U.S. Coast Guard

Commanding Officer's Digest for

Safe Trailering Operations

Health, Safety, and Work-life Service Center
(HSWL SC)
Safety and Environmental Health Division
HSWLSCPUB

1. INTRODUCTION

The increase in trailering mishaps is proportional to the number of trailers used and the total hours boats are trailered. There are few Coast Guard standardized towing/trailering policies, numerous PQS for drivers and spotters, variety of checklists, and no standard procedures for comms between driver and spotter. This translates into a high potential for mishaps.

Types of mishaps run the gamut of trailering operations from members struck on the face by freewheeling winches and falling off the boat when parked at the unit to striking a bridge with the boat while driving.

There are various training programs, PowerPoint presentations, checklists, safe work practices developed locally by CG units in an attempt to standardize unit trailering operations. These varied plans attempt to address the increase in mishaps.

To counter the lack of standardization, HSWL SC has published these guidelines to assist units that trailer boat.

References

TANB (26') COMDTINST M16534.1, Chapter 3, Section K, Specific Checklists, Towing Precautions, Launch and Recovery Information

Defender Class COMDTINST M16114.37B, Chapter 3, Section L, Specific Checklists, Towing Precautions, Launch and Recovery Information

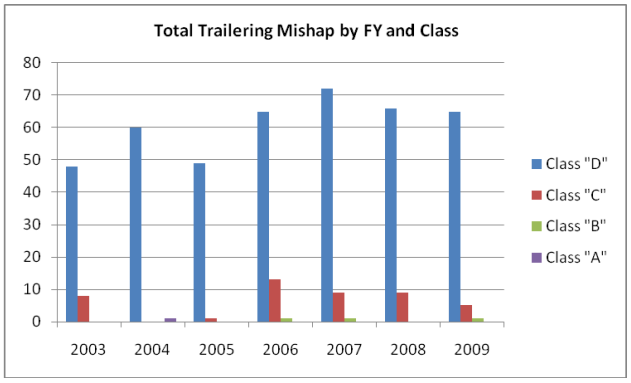
TPSB (26') COMDTINST M16114.34, Chapter 2, Section C, General Checklist, Launching Information

Non Standard Boat Operator's Handbook COMDTINST M16114.28, Chapter 6, Section C, Launch, Recovery, Driving, Checklists in Appendix E

(CB-M) COMDTINST M16114.43, Chapter 3, Section G, Specific Checklists, Towing Precautions, Launch and Recovery Information

(CB-OTH) MK III COMDTINST M16114.39, Chapter 3, Section G, Specific Checklists, Towing Precautions, Launch and Recovery Information

2. STATISTICS



The increase in trailering operations which occurred from FY 2003 resulted in over 420 trailering mishaps.

Based on a review of 2003-2009 Mishap Reports, 69% of trailering mishaps involved errors made during close quarter maneuvering and backing. The causes ranged from no spotter placement, poor placement, spotter inattention, and poor comms between spotter and driver.

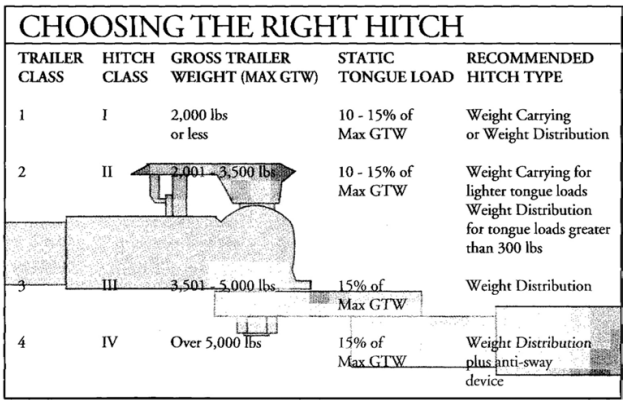
Between FY 2003 and 2009, either no/inadequate PMS or no/inadequate pre-operational checks contributed to over 25% on trailering mishaps.

3. Ten Tips to Safe Trailering

1. ***Pay Attention to Trailer Loading and Tongue Weight***. Trailer tongue weight (TW) is the amount of downward weight on the tongue. The tongue weight should be 10 to 15% of the total trailer weight. For example, a trailer with a gross weight of 15000 lbs. should have the load evenly distributed so that the tongue weight is 1500 to 2250 lbs. Too much tail weight may cause the trailer to oscillate or weave back and forth. Too much tongue weight can damage the hitch, lower the rear and raise the front of the vehicle, causing vehicle mishandling .

2. Match the tow vehicle to the trailer and load. Overloading can create serious driving hazards and even vehicle failure. Review the rating of the hitch and the vehicle towing specifications listed in the owner's manual. Also be sure that the side view mirrors are large enough to give you an unobstructed rear view on both sides of the vehicle.

3. Opt for a strong hitch. The Motor Vehicle Manual, COMDTINST M11240.9C, Appendix C, provides a Trailer-Truck-Hitch Matching Checklist. Hitches are rated as Class I, II, III, IV, and V. Class V has the greatest towing capacity and is required for SAFE boat trailering. Two suggestions to prevent mismatched hitch and ball are to standardize the hitch/ball combination to one size or to color code the hitch and ball.


CHOOSING THE RIGHT HITCH

TRAILER CLASS	HITCH CLASS	GROSS TRAILER WEIGHT (MAX GTW)	STATIC TONGUE LOAD	RECOMMENDED HITCH TYPE
1	I	2,000 lbs or less	10 - 15% of Max GTW	Weight Carrying or Weight Distribution
2	II	2,001 - 3,500 lbs	10 - 15% of Max GTW	Weight Carrying for lighter tongue loads Weight Distribution for tongue loads greater than 300 lbs
3	III	3,501 - 5,000 lbs	15% of Max GTW	Weight Distribution
4	IV	Over 5,000 lbs	15% of Max GTW	Weight Distribution plus anti-sway device

4. Make good trailer maintenance a habit. Keep your trailer in good repair and plan ahead for any problems you may encounter en route to the marina. Carry an emergency repair kit, including a hammer, wrenches, spare fuses, metal file, chisel, grease and grease packing gun, an extra wheel bearing kit and bearing seating utensil, possibly a hand-held torch, and a trailer jack that can lift the weight of the boat and trailer in the event of a breakdown.

5. Do a careful trailer check. Before you take the boat out on the road, always check the frame, bearings, lights, tires, and tire pressure. Obvious problems will be easier to repair in your driveway than out on the road. See checklists Item # 8.

6. Make sure the load is balanced, side-to-side and front to back. A boat needs to be supported structurally as evenly across the hull as possible, taking into account the added weight of the engine, fuel, and equipment. If the tongue is sitting too low the rear wheels of the towing vehicle could lose traction or the trailer may fishtail at high speeds; too high and it will drag down the rear of the towing vehicle, making steering more difficult.

7. Secure the boat on the trailer. It's surprising how often this is overlooked. If the trailer bounces over a large bump or pothole, an unsecured boat can shift quickly and dangerously, resulting in serious hull damage or, worse, a boat ending up in the middle of the highway.

8. Keep the boat motor off the pavement. Some motors can be left in the vertical position in transit, but many large motors need to be tilted up so that the skeg doesn't drag on the highway. If you need to tilt up the motor, avoid too much stress on the transom with a support bar that fits on the last roller of the trailer. A motor support bar puts the load on the trailer and relieves any stress on the transom.

9. Properly attach safety chains. The safety chains on the towing mechanism should be crisscrossed under the coupler and attached to the tow vehicle's frame. When attaching the chain to the vehicles frame make sure that the open end of the hook goes up and through the hole, not just down through it, to prevent the hook from simply bouncing out. Keep in mind the length of a chain, if it's too short it will bind in the middle of a turn or as you make your way down the launch ramp.

10. Wheel Bearing Maintenance. Trailer wheel bearings or axle bearings should be greased every six months and before long trips. It is a good idea to check them occasionally on long trips, especially when hauling a heavy load. Do this by carefully feeling the hub for excessive heat. Caution: If the bearing is adjusted too tight or is running without grease it can get VERY hot!

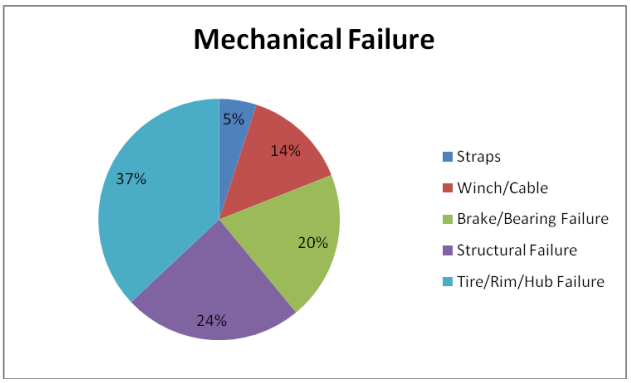
4. TRAINING

a. HSWL SC has a number of PowerPoint presentations covering various aspects of small boat trailering, they can be found at the following url:

https://cglink.uscg.mil/b77421a2 scroll down to and select the desired document.

b. Visit the HSWL Motor Vehicle Safety page at https://cglink.uscg.mil/3b59bb45 for additional information.

5. CAUSES OF MECHANICAL FAILURE FY 2003-2009



a. Structural Failure-The trailer supports and transports the boat of the unit to the mission. A trailer that is not adjusted properly can cause undo stress on the boat and trailer components. Operators of trucks that tow the boats are young, often junior enlisted. The following are the root causes of mishaps due to structural failure

1) Failure to wash and rinse the saltwater from the trailer.
2) Failure to avoid obstacles in the road that could be avoided.
3) Failure to reduce speed .

4) Failure to tighten hardware and fasteners on the trailer.

5) Failure to properly secure and attach safety chains.

b. Tire, Rim and Hub Failure-Tire maintenance is critical to prevent failure while in route. Correct inflation ensures a safe and stable ride. Maintaining the rim and hubs are also important because rust can deteriorate the integrity of the axle causing the wheel and rim to part. Tires and hubs require quarterly inspection and maintenance. The following are the root causes of mishaps due to tire, rim and hub failure

1) Failure to wash and rinse saltwater from the trailer
2) Failure to tighten lugs and fasteners on the wheel
3) Failure to properly inflate the tires
4) Failure to check for excessive wear, abrasion and cuts on the tires
5) Failure to identify worn parts

c. Brake and Bearing Failure-Brakes should be tested before starting the mission. Ensure proper adjustments are made and worn parts are quickly replaced and discarded. The following are the root causes of mishaps of the brakes and bearing systems failure

1) Failure to inspect brake an bearing assemblies
2) Failure to proper inspect and the brake assemble
3) Failure to wash the salt water from the trailer and components
4) Failure to properly inspect, grease and maintain the bearings

d. Winch-The winch is a complex device used to pull the boat onto the trailer and keep it secured when traveling. Cables should not be used if the operator detects frays, cuts etc. Electrical connections should be cleaned regularly. The following are the root causes of mishaps due to winch failure.

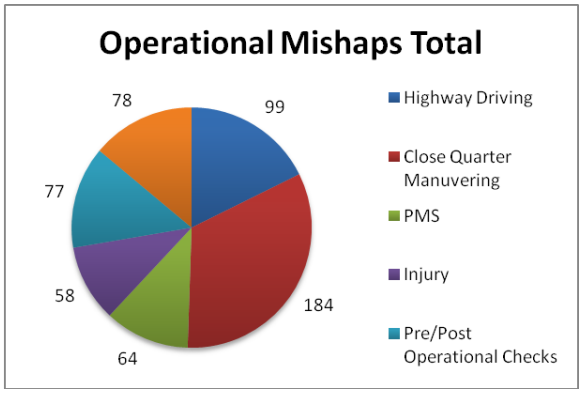
1) Failure to properly maintain the winch and cable
2) Failure to properly check and maintain the electrical connections
3) Failure to warn others to stand clear during winching operations
4) Failure to check and tighten fasteners on the winch

e. Straps-Straps secure the boat to the trailer when on the road. Old, worn, underrated and unapproved straps can cause the boat to part the trailer prematurely. Not securely placing the straps in the proper location can also cause undue stress to the boat and trailer. The following are the root causes of mishaps due to strap failure.

1) Failure to inspect straps before mission
2) Failure to use proper straps
3) Failure to use enough straps
4) Failure to replace straps when damaged

5. Causes of Operational Failures

Operational Mishaps FY 03-09



a. Operator Error- Operator error can cover a wide range of concerns. Damage to boats and trailers have occurred when the operator has used poor driving judgment. Other damage occurs when the checklists are not used or maintenance is not performed. The following are the root causes of failures due to operator error.

1) Failure to perform maintenance
2) Failure to use good driving judgment
3) Failure to connect the trailer to the towing vehicle properly
4) Failure to follow all checklists
5) Failure to use the right trailer for the boat

b. Close Quarter Maneuvering (CQM)-CG members with little to no training are towing vehicles with boats and trailers. The majority of personnel operating these tow vehicle/trailer combinations are junior enlisted. Operating a tow vehicle/ trailer combination is at a minimum a two-person evolution, and operating in constricted spaces makes this task ever harder. Prior to any tow/trailer movement the route should be planned and scouted, a spotter should be familiar with the operation, and good comms maintained with the driver. The following list the root causes to the CQM mishaps.

1) Misplaced or no spotters used during close quarter maneuvering - forward and or reverse
2) Misjudged distances - side-to-side, front to back
3) Miscalculated turning radius
4) Failure to ensure or maintain a clear path of travel - side to side, front to back, and overhead

c. Highway Driving - Operating a tow/trailer combination on a highway presents several unique challenges. Stopping distance is increased, visibility is reduced/restricted, safe lane change distance is increased, sudden movements of tow/trailer are amplified, and faster reaction time required. The following lists the root causes of mishaps due to improper highway driving:

1) Following to close
2) Operating too fast for road and weather conditions
3) Failure to Yield
4) Failure to plan travel route and account for overhead obstructions
5) Failure to maintain adequate spacing and clearance during lane changes
6) Failure to yield to traffic signals

d. Preventative Maintenance (PMS) - Tow/trailer combinations require more frequent maintenance, including changes of engine and transmission oils, filters, lubrication of components, and cooling system checks. Tires, brakes and hub assemblies require quarterly inspection and maintenance. Improper tire pressures affect vehicle handling. Check all wheel lug nuts, nuts, bolts, and other fasteners to ensure the hitch and attachment points remain secure. Ensure the connector-plug prongs and receptacles, light bulb sockets, wire splices, and ground connections are clean and shielded from moisture. All electrical terminal connections should be coated with dielectric waterproof grease. The following lists the root causes of mishaps due to improper PMS:

1) Failure to inspect/service trailer wheel bearing, hub, spindle, and brake assemblies
2) Failure to inspect tow/trailer nuts bolts and attachment points
3) Failure to inspect hitch and tow ball
4) Failure to inspect trailer and its components monthly and quarterly

e. Pre/Post Operational Checklists - Checklists shall include verifying the towing ball size, the proper seating of the hitch on the tow ball, hitch pin in place, proper hook-up of the safety chains, to the towing vehicle, and inspection of all towing vehicle operating equipment. The following lists the root causes of mishaps due to lack of pre/post operational checklists:

1) Undersized towing ball for trailer hitch
2) Failure to properly seat the hitch onto the towing ball
3) Failure to use safety chains, or chains improperly installed
4) Failure to check for installation of boat plugs
5) Failure to choke trailer tires

f. Launch/ Recovery - Includes “damage to the towing vehicle”, and “damage to the boat.” Vehicles have been damaged by not setting the parking brake allowing the vehicle to roll down the ramp, leaving the doors open striking the ramp walls, and ignoring weather/ramp conditions. Damage to the boat occur both r during launch and recovery, which includes damage to the prop, lower unit and transom due to improper operation of the winch, failure to secure the winch, boat contacting the pier due to other vessels wakes, and poor boat handling. The following lists the root causes of Launch and Recovery:

1) Failure to inspect the launch ramp for steep drop off, slippery areas, and sharp objects
2) Failure to maintain the rear wheels of the tow vehicle out of the water
3) Failure to set the parking brake, and chock the wheels
4)

7. DO’S AND DON’TS

When developing guidance for trailering boats, units must address:

1) Trailer hitch, safety chains, breakaway cable, lights, and wheel bearings.
2) Permissible speed limit.
3) Expected increase in stopping distance.
4) Expected increase in turning radius.
5) Procedures for launching boat.
6) Boat recovery.

Generally, the use of emergency lights and sirens is not necessary for response purposes. However, in those locations where adequate response capabilities can only be provided by trailering a boat, lights and sirens may be authorized by the station's operational commander. Such lights and sirens must comply with local regulations, and crews must be trained in emergency vehicle operation procedures. **Exceeding local traffic regulations (speed limit, traffic lights, etc.) is prohibited.**

8. CHECKLISTS

Daily Inspection Boat **Exterior**			
Hull Damaged		Oil Full	
Motors Raised		Mast Down	
Fuel Full		Hatch Secured	
Drain Plugs		Batteries Charged	

Daily Inspection Boat **Interior**			
Charts		Lights	
Log Book		Docking	
Radio Check		Floods	
Sirens		Spots	
Binoculars		Strobe	
Night Glasses		Deck	
Flare Gun		Boat Hook	
Air Horn		Paddles	
Tool box		Dead Man Clip	
First Aid Kit		Fire Extinguisher	
Ladder		Blankets	
½ Mile Light		Life Rings	
PFD's		Fenders	
Survival Suits		Flashlights	
		Rescue Harness	

Daily Inspection Boat **Trailering Vehicle #**			
Damage		Lights	
Fuel Level		Flood	
Tire Tread		Turn	
Tires Inflation Correct		Headlights	
Brakes		Emergency	
Gauges Normal		Electrical Connections	
Radio		Winch	
Hitch		Trailer Lights	
Pintle Hook Secure		Adjust Mirrors	
NOTES:			

Daily Inspection Boat **Boat Trailer #**			
Damage		Safety Chains	
Tire Tread		Emergency Chains	
Tires Inflation Correct		Caster Jack	
Spare Tire Tread		Manual Crank	
Winch Operable		Trailer Lights	
Winch Wiring Intact		Pintle Ring Secure	
NOTES:			

1. Pre-Mission Inspection Checklist

a. Tires:

1) Inspect tires for wear (cuts, abrasion, bubbles, etc.)
2) Inspect tires for nails, debris, etc.
3) Inspect tires for proper inflation.
4) Inspect tires for proper rating.
5) Inspect wheels for rust, cracks, and dents.
6) Inspect tire and wheel in quarters to cover all areas.
7) Ensure lugs nuts are tight and in place.
8) Check and correct tire pressure on the tow vehicle and trailer, using pressure indicated on vehicle and trailer data plates/stickers.

b. Brakes:

1) Inspect hoses and pads.
2) Inspect calipers.
3) Inspect wires to brake lights.
4) Inspect for fluid leaks.
5) Inspect fasteners for corrosion.
6) Inspect brake lines for chafing.
7) If surge-type brakes, check the movement of the system to assure operational.

c. Electrical System:

1) Inspect harness and connections.
2) Inspect all wiring runs for chafing and dry rot.
3) Inspect lights for corrosion.
4) Check for water in lights.
5) Chafing gear properly installed.
6) Check for cracked lenses and mounting of lights.

d. Tongue Jack:

1) Make sure it works, and is not bent.
2) Ensure locking pin is in place.
3) Free of corrosion.
4) Inspect fasteners.
5) Ensure the footing is adequate to do the job.
6) If using the foot type, ensure the plate is in place.
7) Hand crank is in place and works properly.

e. Trailer Decking:

1) Inspect deck for warping.
2) Inspect for rotting and other deformities.
3) Ensure planks are fastened down.
4) Check for loose debris.
5) Ensure no nails are sticking out of wood.
6) No missing planks.
7) Check tie down points and verify they are secure.

f. Winch Assembly:

1) Inspect strap.
2) Inspect fasteners.
3) Inspect hand crank.
4) Inspect anti-reverse pawl.
5) Everything free of corrosion.

g. Bunks and Rollers:

1) Inspect fasteners for corrosion.
2) Ensure bolts are not showing through bunks.
3) Inspect for rotted/splintered wood.

2. Tow and Trailer Ready for Transport Checklist

a. Hitch Assembly:

1) Hitch assembly is clear and ready to be coupled to the prime mover.
2) Inspect trailer hitch assembly from prime mover stand point.
3) Look at receiver; verify type of hitch to be used.
4) Inspect condition of mounting/hitch assembly.
5) Place hitch in hitch assembly, verify alignment with securing holes.
6) Place locking pin and safety clip in place.
7) Double check ball/pintle for capacity and sizing.
8) Tug quickly on assembly to ensure it is together.
9) Inspect safety chain assembly, verify working order.

b. Tow Vehicle Ready for Occupancy

1) Inspect vehicle for overall appearance.
2) Check seat belts present and working.
3) Inspect all glass for cracks.
4) Check and adjust mirrors.
5) Check antenna.
6) Ensure license plates are present.
7) Ensure accident report checklist is in vehicle.
8) Ensure road atlas is available.
9) Adjust seat and back.
10) Adjust seat belt.
11) Adjust mirrors.
12) Adjust radio (vhf/cb/wx)
13) Adjust temperature controls.

c. Secure Trailer to Tow Vehicle:

1) Back tow vehicle to trailer (use spotter).
2) Align trailer and vehicle.
3) Set parking brake.
4) Ensure hitch assembly is ready for the connection.
5) Ensure hitch assembly is locked, re-secure safety pin.
6) Secure tongue jack.
7) Properly hook safety chains (crossed pattern) from trailer to tow vehicle
8) Ensure chain length adequate and not dragging.
9) Secure emergency brake cable to tow vehicle.
10) Make electrical connections.
11) Check all running lights, brake lights, turn signals, and hazard lights are working on both the tow vehicle and trailer.
12) Remove chock and stow.
13) Conduct final walk around inspection.
14) Ensure no gear adrift.
15) Ensure trailed is evenly distributed.
16) Ensure trailer is level behind tow vehicle.
17) All connections tight.
18) Doors and gates secured and locked.
19) Bitter ends of straps tied and secured.
20) Adjustable connectors on passenger side for safety.

d. Test Brake System:

1) Check for puddles under vehicle (oil, anti freeze, brake fluid, etc.)
2) Check lights (brake, back-up, etc.)
3) Pull trailer forward and test/check brakes.
4) If using brake actuator, adjust to proper setting.

3. Trailer Team Mission Briefing Checklist

a. Review Mission Requirements:

1) Review deployment objectives.
2) Determine what cargo is to be off loaded.
3) Determine where off load is to take place.
4) Review trailering team member assignments.
5) Review trip plan.
6) Review pre-operational checklist for completeness.

b. Review Trip Plan with Trailering Team and OOD:

1) Gather trailering team.
2) Ensure driver know members of team.
3) Review route with driver and navigator.
4) Ensure locations of pit stops are provided.
5) Ensure team knows height and weight of trailer(s).
6) Ensure driver(s) know trailer and route limitations (bridge limits weights, widths, etc.)
7) Ask/answer questions.
8) Conduct comms check.

c. Discuss Trip Hazards and Risk Mitigation (ORM):

1) Using trip plan, identify potential trip hazards.
2) Determine potential risk mitigation strategies.
3) Complete ORM forms.
4) Brief trailering team and OOD
5) Ask/answer questions.
6) Revise plans as necessary.

4. Mission Checklist

a. Tow Trailer:

1) Ensure all connections are made and secure.
2) Check lights and brakes operational.
3) Ensure chocks are removed and stowed.
4) Ensure tie downs are securely fastened and bitter ends secured.
5) Ensure tongue jack is all the way up or pivoted and locked in the up position.
6) Drive carefully.
7) Continually assess and reassess the road condition.
8) Drive according to the road conditions.
9) Stop about 20 minutes into the drive to check load straps and cargo for shifting.

b. Maneuver Trailer in Confined Location:

1) Identify where the trailer needs to go.
2) Ensure there is adequate space to maneuver.
3) Assign spotter(s) and agree on signals.
4) Remove limiting hardware if applicable (i.e. sway bars).
5) Just prior to backing, honk horn to alert people.
6) Commence backing, looking at mirrors and spotter(s).
7) Maneuver into proper position.
8) Set brakes and chocks (if applicable).

9) Once in park, chock set, brakes set, secure vehicle, commence unloading.

c. Unload Cargo:

1) Ensure unloading spot is clear for trailer.
2) Position trailer (using spotter) at unloading spot.
3) Set brake on tow vehicle.
4) Chock trailer.
5) Unfasten cargo straps/chains as appropriate.
6) Unload cargo using required personal protective equipment.

d. Launch Boat:

1) Remove tie downs and make sure the winch is properly attached to the bow eye and locked in position.
2) Set spotters.
3) Place lookout on pier to tell the truck to stop.
4) Ensure ramp is clear.
5) Boat crew ready.
6) Disconnect the trailer lights to prevent shorting the electrical system or burning out the bulb.
7) Check water level at ramp.
8) Ensure depth is good (high/low tide).
9) Trim outboard motors up.
10) Ensure all plugs are in the boat.
11) Attach a line to the bow and the stern of the boat so that the boat cannot drift away after launching and can be easily maneuvered to a docking area.
12) Lower outboards before starting.
13) Place truck in 4X4.
14) Place winch person in lifejacket ready to disconnect trailer eyebolt hook.
15) Start the boat engine and make sure that water is passing through the engine cooling system.
16) Release the winch and disconnect the winch line from the bow when the boat operator is ready.
17) Push the boat off the trailer, or engage the motor and back off under power.
18) Ensure all crew members have PFDs and pyro (if applicable).

5. Post Mission Checklist

a. Recover Boat:

1) If more than one boat was trailered, make sure you have the right trailer for the boat.
2) Back the trailer down the ramp, place vehicle transmission in park, set emergency brake, and chock front wheels.
3) Brief crew/spotter.
4) Maneuver the boat onto the trailer's roller assembly. Tilt the motors on approach to prevent damage.
5) Ensure depth is good (high/low tide).
6) Rewind winch cable. NOTE: while winch is pulling boat up the roller assembly, personnel must remain clear of the area directly behind the winch, in case the cable breaks and recoils rearward.
7) Verify hand signals used between coxswain and spotter.
8) Remove the wheel chocks and move the boat to the top of the ramp and to a level area.
9) Remove drain plugs.
10) Engage engine supports
11) Set emergency brake on truck.
12) Perform pre-mission inspection checklist

f. Disconnect Trailer:

1) Position trailer in its spot.
2) Chock tires.
3) Pull the tow vehicle forward and clear of the trailer tongue.
4) Turn truck off.
5) Remove safety chain.
6) Remove emergency brake chain.
7) Remove electrical connection.

8) Unlock ball.
9) Lower tongue jack.
10) Lift trailer off ball.
11) Inspect the tires for air pressure, and obvious physical wear or damage.
12) Inspect the wheels for obvious damage that could result in failure and the remainder of the trailer for physical damage.
13) Move truck to parking space.
14) Report any damage and schedule repair. PREVENTATIVE MAINTENANCE

Empty Trailer Checklist (Pre-Hookup)

Tongue Free From Damage	YES	NO
Bunks Free From Damage		
Break Line Condition		
No Break Fluid Leaks		
Break Lines Free From Damage		
Reverse Solenoid Free From Damage		
Winch Free From Damage		
Winch Strap Free From Damage		
Tire Condition		
Tire Have Adequate Tread		
Tires Free From Damage		
Tires Inflated to 65 PSI Cold		
Port Front PSI		
Port Center PSI		
Port Rear PSI		
Stbd Front PSI		
Stbd Center PSI		
Stbd Rear PSI		
Spare Tire Condition		
Spare Tire Free from Damage		
Spare Tire Secured to Trailer		
Wheel Bearings/Fittings Greased		
E-Z Loader Trailer Jack Secured		
Tire Chocks in Place		

Trailer #: Date:

Signature:

Empty Vehicle Checklist (Pre-Hookup)

Tire Condition	Yes	No
Tires Inflated To Manufacturer Specs		
Ratchet Strap/Tie Down Condition		
All Straps Free From Physical Damage		
All Ratchets Free From Mechanical Damage		
Chaffing Gear in Vehicle		
Bottle Jack Condition		
Bottle Jack in Vehicle		
Bottle Jack Free From Damage		
Lug Wrench in Vehicle		
Hitch Condition **(Class V, Rated 10,000 lbs)**		
Hitch Secured to Vehicle		
Hitch Free From Damage		
Hitch Label/Stamp Legible		
Ball Mount Condition **(Rated 10,000 lbs)**		
Ball Mount Secured		
Ball Mount Free From Damage		
Ball Mount Label/Stamp Legible		
Ball Condition **(2 5/16 inch)**		
Ball Secured		
Ball Free From Damage		
Ball Stamp Legible		
Lights		
Headlights		
High Beams		
Brake Lights		
Turn Lights		
Reverse Lights		
Hazard Lights		
Fuel Level		

Plate #: Date:

Signature:

Empty Trailer Checklist (Post-Hookup)

Tongue Condition	Yes	No
Tongue Seated On Ball		
Tongue Latch Secured		
Tongue Latch-Pin Secured		
Trailer Jack (Foot) Condition		
Trailer Jack Raised/Retracted		
Trailer Jack Latch-Pin Secured		
Safety Chain Condition		
Safety Chains Secured to Hitch w/Shackles		
Safety Chains Crossed		
E-Break Chain Secured to Hitch		
Wiring Harness (Pigtail) Condition		
All Wiring Connections Fully Seated		
Trailer Lights Condition		
Turn Signals Left and Right		
Hazard Lights		
Break Lights		
Backup Lights		
Side Lights		
Trailer Break Condition		
Trailer Breaks Activate when Surge Break Compressed		
Reverse Solenoid Activates When Vehicle in Reverse		

Trailer #: Date:

Signature:

Pre-Recovery Boat Checklist

BOAT CONDITION	*Yes*	*No*
Vessel Position		
Vessel Centered on Trailer		
Winch Strap Condition		
Winch Strap Connected to Trailer-Eye Bolt		
Winch Strap Retracted		
Vessel Position		
Vessel Winched Fwd Leaving 1-3 inch Gap Between the Bow and the Forward Bunks		
Engines Secured		
Engines Turned Full to Port		
Engines Trimmed Full Up		
Antenna/Mast Condition		
Radio Antennas in Down Position		
Port		
Stbd		
GPS Antenna in Down Position		
Mast/Anchor Light in Down Postion		
Towing Lights Removed/Stowed		
Lightning Rod Removed/Stowed		
RADOME Condition		
RADOME in UP Position		
RADOME Pins Secured		
RADOME Latches Secured		

Boat #: Date:

Signature:

Post-Recovery Trailering Checklist

TRAILER CONDITION	*Yes*	*No*
Ratchet Strap/Tie Down Condition		
All Straps Free From Physical Damage		
All Ratchets Free From Mechanical Damage		
Ratchet Straps/Tie Downs Secured		
Three Point Bow Strap		
Bow Straps Port Stbd		
Belly Gripe		
Quarter Strap Port Stbd		
Chaffing Gear in Place		
Vessel Engines Secured		
Engine Locks in Place Port Stbd		
Wiring Harness (Pigtail) Condition		
All Wiring Connections Fully Seated		
Vehicle Lights Condition		
Headlights Right Left		
High Beams		
Brake Lights		
Turn Signals Right Left		
Hazard Lights		
Reverse Lights		
Trailer Lights Condition		
Turn Signals Right Left		
Hazard Lights		
Brake Lights		
Side Lights		
Trailer Break Condition		
Trailer Breaks Activate when Surge Break Compressed		
Reverse Solonoid Activates When Vehicle in Reverse		

Trailer #: Date:

Signature:

Pre-Launch Trailer Checklist

TRAILER CONDITION	*Yes*	*No*
Winch Condition		
Winch Strap Free From Damage		
Winch Strap SECURED to Trailer-Eye-Bolt		
Ratchet Strap/Tie Down Condition		
Ratchet Straps/Tie Downs Removed		
Three Point Bow Strap		
Bow Straps Port Stbd		
Belly Gripe		
Quarter Straps Port Stbd		
Vessel Engines Condition		
Engine Locks Removed Port Stbd		
Trailer Position		
Trailer Backed to Water until Vessel Floats		
Antenna/Mast Condition		
Radio Antennas in Up Position		
Port		
Stbd		
GPS Antenna in Up Position		
Mast/Anchor Light in UP Position		
RADOME Condition		
RADOME in UP Position		
RADOME Pins Secured		
RADOME Latches Secured		
Vessel PRE-Start Checks Conducted		
Engine Condition		
Engines Trimmed Down to Allow Water Flow		
Engines Started		
Winch Strap Removed		

Trailer #: Date:

Vehicle #: Signature:

9. GLOSSARY

a. Base Curb Weight (BCW). The weight of the vehicle with a full load of fuel ,no passengers or cargo, and adjusted for any post-delivery equipment add-ons, such as government radios and towing receivers and hitches.

b. Emergency vehicle. Any vehicle equipped with emergency lights or audible devices enabling it to negotiate traffic and respond to an emergency situation.

c. Gross Vehicle Weight (GVW). The base curb-weight plus the weight of passengers and cargo (detached from the trailer).

d. Gross Axle Weight–Front (FRONT GAW). The total weight placed on the front axle of the tow vehicle. To determine the FRONT GAW, drive the vehicle to a scale and, with the trailer attached, park only the front wheels of the tow vehicle on the scale. This is your FRONT GAW.

e. Gross Axle Weight Rating–Front (FRONT GAWR). The total weight the front axle is capable of supporting (see the safety placard located on the driver's door).

f. Gross Axle Weight–Rear (REAR GAW). The total weight placed on the rear axle. To determine the REAR GAW drive the tow vehicle onto the scale (trailer wheels off). Subtract the FRONT GAW from the scale reading to determine the Rear GAW.

g. Gross Axle Weight Rating–Rear (REAR GAWR). The total weight the rear axle is capable of supporting (see the safety placard located on the driver's door).

h. Gross Vehicle Weight Rating (GVWR). The maximum allowable weight of the fully loaded vehicle.

i. Gross Combination Weight (GCW). The weight of the towing vehicle and fully loaded trailer, including passengers and cargo.

j. Gross Combination Weight Rating (GCWR). This is the maximum allowable weight of the towing vehicle and fully loaded trailer, including passengers and cargo (see vehicle's owner's manual).

k. Maximum Trailer Towing Rating (MTTR). The maximum weight of the trailer the vehicle is designed to tow (see the owner's manual).

l. Motor vehicle. Any vehicle, self propelled or drawn by mechanical power, that is designed and operated principally, but not exclusively, for highway transportation of property or passengers, but does not include military design motor vehicles (such as tanks) or vehicles not covered by 41 CFR 102-34

m. Tow vehicle. Any vehicle (sedan, truck, SUV, etc.) used to facilitate movement of a trailer from one location to another.

n. Towing team. Personnel comprising the group of individuals operating any vehicle-trailer combination, including the driver and at least one spotter

o. Trailers. Any wheeled platform pulled by a device—usually a motor vehicle—to transport people, tools, boats, materials, etc., from one location to another, whether on or off federal property, or on or off public roadways.

10. **HSWL SC Safety & Environmental Health Division SMART Teams**

D1 AOR SMART Team
Boston, MA 02109
(617) 223-3202

D5 AOR SMART Team
Portsmouth, VA 23703
(757) 483-8496

D7 AOR SMART Team
Opa-Locka- FL-33054
(305) 953-2370

D8 AOR SMART Team
New Orleans, LA 70129
(504) 253-4731

D8WRO AOR SMART Team
St. Louis, MO 63103
(314) 269-2467

D9 AOR SMART Team
Cleveland, OH 44199
(216) 902-6395

D11 N AOR SMART Team
Alameda, CA 94501
(510) 437-3672

D11 S AOR SMART Team
San Pedro, CA 90731
(310) 521-6021

D13 AOR SMART Team
Seattle, WA 98134
(206) 217-6341

D14 AOR SMART Team
Honolulu, HI 96819
(808) 842-2996

D17 AOR SMART Team
Kodiak, AK 99619
(907) 487-5757 x138

D17 AOR SMART Team
Ketchikan, AK 99901
(907) 228-0229

Afloat SMART Team
Norfolk, VA 23510
(757) 628-4392