Canoe Paddle for One-Arm Use

Cindy Dillenschneider, Professor of Outdoor Education at Northland College in Ashland, WI has designed and produced a prototype of a canoe paddle for one-arm use for persons who experience upper limb impairments. The paddle design which is now patent pending has been tested by and well received by persons with and with-out impairments.

The paddle is designed with the following criteria in mind:

1. To accommodate high-end paddling skills in order to allow the user to achieve whatever level of technical expertise desired. It is important that the paddle design does not become the limiting factor in skill development. This criterion required the paddle to be able to travel 360 degrees in all planes and for torso rotation to be the power source for all strokes.

2. To be of professional quality, appearance, and similar in design to other canoe paddles in order to allow the user to blend in with all other paddlers. The ability to be viewed (and perform) as an equal is important in enhancing inclusion. The paddle is currently designed in carbon fiber and uses a commercially available blade from Zavarel Racing Equipment.

3. To be affordably priced. A simple design that will keep prices within the typical range of high-end paddles will allow greater access for the individual or rental fleet purchaser.

4. To be easily adjustable for use by people of all sizes, paddling styles, and for left or right hand use. Portability between users is viewed as a way to make the purchase of one or more adapted paddles desirable for rental fleets, city parks programs, and programs serving a broad spectrum of people with disabilities.

5. To be accessible to people with impairments who are looking for canoeing equipment. In order for canoeing to be truly inclusive, it is important that
adapted equipment find its way into the commercial market with other canoeing equipment.

6. To allow for quick escape in the event of an emergency.

7. To be light-weight to allow the most efficient use of energy. A carbon fiber model allows the greatest amount of energy to be placed into propelling the canoe rather than in the recovery phase of the stroke.

8. To encourage efficient technique. This increases the speed at which the user becomes comfortable with and is able to technically advance in the desired skill.

9. To incorporate a design and materials that are not adversely affected by exposure to conditions typical to paddling (e.g. water, sand, salt).

The paddle assembly consists of three parts; a shoulder harness, a paddle, and a connector between the two. (See photo) The shoulder harness is a simple cap that is worn on the shoulder of the sound side of the body and is anchored to the torso by straps that go from the back around the torso and buckle in the front. The paddle is made of carbon fiber, uses a standard paddle blade and has a modified shaft. The shaft attaches to the top of the shoulder of the user at the shoulder cap.

To use the paddle, the user grasps the vertical aspect of the paddle shaft with the sound-side hand and uses torso rotation to power the strokes. (See video clip). The paddle is currently being considered for market by one manufacturer. Cindy hopes to have the paddle in the commercial market sometime next year.
Left:
• Paddle set for Right Hand Use
• Buckles are on front of shoulder cap
• Bungie Cord around the top shaft
• Telescoping top shaft adjusted for the user
• Bottom shaft joins blade

Right:
• Paddle blade is offset for right or left-hand use with traditional canoe style.
• Paddle blade is not offset when used with narrow beam such as outrigger style canoe