



Research Vessel Safety Manual

S/V STEELHEAD

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About this vessel

The survey vessel *Steelhead* was constructed in 1967 as a commercial trawler. The T. D. Vinette Company, Escanaba, Michigan designed and constructed the *S/V Steelhead* for the Department of Natural Resources for the purpose of sampling fisheries and deep-water habitats of the Great Lakes. It has operated out of the Charlevoix Fisheries Research Station since 1968. The *Steelhead* is primarily setup for gill netting, trawling and hydro-acoustics but has proven to be an excellent platform for other sampling gear. The *Steelhead* operates with a crew of four including a captain, assistant captain, fisheries technician, and fisheries assistant. Onboard there is a pilot house, laboratory, five sleeping berths, shower, head and galley. The *Steelhead* is the only state vessel to use on-board crew accommodations and typically operates from April through October on Lake Michigan conducting fisheries assessments.

Specifications:

Length - 65 feet

Beam (width) - 16 feet

Draft - 6 feet

Displacement - 70 tons

Hull – Welded steel plates

Engines – Twin V-6 380 hp Cummins diesels

Max Speed - 10.5 knots (12mph)

Year Launched - 1968

Checklist for Getting Underway

Personnel

1. Visitors fill out emergency contacts form (Appendix 2) and non-DNR employees also fill out volunteer waiver form (Appendix 3).
2. All persons have a general idea of the layout of the vessel, such as place to assemble in the event of an emergency.
3. All vessel staff are to be aware of the location of all safety and emergency gear.
4. All persons aboard have a PFD (personal floatation device) on or in their possession before the vessel leaves the dock.
5. All vessel staff know how to make a distress call on Channel 16. See details on page 9.

Safety Equipment Location and Use

1. Life raft is located on the top side of the vessel right above the companion way on the starboard side. Life raft is equipped with an automatic release, but could be manually inflated if needed. To deploy manually, pull and hold on to ripcord and wait for deployment, then pull raft to vessel and enter.
2. Life jackets are located in the pilot house under the captain's bed and on the right-hand side of the stairs leading down into the galley.
3. Immersion / Survival suits are located in the companion way.
4. Survival ring is located at the starboard bow, and the rear of the house next to pilot station. One survival ring is to be deployed as soon a person-overboard (MOB) alarm has been sounded to be used as a reference point.
5. Survival sling is located on the port bow and is designed to be towed to victim if necessary.
6. Fire extinguishers are located throughout the boat: one in living quarters, two in companion way, two in engine room, and one next to generator. The engine room is equipped with a manual release halon fire suppression system, **before the system is released all persons need to be clear of the engine room** and all doors and hatches must be closed.
7. Flares are in the pilot house (in labeled cabinet).
8. EPIRB (which can be deployed automatically and manually) is located on the starboard side of the domed door to the lifting room. To deploy manually...pull locking pin to open housing, remove EPIRB, and flip switch to "ON".
9. First Aid Kit is located in the wet lab, as well as pilot house in cabinet under auto-pilot.
10. AED is located in first closet to the right as you walk into the pilot house from the companion way.



-  Life Ring
-  Life Jacket/Immersion Suits
-  Life Sling
-  Fire Extinguisher
-  Inflatable Life Raft

Emergency Responsibilities

Position	Medical Emergency	Fire	Person Overboard (MOB)	Flooding and Rough Weather	Abandon Ship
Captain	In the pilot house. Radio for medical advice or med-evac. Instructing passengers and volunteers to assist deckhand.	In the pilot house. Maneuvering the vessel. Hailing assistance. Fighting fire. Deploy halon system.	Follow MOB Procedure (Page 8)	In the pilot house. Maneuvering the vessel. Hailing assistance.	In the pilot house. Hailing assistance. Don immersion / survival suit. Flares, Portable Radio, Log Book.
Assistant Captain	On scene. Provide first aid. Direct Fish Assistant and Fish Technician.	Bring fire extinguisher, ready fire hose. Fight fire. Fuel shut off's and vents w/Captain's approval. Deploy halon system w/ Captain's approval. Assist on scene as directed.	Follow MOB Procedure (Page 8)	Secure for rough weather. Locate and stop flooding. Close all hatches and watertight doors. Pump compartments.	Don immersion / survival suit. Assist others w/ donning of suits. Activate EPIRB, launch life rafts on command.
Fish Technician and Fish Assistant	Relay situation to Captain. Bring first aid kit and AED. Assist on scene as directed.	Same as Assistant Captain	Follow MOB Procedure (Page 8)	Relay situation to Captain. Assist assistant captain.	Don immersion / survival suit. Relay situation to the Captain. Launch life rafts on command.
Passengers / Volunteers	As directed.	As directed.	As directed.	As directed	As directed. Don immersion / survival suit.

Person Overboard (MOB procedures)

Witnessed Person Overboard -

1. Alarm all persons aboard, throw life ring with strobe light over immediately, Captain is to mark waypoint (MOB) while navigating back to victim.
2. The original witness is to keep the victim in sight always unless captain instructed change by other staff.
3. Other crew member is to ready safety ladder, other life ring and life sling.
4. Maneuver the vessel to pick victim up.
5. Deploy the safety ring or safety sling as needed
6. Use caution while getting the victim onto the vessel to avoid any persons on deck going into the water.
7. If by chance the victim is unconscious a staff member will don a immersion / survival suit and swim the sling to the victim before being pulled to the vessel where additional first aid would continue.

Unwitnessed Person Overboard -

1. Alarm all persons aboard, throw life ring with strobe light over immediately, Captain is to mark waypoint while navigating back and start navigation track if not already doing so.
2. Call for assistance to the Coast Guard.
3. Using the vessels path and current wind and wave currents, adjust your search area.
4. One crew member is to ready safety ladder, other life ring and life sling.
5. Remaining vessel crew and volunteers are to be on lookout for victim
6. Continue search until released by Coast Guard.

Tips if you fall overboard

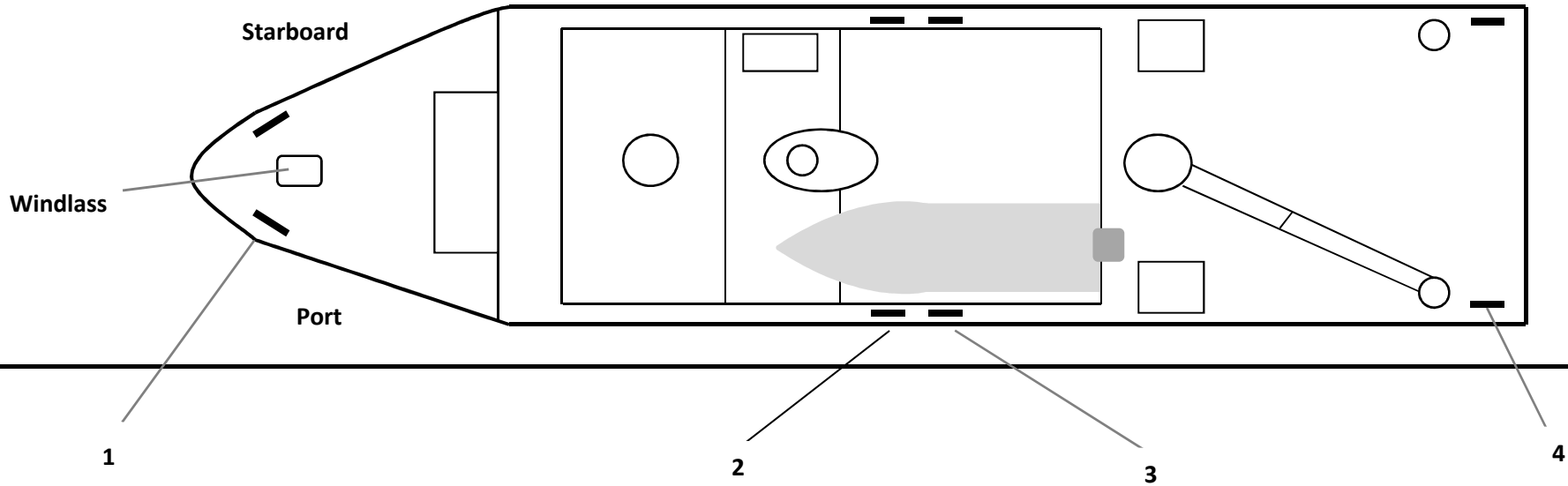
1. If you are in cold water
 - a.) Do not swim unless you are sure you can reach a nearby boat, fellow swimmer, or floating object.
 - b.) If you can, pull yourself up on a floating object. The more of your body that is out of the water, the warmer you will be.
 - c.) Keep head out of water to lessen heat loss and increase survival time.
 - d.) If others are in water and conditions permit, **stay together**. This improves morale and provides rescuers with a larger target, increasing your chances of being rescued.
2. If you must go overboard in immersion / survival suit remember to relax; you will float.
3. Jumping into water is a last resort. If possible, ease or lower yourself into the water.

Emergency Marine Radio Procedures

Always speak SLOWLY-CLEARLY-CALMLY

1. Be sure radio is turned ON.
2. Select Channel 16.
3. Press microphone button and say, "MAYDAY -MAYDAY -MAYDAY. This is the *Steelhead* Over."
4. Release microphone button and wait for acknowledgement. If no answer, repeat step 3.
5. If the Coast Guard or another vessel responds say, "MAYDAY, this is the *Steelhead*".
6. State your location (Latitude and Longitude, a range and bearing from a known point, or anything that may be of help).
7. State nature of distress or emergency; describe condition of vessel, number of people aboard, and any injuries.
8. End by saying, "This is the *Steelhead* standing by on Channel 16."

Vessel Mooring Scheme



Number	Name	Purpose
1.	Bow Line	Prevents backward movement and keeps bow close to dock
2.	Forward Spring Line	Prevents vessel from moving backward
3.	Rear Spring Line	Prevents vessel from moving forward
4.	Stern Line	Prevents forward movement and keeps stern close to dock

Docking Line Order	Name	Departing Line Order	Name
3	Rear Spring Line	1 & 4	Release Bow and Stern Lines.
2	Forward Spring Line	2	Release Forward Spring Line
1 & 4	Position boat and tie off	3	Release Rear Spring Line

The scheme represents a port tie, but the indicated numbers transfer to the starboard side if needed. Upon captain's request additional lines may need to be added and lines may need to be doubled.

Emergency Contacts

Fisheries Station

Charlevoix Fisheries Research Station: 231-547-2914

Dave Clapp: Station Manager 231-350-6430 (cell)

Jerry Ranville: Captain 231-499-9927 (cell)

Patrick O'Neill: Assistant Captain 231-350-1647 (cell)

Pollution Control

USCG Pollution Response: 800-424-8802

USCG Sector Sault Ste. Marie: 906-748-8300

USCG Sector Lake Michigan: 414-747-7100

Michigan Dept. of EGLE (statewide environmental emergencies): 800-292-4706

Michigan Dept. of EGLE (Gaylord): 989-330-9252

U.S. Coast Guard

Ninth District Command Center: 216-902-6117

Sector Sault Ste. Marie: 906-635-3236

Sector Lake Michigan: 414-747-7100

Crane Operations

Purpose: The purpose of this procedure is to set forth the standards for crane operators on the S/V *Steelhead*. The safety of crane operations, whether in port or at sea, is of the utmost importance.

Responsibility: The Captain is responsible to see that all operators are properly trained.

Operation/Training: Hard hats are to be worn always by anyone who is within the reaching distance of the operating crane. The crane shall be operated by a trained and qualified member of the crew. They will operate under the direction of the vessel Captain or Assistant Captain. Training covers the basic concepts of operation and rigging along with a comprehensive understanding of hand signals and crane controls. Hands-on training usually begins dockside with observing a qualified operator, followed by coaching of the trainee and putting him/her "through the paces". This typically involves several hours of training including making pick-ups and placing objects as directed using all of the crane functions to the satisfaction of the Captain or Assistant Captain.


Note: the crane operator, at times, has a distinct advantage in being able to see better from the control position than the position on deck. At other times, the crane operator's vision may be obstructed. It is of paramount importance to follow signals at all times. If the operator is confused, in doubt, uncertain or if he/she detects an unsafe condition occurring or about to occur, it is essential that immediate action be taken to avoid danger. This will be done by hand signals, stopping, or by whatever emergency measures are available.

If the operator observes others directly involved in crane operations proceeding in an unsafe manner or not in compliance with required safety gear, the operator will stop operations as soon as it is safe to do so and will not proceed until corrective action has been undertaken. This applies if there are others within the operating or danger zone that must be kept clear.

Appendix 1. Training Log

Type of Training	Date	Attendees
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		

Appendix 3 – Volunteer Waiver



Michigan Department of Natural Resources – Human Resources

VOLUNTEER-RELEASE-AND-WAIVER-OF-LIABILITY

Required by authority of the Michigan Department of Natural Resources, for volunteer assignment consideration.

Please read carefully! This is a legal document that affects your legal rights!

The State of Michigan, as an Equal Opportunity Institution, complies with federal and state laws prohibiting discrimination and harassment, including Title IV and Title VII (with amendments) of the 1964 Civil Rights Act, Title IX of the Educational Amendment of 1972, Section 504 of the Rehabilitation Act of 1973, Veterans Readjustment Act of 1974 as amended 38 USC 20-12 and the Americans With Disabilities Act of 1990. It is the policy of the State that no person, on the basis of race, sex, height, weight, color, religion, national origin or ancestry, age, marital status, disability or veteran status, shall be discriminated against in educational programs, activities, and employment.

The Michigan Department of Natural Resources (DNR) encourages and supports volunteers. As a volunteer, I have an important role in providing services and programs to the public.

I want to work as a volunteer for the Michigan DNR which appoints people like me to serve and to help the Michigan DNR. While I am serving as a volunteer, I have the same immunity from civil liability under Michigan law as an employee of the Michigan DNR. After becoming a volunteer, the Michigan DNR will provide me with support, supervision, training, and supplies for me to accomplish my assigned tasks.

Therefore, I do freely, voluntarily, and without duress, execute this Release and acknowledge the following terms:

1. **Waiver and Release.** I hereby release, waive, discharge and covenant not to sue the State of Michigan, its departments, officers, employees and agents, from any and all liability to me, for all losses, injury, death or damage, and any claims or demands thereto, on account of injury to person or property, or resulting in my death in reference to the activities authorized in my work as a volunteer. I hereby covenant and agree to indemnify and save harmless, the State of Michigan, its departments, officers, employees and agents, from any and all claims and demands, for all loss, injury, death or damage, that any person or entity may have or make, in any manner, arising out of any occurrence related to the activities authorized in my work as a volunteer.
2. **Medical treatment.** I release and discharge Michigan DNR from any claim that arises or may arise due to any first aid, medical treatment, or service rendered to me. I understand that I may not be entitled to workers' compensation.
3. **Assumption of risk.** I understand that my work for the Michigan DNR may include activities that may be hazardous. I assume the risk of injury or harm in those activities I choose to do and release the Michigan DNR from all liability for injury, illness, death, or property damage occurring from my work for the Michigan DNR.
4. **Insurance.** The Michigan DNR does not have responsibility for providing any health, medical or disability insurance coverage for me. IT IS MY RESPONSIBILITY AS A VOLUNTEER TO ENSURE I HAVE MEDICAL/HEALTH INSURANCE. As with other members of the public, I may file a claim with the State Administrative Board for personal losses that are under \$1,000.
5. **Photographic release.** I grant to Michigan DNR the right to use photographic images and video or audio recordings of me that are made by Michigan DNR or others during my work assignment for Michigan DNR, including royalties, proceeds or other benefits from use of the photographs or recordings.
6. **Copyright laws.** I understand that showing videos in public that are intended for home viewing is prohibited under the U.S. copyright laws.
7. **Background check.** I understand that a criminal history check may be obtained prior to my appointment as a volunteer. My signature below certifies that I agree to a criminal history check and agree to provide Michigan DNR with my date of birth.
8. **Discrimination laws.** I agree to follow Michigan DNR's policy, along with state and federal laws that forbid discrimination in employment, education, housing, public accommodation, law enforcement or public service based on a person's religion, race, color, national origin, age, sex, marital status, height, weight, or disability.
9. **In-kind service.** The Michigan DNR is eligible for some grants that require that the grant dollars received be matched by the Michigan DNR. Many grants allow the use of in-kind services as a portion of this match in lieu of actual dollars. My signature certifies that I consent to the use of my volunteer time as a possible in-kind match for grants received by the Michigan DNR.
10. **Other.** I agree that this Release is intended to be as broad and inclusive as permitted by the laws of Michigan, and that this Release is governed by and will be interpreted according to the laws of Michigan. I understand that should any part of this Release be ruled invalid by a court, the other parts will remain valid and continue to be in effect.

VOLUNTEER	GROUP/ORGANIZATION	DATE(S) VOLUNTEERING
Name (please print)	Group/Organization Name	From
Signature	Signature of Parent/Guardian or Group Leader	To
Date of Birth		

Appendix 4. Equipment expiration and inspection

Equipment	Purchase date	Inspection due	Replacement due
EPIRB registration	Mar-15		Feb-19
EPIRB battery	Mar-15		Mar-20
EPIRB release	Mar-15		Apr-18
Flares			Apr-22
Fire extinguisher		Annually (Feb)	
Life raft		Mar-18	
Life jacket strobe light batteries	Mar-16	Mar-18	Mar-18
Immersion / Survival suit strobe lights		Apr-18	Apr-19
Certificate of Documentation - USCG			Annually (May)