Making a Solo Race Canoe

I plan on constructing my own race canoe for the Texas Water Safari (TWS).

I want this boat to be *USCA C-1* compatible according to the TWS boat rules.

Goals

1. Meet **USCA C-1 specs**
2. **Light** (aiming for sub-50lb after reinforcements and seat)
3. **Race features** such as jug holders and handles.
4. As **cheap** as possible. Retail for similar canoes is about $3500.

Race Features

- **Flotation Tanks**
  - volumes in the bow and stern are to be sealed off and airtight to ensure the boat will float even when capsized.
  - these volumes can be fitted with ports to allow for storage and draining.
- **Seat**
  - a carbon fiber seat will rest on adjustable metal bars to minimize weight and allow for seating position changes.
  - seat is covered in 2-3 layers of yoga mat foam glued on.
- **Handles**
  - handles on bow and stern
  - bow rope
- **Jug Holders**
  - 2-jug capacity put in foam holders behind the seat
  - long tubes glued into jugs with velcro around end
- **Foot Bar**
  - one of the ribs will be fitted with a thin layer of foam for resting feet
- **Light Block**
  - velcro strips glued down on bow
  - flashlights placed in bow in a foam block, velcrod to the strips
  - lighting wires can be run into the bow volume, or under the bow overhang
- **Spray Cover**
  - spray cover with paddler cutout
  - cinches to gunnels with snap rivets and thin velcro tape (sewn to cover, glued to gunnels)

Materials

Building with a composite consists of adding a ***resin*** to a ***fiber*** matrix. The fibers provide the tensile strength, while the hard resin provides rigidity and shape.

Fibers

Fiber	Tow	wt [oz]	Cost [50" x yard]	Supplier
carbon	3k 2x2	6	~$34	composite envisions
carbon	12k 2x2		~$45	rock west
kevlar	1140d	5.3	~$40	rock west
carvlar	3k 2x2	5.5	~$34	composite envisions
tan carvlar	3k	5.5	$37	composite envisions

Resins

Resin	Cost [per ft^2]	Supplier
epoxy		
eurathane		