



MIXED-SPECIES EXHIBITS WITH CARNIVORANS VI.

Mixed-species exhibits with Eared Seals (*Otariidae*), Walrus (*Odobenidae*) and Earless Seals (*Phocidae*)

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INTRODUCTION

Within the narrower meaning of the mixed-species exhibits this document deals with 10 species of otariids, 9 species of phocids and the Walrus.

In the list below you can see which species have been kept in mixed exhibits in captivity:

Eared Seals, *Otariidae*

California Sea Lion, *Zalophus californianus* Lesson, 1828

South American Sea Lion, *Otaria byronia* de Blainville, 1820

Australian Sea Lion, *Neophoca cinerea* Péron, 1816

Steller Sea Lion, *Eumetopias jubatus* Schreber, 1776

Northern Fur Seal, *Callorhinus ursinus* Linnaeus, 1758

South American Fur Seal, *Arctocephalus australis* Zimmermann, 1783

Afro-Australian Fur Seal, *Arctocephalus pusillus* Schreber, 1775

New Zealand Fur Seal, *Arctocephalus forsteri* Lesson, 1828

Guadalupe Fur Seal, *Arctocephalus townsendi* Merriam, 1897

Subantarctic Fur Seal, *Arctocephalus tropicalis* J. E. Gray, 1872

Walrus, *Odobenidae*

Walrus, *Odobenus rosmarus* Linnaeus, 1758

Earless Seals, *Phocidae*

Northern Elephant Seal, *Mirounga angustirostris* Gill, 1866

Southern Elephant Seal, *Mirounga leonina* Linnaeus, 1758

Bearded Seal, *Erignathus barbatus* Erxleben, 1777

Grey Seal, *Halichoerus grypus* Fabricius, 1791

Harp Seal, *Pagophilus groenlandicus* Erxleben, 1777

Harbor Seal, *Phoca vitulina* Linnaeus, 1758

Spotted Seal, *Phoca largha* Pallas, 1811

Baikal Seal, *Pusa sibirica* Gmelin, 1788

Ringed Seal, *Pusa hispida* Schreber, 1775



„Temporary” combinations

Before discussing the main topic it is worth mentioning some „temporary” mixed exhibits which means that seals are often displayed with dolphins or with other animals mainly during demonstrations to the public. Some of the examples with California Sea Lions are listed below:

- California Sea Lion (*Zalophus californianus*) and Common Bottlenose Dolphin (*Tursiops truncatus*) in Ocean Park Hong Kong (Aberdeen, Hong Kong) and in Parc Astérix (Plailly, France)
- California Sea Lion (*Zalophus californianus*) and Rough-toothed Dolphin (*Steno bredanensis*) in Gulf World Marine Park (Panama City Beach, Florida, United States of America)
- California Sea Lion (*Zalophus californianus*), Walrus (*Odobenus rosmarus*) and Asian Small-clawed Otter (*Aonyx cinerea*) in SeaWorld Orlando (Florida, United States of America)
- California Sea Lion (*Zalophus californianus*) and Walrus (*Odobenus rosmarus*) in SeaWorld San Antonio (Texas, United States of America) and SeaWorld San Diego (California, United States of America)
- California Sea Lion (*Zalophus californianus*) and Asian Small-clawed Otter (*Aonyx cinerea*) in SeaWorld San Diego (California, United States of America)



California Sea Lions (*Zalophus californianus*) and Common Bottlenose Dolphins (*Tursiops truncatus*)
Parc Astérix, Plailly, France
Photo © Parc Astérix



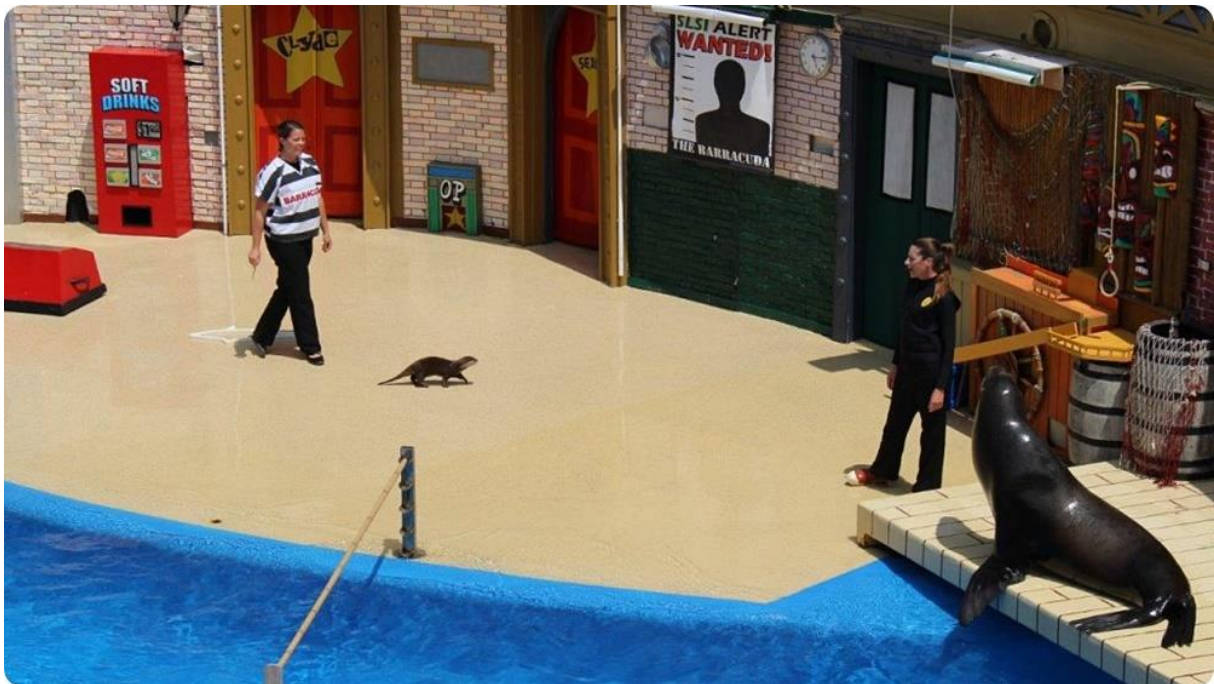
California Sea Lions (*Zalophus californianus*) and Common Bottlenose Dolphins (*Tursiops truncatus*)
Ocean Park Hong Kong, Aberdeen, Hong Kong
Photo © Simon Hampel



California Sea Lion (*Zalophus californianus*) and Rough-toothed Dolphin (*Steno bredanensis*)
Gulf World Marine Park, Panama City Beach, Florida, United States of America
Photo © Gulf World Marine Park



California Sea Lion (*Zalophus californianus*) and Walrus (*Odobenus rosmarus*)
SeaWorld San Diego, California, United States of America
Photo © Scott Richardson



California Sea Lion (*Zalophus californianus*) and Asian Small-clawed Otter (*Aonyx cinerea*)
SeaWorld San Diego, California, United States of America
Photo © www.familytravelsecrets.com



LIST OF SPECIES COMBINATIONS - *OTARIIDAE*

The list shows examples of species combinations with at least one species of otariids combined with the taxa below



California Sea Lion, *Zalophus californianus* (Photo © Krisztián Svábik)

West Indian Manatee, *Trichechus manatus*
Japanese Macaque, *Macaca fuscata*
Celebes Crested Macaque, *Macaca nigra*
Gelada, *Theropithecus gelada*
Capybara, *Hydrochoerus hydrochaeris*
South American Sea Lion, *Otaria byronia*
Steller Sea Lion, *Eumetopias jubatus*
Northern Fur Seal, *Callorhinus ursinus*
South American Fur Seal, *Arctocephalus australis*
Afro-Australian Fur Seal, *Arctocephalus pusillus*
Guadalupe Fur Seal, *Arctocephalus townsendi*
Walrus, *Odobenus rosmarus*
Northern Elephant Seal, *Mirounga angustirostris*
Southern Elephant Seal, *Mirounga leonina*
Grey Seal, *Halichoerus grypus*
Harbor Seal, *Phoca vitulina*
Spotted Seal, *Phoca largha*
Common Hippopotamus, *Hippopotamus amphibius*
Tucuxi, *Sotalia fluviatilis*
Common Bottlenose Dolphin, *Tursiops truncatus*
Black-footed Penguin, *Spheniscus demersus*
Great White Pelican, *Pelecanus onocrotalus*
Brown Pelican, *Pelecanus occidentalis*
Common Eider, *Somateria mollissima*
several waterfowl species



South American Sea Lion, *Otaria byronia* (Photo © Krisztián Svábik)

California Sea Lion, *Zalophus californianus*

Australian Sea Lion, *Neophoca cinerea*

Steller Sea Lion, *Eumetopias jubatus*

South American Fur Seal, *Arctocephalus australis*

Afro-Australian Fur Seal, *Arctocephalus pusillus*

Southern Elephant Seal, *Mirounga leonina*

Grey Seal, *Halichoerus grypus*

Harbor Seal, *Phoca vitulina*

Spotted Seal, *Phoca largha*



Australian Sea Lion, *Neophoca cinerea* (Photo © Brian M. Hunt)

South American Sea Lion, *Otaria byronia*
South American Fur Seal, *Arctocephalus australis*
Afro-Australian Fur Seal, *Arctocephalus pusillus*
New Zealand Fur Seal, *Arctocephalus forsteri*
Subantarctic Fur Seal, *Arctocephalus tropicalis*
Grey Seal, *Halichoerus grypus*
Harbor Seal, *Phoca vitulina*
Common Bottlenose Dolphin, *Tursiops truncatus*



Steller Sea Lion, *Eumetopias jubatus* (Photo © Krisztián Svábik)

California Sea Lion, *Zalophus californianus*

South American Sea Lion, *Otaria byronia*

Harbor Seal, *Phoca vitulina*

Spotted Seal, *Phoca largha*



Northern Fur Seal, *Callorhinus ursinus* (Photo © Glen Tepke)

California Sea Lion, *Zalophus californianus*

Afro-Australian Fur Seal, *Arctocephalus pusillus*

Walrus, *Odobenus rosmarus*

Grey Seal, *Halichoerus grypus*

Harbor Seal, *Phoca vitulina*



South American Fur Seal, *Arctocephalus australis* (Photo © Krisztián Svábik)

California Sea Lion, *Zalophus californianus*

South American Sea Lion, *Otaria byronia*

Australian Sea Lion, *Neophoca cinerea*

Walrus, *Odobenus rosmarus*

Harbor Seal, *Phoca vitulina*



Afro-Australian Fur Seal, *Arctocephalus pusillus* (Photo © Krisztián Svábik)

California Sea Lion, *Zalophus californianus*
South American Sea Lion, *Otaria byronia*
Australian Sea Lion, *Neophoca cinerea*
Northern Fur Seal, *Callorhinus ursinus*
New Zealand Fur Seal, *Arctocephalus forsteri*
Subantarctic Fur Seal, *Arctocephalus tropicalis*
Walrus, *Odobenus rosmarus*
Grey Seal, *Halichoerus grypus*
Harbor Seal, *Phoca vitulina*
Common Bottlenose Dolphin, *Tursiops truncatus*
Humboldt Penguin, *Spheniscus humboldti*



New Zealand Fur Seal, *Arctocephalus forsteri* (Photo © Arthur Chapman)

Australian Sea Lion, *Neophoca cinerea*

Afro-Australian Fur Seal, *Arctocephalus pusillus*

Subantarctic Fur Seal, *Arctocephalus tropicalis*



Guadalupe Fur Seal, *Arctocephalus townsendi* (Photo © Alexander Meyer)

California Sea Lion, *Zalophus californianus*
Harbor Seal, *Phoca vitulina*



Subantarctic Fur Seal, *Arctocephalus tropicalis* (Photo © Nicolas Servera)

Australian Sea Lion, *Neophoca cinerea*

Afro-Australian Fur Seal, *Arctocephalus pusillus*

New Zealand Fur Seal, *Arctocephalus forsteri*



LIST OF SPECIES COMBINATIONS - *ODOBENIDAE*

**The list shows examples of species combinations with the walrus
combined with the taxa below**



Walrus, *Odobenus rosmarus* (Photo © Krisztián Svábik)

California Sea Lion, *Zalophus californianus*
Northern Fur Seal, *Callorhinus ursinus*
South American Fur Seal, *Arctocephalus australis*
Afro-Australian Fur Seal, *Arctocephalus pusillus*
Southern Elephant Seal, *Mirounga leonina*
Grey Seal, *Halichoerus grypus*
Harbor Seal, *Phoca vitulina*
Beluga, *Delphinapterus leucas*



LIST OF SPECIES COMBINATIONS - *PHOCIDAE*

The list shows examples of species combinations with at least one species of phocids combined with the taxa below



Northern Elephant Seal, *Mirounga angustirostris* (Photo © Mike Baird)

Celebes Crested Macaque, *Macaca nigra*

Gelada, *Theropithecus gelada*

Capybara, *Hydrochoerus hydrochaeris*

California Sea Lion, *Zalophus californianus*



Southern Elephant Seal, *Mirounga leonina* (Photo © Cláudio Dias Timm)

California Sea Lion, *Zalophus californianus*

South American Sea Lion, *Otaria byronia*

Walrus, *Odobenus rosmarus*

Harbor Seal, *Phoca vitulina*



Bearded Seal, *Erignathus barbatus* (Photo © Michael Haferkamp)

Harp Seal, *Pagophilus groenlandicus*
Ringed Seal, *Pusa hispida*



Grey Seal, *Halichoerus grypus* (Photo © Krisztián Svábik)

Arctic Fox, *Alopex lagopus*
California Sea Lion, *Zalophus californianus*
South American Sea Lion, *Otaria byronia*
Australian Sea Lion, *Neophoca cinerea*
Northern Fur Seal, *Callorhinus ursinus*
Afro-Australian Fur Seal, *Arctocephalus pusillus*
Walrus, *Odobenus rosmarus*
Harp Seal, *Pagophilus groenlandicus*
Harbor Seal, *Phoca vitulina*
North American River Otter, *Lontra canadensis*
Humboldt Penguin, *Spheniscus humboldti*
Brown Pelican, *Pelecanus occidentalis*



Harp Seal, *Pagophilus groenlandicus* (Photo © Virginia State Park)

Bearded Seal, *Erignathus barbatus*

Grey Seal, *Halichoerus grypus*

Harbor Seal, *Phoca vitulina*

Ringed Seal, *Pusa hispida*



Harbor Seal, *Phoca vitulina* (Photo © Krisztián Svábik)

California Sea Lion, *Zalophus californianus*
South American Sea Lion, *Otaria byronia*
Australian Sea Lion, *Neophoca cinerea*
Steller Sea Lion, *Eumetopias jubatus*
Northern Fur Seal, *Callorhinus ursinus*
South American Fur Seal, *Arctocephalus australis*
Afro-Australian Fur Seal, *Arctocephalus pusillus*
Guadalupe Fur Seal, *Arctocephalus townsendi*
Walrus, *Odobenus rosmarus*
Southern Elephant Seal, *Mirounga leonina*
Grey Seal, *Halichoerus grypus*
Harp Seal, *Pagophilus groenlandicus*
Arctic Fox, *Alopex lagopus*
Sea Otter, *Enhydra lutris*
Reindeer, *Rangifer tarandus*
Domestic Sheep, *Ovis aries*
Beluga, *Delphinapterus leucas*
Black-footed Penguin, *Spheniscus demersus*
Humboldt Penguin, *Spheniscus humboldti*
Brown Pelican, *Pelecanus occidentalis*
Great Cormorant, *Phalacrocorax carbo*
Flying Steamer Duck, *Tachyeres patachonicus*
White-tailed Sea-eagle, *Haliaeetus albicilla*



Spotted Seal, *Phoca largha* (Photo © David Fudan)

California Sea Lion, *Zalophus californianus*

South American Sea Lion, *Otaria byronia*

Steller Sea Lion, *Eumetopias jubatus*

Black-footed Penguin, *Spheniscus demersus*



Baikal Seal, *Pusa sibirica* (Photo © Sergey Gabdurakhmanov)

Black-footed Penguin, *Spheniscus demersus*



Ringed Seal, *Pusa hispida* (Photo © Jouni Koskela)

Bearded Seal, *Erignathus barbatus*

Harp Seal, *Pagophilus groenlandicus*



LIST OF MIXED-SPECIES EXHIBITS WITH LOCATIONS - *OTARIIDAE*

The list shows specific examples of mixed-species exhibits involving at least one species of otariids combined with the taxa below, with indication of the institution(s) where these have been tried out



California Sea Lion, *Zalophus californianus*

Combined species:

- California Sea Lion, *Zalophus californianus*
- Japanese Macaque, *Macaca fuscata*

unknown institution

Combined species:

- California Sea Lion, *Zalophus californianus*
- Celebes Crested Macaque, *Macaca nigra*
- Gelada, *Theropithecus gelada*
- Capybara, *Hydrochoerus hydrochaeris*
- Northern Elephant Seal, *Mirounga angustirostris*

unknown institution

Combined species:

- California Sea Lion, *Zalophus californianus*
- Capybara, *Hydrochoerus hydrochaeris*

Institution(s): Los Angeles Zoo (California, United States of America)

Combined species:

- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*

Institution(s): Parque de la Naturaleza de Cabárceno (Obregón, Cantabria, Spain)



Combined species:

- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*
- Harbor Seal, *Phoca vitulina*

Institution(s): Jardim Zoológico de Lisboa (Portugal), Zoo Heidelberg (Germany)

Combined species:

- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*
- Steller Sea Lion, *Eumetopias jubatus*
- Spotted Seal, *Phoca largha*

Institution(s): Dalian Laohutan Ocean Park (China)



California Sea Lion (*Zalophus californianus*), South American Sea Lion (*Otaria byronia*), Steller Sea Lion (*Eumetopias jubatus*) and Spotted Seal (*Phoca largha*) mixed exhibit

Dalian Laohutan Ocean Park, China

Photo © Alex Kantorovich



Combined species:

- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Ocean Park Hong Kong (Aberdeen, Hong Kong)

Combined species:

- California Sea Lion, *Zalophus californianus*
- Steller Sea Lion, *Eumetopias jubatus*
- Harbor Seal, *Phoca vitulina*

unknown institution

Combined species:

- California Sea Lion, *Zalophus californianus*
- Northern Fur Seal, *Callorhinus ursinus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Erlebnis – Zoo Hannover (Germany)

Combined species:

- California Sea Lion, *Zalophus californianus*
- Northern Fur Seal, *Callorhinus ursinus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Moody Gardens (Galveston, Texas, United States of America)

Combined species:

- California Sea Lion, *Zalophus californianus*
- South American Fur Seal, *Arctocephalus australis*

Institution(s): WILDLANDS Adventure Zoo Emmen (the Netherlands), Zoo Dortmund (Germany), Kölner Zoo (Germany)



Female California Sea Lion (*Zalophus californianus*) and female South American Fur Seals (*Arctocephalus australis*)
WILDLANDS Adventure Zoo Emmen, the Netherlands
Photos © Krisztián Svábik



Combined species:

- California Sea Lion, *Zalophus californianus*
- Guadalupe Fur Seal, *Arctocephalus townsendi*
- Harbor Seal, *Phoca vitulina*

Institution(s): SeaWorld San Diego (California, United States of America)



Young California Sea Lion (*Zalophus californianus*) and Guadalupe Fur Seal (*Arctocephalus townsendi*)
SeaWorld San Diego, California, United States of America
Photo © www.zoochat.com

Combined species:

- California Sea Lion, *Zalophus californianus*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*

Institution(s): Faunia (Madrid, Spain), Zoologischer Garten Berlin (Germany)



Combined species:

- California Sea Lion, *Zalophus californianus*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Faunia (Madrid, Spain)

Combined species:

- California Sea Lion, *Zalophus californianus*
- Walrus, *Odobenus rosmarus*

Institution(s): SeaWorld San Antonio (Texas, United States of America)

Combined species:

- California Sea Lion, *Zalophus californianus*
- Southern Elephant Seal, *Mirounga leonina*

Institution(s): Wilhelma Zoologisch-Botanischer Garten Stuttgart (Germany)

Combined species:

- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*
- Southern Elephant Seal, *Mirounga leonina*

Institution(s): Erlebnis – Zoo Hannover (Germany)

Combined species:

- California Sea Lion, *Zalophus californianus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Louisville Zoo (Kentucky, United States of America), Marineland (Antibes, France)



California Sea Lions (*Zalophus californianus*) and Grey Seal (*Halichoerus grypus*)
Marineland, Antibes, France
Photo © www.zoochat.com

Combined species:

- California Sea Lion, *Zalophus californianus*
- Grey Seal, *Halichoerus grypus*
- Brown Pelican, *Pelecanus occidentalis*

Institution(s): Smithsonian National Zoological Park (Washington, DC, United States of America)



California Sea Lions (*Zalophus californianus*) and Brown Pelicans (*Pelecanus occidentalis*)
Smithsonian National Zoological Park, Washington, DC, United States of America
Photo © Phyllis Wheeler



California Sea Lion (*Zalophus californianus*) and Brown Pelicans (*Pelecanus occidentalis*)
Smithsonian National Zoological Park, Washington, DC, United States of America
Photo © Brent Huffman



Combined species:

- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*

Institution(s): SeaWorld Orlando (Florida, United States of America), SeaWorld San Antonio (Texas, United States of America), SeaWorld Ohio (Aurora, Ohio, United States of America) (closed), Brookfield Zoo (Chicago, Illinois, United States of America), Denver Zoo (Colorado, United States of America), Louisville Zoo (Kentucky, United States of America), Indianapolis Zoo (Indiana, United States of America), Point Defiance Zoo & Aquarium (Tacoma, Washington, United States of America), Milwaukee County Zoo (Wisconsin, United States of America), Oklahoma City Zoo (Oklahoma, United States of America), Cleveland Metroparks Zoo (Ohio, United States of America), Six Flags Discovery Kingdom (California, United States of America), Ocean World (Crescent City, California, United States of America), Ocean Park Hong Kong (Aberdeen, Hong Kong), Tiergarten Nürnberg (Germany), Ouwehands Dierenpark (Rhenen, the Netherlands), SEA LIFE Blankenberge (Belgium)



California Sea Lion (*Zalophus californianus*) and Harbor Seal (*Phoca vitulina*)
Tiergarten Nürnberg, Germany
Photo © Dr. Helmut Mägdefrau



**Several species of birds - like Canada Geese (*Branta canadensis*) and Mallards (*Anas platyrhynchos*) - visit freely the California Sea Lion (*Zalophus californianus*) and Harbor Seal mixed pool in Tiergarten Nürnberg
Tiergarten Nürnberg, Germany
Photos © Dr. Helmut Mägdefrau**



**Several species of birds - like Canada Geese (*Branta canadensis*) and Mallards (*Anas platyrhynchos*) - visit freely the California Sea Lion (*Zalophus californianus*) and Harbor Seal mixed pool in Tiergarten Nürnberg
Tiergarten Nürnberg, Germany
Photos © Dr. Helmut Mägdefrau**



**Several species of birds - like Canada Geese (*Branta canadensis*) and Mallards (*Anas platyrhynchos*) - visit freely the California Sea Lion (*Zalophus californianus*) and Harbor Seal mixed pool in Tiergarten Nürnberg
Tiergarten Nürnberg, Germany
Photo © Dr. Helmut Mägdefrau**

Combined species:

- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*
- Brown Pelican, *Pelecanus occidentalis*

Institution(s): Fresno Chaffee Zoo (California, United States of America)

Combined species:

- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*
- Grey Seal, *Halichoerus grypus*

Institution(s): Indianapolis Zoo (Indiana, United States of America)



Combined species:

- California Sea Lion, *Zalophus californianus*
- Spotted Seal, *Phoca largha*

Institution(s): Osaka Aquarium Kaiyukan (Japan)

Combined species:

- California Sea Lion, *Zalophus californianus*
- Common Hippopotamus, *Hippopotamus amphibius*
- several waterfowl species

Institution(s): Longleat Safari Park (Warminster, United Kingdom)



California Sea Lion (*Zalophus californianus*) and Common Hippopotamus (*Hippopotamus amphibius*)
Longleat Safari Park, Warminster, United Kingdom
Photo © Keith Park



California Sea Lions (*Zalophus californianus*) and Common Hippopotamus (*Hippopotamus amphibius*)
Longleat Safari Park, Warminster, United Kingdom
Photo © www.hiveminer.com

Combined species:

- California Sea Lion, *Zalophus californianus*
- Common Bottlenose Dolphin, *Tursiops truncatus*

Institution(s): Tiergarten Nürnberg (Germany), Allwetterzoo Münster (Germany)



California Sea Lion (*Zalophus californianus*) and Common Bottlenose Dolphin (*Tursiops truncatus*)

**Tiergarten Nürnberg, Germany
Photo © Dr. Katrin Baumgartner**

Combined species:

- California Sea Lion, *Zalophus californianus*
- Tucuxi, *Sotalia fluviatilis*
- Common Bottlenose Dolphin, *Tursiops truncatus*

Institution(s): Allwetterzoo Münster (Germany)

Combined species:

- California Sea Lion, *Zalophus californianus*
- West Indian Manatee, *Trichechus manatus*
- Black-footed Penguin, *Spheniscus demersus*
- Great White Pelican, *Pelecanus onocrotalus*

Institution(s): Singapore Zoo (Singapore)



Combined species:

- California Sea Lion, *Zalophus californianus*
- Black-footed Penguin, *Spheniscus demersus*
- Common Eider, *Somateria mollissima*

Institution(s): ARTIS Amsterdam Royal Zoo (the Netherlands)



California Sea Lion (*Zalophus californianus*) and Black-footed Penguins (*Spheniscus demersus*)

ARTIS Amsterdam Royal Zoo, the Netherlands

Photo © Christopher Holland



South American Sea Lion, *Otaria byronia*

Combined species:

- South American Sea Lion, *Otaria byronia*
- California Sea Lion, *Zalophus californianus*

Institution(s): Parque de la Naturaleza de Cabárceno (Obregón, Cantabria, Spain)

Combined species:

- South American Sea Lion, *Otaria byronia*
- California Sea Lion, *Zalophus californianus*
- Steller Sea Lion, *Eumetopias jubatus*
- Spotted Seal, *Phoca largha*

Institution(s): Dalian Laohutan Ocean Park (China)

Combined species:

- South American Sea Lion, *Otaria byronia*
- California Sea Lion, *Zalophus californianus*
- Southern Elephant Seal, *Mirounga leonina*

Institution(s): Erlebnis – Zoo Hannover (Germany)

Combined species:

- South American Sea Lion, *Otaria byronia*
- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Jardim Zoológico de Lisboa (Portugal), Zoo Heidelberg (Germany)



Combined species:

- South American Sea Lion, *Otaria byronia*
- California Sea Lion, *Zalophus californianus*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Ocean Park Hong Kong (Aberdeen, Hong Kong)

Combined species:

- South American Sea Lion, *Otaria byronia*
- Australian Sea Lion, *Neophoca cinerea*
- Grey Seal, *Halichoerus grypus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Riyadh Zoo (Saudi Arabia)

Combined species:

- South American Sea Lion, *Otaria byronia*
- South American Fur Seal, *Arctocephalus australis*

Institution(s): Mundo Marino - El Oceanario Más Grande De Sudamérica (San Clemente del Tuyu, Argentina)

Combined species:

- South American Sea Lion, *Otaria byronia*
- Fur Seal, *Arctocephalus sp.*

Institution(s): Tianjin Haichang Polar Ocean World (Binhai, China)



Australian Sea Lion, *Neophoca cinerea*

Combined species:

- Australian Sea Lion, *Neophoca cinerea*
- South American Sea Lion, *Otaria byronia*
- Grey Seal, *Halichoerus grypus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Riyadh Zoo (Saudi Arabia)

Combined species:

- Australian Sea Lion, *Neophoca cinerea*
- South American Fur Seal, *Arctocephalus australis*
- Harbor Seal, *Phoca vitulina*

Institution(s): Sea World Gold Coast (Southport, Queensland, Australia)

Combined species:

- Australian Sea Lion, *Neophoca cinerea*
- New Zealand Fur Seal, *Arctocephalus forsteri*

Institution(s): SEA LIFE Sunshine Coast Aquarium (Mooloolaba, Queensland, Australia)

Combined species:

- Australian Sea Lion, *Neophoca cinerea*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- New Zealand Fur Seal, *Arctocephalus forsteri*
- Subantarctic Fur Seal, *Arctocephalus tropicalis*

Institution(s): SEA LIFE Sydney Aquarium (New South Wales, Australia)



Combined species:

- Australian Sea Lion, *Neophoca cinerea*
- Common Bottlenose Dolphin, *Tursiops truncatus*

Institution(s): Dolphin Marine Magic (Coffs Harbour, New South Wales, Australia)



Australian Sea Lion (*Neophoca cinerea*) and Common Bottlenose Dolphin (*Tursiops truncatus*)
Dolphin Marine Magic, Coffs Harbour, New South Wales, Australia
Photos © Nathan Edwards



Steller Sea Lion, *Eumetopias jubatus*

Combined species:

- Steller Sea Lion, *Eumetopias jubatus*
- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*
- Spotted Seal, *Phoca largha*

Institution(s): Dalian Laohutan Ocean Park (China)

Combined species:

- Steller Sea Lion, *Eumetopias jubatus*
- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*

unknown institution

Combined species:

- Steller Sea Lion, *Eumetopias jubatus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Vancouver Aquarium (British Columbia, Canada)



Northern Fur Seal, *Callorhinus ursinus*

Combined species:

- Northern Fur Seal, *Callorhinus ursinus*
- California Sea Lion, *Zalophus californianus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Erlebnis – Zoo Hannover (Germany)

Combined species:

- Northern Fur Seal, *Callorhinus ursinus*
- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Moody Gardens (Galveston, Texas, United States of America)

Combined species:

- Northern Fur Seal, *Callorhinus ursinus*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*

Institution(s): Zoologischer Garten Berlin (Germany)

Combined species:

- Northern Fur Seal, *Callorhinus ursinus*
- Walrus, *Odobenus rosmarus*

Institution(s): Brookfield Zoo (Chicago, Illinois, United States of America)



Combined species:

- Northern Fur Seal, *Callorhinus ursinus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Vancouver Aquarium (British Columbia, Canada)



South American Fur Seal, *Arctocephalus australis*

Combined species:

- South American Fur Seal, *Arctocephalus australis*
- California Sea Lion, *Zalophus californianus*

Institution(s): WILDLANDS Adventure Zoo Emmen (the Netherlands), Zoo Dortmund (Germany), Kölner Zoo (Germany)



Female South American Fur Seals (*Arctocephalus australis*) and female California Sea Lion (*Zalophus californianus*)

WILDLANDS Adventure Zoo Emmen, the Netherlands

Photo © Krisztián Svábik



Female South American Fur Seals (*Arctocephalus australis*) and female California Sea Lions (*Zalophus californianus*)
WILDLANDS Adventure Zoo Emmen, the Netherlands
Photo © Krisztián Svábik

Combined species:

- South American Fur Seal, *Arctocephalus australis*
- South American Sea Lion, *Otaria byronia*

Institution(s): Mundo Marino - El Oceanario Más Grande De Sudamérica (San Clemente del Tuyu, Argentina)

Combined species:

- South American Fur Seal, *Arctocephalus australis*
- Australian Sea Lion, *Neophoca cinerea*
- Harbor Seal, *Phoca vitulina*

Institution(s): Sea World Gold Coast (Southport, Queensland, Australia)



Combined species:

- South American Fur Seal, *Arctocephalus australis*
- Walrus, *Odobenus rosmarus*

Institution(s): Tierpark Hagenbeck (Hamburg, Germany)



South American Fur Seals (*Arctocephalus australis*) and Walrus (the famous 'Antje') (*Odobenus rosmarus*), 1995
Tierpark Hagenbeck, Hamburg, Germany
Photo © www.zoochat.com

Combined species:

- South American Fur Seal, *Arctocephalus australis*
- Harbor Seal, *Phoca vitulina*

Institution(s): Tierpark Hagenbeck (Hamburg, Germany), SEA LIFE Sydney Aquarium (New South Wales, Australia)



Afro-Australian Fur Seal, *Arctocephalus pusillus*

Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- California Sea Lion, *Zalophus californianus*

Institution(s): Faunia (Madrid, Spain), Zoologischer Garten Berlin (Germany)

Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Faunia (Madrid, Spain)



Male Afro-Australian Fur Seal (*Arctocephalus pusillus*) and young Harbor Seal (*Phoca vitulina*)

**Faunia, Madrid, Spain
Photo © Ignacio Barrio**



Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*
- Grey Seal, *Halichoerus grypus*

Institution(s): Ocean Park Hong Kong (Aberdeen, Hong Kong)

Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- New Zealand Fur Seal, *Arctocephalus forsteri*
- Subantarctic Fur Seal, *Arctocephalus tropicalis*
- Australian Sea Lion, *Neophoca cinerea*

Institution(s): SEA LIFE Sydney Aquarium (New South Wales, Australia)

Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Northern Fur Seal, *Callorhinus ursinus*

Institution(s): Zoologischer Garten Berlin (Germany)

Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Walrus, *Odobenus rosmarus*

Institution(s): Münchener Tierpark Hellabrunn (Germany)

Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Borås Djurpark (Sweden)



Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Grey Seal, *Halichoerus grypus*
- Harbor Seal, *Phoca vitulina*
- Humboldt Penguin, *Spheniscus humboldti*

Institution(s): Kolmårdens Djurpark (Sweden)

Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Faunia (Madrid, Spain), Aquazoo Löbbecke Museum (Düsseldorf, Germany), Taronga Zoo Sydney (New South Wales, Australia)

Combined species:

- Fur Seal, *Arctocephalus sp.*
- South American Sea Lion, *Otaria byronia*

Institution(s): Tianjin Haichang Polar Ocean World (Binhai, China)

Combined species:

- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Common Bottlenose Dolphin, *Tursiops truncatus*

Institution(s): Tiergarten Nürnberg (Germany)



New Zealand Fur Seal, *Arctocephalus forsteri*

Combined species:

- New Zealand Fur Seal, *Arctocephalus forsteri*
- Australian Sea Lion, *Neophoca cinerea*

Institution(s): SEA LIFE Sunshine Coast Aquarium (Mooloolaba, Queensland, Australia)

Combined species:

- New Zealand Fur Seal, *Arctocephalus forsteri*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Subantarctic Fur Seal, *Arctocephalus tropicalis*
- Australian Sea Lion, *Neophoca cinerea*

Institution(s): SEA LIFE Sydney Aquarium (New South Wales, Australia)



Guadalupe Fur Seal, *Arctocephalus townsendi*

Combined species:

- Guadalupe Fur Seal, *Arctocephalus townsendi*
- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*

Institution(s): SeaWorld San Diego (California, United States of America)



**Guadalupe Fur Seal (*Arctocephalus townsendi*), California Sea Lion (*Zalophus californianus*) and Harbor Seal (*Phoca vitulina*) mixed pool
SeaWorld San Diego, California, United States of America
Photo © Steve Hofhine**



Subantarctic Fur Seal, *Arctocephalus tropicalis*

Combined species:

- Subantarctic Fur Seal, *Arctocephalus tropicalis*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- New Zealand Fur Seal, *Arctocephalus forsteri*
- Australian Sea Lion, *Neophoca cinerea*

Institution(s): SEA LIFE Sydney Aquarium (New South Wales, Australia)



LIST OF MIXED-SPECIES EXHIBITS WITH LOCATIONS - *ODOBENIDAE*

The list shows specific examples of mixed-species exhibits involving the walrus combined with the taxa below, with indication of the institution(s) where these have been tried out



Walrus, *Odobenus rosmarus*

Combined species:

- Walrus, *Odobenus rosmarus*
- California Sea Lion, *Zalophus californianus*

Institution(s): SeaWorld San Antonio (Texas, United States of America)

Combined species:

- Walrus, *Odobenus rosmarus*
- Northern Fur Seal, *Callorhinus ursinus*

Institution(s): Brookfield Zoo (Chicago, Illinois, United States of America)

Combined species:

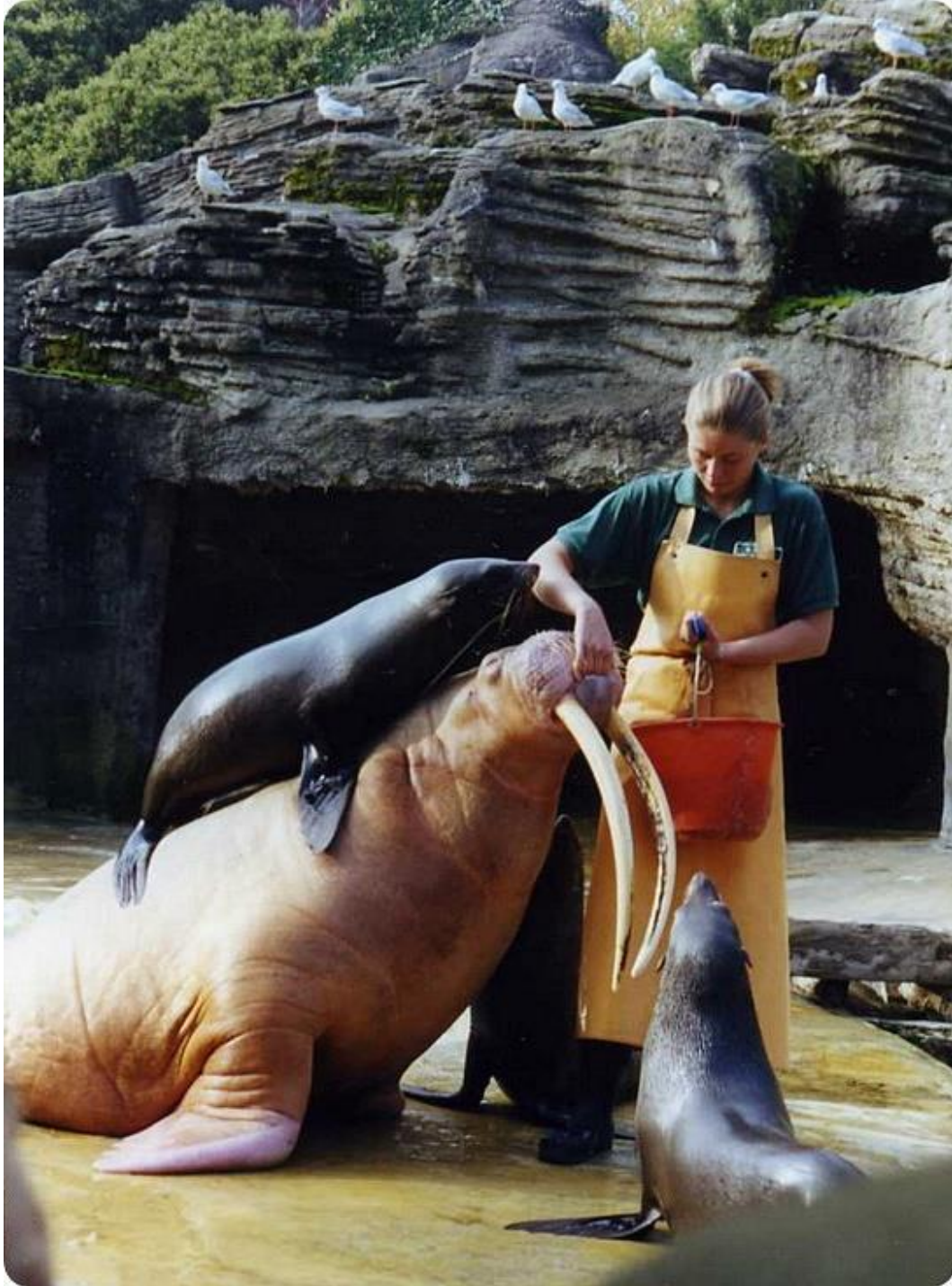
- Walrus, *Odobenus rosmarus*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*

Institution(s): Münchener Tierpark Hellabrunn (Germany)

Combined species:

- Walrus, *Odobenus rosmarus*
- South American Fur Seal, *Arctocephalus australis*

Institution(s): Tierpark Hagenbeck (Hamburg, Germany)



**Walrus (the famous 'Antje') (*Odobenus rosmarus*) and South American Fur Seals (*Arctocephalus australis*), 2000
Tierpark Hagenbeck, Hamburg, Germany
Photo © www.zoochat.com**



Combined species:

- Walrus, *Odobenus rosmarus*
- Southern Elephant Seal, *Mirounga leonina*

Institution(s): Erlebnis – Zoo Hannover (Germany)

Combined species:

- Walrus, *Odobenus rosmarus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Tierpark Hagenbeck (Hamburg, Germany)



Walrus (*Odobenus rosmarus*) and Grey Seal (*Halichoerus grypus*)
Tierpark Hagenbeck, Hamburg, Germany
Photo © www.zoochat.com

Combined species:

- Walrus, *Odobenus rosmarus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Point Defiance Zoo & Aquarium (Tacoma, Washington, United States of America), Brookfield Zoo (Chicago, Illinois, United States of America)



Combined species:

- Walrus, *Odobenus rosmarus*
- Grey Seal, *Halichoerus grypus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Indianapolis Zoo (Indiana, United States of America)

Combined species:

- Walrus, *Odobenus rosmarus*
- Beluga, *Delphinapterus leucas*

unknown institution



Walrus (*Odobenus rosmarus*) and Beluga (*Delphinapterus leucas*)
Photo © Rob Vuijsters



LIST OF MIXED-SPECIES EXHIBITS WITH LOCATIONS - *PHOCIDAE*

The list shows specific examples of mixed-species exhibits involving at least one species of phocids combined with the taxa below, with indication of the institution(s) where these have been tried out



Northern Elephant Seal, *Mirounga angustirostris*

Combined species:

- Northern Elephant Seal, *Mirounga angustirostris*
- Celebes Crested Macaque, *Macaca nigra*
- Gelada, *Theropithecus gelada*
- Capybara, *Hydrochoerus hydrochaeris*
- California Sea Lion, *Zalophus californianus*

unknown institution



Southern Elephant Seal, *Mirounga leonina*

Combined species:

- Southern Elephant Seal, *Mirounga leonina*
- California Sea Lion, *Zalophus californianus*

Institution(s): Wilhelma Zoologisch-Botanischer Garten Stuttgart (Germany)



Southern Elephant Seal (*Mirounga leonina*) and California Sea Lions (*Zalophus californianus*), 1973

Wilhelma Zoologisch-Botanischer Garten Stuttgart, Germany

Photo © Alan Hill

Combined species:

- Southern Elephant Seal, *Mirounga leonina*
- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*

Institution(s): Erlebnis – Zoo Hannover (Germany)



Combined species:

- Southern Elephant Seal, *Mirounga leonina*
- Walrus, *Odobenus rosmarus*

Institution(s): Erlebnis – Zoo Hannover (Germany)

Combined species:

- Southern Elephant Seal, *Mirounga leonina*
- Harbor Seal, *Phoca vitulina*

Institution(s): Enoshima Aquarium (Fujisawa, Japan)



Southern Elephant Seal (*Mirounga leonina*) and Harbor Seals (*Phoca vitulina*), 2005
Enoshima Aquarium, Fujisawa, Japan
Photo © www.reddit.com



Bearded Seal, *Erignathus barbatus*

Combined species:

- Bearded Seal, *Erignathus barbatus*
- Harp Seal, *Pagophilus groenlandicus*
- Ringed Seal, *Pusa hispida*

Institution(s): Océanopolis (Brest, France)



Grey Seal, *Halichoerus grypus*

Combined species:

- Grey Seal, *Halichoerus grypus*
- Arctic Fox, *Alopex lagopus*

Institution(s): New York Aquarium (Brooklyn, New York, United States of America)

Combined species:

- Grey Seal, *Halichoerus grypus*
- California Sea Lion, *Zalophus californianus*

Institution(s): Louisville Zoo (Kentucky, United States of America), Marineland (Antibes, France)

Combined species:

- Grey Seal, *Halichoerus grypus*
- California Sea Lion, *Zalophus californianus*
- Brown Pelican, *Pelecanus occidentalis*

Institution(s): Smithsonian National Zoological Park (Washington, DC, United States of America)

Combined species:

- Grey Seal, *Halichoerus grypus*
- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*

Institution(s): Ocean Park Hong Kong (Aberdeen, Hong Kong)



Combined species:

- Grey Seal, *Halichoerus grypus*
- California Sea Lion, *Zalophus californianus*
- Northern Fur Seal, *Callorhinus ursinus*

Institution(s): Erlebnis – Zoo Hannover (Germany)

Combined species:

- Grey Seal, *Halichoerus grypus*
- California Sea Lion, *Zalophus californianus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Indianapolis Zoo (Indiana, United States of America)

Combined species:

- Grey Seal, *Halichoerus grypus*
- South American Sea Lion, *Otaria byronia*
- Australian Sea Lion, *Neophoca cinerea*
- Harbor Seal, *Phoca vitulina*

Institution(s): Riyadh Zoo (Saudi Arabia)

Combined species:

- Grey Seal, *Halichoerus grypus*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*

Institution(s): Borås Djurpark (Sweden)

Combined species:

- Grey Seal, *Halichoerus grypus*
- Walrus, *Odobenus rosmarus*

Institution(s): Tierpark Hagenbeck (Hamburg, Germany)



Grey Seal (*Halichoerus grypus*) and Walrus (*Odobenus rosmarus*)
Tierpark Hagenbeck, Hamburg, Germany
Photo © www.zoochat.com

Combined species:

- Grey Seal, *Halichoerus grypus*
- Walrus, *Odobenus rosmarus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Indianapolis Zoo (Indiana, United States of America)

Combined species:

- Grey Seal, *Halichoerus grypus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Fiskeri- og Søfartsmuseet – Sealarium (Esbjerg, Denmark), Skånes Djurpark (Höör, Sweden), Dolfinarium Harderwijk (the Netherlands), Seal Sanctuary and Wildlife Centre (Mablethorpe, United Kingdom), Detroit Zoo (Michigan, United States of America), Los Angeles Zoo (California, United States of America), Adventure Aquarium (Camden, New Jersey, United States of America), ABQ BioPark (Albuquerque, New Mexico, United States of America)



Combined species:

- Grey Seal, *Halichoerus grypus*
- Harp Seal, *Pagophilus groenlandicus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Detroit Zoo (Michigan, United States of America)

Combined species:

- Grey Seal, *Halichoerus grypus*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Harbor Seal, *Phoca vitulina*
- Humboldt Penguin, *Spheniscus humboldti*

Institution(s): Kolmårdens Djurpark (Sweden)

Combined species:

- Grey Seal, *Halichoerus grypus*
- Harbor Seal, *Phoca vitulina*
- Humboldt Penguin, *Spheniscus humboldti*

Institution(s): Kolmårdens Djurpark (Sweden)

Combined species:

- Grey Seal, *Halichoerus grypus*
- North American River Otter, *Lontra canadensis*

Institution(s): Los Angeles Zoo (California, United States of America)



Harp Seal, *Pagophilus groenlandicus*

Combined species:

- Harp Seal, *Pagophilus groenlandicus*
- Bearded Seal, *Erignathus barbatus*
- Ringed Seal, *Pusa hispida*

Institution(s): Océanopolis (Brest, France)

Combined species:

- Harp Seal, *Pagophilus groenlandicus*
- Grey Seal, *Halichoerus grypus*
- Harbor Seal, *Phoca vitulina*

Institution(s): Detroit Zoo (Michigan, United States of America)



Harp Seal (*Pagophilus groenlandicus*) and Harbor Seals (*Phoca vitulina*)
Detroit Zoo, Michigan, United States of America
Photo © Brent Huffman



Combined species:

- Harp Seal, *Pagophilus groenlandicus*
- Harbor Seal, *Phoca vitulina*

unknown institution

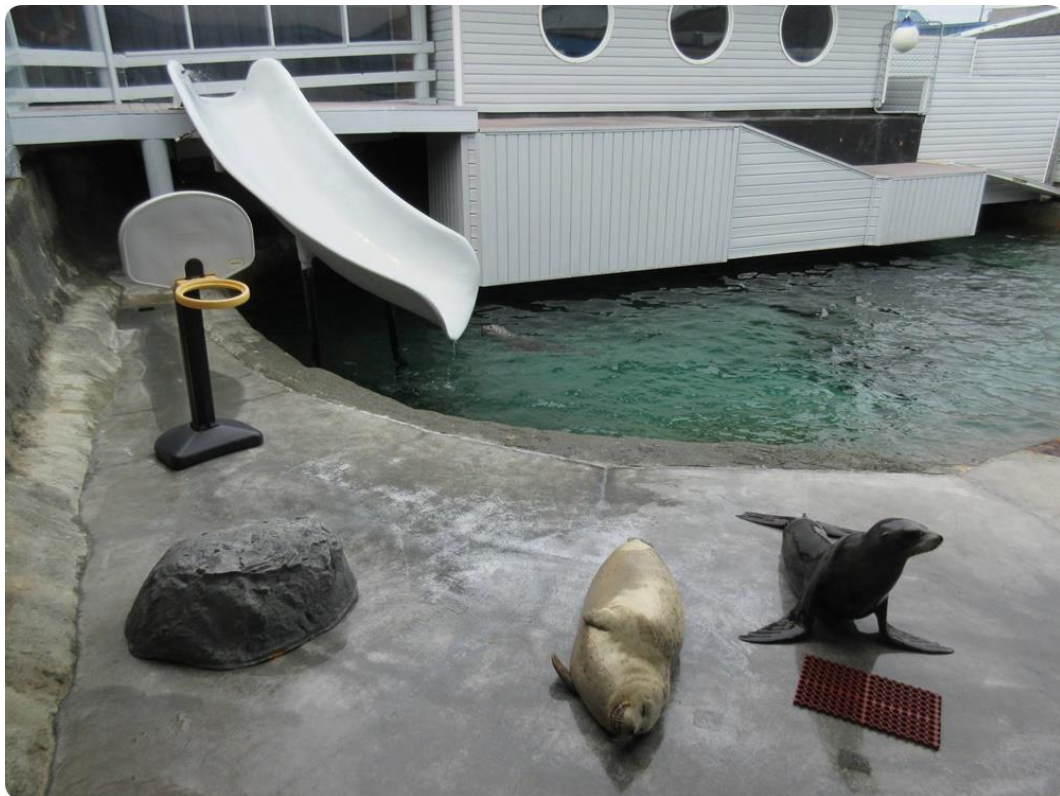


Harbor Seal, *Phoca vitulina*

Combined species:

- Harbor Seal, *Phoca vitulina*
- California Sea Lion, *Zalophus californianus*

Institution(s): SeaWorld Orlando (Florida, United States of America), SeaWorld San Antonio (Texas, United States of America), SeaWorld Ohio (Aurora, Ohio, United States of America) (closed), Brookfield Zoo (Chicago, Illinois, United States of America), Denver Zoo (Colorado, United States of America), Louisville Zoo (Kentucky, United States of America), Indianapolis Zoo (Indiana, United States of America), Point Defiance Zoo & Aquarium (Tacoma, Washington, United States of America), Milwaukee County Zoo (Wisconsin, United States of America), Oklahoma City Zoo (Oklahoma, United States of America), Cleveland Metroparks Zoo (Ohio, United States of America), Six Flags Discovery Kingdom (California, United States of America), Ocean World (Crescent City, California, United States of America), Ocean Park Hong Kong (Aberdeen, Hong Kong), Tiergarten Nürnberg (Germany), Ouwehands Dierenpark (Rhenen, the Netherlands), SEA LIFE Blankenberge (Belgium)



Harbor Seal (*Phoca vitulina*) and California Sea Lion (*Zalophus californianus*)
Ocean World, Crescent City, California, United States of America
Photo © Scott Richardson



Harbor Seals (*Phoca vitulina*) and California Sea Lion (*Zalophus californianus*)
Ocean Park Hong Kong, Aberdeen, Hong Kong
Photo © Ocean Park Hong Kong



Several species of birds - like a Grey Heron (*Ardea cinerea*) - visit freely the Harbor Seal (*Phoca vitulina*) and California Sea Lion mixed pool in Nürnberg
Tiergarten Nürnberg, Germany
Photo © Dr. Helmut Mägdefrau



Combined species:

- Harbor Seal, *Phoca vitulina*
- California Sea Lion, *Zalophus californianus*
- Steller Sea Lion, *Eumetopias jubatus*

unknown institution

Combined species:

- Harbor Seal, *Phoca vitulina*
- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*

Institution(s): Jardim Zoológico de Lisboa (Portugal), Zoo Heidelberg (Germany)

Combined species:

- Harbor Seal, *Phoca vitulina*
- California Sea Lion, *Zalophus californianus*
- Northern Fur Seal, *Callorhinus ursinus*

Institution(s): Moody Gardens (Galveston, Texas, United States of America)

Combined species:

- Harbor Seal, *Phoca vitulina*
- California Sea Lion, *Zalophus californianus*
- Guadalupe Fur Seal, *Arctocephalus townsendi*

Institution(s): SeaWorld San Diego (California, United States of America)

Combined species:

- Harbor Seal, *Phoca vitulina*
- California Sea Lion, *Zalophus californianus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Indianapolis Zoo (Indiana, United States of America)



Combined species:

- Harbor Seal, *Phoca vitulina*
- California Sea Lion, *Zalophus californianus*
- Brown Pelican, *Pelecanus occidentalis*

Institution(s): Fresno Chaffee Zoo (California, United States of America)

Combined species:

- Harbor Seal, *Phoca vitulina*
- South American Sea Lion, *Otaria byronia*
- Australian Sea Lion, *Neophoca cinerea*
- Grey Seal, *Halichoerus grypus*

Institution(s): Riyadh Zoo (Saudi Arabia)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Australian Sea Lion, *Neophoca cinerea*
- South American Fur Seal, *Arctocephalus australis*

Institution(s): Sea World Gold Coast (Southport, Queensland, Australia)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Steller Sea Lion, *Eumetopias jubatus*

Institution(s): Vancouver Aquarium (British Columbia, Canada)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Northern Fur Seal, *Callorhinus ursinus*

Institution(s): Vancouver Aquarium (British Columbia, Canada)



Combined species:

- Harbor Seal, *Phoca vitulina*
- South American Fur Seal, *Arctocephalus australis*

Institution(s): Tierpark Hagenbeck (Hamburg, Germany), SEA LIFE Sydney Aquarium (New South Wales, Australia)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*

Institution(s): Faunia (Madrid, Spain), Aquazoo Löbbecke Museum (Düsseldorf, Germany), Taronga Zoo Sydney (New South Wales, Australia)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- California Sea Lion, *Zalophus californianus*

Institution(s): Faunia (Madrid, Spain)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Afro-Australian Fur Seal, *Arctocephalus pusillus*
- Grey Seal, *Halichoerus grypus*
- Humboldt Penguin, *Spheniscus humboldti*

Institution(s): Kolmårdens Djurpark (Sweden)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Walrus, *Odobenus rosmarus*

Institution(s): Point Defiance Zoo & Aquarium (Tacoma, Washington, United States of America), Brookfield Zoo (Chicago, Illinois, United States of America)



Combined species:

- Harbor Seal, *Phoca vitulina*
- Walrus, *Odobenus rosmarus*
- Grey Seal, *Halichoerus grypus*

Institution(s): Indianapolis Zoo (Indiana, United States of America)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Grey Seal, *Halichoerus grypus*

Institution(s): Fiskeri- og Søfartsmuseet – Sealarium (Esbjerg, Denmark), Skånes Djurpark (Höör, Sweden), Dolfinarium Harderwijk (the Netherlands), Seal Sanctuary and Wildlife Centre (Mablethorpe, United Kingdom), Detroit Zoo (Michigan, United States of America), Los Angeles Zoo (California, United States of America), Adventure Aquarium (Camden, New Jersey, United States of America), ABQ BioPark (Albuquerque, New Mexico, United States of America)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Grey Seal, *Halichoerus grypus*
- Humboldt Penguin, *Spheniscus humboldti*

Institution(s): Kolmårdens Djurpark (Sweden)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Grey Seal, *Halichoerus grypus*
- Harp Seal, *Pagophilus groenlandicus*

Institution(s): Detroit Zoo (Michigan, United States of America)



Harp Seal (*Pagophilus groenlandicus*) and Harbor Seals (*Phoca vitulina*)
Detroit Zoo, Michigan, United States of America
Photo © www.zoochat.com

Combined species:

- Harbor Seal, *Phoca vitulina*
- Southern Elephant Seal, *Mirounga leonina*

Institution(s): Enoshima Aquarium (Fujisawa, Japan)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Harp Seal, *Pagophilus groenlandicus*

unknown institution



Combined species:

- Harbor Seal, *Phoca vitulina*
- Arctic Fox, *Alopex lagopus*

Institution(s): Central Park Zoo (New York, New York, United States of America)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Sea Otter, *Enhydra lutris*

Institution(s): Franklin Park Zoo (Boston, Massachusetts, United States of America)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Reindeer, *Rangifer tarandus*

Institution(s): København Zoo (Denmark)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Domestic Sheep, *Ovis aries*

Institution(s): Skånes Djurpark (Höör, Sweden)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Beluga, *Delphinapterus leucas*

Institution(s): Georgia Aquarium (Atlanta, Georgia, United States of America),
Oceanogràfic de Valencia (Spain)



Harbor Seal (*Phoca vitulina*) and Beluga (*Delphinapterus leucas*)
Georgia Aquarium, Atlanta, Georgia, United States of America
Photo © Georgia Aquarium



Harbor Seals (*Phoca vitulina*) and Belugas (*Delphinapterus leucas*)
Georgia Aquarium, Atlanta, Georgia, United States of America
Photo © Imogen Farris



Combined species:

- Harbor Seal, *Phoca vitulina*
- Black-footed Penguin, *Spheniscus demersus*

Institution(s): Fővárosi Állat- és Növénykert (Budapest, Hungary)



Harbor Seals (*Phoca vitulina*) and Black-footed Penguins (*Spheniscus demersus*)
Fővárosi Állat- és Növénykert, Budapest, Hungary
Photos © Krisztián Svábik



Harbor Seal (*Phoca vitulina*) and Black-footed Penguin (*Spheniscus demersus*) mixed pool

Fővárosi Állat- és Növénykert, Budapest, Hungary

Photo © Krisztián Svábik

Combined species:

- Harbor Seal, *Phoca vitulina*
- Humboldt Penguin, *Spheniscus humboldti*

Institution(s): Tierpark und Fossilium Bochum (Germany), Pairi Daiza (Brugellette, Belgium)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Great Cormorant, *Phalacrocorax carbo*

Institution(s): Ouwehands Dierenpark (Rhenen, the Netherlands)

Combined species:

- Harbor Seal, *Phoca vitulina*
- Flying Steamer Duck, *Tachyeres patagonicus*

Institution(s): Zoo Augsburg (Germany)



Combined species:

- Harbor Seal, *Phoca vitulina*
- White-tailed Sea-eagle, *Haliaeetus albicilla*

Institution(s): Dierenrijk (Mierlo, the Netherlands)



Harbor Seal (*Phoca vitulina*) and White-tailed Sea-eagle (*Haliaeetus albicilla*)
Dierenrijk, Mierlo, the Netherlands
Photo © Ben Gilbert



Spotted Seal, *Phoca largha*

Combined species:

- Spotted Seal, *Phoca largha*
- California Sea Lion, *Zalophus californianus*

Institution(s): Osaka Aquarium Kaiyukan (Japan)

Combined species:

- Spotted Seal, *Phoca largha*
- California Sea Lion, *Zalophus californianus*
- South American Sea Lion, *Otaria byronia*
- Steller Sea Lion, *Eumetopias jubatus*

Institution(s): Dalian Laohutan Ocean Park (China)

Combined species:

- Spotted Seal, *Phoca largha*
- Black-footed Penguin, *Spheniscus demersus*

Institution(s): Yokohama Hakkeijima Sea Paradise (Japan)



Baikal Seal, *Pusa sibirica*

Combined species:

- Baikal Seal, *Pusa sibirica*
- Black-footed Penguin, *Spheniscus demersus*

Institution(s): Zoo Leipzig (Germany)



Ringed Seal, *Pusa hispida*

Combined species:

- Ringed Seal, *Pusa hispida*
- Bearded Seal, *Erignathus barbatus*
- Harp Seal, *Pagophilus groenlandicus*

Institution(s): Océanopolis (Brest, France)



SUMMARIZE THE EXPERIENCES

This document purposefully focuses on creating a list of mixed-species exhibits with family *Otariidae*, *Odobenidae* and *Phocidae*, for further and detailed information it is worth contacting the institutions mentioned above. Only a short summary of the general experiences is given here. Many of the listed coexistences are still ongoing at present; many of them are not anymore.

A good advice is to base the combination on the one existing in the wild: this is also very important to respect coherence between the zoological representation of the natural environment (GILI & MEIJER & LACAVE 2018).

In the wild many otariids share haul-out areas with other pinniped species, including species of phocids. In the Southern Ocean, multiple species of fur seals haul-out at the same sites, as do sea lions and fur seals, and many locations support colonies of Southern Elephant Seals and small number of species of Antarctic seals. In the North Pacific Ocean, Steller Sea Lions and Northern Fur Seals haul-out together, as do Steller Sea Lions and California Sea Lions. Six species – two sea lions, two fur seals and two phocids – co-occur, often in close proximity to each other on several central and southern California islands (WEBBER 2014).

Further example is that California Sea Lions, Harbor Seals and Sea Otters share the same habitat in the wild. The most frequent association with pinnipeds is the California Sea Lion & Harbor Seal combination, especially in the North American institutions, but the Harbor Seal & Sea Otter combination has also tried out at least in one zoological garden.

Tiergarten Nürnberg keeps California Sea Lion breeding group together with two female Harbor Seals which combination works without problem. In the enclosure by natural choice some bird species can be observed as well, like Grey Heron, Canada Goose and Mallard. The ducks bred and raised chicks. The young Sea Lions took the chicks under water and let them plop up to the surface – just for playing. The chicks survived this regular mistreatment (MÄGDEFRAU 2018, pers. comm.).

Parque da Cabarceno in Spain keeps together California Sea Lions (2.2) and South American Sea Lions (0.2) without any problems but it is worth mentioning that male Sea Lions are castrated (GALLEGO ALDAMA 2018, pers. comm.).

Zoo Dortmund kept their California Sea Lions (3.5) together with Afro-Australian Fur Seals (4.7) many years ago. Interspecific play was observed between young animals which is also a general experience of keeping different seal species together (HAMMER 2002).

Faunia in Madrid had California Sea Lions, Afro-Australian Fur Seals and Harbor Seals together three years ago. They were living all together without any problem. The staff did all the exhibitions with all of them together in the same pool and made training sessions as well. Even the reproduction with these species together was fine, the institution had calves of Harbor Seals and Fur Seals, too (BARRIO 2018, pers. comm.).

Los Angeles Zoo kept their California Sea Lions (1.2) together with Capybaras some decades ago. The species swam and basked together. One adult female Capybara behaved aggressively against a newly naturalized young male Sea Lion which was taken out of the group (CROTTY 1981, HAMMER 2002).



An unknown institution has had a very complex combination with California Sea Lions, Northern Elephant Seal, Celebes Crested Macaques, Geladas and Capybaras. All the species kept in breeding group except the elephant seal (one female only). There was a pool with two islands on it, Macaques one on one and Geladas on the other (THOMAS & MARUSKA 1996).

Tiergarten Nürnberg combined their California Sea Lion group (1.4) with Common Bottlenose Dolphin group (1.4) many years ago (HAMMER 2002). The association of the two species started in 1991 and the initial group structure was one juvenile male of sea lion with one juvenile male and two adult females of dolphins, later on changed to an abovementioned group. The volume of the pool was 1500 m³ with an adjoining 100 m² dry and roofed area for the sea lions. The enclosure was equipped with several toys and animals took part in a training program several times a day. Frequent interspecific interactions including physical contacts and simple interspecific communication between certain individuals of both species. Close sociopositive relationships were observed between the adult male sea lion and a certain female dolphin (partly resembling mating behaviour) as well as between a female sea lion and another female dolphin (playful behaviours). The other individuals sporadically join these "interspecific couples" but they are predominantly involved in intraspecific interactions. Newborn sea lions have to be separated from dolphins to prevent them from being maltreated as playmates. Sea lions and dolphins were trained and fed separately (ZIEGLER 2002). The Sea Lions had opportunity for retreat. The species were separated during feeding and Sea Lions for rearing of young, too. Afro-Australian Fur Seals were also combined with the dolphins in Nürnberg but no interspecific interactions were observed (HAMMER 2002).

Although Sea Lions get on well with dolphins and it is a very attractive mixed exhibit, leading dolphin trainers recommend that for the Sea Lions enough exits off the water should be available. These ways of flight are necessary because dolphins are sometimes very rude while playing. In addition it is recommended that leading female Sea Lions with their offspring should be separated that long till the youngsters are quick enough to escape from the dolphins (HAMMER 2002).

Riyadh Zoo in Saudi Arabia combined two species of otariids with two species of phocids – South American Sea Lions (1.1), Australian Sea Lion (0.1), Grey Seals (1.2) and Harbor Seals (1.1) – together. The male South American Sea Lion was the dominant, but not aggressive during feeding time (HAMMER 2002).

Even the Walrus can be kept together with smaller species of seals, although it is known from the wild that Walruses chase seals (HAMMER 2002). The Walrus's main source of food is benthic invertebrates, in large part, bivalve mollusks found in the sediment in high-density beds. Their diets are variously supplemented with amphipods, snails and soft-shelled crabs. It is worth mentioning that occasionally, Walruses hunt and eat Northern Fur Seals, Bearded Seals, Ringed Seals and Spotted Seals (STEWART 2014).

Zoo Hannover kept Walrus and Southern Elephant Seal together in the 1960s but both of the animals were young and sexually immature (MÜLLER-SCHILLING 2018, pers. comm.).

PUSCHMANN (1983) quotes examples of associations of a six years old Walrus with Sea Lions and Grey Seal as well.

According to Best Practice Guidelines for Otariidae and Phocidae Earless Seals can be better accommodated in a mixed exhibit than Eared Seals (GILI & MEIJER & LACAVE 2018).



Los Angeles Zoo kept their female Grey Seals (0.3) together with Nort American River Otters (2.2) some decades ago. First the otters avoided water but in the meantime they swam around the seals (CROTTY 1981, HAMMER 2002).

Harbor Seals have been maintained in some instances with female or young Grey Seals as males might be very aggressive towards the individuals of the smaller species. A strong attention should always pay to the dominance that can emerge during feeding time. For this reason it might be easier to base the combination on differences in dominance and combine aggressive with non-aggressive species (GILI & MEIJER & LACAVE 2018).

København Zoo kept their female Harbor Seals (0.3) together with a herd of Reindeer. The species were always together: it was possible for reindeer to cross stone barrier and drank from the seal pool. Reindeer sometimes swam in the seal pool (HAMMER 2002).

Dierenrijk in the Netherlands have kept together Harbor Seals and White-tailed Sea-eagles in a walk-through aviary for more than six years without problems. When the staff fed the seals the eagles stayed in the sitting tree. As the birds started to breed and with visitors in the same enclosure this was to dangerous the institution sent them away to an other zoo (RIJNEN 2018, pers. comm.).

In mixed-species exhibits with different species of pinnipeds together it should be thought of a danger of hybridisations. Scattered crossings already occurred between *Arctocephalus pusillus* x *Zalophus californianus*, *Halichoerus grypus* x *Pusa hispida* (HAMMER 2002), *Zalophus californianus* x *Otaria byronia* (BRUNNER 2002), *Callorhinus ursinus* x *Zalophus californianus* (DUFFIELD 1999, MILLER et al. 1996), *Eumetopias jubatus* x *Zalophus californianus* (GORODEZKY 1995, MILLER et al. 1996), *Arctocephalus australis* x *Otaria byronia* (MILLER et al. 1996), *Arctocephalus forsteri* x *Arctocephalus gazella* (GOLDSWORTHY 1999, GOLDSWORTHY et al. 1998, 1999, SHAUGHNESSY et al. 1998.), *Arctocephalus forsteri* x *Arctocephalus tropicalis* (GALES et al. 1992, SHAUGHNESSY 1992), *Arctocephalus gazella* x *Arctocephalus tropicalis* (GALES et al. 1992, GOLDSWORTHY et al. 1998, 1999, GUINET et al. 1994, St. CLAIR HILL et al. 2001, WYNEN et al. 2001), *Arctocephalus townsendi* x *Callorhinus ursinus* (JAMEYSON et al. 1981), *Pagophilus groenlandicus* x *Cystophora cristata* (KOVACS et al. 1997), *Halichoerus grypus* x *Pusa hispida* (LÖNNBERG 1929, MOHR 1940), *Phoca largha* x *Phoca vitulina* (KATSUMATA et al. 2003).



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