

## How to Maintain and Preserve the Small Wood Boat

*By Mike Kiefer*

Small wood boats are rare today but a generation or two ago they were a way of life. Small wood rowboats, sailboats, canoes and early motorboats were common as cottage boats, fishing boats and workboats. Also common, and at times not so common, was the general knowledge of how to take care of a wood boat to make it last and keep it from rotting. In my 37 years of building using and maintaining traditional small craft, I've learned a few things I'd like to share with you about maintaining small wood boats. Hopefully, some basic knowledge will help avoid unnecessary repairs and minimize maintenance.

While much has been written on building small boats very little has been published on proper care and preventative maintenance. A well- built small wood boat should last ones lifetime with ordinary common sense care. It can be summed up in three basic ideas we will explore in detail. First, keep the boat **dry**. Second, keep the boat **clean**. Third, keep the boat **painted**.

The most common deterioration in wood boats is called dry rot. It is really a fungus in the wood that grows when the moisture content of the wood is above 20%, the temperature is above 45 degrees, and is exposed to oxygen. Rot spores are present in all wood to some degree and the trick is to eliminate one or more of the conditions that allow it to grow. Enclosed, warm, damp cabins with no ventilation, for instance, are a perfect environment for the bacteria to get started. In contrast small open boats, where ventilation occurs naturally are less susceptible to rot even though the wood may be damp and warm. Let's explore each of the elements in detail.

### **Keep it Dry.**

This statement may seem strange for a boat that is meant to live in a wet, moist environment. Many small wood boats spend most of their lives out of the water on a trailer, dragged up on a beach, in a garage, turned over in the yard or stored in a shed or porch. With each situation there are do's and don'ts.

A small wood boat can be kept in the water during the season and avoid rot. Wood below the waterline is cut off from air and will not rot. Water in the bilge in an open boat is exposed to the air where it can evaporate so it is less likely to rot. Enclosed cabins, lockers or decks can trap air, moisture and heat to create the perfect place for rot to start. These areas must be well ventilated to keep the interior dry. Many boats rot from the inside out due to lack of adequate interior ventilation.

Keeping water out of the bilge is one of the most important things you can do to stave off deterioration. Bilge water should be removed after each sail, rain storm or soaking up period. Water left in the bilge will stain the wood under a varnish finish and eventually degrade paint or oil. Water left standing in the bilge for weeks and months may degrade the finish enough to allow moisture to penetrate the wood above the 20% level. The risk of rotting frames, floor timbers, keel, and floorboards gets higher the longer water stands in the bilge. These areas will be alternately wet and dry through normal climatic cycles

creating the right conditions for rot fungus to grow. In northern climates water left standing in the bilge may freeze, expand and push the garboard planks away from the keel.

A proper summer mooring cover made of sturdy, breathable canvas is good insurance in keeping water out of the bilge. (The cover also keeps the sun off the varnish, leaves and dirt out of the bilge) The cover should be tight fitting and not blow off in windstorms. A light line from grommets in the edge of the cover under the hull can prevent this. Breathable canvas allows moisture to evaporate when it is dry. When it is wet the canvas tightens up and becomes water repellent.

Canvas mooring covers used in the summer are not strong enough to withstand winter storm loads. Snow loads require a high peaked frame over the boat with a heavy cover to keep from collapsing. Reinforced plastic covers are often used successfully as long as adequate ventilation is provided. The ends must be kept open so air can circulate and moisture escape. A plastic tarp pulled airtight will create conditions for rot by trapping moisture from the heating of the sun or left over moisture in the bilge.

A boat that is stored upright on the shore or trailer should be blocked up on one end to shed rainwater better. The tongue jack on the trailer can be raised all the way up to achieve this. Water should not be left in puddles on top of the cover. A cover that is wet continually may rot the wood underneath. The boat should be stored in the open and not under a shedding tree. Open sunlight will promote evaporation better. If the boat has a drain plug it should be pulled during long storage periods to drain bilge water if the cover fails. Pull the plug when trailering to shed rainwater on long trips. A sturdy canvas cover made to withstand trailering can be left on to shed rain, sun and dirt on the highway.

If the boat has a deck care must be taken to keep an alternately wet/dry canvas from lying directly on the wood. It may rot where it comes into contact with the wet canvas. Some kind of spacer like a post or rubber ball should be inserted under the cover to prop it up off the deck.

During the season a boat stored on the bare ground at the beach, yard or river bank should be blocked up off the ground with wood blocks or cedar logs.

Constant and prolonged contact with the damp, wet ground may eventually rot the bottom of the boat. Similarly, a boat surrounded by tall, wet grass or leaves regularly may rot where it comes into contact with the wood. In addition, a boat that is only partially pulled up on the beach may rot at the transom where waves and wet ground keep the wood damp. If it doesn't rot the varnish and paint will degrade more quickly from this exposure.

Wood canoes that are turned over on the ground will rot at the ends and gun'ls where they touch the ground. When the wood canoe is flipped over on sawhorses they tend to rot in the ends due to moisture running down the decks and collecting in a pool at the tip of the stem. Canoe builders would do well to leave a weep hole where the deck meets the stem head to drain moisture.

A small boat stored upside down on sawhorses long term can be covered with plastic tarps as long as there is ventilation and the tarp is not in direct contact with the wood. A framework and spacers like an A-frame tent will do the job. Condensation between the tarp and hull from the warming and cooling of the sun can peel the paint and set up the conditions for rot. Sometimes no cover is better if the hull is well protected with paint and varnish.

At the end of the season the small wood boat should be cleaned and dried thoroughly before winter storage. Sails, covers and all gear should be dried and stored in a mouse proof area. Many a good sail or canvas cover has been ruined by hungry mice. Storage bags made of fabric and all lines should be hung up and away from pests. The floorboards should be pulled up to drain and clean the bilge area for storage. The center floorboard at least should be removable with turn buttons for easy access to the bilge.

Off-season shelters can be a carport, garage, greenhouse, barn, simple boathouse, basement or rented storage. Canoes and kayaks can be racked on a garage wall or hung from the ceiling easily. Sheds with a damp earth floor will help keep the boat from drying excessively. Storage in a very hot summer garage can dry a wood boat excessively. Some kind of ventilation in the building to keep it cool should be provided. A simple plastic dust cover in the garage will keep the cleaning down over long periods.

Periodic checks to see that the boat is kept dry will go a long way to preserving the small wood boat.

### **Keep It Clean**

In a nutshell, dirt attracts moisture and moisture attracts rot. Keep dirt out of the bilge, behind interior ceilings, off decks, seats and gear. Keep leaves, twigs and seedpods from falling into the boat. Boats that become dumpsters don't last long. Use a shop vac, sponges and rags to get at the bilge and other inaccessible areas of the hull. Clean and dry the sails, canvas covers and lines, especially anchor lines. After the boat picnic clean out the chips, breadcrumbs and pretzels from the bilge. Keep the bilge and general interior of the boat painted, varnished or oiled to repel moisture. The finish is a moisture barrier that keeps water from penetrating the wood.

Clean the decks, sails, covers and bilges after each hard use. Keep sand out of the bilge. Sand can get trapped between planks in a traditionally planked boat and prevent the planks from soaking up tight. Have access to every part of the hull interior and inspect it periodically for cleanliness. At the end of the season power wash the hull if necessary. Remove barnacles, zebra mussels or other marine growth from the hull. A trip to the car wash does the job as soon as the boat is pulled. This is also the time to repairs scratches or thin spots in the finish so it is ready in the spring.

### **Keep It Painted**

Bare wood absorbs moisture and moisture attracts rot.

During the season touch up deep scratches or scuffs if bare wood is showing. Paint is the film that prevents water from entering the wood. A break in that film can spell disaster. Cracks and chips from weathering require sanding and repainting. Many wood boats rot from the deck down when the finish on them degrades. Decks take a lot of abuse from the sun and rain and require special care. Cracks in the wood joinery on the deck are prone to trapping water and rotting. Any spaces between wood joints needs to be glued again or caulked to prevent trapping standing water in them. Bedding compound under deck hardware should be inspected. Old cracked bedding compound can allow water to seep into the deck structure itself where rot will spread by capillary action throughout large sections of the deck. This is especially true of plywood decks where the end grain will facilitate water traveling through the plywood panels.

Varnish is more vulnerable to breakdown than paint and needs more frequent inspections and renewal. There is no need to “wood” ( sand it down to bare wood) the boat each time it is sanded. Simply scrape and sand the thin areas and re-varnish. Four coats of varnish is bare minimum for UV protection while four to eight coats would be adequate. Eight to twelve coats of varnish will offer superior protection from the sun and needs less maintenance. If the varnish degrades to the point where water is getting behind it the varnish can lift and peel in large areas. Water usually discolors the wood and it is very difficult to get the stains out with sanding and bleaching.

Canvas mooring covers are the best insurance to keeping the small wood boat protected and looking good indefinitely. Covers shed rain, sun, bird droppings, leaves, twigs, dust and dirt and take a lot of wear in their service. Therefore it is necessary to keep the cover in good shape by recoating the seams with seam sealer as needed. Tears, rips and worn spots in the cover need immediate repairs to keep the integrity of the cover. Frequent replacement of the canvas cover is a lot cheaper and less work than refinishing the interior of the boat.

Anti-fouling paint should be renewed annually if the boat is kept in the water and marine growth is prevalent. Again, there is no need to wood the hull. It is only necessary to sand, clean and repaint.

Coamings in a small wood boat are subject to wear and should receive extra care. Wear spots around the oars, places the crew step regularly, where lines chafe, or places spars continually rub need to be refinished more often. Chafing from fenders, mooring lines or dragging on the beach need inspection occasionally.

Color choices can affect the paint finish also. Light colors reflect the sun and generally have a longer lifespan. Black or navy blue may look elegant but may absorb a lot of heat in the summer sun and shorten the life of the paint. Dark color canvas covers also can build up a lot of heat inside the boat where joints may crack and open up. Generally, lighter colors are preferable for a wood boat to reflect the sun and prevent heat build up.

When it comes time to touch up or refinish using quality finishes will save work in the long run and give better protection of your investment. Marine grade paints and varnishes generally last longer with a harder scuff resistant surface than cheaper brands. Follow the manufacturer's directions and proper paint procedures. For bare wood use an undercoater and then three coats of top coat. Thin according to the instructions. Generally, four coats of paint altogether is good protection under normal circumstances. The paint should be a flexible paint that will give a little with the wood to resist cracking and peeling. Hard, inflexible paints meant for fiberglass boats generally are not suitable for wood boats. The manufacturer is a good source of product information. Most have websites today so it is readily available.

When the small wood boat is stored on the beach or yard during the season it should be propped up on blocks so it is not in contact with the wet, damp earth. This will eventually rot the boat that is in constant contact with the ground moisture. Use cedar logs, treated 2x4's or 4x4's to get the boat off the ground at least a few inches. Metal rub strips on the bottom of the keel from stem to stern take the abrasion and save the planking from wear. Bilge strips on each side of the keel offer the same protection from wear and will save maintenance.

Gunl's can be protected from wear with an appropriate guard. Rope, metal, rubber and canvas covers save wear on the rub rails, look better longer and save the finish. Try to prevent bumping, grinding or chafing on rough wood docks or unforgiving metal sea walls or jettys. The right gunl' guards and fenders will prevent unnecessary repairs and the possibility of deterioration from rot.

Spars and oars can take a beating during the season and should be inspected for wear. Varnish worn spots and store them in the garage for the winter and if possible out of the sun in the summer. Grease the leathers with Vaseline or an oil made for leather to prolong their life. Slippery leathers rotate in the oarlock easier also with less wear. Check the running rigging as well as standing rigging during the season for chafe and replace as needed. Block in the running rigging take a lot of stress and need constant vigilance, especially on gaff rigs that have two halyards. Part of safety at sea is constantly monitoring the boats gear and hardware for structural integrity.

On the trailer the weight of the boat should rest on the keel and not on the planking. The trailer bunks should just be snug under the hull to keep it steady side to side. If the weight of the boat is on the planking it will eventually distort the planks permanently and possibly open up the plank seams. Small light boats bounce quite a bit on the rough roads. This is why the weight should be on the strongest part in the boat, the keel. A tie down strap should be tight but not so tight that it puts undue stress on the gunl's or rubs the finish off.

Boat trailers need attention to prolong their usefulness also. Keep up on the painted finish to prevent rust. Spot paint dings and nicks from road stones and bumping into things. Rinse off salt water with fresh water and unplug the lights before launching the boat to prevent shorts and blown bulbs. Check the bearings for marine grease in the spring as

well as the light bulbs, tire pressure and the spare tire. Also check the license plate for the current year.

With a little common sense maintenance your small wood boat should last as long as your boating career.