

MS Fridtjof Nansen

22 January to 07 February 2024

Antarctic Circle Expedition
FNANT2403





Science & Education Program

During this voyage, we ran 6 citizen projects in total: Nasa Cloud Globe Observer, eBird, iNaturalist, HappyWhale, FjordPhyto and SecchiDisk.

We also helped our guest scientists from COA (California Ocean Alliance) and Polar Watch Program to gather data to assess the healthy state of the humpback whale population in Antarctica.

A lot of you were very interested in the scientific aspect of our voyage and we thank you all for your enthusiasm. Here we provide a resume of our science activities.





NASA cloud observer

Quite a few of you joined to assist Owen and Nadja during our cloud daily observations. We did 6 observations in total during this voyage. So far, we have only obtained three matches for our observations at Planeau Island, Hanusse Bay and The Gullet. Our observation matched quite well with the satellite overview, bringing more information of how the atmosphere behaves from below up to the top. Thank you very much for your interest and help, even during our snowy/stormy weather!

View our data on the global map

Our observations this trip: we had three matches this trip!



Date	Location	Match
25.01.24	Wilhemina Bay	-
27.01.24	Pleneau Island	YES
29.01.24	Hanusse Bay	YES
01.02.24	Bongrain Point	-
02.02.24	The Gullet	YES
03.02.24	Detaille Island	-

Total observations: 6

iNaturalist

We submitted 82 observations identifying 21 species, from planktonic creatures to marine mammals and birds. The most observed species were the Adelie and Gentoo penguins followed by the Crabeater Seals. Don't forget, there is still time to join our project once you are back home and have time to go through your photos. Helping us document the local biodiversity will help the scientists worldwide to monitor the changes in distribution and abundance of the most iconic Antarctic species.

Join our project by searching its code name: FNANT2403.

View our data submitted on our <u>iNaturalist</u> <u>project</u>



eBird

During this voyage, our ornithologist Simon, did 13 eBird surveys between the Drake Passage and the Western Antarctic Peninsula. A total of 16 species were observed and 1,011 individuals counted. The top observed species were Gentoo Penguin, the Kelp Gull and the Blackbrowed albatross. Find the trip report for the voyage and the checklists here.



27 bird species observed on this trip

Gentoo Penguin	Wandering Albatross
Adelie Penguin	Black-browed Albatross
Chinstrap Penguin	Light-mantled Albatross
Magellanic Penguin	Southern Giant Petrel
Antarctic Shag	Southern Fulmar
Imperial Cormorant	Cape Petrel
Rock Shag	White-chinned Petrel
Chilean Skua	Soft-plumaged Petrel
Subantarctic Brown Skua	Snow Petrel
South Polar Skua	Antarctic Prion
Kelp Gull	Sooty Shearwater
Dolphin Gull	Wilson's Storm Petrel
Antarctic Tern	
South American Tern	
Snowy Sheathbill	

At least 1011 individuals of 16 species logged into eBird





Antarctica





Secchi Disk

We had a number of Science Boat sessions during this trip: Neko Harbour, Horseshoe Island and Bongrain Point. On each of them we did perform a secchi disk measurement to document the clarity of the water and assess the abundance of phytoplankton.

Date	Location	Depth (m)
26.01.24	Neko Harbour	6.2
31.01.24	Horseshoe Island	2.2
01.02.24	Bongrain Point	5.9

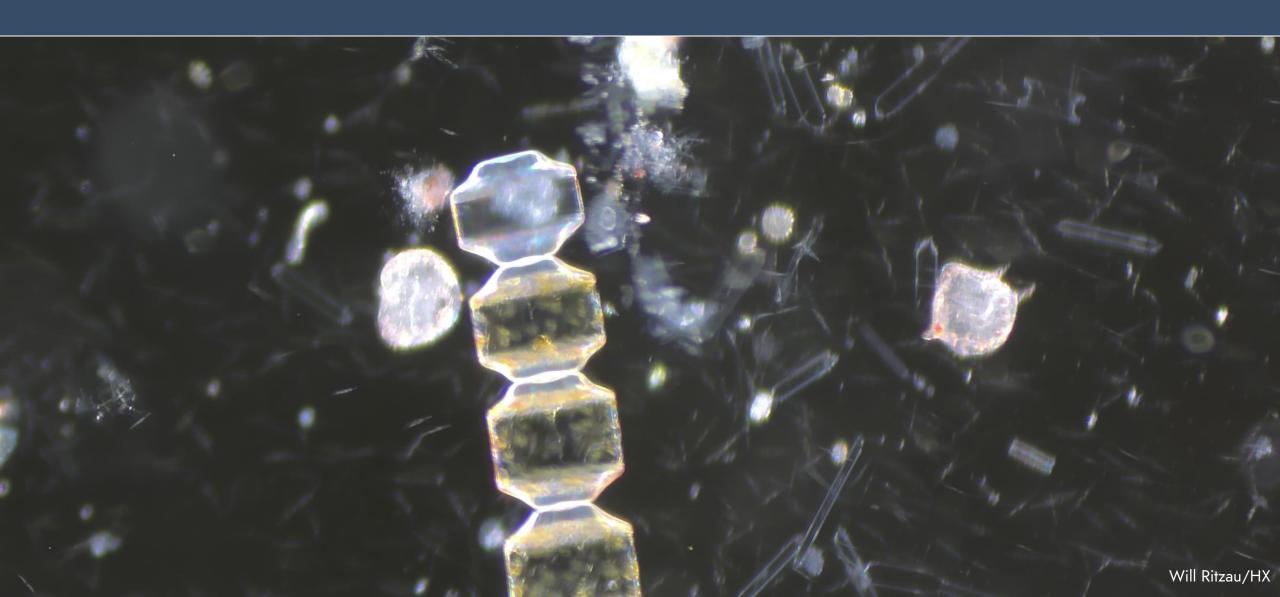
<u>View our data</u> submitted to the Secchi Disk Project



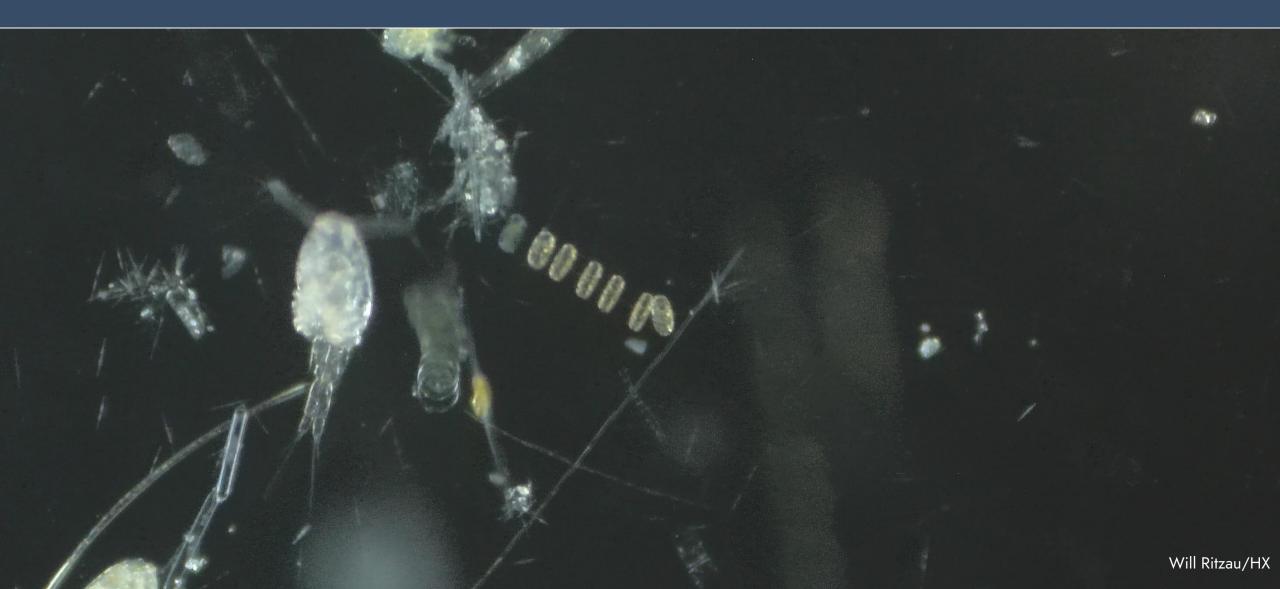
Plankton samples

Our samples allowed us to describe the plankton community from the south of the Peninsula up to the far north, noticing an increase in the diversity of species and the abundance towards the South with a bloom of diatoms observed in Marguerite Bay during our Science Boat in Horseshoe Island. Here are a couple of photos to illustrate diatoms, small flagellates, crustacean larvae and microplastics.

Phytoplankton: Diatoms & Dinoflagellates



Zooplankton: Larvae – Copepods & Microplastic



Jellyfish — Antarctic Giant Jellyfish (Desmonema glaciale)





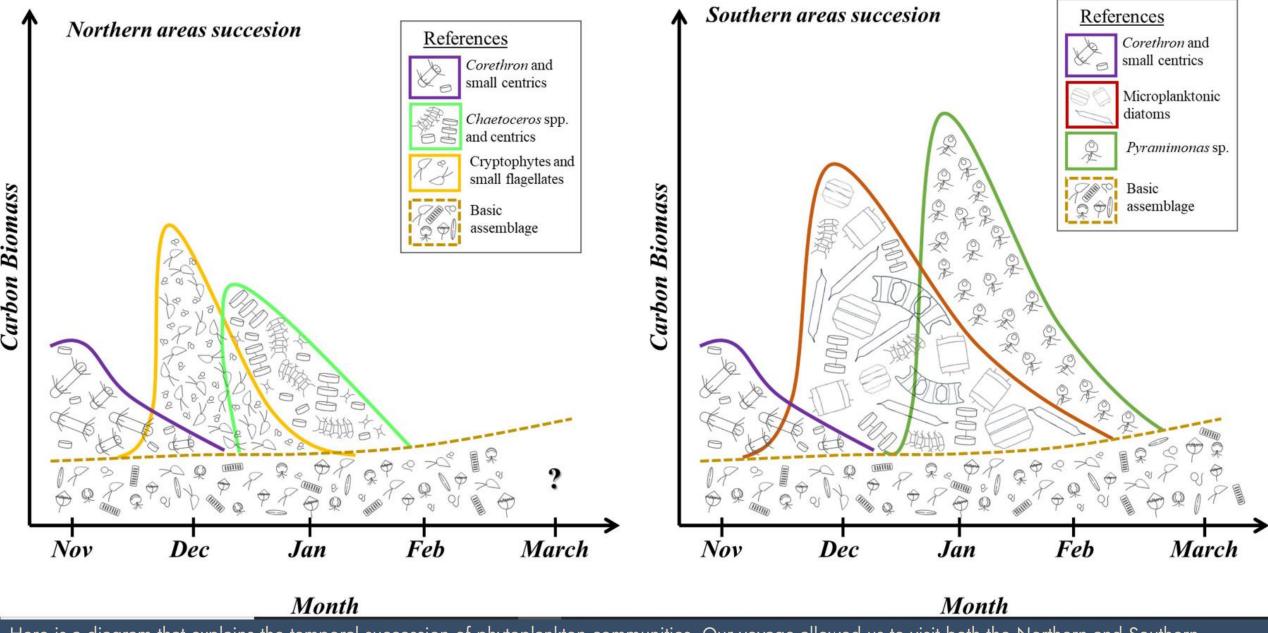


FjordPhyto

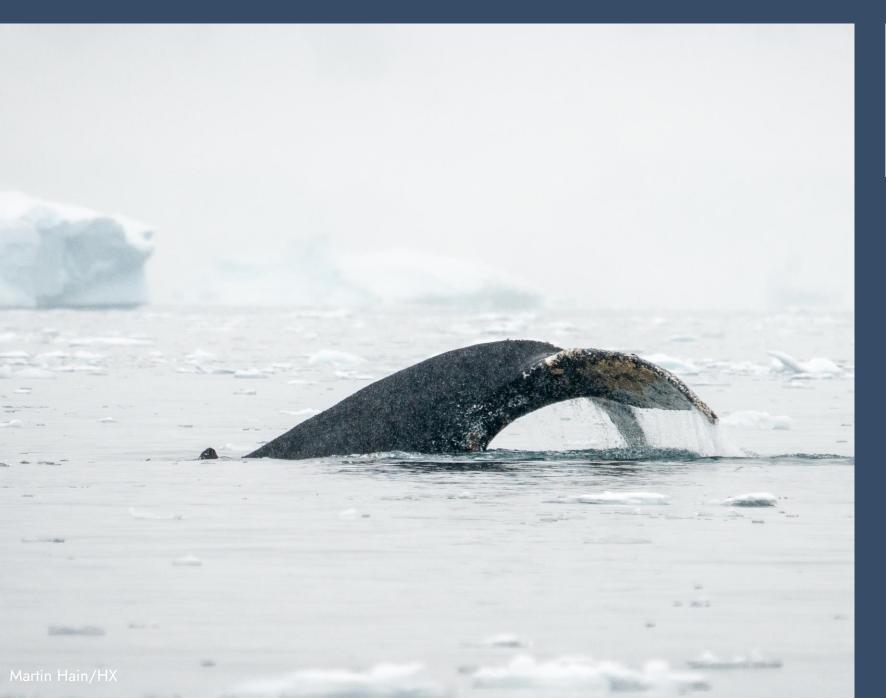
This project aims to monitor the changes in abundance and distribution of phytoplankton in Antarctic waters in relation with glacier ice melting. We performed 1 sample during this voyage, at Neko Harbour. We towed a plankton net of 100um mesh size to gather water samples, deployed our CTD sensor to understand the oceanographical parameters of the water (temperature, salinity, chlorophyll a) and preserved melt water samples to measure dissolved oxygen later on. The whole mission was a success, thank you for participating with us!

Visit FjordPhyto website to find out more





Here is a diagram that explains the temporal succession of phytoplankton communities. Our voyage allowed us to visit both the Northern and Southern areas of the Gerlache Strait. We observed big differences in the abundance and diversity of species between the north (Lemaire) and the south (Marguerite Bay), with higher and richer waters towards the south, matching those results. Data obtained thanks to the FjordPhyto project participants. Marscioni et al 2023.







Happywhale

This voyage was a total success in terms of whale sightings: 20 fluke photos were submitted to the platform. Additionally, 6 Weddell Seals, 8 Leopard Seals & 5 Antarctic fur Seals photos were submitted.

In parallel, we submitted our data to the VCAPS- IAATO program, with more than 75 humpback whale sightings for the whole voyage! Thank you so much for helping us gathering amazing pictures and moments!

View our data on the global map



Marine Mammal Data

Submissions for Individual Identification:

20+ Humpback Whale Flukes

6 Weddell Seals

8 Leopard Seals

5 Antarctic fur Seals



Sighting Submissions to IAATO:

75+ Humpback Whales

50+ Southern Elephant Seals

20+ Weddell Seals

18 Leopard Seals

50+ Crabeater Seal

5 Antarctic Fur Seals

Guest Scientist: Blake from COA

Our whale scientist had a very successful voyage: 24 individuals were biopsied in 2 days between Wilhelmina and Paradise Bay, 23 photogrammetry images were obtained after flying the drone, and 29 fluke photos were submitted to Happywhale. Blake was very happy and so we were. Thank you for your interest and help to gather essential data about these wonderful animals. Don't hesitate to follow-up with this project through their different social media platforms.

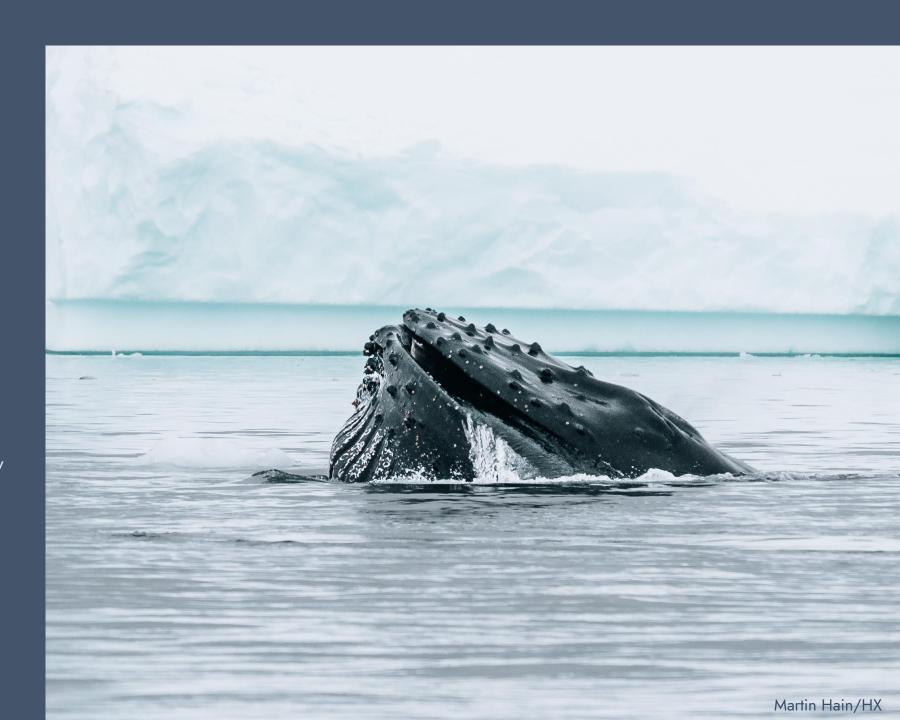
Friedlander Lab – COA (Californian Ocean Alliance)





Guest Scientists: Marcos & Carina, Polar Watch

Our guest scientists joined us during this voyage to continue the effort of monitoring whale species distribution and abundance around the Antarctic Peninsula with the aim of gathering key information about the position of the whale feeding grounds. They spent 38hrs observing from the bridge summarising 62 sightings of baleen whales, 48 of them being humpbacks whales. The purpose is to identify the key areas for krill aggregation and see what is the interaction with human activities, including tourism and fisheries.



Guest Scientist: Hélène, from Centro IDEAL

Our Science coordinator is also a phD student at centro IDEAL, searching for the presence of potential invasive green seaweed in Antarctic waters. During this voyage, she collected Ulva spp endemic individual in Pleneau Island, search for attached communities on floating seaweeds and filtered water sample from Bongrain Point. She will analyse those samples in the lab in the following months, through genetics and environmental DNA technics.

Centro IDEAL, Universidad Austral de Chile



Wildlife List - Birds

Bird Species		_	_		anuary	,	_	_	_		_	Febr	uary	_	
bild opecies	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06
Pygoscelis papua EN: Gentoo Penguin FR: Manchot papou DE: Eselspinguin NO: Bøylepingvin CHI: 白眉企鹅			Х	Х	Х	Х									
Pygoscelis adeliae EN: Adelie Penguin FR: Manchot d'Adélie DE: Adeliepinguin NO: Adeliepingvin CHI: 阿德利企鹅					Х	Х		X	X	X	X	X			
Pygoscelis antarcticus EN: Chinstrap Penguin FR: Manchot à jugulaire DE: Zügelpinguin NO: Ringpingvin CHI: 纹颊企鹅			Х	х											
Spheniscus magellanicus EN: Magellanic Penguin FR: Manchot de Magellan DE: Magellanpinguiin NO: Magellanpingvin CHI: 南美企鹅	х														Х
Leucocarbo bransfildensis EN: Antarctic Shag FR: Cormoran antarctique DE: Antarktisscharbe NO: Antarktisskarv CHI: 南极鸬鹚				Х	Х	Х		Х	Х	Х	Х				
Stercorarius maccormicki EN: South Polar Skua FR: Labbe de McCormick DE: Antarktikskua NO: Sørjo CHI: 麦氏贼鸥				X	X	X	X	X	X	X	X	X			
Stercorarius chilensis EN: Chilean Skua FR: Labbe du Chili DE: Chileskua NO: Kaneljo CHI: 智利贼鸥	х														Х

Bird Species		_	_		anuary	,	_	_			_	Febr	ruary	_	
	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06
	23	24	23	20	21	20	23	30	31	01	UZ	03	04	03	00
Stercorarius antarcticus EN: Subantarctic Brown Skua FR: Labbe antarctique DE: Subantarktikskua NO: Sørhavsjo CHI: 大贼鸥		x	x	x											
Larus dominicanus EN: Kelp Gull FR: Goéland dominicain DE: Dominikanermöwe NO: Taremåke CHI: 黑背鸥	Х		Х	Х	х	Х		х	Х	х	Х				Х
Sterna vittata EN: Antarctic Tern FR: Sterne couronnée DE: Antarktikseeschwalbe NO: Sørhavsterne CHI: 南极燕鸥			Х	Х	Х		Х	Х	х	х	Х				
Sterna hirundinacea EN: South American Tern FR: Sterne hirundinacée DE: Falklandseeschwalbe NO: Svaleterne CHI: 南美燕鸥	х														х
Chionis albus EN: Snowy Sheathbill FR: Chionis blanc DE: Weißgesicht-Scheidenschnabel NO: Antarktisslirenebb CHI: 白鞘嘴鸥				Х	Х										
Diomedea exulans EN: Wandering Albatross FR: Albatros hurleur DE: Wanderalbatros NO: Vandrealbatross CHI: 漂泊信天翁	Х	Х											Х		Х
Thalassarche melanophris EN: Black-browed Albatross FR: Albatros à sourcils noirs DE: Schwarzbrauenalbatros NO: Svartbrynalbatross CHI: 黑眉信天翁	Х	X											X	Х	Х

Bird Species					anuar	v						Febr	uary		
Dira opecies	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06
Phoebetria palpebrata EN: Light-mantled Albatross FR: Albatros fuligineux DE: Graumantelalbatros NO: Gråalbatross CHI: 灰背信天翁	х	X											X		
Macronectes giganteus EN: Southern Giant Petrel FR: Pétrel géant DE: Riesensturmvogel NO: Sørkjempepetrell CHI: 巨鹱	Х	Х	Х	Х	Х	Х		Х	Х	Х		X	Х	Х	Х
Fulmarus glacialoides EN: Southern Fulmar FR: Fulmar argenté DE: Silbersturmvogel NO: Sørhavhest CHI: 银灰暴风鹱		Х		Х					Х	Х	Х				
Daption capense EN: Cape Petrel FR: Damier du Cap DE: Kapsturmvogel NO: Flekkpetrell CHI: 花斑鹱		X		Х						X					
Procellaria aequinoctialis EN: White-chinned Petrel FR: Puffin à menton blanc DE: Weißkinn-Sturmvogel NO: Hvithakepetrell CHI: 白颏风鸌	Х												X		
Ardenna grisea EN: Sooty Shearwater FR: Puffin fuligineux DE: Dunkelsturmtaucher NO: Grålire CHI: 灰鹱	Х														X
Pachyptila desolata EN: Antarctic Prion FR: Prion de la Désolation DE: Taubensturmvogel NO: Antarktishvalfugl CHI: 鸽锯鹱														X	

Bird Species				J	anuar	у						Feb	ruary		
	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06
Oceanites oceanicus EN: Wilson's Storm Petrel FR: Océanite de Wilson DE: Buntfuß-Sturmschwalbe NO: Wilsonstormsvale CHI: 黄蹼洋海燕			Х	х	Х	X	Х	Х	х	Х	X				
Pagodroma nivea EN: Snow Petrel FR: Pétrel des neiges DE: Schneesturmvogel NO: Snøpetrell CHI: 雪鹱				Х			Х				X	X			
Pterodroma mollis EN: Soft-plumaged Petrel FR: Pétrel soyeux DE: NO: Silkepetrell CHI:														x	
Leucocarbo atriceps EN: Imperial Cormorant FR: Cormoran impérial DE: Blauaugenscharbe NO: Knoppskarv CHI:	х														Х
Leucocarbo magellanicus EN: Rock Cormorant/Shag FR: Cormoran de Lille DE: Felsenscharbe NO: Magellanskarv CHI:	Х														Х
Leucophaeus scoresbii EN: Dolphin Gull FR: Goéland de Scoresby DE: Blutschnabelmöwe NO: CHI: 海豚鷗	x														x



Whales Species	January F													ebruary				
Whales Species	22	2.4	2.5	2.5				2.0	2.4	0.6								
	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06			
Balaenoptera borealis																		
EN: Sei Whale																		
FR: Rorqual de Rudolphi															Х			
DE: Seiwal																		
NO: Seihval																		
CH:塞鲸																		
Megaptera novaeangliae																		
EN: Humpback Whale																		
FR: Baleine a bosse		Х	Х	Х	Х	Х	Х			Х								
DE: Buckelwal		^	^	^	٨	^	^			^								
NO: Knolhval																		
CH:座头鲸																		
Balaenoptera bonaerensis																		
EN: Antarctic Minke Whale																		
FR: Petit rorqual de																		
l'Antarctique			Χ			Χ			Χ									
DE: Antarktischer Zwergwal																		
NO: Antarktisk vågehval																		
CH:南極小鬚鯨																		
Orcinus orca																		
EN: Killer Whale																		
FR: Orque																		
DE: Orca o Schwertwal				Χ														
NO: Spekkhogger																		
 CH:虎鲸																		
Lagenorhynchus obscurus																		
EN: Dusky dolphin																		
FR: Lagenorhynque obscur															,,			
DE: Schwarzdelfin															Х			
NO: Morkdelfin																		
CH: 暗色斑纹海豚																		
Lagenorhynchus australis																		
EN: Peale's dolphin																		
FR: Lagénorhynque de Peale																		
DE: Peale-Delfin	Χ														Х			
NO: Peales delfin																		
CH:皮氏斑纹海豚																		

Seals Species					Janı	uary						F	ebrua	ary	
	23	24	25	26	27		29	30	31	01	02	03	04	05	06
Lobodon carcinophaga															
EN: Crabeater Seal															
FR: Phoque crabier					.,	.,	.,	.,	.,	V	.,	.,			
DE: Krabbenfresser					Х	Χ	Х	Х	Х	Χ	Х	Х			
NO: Krabbeetersel															
CH: 食蟹海豹															
Hydrurga leptonyx															
EN: Leopard Seal															
FR: Léopard de mer															
DE: Seeleopard					Χ	Χ									
NO: Leopardsel															
CH: 豹海豹															
Mirounga leonina															
EN: Southern Elephant Seal															
FR: Eléphant de mer austral										Χ					
DE: Südlicher See-Elefant										^					
NO: Sydlig sjøelefant															
CH:南象海豹															
Leptonychotes weddellii															
EN: Weddell Seal															
FR: Phoque de Weddell				Х	Х	Х	Х			Х		Х			
DE: Weddelrobbe				,,	,,	,,	,,					, ,			
NO: Weddellsel															
CH:韋德爾氏海豹															
Otaria flavescens															
EN: South American Sea Lion															
FR: Lion de mer d'Amérique du Sud															v
DE: Mähnenrobbe															Χ
NO: Søramerikansk sjøløve															
CH: 南海 狮															
Arctocephalus gazella															
EN: Antarctic Fur Seal															
FR: Otarie à fourrure antarctique															
DE: Antartischer Seebär										Х					
NO: Antarktis pelssel															
CH:南极毛皮海狮															

