

Chapter 8

Peninsula Area Boating Operations



*Figure 8-1: Zodiac heading out to iceberg.
(photo by Dave Bell)*

The Zodiac brand of inflatable boats, which are equipped with outboard motors, are used in the U.S. Antarctic Program for ship-to-shore transport, short range excursions in the marine/coastal environment, as “platforms” for scientific investigations, and for Search and Rescue (SAR) operations. The 16-foot Zodiac MK III as well as the F-470 can carry only six people. The 19-foot Zodiac MK V can carry ten people.

8.1 Zodiac Allocation

The Palmer Station Boating Coordinator is responsible for maintenance, training, and allocation of the Zodiac fleet and will assign a Zodiac for your group to use during the season. All Zodiac use should be requested in the SIP and confirmed in the RSP.

8.2 Preparation Before Leaving Palmer Station

Everyone who travels by Zodiac must complete either the full Boating Safety and Islands Survival Courses or an abbreviated course before they will be allowed to check out. (See Chapter 5 for Field Safety Training requirements.) Each boating party must have a trip leader who assumes responsibility for the boat and for safety of the passengers. At least two people must travel together at all times; solo travel via Zodiac is not allowed.

Check the current weather conditions before you leave station. If conditions are severe, a “no boating” call may be in effect. There are various common patterns that indicate approaching storms. Please refer to Chapter 10 for more details regarding weather.

8.2a Checking Out

The standard station departure regulations apply to all boating operations. Each group must carry at least two radios. Since boating operations do not take place after dark, the hours of operation are adjusted by the Station

Manager throughout the season as the amount of daylight changes. In addition to signing out, each party must provide verbal notice of departure to either the Boating Coordinator or Station Manager. The actual departure from station should be radioed in once all group members are on board the Zodiac.

8.2b Loading the Zodiac

Each person is required to wear a float coat/suit, zipped up with the beaver tail fastened. (See figure 8.3 on page 81.) Make sure that your Zodiac has the following gear onboard before you leave:

- Main engine
- Back-up engine
- Bite cones installed on stern tubes
- Two full cans of gas (one as a spare)
- Two paddles
- Minimum of two radios
- One Boat Emergency Kit, containing:
 - Sleeping bag
 - Spark plugs
 - Flares
 - First Aid kit
 - Tools
 - 1 Air pump with hose
 - 1 Fuel hose
 - Emergency food

(See figure 8-2 on the following page.)

Zodiacs must be loaded evenly. To accomplish this, keep the survival bag and other gear forward in the boat. Be sure to stow gear securely so that in rough conditions it will not bounce around and puncture the boat. Also, make sure that neither the gear or passen-



*Figure 8-2: Zodiac loaded with proper gear.
(photo by Mary Lenox)*

gers are leaning against the pontoon air valves. Movement of valves may cause the pontoons to leak.

8.2c Checking the Boat

Before launching any boat, you will need to check the condition of the boat and all standard equipment. If equipment is missing or if the boat needs repairs, contact the Boating Coordinator.

8.2d Gear

Floatcoats: Be sure to put on and zip your floatcoat and secure the “beaver tail” before entering the boat. See figure 8-3 on next page).

Personal Gear: Always wear a hat while in the boat. Studies indicate that much body heat is lost from the head. Keeping your head covered may extend your

survival time in the water if you fall overboard.

When going out for day trips, take along a day pack or a waterproof dry bag to carry your personal gear. A non-waterproof day pack should be lined with a heavy



Figure 8-3: Floatcoat

duty plastic bag to keep the contents dry from rain or sea spray. Whatever method you use, it's a good idea to include the following gear when going out for the day:

- Personal cold weather clothing system with spare socks, mittens, hat, and spare polypropylene underwear
- Food and water—high energy snack food is recommended
- Sunglasses or goggles
- Sunscreen and chapstick
- Waterproof bag for camera, GPS, and gear listed above
- Flashlight or head lamp
- Plastic trash bag and pee bottle for human waste

8.3 VHF Radio

8.3a Radio Check & Communications

Before departing from the mooring area, call Palmer Station on the radio (channel 27) and give the station operator your party name, number in party, boat number, and your destination. You may not leave until you receive confirmation that your radio is operational. If the radio is not water resistant, make sure to shield it from moisture.

Report in as follows:

- Report departure, party name, number in party, boat number, and destination.
- Report arrival at destination.

- Report any changes in destination, Estimated Time En route (ETE) or Estimated Time of Return (ETR).
- Report start of return to Palmer Station.
- Report arrival at Palmer Station.

8.3b Radio Use While Boating

Always keep your radio ON and set to Palmer Station's main boating frequency channel 27 (Motorola Visars, use channel 02) with the marine channel 16 as backup. Don't leave your radio in the boat. Take it with you .

8.3c Returning Radios to the Station

Leave your radio in the return box in the Comms Tech workshop. Inform the Comms Tech if your radio gets wet.

8.4 Boating Hazards and Precautions

8.4a Weather

Weather conditions can change rapidly. In the Palmer area, the worst storms come out of the north. If you are working to the southeast of Bonapart Point, you need to pay special attention to increases in wind from the north. Always watch for wind direction shifts, increases in wind speed, reduction in visibility, and movement of the ice pack. The rapid approach of stratus-type clouds usually precedes an increase in wind and possible precipitation.

All boating parties will be advised by radio if the wind speed reaches 20 knots, and they will be recalled if the wind reaches 25 knots or greater. If wind speeds are such that it is unsafe to return to the station, parties may be asked to make for the nearest island with a survival cache to wait out the weather until conditions improve.

Always reduce your speed in high winds. Zodiacs driven fast into the wind can flip over. If you must travel during moderate windy conditions, the wind direction will determine the best course of action for you to take. If the winds are off-shore, it's best to skirt close to shore where the effects of the wind and waves will be reduced. (Keep in mind that glacier faces may be dangerous.) If the wind direction is on-shore, you should keep the boat away from shore. In both cases, put weight (including passengers) in the front of the boat to avoid the possibility of flipping over.

8.4b Icebergs and Glaciers

Stay at least 300 meters from all glacier faces. Use caution when in close proximity to large icebergs because they can suddenly calve or flip.

8.4c Brash Ice

Always reduce your speed in brash ice. If speed is excessive, Zodiacs can ride up over the ice, tip over, or suffer propeller and hull damage. Make sure engine lock is in the "free" position, not locked down. To free brash ice that has gotten under the boat, it is often necessary to stop, put the engine in reverse, and back-up until the ice is jarred loose.



Figure 8-4: Iceberg. (photo by Marian Moyher)

One of the more dangerous situations a boating party can experience is being caught in a stream of thick brash ice that is rapidly drifting out to sea. This can occur when brash ice accumulates in bays and is suddenly blown out by off-shore winds. To avoid being caught in this situation, never attempt to travel through brash ice during windy conditions.

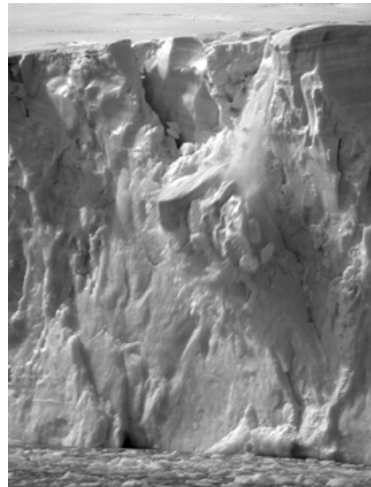


Figure 8-5: Calving glacier. (photo by Marian Moyher)

8.4d Rocks

Traveling over rocks can tear the Zodiac hull fabric. If the front (bow) of the boat is punctured, put most of the weight in the back (stern) of the boat. If deflated, the bow should then be pulled up with the bow line. Radio Palmer of your situation, then make haste to shore.

8.4e Waves

Always approach big waves (1-2 meters or greater) at a 45-degree angle. You may have to use a tacking pattern to reach your destination. In big waves, you may have to shift weight to the weather side of the boat to avoid capsizing. When traveling with waves at your back (a following sea), avoid surfing waves to pick up speed. Surfing can bury the nose of the boat in the next wave.



*Figure 8-6: Zodiacs traveling through brash ice.
(photo by Tim Cully)*

8.4f Wildlife

Give all animals a wide berth and stay away from Orcas (Killer Whales) and leopard seals. Leopard seals are aggressive and have bitten/punctured the speed tubes and pontoons of Zodiacs.

8.5 Troubleshooting

Several simple things that may cause the outboard engine to not run:

- **Gas tank fuel level is low:** add gasoline.
- **Spark plugs badly fouled:** replace with the spares from the Boat Emergency Kit.



*Figure 8-7: Leopard Seal
(photo by Tim Cully)*

- **Carburetor iced up:** remove ice from the carburetor.
- **Fuel contamination:** use the back-up engine, spare fuel hose, and spare gas tank.
- **Engine runs, but the propeller does not turn:** replace it with the spare engine and proceed to the nearest land or Palmer Station.

- **Mooring line gets wrapped in the propeller:** clear and securely fasten the mooring line to the bow.

If you feel uncomfortable with replacing the main engine or are unable to do so, call in for a tow. It is better to get a tow than risk losing an engine overboard. If all else fails, paddle yourselves to the nearest land. Use emergency signals on the hour if the tow boat is unable to locate you or radio contact is not possible.

8.6 Landings and Moorings

Before landing, carefully select a site so that waves will not overturn the boat or strand it high on the rocks. The boating chart lists recommended landing sites on most of the accessible islands. Always moor the Zodiac with the front of the boat (the bow) toward land, and use a bowline knot to securely tie it. Always tilt the engine up and secure it in place with the lock to prevent shaft and propeller damage in shallow water. Make sure the Zodiac can free float, unless conditions require a tight line so that the boat does not wash up on a nearby shelf.

If you will be at the same site for more than an hour, periodically check the boat and adjust the mooring line so the boat isn't stranded on the shore or washed out as the tide changes.

8.7 Operating Restrictions

The boating limit is a two-nautical-mile radius, as shown on the boating chart (figure 8-9) for Palmer Station and vicinity. Under special conditions, trips are

allowed to Biscoe Point to the east and Dream Island to the west. This is the maximum distance that the SAR team can respond within a safe time period. The boating chart is located in each Zodiac.



Figure 8-8: Island mooring point. (photo by Tim Cully)

8.7a Areas of Restricted Access

Antarctic Specially Managed Areas (ASMAs) are areas designated by the Antarctic Treaty Consultative Meeting (ATCM) to assist in planning and coordinating scientific and operational activities to avoid conflicts and minimize environmental impacts. A draft Palmer Area ASMA (formerly called a Multiple-Use Planning Area or MPA) was prepared by the US for submission to the ATCM. Until an official designation is made by this body, the USAP voluntarily abides by the draft Palmer Area management plan. This will ensure that on-going and planned human activities in Antarctica,

through their combined or cumulative effects, do not result in mutual interference or in adverse impacts in the Palmer Area. Most of the islands around Palmer Station and within the two-mile boating limit have been included in the draft plan.

The areas listed below must not be visited during the



Figure 8-9: Map of Palmer area boating limits and survival cache locations.

critical seabird breeding season from October 1 through March 1, except in connection with scientific activities, survival cache replacement, or emergencies. Principle Investigators (PIs) wishing their field team to enter an area designated in the plan are required to send the NSF/OPP Permit Officer a brief statement of work which includes information regarding which specific islands to be visited and the time frame(s) involved. The NSF/OPP will confirm that there are no conflicts and provide approval for the entry to the PI.

Palmer Area restrictions on entry between October 1 and March 1:

Bonaparte Point	Christine Island
Cormorant Island	Diana's Island
Dream Island	Elephant Rocks
Hermit Island	Humble Island
Joubin Islands	Kristie Cove
Laggard Island	Limitrophe Island
Norsel Point	Shortcut Island
Shortcut Point	Stepping Stones Island

Litchfield Island is a Specially Protected Area and is always off limits. Personnel may not go any closer than 10 meters to shore unless they have an ACA permit.

8.8 Boating Emergencies

The following islands have survival caches and tie-up points, and most are within the two- mile limit around Palmer Station:

Torgersen	Litchfield
Humble	Janus
Shortcut	Hermit
Cormorant	Stepping Stones
Christine	Old Palmer
Outcast- outside of two mile boating limit.	
Dream- outside of two mile boating limit.	

Landing sites and tie-down locations are marked with painted orange dots. The blue survival cache barrels are marked with flags (see figure 8-11). The survival caches are placed away from wildlife sites. Refer to the boating chart (figure 8-9) for a list of survival cache sites.

8.8a Person Overboard

The cold Antarctic waters make a person overboard the most critical boating emergency, because once submersed, a person has 12 minutes before hypothermia sets in. If someone falls into the water at the shoreline, they



*Figure 8-10: Giant Petrel chick sits on nest at Stepping Stones Island.
(photo by Tim Cully)*

should get out of the water immediately. In contrast, someone who falls into the water from a Zodiac, should limit their movement in the water to the minimum needed to keep afloat (see figure 8-12). Motion increases blood circulation which moves blood away from the body core and cools the body temperature and hastens the onset of hypothermia (see the First Aid section of Chapter 24).

When someone falls overboard, immediately call the station for help. Maneuver the boat for pickup, while ensuring to keep the propeller away from the person. You may need to cut power to the engine to do this. Try to keep everyone, including the person overboard, calm and don't attempt the rescue at the cost of other members of your party.

Distribute any gear and passengers to accommodate for the weight of pulling the water-laden person into the boat. The victim may lose use of his/her extremities, and you will have to pull the person into the boat without their help.

If you are alone and the person overboard has lost the use of his or her arms and legs, float the



*Figure 8-11: Survival cache on Humble Island.
(photo by Tim Cully)*

person with their back toward the side of the boat. Distribute your weight across the boat and reach over the side and under the person's arms, locking your hands in front of the chest. Using leverage, roll your entire body so as to pull the person aboard or at least remove as much of the person from the water as possible until the rescue team arrives.

Once the person has been pulled from the water, remove all wet clothing and slip the person into the sleeping bag found in the Boat Emergency Kit. Return immediately to Palmer Station.



Figure 8-12: H.E.L.P. positions.

8.8b Search and Rescue (SAR)

If there is a call for help or a field team is overdue with no radio contact, the SAR team will be launched within 30 minutes if the weather conditions permit safe deployment of the team.