

Winterizing Checklist

Winterize your boat to secure systems against freezing, corrosion, and damage from cold while preparing the boat for layup and disuse. Systems get drained, flushed and filled with antifreeze, the boat gets covered and protected from snow and ice, and engines and mechanical systems are cleaned, lubricated and stored so they start up again easily in the spring.

General Preparation

- Assemble your cradle and attach your pads, or bring your stands if they have been stored at home for safe keeping.
- Mark the locations for the crane slings on your toe rails.
- If your Depth/Speed sensor is vulnerable to damage at haulout, replace it with a blank insert.
- **Use the barrels in the west compound for disposal of oil and antifreeze.**

Supplies You May Need

Your specific needs for winterizing will vary with the systems on your boat and the type of engine and fuel you have and the type of storage you choose. Quantities will vary with the size and complexity of your systems.

- Non-toxic Propylene Glycol antifreeze - the "Pink Stuff" (water systems, engine, bilge) for -50F protection, or -100F for colder climes (usually green or blue). Look for the EcoLogo on your purchases. **Do not use Ethylene Glycol or auto-anti-freeze for winterizing;** it is highly toxic to you and to marine life. Engine oil and filter (engine)
- Fogging oil (engine)
- Fuel stabilizer/biocide (engine)
- Antifreeze Hydrometer or "antifreeze tester." (engine)
- A cover - shrink wrap, tarps, a canvas cover, or indoor storage
- Dehumidifying agent or dehumidifier/heater (cabin)

The Engine and Generator

- The task for all engines is similar, though the specific steps vary.
- "Fog" the engine with a spray oil.
- Flush antifreeze through the engine.
- Change the oil and oil filter.
- Change fuel filters.
- Close through hulls on intakes and fill strainers with antifreeze.

Inboard Engines

Freshwater cooled inboard engines have a few more steps for safety.

- Check antifreeze level in the engine block with a tester and add antifreeze as needed to maximize cold protection. Make sure you circulate the new mix.
- Flush and fill the engine and lines with antifreeze.

Outboards

- With the engine running, disconnect the fuel line and run the engine until it stops. This empties all the fuel from the carburetor.
- Change lower unit oil.

Fuel Systems

Diesel Fuel

- Add a biocide/stabilizer to the fuel tank.
- Fill the tank after you add the stabilizer.

Gasoline

- Most gasoline outboards use a removable tank. This fuel should be disposed of properly or used for some other purpose so you start with a fresh tank in the spring. (I used to put my leftover dinghy fuel into my car.)
- If you have an older boat with a gasoline inboard and permanent tank installed you can drain it, or add a stabilizer and fill it.

Plumbing Systems

Pressure (Fresh) Water

- Flush all tanks and lines.
- Add antifreeze to the water tank.
- Run all fixtures until antifreeze runs out, starting with the fixtures farthest from the pump.

Water Heaters

- Drain all water.
- If there is a winterizing bypass, shut it off before winterizing the pressure water system so you don't have to fill the tank with expensive antifreeze.
- Disconnect the electricity or turn off the breaker to prevent accidental startup in the spring while it's empty.

Heads and Toilets

- Flush all toilets with fresh water
- Pump out and rinse all holding tanks.
- Using the water intake hose, flush the system through with antifreeze

Refrigeration

- Flush all raw water lines with antifreeze

The Bilge

- Pump or drain the bilge into a proper receptacle.
- Add antifreeze to cover exposed pumps or through hulls
- Run the pump briefly fill it with antifreeze.

Batteries

Most boats in seasonal cruising regions are still using Lead-Acid batteries - either flooded (wet) cells, AGM, or Gel. There are minimal differences between lead-acid types when winterizing, but LiFePO₄ banks require different long term layup care.

Lead-Acid

- For wet cells, top up all cells as per manufacturer's instructions (usually with distilled water).
- Fully charge all batteries.
- Disconnect electrical connections from the boat.
- If practical for smaller batteries, remove them and store indoors with a trickle charger.

Lithium

- Consult your manuals for details on longer term layup instructions and periods of disuse. The LiFePO₄ technology is fairly new and manufacturer recommendations should be followed when available.
- Charge/Discharge to 50% state of charge or manufacturer's recommended storage voltage.
- Disconnect all connections from the boat.

Air Conditioning

Flush and fill raw water lines with antifreeze.

Water Maker

Be sure to read the manual and follow all steps in order. Sending pressurized antifreeze through your membrane can damage it.

Pickle membrane with preservative as per manufacturer's instructions.

- Flush raw water intake systems with antifreeze.
- Replace or remove all filters.

Covering, Ventilation and Moisture

Boats stored outdoors in places with freezing temperatures should be covered. While a detailed discussion about boat covering and types of covers is beyond this article, you should be aware there are multiple options.

- Canvas Covers. Expensive up front, but reusable from season to season and the best environmentally and for the boat.
- Shrink wrapping. An annual expense that you may want to leave to the pros to do. Should be recycled in the spring.
- Tarps and improvised materials. Smaller boats can be covered with tarps and other inexpensive materials, but they are prone to blowing off and coming loose.

Ventilation and Moisture

Stagnant air and trapped moisture is a leading cause of mold and mildew growth over boats in the winter.

- Make sure any boat covers have leak-proof ventilation and allow airflow.
- Open all cabinets and storage areas, empty lockers where airflow is restricted.
- Remove mildew prone items such as towels and clothing for the season and store off the boat.
- Consider chemical desiccants, a fan, a winter cabin heater and/or a dehumidifier.
- If security permits, leave some windows or a hatch open under the cover.

Sails

- Rinse and sails with fresh water and allow to dry prior to flaking.
- Take any sails in need of repairs to a sail loft.
- Consider annual inspection, cleaning and winter storage with a sailmaker to extend sail life.

Visit Your Boat!

"Out of sight, out of mind" is a common problem with winter storage. Except for violent storms, most winter storage damage doesn't happen quickly. It's the result of creeping effects, like water seeping in and freezing, mold growing in damp, stagnant spaces, or heavy weights of snow and ice pressing on covers and breaking them.

So make the time in the winter to check your boat now and then. After a snow or big freezing rain storm check for accumulation on the cover and leaks and incursions. Nip problems in the bud. When you open up a clean boat that smells nice in the spring you'll forget that cold day in February when you swept the snow off the shrink-wrap.

The best prevention in the fall won't help you if something goes wrong and unchecked for the rest of the winter.