



Alaska Sea Kayaking Symposium

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AKSKS Core Lecture Proficient Paddling

You should be able to put your kayak where you want it, when you want it and how you want it in all conditions you may paddle in! This includes conditions you may not choose when you leave shore.

VARIABLES

- I. Environment
 - A. Wind/weather
 - B. Waves
- II. Kayak
 - A. Design/hull characteristics
 - B. Static/inactive load,
 - C. Paddler's body type and position relative to hull
 - D. Kayak speed and direction
- III. Paddler
 - A. Use of paddle
 - B. Use of her/his body positions
 - C. Training and practice
 - D. Mental attitude

You can control or choose in almost every one of these variables. You can be a safe and efficient paddler!

1. Know how a lever works. Your paddle is a lever you use to pull, push and pry your kayak to whatever position you want. By changing where you put your hands on the paddle shaft, you can choose the type/amount of leverage and force you want or need.
2. Your job is to have the CG (Center of Gravity) inside the range of the CB (Center of Buoyancy.)
Think of always keeping the kayak under the paddler or pulling/pushing/putting the kayak back under the paddler.
3. You have to learn and practice. Some of the rules will be counter-intuitive to what your mind and body will want to do when you are actually on or in the water!
Understanding how and why things work as they do will allow you to become proficient faster.
4. Practice, practice, practice...in your mind, with your body while you are not in your kayak and with your body while you are in your kayak.
Visualizing and actually going through the motions will allow you to become proficient faster.

GOALS TO ACCOMPLISH

- I. Stay upright or return to upright

- A. Keep your center of gravity CG inside the center of buoyancy CB!
 - 1. Use your body position/muscles
Keep your torso above the CB by twisting, arching, lying back, C to C
 - 2. Use your paddle – High and low braces, sculling braces, sweep strokes
Extend the paddle if helpful.
 - 3. Load the kayak correctly
Keep the weight low and where it helps with steering control
- B. Put the CB back under the CG whenever you need to.
 - 1. Use your body muscles/position
Twist, arch, lie back, use your legs, C to C
 - 2. Use your paddle – High and low braces, sculling braces, sweep strokes, rolling up
Extend the paddle if helpful.
 - 3. Use another person, another kayak or solid object – pull ups
Get the kayak back under you as you hold onto something outside of your kayak.

II. Make the kayak go straight

- A. Forward stroke/back stroke
- B. Slide your hands on the paddle shaft
- C. Front sweep – out/away and **in/back toward the stern**
- D. Back sweep – out/away
- E. Bow rudder
- F. Stern rudder
On all strokes and rudders, rotate and use your entire torso for better paddle control and power.
Try to make your steering corrections without slowing forward motion if possible.
- G. Edge the kayak
Change the shape of the kayak hull under water to help it keep going straight.
- H. Mechanical rudder
- I. Mechanical skeg

III. Make the kayak turn

- A. Front sweep – out/away and in/back
- B. Edge the kayak and use front sweeps
- C. Slide your hands on the paddle shaft
- D. Bow rudder
- E. Stern rudder and high brace to stern rudder/back sweep
- F. Back sweep and low brace to back sweep
- G. Lean the kayak with braces/draws/back sweeps

On all strokes and rudders, rotate and use your entire torso for better paddle control and power.
Edge to change the shape of the kayak hull under water to help it turn.
Lean to change the point around which the kayak pivots to turn.

IV. Make the kayak move sideways

- A. High sculling draw is usually used when there is little or no forward momentum
- B. Draw can be used when the kayak is moving forward or not moving forward.
- C. Hanging draw is used when the kayak is moving forward.

When a kayak is moving forward or backward or when it is being pushed by the wind or waves, the pivot points for going straight or turning keep changing or moving. Learn where your paddle has the best leverage and how to maximize each stroke for control in each of those circumstances.

KAYAK INFORMATION

Speed is affected by the shape, wetted surface, smoothness and water line length of the hull.

The most important factor is the paddler! Correct technique, physical condition, hydration and fuel.

For most paddling speeds (up to about 4-4.5 knots), the hull drag/wetted surface is more important than wave drag/length of water line (13.5-16 feet = usual water line range.)

Hull designs (at and below the water lines) should make for a smooth water flow.

Hull designs, length of water lines, rough hull drag, etc. only contribute or impede between 3-6% usually.

Use rudders/skegs only when you **need** them. Rudders drag but also let you put more of your paddle effort into forward motion rather than direction control.

Stability

Initial = hull width at the water line

Secondary = hull shape and cross section including above water portion

Stability is a pure function of design and mathematical engineering, there are no mysteries.

If the kayak is easier to edge and lean, it is easier to compensate for water and wave angles **BUT** it is also easier to get the CG outside the CB and upset!

If it rolls up more easily it probably turns over more easily.

The stability of any kayak is relative to the size and position of the paddler!

Tracking and turning

A shorter water line and more rocker make a kayak turn more easily.

The shape of the underwater hull by design, keel shape and size, skegs and/or rudders all affect the turning and tracking characteristics of a kayak.

You can change the shape of the underwater hull by edging to help the kayak to turn or track.

PADDLE INFORMATION

Choosing and using the paddle is a balance of physics and your physiology.

Physics – These have been tested, researched and measured. They are objective! We know the following to be true.

Shorter shafted paddles with larger blades are more efficient than longer, smaller ones.

A wider blade is more efficient than a narrower one.

Having your hand closer to the blade improves your forward paddling efficiency.

Pulling harder (torso muscles!) at the start of the stroke and tailing off is more efficient than starting with less energy and finishing strongly.

Extending the paddle for rolling, sculling and bracing improves its efficiency.

With a larger blade, you have a smaller one when you want it by putting less into the water.

Physiology – You have to apply what you know about the physics to your own specific body, strength and flexibility.

Your paddling is most efficient with the shortest paddle you can use correctly and the largest blade you can use **comfortably**.

Correct form is your best friend = efficient, safe, healthy.

Move your hands to the best advantage for what you want the paddle to do.

A lighter paddle swing weight improves your paddling efficiency.

Choices are good; have your spare paddle either be a different length and/or a different blade configuration.

Advantages of an unfeathered paddle

1. When the winds are from the side.

2. When the winds are from the rear.
3. Biomechanically are less likely to cause wrist stress or repetitive motion injury.
4. Biomechanically lets you have a stronger stroke with wrist inline for pushing.
5. Consistant blade position for quick braces on either side.
6. Easier for a beginner to learn correct paddle stroke techniques.
7. Easier to brace across another kayak for multiple kayak rafting or rescues.
8. Fits kayak deck contour for standard kayak paddle float rescue better.
9. Offside blade clears kayak hull more easily during high sculling brace.
10. Offside blade clears kayak hull more easily roll set up and paddle sweep.
11. Parallel blades slice through large waves or surf with less paddle twist.

Advantages of a feathered paddle

1. When the winds are from the front.
2. If you have already become very proficient with a feathered paddle, have no wrist problems and prefer not to learn something more efficient and safer.

Two piece paddles that can be adjusted for unfeathered or feathered are preferred.

Feather angles less than 60 degrees have no advantage.

If you get a one piece paddle, it is better to have an unfeathered one.

These are great exercises for becoming proficient!

1. Practice your high sculling along a shallow shore area. You can push off the bottom rather than exit the kayak if you go over. Practice until you can lay on/in the water and then pull the kayak back under yourself with your hips/knees and a sweep. Learn to do this on both sides.
2. On a windy, wavy day, choose a spot ten to twenty yards off shore. Pick **two transits** you can identify so you can tell if you have moved off that spot. Paddle continuous 360's and hold your position! Do this both to the left and right.
3. On a day when there are breaking waves on shore, deliberately come in sideways bracing into the waves. Over compensate toward the wave to start, you can always scull back to balance if need be. It is better to dump on the water side than get rolled into the shore side. Have a helper **pull** you back out and do this repeatedly.
4. Learn to spot each other in deep water with bow or side-by-side pull-ups so you can try whatever you want and not have to come out of your kayak.
5. Use **imagery** as well as real practice! Imagine every condition and situation you may encounter, visualize it, visualize yourself paddling it correctly and successfully. Mentally rehearse and practice.
6. Learn to scull back up and/or roll! It is the best safety and confidence builder there is!

USE YOUR CHOICES WELL

1. Decide how and with whom you will learn, train and practice.
2. Choose or control the conditions under which you paddle and practice; both environmental conditions and your physical/mental/emotional conditions.
3. Make good decisions about equipment selection, modification and upkeep; kayak, paddles, clothing and immersion gear.

Safe and happy paddling – Prepared by:

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