numbers have declined significantly, and the bigeye caught are mainly juveniles.

Bycatch

Long lining in the South China Sea uses small hooks, creating a relatively small amount of bycatch and discards, but gill netting could catch juvenile fish if the net holes are too small.

Impacts on the environment

The fishing methods have little impact on the seabed because the gear has minimal contact with the seabed.

Fisheries management

There are scant fishery regulations for bigeye in Hong Kong and the South China Sea: Hong Kong has no size re-

strictions, no fishing licensing and no quota system. Although there are some management measures in place in mainland China, enforcement is poor. Fishery management in both places is ineffective.

Summary

Bigeye are not particularly vulnerable to fishing pressure but stocks are considered overfished. The fishing methods used have limited impact on the seabed. The amount of bycatch varies by fishing method. The fisheries management systems in place are generally unsound.



• *Pampus argenteus*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮魚，原條出售
捕撈方法: 中層拖網

生態特徵

白倉生長迅速，17個月後便可繁殖，較能承受漁業壓力。

野生種群狀況

現時並無白倉的準確漁業資訊評估數據，但南中國海的數據顯示，這個品種已遭過度捕撈。

意外捕撈

目前未有中層拖網的意外漁獲量的明確數據，然而與底拖網的情況一樣，許多具商業價值的幼魚被捕獲後，都會廉價售予香港和中國的養殖場當作飼料，嚴重浪費海洋資源。

對環境的影響

漁具並不會觸碰到海床，對海床影響輕微。

漁業管理

本港和南中國海白倉漁業的管理措施成效不彰，缺乏相關規條。香港不設漁獲品種的體積限制、捕撈牌照制度和捕撈配額體系；中國設有管理措施，惜執法不力。

摘要

白倉已遭過度捕撈。中層拖網所捕撈到的意外漁獲，會浪費海洋資源，但此捕撈方法對海床影響輕微。然而，本港和南中國海現存的白倉漁業管理措施普遍並不有效。



• *Pampus argenteus*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole fish
Fishing method: Mid-water trawling

Biology

Silver pomfret grow fast and reach maturity in less than 17 months. They are not particularly sensitive to fishing pressure.

Status of wild populations

Although there is no accurate estimates of silver pomfret stocks, catch data from the South China Sea indicate that the species is overfished.

Bycatch

The amount of bycatch generated by mid-water trawling is not well known. However, like bottom trawling, commercially important juvenile fish are caught and sold cheaply to fish farms in Hong Kong and China as feed.

Impacts on the environment

Mid-water trawling has little impact on the seabed because there is no contact between the seafloor and the fishing gear.

Fisheries management

Fishery management systems for silver pomfret in Hong Kong and the South China Sea are weak. Fishery regulations are not in place: in Hong Kong, there are no size restrictions, fishing licensing or quota system. Although some management measures are in place in mainland China, enforcement is poor.

Summary

Silver pomfret stocks are overfished. Bycatch from mid-water trawling leads to the waste of marine resources but at least the fishing method does not affect the seabed. Nevertheless, the management measures in place for silver pomfret in Hong Kong and the South China Sea are unsound.



• *Sebastes marmoratus*

來源地: 南中國海，包括香港水域

一般出售方式: 活魚及冰鮮魚，原條出售

捕撈方法: 手釣

生態特徵

石狗公生長迅速，不需一年便可繁殖，比其他物種較能承受漁業壓力。

野生種群狀況

雖然沒有本地石狗公數目的準確漁業資源評估數據，鑑於現時大部分漁獲均為幼魚，相信這個品種已遭過度捕撈。

意外捕撈

漁民以手釣捕撈石狗公，意外漁獲量應只佔總漁獲量5%，但漁民會保留所有漁獲，包括其他魚類的幼魚，進一步消耗海洋資源。

對環境的影響

漁具較少觸碰到海床，對海床影響輕微。

漁業管理

本港和南中國海石狗公漁業的管理措施並不足夠。香港只有少許條例和海洋保護區，而中國雖設法例，惜執法不力，兩地的漁業管理並不完善。

摘要

石狗公並非特別容易受漁業壓力影響，但在香港和南中國海均遭過度捕撈。手釣的捕魚方式所造成的意外漁獲量不多，但漁民會保留所有漁獲。此捕撈方法對海床影響輕微。本港和南中國海現存的石狗公漁業管理措施成效不彰。



• *Sebastes marmoratus*

Origin: The South China Sea including Hong Kong waters

Mainly sold as: Live and fresh whole fish

Fishing method: Hand lining

Biology

Rockfish grow fast and can become sexually mature in less than a year, making them less sensitive to fishing pressure than many other species.

Status of wild populations

Although there are no accurate estimates of local rockfish stocks, the fact that so many juvenile fish are caught and sold suggests that the species is overfished.

Bycatch

Hand lining, which is used to catch rockfish, should have bycatch rates as low as 5% of the total catch. However, fishermen keep all the fish they catch including juveniles of other species, leading to further depletion of marine resources.

Impacts on the environment

Hand lining has little impact on the seabed because contact between fishing lines and the seafloor is minimal.

Fisheries management

Hong Kong and the South China Sea have inadequate fishery regulations for rockfish. In Hong Kong, there are just a few restrictions and a few small protected areas. Although mainland China has regulations, enforcement is weak. Rockfish fisheries are therefore not well managed.

Summary

Rockfish are overfished in Hong Kong and the South China Sea, even though they are not particularly sensitive to fishing pressure. Hand lining should generate small amounts of bycatch but fishermen keep all the fish they catch. The impact of this fishing method on the seabed is minimal. The management measures for rockfish in Hong Kong and the South China Sea are unsound.



• *Lutjanus stellatus*

來源地: 香港

一般出售方式: 活魚及冰鮮魚，原條出售

養殖方法: 浮式網箱

魚類養殖環境

網箱內的石蚌類密度極高，容易傳播疾病和寄生蟲。

飼料

養殖戶一般使用具商業價值的幼魚餵飼石蚌，這些幼魚多由本地拖網漁船捕撈而來，此舉會進一步消耗海洋資源。

魚苗來源

魚苗主要來自台灣發展完善的人工繁育場。

對環境的影響

浮式網箱的裝置方法只會對海床構成輕微影響。網箱與自然環境只有一網之隔，過剩的飼料和魚類排泄物會直接排到海中，特別經由養殖場底部。石蚌是本地的原生物種，所以並無外來品種入侵至自然環境的風險。

海產養殖管理

養殖戶只可在指定養殖範圍內興建養魚場，有關漁業能惠及本地漁民。養殖場可自行參與「優質養魚場計劃」，但有關計劃未能完全解決養殖場對環境的影響。疾病傳播、過剩飼料和排泄物造成的環境污染問題仍有待解決。

摘要

養魚戶以浮式網箱飼養石蚌，不會對自然海床環境作出重大改變，但網箱內魚類密度甚高，容易傳播疾病。飼料通常來自捕撈的野生種群。過剩飼料和排泄物污染水源及疾病傳播等問題仍有待解決。部分養殖場已參與「優質養魚場計劃」，有助改善上述問題。



• *Lutjanus stellatus*

Origin: Hong Kong

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cages

Condition of the farmed fish

The high density of star snapper in net cages can allow diseases and parasites to spread easily.

Fish feed

The young of commercially valuable species caught by local trawlers are commonly used as feed for star snapper, exacerbating the depletion of marine resources.

Source of fry

Most fry come from well-developed artificial hatcheries in Taiwan.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. As the net is the only barrier between the cage and the natural environment, excessive fish feed and faeces will go directly into the sea, particularly underneath the fish farms. Star snapper is a native species and there is no risk of exotic species being introduced.

Mariculture management

Fish farms are located at designated mariculture zones and local fishermen benefit from running them. Fish farms can join the voluntary AFFS but the scheme is not fully focused on addressing their environmental impact. Issues that still need to be addressed include the spread of disease and contamination by excess feed and faeces.

Summary

Farms that rear star snapper in floating net cages do not alter the natural seabed environment much but diseases can spread quickly as many fish are kept in each cage. Feed is usually other wild-caught fishes. Environmental problems like water pollution from excessive feed and from faeces, and the spread of disease still need to be addressed, but some fish farms have joined the AFFS which can partly help address these issues.

● *Psetta maxima*

來源地: 中國

一般出售方式: 活魚及冰鮮魚，全條出售

養殖方法: 室內魚池

魚類養殖環境

在室內魚池養殖的多寶魚密度極高，故容易傳播疾病和寄生蟲。

飼料

漁民可能使用來自中國已遭過度捕撈的野生種群，且具商業價值的魚類作飼料。

魚苗來源

所有魚苗來自人工孵育場。

對環境的影響

多寶魚的養殖魚池建於陸上，但會產生大量污水。這些污水含有過剩魚糧、排泄物或細菌，如未經處理便排進海中，會污染自然環境。魚塘建於陸地上，養殖魚類外逃的風險甚低。

海產養殖管理

多寶魚漁場由大企業經營，當地村民雖

可在內工作，但不能受惠於漁場的盈利。養殖戶需為魚類申請健康證明，但有關規例不著重處理漁場的環境影響，環境問題有待改善。

摘要

在中國，養殖戶於室內魚池飼養多寶魚，從人工孵育場購入魚苗，引進外來品種的風險輕微。養殖場會對環境構成負面影響，包括利用已遭過度捕撈的品種作為飼料，造成污染和傳播疾病。現有的管理措施未能徹底解決問題。

● *Psetta maxima*

Origin: China

Mainly sold as: Live and fresh whole fish

Culture method: Indoor pools

Condition of the farmed fish

The high density of turbot in these indoor pools can allow diseases and parasites to spread easily.

Fish feed

The commercial fish meal used may contain overfished wild-caught fish from China.

Source of fry

Fry come from artificial hatcheries and no wild fish are collected.

Impacts on the environment

Although turbot farms are land-based, effluent including excess feed, faeces, and potentially diseases are discharged into the open sea without any treatment, resulting in pollution of the natural environment. The chances of farmed fish escaping into sea are low because the farms are land-based.

Mariculture management

Turbot farms are run by big corporations, so local villagers can get work there, but they do not benefit directly

from the profits the farms make. Health certification is required, but regulations do not focus on the environmental impact of farms and need to be improved.

Summary

Turbot are cultured in indoor pools in mainland China. Farmed turbot are produced by hatcheries and the risk of exotic species being introduced is low. But turbot farms can have negative effects on the environment, including their use of overfished species as feed, pollution and the spread of disease. The management measures currently in place are partially effective in addressing these issues.



• *Epinephelus fuscoguttatus*

來源地: 東南亞（印尼、馬來西亞及菲律賓）

一般出售方式: 活魚及冰鮮魚，原條全售

養殖方法: 浮式網箱

魚類養殖環境

養殖場經常出現魚類密度高，水質差劣的情況，在養殖品種身上會驗出疾病和寄生蟲。

飼料

老虎斑是肉食性魚類，養殖戶經常以野生魚類作飼料，或會影響野生種群數目。

魚苗來源

部分魚苗來自東南亞的野生魚群，其他則來自如台灣等地的人工孵育場。

對環境的影響

養殖戶把污水直接排到海中，污水含有過剩飼料和排泄物，或會造成污染，危害環境，亦有可能將疾病傳染給野生魚類。

海產養殖管理

部分東南亞國家規定只可在指定範圍興建養魚場。養殖業惠及當地社區。當局設有規例，控制疾病和污水的影響。

摘要

東南亞的養魚戶以網箱飼養老虎斑，以野生魚類餵飼，或會影響野生種群。養殖場的環境影響包括過剩飼料和排泄物污染水質，以及養殖物種將疾病傳播給野生魚類。目前的管理措施效果不彰。



• *Epinephelus fuscoguttatus*

Origin: Southeast Asia (Indonesia, Malaysia and the Philippines)

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cages

Condition of the farmed fish

High density of fish and poor water quality are common. Diseases and parasites are found on cultured individuals.

Fish feed

Tiger grouper are carnivorous and wild fish are commonly used as feed, so there is some impact on wild fish populations.

Source of fry

Some fry come from wild stocks in Southeast Asia, while others come from artificial hatcheries from Taiwan.

Impacts on the environment

Effluent, excessive feed and faeces are directly discharged into the open sea, which can cause water pollution and harm the environment. Diseases may spread to wild fish.

Mariculture management

Fish farms can only be set up in desig-

nated places in some Southeast Asian countries. The industry is beneficial to local communities. There are some regulations in place to control the impact of diseases and discharge.

Summary

Tiger grouper are cultured in net cages in Southeast Asia. The use of wild-caught fish as feed can affect wild fish populations. Farms have an impact on the environment, including water pollution caused by excessive feed and faeces, and diseases from farmed individuals may spread to wild fish. The management measures currently in place are ineffective.

● *Sardinella gibbosa*

來源地: 泰國
一般出售方式: 罐裝魚
捕撈方法: 圍網

生態特徵

沙甸魚屬群游性魚類，習慣聚集一起覓食和繁殖。沙甸魚種群易受海水溫度、氣候和水流等因素影響，每年的數目差異甚大，容易受漁業壓力影響。

野生種群狀況

沙甸魚是泰國最重要的魚類之一，漁獲量尚算穩定，但有研究顯示沙甸魚魚群開始遭過度捕撈。

意外捕撈

圍網能針對目標魚類捕撈，意外漁獲量較少。

對環境的影響

漁具極少觸碰到海床，對海床影響輕微。

漁業管理

泰國當局制訂的漁業管理措施包括關閉部分捕魚區域，牌照制度和限制圍網網孔大小，讓小魚能逃離網子，然而卻執法不力，漁業管理並非完全妥善。

摘要

沙甸魚的漁獲量尚算穩定，但亦開始出現過度捕撈的跡象。沙甸魚某些生態特徵令其易受漁業壓力影響。漁民採用圍網捕撈沙甸魚，不會影響海床生態環境，意外漁獲量少。泰國的沙甸魚漁業管理措施並非完全有效。

● *Sardinella gibbosa*

Origin: Thailand
Mainly sold as: Canned fish
Fishing method: Purse seining

Biology

Sardines are schooling fish and they feed and reproduce in big groups. Sardine populations can vary greatly from year to year as they are affected by factors including seawater temperature, climate and water currents. These characteristics make the species sensitive to fishing pressure.

Status of wild populations

Sardines are one of the most important fisheries in Thailand. Although the amount of sardines currently being landed in Thailand is fairly stable, some studies have suggested that their populations are beginning to be overfished.

Bycatch

Purse seining is a highly selective method that has a low bycatch rate.

Impacts on the environment

Purse seining has little impact on the seabed because there is no contact between fishing gear and the seafloor.

Fisheries management

Thailand's sardine fishery has some management measures in place, including the closure of certain areas, licensing and restrictions on the size of the purse seine nets so that small fish are not caught. However, the enforcement of these measures is partially effective.

Summary

Thai sardine stocks are beginning to show signs of overfishing, although the current catch is still stable. Sardine have some biological characteristics that make them sensitive to fishing pressure. The fish are caught by purse seiners and this fishing method generates a relatively low amount of bycatch and does not damage the seabed. The management of the sardine fishery in Thailand is partially effective.



• *Monacanthus chinensis*

來源地: 南中國海，包括香港水域
一般出售方式: 活魚及冰鮮魚，原條出售
捕撈方法: 刺網

生態特徵

沙鯪天生沒有獨特的生態特徵讓牠們特別容易受漁業壓力威脅。

野生種群狀況

目前沒有關於沙鯪正式的漁業評估數據，但根據一項本地調查，此品種在本港水域已遭過度捕撈。

意外捕撈

漁民如果使用網孔太小的刺網捕撈沙鯪，會有大量意外漁獲，但南中國海刺網捕撈的意外漁獲量僅佔總漁獲的5%。

對環境的影響

刺網極少觸碰到海床，對海床影響輕微。

漁業管理

監管本港和南中國海沙鯪漁業的措施效果不彰，香港僅有極少相關規例，更沒針對有關物種的漁業管理措施，南中國海的漁業管理措施亦未能有效落實。

摘要

沙鯪的生態特徵，讓牠們較易抵受漁業壓力，但本地種群仍遭過度捕撈。刺網產生的意外漁獲甚少，對海床的影響亦相對輕微。本港和南中國海的沙鯪漁業管理體系並不健全。



• *Monacanthus chinensis*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Live and fresh whole fish
Fishing method: Gill netting

Biology

Fan-bellied leatherjacket do not have biological characteristics that make them particularly vulnerable to fishing pressure.

Status of wild populations

No formal assessment of fan-bellied leatherjacket stocks is available but according to a local survey, the species is already overfished in Hong Kong waters.

Bycatch

Fan-bellied leatherjacket are caught with gill nets, which can cause a high amount of undesirable bycatch if the mesh is very small. However, the bycatch rate in the South China Sea is only about 5% of the total catch.

Impacts on the environment

Gill netting has a limited impact on the seabed because of the minimal contact between fishing gear and the seafloor.

Fisheries management

Fishery management systems in Hong Kong and the South China Sea are weak. Only limited regulations are in place, and there are no fishery management measures for the species in Hong Kong. The enforcement of fishery management measures in the South China Sea is poor.

Summary

The biological characteristics of fan-bellied leatherjacket make them not naturally susceptible to fishing pressure but local stocks are still overfished. Gill netting of the species generates only a small quantity of undesirable bycatch and has relatively low impact on the seabed. Nevertheless, fan-bellied leatherjacket fishery management systems in Hong Kong and the South China Sea are unsound.



• *Siganus canaliculatus*

來源地: 南中國海，包括香港水域
一般出售方式: 活魚及冰鮮魚，原條出售
捕撈方法: 漁籠

生態特徵

泥鯧生長迅速，成長約15個月便可繁殖，較能承受漁業壓力。

野生種群狀況

目前並無關於泥鯧魚群的準確漁業評估數據，但牠們似乎已遭過度捕撈。

意外捕撈

漁民常利用漁籠捕捉泥鯧，非目標品種漁獲若被釋放，生存率十分高。可是漁民會把漁獲全部保留。

對環境的影響

漁具較少觸碰到海床，對海床影響輕微。

漁業管理

本港和南中國海的泥鯧漁業管理體系效果不彰。香港沒有實行漁業管理，缺乏

漁獲的品種體積限制、捕撈牌照制度和捕撈配額制度。中國雖然設有一些漁業管理措施，可惜執法不力。

摘要

泥鯧能承受漁業壓力，但已遭過度捕撈。漁民使用漁籠捕魚有可能造成大量意外漁獲，但對海床影響輕微。本港和南中國海現存的泥鯧漁業管理體系未臻完善。



• *Siganus canaliculatus*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Live and fresh whole fish
Fishing method: Cage trapping

Biology

White-spotted rabbitfish are fast-growing and can reach maturity in about 15 months, meaning that they are not susceptible to fishing pressure.

Status of wild populations

There is no detailed estimate of local white-spotted rabbitfish stocks but they appear to be overfished.

Bycatch

Cages are most commonly used to catch white-spotted rabbitfish, and other species that are caught in them have high survival rates if they are released. However, fishermen usually keep all the fish that they catch.

Impacts on the environment

Cage trapping has little impact on the seabed because contact between fishing gear and the seafloor is minimal.

Fisheries management

Fishery management systems for white-spotted rabbitfish in Hong Kong and the South China Sea are weak. Fishery

regulations are not in place: in Hong Kong, there are no size restrictions, fishing licensing or quota system. Although some management measures are in place in mainland China, enforcement is poor.

Summary

White-spotted rabbitfish are overfished despite not being particularly vulnerable to fishing pressure. Cage trapping generates a high quantity of undesirable bycatch but has little impact on the seabed. White-spotted rabbitfish fisheries in Hong Kong and the South China Sea are not well managed.

• *Epinephelus areolatus*

來源地: 香港

一般出售方式: 活魚及冰鮮魚，原條出售

養殖方法: 浮式網箱

魚類養殖環境

網箱內的芝麻斑密度極高，容易傳播疾病和寄生蟲。

飼料

芝麻斑屬肉食性魚類，養殖戶或以野外捕撈具商業價值的幼魚作飼料，加重本港早已遭過度捕撈的野生物種群面對的漁業壓力。

魚苗來源

大部分魚苗來自如台灣及東南亞，發展完善的人工孵育場，唯本地養殖戶仍有從野外捕撈幼苗。

對環境的影響

浮式網箱的架設方式只會對海床構成輕微影響。網箱與自然環境只有一網之隔，過剩飼料和排泄物會直接排到海中，特別經養殖場底部。芝麻斑是本港原生物種，不會構成外來品種入侵的風險。

海產養殖管理

本港規定只可在指定養殖範圍內興建養魚場，養魚業亦能惠及本地社區。養殖場可自願參與「優質養魚場計劃」，但有關計劃未能解決養殖場對環境的影響。疾病傳播、過剩飼料和排泄物污染環境問題仍有待解決。

摘要

養殖戶採用浮式網箱飼養芝麻斑，不會對海床環境作出重大改變，但網箱內魚類密度甚高，容易傳播疾病。飼料可能來自已遭過度捕撈的野生種群，部分魚苗於野外捕撈。過剩飼料和排泄物污染水源，疾病傳播等問題有待解決。部分養殖場已參與「優質養魚場計劃」，有助改善問題。

• *Epinephelus areolatus*

Origin: Hong Kong

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cages

Condition of the farmed fish

The high density of areolate grouper in culture cages can allow diseases and parasites to spread easily.

Fish feed

Areolate grouper are carnivores and their feed may include commercially important immature wild-caught fish. This puts additional pressure on the already overfished populations of wild fish species in Hong Kong.

Source of fry

Most fry come from well-developed hatcheries in places like Taiwan and Southeast Asia, but local fishermen still collect fry from the wild.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. As the net is the only barrier between the cage and the natural environment, excessive fish feed and faeces will go directly into the sea, particularly underneath the fish farms. Areolate grouper is a native species and there is no risk of introducing exotic species.

Mariculture management

Fish farms are located at designated mariculture zones and local fishermen benefit from running them. Fish farms can join the voluntary AFFS but the scheme is not fully focused on addressing the farms' environmental impact. Issues that still need to be addressed include the spread of disease and contamination by excess feed and faeces.

Summary

Floating cage fish farms for areolate grouper do not alter the natural seabed environment much but diseases can spread quickly as many fish are kept in each cage. Feed may include overfished wild species and some fry are still sourced from the wild. Environmental problems like water pollution from excessive feed and fish faeces, and the spread of disease still need to be addressed, but some fish farms have joined the AFFS, which can partly help address these issues.



• *Epinephelus bleekeri*

來源地: 香港

一般出售方式: 活魚及冰鮮魚，原條出售

養殖方法: 浮式網箱

魚類養殖環境

網箱內的芝麻斑密度極高，容易傳播疾病和寄生蟲。

飼料

芝麻斑屬肉食性魚類，養殖戶利用在野外捕撈所得，且具商業價值的品種的幼魚餵飼牠們，加重本港早已遭過度捕撈的野生物種種群面對的漁業壓力。

魚苗來源

部分魚苗來自台灣及東南亞，發展完善的人工繁育場，唯本地養殖戶仍有從野外捕撈魚苗。

對環境的影響

浮式網箱的裝置方法只會對海床構成輕微影響。網箱與自然環境只有一網之隔，過剩飼料和排泄物會直接排到海中，特別經養殖場底部。芝麻斑是本港原生物種，不會構成外來種入侵的風險。

海產養殖管理

本港規定只可在指定養殖範圍內興建養魚場，養魚業亦能惠及本地社區。養殖場自願參與「優質養魚場計劃」，但有關計劃未能解決養殖場對環境的影響。疾病傳播、過剩飼料和排泄物污染環境以及污水排放等問題仍有待解決。

摘要

養魚戶採用浮式網箱飼養芝麻斑，不會對海床環境作出重大改變，但網箱內魚類密度甚高，容易傳播疾病。飼料通常來自已遭過度捕撈的野生種群，部分魚苗由野外捕撈而來。過剩飼料和排泄物造成的水源污染，疾病傳播等問題有待解決，但部分養殖場已參與「優質養魚場計劃」，有助改善問題。



• *Epinephelus bleekeri*

Origin: Hong Kong

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cages

Condition of the farmed fish

The high density of duskytail grouper in net cages can allow diseases and parasites to spread easily.

Fish feed

Duskytail grouper are carnivores and their feed may include commercially important immature wild-caught fish. This puts additional pressure on the already overfished populations of wild species in Hong Kong.

Source of fry

Most fry come from well-developed hatcheries in places like Taiwan and Southeast Asia, but local fishermen still collect fry from the wild.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. As the net is the only barrier between the cage and the natural environment, excessive fish feed and faeces will go directly into the sea, particularly underneath the fish farms. Duskytail grouper is a native species and there is no risk of introducing exotic species.

Mariculture management

Fish farms are located at designated mariculture zones and local fishermen benefit from running them. Fish farms can join the voluntary AFFS but the scheme is not fully focused on addressing their environmental impact. Issues that still need to be addressed include the spread of disease and contamination of excess feed and faeces.

Summary

Floating cage fish farms for duskytail grouper do not alter the natural seabed environment much but diseases can spread quickly as many fish are kept in each cage. Feed may include overfished wild species and some fry are still sourced from the wild. Environmental problems like water pollution from excessive feed and from faeces, and the spread of disease still need to be addressed, but some fish farms have joined the AFFS, which can partly help address these issues.

• *Epinephelus lanceolatus*

來源地: 香港

一般出售方式: 活魚及冰鮮魚，原條出售

養殖方法: 浮式網箱

魚類養殖環境

網箱內的花尾躉密度極高，容易傳播疾病和寄生蟲。

飼料

花尾躉屬肉食性魚類，養殖戶或會用在野外捕撈具商業價值的幼魚作飼料，加重本港早已遭過度捕撈的野生物種種群面對的漁業壓力。

魚苗來源

大部分魚苗來自台灣的繁育場，但仍有部分來自野外。這個物種已被負責監察物種保育狀況的世界自然保育聯盟紅色名錄列為「易危」類別。

對環境的影響

浮式網箱的裝置方法只會對海床構成輕微影響。含有過剩飼料及可能帶有病菌的排泄物的污水會直接排到海中，造成污染，亦危害海洋生物。花尾躉是香港的原生品種，不會有引入外來物種的風險。

海產養殖管理

本港規定只可在指定養殖範圍內興建養魚場，養魚業亦能惠及本地社區。養殖場可自願參與「優質養魚場計劃」，但有關計劃未能解決養殖場對環境的影響。疾病傳播、過剩飼料和排泄物污染環境問題仍有待解決。

摘要

養殖戶以浮式網箱飼養花尾躉。大部分魚苗來自人工繁育場，但以野生幼魚為魚糧會影響野生種群。要解決花尾躉養殖業對環境的影響，必須先改善相關的養殖管理體制。

• *Epinephelus lanceolatus*

Origin: Hong Kong

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cages

Condition of the farmed fish

The high density of giant grouper in net cages can allow diseases and parasites to spread easily.

Fish feed

Giant grouper are carnivores and their feed may include commercially important immature wild-caught fish. This puts additional pressure on the already overfished populations of wild species in Hong Kong.

Source of fry

Most fry come from hatcheries in Taiwan, but some are still collected from the wild, and the species is listed as "Vulnerable" on the IUCN Red List, which monitors the conservation status of species.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. Excessive fish feed, faeces, and potentially diseases - pass directly into the open sea and can cause pollution and harm wild marine organisms. As giant grouper occur naturally in Hong Kong, there is no risk of exotic species being introduced.

Mariculture management

Fish farms are located at designated mariculture zones and local fishermen benefit from running them. Fish farms can join the voluntary AFFS but the scheme is not fully focused on addressing their environmental impact. Issues that still need to be addressed include the spread of disease and contamination from excess feed and faeces.

Summary

Giant grouper are cultured in floating net cages in Hong Kong. The use of wild juvenile fish for feed can affect wild fish populations, while the majority of fry for farmed fish come from hatcheries. These farms have some environmental effects that need to be addressed through improved farm management.



想清楚

• *Plectorhinchus cinctus*

來源地: 香港

一般出售方式: 活魚及冰鮮魚，原條出售

養殖方法: 浮式網箱

魚類養殖環境

網箱內的花細鱗密度極高，容易傳播疾病和寄生蟲。

飼料

花細鱗屬肉食性魚類，養殖戶或會用在野外捕撈具商業價值的野生幼魚作飼料，加重本港早已遭過度捕撈的野生物種種群的漁業壓力。

魚苗來源

雖然魚苗主要來自台灣和中國內地的人工孵育場，但仍有部分捕撈自本地水域。

對環境的影響

浮式網箱的裝置方法只會對海床構成輕微影響。含有過剩飼料及可能帶有病菌的排泄物的污水會直接排到海中，造成污染，亦危害海洋生物。花細鱗是香港的原生品種，故不會有引入外來物種的風險。

海產養殖管理

本港規定只可在指定養殖範圍內興建養魚場，養魚業亦能惠及本地漁民。養殖場可自願參與「優質養魚場計劃」，但有關計劃未能解決養殖場對環境的影響。疾病傳播、過剩飼料和排泄物污染環境問題仍有待解決。

摘要

養殖戶以浮式網箱飼養花細鱗。大部分魚苗來自人工孵育場，但以野生幼魚為魚糧仍會影響野生種群。要解決花細鱗養殖業對環境的影響，必須先改善相關的養殖管理體制。



Think Twice

• *Plectorhinchus cinctus*

Origin: Hong Kong

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cages

Condition of the farmed fish

The high density of three-banded sweetlip in net cages can allow diseases and parasites to spread easily.

Fish feed

Three-banded sweetlip are carnivores and their feed may include commercially important immature wild-caught fish. This puts additional pressure on the already overfished populations of wild species in Hong Kong.

Source of fry

Most fry are artificially hatched at farms in Taiwan and mainland China, but some are still taken from local waters.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. Excessive fish feed, faeces - and potentially diseases - pass directly into the open sea and can cause pollution and harm wild marine organisms. As three-banded sweetlip occur naturally in Hong Kong, there is no risk of exotic species being introduced.

Mariculture management

Fish farms are located at designated mariculture zones and local fishermen benefit from running them. Fish farms can join the voluntary AFFS but the scheme is not fully focused on addressing their environmental impact. Issues that still need to be addressed include the spread of disease and contamination from excess feed and faeces.

Summary

Three-banded sweetlips are cultured in floating net cages in Hong Kong. The use of wild juvenile fish for feed can affect wild fish populations, while the majority of the farmed fish come from hatcheries. These farms have some environmental effects that need to be addressed through improved farm management.



• *Epinephelus quoyanus*

來源地: 南中國海，包括香港水域
一般出售方式: 活魚及冰鮮魚，原條出售
捕撈方法: 手釣

生態特徵

花頭梅生長迅速，成長後會轉變性別，但並不特別容易受漁業壓力影響。

野生種群狀況

目前並無關於花頭梅魚群數量的準確評估數據。牠們從前是本港水域最常見的斑類，現已不常被發現。種群在香港已遭過度捕撈，而在整個南中國海的情況亦不樂觀。

意外捕撈

漁民以手釣方式捕撈花頭梅，意外漁獲量僅佔總漁獲量5%，非目標魚類被放回大海後的生存率亦高。

對環境的影響

漁具極少觸碰到海床，對海床影響輕微。

漁業管理

本港和南中國海的花頭梅漁業管理措施不足夠，捕撈配額制度、漁獲品種體積限制及海洋保護區等重要的管理措施或未有推行，或執法不力，兩地的漁業管理體系並不健全。

摘要

花頭梅並非輕易受漁業壓力威脅，但魚群遭過度捕撈。漁業採用的捕撈方法對海床生態系統影響輕微，意外漁獲量亦少。本港和南中國海現存的漁業管理體系普遍不收效。



• *Epinephelus quoyanus*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Live and fresh whole fish
Fishing method: Hand lining

Biology

Longfin grouper is a fast-growing species that changes sex when it reaches adulthood. It is not particularly vulnerable to fishing pressure.

Status of wild populations

There is no accurate estimate of longfin grouper stocks. They were formerly one of the most commonly seen groupers in Hong Kong waters but they are rarely found. The species is considered overfished in Hong Kong waters, if not the whole South China Sea.

Bycatch

Longfin grouper are caught by hand-lining with a low bycatch rate of about 5% of the total catch, and the unwanted bycatch usually has a high survival rate after release.

Impacts on the environment

Hand lining has little impact on the seabed because contact between the seafloor and the hooks is minimal.

Fisheries management

There are few fishery regulations for longfin grouper in Hong Kong and the South China Sea. Critical management measures including catch quotas, size restrictions and marine protection areas are either absent or poorly enforced, so fishery management of the species in both Hong Kong and the South China Sea is unsound.

Summary

Although longfin grouper are not vulnerable to fishing pressure, they are overfished. The fishing method generates only small amount of bycatch and has only a small impact on the seabed. But the fishery management systems for the species is not effective in either Hong Kong or the South China Sea.

• *Epinephelus coioides*

來源地: 泰國
一般出售方式: 活魚
養殖方法: 浮式網箱

魚類養殖環境

網箱內的青斑密度甚高，容易傳播疾病和寄生蟲。

飼料

青斑是肉食性魚類，養殖戶或會用在野外捕撈具商業價值的幼魚餵飼牠們，加重早已遭過度捕撈的野生物種群面對的漁業壓力。

魚苗來源

部分魚苗來自人工孵育場，但仍有來自野外，影響野生種群。

對環境的影響

浮式網箱的裝置方式只會對海床構成輕微影響。網箱與自然環境只有一網之隔，過剩飼料和排泄物會直接排到海中，影響水質和造成污染。青斑是泰國原生物種，故不會構成外來物種入侵自然環境的威脅。

海產養殖管理

泰國規定只可在指定範圍內興建養魚場，亦設有規例控制疾病傳播，及污水對環境的影響。養魚場由當地的小型養魚戶經營，有利當地社群。

摘要

泰國的青斑養殖場不會對天然海洋環境造成重大改變，唯網箱內魚類密度極高，容易傳播病菌。飼料的捕撈方式或不符合可持續原則，當中有可能是野生幼魚。並非所有魚苗均來自人工孵育場，部分是野外捕撈的幼魚。養殖方法對環境的影響包括過剩飼料和排泄物污染水源，現行的管理措施能解決部分問題。

• *Epinephelus coioides*

Origin: Thailand
Mainly sold as: Live fish
Culture method: Floating net cages

Condition of the farmed fish

The high density of orange-spotted grouper in net cages can allow diseases and parasites to spread easily.

Fish feed

Orange-spotted grouper are carnivorous so other commercially important juvenile fish may be caught and used as feed. This exacerbates the depletion of overfished wild populations.

Source of fry

Some fry come from hatcheries but some are still collected from the wild, affecting the wild populations.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. As the net is the only barrier between the cage and the natural environment, excessive feed and faeces will go directly into the sea. This can affect water quality and cause pollution. Orange-spotted grouper is a native species to Thailand, and there is no risk of introducing exotic species.

Mariculture management

Fish farms can only be set up in designated places in Thailand. There are also regulations aimed at controlling the spread of disease and the effects of discharge on the environment. As fish farms are run by local, small-scale fishermen, the industry is beneficial to local communities.

Summary

Orange-spotted grouper farms in Thailand do not alter the natural marine environment much but diseases can be spread quickly as many fish are kept in each cage. Feed is not sustainably caught - some may be juvenile wild fish. Not all fry come from hatcheries; wild young are still collected. Farming methods have some impact on the environment including water pollution from excessive feed and faeces, but the management measures in place have partly addressed these issues.



• *Scylla serrata*

來源地: 中國

一般出售方式: 活蟹

養殖方法: 位於潮間帶的戶外養殖池

◉ 蟹類養殖環境

養殖池內的青蟹相當擠迫，容易傳播疾病和寄生蟲。

◉ 飼料

青蟹是食腐動物，但養殖戶或會以具重要價值品種的幼魚餵飼牠們，進一步加劇南中國海的過度捕撈問題。

◉ 蟹苗來源

大部分蟹均來自人工孵育場，但亦有部分來自野外。青蟹一次能繁殖大量幼蟹，但在野外捕捉幼蟹仍會影響種群數量。

◉ 對環境的影響

青蟹養殖池位於河套的潮間帶，養殖戶只需對泥灘稍加改動，便能建成養殖池。來自青蟹的污水和排泄物直接排放到海中，污染水源和危害自然環境。

◉ 海產養殖管理

中國規定只可在指定的地方興建養殖場，但未能全面解決傳播病菌和污染環境等問題，養殖業亦能惠及當地社區。

摘要

養殖戶在中國的潮間帶飼養青蟹，利用野生幼魚作為飼料，污水污染海洋，病菌亦在養殖物種間，及向鄰近環境傳播，對環境構成影響。現存若干規例監管養殖場，唯整體而言，管理措施並非十分有效。



• *Scylla serrata*

Origin: China

Mainly sold as: Live crab

Culture method: Outdoor intertidal ponds

◉ Condition of the farmed shellfish

Mud crabs are often stocked at high densities, meaning that diseases and parasites can spread easily.

◉ Feed

Mud crab are scavengers, but the young of important fish species may be used as feed. This puts additional pressure on the already overfished South China Sea.

◉ Source of fry

Most mud crab fry come from hatcheries but some wild individuals are also collected. Although they produce many young at once, collecting juveniles from the wild could still affect population levels.

◉ Impacts on the environment

As mud crab ponds are located on intertidal regions on estuaries, little alteration is needed to convert mudflats into ponds. Effluent and faeces are directly discharged into the open sea, polluting the water and harming the natural communities.

◉ Mariculture management

Aquaculture farms can only be set up in designated places in China. The industry is beneficial to local communities. The regulations, however, are only partially effective in addressing issues such as the spread of disease and pollution to the surrounding environment.

Summary

Mud crabs are cultured in intertidal zones in mainland China. Farms have some environmental impact, including the use of wild juvenile fish as feed, pollution from discharged effluent and disease spreading between farmed individuals and into the surrounding environment. There are some regulations governing mud crab farms, but overall, management measures are only partially effective.



• *Nemipterus virgatus*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮魚，原條出售
捕撈方法: 延繩

生態特徵

紅衫魚生長迅速，不需15個月便能繁殖，不特別容易受漁業壓力影響。

野生種群狀況

紅衫魚遭過度捕撈。調查顯示南中國海的紅衫魚數目正在下降，漁獲以幼魚為主。

意外捕撈

漁民採用延繩捕魚，以小鉤捕撈紅衫魚，被丟棄的意外漁獲量甚低，在南中國海意外漁獲量僅佔總漁獲5%。

對環境的影響

漁具較少觸碰到海床，對海床影響輕微。

漁業管理

本港和南中國海的紅衫魚漁業管理體

制效果不彰，香港沒有漁獲捕撈配額制度。中國設有一些漁業管理措施，可惜執法不力。

摘要

紅衫魚能承受漁業壓力，但本地的種群仍遭過度捕撈。捕撈方法產生的意外漁獲甚少，對海床環境的影響亦相對輕微，不過，本港和南中國海的紅衫魚漁業管理措施成效不彰。



• *Nemipterus virgatus*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole fish
Fishing method: Long lining

Biological

Golden threadfin bream grow fast, becoming sexually mature in less than 15 months, meaning that they are not particularly sensitive to fishing pressure.

Status of wild populations

Stocks of golden threadfin bream are overfished. Surveys have found declining numbers in the South China Sea, with the catch consisting mostly of young fish.

Bycatch

Golden threadfin bream are caught by long lines that use small hooks, resulting in a relatively low quantity of undesirable catch and discards - only about 5% of the total catch in the South China Sea.

Impacts on the environment

Long lining has little impact on the seabed because contact between the hooks and the seafloor is minimal.

Fisheries management

Fishery management systems for gold-

en threadfin bream in Hong Kong and the South China Sea are weak. There are no regulation limiting their catch in Hong Kong. Although some management measures are in place in mainland China, enforcement is poor.

Summary

Although golden threadfin bream are not sensitive to fishing pressure, stocks are still over-fished. The fishing method used to catch them generates little bycatch and causes only minimal damage to the seabed. Nevertheless, the management measures in place to protect golden threadfin bream in both Hong Kong and the South China Sea are weak.



• *Lutjanus argentimaculatus*

來源地: 香港

一般出售方式: 活魚及冰鮮魚, 原條出售

養殖方法: 浮式網箱

魚類養殖環境

網箱內的紅魷密度極高, 容易傳播疾病和寄生蟲。

飼料

養殖戶或以本地拖網船所捕撈到的具商業價值的野生幼魚餵飼紅魷, 消耗海洋資源。

魚苗來源

大部分魚苗由人工孵育, 但部分來自野外, 特別是東南亞和本港水域。

對環境的影響

浮式網箱的裝置方法只會對海床構成輕微影響。養殖戶把污水直接排到海中, 污水含有過剩飼料, 以及可能帶有病菌的排泄物, 造成污染, 亦危害野生海洋生物。紅魷是香港的原生品種, 不會有引入外來物種的風險。

海產養殖管理

本港規定只可在指定養殖範圍內興建養魚場, 養魚業亦能惠及本地漁民。養殖場自願參與「優質養魚場計劃」, 但有關計劃未能解決養殖場對環境的影響。疾病傳播、過剩飼料和排泄物污染環境等問題仍有待解決。

摘要

養殖戶採用浮式箱飼養紅魷。大部分魚苗來自人工孵育場, 但以野生幼魚為魚糧或影響野生種群。要解決紅魷養殖業對環境的影響, 必須先改善相關的養殖管理體制。



• *Lutjanus argentimaculatus*

Origin: Hong Kong

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cages

Condition of the farmed fish

The high density of mangrove snapper in net cages can allow disease and parasites to spread easily.

Fish feed

The young of commercially valuable wild species caught by local trawlers may be used as feed for mangrove snapper, exacerbating the depletion of marine resources.

Source of fry

Most fry are artificially produced but some are still wild-caught, particularly from Southeast Asia and locally.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. Excessive fish feed, faeces - and potentially diseases - pass directly into the open sea and can cause pollution and be harmful to wild marine organisms. As mangrove snapper occur naturally in Hong Kong, there is no risk of exotic species being introduced.

Mariculture management

Fish farms are located at designated mariculture zones and local fishermen benefit from running them. Fish farms can join the voluntary AFFS but the scheme is not fully focused on addressing their environmental impact. Issues that still need to be addressed include the spread of disease and contamination by excess feed and faeces.

Summary

Mangrove snapper are cultured in net cages in Hong Kong. The use of wild juvenile fish for feed can affect wild fish populations, while the majority of the farmed fish come from hatcheries. These farms have some environmental effects that need to be addressed through improved farm management.

● *Genypterus blacodes***來源地:** 紐西蘭**一般出售方式:** 冷藏魚柳**捕撈方法:** 底拖網

生態特徵

紐西蘭青衣成長緩慢，需要四年半方能成熟，易受漁業壓力影響。

野生種群狀況

紐西蘭大部分水域的紐西蘭青衣漁業資源已遭完全開發。

意外捕撈

漁民以深海底拖網捕撈紐西蘭青衣，被意外捕獲及丟棄的品種常已於網內遭嚴重壓傷，所以牠們的生存率甚低。

對環境的影響

漁具密集地於海床拖行，對海床環境造成嚴重影響。

漁業管理

紐西蘭青衣捕撈業採用的管理措施包括漁業資源評估、捕撈配額和一定程度的

意外捕撈監控，但長遠管理方案仍有改善空間。

摘要

紐西蘭青衣由於其生態特徵，易受漁業壓力影響，紐西蘭大部分水域的青衣漁業資源已遭完全開發。深海底拖網降低意外漁獲的生存率，對海床生境影響極大。當局設有管理措施，監察該漁業資源的開發情況。

● *Genypterus blacodes***Origin:** New Zealand**Mainly sold as:** Frozen fillet**Fishing method:** Bottom trawling

Biology

Ling are slow to grow, and it takes them four and a half years to mature. That makes them susceptible to fishing pressure.

Status of wild populations

Ling are fully fished in most New Zealand waters.

Bycatch

As bottom trawling for ling takes place in the deep sea, accidentally caught and later discarded organisms are often badly crushed in the nets. The survival rate of these organisms is very low.

Impacts on the environment

Bottom trawling usually has a high impact on the seafloor environment because of the intense contact between fishing equipment and the seabed.

Fisheries management

New Zealand's ling fisheries employ some management measures, including stock assessments, fishing quotas and a certain level of bycatch control.

But there is room for improvement in the form of a long-term management plan.

Summary

The biological characteristics of ling make them sensitive to fishing activities and the stocks are fully fished in most New Zealand waters. Bottom trawling in deep water reduces the survival rate of unwanted organisms and has a high impact on the seabed habitat. However, management measures are in place to monitor the exploitation of the species.



• *Branchiostegus auratus*, *B. argentatus*, *B. japonicus*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮魚，原條出售
捕撈方法: 刺網

生態特徵

馬頭生長迅速，只需18至24個月便可繁殖，較能承受漁業壓力。

野生種群狀況

目前欠缺關於本地馬頭魚群數量的準確數據，但大部分的漁獲都是幼魚，顯示這個物種遭過度捕撈。

意外捕撈

漁民利用刺網捕撈馬頭，意外漁獲屬中等水平，約佔總漁獲量20%。

對環境的影響

刺網較少觸碰到海床，對海床影響輕微，但有海洋動物經常被棄置於海中的漁網纏住。

漁業管理

本港和南中國海的馬頭漁業管理體制效

果不彰。香港沒有實行漁業管理，缺乏漁獲品種體積限制、捕撈牌照制度或捕撈配額制度。中國設有若干管理措施，可惜執法不力。

摘要

馬頭能承受漁業壓力，但魚群表面上遭過度捕撈。有關漁業產生的意外漁獲量屬中等水平，採用的捕撈方法對海床生態系統影響輕微。唯整體而言，本港和南中國海的馬頭漁業管理措施成效不彰。



• *Branchiostegus auratus*, *B. argentatus*, *B. japonicus*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole fish
Fishing method: Gill netting

Biology

Horsehead grow relatively fast and can become sexually mature between 18 and 24 months, so they are not particularly susceptible to fishing pressure.

Status of wild populations

Although there is no accurate figure for local horsehead stocks, the fact that a lot of the individuals caught are juveniles indicates that the species is over-exploited.

Bycatch

Gill nets are used to catch horsehead, generating a moderate amount of undesirable bycatch and discards - about 20% of the total catch.

Impacts on the environment

Gill netting has little impact on the seabed because the contact between nets and the seafloor is minimal. However, marine creatures are frequently entangled by nets that have been lost or abandoned in the sea.

Fisheries management

Fishery management systems for horsehead in Hong Kong and the South China Sea are weak. Fishery regulations are not in place: in Hong Kong, there are no size restrictions, fishing licensing or quota system. Although some management measures are in place in mainland China, enforcement is poor.

Summary

Despite horsehead not being particularly vulnerable to fishing pressure, stocks appear over-exploited. Gill netting generates a moderate quantity of bycatch and causes minimal damage to the seabed. But overall, management measures in place to protect horsehead in the South China Sea are not effective.

● *Trachinotus blochii*

來源地: 香港

一般出售方式: 活魚及冰鮮魚, 原條出售

養殖方法: 浮式網箱

魚類養殖環境

黃魷魚屬群游性魚類, 不會受高密度的養殖方式影響, 但仍有機會造成疾病傳播和寄生蟲。

飼料

黃魷魚屬肉食性魚類, 養殖戶或會用在野外捕撈具商業價值的幼魚作飼料, 加重本港早已遭過度捕撈的野生物種種群面對的漁業壓力。

魚苗來源

魚苗主要來自台灣和中國的人工繁育場, 不影響野生種群。

對環境的影響

養殖戶把污水直接排到海中, 污水含有過剩飼料, 及可能帶有病菌的排泄物, 造成污染, 亦危害海洋生物。由於黃魷魚是香港的原生品種, 故不會有引入外來物種的風險。

海產養殖管理

本港規定只可在指定養殖地範圍內興建養魚場, 漁業亦能惠及本地漁民。養殖場可自願參與「優質養魚場計劃」, 但有關計劃未能解決養殖場對環境的影響。疾病傳播、過剩飼料和排泄物污染環境等問題仍有待解決。

摘要

養殖戶採用浮式網箱飼養黃魷魚。大部分魚苗來自人工繁育場, 但以野生幼魚為魚糧仍會影響野生魚類的種群。養殖黃魷魚沒有引進外來物種的風險。要解決黃魷魚養殖業對環境的影響, 必須先改善相關的養殖管理體制。

● *Trachinotus blochii*

Origin: Hong Kong

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cage

Condition of the farmed fish

Pompano is a schooling species, and stocking them at high densities does not have much impact on them, but it can lead to the spread of diseases and parasites.

Fish feed

Pompanos are carnivores and their feed may include commercially important juvenile fish. This puts additional pressure on the already overfished populations of wild species in Hong Kong.

Source of fry

Since fry mainly come from artificial hatcheries in Taiwan and mainland China, wild populations are not affected.

Impacts on the environment

Excessive fish feed, faeces - and potentially diseases - pass directly into the open sea and can cause pollution and harm wild marine organisms. Pompanos occur naturally in Hong Kong so there is no risk of exotic species being introduced.

Mariculture management

Fish farms are located at designated mariculture zones and local fishermen benefit from running them. Fish farms can join the voluntary AFFS but the scheme is not fully focused on addressing their environmental impact. Issues that still need to be addressed include the spread of disease and contamination by excess feed and faeces.

Summary

Pompanos are cultured in net cages in Hong Kong. The way their feed is sourced puts additional pressure on wild fish populations, although farmed pompanos come from hatcheries. Farming of pompanos does not pose a risk of exotic species being introduced. These farms have some environmental effects that need to be addressed through improved farm management.

● *Larimichthys crocea***來源地:** 中國**一般出售方式:** 冰鮮魚，原條出售**養殖方法:** 浮式網箱或戶外魚塘

魚類養殖環境

網箱或魚塘的飼養環境相當擠迫，容易傳染疾病和寄生蟲。

飼料

養殖戶或以拖網捕得的具商業價值的野生幼魚餵飼黃花魚，令野生海洋資源數量進一步減少。

魚苗來源

黃花魚魚苗來自中國的人工孵育場。野生黃花魚已遭過度捕撈，東海的情況尤其嚴重。

對環境的影響

浮式網箱的裝置方法只會輕微影響海床環境。黃花魚養殖池闢建在陸地上，不會影響生態敏感度高的沿岸地區。無論養殖戶採用哪一種養殖方法，他們都會把污水直接排到海中，污水含有過剩飼料，及可能帶有病菌的排泄物，造成污染。

海產養殖管理

中國規定只可在指定的地方興建養殖場，養魚業亦能惠及當地社區，但為解決黃花魚場環境問題而設立的管理措施效果不彰，且執法不力。

摘要

中國的養殖戶以網箱或在室外魚塘養殖黃花魚，魚苗來自人工孵育場。養殖場或利用其他已遭過度捕撈的魚類作飼料，污染和傳播細菌，對環境構成負面影響。雖然有規管養殖活動，但條例並非十分有效。

● *Larimichthys crocea***Origin:** China**Mainly sold as:** Fresh whole fish**Culture method:** Floating net cages or open land ponds

Condition of the farmed fish

Yellow croaker are stocked at high density and this results in the spread of diseases and parasites.

Fish feed

The young of commercially valuable wild species caught by trawling may be used as feed for yellow croaker, exacerbating the depletion of wild marine resources.

Source of fry

Yellow croaker fry come from artificial hatcheries in mainland China but wild populations of the species, particularly in the East China Sea, are overfished.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. Yellow croaker farms using land-based ponds are located on land and do not have any impact on ecologically sensitive coastal areas. Regardless of culture methods, effluent from yellow croaker farms, including excess feed, faeces, and potentially diseases

is directly discharged into the sea, causing pollution.

Mariculture management

Fish farms can only be set up in designated places in China. The industry is beneficial to local communities. However, the management measures in place to address the environmental impact of yellow croaker farms are weak, and enforcement is poor.

Summary

Yellow croaker are cultured in net cages or open ponds in China. Hatcheries produce fry for farmed yellow croaker. Yellow croaker farms adversely affect the environment, using other overfished species as feed and spreading pollution and diseases. Although there are regulations to control these activities, they are only partially effective.

● *Acanthopagrus latus*

來源地: 香港

一般出售方式: 活魚及冰鮮魚, 原條出售

養殖方法: 浮式網箱

魚類養殖環境

網箱內的黃腳鯧密度極高, 容易傳播疾病和寄生蟲。

飼料

黃腳鯧屬肉食性魚類, 養殖戶或會用在野外捕撈具商業價值的幼魚餵飼牠們, 加重本港早已遭過度捕撈的野生物種種群面對的漁業壓力。

魚苗來源

養殖場的魚苗大部分來自人工繁育場, 只有極少量來自本地水域。

對環境的影響

浮式網箱的裝置方法只會對海床構成輕微影響。網箱與自然環境只有一網之隔, 過剩飼料和排泄物會直接流到海中, 特別經養殖場底部。黃腳鯧是本港原生物種, 故不會有外來品種入侵自然生態的威脅。

海產養殖管理

本港規定只可在指定養殖範圍內興建養魚場, 養魚業亦能惠及漁民。養殖場可自願參與「優質養魚場計劃」, 但有關計劃未能解決養殖場對環境的影響。疾病傳播、過剩飼料和排泄物污染環境以及污水排放等問題仍有待解決。

摘要

養魚戶採用浮式網箱飼養黃腳鯧, 不會對自然海床環境作出重大改變, 但網箱內魚類密度甚高, 容易傳播疾病。飼料或來自已遭過度捕撈的野生種群, 部分魚苗於野外捕撈而來。過剩飼料和排泄物污染水源, 及疾病傳播等問題依然有待解決。部分養殖場已參與「優質養魚場計劃」, 有助改善問題。

● *Acanthopagrus latus*

Origin: Hong Kong

Mainly sold as: Live and fresh whole fish

Culture method: Floating net cages

Condition of the farmed fish

The high density of yellowfin seabream in net cages can allow diseases and parasites to spread easily.

Fish feed

Yellowfin seabream are carnivores and their feed may include commercially important immature wild-caught fish. This puts additional pressure on the already overfished populations of wild species in Hong Kong.

Source of fry

Most farmed yellowfin seabream are from hatcheries. A very small amount of fish come from local waters.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. As the net is the only barrier between the cage and the natural environment, excessive fish feed and faeces will go directly into the sea, particularly underneath the fish farms. Yellowfin seabream are a native species and there is no risk of introducing exotic species.

Mariculture management

Fish farms are located at designated mariculture zones and local fishermen benefit from running them. Fish farms can join the voluntary AFFS but the scheme is not fully focused on addressing their environmental impact. Issues that still need to be addressed include the spread of disease and contamination by excess feed and faeces.

Summary

Floating cage fish farms for yellowfin seabream do not alter the natural seabed environment much but diseases can spread quickly as many fish are kept in each cage. Feed may include overfished wild species and some fry are still taken from the wild. Environmental problems like water pollution from excessive feed and from faeces, and the spread of disease still need to be addressed, but some fish farms have joined the AFFS, which can partly help address these issues.

• *Thunnus albacares*

來源地: 全球
一般出售方式: 冰鮮、冷藏魚柳及罐頭
捕撈方法: 圍網及浮延繩

● 生態特徵

黃鰭吞拿魚生長迅速，在17個月至4年內便可繁殖，較藍鰭吞拿魚能承受漁業壓力。

● 野生種群狀況

全球過半數黃鰭吞拿魚來自太平洋，但印度洋的漁獲量亦上升。所有海洋中的黃鰭吞拿魚漁業資源均已遭完全開發。

● 意外捕撈

在大海以延繩釣法捕撈黃鰭吞拿魚，意外漁獲量甚多，當中包括海鳥和海龜等易危物種。

● 對環境的影響

圍網和延繩不會觸碰到海床，對海床影響有限。

● 漁業管理

多個國際漁業管理組織，包括大西洋鮪類資源保育委員會 (ICCAT)、美洲熱帶鮪類委員會 (IATTC)，以及印度洋鮪類委員會 (IOTC) 等均監察有關物種的漁業。國際間亦設有管理及監察措施，包括匯報漁船位置及漁獲等，但效果不彰。

摘要

黃鰭吞拿魚較藍鰭吞拿魚能承受漁業壓力，該漁業資源在所有海洋中已被完全開發。以延繩捕撈黃鰭吞拿魚可以產生大量意外漁獲，包括海鳥和海龜等易危物種。黃鰭吞拿魚的捕撈方法對海床影響輕微。黃鰭吞拿魚的漁業管理措施並非完全有效。

• *Thunnus albacares*

Origin: Global
Mainly sold as: Fresh, frozen and canned fillet
Fishing method: Purse seining, pelagic long-lining

● Biology

Yellowfin tuna grow quickly and become sexually mature between about 17 months and 4 years. They are less sensitive to fishing pressure than bluefin tuna.

● Status of wild populations

More than half of the global catch of yellowfin comes from the Pacific Ocean but the catch from the Indian Ocean is increasing. The populations of yellowfin tuna in all oceans are considered fully fished.

● Bycatch

Bycatch from yellowfin tuna fishing by pelagic long-lining in high seas can be quite high, sometimes involving vulnerable species such as seabirds and turtles.

● Impacts on the environment

Purse seining and long lining have little impact on the seabed because there is no contact with fishing gear.

● Fisheries Management

International fisheries management

organizations such as the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Inter-American Tropical Tuna Commission (IATTC) and the Indian Ocean Tuna Commission (IOTC) monitor fishing of the species. Some management and inspection measures are also in place, including reporting of boat positions and catches but they are only partially effective.

Summary

Compared with bluefin tuna, yellowfin tuna are not particularly susceptible to fishing pressure. Stocks are fully fished in all oceans. Yellowfin tuna fisheries that use long lining can generate a high amount of bycatch, including vulnerable species such as seabirds and turtles. The fishing methods have little impact on the seabed. The management measures in place for yellowfin tuna fisheries are partially effective.



• *Lololus beka*, *L. uyii*, *Uroteuthis duvauceli*, *U. chinensis*,
U. edulis, *Sepioteuthis lessoniana*

來源地: 南中國海，包括香港水域

一般出售方式: 冰鮮魷魚，原隻出售

捕撈方法: 底拖網

生態特徵

魷魚生長迅速，很快達致成熟期，壽命約一年左右。牠們會群聚繁殖，容易成為漁民的獵物。

野生種群狀況

本地魷魚漁業資源已被完全開發。

意外捕撈

漁民在本地和南中國海以底拖網捕撈魷魚，意外漁獲量佔總漁獲量高達70%，當中包括許多具商業價值的幼魚，牠們被廉價轉售予本地和內地的養殖場當作飼料，嚴重浪費海洋資源。

對環境的影響

底拖網密集地於海床拖行，嚴重影響海床。

漁業管理

本港和南中國海的魷魚漁業管理體制效

果不彰。香港沒有實行漁業管理，缺乏漁獲品種體積限制、捕撈牌照制度或捕撈配額制度。中國設有一些漁業管理措施，可惜執法不力。

摘要

魷魚漁業資源已被完全開發，牠們擁有至少一項的生態特徵，容易受漁業壓力威脅。底拖網捕魚不僅製造大量意外捕撈，進一步減少海洋資源，對海床亦構成嚴重影響。香港和南中國海的魷魚漁業管理措施成效不彰。



• *Lololus beka*, *L. uyii*, *Uroteuthis duvauceli*, *U. chinensis*,
U. edulis, *Sepioteuthis lessoniana*

Origin: Hong Kong waters and South China Sea

Mainly sold as: Fresh whole squid

Fishing method: Bottom trawling

Biology

Squid grow to adulthood quickly and have a short life span of about a year. As they gather together in big groups to reproduce, squid can be easily targeted by fishermen.

Status of wild populations

Squid are fully fished locally.

Bycatch

Squid are caught by bottom trawlers in Hong Kong and the South China Sea, and generate bycatch of up to 70% of the total catch. The bycatch includes many commercially important juvenile fish, which are sold cheaply to fish farms in Hong Kong and China as feed. This is a huge waste of marine resources.

Impacts on the environment

The intense contact between heavy weights on the trawling gear and the seabed has a big impact on the sea-floor.

Fisheries management

Fishery management systems for squid

in Hong Kong and the South China Sea are ineffective. Fishery regulations are not in place: in Hong Kong, there are no size restrictions, fishing licensing or quota system. Although some management measures are in place in mainland China, enforcement is poor.

Summary

Squid are fully fished and have at least one biological characteristic that makes them sensitive to fishing pressure. Bottom trawling generates a lot of undesirable bycatch, exacerbating the depletion of marine resources. In addition, it has a big impact on the seabed. The few management measures in place for squid in Hong Kong and the South China Sea are not effective.



來源地：紐西蘭

一般出售方式：冷藏魚柳

捕撈方法：底拖網

生態特徵

龍剛生長迅速，兩至三年間便可繁殖。部分品種壽命長達16年，但一般只可生存三至四年。除了 *Colistium guntheri* 和 *C. nudipinnis* 外，龍剛較能承受漁業壓力。

野生種群狀況

紐西蘭水域的龍剛漁業資源已被完全開發。

意外捕撈

底拖網可產生大量意外漁獲，但紐西蘭龍剛漁業的意外漁獲僅是少量的龍剛幼魚。

對環境的影響

底拖網密集地於海床拖行，對海床造成嚴重影響。

• *Rhombosolea leporina*, *R. plebeia*, *R. retiaria*,
R. tapirina, *Colistium guntheri*, *C. nudipinnis*,
Peltorhamphus novaezeelandiae,
Pelotretis flavilatus

漁業管理

紐西蘭龍剛捕撈業採用的管理措施包括漁業資源評估、捕撈配額及捕撈牌照制度。漁業管理尚算妥善，唯可增加對個別物種的研究。

摘要

除了 *Colistium guntheri* 和 *C. nudipinnis* 外，紐西蘭的龍剛較能承受漁業壓力。此漁業資源已被完全開發。捕撈時製造少量意外漁獲，但底拖網捕魚或會對海床生境構成重大影響。現存的漁業管理體系仍有改善空間。



Origin: New Zealand

Mainly sold as: Frozen fillet

Fishing method: Bottom trawling

Biology

Sole grow fast, becoming sexually mature in two to three years. Some species can live for more than 16 years but in general they survive for three to four. Except *Colistium guntheri* and *C. nudipinnis*, sole species are not particularly vulnerable to fishing pressure.

Status of wild populations

Sole are fully fished in New Zealand waters.

Bycatch

Although bottom trawling potentially creates a lot of undesirable bycatch, the only bycatch from New Zealand's sole fisheries is a small number of juvenile sole.

Impacts on the environment

Bottom trawling usually has a high impact on the seafloor because of the intense contact between fishing equipment and the seabed.

Fisheries management

Management measures, including

• *Rhombosolea leporina*, *R. plebeia*, *R. retiaria*,
R. tapirina, *Colistium guntheri*, *C. nudipinnis*,
Peltorhamphus novaezeelandiae,
Pelotretis flavilatus

stock assessments, fishing quotas and licensing, apply to New Zealand's sole fisheries. The fisheries are fairly well managed but could be improved by more studies on individual species.

Summary

New Zealand's sole species are not particularly vulnerable to fishing pressure, except *Colistium guntheri* and *C. nudipinnis*. Stocks are considered fully fished. Only a small amount of bycatch is generated, but the fishing method, bottom trawling, has a potentially big impact on seabed habitats. Fishery management systems are in place, but could be improved.



• *Harpodon nehereus*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮魚，全條出售
捕撈方法: 底拖網

生態特徵

九肚魚生長迅速，約15個月可繁殖，但牠們於季風期間大量群集在河口覓食，易受漁業壓力影響。

野生種群狀況

本港水域的九肚魚遭過度捕撈。南中國海的九肚魚並無準確的漁業資源評估數據，但九肚魚的漁業資源普遍被過度捕撈。

意外捕撈

漁民以底拖網捕撈九肚魚，意外捕撈量龐大，佔總漁獲的70%，當中包括其他具商業價值物種的幼魚。

對環境的影響

漁具密集地於海床拖行，對海床造成嚴重影響。

漁業管理

本港和南中國海的九肚魚漁業管理體制並不健全，只有有限度的條例規管，未有其他重要管理措施如捕撈配額、漁獲品種體積限制和海洋保護區等，或是執法力度不足。

摘要

九肚魚的習性容易被漁民預測，易受漁業壓力影響，魚群亦遭過度捕撈。底拖網捕撈的方式，往往捕撈大量非目標品種的意外漁獲，並對海床環境造成嚴重影響。本港和南中國海的九肚魚漁業管理體系欠佳。



• *Harpodon nehereus*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole fish
Fishing method: Bottom trawling

Biology

Bombay duck grow quickly and become sexually mature in about 15 months. They gather in large shoals in the deltas of rivers to feed during monsoons, which can make them sensitive to fishing pressure.

Status of wild populations

Bombay duck are overfished in Hong Kong waters. Although there is no accurate stock assessment for Bombay duck in the South China Sea, fish there are generally over-exploited.

Bycatch

Bombay duck are caught by bottom trawlers and the bycatch is large - up to 70 % of the total catch. It includes the young of other commercially important species.

Impacts on the environment

Bottom trawling has a high impact on the seabed because of the intense contact between the seafloor and the fishing gear.

Fisheries management

Management of Bombay duck stocks in both Hong Kong and the South China Sea is unsound. There are limited fishing regulations, and critical management measures including catch quotas, size restrictions and marine protection areas are either absent or poorly enforced.

Summary

Bombay duck are susceptible to fishing pressure thanks to their predictable behaviour, and stocks are considered overfished. Bottom trawling generates a high quantity of undesirable bycatch and has a big impact on the seabed. The fishery management of this species in both Hong Kong and the South China Sea is poor.



• *Trichiurus nanhaiensis*, *T. lepturus*

來源地: 南中國海，包括香港水域

一般出售方式: 冰鮮魚

捕撈方法: 底拖網

生態特徵

牙帶需18個月或以上方成熟至可繁殖的階段。牠們為群游性魚類，但並非特別容易受漁業壓力威脅。

野生種群狀況

牙帶是中國最重要的魚類之一，但數量日漸下降，漁獲大部分為幼魚。本港水域的牙帶亦遭過度捕撈。

意外捕撈

在南中國海，漁民以底拖網捕撈牙帶，捕撈到大量非目標品種的漁獲，意外漁獲可佔總漁獲量70%。非目標的魚類及海洋生物通常在漁網內已遭壓傷，故牠們被丟回海中的生存率甚低。

對環境的影響

漁具密集地於海床拖行，對海床造成嚴重影響。

漁業管理

本港和南中國海的牙帶漁業管理體制並不健全，香港缺乏相關的規管條例，不設漁獲品種體積限制、捕撈牌照制度或捕撈配額等。中國設有一些管理措施，可惜執法力度不足。

摘要

牙帶並非特別容易受漁業壓力威脅的魚類品種，但遭過度捕撈。牙帶漁業的捕撈方法產生大量意外漁獲，對海床構成嚴重影響。本港和南中國海的牙帶漁業管理體系並不健全。



• *Trichiurus nanhaiensis*, *T. lepturus*

Origin: The South China Sea including Hong Kong waters

Mainly sold as: Fresh fish

Fishing method: Bottom trawling

Biology

Hairtail take about 18 months or more to become mature. They swim in schools, but are not particularly vulnerable to fishing pressure.

Status of wild populations

Although hairtail is one of the most important fish in China, numbers are declining and stocks consist mainly of young fish. Hairtail has also been overfished in Hong Kong waters.

Bycatch

Hairtail are caught by bottom trawlers in the South China Sea which generate large amounts of undesirable catch - about 70% of the total catch. The discarded organisms have a relatively low survival rate because they are usually crushed in the nets.

Impacts on the environment

Bottom trawling has a big impact on the seabed because of the intense contact between fishing gear and the seafloor.

Fisheries management

Fishery management systems covering hairtail in Hong Kong and the South China Sea are ineffective. Fishery regulations are not in place: in Hong Kong, there are no size restrictions, fishing licensing or quota system. Although some management measures are in place in mainland China, enforcement is poor.

Summary

Stocks are overfished, despite the species not being vulnerable to fishing pressure. The fishing method used generates a lot of bycatch and has a big impact on seabed habitats. Fisheries management measures covering hairtail in both Hong Kong and the South China Sea are unsound.



• *Platycephalus indicus*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮魚，原條出售
捕撈方法: 底拖網

◉ 生態特徵

牛鰻成長後會由雄性變為雌性，約需17個月或以上方可繁殖。

◉ 野生種群狀況

目前並沒有關於牛鰻的準確漁業資源評估數據，估計其魚群已遭過度捕撈。在本港捕獲的牛鰻主要為幼魚，在南中國海北部的捕撈量亦超出健康水平。

◉ 意外捕撈

漁民以底拖網捕撈牛鰻，捕捉到大量非目標品種的漁獲，當中包括幼魚及其他海洋生物。在南中國海，底拖網捕撈的意外漁獲可佔總漁獲量70%。

◉ 對環境的影響

漁具密集地於海床拖行，對海床環境造成嚴重影響。

◉ 漁業管理

本港和南中國海的牛鰻漁業管理體制並不健全，缺乏相關的規管條例，香港沒有漁獲品種體積限制、捕撈牌照制度或設立捕撈配額等。中國設有一些管理措施，可惜執法力度不足。

摘要

本港和南中國海的牛鰻遭過度捕撈。不受監控的底拖網漁船，捕撈到大量非目標品種的意外漁獲，嚴重影響海床。本港和南中國海的牛鰻漁業管理體系效果不彰。



• *Platycephalus indicus*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole fish
Fishing method: Bottom trawling

◉ Biology

Flathead change sex from male to female as they grow. It takes about 17 months or more for flathead to become sexually mature.

◉ Status of wild populations

No accurate stock assessment is available but flathead appear to be overfished. Most of the flathead caught in Hong Kong waters are juveniles, and the species is being caught at an unsustainable level in the northern South China Sea.

◉ Bycatch

Flathead are caught by bottom trawlers, generating a lot of undesirable bycatch, consisting of juvenile fish and other marine organisms. Bycatch generated by bottom trawling in the South China Sea can account for up to 70% of the total catch.

◉ Impacts on the environment

Bottom trawling has a high impact on the seabed because of the intense contact between the fishing gear and the seafloor.

◉ Fisheries management

Fishery management systems for flathead in Hong Kong and the South China Sea are ineffective. Very few regulations are in place: in Hong Kong, there are no size restrictions, fishing licensing or quota system. Although there are some management measures in place in mainland China, enforcement is poor.

Summary

Flathead in Hong Kong and the South China Sea are overfished. Uncontrolled bottom trawling generates a large quantity of undesirable bycatch and has a huge impact on the seabed. The management measures in place to control flathead fishing in both Hong Kong and the South China Sea are ineffective.



• *Aluterus monoceros*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮魚，原條出售
捕撈方法: 底拖網

生態特徵

牛鰻成長期緩慢，需14年方可繁殖，易受漁業壓力影響。

野生種群狀況

雖然並無有關牛鰻魚群的準確漁業資源評估數據，但估計牠們已遭過度捕撈。

意外捕撈

南中國海的漁民以底拖網捕撈牛鰻，意外漁獲佔總漁獲量70%。許多具商業價值的幼魚被一併捕撈，在中國和香港作為廉價魚糧出售。

對環境的影響

漁具密集地於海床拖行，對海床造成嚴重影響。

漁業管理

本港和南中國海的牛鰻漁業管理體制並

不健全，香港缺乏相關規條，不設漁獲品種體積限制、捕撈牌照制度或設立捕撈配額。中國設有一些管理措施，可惜執法力度不足。

摘要

牛鰻的生態特徵令其極易受漁業壓力影響，牠們現時已遭過度捕撈。底拖網捕撈的方式製造大量意外漁獲，進一步加劇消耗海洋資源，更嚴重影響海床。本港和南中國海的牛鰻漁業管理體系成效不彰。



• *Aluterus monoceros*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole fish
Fishing method: Bottom trawling

Biology

As unicorn leatherjacket grow slowly and take more than 14 years to become sexually mature, they are vulnerable to fishing pressure.

Status of wild populations

Although there is no accurate estimate of unicorn leatherjacket stocks, they appear to be overfished.

Bycatch

Unicorn leatherjacket are caught by bottom trawlers in the South China Sea, generating a lot of bycatch - up to 70% of the total catch. The bycatch includes commercially important juvenile fish, which are sold cheaply to fish farms in Hong Kong and China as feed.

Impacts on the environment

Bottom trawling has a big impact on the seabed because of the intense contact between fishing gear and the seafloor.

Fisheries management

Fishery management systems for unicorn leatherjacket in Hong Kong and

the South China Sea are ineffective. There are virtually no fishery regulations in Hong Kong: there are no size restrictions, fishing licensing or quota system. Although some management measures are in place in mainland China, enforcement is poor.

Summary

The biological characteristics of unicorn leatherjacket make them sensitive to fishing pressure and the species is overfished. Bottom trawling generates a lot of bycatch, exacerbating the depletion of marine resources and has a big impact on the seabed. The management measures for unicorn leatherjacket in Hong Kong and the South China Sea are not effective.

• *Cromileptes altivelis*

來源地：東南亞（印尼、馬來西亞及菲律賓）

一般出售方式：活魚

捕撈方法：竿釣

生態特徵

老鼠斑成熟後會由雌性轉為雄性。這種魚類生長緩慢，需要較長的時間方成熟至可繁殖，成熟時身長約39公分。此物種極易受漁業壓力影響。

野生種群狀況

目前缺乏種群數量的準確評估數據，但老鼠斑已被視為野外珍稀物種，被負責監察物種保育狀況的世界自然保護聯盟紅色名錄列為「易危」物種，表示若不採取保護行動，牠們或有絕種危機。

意外捕撈

被誤捕的老鼠斑幼魚會被養殖至可供出售的體積，不會被放回野生環境中。其他意外捕撈、不適合出口的魚類則會被漁民食用、在當地市場出售或售予養殖場作魚糧。

對環境的影響

漁具極少觸碰到海床，對海床只會造成輕微影響。

漁業管理

東南亞只有少數措施規管老鼠斑的捕撈活動，包括設立海洋保護區及捕撈牌照制度等，但沒有限制漁獲的品種體積，故有關國家的老鼠斑漁業管理體系並不完善。

摘要

老鼠斑遭過度捕撈，並受其生態特徵所限，極易受漁業壓力影響。所採用的漁具對海床影響輕微但漁民會保留所有漁獲。印尼、馬來西亞及菲律賓的老鼠斑漁業管理體制並不完善。

• *Cromileptes altivelis*

Origin: Southeast Asia (Indonesia, Malaysia and the Philippines)

Mainly sold as: Live fish

Fishing method: Hook and lining

Biology

High-finned grouper change sex from female to male as they grow. As they grow slowly, they need a relatively long time to become sexually mature, which happens when they reach about 39 centimetres in length. The species is therefore sensitive to fishing pressure.

Status of wild populations

Although there is no accurate estimates of high-finned grouper stocks, they are considered a rare species in the wild. They are listed as "Vulnerable" on the IUCN Red List, meaning that they are threatened with extinction if no action is taken to protect them.

Bycatch

Young high-finned grouper are kept until they grow to market size rather than being released. Other fish species incidentally caught that are not suitable for export are consumed domestically, sold to local markets or to fish farms to use as feed.

Impacts on the environment

As there is only minimal contact between the seabed and the fishing gear, hook and lining has little impact on the seafloor.

Fisheries management

There are only a few management measures to regulate fishing of the species in Southeast Asia, including the establishment of marine protected areas and licensing of fishermen. However, there are no restrictions on the size and number of fish caught, therefore the fishery management systems for high-finned grouper in these countries are not well managed.

Summary

High-finned grouper are overfished and they have biological characteristics that make them vulnerable to fishing pressure. Hook and lining has little impact on the seabed, and fishermen keep everything they catch. The high-finned grouper fisheries in Indonesia, Malaysia and the Philippines are not well managed.

• *Plectropomus areolatus*

來源地: 東南亞 (印尼、馬來西亞及菲律賓)

一般出售方式: 活魚

捕撈方法: 竿釣

生態特徵

西星斑成熟後會由雌性轉為雄性。成熟的西星斑會從覓食地游移一段長距離，到特定的地方聚集和交配，輕易成為漁民的目標。

野生種群狀況

西星斑已遭過度捕撈。印尼一項為期五年的監察研究發現，這種魚類的體型急速驟降，而馬來西亞沙巴另一個研究亦顯示，這個物種的種群已減少接近98%。

意外捕撈

被誤捕的幼魚被放到養殖池飼養，直至牠們達可出售的體積，其他不適合出口的魚類則會被漁民食用、在當地市場出售或售予養殖場作魚糧。

對環境的影響

漁具極少碰觸到海床，對海床影響輕微。

漁業管理

東南亞訂有若干措施規管有關漁業，包括設立海洋保護區和捕撈牌照制度，但沒有規限漁獲品種的體積和漁獲數量，管理情況欠佳。

摘要

西星斑已遭過度捕撈，因其既定交配模式，容易受漁業壓力影響。雖然釣鉤與釣線對海床影響輕微，但漁民會保留所有漁獲。印尼、馬來西亞和菲律賓的漁業管理體制並不健全。

• *Plectropomus areolatus*

Origin: Southeast Asia (Indonesia, Malaysia and the Philippines)

Mainly sold as: Live fish

Fishing method: Hook and lining

Biology

Squairetail coral trout change sex from female to male as they grow. Mature trout travel far from their usual feeding areas to predictable places to gather and mate. This makes them an easy target for fishermen.

Status of wild populations

Squairetail coral trout are overfished. A five-year monitoring study in Indonesia discovered a sharp decrease in the body size of the fish, and another study in Sabah, Malaysia found that the population of the species had been reduced by almost 98%.

Bycatch

Juveniles are kept in fish farms to grow to market size for sale. Other harvested fish species that are not suitable for export are usually consumed domestically, sold to local markets or used as feed in fish farms.

Impacts on the environment

Hook and lining has little impact on the seabed because there is practically no contact between fishing gear and the seafloor.

Fisheries management

There are some management measures to regulate this fishery in Southeast Asia, such as the establishment of marine protected areas and licensing of fishermen. But there is no restriction on the size and number of fish caught, so the fishery is not well managed.

Summary

Squairetail coral trout are overfished. They are vulnerable to fishing pressure because of their predictable mating patterns. Hook and lining has little impact on the seabed, and fishermen keep everything they catch. The management systems of this fishery in Indonesia, Malaysia and the Philippines are unsound.



• *Epinephelus polyphekadion*

來源地: 東南亞（印尼、馬來西亞及菲律賓）
一般出售方式: 活魚
捕撈方法: 竿釣

生態特徵

杉斑成熟後會由雌性轉為雄性，繁殖時會整群從覓食地游移一段長距離，到特定地方交配。漁民能輕易預測其習性，因此漁業壓力對牠們影響極大。

野生種群狀況

杉斑遭過度捕撈。目前缺乏杉斑數量的準確評估數據，但在許多地方，聚集繁殖的種群數量已減少超過五成。

意外捕撈

竿釣屬具選擇性的捕魚方法，但漁民會保留所有漁獲。此外，杉斑幼魚亦會被養殖至可供出售的體積，不會放回野生環境中。

對環境的影響

漁具極少觸碰到海床，對海床只會造成輕微影響。

漁業管理

東南亞的杉斑漁業管理體系成效不彰。部分東南亞國家已禁止使用山埃捕魚，並闢建海洋保護區，但無限制漁獲品種的體積，或設立相關物種的捕撈配額。

摘要

杉斑極易受漁業壓力影響，在東南亞國家已遭過度捕撈。漁民使用釣竿捕獲杉斑外，亦保留所有漁獲。杉斑漁業在印尼、馬來西亞和菲律賓的管理體系，未能有效確保該物種的數量維持在健康水平。



• *Epinephelus polyphekadion*

Origin: Southeast Asia (Indonesia, Malaysia and the Philippines)
Mainly sold as: Live fish
Fishing method: Hook and lining

Biology

Camouflage grouper change sex from female to male as they grow. When they reproduce, they will travel far from their feeding grounds and gather in large numbers at specific places to mate. As this behaviour can be easily predicted by fishermen, the species is vulnerable to fishing pressure.

Status of wild populations

Camouflage grouper are overfished. Although there is no accurate estimate of their stocks, the numbers gathering to reproduce have decreased by more than 50% in many places.

Bycatch

Hook and lining is a selective fishing method, but fishermen will keep everything they catch. Furthermore, juvenile camouflage grouper are kept until they are big enough to sell rather than being released.

Impacts on the environment

Hook and lining has little impact on the seabed because contact between fishing gear and the seafloor is minimal.

Fisheries management

Fishery management systems for camouflage grouper in Southeast Asia are not effective. Although the use of cyanide is prohibited, and protected areas have been established in some Southeast Asian countries, there is no minimum size limit or quota system for catching the species.

Summary

Camouflage grouper are vulnerable to fishing pressure and they are already overfished in Southeast Asian countries. Fishermen use hook and lining to catch them and they keep everything they catch. The management of camouflage grouper fisheries in Indonesia, Malaysia and the Philippines is not effective to ensure the sustainability of the species.

● *Plectropomus leopardus*

來源地：東南亞（印尼、馬來西亞及菲律賓）

一般出售方式：活魚

捕撈方法：竿釣

◉ 生態特徵

東星斑成熟後會改變性別，然後聚集繁殖，這些特徵令牠們容易受漁業壓力影響。

◉ 野生種群狀況

東南亞的東星斑遭過度捕撈，漁業發展20年後，菲律賓的東星斑在漁獲和出口數量均遽減，4年間跌逾43%；部分地區的跌幅更高達97%。在印尼，漁獲數目減少四成，品種平均體積亦驟降10%。

◉ 意外捕撈

漁民以釣竿捕獲東星斑時，亦會誤捕其他魚類，這些魚類會被漁民食用、在當地市場出售或當成魚糧售予養殖場，浪費海洋資源。

◉ 對環境的影響

漁具極少觸碰到海床，對海床影響輕微。

◉ 漁業管理

東南亞只設有少量措施規管有關漁業，如禁止採用山埃捕魚和設立海洋保護區等，惟執法不力，漁業未獲完善管理（關於澳洲的東星斑的漁業管理情況，請見第74頁）。

摘 要

東星斑的繁殖習性使牠們極易受漁業壓力影響，東南亞的魚群已遭過度捕撈，其捕撈方法對海床生態系統影響輕微，但漁民會保留所有漁獲。東南亞國家的相關漁業管理制度並不健全。

● *Plectropomus leopardus*

Origin: Southeast Asia (Indonesia, Malaysia and the Philippines)

Mainly sold as: Live fish

Fishing method: Hook and lining

◉ Biology

Leopard coral trout change sex as they grow and gather to spawn. These characteristics make the species vulnerable to fishing pressure.

◉ Status of wild populations

Southeast Asian leopard coral trout are overfished. After 20 years of fishing of the species, catch and export figures from the Philippines have fallen rapidly, by more than 43% in four years; in some areas the decline is as big as 97%. In Indonesia, the number of fish has dropped by 40% and the average body size has reduced by 10%.

◉ Bycatch

Many other types of fish are also caught by hook and lining; they are usually consumed domestically, sold to local markets or used as feed in fish farms. This is a waste of marine resources.

◉ Impacts on the environment

Hook and lining has little impact on the seabed because the contact between the seafloor and the hooks is minimal.

◉ Fisheries management

In Southeast Asia there are only a few fishery management measures in place, such as prohibiting the use of cyanide and establishing protected areas. However, enforcement is weak, and fisheries are generally poorly managed (but see p.75).

Summary

The spawning behaviour of leopard coral trout makes them susceptible to fishing pressure and the stocks of this species in Southeast Asia are overfished. The fishing method used has limited impact on the seabed and fishermen keep everything they catch. The fishery management of the species in Southeast Asian countries is unsound.

• *Hoplostethus atlanticus*

來源地: 全球（大西洋北部及東部、印度洋、太平洋東部及南部）

一般出售方式: 冰鮮及冷藏魚柳

捕撈方法: 底拖網

生態特徵

群居的金獅魚棲居在深達1,900米的海底山脊附近，生長緩慢，至少需要14年方成長至可繁殖，牠們可活至150歲，極易受漁業壓力威脅。

野生種群狀況

金獅魚漁業開始於1970年代末期，牠們在全球許多地方的數目只剩下原有的十分之一，顯示已遭過度捕撈。

意外捕撈

漁民以底拖網捕撈金獅魚，摧毀深海珊瑚，珊瑚需耗上數百年方可復原。

對環境的影響

漁具密集地於海床拖行，對環境造成嚴重不良影響。

漁業管理

金獅魚漁業管理體系並不健全，許多有金獅魚棲居的國家設有漁業資源評估、

捕撈牌照制度及捕撈配額等管理措施，但大部分地方均無法阻止魚群數量下降。

摘要

金獅魚受其生態特徵所限，極易受漁業壓力影響，幾乎所有地方的魚群已遭過度捕撈。深海底拖網捕魚會破壞脆弱的深海珊瑚生態系統，需要很長時間才能復原。目前金獅魚的漁業管理措施並不收效，無法確保這個漁業能處於健康水平。

• *Hoplostethus atlanticus*

Origin: Global (northern and eastern Atlantic Ocean, Indian Ocean, eastern and southern Pacific Ocean)

Mainly sold as: Fresh and frozen fillet

Fishing method: Bottom trawling

Biology

Orange roughy live in big schools around underwater seamounts at depths down to 1,900 metres. They grow slowly, taking at least 14 years to become sexually mature, and can live for up to 150 years. All of that makes orange roughy very sensitive to fishing pressure.

Status of wild populations

Orange roughy are overfished. Although orange roughy fisheries only began in the late 1970s, many stocks in the world are already down to about 10% of their original size.

Bycatch

Orange roughy are caught using bottom trawling, a fishing method that destroys deep-sea corals which can take hundred of years to recover.

Impacts on the environment

Intensive contact between fishing gear and the seabed means that bottom trawling has a large negative impact on the environment.

Fisheries management

Fishery management systems for orange roughy are not effective. Although there are management measures including stock assessments, licensing and fishing quotas in many countries where orange roughy occur, stocks of this species continue to decrease in most places.

Summary

Orange roughy are biologically sensitive to fishing pressure and their stocks are overfished almost everywhere. Deep-sea bottom trawling destroys fragile deep-sea coral ecosystems which will take a long time to recover. The current management of orange roughy is not effective and does not protect the long-term sustainability of the fishery.

• *Epinephelus akaara*

來源地: 中國
一般出售方式: 活魚
養殖方法: 浮式網箱

魚類養殖環境

網箱內的紅斑密度很高，病菌和寄生蟲容易傳播。

飼料

紅斑屬肉食性魚類，養魚戶或會捕捉具商業價值品種的幼魚作飼料，加重其他已遭過度捕撈的海洋品種的壓力。

魚苗來源

魚苗大多來自已遭過度捕撈的野生種群，紅斑被世界自然保育聯盟紅色名錄列為「瀕危」物種。

對環境的影響

雖然浮式網箱的架設方式只會對海床構成輕微影響。污水、過剩魚糧和排泄物直接排入大海，不僅污染水源，更有機會把疾病傳染給野生種群。

海產養殖管理

養殖業惠及當地社群，養魚場只可設立

在中國指定的地方內，但相關條例未能有效控制疾病傳播，及污水對環境的影響。

摘要

中國的養魚戶以浮式網箱飼養紅斑，而魚苗多來自已遭過度捕撈的野生種群。養魚戶或以其他野生幼魚作為魚糧，影響這些野生種群的數目。此外，紅斑的養殖方式會對環境構成負面影響，包括水質污染及把病菌傳播到野生種群，目前的管理措施未能有效解決這些問題。

• *Epinephelus akaara*

Origin: China
Mainly sold as: Live fish
Culture method: Floating net cages

Condition of the farmed fish

Hong Kong grouper are stocked at high densities in the cages resulting in the easy spread of diseases and parasites.

Fish feed

Hong Kong grouper are carnivores and their feed may include commercially important juvenile fish. This puts additional pressure on the already over-fished populations of other marine species.

Source of fry

Most of the fry are collected from the wild. However, wild stocks are over-fished and the Hong Kong grouper are listed as "Endangered" on the IUCN Red List.

Impacts on the environment

Floating net cages are installed in ways that have only minimal impact on the seabed. Effluent, excessive fish feed and faeces are directly discharged into the open sea, which can cause water

pollution and harm wild populations potentially spreading diseases to them.

Mariculture management

The industry is beneficial to local communities. Fish farms can only be set up in certain designated places in China. The regulations, however, do not effectively control the impact of the spread of diseases and the effects of discharge on the environment.

Summary

Hong Kong grouper are cultured in floating net cages in China. Using wild-caught fish of other species as feed has an impact on other wild fish populations. Fry are usually collected from over-fished stocks. The farming methods have a negative impact on the environment, including water pollution and the spread of diseases to the wild. Current management measures are considered ineffective to address these issues.



• *Charybdis feriatus*

來源地: 南中國海，包括香港水域

一般出售方式: 活蟹，原隻出售

捕撈方法: 底拖網

生態特徵

紅蟹生長迅速，約12個月已可繁殖，較有能力抵抗漁業壓力。

野生種群狀況

本港的紅蟹遭過度捕撈，南中國海的捕撈量亦減少。

意外捕撈

漁民以底拖網捕撈紅蟹，捕捉到大量非目標品種的意外漁獲，在南中國海，意外漁獲可佔總捕撈量70%，當中包括具商業價值品種的幼魚，這些幼魚最後會被當作魚糧廉價出售。被底拖網捕撈的生物，在漁網中已遭壓傷，即使丟回海中，生存率依然偏低。

對環境的影響

漁具密集地於海床拖行，對海床造成嚴重影響。

漁業管理

香港和南中國海對紅蟹捕撈業的管理不力，香港並沒有漁獲品種的體積限制、捕撈牌照制度或捕撈配額。中國設有一些管理措施，可惜執法力度不足。

摘要

紅蟹並非特別容易受漁業壓力威脅的品種，但遭過度捕撈。底拖網捕撈的方式，捕撈大量非目標品種的意外漁獲，亦嚴重影響海床環境。本港和南中國海的紅蟹漁業管理體系並不健全。



• *Charybdis feriatus*

Origin: The South China Sea including Hong Kong waters

Mainly sold as: Live crab

Fishing method: Bottom trawling

Biology

Red crab grow quickly and become sexually mature within 12 months, therefore they are not very susceptible to fishing pressure.

Status of wild populations

Red crab are overfished in Hong Kong waters. Catches in the South China Sea have also declined.

Bycatch

Red crab are caught by bottom trawlers which will generate a lot of bycatch - in the South China Sea, about 70% of the total catch. This bycatch includes the young of high-value species, and it gets sold cheaply to fish farms to use as feed. The organisms that are caught and discarded have a low survival rate as they are usually crushed to death in the nets.

Impacts on the environment

Bottom trawling has a big impact on the seabed because of the intense contact between the fishing gear and the seafloor.

Fisheries management

Management of red crab fisheries in Hong Kong and the South China Sea are ineffective. There are no size restrictions, fishing licensing or quota system in Hong Kong. Mainland China has some management measures in place, but enforcement is poor.

Summary

Red crab are overfished despite not being particularly susceptible to fishing pressure. Bottom trawling for red crab generates a great deal of bycatch and has a huge impact on the seabed. The management measures for catching red crab in Hong Kong and the South China Sea are unsound.



• *Atypopenaeus stenodactylus*, *Metapenaeopsis barbata*, *M. palmensis*, *Parapenaeopsis tenella*, *Trachypenaeus curvirostris*

來源地: 南中國海，包括香港水域

一般出售方式: 活蝦及冰鮮蝦，原隻出售

捕撈方法: 底拖網

生態特徵

海蝦生長迅速，12個月內便可開始繁殖，天生較有能力抵抗漁業壓力。牠們似乎能在拖網密集的地方大量繁殖。

野生種群狀況

海蝦是本港最具商業價值的物種之一，其漁業資源已於本港水域遭完全開發。

意外捕撈

南中國海的漁民以底拖網捕撈蝦類，意外捕撈量龐大，佔總漁獲量70%。許多具商業價值的幼魚被一併捕撈，並作為廉價魚糧於中國和香港出售。

對環境的影響

底拖網密集地於海床拖行，對海床造成嚴重影響。

漁業管理

香港和南中國海的捕蝦業管理體系成效不彰，缺乏相關規條，香港不設漁獲品種的體積限制、捕撈牌照制度或捕撈配額體系。中國設有管理措施，可惜執法不力。

摘要

海蝦並非特別容易受漁業壓力影響，但已被完全捕撈。漁民使用底拖網捕撈海蝦製造大量意外漁獲，進一步消耗海洋資源，更會嚴重影響海床。本港和南中國海的海蝦漁業管理措施成效不彰。



• *Atypopenaeus stenodactylus*, *Metapenaeopsis barbata*, *M. palmensis*, *Parapenaeopsis tenella*, *Trachypenaeus curvirostris*

Origin: The South China Sea including Hong Kong waters

Mainly sold as: Live and fresh whole shrimp

Fishing method: Bottom trawling

Biology

As shrimp are fast-growing and can start to reproduce within 12 months, they are naturally resistant to fishing pressure. They also seem able to thrive in areas where the seabed is heavily disturbed by trawling.

Status of wild populations

Shrimp are among the most commercially important species in Hong Kong, but they are fully fished here.

Bycatch

Shrimp are caught by bottom trawlers in the South China Sea that can generate massive amounts of undesirable bycatch - up to 70% of the total catch. The bycatch includes commercially important juvenile fish, which are sold cheaply as feed to fish farms in Hong Kong and China.

Impacts on the environment

The intense contact between the heavy weights of the trawlers and the seabed has a big impact on the seafloor.

Fisheries management

Fishery management systems for shrimp in Hong Kong and the South China Sea are ineffective. Fishery regulations are not in place: in Hong Kong, there are no size restrictions, fishing licensing or quota system. Although some management measures are in place in mainland China, enforcement is poor.

Summary

Shrimp are fully fished despite not being vulnerable to fishing pressure. Not only does bottom trawling generate a lot of undesirable bycatch, it also further exacerbates the depletion of marine resources and has a major impact on the seabed. The management measures in place for shrimp in Hong Kong and the South China Sea are not effective.



• *Tachypleus tridentatus*, *Carcinoscorpius rotundicauda*

來源地: 南中國海，包括香港水域

一般出售方式: 活馬蹄蟹

捕撈方法: 底拖網

生態特徵

馬蹄蟹需經10年方達至成熟階段，群集在沙灘上繁殖。幼馬蹄蟹需棲居在沙岸或泥岸，待年紀稍長後才遷徙到深海居住，這些生態特徵令馬蹄蟹極易受漁業壓力影響。

野生種群狀況

馬蹄蟹已遭過度捕撈，南中國海並無相關的準確漁業資源評估數據，但香港一些地方的種群數量已減少九成。

意外捕撈

漁民以底拖網捕撈馬蹄蟹，同時會捕捉到大量非目標品種，在南中國海，意外漁獲可佔總漁獲量70%。被底拖網捕撈的生物，即使被丟回海中，生存率依然偏低。

對環境的影響

漁具密集地於海床拖行，對海床造成嚴

重影響。

漁業管理

本港和南中國海的漁業管理體系並不健全，沒有足夠的漁業規例，監管馬蹄蟹捕撈業，捕撈配額、漁獲品種的體積限制和海洋保護區等重要的管理措施均欠奉或缺乏監管。

摘要

馬蹄蟹極易受漁業壓力影響，本港的種群已遭過度捕撈。底拖網漁船會捕撈到大量意外漁獲，並會對海床造成嚴重影響。本港和南中國海的馬蹄蟹漁業管理措施成效不彰。



• *Tachypleus tridentatus*, *Carcinoscorpius rotundicauda*

Origin: The South China Sea including Hong Kong waters

Mainly sold as: Live horseshoe crab

Fishing method: Bottom trawling

Biology

Horseshoe crab take about 10 years to become adults and gather together on sandy beaches to reproduce. Juvenile horseshoe crabs need to live in sandy or muddy shores before they move into deeper waters as they get older. All of this makes horseshoe crab very vulnerable to fishing pressure.

Status of wild populations

Horseshoe crab are overfished: Hong Kong's population has decreased by 90% in some areas, but there is no accurate assessment of stocks in the South China Sea.

Bycatch

Bottom trawling produces a high rate of undesirable catch, reaching up to 70% of the total catch in the South China Sea. Discarded organisms caught by bottom trawling usually have low survival rates.

Impacts on the environment

Bottom trawling has a high impact on the seabed because of the intense contact between fishing equipment and the seafloor.

Fisheries management

There are limited relevant fishery regulations in Hong Kong and the South China Sea in relation to horseshoe crab. Critical management measures including catch quotas, size restrictions and marine protection areas are either absent or poorly enforced, meaning that the fishery management in both Hong Kong and the South China Sea is unsound.

Summary

Horseshoe crab are very vulnerable to fishing pressure and they are overfished in Hong Kong. Bottom trawling generates a large quantity of undesirable bycatch and also has a big impact on the seabed. Horseshoe crab fisheries management measures in Hong Kong and the South China Sea are not effective.



• *Dissostichus eleginoides*, *D. mawsoni*

來源地: 全球（大西洋、印度洋及太平洋的南部）
一般出售方式: 冰鮮及冷藏魚柳
捕撈方法: 底延繩

生態特徵

雪花鱸魚成長速度緩慢，需六至九年方可繁殖，壽命可達50年，故容易受漁業壓力影響。

野生種群狀況

在許多國家捕撈雪花鱸魚屬合法的漁業活動，但在一些國家的水域和公海，這類活動仍是非法進行，非法捕撈量更較合法捕撈的高出四倍。除了大西洋南部英屬南喬治亞島的魚群外，幾乎所有雪花鱸魚的魚群均遭過度捕撈。

意外捕撈

底延繩捕魚會誤捕許多海鳥，包括瀕危鳥類，如漂泊信天翁和灰頭信天翁。海鳥追逐漁船啄食魚餌，上釣後被拖到水中溺斃。有關問題在非法捕魚作業中尤其嚴重。

對環境的影響

底延繩會破壞如硬和軟珊瑚的海底動物群族，對海床有若干影響。

漁業管理

除了英屬南喬治亞島外，其餘地區的雪花鱸魚漁業管理均欠妥善。有雪花鱸魚出沒的大部分國家均實行如漁業資源評估、捕撈牌照制度、減少意外漁獲和捕撈配額等管理措施，地區上亦訂有漁業管理措施，但非法捕撈問題依然危害雪花鱸魚的魚群。（關於英屬南喬治亞島的雪花鱸魚的漁業管理情況，請見第82頁）

摘要

雪花鱸魚由於其生態特徵，易受漁業壓力影響，除了英屬南喬治亞島外，其他地方的魚群已遭過度捕撈。底延繩捕魚對海床影響輕微，但會誤殺瀕危海鳥。除英屬南喬治亞島外，其餘地方的雪花鱸魚漁業管理措施，未能有效阻止非法捕魚活動。



• *Dissostichus eleginoides*, *D. mawsoni*

Origin: Global (southern part of Atlantic, Indian and Pacific Oceans)
Mainly sold as: Fresh and frozen fillet
Fishing method: Bottom long-lining

Biology

Chilean sea bass grow slowly, taking about six to nine years to reach adulthood. They have a life span of up to 50 years. These characteristics make them very vulnerable to fishing pressure.

Status of wild populations

Although some Chilean sea bass are caught legally in many countries, up to four times as many are illegally taken, both in national and international waters. Stocks of Chilean sea bass are overfished except those from South Georgia in the southern Atlantic.

Bycatch

Bottom long-lining kills many sea birds, some of them endangered, such as the wandering and grey-headed albatrosses. Sea birds follow fishing boats and drown after chasing the bait and getting hooked. The problem is particularly serious in areas where the fish are caught illegally.

Impacts on the environment

Bottom long-lining has some impact on the seabed; because it damages benthic fauna like hard and soft corals.

Fisheries Management

Chilean sea bass fisheries, except in South Georgia, are not well managed. Although management measures including stock assessments, licensing, bycatch reduction and fishing quotas are in place in most countries where the species occurs, and regional fisheries management measures are also in place, illegal fishing is still damaging Chilean sea bass stocks (but see p. 83).

Summary

Chilean sea bass are biologically vulnerable to fishing pressure and their stocks, except those in South Georgia, are overfished. Although bottom long-lining has little impact on the seabed, it kills endangered sea birds. Except in South Georgia, the management measures in place for Chilean sea bass fisheries are not effective in stopping illegal fishing.

● *Xiphias gladius*

來源地: 全球

一般出售方式: 新鮮及冷藏魚柳

捕撈方法: 浮延繩

生態特徵

劍魚生長緩慢，需約五年方可繁殖，屬高度遷徙性的魚類品種，身長可達4.5米，其生態特徵令牠們極易受漁業壓力影響。

野生種群狀況

劍魚遷徙於海洋之間，極難評估其種群數目，但鑑於目前出售的劍魚以幼魚為主，可見這個品種已遭過度捕撈。

意外捕撈

漁民使用延繩釣捕撈劍魚時，鯊魚和海龜等瀕危物種有機會一併被捕獲。

對環境的影響

漁具幾乎不會觸碰到海床，對海床影響極微。

漁業管理

劍魚漁業的管理並不完善。劍魚在海洋活動範圍極廣，令漁業管理措施難以推行困難。即使地區漁業管理組織記錄劍魚漁獲數量，漁獲數量限制等漁業管理措施則非常有限。除了美國外，其餘地方均未能有效落實有關措施。

摘要

劍魚已遭過度捕撈，其生態特徵令牠們極易受漁業壓力影響。浮延繩捕魚在捕撈劍魚時，製造不少意外漁獲，當中包括瀕危物種。這種漁業對海床環境破壞輕微。除美國外，其餘國家均未能有效落實劍魚漁業管理措施。

● *Xiphias gladius*

Origin: Global

Mainly sold as: Fresh and frozen fillet

Fishing method: Pelagic long-lining

Biology

Swordfish grow slowly, taking about five years to become sexually mature. They are highly migratory and can reach more than 4.5 metres in length. All of these characteristics make them vulnerable to fishing pressure.

Status of wild populations

As swordfish can migrate across the oceans, it is difficult to estimate the size of their populations. However, the fact that the swordfish available for sale are mainly juveniles suggests that they are already overfished.

Bycatch

Pelagic long-lining does not just catch swordfish: it also kills endangered species such as sharks and marine turtles.

Impacts on the environment

As there is almost no contact between the fishing gear and the seabed, the impact is minimal.

Fisheries Management

Swordfish fisheries are not well managed. Swordfish travel long distances in the ocean, making fisheries management difficult. Although regional fishery management organisations record quantities of swordfish, fisheries management measures, including restrictions on the number that can be caught, are limited. Except in the USA, implementation is not effective.

Summary

Swordfish stocks are considered overfished and they are biologically vulnerable to fishing pressure. The pelagic long-lining used to catch swordfish results in bycatch that includes endangered species. The gear does little damage to the seabed ecosystem, but fisheries management measures for swordfish, except in the USA, are not effective.



• *Penaeus orientalis*, *P. vannamei*, *P. monodon*

來源地: 中國

一般出售方式: 活蝦、冰鮮及冷藏蝦, 原隻出售

養殖方法: 戶外魚塘

蝦類養殖環境

蝦塘內飼養大量蝦隻, 容易傳播疾病和寄生蟲。

飼料

養殖戶或捕撈具商業價值的幼魚來餵蝦, 加重中國和其他地方已遭過度捕撈的野生物種種群的漁業壓力。

蝦苗來源

人工孵育的蝦苗數量不足以應付需求。大部分蝦苗來自其野生種群, 漁民會把捕撈蝦苗時一併捕得的海洋物種丟棄, 損害其他海洋物種。

對環境的影響

產量下降的蝦場會被荒廢, 而養蝦業嚴重破壞泥土質素, 故蝦場難以改作其他農耕用途。養殖戶把污水排進公海, 未經處理的污水含大量剩餘飼料、排泄物, 甚至可能有病菌, 污染環境。此外, 部分蝦種來自美國, 或會威脅當地

品種的生存機會。

海產養殖管理

中國規定在指定的地方興建養殖場, 養蝦業亦能惠及當地社區。解決蝦場環境問題而制定的管理措施效果不彰, 且執法不力。

摘要

中國的養殖戶於室外魚塘養蝦, 部分蝦苗來自野外, 影響野生蝦群和其他物種。蝦場對環境有負面影響, 包括利用已遭過度捕撈的魚類品種作飼料, 污染和傳播細菌。現存若干條例規管養蝦活動, 唯效果不彰。



• *Penaeus orientalis*, *P. vannamei*, *P. monodon*

Origin: China

Mainly sold as: Live, fresh and frozen whole shrimp

Culture method: Open land ponds

Condition of the farmed Shrimp

Shrimp are densely stocked in ponds and this can easily result in the spread of diseases and parasites.

Feed

The feed for shrimp may include commercially important immature wild-caught fish species. This puts additional pressure on the already overfished populations of wild species in China and other parts of the world.

Source of fry

Most fry come from the wild. When they are collected, all other animals caught are thrown away, damaging other marine species. Artificially-hatched shrimps are available, but not in sufficient quantities to meet demand.

Impacts on the environment

When shrimp yields decrease, shrimp ponds are often abandoned; these ponds are difficult to change to other agricultural uses because shrimp farming seriously deteriorates the quality of the soil. Effluent containing excessive feed, faeces - and potentially diseases - is directly discharged into the open sea without treatment, polluting the

marine environment. In addition, some shrimp are introduced species from America, threatening the survival of native shrimp species.

Mariculture management

Shrimp farms can only be set up in certain designated places in China. The industry is beneficial to local people. However, the management measures in place to address the environmental impact of shrimp farms are not effective, and enforcement is weak.

Summary

Shrimp are cultured in open land ponds in China. Shrimp fry are still collected from the wild, affecting wild stocks of shrimp and other species. Shrimp farms have several negative effects on the environment, including the use of overfished species as feed, pollution and the spread of diseases. Although there are regulations to control farming activities, they are not effective.



• *Sepia pharaonis*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮墨魚，原隻出售
捕撈方法: 三層刺網

◉ 生態特徵

墨魚生長迅速，不足四個月即可繁殖，但壽命只有8至12個月。墨魚一生只繁殖一次，並在交配期間聚集，極易受漁業活動影響。

◉ 野生種群狀況

目前沒有準確的漁業資源評估數據，但本地調查顯示，本港水域和南中國海的墨魚已遭過度捕撈。

◉ 意外捕撈

漁民主要以三層刺網捕撈墨魚。網孔太小，把其他物種的幼魚一併捕撈，製造大量的非目標品種的意外漁獲，佔總漁獲量55%。

◉ 對環境的影響

三層刺網極少觸碰到海床，對海床影響輕微。

◉ 漁業管理

本港和南中國海的墨魚捕撈業管理體制效果不彰，香港只有極少規例，且沒特別為有關漁業制定管理體系，當局亦未能有效落實南中國海的漁業管理措施。

摘要

墨魚受生態特徵所限，極易受漁業壓力影響，牠們並遭過度捕撈。三層刺網捕魚對海床影響輕微，但製造意外漁獲。香港和南中國海的墨魚捕撈管理體制不健全。



• *Sepia pharaonis*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole cuttlefish
Fishing method: Trammel gill-netting

◉ Biology

Cuttlefish grow fast and can reproduce at four months old or less, but their life span is only about 8 to 12 months. Although cuttlefish grow quickly, they only reproduce once in their lifetime and will gather together in big groups during the mating season, making them sensitive to fishing activities.

◉ Status of wild populations

No accurate stock assessment is available but local surveys indicate that cuttlefish are overfished in Hong Kong waters and the South China Sea.

◉ Bycatch

Cuttlefish are mainly caught by trammel nets that create a relatively large amount of undesirable bycatch - up to 55% of the total - because the nets are so fine that they catch the juveniles of other species.

◉ Impacts on the environment

The use of trammel nets has a low impact on the seabed because the con-

tact between the nets and the seafloor is minimal.

◉ Fisheries management

Management systems for cuttlefish in both Hong Kong and the South China Sea are ineffective. There are only very limited regulations and no specific fishery management system in Hong Kong. The enforcement of fishery management measures in the South China Sea is poor.

Summary

Cuttlefish have some characteristics that make them susceptible to fishing pressure and stocks are overfished. Fishing with trammel nets generates a high quantity of undesirable bycatch although the direct impact to seabed habitats is limited. The cuttlefish fishery management systems in both Hong Kong and the South China Sea are unsound.



● *Haliotis midae*

來源地: 南非

一般出售方式: 新鮮活鮑魚、冷藏、罐頭及乾鮑魚

捕撈方法: 徒手捕捉

生態特徵

此品種的鮑魚只棲居於南非，需七年才可繁殖，易受漁業壓力影響。

野生種群狀況

漁民非法捕撈南非鮑魚，品種遭過度捕撈，部分合法開採範圍亦被迫關閉，而合法捕撈配額則減少超過六成。南非鮑魚被列進《瀕危野生動植物種國際貿易公約》附錄III，表示這品種暫無馬上絕種的風險，但需要嚴格控制牠們的貿易。若要進口本港，必須先領有牌照。

意外捕撈

漁民徒手捕捉南非鮑魚，不會捕捉到其他物種，意外漁獲甚少。

對環境的影響

漁民徒手捕捉鮑魚時，極少觸碰到海床，對海床影響輕微。

漁業管理

南非設有漁業資源評估、捕撈牌照制度及捕撈配額等漁業管理措施，唯非法捕撈猖獗，難以控制。由此可見管理措施無法確保南非鮑魚的數量維持在健康水平。

摘要

南非鮑魚由於其生態特徵，易受漁業壓力影響，非法捕撈活動導致該種群遭過度捕撈。徒手捕捉南非鮑魚只製造少量意外漁獲，對海床影響輕微，可惜漁業管理措施效果不彰，未能杜絕非法捕撈的問題。



● *Haliotis midae*

Origin: South Africa

Mainly sold as: Live, fresh, frozen, canned and dried

Fishing method: Handpicking

Biology

This species of abalone only occurs in South Africa and takes about seven years to become sexually mature, making it sensitive to fishing pressure.

Status of wild populations

Illegal catching of South African abalone has resulted in overfishing of the species. Some legal catching areas have been forced to close and quotas for collecting them legally have been reduced by more than 60%. South African abalone is listed in Appendix III of CITES, meaning that although they are not in immediate danger of extinction, strict trade regulation is needed. Permits are required to import them into Hong Kong.

Bycatch

As South African abalone are hand-picked by fishermen, no other species are collected.

Impacts on the environment

Handpicking has little impact on seabed because contact with the seafloor is minimal.

Fisheries Management

Although management measures such as stock assessments, licensing and fishing quotas are in place in South Africa, illegal collection of abalone is widespread and difficult to control. The fact that massive illegal collection of the species continues suggests that the management measures in place are not effective to ensure the long-term survival of the species.

Summary

South African abalone are biologically susceptible to fishing pressure and illegal fishing has caused stocks to become overfished. Although handpicking of South African abalone only leads to a small amount of bycatch and has little impact on the seabed, the fishery management measures in place are not effective, particularly in stopping illegal fishing.



• *Scomberomorus guttatus*, *S. commerson*

來源地: 南中國海，包括香港水域
一般出售方式: 冰鮮魚，原條出售
捕撈方法: 底拖網

◉ 生態特徵

泥鯪屬群居魚類，在不同季節會遷徙至大海不同地方。泥鯪生長迅速，並非特別容易受漁業壓力影響。

◉ 野生種群狀況

泥鯪的捕撈量於50至70年代增加，於90年代下降，顯示泥鯪已遭過度捕撈，情況以香港水域尤其嚴重。

◉ 意外捕撈

雖然漁民都在較深海洋以圍網捕撈泥鯪，但香港和南中國海的漁民則以底拖網捕撈，意外漁獲量可佔總漁獲量的70%。非目標品種的海洋生物被丟回海中，通常都無法生存。

◉ 對環境的影響

漁具密集地於海床拖行，對海床構成嚴重影響。

◉ 漁業管理

本港和南中國海的泥鯪漁業管理體制成效不彰，香港缺乏相關的規管條例，不設漁獲品種體積限制、捕撈牌照制度或捕撈配額體系等。中國設有管理措施，可惜執法不力。

摘要

生態特徵令泥鯪不會特別容易受到漁業壓力影響，但牠們遭過度捕撈。泥鯪漁業的捕撈方法製造大量非目標品種的意外漁獲，並嚴重影響海床。本港和南中國海的泥鯪漁業管理體系成效不彰。



• *Scomberomorus guttatus*, *S. commerson*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Fresh whole fish
Fishing method: Bottom trawling

◉ Biology

King mackerel are schooling fish and will migrate to different regions of the open sea during different seasons. As king mackerel grow quickly, they are not particularly vulnerable to fishing pressure.

◉ Status of wild populations

King mackerel catches increased between the 1950s and the late 1970s, then dropped during the 1990s. This suggests that king mackerel are already overfished, particularly in Hong Kong waters.

◉ Bycatch

Although king mackerel are usually caught in deeper seas by purse seiners, in Hong Kong and the South China Sea they are also caught by bottom trawlers. Bycatch is high, about 70% of the total catch, and unwanted organisms usually die even if they are thrown back into the sea.

◉ Impacts on the environment

Bottom trawling has a big impact on the seabed because of the intense con-

tact between the fishing gear and the seafloor.

◉ Fisheries management

Fishery management systems for king mackerel in Hong Kong and the South China Sea are ineffective. Fishery regulations are absent: in Hong Kong, there are no size restrictions, fishing licensing or quota system. Although there is some fishery management in mainland China, enforcement is poor.

Summary

King mackerel stocks are overfished, although there are no biological characteristics making the species particularly vulnerable to fishing pressure. The method used to catch king mackerel generates a large quantity of undesirable bycatch and has a huge impact on the seabed. Management measures for king mackerel fishing in both Hong Kong and the South China Sea are not effective.



避免

• *Thunnus thynnus* (northern bluefin tuna), *T. orientalis* (Pacific bluefin tuna), *T. maccoyii* (southern bluefin tuna)

來源地: 南方藍鰭吞拿魚(南半球海域)、太平洋藍鰭吞拿魚(印度太平洋)、北方藍鰭吞拿魚(大西洋與地中海)

一般出售方式: 新鮮及冷藏魚柳

捕撈方法: 圍網, 浮延繩

生態特徵

北方及南方藍鰭吞拿魚成長緩慢, 需八至十四年方可繁殖, 太平洋藍鰭吞拿魚則需三至五年。牠們習慣群聚繁殖和覓食, 特別容易受漁業壓力影響。

野生種群狀況

西大西洋和南半球海域的藍鰭吞拿魚, 均被負責監察物種保育狀況的世界自然保育聯盟紅色名錄列為「極度瀕危」物種, 顯示種群已遭過度捕撈。太平洋藍鰭吞拿魚的漁業資源亦已遭完全開發, 在日本境內仍有大量幼魚遭捕撈。

意外捕撈

漁民捕撈藍鰭吞拿魚時, 會意外捕捉到信天翁、海豚、海龜和鯊魚等瀕危物種。

對環境的影響

浮延繩和圍網甚少觸碰到海床, 對海床影響輕微。

漁業管理

北方和南方藍鰭吞拿魚漁業的管理措施包括漁業資源評估、捕撈魚牌照限制和捕撈配額, 國際間亦有條例管理有關漁業, 唯漁獲量仍遠高於科學家建議的數量。另一方面, 現時並無配額制度和規例監管在公海捕撈太平洋藍鰭吞拿魚, 而所有與藍鰭吞拿魚相關的漁業管理措施, 均未能有效維持該物種的數目於健康水平。

摘要

北方、太平洋及南方藍鰭吞拿魚受其生態特徵所限, 極易受漁業壓力影響。北方及南方藍鰭吞拿魚遭過度捕撈, 太平洋藍鰭吞拿魚的漁業資源已被完全開發。藍鰭吞拿魚的意外捕撈量甚高, 當中包括面臨絕種威脅的物種。藍鰭吞拿魚的捕撈方法對海床生態系統影響輕微, 唯管理體制並不健全。



Avoid

• *Thunnus thynnus* (northern bluefin tuna), *T. orientalis* (Pacific bluefin tuna), *T. maccoyii* (southern bluefin tuna)

Origin: Southern bluefin tuna: global Southern Ocean, Pacific bluefin tuna: Indo-Pacific Ocean, northern bluefin tuna: Atlantic Ocean and Mediterranean Sea

Mainly sold as: Fresh, frozen fillet

Fishing method: Purse seining, pelagic long-lining

Biology

Northern and southern bluefin tuna grow slowly, taking eight to 14 years to become sexually mature, while Pacific bluefin tuna take three to five years. They reproduce and feed in big groups. This makes bluefin tuna particularly vulnerable to fishing pressure.

Status of wild populations

The populations of bluefin tuna in western Atlantic and Southern Ocean are considered overfished and they are categorised as "Critically Endangered" on the IUCN Red List. Although the population of Pacific bluefin tuna is considered fully fished, a large number of immature individuals are caught in Japan.

Bycatch

Endangered species including albatrosses, dolphins, marine turtles and sharks are frequently reported as bluefin tuna bycatch.

Impacts on the environment

Both pelagic long-lining and purse seine fishing have little impact on the seabed because contact between the seabed and fishing gear is minimal.

Fisheries Management

Management measures including stock

assessment, licensing and fishing quotas are in place for both northern and southern bluefin tuna, and there are also international treaties to manage the fisheries. But actual catch is still much higher than scientists recommend. There is no quota system and no way of controlling Pacific bluefin tuna fishing in international waters. So for all types of bluefin tuna, current fisheries management measures are not effective in maintaining the sustainability of the species.

Summary

The biological characteristics of northern, Pacific and southern bluefin tuna make these species very sensitive to fishing pressure. The stocks of both northern and southern bluefin tuna are considered overfished and stocks of Pacific bluefin tuna are fully fished. Bluefin tuna fisheries generate a high amount of bycatch, including species that are threatened with extinction. Although the fishing methods used to catch bluefin tuna have limited impact on the seabed ecosystem, the management of all these fisheries is unsound.



• *Oratosquilla oratoria*, *O. interrupta*, *O. anomala*,
Miyakea nepa, *Harpisquilla harpax*

來源地: 南中國海，包括香港水域
一般出售方式: 活蝦及冰鮮蝦，原隻出售
捕撈方法: 底拖網

生態特徵

瀨尿蝦生長迅速，可於12個月內繁殖，天生較有能力抵抗漁業壓力。

野生種群狀況

瀨尿蝦是本港最具商業價值的物種之一，本港水域內相關的漁業資源已遭完全開發。

意外捕撈

南中國海的漁民以底拖網捕撈瀨尿蝦，意外漁獲佔總漁獲量70%。具商業價值品種的幼魚一併被捕撈，在中國和香港作為廉價魚糧出售。

對環境的影響

底拖網密集地於海床拖行，對海床構成嚴重影響。

漁業管理

香港和南中國海缺乏有關瀨尿蝦的漁業規管條例。香港只有少數有關條例，少數海洋保護區。中國設有管理措施，可惜執法不力，瀨尿蝦的漁業管理欠妥善。

摘要

瀨尿蝦並非特別容易受漁業壓力影響，但牠們遭過度捕撈。捕撈瀨尿蝦的方法產生大量意外漁獲，浪費海洋資源。本港和南中國海的瀨尿蝦漁業管理措施成效不彰。



• *Oratosquilla oratoria*, *O. interrupta*, *O. anomala*,
Miyakea nepa, *Harpisquilla harpax*

Origin: The South China Sea including Hong Kong waters
Mainly sold as: Live and fresh mantis shrimp
Fishing method: Bottom trawling

Biology

As mantis shrimp grow fast and can start to reproduce within 12 months, they are not naturally sensitive to fishing pressure.

Status of wild populations

Mantis shrimp are one of the most commercially important species in Hong Kong. However, they are fully fished in Hong Kong waters.

Bycatch

Mantis shrimp are caught by bottom trawlers in the South China Sea, generating undesirable bycatch that represents up to 70% of the total catch. The bycatch includes commercially important juvenile fish, which are sold cheaply as feed for fish farms in Hong Kong and China.

Impacts on the environment

The intense contact between heavy weights on the gear and the seabed has a big impact on the seafloor.

Fisheries management

Hong Kong and South China Sea have inadequate fishery regulations for mantis shrimp. In Hong Kong, there are just a few restrictions and a few small protected areas. Although mainland China has regulations, enforcement is weak. Mantis shrimp fisheries are therefore not well managed.

Summary

Mantis shrimp stocks are fully fished although they are not biologically vulnerable to fishing pressure. The method of fishing used generates a considerable amount of bycatch and also leads to resources being wasted. Bottom trawling also damages the seabed. The management measures for mantis shrimp fisheries in Hong Kong and the South China Sea are not effective.

• *Cheilinus undulatus*

來源地: 東南亞 (巴布亞新畿內亞、印尼、馬來西亞及菲律賓)

一般出售方式: 活魚

捕撈方法: 竿釣

生態特徵

蘇眉生長緩慢，需五至七年方達成熟期，之後一部分會由雌性轉變為雄性。成熟的蘇眉會從覓食地游移一段長距離，到特定的地方聚集交配，輕易成為漁民的目標。

野生種群狀況

蘇眉已遭過度捕撈，牠們的自然分佈密度甚低（每一萬平方公尺的珊瑚礁僅有10條），但在漁業活動密集的地方，密度可低至一萬平方公尺只有一條蘇眉。蘇眉已被《瀕危野生動植物種國際貿易公約》列入附錄II，必須獲得許可證方可進口香港。蘇眉亦已被世界自然保護聯盟紅色名錄列為「瀕危」物種。

意外捕撈

竿釣屬具選擇性的捕魚方法，不會製造大量意外漁獲，但蘇眉以外的意外漁獲都會被保留而不獲釋放。

對環境的影響

漁具極少觸碰到海床，對海床只會造成輕微影響。

漁業管理

東南亞只有少數措施規管捕撈蘇眉，全部國家已禁止使用山埃捕魚，並闢建海洋保護區，但當局未能有效落實措施，漁業管理未臻完善。

摘要

蘇眉受其生態特徵所限，極易受漁業壓力影響，魚群已遭過度捕撈。有關漁業對海床生態系統影響輕微，而漁民會保留所有漁獲。當局僅制定有限的漁業管理措施，無法確保物種的數量能長遠維持健康水平。

• *Cheilinus undulatus*

Origin: Southeast Asia (Papua New Guinea, Indonesia, Malaysia and the Philippines)

Mainly sold as: Live fish

Fishing method: Hook and lining

Biology

Humphead wrasse grow slowly, taking five to seven years to reach adulthood when some animals change sex from female to male. Mature humphead wrasse travel far from their usual feeding areas to predictable places to gather and mate. This makes them an easy target for fishermen.

Status of wild populations

Humphead wrasse are overfished. The natural density of the species is low (about 10 fish per 10,000 square metres of reef), but in heavily fished areas the density is as low as a single fish per 10,000 square metres. Since humphead wrasse is listed on CITES Appendix II, trading of this species into Hong Kong requires permits. They are also categorised as "Endangered" on IUCN Red List.

Bycatch

Although hook and lining is usually selective and does not result in high quantities of bycatch, other fish species caught are kept but not released.

Impacts on the environment

As the contact between the seabed and

hooks is minimal, this fishing method has little impact on the seafloor.

Fisheries management

Southeast Asia has few relevant fishery management measures in place for humphead wrasse. The limited measures that are in place in some countries include prohibiting the use of cyanide and establishing protected areas. The enforcement of these measures is ineffective and the fisheries are poorly managed.

Summary

The biological characteristics of humphead wrasse make them vulnerable to fishing pressure and their stocks are overfished. The fisheries have only a limited impact on the seabed and fishermen keep everything they catch. Limited fishery management measures are in place but they are failing to ensure the long-term sustainability of the species.



• *Huso huso*, *Acipenser gueldenstaedtii*, *A. persicus*,
A. nudiiventris, *A. stellatus*

來源地: 裏海

一般出售方式: 魚子醬

捕撈方法: 圍網及漁網

生態特徵

鱈魚需較長時間方成熟至可繁殖，牠們會從海洋遷徙到河流繁殖。漁民捕撈鱈魚，取其魚卵製成魚子醬。以上特徵使鱈魚極易受漁業壓力影響。

野生種群狀況

鱈魚品種已被負責監察物種保育狀況的世界自然保護聯盟紅色名錄列為「瀕危」物種。鱈魚遭過度捕撈，已被列進《瀕危野生動植物種國際貿易公約》附錄II，表示這品種暫無馬上絕種的風險，但需要嚴格控制牠們的貿易。現時，所有國際魚子醬貿易須領有牌照。部分鱈魚品種已瀕臨絕種。

意外捕撈

未成熟的鱈魚被意外捕獲，惡化牠們遭過度捕撈的情況。

對環境的影響

漁具極少觸碰到海床，對海床影響輕鬆。

漁業管理

已被列入《瀕危野生動植物種國際貿易公約》，但目前鱈魚的保護措施不足以確保其野生種群的存活。獨立評估報告和由鱈魚出產國提供的監察數據有重大差異，表示野生鱈魚的數目一直被高估。目前實施的管理措施未能確保鱈魚數目能維持在健康水平。

摘要

鱈魚魚群遭嚴重過度捕撈，這裡列出的鱈魚品種全有絕種之虞，極易受漁業壓力影響。未能製成魚子醬的幼年鱈魚亦成為意外漁獲。目前保護鱈魚魚群的管理措施未能收效。



• *Huso huso*, *Acipenser gueldenstaedtii*, *A. persicus*,
A. nudiiventris, *A. stellatus*

Origin: Caspian Sea

Mainly sold as: Caviar

Fishing method: Purse seining

Biology

Sturgeon take a long time to become sexually mature, and migrate from the sea to rivers to reproduce. Fishermen catch sturgeon for their eggs to produce caviar. These characteristics make sturgeon extremely sensitive to fishing pressure.

Status of wild populations

Sturgeon species listed here are categorised as "Endangered" on the IUCN Red List, which monitors the conservation status of species. The overfishing of species has caused all sturgeon to be listed under Appendix II of CITES, meaning that they are threatened with extinction unless their trade is tightly regulated. The result is that all international caviar trading requires a permit. Some sturgeon may already be close to extinction.

Bycatch

Immature sturgeon have been taken as bycatch, further exacerbating overfishing.

Impacts on the environment

Purse seining has little impact on the seabed because there is no contact be-

tween fishing gear and the seafloor.

Fisheries management

Despite the CITES listing, the current protection offered to sturgeon is not enough to ensure their survival in the wild. There are huge discrepancies between independent reviews and monitoring data provided by sturgeon-producing countries, suggest that the number of wild sturgeon has been over-estimated. The management measures in place are not effective to ensure the sustainability of sturgeon.

Summary

Sturgeon stocks are considered seriously overfished and all sturgeon species listed here are threatened with extinction. They are very vulnerable to fishing pressure. Juvenile sturgeon that cannot produce caviar are taken as bycatch. The management measures in place to protect sturgeon stocks are not effective.



● 接近550個鯊魚及相關品種

來源地: 全球

一般出售方式: 魚翅、肉及鯊魚骨

捕撈方法: 延繩、刺網、圍網、中層及底拖網

生態特徵

鯊魚生長緩慢，部分需要六年才成熟至可繁殖，每次只生少數幼魚，極易受漁業壓力影響。

野生種群狀況

許多鯊魚種群已遭過度捕撈，負責監察物種保育狀況的世界自然保育聯盟紅色名錄，已將超過122個品種列為面臨絕種威脅的物種，10個品種亦被列進《瀕危野生動植物種國際貿易公約》附錄中，表示種群受到威脅。

意外捕撈

漁民捕撈其他物種特別是吞拿魚時，經常誤捕鯊魚。漁民把鯊魚鰭割掉後，把魚身丟回大海，這個作業方式稱為「割鰭」，嚴重浪費海洋資源。

對環境的影響

鯊魚是頂級獵食者，如大量捕撈會導致生態系統失衡。

漁業管理

鯊魚的漁業管理體系成效不彰。大部分國家均不限制鯊魚漁獲的種類和數量，對割鰭的監管亦非常有限。只有少數國家實行保護鯊魚的「鯊魚保育和管理國際行動計劃」。

摘要

許多鯊魚種群已遭過度捕撈，牠們受其生態特徵所限，容易受漁業壓力影響。鯊魚經常被誤捕，割鰭後拋棄魚身的行為更嚴重浪費海洋資源。過度捕撈鯊魚會干擾海洋生態系統平衡。幾乎所有鯊魚漁業的管理措施成效都不顯著。



● Nearly 550 species of sharks and related species

Origin: Global oceans and seas

Mainly sold as: Fin, meat and shark "bone"(cartilage)

Fishing method: Long lining, gill netting, purse seining, mid-water and bottom trawling

Biology

Sharks grow slowly: some species take more than six years to become sexually mature, and many only give birth to a small number of young. This makes them particularly susceptible to fishing pressure.

Status of wild populations

Many shark populations are overfished. More than 122 species of shark are listed as threatened with extinction by IUCN's Red List, and 10 are listed in the Appendices of CITES meaning their populations are threatened.

Bycatch

Sharks are often accidentally caught by fishermen who are aiming to catch other species, particularly tuna. It is common for the fins to be removed and the carcass discarded resulting in a waste of marine resources.

Impacts on the environment

Sharks are at the top of the food chain. If too many are caught the whole ecosystem could be thrown out of balance.

Fisheries Management

Fishery management systems for sharks are not effective. Most countries have no limits on the amount and type of sharks caught, and finning is only subject to limited control. The International Plan of Action for the Conservation and Management of Sharks, which aims to protect these creatures, has only been implemented by a few countries.

Summary

Many shark populations are overfished. Their biological characteristics make them very sensitive to fishing activities. Sharks are often taken as bycatch, and discarding of the carcass is a wasteful practice. Overfishing of sharks disturbs the balance of the marine ecosystem. Almost all fisheries management measures for shark are ineffective.

簡稱與詞彙表

AFCD	漁農自然護理署
AFFS	優質養魚場計劃
BRDs	減少意外捕撈裝置
CITES	瀕危野生動植物種國際貿易公約
IUCN	世界自然保護聯盟
MTEDs	海龜逃脫器
MSC	海洋管理委員會
FAO	聯合國糧食及農業組織
WWF	世界自然基金會
意外捕撈	絕大部分海鮮品種均與其他海洋生物群居，而漁民在捕撈海鮮品種時都會誤捕到這些生物，我們稱這些非目標魚獲稱為意外捕撈，當中包括低商業價值品種、具商業價值品種的幼魚，有時甚至包括稀有或瀕危物種。
生態系統	一個環境中的生物（動植物及微生物）與非生物互為作用，造成能量流動和養分循環，形成生態系統。
未完全開發的漁業資源	資源消耗速度（基於捕魚活動的頻密程度和捕撈量）低於目標魚群數量的恢復速度（在自然繁殖和生長的情況下），該漁業資源會被歸類為未完全開發的類別。
已完全開發的漁業資源	資源消耗速度（基於捕魚活動的頻密程度和捕撈量）接近但不快於目標魚群數量的恢復速度（在自然繁殖和生長的情況下），該漁業資源會被歸類為完全開發的類別。
過度捕撈的漁業資源	資源消耗速度（基於捕魚活動的頻密程度和捕撈量）高於目標魚群數量的恢復速度（在自然繁殖和生長的情況下）令魚群數量下降，該漁業資源會被歸類為過度捕撈類別。
可持續漁業	表示現時的捕魚活動不會導致生態和經濟生產力、生態多樣性，或海洋生態系統的結構或功能，在下一代出現不良轉變。

Acronyms & Glossary

AFCD	Agriculture, Fisheries and Conservation Department
AFFS	Accredited Fish Farm Scheme
BRDs	Bycatch Reduction Devices
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
IUCN	The International Union for Conservation of Nature
MTEDs	Marine Turtle Exclusion Devices
MSC	Marine Stewardship Council
FAO	The Food and Agriculture Organisation of the United Nations
WWF	World Wide Fund for Nature
Bycatch	Most seafood species live alongside other marine organisms and these may be caught incidentally by fishermen. These unintended catches are generally referred to as bycatch. They include species of low commercial value, juveniles of commercially important seafood species, or sometimes rare or endangered species.
Ecosystem	Ecosystem is the living (plants, animals, micro-organisms) and non-living components of an environment that interact to produce a flow of energy and cycling of nutrients.
Under-fished	When the regeneration rate of a fish stock is higher than but does not exceed the rate at which it is fished, the stock is under-fished.
Fully fished	When the intensity of fishing activities is close to but does not exceed the level that allows a fish stock to regenerate, the stock is considered fully fished.
Overfished	When the intensity of fishing activities exceeds a level where a stock can regenerate causing the stock to decline, the stock is considered overfished.
Sustainable fishing	It means fishing activities that do not cause or lead to undesirable changes in biological and economic productivity, biological diversity, or marine ecosystem structure and functioning from one human generation to the next.

相關資料

海鮮品種資料

瀕危野生動植物種國際貿易公約	http://www.cites.org
全球「魚庫」	http://www.fishbase.org
香港魚網	http://www.hk-fish.net
世界自然保護聯盟紅色名錄	http://www.iucnredlist.org
聯合國糧食及農業組織	http://www.fao.org/fishery
世界自然基金會香港分會鯊魚單張	http://www.wwf.org.hk/chi/conservation/seafood/sharkfin

海鮮選擇指引

世界自然基金會香港分會《海鮮選擇指引》	http://www.wwf.org.hk/seafood
其他世界自然基金會分會的海鮮選擇指引	http://panda.org/about_wwf/what_we_do/marine/our_solutions/sustainable_seafood/seafood_guides/index.cfm
美國蒙特利海灣水族館海鮮選擇指引	http://www.mbayaq.org/cr/seafoodwatch.asp
英國FISHONLINE海鮮選擇指引	http://www.fishonline.org

Useful Information

Information on Seafood Species

CITES	http://www.cites.org
Fishbase	http://www.fishbase.org
Hong Kong Fish Net	http://www.hk-fish.net
IUCN Red List	http://www.iucnredlist.org
FAO	http://www.fao.org/fishery
WWF Hong Kong Shark Leaflet	http://www.wwf.org.hk/eng/conservation/seafood/sharkfin

Seafood Guides

WWF Hong Kong Seafood Guide	http://www.wwf.org.hk/seafood
Seafood Guide from other WWF Offices	http://panda.org/about_wwf/what_we_do/marine/our_solutions/sustainable_seafood/seafood_guides/index.cfm
US Monterey Bay Aquarium Seafood Guide	http://www.mbayaq.org/cr/seafoodwatch.asp
UK FISHONLINE Seafood Guide	http://www.fishonline.org

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建議引述方式：朱炳盛及楊頌恩2008年《環保海鮮指南 - 今天的選擇，締造明天的海洋》。世界自然基金會香港分會。

Suggested Citation: Chu, C. and A. Yeung. 2008. Sustainable Seafood Guidebook – For the Future of Our Oceans. WWF Hong Kong.

世界自然基金會香港分會出版

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Published by WWF Hong Kong

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ISBN: 978-962-7095-02-6