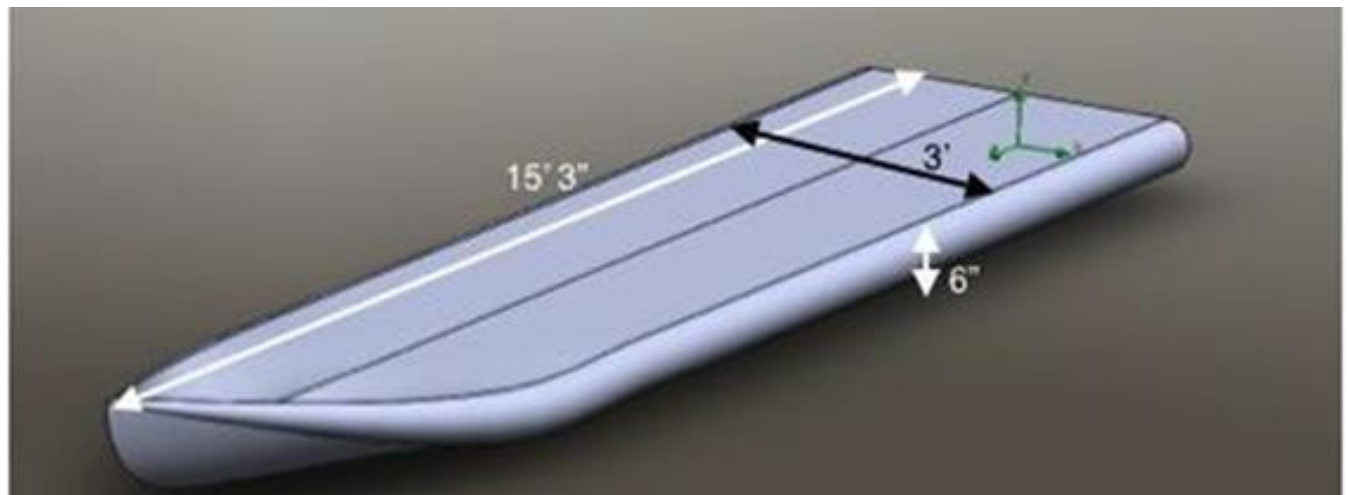




Dr. Norm Asper, Technical Adviser; ; Jason Pfund, ME; Robert Ruff, ME; Michael Schuhlein, ME. Volunteers pictured, xxxxxxxx Not pictured, Jeffrey Holman, ME : Joe Maco, Comp. & EE

The final hull design shown below began as a “surfboard” design concept. Obviously not all of the team agreed with the entire surfboard concept and the bow took on the conventional bow stem of a recreational hull. The stern was also truncated to accept the support structure of the

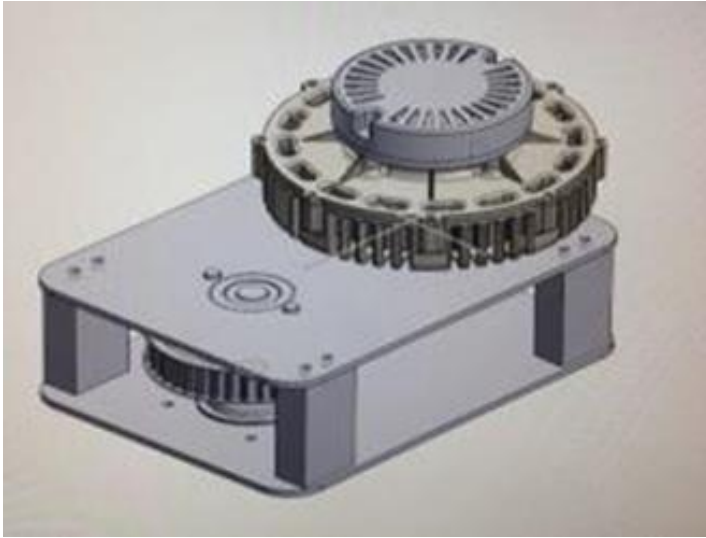




The 4' x 8' x 2" Owens Corning extruded polystyrene sheets were cut into 8' long by 16" and 8" wide strips. The 8' lengths were then cut to stagger the lateral joints. The photo at left shows how these foam strips were then stacked and glued to a 1.5 inch keelson stringer and an additional 0.75 inch stringer on each side. The layers of foam were glued together using epoxy resin. These laminates were glued to the stringers using epoxy and 6oz fiberglass cloth. The entire glue-up was strapped together and weighted down with heavy weights (batteries).

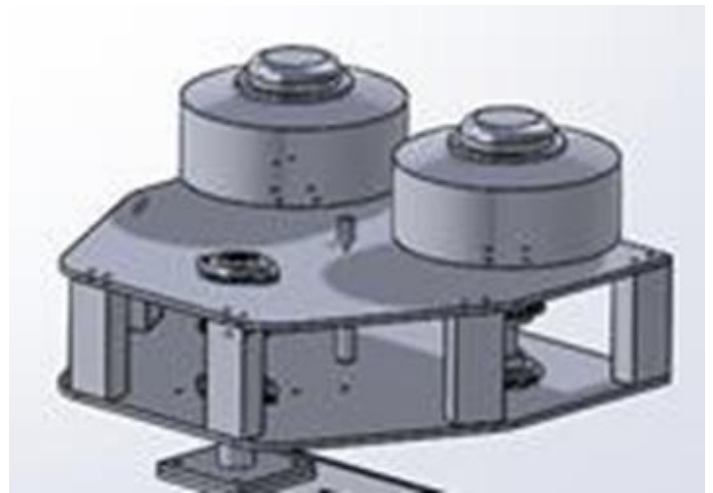
The bow was roughed out using hand saws, rasps, and finally block sanding. The bow form was maintained using full





At the left, the endurance motor was a Perm Motor PMG132 which turns at 1080 rpm with 24 volts. To reduce the rotational speed to accommodate the desired endurance prop rotation speed, a 20 tooth pulley was mounted to the motor shaft and a 40 tooth pulley was mounted to the powerhouse drive shaft. When combined with a 14:15 lower unit ratio, the final propeller rotation became 504—right

At the right, Two Lynch LEM200 D126 motors were used to drive one driveshaft. Each of the two motors were turning 20 tooth pulleys which were in turn driving a 20 tooth pulley mounted on the drive shaft—a 1:1 ratio. With the common 14:15 lower unit, the final sprint propeller rotation was 3360 rpm, also right on



Both power heads used the same lower unit, power house and steering. A four bolt flange was used for this connection, and the drive shaft was driven by a square shaft and socket. The mechanical exchange from endurance to sprint was quick and simple. The unused power heads were then placed on the hull platform to maintain the proper center of flotation for each event.



Above—in an attempt to prove the calculated center of flotation (CF) for the endurance configuration, the actual parts (or simulated weights) were placed on the hull rails and moved fore or aft to attain proper CF.

Below—The CF for the sprint configuration was proven with the same process.

The sprint CF proved to be right on the calculation point. The endurance CF, not so close. As it turned out the endurance CF simply could not be attained by mov-



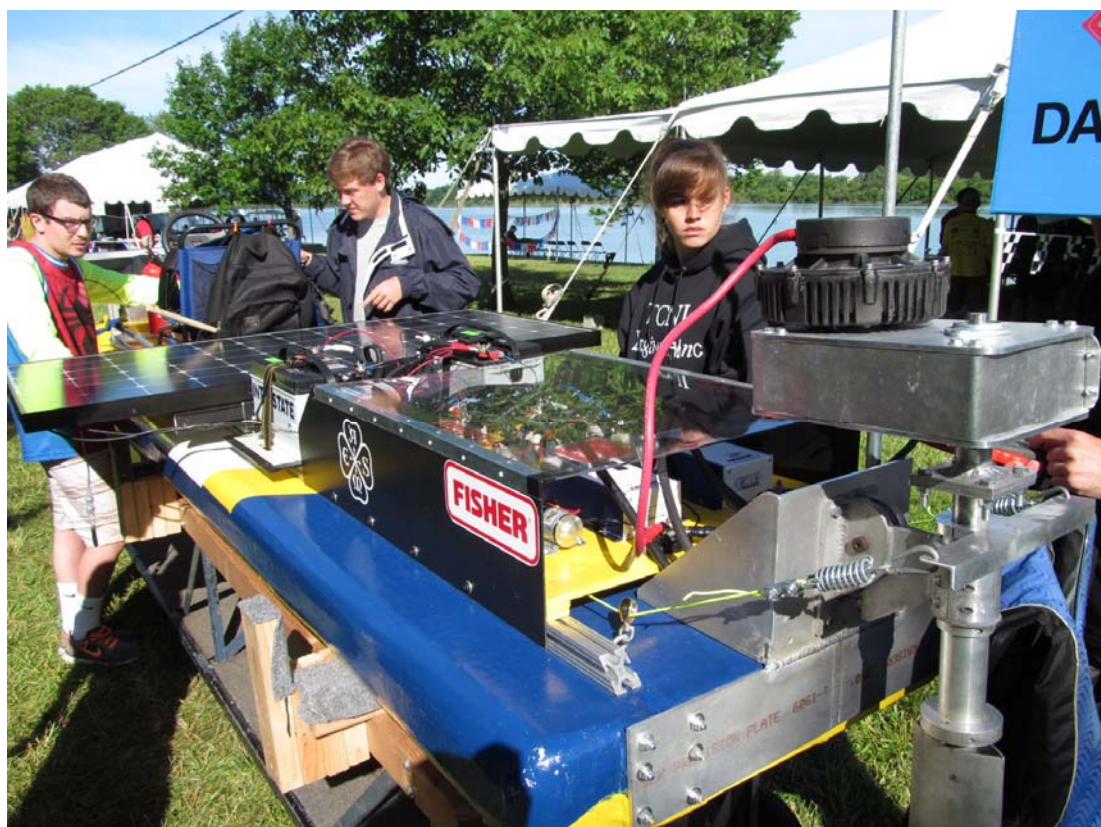


Unloading the boat and dolly from the truck in Dayton.





The above photo shows the helm from the driver's seat with the electrical control box at the base. The driver's information screen is just above the control box and below the steering wheel. Below—the motor control equipment under the clear cover with the batteries just in front. The simple cable steering can be seen mounted to the en-





Above shows the public information display explaining the development of each of the areas as well as the testing. Also displayed below were the propellers designed, machined, and fabricat-





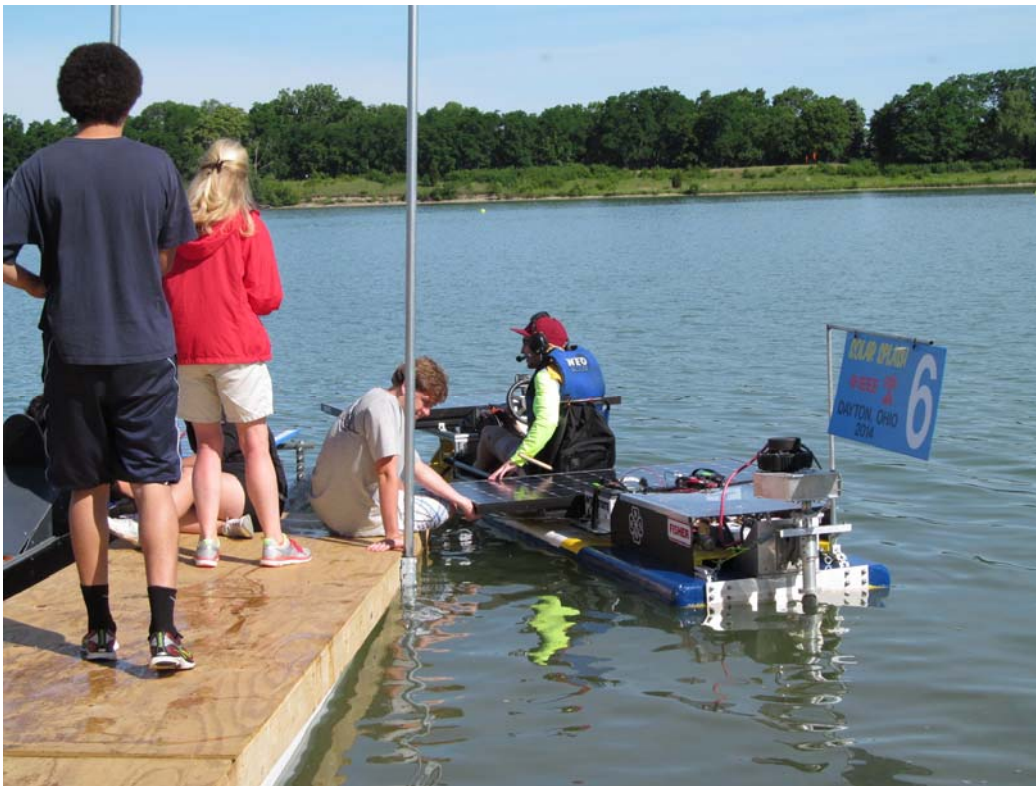
Launching for the sprint trials and events was simply floating the hull off the dolly—all hands on deck. Local television news coverage was always on hand.





Getting instructions from the dock master (mistress) in red shirt. Boat now assembled in the sprint condition. Below, the boat trimmed well in sprint condition.





Launching for endurance qualifying and the events was exactly the same, with instructions from the dock master. Below, showing the “Jersey Boat” passing Arkansas in the endurance event.





The team in front of the trophy cases with trophies since 1999. For 2014, the team finished **THIRD OVERALL**; with trophies for third place in Solar Endurance, third place in Technical Reporting, and a Teamwork Award. Overall a good year.

