



Captain Ocean's Great Voyage : **In Search of the** **Legendary Marine Performers**

Marine Conservation Education
Series (Senior Primary)

Welcome aboard the “**Ocean Guardian**” everyone! I'm Captain Ocean, the captain of this exploration ship.





Guess what? Oceans cover 70% of the Earth we live on! This vast blue world is full of unknown wonders and treasures far more precious than silver or gold...

Ready, cadet sailors? Let's sail into the vast ocean together to search for these precious treasures and learn how to protect them!





I've heard that mysterious 'mermaids' live in the sea, and that they love to **sing and dance!** Ready to embark on a quest with me to find out what's really down there?



Key Learning Points | Cadet Sailors, Report for Duty!

Overview

Students will become “Cadet Sailors” to discover how dolphins and porpoises use sound to “see” and body language to communicate. They will explore Hong Kong’s two local species — the Chinese White Dolphin and the Finless Porpoise—and uncover the threats behind their apparent “smiles.” Finally, students will learn how to become “Ocean Guardians” and take action to protect marine life.

Learning Objectives

1. Identify the physical characteristics of cetaceans
2. Discover how cetaceans use “song” and “dance” in their daily lives
3. Learn the stories of Hong Kong’s two local cetacean species
4. Understand actions that protect cetaceans and their habitats, encouraging active student participation

Values and Attitudes

Commitment, Empathy, Responsibility

Lesson Duration

Two 40-minute lessons (80 minutes in total)

OCEAN GUARDIAN



Part 1: *The Voyage Begins*



Look, everyone! A mysterious dark shape just swam right past us.
What could it be?





Whoa, check out that tail—
it looks just like a mermaid's!



Hi there! Are you a
mermaid?



A detailed illustration of a blue whale breaching the ocean surface at night. The whale's head and back are visible, with water splashing around it. In the background, a pirate ship with several crew members is visible on the water. A full moon is in the sky.

I am a whale—and I'm definitely not a fish!

Blue Whale





Turns out our friend is a **Blue Whale**, the largest creature on the planet! Can you guess how long a Blue Whale can get?

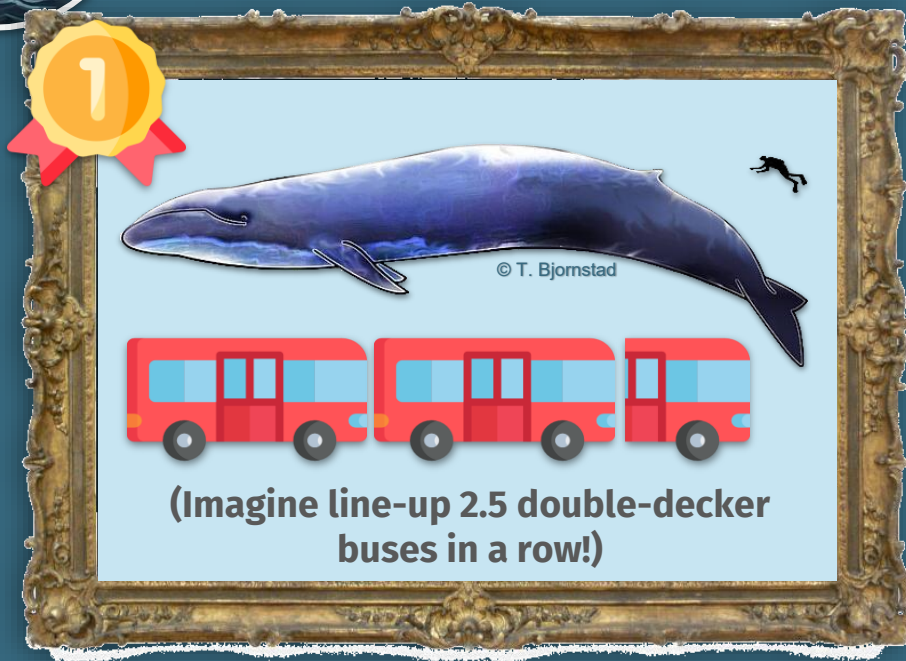


- A. 5m
- B. 10m
- C. 20m
- D. 30m





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- A. 5m
- B. 10m
- C. 20m
- D. 30m



The illustration depicts a dark, moonlit ocean at night. In the upper left, a small wooden ship with two figures on board is visible. To its right, a large blue whale is breaching the water's surface. The foreground is dominated by the dark, silhouetted shapes of several sharks swimming beneath the surface, their forms elongated and menacing. A large, white, starburst-shaped speech bubble is positioned in the lower center, containing a warning. The water is dark blue with white splashes and bubbles, creating a sense of movement and danger.

Just as Captain Ocean was talking with the blue whale, two mysterious shadows shot past them through the water...

Watch out! There's a race going on!

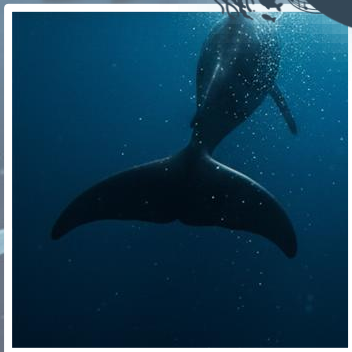


Hold on! Two dark shapes are zooming right toward us, and both of them have mermaid tails!



Could they be the legendary mermaids?

Hello?





Common Dolphin



I'm a dolphin—
and I'm not a fish!

Black Marlin



I'm a marlin! I am a fish, but
I'm definitely not a mermaid!



Dolphins and **marlins** are two of the fastest swimmers in the whole ocean, and they're facing off in a high-speed race! Can you rank these swimmers from slowest to fastest?



Common Dolphin



Black Marlin



Human (Olympic Swimmer)



Blue Whale





Dolphins and **marlins** are two of the fastest swimmers in the whole ocean, and they're facing off in a high-speed race! Can you rank these swimmers from slowest to fastest?



Human (Olympic Swimmer)

Top speed: 8–9 km/h



Blue Whale

Top speed: 30–50 km/h



Common Dolphin

Top speed: 60 km/h



Black Marlin

Top speed: 131 km/h



That's like a car driving on a city highway! It means swimming the entire distance from Tsim Sha Tsui to Mong Kok in roughly 2 minutes!

That's about as fast as the top speed of the Airport Express!



Wait, why do you say you aren't fish? You look like fish and live in the water, after all!

Come along and let us show you how we **cetaceans** are different from **fish**!



Cadet sailors, line up for your very first challenge—
Follow the clues and spot the differences between
cetaceans and **fish**!



Tail Movement Direction



Cetacean 鯨豚



© Shark Week



Fish 魚類



© University of California



Does a cetacean's tail move
up and down, or **left to right**?





Breathing Organs



Cetacean 鯨豚



© Niall Perrins



Fish 魚類



© Royle Safaris



We have a **blowhole** right on top of our heads—
not a row of **gill slits** on our sides!
Can you guess how we take a breath?





Skin & Scales



Cetacean 鯨豚



© Corey Husic



Fish 魚類



Who do you think has
smoother skin?





Reproduction Method



Cetacean 鯨豚



© Dolphin Quest



Fish 魚類



© The Dodo

How do we **give birth** to our babies?



You've now mastered all the key traits of cetaceans! **Which group of animals do you think we belong to?**



A. Mammal 🐒



B. Amphibian 🐸



C. Reptile 🦎



D. Bird 🐦

You've now mastered all the key traits of cetaceans! **Which group of animals do you think we belong to?**



A. Mammal 🐒



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C. Reptile 🦎



D. Bird 🐦



Cetaceans are mammals!



We actually have way more in common with mammals than with fish, reptiles, amphibians, or birds!

A. Mammal 🐒



Cetacean's Mammal Traits:



Breathe with **lungs** through a blowhole



Smooth skin **without scales**



Warm-blooded animals



Give birth to **live babies**



Produce **milk** to feed the next generation

The background is a dark blue night sky with a large, bright full moon. In the foreground, two children, a boy and a girl, are dressed as sailors in white uniforms with blue accents and white hats. They are looking towards the right. On the right side, a large blue whale with a white underbelly is swimming, with a smaller calf beside it. Both the whale and the calf have small yellow stars on their heads. Two speech bubbles are present: one from the children and one from the whale.

So cetaceans are mammals after all!
So how do we tell **whales** and
dolphins apart?

Before I spill the beans,
you've got to answer my
question first:
Do cetaceans have teeth?

Classification of Cetaceans



The answer is... **both yes AND no!**
Instead of just splitting us into 'whales' and 'dolphins', scientists group us by our **tooth structure!**



鯨豚類 Cetacea

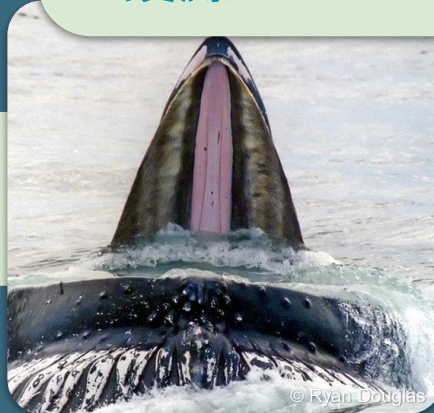
齒鯨 Toothed Whales



Have sharp,
cone-shaped
teeth

© QuestaGame

鬚鯨 Baleen Whales



Have no teeth,
but baleen
plates

© Ryan Douglas

Classification of Cetaceans



Whether we have teeth completely changes our diet!



齒鯨 Toothed Whales



© shawnphoenix



Mainly feed on fish and squid

鬚鯨 Baleen Whales



© Donna Pomeroy



Filter feeders, using **baleen plates** to scoop up and strain prey like small fish, plankton, and krill



© Pablo Gutiérrez Maier

Baleen plates



© k3wong

Krill





Can you introduce us to more of your friends?

No problem! Get ready to meet the celebrity superstars of the cetacean family!



Toothed Whales (Mainly marine, with a few freshwater species)



Killer Whale



Incredible intelligence



Amazon River Dolphin



Largest freshwater dolphin species



Narwhal



Unicorn of the sea

Baleen Whales (All ocean-dwellers!)



Humpback Whale



Master vocalists



Bowhead Whale



Longest-living
marine mammals



Fin Whale



Runner-up for
largest animal



Oh! My friends are calling
for me—gotta go! Hope you
find your mermaids!

Thank you,
Mr. Blue Whale!





Our ship's sonar detector just picked up a mysterious signal deep underwater nearby...

Wait, why can't we hear a single thing?

Look! There's another mermaid tail!



Could this be it? Have we finally found them?



Let's check out the footage
picked up by our sonar detector!



© Modi Elnadi



Hi! So nice to meet you again!
You sing so beautifully—
are you really, really not a mermaid?



Haha! I promise I'm really not a
mermaid! I was just feeling a bit
hungry after our big race!



Huh? What does singing have
to do with being hungry?



Watch this, I'll show you!

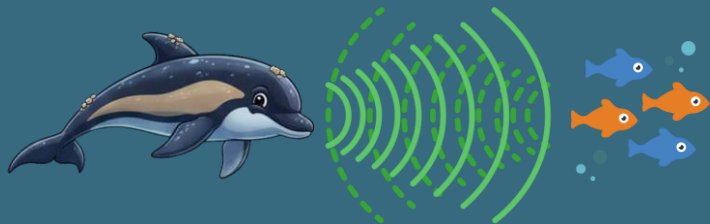


Nature's Born Singers!

Hearing and singing
matter much more to
me than vision!



- Most **toothed whales** use **echolocation** to 'see' the world around them. This helps them hunt, navigate, and talk to each other.
- They make **high-pitched** sounds. Sound waves hit objects and bounce back.
- By analyzing the echoes, they learn the exact distance and shape of the object!





Nature's Born Singers!

- Baleen whales **don't** use echolocation, but they can still make amazing sounds!
- They produce complex tunes that scientists call “**whale songs**”
- Whales use their songs to talk to each other, hunt for snacks, and attract mates!

Truth is, their whale songs are way more magical and unique than my singing!
Want to take a listen?



Baleen Whale Vocalizations



What do whales sound like?



Off to hunt for some snacks! See ya!



Look ahead! Another group of sea creatures is leaping out of the waves!

© Netflix



Playback Time:
00:09 - 00:38

Nature's Dancers



We found them!
It's a group of dancing mermaids!

Nope, not a mermaid! Just a dolphin having fun!
Leaping is how we **communicate with our pod**. We also do high-flying spins to **shake off parasites on our skin!**



I'm not sure where your mermaids are hiding, but we can ask around for you. Let's sail together!





© NewportWhales



Look at these clever dolphins! Ships make bow waves as they move, and dolphins love to **bow-ride** and let the water push them forward to save their energy!



Captain, they sing, they dance... could dolphins be the real mermaids we've been searching for?



We've gotta split off here! If you keep sailing north, you'll reach **Hong Kong**. I've got two good friends living there who can help you find your mermaids. Good luck!



Hello! I am a **Chinese white dolphin**, one of Hong Kong's resident cetaceans—my name is Pinky!





Chinese White Dolphin: Distribution



© Jefferson et al.

You can spot us splashing around the **Eastern Indian Ocean** and the **Western Pacific Ocean**!

I have many names—
The *chinensis* in my scientific name, ***Sousa chinensis***, means ‘from China’, and the Pearl River Estuary is one of our most important home habitats!

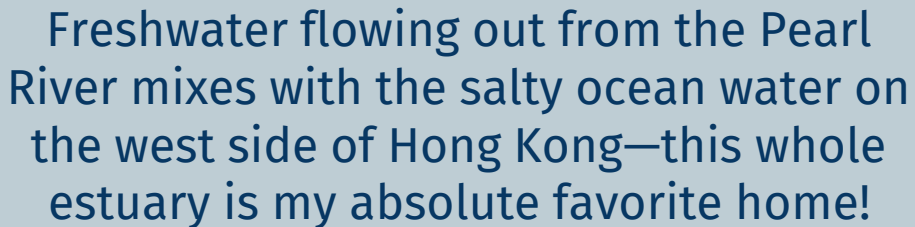




© hokoonwong

Because the base of my
dorsal fin is humped,
I am also known as the
Pacific humpback dolphin!





Chinese White Dolphin: Traits



Pinky, you are a Chinese white dolphin, but why aren't you white?

Actually, when I was first born, I was **dark gray**! As I grow into an adult, I turn **pink**. My skin really is white, but when I swim around and get active, **tiny blood vessels expand** under my skin to cool me down, making me look bright pink!



© Eric L. Chen



© John Garrett



My **long beak** is another signature feature of mine.



Chinese White Dolphin: Social Habits



We love **living in groups**! A single group can have over 20 dolphins! Although I usually stay close to my mom, different members are always welcome to join or leave our group anytime.



Chinese White Dolphin: Hunting Habits



© 魚類生態與演化研究室

This is the **Lion-head Fish**—
one of my top 20 favorite meals!

Because estuaries have a lot of **sediment**, the water gets murky and hard to see through. That's why I rely on **echolocation** to hunt for food!

Does anyone know if
the Chinese White
Dolphin is a toothed
whale or a baleen
whale?



Finless Porpoise: Distribution



Without even realizing it, we've swum all the way from the west side of Hong Kong to the south side—this is where my good friend Smiley lives!



Hi! I am a Finless Porpoise, Hong Kong's other resident cetacean!

Unlike Pinky, I prefer a marine habitat. Shallow coastal waters across the **Indo-Pacific** are our home, which gives us the name—the **Indo-Pacific finless porpoise**!

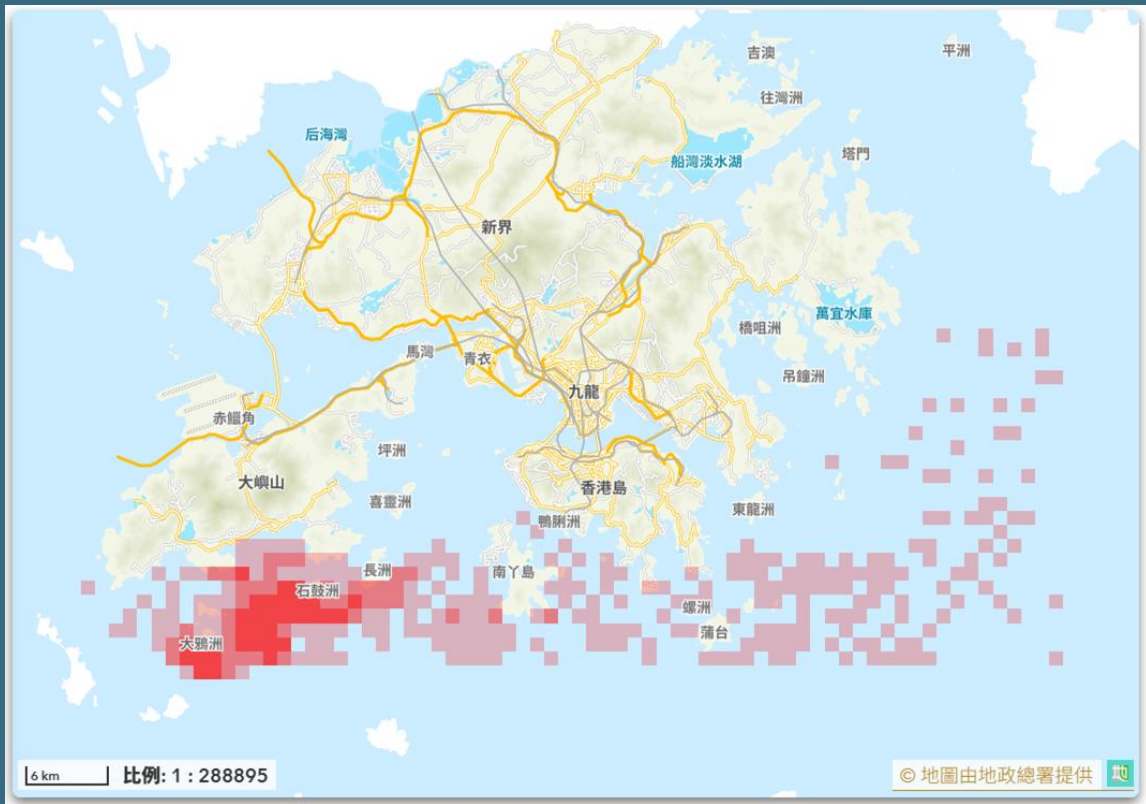


Finless Porpoise: Distribution in Hong Kong



**Where in Hong Kong's
waters do Finless
Porpoises usually
hang out?**

- A. West and South
- B. West and East
- C. South and East
- D. South only

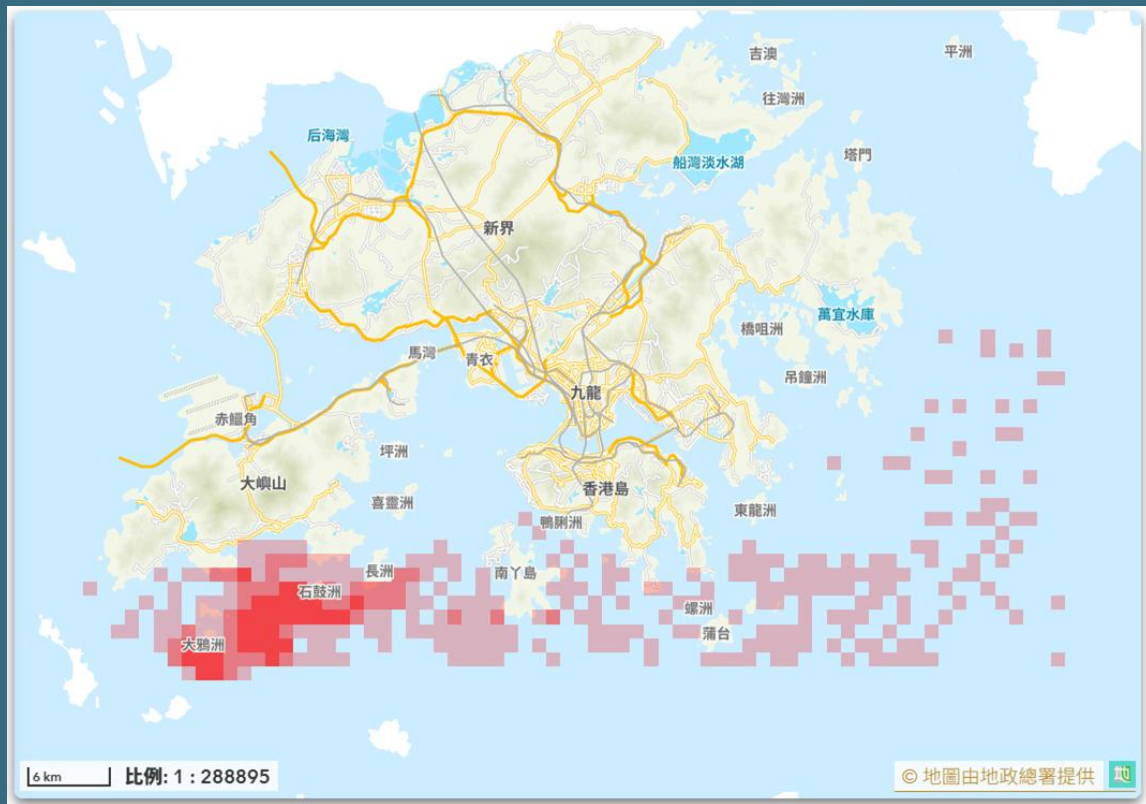


Finless Porpoise: Distribution in Hong Kong



Where in Hong Kong's
waters do Finless
Porpoises usually
hang out?

C. South and East



Finless Porpoise: Traits and Social Habits



I am covered in **lead-grey** all over! Since I don't have a dorsal fin, my English name is the **Indo-Pacific Finless Porpoise**.

I like living **alone** or in **small groups**—usually **fewer than 3 members** per group.

Finless Porpoise: Hunting Habits



© 魚類生態與演化研究室

This is a **Tiger-tooth Croaker**—
one of my top 25 favorite fish!
Fish, octopus, squid, and shrimp
are my ultimate favorite foods!

Just like the Chinese white
dolphin, I use **echolocation** to
track down my food.

Toothed whales hunt
larger prey and use
echolocation to find
food... That means both
Chinese white dolphins
and finless porpoises
are **toothed whales**!



Summary (1)



- Cetaceans are marine mammals.
- They are divided into toothed whales and baleen whales:
 - toothed whales: have teeth, hunt fish/squid, live in ocean or freshwater
 - baleen whales: no teeth, filter feed, live in oceans only
- Cetaceans showcase rich behaviors, each serving a unique purpose.
- They make sounds to communicate, hunt, and attract mates.

Summary (2)



- Chinese White Dolphin

- Dwells in the Pearl River Estuary and is found in western Hong Kong waters
- Changes color from dark gray (calf) to pink (adult)
- Lives in flexible social groups
- Uses echolocation to hunt fish

Summary (3)



- **Indo-Pacific Finless Porpoise**

- Prefers marine **oceanic environments** and is found in **southern and eastern** Hong Kong waters
- Features a lead-gray body with **no dorsal fin**
- Lives alone or in very small groups
- Uses **echolocation** to hunt prey

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Part 2:
The Adventure
Continues



Hong Kong Cetaceans: Status and Trends



Pinky and Smiley,
how many friends do you have in Hong Kong?



Chinese White Dolphin



Estimated Wild Populations:
Around 2,500 across the Pearl
River Estuary



Indo-Pacific Finless Porpoise



Estimated Wild Populations:
Around 200 in Hong Kong and
neighboring waters

Although numbers
dropped in the past,
the decline has
stabilized in recent
years.



Assessing Endangerment Status



Humans created the world's largest conservation organization.



國際自然保護聯盟
International Union for
Conservation of Nature (IUCN)



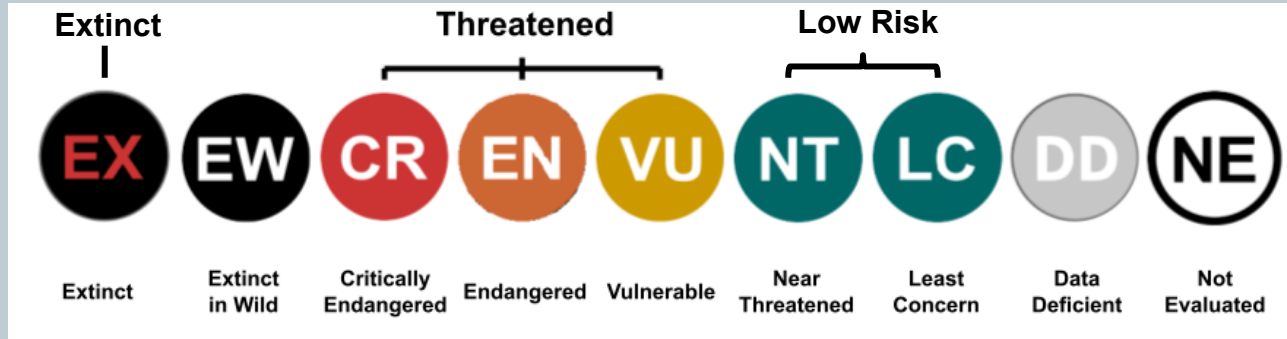
To assess the conservation status of plants, animals, and fungi, the IUCN publishes the Red List, ranking species by threat level.



瀕危物種紅色名錄
Red List



Assessing Endangerment Status



Do you know which category we belong to?



Current Status of Hong Kong Cetaceans



Vulnerable



Chinese White Dolphin



Vulnerable



Indo-Pacific Finless Porpoise

Why did you become vulnerable species? What threats are you facing?



Threat - Large Scale Development



When humans **reclaim land** from the ocean, our home shrinks!

Many reclamation projects are carried out in the western waters of Hong Kong, which has a greater impact on **Chinese white dolphins**.



Threat - Reduced Food Supply



Construction works **increase sediment** and **lower the dissolved oxygen levels** in the seawater, which affects the growth of our prey and reduces our food supply !



Threat - Vessel Traffic



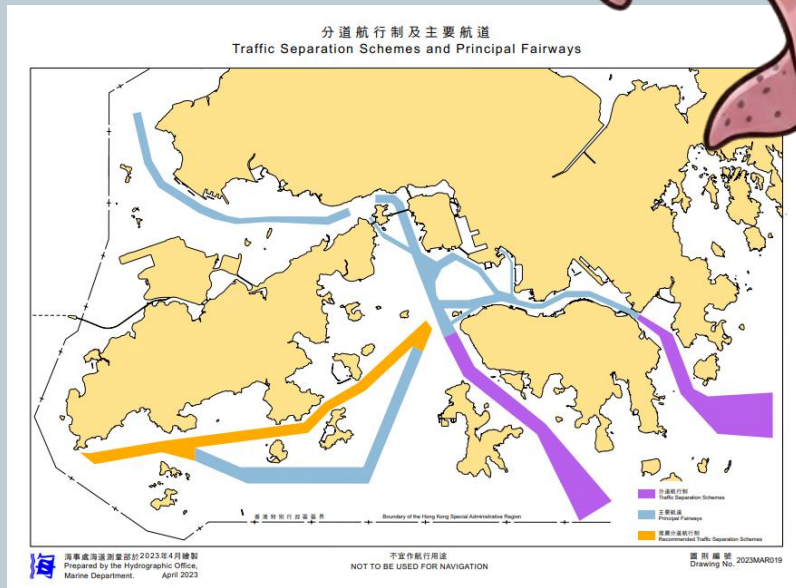
You have scars on your bodies... what happened?



Ships caused them!

Take a look at this map showing the main navigation channels.

High-speed vessels put us at constant risk of getting **hit and injured** by **boat** hulls.

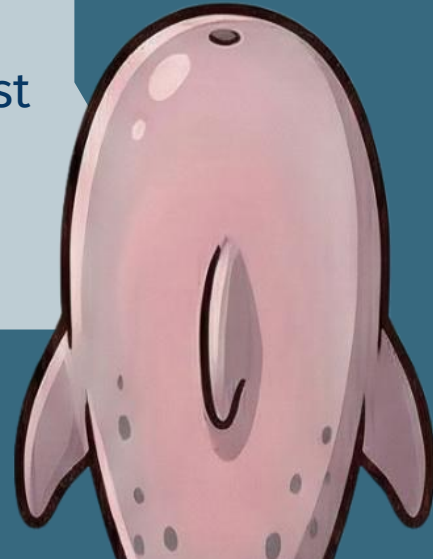


Threat - Vessel Traffic



In 2018, my friend 'Hope' was suspected of being slashed by a **ship propeller**.

Although scientists and vets found him and tried their best to treat the severe injuries, Hope couldn't make it and passed away...



Threat - Vessel Traffic

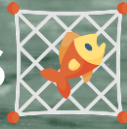


Vessel traffic also generates **underwater noise**. What kind of impact will this have on Chinese white dolphins and finless porpoises?

This can affect their ability to communicate with companions and forage for food, as they rely on echolocation to 'see' their surroundings clearly.



Threat - Ghost Nets



Look ahead! That dolphin looks like it's wearing a necklace!



That's part of a 'ghost net'!
It's incredibly dangerous!



'Ghost nets' are **nets abandoned by humans** in the sea. If we accidentally get tangled in them, we could lose our ability to move and forage, or even die!



It sounds like you have to overcome so many challenges every single day.



Fortunately, the HKSAR Government's Agriculture, Fisheries and Conservation Department (AFCD) implements various conservation measures to protect us, allowing us to live here safely!



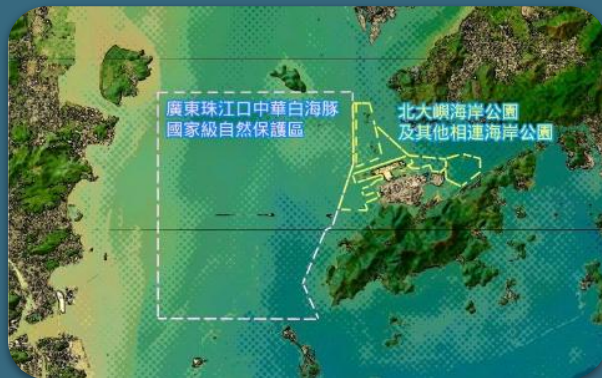
Habitat Protection – Legal Safeguards



Five **Marine Parks** have been established in **western** Hong Kong waters to limit vessel speeds and ban activities such as construction and unauthorized fishing.



Cross-boundary Cooperation - Marine Protected Area Network



- The Guangdong-Hong Kong Chinese White Dolphin Conservation Cooperation Platform was launched in 2025.
- It enhances joint management, public education, and scientific monitoring for ecological and fishery synergies.
- It links some marine parks in HK waters with the Guangdong Pearl River Estuary National Nature Reserve, covering a total area of 50,570 ha (including ~4,570 ha in northern Lantau Island).
- It allows Chinese white dolphins to safely travel between these habitats, ensuring more comprehensive protection.

Cross-boundary Cooperation – Joint Rescue Mechanism



- Established the "Shenzhen-Hong Kong Large Aquatic Wildlife Joint Rescue Mechanism" in 2025
- Cetaceans may strand and die due to various reasons
- Identifying the causes of death helps evaluate population changes and further formulate relevant conservation work



Why does AFCD place these objects into the seabed?

- A. To dump large garbage
- B. To give toys to cetaceans
- C. To provide extra habitats for fish and marine life
- D. To build underwater art galleries



Increasing Food Supply - Artificial Reefs



Answer:

C. To provide extra habitats for fish and marine life

These are **Artificial Reefs**! They add complexity to marine habitats. When they become cozy homes for fish, our natural food supply gets a huge boost!



Increasing Food Supply - Scientific Restocking



Another awesome way to boost food supply is through **Scientific Restocking!**

AFCD and Airport Authority Hong Kong release **appropriate marine species** at the perfect spots! This includes our favorite fish and other marine life!



Investigating Stranding Cases



© OPCFHK



© OPCFHK

Occasionally, cetaceans strand and pass away. Causes include:

- **Mostly unknown or natural mortality**
- Infections from viruses, bacteria, or parasites
- Boat propeller collisions
- Entanglement in ghost nets



Investigating Stranding Cases



If scientists figure out the cause of death, can they help you better?

Exactly! Since 2006, AFCD has partnered with Ocean Park Conservation Foundation Hong Kong (OPCFHK) to **investigate cetacean stranding cases in Hong Kong.**



Upon receiving a report, they immediately deploy a team to the site to **collect data and samples for laboratory testing!**



Monitoring Distribution and Population



AFCD, Chinese Mainland organizations, and universities continuously monitor **changes in our population.**

One of the monitoring methods used is **Photo Identification!**

It's basically like taking passport photos for us!



Each of us has **unique patterns**, nicks, and scars on our back and dorsal fin that act just like fingerprints!



Public Education



Educational and publicity activities (e.g., school talks, visitor centre workshops, eco-tours) are crucial to **raising public awareness about cetacean conservation!**



Watch Mindfully

Whales are non-resident cetaceans—avoid whale-watching activities in Hong Kong waters.



People often host dolphin-watching tours to see us. Cadets, if you were running these tours, what rules would you make to keep us safe?



Code of Conduct for Dolphin Watching

General Rules

1. Never attempt to touch, swim with, or feed the dolphins.
2. Do not litter or dispose of any fuel, oil or other pollutants in the waters.
3. Respect the dolphins and let them make the choice to approach or flee. If a group of dolphins is difficult to observe and elusive, leave them alone and try to find a more cooperative group.

Code of Conduct for Dolphin Watching

Safe Speed

4. Maintain forward progress at a slow, steady speed or stop with no sudden course changes. Vessel speed should not exceed **10 knots**.



1 Knot = 1 Nautical Mile/hr
= 1.852 km/hr

Safe Distance

5. Maintain a distance of at least 100 meters. Always slow down to no-wake speed, or stop if animals appear directly ahead within 100 meters.

Code of Conduct for Dolphin Watching

Safe Course

6. Never approach the dolphins head on; approach at an angle.
7. Never conduct reverse throttling in the vicinity of dolphins.
8. Never chase or cut across the course of dolphins, separate mothers and calves, spilt up groups or 'corner' dolphins between vessels, nets or shore.
9. When observing, always parallel the dolphin's course at slow speed.

How We Can Help



What can we do
in our daily lives
to help you?

- Avoid commercial whale-watching trips.
- Join responsible dolphin eco-tours and strictly follow the viewing guidelines.
- If you see a stranded live cetacean, call 1823 immediately so AFCD experts can launch a rescue.
- Join beach and coastal cleanups.



Congratulations, cadets—you've completed the journey! The 'mermaids' have been right beside us all along. Let's work together to guard them and protect Hong Kong's precious marine resources!



Summary (1)



- Wild Chinese white dolphin and finless porpoise populations are **stabilizing**.
- Both Chinese white dolphin and finless porpoise are classified as **Vulnerable** on the IUCN Red List.
- Major **Threats** include large-scale development, vessel traffic, reduced food supply, and ghost nets.
- AFCD's efforts can strengthen the conservation of cetaceans.

Summary (2)



- All sectors of society can join hands with the AFCD to conserve cetaceans:
 - Protect marine parks
 - Support and comply with relevant laws to protect cetaceans
 - Support cross boundary cooperation
 - Support marine resource enhancement measures (e.g., artificial reefs deployment and scientific restocking)
 - Investigate cetacean stranding cases
 - Continuously monitor distribution and population numbers
 - Promote and spread awareness about cetacean conservation
 - Take personal action