

Yachting guidelines for Antarctic cruises

I. Introduction

For yacht owners the Antarctic presents a unique, remote and challenging destination. A typical season may well see 20 to 30 yachts visiting the Antarctic Peninsula. Of these many are commercial charter operations, but a significant number of private yacht owners undertake expeditions each year. Any yacht expedition heading south of 60°S will need to be well planned, prepared and crewed by experienced yachtsmen. All intended activities are to be assessed for potential environmental impacts.

The Antarctic is unique because its administration does not fall to any one country and in that it is protected as a natural reserve dedicated to peace and science. It is regulated via the Antarctic Treaty (AT), the Environmental Protocol and regulations which have been agreed between the Treaty Parties and enacted into their domestic law. Strict penalties may apply to any vessel or any person on an expedition proceeding south of 60°S without authorization or a permit.

Treaty Parties have become increasingly concerned about yachting activity in Antarctica following reports of safety, environmental incidents, and damage to historic sites. The guidelines have been produced to aid planning private Antarctic expeditions on yachts or other non-regulated crafts and review the considerations they should take. In Annex A, the “Checklist for Antarctic yachting” gives a comprehensive summary of the preparatory items to reassess. The documents focus primarily on the most popular and accessible cruising ground of the Antarctic Peninsula. These guidelines do not replace, but rather supplement, the requirements of national authorities, flag states and international regulations.

Additional considerations apply to yacht visits to other parts of Antarctica, which are significantly more distant from ports and from outside assistance, are less frequented, and generally experience more severe conditions. Yacht visits to other Antarctic regions may thus require additional arrangements, more detailed contingency planning and close consultation with competent authorities.

II. Regulatory framework and permits

Each country Party to the Antarctic Treaty is responsible for the regulation of visits to the Antarctic Treaty area organized by its nationals, but the Environmental Protocol requires that an environmental impact assessment be prepared for all activities planned to take place south of 60°S. Please contact your competent authority to get informed on your particular case and apply for the authorization. You may find specific contact details in Annex B.

It is a condition of any authorisation that a Post Visit Report is submitted within 90 days of the expiry date of the permit. A standard format for the report as a document is available from either the national authority’s homepage or the website of the International Association of Antarctic Tour Operators (IAATO).

III. Particular conditions in the Antarctic cruising area

Antarctic weather is notoriously challenging and changeable. You will need to be well prepared to deal with the conditions and be familiar with the dominant weather systems. A good understanding of the region’s weather systems, access to sufficient weather data and careful planning are required to mitigate the inherent risks of yachting expeditions to Antarctica.

The majority of yacht visits are heading for the South Shetland Islands and the Antarctic Peninsula which stretches towards the tip of South America. This region provides the shortest sea route to the continent. It is comparatively better charted than the rest of Antarctica and can regularly have more favourable ice conditions than other areas.

III.1 The Antarctic season

Antarctica is only accessible to most vessels during the Austral summer. Typically, yachting expeditions to the Antarctic Peninsula take place from November to March.

III.2 Weather

The weather patterns in the Antarctic Peninsula region are primarily dominated by the succession of depressions passing continually through the Drake Passage from west to east and the high pressure area over the Antarctic land mass. There are significant variations in the typical weather. In this turbulent area, forecasts change quickly and conditions often exceed those forecast. It is common for very complex low pressure systems to develop in the passage. Wind speeds encountered within these low pressure systems regularly exceed 50 knots and very large seas can develop.

The South Shetland Islands lie very much in the path of the depressions described above. The weather found here is therefore typically wet, windy and generally not very pleasant. The weather on the Antarctic Peninsula is governed by the dominance of the Antarctic High Pressure system and the effect of the depressions passing through the Drake Passage. It is possible that when the high pressure becomes stable and dominant, the depressions are forced far enough north to give pleasant settled weather on the peninsula for days at a time.

Temperatures on the Antarctic Peninsula during the summer months can be expected to be between 5° and 10° C during the day, falling to around -5° C to zero at night. Wind chill can be a significant factor and at times makes the conditions on the peninsula inhospitable.

III.3 Ice

The skipper should be aware of the ice conditions using up-to-date ice information, especially at the beginning and the end of the summer season. Ice in these waters originates from two sources: either from calving glaciers and ice shelves or frozen sea-ice. These types of ice differ greatly in their appearance and the dangers they pose to a vessel. The primary danger from ice occurs when it is unseen due to darkness, poor sea-state, fog or poor watch-keeping.

Most of the ice encountered is likely to be glacial and seen as ice bergs, bergy bits, growlers and brash ice (see below). Icebergs can be liable to split or turnover without warning and without any identifiable reason. In doing so, they can cause a large wave capable of swamping a small vessel. Similarly tide water glaciers collapse frequently, especially on warm sunny or wet days, again causing large waves.

Over time, as an iceberg breaks up, it disintegrates forming progressively smaller lumps. Pieces of ice that rise less than a meter out of the sea are known as growlers, whereas larger pieces (up to 4 meters high) are called bergy bits. As a hazard to navigation, these smaller pieces of ice are the primary concern rather than icebergs. They are often difficult to detect with the naked eye and in certain conditions, they can be small enough to remain undetected by radar and large enough to cause damage. A good radar system, the ability to use it proficiently and a suitable ice light are all essential equipment in these waters.

The clearing of sea-ice on the Antarctic Peninsula during the summer varies greatly from year to year. Some useful bays and anchorages can be the last places to clear, as the process is dependent on local conditions of wind, sea state and current. As a general rule, the ice clears at the northern end of the peninsula first. Constricted sections of water further south sometimes do not clear even towards the end of the season and are often choked with a combination of sea ice floes and bergs.

A vessel can often also be threatened by ice while at anchor, with large pieces of ice moving remarkably quickly due to the wind or currents. In addition to the vessel being struck by encroaching ice it is also possible that larger bergs could block the vessel's exit from an anchorage or could position themselves above an anchor, preventing its retrieval.

The effect of freezing spray can also present a hazard to vessels. Build-up of ice can cause damage to masts and rigging or can cause a loss of vessel stability.

IV. Vessel selection, equipment and operational planning

The craft should be of suitable construction for the intended voyage and possess adequate buoyancy.

IV.1 Vessel construction and equipment

A wide variety of yachts, both sailing and motor, have visited Antarctica and there are no fixed criteria that ensure a vessel is 'Antarctica' capable. However the selection and preparation of a reliable well found yacht is fundamental to a safe Antarctic expedition. The first requirement is to be able to reach the continent and return safely through the large seas of the Drake Passage. Most of the commercial yachts regularly operating in these waters have been knocked down, and several have been rolled through 360 degrees. Self-righting of the vessel should be achievable whether or not the rig is intact. Any skipper should be mindful of this when preparing a vessel for the area.

Experienced yachtsmen, who make frequent expeditions to the Antarctic, favour vessels with metal hulls, either steel or aluminium. The inherent strength of the material and its ability to deform on impact, whilst maintaining hull integrity, are prime considerations when operating in these imperfectly charted and ice ridden waters.

Good ground tackle is essential. Suitable equipment is usually significantly heavier than that specified for normal cruising grounds in order to deal with the high winds that can be encountered in any anchorage and the typically poor holding afforded by the rocky nature of the sea bed. In addition it is often necessary to run long warps to the shore in order to back up the anchor.

Sufficient heating will be required to reduce the potential for medical difficulties related to the cold and damp.

Above all an expedition must ensure their absolute self sufficiency when operating south of 60° S. There is no guarantee of assistance or back up of any kind that can be relied upon to arrive within several days (depending upon location and time of season). For essential systems or critical elements of such systems, strong consideration should be given to installing backup arrangements such that a failure can be rapidly replaced. A very comprehensive spares selection and the necessary tools should be carried along with the knowledge and experience to resolve any serious problem that might arise. Please follow the "Checklist for Antarctic Yachting" in Annex A for a more detailed listing.

IV.2 Charting

Surveying and charting of Antarctica is by no means comprehensive and some of the formal charting of less visited areas dates back many years. Generally the degree of charting is proportional to the volume of traffic visiting an area, although it is still possible that a vessel may encounter uncharted rocks in any area.

Electronic charting and GPS cannot be relied upon to fix a vessel's position in this region as much of the charting in the region derives its information from old surveys. GPS equipment often highlights the inaccuracies in these charts when the GPS derived position is plotted and appears to be significantly in error.

IV.3 Foresighted supply

It is very clear that no supplies of any kind exist in the Antarctic region, neither commercially nor from other operators. Once leaving ports in any South Atlantic region no fuel, water or any other supplies are available.

Sailing yachts should expect to make significant use of their engines. Particularly once on the continent, the wind is often too strong, too light or in the wrong direction to make sailing effective. In addition, the manoeuvrability afforded to a vessel under motor is often advantageous when moving in ice laden waters. Depending on the fuel tank locations, the viscosity of fuel may well be affected by the cold water temperatures and consideration should be given to adding cold weather treatments or purchasing treated fuel.

Whilst in some locations water can be collected from melting ice, those expecting to use water makers should be aware that their performance will be significantly reduced by the colder sea water temperatures.

IV.4 Emergency equipment and training

Approved types of life rafts are required in emergencies as well as sufficient life jackets for all crew members and passengers. If possible include immersion survival suits in your journey equipment. At least two cold water diving suits are useful to enable basic repairs underwater.

Radio communications should be adequate for the specific region, e.g. two types of alerting systems: long-range communications and a satellite EPIRB properly registered. An appropriate number of fire

extinguishers, suitable for the yacht size, but at least two, should be readily accessible in suitable and different parts of the yacht. Fire extinguishers should be capable of operation in freezing conditions.

Each yacht should be equipped with a man over board alarm including an emergency button immediately accessible to a helmsman which will sound an audible alarm in the accommodation and simultaneously send an appropriate signal to the ship's navigational software.

All crew members should have satisfactorily completed appropriate training for the intended voyage, survival courses and first aid courses. At least one member of the crew should have basic safety and equipment operations training similar to that expected of the professional seafarer. Such courses may be developed by (based on the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers) or are available through national programs or associations (cp. Annex A).

IV.5 Search and Rescue

The maritime search and rescue coordination arrangements south of 60°South are provided by the appropriate Maritime Rescue Co-ordination Centres but only very limited assets are maintained within the area around the Peninsula. There is no rescue service. Other vessels operating in the area have usually been the first to come to the assistance of those in trouble in past emergencies. In particular the International Association of Antarctic Tour Operators (IAATO) operates an Emergency Contingency Plan providing mutual support for its member vessels. Some member companies within IAATO are specialized in assisting private yachts and can provide a range of support and advice.

An expedition will be required to demonstrate that they have adequate search and rescue, medical and evacuation insurance in place for all persons on board and appropriate contingency plans.

V. Careful itinerary planning

The person in charge should prepare a voyage plan and leave that plan with a responsible person ashore together with details of the vessel. In addition, the voyage plan may be submitted to the Maritime Administration of the port of departure. Please consider the General Guidelines for Visitors (Resolution 3 (2011); http://www.ats.aq/e/ats_other_tourism.htm).

V.1 Special Areas and Historic Sites and Monuments

There are a number of areas in Antarctica which are protected due to their outstanding environmental, scientific, historic, aesthetic or wilderness values, or ongoing/planned scientific research. These have been designated Antarctic Specially Protected Areas (ASPAs), and you need to know where ASPAs are located to ensure that you do not enter one inadvertently.

A number of further areas have been designated Antarctic Specially Managed Areas (ASMAs). The purpose of ASMAs is to assist in the planning and coordination of activities within the specified area, avoid possible conflicts and minimize environmental impacts. ASMAs may include areas where activities pose risks of mutual interference or cumulative environmental impacts, as well as sites or monuments of recognized historical value. Individual Management Plans are prepared for each ASMA. Entry into an ASMA does not require a permit, but activities have to be in line with the regulations of the Code of Conduct set out in the Management Plan. Please note that within an ASMA there are likely to be smaller ASPAs which may not be entered.

Finally, a number of sites or monuments are of recognized historic value and listed as a Historic Site or Monument (HSM). Listed Historic Sites and Monuments are not to be damaged, removed or destroyed. Respect no entry-statements due to danger of collapse and don't change any item within the HSM.

Details of current APSAs, ASMAs and HSMs can be found on the Antarctic Treaty Secretariat website, along with much other useful information, at http://www.ats.aq/e/ep_protected.htm and a full list of protected areas at http://ats.aq/devPH/apa/ep_protected.aspx?lang=e.

V.2 Research Station visits

All station visits require advance approval. It should be remembered that the primary purpose of all stations is scientific research and any visits permitted are purely on a goodwill basis. For UK British Antarctic Survey bases (Signy, Rothera) and the US Palmer Station this should be obtained from the parent organization well in advance of the expedition. Unannounced visits will be refused.

Some of the other bases (e.g. Vernadsky Research Base (UKR)) may be willing to accommodate a visit at shorter notice if contacted once in Antarctica (typically 72 hours notice is requested).

In addition the former British 'Base A' at Port Lockroy has been preserved on Goudier Island as a 'living museum'. During the summer months the base is manned and frequently visited by vessels. Visits for passing yachts are normally possible if the base is contacted in advance.

V.3 Responsible planning and Coordination

Private sector travel to Antarctica has benefited from mutual support and coordination for over twenty years. Potential expeditions should first and foremost adhere to requirements emerging from the ATCM, and consider seeking additional advice on IAATO guidelines. Recognizing the potential environmental impacts that growing numbers of tourism could cause, regular tour operators to the area formed a member organization. The International Association of Antarctica Tour Operators (IAATO) which works to promote and practice safe and environmentally responsible private-sector travel in this remote, wild and delicate region of the world. Together they have established an emergency support system for their membership as well as extensive procedures and guidelines of commendable high standard of private-sector travel to the Antarctic. In particular their guidelines for wildlife watching and boot & clothing decontamination are available via their website (www.iaato.org). Additional information on Antarctic yacht expeditions can be found in the pamphlet provided at <http://iaato.org/yachts>.

VI. Environmental and further safety considerations

The Environmental Protocol to the Antarctic Treaty requires that every effort be made to minimize the environmental impact of all activities and that an environmental impact assessment be prepared and approved prior to departure.

VI.1 Site visitor guidelines

Since 2011, the "General guidelines for Visitors to the Antarctic" (http://www.ats.aq/documents/recatt/att483_e.pdf) provide guidance on appropriate behaviour at every possible landing site. Read these Guidelines before visiting Antarctica and plan how to minimize your impact. When preparing your sailing trip, particularly consider preventing the introduction of any plants or animals into the Antarctic. The taking of, or harmful interference with, Antarctic wildlife and its flora is prohibited.

Local site guidelines for visitors have been adopted for some of the most visited sites by the Antarctic Treaty Parties. These short, usually two page, documents provide a succinct overview of the landing site and essential information for any expedition such as landing areas, sketch maps and closed areas to protect the wildlife or scientific sites. They are available from the Antarctic Treaty Secretariat website (http://www.ats.aq/e/ats_other_siteguidelines.htm).

VI.2 Non-Native Species

Detailed guidelines relating to the biosecurity of the Antarctic and ballast water management are set out in the Non-Native Species Manual endorsed by the ATCM in 2011. The manual is available at the Antarctic Treaty Secretariat website (http://ats.aq/e/ep_faflo_nns.htm).

VI.3 Waste

Detailed regulations apply to the disposal of waste in Antarctica, but the basic principle for all visiting yachts is 'if you take it in, take it out'. Vessels should consider being fitted with sewage retention tanks. No

discharges are allowed for oil and chemicals. Respect the more stringent provisions for avian products and garbage.

The full regulations are within the Treaty documents available via http://www.ats.aq/e/ep_waste.htm.

Subject to any conditions in your environmental impact assessment, sewage and liquid domestic waste may be disposed of into the sea. For vessels certified to carry more than ten persons this should take place a minimum of 12 miles from the nearest land or ice shelf and whilst moving at a speed of not less than four knots. Treated sewage may be discharged from vessels over 200 Gross Register Tonnage or more than 10 persons on board when operating between 4 and 12 nautical miles from land with operational requirements. For smaller vessels, sewage and liquid domestic waste may be dispersed closer to land, but consideration should be given to its rapid dispersal and this should not be done in confined waters.

VI.4 Off vessel activities

Potentially the most dangerous moments during any expedition are when members are away from the main vessel, either in small craft or on land. When operating in small boats, either cruising or making shore landings, a robust safety program should be in place. The main vessel should stay during the landing and be all the time prepared to pick up landed people in case of an emergency.

It is not unusual for tenders to be unable to return to the mother ship due to rapid changes in weather and/or sea conditions and at times this has necessitated a forced overnight stay ashore. In conditions of fog or whiteout it is very easy for the crew of a tender to become disorientated and navigation to become difficult. Suitable precautions should be taken and emergency supplies and equipment carried in all tenders.

Ice is even more of a threat to a small boat than a ship. When operating amongst sea ice or icebergs always be vigilant to its movement in relation to local currents. Pack ice can move very quickly potentially affecting small boat and shore operations, especially as the tide changes.

All expedition members should be aware of the dangers of crevasses when ashore. In recent years all glaciated terrain has become more dangerous due to higher temperatures. Expedition members should only venture on to snow slopes with the utmost caution and with the appropriate equipment and skills.

VII. Resources and links

Relevant Weblinks

Secretariat of the Antarctic Treaty: <http://www.ats.aq>

International Maritime Organization: www.imo.org

International Association of Antarctic Tour Operators: <http://iaato.org/>

ISAF International Sailing Federation - Offshore Special Regulations: www.sailing.org