AECO Association of Arctic Expedition Cruise Operators

Small Boat Operational Guidelines

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Definition

Small boat is defined as either a fully inflated vessel, semi-rigid or rigid hull inflatable boat (RHIB), or similar craft used for regular passenger landings and sightseeing cruises.

The definition of *small boat* **does not** encompass MOB boats, lifeboats, life rafts, passenger tenders as referred to under MSC 1/circular 1417.
These guidelines apply at all times – with or without passengers in the boat.

Recommendations

AECO strongly recommends that members get detailed small boat operational procedures approved by relevant Classification Society and Flag State. Procedures based on these guidelines should be implemented in the Safety Management System (SMS).

Engine and small boat standards

Small boats and their equipment should be built to recognized standards such as:

- CE approved engine to ensure compliance with EU Directive 2013/53/EU on recreational craft on pollution prevention, exhaust emissions and noise.
- Inflatable Boat Operations Certificate (IBOC) where applicable.
- ISO 6185:2018
- US 46CFR24—26
- Other substantially equivalent standard.

Assess the need for propeller guards for use during specific activities.

Minimum equipment requirements

The following equipment should be in small boats or on standby for immediate use:

Anchoring device (with short length of chain and long rope)
Paddles
Spare fuel (additional portable tank or as required)
Pump
Tool kit
Fire extinguisher
Radio or portable radio with a spare battery
GPS (with a compass function) with relevant navigational charts installed or paper chartlets
First aid kit
Flare kit and sound signaling device
Float-free satellite EPIRB or AIS
Lifebuoy or rescue coils/throw bags
Radar reflector
Navigation lights as per COLREG, if operating in reduced visibility or at night

Small boat conditions

Boats must be properly inflated in line with manufacturer recommendations.
Any defects found in outboard motors, boats or associated equipment must be reported to a designated person as soon as possible.
Boats must be clean, water pumped out and seats wiped off prior to boarding passengers.
Assess the location of grablines internally and externally on the boat(s).

Onboard procedures

- Capacity: maximum seating capacity varies with the type of small boat - refer to the manual for the specific model of boat and then do not overload boats.
- At least two small boats should always drive together when operating with passengers, in case of a MOB situation. This is also the recommended guideline when there are no passengers in the zodiac. The exception is during very short shuttles.
- Life vest: ensure that everyone onboard is wearing a life vest/personal floatation device (PFD) properly before entering the excursion boat.
- The dead man’s cord should be used according to the policy of your company.
- Technical operational procedures: The small boat driver should always check that the vessel is adequately maintained before operating; has full and appropriate fuel container, etc.

Distance from mother vessel

The distance from the mother vessel shall be as per any local regulation and in the absence of such subject to a risk assessment based on the visibility, the number of small boats operating together, their extra equipment (AIS, satellite phone, etc.), local weather and ice conditions, presence of wildlife, etc.

Measuring distance

- Means to be able to measure distances during zodiac operations. Check distances to potentially hazardous features regularly.
  - It is recommended that available equipment can measure distances accurate up to minimum 1000 meters.
  - It is recommended that staff are trained in assessing distance and the use of portable distance measurement equipment if available.

Driver qualities

Training and certification

All staff/crew hired as small boat drivers must possess:

> A valid national or international boating certificate or license from a professional and recognized boating entity.

Some examples are as follows:

- RYA Powerboat Level 2
- SKS-certification (Germany)
- USCG (US)
- SVOP (Canada)
- Coxswain (Australia)
- Permis Cotiere (France)
- Klein Vaarbewijs (Netherlands)
- SAMSA (South Africa)
- "Driving Small Boats/Zodiacs" - Polar Tourism Guides Association
- PSCRB as per STCW code

- In addition to the above, a certificate of competency from a vessel or management company.

Driving procedures

Before each small boat operation, a briefing of the operators will take place of the expected conditions Including but not limited to navigational features, hazards, weather conditions, landing specifics, periodic reporting to mother ship, etc.

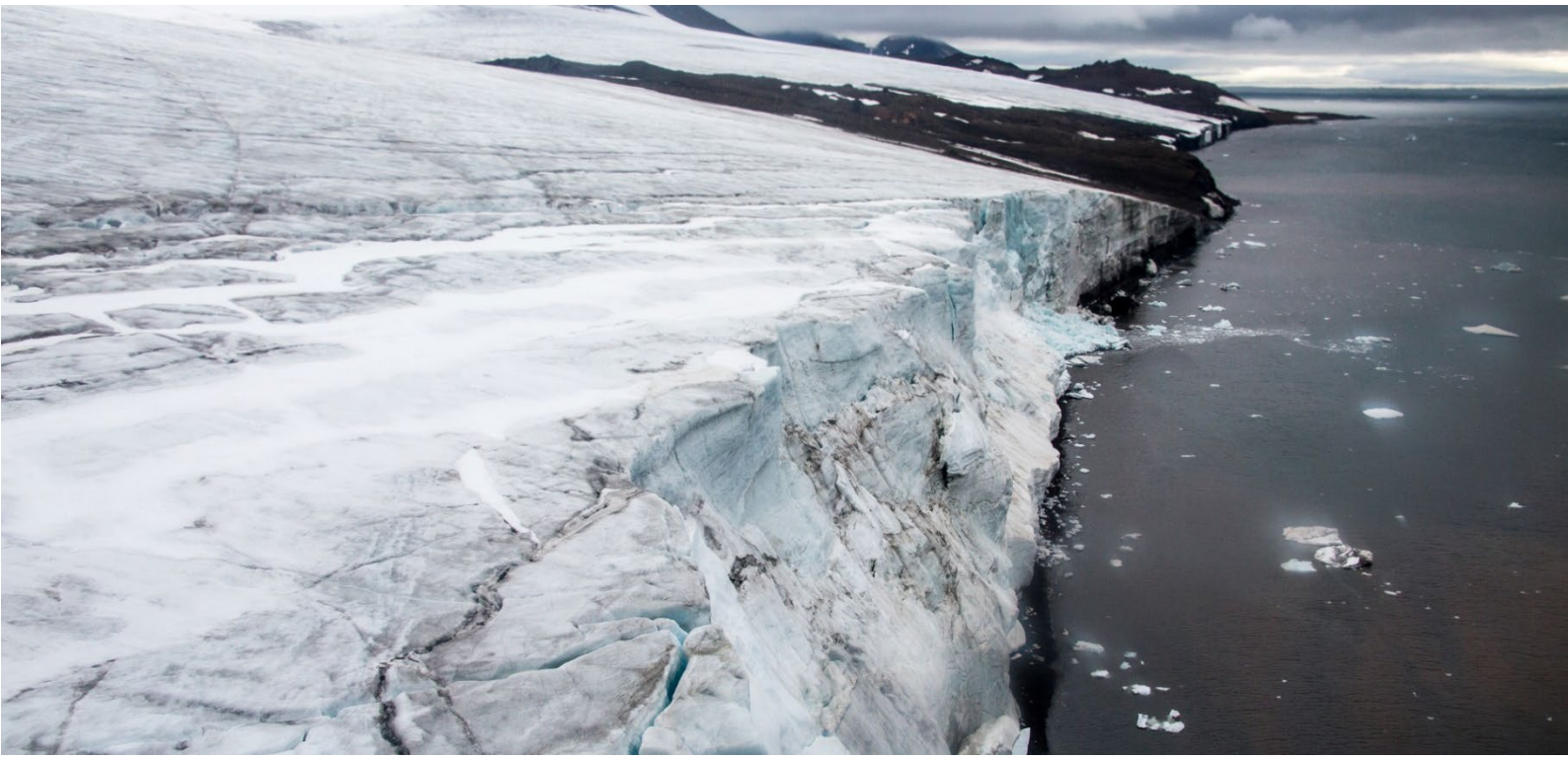
- Always plan small boat operations based on updated navigational charts, weather- and ice reports.
- Go slowly when near birds or animals, or when the sea-floor conditions are unknown as per AECO Wildlife Guidelines and local regulations.
- Avoid sudden or repeated changes in direction, speed or changing gears when close to marine mammals or swimming birds.
- Beware of risks of damage of small boats by wildlife (walruses, polar bears, seals, etc.).
- Before operating, assess the sailing conditions and review any bathymetric data near the coast. Do a reconnaissance without passengers if necessary.
- Assess the need for a second crew/staff member in the small boat under circumstances dictating complex operating conditions on gangway or landing site such as, but not limited to, wind and swell conditions.
    - Balance the boat according to the weight of the passengers.
    - Use additional ballast such as crew/staff, water containers, etc. when driving in unfavorable wind conditions with no passengers onboard, i.e. when returning after having disembarked passengers on shore.

Surf Zone

- Wave breaking zones can change rapidly. Be aware of the dynamic nature and inconsistency of wave actions in the vicinity of, and beyond the expected surf zone.

Ice conditions

- Be aware and respect the actual ice condition in which you are operating. Ice conditions can rapidly change with wind, tide, and currents.
- Bumping into growlers at speed can damage the pontoon and/or engine.
- Newly formed ice has sharp edges that might rip a hole in your inflatable boat.
- Investigate the ice drift before operating small boats. Be aware! Depending on the type of ice it can either move by wind or current.



Glacier fronts

Glaciers fronts may calve, causing flood waves and/or flying bits of ice. Keep your distance!

The recommended minimum distance to glaciers in the Arctic is no less than 200 meters. For high activity glaciers such as glaciers fed directly from the Greenland Inland Ice Cap a minimum distance of 400 meters is recommended (at some glacier fronts, even this may be too close, especially in narrow fjords, shallow fjords and fjords with high cliffs).

Exercise extra caution and always increase the distance to the glacier fronts if the glacier calves in shallow water or on land – use good judgment.

- All glaciers may calve, even if the probability of a glacier calving may differ. E.g. the probability of some glaciers calving is much smaller than others, but the less active glaciers may still calve.
- All small boats must keep an appropriate distance (including a buffer zone) away in order to handle a possible calving.
- Avoid being trapped by islands or in brash ice close to the glacier front in case a calving occurs.
- Factors that might affect the probability of a calving:
  - Glacier front height
  - Water depth in front of the glacier
  - Gradient of the glacier
  - The speed of the glacier front
  - Degree of fracturing in the glacier front
  - Sea and current dynamics under the glacier front
  - Fjord width, sea depth and topography as high cliffs
- If a calving occurs, and as waves become grounded, either in shallow water, or on shore, a tsunami effect may be created. Small boats should not land on shores near the edge of calving cliff faces, but further around the coastline from the glacier. Even then, implications of tsunami waves must be taken into consideration when securing boats and selecting landing sites. Please also refer to section 8.0 and 8.1.

Icebergs

- Potentially unstable: all icebergs can suddenly flip over, causing flood waves. Keep your distance! Icebergs are continuously under the influence of waves, tides, currents and temperature, and |therefore potentially unstable. Remember that 90% of the berg is under water.
- Never approach an iceberg too closely. A 200-meter distance must be kept to large icebergs.
- Do not enter an ‘ice pool’ and avoid driving over an ice foot. While they look very inviting, they are potentially extremely dangerous should the berg roll over.

- Never drive through an ice tunnel or under any ice arch as it can collapse without any warning. Engine vibrations may affect the stability of the ice. Remember a cubic meter of ice weighs one metric ton!
- Leave the engine running to enable a fast exit if needed.
- If you see a large iceberg start to roll drive away from it as quickly as possible.

Cliffs

Stones falling from cliffs, ravines with sand/stones and the breaking up of ice are hazardous. For these reasons, do not drive Zodiacs close to cliffs.
Like the above, snow avalanches into the sea can cause similar dangerous circumstances.

Impacts on the environment

Fauna in water, in drift ice, on ice floes and ashore

See the guidelines for wildlife viewing and polar bear safety.

Pollution

Small boats represent a potential pollution risk through fuel leakage, use of low-quality fuel or untrimmed or old model engines.

- The use of 4-stroke outboard engines is strongly recommended to reduce exhaust fumes and engine noise as much as possible.
- Operators should use low sulfur or alternative fuels for their vessels to reduce the concentration of pollutants in discharges from boat engine wet exhaust.
- Environmentally acceptable lubricants for outboard engines should be used whenever possible.
- Biosecurity measures in environmentally sensitive locations must be taken as necessary.

Passengers handling procedures and instructions

Passengers boarding, and disembarking procedures from/to ship and to/from shore

- Mandatory small boat briefing prior to the first excursion.
    - Include MOB procedure information (both passenger and driver)
- Suitable floatation devices are to be provided to guests and crew engaged in small boat activities.
- Describe the boarding procedure.
- Demonstrate the proper procedure for donning the floatation device to be worn in the excursion boats.

Boarding procedure

- Sailor’s grip: One passenger enters and leaves the boat at a time. Use sailors grip and step on the inflatable side, then into the boat.
- The passengers take a seat at a designated place.
- Floatation device: Be sure that all passengers and crew have their device done properly.
- Instruct passengers to hold on to suitable located grablines on the boat.

Passenger clothing/equipment

- Inform passengers about appropriate clothing for the conditions they will be encountering at the first information meeting in a general sense and before every landing specifically.
    - Recommended clothing: Windproof full body polar clothing (with 15000mm outer layer water resistance and with highly visible red or yellow color), hat, gloves, scarf and suitable footwear.
    - Recommended equipment: Backpack with some spare clothing is recommended as well as camera-protection against water splash.

Passenger behavior onboard

- Remain seated: Passengers shall always remain seated unless embarking or disembarking from the boat, or unless the boat is stopped, and permission is obtained from the driver.
    - When the boat is making way, all passengers must be seated
    - There should never be more than one passenger standing at the time of embarking or disembarking
- Secure equipment and belongings to avoid losing items overboard.
- Smoking in the boats is prohibited.

Photo: Eva Britt Kornfeldt