

IAATO Operational Procedures for Manned Submersible (HOV)* Activities



These guidelines are for primarily recreational activities.

Prior to offering the activity, please ensure that all submersible activities are included in your operator's permit/authorisation conditions (Advance Notification and EIA - Environmental Impact Assessment). Where applicable, all vehicles should carry equipment required by laws and rules within the permit/authorisation agreement. Activities, such as science and commercial filming, would fall outside these guidelines and require a separate permit or certification from a National Competent Authority.

Introduction

Underwater activities give a unique perspective on Antarctica's marine wildlife and the underwater icescape. Underwater activities have formed an integral part of National Programs marine research for many years, and increasingly expedition operators are delving into underwater exploration, using SCUBA, snorkelling or submersibles. Manned submersibles, or Human Occupied Vehicles (HOVs) enable exploration to depths well beyond recreational diving limits, and make accessible areas which have not been investigated. Done safely and responsibly, these activities contribute to a greater understanding of the Antarctic marine environment and instil a sense of wonder in visitors.

Pre Requisites

- Every HOV should have an operating manual available to the HOV team, adequately describing the functions and capabilities/limitations of the vehicle, equipment on-board and emergency procedures;
- An Operations Manual should be available to the HOV team as well as the Bridge Officers, Expedition Leader and Designated Person Ashore (DPA), adequately describing the vessel specific Standard Operating Procedures (SOPs) and Emergency Plan;
- HOVs in the Antarctic will be operating in water temperatures between -2 and +2 degrees Celsius and air temperatures as low as -10°C. The Operating and Maintenance Procedures should take these consistently cold sea conditions into account. It may be necessary to consult with the manufacturer considering the suitability of the vehicle for polar operations including battery life, potential for thermal shock, condensation in lines (freezing) etc;
- It is strongly advised that the HOV pilot be trained and experienced in operating HOVs in conditions similar to the intended operation, or under the direct supervision of a pilot with prior experience in polar HOV operations;
- The support/mother vessel must be suitable for the safe storage and intended operation of the HOV(s) and must be self-sufficient in search and rescue operations;
- Keep all submersibles clean to prevent transfer of non-native species into and around the Antarctic.

*Human Occupied Vehicle (HOV)

Pre-Launch Considerations

A site evaluation should be conducted before the start of a HOV operation by the ship's Captain and/or Ice Pilot, Expedition Leader, and HOV pilot(s), including and not be limited to:

- Review of Chart and Bathymetry;
- Weather Forecast – is there a possibility of deteriorating weather conditions? Especially in areas known for katabatic winds, which can impede the recovery of the HOV and/or support tenders. The life support window of the HOV should also be considered when looking at the weather forecast;
- Tidal, current and sea state information – only operate within the safety parameters specific for the vehicle;
- Proximity to ice – what kind of ice is it and how is it moving? Is there a possibility of entrapment from ice overhead?
- Obstacles or hazards in the area of operations;
- Proximity to known wildlife aggregations (such as penguin colonies and whale aggregations);
- Proximity to protected areas including but not restricted to ATCM¹ Antarctic Specially Protected Areas (ASPAs), Antarctic Specially Managed Areas (ASMAs) and Historic Sites and Monuments (HSMs).



Briefing

The Captain and/or Ice Pilot, Expedition Leader and members of the HOV team including but not limited to HOV pilot (s), Surface Officer and Watch Officers should have a site-specific briefing before every submersible operation.

Briefings should include, but are not limited to:

- Emergency procedures and safety considerations;
- The dive plan, including dive depth, number of dives and dive time;
- Overview of operation procedures from client perspective;
- Familiarization of communication strategies between the guide and clients;
- Environmental awareness, and variables determined from Section 'Pre-Launch Considerations.'

Deployment

- Deployment of the HOV should be in accordance with the applicable standard operating procedures and environmental considerations;"
- Broadcast a Sécurité call before start of operations;
- Any activities that take place within a protected or managed area will be done in accordance with the relevant management plan provisions;
- During deployment of the HOV, the surface support vessel(s) should be flagged to alert other small boats or ships of the activity.

¹ATCM is the Antarctic Treaty Consultative Meeting

Diving in the Vicinity of Ice

- No submersible activities should occur under fast ice;
- No submersible activities should occur under large concentrations of ice which may inhibit recovery in the event of an emergency or uncontrolled surfacing;
- No submersible activities should occur in the vicinity of fast-moving ice (drift forced by winds, currents and/or tides);
- No submersible activities should occur in the region of a glacial terminus, where calving is possible
- Adequate distance from large ice bergs should be maintained. Be aware icebergs not only break from the top down, but also send shooters from the lower parts of the iceberg;
- Bridge personnel should remain vigilant and report all weather, sea state and ice changes;
- Clear communication between the mother ship, surface support vessels and HOV must be kept at all times;
- When in doubt, return the HOV to the surface for recovery;
- Smaller surface support vessels should follow IAATO Guidelines for Small Boat Activities in the Vicinity of Ice.

Clothing and Equipment

- Vehicle occupants and/or Surface Support should be appropriately dressed for the prevailing and expected conditions;
- If applicable, support divers should be outfitted with appropriate polar diving gear, and if using SCUBA follow IAATO Underwater Activity Guidelines;
- Adequate emergency equipment for surface support and vehicle occupants should be available for the entire duration of the operation. Emergency equipment available for vehicle occupants should be sufficient for the HOV's emergency life support window.
- Equipment should be regularly inspected and maintained.

Etiquette

Follow IAATO Vessel Code of Conduct and booking guidelines for the IAATO Ship Scheduler;

- Dive operations within site areas booked by the mother vessel are to be conducted within the time slot for the general landing and within the allowable limits from the mother vessel set by the operator's insurance policies.
- Dive operations outside site areas booked by the mother vessel are allowed, however should be conducted in areas of low traffic to keep landing sites free for other operators.
- Tools to consider using for dive site management include but are not limited to:
 - i. AIS
 - ii. Radar
 - iii. RedPort
 - iv. IAATO Live Ship Scheduler
- A vessel involved in HOV submersible operations is not expected to cease operations once they are underway if another vessel enters the area unexpectedly, but general etiquette and safety measures will be observed;
- Mother vessels involved in marine activities (such as kayaking, SCUBA, submersibles, etc.) should, upon hearing a Sécurité call, immediately respond over Channel 16 and notify the incoming vessel of any potential hazards/risks to navigation.





Wildlife and Seafloor Considerations

- Adhere to the conditions outlined in your operator's permit/authorization (Advance Notification, Environmental Impact Assessment and South Georgia Permit);
- Keep submersibles clean to prevent the transfer of non-native species into and around the Antarctic;
- Never chum, feed, or distribute into the water any bait or other substance with the purpose of attracting wildlife;
- Maintain appropriate distances from wildlife. Refer to relevant IAATO wildlife guidelines, in particular IAATO bird, seal and cetacean watching guidelines;
- Stay at least 30m from concentrations of birds in or on the water and at least 100m from cetaceans;
- No matter the distance, negative reactions to the HOV such as rapidly swimming away, aggressive responses and apparent general agitation should be avoided at all times. Attending small boats should remain vigilant to negative reactions and communicate these to the HOV;
- Contacting the seabed, flora, fauna, rocks, bones, and parts or contents of any underwater structure with the HOV or externally mounted tooling / manipulators is not permitted. Some underwater structures may be designated ATCM HSMs;
- Do not create disturbance when hovering close to the seafloor or underwater structures;
- Leopard seals are known to be curious, and may interact with HOVs. HOVs, by virtue of their design and build, are not considered to be in danger of damage by leopard seals. Exceptions would be surface support boats, especially with inflatable pontoons. These boats should be aware of the IAATO Leopard Seal Watching Guidelines.