

## The Perfect Storm

**Objective:** Design and engineer a boat hull made of wood to carry a load of 200 grams down a 20 foot long track of water in the shortest time possible. The source of power for your boat hull is a 100 gram mass attached to a pulley system. Each boat will be timed for the round trip, one trip with the load on board and a second trip without any weight on board. The boat with the lowest elapsed time is considered the winner.

### Construction Rules:

- 1) The boat must be shaped from a single piece of any wood except Balsa and must fit within the following range of dimensions:  
Length overall - 9 inches to 12 inches  
width overall - 3 inches to 6 inches  
Height overall - 1.5 inches to 2.5 inches
- 2) The boat hull may be of any shape, but must be able to safely transport 200 grams of cargo. The cargo will be 4-50 gram Ohaus weights ( approx. height 1 inch).
- 3) One screw eye( minimum outside diameter .25 inches) must be mounted in the center of the bow to attach to the pulley line of the Aquatrack.
- 4) The wood of the hull may be waxed, finished with paint or varnish, or left untreated, at the participant's discretion.
- 5) No additional materials may be used in the construction or launching of the boat.

### The Competition:

- 1) Each student's boat will be weighed and checked before the competition to ensure that it meets the construction specifications outlined above.
- 2) Schools will be called to the start area in an order yet to be determined one at a time.
- 3) Each boat will be attached to the Aquatrack's pulley line by means of the screw eye, and will be placed behind the starting line.
- 4) Each school's boat will be run twice through the Aquatrack: once empty and once with the specified load, using the same power both times. Times for the two trips (delivery and return) will be added to give the total round trip time in seconds.
- 5) Once launched, the boat cannot be touched during its path to the finish.

### The Scoring:

- 1) The boat with the lowest combined time will be declared the winner and earn 50 points. Second place 49, Third 48, fourth 47 and so on.
- 2) In the event of a tie, the boat with the heavier weight to declared the winner.
- 3) Boats which are disqualified for overall dimension infractions or made of Balsa will be allowed to run but they can not earn a place ahead of a legal boat.

### Additional Information:

The concept for this event was adapted from a competition in a PITSCO catalog. They make an excellent Boat Hull Design Kit which includes just about everything one would need from a block of wood to the screw eye. The Telephone number for PITSCO is 1-800-835-0686. The product is called the Boat Hull Design Kit (Product number C56812, cost \$9.95). Also, [www.shop-pitsco.com](http://www.shop-pitsco.com)

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