

W.T. Woodson Crew

Conditioning and Training Manual



W.T. Woodson Crew Boosters Association, Inc.

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Established in 1986, the W.T. Woodson High School Rowing Program
is an *Interscholastic Club Activity*

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Chapter 1

The W.T. Woodson Crew Rowing Season

The rowing season is divided into three basic periods: transition, preparation, and competition.

Transition/Vacation Period: The transition period occurs one to two months following a major competition. The goals of the transition period are physical and mental relaxation and relief from the regimen of systematic workouts.

Preparation Period: The preparation period generally occurs in the Fall. The goals for this period are the development of both general fitness (strength, flexibility, and muscular endurance) and specific rowing fitness (rowing endurance, rowing power, and rowing technique).

Competition Period: The aims of the competition period are to further develop rowing technique and specific rowing fitness, to improve performance throughout the racing season, and to peak for major competition.

- Transition/Vacation.
 - Transition period after summer vacation Head Races (September/October).
- Preparation Period.
 - Introduction to training (November).
 - General Preparation (November through early February).
 - Specific Preparation (February/March).
- Competition Period
 - Competitive Racing (Potomac/Occoquan Regattas/April/May).
 - Championship Racing
 - Virginia Scholastic Rowing Championships (Occoquan)
 - The Stotesbury Cup Regatta (Philadelphia, PA)
 - Scholastic Rowing Association of America Championships (Invitational)
 - USRowing Youth Championships (Invitational)

Each period has a different goal.

- September - October. General conditioning of all muscle groups to prepare for heavy workouts in the future.
- November - February. General conditioning, improve maximum strength, general endurance, muscular endurance, and flexibility. Running, weight training, stadiums, and rowing machine workouts.
- February - March. On-the-water skill development, specific rowing aerobic endurance, rowing technique, and muscular endurance.
- April - June. Championship racing: Virginia Scholastic Rowing Association Championships; The Stotesbury Cup Regatta; Scholastic Rowing Association of America Championships (Invitational); USRowing Youth Championships (Invitational)
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Chapter 2 General Conditioning

Introduction

The following is divided into two main sections: Section 1: Basic Athlete Physiology, and Section 2: Basic Training Methodology. Section 1 focuses on athletic fitness, energy systems, muscular endurance, and flexibility. Section 2 focuses on proper training of athletes.

Section 1: Basic Athlete Physiology

Athletic Fitness

Total athletic performance requires the coordination of various complex components. The main focus is to improve and maximize athletic performance, in crew that means developing the fastest possible boat. The individual components of athletic performance are technical skills, athletic fitness, and psychological factors. Technical skills are addressed primarily on the water although to a limited extent will be addressed in winter conditioning. Basic training methods apply to almost any sport. The character of a sport is defined by the importance of one of two major systems: energy systems and muscular systems. For example, the weight lifter is concerned primarily with the muscular system, while the marathon runner's top priority is usually the anaerobic and aerobic energy systems.

The demands of rowing can be illustrated by examining the relationship between an automobile engine and its body. The rower's energy system is comparable to the car's engine, and the muscular system to the suspension of the car's body. The body cannot be too light or too weak because it will fall apart. Yet the body must not be too heavy in relationship to the power of the engine or it will slow the car down. The ideal balance between power and strength results in a car body that can handle the strength of demands of a powerful engine.

Psychological Factors

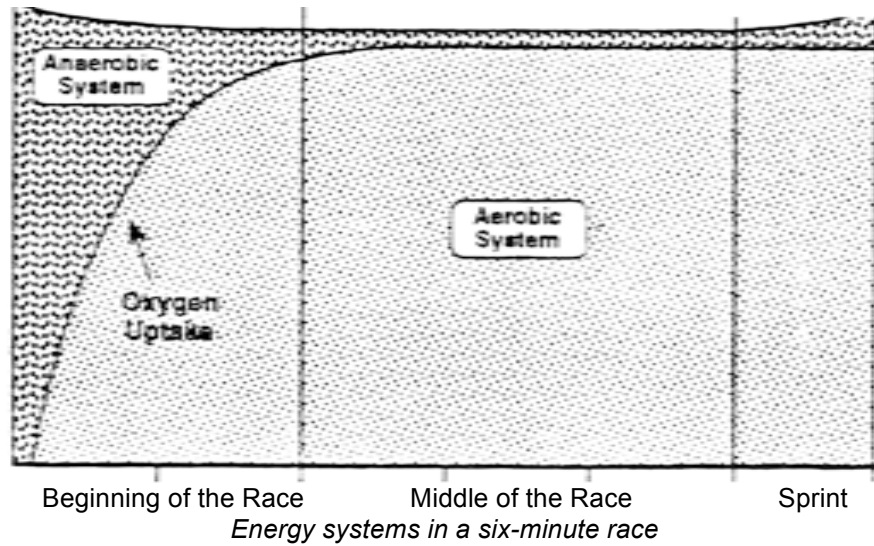
Psychological factors include such areas as the ability to the athletes to concentrate for extended periods of time, visualize proper rowing technique, prepare mentally for race situations, and maintain mental toughness while withstanding physical discomfort. While many of these skills will develop with time on the water, in practices and racing conditions, these skills will be enhanced during winter conditioning. These skills are equally as important as good rowing technique.

Energy Systems

It is helpful to understand the characteristics of the specific race length and its energy requirements. Energy demands at the beginning and end of the race are very different from those in the middle.

The source of energy for muscle contractions is adenosine triphosphate, a high-energy compound known as ATP. Athletes need fuel, mostly carbohydrates and fats, to produce ATP. The fuel can be turned into ATP in two ways: Aerobically (with oxygen), and anaerobically (without oxygen).

Rowers have two different "engines" to produce energy for racing. The fast energy that is essential for a quick start is provided by a "small, high-revving engine" – the anaerobic process. This process is used for only a short period of time (about 90 seconds) until the bigger and more efficient engine – the aerobic process – has reached full effectiveness. Rowers rely on the aerobic process for energy production during the middle of the race. In the last 250 meters of the race, rowers want to sprint. Sprinting requires additional fast energy, and, therefore the "small, high-revving engine" must be used again.



Aerobic Power

Aerobic power is provided by the breakdown of “fuel” (carbohydrates and fats) with oxygen. The goal of the Woodson training program is to increase each athlete’s aerobic capacity. There are two components of the aerobic energy systems: Transportation – the ability to deliver oxygen to the muscle cells; Utilization – the ability of the muscle cells to use the oxygen to produce energy.

Anaerobic Power

In a 1,500 meter rowing race, 20 percent of the total energy is provided anaerobically. The anaerobic system provides energy very rapidly for 45 to 60 seconds. The limiting factor is the accumulation of lactic acid, which creates discomfort (pain) and fatigue in the muscles. Rowers need anaerobic power in the first and last parts of the race. Therefore, rowers need to develop a tolerance to lactic acid, or race performance will suffer after the first 500 meters.

Flexibility and Body Composition

Flexibility is the ability to execute the full range of motion in all joints with the aid of muscles, tendons, and ligaments. Agility refers to the level of coordination in the motor actions of the entire body. Balance, smooth motion through the rowing stroke cycle, and the full range of motion in almost all joints in the body are important for the best performance by rowers. Well-stretched, agile muscles and elastic tendons will execute movements easily and comfortably, and will allow for improvement in technical skills.

A lack of flexibility and agility may cause poor coordination and slow strength development and will increase an athlete’s vulnerability to minor injury.

Body composition refers to the percentage of body fat in relation to a person’s total body weight. There are obvious advantages for rowers who are taller and leaner. As rowers become more fit, they can reduce the amount of body fat and increase their lean muscle mass. This information is used by the coaches to determine which athletes can decrease body fat and increase lean muscle mass and which athletes have the physiological ability to row in the lightweight categories.

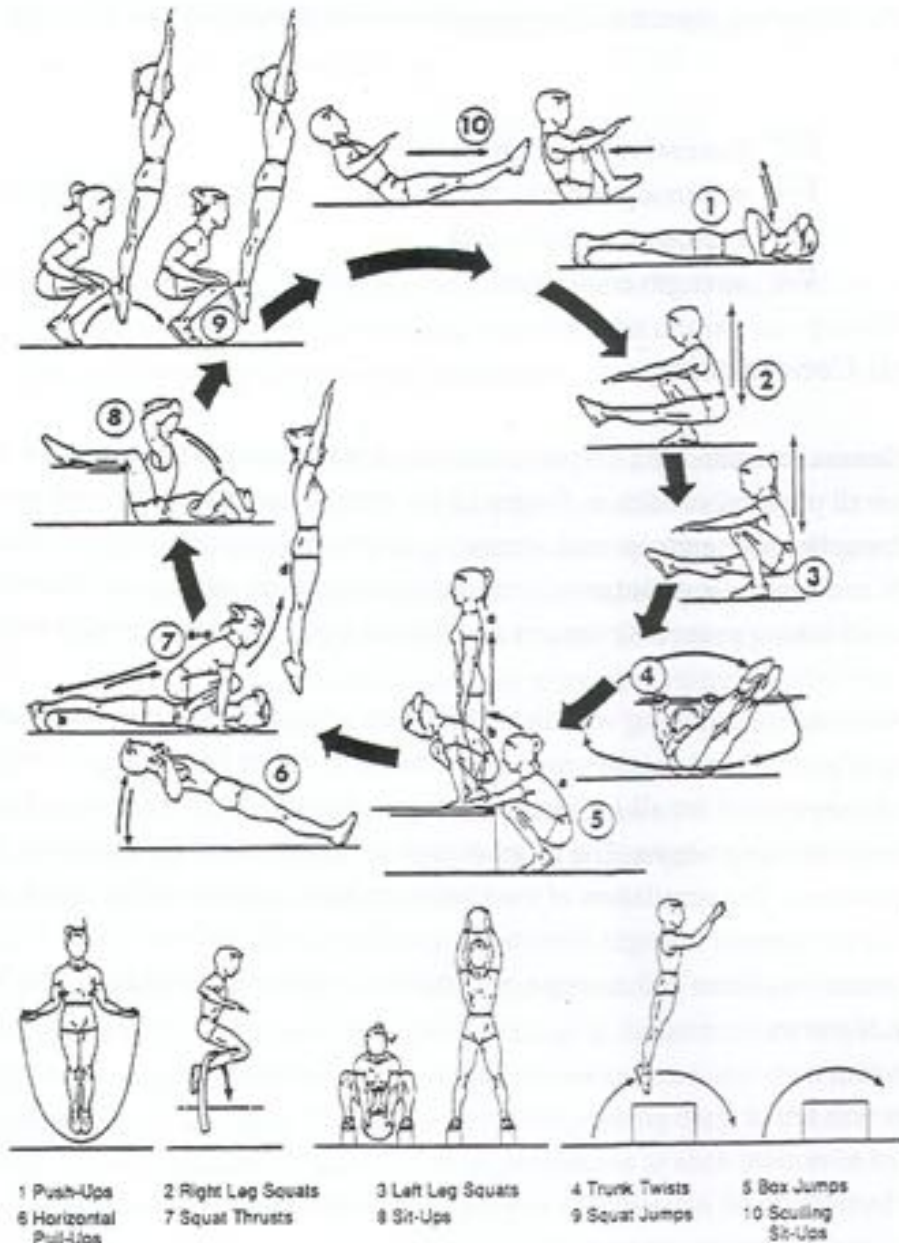
Flexibility, agility, and body composition are important elements in your training. They can have a tremendous impact on your quality of rowing and performance potential. Adequate flexibility and agility will enable you to perform the rowing stroke with the proper technique and full range of motion. Body composition measurements will be used to determine your potential to increase muscle mass, decrease fat, and row in weight-specific categories.

Muscular Systems

The human body is a very complicated and precise machine. When you perform skills you make conscious efforts to stimulate certain muscles or muscle groups. Training programs help to strengthen and enlarge the muscles and increase the blood supply to them.

Most strength workouts involve either circuit training or stage training. Woodson utilizes circuit training in which you will perform a given number of repetitions of one exercise and then move to the next exercise, then to the next, closing the circuit by coming back to the first exercise. The circuit is regulated by the number of repetition at each station and by time. (The Woodson Men's and Women's Weight Training Programs are published separately.)

The following aspects of the muscular system are trained in the sport of rowing: general conditioning, maximal strength, explosive strength, and strength endurance. Rowers need strength to be able to pull the oar through the water consistently with the same strength. Maximal strength is the ability of a muscle to apply force in single, maximal contractions. Explosive strength is the ability of the muscles to overcome a resistance with a high speed of motions. Strength endurance is the ability of the muscles to work effectively over a period of time.



Body circuits can be timed (e.g., 45 seconds on, 15 seconds off) or measured (e.g., 30 repetitions each) or a little of both. Correct execution must be stressed. No rest between exercises. Three to five minutes rest after each circuit. Do three to five circuits. Other exercises can be incorporated into the body circuit to increase or decrease the load experienced.

Section 2: Basic Training Methodology

There are a number of established and accepted principles of training that have practical applications. They include: specificity, individual response, adaptation, overload, progression, and variation. Each is discussed in more detail below.

Specificity Principle

You should engage in rowing as often as possible. Runners should run, swimmers should swim, and rowers should row. Each sport has its own characteristic energy requirements. Specific training produces specific results, and the physiological processes improved most by training will be those that are stressed the most. Row! Rowing is primarily an aerobic sport. Woodson's training program is focused on expanding each athlete's aerobic capacity.

Individual Response Principle

Each of you will respond differently to the same training. One or more of the following factors can cause these differences:

- Heredity. Differences in inherited factors such as muscle tissue composition, and heart and lung size can produce a range of results.
- Maturity. A more mature athlete can handle a heavier training load.
- Nutrition. Some athletes just eat better than others.
- Rest and Sleep. Adequate rest allows athletes to recover faster.
- Fitness Level. Some athletes may already be in better condition than others.
- Motivation. Self-motivated athletes work harder and generally perform better.
- Technical Skill.

Adaptation Principle

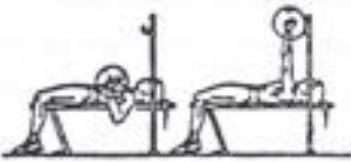

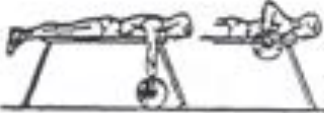
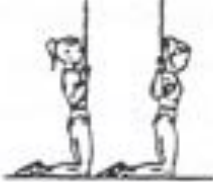








As your body adapts to increased training demands or loads, some physiological changes will occur. Heart functions will improve, muscular strength and endurance will increase, and the bones, tendons, and ligaments will become stronger.

Overload Principle

As adaptation occurs, your training will be increased accordingly. This will be accomplished by adjusting the frequency, intensity, and duration of the exercises/drills.

Progression Principle

In order for you to experience the adaptations stimulated by the overload principle, the training regimen is progressive. The next overload will be introduced at the peak of over compensation, after recovery is complete.

 <p>Bench Press</p>	 <p>Cleans</p>
 <p>Bench Pulls</p>	 <p>Lat Pull Downs</p>
 <p>Sit Ups</p>	 <p>Dead Lifts</p>
 <p>Back Extensions</p>	 <p>V—Sits</p>
 <p>Arm Curls</p>	 <p>Bent-Over Rows</p>
 <p>Squats</p>	 <p>Squat Jumps</p>
<p>The light weight circuit can be used as a general conditioning workout as follows:</p> <ul style="list-style-type: none"> Load: 60-70% Repetitions: 10-20 Number of Circuits (Sets): 2-5 Rest between exercises: 30-60 seconds Rest between circuits: 3-4 minutes <p>It can also be used as a muscular endurance workout, decreasing the number of exercises.</p> <ul style="list-style-type: none"> Load: 40-60% Repetitions: 20-60 Number of circuits (Sets): 2-4 No rest between exercises Rest between circuits: 2-4 minutes Total number of repetitions per workout can reach 1800 	

Sample Light-Weight Training Circuit

Variation Principle

The variation principle is founded on the alternation of work and rest. Periods of work should be followed by rest. Easier ones will precede hard workouts. Many different exercises and activities will be used to attempt to avoid boredom, staleness and poor performance.

Chapter 3

Nutrition Basics for Athletes

TO GAIN MORE LEAN MASS:

Sleep:

Teens need at least 9.5 hours of sleep per night (adults need 9 hours of sleep!)

Napping is GOOD – Studies have found that teens need the sleep because of the hormonal changes occurring in their bodies.

No Fructose:

Eliminate from their diet all high fructose corn syrup!!! This hinders the building of lean muscle mass as it binds with proteins in the body and creates cellular damage. Read labels.

Processed Carbs:

Eliminate as much processed carbohydrates from their diets as possible.

Examples of this are: cookies, wonder (white) bread, pastries, etc. Processed carbohydrates increase fatigue and make recovery time from their workouts longer!

Whole Grains:

If they eat bread, whole grains are preferred!

EAT CONSTANTLY!

They should be eating every 2 to 3 hours! Never let three hours go by without something healthy, nutritious, or nutrient (See examples later for snacks!). If they wait until they are hungry (and this goes for you parents too!), your body has already gone into starvation mode and is already attacking your lean mass for energy.

Of Course:

- No sodas
- No chips
- (or, to be realistic – MINIMAL of the above)

Good Sugars:

- Monosaccharides!
- Honey
- Glucose
- Xylitol
- Grape Juice – pure and organic preferred! *
- Apricot juice – pure and organic preferred! *
- NO OJ !!!!!!!!!!!

Good Fats:

Teens NEED healthy fats in their diets! Please cook with Olive Oil (Extra Virgin, please) instead of butter or margarine!

Red meat is great as it combines the proteins with the fats (the ultimate food combination)

Good Way To Restore Minerals:

Instead of Morton's Iodized Salt: Celtic Sea Salt* is AWESOME for your whole family!!!

Recommended Amount of Protein Per Day:

Protein is NOT a fuel source (versus glucose, carbs., and fats)! However, one of protein's major jobs in the body is to rebuild lean mass! We will be hitting it hard, so protein consumption is VERY important in your teen's diet! 1 gram of protein/pound of body weight is the recommended (that is A LOT of protein!) – so think of a protein at EVERY meal! (No more than one protein bar/day – no more than one protein shake/day).

Great sources of Protein:

- Red meat
- Chicken
- Fish (especially salmon)
- Liver (will they eat liverwurst or pate?)

Breakfast:

When not working out, it is very IMPORTANT that your teen eat breakfast no more than one hour after waking up! If they don't eat then the body will break its own fats and attack their lean mass.

Dessert:

- None recommended

What to Eat Before Workouts – Approx. 1 hour before workouts

- 2 hardboiled eggs
- Chicken breast
- Burger – alone
- Sardines
- Steak – ½ serving

Snack Ideas:

- Protein Bars (no more than one/day)
- Hard boiled eggs
- Cucumbers and any veggie (preferable raw)
- Fruit – super berries are wonderful, super berries include – blueberries, strawberries & raspberries
- Hummus
- Avocados
- Nuts – Raw and organic*
- Almonds
- Walnuts
- Hazelnuts
- Brazil Nuts

You can mix the nuts with a small amount of dried fruit to make a kind of trail mix.

Additional Supplements:

It is HIGHLY recommended that your athlete (and you too!) take a daily multi vitamin. As the ones typically found in the grocery store and GNC (and most other stores) are not easily broken down and accessible to the body, not regulated, and not consistent.

- Vitamins D & E (through a nutritionist for a medical grade – and fully tested)
- Greens

**Can be purchased at Whole Foods!*

Chapter 4 On-the-Water Training

Introduction

Rowing can be deceiving. It may appear easy and require little skill. It is, however, very skill intensive. It may also appear to involve little in the way of strategy and tactics. That is also untrue as there are several stages of any given race.

Balance of Rowing Boats

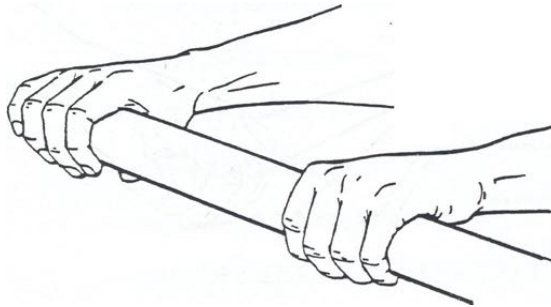
A few words about balance are important before the rower attempts to learn the rowing technique. Racing boats have their center of gravity some distance above their center of buoyancy. When static (not moving) this makes the boats “tender”, or if not perfectly balanced by the efforts of the rowers and the oars, likely to tip over. Rowers are cautioned to always place “oars across” (fully extended on the water side of the shell to help balance the boat before entering the shell. Whereas a static boat is often unstable a moving boat tends to balance well with little correctional input from the rowers. The shape of the bottom of the bows produces turning moments, which cause the boat to return to the upright position.

Basic Rowing Technique

An athlete's performance is determined by technical ability, fitness and state of mind. The requirement for technique is common to every sport but considerable technical proficiency is required in rowing for high levels of performance. Very often smaller and less powerful crews are able to defeat stronger crews due to higher skill levels.

The Sweep Grip

The hands should be placed on the oar handle about two hand widths apart. The fingers should be loosely wrapped around the handle with the thumbs positioned under the handle. Both wrists should be flat. The oar should be suspended from the fingers, not held or gripped in the hands. (The grip should not be tight.)



The Grip

At the release, the fingers of the outside hand push the handle down. The oar is turned with pressure from the fingers of the inside hand. The outside wrist remains flat during this action. The outside hand is not to be used to feather. The rower's outside hand remains motionless while the handle turns inside it.

Squaring is done by the fingers and thumb of the inside hand, with the fingers of the outside hand remaining fully wrapped around the oar. All turning of the blade, both feathering and squaring, is done by the inside hand only.

The outside hand should always remain relaxed and flat, allowing the rotation of the handle in the fingers. The outside hand and arm is used to “hook in” because of the longer leverage of the outside arm. The outside hand and arm must be ready to take most of the load immediately after the entry of the blade into the water.

Rowing Style

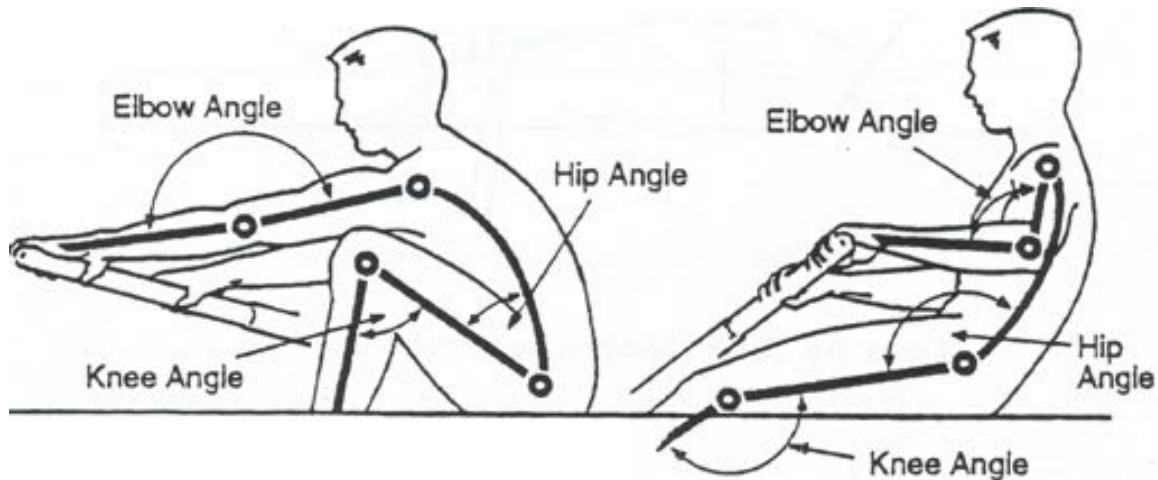
The basic rowing technique is a logical, natural movement. There are no quick, dramatic or abrupt movements. Body movements, blade motions and seat movements must all be in harmony with the speed of the shell.

At the beginning of the rowing stroke, the rower locks the blade in the water while simultaneously pushing the legs against the foot-stretchers. This causes the body weight to shift from the seat to the oar handle (suspension, hanging). The upper body and arms just hold firmly while the legs drive down. Toward the end of the leg drive, the back swings open, followed by a quick bend of the arms. The way, the legs, back and arms work in a natural sequence, over lapping each other and creating steady pressure on the oar through the stroke. All motions are related and in harmony with the speed of the boat. The whole rowing cycle then appears easy, fluid, and effortless.

Phases of the Stroke

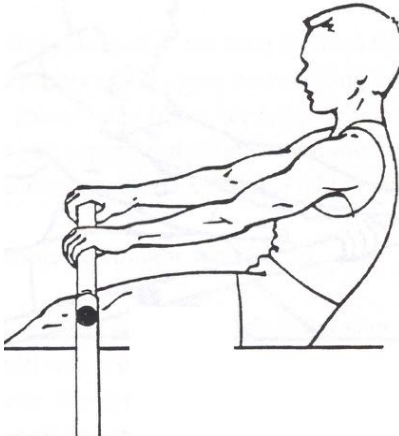
Rowing is cyclical, that is the same sequence of motions is repeated over and over. The rowing cycle consists of two phases:

- The working phase: called “the drive” – when the blade works in the water, and
- The recovery phase: when the blade is over the water and the rower returns on the slide toward the stern to start the next drive.



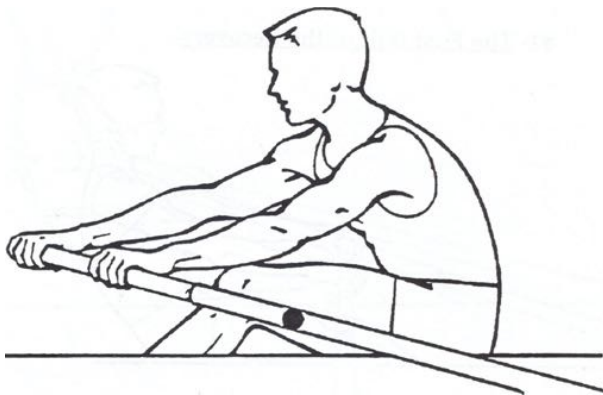
The left-hand drawing illustrates the angles at the catch: the right-and drawing illustrates the angles near the finish.

The First Half of the Recovery



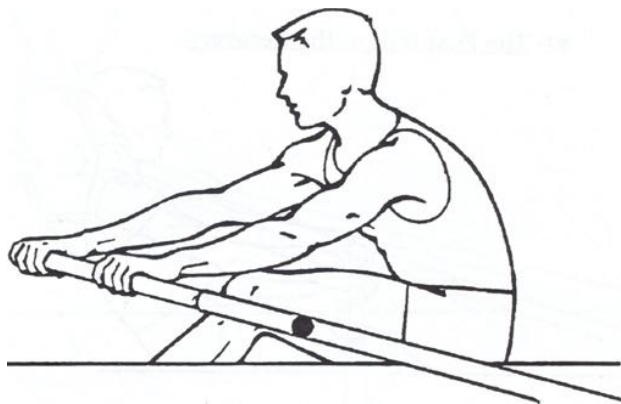
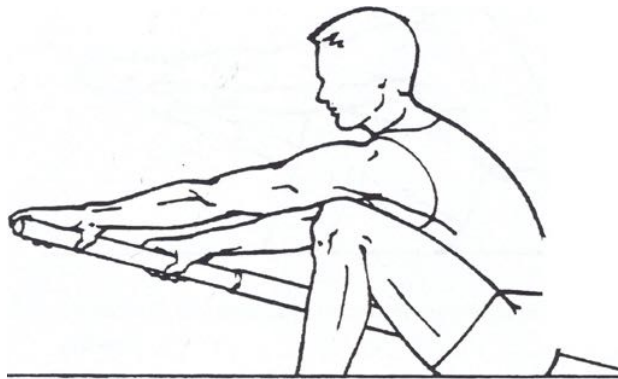
1. The knee angle is flat; the seat is in the back position.
1. The hip angle is open; the upper body is in the lay-back position.
2. The elbow angle is flat; the arms are almost extended forward and will start pulling the upper body out of the lay-back to a slight leaning-forward position. Then the slide to the stern will begin. The inside arm is slightly bent. The body is still in the lay-back position when the hands go away from the body.

The Second Half of the Recovery



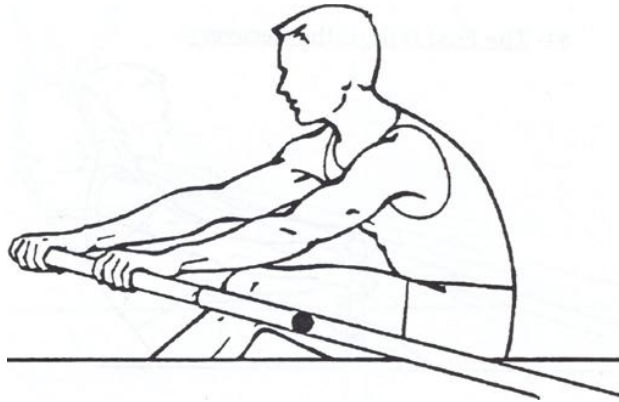
1. The knee angle is more acute; the seat is in the middle of the slide.
2. The legs become compressed; the body has completed the forward reach. The outside shoulder (away from the blade) should be slightly ahead and higher than the inside shoulder.
3. The arms are completely extended, but not locked. It is important to finish reaching out, having the arms and body fully extended, so the rower can just glide forward to the catch.

Entry of the Blade into the Water – The “Catch”



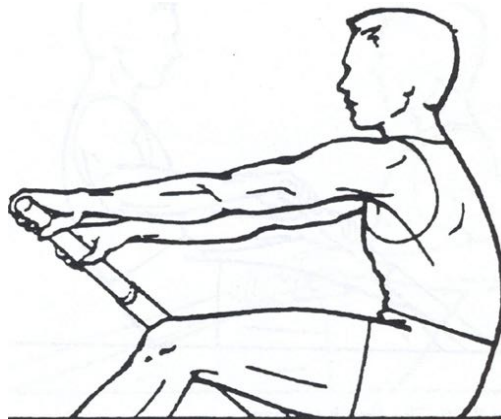
1. The knee angle is most acute; shins should be almost vertical in a “full compression” position.
2. The natural body position is reaching forward from the hips with a slightly curved upper body. Sitting position is tall and relaxed, with the rower using his or her full height and reach. The outside shoulder should be slightly higher than the inside.
3. Both arms should be straight and relaxed.

The First Half of the Drive



1. The knee angle gets flatter. After the entry of the blade into the water, the body weight is transmitted to the foot stretchers using the force of the legs. The seat is halfway down the slide.
2. The hip/body angle remains unchanged for the first part of the drive. The power application is horizontal; there is no upper body lift.
3. The arms remain outstretched. Most of the tension is on the outside arm, where there is more leverage.

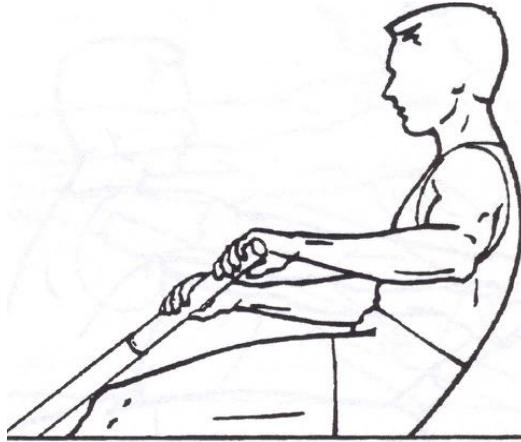
The Second Half of the Drive



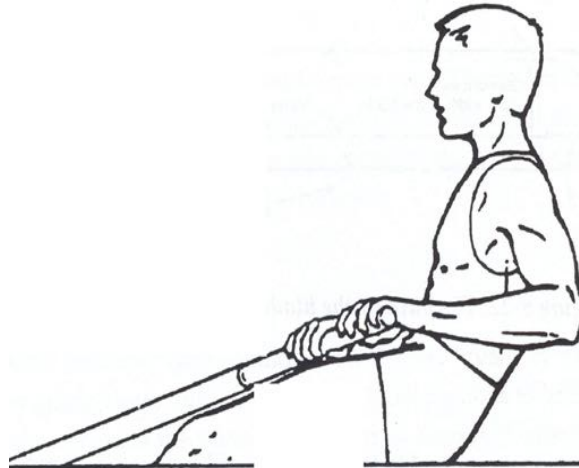
1. There is some knee angle left. The seat is in the last quarter of the slide. The legs are in the most efficient position, just before the last push down.
2. The hip angle has opened, and it appears as if the body swing takes over from the leg drive. The upper body is in a vertical or close to vertical position.
3. The arms are still stretched, just before they start to bend.

The oars are approaching a position 90 degrees to the boat. This is mechanically the most efficient part of the stroke. The body weight still hangs between the oar handle and the foot stretcher.

Finish and Release



1. The knee angle is flat and the seat is in the back position. The legs and back finish their work almost simultaneously. The legs keep pushing against the foot-stretchers, providing support to finish the drive.
2. The upper body reaches maximum layback; the outside shoulder should be kept slightly higher than the inside. The head and chest should be behind the oar handle without slouching.
3. The elbow angle gets sharper. As the hands continue through the last inches of the draw, the outside forearm is level with high elbow position.



1. At the release the rower is in the lay-back position. Using a semi-circular motion of the hands the rower pushes the oar handle down and away in front of the body. The feet continue to push against the foot-stretcher. The body must wait for the hands to be completely extended before starting to move out of the bow.
2. During the recovery, the blades should move toward the bow in a smooth, horizontal plane and a consistent height. They should not skim the surface of the water.
3. The turning of the blades so that they are perpendicular to the surface of the water is called "squaring". Squaring should start as the hands go over the ankles. It should be executed gradually at a constant speed, during the last part of the recovery. It should neither slow nor stop before the catch. This is called "hanging".
4. The entry into the water should be quick and sharp, without too much back or front splash. Back splash is emphasized for beginners to make certain they don't miss water.

During the drive, the blade should remain evenly buried in the water at a depth of 2 to 3 inches below the surface of the water. It is important to keep the oar accelerating to maintain effective horizontal pressure against the water. Woodson oars are all marked with a colored ring to indicate correct blade depth.

The release should be the last “push” of the boat. The rower should employ a quick, clean, fluid, semi-circular hand motions to bring the blades, while still squared, up and out of the water. The feather occurs after the blade leaves the water.

On-the-Water Drills (Examples – there are many others)

The following compendium of drills is not meant to be all-inclusive, or restrictive, rather a guide to on-the-water training and development.

- “Bobbies”/”Plip-Plops” – All Levels
- Rowing Blades Square –All Levels
- Wide Grip – All Levels
- Outside or Inside Hand Only – All Levels
- Pause Drills – All Levels
 - Arms Away
 - Arms and Body Away
 - Half-Slide
- Cut-the-Cake – Intermediate
- Position Drill – Intermediate
- Stand-up, Sit-down Drill – All Levels
- Top Quarter Drill -Intermediate
- Add in Drill – All Levels
- One-Stroke-Ready-Stroke – All Levels
- Pick Drill/Reverse Pick Drill (Standard Warm-up) – All Levels
- Feet Out Drill - Intermediate
- Feathering Drill - Intermediate
- Fire and Ice drill - Basic
- Triple Catch Drill – Advanced
- Catch Drill – All Levels
- Acceleration Drill – All Basic and intermediate

Drills should normally be done at ½ pressures unless the drill specifically requires more. Typically drilling at more than ½ pressures will defeat the purpose of technique work.

“BOBBIES”/”PLIP-PLOPS”

Rowers will sit at the catch and alternately lift the oar out of the water and drop it in. This drill may be done in pairs or fours. By having the rowers alternately lift and drop the oar out of and into the water they are learning to move together. This is a good drill to begin warm-ups with, or reinforce moving together, and is most effective after warm-up (Pick Drill) and excellent for novices and to get crews back into moving together.

ROWING BLADES SQUARE

Rowers will row with blades square (perpendicular to the water) on every stroke. They will not feather. This drill teaches the rowers where they need to carry their hands during recovery. It is also a way to practice setting the blade in at the catch, just by letting it drop into the water at the catch, then locking the blade in by applying the legs immediately. Rowing blades square takes the timing elements of feathering out, allowing for better concentration on other aspects of the stroke.

Emphasizes clean finishes and even handle heights (6” off the gunnels). This drill requires all of the elements of setting the boat to be applied. Watch for bodies center-lined at the finish and leaning into the riggers (but not over-reaching) coming up into the catch. Start by pairs and build to 6’s. Eventually all boats will be able to row by 8’s at square blades. This drill is very effective for novices and experienced rowers alike. Rowers should master the essential elements of rowing blades square before adding the complexities of the feather. Rowing all 8 on the square is for advanced rowers.

WIDE GRIP

Rowers will row with both hands but with the inside hand extended toward the oarlock. The rowers learn to lean into the rigger and pull with the outside hand. By having the rowers pulling with only their outside hand, the rowers are working on having that hand do most of the work pulling on the oar, setting the blade's depth in the water, and helping control the distance the blade is traveling above the water on the recovery. The blade should stay squared the entire time that they row with a wide grip. This is a good sequence drill to follow with the Outside or Inside Hand Only drill.

This drill concentrates on good body position, leaning into the riggers as the rowers come up the slide. It is very hard to lean out the wrong way or over-extend at the catch.

Effective for novice and intermediate level rowers.

OUTSIDE or INSIDE HANDS ONLY

Rowers will row with one hand only. The rowers learn to use each hand for certain purposes. It will also develop the dexterity needed from each individual hand. By having the rowers row with only their outside hand, the rowers are working on having that hand do most of the work pulling on the oar, setting the blade's depth in the water, and helping control the distance the blade is traveling above the water on the recovery. The blade should stay squared the entire time that they row with their outside hand.

"Outside hand only" forces blade control through the water and proper blade depth. This drill is used to emphasize the need to maintain a flat wrist. Good time to have the rowers look out at the blade to see correlation of hand position to blade position.

When rowing with only the inside hand, the rowers are practicing using the inside hand mainly for feathering the blade (you do not use both hands for feathering). The inside hand also helps control the blade height above the water during the recovery, and helps pull the blade through at the end of the drive, before the recovery. Rowing with the inside hand, the blade is going to be feathering on each stroke.

This drill focuses on Blade control up the slide (...opposite focus of outside hand only drill). Early roll-up of the blade is essential. All blades should be squared by the time the handle passes over the ankles. Work on timing the roll-ups together. Start w/stroke seat and 7 seat roll-up timing and have the rest of the boat follow adding in by pairs. Good time to have the rowers look out at the blade to see correlation of hand position to blade position.

A variation is the alternating hands drill. The rowers are still rowing with only one hand at a time, but they are using each hand. What this means is that: the rowers will be pulling through the drive with their outside hand only, while their inside hand is held just above the oar handle. At the end of the drive, the outside hands pushes down, releases the blade from the water, and then let's go of the oar handle. The inside hand immediately grasps the handle and feathers the blade. The inside hand carries the arm and body out, and on toward the catch. As the rower travels up the slide, he/she uses that inside hand to feather the blade up square. At the catch, the inside hand slips off the oar handle, and the outside hand grasps the end of the handle and hangs on while the legs engage. This drill is best for Intermediate and above rowers. Master the previous two drills first.

PAUSE DRILLS

Almost any problem can be fixed (at least for a few strokes) with pause drills. Start with a single pause then increase to two-or three-part pause as needed/desired.

There are many different types of pause drills but they all work on the same principle. The rowers stop at a certain point in the stroke, and pause, before continuing. There can be one pause, or several. The purpose of this drill is to get the rowers to all be at a certain position with their hands, body, or blade at the same point.

When you call a pause drill, you tell the rowers where the pause(s) will be and when to row. The rowers will automatically pause where there are asked to. After the pause, the coxswain is to wait a second or two, and then say "row". The rowers will continue with the stroke or pause at the point where they were asked to where they will pause.

- The most common place to pause is sitting at the release, arms away. They are sitting with layback, with their arms out straight. Some coaches prefer that arms half-extended. Whichever way is preferred all rowers must be at the same position.

- The next common place to pause is at body over. This means the rowers have their arms extended straight, and are leaning toward the stern of the shell with their bodies. (When the command is given to “row”, there should be no further leaning toward the stern.)
- The next pause may be at half-slide. This pause should not be held long. This pause position should be used only when rowing by fours or sixes, or with more experienced rowers.

Taking three strokes between pauses will give the boat some run and help apply the corrections being made to the rower’s normal stroke. This drill is effective for all level rowers.

CUT-the-CAKE

This drill is used to help synchronize the rowers with each other – moving together. The rowers all attempt to mimic each other’s hand speed, and they are working together to control their slide speed into the catch. The rowers take a full stroke. When they get to the release, they let their hands come out (or arms and body) to full extension (at “arms away”), and then swing their arms back to their chests. During this partial motion, the rowers will retain their lay-back position (unless being done at body over). The rower’s legs are to remain extended during this partial stroke. This drill may be done with blades squared or feathered just above the water. Once they swing their hands to their chests, they continue with a normal stroke and repeat. Watch the body position at the finish. This drill may cause unintended body away during the hands away portion of the drill. It can compound existing problems if not done correctly.

This drill is effective for all level rowers.

POSITION DRILL

This drill breaks down the stroke and repeats certain elements so the rowers will think about what they are doing with their arms, bodies, and slides. This drill can be done either with either blade squared or with the feather.

- The rowers take full-slide normal stroke.
- The rowers then take a stroke only their arms (in the layback position).
- The rowers take another full-slide normal stroke.
- The rowers then take a stroke with their arms and backs.
- The rowers take another full-slide normal stroke. The drill continues through full-slide.

In short, the drill goes: Arms, full stroke, arms and backs, full stroke, half-slide, full stroke and then reverses.

This drill is best suited for Intermediate and above rowers.

STAND-UP, SIT-DOWN DRILL

This drill teaches the rower the importance of their lets, and in hanging their body weight on the oar. This drill is done while sitting still, and is best done with not more than four rowers at a time.

The rowers sit at the catch with their blades locked solidly in the water. On command, they drive hard with their legs and hang on the oar handle. The drive should be quick, and should continue until their knees are flat. The motion should lift the rowers up off their seats and back onto the tracks toward the bow. As the rowers lift up off their seats because of the leg drive, they keep their connection to the oar by drawing their arms to them. The rowers should feel the tension and power in their legs as they drive.

Push off the balls of the feet.

This drill is effective for intermediate and advance level rowers.

TOP QUARTER DRILL

This drill teaches the rowers to apply constant pressure using the legs, from the catch to the finish. It helps to teach them to “engage” the blade at the catch with the legs, and then to “hang” on the blade with their body weight as they drive. Each part of the drive is emphasized so that constant power is applied to the oar.

The strokes are going to short and choppy at first, and will require a great amount of precision. It’s important that the legs are doing the greatest amount of work. The rowers will start by sitting at the catch with their blades buried in the water. The coxswain will initiate the drill.

The rowers will only kick with their lets about a quarter way down their slides, then return to the catch and do it again. They will keep taking strokes without command. The object is to get in sync with each other and to move the boat with the legs. When the rowers are in sync and feel solid, go to half-slide (with a two stroke warning). They will then drive from the catch to about half way down the slide. The solid movement of the boat should continue. The complete drill goes as follows:

- Top quarter of slide.
- Half-slide.
- Full-slide.
- Full-slide with body swing.
- Full-slide with body swing and “breaking arms”.
- Normal Stroke.
- Follow (with experienced rowers) with a “Power Ten”.

This drill is effective for intermediate and advanced level rowers.

ADD in DRILL

The “Add in Drill” emphasizes moving the boat. In the drill, it is best to row by fours to begin. The rowers will sense the boat feeling heavy when rowing at full pressure. Feeling the power in the legs and also in swinging it through at the finish is the goal.

Half the rowers start on the paddle. Take a Power Twenty. The rowers will try to move the boat as solidly as possible. At the end of the twenty, have all the rowers not rowing, add-in and row. On the first stroke take another Power Twenty. At the end of the twenty, the rowers who started the drill will fall-out, and the second set of rowers will start a third twenty, followed at the end by all rowers doing a solid Power Twenty, finishing with a paddling out.

Great drill for helping determine how moves the boat.

ONE- STROKE- READY-STROKE

This drill addresses power and unison in the entire boat. Three main points:

- Moving together.
- Power application with a felling of “send” or “run” of the boat.
- Hand levels.

The rowers start by taking a few full strokes to get the boat moving. On command the rowers pause at arms away. On command the rowers move to the catch in unison. This part of the drill should emphasize smooth body motions and controlled slides.

The rowers place the blade at full slide and apply full pressure using the legs first to sent the boat as far as then can before then come to the release and the next pause.

This drill is effective for intermediate and advanced rowers.

PICK DRILL

This drill breaks down the stroke starting at the release and is often used as a warn-up drill. It is very helpful in power application and correcting butt shooters and early back openers. Begin at the release, blade buried, and drive back to various positions of the drive.

- Arms only in the lay-back position
- Arms and body only
- Arms, body and ½ slide
- Full slide – full stroke

This drill is generally done by fours, but can be done be sixes. When shifting to a new set of rowers, check the forward motion of the boat before sitting ready to row.

This drill is effective for all levels of rowers.

REVERSE PICK DRILL

This drill breaks down the stroke starting at the catch. It is very helpful in power application and correcting butt shooters and early back openers.

Begin at the catch, oar in the water, and drive back to various positions of the drive

- ¼ legs (just getting the connection at the catch)- no arms no body
- ½ legs (focus on jump and keeping body angle)- legs end ~45° angle
- Full legs (keeping body angle)- no back, arms
- Legs and body (think prying with a crowbar)- keep arms straight
- Full stroke- coach should see marked difference in jump stillness of bodies and body swing.

Arms, then Arms and back, then quarter slide etc. should be the standard warm-up. It's sometimes hard to have all rowers agree on what quarter slide is. It can be eliminated from the cycle without any problem. This drill is best done by fours.

FEET OUT DRILL

Posture drill: rowers take feet out of shoes and lay them on top, regular rowing slightly lower stroke rate ~18-20. This is excellent for correcting those with rounded backs and "dumping" at the finish. If they do not keep good posture, they will shoot off the end of their seat at the finish.

Good drill for fine-tuning Intermediates with good fundamentals. This drill can be very difficult for Novices still mastering the basic stroke.

This drill is excellent for intermediate and advanced rowers.

FEATHERING DRILL

This done is executed in stages:

- 2) Inside hand only for the recovery –doing the feathering; outside hand only for the drive
- 3) Inside hand stays on the handle the whole stroke, outside hand joins it for the drive only
- 4) Inside and outside hand stay on for the whole stroke, outside hand opens for the recovery
- 5) Inside and outside hands stay on the handle and closed through the whole stroke

This drill takes some explanation, but it is worth it! This is similar to the **OUTSIDE or INSIDE HANDS ONLY** drill. It is used as a method to teach feathering and correct double-handed feathering.

This drill is effective for all rowers.

FIRE and ICE DRILL

Drill teaching slide control: Tell the stroke (and in the process the whole boat) to take the drive at full pressure race pace, then beginning at hands away, take the recovery at ~ 8 SPM. Average stroke rates end up around a 12-14. Remind rowers to focus on slow legs and keeping handle heights even.

Normal 3:1 ratio becomes 5 or 6:1. It helps to initially have coxswain can count to five (or 6, etc.) on the recovery.

This drill is effective for intermediate and advanced rowers.

TRIPLE CATCH DRILL

Also a front-end connection drill: At low rates, low pressure, drop blade in and do ¼ legs (just to feel the connection) 2x then take full stroke. Example of a call would be "catch, catch, and row!" The ¼ strokes are meant to be short and quick just serving as a reminder of the connection feeling before the stroke. If you attempt this drill at too much power/too high speed, it becomes harder as blades get "stuck" in the water.

This drill is best suited for advanced rowers.

CATCH DRILL

This drill is to emphasize acceleration quick catches. At low rates the blades are paused at the catch position with the bottoms of the blades just skimming the surface of the water. On the command "Row" by the coxswain, rowers try to beat the stroke at the catch.

This drill is best done by fours.

This drill is effective for all rowers.

ACCELERATION DRILL

This drill is to teach/emphasize acceleration of the blade through the stroke. At low rates, drop the blade in at $\frac{1}{4}$ pressure, and then increase pressure to $\frac{3}{4}$ th pressure at the release. This drill may be done by pairs, fours, sixes or all eight depending upon the level of experience of the rowers.

This drill is best suited for beginning and intermediate level rowers.

Chapter 5 Commands, Terms and Tips

COMMANDS

Mastery of the knowledge of the following compendium of commands, terms and tips is required of all rowers and coxswains before going on-the-water. Quizzes are administered and a passing grade must be achieved.

And-Down: Sit after entering the shell. Follows “**And-In**”

And-In: Tells the crew to get into the boat. It may be done by side, e.g. “*Ports, And-In*”

Arms and Back: Tells rowers to use arms and back to row. Legs stay straight.

Arms Only: Tells rowers to use arms ONLY to row. Nothing else moves.

Back-It: Place the oars at the release position, squared, and push the oar handle toward the stern of the boat. This motion causes the shell to move backwards.

Blades-Down: Place the blades back on the water after performing a **Let-It-Run**” or “**Fly**”

Check-it-Down: Square the blades and drag them across the surface of the water. Used to slow and stop the shell quickly. This is the same as **Hold Water**.

Count-Down: Tells the crew to call out their seat numbers, starting at the bow, after they have tied their feet in and are ready to shove-off.

Ease-Up, Firm-Up: Tells the rowers to reduce the pressure on the oar, or apply more pressure as needed.

Even-it-Out: Tells the rowers to pull even pressure on both sides. This is the compliment to **Ease-up** or **Firm-Up**.

(#) Fall-Out (#) Fall-In: Tells the rower(s) to either stop rowing, or to start rowing with everyone else. (#) = The number of the rower(s) to start or stop, e.g. “*Bow Pair Fall Out, Stern Pair Fall-In.*”

Full Slide: Tells the rowers to use the whole slide for the stroke.

Half Slide: Tells rowers to go only to the point on the slide where their knees are at 90 degrees - from the finish.

Hands-On: Tells the rowers to grab the boat, so that the boat can be moved, or launched.

Heads Up: Tells everyone within earshot that a shell is being moved, and to be alert as it passes.

(#) Hit-It: Tells the rowers to row until told to stop, e.g., “*Two, Hit It*”

Hold-Water: Tells the rowers to stop rowing and square their blades immediately; dragging them across the surface of the water to slow and stop the boat quickly! This command is often used to avoid collisions. It is similar to **Check-It Down** but with more intensity.

Let-It-Run or Fly: Tells the rowers that when they finish the stroke, they will stop rowing, sit at the release, extend their arms, and place their oar handles on the gunnels of the boat. The rower’s blades will be off the water, and they will try to keep the shell balanced until the command **Way-Enough** is given.

Oars Across: Tells rowers to push oars out so that their blades are resting on the water or dock; depending on which side of the boat they are on. Always extend the oars on the waterside of the shell before entering. Similar to **Oars Out**

One-Foot In (Port or Starboard): Tells the specified rowers (Port or Starboard) to put one foot into the boat (on grip-taped plaque in the middle of the slide ONLY.)

Paddle: Tells a crew to row with just enough pressure to move the boat. The paddle command is also used to bring a crew down from full pressure at the end of a workout piece or a race.

Push Out (And-In): Rowers push the boat out and then down (to protect the Skeg).

Push Off in 2..1..2: Tells the specified rower to push off from the dock. Same as **Shove Off**

Roll-It (down to waists, towards the water, etc.): Tells the crew to flip the boat over, together, from heads.

Set-the-Boat: Tells the crew to balance the boat.

Shoulders, Ready, Up: Tells the crew to lift the boat from any position below their shoulders to shoulder height. It can be reversed to lower the boat from heads to shoulders, e.g. *“Shoulders, Ready, Down” (This is the best position for carrying a shell.)*

Sit-Ready: Tells rowers specified to sit ready at the finish or the catch.

Split to Shoulders: Rowers lower the boat to shoulder height from above their heads, alternating sides with the person in front of them.

Toes-to-the-Edge: Tells rowers to move to the edge of the dock.

Waist, Ready, Up: Tells the crew to lift the shell to their waists.

Up, Over-Heads: Tells the rowers to lift/press the boat above their heads.

Walk-it-Out: Tells rowers to walk out of the boathouse or forward.

Way Enough: Tells the rowers to stop rowing.

TERMS TO KNOW

Point: Some object in the distance used to line up shell on the water. It can be a tree, buoy, the side of the channel, etc.

Bow: Front of the shell.

Stern: Back of the shell.

Seat Numbering: Numbered One through Eight (or Four if in a 4) (Stroke) starting from the bow (one).

Bow Pair: Rowers in seats 1 and 2.

Stern Pair: Rowers in seats 7 and 8 (or 3 and 4 if in a 4)).

Stroke Seat: Seat number 8 (or 4 if in a 4).

Starboard: Right-hand side of the boat from the Coxswain's perspective.

Port: Left-hand side of the boat from the Coxswain's perspective.

Bow Ball: The rubber ball at the tip of the bow of the shell that helps prevent damage if you hit something.

Skeg: Another name for a fin – mounted just behind the coxswain on the bottom of the shell – contains the rudder.

Rigger: Metal bracing attached to the boat with Oarlocks attached.

Oarlock: Where the oar goes. They are plastic u-shaped fixtures with locking rods.

Collar or Button: Ring that circles the shaft of the blade and rests against the oarlock.

Gate: That part of the oarlock that pivots down and locks the oar into the oarlock.

Shaft: The part of the oar that forms the length of it. The shaft attaches handle to blade.

Blade: The part of the oar that grips/connects into the water.

Gunnels: The sides of the boat.

Backing: Rowing with a backwards motion to propel the boat backwards.

SEQUENCES

D. How to get the boat out of the Boathouse:

1. Hands-On
2. Up and Out of the Racks (and out)
3. Up, Over-Heads (ready up)
4. Split to Shoulders
5. Walk-it-Out

Cox: As the Cox it is your responsibility to watch the riggers as the boat is moving out of the house. It is also your responsibility to let others know when the boat is being carried around other people. **Yell, Heads Up**, LOUDLY to get others to move. When the boat is going in to the water, ensure that the bow ball is towards the end of the dock. It is YOUR and only YOUR responsibility to make sure that the Skeg doesn't contact the launch dock and become damaged or break when the boat is going in the water.

E. Sequence of Launch Commands:

2. Slow-it-Down
3. Way- enough
4. Up, Over-Heads
5. Walk-it-to-the-Edge or Toes-to-the-Edge
6. Roll-it-towards-the-Water
7. And-In
8. Push Out

F. Sequence of Entering the Shell: Preparing to enter the shell – All rowers (who are not getting oars) should be holding the shell and opening oarlocks. The Coxswain connects the “Cox Box” and tests that all the speakers work. As oars come on to the dock, put them in oarlocks on their respective sides of the boat but do not extend them. Ensure oar lock gates are secure/tight. All rowers remove shoes and stow them under their seats.

1. Oars Across – Extend the oars to the gates, blades flat
2. One-Foot In

Cox: Give the command for port or starboard rowers, whichever have their blades extended on the waterside, to put one foot into the boat.

Rowers: Step onto the grip-taped area in the middle of the slide. DO NOT step onto the bottom of the shell!

3. And-In

Cox: Now repeat for rowers on the other side of the boat – “One Foot In, And-In”

Rowers: All rowers should hold the dock as they enter the boat and keep one hand on the dock as they tighten their foot-stretchers. Waterside rowers always hold their oars (slide under their waterside arms).

4. Hand-on-the-Dock
5. Push Away in 2..1..2 or Ready-to-Shove, and Shove

Cox: Have the rower closest to the bow on the dockside take his/her oar and push away from the dock if necessary.

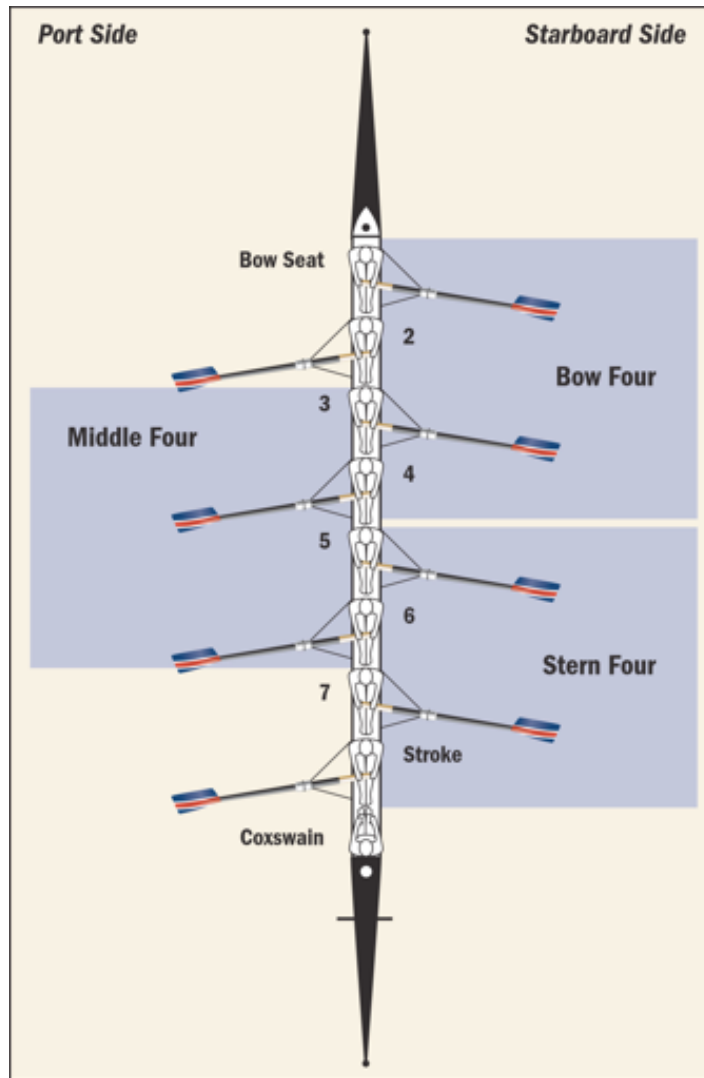
After entering the shell, paddle to the blue buoy using a pair of rowers. Pass the buoy on the right. When returning to the dock (returning the boat), reverse this process.

More Coxswain Tips

Steering is opposite from driving a car. When your left hand goes forward, your boat turns left. If you right hand goes forward, your boat turns right. Don't over compensate. Adjustments to steering are only made while oars are in the water, during the stroke. On the recovery, the skeg should be straight. Ensure that you are steering in a straight line. Find your "POINT" (a point in the distance) and aim for it. For quick turning, utilize bow and stern pair or add pressure to one side while rowing.

Obstacles

- Look out for logs, branches and other debris floating in the water, or just beneath the surface especially after rain or a storm.
- Be aware of the boat's distance from land.
- Be aware of oncoming boats and other boat traffic.
- Stay on the right side of the River.
- The slower you re going, the closer you are to shore.
- Be aware of boats behind you, and boats passing you.
- If you see lightning or hear thunder, tell your Coach!!!



The Eight+ Racing Shell

Chapter 6

Basic Rules of Rowing

The role of the Referees and the Rules of Rowing

- Referees provide for rowers safety and are first responders.
- Referees ensure fairness
- Primary duties control all other provisions of the Rules of Rowing.

Prepping the Boat for the Control Commission

- Bow balls – must be white/florescent, secure, and supple.
- Heel ties – no more than 3”
- Lane Numbers mounted
- General boat and oars condition
- Coxswain
 - Meeting bracelet
 - Weights (when applicable)
- If there are problems, tell the Control Commission representative

At the Launch Dock

- The dock master is in charge for coordinating the launch and recovery of all boats.
- Things to have before launching
 - Water
 - Inhalers
 - Weights (if applicable)
 - Proper clothing for the conditions
- Things you may not have
 - Cell phones or other communications devices
 - GPS

En Route to the Start

- Do not power stroke or practice starts – unless permitted by the referee
- Row in the vicinity of a race
- Stop at the Finish Line
- Go on the course without the Starter's permission
- Don't be late

While in the Marshall area

- Check in with the Marshall
 - Responsible to the Starter to manage waiting crews
 - Helps find/direct missing/late crews
- No power stroking or practice starts
- Know proper boat position one race prior

Start Positioning

- Know
 - Current and wind tendencies
 - How to enter the starting area
 - Start dock/floating start procedures
- If early, Starter may allow you to warm-up in your lane

Start Flags

- White Flag (Aligner) – Crews best aligned, Starter may begin the start process
- Red Flag (Starter) – Raised with “*Attention*”
 - May slowly lower if sees crews not ready – “*As You Were*”
 - Quick downward motion signifies start – “Go”

Start Types and Why

- All starts – “*Attention*” (Red Flag up)...”Go” (simultaneous quick flag drop)
- Polling – default – If not used, Starter will announce which alternate
 - Calls team names, recognizes hands (all down prior to start)
- Quick – reduce delays (weather or other)
 - No polling, hands recognized
 - Expect for floating starts
- Countdown – Polling/Quick taking too long
 - Hands may be disregarded – “5...4...3...2...1...”

False Start/No Breakage Zone

- False Start – Crosses Start before flag drops – Warning Assessed
- No Start – Fails to leave start position
 - If not ready – DON'T GO!
 - May be assessed warning – better than risk
- 100m Breakage Zone (~20 seconds)
 - If legitimate broken rowing gear – repair restart
 - If not (e.g. jumped slide, cox box) – Warning
- >100m – Try to finish race if damaged from hitting something or being hit – file protest

Body of the Race

- *Crew's Water* – assigned lane) referee discretion in non-buoyed course)
 - In your “lane”; protected by referee
 - Out of your “lane”; at own peril and risk
- *Interference or Foul* – Crew has left its water
 - Physical contact with another crew
 - Forcing other crew to alter course to avoid collision
 - Washing (waking) another crew
 - Fails to yield to another crew attempting to its own water
 - If both crews out of their water, neither can claim interference if they collide
- White Flag
 - Instruct crew - Raised vertically – Crew name – Flag dropped in direction crew is to move
 - Instruct two crews to keep apart – Raise vertically – Crew names ‘ - “*Keep Apart!*”
 - Stop a crew – Raise vertically – Crew name – “*Stop!*”
 - Continue rowing – Raise vertically – Crew name – Drop flag forward – “*Continue rowing!*”
 - Race Cadence – Raise vertically – Crew name – “*Race Cadence!*”
 - Potential collision with obstacle or installation – Raise vertically – Crew name – “*Obstacle!*”
 -

- Red Flag
 - Stops ALL crews
 - Usually includes sirens, bells and yelling
 - Used when a crew in contention has been deprived of its opportunity of winning, placing or advancing, and further continuance of the race would be of no further competitive value (referee judgment)
- Why the Referee Waked You
 - Referees try their utmost to avoid waking crews, but
 - Race is widely split and
 - Need to be with lead crews at critical part of the race
 - Referee will swing out wide and apologize to waked crew
 - Second referee will try to black wake as best possible for training crews

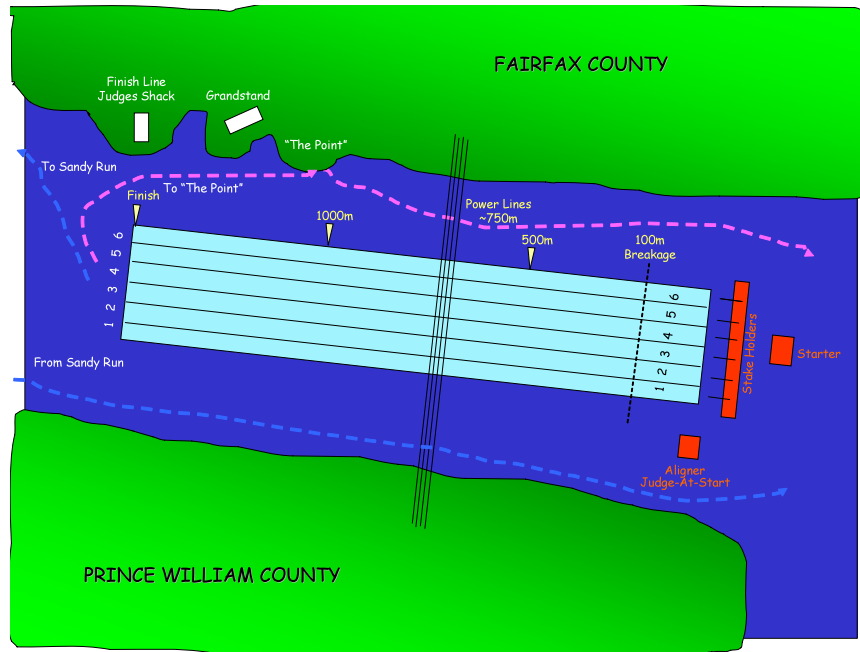
After the Finish

- Coxswains should scan their crew for any injuries and immediately raise hand for help
- Remember sportsmanship – It's the right thing to do and you don't want to be disqualified for showing poor judgment after rowing a great race
- Referee signals with White Flag if race was fair and there are no protests
 - Don't leave the finish area until the Referee releases your crew – especially if there is a protest
- For Championship Regattas, special traffic pattern for medal winners
- If you think you were fouled...
 - What the Referee wants to hear
 - What are you protesting for?
 - What are the facts?
 - What did the offending crew do?
 - What did you do?
 - What results do you want?
 - What the Referee may decide
 - Exclude the team that fouled you
 - Place the offending crew after you or declare a dead heat
 - Re-row heat or advance aggrieved in extra lane for final
 - Disallow protest – will explain
 - Protest may continue on land, if...(Red Flag)
 - You disagree with the Referee's decision
 - Another affected crew disagrees with the Referee's decision
 - Jury Protests
 - Only for appeal of Referee's on-water protest decision
 - Submit concise, factual statement (signed by crew member from the boat) within one hour of landing with the Chief Referee or designee
 - Jury of Referees will adjudicate after hearing all relevant evidence and all affected crews examine evidence – one representative per team (non-witness) allowed to observe
 - No formal rules of evidence
 - Team representatives may ask Jury to ask a question
 - Emergency Procedures
 - Know where on-land medical help is

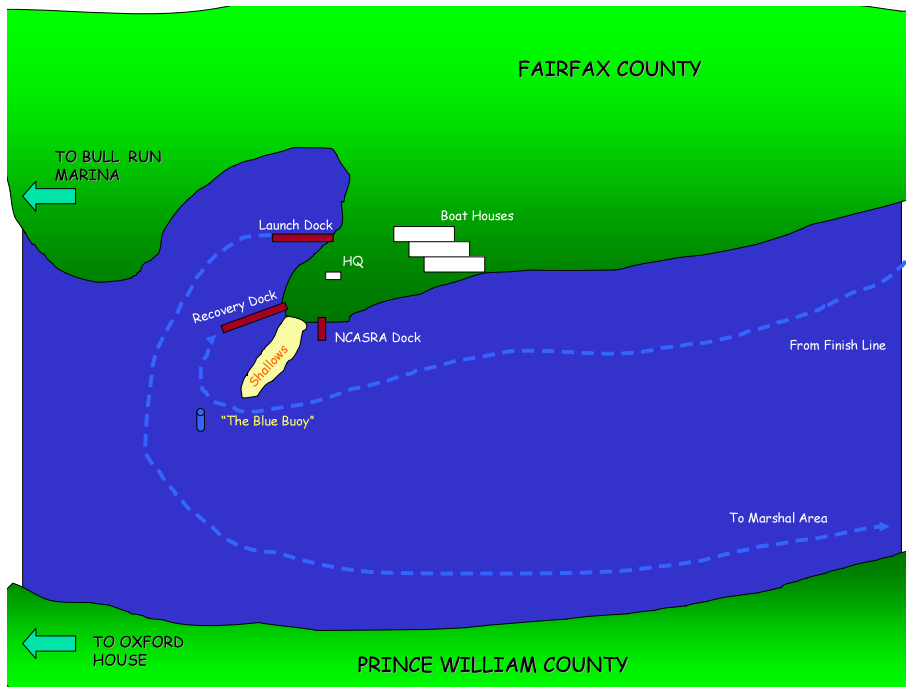
- Emergency Procedures
 - Mishaps
 - Rower overboard – signal Referee/nearest boat immediately
 - Boats sinks – stay with the shell
 - Weather
 - Hear thunder/see lightning – get off the water as soon as possible
 - Hypothermia – get out of the water/wind as soon as possible – wrap
 - Hyperthermia – keep cool – lots of fluids
 - Rower medical problems (e.g., injury asthma) – signal Referee immediately
- Rule Violation Results
 - Reprimand – Informal caution – No immediate effect
 - Warning – Two in the same race and crew is excluded- common violations include:
 - Sitting/driftng onto the Finish Line
 - Rowing in the vicinity of a race
 - Power stroking en route/in Marshal Area
 - False start
 - Failure to start/stopped rowing in breakage area – no valid excuse
 - Failure to obey referee instructions
 - Exclusion – Removed crew from the event – rowers may compete in other events
 - Disqualification (crew or rower) – Removed from regatta – reported to US Rowing Referee Commission

Occoquan Course Instructions

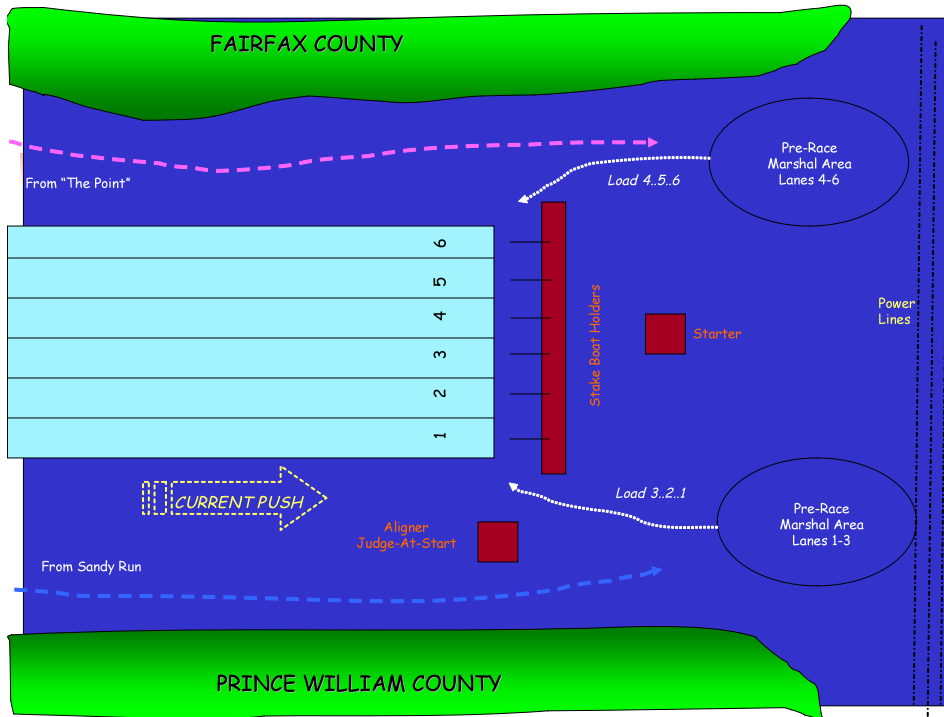
- The Occoquan Race Course



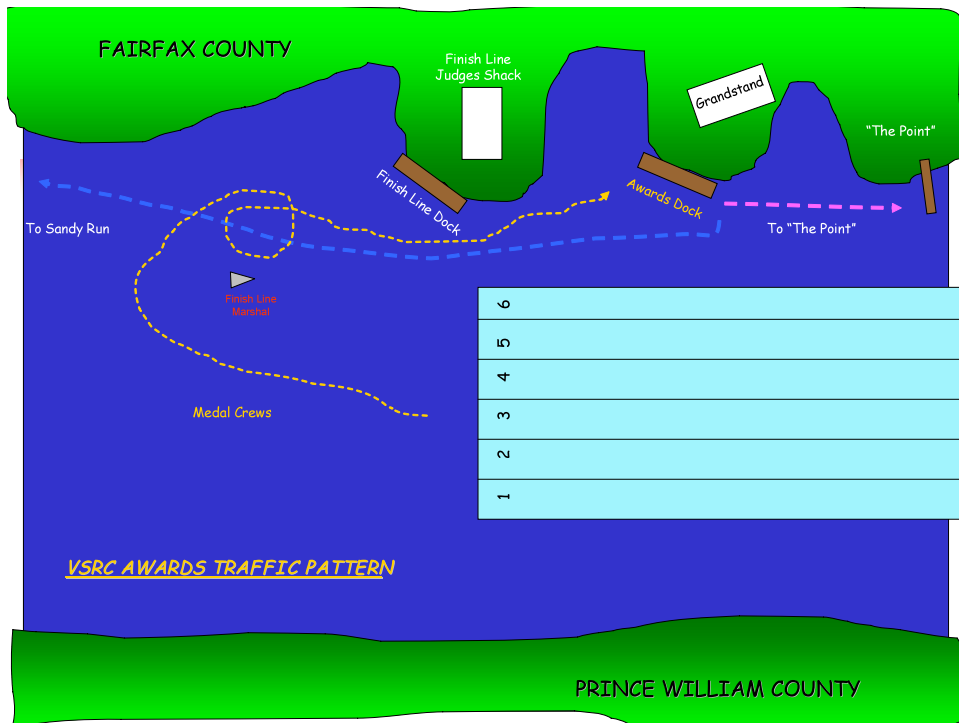
- The Recovery and Launch Docks



- The Marshal and Start Areas



- The Finish Area and VSRC Awards Traffic Pattern



Course Information

- Crews in the Marshal Area shall not go past the power lines near the dam
- One race prior to your race: Position your boat to the proper side of the Stake Holder's Platform as shown in the diagram. Be ready to enter the course expeditiously when signaled.
- Weather patterns can change drastically between Sandy Run and the Start. Although current is not a problem, crosswind conditions can be very challenging to get "locked-on" and stay "locked-on". Coxswains must work to keep point in these conditions.
- For championship regattas, medaling teams will be notified by the Finish Line.
- Stay upriver of the Finish Line
- Finish Line Marshal will direct your boat to the awards dock at the appropriate time
- First Aid is located at the Finish Line; Emergency Medical Technicians (EMTs) with an Ambulance will be located at Sandy Run.

Chapter 7

Sandy Run On-Water Operating Procedures

Directional Procedures

- Shells and launches must keep to the right shore at all times, except when the racecourse is in place:
 - On practice days shells and launches may use lanes five and six (Prince William County side) to power stroke downstream, and lanes one and two (Fairfax County side) to power stroke upstream. Lanes three and four are closed to all traffic.
 - On regatta days the Regatta Director will determine the water traffic pattern.
- Shells or launches overtaking other boats must keep clear. The boat being overtaken has the right of way, but has the responsibility to maintain course and speed. The overtaking boat shall keep the slower boat on its right, passing only on the left. Slower traffic must keep close to shore.
- Use of the racecourse during practice is restricted to racing type pieces.
- Stopping on the racecourse is prohibited when other crews are waiting to use the course.
- Shells must move well past the finish line of the racecourse when completing a practice race.
- Shells may not switch lanes on the racecourse during practice races.
- Stopping or turning shells in areas where up- or down-stream visibility is less than 200 meters is prohibited.

Shells

- Shells must have a bow ball at all times

Safety Procedures

- Boats launching from Sandy Run Park are permitted to row during daylight hours only, and must dock by sunset.
- Oars are not approved personal flotation devices for rowers. In the event of an accident, rowers and coxswains must stay with their shell and wait for a launch to rescue.
- Shells are to have a whistle or horn aboard for emergency signaling.
- The air and water temperature, weather conditions, and flow of water over the dam are posted daily at the weather station. Rowers must check this information before launching.
- Water Safety signal flags (flown at the discretion of the Park management):
 - Yellow – High winds/rough
 - White – Air/water temperature below 35 degrees
 - Orange – Approaching storms
 - Blue – Obstruction on water (e.g. ice, logs)
 - Red – Launching prohibited
 - Purple – Water flowing over the dam
 - No Flag – Monitor conditions
- Rowing within 1,000 meters of the dam or beyond the starting line of the 1,500 meter course is prohibited, except during NVRPA approved 2,000 meter races and practices.
- Shells must return to Sandy Run docks at the first sound of thunder. If the storm is upon you, take the shell ashore and wait for the storm to pass.

Launching

- To row upstream (toward Fountainhead Regional Park) stay to the right.
- To row downstream (toward the race course) pass the blue marker on the upstream side moving towards the Prince William County shore, and proceed downstream.
- Shells shall be launched bow first on the dock.
- Shells shall launch from the lee side of the dock, and recover from the weather side. If there are no prevailing winds, launch on the Sandy run side and recover on the reservoir side.
- Outside oar racks are to be used during launching and recovering only.
- Once the shells are in the water, immediately obtain the oars, and vacate the launch area as quickly as possible.
- Minor and emergency adjustments or repairs shall be made on the water, clear of the launch area. Extensive adjustments or repairs shall be done on slings away from the launch area.
- No gear, including shoes, may be left on the docks.
- No racing or high stroking of shells is permitted in the launch area.

Recovery

- Upon returning to the dock when moving downstream (toward the racecourse) shells must move past the blue marker before turning into the dock area.
- When moving upstream (toward Fountainhead Regional Park) stay to the right.
- Recovery and clearing of the dock area must be done as quickly as possible.
- Shells are stored in the boathouse stern first, unless rigging dictates bow first storage.
- Cleaning and repairs must take place away from the launch areas and boathouse entrances.
- Shells must be cleaned before entering the boathouse.
- Oars must be placed in the assigned racks (color coded).

