

Tacoma Dragon Boat Association

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Steering Tips for BuK/GWN Racing Style Dragon Boats

Boat Description – The Tacoma Dragon Boat Association owns eight Buk/GWN racing-style dragon boats. The hull is made by German manufacturer BuK, and is outfitted for North American distribution by Great White North (GWN) in Toronto, Ontario, Canada. The boats are 42 feet in length, 3-1/2 feet in width, weigh approximately 550 pounds empty and between 3,800 and 4,000 pounds fully loaded. They have a pointed bow and stern, concave bottom, and angled, hard chines. A full crew comprises 20 paddlers (10 on each side), a steersperson, and drummer. Paddlers and the drummer sit on benches. The steersperson stands on a raised platform at the stern and steers with a 10 foot steering sweep that is 2 inches in diameter, has a 2 foot blade at one end and a T-handle at the other. The steering oar is held freely or lashed to a stainless steel U-bolt, which is affixed to the left side of the steering deck. Steering and boat control is accomplished by movement of the steering oar as well as directing commands to the paddlers such as to go forward, stop, hold water, pull to the left/right, reverse, and other variations.

Boat Characteristics – The BuK-Hull GWN boats are specifically designed for racing. Though they have no skeg or keel, the hull design makes them steer easily and straight. These boats are highly directional with virtually no tendency for sideways slippage. It requires a 150' circle to complete a 180-degree turn in the BuK-hull GWN boats using the steering oar only. Using some additional techniques which you will learn that turning arc can be reduced to a boat length. The one characteristic of the BuK-hull GWN boats that the steersperson must watch for is the boats' tendency to continue turning once a turn has been initiated. This can easily be controlled by use of the steering oar to limit the turn while underway.

Steering Oar Setup – The BuK/GWN boats are designed for the steering oar to simply be supported in place within the opening of the aforementioned U-bolt. A beginning steersperson (or any steersperson negotiating rough water/wind conditions), may want to lash the steering oar in place at the U-bolt. Doing so provides the steersperson with some semblance of standing “fore and aft” support and aids in balancing. The helmsman must pay very close attention when securing the steering oar to the boat. Lashing of the oar to the U-bolt must be done with secure knots. Secure, but also loose enough to provide sufficient steering oar movement. There will be no opportunity to “re-do” the lashing when underway.

Stance/Footing – Stand up straight and comfortably with your legs relaxed and your feet at shoulder width with one foot ahead of the other. Your right hand should be on the “T” handle of the steering oar and your left hand where it is most comfortable, or, about mid-shaft.

Steering Techniques – Unlike driving a car or riding a bike, dragon boat steerspersons have THREE steering techniques available to them, as follows:

1. Push & Pull – Using this method is exactly the same as steering a sailboat with a tiller or a small outboard motor boat using the motor control handle...you simply push the steering oar in the OPPOSITE direction of intended travel. To turn to port (left) you push the steering oar to starboard (right). For right turns, push the steering oar to the left. If in practice you find this to be confusing in any way, just think about steering a car...but with your hand at the BOTTOM of the steering wheel. Note: In general, use of the steering oar provides maximum control as you are using the full leverage of the entire steering oar.
2. “T” Handle Rotation – Rotate the “T” Handle clockwise to turn to the right and counter-clockwise to turn to the left. This method is great for “fine tuning” and in races. “T” Handle rotation is often used in conjunction with the “Push/Pull” technique (above).
3. Rowing – This use of the steering oar is for close quarter maneuvering and when stopped. If you want the stern of the boat to go towards the left you use the steering oar like an oar in a row boat and pull the stern left. “Row” the opposite way to move the stern to the right. This method is ideal for use in docking or turning the boat when it’s stopped. Do not use the rowing method when making hard turns or steering a fast-moving boat. Dragon boats only react to your steering input when the steering oar is in the water. When “rowing” the oar is out of the water about 50% of the time. So, trying to use the “rowing” method while underway means your steering effort will only be 50% effective.

Steering by the “Inch” – Most of the boat’s excellent steering characteristics can be maximized with the technique of “steering by the inch.” When underway and at speed, pick a point to steer toward that is ¼ mile or more ahead of the boat. Line up the bow with the selected point and do not let the bow veer off that point by more than 6 inches to either side. Make all turns and minor course corrections slowly, incrementally. This is particularly helpful during racing. Ideally, under racing conditions, the steering oar should be held above water and only “dipped” in occasionally when making minor steering corrections. Each use of the steering oar creates drag and reduces boat speed.

Paddle Steering – It’s a good safety practice for a steersperson to take a standard paddle along with them during practices in case a crew member’s paddle breaks, or, there is a need to steer the boat with it. The primary steering motions when using a paddle include “dip” and “draw”. If you are seated on the right and want to turn to the right you “dip” the full paddle blade in the water and hold it vertically at a 90-degree angle to the hull with the blade parallel to the boat. For a left turn, you reach out and “draw” or pull water to the boat as you would in a side pull action. When seated on the left simply reverse the movements to turn to the right or left. When the boat is underway, you should be able to paddle along with the crew for 5-7 strokes then “dipping and drawing” for one or two to keep the boat on a straight course. All other tips including “steering by the inch” apply to paddle steering as well.

Close-Quarter Maneuvering – Because of the boat’s design and method of propulsion (paddling) it can be particularly interesting to maneuver in close quarters and during docking. There are four points to consider:

1. Use the slowest boat speed possible during maneuvering. Ideally, you should maintain just enough forward or backward movement through the water to enable steering control (water flowing across the blade of the steering oar).
2. Point the bow where you want it to be and then use the steering oar (like rowing a boat) to “row” the stern either to the right or left. Short, quick “rowing” strokes work best in tight quarters.
3. When moving the boat either forward or backward, direct the paddlers to apply the most appropriate type of power to assist in moving the boat forward, back, sideways or turning it around.
4. When going in reverse, the helmsman must realize that the use of the steering oar is also reversed. To move the stern of the boat to the left you must pull the steering oar to the left as if rowing.

Getting Underway in Close Quarters – The helmsman’s command to begin paddling should only be made when the boat is clear of obstacles and safe from any oncoming or nearby boat traffic.

Turning – During all turns the helmsman must pay equal attention to both turning and limiting the turning action by exerting steering oar force in the opposite direction. Most beginning helmspersons tend to only think about steering the boat into a turn. Controlling the rate and degree of the turn is equally important.

Boat Control – As helmsman you have control of the boat and must maintain that full control all times. You must ensure silence among paddlers and provide clear commands during maneuvering. A boat full of chatter and with paddlers not attuned and “at-the-ready” cannot respond effectively.

Other Factors – The helmsman must be aware of the factors of wind, waves and current, and know how to react to them. Wind will require close attention to steering to maintain course. Waves and boat wakes must be anticipated and taken “on angle” (no less than 45 degrees). Allowing the boat to wallow in the troughs between waves can cause it to take on water or capsize. Facing sideways to a series of oncoming waves is a situation the steersperson must avoid. This is important. BuK/GWN boats have very low freeboard. They can swamp easily. The worst rough-water situation for a steersperson is dealing with large, following swells or “surprise” wakes from passing boats. The closer to 90 degrees that these type waves meet the stern or bow, the better. If taken on a wide angle, the boat will tend to slough-off the wave crests and slip sideways into the troughs. Being sideways in a wave trough is a place you don’t want to be. The steersperson must also be constantly vigilant of oncoming as well as following

wakes and waves and plan in advance for taking appropriate steering actions. Other factors to watch for include current, rip tides, and dead or live water conditions...all require appropriate steering responses to maintain course and the safety of the boat.

Right of Way – First Rule: Forget the idea that our dragon boats may have the right-of-way over most other vessels because we are human-powered. Our boats are relatively small, low to the water and often quiet...and there are up to 22 lives aboard. It is the helmsman's responsibility to be aware of and anticipate ALL nearby vessel traffic and movement. Always ensure that your dragon boat is safely operated and maneuvered. Always assume that the "other guy" doesn't see you. If another boat is overtaking you, maintain your course until passed. When being approached from the bow by another vessel, make sure that the other vessel passes by on the left. To the extent possible, avoid small, minute boat course/direction adjustments in favor of clearly obvious turns and course adjustments. This ensures that your intentions are quickly understood by other vessels in the immediate area. Stay a safe distance (two boat lengths minimum) from marina outlets and moorage areas to avoid surprise entries into your path by large boats. Whichever direction you are going on the waterway, keep to the right side of the channel. Always stay to the right when meeting other vessels. When overtaking other boats, pass to either side but be aware that no boat has the right-of-way when overtaking another. For safety reasons, every steersperson should carry a loud whistle to signal to nearby power and sailboats. Some of the most commonly used signals include: (1) A single, long "toot" when leaving dock, (2) Two "toots" when passing another vessel on its left, (3) One "toot" when passing a vessel on its right, (4) Three "toots", means your boat is traveling in reverse, (5) Five "toots" is a danger signal to another boat indicating that the situation is dangerous and you are in doubt as to the other vessel's intentions.

Steering Oar Positioning – The steering oar can slide fore and aft if bindings at the fulcrum point (U-bolt) are loose or you are steering with no lashing. Check occasionally to ensure the T-handle, the forward end of the steering oar, is within 6-8 inches of paddlers in the last seat. Another quick measure is that the U-bolt be positioned at the bottom one-third of the protective wraps on the steering oar. This will maintain the proper leverage on the oar required to steer without undue force and exertion by the helmsman. If you notice the oar has slipped back or down, a pulling or twisting motion should enable you to reposition it where it should be. It is estimated that 90% of the boats that lose control during races do so because the steering oar is allowed to slip backward too far. This moves the fulcrum point to the middle of the steering oar or higher. The result is that the steersperson – no matter how strong they are – then has insufficient steering oar leverage for controlling the boat.

Steering in Races – The helmsman's job during races is to:

1. Know the course and water conditions before you actually go out to race.
2. Maintain absolute silence and attention in the boat at all times.

3. Get the paddlers “pumped”, together and positioned at the starting line in quick, orderly fashion.
4. Pay strict attention to the starting officials and make sure all paddlers are doing so as well
5. Maneuver the boat as requested by officials prior to the start.
6. Repeat the “Attention” and “Ready” calls by the starting official if necessary.
7. Once the race has started, steer the boat in the straightest possible course to the finish line. It is also important to minimize use of the steering oar during races as it creates drag and can reduce overall boat speed. When racing, think in terms of “tweaking” the steering with minor adjustments as opposed to a more heavy-handed approach. A very beneficial technique during races is to steer only by twisting the steering oar one-quarter turn to either side. At speed, this will have the same effect as pushing the oar to either side, with far less induced drag.

Voice Commands – Voice commands are used by the steersperson the same way one would use the throttle and transmission controls on a sail or powerboat...only with dragon boats, the “engine” is comprised of 20 paddlers, all of whom are facing in the opposite direction up to 40’ away and cannot see the helmsman. Voice commands, therefore, need to be issued loudly and clearly so all paddlers including the stroke (at the front of the boat) can hear and understand them. Speak with authority and volume. Commands are *COMMANDS*...not questions. Commanding a dragon boat is definitely NOT a place for “up talking”. Say it like drill sergeant.

Following are commands used by TDBA during practices:

Attention in the boat – Used to get all paddlers’ undivided attention.

Ma Kau Kau – Equivalent to Paddlers Prepare. When paddlers hear this command it is the signal to sit upright, have their paddles across their laps and to be ready for the next command.

Hoe Pai – Equivalent to Attention or Ready – The signal for paddlers to instantly assume the paddling position (paddles raised above the water, bodies in position to paddle). They will hold this position until the next command is issued.

Imua – Equivalent to Go or a sound device, such as an air horn – This is the signal, issued with considerable gusto, to commence paddling. Should be preceded by instructions as to whether this is a racing start, a slow and easy effort to get the boat moving, or even just a given number of strokes for maneuvering purposes, for example, “five easy strokes forward.”

Pau – The command to stop paddling immediately.

Left side draw – All paddlers on the left side of the boat lean out and paddle sideways, pulling water underneath the boat to move the boat to the left. The same command can be given to the right side of the boat to move it in the opposite direction. In either case, paddlers on the opposite side lean out slightly to balance the boat.

Left front draw – Paddlers in the front 2 or 3 seats on the left side draw water (side paddle) to move the bow of the boat to the left. Using the front paddlers on the right side will move the boat to the right.

Left Rear Draw – Paddlers in the rear 2 or 3 seats on the left side draw water (side paddle) to move the stern of the boat to the left. Using the rear paddlers on the right side with “right rear draw” will move the stern of the boat to the right.

Left Front/Right Rear Draw – Just like the command indicates, this method puts paddlers on opposite ends and sides of the boat into action resulting in the boat turning on its axis. Under calm conditions, a dragon boat can be turned 360-degrees this way. A variation would be “right front/left rear draw” rotate the boat in the opposite direction.

Back paddle – All paddlers stroke together in reverse to move the boat backwards.

Stop the boat – Paddlers thrust blades vertically into water and dig in to bringing boat to a halt.

Hold water – Paddlers use variety of strokes (above) to maintain the position of the boat on the water despite wind, current etc. Typically used during pre-race positioning. Typically, each paddler will pick out two distant points on shore that are directly lined up with each other (A sailboat at a dock and a tree on a hill) and make sure there is no sideways movement between those points. When each paddler does this, the boat will remain at one point without drifting on the water.

Paddles Out or Brace the Boat – Paddles horizontal with flat blades resting on top of the water to stabilize the boat.

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