



Boat Rowing

Coaching Manual 5th Edition



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Boat Rowing Technique

Sweeping

Stance

- The sweep should keep their weight as close as possible to the centre line of the boat, because any movement sideways rocks the boat and impedes the rowing action of the crew.
- While the crew is rowing, the sweep should shift their weight forward to trim the boat and ensure that the tuck does not drag in the water.
- Quarter boards are recommended to be fixed to the boat. The sweep should stand with his legs locked on the quarter bar while the boat is moving. The front quarter bar should be used once the break has been cleared and the rear quarter bar used for negotiating the break and catching waves.
- During starts the sweep usually places the buttocks on the back deck and then swings their legs across. It is important that the buttocks are placed as close as possible to the centre line of the boat.



Steering

- The sweep oar should be kept in the water all the time (where practical).
- It is held on a slight angle and can be used to help stabilise the boat against any rocking.
- Changes in direction should only be made while the crew have the blades of their oars in the water.
- Any movement of the sweep oar during the recovery phase only adds to the chance of rocking the boat.
- It is recommended that the sweep oar be kept as short as is practically possible. A shorter oar is better balanced and easier to manipulate than a longer oar. Having a slightly oval shaped handle assists in locating the angle of the sweep oar blade, which is behind the sweep and normally out of sight.
- The sweep oar should be as stiff as possible so that course changing and buoy turning movements can be kept to a minimum.

Negotiating the break

- In breaking surf there is usually only a short section where a wave will stop the boat. This section is usually no more than two boat lengths in distance.
- Sweeps should familiarise themselves with this area and learn to identify the maximum and minimum distances where the trouble can occur.
- It then becomes a matter of judgement. The boat and wave are travelling towards one another at different speeds and the sweep has to assess if they will pass one another during this danger area.
- Through practice the sweep will learn to judge the relative speed of various waves and their crew.

Catching waves

- The boat should be positioned so as to catch a wave as far as possible beyond the break.
- The boat should run on to the wave at 90° to the breaking water (this may not mean the boat will be travelling at 90° to the beach)
- The sweep should look at the sideways movement of the water. Allowance has to be made for any side sweep in the break.
- The boat has to be pointed slightly in the same direction as the side sweep. This is due to the boat having the tendency to turn into the side sweep, causing the boat to broach.
- In catching waves, the sweep has a far greater chance of keeping the boat straight if the crew is as far as possible to the stern.
- The closer the centre of weight of the boat and crew is to the sweep rowlock, the easier it is to steer

Rowing

The Catch

- The catch is taken at the instant of recovery finish, after squaring the blade by a quick lifting movement of the hands and arms pivoting from the shoulders
- Sitting tall with back kept straight and flexed approximately 45° at the hips
- Shoulders should be relaxed with arms also straight and relaxed
- Shins should be vertical
- Chin should be in line with the knee vertically
- Watch the blade for entry into the water
- The leg drive commences at the instant the blade is completely covered



Early Drive

- All movements should be in the horizontal plane
- Arms straight and relaxed, with wrists flat
- Ensure the blade grips the water and accelerate with the legs only
- Do not open up the body angle
- The rowing style given above is the 'classic technique'. Some styles do favour opening body angle at same time as leg drive (i.e. same emphasis on leg and back drive.) Which style you use will depend on crew size and which style works.

Mid Drive

- Legs should be just past their midway point of the drive
- The oar should be almost square to the boat. Shoulders should be above the seat
- Body angle should begin to open and shoulders move towards the bow of the boat
- Arms remain straight



Late Drive

- Back and legs are still working together
- Body is leaning back slightly
- Continue moving the shoulders towards the bow
- Arms begin to flex and draw towards the body, and the release position at the chest
- Keep hands high enough to ensure blade remains covered

Release

- Leg drive is completed, followed quickly by the body, then arms
- Elbows should be the same height as hands
- The chin should be behind the hands vertically, placing the body angle at about 105°
- The outside hand (closest to the centre of the boat) pushes the handle down to release the blade from the water
- The inside hand (closest to the gunwales and rowlock) rolls the blade over to a 'feathered' position, moving the blade parallel to the water approximately one blade's-width above the water



Recovery

- Hands continue to move away from the body and are kept parallel to the thighs
- Legs are held down until the hands pass over the knees
- Body should follow the hands, flexing from the hips when the arms are straight
- During the slide part of the recovery, the body begins to bend at the hips
- Ensure the shoulders and arms are relaxed and back is kept straight, sitting tall
- Continue movement until the body has returned to the catch position
- During the last part of the recovery the inside hand squares the blade ready for the catch
- Watch the blade at all times



Drills

- All drills should initially be done in small surf or flat water
- Starts - practice holding boat steady and jumping in correctly
- Buoy turns - practice is essential for both sweep and crew

Catching waves - to be done in small surf only to start with

- Practice correct technique for 'trail oars'
- Practice moving to back section, keeping low and in the centre of the boat

Checklist for Rowing Technique	Yes	No
Crew is in time and move as one 'complete unit'		
Rowers remain relaxed as possible throughout movement, sitting tall		
Rowers watch and are in control of their blades at all times		
Rowers have a smooth, rhythmic movement throughout stroke		
In catch and drive phase, rowers use leg drive first, followed by the body and then the arms		
In recovery phase, the body follows the hands and legs which bend only after the hands pass over them		

Rowing technique drills should be incorporated into all sessions, particularly the warm up and warm down

- Back chocks: stop at the back chocks, tap down while matching the speed and height of tap down (3-4 strokes); spin hands away, keeping shoulders back, match speed and height (3-4 strokes); do a ¼ slide, then ½ slide, then full slide, increasing pressure as the stroke lengthens, move into full pressure at race pace for 15 strokes .
- Square blades: ensuring the blade is square for efficient pull and a clean exit off the blade.
- Stopping at the finish: slowing the stroke rate by inserting a pause at the end of the stroke
- Inside hand only: rowing with the inside hand only to assist with blade control - eyes shut: rowing with eyes shut to assist with rhythm
- Back splash: attempt to backsplash the blade on entry. Practice will reduce the tendency to "row the blade in" or lose length in the stroke
- Knees down: delaying breaking of the knees encourages run in the boat and preparation for the catch. Knees breaking early takes the run off the boat and discourages a good stretch for the catch.

Training Sessions

Surf boat rowing is a sport that has a high degree of physical strength and strength endurance. Surf boats have a far greater resistance to forward motion than still water rowing craft do, due to their design. As a result they have a reduced speed resulting in a lower stroke rate and increased demand on the strength reserves of the rowers.

The formula for success in surf boat rowing is the ability to quickly exert a maximum force and maintain that force over the required period of the event. This means that the objectives for improving crew performance, in order of priority are:

- Increase strength
- Increase strength endurance

ROWING SPEED = STROKE FORCE x STROKE LENGTH X STROKE RATE

This equation shows that to increase the speed of the boat, the stroke rate or the length of the stroke must be increased. However, these variables are limited and so it is desirable to increase the force that is delivered through each stroke. It is essential that the coach works on developing and increasing the strength, power and strength endurance for surf boat rowers.

To ensure that these physical characteristics are improved, a periodised plan should be developed. Periodisation refers to the cycling of training loads and intensities in a way that promotes maximal gains in strength and power while allowing the athlete to recover and adapt to increased workloads. To maximise surfboat rowing performance it is particularly necessary to emphasise the development of the physical components of dynamic strength, muscular endurance, power and speed as well as basic levels of cardiovascular fitness.

1. General Preparation Phase: (12 - 16 Weeks)

Aerobic Development

- Aerobic development using sessions of low intensity
- (<75% Max Heart Rate (MHR)) of long duration (40-60 minutes)
- Example of session is: 50-60mins x 60-70% MHR (concentrating on technique)

Activation

- This training phase is non-specific and resistance training should include a large range of muscle groups
- Duration of phase is 4 weeks
- Low to medium weights (40 - 60% of 1 Rep Max (RM))
- Number of sets can range from 3 - 4 sets
- Repetitions can range from 8 - 15 reps

Maximum Strength

- This phase focuses on developing a strength base and maximal strength
- Duration of phase is 12 weeks (can do 2 x 6 week / 3 x 4 week macrocycles) Level of intensity is high (70 - 100% 1 RM)
- Number of sets can range from 3 - 5
- Repetitions can range from 1 - 12 reps
- Speed of movement is slow to medium
- The second macrocycle can alternate between periods emphasising muscular development, and periods that emphasise neuromuscular adaptations
 - Muscular development uses loads of 70 - 80% 1 RM
 - Neuromuscular adaptations uses loads of 85 - 95% 1 RM
- As volume of work decreases, intensity increases
- Exercises are done to technical failure, not muscular failure
- Technical failure is defined as the point at which compensatory movements occur, or assistance needed to complete the exercise

2. Specific Preparation Phase: (8 Weeks)

Aerobic Development / Race Specific Development

- Continued aerobic development using sessions of low intensity and long duration
- Intensity and volume are progressively increased
- Development of anaerobic threshold using intervals of 20 - 30mins at 80 - 90% MHR

Conversion of Muscular / Power Endurance

- This phase is designed to develop specific power for rowing and to maintain the increase in strength gained from the previous training regimes
- Intensity in this phase is periodised so that:
 - First 4 weeks of this phase uses high loads to develop power
 - Final 4 weeks is devoted to the conversion of power to endurance
- Number of sets can range from 2 - 5
- Repetitions will vary inversely with the intensity
- In the final weeks the rowers should be working with close to 50 reps per set
- The speed of the movement should parallel or slightly exceed the speed of a normal stroke
- Emphasis should be placed on creating explosiveness at the beginning of the range of motion

3. Pre-Competitive Phase: (4 - 8 Weeks)

Aerobic Maintenance / Race Specific Development

- Training volume is reduced and intensity increased and remains relatively high
- Intervals can be between 2 - 8 mins at 80 - 100% MHR
- Utilisation of long duration, low intensity sessions can be used as maintenance of aerobic conditioning and also as recovery sessions

Development of Rowing Specific Power

- This phase is designed to convert the gains in strength and power into rowing performance
- This is accomplished by using rowing specific resistance techniques such as:
 - Dragging something behind the boat
 - 2-man rowing
 - Rowing into currents
- Technical performance is paramount and technique should be closely monitored under these high resistance loads
- Duration of this phase is 4 - 8 weeks
- Dry land training should emphasise maintenance of strength and strength endurance
- Level of intensity should reflect the area being worked on e.g. - 30-50 % 1 RM x 30- 100 reps for endurance

4. Competition Phase: (4 - 10 Weeks)

Maintenance of Skill and Conditioning

- Low intensity, medium volume in first half of phase
- High intensity, low volume in second half of phase

Maintenance of Strength and Strength Endurance

- This phase is designed to protect and maintain strength and strength endurance levels
- It is also designed to facilitate the aerobic conditioning and technical skills developed throughout the previous training cycles

- It has been determined that the body will start to lose strength as little as 6 days following the cessation of resistance training. Therefore, the need to maintain strength levels is of most importance to surf boat rowers
- Duration of this phase is 4 - 6 weeks
- Level of intensity can range from 70 - 90%
- Can do as little as 2 resistance sessions per week to maintain strength

Training checklist	Yes	No
Competitors show progressive development of cardiovascular fitness		
Competitors show progressive development and gains in strength, power and strength endurance		
The progression of strength training is not at the expense of correct lifting technique		
Maintenance of correct rowing technique throughout the year		

Competition

1. Starting

- Crewman should maintain control of their oars at all times ensuring that they do not get hit by waves while awaiting starting instructions from the sweep. The crew should 'react as one' to the sweeps commands at all times.

Key Points:

- Control oars at all times
- 'React as one' to sweeps commands

2. Heading Out Through the Surf

- The sweep should instruct the crewmen about the size of oncoming waves and whether they have already broken or are about to break. Rowers should ensure that their oars clear the waves.
- If the waves are large, the bowmen should remove their inside foot from the footchock and place it in the centre of the boat as the boat lifts on a wave. As the boat begins to fall from the back of the wave, the bowmen should take their bodyweight on the inside leg and time the entry of their oar into the water to ensure their bodyweight comes down gently onto their seat. When their bottom has returned to the seat, the inside foot returns to the chock.



Key Points:

- Sweep to instruct crew of oncoming waves
- Rowers must ensure oars clear waves
- Inside leg of bowmen placed on floor when boat lifts over large waves to control landing



3. Buoy Turns

- Buoy turns should be as tight as possible to reduce the chance of a collision with another crew.
- It is preferable to approach slightly wide, turn and leave tight. This will put the boat quickly back on course for the beach and ensure that the most can be made of any opportunity to ride a swell out of the buoy.
- Approach should be made 3/4 to 1 boat length to the left of the buoy. When the boat is 1 length, from the buoy, the sweep pushes or pulls (depending on what side they prefer to stand on) the sweep oar.
- The next rowing stroke will take the bow of the boat to the buoy at about 30°.
- The sweep should pull or push the sweep oar while the blades are in the water
- When the buoy is opposite the bowman and against the stroke side of the boat, the sweep calls "buoy". Ideally, the crew will be about 1/3 of the way through the stroke.

- Stroke side rowers will dig in at mid stroke and bow side rowers' continue to stroke for two or more complete strokes. This should take the boat to an angle of less than 30 degrees to the beach.
- On the third stroke at mid stroke, stroke side cease digging in and begin pulling, leaving their blades in the water and pulling up the timing from bow side.
- The upright bodies of the stroke side rowers impose some restriction on length during the turn.
- Bow side has to reduce the length of the two turning strokes slightly but they should be kept as close to the normal rowing stroke as possible.
- At all stages of the turn, it is crucial to maintain rhythm.

4. Caching Wave & Finishing (Landing on the Beach)

- Once the sweep has determined that the boat is on a wave, they should instruct the crew to 'trail oars' and come aft. The crew on hearing his instruction shall finish the stroke they have just taken and, pull the oar handles back over their head so that the oars will trail along beside the boat. The crewmen will then proceed to the back section of the boat keeping as low as possible and in the centre of the boat, and await further instructions from the sweep.
- If the boat broaches, crewmen should lean to the oceanside (highside) of the boat to shift the centre of balance and keep the boat upright. All crewmen should ensure that their hands and fingers are kept well clear of the gunwales at all times.
- If the boat rolls over, the safest thing for the crewmen to do is to stay near the boat and keep low. After rolling a boat the priority is to check that all four crewmen and the sweep surface. A head count system should be employed for this purpose



Key Points:

- Sweep to instruct crew when to 'trail oars' and 'come aft'
- Crew to keep as low as possible and in centre of boat and proceed to back section
- If boat broaches, crew should lean to the oceanside (highside) of the boat
- Keep hands and fingers well clear of gunwales
- Stay within the boat and keep low
- After rolling, use a head count system to ensure all of the crew have surfaced

5. Exiting the Boat

- Upon reaching the beach, the crew should exit the boat only upon the sweeps commands, ensuring that either trailing the oars or pulling them across the boat secures the oars. If the boat reaches the beach sideways, the crew should always exit the boat on the ocean side. Safety of the crew and of others is paramount as the shoreline is most often the place where accidents occur and rowers injured. If sideways, the boat should be straightened and kept as close as possible to 90° to the oncoming waves until the sweep instructs the crew to lift or drag the boat clear of the water's edge.
- When moving the boat along the water's edge the crew should be placed along the ocean side of the boat, and only at the very ends of the boat on the shore side. The boat should be angled approximately 45° to any oncoming waves and the oars should either be secured safely in the boat or placed on the beach.

Key Points:

- Exit the boat on the sweeps command
- If sideways, the crew should only exit on the ocean side of the beach

- The boat should then be straightened and kept 90° to the oncoming waves
- When moving a boat along the waters' edge, the crew should be placed on the ocean side of the boat and only at the very ends of the boat on the shore side.
- Oars are to be securely stowed or placed on the beach

6. Racing Tactics

- Race tactics are dictated by a number of factors: crew ability, environmental conditions, the opposition and lane draw.
- The most efficient way to cover the course is at the highest possible, yet constant speed: it requires more than double the effort of the crew to double the speed of the boat.
- Crews need to learn how to pace themselves over the course. They have to calculate the amount of effort on each stroke so they can pace themselves over the whole course. This will change in varying conditions i.e. flat seas mean rowers will need to row for the entire race.
- The start should be performed with total effort for a minimum period to bring the boat up to race pace quickly. Ideally this will last 12 - 15 strokes.
- Buoy turns should be performed at race pace or with a slight increase in effort. The trade off with the damaging effect of the increased expenditure of energy is a quick turn and the increased opportunity to catch a wave
- An increased effort should be made in the last 10-20 strokes of a race.
- Variations to this tactic may be made if the crew feel the need for a short burst between the beach and the buoys, or on the homeward leg. This can be helpful if boat speed is decreasing. The number of strokes should be kept to a minimum
- If the wind is blowing onshore, rowing hard to the buoys can be offset by the easier return to shore. Conversely, effort should be conserved in an off shore wind, to ensure an effective row back to the beach.
- If an opposing crew doesn't row well under pressure, a spurt of effort can be beneficial

Safety Checklist	Yes	No
All batteries are charged, and all wiring and switches are working properly		
Seats secure - all nuts tightened and no sharp edges		
Foot straps and heel cups secure - to hold rower in the seat		
Rowlock fitted to oar and ring - so oar doesn't lift out of fitting in surf		
Oar button and handle secure - so oar stays in rowlock		
Rescue tube positioned - SLSA requirement for rescues		
Rolling pins used for carrying boat along beach - saves damage to the hull from the sand and avoids unnecessary strain on rowers backs from lifting		

Equipment

- Again, avoid dragging boat along sand as this causes damage to the hull
- If lifting the boat, lift by the gunwales only
- Clean rowlocks and oars of grease after use
- Wash out boat with fresh water after use
- All rowlocks are held in sheath, using stainless steel pins
- Store oars in racks where they cannot fall and be damaged or cause injuries