

The Kayakers Playbook

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With Phil DeRiemer and
Mary DeRiemer

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The Kayaker's Playbook

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Whatever your ability, this pocket personal trainer is the fastest way to improve your whitewater kayaking skills. You'll notice better control and confidence, and have more fun on the river, guaranteed! Drills are the foundation for excellence in any sport, and kayaking is no exception. These simple explanations of dozens of exercises make learning easy!

100 drills, tips and hints for easier paddling

Unlock the secrets of proper technique

Surf more reliably, catch the wave everytime

Learn precision, hit your line in rapids

Perfect carving, so your boat doesn't slide

Go farther, faster, more efficiently

Develop balance for dynamic strokes and control

Guaranteed Success!

Whatever your ability, this workbook will improve your whitewater paddling, using the same methods that champions utilize in virtually every sport. To excel, they systematically practice drills designed to develop the correct patterns for their game.

This same systematic approach can be applied to your paddling with remarkable results. It's easy and it works!

Simply use a few of these drills as part of your warm-up routine every time you get on the water. Better yet, devote a few sessions to stroke drills on flatwater. There is no better way to improve your boat control and confidence.

These exercises will help you build a solid foundation of skills. They'll eliminate years of trial and error and the resulting bad habits. Just messing about in a boat with awareness of these key concepts will improve your paddling! Make breakthroughs in your paddling!

This workbook is also available in print, designed to be with you on the water. It's a quick reference at the put-in for whitewater, and a great way to tune up your skills while you're still on flatwater.

[Hint: As you refine your technique, get proficient with each skill on easy water before you progress to harder whitewater, or you'll always be limited by some tension in your style. Even Olympic whitewater paddlers do up to 30% of their training on flatwater.](#)

After practicing some of these drills, re-watch portions of one of our instructional videos, like *River Runner's Edge* so that you'll have a good mental image of what your paddling should look like. Find a friend with a video camera who is willing to tape your strokes. Practicing with video or live critique is a sure-fire way to improve your skill level. Images in this book were derived from actual footage from *our instructional* videos, found at Performancevideo.com. Review those resources for more fluid and detailed demonstrations. Enjoy!

Kent Ford

Boat Tilts

Balancing on the Cutting Edge



High performance paddling relies on precisely edging or tilting the boat. This is accomplished by tilting your head toward the middle of your kayak and jutting your lower ribcage out over the water. Let most of your weight sink onto one buttock. Your top knee fine tunes the boat tilt while your juttied-out ribcage maintains the balance.



Whoops!: Many paddlers put their boat on edge with a bell-buoy lean, leaning their torso and head over the water. Small people in a stable boat might have to do that, but for most of us that actually forces the paddle to become a crutch for balance. This keeps the paddle from doing more useful things like propulsion.

Drill: Starting with a flat boat, work in steps towards the point of no return. Put the boat on a comfortable degree of edge. Develop four distinct boat tilts which we'll refer to as Level 1(not much), to Level 4, (almost off balance). Steady now...

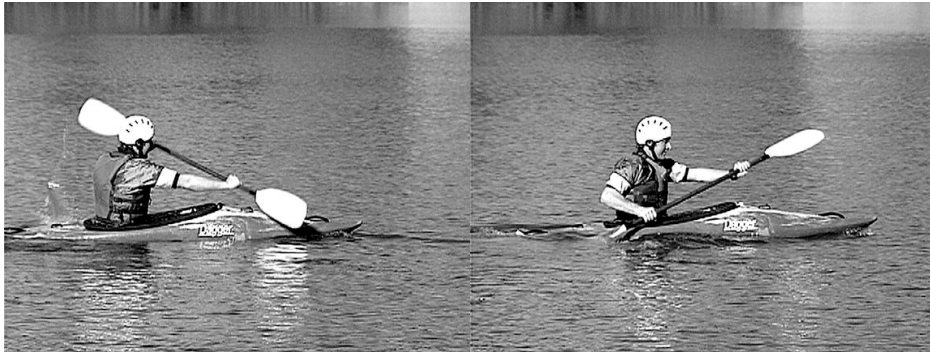


Next put the boat on a comfortable degree of edge (Level 3). Lean forward and lean back to explore how these postures affect your ability to hold a steady edge.

Torso Rotation

The wind up toy

An upright posture allows you to access a greater range of motion in the form of torso rotation. Rotation adds power to your strokes by harnessing your greatest source of strength, the large muscle groups of your torso. Good rotation also helps avoid shoulder injury.



Forward Strokes rely on power from deep in the torso, harnessed by rotation.

Drill: Sitting in your boat with your new upright posture, rotate your torso until you can see your back grab loop. How easily can you twist? Over time, strive to line your shoulders up with the ends of your boat.

Tip: Think of arching your lower back, and hinging at the hip to find the proper posture. This allows your back to stay 'straight', and allows for maximum rotation.



Curving forward, or slouching back, decreases your ability to rotate fully. Does your flexibility limit your posture and rotation?

Proper Posture

Sit Up and Eat Your Peas

Balance is a function of posture. Sit up straight in your kayak, arch your back slightly and push your navel forward. Feel your pelvis roll forward and your spine grow taller. This is the position of maximum strength and range of motion.



Drill: With perfect posture, rock your boat as much as you can side to side. How is your balance? And your range of motion? Continue to rock as you lean forward. What changes do you notice in the boat's motion? More, less? What about your stability? Now, lean back so that your spine touches the cockpit combing as you rock your hips. Again, how does this affect your balance?



Observations: With your back curled forward, hunkered down, your boat feels deceptively stable, but you lose range of motion for edge control.

The ideal paddling posture is with a straight back, upright posture, tilted slightly forward at the hips for an aggressive, stable, ready feeling.



Leaning back reduces edge control... so you'll often need a brace. Unstable feeling, isn't it? Recover by moving forward!



Tip: If your hamstrings are tight, you won't be able to realize your full potential to sit upright, balance, or hold a steady edge.. A several week stretching program pays great rewards in comfort and performance.

Don't wait for an Injury

Learn to stretch!

A warm-up and stretch before you paddle decreases your chance of injury. Warm-up with a ten-minute run or easy paddle before you stretch! A stretching session after paddling when your muscles are warm does the most to increase your flexibility.

Many of the best paddlers have a perfect paddling posture. Tight hamstrings and lower backs limit posture. What's your weakness?



This is arguably the best stretch for your hamstrings. Position yourself for a mild stretching sensation. Hold for 20 to 30 seconds. Breathe soothing thoughts.



This position offers a good rotational stretch.

Tip: After stretching, try some forward paddling and assess how much of your potential rotation you are using.

Shoulder Strength and Safety

Know your Shoulders!



The weakest position for a shoulder

Shoulder dislocations are infrequent, but are still the most common injury in kayaking. Most first dislocations are stability related: caused by bracing or rolling using poor form. To prevent this painful and hard to rehabilitate injury, keep your arms low and in front of your torso. Slouching back will place more stress on your shoulder by reducing both your stability and rotation.



Keep arms low and in front of your torso when bracing

TIP: Aggressive play paddling, rodeo stuff, generates a lot of torque on your body. Warm up properly, use a boat sized for you, and consider using small blades and short paddle shafts.

Shoulder Exercises

Preventative Maintenance

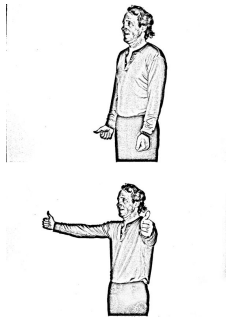
Balancing your muscle development is the guiding principle for preventative maintenance for your shoulders. Paddlers typically overdevelop in the front, leaving other muscles underdeveloped. Heavy weight training bypasses these smaller muscles important for holding your shoulder together, so use the following exercises with very light resistance.

Do ten repetitions of each, on a four count up and a four count down. Resist your movement, like you are exercising in a swimming pool of honey. Yummy! Hold a beer can if you feel you need more weight. Repeat daily.



Front raises. Start and finish palms up. You wont need any weights at first.

Lateral Raises (not pictured). Start palms down at side, finish palms down at shoulder level. As your strength improves, you might want to add a stretchy sport band for resistance.



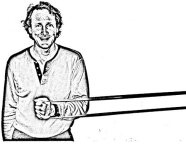
Diagonal raises Halfway between front and lateral. Do with thumbs up. Keep a 20 degree bend in your elbows.

Backward shrug rolls (not pictured). Shrug your shoulders up, then pinch your shoulder blades together.

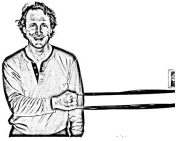




Cross chest Raise,, Keep the active elbow down.



Internal rotation. Use a stretching sports band to provide a little more resistance.



External rotation.



Rowing. Focus on last half of rowing motion, pressing your back to a flat position, pinching your shoulder blades together. Do with elbows high. Then repeat with elbows at side.



Standing rows. Hold a beer can if you need more weight.

Simple Wisdom

from Cathy Hearn

Kayak slalom star, with 12 World Championship medals.

"Kayakers can do a lot towards injury prevention by paddling backwards and doing pry type strokes. We are usually pulling in towards our bodies with the blade, so working the opposite motion is generally a good thing to do."

Cathy's favorites:

Paddling reverse. Lots! Also, learn to do compound back strokes like canoeists do (see advanced placement backstroke).

The anti- Draw. As the name implies, the opposite of a draw stroke (push away with the back face of the blade).

Anti Bow-Draws (Antie Duffek?!). Do them gently with the boat already spinning so as to use the really little rotator cuff muscles. Control the spin so you can feel every degree of rotation.



Throwing water up in the air. (Or you can use a ball) Pick up water with the spoon of your blade. Throw it up high and watch the sunlight sparkle through the water blobs. Cool! (You can also try to whack the mass of water blobs at your buddy. Extra cool!)

Tip: If you're out there on your surf session and you feel a tweak, call it a day. Listen to your body. When you don't, mild injuries can become chronic.

Glide

No Bobs, wobbles, or zig! Run a Steady Boat



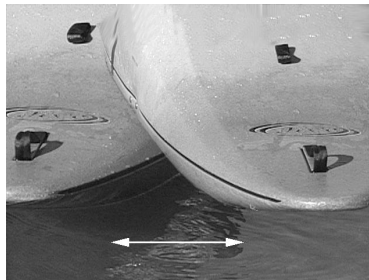
The hull of a kayak slows significantly when it bobs front to back, or rocks side to side. A barely visible wobble or bob, say one-half inch, is like dragging a coffee cup sized anchor on each side of the boat.



Even small wobbles (side to side) reduce boat speed.



Avoid bob (abrupt dip of the bow).



Avoid zig zagging wag.

Tip: Strive to find a smooth, gliding sensation in your forward strokes. In general, this is more efficient than trying to paddle faster, especially if pulling harder makes you wobble. Learn to disconnect your lower body, so you can maintain a perfectly steady boat, even during strokes.

Drill: Know your enemy! Exaggerate dip and rise, zig zagging wag, and side to side wobble. You'll feel extra smooth and fast when you eliminate these motions. An inadvertent wobble is frequently the culprit when you miss a move on whitewater.

To Carve or To Skid?

That is the Question...

CARVE: WIDE, GRADUAL TURN WITH A STEADY BOAT TILT.

SKID: ABRUPT, SHARP TURN WITH A FLAT BOAT.

A **carve** is a turn where the stern follows the bow's arcing path through a turn. These are wide, smooth turns. This hull control will help you carry momentum and accelerate through a turn. By acquiring a "kinesthetic sense" with your legs and butt you'll gain more control of your turns.

A **skid** occurs when the stern swings wide around the path of the bow. The speed of the boat dies in the turn. This allows for an abrupt sharp turn, like catching a tiny eddy on a narrow creek.

A **pivot or squirt** turn uses water on the stern to lift the bow. The pivot point moves back, allowing for the bow to come around quickly.

If your boat wobbles, it won't carve or skid or pivot nearly as smoothly. In whitewater, it won't act predictably!

Drill: Compare a carve and a skid. Once the boat is carving, stop paddling. Maintain carve by holding the tilt a few seconds. Flatten out the boat, and feel how the carve changes to a skid. Feel the bow slow, and the stern break loose.

Editorial Comment: You might hear instructors refer to carving as a power circle or inside circle, named for the circles you do to practice. Others prefer to call it carving an arc, since carving has a kinesthetic connotation.

Get a Grip

But not just any Grip!

Do you ever experience tired wrists or forearms? Are you lacking smoothness, control, or power? Perhaps your paddle grip is the culprit! Grip problems can be very subtle and difficult to recognize.



Check the width of your grip. Your arms should form a ninety-degree bend at your elbows. This may feel awkward at first. Given time, you'll come to appreciate the greater amount of power and control. Sliding your hands in an inch or two is okay.

Sometimes you may find it advantageous to choke up on your shaft momentarily, especially for rolls and aggressive playpaddling. Your shoulders may feel more protected this way. Marking your hand position with a piece of tape can help you locate your original hand placement.



Avoid gripping the shaft too tightly by relaxing the fingers of your top hand during each stroke. Allow the shaft to rotate freely in your non-control hand. Maintain index with the forefinger on your control hand, but allow your other fingers to relax.



One hand must release! or your grips are in constant conflict and you will develop a boxy style with limited dexterity and future tendonitis. This is a subtle but common problem.

Editorial comment:<) Many people 'fix' this with a bent shaft paddle. In many cases a more relaxed grip could provide the same benefit at lower cost.

Putting it All Together

Optimizing the Blade

How you utilize the power of your **body**, and transfer movement into the **boat** is the key to effective paddling. To better understand how your **blade** links it all together, think about each phase of the forward stroke, and apply these concepts to every stroke.



The catch:

- Wind-up, storing power with rotation
- Anchor the blade
- Make it stick, no slip, cavitation, etc.
- Optimize blade and shaft angle
- Find resistance to blade movement

Power:

- Transfer power into boat with abdomen, hips and legs
- Use strong linkage between your torso and paddle shaft

Recovery:

- Slice the blade out without compromising stroke quality
- Let the boat glide
- Wind up for the next stroke
- Pick a pace and tempo that optimizes your efficiency

Friendly Reminder:

Temporary awkwardness during drills is part of learning and improving.

The Catch

Driving On Ice

The single best way to improve your strokes is to change the way you think about them. Many people think of just pulling the blade through the water. Instead, plant the blade firmly in the water, and advance your hips (and thus the boat). If you strive to pull the blade through the water, you won't get firm resistance, so the blade slips, and the boat won't go as far.



Look at how tires provide traction on the road. Change that to a slippery surface, and you are forced to focus on keeping traction with your tires. Paddling is similar. Start paying attention to how much traction your blade has on the water. If the blade slips, you don't go anywhere.



For effective strokes and sweet dreams, think of paddling in a giant vat of molasses. Each stroke should stick in the molasses, and serve as an anchor for pulling the boat in the direction desired. Sweet!



Drill: To practice this concept with your forward stroke, do some paddling alongside a series of fixed points like buoys or lily pads. Plant your blade right next to one, and monitor how much it slips. You want to feel resistance against the blade during each stroke.

Power

Lawnmowers and Roller Boating

Learn to use your torso so you can harness your **powerful muscle groups**.

Imagine sitting in your boat and reaching forward with one arm to start a lawn mower. This twisting reach is the sort of torso and hip power you want to harness in a forward stroke.

Using another analogy, imagine your boat with wheels sitting on a smooth sidewalk. Upright poles line the walk, alternating sides every three feet. Reach forward by twisting your upright spine and grab a pole. Now fling yourself forward by pushing your hips 'through' your footbrace. Wheee!



Drill: Each time you place the paddle in the water, concentrate on driving the boat forward with your hips. Don't let the boat bob. (And don't practice this in front of the mirror with the curtains open if you have curious neighbors).

Hint: The skills of using your torso effectively, and translating the power into your legs and boat, is the essence of all strokes.

Recovery

Haste makes Waste

A good recovery allows you to get the blade out of the water and positioned for the next stroke while the boat glides. Be careful not to rush. This can decrease glide, power, and the quality of the catch.

The optimum stroke rate is not the fastest stroke rate. Think of riding a bicycle. Too low a gear and you're pedaling quite rapidly, but you're not going very far or very fast.

Grasshopper: Faster isn't Faster

There are times on the river when our adrenaline will have us wind-milling away, creating our own whitewater. These strokes may be doing very little to actually move the boat. Stroke in a purposeful manner to accomplish your goal.

TIP: When I try too hard, I flail and miss moves. Et vous?

The Infinite Quest

The Forward Stroke

The search for the perfect forward stroke seems like an endless quest. Even the best paddlers are constantly refining their technique, so don't become discouraged. Transferring your body's power to the blade so the boat moves efficiently encompasses a lot of complex motions. There is more to it than meets the eye!

DRILL: Each time you insert the paddle into the water, think about getting it to stick there. If you pull back before the blade is submerged then the blade slips. To avoid this, think of sliding a knife all the way into a sheath. Your top arm does the work of jamming the blade into the sheath, before you pull your hips to the paddle.



Hint: If water splashes rearward as you plant, then you are moving the blade instead of the boat. Work on getting a crisp, smooth plant and on not pulling until the blade is fully submerged.

ADVANCED: A more accurate visualization is that of **pressing down** on the water. This mental image can help you get the blade fully immersed and anchored before starting the power phase of the stroke.

Push or Pull?

Higher Pivots for Longer Power

A good wind up extends the tip of the blade forward, rather than reaching both arms forward for the plant. You pull yourself further if the tip of the blade enters the water farther forward. Reach with your bottom hand and bend your top arm slightly.

Once the blade is in the water, minimize how much you punch with the top hand. Instead, drive your top shoulder forward. This moves your top hand too. Maximize your 'pull' with your torso.



Punching with the top arm lowers the pivot point of the paddle. This reduces blade bite on the water.



A high pivot point gives you better purchase on the water. Push with the top shoulder, don't punch with the top hand.

Hint: 'Pulling' should happen through a nearly straight bottom arm, so more of your power comes from the torso.

Accelerating Stroke

...Then Traveling Stroke

One important component of a forward stroke is having the blade run right along the side of the boat, pulling you efficiently forward. This paddle position minimizes the boat's inherent desire to turn. Wag reduces your efficiency dramatically!



The theoretical optimum is a vertical stroke with the top hand quite high so the blade is closer to the boat. This vertical paddle is ideal for acceleration. However, this position reduces the ease of harnessing power from torso rotation.



Once under way, you won't need such verticality, but you will want your paddle blade in close to the boat. The practical solution is a lower traveling stroke with top hand at shoulder to forehead level. This is more nimble and transitions easily into steering strokes.

Drill:

Experiment with a more vertical acceleration stroke and compare with the lower traveling stroke.

1. Which would you want making an attainment, climbing up a jet of current?
2. Which would you want in a real short boat?
3. Which do slalom racers use?
4. Which does a wildwater racer use?
5. What are other benefits of verticality?



Terminology Hint:

When paddlers speak of a vertical stroke they are almost always referring to the view from the front of the boat.

Answers:

1. Vertical
2. Vertical to accelerate, lower when under way
3. Typically more vertical in style, because they are often accelerating and avoiding poles with their top blade. Once underway they relax to a lower style.
4. Wildwater (and flatwater) racers typically use a lower stroke, since their boats are designed to go stright and they want to conserve energy.
5. Vertical strokes are also used to carve and maintain speed through a turn. Also, vertical strokes such as draws help avoid unplanned skidding.

Increasing Power

Sit in it and Rotate!

A common reason paddlers miss a move is because the arm muscles are providing the power. Using the larger, stronger muscles results in a more powerful stroke and better endurance.

Drill: Improve your reach by twisting the bottom of your ribcage forward on one side. When you are wound to the max, plant your paddle and take a stroke. Alternate this wind up to maximum your rotation on each stroke.



Another way to imagine it: Picture a wall sticking up along the back deck, six inches behind your spine. To wind up for the stroke, think of slamming your top shoulder back, trying to make contact with that wall.

Hint: These drills help you capture the power deep in your abdomen, rather than only at the shoulder level. Excellent posture is a prerequisite to the best strokes.

Friendly Reminder:

When you focus on the parts of the stroke you'll feel clumsy and your boat will veer. If your boat is going in a straight line right off the bat, you are most likely continuing to do your old stroke and no learning is taking place. So, as part of this drill, let it be OK to break your form to make corrections so the boat goes straight.

Recovery

To Glide is Divine!

A bobbing, wobbling boat goes slower than one with a steady hull. Movement front to back and side to side wastes energy and you won't get as far as easily as you would like! This has to do with wetted surface area and other boat design characteristics best tackled by engineers.

Drill: Set up a sprint course of 30-40 yards of flat water. Time yourself on the distance, counting the number of strokes during each sprint. Experiment. Notice the correlation between times and strokes. Feel for a good bite on each stroke. No splashes, bubbles, or flutter. How does that affect your time?

Observation:

Does it feel like you can't go 100% without compromising how smoothly the boat runs? You can't even go 80%? You get the idea. All things equal, a "quiet boat" is better, since it doesn't create as much drag. Find your personal compromise between power and technique.

Hint:

If you bend too far forward at the waist during your forward stroke, the resulting front-to-back motion will bob the boat and jeopardize your control and efficiency.



Drill: A pipe taped across your bow, gives you an extra awareness of wobbles. This helps you run a quiet boat.

Whoops! An inadvertent wobble will punish you by knocking you off a surf wave or ferry maneuver. Strive to run a steady boat and feel the hull glide.

Shortening Your Stroke

Toes to knees to hip

The forward stroke is short, entering near your foot and exiting before the hip. Most people continue the stroke beyond its propulsion phase, unintentionally turning it into a steering stroke or lifting water at the exit. This is unnecessary work. A clean exit feels effortless.

Drill: Once you have a sense of rotation and a quiet boat work on cleaning up your blade exit for an efficient recovery. This is quicker, and won't compromise the catch and power phase of your stroke.



Shorten the tail end of your stroke. Lift the blade out by raising your elbow to the side. You should feel no resistance as the blade knifes out of the water. If you need a correction to go straight, use a stern draw.

Because your synapses may not account for the forward movement of the boat, tell yourself to lift the blade out as the knee area moves toward the blade. This will ensure that the blade is actually out by the time it reaches your hip.

Stroke Drills

for thrills

The following section outlines a series of drills designed to refine your paddling. It's more fun to be able to place your boat exactly where you want it. You'll make moves more reliably, and catch air more predictably!

Done start to finish, these drills take about an hour. High-level paddlers strive to do the full set once a week. You can also add several of these drills to your normal warm-up and cool-down routine. Do the drills on flatwater, so you can appreciate the effects of your strokes without the complication of currents.

BONUS: Send us an email from the Performancevideo.com website, and we will send you a free waterproof crib sheet that provides a reminder of these drills. Include your name and address, (and ask us for the waterproof crib sheet!). Use the contact form.

Stroke Drills Improve:

Body Mechanics

Extension or Reach

Balance

Flexibility

Boat Kinesthetic Sensitivity

Carving

Glide

Pivot point awareness

Blade Skills

Feathering

Catch, Power, recovery

Verticality

Recovery

Hint: Easy at first glance, stroke drills are remarkably hard to practice correctly. Improvement comes with deliberate thought and practice. Be smooth, slow, and purposeful. At first, refining your technique seems to require more effort... in truth your muscles are merely unaccustomed to the motion. Stick with it!

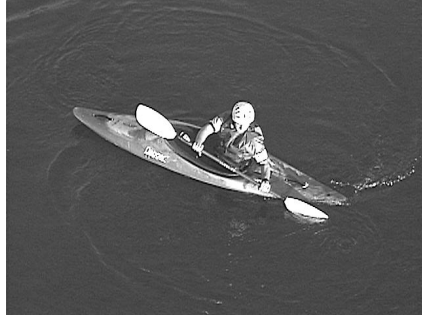
Hint: Practice these drills on both sides of your boat! Put extra time in on the side that feels awkward. Remember, the perfect paddling posture, tilted forward at your hips, is a prerequisite.

Forward Sweep

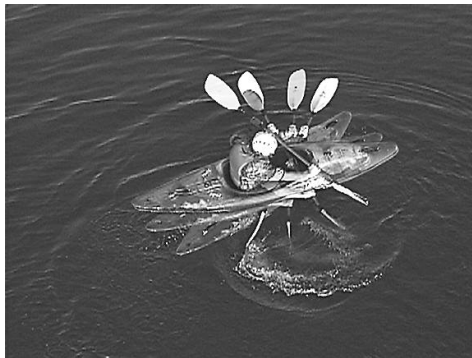
Use your purchase power!

The forward stroke is your gas pedal, the sweep is your steering wheel. Don't waste energy trying to correct your steering by driving the boat faster. Instead of using an extra hard forward stroke to turn, use a textbook quality sweep stroke. It works!





The ideal sweep turns the boat!



Above is an example of poor form sweep. The paddle shaft is too vertical. This results in more of a forward stroke than a true sweep. Also the stroke was rushed, so the blade didn't 'stick'.

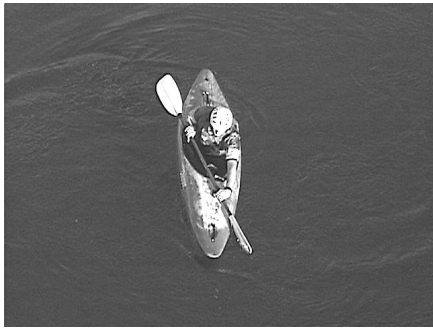
Hint: Any bubbles, splashes could indicate you're pulling too hard or haven't immersed the blade enough.

Tip: In whitewater, you'll adjust the length and configuration of the sweep to provide the turn needed.

Forward Sweep

Wide!

Drill: Do some sweeps, focusing on each phase separately. Keep a flat boat.

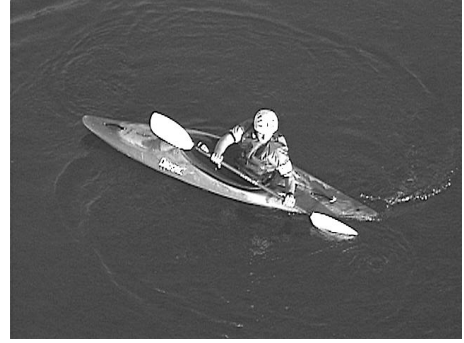


Sit upright, rotate fully and anchor the blade solidly. It isn't necessary to totally submerge your blade at this point. Think of 'describing' a rounded rectangle with your stroke. This is more powerful than an arc.



Throughout the stroke, keep your blade as far from your hip as your balance allows. Strive to get the tip of the blade 3 feet from the boat. This will leave a tiny corner of a symmetrical blade exposed.

Tip: The real power comes from using the lower body to turn the boat away from the anchored blade. Use those legs and abs!



During the last segment of the sweep, use your hip to pull your stern toward your blade. Watch your blade angle as it ends the stroke. A common mistake results in the blade scooping water reducing bite. To prevent this, bend your back elbow so that it points down.

Extra credit: Practice your perfect sweeps with different edging: Flat, towards, and away. Correct edging is steady, without wobbles. This drill will prepare you for any whitewater maneuver where an inadvertent edge can make you flip or miss a move.

Bonus: Repeat with your eyes closed. Concentrate on anchoring the blade and feeling the boat spin.

A different drill: Use alternating sweeps to weave dramatically side to side as you progress generally forward.

Stern Draw

The last six inches...

The last third of the sweep stroke is so important, and so frequently forgotten, that instructors often isolate it by calling it a Stern Draw.



The finish position of the stern draw is distinctive. The torso is rotated and the front arm is straight, so the paddle is parallel to the side of the boat. The front hand is out over the water at shoulder or chin height. This position keeps the blade submerged at the correct blade angle.

Tip: Freeze at the end of your stroke. Check your back hand. Has it drifted behind the plane of your chest? If so, you are using your arms instead of your torso for power.



Relax the grip on your front hand, even when it is the control hand. This helps achieve a vertical back blade. Twist to the max so your stern draw gets to the strongest position. Arching your back helps increase your rotation.

Hint: If your hands still drift behind your chest after making these adjustments, you have exceeded your personal range of motion. Start stretching!

Tip: The real power comes from using the lower body to turn the boat toward the anchored blade. Use those legs and abs! Be aware that this stroke has a delayed response, and the final portion is most effective. Like a bike pump, the rewards are at the end of the stroke.

Why use a stern draw? The best choice for many anticipatory corrections is at the bow. However once the bow goes way off course it is difficult to change, whereas the stern will swing easily. So if you don't recognize the veer early on, it is much easier to correct with a stern draw.

Note: when you are paddling forward on flatwater, the bow gets a pressure wave, so the stern swings most easily. The same effect is amplified when surfing on a wave. Then, you always correct at the stern.

Reverse Sweep

Pinwheels

When turning is the priority, nothing is stronger than a reverse sweep. Use the back of the blade and lots of torso rotation. Be sure the direction of force you apply spins the stern away from the blade. Don't do an inadvertent reverse stroke.

Drill: With the boat flat, use slow, repeated **forward** sweeps to turn the boat in one direction. Repeat this with your eyes closed. Concentrate on anchoring the blade and feeling the boat spin around it.

Next, use your **reverse** sweep to spin the boat. After practicing spins in both directions, close your eyes to feel your blade stick. Experiment with how you apply force. Use your abs, knees and feet to move the boat toward or away from the blade. Are you backing the boat up, or spinning on a dime?

DRILL: Pinwheels are the stroke combination for recovery when you get turned around backwards or when a tight turn is needed. Linking forward and reverse sweeps, do several spins in one direction. Then do several in the other direction. Pause before you anchor your blade to check your of torso rotation. Are you backing the boat up, or spinning on a dime?

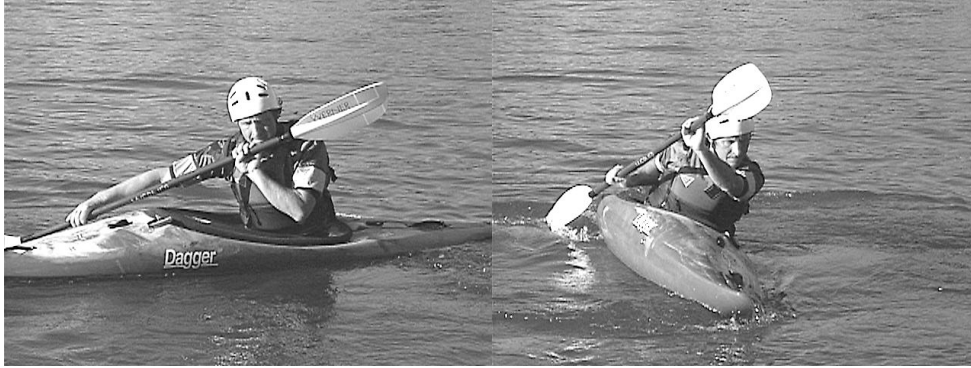
Drill: Count how many strokes it takes to do three full circles. Race someone in the same boat design. Slow, steady, and precise will win! Less is more! Faster isn't faster.

Extra Credit: Reverse sweep zig zag drill

Torso Rotation

The Racer's exception

Many slalom racers use a different torso action in sweep strokes than recreational paddlers have traditionally used. Here's the deal:



Racers lead their turn with their head and chest from start to finish. This continual wind-up helps force their legs and boat towards their destination, even though this forces the trailing shoulder into a weaker position.



The recreational paddlers' sweep finishes in a different ending position, which maximizes strength by keeping the hands in front of the chest.

Anticipation is a factor in determining technique. Racers and aggressive playboaters with calculated paths, try to steer from the bow. They often use only the first half of a sweep to initiate turns. Recreational paddlers on the other hand are more reactive, and often need the last part of a sweep to make a course correction.

Editorial Comment: A few racer dominated paddling schools use the chest leading system and claim good results. Most instructors, on the other hand, use the traditional system, as a teaching trick to maximize strength and maintain the proper blade angle at the end of the sweep.

Gymnasts and platform divers lead with their head and shoulder line to accomplish spectacular moves. Top level rodeo competitors are already using chest/head pre-turns.

So which should you use? Evaluate the condition of your shoulder joints, your flexibility, blade dexterity, general strength, and boat design. If your flexibility is good, your shoulders strong,

and your boat light or very short (race boats are 18 pounds), then you have the potential to incorporate this most powerful technique into your paddling repertoire.

Carves

Learn them on flatwater!



Drill: Paddle forward for several strokes, then lift your paddle out as the boat starts into a turn. Once the boat starts into a turn, get the boat carving by tilting the boat and taking super vertical forward strokes on the inside of the turn. Hold a moderate tilt into the turn. Keep paddling on the inside.

Feel how the boat keeps carving a tighter turn between strokes? If it is not carving, tilt your boat a little more, or get your stroke more vertical. Try to get the blade almost under the boat.

DRILL: Experiment with the carve. Adjust boat edging. With more tilt, you paddle a tighter circle. Focus on your edging and balance so you don't need the paddle for support.

Get your boat carving as you paddle on one side. If the boat isn't carving (with the stroke on the inside of the circle), then you don't have the blade close enough to the boat. or you don't have enough boat tilt.

Switching Carves

Sweet

Get your boat carving as you paddle on one side. If the boat doesn't continue to carve (with the stroke on the inside of the turn) then you don't have the blade close enough to the boat or enough tilt.



Next learn to switch from a carve one direction to a carve the other direction. Take 3 or 4 strokes carving on one side. Set the boat flat and do a stern draw to kick the boat into the next carve. Then do 3 or 4 strokes on the other side. Develop a sensitivity for when one more stroke will kick the boat into an arc the other direction.



Easier Drill: Try paddling on both sides while you maintain a carve. This skill is most useful when you try hard moves across a jet of current.



Advanced Placement: Reach across your bow and do cross bow stroking while you carve to that side. (Right blade on left side of boat, carving to left) This is mainly useful as a stretch for limber paddlers.

Quality Play

Going in circles

While paddling in the carving arc you are free to focus on the quality of your strokes instead of going straight. These drills are designed to improve your extension and use of vertical strokes with radical boat edging. In whitewater that means more balance, more control, more success and more fun!

Carving in a circle, spend about a minute on each focus point:
Focus on your rotation when extending for the catch.
Focus on moving the boat by thrusting it forward with your hip.
Focus on blade control, steering with a J stroke like canoeists do.
The power face of the blade should do the correction, moving water out away from just behind your hip.



Push the edge of the envelope! Try for a very vertical stroke (as seen from the front of the boat). Try for oblique, with the blade almost under the boat. Notice how your boat tilt went away? Add the boat tilt again! Your improvement comes from the process of working two conflicting skills: oblique shaft and lots of steady boat tilt.

This will develop your balance so you can use vertical strokes with radical boat edging. Ultimately, this allows you to pull off more difficult moves on whitewater.

Hint: Drive your toes against your top footpeg so your knee locks in. This helps you feel stable on edge while you stroke!

Backstroke

Whoa, Nelly

Reverse paddling compliments your other strokes and is key for stopping, back ferrying, and back surfing. Above all, reverse paddling improves your finesse, and helps prevent injuries by balancing your muscle development.

Drill: Use the backside of the blade, without changing your grip. Plant a vertical, deep stroke to push the boat straight back with your lower body.



The rudder when going reverse.

Practice keeping it straight by back paddling away from some landmark. If your boat veers one way, correct with a rudder at the bow. This is essentially the same as the starting position for a forward sweep. Keep your lower arm straight, and let the water pressure anchor your blade so you can push your feet and bow away.

Hint: Place the rudder on the side the bow is turning towards.

Extra Credit: Learn to use a bow draw for correction. This is useful since it doesn't slow the boat as much as a rudder, however it is not as powerful.

Advanced placement: Try the compound reverse stroke. This helps balance muscles groups, and to improve flexibility and dexterity.



Start with a draw style reverse stroke.



Pause here, flip the blade!



and continue with regular stroke.

Precision Play

For big fun...

How do you position your boat for a surf wave, ender spot, or cartwheel pourover? With one graceful stroke? Or with a flurry of choppy forward and reverse strokes? Improving ability to move sideways will reward you with more reliable playpaddling moves.

DRILL: **Straight Draw Stroke** This stroke helps you parallel park with your buddies on flat water, or to slip the boat sideways to line up for a ferry or a surf. Test your ability to move the kayak sideways. Line up parallel to a dock, or shore line that is about thirty feet away.

Use your draw stroke to move perfectly parallel towards your target. Rotate your torso fully until your shoulders are parallel with the length of the boat. Keep both hands over the water so you get a nearly vertical shaft. Maintain your balance by shifting your upper body away from the stroke.

Is your boat moving perfectly parallel? Clues to assist your corrections: Is your blade parallel to the side of the boat, or is it twisted toward the bow or stern? Is the blade planted directly out from your hip, or at your knee?



Verticality is the sign of quality!

Hint: For most kayaks, the pivot point is roughly under your hips. If you are not pulling this part of your boat to your blade, you will be turning, rather than moving sideways.

Extra Credit: Experiment with boat tilt. Lifting the edge **may** lower the resistance to movement.

Sculling Draw

Parallel Parking

A sculling draw moves you sideways, and helps develop feathering skills. But more importantly you'll sensitize your feel for different pressures on the blade.

Slice the blade parallel to the boat in a forward and backward path about six to ten inches away from your boat. Keep the shaft vertical. Open the leading edge of the blade a few degrees... the forward edge slightly away from the bow as the paddle slices forward. You'll change the blade angle so the back edge is slightly away from the stern as the paddle slices backward. Move the paddle in slow, long strokes. Don't try to pull in on the paddle. Your goal is to sideslip the boat with minimum resistance on the blade.



DRILL: Test yourself: Line up fifteen feet from a dock and try to move perfectly sideways.

Hint: Remember the hand closer to the water controls the blade angle.

Extra Credit: Experiment with sculling from hip to bow to turn one direction, and from hip to stern to turn the other direction.

Sideslip with speed

Harder than it looks!

By using a relatively stationary stroke placed adjacent to your hip, you can side slip while your boat moves forward. Angle the leading edge of your blade in the direction you want the boat to slide. Maintain forward momentum by not opening the blade angle too much. Maintain a nearly vertical paddle shaft as seen from the front of the boat!





DRILL: Set a target thirty feet away. Paddle straight for it, then place the blade just behind the pivot point of the boat (your hip). Open the blade very slightly.

Press the blade forward to maintain a pure sideways motion as the boat continues gliding forward. If the blade is too open, or gets too far forward, you will simply turn. This is a deceptively hard drill!



Side-slipping is excellent for small, precise corrections; when you need to move over a foot to make the slot, or to line up to leave an eddy. On flatwater, the boat needs to be moving for this

shift to work. But from an eddy, the stroke works nicely by planting it in the moving current. In this scenario, the boat doesn't need as much speed. Cool!

DUFFEK

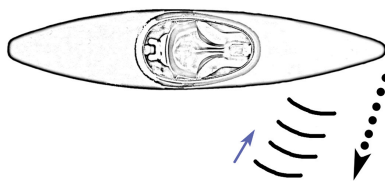
A Short History...

Milo Duffek (Doo-fek) was a Czechoslovak paddler, headed to a predicted victory in the 1953 Kayak Slalom World Championships., largely on the strength of his efficient turning strokes. But instead of winning the race, he took an intentional penalty. This allowed him to evade the post race spotlight, and defect from the communist control of his home country to Switzerland, where he now lives.

Today, there are many names that describe subtly different bow turning strokes. Rarely are these names used consistently. To make matters worse, different English speaking countries use different terms. The end result is many shades of grey in wording and many books and instructors disagree on semantics. Words aside, we all agree these strokes are worth learning.

Hint: You will usually need to initiate a turn before you do a bow stroke. Like a skier on two skis headed in opposite directions, there is only pain in continuing on that path. For instance, when entering or leaving eddies, there is no substitute for an effective approach angle! Your strokes are the icing on the cake, fine tuning a turn that has already begun.

The Duffek: *Boat has speed, paddles stay put relative to the boat.*



The Bow Draw: *Actively pulling feet to blade*

DRILL: With slow momentum, experiment with a stationary Duffek stroke, changing the blade angle and position. Observe the results. Verticality (as seen from the front) is the key to making the stroke carry speed through a turn.

Drill: Sitting in place, spin using a series of repeated bow draws.

Extra Credit: Do spins using a reverse sweep transitioning to a bow draw.

Feathering

for Finesse in Bow Steering

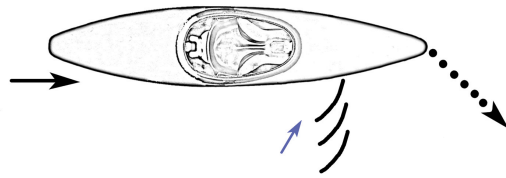
DRILL: Bow draws in a circle. Get some speed up, then rotate to the side and reach out to do a bow draw, pulling your feet to the blade. Convert the end of the draw into a little forward stroke. With the blade in the water, slice the blade out to the bow draw starting position. Practice until you are feathering the blade effortlessly.



Reminder: Rotate your torso for effective strokes.



Extra credit: Which way does the "little forward stroke" tend to turn you? The opposite direction as the draw, right? Instead of slowing their turn with this little forward stroke, racers follow the bow draw with a quick forward sweep in the other side. This maintains the rotational



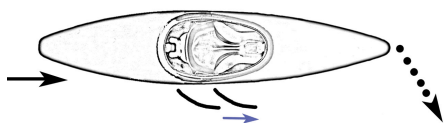
momentum.

Slalom Racers modify the bow draw stroke, and call it a **C-Stroke**. Done properly, with lots of verticality and a closed blade angle, the stroke can help propel you as it turns. Hence the attractiveness.

Bow Steering

Verticality Reigns

DRILL: The sweep, Duffek, sweep combination is a graceful way to move over several feet while you maintain speed. First use a slow, precise sweep on one side. As your boat begins to turn, plant a good-form Duffek on the other side. Twist the blade angle to switch this into a sweep on the same side. This stroke combo is sweet for cruising around rocks, or through eddies in the middle of the river.



Extra Credit: The sculling draw. Get a wide turn going, Open the blade angle slightly and squeeze the blade forward to accelerate the turning action. This sculling draw from the hip to bow is useful for precise, quick turns. If you have to reload for another, you will realize the similarity of the stroke to sculling. Duffeks, the sculling draw, the C stroke, and sideslips all benefit from lots of sculling practice.

Hint: In currents,, your blade angle will adjust to maximize the forces of current on the blade. Learn to adjust your blade angle with subtle variations.

TIP: VERTICALITY IS THE SIGN OF QUALITY!

Keeping Momentum

Using the paddle blade like a keel

As you practice and learn your sideslips, you will discover that a blade placement just an inch forward of sideslip position will take you through a gradual turn while maintaining your momentum. Essentially, you are using the paddle blade react as though it has a keel. This keeps the boat going straighter through a very wide turn.

Use this to your benefit when you want to maintain momentum through a turn.

Tip: Use a vertical stroke. This gives the blade a better bite on the water, and thus reduces the boats tendency to slide through a turn. Less sliding equals more speed in the direction of your turn, which equals less work and better precision!

Keep your top hand out over the water so that the paddle shaft is vertical. Relax the grip on the top hand to allow the shaft to rotate (even your control hand) so that the bottom hand controls the blade angle. Use good torso rotation to plant the blade.



DRILL: Slowly paddle forward, then gently slice a parallel blade into the water on the opposite side of your last stroke. Notice how far you are able to glide before the boat turns toward your blade. Try very gradually opening the blade angle so you can feel the effect of subtle changes.

DRILL: In moving current, paddle downstream diagonally toward one shore. start the boat turning, then use a bow draw to turn the boat for the other shore. Paddle and repeat.

Repeat with different bow turning strokes (Duffek, squeeze draw).

Hold the blade by your hip with the blade parallel to the boat for a wide turn. The farther forward the blade reaches, the more abrupt the turn and the less momentum is carried through. (The bow stops and the stern slides around.)

Extra credit: Get a wide turn going. Open the blade angle and squeeze the blade forward to accelerate the turning action. This sculling draw from hip to bow is useful for precision.

SURFS UP!

What you're Up Against

Are you always **in control** when you leave an eddy for a surf? We think of it as a basic move, but as we get more advanced we need more precision and reliability. Self critique your misses:

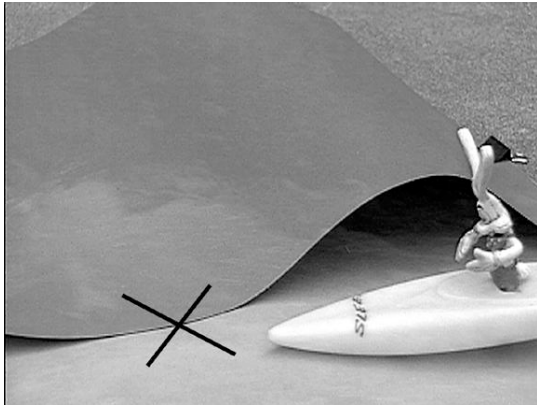
1. **The direction of the current.** Is it deflected by the feature creating your eddy, so it flows in a different direction than the main flow?
2. **The speed of the current.** Is the water compressed by an obstruction? Are there more changes in the speed and direction of the current that lies between you and your destinations?
3. **The angle you choose.** Position yourself low in the eddy and nearly parallel to the eddy line to start. Stroke selection and placement can help to maintain your angle.
4. **Waves and other river features.** Look for little waves that can help your ferry with momentary surfs. Be precise, nothing kills a ferry like climbing up the back of the wave.

DRILL: On easy current, try hand paddling. This will force you to pay close attention to the angles and avoid overpowering.

Surfing

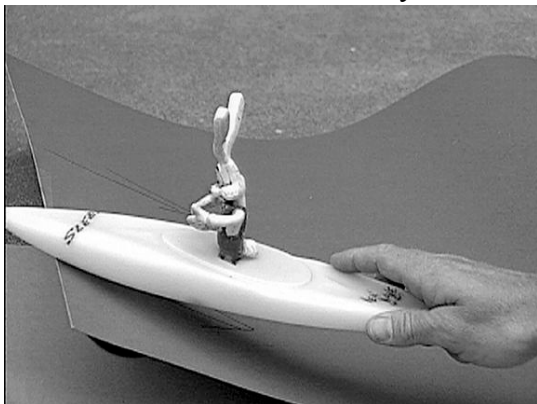
Your target is small

If you are like most paddlers, your surfing probably has room for improvement. How often do you fall off a wave without a nice extended ride? Exceptional surfing ability is big fun and it's a prerequisite to advanced moves. These tips will help you get longer, more predictable surfs.



Where To Aim To Get the Ride:

Your target is small! Many paddlers look at the entire wave as their target. In reality precision within a few inches is necessary.



A common problem leaving the eddy is paddling too hard. Without precise aim, you'll run up on the back of the oncoming water. Then your momentum slides you back and off the wave.

Find the correct speed as you hit the target. Ferry out onto the wave, so you don't have any downstream momentum to counteract. Look for small feeder waves to help your move.

Hint: As you leave the eddy, lean back as your bow enters current. This delays the moment the current contacts your hull and allows you a few extra nanoseconds of control. If the oncoming water starts to climb up on your deck, avoid getting rejected by adding a quick boat tilt to shed the water.

Stroke Selection

When it is good to 'Know It All'

Stroke selection and placement is important for maintaining control as you start a surf. You probably have one stroke system you use all the time....but different situations can demand different strokes. Learn to do each: forward sweeps, stern draws, rudders, sideslipping draws,



and no corrections at all.

DRILL: Develop a full repertoire. Find eddy you can surf out of multiple times, and do three exits of each system.

No Correction: If the angle you've chosen is just right, you can continue to alternate forward strokes as you cross the current in your ferry or twirl your paddle for fun.

Forward sweep, stern draw. Since the current pushes against the bow, the first part of a sweep stroke only serves to stop the bow from turning further. It is the end of the forward sweep, the stern draw, that corrects the angle of your boat. Remember the pike pump?

Rudder: Given enough speed and a conservative angle, a rudder on the eddy line side of your boat will control your angle. If you don't have enough speed, a rudder can get lost in the swirls of the eddy line. In that case a stern draw on the opposite side can take better advantage of current forces on the blade and reliably correct your angle.

Sideslipping draws: These strokes can fine tune your position, keeping your boat parallel as it moves sideways onto a wave. This helps control your speed so you don't overshoot the exit target. The sideslip makes it look easy, but it's not!

100% Control

You don't have time to hurry

Whoops! We see a lot of paddlers pulling frantically on multiple forward strokes or sweeps, rather than using a stern draw to correct a ferry angle. Any time you feel rushed in a ferry, odds are you are doing half sweeps. If the first one didn't work, it's because you didn't complete it.

DRILL: Correcting Ferry Angles Using Stern Draw In mild, uniform current point straight upstream and paddle to maintain your place in the current, like a salmon spawning. Now, let the bow turn downstream almost 90 degrees. Use one slow and complete stern draw to turn your bow upstream until it veers toward the opposite shore. Repeat the maneuver alternating sides. You'll loose ground throughout this drill.



DRILL: From a spawning position, ferry part way across the current. Use one stern draw to set an ferry angle back to the start position. Use another stern draw to change the angle and ferry in the other direction.

DRILL: As you leave an eddy, add slightly more angle than normal, and hold a stern draw slowly squeezing towards the finish position. This will maintain your angle, and jet you across the current.

Tip: Look at your back blade as you finish the stern draw. Is the blade vertical at the end of the stroke, or is the blade scooping water? Revisit the stern draw for the cure.

Hint: On the river, your blade angle will adjust to maximize the forces of current on the blade. Learn to adjust your blade angle with subtle variations.

Out on the Wave

Pure Rudders and Braking Rudders

Many paddlers try to correct with braking rudders, then wonder why they sometimes miss the surf. A rudder 'wedged' in alongside your hip drags the boat backward.

This braking rudder works well on steep waves. But braking rudders are detrimental on small waves, which require more subtle correction. Approaches to big screaming waves, the shoulders, are usually smaller, requiring finesse.



To have the best rides you'll want streamlined, no-drag rudders, combined with the power of the lower body.



If you want to surf, memorize this shred position.

Let's closely examine the position of the blade. Rotate your torso way around, drop your elbow down, and extend your front arm out over the water. The critical element is keeping the paddle shaft parallel to the boat, with the blade in the water at the correct angle to do some good.

Hint: Keeping the front hand above eye level puts the blade deep in the water and at the correct angle to have the strongest effect. The more angle you have to the wave, the higher your front hand will have to go to keep the back blade in the water.

Surfing Flatwater

Shred Dude!

DRILL: Get some speed then take your blade out of the water. As your boat veers a little off course, use a stern draw ready on the side the boat is turning toward. Keep your front hand out over the water. Straighten and bend only your back arm to rudder and draw the boat as it glides forward. The result should be a slight zig-zag, with your bow going one foot each direction.

If your boat speeds dies quickly, check the angle of your blade, and that your front hand remains out over the water. When your control hand is forward, relax your grip and let the shaft rotate as your back hand controls the blade angle.

Repeat the drill using only the rudder on alternating sides of the boat.

Repeat the same drill watching a distant landmark. Control your bow, veering first two feet left and then right as you glide toward your goal. Watch your blade until your muscles have developed a memory.

Next, practice controlling the veer of your boat to within a few inches.



If your speed dies immediately, self critique:

- Check the angle of your blade. is the blade perpendicular for the best result? Is your back elbow pointed down?
- Is your torso rotated so it's easy to get the blade placement correct?
- Check that your front hand remains out over the water.

Many paddlers don't know this precise, pure rudder. Instead, they have the blade flat or do an inadvertent braking. If your boat speed dies quickly, the rudder is not streamlined with the boat! Try again!

Hint: For the most power on your rudders and stern draws, imagine that the stern of your boat is your tail. Instead of pulling on a stroke with your arms, try to wag your tail towards the blade. It sounds silly, but works!

Another Hint: When your control hand is forward, relax your grip and let the shaft rotate as your back hand control the blade angle.

Rudder

Wag the Stern

DRILL: Do this wag drill on land to feel the effect of a solid linkage between your torso and paddle shaft. Put something slippery under your boat, then wag your stern back and forth on shore with the help of a friend. Start from a perfect rudder position.

The power comes from deep in the torso, as the abs and legs force the boat to wag towards the blade on the draw motions, and away with the pry

Hint: For the most power on your rudders and stern draws, imagine that the stern of your boat is your tail. Instead of pulling on a stroke with your arms, try to wag your tail towards, or away from, the blade. It sounds silly but works!



DRILL: Now try the wag on flatwater. Get up some speed, then get in stern draw finish position, do a tiny push rudder (pry), take the blade out, and do a big stern draw on the same side. Freeze in your finish position. Does it match the distinctive form shown below?

Can you look at the stern and the blade's contact patch with the water? Did you squeeze your stern toward a perpendicular blade for the best result?



Once you have the boat wag figured out, repeat the drill with your vision on the bow of the boat. This will help your surfing!

Hint: By evaluating your results (lots of boat wag), you learn faster. If you were to evaluate success in this move by the force you exert with your arms, you would be on the wrong track.

Tips: the way your take in informations is important. If you equate lots of arm force with success, your'll develop poor form. Instead, evaluate how much boat wag results from your leg and abdominal efforts, so you'll learn correctly.

Surfing Subtleties

A control Bonus

To develop more precision and power with your surfing, try stationary strokes. The more control you have from just one side, the more options you have when surfing stronger, more complex waves.

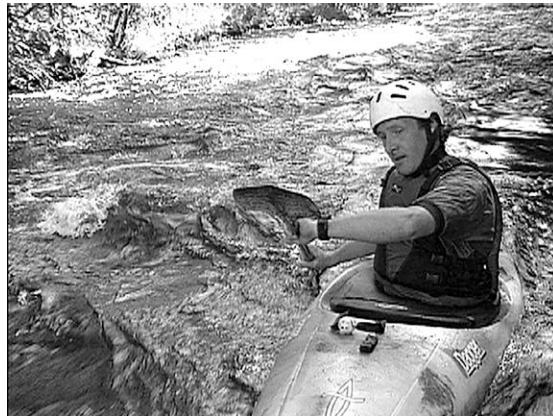
Hint: Learn this advanced skill on a small, six-inch wave! Practice all of the surf drills on small waves!

Extra Credit: To switch to the stationary draw, twist the blade to get pressure on the opposite face. At the same time, straighten your top arm, so your hand is way out over the water, probably close to your range of motion.

Drill: Drop the blade in, and change the angle very subtly for a little more pressure to turn. Then, twist the blade to get pressure on the opposite face and turn the other direction. Work on making this motion very subtle. Feel for the current on alternate faces of the blade. To do this, you will not actually be pulling on the shaft. Instead, twist the blade to feel the pressure on one side of the blade to move one way, and on the other face to move the other way.

Hint: Learn this advanced skill on a small, six-inch wave! Practice all of the surf drills on small waves!

Tip: Think of each correction rudder and draw as stopping the last turn, rather than starting a new one. This simple trick gets you thinking ahead, and allows smaller corrections.



The stationary pry rudders the boat away from the blade.



The sculling draw moves the stern towards the blade!

As you ‘wag’ back and forth, work on making the current do the work against the blade, rather than using active draws and prys. Feel for the current on alternate face of the blade. To do this, you will not actually be pulling on the shaft. Instead, twist the blade to feel the pressure on one side of the blade to move one way, and on the other face to move the other way.

Backsurfing

Start Small, Start Now

Learning to back surf can have a punishing learning curve, but it is a sure fire way to develop a number of skills very important for more advanced moves. Controlled 360 spins in a hole, and other freestyle moves, all require a high degree of proficiency while backwards. And the best way to learn is with progressively harder backferries and then with progressively bigger waves.

Pay special attention to your visual landmarks. Watch the current running downstream of your boat to help sense the boat angle. Learn to turn and look upstream at your stern. See ferry and surfing basics on the prior pages.



The most common correction is the rudder, with the blade near your feet. Use the current against the blade to provide the force, while keeping the front arm straight. If you bend the front arm, and add pressure to the blade, you'll get pulled off the wave. Instead, roll your knuckles forward to adjust the blade angle.

DRILLS:

Backpaddle and correcting using streamlined bow rudders.

Backpaddle, correcting with bow draws.

Backferries, Lots!

Backsurfing, start with tiny waves.



Few paddlers use the draw effectively, but those who do, can use it for additional precision and greater reliability in more difficult moves. Use your torso to rotate your knees the direction you want your bow to go.

Transitioning Currents

Watch each future patch of water

Drills: Do these drills both entering and leaving an eddy.

While carrying your speed across the eddy line poise your paddle in the high brace position, blade in the air. This forces you to choose the perfect boat tilt for stability.

Now do a wide peel out, initiating it with the same angle as a ferry and delaying the turn by using a stern draw on the downstream side.

Next do the same peel out or eddy turn using forward strokes on the inside of the turn. This delivers a wide turn with more speed.

Do a tight turn with a reverse sweep, bow draw, forward stroke combination.

Tip: As with ferries and surfing, peel out of the eddy in the trough of a wave, rather than ploughing into the oncoming water.

What is your exact goal? Your strategy is different if your goal is to enter one side of a midstream eddy, and leave on the other. Think ahead. Visualize your path. Anticipate how each future patch of water will affect your boat's speed and angle.

Eddy Turns

The biggest challenge in a successful eddy turn is to get the boat all the way into the eddy before letting the turn occur, instead of spinning out on the eddy line.

Take whatever strokes are necessary to get across. Sometimes you will need a sweep on the downstream side to start a turn. Often you'll need a sweep on the upstream side to keep the boat from turning early.

Drills: Focus on what your boat does at the eddy. Do several skidding eddy turns. Do several forward stroking on the inside of the turn to keep the boat from sideslipping (Alternatively, you can use a stern draw if you have lots of speed). Do a squirt/ pivot turn.

Hint: Stalling on the eddy line is an unstable place to be. The faster your speed, the less time there is for the eddy line to affect your angle and stability.

Count your Strokes

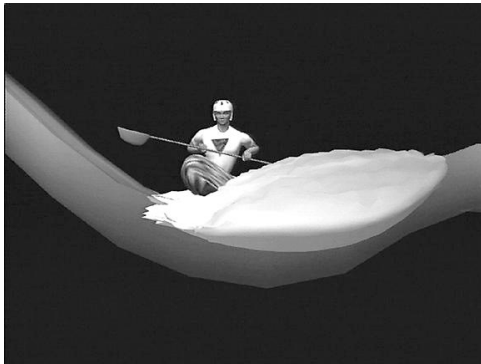
Drill: Make each stroke count. Count your strokes as you repeat a move. For instance, start with a peel out from one eddy to an eddy on the other side. Count your paddle strokes. This helps you pick the most appropriate stroke and placement. Fewer is better.

Do you notice a subtle difference in your mindset when you paddle counting your strokes? A bit of this mindset should be present in all your paddling. Eventually it becomes habit.

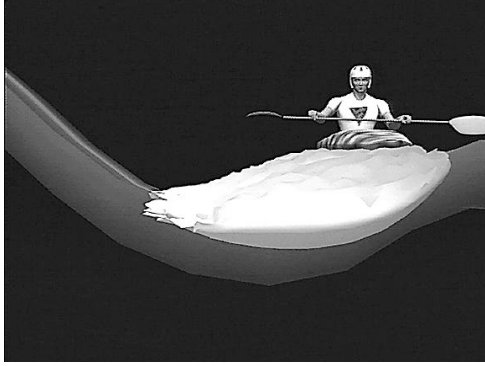
Sidesurfing

Avoid the Window Shade

To keep from flipping upstream, and to have a balanced ride, tilt enough to keep the upstream edge from catching. But not one degree more! The amount of tilt you need depends on where you are in the hole and how steep the hole is.



Close to the crease requires more boat tilt.



On top of the pile, a flat boat is best.

Hint: When you flip, do a slow relaxed roll on the downstream side. A hurried roll will lead to more windowshading. Precise tilt control is important. Revisit the drill on the first few pages.



Drill: It sounds crazy, but one of the easiest ways to find the balanced position is to handsurf. Reach your hand deep to feel support from the current underneath.

Trying it is a gut check, but pays excellent rewards in confidence.

Get in a comfortable hole where you feel balanced. Leave your brace in position, but take the downstream hand off the shaft. Leaning forward, reach your hand deep to feel the current underneath. Cup your hand and feel for pressure.

Sidesurf Strokework

Know Both!

Your main sidesurf position will be in the low brace, using the back of the blade with your elbows over your wrists. This blade position can help reduce excessive bouncing in the hole. If you find it difficult to ride a low brace, it is a clear indication that you don't have your body properly balanced over your boat.



The low brace. Keep your upstream hand on the upstream side of the boat.



A good form high brace, with elbows bent and in close to your body to protect your shoulders.

Hint: Stay forward to find the most balanced, flat position. Leaning back will cause instability.

Either brace should only be used for momentary support to regain your balance. If you overedge, you'll look to the blade for constant support, then you won't be able to maneuver effectively.

Drill: Get in a balanced, tilted position on flatwater. Practice going from a reverse sweeping low brace to a forward sweeping high brace, with the blade gliding on top of the water. It's like spreading jam with your blade.

Safety Tip: If you flip upstream, don't brace. Roll instead to avoid a shoulder injury or broken paddle.

Moving in a Hole

A Car Stuck in Sand

Moving in a hole can be likened to a car stuck in snow. Recognize when you are spinning your wheels. If you are not moving, quickly change direction to get momentum started the other way. Continue to change directions until you have generated enough speed to carry you out of the hole.

Most paddlers are comfortable with using a forward sweep to move forward in a hole. But many lack the ability to back up using the reverse sweep. Which one do you need to practice?



Which direction is Mark going? See photos below to figure out the answer.

Advanced Placement: Few paddlers have it mastered, but stroking on both sides will help you move more assertively. On flatwater, practice paddling with your boat tilted up, so you'll have the balance to reach deep for the green water flowing beneath and beside the hole.

Extra Credit: You've got one more stroke option for moving around in a hole: stationary strokes. Stationary strokes take advantage of the current under the pile to pressure the blade and move your boat. Angle the paddle in a high brace-forward sweep position to move forward in the hole. A modified low brace lets the back of the blade catch the water and push your boat reverse.



A low brace can be angled to move the boat backwards.



A static draw can be angled for forward propulsion.

360 Degrees of Fun

Spin Cycle

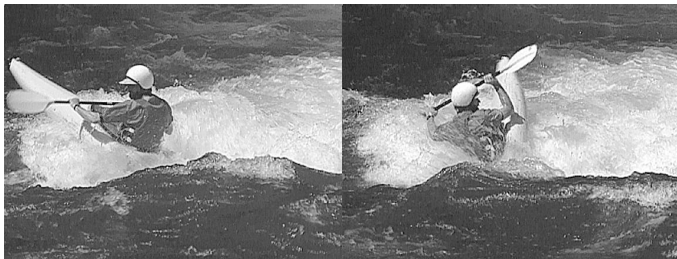
360s will help you learn the boundaries, power, and other characteristics of the hole. The more comfortable you are with 360's in each direction the more confident you will be working advanced aerial moves.

Drill: To gain sensitivity, practice doing backward peelouts and eddy turns. Here you can control your edge and strokes without the distractions of the hole.

360s occur at the edge or at a break in the hole where green water flows through. Getting to the spin position is like trying to ease the tire of a car on to the top of a speed bump. Not enough speed and you don't get there; too much and you roll down the other side!

From a sidesurf position, start towards the corner of the hole and an exit. As your bow exits and heads downstream, it starts spinning. By watching over your shoulder towards the hole, you will see the stern swing by the oncoming green water. This gives you advance warning that you are approaching the spin spot (like the top of the speed bump). The boat feels "lighter" the moment it reaches the spin spot.

This is a critical place in the spin. Three things must happen to complete the move: 1) Switch blades 2) Look over your other shoulder 3) Changes edges so you tilt the boat the other way.



Hint: In approaching the spin spot, if you stall out too soon, let the kayak slide back in the hole and take another run at it. If you peel out, slow down. If you go past the spin spot, you might be able to save it by using pure reverse strokes.

360

Strokework

Note: This strokework is simpler in a playboat... more timing critical when you have the length of a river running boat.

1. Use the high brace/ forward sweep to move forward to a spin spot.
2. Bring the boat further out of the hole than you think (depending on the length of the boat!)
3. If you overshoot the spin spot, push back on the downstream blade.
4. Reach forward on the new side, and switch your edge.

5. Let (or push) the boat slide back into the hole
6. Continue backing up using the reverse sweep. low brace.
7. Allow the bow to clear the green water of the spin spot.
8. Switch blades and change edges. Slide into hole.
9. Repeat!

Tip: The ends of the boat must clear the green water for a smooth spin. If the ends bury you are forcing the spin to happen too soon. Work the boat further out of the hole before initiating the spin.

Extra Credit: In a sticky spin spot, use the bow draw to spin. It helps "lighten" the boat by pulling the stern free of the hole.



Knowing where you are in a hole helps you find the spin corner for 360's, and the top of the hole for initiating aerial moves. Your landmarks include where the green water meets the foam pile (the crease) and your proximity to the corners.

Flat Spins on a Green Wave



The delight of a planing hull - flat spins on a wave.

Squirt Turns

Load then Stroke

YO! While some play paddling moves can be done in almost any boat, moves like squirt turns, blasting, and cartwheels will be noticeably easier with a specialized play design. Paddler weight and boat size need to match to have the most fun with small river features.

Drill: Even if you can already do a squirt, this drill will improve your whitewater edging and balance.

Peel out into a small jet of current, keeping your boat flat, and your paddle completely out of the action. Fully rotate your torso to the inside of the turn, leading with your vision. As you cross the eddy line, get into position for a reverse sweep, with both hands out over the water, so the reverse sweep starts at the very stern. Let the boat continue to glide, with the blade still out of the water. Add tiny amounts of more boat tilt until you feel water on the back deck. Without the blade in the water, you will develop better sensitivity to the water pressure on your deck.

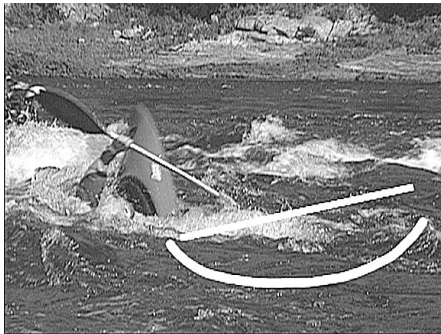
It is the top edge of the stern slicing underwater, combined with current loading, that initiates the move. Wait until then to use the reverse sweep. This saves the stroke for driving the boat further under and for controlling the spin.



Extra Credit: Once you've mastered the "load, then stroke" sequence, try turning the reverse sweep into a bow draw. This helps you control a good pivot, without bringing your weight forward and killing the move.

Vertical Balance

Fly High



Start the squirt from a charging arc or veer, rather than from a straight line approach. It is rotational momentum you want from your boat, not straight ahead speed that helps knife the edge in.

Gradual edging works best. As you feel the current begin to load, then use a reverse sweep rather than a reverse stroke to engage the stern more!

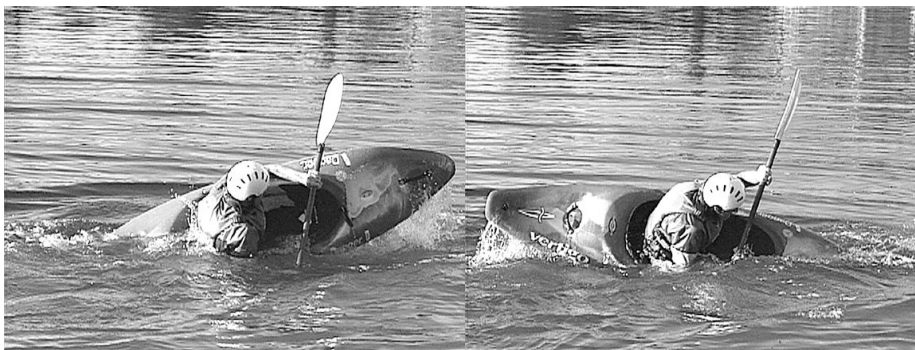
Tip: If you set your edge suddenly, it is less likely to slice under smoothly. If the edge catches, you flop over onto a brace, or upside down!



Tip: Practice your vertical balance on flatwater. A little water in the end of your boat might help you bobble around. Bobble around on end to develop balance for spin pirouettes and aim for multiple end cartwheels.

Grad School: Balance on an extreme edge, rock back with a forward sweep, throw your weight forward with a reverse sweep like you might to initiate a vertical move. Then slam your weight back with another forward stroke to get the stern to initiate. These initiations are similar to what you use in cartwheels.

Note that these are not pure sweeps, since the boat is going in a new plane of motion. Think of them as forward and reverse sweeps in the vertical rather than horizontal plane.



Focus Points

Where to Look...

Developing your vision patterns will improve your surfing and river running. Think about it... beginners look at their bow only, while experts have a well developed scan that seems to include eyes in the back of their head. When you are setting up to surf, find some intermediate targets

that you can include in your visual scan. Experiment with different checkpoints and focus points.

Drill: When you study a difficult move of running a rapid, identify a few intermediate landmarks. At each marker, decide what SPEED, ANGLE, TRAJECTORY, and MOMENTUM you want for your boat. Each is important in determining the outcome of every move.

Rolling Tune Up

More Ice Cream, Less headaches

Okay, so you know your roll is sloppy, but it gets you up, right? Take the time to get a tune up! At the very least you'll get fewer ice cream headaches.

Your roll is only as good as your foundation! Both the sweep and C-to-C rolls start with your body set up to the side of the boat, so the paddle shaft is parallel to the length of the boat. Don't set up reaching forward!

SWEEP ROLL TUNE UP:

If you have a sweep roll, the root of the problem might be a misconception that you need a climbing angle on the blade! You don't! A climbing angle on the blade makes it very difficult to initiate the sweeping movement out away from the boat. This makes you more likely to pull down on the blade.

Instead strive to keep the blade sweeping with a neutral blade angle, out away from the boat. Typically, that blade angle is determined by the back hand moving from set up to the shoulder.

Concentrate on your finish position. You should finish the sweep in this position, looking down the shaft, with your torso rotated and elbows in front of the body.



Warning: Don't use your roll to get down hard rivers. Being in control is much more fun than counting fish!

Stroke Play Crib Sheet

BONUS: Send us an email from “contact us” on the Performancevideo.com website, and we will send you a free waterproof crib sheet that provides a reminder of the drills described in this book. Include your name and address, and ask us for the free waterproof crib sheet!

Using this Stroke-Play card is your golden opportunity to unleash your highest potential. Improve your extension, reach, balance, flexibility, carving, glide, steadiness on edge, pivot point awareness, blade verticality, catch, power & recovery. If these drills force you to think, then you will improve. Experiment and have fun!

On shore, visualize success. Don't worry if you forget or misunderstand a drill, simply re-read that section of the Playbook and experiment to find what is best. On the water, be slow and purposeful.

- ◆ **Posture Play** Wobble boat comparing hunkered down, leaning back, and perfect posture. Test your stability, rotation, and ability to edge from each posture. Develop 4 distinct and steady boat tilts.
- ◆ **Shoulder Strength** Paddling Reverse. Compound Reverse. Anti-Draw (gently!). Anti-bow draw (gently!). Toss water up.
- ◆ **Optimize Blade** Focus on relaxing grip, especially your top hand.
- ◆ **Forward Paddling** Exaggerate bob, zig, & wobble, then eliminate. Focus on quiet boat for glide. Watch ‘catch’ to avoid slippage. Transfer power through lower body into footbrace.
- ◆ **Forward Strokes: catch, power, recovery** Emphasize bottom of ribcage twisting in windup. Windup slamming one shoulder blade into imaginary wall behind cockpit. Pressing blade tip down on water without pulling back. Top hand moves with shoulder for high pivot point. Compare traveling stroke and acceleration stroke. Shorten

stroke. Work quick recoveries without compromising stroke quality. Tape stick across bow to eliminate wobble. Time yourself, counting the # of strokes. Same time, fewer strokes best.

- ◆ **Carving** Compare carve with skid. Paddle only with inside blade. Do circles of various sizes, experimenting with tilt and verticality. Carve while paddling on both sides. Work extension at plant, steady tilt, vertical shaft as seen from front. Switching carves. Advanced placement: Cross bow carving.
- ◆ **Forward Sweeps** Focusing on each phase separately. Push feet away at start. Boat flat (steady), and tilted towards and away (steady). Sweeps weaving a line. Experiment with racers system.
- ◆ **Stern Draw** Check stern draw finishing position. Wag tail drill. Flatwater Surfing. Keep your speed!
- ◆ **Spinning** Forward sweeps eyes closed. Reverse too. Pinwheels. Count strokes for 3 timed spins. Fewer strokes = go faster.
- ◆ **Reverse Paddling** Paddle 5 minutes reverse. Do corrections with bow rudder and bow draw. Compound reverse strokes for shoulder strength & finesse. Compare reverse strokes - reverse sweeps .
- ◆ **Draw Stroke** Keep boat moving on purely parallel path. Feather underwater recovery. Experiment with tilts.
- ◆ **Sculling Draw** Scull to move purely sideways. Scull at bow to turn. At stern to turn. Work long path of travel with blade.
- ◆ **Sideslip** With speed (be patient learning it). Use a target.
- ◆ **Bow Draw Strokes** Static Duffek. Active Bow Draw. Sculling draw. Rudder draw to maintain momentum through turn . Work on verticality with each. Experiment and compare the wide turn of a rudder draw and the abrupt turn of a Duffek. Gradually open the blade angle so you can feel the effect of subtle changes.
- ◆ **Bow Draws** in a circle. Also try without forward component. C-stroke. Sweep-Duffek-Sweep combination weaving a line. Spins using reverse sweep- bow draw. Weave diagonally using bow draw to change direction.

Land Drills:

- ◆ **Flexibility** Hamstrings. Rotational.
- ◆ **Shoulder Routine** 10 reps each on 4 count up, 4 down. Lateral raises (palms up). Front raises. Diagonal raises (thumbs up). Backward shrug rolls. Cross chest raise. Internal Rotation. External Rotation. Rows, pinch shoulder blades (elbows low & elbows high). Standing rows. Improvise for slight resistance once it feels easy without weight.

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There is no substitute for practice and study. Video yourself and others. Watch the video several times, to develop your eye and identify your own mistakes. Visualize the technique of the best paddlers you have seen. - Phil D

Drills work for nearly every paddling move, so work the basics! Be patient with your learning process, and most of all have fun! - Mary D

Please keep in mind that part of improving is getting worse. Practice to improve your weaknesses. Get proficient on both sides, so you don't feel an offside like I do. - Kent Ford

If you practice these drills, and do not experience improvement in your paddling, we will refund your money! Overused or damaged workbooks will be replaced free of charge. Send it in for a new one! Please check out our videos for higher quality images and visual explanations of many of these drills.

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[The Kayak Roll](#) (Available for download, instantview, or on DVD) The Kayak Roll demonstrates and explains a smooth and effortless roll. Crystal clear underwater footage, animation, and explanations make this a video you don't want to miss! 62 minutes Winner, Best Instructional, National Paddling Film Festival and Waterwalker Film Festival

[The Kayaker's Playbook](#) Paperback edition. Whatever your ability, this pocket personal trainer is the fastest way to improve your whitewater kayaking skills. You'll notice better control and confidence, and have more fun on the river, guaranteed! Drills are the foundation for

excellence in any sport, and kayaking is no exception. These simple explanations of dozens of exercises make learning easy!

The River Runners Edge This energizing instructional unlocks the secrets of competent river runners: Water reading, strategies, strokes, maneuvers, and basic playboating. All are presented in a manner that demystifies and enlightens. Novice and experienced kayakers alike will profit from this upbeat production designed to set your foundation right! 89 min. Best of Show, Best Professional, and Best Instructional at the National Paddling Film Festival.

The Call of the River From vintage footage to in-depth interviews with the sport's eclectic pioneers, this must-see documentary offers a behind-the-scenes look at what inspires kayak and canoe paddlers to answer the call of the river. Produced by Kent Ford, a Whitewater Hall of Fame Inductee, the film featuring more than 100 sources of footage and images spanning 100 years of whitewater history. Whitewater's history has as many twists and turns as the canyons its pioneers explored. Its story is a collage of unexpected influences, from building boats in friends' basements to bribing damkeepers to release water. World champions defect from communist regimes and then utilize military by-products for equipment. Curiosity, ingenuity and outright audacity thrived as paddlers started exploring virgin runs and experimenting with designs and materials to make the sport easier.

In the Surf Learn how to play the Ocean swells. No matter what your paddling background, we'll show you how to have fun on the waves. Learn about the specialized boat designs... advantages and limitations. Learn about the dynamic ocean environment... including wave evaluation and selection, and rudder techniques. Maneuvers in the green, and in the whitewater are explained and demonstrated. 50 minutes

Paddlemonster The Paddlemonster DVD will excite kids about paddling, by showing them the possibilities as taught by other kids. Kids learn the essentials (and enthusiasm) and become paddlemonsters! The bonus parents section offers valuable advice to parents the benefits of kids paddling and on how to entice kids into boats.

All About Kayaking Explore the world of kayaking! From ocean surfing to inland tours, easy whitewater riffles to kayak touring, this delivers an inspiring lesson on the entire spectrum of kayaking. Learn the lingo, so you can maximize your paddling fun. Learn the strokes, so you can keep up more easily. Explore reading the waves in the ocean and currents in the river, to know what trips are appropriate for your ability. Learn how to handle a surprise capsize. It all adds up to more fun on the water. Learn the basics to have more fun! Perfect for *COMPLETE* ! 45 minutes.

Performance Sea Kayaking An entertaining look at the basics of kayak touring. Hot paddling technique, rescues and basic seamanship skills are demonstrated and explained. The basics and beyond. 59 minutes. Kayakers Magazine's Readers Top Pick

About the Authors

Kent Ford

Kent's instructional materials have evolved from a unique background of international whitewater racing and coaching, combined with experience teaching recreational boating to all levels of paddlers. Kent is technical producer of twenty instructional videos and books known worldwide as some of the best in outdoor sports. Kent worked as the public address announcer at the last five Olympics, and competed in 6 World Championships.

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Renowned for her boating skills, Mary has a unique ability to communicate her passion and technical wizardry to others. Together with her husband Phil, she leads trips in Honduras, Ecuador, and teaches through out the US for DeRiemer Kayaking. Featured in the instructional video "Kayakers Edge", she is an ACA instructor trainer, 2 time national wildwater champion, and former head instructor at Nantahala Outdoor Center.

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A fifteen year veteran instructor Otter Bar kayak School, Phil is known for his fun, patient, and knowledgeable approach to kayaking. He is widely credited with demystifying rolling instruction and helping unite instructional theory across the US. In addition, Phil is a talented expedition kayaker, with numerous first descents to his credit, including rivers in Nepal, Honduras, Venezuela, Peru, Canada, and Chile.

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