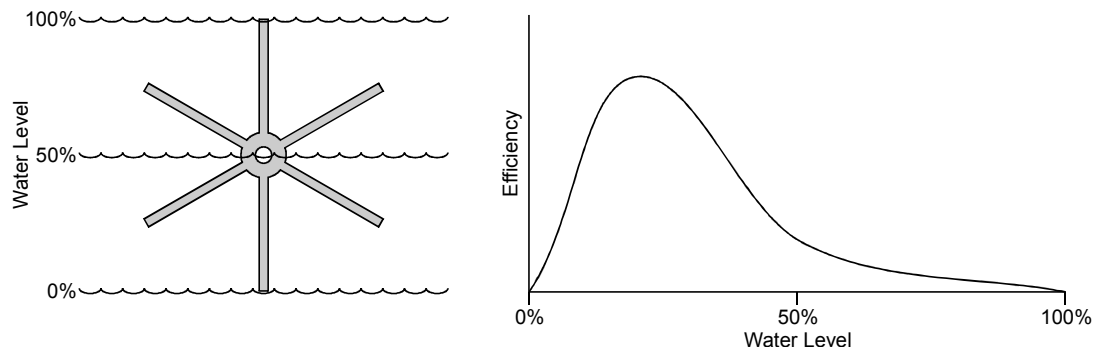


# Paddlemaran Tasks: Paddlewheels

## Design Paddlewheels

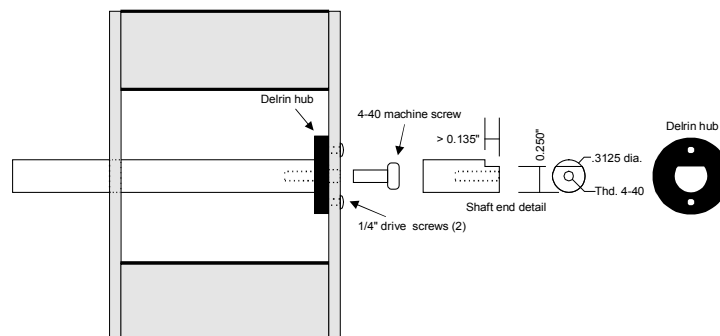
**Predecessors:** Decide Gear Ratio, Determine Deck and Shaft Height Above Water

The paddlewheels are what propel your craft. To do so, they must reach into the water. How deep they go and how fast they turn will determine how efficiently they operate. If they don't reach deep enough, they won't make enough contact with the water to provide adequate propulsion. If they go too deep, too much energy will be wasted pushing down on the water in front and pulling it up in the rear. Here's an illustration that shows how the efficiency might vary with depth:



This is why you need to know the shaft height above water before you decide how long to make the blades.

Each paddlewheel couples to the D-shaped end of the shaft via a 1/8" Delrin hub. For maximum strength and ease of assembly and disassembly, the shaft should protrude all the way through the paddlewheel assembly:



## Build Paddlewheels

**Predecessors:** Design Paddlewheels

Except for the Delrin hub, the paddlewheels are constructed from 0.11" thick doorskin. Any gluing should be done with either TiteBond III or Gorilla Glue.

## Assemble Paddlewheels to Shafts

**Predecessors:** Build Paddlewheels, Cut Gears, Assemble to Shafts

The Paddlewheels are secured to their shafts via 4-40 x 3/8" stainless pan head machine screws.