

SUB-NAME

Emergency Plan



West Arm Great Traverse Bay
Lake Michigan
Traverse City, MI
Sep 8-10, 2025



SUBMERSIBLE INFORMATION			
IDENTIFICATION		COMMUNICATION	
Vessel Name:	Pearl Diver	Call Sign:	Pearl Diver
Registration:	FL 1234 YZ	Surface:	VHF 68 or FRS Ch. 1
HIN:	0123456789	Underwater:	OTS STX-101 Ch. 1
Color:	Yellow		32.768 khz
Length:	14 feet		
PROPULSION		PARAMETERS	
Motors:	Electric	Max Depth:	300 feet
Manufacturer:	Minn Kota	Weight:	4000 lbs
Model:	MK101	Draft:	4 feet
POWER		ENDURANCE	
Type:	Battery	Oxygen:	72 hours
Chemistry:	LiFePO4	Soda Lime :	72 hours
Motors:	105 ah	Water:	72 oz
Cabin:	304 ah	Food:	Class C
		Cabin Power:	72 hours

OWNER/OPERATOR	
Name: Joe Psubber	Age: 40
Address: 1 Maple Street Anywhere, CA 90210	Gender: Male
Phone: 800-555-5555	Vehicle: 2021 Subaru
	Vehicle Tag ID: 78234 (CA)
	Trailer Tag ID: F83T56 (CA)

EMERGENCY CONTACTS		
PARTICIPANT	CONTACT	PHONE #
Joe Psubber	"Mom" Psubber	800-555-1212

SAFETY & SURVIVAL			
	BIBS		Flashlight
	Fire Extinguisher		Whistle
	Life Jacket		Horn
	Emergency Buoy		Strobe Light
	Steinke Hood		Acoustic Location Pinger

SUPPORT DIVER ORIENTATION	CREW ORIENTATION
- AIR/O2 Tank Replacement - Add air to MBT (FWD & AFT) - Vessel lifting point locations	- Electrical switch locations - HP gas valve locations - Hatch operation - Emergency Buoy Release - BIBS location - Fire Extinguisher location - Emergency Drop Weight - SEM computer operation

INCIDENT GUIDE

1) ENTANGLEMENT

- a) Notify SOC of entanglement
- b) Release emergency float
- c) SOC notifies operator when float breaks surface, so operator stops float from unspooling further
- d) Diver(s) descend along float line and clears entanglement
- e) Operator surfaces the sub normally

2) INCAPACITATED OPERATOR

- a) After 30 minutes overdue, initiate search using divers, sonar, or another submersible.
- b) Upon finding submersible diver marks location by manually releasing emergency float.
- c) Divers use SCUBA tank to manually fill MBTs (Fore and Aft).
- d) Divers should alternate blows among the 2 MBTs, so that the lift is evenly distributed.
- e) When sub becomes positively buoyant, stop manual blow.
- f) When the sub surfaces, attach tow line and tow to boat ramp.

3) DEAD VESSEL LIFT

- a) See APPENDIX-B for information related to raising the vessel via lift bags or crane.

4) FIRE OR SMOKE IN CABIN

- a) Use BIBS for respiration immediately
- b) Use Fire Extinguisher for open flame
- c) Release emergency buoy
- d) If source of smoke/flame is electrical:
 - i) Turn off PORT and STBD 36v battery switches
 - ii) Turn off CABIN 12v battery circuit breaker
- e) Notify SOC of emergency ascent and surface ASAP

5) AIR/O2 DEPLETION

- a) AIR:
 - i) Notify SOC and attempt to surface using vertical thrusters.
 - ii) Notify SOC of emergency ascent, jettison emergency drop weight.
- b) O2:
 - i) Use BIBS for respiration immediately.
 - ii) Notify SOC of emergency ascent and surface ASAP.

6) CABIN GAS LEAK

- a) Attempt to isolate cause and shut appropriate valve
- b) Notify SOC of emergency ascent and surface ASAP
- c) At surface, open exterior cabin vent valve to equalize air pressure

7) EXTERIOR GAS LEAK

- a) If HP AIR leak, notify SOC of emergency ascent and surface ASAP.
- b) If HP O2 leak, notify SOC and surface normally.

8) UNCONTROLLED FLOODING

- a) Use BIBS immediately.
- b) Initiate emergency ascent.
- c) Jettison emergency drop weight if necessary.
- d) If positive buoyancy unattainable, execute bailout procedure.

9) ENVIRONMENT CONDITIONS MANDATING IMMEDIATE ASCENT

This vessel is designed to maintain normal sea level environmental conditions to tight tolerances. Any significant deviation from normal parameters justifies aborting the dive and returning to the surface so that the cause of the deviation can be identified and corrected.

- a) Cabin O2 level <19% or > 23%
- b) Cabin CO2 level > 5000 ppm
- c) Cabin pressure <2 psig or >2 psig from starting level
- d) Cabin temperature approaching 90F
- e) HPAIR or HPOXY approaching 500 psia

10) CRITERIA SUPPORTING DECISION TO BAIL-OUT AND ESCAPE

- a) Uncontrolled flooding or fire
- b) Increasing CO2 concentration is approaching 1 percent (10kppm) and is continuing to increase after all means to control carbon dioxide build up have been used. Waiting until the carbon dioxide levels are intolerable will give survivors only a few extra hours to safely remain on board and will greatly complicate the escape sequence as the survivors' mental capacities deteriorate.
- c) Decreasing oxygen concentration is approaching 13 percent and all onboard reserves have been used.
- d) The internal pressure of the vessel is increasing and rescue is not immediately anticipated. Escape should be made before the internal pressure reaches 20 psia to minimize risk of decompression sickness when reaching the surface.
- e) Persistent toxic atmosphere conditions exist.
- f) Surface support is present to retrieve and care for survivors, especially in colder waters.
- g) The vessel is at a depth of 450 feet or less. Successful escapes from greater depths are possible but riskier.

- h) The pilot's physical condition will allow survival in the open water until rescue personnel arrive.

11) BAIL-OUT ESCAPE PROCEDURE

Except in the case of rapid flooding, there should be no rush in executing a bail-out. Take the time to walk through the procedure repeatedly so all crew members can coordinate their actions.

- a) Turn on cabin lights and flashlights.
- b) Release hatch dogs.
- c) Prone crew member rotates onto their back and stays in that position.
- d) Stow away pilot seat.
- e) Use BIBS and dive masks.
- f) Pilot fully opens scuttle valve and returns quickly to CT position.
- g) Pilot opens hatch as soon as pressure equalizes, takes deep breath from BIBS and exits vessel for free swimming ascent.
- h) Prone crew member follows.

ADDITIONAL NOTES

APPENDIX-A Food Endurance Classes

CLASS	DESCRIPTION	NOTES
A – Full Rations	Enough food to meet daily caloric needs for 72 hours or more.	Sustains normal energy levels; fully adequate for planned operations.
B – Partial Rations	Limited food — roughly 1–2 meals or sandwiches.	Provides some energy but below daily requirements; operational effectiveness may decline.
C – Minimal / Snack-Only	Small snacks, high in sugar or carbs, but insufficient calories.	Will not sustain full energy levels; short-term survival only.
D – None	No food available.	Hunger will impact performance within hours; risk of hypoglycemia and fatigue.

