

The Government of South Georgia & the South Sandwich Islands



**The Use of Human Occupied Vehicles (HOV)
and Remotely Operated Vehicles (ROV)**

Summary

The following policy sets out how GSGSSI will manage the use of manned and unmanned submersibles to explore the marine environment around SGSSI.

Policy

Human Occupied Vehicles

Manned Submersibles or Human Occupied Vehicles (HOV) allow exploration to depths well beyond diving limits, and make accessible areas which have never been investigated before. Done safely and responsibly these activities can contribute to a greater understanding of the marine environment.

Part 1 details the GSGSSI Policy for the use of HOVs.

Remotely Operated Vehicles

Remotely Operated Vehicles (ROV) are un-manned submersible vehicles which can be independent or tethered via an umbilical cord to a vessel or support tender. This policy deals with ROVs which are suspended in the water column; tracked ROVs will require a separate Regulated Activity Permit (RAP) and will not be permitted for recreational use.

ROVs have the capability for filming, surveying and rescue/recovery. ROVs allow underwater exploration to depths well beyond diving limits, often exploring areas which have never been investigated before. Additionally, ROVs do not require human presence below the surface, but through the medium of film, allow those unable to dive to experience and learn about this unique ecosystem. Used safely and responsibly, ROVs can contribute to a greater understanding of the marine environment.

Part 2 details the GSGSSI Policy for the use of ROV.

Reason for the Policy

Recent advances in HOVs and ROVs has led to an increased demand for their use in South Georgia waters. These activities present an opportunity for GSGSSI to enhance the understanding of the marine environment, and to further instill a sense of understanding and wonder in our visitors.

This policy will deliver those benefits in a safe and environmentally sensitive manner and will be reviewed to ensure it continues to do so. We will only permit the use of HOVs and ROVs if confident that any impacts from the activities can be mitigated.

Part 1: GSGSSI Policy for the use of Human Occupied Vehicles (HOV)

This policy applies to the use of HOVs in the SGSSI maritime zones however, the use of HOVs for science and commercial filming, or any activity which contacts the seabed, or takes samples from the environment will in addition require a separate Regulated Activity Permit (RAP).

Prior to using HOVs, ensure that you have completed the relevant application form and have been granted permission on your Visit Permit.

Pre-requisites

- Every HOV should have an operating manual available to the HOV Pilots, as well as the Bridge Officers and Expedition Leader. This Operating Manual should adequately describe the functions and capabilities/limitations of the vehicle; equipment on-board the vehicle and operating details including diving and surfacing.
- The HOV Pilot must be trained and experienced in the use of the HOVs in similar conditions to those which may be expected in South Georgia and the South Sandwich Islands.
- All certificates, qualifications and insurances must be valid and evidenced to GSGSSI.
- HOVs operating in South Georgia must be suited to the challenging environment and the Operating and Maintenance Procedures should take these conditions into account.
- Particular consideration should be given to recovery operations if conditions on the surface deteriorate during the dive. As with all operations in SGSSI there is no external rescue capacity.
- The vessel must be suitable for carrying, deploying and retrieving a HOV safely.
- A risk assessment and systems test should be undertaken before every dive. This would include but not be limited to:
 - Possibility of entrapment from ice overhead.
 - Ice, current, and sea condition assessment. Additionally, surface weather should be considered, especially in areas known for katabatic winds, which can impede the recovery of the submersible and/or support tenders.
- A pre-site survey should be conducted by ship's Captain and/or Ice Pilot, Expedition Leader, HOV Pilot and evidence of that pre-site survey maintained for inspection if requested to produce records by an Officer of the Government. This should include but not be limited to:
 - Review of charts and bathymetry.
 - Weather and sea conditions.
 - Underwater hazards (including wrecks and unexploded ordinance).
 - Sub-surface conditions (tides and currents).
 - Surface hazards (including proximity to ice and vessels).
 - Proximity to known wildlife aggregations (including breeding beaches, whale aggregations).

Briefing

- The Captain and/or Ice Master, Expedition Leader, HOV Pilot, Surface Officer and Watch officers should have a site-specific briefing before every HOV operation.

- Briefings should include:
 - Emergency procedures
 - Overview of operation procedures from client perspective
 - Safety practices for changes in weather conditions and ice conditions
 - Familiarisation of communication strategies between the guide and clients
 - Environmental awareness
 - Dive depth and Time

Diving in the Vicinity of Ice

- No HOV activities should occur under fast ice.
- No HOV activities should occur under large concentrations of ice, which may inhibit recovery in the event of an emergency or uncontrolled surfacing.
- No HOV activities should occur in the vicinity of unstable sea ice.
- No HOV 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 ship and HOV must be kept at all times.
- When in doubt, return the HOV to the surface for recovery.

Clothing and equipment

- Vehicle occupants and/or Surface Support should be appropriately clothed for sub-Antarctic Waters.
- Support Divers should be outfitted with appropriate polar diving gear, and have appropriate training and qualifications for the role.
- Adequate Emergency equipment for Surface Support and Vehicle occupants should be available for the entire 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.

Deployment

- Deployment of the HOV should be in accordance with the ship's and HOV's standard operating procedures and environmental operating procedures.
- 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 attending small boat(s) should be flagged to alert other small boats or ships of the activity.
- The HOV should always operate within the parameters for which it was designed and rated. This includes, but is not limited to:
 - The maximum rated depth.
 - The maximum number of persons on board.

- The maximum distance the HOV can operate from the ship.

Reporting

Following HOV operations a 'GSGSSI Dive Record & Report' should be completed and returned to GSGSSI within 30 days.

Wildlife and Seabed Considerations

- Adherence to this policy is a condition of your Visit Permit. Collection of samples is prohibited unless a RAP for sample collection has been issued by GSGSSI. Collection of samples will only be considered for a RAP if their collection is of scientific significance.
- The HOV Pilot must strive to maintain appropriate distances from wildlife so as not to cause disturbance, stress or aggressive responses – birds and seals should not be approached closer than 30 metres, whales should not be approached closer than 100 metres.
- Disturbance to wildlife, from the presence of an HOV, or the noise or light it emits, will require the HOV to back away, or abort the dive.
- HOVs will not operate within 200 metres of the beach of any visitor landing site or known wildlife aggregation such as a colony or breeding beach.
- The HOV should not, make contact with the seabed, underwater structure or animal. Any contact must be reported to GSGSSI in the 'Dive Record & Report'
- While hovering close to the seabed or underwater structures, care should be taken to prevent thrusters disturbing the delicate benthic community. Sensitive areas should be noted and reported in 'Dive Record & Report'
- 'Chumming' marine animals is an offense in South Georgia and the South Sandwich Islands. Never seek to engage in activities that would alter the natural behaviour of animals and attract them to the area of operation.

Other Considerations

- A strict 'no touch' policy applies to the seabed and any structure or object found underwater, including both natural and manmade structures (e.g. wrecks). An additional RAP is required to undertake any activity which deviates from the 'no touch' policy.
- It is worth special note that there may be unexploded ordinance in some areas. If unexploded ordinance is found, retreat from the area immediately and upon surfacing, report the location, depth, type, and number of unexploded ordinance to GSGSSI.

Objects must not remain on the seabed after the dive. If placing an object on the seabed or jettisoning an object during the dive is intended, this activity will require assessment and an additional RAP.

Part 2: GSGSSI Policy for the use of Remotely Operated Vehicles (ROV)

This policy applies to the use of ROVs in the SGSSI maritime zones however, the use of ROVs for science and commercial filming, or any activity which contacts the seabed, or takes samples from the environment will in addition require a Regulated Activity Permit (RAP). Tracked ROVs or any ROV which contacts the seabed is not permitted for recreational use.

Prior to using ROVs, ensure that you have completed the relevant application form and have been granted permission on your Visit Permit.

Pre-requisites

- ROVs operating in South Georgia must be suited to the challenging environment and the Operating and Maintenance Procedures should take these conditions into account.
- The Ship's Captain and ROV Pilot should have a briefing on Emergency Procedures and Communication protocol between the support tender and the bridge.
- A risk assessment and systems test should be undertaken pre-dive. This would include but not be limited to:
 - Ice, Current, and Sea conditions assessment. Additionally, surface weather should be considered, especially in areas known for katabatic winds, which can impede the recovery of the ROV and/or support tender.
 - A test of operating systems and thrusters before the ROV is deployed underwater.
- All equipment should be inspected and maintained daily during operational periods.
- All Operations and Maintenance should be logged.
- The ROV must have a support vessel and driver who are not involved in actively assisting with the ROV. The driver is responsible for maintaining safe distances to ice and wildlife, as well as observing any potential weather deterioration.
- The attending boat should be flagged to alert other small boats or ships of the activity.
- A pre-site survey should be conducted by ship's Captain and/or officer on watch, and ROV Pilot. This should include but not be limited to:
 - Review of charts and bathymetry.
 - Weather and sea conditions.
 - Underwater hazards (including wrecks and unexploded ordinance).
 - Sub-surface conditions (tides and currents).
 - Surface hazards (including proximity to ice and vessels).
 - Proximity to known wildlife aggregations (including breeding beaches, whale aggregations).

Briefing

- Pre-Operations Briefings should include:
 - Where the ROV will be deployed
 - Time away from the vessel
 - Who and how many personnel will be in the ROV support boat

ROV Operations in the Vicinity of Ice

- If an ROV has an umbilical cord it may be vulnerable to entanglement. There is a possibility the cable can be caught around protrusions of ice, either damaging or causing the ROV to be lost on recovery. Therefore, ROV dives near or under fast/brash ice should be undertaken with the utmost care.
- ROV activities should not be performed in front of high activity glaciers.
- Whilst ROV activities may occur in the region of a glacial terminus, because of possible calving, glacial activity should be assessed, and the support tender should always keep a safe distance of **at least** 200 metres from tide water glaciers to avoid both direct hits and the largest waves. For high activity glaciers this should be increased to 400 metres.
- Support Vessel should keep the recommended 2x the height of the iceberg away from icebergs. Be aware icebergs not only break from the top down, but also send shooters from the lower parts of the iceberg.
- Support driver and Bridge personnel should remain vigilant and report all weather, sea state and ice changes.
- Clear communication between the ship and the ROV support tender must be kept.
- When in doubt, return the ROV to the surface for recovery.

Clothing and equipment

- Surface Support Operators should be appropriately clothed.
- Emergency Equipment should be regularly inspected and maintained.

Deployment

- Deployment of the ROV should be in accordance with the ship's and ROV standard operating procedures and environmental operating procedures.
- Any activities that take place within a protected or managed area will be done in accordance with the relevant management plan provisions.
- All equipment should be checked prior to entering the water.
- Communication should be maintained between the bridge and ROV support boat for the duration of the activity. The bridge officer and support boat driver should monitor the weather during the activity and notify all involved of any adverse changes.
- ROV activity should be logged.

Reporting

Following ROV operations a 'Dive Record & Report' should be completed and returned to GSGSSI within 30 days.

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- Disturbance to wildlife, from the presence of an ROV, or the noise or light it emits, will require the ROV to back away, or abort the dive.
- ROVs will not operate within 200 metres of the beach of any visitor landing site or known wildlife aggregation such as a colony or breeding beach.
- The ROV should not, make contact with the seabed, underwater structure or animal. If contact is made this must be reported to GSGSSI in the 'Dive Record & Report'
- While hovering close to the seabed or underwater structures, care should be taken to prevent thrusters disturbing the delicate benthic community. If contact is made this must be reported to GSGSSI in the 'Dive Record & Report'
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