PRE DEPARTURE INFORMATION

FOR YOUR EXPEDITION VOYAGE
TO THE WHITE CONTINENT

IT'S NOT ABOUT THE MOMENTS WE BREATHE…
IT'S ABOUT THE MOMENTS THAT
TAKES YOUR BREATH AWAY

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WATERPROOF EXPEDITIONS
We offer exciting voyages to unique parts of the world, the Arctic and Antarctica, with specialties in cruising, snorkelling, diving, photography. With our cruise expeditions we offer you a selection of voyages for those who are dreaming of a lifetime experience, whether this is underwater or on land.
We have combined 20 years of experiences in the travel and dive industry, film- and photo expeditions and passion for the Polar regions. We aim to attract travellers who share our passion for nature and adventure, as well as our values of conservation and education.
It is our desire that divers, nature lovers and photographers from around the world, can share in our amazing experiences of the great white continent.

Antarctica
Antarctica remains the last vast wilderness on earth. A continent encircled by pack ice, huge tabular icebergs and covered with an ice sheet miles deep. A beautiful mysterious place, enticing explorers, adventurers and dreamers over the decades. Remote, inhospitable and without permanent inhabitants. It is the windiest and highest continent, which is capped by an ice sheet over 4 km thick in places. Antarctica is 58 times larger than the United Kingdom, and surrounded in winter by a vast girdle of sea ice larger in area than the continent itself. Antarctica's key role in global processes is now recognised. The ice sheet holds 90% of the world's fresh water, which, if melted, would raise sea level by 65 m. The ice sheet drives the Southern Hemisphere weather patterns and modulates world climate.

Not just ice, because we will explore an amazing underwater world with an interesting marine life like Giant Isopods, Worms, Sea Spiders, colourful Sea Stars, Anemones, fearless Seals and jumping penguins. The diversity of benthos with the rays of sunlight through icebergs, create an overwhelming and ever-changing spectrum of colours. We explore the Kelp walls, Sea-Snails, Sea Butterflies, many Brittle Stars, various Antarctic fish, Shrubby Horse-tails, jelly-fish, Sea-Urchins, Starfish and krill, and appreciate what only a few divers have seen.
It's also a region with interesting animals such as seals, whales and colonies of thousands of penguins. One of the characteristics of the south polar region is that its birds and mammals (such as seals and whales) depend on the sea. In the end, the penguins evolved to a swimming way of living and because they had no land-predators to fear, they lost their ability to fly.

Dive and Photography expeditions
The common perception is that the Polar waters are so cold, (between -1.9 ºC – 0 ºC), it is absent of life. Nothing could be farther from the truth. Antarctica and the Arctic have one of the richest marine environments in the world, full of surprises. The creatures found there are colourful and astonishing, offering many opportunities for stunning and unique images.
Waterproof Expedition is the only polar dive operator where diving and (underwater) photography is a priority on the trip. These voyages are not for beginners, you'll have to be an Advanced Open Water diver and must be familiar with cold water diving and dry suit diving with at least 20 "dry suit" dives.
We know from experience that running a dive operation in these remote regions takes a lot of work and specific knowledge. Our dive operation is organized by experts who have experienced many extreme situations in the field and who are trained to search out the best opportunities for divers, taking into account the unpredictable weather and ice conditions. We take Polar diving very seriously and maintain the highest level of safety in combination with quality diving and great photography opportunities.

Our Specialty- Underwater Photography and Topside Photography
Though diving is one of our special activities, photography is also an important element of our programme, for divers as well as non-divers. Underwater as well as topside. We have dedicated zodiacs available for each group to join us for an excellent photography experience on land or underwater.

PREPARING YOUR EXPEDITION VOYAGE

These notes will give you a brief idea of how to prepare for, and what you may encounter on your voyage.

Expedition style travelling – we do not take a trip, a trip takes us...
We take you to remote polar regions where few travellers have been. We stress that this is an Expedition style cruise. Our emphasis is on wildlife encounters, personal contact with the environment, visits to sites of historical interest and, to a lesser extent, scientific stations. We are always ready to alter plans accordingly to take advantage of ice, weather, wildlife sightings and other one-of-a-kind opportunities which can vary unpredictably from day to day.
We cannot guarantee that all dives and shore landings will take place or that they will include all the events we've outlined in advance. Embracing the unexpected is part of the legacy—and excitement—of expedition-style travel, and a measure of flexibility is something all of us must bring along on the voyage.

Required documents
Valid passport and visa if required. Please make sure your passport is valid for at least six months after your trip ends. Since visa requirements differ for each nationality, we ask that you check with the nearest consulates/embassies and secure visas if required.

Health & Personal Medications
Any major health problem, disability, or physical condition that may require emergency care must be brought to our attention prior to the voyage.
Please complete the **Personal Information Form,** which you have received from your booking agent, and return it to Waterproof Expeditions: info@waterproof-expeditions.com or return it to your booking agent. (Please also bring a copy with you on board!).
Be sure to carry ample supplies of any prescription medications you require as well as medication against motion sickness (sea sickness).

Ushuaia pier information
In Ushuaia, the southern most city in South America, it is often cool and windy, and rain is possible. Temperatures can range between 40F and 50F (5ºC – 10ºC).
There is only one pier in Ushuaia located in the main port on Maipu street. The entrance to the pier is opposite of Lasserre street, the Government building and the Hotel Albatros.
Passengers must be able to show their Boarding Pass, otherwise access can be denied by port authorities. We do recommend that you arrive a day earlier in Ushuaia to have some additional time in case of flight delays and lost luggage on the day of arrival. The vessel will sail at 6 pm and will not be able to wait for missing passengers or luggage.

Punta Arenas
Some expeditions will start from Punta Arenas (Chile), the southern most city on Earth, overlooking the Straits of Magellan.
The flight from- and to Punta Arenas to Antarctica will take approximately three and a half hours. We fly across the Drake Passage and then arrive or depart to and from King George Island in the Antarctic Peninsula. Satellite and weather information is checked before departure and during the flight. As bad weather conditions in Antarctica can prevent our charter flight from departing, we have developed different programs to offer you while waiting. These programs include visits to Torres del Paine National Park and a flight over Cape Horn.

Weather on the Antarctic Peninsula
The Antarctic Peninsula is generally a cold dry, and windy climate with a chance of snow flurries. Temperatures can range between 20F and 50F (-5ºC and 10ºC) also summer temperatures average around 30F (0ºC). Even warmer days which are sunny and warm may occur, and it can also be overcast, windy and wet. Plan to dress like going on a skiing holiday. See information on layering.

GENERAL CLOTHING ADVISE

The choice of clothing for cold climates is a very personal matter. It depends on your individual experience with cold conditions. Are you more susceptible to cold temperatures than other people ?
For your comfort and safety, avoid getting wet (whether from perspiration, precipitation, unsuitable boots or sea spray). Bring wind and waterproof outer layers.
Beware of tight clothing that leaves no room for trapped air, which is an excellent insulator. Wool, silk and some of the new synthetic fibres like polar fleece retain heat better than cotton.

The secret to keep warm is the 'layer principle'. It is better to have several light layers of clothing than one heavy layer. This also gives you flexibility in your clothing so you can take off a layer if you are too warm or put another layer on if you are cold. The most important layer is the outer waterproof and windproof shell because even a light wind of 6 kph (about 4 mph) can carry away eight times more body heat than still air ! The so-called 'wind chill factor' measures the increase in cooling power of moving air, whether it's wind that is blowing or you who are moving rapidly and, in effect, creating a wind against yourself.

A common complaint is "it's not the cold, it's the wind", but an equally common polar maxim is "there is no such thing as bad weather, only bad clothing!"

Tips to stay comfortable and warm in cold weather

- Avoid overdressing to reduce perspiration.
- Wear water repellent outer garments that will keep you dry on the outside and still 'breathe' enough so that moisture from your body can escape.
- Body heat is most likely to be lost from parts that have a lot of surface area in comparison to total mass - namely, the hands and feet. Keep them warm and dry. For hands, mittens are better than gloves.
- Another polar maxim is 'if you have cold feet, put a hat on!' If the rest of your body is covered, as much as 90% of the heat you lose can come from your head, so be sure to wear a cap, beanie or balaclava. These items can be pulled down to protect your ears, forehead, neck and chin. The neck also needs protection with a woollen or synthetic scarf, that can be wrapped around the face when travelling against the wind.
- Dress in comfortable, loose layers. For anyone out in the cold, it is far better to wear layers of relatively light, loose clothing than one thick, heavy item. Between each layer there is a film of trapped air which, when heated by your body, acts as an excellent insulator. Keep from overheating.
- Wool and silk are superior to cotton because they can trap warm air. Synthetic fabrics that spring back into shape after compression are also good. When damp or wet, polyester down is a better insulator than goose or duck down. Polar fleece is popular and recommended.

WHAT TO PACK FOR YOUR SHORE EXCURSIONS

When packing, don't weigh yourself down with too many clothes or too much gear. Select informal, practical attire for your trip that can be worn in layers, including:

- **Warm Trousers**
  Ski pants are suitable if you have them; otherwise, bring any sturdy trousers that can be layered between your long underwear and rain over-trousers. Jeans and corduroys are good both for excursions and wearing aboard ship.

- **Waterproof trousers**
  Water resistant over-trousers are essential for your comfort. Wear them over your regular clothes to keep you warm and dry. Gore-Tex and similar fabrics are both waterproof and 'breathable'.

- **Thermal underwear**
  Silk or polypropylene underwear is highly recommended since it keeps you warm without adding bulk. Most people prefer a lightweight version - but this depends on your personal thermostat.

- **Sweaters**
  Wool sweaters or a polar fleece jacket of medium weight are recommended.

- **Turtlenecks**
  Bring several practical turtlenecks for layering and use around the ship.

- **Mittens and gloves**
  Keeping your hands warm and dry is a challenge - and important. Thin polypropylene gloves can be worn underneath warm mittens. Thus, you can take off the mittens to operate your camera and still have some protection from the cold. It's a good idea to bring an extra pair of wool mittens to wear if your other pair gets wet (or lost).

- **Woollen cap**
  A warm cap to protect your ears - and a scarf.

- **Warm socks**
  Sturdy, tall wool socks worn over a thin pair of silk, polypropylene or cotton/wool socks should provide enough insulation for your feet. Bring several pairs, since you will inevitably get your feet wet.

- **Waterproof & Windproof jacket**
  A well-fitting jacket with attached hood that can be worn over your under layers with reasonable comfort. It is most important that this garment is thoroughly waterproof. Gore-Tex or sailing gear are ideal although it is possible to find cheaper waterproof gear. The waterproof jacket is the most important layer of clothing. There is nothing worse than wind on wet clothes at zero degrees.

  Order now without shipping costs our exclusive and unique Waterproof Expeditions windbreaker jacket. Be prepared for the Antarctic wind!

- **Backpack**
  A waterproof nylon backpack, rucksack, or similar bag with shoulder straps, for carrying your camera and other gear during shore excursions. Be sure to choose one with shoulder straps so that your hands are free. It is very important that you have some means of keeping your camera dry. Every summer we have disappointed people whose camera has been splashed in a Zodiac.

- **Sunglasses**
  Good quality sunglasses. Note that the glare from the water and surrounding snow/ice can be quite penetrating, even when the sky is overcast.

- **A pair of binoculars is highly recommended**

- **Camera and plenty of memory disks/film and new batteries**
  From experience, it is advisable to bring an extra camera in case of malfunction or accident. Cameras have been dropped in the water and it is a disappointed photographer who can't take pictures.

- **Earplugs** may be useful if you are sharing a cabin with a snorer !

- Teva **Sandals** or similar are very useful to wear around the ship and when using the shared showers.

- **Rubber boots are provided on board !** These boots will be used in virtually all of our shore landings with Zodiacs. A pair of pull-on rubber, unlined and completely waterproof boots that are mid calf or higher with a strong, ridged non-skid sole is ESSENTIAL for landings. Stepping out of the Zodiacs to shore almost always involves stepping into water, it is important to have waterproof boots that are high enough to avoid water going over the top and into the boots.

- **Getting outfitted for your Expedition**
  To ensure you are properly outfitted for your expedition, visit our Expedition Outfitting Partner on www.shiptoshoretraveler.com/waterproof.
  Use promo code: WP25/255 to get USD25 off orders to USD250 or more.

  - **Click here to** Get fully outfitted packages of clothing and accessoires
  - **Click here to** Packing lists of essential expedition gear
  - **Click here to** Apparel, footwear and accesoires, specially selected by experts who has travelled the world and know what to wear

WHAT TO PACK FOR YOUR DIVING EXPEDITION

Please contact your airline about their luggage restrictions and request a special allowance for your dive equipment prior to departure. All excess baggage is at your own expense.

- All divers must have experience with dry suit diving (minimum 20 dives required)
- Dry suit with hood
- Thick and warm underwater garment (2 sets), dry gloves or adequate thick wet gloves (make sure they will keep your hands warm in sub-zero waters)
- 2 separate freeze protected regulators, because we dive with special bottles with two separate outlets. The tanks we are using are 12L steel tanks. They are fitted with a 'Y' or 'H' valve configuration, with DIN or Yoke (INT) adaptable connections.
- Pressure gage
- Stabilizing jacket or some kind of BC with quick release – divers without BDC trusting only their dry suit for buoyancy control will not be allowed to dive.
- Depth gage, watch or computer
- Compass
- Knife and a torch
- Mask, fins and snorkel
- Weight belt (weights available on board)
- Safety buoy

Please note that the snorkel is a vital part of the safety equipment and will often be used when snorkelling with seals and such.

Setting up your gear:
You need two sets of regulators;

1st set includes:	Freeze protected First stage
	Second stage (incl. hose)
	Hose for BC
	Pressure gage / computer
2nd set includes:	Freeze protected First stage
	Second stage (incl. hose)
	Hose for Dry suit

IMPORTANT:
Do not bring any new equipment on this expedition that you have not already tested in the water and you are not very familiar with. The Polar regions are not the place to test out new equipment. It is required that you complete a few dives with all the equipment you will be using before coming on the trip. This will also allow you to fine-tune your buoyancy and trim characteristics, and make a note of how much weight you will need when diving with all your equipment.

Equipment on board
On board we have a Bauer compressor (200 litres), steel bottles of 12 litres, 200 bar, with DIN and Yoke adaptable connections and two separate outlets. This will allow for the attachment of a primary and a secondary backup regulator, which allows for either regulator to be independently isolated if there is a malfunction or a free flow.

USEFUL TIPS FOR POLAR DIVERS

Diving is an equipment intensive activity. Ice diving requires an extensive amount of additional equipment because of the cold weather and water, and the remote location involved. Diving is no fun if you are cold. Divers in cold water may have a higher air consumption rate, expend more energy, and can become more fatigued. Cold water also decreases a diver's ability to perform complex tasks that require manual dexterity.

Staying Warm

Dry suit

The only adequate protection from thermal exposure in the Arctic and Antarctica where the water will be as cold as – 1ºC/30ºF, is a dry suit. The type of dry suit you use is not important so long as it fits you, is waterproof and you are comfortable using it. Neoprene dry suits have the benefit of having good stretch and extra insulation. Shell suits provide no extra insulation but are lighter and dry more quickly. Shell suits serve only to keep the diver dry and require extra layers of garments to be worn under the suit. If appropriate, bring a small dry suit repair kit.

Waterproof dry suits have been tested and tried out in the extreme polar regions and are designed with polar diving in mind. During the many years of continuous testing in harsh conditions Waterproof International in Sweden has become the expert in designing high quality dry suits. We have found that nothing can match the 3,5mm Special Hi-Dense neoprene with SD Toughtex lining we use for our most outstanding product, the DRACO Drysuit. Loaded with features this suit brings it all. Kevlar reinforced and angled boot, zip armoured dry zipper, SAS Zip cuff system, embossed and PU-reinforced shoulders and double pockets to mention a few. And all the know-how that we bring from our 20 years experience of diving in the Antarctic & Arctic.

Until now even good neoprene dry suit protection was like armor, bulky and restrictive. Waterproof's Sedna combines premium rubber with silky Spantex Lycra to produce a suit that wears like silk pajamas, not body armor. If ever Comfort needed a face, SEDNA is the prompt answer.
For further information please check out www.waterproof.se or contact your nearest Waterproof Dealer.

Insulating undergarments

The function of the undergarments is to trap air against your body to be warmed. The colder the water, the more (or thicker) layers of undergarments are required. It is recommended that you wear two or three layers, depending on your suit. As the first layer you should wear a set of polypropylene liners. This type of material helps wick any moisture away from the body. As the second layer you should wear thick insulating material, such as fleece, synthetic pile, thinsulate or similar. As the final and outer layer you may wish to wear a windproof shell. The one piece jump suit style is the most common and comfortable configuration of dive wear and is available in a variety of thickness depending on your dry suit and the water temperature.

Dry suit accessories

If a hood is not attached to your dry suit you will need to bring one. A 7 mm neoprene hood with face and neck seal is recommended. Regular 7 mm neoprene semidry gloves or mitts may be used with any dry suit and are relatively easy to use. Three finger mitts are warmer than five finger gloves. Special dry gloves that deal against rings on the arm of the dry suit are available. To prevent glove squeeze, and to promote warmth, short pieces of surgical tubing, or straws can be inserted under the wrist seals to provide a conduit for air to exchange from the suit to the gloves. This type of glove requires additional practice to use, as they can come off your hand if not used correctly.

Post-dive wear
It is important to bring a warm hat and some warm wind and waterproof gloves to wear before, and especially after the dive. You may also wish to bring wind and waterproof spray jacket and pants to keep the cold wind off your wet dry suit.

Diving Equipment

Regulator
Normal regulators will not function in sub-freezing water as both the first and second stage will freeze. You are required to bring two sets of regulators (1st & 2nd stage), suitable for cold-water/ice diving. Some regulators can be fitted with an environmental seal kit, others come environmentally sealed from the manufacturer.

To avoid regulator malfunction, regulators must be cared for properly before, during and after diving. Regulators should be kept dry and warm before the dive; store them in your cabin. Avoid breathing from the regulator before submersion, except to briefly ensure it is functioning, but when doing so, exhale after removing the regulator from your mouth so as to avoid freezing the second stage with moisture from the exhaled breath.

If during the dive your primary regulator freezes up and causes a free flow, you should switch to you back-up regulator, and turn off the valve to the primary regulator to stop the free flow. The dive must be aborted in any case.

Tips on keeping water out of your regulator
- Always open the cylinder valve briefly before mounting the regulator, to blow out any moisture from the orifice.
- When purging the regulator for removal, hold the second stage lower than the first stage so that water cannot drip back to the first stage after pressure has dropped.
- Remove the regulator carefully, so as not to allow ice or water to fall into the filter of the regulator.
- Dry the dust cap thoroughly before attaching it to the regulator.
- The dust cap must fit snugly before rinsing the regulator.
- Do not press the purge button while rinsing the regulator.
- Shake excess water from the second stage before hanging the regulator to dry.

Face Mask
The type of mask you are using is not critical, we recommend using a standard mask and regulator. You may use a full face mask if you prefer, but keep an extra face mask handy in case your regulator free flows. It is best to avoid spitting into the mask for defogging, as this can freeze onto the inside of the mask. Commercial defogging agents work well for ice diving. Straps can also become brittle in cold weather, and it is highly recommended that you bring a spare strap and a spare mask.

Instruments, Gauges and Computers
You must have one tank pressure indicator for each regulator set-up. Some electronic instruments will not function well in sub-freezing temperatures. Liquid crystal displays may be slow to display and batteries will also run low sooner.

Diving Physician
Although we will have a diving physician and a very well equipped clinic on board, please remember there is no recompression chamber.

Safety first!!
Ice diving in Antarctica is no more dangerous than normal SCUBA diving so long as you stick to one important rule: Safety First. Divers who are looking for thrills are kindly asked to stay at home!
Although we have a diving doctor on board the vessel, we cannot accept risky ventures from any of our divers. You are asked to remain with the group at all times.

ABOARD THE SHIP

We use small ice-strengthened expedition vessels for our unique expeditions to the Polar regions. Our trips vary from 10 – 12 days offering two landings/ excursions per day, weather and ice permitting.
As the number of participants is limited to about 50 passengers, our small-expedition vessels offer a friendly, intimate atmosphere. Accommodation and on-board-life is cosy and comfortable. Our voyages are primarily defined by an exploratory travel programme, spending as much time ashore as possible, combined with educational lectures on board. Moreover, we can be flexible, easily changing the course of the vessel and have our inflatable Zodiacs ready in no time for cruises among ice-floes or even the local wildlife.
A friendly and experienced crew, expedition guides and hotel staff, most of whom have been with the company for many years, will be anxious to share their enthusiasm and knowledge with you.

The following guidelines are intended to help make the most of your stay on board.

- **Dress Code**
  In keeping with our expedition's atmosphere, dress on board is informal. Bring casual and comfortable clothing for all activities. Keep in mind that much of the spectacular scenery is best appreciated from the deck, which can be slippery. Bring sturdy shoes with non-slip soles and make sure your jacket is never far away in case the call 'Whales!' comes over the loudspeaker and you have to dash outside. Wear layers since it is comfortably warm aboard the ship - and often cold on deck.
- **Combating sea sickness**
  Anticipate some rough seas on the voyage. Should you be prone to motion or sea sickness, please consult your physician which medication is appropriate and its side effects.
  To avert motion sickness, avoid alcohol, tobacco, excess liquids, and confined spaces. Most people feel better sitting on deck looking at the horizon or lying prone with their eyes shut. Oddly, you will feel better with some food, such as crackers or dry toast in your stomach. Many people eat to avoid feeling sick. Remember, once you start to experience motion sickness, medications are of little help.
- **Electric current**
  The electrical supply aboard the ship is 220v, 50Hz. Electrical outlets are standard European with two thick round pins. U.S. passengers may need a 220v/110v converter.
- **Currency**
  The standard currency on board our vessels is US Dollars.
- **Credit card**
  On the ship you can pay your bar bill and souvenirs with Visa and Euro/MasterCard. Travellers cheques are not accepted.
- **Gratuities**
  The customary gratuity to the ship's service personnel is made as a blanket contribution at the end of the voyage which is divided among the crew. You will receive detailed guidelines aboard. Tipping is a very personal matter and the amount you wish to give is at your discretion. It is better for the crew, if you can give them cash, either US Dollars or Euros.
- **Bridge visits**
  You are nearly always welcome on the bridge, an excellent place to watch ship operations and maintain a lookout for wildlife. Please remember, however, that the bridge is a working place. To enable our officers to navigate the ship, remain on the port side of the bridge and please do not eat or drink. When in port, during rough weather, and other times for reasons of safety, the bridge will be closed to visitors.
- **Non-smoking policy**
  There is a non-smoking policy on board. It is prohibited to smoke inside the ship. You can smoke on deck but do not throw your cigarette filter overboard ! Do not smoke on the aft deck in the proximity of Zodiacs, engines and fuel. Please respect the wishes of non-smokers.

COMMONLY ASKED QUESTIONS

Do I have to be really 'fit' and in good health to join this expedition?

You must be in good general health and you should be able to walk several hours per day on rough terrain. However, the expedition is ship-based and physically not very demanding: although we spend as much time as possible ashore, you are welcome to remain aboard the ship if you like. It is very important, in order to join most excursions, that you are able to easily get up and down the steep gangway from the ship to the water level to board the Zodiacs. Staff will assist you in- and out of the boats. Ashore it can be slippery and rocky. You are travelling in remote areas without access to sophisticated medical facilities, so you must not join this expedition if you have a life-threatening condition, need daily medical treatment or have difficulty walking.

What is the age range aboard?

Passengers on a typical voyage range from their 30s to their 80s - with a majority usually from 40 – 65. Our expeditions attract independent-minded travellers from around the world. They are characterised by a strong interest in exploring remote regions. The camaraderie and spirit that develops aboard is an important part of the expedition experience. Many departures have several nationalities on board.

Can I recharge my batteries and use electrical appliances on board?

Yes, the power supply is 220v, 50Hz. The wall plugs accommodate two thick round pins like those found in most European countries. You may need a transformer and international adapter for your particular equipment.

Are there restrictions on what can be done while ashore ?

Yes, an overriding concern is the protection of the wildlife, environment and cultures in any of the areas we visit. We will address conservation issues in the on-board briefings and the expedition staff will assist you ashore.

> Do not leave anything but footprints
> Do not take anything but memories

How much time do we spend ashore ?

That is hard to say. Our aim is to spent as much time ashore as possible. But that depends on the weather and the constraints of time and distance. Depending on the voyage, you may spend several days aboard the ship, followed by a series of landings, each several hours long. On some voyages you land two or three times every day. During our time at high latitudes we will have almost continuous daylight, which means we may schedule excursions before breakfast, after dinner, or in the middle of the 'night'. Often the light for photography is best at these times. We would like to show you as much as possible but leave it up to you to skip an excursion.

What is the language on board ?

The board language is English and spoken by all our staff (expedition leaders, purser, chefs). On the motor vessels the crew is Russian, and most of them speak English. The personal contact with the Russian crew is always a nice aspect of our polar journeys. Several departures are dedicated to certain language groups.

Sea Sickness ?

Many people ask us if they will get sea-sick. This depends very much on the individual. Our experience is that a small percentage of people get sick on any trip and most of these people are fine after a day or so at sea. If you feel that you are particularly susceptible to sea-sickness then it is a good idea to talk to your local doctor. Bring motion sickness tablets, be sure you have eaten enough and feel rested.

Is there a laundry service on board ?

Although limited, there is a laundry service on board. In your cabin you will find laundry forms and laundry bags. Please fill out the form, put the laundry in the provided bag and leave it on your bed. The cabin stewardess will pick it up and return it within 48 hours. Dry cleaning is not available.

INTRODUCTION TO THE POLAR REGIONS

Death zone, hostile environment and icy wastes are the labels generally applied to the polar regions, although package tourists can enjoy a glass of champagne in complete safety aboard luxury cruise ships. The Poles -the Arctic to the north and the Antarctic to the south- are the two points on earth farthest from the sun and thus also most alien to life. It is the fundamental disparities of the North and South Pole as well as their similarities and mutual interdependency which underline their global character, not merely as weather machines and historical deep freezes, but also with regard to their spiritual aspects. In addition to their geophysical features, the North and South Pole also exert a strong fascination and stimulate the imagination.

EXPLORATION OF THE POLAR REGIONS

From the Vikings via the first whale and seal hunters to Scott and Amundsen, from the maritime explorers Franklin and Nordenskiöld to present-day polar tourism, a quick tour through history reveals some of the aspect which motivated people to extend their horizons. Existential need, sheer curiosity, imperial greed, polar science and a taste for adventure all converged in regions which pardon no mistakes.

The first explorers

The Vikings (c. 800-1050 AD) were intrepid and wide-ranging seafarers. Their open boats had both a rudder and sails, and room for 30 men plus livestock. The Norseman Ottar sailed as far as the White Sea in the 9th century. Later other Vikings reached the coasts of Greenland and North America. They navigated with the aid of primitive compasses, observed and interpreted sea currents, winds, bird flight paths and the favourite location of whales. They may also have been able to penetrate so far north because the climate was somewhat milder than it is today: the effects of the rise in temperature, which had brought about the end of the Ice Age, were still tangible.

Early trade

The Pomeranians lived by the White Sea- the word 'pomore' means 'along the sea'. They were traders who had migrated from Novgorod in the 13th century. With their vessels, known as 'kotsyas', they sailed both eastwards along the Siberian coastline and to the islands of the Arctic Ocean trading furs, skins and fish. Their most important trading centre was Archangelsk. The 16th century saw an expansion of European trade with China and the major powers began to dream of a North-East Passage to the sea. The Dutchman, Willem Barentz, was among those who attempted to find this passage. In the autumn of 1596, he reached Novaya Zemlya, was forced to spend the winter there and died one year later on the return journey. Central European trade with China had to develop along different routes.

Russian expansion

In the early 17th century, Russia conquered Siberia at astonishing speed. But the majority of Siberia was still largely uncharted terrain. Russian rule was maintained by small isolated garrisons which collected furs and mammoth tusks beside rivers and along the Arctic Ocean coast. During such a trading voyage, the Russian Semen Dezhnev sailed south through the 'Bering Strait' in 1648, 80 years before it was 'discovered' by Vitus Bering. His imagination fired by the scientific discoveries of his day, Tsar Peter the Great wanted to explore Siberia and reach America. After his death, the Great Northern Expedition left St. Petersburg in 1733 under the leadership of the Dane Vitus Bering. Sections of Siberian coastline were named after Russian participants, for example K.P. Laptev and S. Tyelyuskin.

The North-West Passage

Britain ruled the waves after the Battle of Trafalgar in 1805. When the war was over, polar expeditions offered a fresh challenge. In the period 1813-1858, there were almost 30 northbound expeditions. In 1845, John Franklin set off with two ships and 133 men to continue the search for the North-West Passage. The expedition was equipped like a military campaign. It vanished without trace and several other expeditions tried to ascertain its fate. It

was finally established that Franklin's ship had become icebound and everyone on board had died of scurvy and starvation. The North-West Passage and large sections of the North American coast were charted during the rescue expeditions.

Nordenskiöld
The name Adolf Erik Nordenskiöld is forever linked with the North-East Passage. He was the first successfully to navigate the notorious 'ice cellar', the Kara Sea, and sail along the northern coast of Siberia to China. Within two summer months in 1878, the steamship Vega travelled almost all the way along the northern coast of Siberia. On 28 September 1878 the Bering Strait was just an autumn day's journey away. But then the pack ice and cold struck and the Vega was icebound. On 18 July 1879, the ice released the ship and it passed through the Bering Strait two days later. The home journey was via the Suez Canal, Naples and Paris. Everywhere en route, the Vega was greeted with fireworks and festivities. On their arrival in Stockholm on 24 April 1880, Nordenskiöld and his captain, Louis Palander, were welcomed like national heroes.

Nansen
The 1890s were distinguished by national awareness and scientific curiosity. Polar expeditions were extremely popular. The Norwegian Fridtjof Nansen was a man who had taken an early interest in the polar regions and the abilities of Arctic peoples to cope with cold and difficult transport routes. His most famous voyage followed the sea current which moved sea ice through the northern Arctic Ocean between Siberia and Greenland. The journey, in the specially-built schooner Fram, took three years (1893-96). After two icebound winters, Nansen abandoned his ship, heading for the North Pole on skis together with Hjalmar Johansen. They did not reach the Pole and, against all expectations, survived a further winter before being rescued by English polar explorers in the summer of 1896. Nansen was a major explorer and writer. After the First World War he became committed to the cause of war refugees. He was awarded the Nobel Peace Prize in 1922.

Alfred Wegener
Wegener was a German natural scientist with a broad range of interests. At the beginning of the 20th century he took part in three expeditions to the inland ice of Greenland. He led the Greenland expedition which spent the winter of 1930-31 there. Wegener died in autumn 1930 during a journey across the ice. Alfred Wegener typified the modern polar explorer - he was primarily a scientific researcher. In 1912, he launched the continental drift theory, though it was to take a further 50 years before his theory became the topic of serious discussion and was proved by the discovery of fossils in the polar regions. The theory, plate tectonics, is now generally accepted.

Russian ice drift stations
In the 1930s, the Communist regime in Moscow developed an interest in the Arctic seas. Scientific and political ambitions were closely linked. Before he could expand maritime travel and aviation in the Arctic, Stalin needed more knowledge about the Arctic Ocean and its climate. Stalin therefore placed his faith in a bold and, for many years, secret innovation of polar research - scientific stations on drifting ice floes. On 21 May 1937, the first transport aircraft landed on an ice floe near the North Pole. Four research scientists under the leadership of Ivan Pananin were left behind to spend the winter Ð their only link with the outside world was a simple radio. After drifting southwards for 274 days on a melting ice floe, they were picked up off the coast of Greenland. They returned to the Soviet Union as heroes. Then came the war. It was not until 1950 that North Pole Station 2 was established. The programme was discontinued in 1991 after 31 ice stations had been maintained in the region.

The race to the South Pole
In 1909, the Englishman Robert Falcon Scott resolved to conquer the South Pole. At the same time, the Norwegian polar explorer, Roald Amundsen, was planning an expedition to the North Pole. When Amundsen learned in 1909 that Frederick Cook and Robert Peary were both claiming to have reached the North Pole he secretly changed his plans, heading off for the South Pole instead. Amundsen and four companions reached the South Pole on skis and with the help of dogsleds on 14 December 1911. Scott and his colleagues, who had pulled their sledges themselves, arrived on 17 January 1912 Ð only to find one of Amundsen's tents.

Greatly disappointed they set off on their return journey, plagued by cold, hunger, scurvy and exhaustion. None of them survived. Scott and two others died just 18 kilometres from a supply depot. Thus ended one of the greatest dramas in polar history, one which is still the subject of papers and discussions to this day.

Shackleton
On the very same day that England entered the First World War, 8 August 1914, Sir Ernest Shackleton began his second voyage to Antarctica. Churchill eventually gave the order for him to depart after the loyal Shackleton had enquired whether he was required for war duty. When the American Peary claimed to have reached the North Pole in 1909, and the Norwegian Amundsen reached the South Pole in 1911, Great Britain had fallen behind in polar expedition. Shackleton wanted to restore Britain's honour by crossing Antarctica. But his ship, Endurance, sank before the expedition reached the Antarctic Continent. The crew were rescued in a miraculous manner after the dramatic voyage of the ship's boat James Caird. Many regard Shackleton as the greatest of the polar explorers because of his leadership qualities and his intrepid nature.

Exploitation
Animals form the basis for human existence in the Arctic. For thousand of years, reindeer, seals, Arctic foxes, walruses and whales have provided the means of survival for the indigenous Arctic population in the harsh polar climate. They are a source of food and material for clothing, equipment and housing. They also represent an important trading commodity. The hunter must kill to feed himself and his family, a fact which applies to both Man and beast. Because of the extreme environment, hunting requires not only a high degree of perfection and efficiency in killing, but also deep respect among the indigenous Arctic hunters. People need animals as food and the animals allow themselves to be killed. But humans must in turn observe strict codes of behaviour and treat the souls of the dead animals as guests. The polarity between individual tragedy and biological-social necessity is nowhere more visible than in death.

Whaling
People in the far north and south who share ecological niches with whales and seals have always exploited these renewable resources. Different catch methods were devised and adapted to the specific type of prey. As far as whaling is concerned, the Stockholm Environmental Protection Conference adopted a resolution in 1972 against the ecologically untenable catch quotas issued annually by the International Whaling Commission (IWC). Since that Conference there has been a consensus of opinion among the western industrial nations that whales are taboo for commercial exploitation.

NATURAL PHENOMENA

Aurora
The aurora light of the polar regions is a remarkable phenomenon. In the clear polar night, arcs, curtains and luminous clusters move across the sky. They are created when streams of solar particles penetrate the Earth's ionosphere and collide with molecules of the upper atmosphere. The Earth's magnetic field attracts the particles down to the magnetic poles and concentrates them in an oval band. Both the location of the ovals and the form of the aurora are governed by the intensity of solar activity. The Northern Lights have always held great significance for the myths and traditions of Arctic inhabitants.

Halo
In earlier times, light phenomena in the sky caused great excitement. They were interpreted as occult messages and people were often afraid. Today we know that these luminous rings, arcs, pillars, crosses and patches on the heavens are physical-optical phenomena. They are created when sunlight or moonlight is refracted by tiny ice crystals floating in the air. In good weather conditions Đ clear air with sparkling ice crystals Đ the sky can present a fantastic display. The halo effect is at its most beautiful in the polar regions, but it is also visible in lower latitudes.

Mirage

Many polar explorers have sighted land and islands which simply do not exist. These are optical illusions created when light is refracted in atmospheric layers of differing temperature. The mystic islands on the horizon usually turn out to be pack ice. Mirages also appear in deserts when cold air comes into contact with hot sand. Desert phenomena are termed 'inferior mirages'. In the polar regions we see 'superior mirages' when warm air moves over a cold surface. The most dramatic and complex form of atmospheric reflection is called Fata Morgana. It is even possible to see images from beyond the horizon. The Viking Eric the Red is thought to have been enticed by a Fata Morgana when he discovered Greenland.

POLAR WILDLIFE

Polar flora

'Infertile' and 'wasteland' are two words one often hears in connection with the polar regions. Yet over 800 species of flowering plant flourish in the Arctic, though by contrast there are only two species of flowering plants on the Antarctic mainland since it is a long way from the next continent, a fact which reduces the chances of new plant species becoming established. The major part of Antarctica is also covered by eternal ice and the climate is much harsher than in most parts of the Arctic. In the few places where plants can grow, mosses and lichens play a bigger role than flowering plants. Some lichens even grow in the polar desert areas in the interior of Antarctica where the conditions are truly extreme. Arctic plants have to be very small to survive. A tall plant would be helplessly exposed to the sharp ice crystals with which the wind would constantly batter it.

Antarctic fauna

Apart from the deep sea, Antarctica is the oldest and largest self-contained ecosystem in the world. The animal world is very closely linked with the sea and is consequently to be found mainly on the periphery of the continent. With the exception of a few insects, all forms of life capitulate in the face of the increasingly harsh climatic conditions further inland. The coastal regions are populated by sea birds such as petrels, albatrosses, skuas and penguins as well as marine mammals like the crabeater seal, leopard seal, Ross seal, Weddell seal, fin and right whale, and sea lions. The Antarctic sea regions contain the greatest quantities of animal protein on Earth.

Antarctica's marine food chain

The most common Antarctic shrimp, krill, uses its front legs to catch microscopic unicellular algae known as diatoms. The world 'krill' comes from the Norwegian and means 'food of the whale'. All living creatures consume 90% of their food for their everyday activities and thus convert only 10% into body weight, meaning that nutritional value declines exponentially as one progresses through the food chain. The whale jumps these links in the chain by preying directly on krill rather than on fish or sea birds. A fin whale requires about 2-3 tonnes of krill per day to reach an impressive length of 24 metres and a weight of up to 80 tonnes.

Antarctic birds

Penguins represent half of the Antarctic bird population, nine-tenths of its biomass. These birds depend on the sea for their food. They eat about 4.7 million tons of food each month Ð mainly crustaceans and fish, but also squid. While penguins dominate the bird biomass, tube-nosed petrels constitute the majority of the breeding species. Other groups include cormorants, skuas, gulls, and terns.

It takes a tough bird to overcome Antarctica's notorious inclemency. One might infer from the enormous concentrations of sea birds that do occur that the populations are invincible. They are not. The long isolation of Antarctic birds has produced an extraordinarily innocent and docile avifauna -a quality attractive to both scientific study and tourism, but one that leaves these highly vulnerable birds open to harm from human presence or mismanagement. Natural factors such as storms or abnormally extensive sea ice can cause extremely high mortality in nesting areas. But Antarctic bird species have evolved to overcome these adversities. Human activity is another matter. On the evolutionary time scale, people and their machines have just entered the Antarctic scene. The birds have had little time to adjust. Studies have shown that even casual or occasional contacts with Antarctic bird colonies can

adversely affect breeding success. After visits are ended or controlled, bird populations have been observed to return to former levels.

Today, much is known about some of these birds at breeding sites, but virtually nothing about the longer time they spend at sea.

Did you know?

- The name penguin is from two old Welsh names meaning 'white head'. Seafarers in past centuries evidently were thinking of the flightless (now extinct) great auk of the North Atlantic, which had white on its head. Penguins and great auks resemble one another, but otherwise are unrelated.
- Emperor penguins have no nests. While standing on sea ice they incubate one egg on their webbed feet, holding it against their brood patch. The male emperor fasts for up to 3 months during the coldest part of the winter and takes entire responsibility for the 65-day incubation period.
- The Adèlie penguin is the most abundant and studied of Antarctica's penguins. The male, too, has a long fasting period of up to 7 weeks when he loses as much as 40 percent of his body weight. The fast starts on his return to the rookery after winter in the pack ice, continuing through part of the incubation period, which he shares with his mate. The female lays two eggs, which take about 35 days to hatch.
- Flipper bands are the only safe way to band penguins, but they have to be put on by an expert aware that the flipper will double its width during the moult. Over 45,000 Adèlies were flipper banded in a long-term study by Johns Hopkins University biologists. Look for them on the left flipper.
- As far back as 1948 it was discovered that Adèlie parents recognised their chicks in crèches of 200 or more similar-looking, down covered youngsters. They feed their own chick(s), no others. Recognition is mostly by sound. This recognition between parents and their young is now recognised in many colonial seabirds.
- The six species of albatross and 23 species of petrels, like the emperor penguin, lay only one egg. Southern black-backed gulls, imperial shags, and sheathbills have large clutches. They often lay three, occasionally four eggs.
- We think of migration as north/south oriented. Birds avoid the cold winter, returning to cooler regions for breeding. The Wilson's storm petrel (one of the most abundant birds on earth but breeding only in Antarctica) does this. It migrates to the Northern Hemisphere where it can be seen in great numbers in August in the North Atlantic.
- The Arctic tern does the opposite, fleeing the arctic winter to continue its 24-hour daylight summer routine in the Antarctic pack ice. This seabird is reputed to fly a round trip of 22,000 miles a year and enjoy an average of 22 hours daylight throughout its life.
- However, the giant petrel and the wandering albatross circumnavigate the southern ocean. The giant petrel in particular soars in the west wind zone. Banding research has shown that the young do not return to their natal breeding places until at least 6 years old.
- The wingspan of an adult wandering albatross is 11 feet.
- Snow petrels and Antarctic petrels nest on nunataks (isolated peaks that protrude through glacial ice) as far as 200 miles inland. These far-inland nesting petrels thus fly enormous distances to the sea to get food for their young.
- The sheathbill is the only Antarctic bird without webbed feet.
- South polar skuas are the only birds recorded at the South Pole. These spectacular migrants, have been recorded in Greenland, British Columbia, and Japan.
- Only a few species reside year-round in the high latitudes close to Antarctica; they include some gulls, terns, penguins, cormorants, and petrels. Most move to sub Antarctic seas in winter. A few flying birds travel to the Northern Hemisphere.
- Southern kelp gulls retain their primitive mollusc-feeding behaviour and other life styles only in Antarctica, where pristine conditions prevail. In Southern Hemisphere areas of modern agriculture and industrialisation, their lives are dramatically different as they have largely become dependent on human refuse for food. Sadly, even in Antarctica they learn quickly to rely for food on open dumps and hand feeding.

- Antarctica limpets are one of few large molluscs among a sparse of invertebrate animal assemblage able to overcome the scouring action of moving ice in the shore zone, where kelp gulls depend on them year-round. Distributions of kelp gulls and limpets are closely linked.
- Antarctic grass, one of the only two species of flowering plants, grows in the Antarctic Peninsula area. Skuas and especially gulls use it for nests. Penguins nesting close by make their nests of small stones. The Antarctic convergence is the oceanic area where cold waters flowing northward meet and under run warmer, southward flowing water.

CONSERVATION TIPS

Large numbers in limited places
All Antarctic birds, except the Emperor Penguin, must come to snow-free land to nest. Vast numbers of mostly colonial seabirds concentrate in large numbers in limited places. It is easy to adversely affect lots of birds at once.

Landing beaches are for everyone
Penguins (except Emperors) come to land to breed only where they can enter from a beach. This is where scientists also want to build stations. Penguins thus are vulnerable to every kind of human disturbance. In the early days of exploration they suffered greatly from this. They still can, if people forget that landing beaches are for everyone.

A very short summer
The breeding season is generally from late October to early February. That's less than 4 months for hatching and development. If eggs or young ones are destroyed, there is little time left for second broods (gulls, skuas, and gentoo penguins lay again if their eggs are lost early in the season). Antarctica's summer is very short.

Long-lived yet late breeders
Antarctic birds are long-lived. Several wandering albatrosses still breed in South Georgia at more than 35 years old. Skuas probably live to 70. These seabirds take a long time to reach maturity. The average age for first breeding in the Adelie penguin is 5 years; a grey-headed albatross may not breed until 13. Breeding places must remain intact until they return.

Right of way
When penguins are coming and going from landing beaches to feed their young, they use traditional highways where visitors, like the penguins, find the walking easiest. Please keep clear of these penguins right of way.

Adult and juvenile behaviour
Experienced adult penguins return to old nests, usually stick with former mates, and co-operate to bring food from the sea to their chicks. Younger parents change nest sites and partners more frequently, often failing to raise their chicks. Juveniles (often non-breeding wanderers) return from sea to their natal rookery and try to imitate adult behaviour. These young explorers are easily frightened. If they are disturbed, they explore elsewhere. The rookery where they were hatched will slowly decline, and no one will know it for years. Watch for these juveniles and give them extra space.

No place for heroics
What's the best thing to do if you find an incubating bird buried on its nest after a blizzard ? Leave it alone. Trying to help will frighten the bird causing the snow to cave in and the egg will be smashed.

Predators and scavengers
The same applies to predators and scavengers. It's upsetting to see a helpless penguin chick being killed by a skua. But the skua has to feed its young. It will select the easiest prey: usually one that is starving and has been deserted by its parents.

Feeding is not for the birds
Skuas, gulls, and sheathbill are easily attracted by human garbage or visitors tossing food. This gives them an undesirable advantage over other species, many of which they prey on. They should never be fed.

Trust is better than mistrust
When man first explored Antarctica the birds were amazingly tame. But they learned to fear and run away. Move very slowly among the birds and seals. Allow them to realise you are not a threat. Trust is better than mistrust.

Scientists are not beyond reproach
Scientists can unknowingly interfere with or damage other scientists' research. Especially susceptible are long-term bird-banding and population studies in areas where stations are close to each other. Scientists are not beyond reproach. Tell them if you are concerned.

Watch for signs of disturbance
People must not violate the birds' individual space. Stay at least the prescribed distances from rookeries. Watch for signs of disturbance. Penguins start moving their flippers back and forth when nervous. Back off if you see this behaviour. If you approach a tern or gull nesting area, the birds may leave their nests and fly around crying their alarm. Back off until they settle again. If you don't, you may crush their cryptically coloured eggs or be responsible for the chilling and destruction of the embryos in their thin-shelled eggs.

LITERATURE

The list of literature on Polar Regions is far too large to include in this manual.
We recommend **www.longitudebooks.com** for an extensive range of Polar books in various languages.

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