



# CERNY

YACHT DESIGN

## Island Trail 22

Small Yacht.  
Big Adventure.



*Island Trail 22- Expedition Rig*

### **Hydrostatics**

LOA- 22'

LWL- 18.75'

Displacement- 2050 lbs with water ballast  
1505 lbs w/out water ballast  
1005 lbs trailer weight

Beam- 6.67'

Beam waterline-5.75'

Draft- .75' with board up  
4.5' with board down

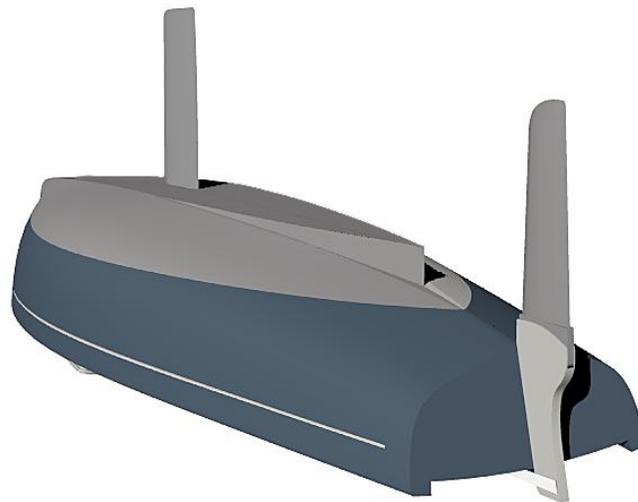
## Design Brief

The Island Trail 22 was designed to safely carry her crew of two adults and two children along the beautiful Maine Island Trail. Her centerboard, kick-up rudder, shallow draft, and flat bottom make her perfect for exploring those hard to reach island beaches. Her fully equipped galley, fresh and grey water tanks, porta-potti, and comfortable sleeping arrangements will guarantee that you will “leave no trace” as is required to keep these fragile islands in pristine condition.

Equally important in the design was the potential to compete in the occasional raid-type event. Between the versatile cat ketch rig, water ballast, and integral safety features, she will prove to be fast, seaworthy, and safe.

## Hull

After much research, the basic design concepts of the famous Sea Bright Skiff of the New Jersey shore were chosen to be incorporated into the Island Trail 22. The flat bottomed boxed keel of the Sea Bright Skiff lends itself perfectly for frequent beach landings. The boat will sit perfectly upright without the need of beach struts and the 5” rocker across the bottom makes limited maneuvering a possibility. Also, the large flat section at amidships makes this hull a perfect candidate for removable water ballast (discussed in the “Ballast” section).



*Sea Bright Skiff boxed keel*

Other great qualities of the Sea Bright Skiff hull form, like the great initial stability and the double ended waterlines for ease of rowing, were incorporated into the Island Trail 22.

## **Construction Method**

The hull of the boat is a foam composite structure, made of layers of fiberglass sandwiched around ½" foam core. While the keel is ½" plywood sandwiched between the same ounces of fiberglass. These scantlings, along with seven structural bulkheads, 4 longitudinal stringers, and the boxed gunhale, create a very stiff, lightweight structure, with very little of the interior structure needed in traditional building methods.

The hull is built using a female mold system covered with ribbands and positioned on a traditional strongback. Vertical strips of foam are laid into the molds, secured, and edge glued to more vertical strips. The inside of the hull is then sheathed in glass and the stringers and bulkheads are put in place.

Then, the half hull is removed from the molds, set aside, and the molds are reversed to build the second half of the boat. After the second half of the hull is foamed and glassed, the first half of the boat with bulkheads is mated to the second. The full boat is then released from the mold setup and the exterior is sheathed in glass.

## **Ballast**

As was mentioned above, the flat midship section of the hull bottom makes it a perfect candidate for removable water ballast. 550 lbs or 8.6 cubic feet of water can be added to two integral connected tanks straddling either side of the centerboard trunk. The added ballast increases stability (see graph below), increases the sail carrying capacity, and makes for a much more seaworthy boat that rivals much heavier cruising boats.

The Island Trail 22 has a Wind Pressure Coefficient of 1.37 with ballast, putting her in a solid "cruising boat" range. Without ballast, a .96 Wind Pressure Coefficient puts her in the "protected water racing" range.

As one can see, with the water ballast tanks empty, the Island Trail 22 will be transformed into a lively sailor, even in light winds. Also, she will be propelled easier by oars or auxiliary motor and the trailer weight of the whole boat will be reduced to 1005 lbs (1/2 stores), making it possible to be towed by a mid-size family sedan.

The water ballast system was designed for ease of use and maintenance. With a drain plug at the bottom of the tank situated under a threaded plastic inspection port located in the bridge deck hatch, it is a simple task to open the plug to allow the tanks to fill. Once the tank is full, the plug is replaced and the

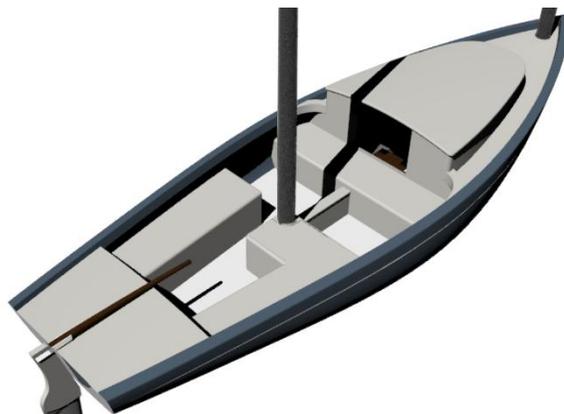
inspection port is closed. The water is then drained from the tanks by either reopening the drain plug while on the hard or in less than three minutes with a cockpit mounted Jabsco diaphragm pump.

## **Rig**

The Expedition rig is considered a cat ketch rig. This type of rig is very versatile with many ways to reduce sail area while maintaining forward momentum in difficult wind conditions while keeping a responsive helm. On top of that, the rig makes the boat very maneuverable in tight areas and in anchoring and docking situations. A large mizzen staysail could also be rigged for those light wind days.

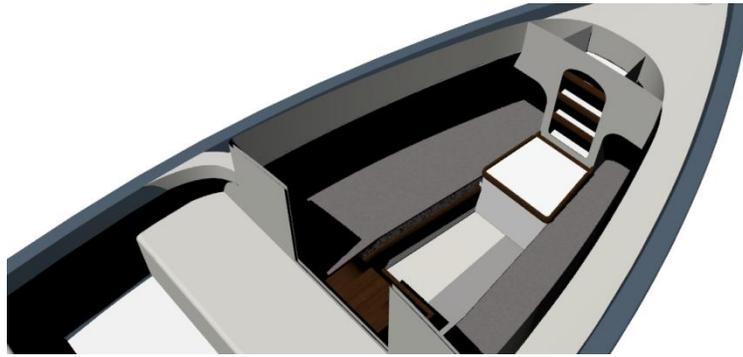
The Rig incorporates free standing carbon fiber masts that weigh less than 16 lbs and easily slide into fiberglass tube mast steps and partners for easy setup and take down. The curved sprit booms are made from laminated fir or spruce or a composite of carbon fiber and attach and detach easily from the mast by disconnecting the blocks at the snorter and at the sheet. This rig system has proven to be quick and painless to setup upon reaching the launch ramp while on a trailer.

## **Cockpit**

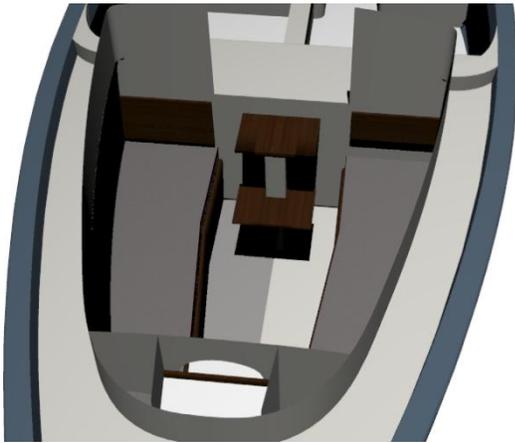


The cockpit consists of an abundance of seating arrangements. Two fore and aft benches face each other aft of the mizzen mast. The bridge deck doubles as a two person rowing station. These two seating areas are combined when a hinged seat rotates out from the hull creating a 7'-4" long cockpit bench that would make a great place to sleep on those warm evenings. Located at the aft end and starboard side of the mizzen mast is a built in 4.2 cubic foot ice box.

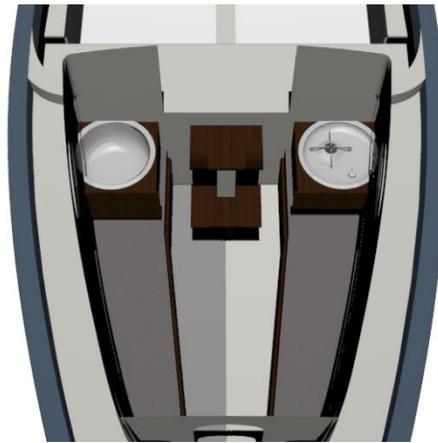
## **Cabin**



Access to the cabin is over the bridge deck and through the companionway hatch and down two stairs mounted on the forward end of the centerboard trunk. The cabin consists of two 6'-6" berths with the fresh water bladder, grey water bladder, and plenty of storage below 4" cushions. Located on the centerline and near the feet of the berths is a chart table/workstation with a porta-potti below. Forward of the workstation is a collection of fiddled shelves for storing food, charts, books, and other miscellaneous gear.



*Cabin with galley cabinets closed*



*Cabin with galley*

The galley consists of a single burner stove to port and a fresh water sink and faucet to starboard both mounted in drawers that disappear into the main bulkhead when not in use in the cabin. With the drawers in the closed position, the stove and sink are accessible through hatches in the bridge deck for preparing and cooking food in the cockpit.

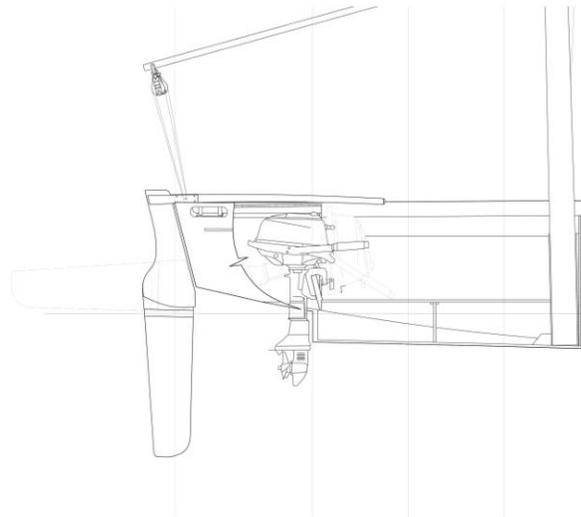


The cabin can be extended out into the cockpit with a quick and easily assembled cockpit tent. The sprit booms are quickly disconnected from the masts to make room for this standing headroom living space.

## Systems



*Auxiliary power- Oars*



*Auxiliary power- 5 hp outboard*

The boat has two possibilities for auxiliary propulsion. 10' oars are used by two people comfortably seated on the bridge deck for manual propulsion which is required in some raid events. The second method is from a 5 hp outboard motor mounted in a well aft of the cockpit and under the aft deck. The motor can easily be tilted out of the water when not in use.

The Island Trail 22 will also come equipped with a deep cycle battery for powering the safety and navigation lights that are required.

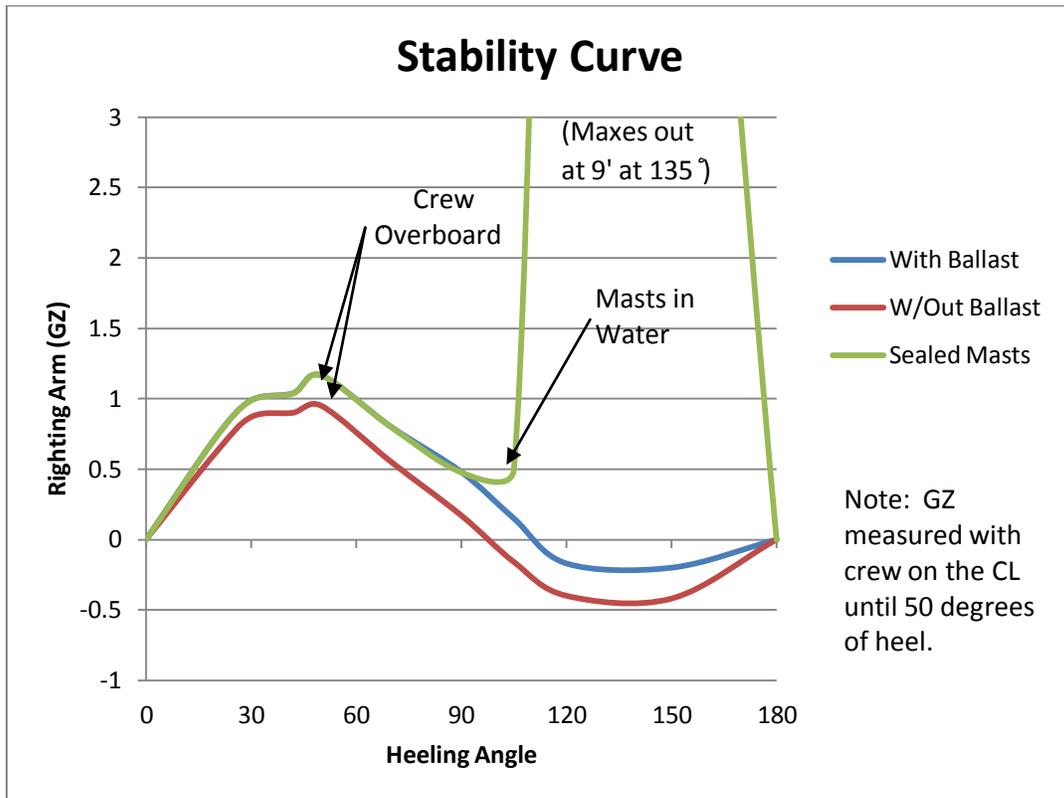
A Jabsco diaphragm pump is mounted in the cockpit. Fitted with a y- valve, the pump can clear the bilge and cabin or empty the water ballast tanks.

## **Safety**

Safety was a paramount goal while designing the Island Trail 22. According to ABYC standards, this boat requires 7.2 cubic feet of positive flotation. In just the hull and deck, the Island Trail 22 has over 8 cubic feet of positive flotation and then to guarantee the boat floats level while filled with water, another 2 cubic feet of foam is added in the boxed gunhale along the sheer.

The cockpit meets ABYC standards for it to be labeled "self bailing", so that all water that enters the cockpit drains away and doesn't need to be pumped.

The carbon fiber masts are sealed so that it is impossible for the boat to be flipped over. Add that to the added stability from water ballast and you get a vessel with great overall stability as seen in the graph below.



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