



Marine Mammal Stranding Response Programme

Summary of Cases in 2014

Background

Pursuant to a letter of arrangement dated May 4, 2011 and May 14, 2014 respectively, Ocean Park Conservation Foundation, Hong Kong (OPCFHK) and the Agriculture, Fisheries and Conservation Department (AFCD) collaborate to respond and investigate marine mammal strandings in Hong Kong waters. This arrangement aims to enhance the existing cooperation for stranding investigations that has existed since May 2006.

The objectives of the arrangement include formation of a response team to respond and study stranded marine mammals found in Hong Kong.

As of April 1, 2014, collaboration between OPCFHK and The Hong Kong Polytechnic University (HKPU) was also established to facilitate Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) scanning of selected dolphin and porpoise carcasses prior to necropsy, when feasible. This collaboration acts as a supplement to the pathological investigation and is intended to give investigators initial or additional information to help understand the causes of death for those cetaceans.

Findings

In 2014, a total of 58 stranding reports were received by OPCFHK stranding team. 50 stranding cases were confirmed and attended by Ocean Park Conservation Foundation Hong Kong (OPCFHK) stranding team and carcasses of another eight stranding cases were unrecovered after search.

Species composition

Of the 50 confirmed stranding cases, 12 were Indo-Pacific humpback dolphins, or Chinese white dolphins (*Sousa chinensis*), 33 were Indo-Pacific porpoises (*Neophocaena phocaenoides*), two were striped dolphins (*Stenella coeruleoalba*), one was Omura's whale (*Balaenoptera omurai*), one was pygmy sperm whale (*Kogia breviceps*) and one was Indo-Pacific bottlenose dolphin (*Tursiops aduncus*).

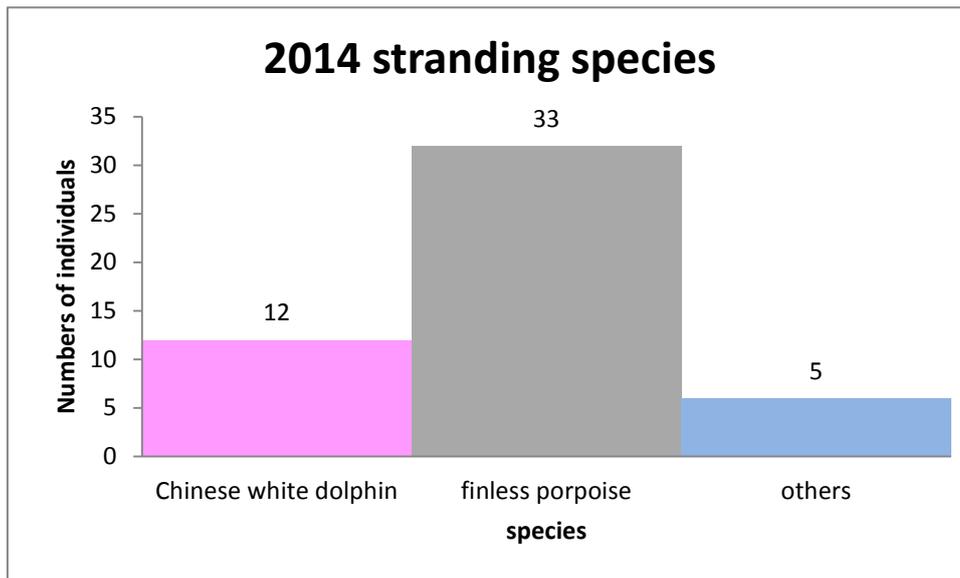


Fig. 1 Total number of different species of confirmed stranding cases in 2014

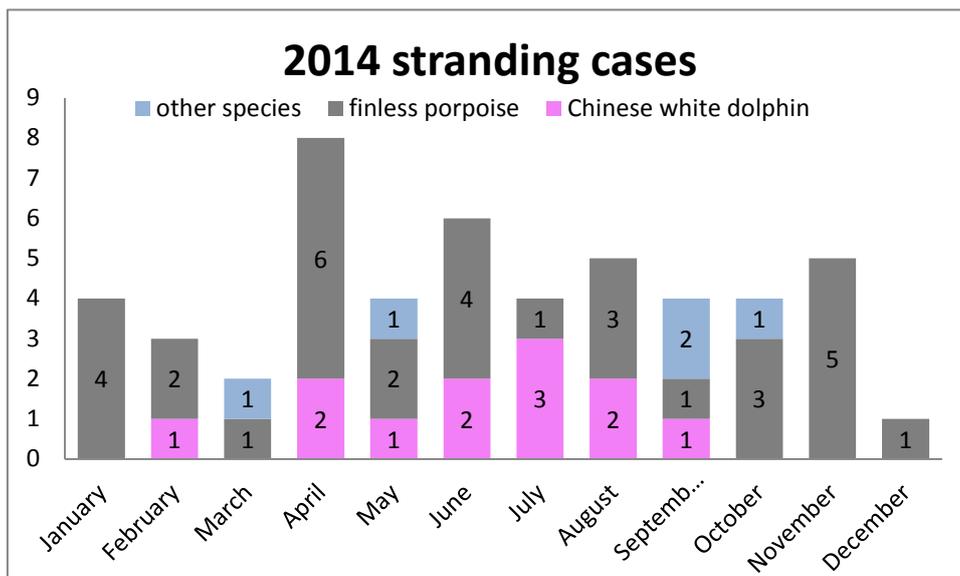


Fig. 2 Total number of confirmed stranding cases in 2014 in different months

Gender

	Female	Male	Undetermined
Chinese white dolphin	4	5	3
finless porpoise	14	10	9
Omura's whale	1		
Striped dolphin		2	
Pygmy sperm whale		1	
Indo-Pacific bottlenose dolphin		1	

Table 1 Genders of different species of cetacean stranded in 2014

In order to understand their population structure, reproduction ability and possible gender-specific disease, it is important to know the gender of stranded cetacean. Amongst the recovered Chinese white dolphin, five were male, four were female and three were too autolysed to determine their gender. For finless porpoise, fourteen were female, ten were male and nine were too autolysed to determine. The Omura's whale was female and all the other species were male.

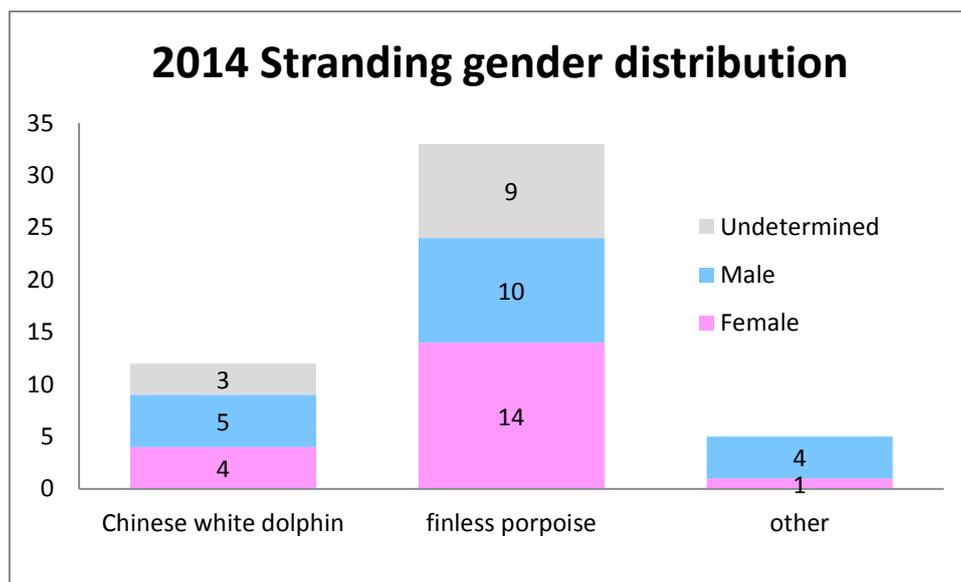


Fig. 3 Graph showing the genders of different species of cetacean stranded in 2014

Size/ age class

All cetaceans below one year old are classified as calf. According Jefferson et al (2002), finless porpoise can reach up to 112 cm in their first year, therefore any finless porpoise below 112cm length is regarded as calf. Jefferson et al (2011) stated Chinese white dolphin can reach up to 120cm in their first year, therefore any Chinese white dolphin below 120 cm in length is regarded as calf.

There were six calves, one sub-adult and five adult Chinese white dolphins. The largest Chinese white dolphin stranded this year were 270cm in length (for female) and 189cm in length (for male).

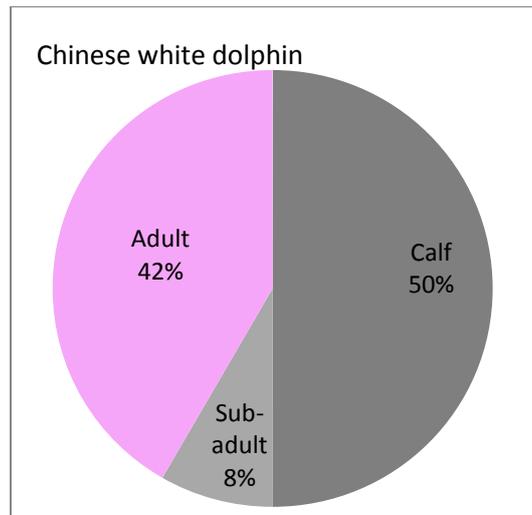


Fig. 4 Age class distribution of Chinese white dolphin stranded in 2014

There were ten calves and twenty three adult finless porpoises. The largest finless porpoise stranded this year were 174 cm in length (for male) and 166cm in length (for female).

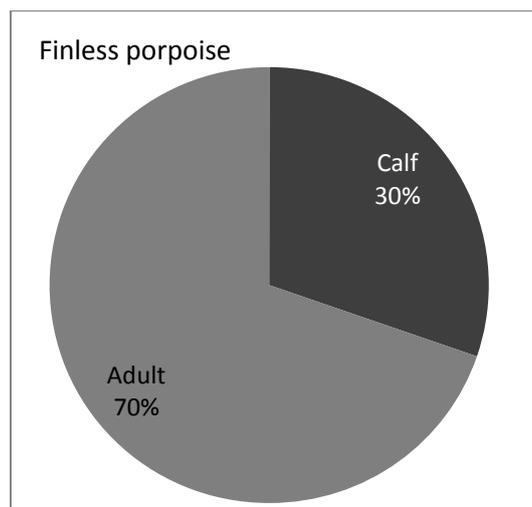


Fig. 5 Age class distribution of finless porpoise stranded in 2014

Omura's whale, one striped dolphin and pygmy sperm whale were adult. The live stranded striped dolphin and the Indo-Pacific bottlenose dolphin were sub-adult.

Carcass condition

The condition code for describing stranded cetaceans is based upon International standard (Geraci and Lounsbury, 2005).

Code 1 Live - includes all cetaceans alive at the time of discovery, including those that may be moribund.

Code 2 Fresh – includes all cetaceans that are dead at the time of discovery; body intact, near natural skin coloration, no obvious bloating or decomposition, and includes foetuses that do not show signs of decomposition even though the mother may be regarded as decomposed.

Code 3 Moderately decomposed – includes carcasses that are still intact, displaying little or no bloating, may appear thin or emaciated without decomposition, skin may be peeling off while the blubber and body remain intact.

Code 4 Badly decomposed – includes obvious signs of bloating, decomposition, skin and blubber peeling off, holes in carcass, internal organs ruptured or protruding from orifices or holes caused by decomposition or other animals feeding on the carcass.

Code 5 Mummified – includes carcasses discovered with blubber and flesh dried up or completely missing, skeleton largely exposed, and some bones possibly missing.

One live stranded striped dolphin (code one) was discovered but expired within 48 hours. Two finless porpoises and one Chinese white dolphin were in code 2. Code 3 includes five finless porpoises and one Chinese white dolphin. Most cetacean carcasses found were in code 4, including 25 finless porpoises, ten Chinese white dolphins and four other species including a striped dolphin, Omura’s whale, Indo-Pacific bottlenose dolphin and a pygmy sperm whale. A code 5 skeleton was found, later confirmed to be a finless porpoise.

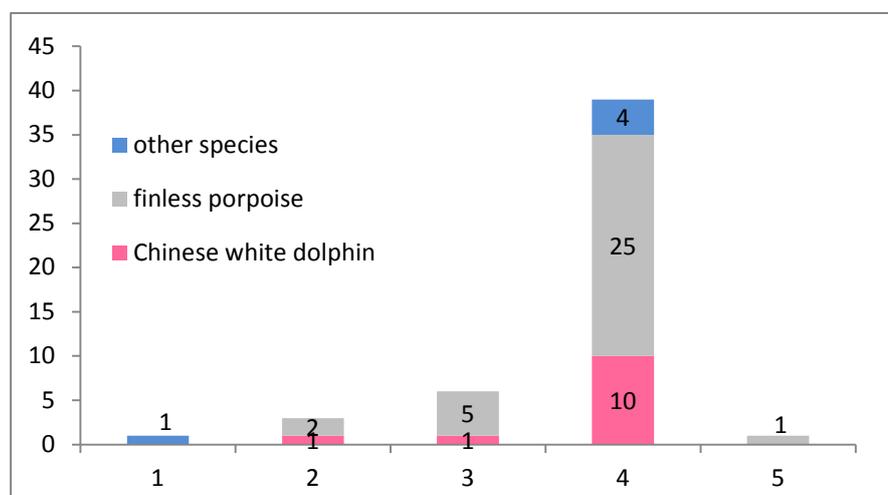


Fig. 6 Stranding cases of different species in different body condition

Cause of death

Since most of the carcass conditions were code 4, it is impossible to determine the cause of death, 43 stranding cases cannot be determined, three stranding cases were waiting to be confirmed and only three cases' cause of death can be determined:

- Cause of death of one finless porpoise was probably due to pneumonia;
- one Chinese white dolphin had pulmonary inflammation and suggestive of viral caused secondary bacterial complication;
- The live stranded striped dolphin had respiratory and central nervous system compromise along with suspected terminal immune system failure.

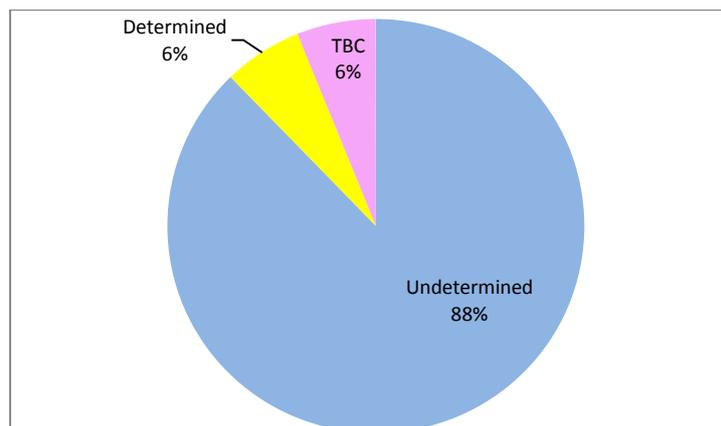


Fig. 7 Proportion of cause of death

Evidence of human activity on stranded cetaceans

10 of 50 stranding cases showed evidence(s) of human activities including presence of entanglement and lesion scars. Five finless porpoises and one Chinese white dolphin were found to have evidence of fishing line entanglement, three finless porpoises had sharp lesions on body and the Omura's whale has both entanglement and sharp lesions.

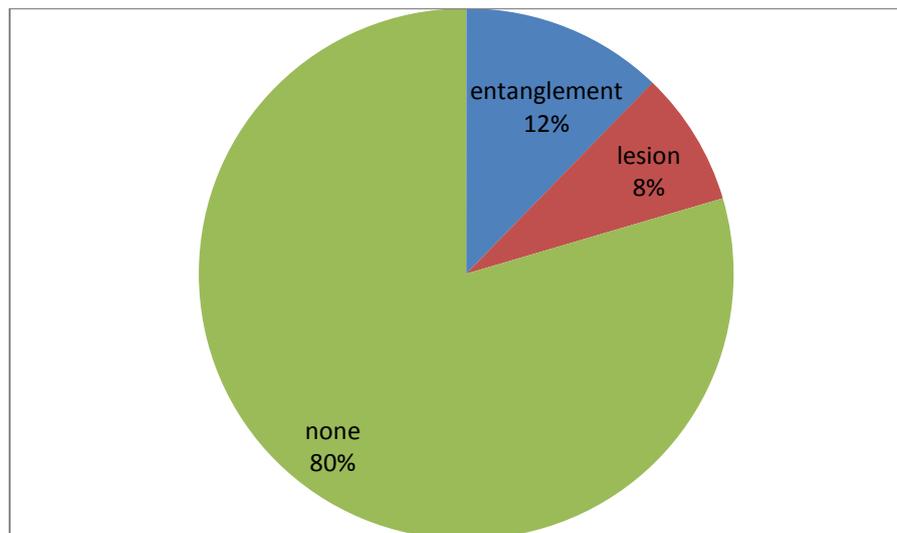


Fig. 8 Different human activity evidences found in stranding cases

Table 2: Evidence of human activity on stranded cetaceans

Species.	Date	Length (cm)	Location	Type of human interaction	Details	photo
Chinese white dolphin	15/02	270	Hong Kong Gold Coast Dolphin Square, Tuen Mun	Encircled neck impression	<p>An adult Chinese white dolphin was found with a healed wound from rope/net encircling around the neck. The entanglement was not recent and it was healed. The cause of death was not the entanglement but it was unable to determine due to carcass autolysis.</p> <p>This individual was later identified by Dr. Samuel Hung as Ringo (NL11); it was on record for nearly 20 years. By the scarring on its neck.</p>	

Omura's whale	29/03	1080	Hung Shek Mun, northeast coast off Plover Cove Country Park	Sharp cut on flipper, multiple entanglement scars	An Omura's whale was found stranded on a rocky shore. It was the first record of this species found in Hong Kong. Many deep lacerations crisscrossing body with most severe centred on right pectoral fin with a deep transverse laceration extending through the bone were found. The gross findings suggested human interaction, most likely rope or fishing gear. Cause of death was not determined due to decomposition of carcass.	 
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Finless porpoise	12/01	159	Shek O Beach	Nylon fibre on melon and fluke	<p>A finless porpoise was found with a nylon rope buried into the skin of melon. According to our veterinarian after reviewing the photos, the animal's melon was pushing against nylon ropes. This coupled with an empty stomach with a fair body condition and (presumptive) lung pathology was strongly suggestive of entanglement leading to rubbing injuries to free itself over a period of several days, but not weeks. Possible cause of death could be entanglement in human made structures (fishing gear) leading exhaustion with or without complicating lung pathology.</p>	
Finless porpoise	09/04	155	Pak Lap Tsai, Sai Kung	Fishing line entanglement	<p>A finless porpoise was found floating on sea with fishing line entanglement. The fishing line attached with a fishing hook embedded into the right flipper and fishing line encircling around elbow joint. The fishing line cut into the joint space but unable to cut through joint space, suspected ankylosis and there is also osteophytes changes on the radial head. A 35cm fishing line was also found in the fore stomach. The severe lesion could be life threatening, but due to the</p>	

					advanced state of autolysis of this carcass, it was not able to ascertain for sure the cause of death of this animal.	
Finless porpoise	14/06	166	Chik Mun, Double Haven	Sharp lesion/trauma	An adult finless porpoise was found with two large lacerations, one near cranial diagonal cut from the right underarm to ventral side posterior to the lower jaw and the other one was on the underside of fluke. A comminuted fracture was found on the lower left mandible. The cause of death was undetermined, it could be trauma, but the decomposition of the carcass made it impossible to conclude whether it occurred pre- or post-mortem.	

Finless porpoise	29/06	>170	Sandy Bay	Severe fracture on maxilla and mandibular	<p>A finless porpoise was found with skull missing. Cranial section of the carcass with maxilla and mandible of the skull was missing. 3-D reconstructed CT image showed minor fracture at the frontal bone of the cranium; with sever fractured maxilla and mandible removal. Transverse CT image also showed dislocation of right shoulder girdle, with obvious misalignment of humeral head relative to the glenoid fossa of the scapula. The cause of death was undetermined due to severe decomposition of carcass.</p>	<p>CT image by Dr. Brian Kot</p>
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Finless porpoise	17/08	143	South Channel (Tap Mun Hau)	Ante-mortem entanglement	A finless porpoise was found entangled by fishing rope at the peduncle when the carcass was collected, and luxation of vertebrae was found with some bruising which suggest the entanglement was ante-mortem. There was evidence of chronic pneumonia. The cause of death was undetermined with suspicion of pneumonia with ante-mortem entanglement.	
Finless porpoise	23/08	164.5	Shek O Beach	Encircled mark on neck	A female finless porpoise was found with an encircling impression lesion bruising to the under layer of the skin around "neck" consistent with fishing gear interaction. A fibrous nodule associated with lateral wall of vagina was found but it was not related to cause of death. The cause of death was undetermined.	

Finlessporpoise	09/09	160	Tai O, Lantau	String entanglement around left flipper and left fluke	A finless porpoise was found on 9 th September with string entanglement around left flipper and fluke. 3D reconstructed CT images showed missing digital bones at the left flipper where strings were entangled. Reconstructed CT image also shows misalignment of the caudal vertebrae at the tail bones level, suggestive of dislocation. However, cause of death could not be determined due to carcass autolysis.	 
Finless porpoise	21/10	80.5	South of Hong Kong Island	Found in shrimp trawler	A finless porpoise calf was found inside a shrimp trawler. Two large deep wounds were found on both side of body trunk with exposed internal organs. The wounds suggest to be caused post-mortem. Cause of death was to be	

					confirmed but lungs suggest suffocation/drowning.	
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Table 3: Live stranding and uncommon species

Species	Date	Length (cm)	Location	Details	Photos
Striped dolphin	17/05	205	Tung Wan, Sai Kung	<p>A live striped dolphin (<i>Stenella coeruleoalba</i>) was found by three hikers stranded on the beach of Tung Wan, Sai Kung, at around 5pm. The hikers reported the event to police and attempted to return the dolphin to the sea. However, the dolphin could not swim or surface to breathe on its own and the hikers supported the dolphin until the AFCD and OPCFHK personnel arrived to the site. Upon arrival at the scene, the dolphin was found to have many visible external wounds and could not support itself in the water. After initial examination by the OPC veterinarian and curator, the team decided to transport the dolphin to Ocean Park for further examination and medical treatment. It underwent examination, treatment and overnight observation, while remaining supported in the water so he could breathe. The dolphin expired at 11:46am on May 18 and the gross necropsy suggested acute haemorrhagic pneumonia and associated sepsis involving all lymph nodes, liver and spleen. Cause of death was later determined to be respiratory and central nervous system compromise along with suspected terminal immune system failure.</p>	 

Striped dolphin	07/09	225	Tung Wan, Shek Pik, Lantau	<p>Body condition was code 4, male and 222.5cm in length. It was found to have mandibular fractures. Cause of death was undetermined. This was the second striped dolphin stranded in Hong Kong in 2014.</p>	

Pygmy sperm whale	26/09	333	Fung Hang Pier, Sha Tau Kok	<p>Body condition was code 4, male, 333cm in length and weighed 386kg. Multiple areas of blubber with inflammation consisted of parasitic pearl-like cysts were found. CT images showed deformation of the phalanges of the left flipper, possible due to pressure applied during stranding. Cause of death was undetermined.</p>	
Indo-Pacific bottlenose dolphin	20/10	253	Clear Water Bay Golf and Country Club	<p>Body condition was code 4, male, 253cm in length (fluke missing). Fluke and underside of the body parts including viscera were missing. Skull and other samples were taken to confirm the species identification, and DNA analysis later confirmed this was an Indo-Pacific bottlenose dolphin (<i>Tursiops aduncus</i>).</p>	

						
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Unconfirmed events

In addition to the above events, there were eight unconfirmed stranding reports all involving sightings of carcasses floating in sea. Four of these unconfirmed events involved adult Indo-Pacific humpback dolphins and four involved Indo-Pacific finless porpoises. These reported carcasses could not be recovered despite on-site searches by OPCFHK and AFCD personnel.

2014 stranding list

Table 4: Confirmed cetacean stranding cases in Hong Kong in 2014.

No.	Date	Species	Sex	Length (cm)	Area	Code
1	6/1/14#	<i>Neophocaena phocaenoides</i>	F	156	Clear Water Bay Second Beach, Sai Kung	4
2	7/1/14 A#	<i>Neophocaena phocaenoides</i>	F	166	Silverstrand Beach, Clear Water Bay	3
3	7/1/14 B#	<i>Neophocaena phocaenoides</i>	F	88	Lo So Shing, Lamma	2
4	12/1/14*	<i>Neophocaena phocaenoides</i>	M	159	Shek O Beach	4
5	4/2/14*	<i>Neophocaena phocaenoides</i>	F	81	Ping Chau	4
6	5/2/14	<i>Neophocaena phocaenoides</i>	F	71	Rocky Bay Beach, Shek O	4
7	15/2/14*	<i>Sousa chinensis</i>	F	270	Hong Kong Gold Coast Dolphin Square, Tuen Mun	3
8	28/3/14	<i>Neophocaena phocaenoides</i>	TBC	105	Lower Cheung Sha Beach, Lantau	4
9	29/3/14#	<i>Balaenoptera omurai</i>	F	1,080	Hung Shek Mun, NE coast off Plover Cove Country Park	4
10	2/4/14	<i>Neophocaena phocaenoides</i>	M	159	Little Palm Beach, Sai Kung	4
11	4/4/14 A#	<i>Neophocaena phocaenoides</i>	M	87	Clear Water Bay Golf and Country Club	4
12	4/4/14 B	<i>Neophocaena phocaenoides</i>	Unknown	~165	Clear Water Bay Golf and Country Club	4
13	6/4/14#	<i>Neophocaena phocaenoides</i>	F	82	Shui Hau Wan, Lantau	2
14	9/4/14#	<i>Neophocaena phocaenoides</i>	F	155	Pak Lap Tsai, Sai Kung	3



15	10/4/14	<i>Neophocaena phocaenoides</i>	Unknown	156	Ham Tin Wan, Sai Kung	4
16	15/4/14#	<i>Sousa chinensis</i>	M	115	Anglers' Beach, Sham Tseng	4
17	30/4/14#	<i>Sousa chinensis</i>	M	189	Off Peaked Hill, Lantau	2
18	1/5/14#	<i>Neophocaena phocaenoides</i>	F	155.5	Clear Water Bay Second Beach, Sai Kung	4
19	2/5/14#	<i>Neophocaena phocaenoides</i>	Unknown	~157	Shek O Beach	4
20	17/5/14#	<i>Stenella coeruleoalba</i>	M	205	Tung Wan, Sai Kung	1
21	27/5/14	<i>Sousa chinensis</i>	M	108	Cheung Chau Ferry Pier	4
22	6/6/14#	<i>Sousa chinensis</i>	Unknown	111	Tai O, Lantau	4
23	8/6/14	<i>Neophocaena phocaenoides</i>	F	154	Victor Rock, Sai Kung	4
24	14/6/14#	<i>Neophocaena phocaenoides</i>	F	166	Chik Mun, Double Haven	4
25	21/6/14	<i>Sousa chinensis</i>	M	106.5	Ma Wan Public Pier	4
26	29/6/14A	<i>Neophocaena phocaenoides</i>	Unknown	>170	Sandy Bay	4
27	29/6/14B	<i>Neophocaena phocaenoides</i>	Unknown	>150	Tai Wan, Sai Kung	4
28	3/7/14	<i>Sousa chinensis</i>	Unknown	119	Pui O Beach, Lantau	4
29	4/7/14	<i>Sousa chinensis</i>	Unknown	250	Tai Long Wan, Lantau	4
30	20/7/14	<i>Neophocaena phocaenoides</i>	Unknown	72.5	Ham Tin Wan, Sai Kung	4
31	25/7/14*	<i>Sousa chinensis</i>	M	107	Yi O, Lantau	4



32	10/8/14	<i>Sousa chinensis</i>	F	253	Ha Pak Nai, Tuen Mun	4
33	14/8/14	<i>Neophocaena phocaenoides</i>	F	134.5	Nam Tam Wan, Cheung Chau	4
34	17/8/14#	<i>Neophocaena phocaenoides</i>	M	143	South Channel (Tap Mun Hau)	4
35	23/8/14#	<i>Neophocaena phocaenoides</i>	F	164.5	Shek O Beach	3
36	24/8/14*	<i>Sousa chinensis</i>	F	256.5	Off Castle Peak Villas, Tuen Mun	4
37	7/9/14	<i>Stenella coeruleoalba</i>	M	222.5	Tung Wan, Shek Pik, Lantau	4
38	9/9/14	<i>Neophocaena phocaenoides</i>	F	160	Tai O, Lantau	4
39	24/9/14#	<i>Sousa chinensis</i>	F	259	West of Hong Kong International Airport	4
40	26/9/14#	<i>Kogia breviceps</i>	M	333	Fung Hang Pier, Sha Tau Kok	4
41	7/10/14	<i>Neophocaena phocaenoides</i>	Unknown	166	Shek O Beach	4
42	8/10/14	<i>Neophocaena phocaenoides</i>	Unknown	141	Rocky Bay Beach	4
43	20/10/14	Unknown species	M	> 253	Clear Water Bay Golf and Country Club	4
44	21/10/14#	<i>Neophocaena phocaenoides</i>	M	80.5	South of Hong Kong Island	3
45	8/11/14	<i>Neophocaena phocaenoides</i>	M	174	Rocky Bay Beach	4
46	10/11/14	<i>Neophocaena phocaenoides</i>	Unknown	>135.5	Balanced Rock, Grass Island	4
47	16/11/14	<i>Neophocaena phocaenoides</i>	M	127.5	Middle Island	4
48	27/11/14#	<i>Neophocaena phocaenoides</i>	F	75	Lo Tik Wan, Lamma Island	3



49	30/11/14	<i>Neophocaena phocaenoides</i>	M	107.5	Tong Fuk, Lantau Island	4
50	31/12/14#	<i>Neophocaena phocaenoides</i>	Unknown	104.5	Tit Cham Chau	5

Necropsy done by Ocean Park veterinary team or OPCFHK veterinary consultant and volunteer

* Comments received from Ocean Park veterinary team or OPCFHK veterinary consultant and volunteer

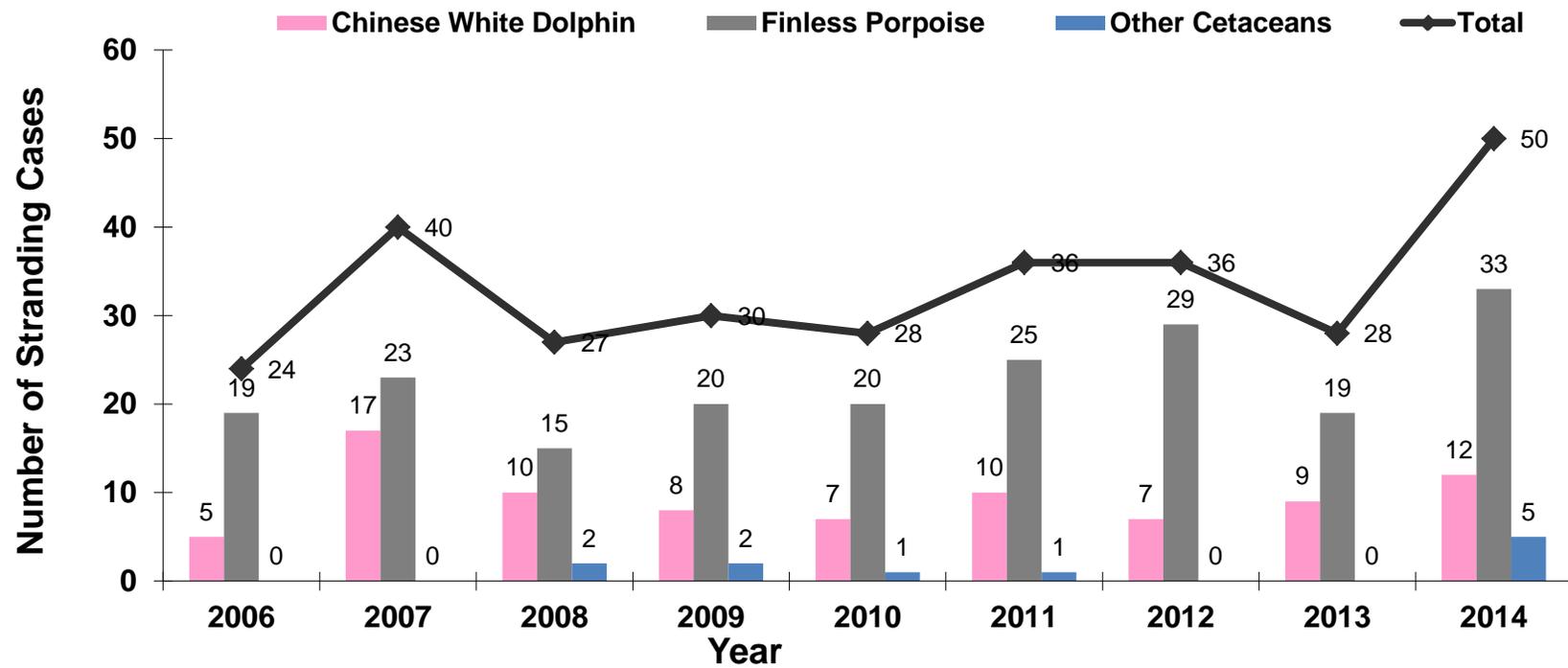
Table 5: Unrecovered cetacean stranding cases in Hong Kong in 2014

No.	Date	Species	Location	Details
1	6/2/14	<i>Neophocaena phocaenoides</i>	Beach near Shek Kok Tsui, Lamma	<ul style="list-style-type: none"> Reported by general public via email on February 6, that a porpoise carcass was seen on the beach near Shek Kok Tsui, Lamma Photo record was provided by the reported person Search was conducted by AFCD and OPCFHK team on the same day, but carcass was not recovered
2	10/3/14	<i>Neophocaena phocaenoides</i>	Lo Kei Wan, Lantau	<ul style="list-style-type: none"> Reported by general public via email on March 8, that a porpoise carcass was seen on the boulders at Lo Kei Wan, Lantau, on March 6 Photo records were provided by the reported person OPCFHK was informed about the stranding case by AFCD on March 10 Search was conducted by AFCD and OPCFHK team on the same day, but carcass was not recovered Search was conducted by AFCD Marine Parks patrol team on March 11, but carcass was not recovered
3	11/3/14	<i>Sousa chinensis</i>	Near site of Hong Kong Zhuhai Macao Bridge BCF	<ul style="list-style-type: none"> Reported by Dr. Lindsay Porter via 1823 on March 11, that a dolphin carcass was seen floating in water near construction site of BCF of HZMB Dr. Lindsay Porter reported the carcass could not be found more than an hour later and she told the site staff to report if the carcass was recovered again Photo record was provided to AFCD by the reported person
4	17/6/14	<i>Sousa chinensis?</i>	South of Sha Chau	<ul style="list-style-type: none"> Reported by general public to OPCFHK on June 18, that a dolphin carcass was seen floating in water south of Sha Chau Marine Park team searched for carcass, carcass was not recovered.
5	28/6/14	<i>Sousa chinensis</i>	Between Shek Pik	<ul style="list-style-type: none"> Reported by general public to OPCFHK on June 28, that a dolphin carcass was seen day before floating



			and Siu A Chau	<p>in waters South of Sha Chau</p> <ul style="list-style-type: none"> • Marine Park team searched for carcass, carcass was not recovered.
6	29/6/14	<i>Neophocaena phocaenoides</i>	St. Stephen's Beach, Stanley	<ul style="list-style-type: none"> • Reported by Dr Samuel Hung to AFCD on June 30, that a dolphin carcass was seen floating neat St. Stephen's Beach. • AFCD team searched for carcass, carcass was not recovered.
7	19/10/14	<i>Sousa chinensis</i>	Sha Chau and Lung Kwu Chau Marine Park	<ul style="list-style-type: none"> • AFCD informed OPCFHK about a dolphin carcass floating on sea near Sha Chau and Lung Kwu Chau Marine Park on Oct 19. • No carcass was found.
8	9/11/14	<i>Neophocaena phocaenoides</i>	Po Toi O, Clear Water Bay	<ul style="list-style-type: none"> • Reported by a general public to AFCD on Nov 9, that a dolphin carcass was seen floating in waters b Toi O, Clear Water Bay • AFCD and OPCF team searched for carcass, carcass was not recovered.

Previous stranding figures





References

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Geraci, J.R. and Lounsbury, V. 2005 *Marine Mammals Ashore - A Field Guide for Strandings*. (2nd Edition) Texas A and M University Sea Grants College Programme, Galveston