



## **Marine Mammal Stranding Response Programme**

### **Summary of Cases in 2015**

#### **Background**

Pursuant to a letter of arrangement dated May 4, 2011 and September 16, 2015 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. Whilst the AFCD holds the ultimate responsibility for handling any marine mammal stranding in Hong Kong waters, OPCFHK assists AFCD with the provision of volunteers and professional responders, veterinary care, animal transportation, animal husbandry and necropsy. Staff and resources of OPCFHK and Ocean Park Corporation (OPC) are engaged under this collaboration to fulfil the objectives of the arrangement.

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 2015, a total of 44 stranding reports were received by OPCFHK stranding team. 37 stranding cases were confirmed and attended by Ocean Park Conservation Foundation Hong Kong (OPCFHK) stranding team and carcasses of another 7 stranding cases were unrecovered after search. From the 37 carcasses recovered, 15 were Indo-Pacific humpback dolphins, or Chinese white dolphins (*Sousa chinensis*), 21 were Indo-Pacific finless porpoises (*Neophocaena phocaenoides*), and one short-finned pilot whale (*Globicephala macrorhynchus*). A total of 8 Indo-Pacific humpback dolphin and 2 Indo-Pacific finless porpoise calves were found.

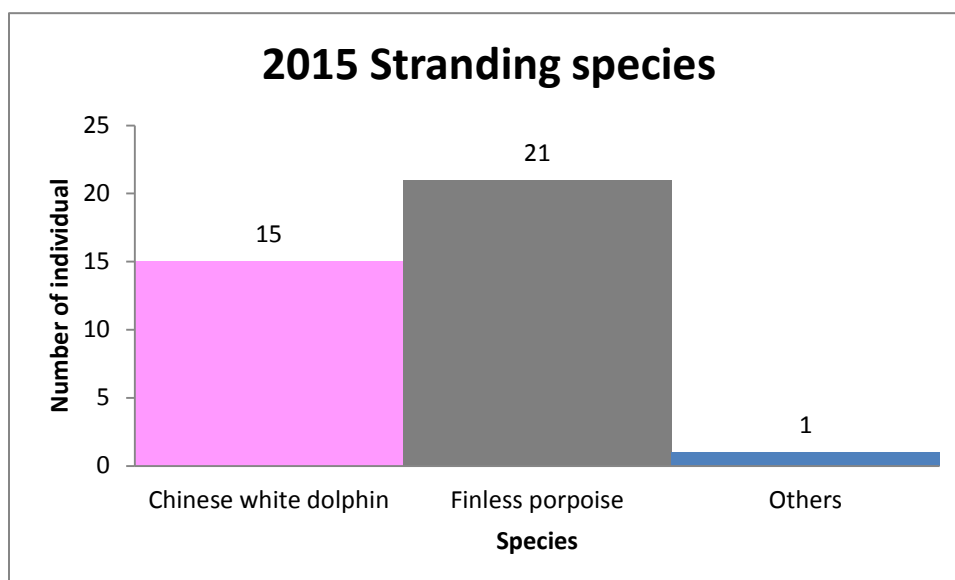


Fig. 1 Total number of different species of confirmed stranding cases in 2015

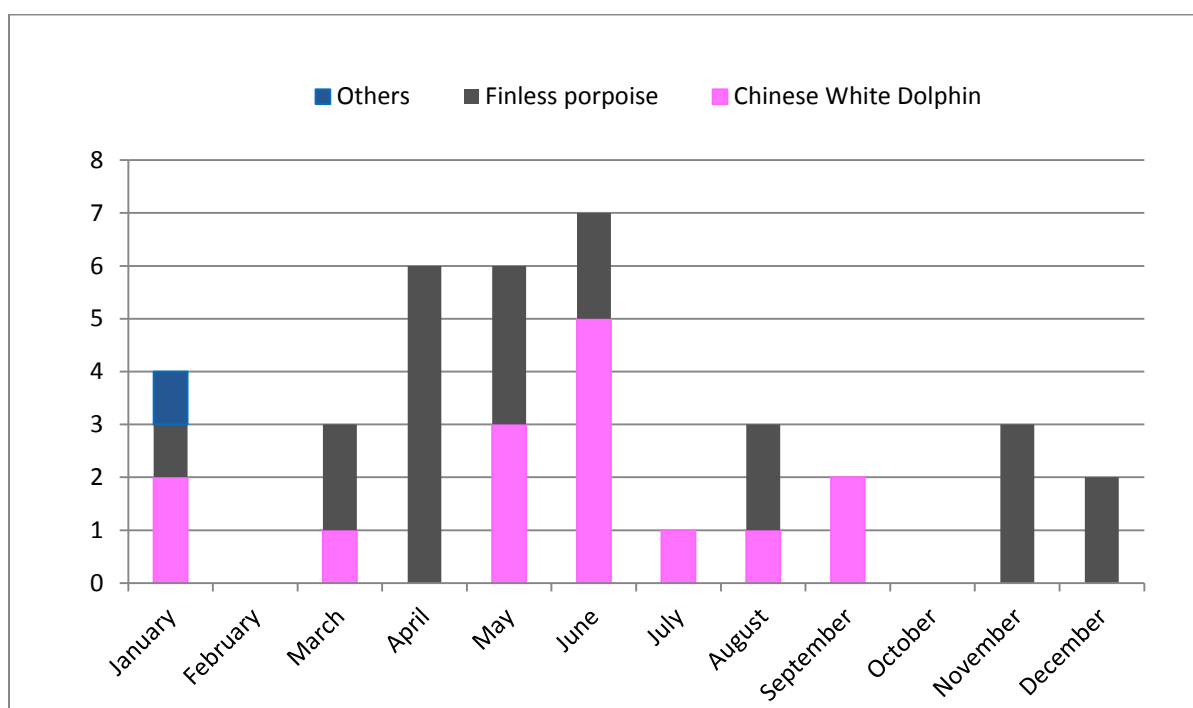


Fig. 2 Total number of confirmed stranding cases in 2015 in different months

## Gender

Species	Female	Male	Undetermined	Total
Finless porpoise	7	8	6	21
Chinese white dolphin	9	4	2	15
Short finned pilot whale	1	N/A	N/A	1
<b>Total</b>	<b>17</b>	<b>12</b>	<b>8</b>	<b>37</b>

Table 1 Genders of different species of cetacean stranded in 2015

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, 4 were male, 9 were female and 2 were too autolysed to determine their gender. For finless porpoise, 7 were female, 8 were male and 6 were too autolysed to determine. The short finned pilot whale was female.

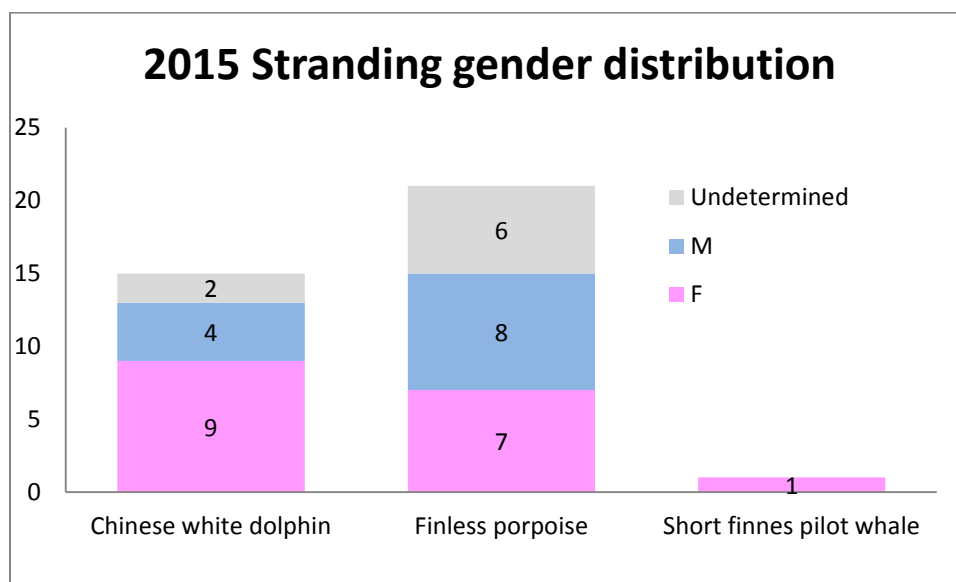


Fig. 3 Graph showing the genders of different species of cetacean stranded in 2015

### 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 **137cm** in their first year, therefore any Chinese white dolphin below 137 cm in length is regarded as calf.

There were 3 calves, 5 sub-adult and seven adult Chinese white dolphins. The largest Chinese white dolphin stranded this year were 250cm in length (gender to be confirmed).

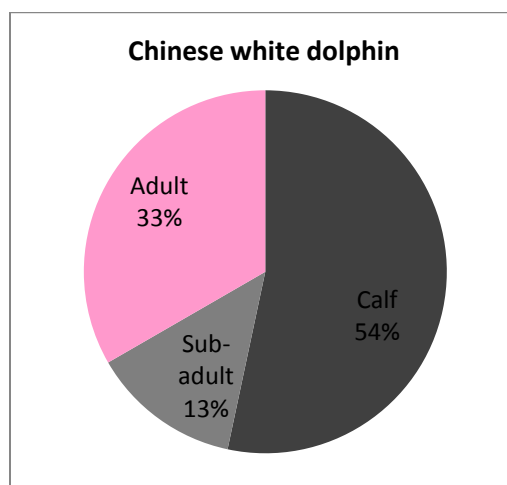


Fig. 4 Age class distribution of Chinese white dolphin stranded in 2015

There were four calves and 11 adult finless porpoises. The largest finless porpoise stranded this year was 180 cm in length (male).

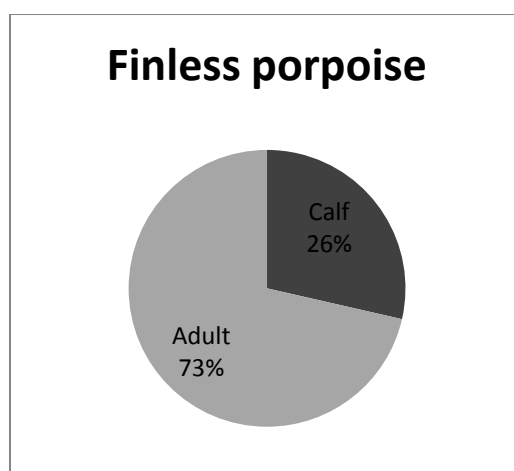


Fig. 5 Age class distribution of finless porpoise stranded in 2014

The short-finned pilot whale was an 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 fetuses 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 Chinese white dolphin (code one) was recovered from Tai O but euthanized in four days. One finless porpoise was in code 2. Code 3 includes 1 finless porpoise, 2 Chinese white dolphins and 1 short finned pilot whale. Most cetacean carcasses found were in code 4, including 18 finless porpoises and 12 Chinese white dolphins. A code 5 skeleton remain was found, later confirmed to be a finless porpoise.

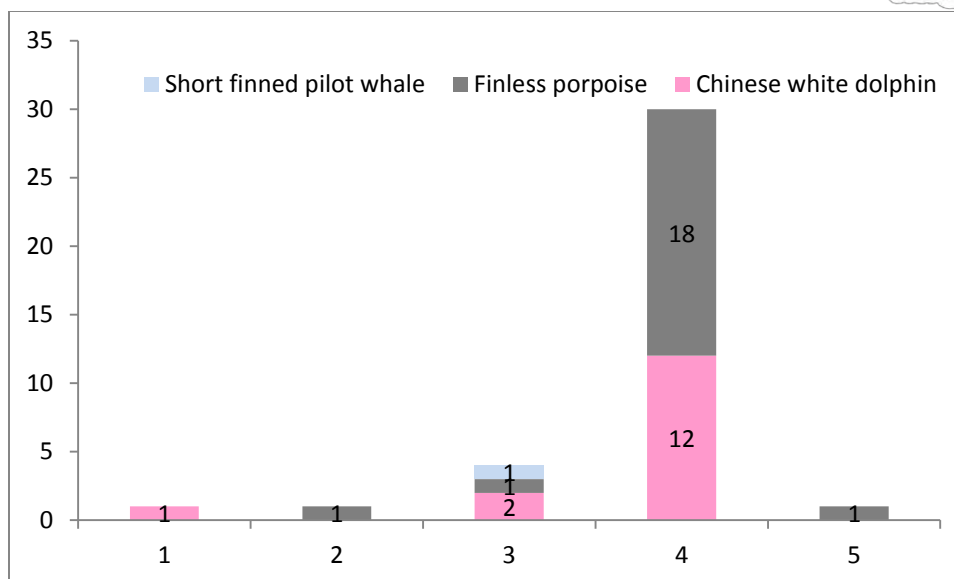


Fig. 6 Stranding cases of different species in different body condition

### Cause of death

Since most of the carcass conditions were code 4, it is impossible to determine the cause of death. Of the stranding cases in 2015, 31 stranding cases cannot be determined, 1 stranding case was waiting to be confirmed and only 5 cases' cause of death can be determined:

- one Chinese white dolphin was traumatic in nature resulting in multiple dislocations of the vertebrae, with the most significant being a total disassociation between C1 and the skull;
- one Chinese white dolphin was humane euthanasia by lethal injection due to unrecoverable health state;
- one finless porpoise was suspect pneumonia or other pulmonary disease;
- one finless porpoise's cause of death was most likely to be caused by completely dislocation of atlanto-occipital caused by massive blunt force trauma;
- One Chinese white dolphin's cause of death was likely to be internal disease and/or exhaustion and was struck post-mortem.

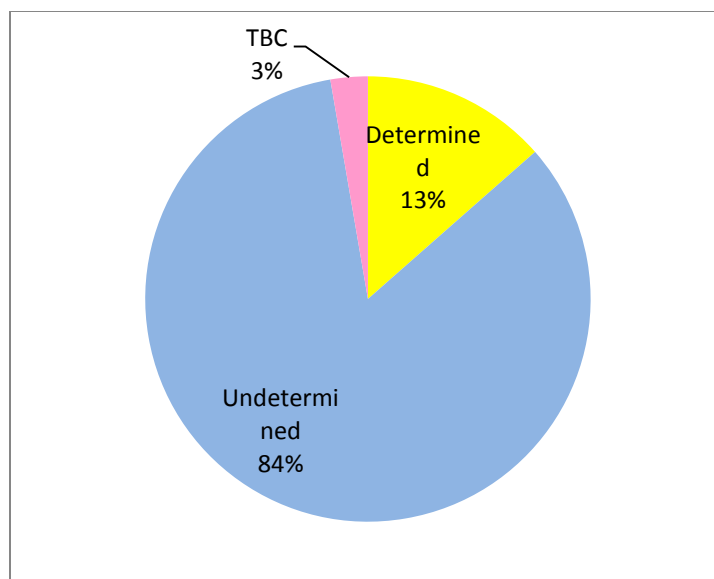


Fig. 7 Proportion of cause of death

#### Evidence of human activity on stranded cetaceans

11 of 37 stranding cases showed evidence(s) of human activities including presence of trauma, entanglement and lesion scars. 5 finless porpoises and 5 Chinese white dolphins were found to have evidence of blunt force trauma, 1 finless porpoises had evidence of entanglement on its neck region.

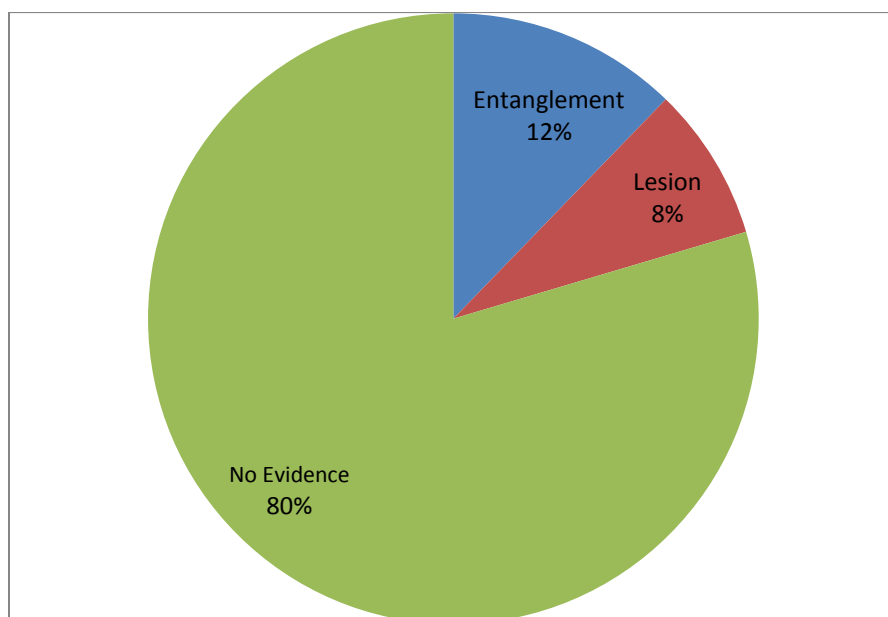




Fig. 8 Proportion of human activity on stranded cetaceans


**Table 2: Evidence of human activity on stranded cetaceans**

Species.	Date	Length (cm)	Location	Type of human interaction	Details	photo
Chinese white dolphin	01/01	171	Near Peaked hill	Suspected blunt force trauma	Carcass was found floating on the sea near Peaked Hill by Marine Police on Jan 1, 2015. The carcass was retrieved by Marine Police and transported to Marine Police Tai Lam Chung Base. Carcass condition was in late code 3, female, 171cm in length. The carcass was brought to Hong Kong Veterinary Imaging Center (HKVIC). The cause of death was traumatic in nature resulting in multiple dislocations of the vertebrae, with the most significant being a total disassociation between first cervical vertebrae and skull.	



Species	Date	Length (cm)	Location	Type of human interaction	Details	Photos
Chinese white dolphin	16/01	235	Tai O, Lantau	Sharp cut on dorsal plane, suspected entanglement	Jan 16, 2015 one Indo-Pacific humpback dolphin was found seriously injured near Tai O with four transverse lacerations posterior of its dorsal and another two similar lacerations on its peduncle, anterior of the insertion of the flukes and dorsal plane of the left fluke. It was recovered from the sea adjacent to Shek Pik on Feb 6, 2015 and transferred to Ocean Park for veterinary treatment. The condition of the animal deteriorated on Feb 9, 2015, and the dolphin was humanely euthanized on Feb 10, 2015.	

						
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Finless porpoise	02/04	158	Tai Wan Tau Village, Clear Water Bay	Encircled neck impression	Carcass was found in Tai Wan Tau Village, Clear Water Bay on April 2, 2015. The carcass was in code 4, female, 158cm. There was an encircled scar around its neck indicative of entanglement but no material was found. The cause of death was undetermined.	
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Finless porpoise	22/4	110	Tong Fuk Beach, Lantau	Severe fracture on thoracic and lumbar vertebrae	The remains of a carcass was found on Tong Fuk Beach, Lantau on Apr 22, 2015. The carcass was in code 3, male, 110cm with upper body from flipper missing. Reconstructed 3-D CT image showed multiple transverse process fractures at the level of the last thoracic and lumbar vertebrae 1-5 levels. The cause of death was undetermined.
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Finless porpoise	26/04	50	Upper Cheung Sha Beach, Lantau	Blunt force trauma	The remains of a carcass was found on Upper Cheung Sha Beach, Lantau on Apr 26, 2015. The carcass was in code 4, unknown gender and 50cm long, upper body with only right flipper remained. The cause of death was most likely to be caused by completely dislocation of skull and vertebrae caused by massive blunt force trauma.
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Finless porpoise	01/05	63	Tai Long Wan, Lantau	Blunt force trauma on cranium	The remains of a carcass was found in Tai long Wan, Lantau May 1, 2015. The carcass was in code 4, unknown gender and 63cm long, upper body with both flippers remained. The cause of death was undetermined but reconstructed 3-D image showed severely collapsed cranium, later confirmed by gross necropsy likely caused by blunt force trauma. The impact seemed to have originated from the left dorsal direction.
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Chinese white dolphin	05/05	245	Pearl Island, Tuen Mun	Suspected blunt force trauma on skull and vertebrae	Carcass was found floating on sea off Pearl Island, Tuen Mun on May 5, 2015. The carcass was in code 4, male, 245cm. Reconstructed 3-D image showed skull and vertebrae dislocation and later confirmed by gross necropsy. The gastrointestinal tract was completely empty and the cause of death was undetermined.	
Finless porpoise	06/05	169	Hei Ling Chau	Severe trauma on fluke	Carcass was found floating in shallow water near a beach at Hei Ling Chau on May 6, 2015. The carcass was in code 4, male, 169cm. The intestines were completely empty with no faecal material present, but the stomach was very full containing numerous partially digested small fish. Severe trauma to fluke proximal to fluke was found, however, the carcass was too decomposed to indicate whether it was caused pre- or post-mortem. The cause of death was undetermined.	



Species	Date	Length (cm)	Location	Type of human interaction	Details	Photos
Finless porpoise	07/05	155	Kat Tsai Wan, Lamma Island	Suspected blunt force trauma	Carcass was found lying on sandy beach in Kat Tsai Wan, Lamma Island on May 7, 2015. The carcass was in code 4, male, 155cm. The cause of death was undetermined. Reconstructed 3-D showed luxation at third and fourth thoracic vertebrae later confirmed by gross necropsy.	
Chinese white dolphin	25/09	109	Tai O	Suspected blunt force trauma	Carcass found lying on beach near Tai O Heritage Hotel on Sept 25, 2015. The carcass was in code 4, female, 109cm. The carcass was severely decomposed. CT scan indicated skull and first vertebral dislocation and dislocations of the shoulder joints in both flippers.	



**Table 3: Calf mortality (Chinese white dolphin)**

Species	Date	Length (cm)	Location	Type of human interaction	Details	Photos
Chinese white dolphin	15/05	122	Fan Lau, Lantau	Blunt force trauma	Carcass was found floating by an adult dolphin in Fan Lau, Lantau on May 15, 2015. The carcass was in code 3, male, 122cm and 14.4kg. The cause of death was likely to be internal disease and/or inanition and was struck post-mortem with skull and first neck vertebra dislocation.	
Chinese white dolphin	31/05	120	Sham Tseng	Blunt force trauma on caudal vertebrae	Carcass was found floating in Sham Tseng on May 31, 2015. The carcass was in code 4, male, 120cm and 10.5kg. Obvious blunt force trauma to caudal vertebrae and dislocation was found. However, due to the severely decomposed condition of the carcass, it was impossible to determine if the dislocation was caused pre- or post- mortem.	

Chinese white dolphin	05/06	117	Sha Chau	N/A	Carcass found floating in the sea, east of Sha Chau on June 5, 2015. The carcass was in code 4, female, 117cm. The carcass was severely decomposed with no evidence of propeller cut or entanglement.	 
Chinese white dolphin	06/06	116	Lower Cheung Sha Beach	N/A	Carcass found stranded in lower Cheung Sha Beach, Lantau on June 6, 2015. The carcass was in code 4, female, 116cm and 12kg. The carcass was severely decomposed with no evidence of propeller cut or entanglement.	




						
Chinese white dolphin	15/06	127	Shek Pik	Suspected blunt force trauma	Carcass found floating in the sea, later landed on sandy beach in Shek Pik on June 15, 2015. The carcass was in code 4, male, 127cm. Two deep traumatic wounds deeply puncture through skin and blubber at abdominal region. Spine bruises at cervical and fluke region, possibly caused before death.	


Chinese white dolphin	20/06	95	Deep Water Bay	Skull detached, suspected boat-strike or propeller cut	Carcass found floating in the sea in Deep Water Bay near Ocean Park on June 20, 2015. The carcass was in code 4, male, 95cm. The carcass is severely decomposed, the skull was detached and gone missing from the carcass.
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**Table 4: Shark/large bite wounds**

Finless porpoise	08/03	67	Nam She Wan, Sai Kung	Carcass was found on a beach in Nam She Wan, Sai Kung on March 8, 2015. The carcass was in code 4, female, 67cm. An 11cm x 10cm large wound was found behind the jaw, and No tooth was found in or near the wound. The carcass was too decomposed to indicate whether it was caused pre- or post- mortem. The cause of death was undetermined.	 
Finless porpoise	02/04	76	Kau Sai Chau, Sai Kung	Carcass was found on beach in south of Kau Sai Chau, Sai Kung on April 2, 2015. The carcass was code 4, unknown gender, 76 cm. A 6.5cm x 4.5 cm wound was found near the genital region and a series of small wounds around 22cm in length altogether, with the deepest wound being 2cm on the dorsal side of the caudal peduncle. The 3 <sup>rd</sup> wound was found at the left flipper, circular shaped around 2cm in diameter. The carcass was too decomposed to indicate whether it was caused pre- or post- mortem. No tooth was	

				found in or near the wound. The cause of death was undetermined.	
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**Table 4: Rare/other species**

Short-finned pilot whale	24/01	365	Cheung Sha Lan, Discovery Bay	<p>A short-finned pilot whale (<i>Globicephala macrorhynchus</i>) carcass was found on January 24, 2015 on a beach at Cheung Sha Lan, Discovery Bay. Body condition was of a code 3, female and 365cm in length. It was a young adult female, lean body shape with one obvious shallow wound near the fluke. It was not clear if this wound had been caused pre- or post mortem. Very thin blubber layer with completely empty stomach and intestines was found. The cause of death was undetermined.</p> <p>A live sighting of a short-finned pilot whale was reported 9 days earlier on Jan 15 in Victoria Harbour (Tsim Sha Tsui), however, no sighting was recorded upon arrival by the AFCD and OPCFHK staff. Due to the decomposed condition it is not conclusive whether the carcass found at Lantau on January 24 was the same Pilot whale observed on Jan 15. Although this species has been previously reported in Chinese waters (Zhou et al., 1995), it was the first record of a short-finned pilot whale in Hong Kong waters.</p>	
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### **Unconfirmed events**

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



## 2015 stranding list

Table 6: Confirmed cetacean stranding cases in Hong Kong in 2015.

No.	Date	Species	Gender	Length (cm)	Area	Status	Code
1	1/1/15#	<i>Sousa chinensis</i>	F	171	Peaked Hill, Lantau	Juvenile	3
2	16/1/15#	<i>Sousa chinensis</i>	M	235	S of Shek Pik/ NW of Siu A Chau	Sub-adult	1
3	21/1/15#	<i>Neophocaena phocaenoides</i>	F	117	Ham Tin Wan, Sai Kung	Juvenile	2
4	24/1/15#	<i>Globicephala macrorhynchus</i>	F	365	Cheung Sha Lan, Discovery Bay	Adult	3
5	8/3/15	<i>Neophocaena phocaenoides</i>	F	67	Nam She Wan, Sai Kung	Neonate	4
6	24/3/15	<i>Sousa chinensis</i>	F	237	East of Siu Mo To	Adult	4
7	29/3/15	<i>Neophocaena phocaenoides</i>	M	180	Tung Lung Chau	Adult	4
8	2/4/15a	<i>Neophocaena phocaenoides</i>	F	158	Tai Wan Tau, Clear Water Bay	Adult	4
9	2/4/15b	<i>Neophocaena phocaenoides</i>	M	162	Lower Cheung Sha Beach, Lantau	Adult	4
10	2/4/15c	<i>Neophocaena phocaenoides</i>	?	76	South of Kau Sai Chau, Sai Kung	Calf	4
11	18/4/15	<i>Neophocaena phocaenoides</i>	M	161.5	Pui O Beach Campsite, Lantau	Adult	4
12	22/4/15	<i>Neophocaena phocaenoides</i>	M	>110 (w/o upper body from flipper)	Tong Fuk Beach, Lantau	Adult	3
13	26/4/15	<i>Neophocaena phocaenoides</i>	?	50 (upper body only)	Upper Cheung Sha Beach, Lantau	Adult	4
14	1/5/15	<i>Neophocaena phocaenoides</i>	?	63 (w/o lower half)	Tai Long Wan, Chi Ma Wan Peninsula, Lantau	Sub-adult	4
15	5/5/15#	<i>Sousa chinensis</i>	M	245	Off Pearl Island, Tuen Mun	Adult	4
16	6/5/15#	<i>Neophocaena phocaenoides</i>	M	169	Hei Ling Chau	Adult	4
17	7/5/15	<i>Neophocaena phocaenoides</i>	M	155	Kat Tsai Wan, Lamma Island	Sub-adult	4
18	15/5/15#	<i>Sousa chinensis</i>	F	122	Fan Lau	Calf	3
19	31/5/15#	<i>Sousa chinensis</i>	F	120	Sham Tseng	Calf	4
20	5/6/15	<i>Sousa chinensis</i>	F	117	East of Sha Chau	Calf	4
21	5/6/15	<i>Neophocaena phocaenoides</i>	F	119	Yi Long Wan, Lantau	Sub-adult	4
22	6/6/15	<i>Sousa chinensis</i>	F	116	Lower Cheung Sha Beach, Lantau	Calf	4
23	15/6/15#	<i>Sousa chinensis</i>	M	127	Shek Pik, Lantau	Calf	4
24	20/6/15	<i>Sousa chinensis</i>	M	95	Deep Water Bay near Ocean Park	Calf	4
25	21/6/15	<i>Sousa chinensis</i>	?	96	Yi Long Wan, Lantau	Calf	4

26	24/6/15	<i>Neophocaena phocaenoides</i>	?	?	Ngong Chong, Po Toi Island	?	5
27	13/7/15	<i>Sousa chinensis</i>	?	250	Sha Chau	Adult	4
28	4/8/15a	<i>Neophocaena phocaenoides</i>	?	180	Lo Tik Wan, Lamma	Adult	4
29	4/8/15b	<i>Neophocaena phocaenoides</i>	M	125	Ham Tin Wan, Sai Kung	Juvenile	4
30	16/8/15*	<i>Sousa chinensis</i>	F	230	Soko Islands	Adult	4
31	19/9/15#	<i>Sousa chinensis</i>	F	167 (w/o fluke)	South Ninepin Island, Sai Kung	Juvenile	4
32	25/9/15	<i>Sousa chinensis</i>	F	109	Tai O Heritage Hotel, Lantau	Calf	4
33	10/11/15	<i>Neophocaena phocaenoides</i>	M	168.5	Wan Tsai campsite pier, Sai Kung	Adult	4
34	17/11/15	<i>Neophocaena phocaenoides</i>	F	167	Sai Wan, Sai Kung	Adult	4
35	18/11/15	<i>Neophocaena phocaenoides</i>	F	162	Tai Long Pai, Shek O	Adult	4
36	21/12/15	<i>Neophocaena phocaenoides</i>	?		Nam She Wan, Sai Kung		4
37	27/12/15	<i>Neophocaena phocaenoides</i>	F	85	Luk Chau, Lamma Island	Calf	4

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

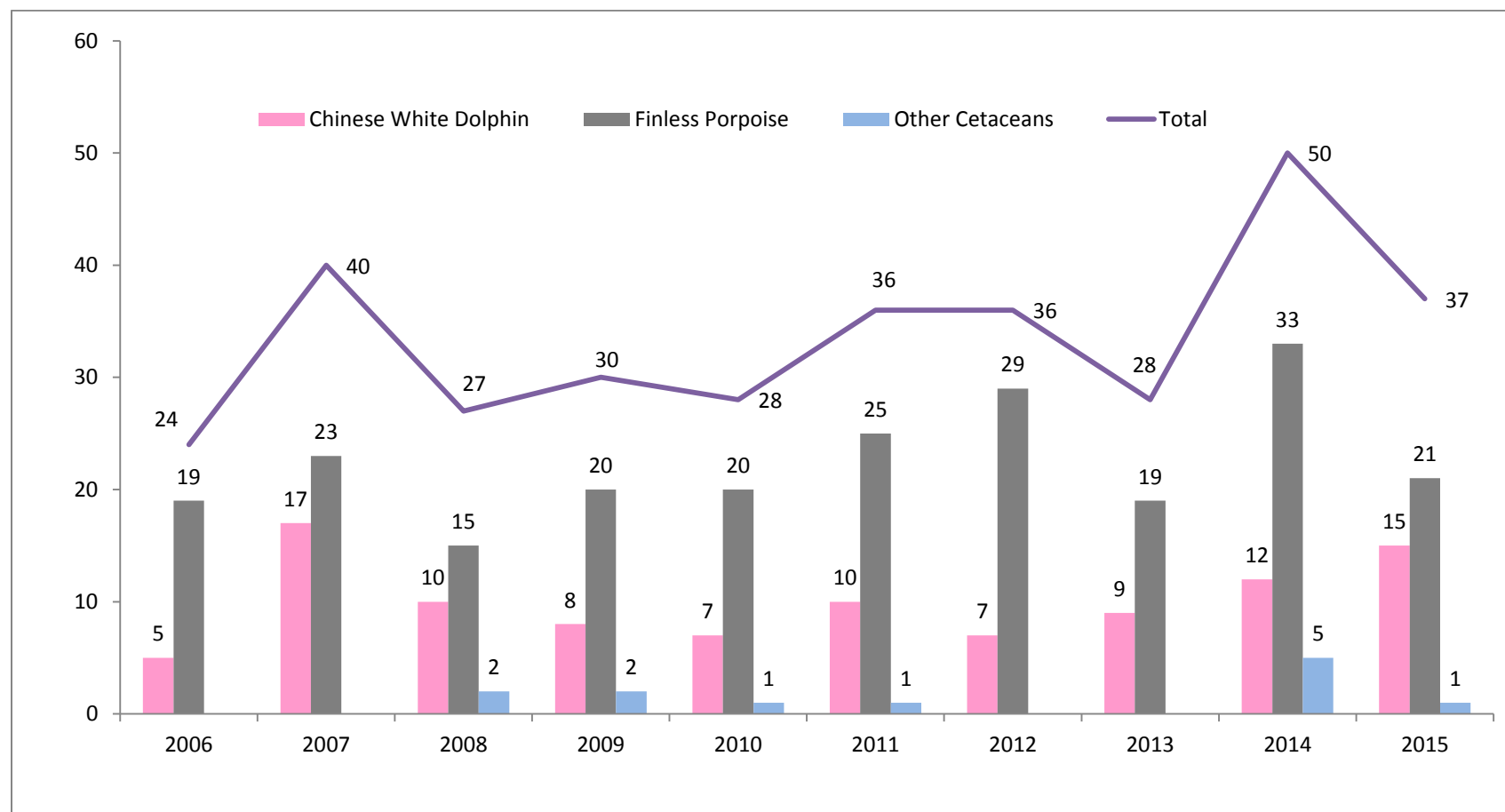
\* Comments received from Ocean Park veterinary team or OPCFHK veterinary consultant and volunteer

**Table 6: Unrecovered cetacean stranding cases in Hong Kong in 2015**

No.	Date	Species	Location	Details
1	23/1/15	<i>Neophocaena phocaenoides</i>	Peaked Hill, Lantau	<ul style="list-style-type: none"> <li>• Porpoise carcass was seen floating in waters near Peaked Hill, Lantau, reported by HKU SWIMS researcher.</li> <li>• Marine Park team searched for carcass, carcass was not recovered.</li> </ul>
2	2/5/15	<i>Neophocaena phocaenoides</i>	Town Island	<ul style="list-style-type: none"> <li>• Reported by a general public to AFCD on May 2, that a dolphin carcass was seen floating in water by Town Island</li> <li>• AFCD searched for carcass, carcass was not recovered.</li> </ul>

3	18/6/15	<i>Sousa chinensis</i>	Northeast of Siu A Chau	<ul style="list-style-type: none"> <li>Reported by a general public to AFCD on Jun18, that a dolphin calf carcass was seen floating in water off Siu A Chau.</li> <li>AFCD Marine Park team searched for carcass, carcass was not recovered.</li> </ul>
4	20/8/15	<i>Sousa chinensis</i>	Tung Chung	<ul style="list-style-type: none"> <li>A general public reported to Oriental Daily that a dolphin calf carcass was seen floating by a barge at Tung Chung.</li> <li>AFCD Marine Parks Team and Cetacean Ecology Lab, SWIMS, HKU research team searched for carcass, carcass was not recovered.</li> </ul>
5	27/9/15	<i>Neophocaena phocaenoides</i>	Lung Ha Wan, Sai Kung	<ul style="list-style-type: none"> <li>Reported by a general public to AFCD on Sep 27, that a finless porpoise carcass was seen between boulders at Lung Ha Wan.</li> <li>AFCD and OPCFHK stranding team searched for carcass, carcass was not recovered.</li> </ul>
6	30/9/15	<i>Sousa chinensis</i>	Tai O, Lantau	<ul style="list-style-type: none"> <li>Reported by Cetacean Ecology Lab, SWIMS, HKU research team on Sep 30 that a Chinese white dolphin neonate was seen floating at Tai O.</li> <li>AFCD Marine Parks Team, AFCD and OPCFHK stranding team searched for carcass, carcass was not recovered.</li> </ul>
7	17/10/15	Unidentified species	Ha Mei Wan, Lamma Island	<ul style="list-style-type: none"> <li>Reported by a general public to OPCFHK on Oct 17, which a cetacean carcass was seen floating off the Lamma Power Station.</li> <li>AFCD searched for carcass, carcass was not recovered.</li> </ul>

## Previous stranding figures





## References

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