STRANDING INVESTIGATION IN HONG KONG, WITH SPECIAL CASES

From the beginning of the stranding programme in 1973 till now, there are over 300 stranding records of 16 species of cetaceans in Hong Kong. Investigating stranded cetaceans can give us a better understanding of their cause of death and allow us to obtain information that cannot possibly be collected from live animals.

Why Do Cetaceans Strand?

Stranding means that cetaceans, which naturally live in waters, run aground and cannot return to water for some reasons. There are two types of strandings: dead stranding and live stranding. Dead stranding occurs when a cetacean dies of old age or an illness, and then its carcass is washed ashore; while live stranding means that the cetacean is still alive when it strands. In Hong Kong, most strandings are the dead ones.

There are various speculations of why cetaceans live strand. The following are some reasons of why oceanic and coastal species live strand:

- *Illness* ~ Just like humans, cetaceans are susceptible to a couple of diseases, including bacterial, viral or parasitic infections. Diseased cetaceans are usually weak, may have their echolocation system impaired, or even cannot swim and keep their body balanced.
- *Trauma* ~ Typhoon and earthquake sea waves), being hit by vessels and ship propellers or harpooned, they may get injured. If they are deeply wounded, or associated with flipper fracture or damage in muscle and spinal cord, they may lose the ability to swim.

- *Malnutrition* ~ Malnourished cetaceans are usually much weakened. This is usually the case for orphaned maternally-dependent calves, or aged individuals.
- *Fishery By-catch* ~ Cetaceans are usually found bycaught or entangled in fishing nets.

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Under this condition, they cannot swim to water surface to breathe air. For those who are lucky enough to escape, physical condition will still be weakened. However, fishery bycatch is not a common reason for live stranding, as most of the bycaught cetaceans will be dead.

Besides, a variety of peculiar theories of why an oceanic cetacean species live strands arise. Until now, there's still no confirmed explanation for this phenomenon.

- *Not Acquainted with Coastal Landscape* ~ Compared to coastal cetaceans, offshore oceanic species are usually not familiar with coastal landscape. Many cetaceans use coastline for navigation. If the coastal landscape is complex enough, those oceanic cetaceans may get lost, or follow the coastline, which crosses beaches or an outcrop of land, to the shore. Also, oceanic species are not accustomed to swimming in shallow seas, where they may misinterpret the echolocation signal, believing they are still in deep waters. This is particularly usual at those gently shelving sandy beaches or at severe weather conditions.
- *Hunting / Avoiding Predators* ~ Some cetacean species forage at shallow areas. But if they are not experienced, or encounter large splashes or receding tides, they may be beached. Some may deliberately swim to shallow areas to avoid predators, but get stranded.
- *Geomagnetic* ~ Some scientists believe that cetaceans, as other migratory organisms, navigate using the Earth's geomagnetic field. The cetaceans seem to move parallel to the magnetic contours. However, at coasts where the lines of equal magnetic force meet the coastline perpendicularly, cetaceans are more likely to follow the magnetic formations to land. This may explain why some of the cetaceans restrand after returned to sea. As after leaving shore, they return to the route what seems to them an appropriate direction, which in fact leads to land.

Besides those singly stranded cetaceans, some species with strong social bond, like pilot whale, sperm whale, false killer whales and rough-toothed dolphins, may strand en masse. Till now no mass stranding has occurred in Hong Kong, but this is rather prevalent in some nations like the Australia, New Zealand, UK and US. Scientists believe that a pod of these species is usually led by a leader. But if the leader strands for some reasons, other healthy members may follow the leader to shore. Some individuals are so healthy that can be

returned to sea right away when they strand. However, some of these may re-strand or be unwilling to swim away. It is believed that they don't want to leave their companions, but this is to be confirmed by further research.

What Should Be Done When a Stranding Occur?

One should contact AFCD promptly at the 24-hour stranding hotline at 1823. The following details would be very useful for AFCD: name, contact phone number, date, time and precise location where the carcass is found, body feature (e.g. colour and size) and its decomposition state.

Can the Public be Involved in Rescue?

Generally, members of the public should not touch any beached animal, as only veterinarians and cetacean researchers are acquainted with the professional knowledge and experiences in dealing with stranded cetaceans. Stranded cetaceans are wild animals that carry various kinds of germs, viruses or parasites potentially transmissible to human. Also they may thrash with their powerful flukes abruptly or even bite. Therefore, it's safer for the general public to be on-lookers only. If you'd like to be a volunteer to help, get permission from the rescue team first, and follow their instructions.

Before the rescue team arrives, please do not surround the live-stranded animal, make any big movement and loud noise, and let any animals like dog get near it, as all these will irritate the animal. Also, do not attempt to touch and handle the stranded cetacean. Remember, never push the animal back to sea on your own. Animals strand only when they are ill. Returning the animal to sea without expert's advice will probably delay proper diagnosis and injure it more. Besides, a sick cetacean pushed back to sea usually re-strands. If the stranded cetacean is in an acute situation (e.g. its blowhole is submerged in water so that it cannot breathe), please contact the rescue team to consult if any preliminary rescue action can be made.

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How do researchers deal with live-stranded cetaceans?

In Hong Kong , live stranding is rare. In general, there are three ways of dealing with live-stranded cetaceans:

- *Return to sea* ~ When it is confirmed by veterinarians that the live stranded cetacean is trouble- and disease-free, and the environmental condition permits, the animal can be returned to sea right away. Before release, cetacean researchers will measure its body length and collect some of its skin sample for further investigation. They may then put a radio or satellite-tag on the cetacean dorsal fin for monitoring its status after release.
- *Rehabilitate in appropriate care facilities* ~ There is no animal hospital especially for cetacean in Hong Kong as live stranding is not common in the territory. So transporting the animal to an aquarium may be the only feasible way in Hong Kong. In foreign nations, most recovered individuals will be released back to the wild.
- *Euthanize or let it die naturally* ~ When the chance of survivalis considered too slim by vets, or any rescue is not logistically possible, euthanasia remains the only way to end the suffering of live-stranded cetaceans. As all cetacean species are protected in Hong Kong, euthanasia can be carried out by authorized AFCD vets only. There are a number of euthanizing methods, among which using syringe or needle is the most widely used worldwide. However, if the cetacean is too huge (e.g. blue whale), or no vet is available, euthanasia will not be realistic anymore. In this case, what rescue team can do is to let it die naturally.

Before making a final decision on what kind of action should be taken, a number of criteria should be considered carefully:

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- *Size and Number* ~ The opportunity of rescuing a smaller cetacean would be higher. For example, a 1.5 m-finless porpoise can be easily handled and held by several men, and put in a vehicle for transportation. But a 10-m Bryde's whale cannot. Number of animals also matters. If 20 pilot whales strand at the same time, it is not possible to transport all to an aquarium with limited resources. In this case, those in worse situation might be euthanized.
- *Physical Status* ~ Sometimes the body state of a live-stranded can be observed from its external appearance, but only a detailed veterinary investigation can confirm it. Usually those severely ill or injured, aged and orphaned maternally-dependent can hardly survive. Most strandings belong to this group, which would be best euthanized for the sake of their welfare.
- *Environmental Condition* ~ This refers to weather condition, temperatures and sea state. If the weather is fine with moderate temperature and calm sea, the stranded cetacean will be less stressful, and the rescuers can handle and transport the animal with much ease. The survival rate of the stranding can thus be heightened.
- *Logistics* ~ This depends much on the local resources available. Advanced countries with more cases of stranding occurring will usually allocate more resources to cetacean rescue; but in those developing nations where no animal care facilities ever exist, cetacean rescue is not viable.

Why Save Them Anyway?

From the view of conservation, rescuing stranded cetaceans of endangered species, and returning it to its habitat after it has recovered help save them from extinction. To those species with only several hundreds members left in the world (like northern right whale and baiji), rescuing an individual is already a great good news to their entire species.

However, cetacean species that had stranded alive in Hong Kong, including Chinese white dolphin, finless porpoise, false killer whale and sperm whale, are not internationally threatened at all. Thus, saving an individual of this kind has nothing to do with the species or wild population conservation. This is often based on human's passion for cetaceans, and their curiosity for their biology and pathology.

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Few Case Studies of Live-stranding Cetaceans in Hong Kong

Up till now, ten live stranding cases have been recorded in Hong Kong so far. Most of the cases were reported in 1980s. Interestingly, in nine of the ten events, non-resident cetacean species like bottlenose dolphin, spinner dolphin and pygmy sperm whale, instead of the local Chinese white dolphin and finless porpoise, were involved. Since 1992, no more live stranding case was reported. But ten years later, live stranded cetaceans were discovered again. In 2002-04, four cases were reported:

1. False Killer Whale (August 19, 2002)

At around 2 pm, some visitors found a “small whale”, which was in dark gray, stranded and struggling on the Sai Wan beach in Sai Kung, and typhoon signal #1 was hoisted at the time. Some enthusiastic people attempted to push it back to sea, but the “little whale” re-stranded later, and was trapped between rocks. People thus pulled it back to shallow waters and called police for help. Upon receiving stranding report, the Marine Police arrived at the beach soon. However, the sea was too rough for their vessel to near. Thus police officers hastened the beach on foot, and requested help from AFCD.

HKCRP researchers were notified by AFCD of the incident at about 3-4 pm. Sai Wan beach was so secluded that no transport was available (except vessel). Hence researchers and AFCD officers had to walk 45 minutes all the way down from Sai Wan Pavilion to the beach, and finally arrived at the scene at dusk. At that time, light was gradually going out, the tide was coming in and the sea was rough, but two police officers still strived to hold the “little whale” to prevent it from being washed away by strong waves. The researchers had a series of things to do, including identifying its species, measuring its

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body length, assessing its condition and the surroundings, and taking photos.

Soon the “little whale” was identified by the researchers as a false killer whale, with a body length of 2.16 m. Initially AFCD intended to ask for veterinary assistance, yet before any vet arrived, the waves became too strong that the false killer whale finally extricated from the hold of the policemen and researchers. Afterwards they had searched the beach thoroughly, but were unable to locate the false killer whale anymore.

The carcass of the false killer whale was discovered by researchers the next morning on the same beach. It was later transported to the Tai Lung Laboratory in Sheung Shui for necropsy. The cause of death is yet to be determined.

2. Sperm Whale (July 21, 2003)

About 11:30am, HKCRP researchers were informed of a live stranding at about 11:30 am. It was reported that a 20-feet long whale was washed ashore on Tai Wan beach in Sai Kung. Due to the remoteness of the stranding location, researchers, officers and two vets from the AFCD were dispatched to the scene by helicopter of the Government Flying Service, and they arrived at Tai Wan at about 1 pm. To researchers’ surprise, the beached whale was a sperm whale, which had never been recorded in Hong Kong! To prevent the whale from being washed further ashore, many keen visitors were already trying their utmost to push the whale against the incoming surfs. When the waves retreated, some people poured water on the whale’s back to prevent it from overheat.

At that time the sperm whale lay on its right side of body, exposing its blowhole that is skewed to the left side of its head. It was struggling to breathe, and flapping its fluke. When the surfs came in, water went into its blowhole. In order to let it breathe smoothly

without choking, all the helpers tried to lift its head a bit when the waves rolled in. At the same time, the vets conducted a preliminary examination on the whale, and researchers measured its body length. It was found that the juvenile whale was about 8.72 m long.

Later, Fire Services officers and about 50 AFCD staff came to help. The firemen even constructed a net to surround the whale, in an attempt to pull the whale to an upright position. However, the whale was too bulky, plus it was already embedded in the sand. All the efforts to pull it upright thus went in vain. After going through a tough day, the physical condition of the whale deteriorated. It even deliberately shut its blowhole and made some noisy clicks (indicating that it was intensely stressed and annoyed). At about 7 pm, AFCD vets decided to euthanize the poor whale to end its suffering. On the next day, the whale carcass was pulled out to sea by a large barge to its burial site, which is near the West Dam of the High Island Reservoir.

3. Chinese White Whale (August 8, 2003)

Less than a month after the sperm whale stranding, another live stranding case of cetacean happened again in Hong Kong. At around 9 pm, a live dolphin was found stranded on a mudflat in Sam A Chung in Yan Chau Tong Marine Park by two local villagers. From its appearance, it was believed to be a Chinese white dolphin. After notification, all HKCRP researchers rushed to the scene immediately. At about 11 pm, researchers and AFCD staff went to Sam A Chung by AFCD marine park patrol vessel.

The beached dolphin was soon confirmed by the researchers as a Chinese white dolphin. According to past records, Chinese white dolphins only inhabited waters off west of Hong Kong territory and in Pearl River Estuary. But this time the Chinese white dolphin was

surprisingly stranded on the northeastern part of Hong Kong. Researchers estimated that the dolphin might be driven by its companions out of its natural home range for some reasons. It got lost afterwards and eventually ended up in a remote area with which it was unfamiliar. The most heartbreaking thing to the researchers was that they found the skin of the dolphin severely infected, with lumps all over its body surface, and many cuts and marks caused by pointed oyster shells on the mudflat.

When discovered, the dolphin was laying on its side, and half of its body was submerged in water. At once, researchers aided it to float upright in slightly deeper water, so it could breathe more smoothly. As the dolphin was unable to maintain its balance in water, researchers had to hold it in shifts. They even talked gently to comfort the animal. At about 1 am, AFCD vet arrived and examined its body condition. He was astounded too by the severe skin infection of the dolphin, but considered transporting it to care facility feasible. Finally, AFCD requested the Ocean Park for assistance.

Rescuers spent a whole night accompanying the dolphin. They also investigated its condition and behaviour. At first, the dolphin was rather stressed when the rescuers approached it, but later it calmed down. It even slept in their arms with eyes closed! When it woke up afterwards, it struggled violently to leave. The researchers recognized that it must be treated in order to be healthy again, and feared that it would re-strand after release, so they tried their best to hold it with great effort.

A team of Ocean Park staff arrived at the scene at about 7 am. They used the stretchers to lift the dolphin to the marine police vessel. The dolphin was then transported to Wong Shek Pier in Sai Kung, and to Ocean Park by lorry. A series of diagnosis and treatment were carried out on the dolphin after its arrival in the Ocean Park. HKCRP researcher went into the water with the dolphin and helped it to get adjusted to the unfamiliar environment. In the next few days, the dolphin showed signs of recovery, and it was even

willing to feed. The researchers were thinking of returning it back to sea after it had recovered, and installed a radio or satellite transmitter on its dorsal fin to track its movement after release. However, it suddenly passed away early in the morning on 13 August 2003, and the reason was not known yet.

It should be noted that this dolphin was previously identified by researchers alive and well in Lantau waters. The animal was named CH76 within the current photo-ID catalogue, meaning that it was the 76th dolphin found in Chinese waters by researchers. It was first sighted in the waters near Neilingding Island, and was last seen in waters off Tai O in April 2002, following pair trawlers for feeding. At that time, skin infection was already observed on CH76, but not as severe as when it stranded. Because CH76 finally stranded in Sam A Chung, it was nicknamed by us as “Sam”.

4. Rough-toothed Dolphin (May 14, 2004)

In the afternoon, HKCRP researchers were informed that there was a dark dolphin swimming around near the sandy shore of a small bay of Lamma Island - Lo Tik Wan. Some local villagers had attempted to push the dolphin back to sea but this was proved unsuccessful. They finally reported the case to the police.

Later, AFCD staff and researchers went to the scene by a Marine Police patrol vessel. They arrived at Lo Tik Wan near dusk, and identified the species of the dolphin instantly when they approached the dolphin - it was a rough-toothed dolphin! This species has a unique skull shape: it does not possess a protruding melon, without any crease between the melon and its beak. This dolphin did astound everyone as this species is oceanic and there was only one previous report of a carcass of rough-toothed dolphin in Hong Kong before. Researchers speculated that this dolphin may have separated from its main pod, then lost its way and finally entered HK waters.

As this animal was still able to swim, researchers first accompanied it to deeper water regions in an attempt to lead it out of Lo Tik Wan. But soon the dolphin headed back to shore region. And it was observed that the dolphin had some difficulties in surfacing to breathe. Finally AFCD decided to send their veterinarians to the site for further investigation. They also requested help from the Ocean Park. During this time, researchers took body measurement from the animal and assessed its body conditions. They also helped the dolphin float on water surface to help it breathe more smoothly.

After considering recommendations from the vets, AFCD decided to transport the animal to OP for rehabilitation. All people helped to move the dolphin from water to the Marine Police vessel, and later it was brought back to OP. Later the dolphin was confirmed to be a male dolphin, which was still in its juvenile stage. Since it was first discovered at Lo Tik Wan, the dolphin was later named by AFCD as “Siu Tik”. Unfortunately, Siu Tik finally passed away in Ocean Park in March 2005 with unknown cause of death.

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