



One of the unique aspects of rowing is that novices strive to perfect the same motions as Olympic contenders. Few other sports can make this claim. In figure skating, for instance, the novice practices only simple moves. After years of training, the skater then proceeds to the jumps and spins that make up an elite skater's program. But the novice rower, from day one, strives to duplicate a motion that he'll still be doing on the day of the Olympic finals.

- Brad Alan Lewis

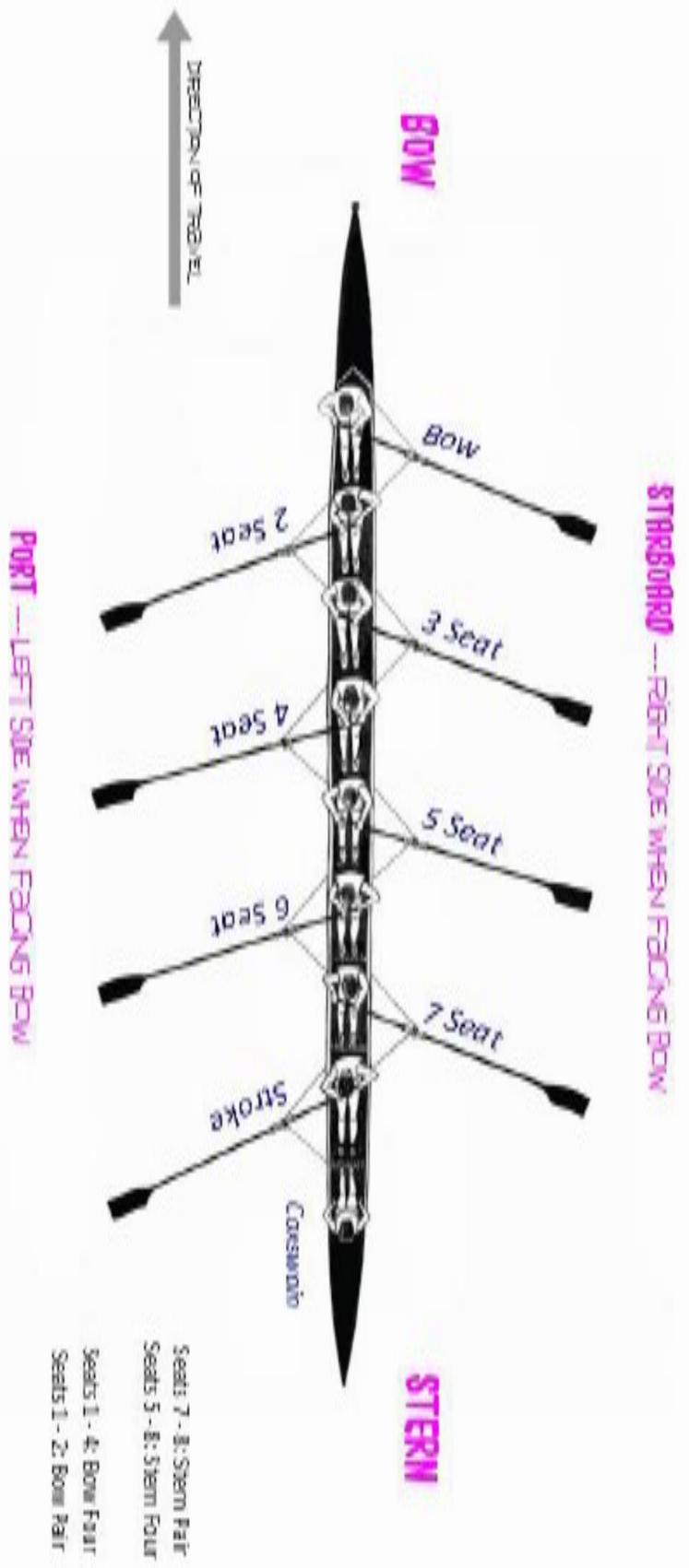
The Rowing Shell

Racing boats (often called "shells") are long, narrow, and broadly semi-circular in cross-section in order to reduce drag to a minimum. They usually have a fin towards the rear, to help prevent roll and yaw and to increase the effectiveness of the rudder.

Originally made from wood, shells are now almost always made from a composite material (usually carbon-fibre reinforced plastic) for strength and weight advantages. FISA rules specify minimum weights for each class of boat so that no individual will gain a great advantage from the use of expensive materials or technology.

There are several different types of boats. They are classified using the number of rowers (1, 2, 4, or 8) in the boat and the position of the coxswain (coxless, box-coxed, or stern-coxed). With the smaller boats, specialist versions of the shells for sculling can be made lighter. The riggers in sculling apply the forces symmetrically to each side of the boat, whereas in sweep oared racing these forces are staggered alternately along the boat. The sweep oared boat has to be stiffer to handle these unmatched forces, so consequently requires more bracing and is usually heavier.

The symmetrical forces also make sculling more efficient than sweep rowing: the double scull is faster than the coxless pair, and the quad scull is faster than the coxless four.



- Seats 7 - 8: Stern Pair
- Seats 5 - 6: Stern Four
- Seats 1 - 4: Bow Four
- Seats 1 - 2: Bow Pair



Boat Classifications

- Gender
 - Men's (M)
 - Women's (W)
 - Mixed (Mixed)
- Weight
 - Lightweight (L, LWT, or Ltwt): female rowers cannot weight more than 130 pounds; male rowers cannot weight more than 155 pounds.
 - Heavyweight
- Size of Crew
 - The number of rowers in the shell (1, 2, 4, or 8)
- Type of Rowing
 - Sculling (x)
 - Non-sculling boats get no designation
- Coxswain
 - Coxed Boat (+)
 - Coxless Boat (-)

Sweep Boats

- Coxed Eight (8+): a shell with eight rowers and a coxswain (always stern-coxed)
- Coxed Four (4+): a shell with four rowers and a coxswain (either stern- or bow-coxed)
- Coxless Four (4-): a shell with four rowers and no coxswain; also known as straight fours
- Coxed Pair (2+): a shell with two rowers and a coxswain. Rarely rowed by clubs.
- Coxless Pair (2-): a shell with two rowers and no coxswain; also know as a straight pair

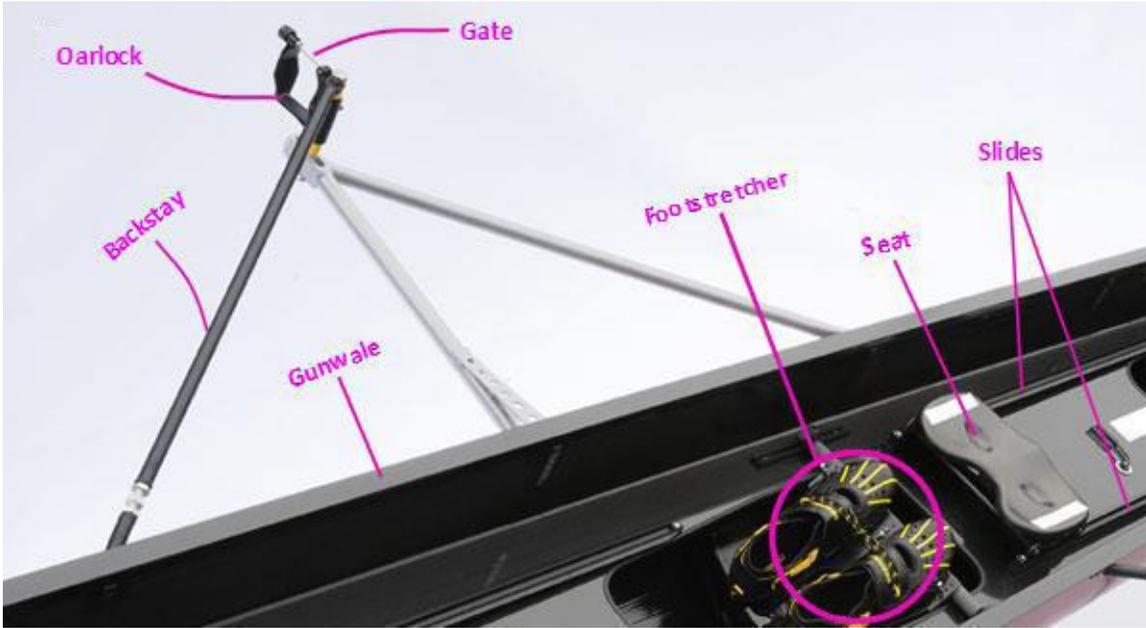
Sculling Boats

- Octuple (8x+): a shell with eight rowers, two oars each, and a coxswain
- Quad (4x+ or 4x-): a shell with four rowers, two oars each; can by coxed or coxless
- Triple (3x): a shell with three rowers, two oars each; usually coxless and very rare
- Double (2x): a shell with two rowers, two oars each; usually coxless
- Single (1x): a shell with one rower with two oars and no coxswain



Parts of a Rowing Shell

- **Sweep** – every rower has one oar and rows on either port or starboard.
- **Sculling** – every rower has two oars – one per hand – on each side of the boat.
- **Bow** – the end of the boat closest to the direction of travel (the front of the boat).
- **Stern** – the end of the boat farthest away from the direction of travel (back of the boat).
- **Port** – when facing the bow, port is the left side of the boat.
- **Starboard** – when facing the bow, starboard is the right side of the boat.
- **Blade** – the face of the oar (spoon or hatchet shaped) at the end of the oar.
- **Bow Ball** – a small, soft ball at the bow of the boat.
- **Bowloader (bowcox)** – a shell in which the coxswain seat is in the bow of the boat.
- **Bow Number** – a numbered card attached to the bow of the boat during races. A unique number is assigned for each boat in a race event.
- **Collar** – a plastic ring around the sleeve of an oar that prevents the oar from slipping through the oarlock. The collar can be moved to adjust the load on the oar during the rowing stroke. Also known as a button.
- **Cox Box** – portable voice amplifier used by coxswains. Speakers throughout the boat allow all the rowers to hear commands. Also includes performance readouts (stroke rate, split, and time).
- **Fin (Skeg)** – thin, stationary piece of plastic attached to the bottom of the boat that helps stabilize the shell in the water.
- **Foot Stretcher** – part of the boat where shoes are attached.
- **Gunwale** – the top edge of a boat's side.
- **Handle** – the part of an oar that rowers hold onto during the rowing stroke.
- **Hull** – the body of the rowing shell.
- **Oarlock** – attached to the far end of the rigger and physically attaches the oar to the shell.
- **Rigger** – projection from the side of the boat that holds the oar. Sculling shells will have two rowers per seat; sweep shells will have one rigger per seat. The rigger acts as the fulcrum for the oar.
- **Rudder** – adjacent to the fin, the rudder is used by coxswains to steer the boat.
- **Seat** – the seat is on wheels and slides along the slides of the boat.
- **Slides (Tracks)** – rails upon which the rower's seat will roll.
- **Starboard Rigged** – a shell where the stroke rower is a starboard rower.





Rowing Terminology

- **Bisweptual** – a rower who can row both on both starboard and port sides of a boat.
- **Catch** – the part of the rowing stroke when the oar blade enters the water.
- **Crab (“Catch a Crab”)** – when a rower is unable to timely release their blade from the water, resulting in the blade acting as a brake force until it is removed. Severe crabs are able to eject a rower out of the boat.
- **Coxswain** – the only member of a boat without an oar, the coxswain is responsible for steering and race strategy. A coxswain can sit in either the bow or stern.
- **Drive** – the propulsive portion of the rowing stroke, from the time the oar blade enters the water (the catch) to the time it is removed from the water (the release).
- **“Engine Room”** – the middle rowers in the rowing shell.
- **Ergometer (Erg)** – indoor rowing machine used for training.
- **Feather** – when a rower turns their blade so it’s parallel to the water (opposite of square). Blades are feathered during the recovery of the stroke.
- **Finish (Release)** – the part of the stroke when the oar blade is removed from the water.
- **Heavyweight** – rowers above the weight limit for lightweight rowing. The lightweight girl limit is 130 pounds; lightweight boys is 150 pounds.
- **Junior Rowers** – any rower under the age of 19.
- **Masters Rowers** – any rower over the age of 27.
- **Missing Water** – when the rower begins the drive without fully submerging their oar blade in the water.
- **Novices** – rowers who are rowing for their first year.
- **Ratio** – the relationship between the time taken during the drive and recovery phases of the rowing stroke.
- **Recovery** – the non–propulsive portion of the rowing stroke, from the time the oar blade is removed (release) from the water to the time it enters the water (catch).
- **Set** – the balance of the boat.
- **Skying** – a blade that is too far off the water during the recovery.
- **Split** – the time it takes to row 500 meters.
- **Square** – when the blade is perpendicular to the water (opposite of feather). Blades are squared during the drive of the stroke.
- **Stroke Rate (Rating)** – the number of strokes executed per minute by a crew.
- **Walking** – when one crew is passing another boat.



Types of Races

- **Head Race** - time trial regattas where crews race against the clock over a set distance. Head races are typically raced in the fall season and crews begin with a rolling start at intervals of 10-20 seconds apart. The standard race distance is three miles but can vary depending on the race course. The largest head race is the Head of the Charles Regatta held each October in Boston, Massachusetts.

- **Sprint Race** – regattas where crews race side-by-side and start at the same time from a stationary position. Sprint races are held in the spring for high schools. The standard length of a race is 2,000 meters, but high schools typically race 1,500 meters. Depending on the number of entries, qualifying heats and semifinals are used to determine who races in the finals. The winner is the boat that crosses the finish line first.



The Rowing Stroke

Catch

- The part of the rowing stroke when the oar blade enters the water.
- The rower is fully compressed – legs bent, arms extended, body leaned forward.
- The seat is forward on the slide.
- The blade is squared (perpendicular to the water) and submerged in the water.
- Rower is ready to begin the propulsive portion of the stroke.

Drive

- The propulsive portion of the rowing stroke: from the time the oar blade enters the water (the catch) to the time it is removed from the water (the release).
- Power comes primarily from the leg drive – pushing against the footstretchers.
- As the legs come down, the back is rocked backwards from the hips. Rower transitions from a forward lean to a layback position.
- The final motion of the drive is the pulling in of the arms.

Finish / Release

- The part of the rowing stroke when the oar blade is removed from the water.
- At the completion of the drive: the legs are extended completely, the body is leaned slightly backwards, and the hands are drawn into the body.
- The downward motion of the outside hand (in sweep rowing) extracts the oar blade from the water.
- At the finish, as the oar blade is removed from the water it is rotated to be perpendicular to the water.

Recovery

- The non-propulsive portion of the rowing stroke, from the time the oar blade is removed (the release) from the water to the time it enters the water (the catch).
- The oar blade begins, and remains, out of the water during the recovery until the rower reaches the catch.
- The recovery begins with the hands moving away from the body, followed by the rower's body swinging from the hips to regain a forward body angle.
- The recovery is continued by slowly moving up the slide towards the catch position.
- During the recovery, the oar handle is carried at a level height. As the rower approaches the front stops, the blade is squared and prepped to "take the catch."