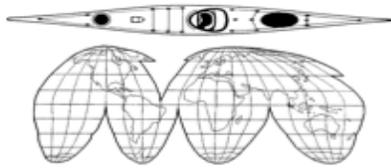


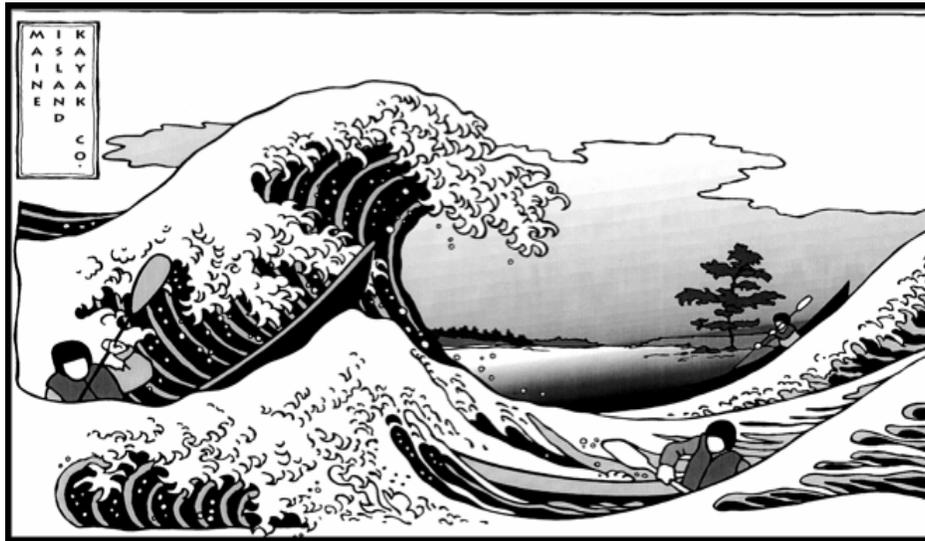


## FastTrack Summary

# Fundamentals of Sea Kayaking



**The Nordkapp Trust**  
The Nordkapp Trust Sea Kayak Centers



*“A smooth sea never made a skillful mariner.”*

**Maine Island Kayak Co**  
70 Luther St, Peaks Island, ME 04108  
800-796-2373 / 207-766-2373  
[www.maineislandkayak.com](http://www.maineislandkayak.com)

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**Why FastTrack I?** Designed for the athletic novice to intermediate paddlers, MIKCo's FastTrack courses have been highly effective at quickly tuning aspirants into honest, safer paddlers on the sea. The FastTracks will push you farther, faster due to your time commitment coupled with our practical, on-the-water, blended learning methods. FastTracks are less modular, are more focused on basic applied seamanship skills which will inspire you to work on your boat skill development. FastTracks will cement the fundamental building blocks of most sea paddling skills and rescues, with at least an equal emphasis on developing your all-important judgmental skills: being Captain of your vessel, navigating, expeditioning, and appropriate bumpy water practice experience. Our small ratios and teaching methods are geared toward the quicker-learning paddler, willing to put in the work for their skill development and decision making. You'll leave with exercises, tasks and enough knowledge to continue your improvement, and having acquired a basic mental framework for making wiser decisions on the sea.

## MIKCO's Fundamentals Course Notes

### Summary of Course Modules

- Kayaks, paddles and equipment use, design, and construction.
- Paddling clothing and equipment.
- Connecting with your paddle and your boat: "The Three B's".
- Basic propulsion, maneuvering and support strokes: "There are only 2 strokes".
- Kayak control skills.
- Effective and reliable paddling in moderate conditions.
- Bracing and support elements for all strokes.
- Introduction to route selection variables.
- Elemental Seamanship: "The Fourth B".
- Environmental factors, and wind, waves, tides.
- Navigation : Piloting and Dead Reckoning.
- Chart and compasses; Rules of the Road.
- Environmental, equipment, group and personal awareness.
- Solo and assisted rescues: "The kayak is our Lifeboat"
- General group safety consciousness and assessment, on and off water.

### Introduction and Objectives

- The weather summary: history, reports, and forecasts.
- Individual goals for the day.
- Safety and personal responsibility, to ourselves and others.
- Risk factors: real world exposures/dangers, inner fears, unknowing mistakes.
- Captain of our ship; balance environmental, personal and equipment factors.
- If it hurts, don't do it. Warm up before activity.
- The 4 Cornerstones: Judgment, Skill, Knowledge & Experience.

### Fundamental Skills

- Big picture view of our small tribe moving across a cold, wet, marine world.
- Boat control: Boat, Body, Blade, and **Brain**.
- Reactive: observing, understanding and adjusting. Proactive: forecasting, predicting and planning.
- Good judgment applied with common sense to effect a conscious, chosen solution or goal.

### Summary of Strokes Covered or Introduced – one on the right, one on the left

- Forward and reverse paddling.
- Stopping and backing.
- Turning and steering on the move.
- Low and high brace recovery and sculling. Low and high brace on the move.
- Low and high brace turns.
- Moving sideways: stationary and moving draws.
- Controlling the boat's bow: rudders and draws.



## Equipment

### Kayaks

#### Deck

Lines for rescues and handling. Elastics for storage. Hatches to keep out water, prevent implosion. Bulkheads for reduction of cockpit water in an emergency, buoyancy for safety and storage of gear. Day hatch to allow access while on the water. Pumps, compasses, towels, etc.

#### Inside

What is the cockpit shape? How does the seat support your hips? What are the different inside depths? Backrest or seat backs? Room for paddler's feet? Knee splayed in or out? Thigh and hips in contact? Fit should help with control and comfort. *Like a ski boot, or a running shoe?*

***“Boat Contact is Confidence.”***

#### Hull

- Length. Water line or overall? Longer = faster and tracks straighter.
- Thinner. Less wetted surface = less power to go faster.
- Each hull is made up of 3 shapes: 1. Round = less wetted hull surface (friction), but often tippy. Less initial and secondary stability but smoother riding waves. 2. Flat or row boat = high initial stability but rough ride over waves, low sea holding/weathering ability, skids turns well. 3. V shapes = good tracking. Low primary, high secondary stability. Concave and convex shapes.
- Soft or hard chines - good secondary stability confidence when riding waves, carves turns well (some of our favorite hulls). Hard chines like a GS ski.
- Symmetrical hull - wide (waterline) point in the middle.
- Fish-form hull - wide point forward of paddler = less power to go fast, more maneuverable.
- Swede-form hull - wide point astern = better handling in following seas.
- Rocker is the amount of upturn toward the ends. Banana shape. More rocker = more maneuverability.
- Volume. For paddler comfort, gear and performance. How much and where, for comfort, riding through waves, stability.

Rudders and Skegs on a single kayak are generally to make a boat go straight, when you can't.

#### Materials

- Injection or rotomolded plastics.
- Laminated / Composite (Epoxy, polyester, vinylester resin. Fiberglass, carbon, Kevlar cloth).
- Wood, strip or ply (stitch and tape).
- Canvas, rubber around a wooden, composite or aluminum frame.

#### Paddles

- Blade shape: Flat, Curved, Spooned, Symmetric, Asymmetric.
- Style and Usage: Touring, Greenland, Winged, Surf, Rodeo, White Water, Competition.
- Materials: Plastic, Composite, Aluminum, Wood, Nylon, Carbon, Kevlar.
- Length: Longer for cruising. Shorter for acceleration and power in difficult conditions. We recommend shorter lengths (generally 205 – 215 cm for touring) and adjust blade shape for your size.
- Feather: Degrees the blades are offset, related to your strokes, style and form. (Euro paddles, not Greenland).

#### In the Kayak

- Stuff to take care of people: first aid, food, spare clothes, water, shelter, etc.
- Stuff for camp and to fix equipment: repair kit, cooking, living in weather, light, etc.



### Signaling and Communications

- Cell phones. What are the emergency numbers in your paddling area?
- VHF radios. Channel 16 emergencies and hailing. What channel do local water users use?
- Day and night flares, dyes, flags. What will be seen?
- Strobes.
- Satellite distress signals. EPIRBS, etc.
- Reflective material.
- Lights.
- Sound Signals: horn, bell, whistle.

### Coastguard Requirements

At night you need 1 of 3 approved devices: 1. Three USCG approved flares; 2. Emergency Strobe; 3. Approved spot light. In fog you must have a fog horn, and toot one long blast every 2 minutes.

### Dressing for Paddling

*First rule for paddling in Northeast as a beginner/novice: Dress for the water temperature.*

What is the water temperature? Is it raining, windy, warm, cold? How active am I going to be? To avoid hypothermia, clothing needs to protect from at least two of the following three factors: Temperature, Moisture and Wind. Remember that we also must protect ourselves from the sun.

- Insulation materials. Synthetic clothing holds less water, and is relatively warm when wet. Wool is warm even when wet. Cotton *kills*; it dries very slowly and its evaporative cooling makes us cold when wet.
- Wind and water protection; layering and wicking. We prefer a dry layer next to the skin. Wool, polypropylene, fleece insulation layers trap warmth. Windproof layer to reduce chilling. Waterproof layer to protect insulation.
- Wetsuits and neoprene rubber suits trap and insulate a layer of water next to the skin. Good for in the water and swimming but cold when wet in the wind. Can cause rashes over longer time periods. Different thickness of neoprene for different levels of warmth. One level of warmth per suit = different suit for different seasons.
- Drysuits. No insulation in the drysuit, but keeps insulation dry and wind out. Add or reduce insulation under the drysuit for temperature control. Good for floating but not for swimming. Comfortable in the boat for long paddles. Sometimes too hot.

### Extremities

- Head, hands, feet. Wool, neoprene or fleece hat, baseball cap, wetsuit booties with or without soles. (Sandals and laces can catch on pedals and cause real entrapment issues. Wool or synthetic socks, gloves, pogies (paddle mitts). Neck gaiters.
- Eye protection from water, sun, rain, snow. Glasses, goggles. Croakies, floats.
- Helmet. *"If you have a \$10 head, wear a \$10 helmet."*



### Emergency/spare clothes

- Need to protect from temperature, moisture, wind, and sun. How and where do you pack extra layers, tops and bottoms, hat, gloves, wind and water protection?

## On Land

### Carrying the boats

- Two paddlers is better than one.
- Hold and carry under the hull, not by the fittings.
- Lift with legs. Keep spine vertical.
- Be wary of boats high up on racks, above your shoulders/head.

### Preparing to get on the water - Practice before going afloat.

- Entering and exiting your kayak for launching and landing.
- Ocean, slalom and keyhole cockpits. Use of paddle for support.
- Proper seating position relaxes hips, loosens hamstrings, stacks vertebrae, restores natural spinal curves. The top of your pelvis should be aligned forward to help stack vertebrae.
- Foot pegs properly adjusted. Sandals not recommended.
- Protocols for managing your spray skirt.

### Connecting with your boat

- Points of contact: heel, balls of your feet, equal contact pressure on thighs and knees, seat and hips.
- Stay flexible between hips and ribs.
- Sit so the boat can rock under you, move independently of your upper body.
- *“Loose hips don't sink ships.”*

### Wet-exits and rescue practices - Very important to manage the fear of entrapment.

You can easily exit a properly fitted boat with proper gear in 5 seconds max.

1. **Relax, don't panic.**
2. **Lean forward**, sliding fingers along cockpit rim, **locate the rip cord/release handle, pull away from you - out and up.**
3. Slide hands down the kayak and place on boat beside hips.
4. **Push** kayak forward and **away** from you, like taking off pants.
5. Always always **maintain contact** with boat and paddle.
6. Listen to your rescuer's instructions

Awareness of the group position on the water before during and after any rescue is taking place.

**Before leaving shore. Gather and note the facts of anticipated wind and waves, swell energy, tides and currents, effect of landforms and bathymetry, lightning, fog and navigational traffic. Can you read the topography on the surface of the sea? Have you adjusted for the exponential wind pressure, temperature & wetness? Are you clear on your environmental, equipment and personnel's limits?**



## **Seamanship / Awareness of the Environment**

*The beginning kayaker focuses on their paddling skills and rescues. The wiser novice sea paddler emphasizes the importance of the judgmental variables of wind and waves, tides and currents, weather systems, the effects of landforms and the influence of these changing variables on their route selection. This is the essence of good Seamanship: choosing your route based on your group's abilities, equipment limitations and environmental variables, with an overlay of your purpose or goals for that day.*

Awareness of the often fast changing environment enables us to make safe, effective decisions while on the sea. Sometimes mere minutes matter.

### **Route Selection**

The essence of smart, safe paddling is applied seamanship.

- What is your chosen route, your course for: safety, adventure, opportunities, dangers, escapes, avoidance of unwanted conditions.
- Where are the anticipated safety spots/areas: protection from wind, swell and current, ease of landing, bail outs.
- Identify danger areas & crux points: constrictions of current, weather shores, headlands & points, no landing zones, shipping & traffic lanes.
- Minimize exposure to danger areas. Break trip into legs between safety spots.
- Understand speed and distance in calm, in wind and against current.
- Factor in group's skill set and equipment limitations.
- Factoring in: wind and waves; lees and eddies; currents and tides; traffic; desired scenery. Exposure. Weather opportunities. Type of day your group desires.
- Destination disease can be fatal. More mountaineers die coming back down.
- The result of applying good judgment, your skills, experience and knowledge to your equipment, group and conditions. These are the cornerstones of adventuring.

### **The Weather Report**

- Weather radios.
- Land, coastal and offshore forecasts.
- Distinguish the present from future weather conditions.
- Weather buoys and their information.

### **Weather analysis – You should aim to be your own weather forecaster.**

Listen religiously. Develop understanding of what the forecast means to your boat out on the water. Record conditions from radio, web, observations (see our Weather Board) before you launch. Begin to develop a framework of how the actual sea conditions look like from the raw internet data collected. Of more importance: what are the future conditions going to be like and how will they affect this afternoon's return, tomorrow morning's campsite launch out through the surf, 3 days from now when the cold front approaches?



- Predicting conditions from forecasts.
- Predicting changes from on the water observations.
- Realize the exposures and possible dangers.
- Wind speed, wind direction and forecast, and anticipated changes.
- Approaching fronts, and what warm and cold fronts mean to you out on the sea.
- Likelihood of fog and reduced visibility.
- Causes and likelihood of lightning. Methods of protecting the group.
- Each variable's effects on sea state .
- Influence of changing swells and their interaction with landforms.

#### **Environmental analysis should consider at a minimum**

- Wind speed, direction, duration and probably changes throughout the trip.
- Tidal current speed, direction, strength, timing, and anticipated changes.
- Swell height and, in particular, the length or period.
- Air and sea temperatures and their relationship to the dew point,
- Approaching fronts and weather systems.
- Fog and its impact on group.
- Lightning danger and landing areas.
- How will the above affect sea conditions? How will sea conditions affect us as paddlers?

### **Navigation**

*"The secret to not getting lost is to always know where you are."*

#### **Piloting and Dead Reckoning**

- Dead Reckoning. Planning an intended or assumed course, plotted as a line (or series of lines) on chart based on compass directions, velocity, time and drift. Usually computed on land. For use in fog, low visibility, night or way offshore.
- Piloting. Navigation as art. Observing landscape and choosing an appropriate course, perhaps referring to a chart. Use of all available information: i.e. chart, wind, tide, weather, buoys, landmarks. Pilots are keeping themselves located by physical features observed along a route.

#### **Course, Heading, Bearing**

- Heading - Direction we point our kayak.
- Course - Path of our kayak over the ground.
- Bearing - Taking a compass reading of a point or place.
- Ferry Angle - Angle between heading and course needed to compensate for drift caused by wind, waves or current.

#### **Charts as information**

- Charts on the sea, maps on the land.
- True and Magnetic North.
- Scale and distance understandings .
- NOAA Chart No 1. Key to all chart symbols.
- Depths and heights.
- Visualize the big boat lanes - buoys and boat traffic.



## **Tools**

Different types of compasses, parallel rules, dividers, protractors, Nav-Aids, GPS.

### **Compass accuracy**

- How accurate is your compass as the kayak yaws, heaves and turns on the sea?
- One (1) degree of compass is roughly 100 feet out at a mile.
- Thus 10 degrees of error = 1000 feet in a mile.
- “Aiming off” - put something in the bank.

### **Ranges and transits – most used navigational tool**

Navigational Ranges - an imaginary line one draws in their mind between 2 fixed objects.

Example: Off your bow, locating and lining up a tall tree behind a boat at anchor; a house with a steeple behind it; or a near and farther away buoy. Any two stationary things can create a range. If you drift off that visual line, you know which way to adjust for your drift. Ranges allow us to locate ourselves on a straight line. Intersecting ranges locate us more accurately. Any two things can create a range line. Also - if we are on a possible collision or crossing course with a moving boat – if that boat is gaining, losing, or stationary on the horizon behind it, this informs us if we are on a collision course or will that moving boat pass off our bow or stern.

### **Chart preparation**

- Preparing and transferring information for use from your kayak.
- Course and other info best plotted before departing. Compute current info. Determine and label compass headings for each leg of the course. Scale off miles. Set handrails or safety lines. Determine what to do if dead reckoning doesn't work.
- Important Buoyage: port hand mark, starboard hand mark, channel separation marker, isolated danger mark. Color and shape. Different system in different countries.

## **Tides**

Tidal heights are vertical movement of water, effecting depth and shoreline. Tidal currents are horizontal movements of water effecting us as tidal streams and currents. So tides affect our route planning and our safety on the water.

Things to know:

- Understanding and predicting tidal height and current direction.
- Understanding and predicting tidal anomalies.
- Information is written on the face of the sea. Notice the varied wave shapes.
- Set - Direction toward which current flows.
- Drift - Direction boat is pushed due to current or wind.
- Ferry Angle - Angle between heading and course needed to compensate for drift caused by wind or waves.



### **Basic Rules of the Nautical Road**

You are Captain of your vessel, subject to same rules as big boats, and required to study, know and apply the rules as appropriate. Generally:

- Kayakers are the pedestrians of the sea and should be careful when crossing the road. Kayaks lose by the tonnage rule. Seldom have practical right of way.
- The nautical road or shipping channel is between the red and green nav aids.
- Cross the shipping channel the same as crossing the freeway. Look both ways, cross the shortest distance and don't stop in the middle.
- Kayaks are safer in the shallows where larger boats cannot go.
- For kayakers, red right return is wrong, stay out of the big boat lanes as needed.
- If you cannot avoid being in the highway, drive on the right side of the channel.
- Be polite, clearly signal your intentions, and stay out of the way.

### **Wind, Waves and Swells**

- Wind waves are a function of:
  1. fetch
  2. velocity
  3. duration
- Swells are longer, faster, with much higher energy than local wind waves. Understand and focus on the swell energy represented primarily in its **period** (length in time).
- Distinguish breaking waves as, at least, spilling or dumping.

### **Group Management on the Water**

- Buddy system: paired up and watching out for each other.
- Keep track of each paddler around you.
- Count heads. How often? See their patterns of dispersal and notice any changes.
- Everyone is responsible for themselves, and for everyone else in your group.
- Establish basic hand and paddle signals. Go left, go right, stop, come forward.
- Side by side: pleasant for chatting, communicating. Easier to check on the group. Blocks less of a shipping lane when crossing channels.
- Tighter groups are easier for other water users to see, and maneuver around, less obstruction.
- Lead and sweeps are not the only on water pattern. Usually two experienced kayakers are leading a less experienced group. Can be safe but impersonal and inflexible. Contact with group members and communication between leaders is difficult. Tends to be overused.
- Formation paddling for placement limits and group control. Good kayak control exercise.
- Danger line/zone. Stay to right or left of guide/rock/surf break; use of handrails.
- Stay within communication distance. If windy or strong current, how does that change your position with your partner? What if its super foggy?
- It is easier to stay together than to find a lost person.
- Large groups are harder to manage, have larger environmental impact, take up more surface area. Consider breaking into smaller management units. Leave no one between the pods.



## Technique

**Fundamental skills all involve driving the paddle pressure down through our body core, and through the legs and into the kayak. Drive the boat forward past the paddle vs. pulling the paddle past the boat.**

### The Four B's.

**Boat.** Think of the shape that is interacting with the water. Flat? On edge? Speed through water.

**Body.** Basic body mechanics, efficiency and injury avoidance. Connection from paddle to boat. Use of core and whole body not just arms and shoulders. Be relaxed, flexible, strong.

**Blade.** Climbing blade angle for stability. Direction of force from paddle blade, push or pull, turn or go straight.

**Brain.** Can be pre-emptive, pro-active, forward thinking about the “what ifs”. Good seamanship. Coordination, fluidity, timing, efficiency, working smart.

### Connecting with your paddle:

- Hand Position. Don't grip too tightly, not too wide or narrow.
- Protect your wrist by keeping hand aligned with your forearm. Avoid extreme wrist rotation side to side and rolling up and down.
- Maintain a constant on-paddle position for control hand: usually the hand you write with.
- Angle of Paddle Feather. More feather can allow for more vertical/dynamic paddling style.
- Avoid shoulder injury by always keeping **both hands in your field of view on all strokes**.
- Maximize efficiency by using whole body, driving from your core, not just using your arms.

### Propulsion Strokes

- **Catch.** Set the full blade sharply into the water (the “Catch”), as far forward as possible without bobbing your torso. Avoid air paddling by dropping the paddle blade fully into the water, maybe almost a stab into the water.
- **Set & Pull.** Use whole torso, shoulder, arm to set the paddle and pull straight back through the water. Experiment with the shaft angle. Power side arm stays mostly extended (not locked). Engage your core. (If your stomach isn't tensed, you aren't engaged adequately).
- **Exit.** As blade nears your hip, while leaving the power one, slice it out of the water sideways. Don't shovel the water. Use elbows to exit paddle. Think about that climbing blade angle.
- **Recover.** As the blade exits the water, using the elbows and torso, free it from the water, never halting its movement. You may slow it down smoothly, without stopping ...now firmly and strongly extend the opposite blade forward, rotating around your spine like it's the pin in a hinge, to prep for your next “Catch”.

### Basic Maneuvering Strokes

- **Stopping.** Using back of the blade set to a climbing blade angle, paddle out to side, level with or just behind hip. Use your blade angle to dump some of the water pressure. Try and keep boat straight.



- **Paddling Backwards.** Using the back of the blade, place the paddle on the water out at 45 degrees behind your hip, and push down and drive the blade forward with a climbing blade angle toward your feet.
- **Sweep Strokes - Forward and Reverse.** To keep boat on course, to initiate turns or spin around when stopped. Near horizontal paddle shaft. Paddle path, from bow to stern (near stern out and toward bow) in a semi-circle. Extending out from center of boat. Paddle arm extended but not locked. Use body's trunk for power. Climbing blade angle for support as you also edge to enhance turn.
- **Draw Stroke.** To move sideways. Body rotated to direction of travel. Vertical to 45 degree paddle shaft. Blade remains in water and moves in toward that hip. Pull boat with your butt towards paddle and slice blade out backwards without removing from water to start again.
- **Stern Rudder.** To steer (or maintain a straight course) while moving. Blade upright in water. Shaft parallel to boat's side not across boat. Water pressure usually on outside/back of the blade will turn towards the paddle, add some climbing blade angle whether water pressure is on power face or back of the blade (to turn toward you or away from you).

### Support and Recovery Strokes

- **Low Brace Sculling for Support.** To give stability when stationary. With a horizontal shaft and climbing blade angle, the back of the blade sweeps along the water surface - like buttering your bread - while edging or leaning on it for support. Long smooth motion. Elbows high. Shaft horizontal. Climbing not turning blade angle. Commit to your paddle.
- **Low Brace Recovery.** For getting back to upright when falling or knocked over. Body and backside of paddle used to bring boat back to upright from off-balance position. Paddle flat on water at 90° to boat, push down, snap, and slice back to surface. Hip flick/drive upward, hip to ribs, driving knee upward to bring boat upright. Slap, Snap, Retrieve. Push up movement (elbows high) to provide initiation for hip flick. Drop elbows to retrieve paddle smoothly. Timing and fluidity. Climbing blade angle when performed on the move.

### Climbing Blade Angle (CBA)

- If paddle blade is in a recovery position, it is moving horizontally through or across the water, its leading edge is slightly raised or upper edge leading (like the feeling of your hand out the window while driving in a car.) Blade wants to climb to the surface.
- If paddle blade is in a power or turning position, it is moving vertically through the water, its leading edge raised or upper edge leading. (On a forward stroke, the paddle's upper edge is leading its lower edge - again like the feel of your hand out the window while driving in a car.) Blade wants to climb to the surface. Increase angle for more support.
- Closer blade angle is to its horizontal = more lift.
- Closer blade angle is to its vertical = more support in the movement strokes of the kayak.
- Combine climbing blade angle with sweep strokes, forward paddling, etc. to increase your stability in rough water. Climbing blade angle when stopping, paddling backward, sculling.



### **More Maneuvering Strokes**

Sea kayaks are directionally stable so need time to respond to commands; don't rush the turn. It is often necessary to initiate a more advanced maneuvering stroke with a sweep stroke. Use your edging ability to enhance your turn or carve.

**Outside Edge Turns.** Very powerful and positive carving turn, with outside edge dropped/edged to increase that side of bow's surface area and hence the water pressure pushing the bow away from deeper edge.

- Once a turn has started, edging the sea kayak away from the center of the turn will cause the sea kayak to turn more strongly in that direction. Water pressure on bow.
- Initiate turn (usually with a sweep stroke) to set the kayak's bow into the turn, to keep the kayak moving, apply appropriate edge.
- Keep stable on the edge. Keep your torso vertical above the kayak by pinching hips to ribs on one side, by raising up one knee, by pushing opposite butt check down on one side of seat.
- Once the turn has started, continue forward paddling. The boat will keep turning as long as the edge and speed are maintained with increased water pressure on outside of bow.
- Can be used to turn, to alter the course of the kayak, OR to assist staying on your course if boat is turning into the wind (weather cocking).

Explore the effects of edging towards or away from the paddle when using maneuvering strokes. Do you edge towards or away from the paddle when performing: hanging draw or simple draw, bow rudder, stern rudder, forward and reverse sweeps? Seriously, try till you decide.

**Stern Rudders.** Turning towards the paddle side is easy - pressure is on the back of the paddle blade. Try rotating shaft enough to change blade  $10^\circ$  to  $20^\circ$  around each side of upright to help increase water pressure from power to backside of the blade while pushing out or pulling in on forward arm: rear hand is more the pivot point, forward hand is the steering end like the rudder on a small sail boat. This will allow a stern rudder to turn the kayak in both directions without changing the paddle from one side of the boat to the other.

**Draw Stroke on the Move.** Same as a draw stroke while stationary but ensure the blade is angled to climb away from the kayak. Arm pulls boat after the blade climbing away.

**Hanging Draw, Stern Draw, Bow Rudder.** Water moving by the blade, or when kayak is moving, we apply slicing pressure to the power side of the paddle to pull the boat toward the blade. These strokes either pull the whole boat sideways or pull the bow or stern sideways. Using too much blade angle will overly slow or stop the kayak instead of push/pulling the kayak sideways. Placing the paddle at the bow or stern will affect that end of the kayak (bow or stern rudder/draw). Placing the paddle off your hip will move the whole kayak sideways (hanging draw). These strokes are more effective with the blade vertical and close to parallel with the kayak's centerline. They are more powerful the faster the kayak is moving. Initiate a bow rudder with a strong sweep stroke on the opposite side and perhaps finish with a bow draw rolling into a forward stroke.



**Low Brace Turns.** Leaning more than edging towards the inside of a turn encourages the stern to stern skid the turn and slows the kayak. By using a moving low brace we stabilize ourselves allowing for more lean and more turn. Keep the blade close to flat on the surface: if too vertical you slow down, get less support and turn less. Keep your weight forward to allow the stern to skid. Initiate the turn with a sweep or use when being turned off of a wave to provide turning momentum and stability.

### **Modified Sweeps.**

- Rough water sweep strokes. Element of climbing blade angle. Compromise, alter, change your CBA between turning and support. Sculling low brace return?
- Keyhole stroke, from the Catch, a slight sweep out before reverting to your forward stroke. Use at lower speed to add turning element to forward stroke for course correction or initiating other turning strokes. Forward power through “catch and pull” phase, keep paddle in the water and slide out to the side and finish with second half of sweep stroke.
- Bow push stroke. From bow (12 o’clock) to 3 or 9 o’clock. To adjust the bow or at higher speeds when the bow is pressured.

**Sculling for Support into Sculling Draw.** Sweep the near horizontal blade forward and backwards, power face down, with the appropriate climbing blade angle in each direction, like buttering your bread. With the sculling blade on the surface, you will have support if you use that “wing” or climbing energy by transferring it up your arm, down your side, into your core - sculling for support. Keep the shaft high: just under your chin like you are hanging under a pull-up bar. Now, while sculling with pressure on the power face, slowly raise your non-paddle hand, moving your shaft toward vertical. When the blade slices away from the boat, draw the kayak sideways towards paddle - this is a sculling draw. For sculling support, keep the blade and shaft as horizontal as possible, power or non-power side of blade may be used. For sculling draw, blade and shaft should be near vertical, use power side of blade only. Longer, slower strokes are more effective; scull from your core.

**Recovery and Support Strokes.** Using the paddle blade and hip flick to right the kayak from an off- balance position.

- Low Brace/Recovery. Use the non-power side (back) of the blade and a push-up type movement with arms and shoulders. Paddle pressure is a platform for the hip snap back to upright position. Slap, Snap, Retrieve. Near horizontal shaft.
- High Brace/Recovery. Use the power side of the blade and a pull up movement as a platform for the hip snap. Keep hands below shoulder level, and rotate a bit toward your water blade to avoid the risk of serious injury. Near horizontal shaft.
- Should be practiced both stationary and on the move (check for climbing blade angle when performing on the move).
- High Brace Sculling for Support. Long smooth backwards and forwards motion on surface of water with nearly flat blade. Elbows below paddle. Wide sweep. Shaft near horizontal. Paddle from your core. Climbing not turning blade angle. Commitment to your paddle.
- Correct elbow position will reduce injury potential and improve efficiency.



- To avoid injury hands should never get above eye level.

## **Paddling in Light Conditions**

### **General Rules**

- Loose hips, light paddle grip. Trust your kayak. Relax, breath, be flexible.
- Keep paddling for speed and support.
- Introduce climbing blade angle to your forward paddling for confidence.
- Recognize fundamental effects of and difference between: horizontal and vertical blades and more horizontal or more vertical paddle shaft.

### **Paddling into the Wind and Waves**

- Paddling into the wind is the easiest direction for boat control but requires emphasis on power, on driving the kayak past the blade, through the water.
- As a beginner in small waves, meet waves near perpendicular/90 degrees to the wave. As waves increase in size, try and meet wave at a slight diagonal and present hull not bow to the wave face this reduces the chance of back flipping on large waves and keeps you dryer.
- Reach over the crest and pull yourself over.
- Keep paddling through surf and avoid paddle shaft hitting you in teeth in breaking waves.

### **Paddling in Beam or Quartering Seas**

- Finish forward stroke with possible stern rudder on downwind side, with a power forward sweep on upwind side and edging deck toward the wind.
- Always always brace toward the wave, so you have the support to drop the wave side edge toward the wave, which helps free the down-wave edge from tripping you when pushed sideways.
- Let the wave and boat roll under you.
- A zig-zagging (tacking) course may be easier than going straight in short, steep chop as it increases the distance between the crests and reduces hull slap.

### **Paddling with Waves**

- The faster you are traveling the more free ride you'll get sliding down the hill, the less you may get turned by the wave (although it increases water pressure on your bow).
- Try and accelerate down the wave face, relax and catch your breath. Slow down the rate of your stroke when on the backside once the wave goes underneath you.
- Use forward strokes, edging, and sweeps for minor steering. Use stern rudder when more power is needed.
- Diagonal runs down waves may be easier than straight ahead, but higher skills required.

### **Going Downwind, Down Wave and Across Wave**

- Use of rudders and skegs? Set the rudder or skeg to off-set weather-cocking? Readjust for course or wind direction change. They are not an on-off switch.



- If paddling slowly in a beam or following sea, the skeg or rudder may help you reduce wave-cocking.
- Use of stern rudders. Trailing paddle to maintain a straight course. Do you need to change paddle from one side to the other to change direction? Are you losing speed and letting the waves take more control?
- Speed = Control. Keep paddling forwards.

### **Additional Thoughts on Generating Effective Strokes**

**Basic Control.** These strokes start or cancel movement in the boat. Forward paddling. Sweep Strokes. Stern Rudder. Moving Low Brace.

**Sculling, Support, and Recovery.** These strokes help you stay upright when sitting still or moving. Low brace stationary and on the move. High brace stationary and on the move. Low brace sculling for support. High brace sculling for support and recovery.

**Draws.** These strokes move boat sideways when sitting still or moving. Draw (with in-water return). Draw on the move. Hanging draw. Sculling draw.

**Your Forward Stroke should work in:** flat water, beam, quartering and following wind or sea.

**For each stroke, what are the following doing?** Chest/stomach/torso. Your upper arm. Paddle arm. Are you pedaling your legs, having pressure on your thighs and knees? Which foot are you driving forward into your footpeg or bulkhead? What angle is your paddle shaft and your blade?

**Are you Edging or Leaning?**

**Should your torso be leaning forward or backward?**

**Support Component of a Stroke.** For each stroke, consider incorporating a support element into at least a portion of the stroke's action.

**Perfect Practice makes Permanently Perfect.** Remember that practice makes permanent, not perfect... So practice your form, work for efficiency, repeatability and effectiveness.

**Technique.** There is seldom a purely right or wrong technique, proper correct stroke. We want you to learn a full range of each stroke/boat maneuvering technique. We should instead aim for committed, strong, effective, repeatable and safe ways. Different paddlers in different boats with varying wind and sea conditions will have a best stroke for that combination of person, equipment, and environment. For example you might think of your stroke as follows:

It works. It works well. It works really well. It's working better all the time.  
It is working better than I could have imagined!!!



**Are you quick enough or strong enough to outrun**

A pending storm

A changing tide

A growing headwind

A dumping beach break?

**Can you accelerate in to rescue your paddle partner, and instantly stop in the correct position and place without harming yourself or the victim?**

**Are your strokes:** Gentle half hearted strokes - slow forward movement - relaxed cruise - open crossing pace - serious "let's go home" rate - flat out "I think I'm going to die" mode?

**Summary**

- Propulsion Strokes. Economy, efficiency and injury prevention.
- Maneuvering Strokes. Linking and adapting strokes for effectiveness. The correct stroke for your needs at the time.
- Always good form to maximize efficiency and minimize injury potential.

**Rescue and Emergency**

**Wet-exits. Very important to get over the fear of entrapment!**

**1. Relax, don't panic.**

2. **Lean forward**, slide fingers along cockpit rim, **locate skirt handle and pull away and up.**

3. Place hands beside hips. **Push** kayak down and away from you, like taking off pants.

4. **ALWAYS** maintain contact with both your boat and your paddle. **NEVER** lose committed contact with your life station.

5. Listen to your rescuer's instructions.

**Rescues and Emergency Procedures: Rescues are about EITHER getting the water out and the person in OR the person in and the water out. Take your pick. Just make it quick.**

Rescues are critical to sea kayaking, you must know how to rescue yourself and your friends in any conditions you paddle in. You should have many solo and assisted rescues in your toolbox. Be positive and in control. You are the physical and psychological rescuer. Don't become the next victim. Think about the group position on the water and while any rescue is taking place.

**Emptying the Boat.** Boat construction is critical here. Properly positioned bulkheads or buoyancy make emptying easy and safe.

**T-Rescue** for bulkheaded kayaks (i.e. emptying the kayak). If the bow is lifted and the kayak upside down there is no where for the water to go but out.



- Start with the kayak to be rescued perpendicular to the rescuer's boat, bow end to the rescuer's kayak.
- The don't-damage-your-boat-but-mind-your-back method. Lift the bow of the upside down boat (the victim can push down on the stern) to empty water. Roll the kayak upright and set it back on the water. Lift safely, mind your back. Lift with the far side arm, steady yourself with the boat side arm.
- The no-lifting-required method. Start with boat upright, slide the bow of the perpendicular victim's boat well up onto your foredeck, reach over and roll the kayak upside down to empty. The cockpit should be clear of the water. Roll the kayak back upright and slide it back into the water.
- Victim can assist by pushing down on stern or lifting – mind heads and fingers.
- Pump. The “pump or bail ” method. Turn the kayak upright, get the victim in the boat and pump it out.

**X-Rescue** necessary for kayaks without bulkheads or failed bulk heads/hatches. Similar to above but kayak must be about halfway across rescuer's kayak and rocked to empty all water. Consider using pump or float bags to displace water.

**Rescuing your partner. Getting the victim back in the boat.** Boat bows facing same vs. opposite directions. Focus on holding onto the boat with both hands on cockpit coaming or decklines. Use your whole body weight on the deck of the victim's kayak. Get your partner back into the boat, between the boats, across the back of their kayak or across your bow. Do what works.

Hold on until the victim is fully stabilized and ready to paddle. Work together to avoid injury. Protect victim from rudders etc. Practice, practice...practice, in the conditions you paddle in and with the people you paddle with.

**Eskimo Rescue.** This is more a whitewater rescue, though useful as a training exercise or for bracing and rolling practice rescues; also when practicing strokes.

Practice by holding the bow of your partner's boat, lower yourself down into the water and hip snap/drive or pull knee up, keep hold of rescuer's bow all the time. Minimize the work done by your arms by using hip flick and keeping your head in the water till the kayak is upright. Capsize a short distance from your partner and remain in your boat. Feel for your partner's kayak and use it to right yourself. Your partner should try and get their bow within reach. Try pulling up from different parts of the rescuer's kayak. Mind your head and fingers.

Are you ready to do this for real? If you are confident you can lock knees to remain in the boat and dog paddle to the surface for a breath and a look around.

**Solo Rescues.** How you get back in without another paddlers' assistance?

- Eskimo Roll



- Paddle Float Rescue
- Paddle Float Re-entry & Roll
- Re-entry & Roll

**Eskimo Rolling Demo and Discussion:** Commit to trying to learn this skill.

- Sweep or Combat roll.
- C to C roll
- Sculling
- Pawlata or extended paddle.

### **Demonstration and working towards an Eskimo roll**

- Guided paddle roll.
- Paddle float roll.
- Pawlata or extended paddle roll.
- Sweep or Combat roll.
- C to C roll.
- Spare paddle roll.
- Re-entry and roll (with/without paddle float).

Areas to work on: Attitude. Paddle set up. Climbing blade during sweep. Hip flick. Head coming up last. Timing.

### **Dealing with incidents, rescues and emergency procedures**

- Rescues in challenging conditions
- DO have a Scoop Rescue. For injured, unconscious or person unable to otherwise climb aboard.
- DO practice the Hand of God. Getting an unconscious person upright while still in their kayak. Use your body weight on your elbows, not so much your weaker arms to rotate victim's boat. Victim laid out on back deck of kayak not sitting upright.

Getting an incapacitated person out of the water, into a boat or on to a raft. Use other boats to stabilize rescuer?

### **More thoughts on Rescues**

- Assess risk to yourself from the environment and the victim. Don't become another victim.
- Take firm control of the situation. Be calm, decisive and positive.
- Use victim's boat to stabilize yourself while rescuing.
- Use your weight, your core, and boat to avoid strain or injury.
- If in waves or wind, keep firm hold of victim's boat to avoid losing it or being hit by it.
- Do you empty boat and then retrieve victim OR retrieve victim and empty boat?
- Be fast and efficient, not rushed and sloppy.
- Scoop Rescue for tired or injured victim.
- Practice, practice, practice in the conditions you paddle in and with the people you paddle with. How many rescues are too many to practice, 3000?



## **Towing**

Towing equipment is a crucial part of your gear. Except for novice paddlers, we should all have a towing system ready to use when paddling in a group. A waist tow, a contact tow and/or a long boat mounted tow. One towing system is an absolute minimum. Most of us choose to carry two or more systems to cope with different situations and possible equipment failure. Remember that water and lines are dangerous. For safety the whole system should float to avoid getting wrapped around objects or persons. The system should be quick and easy to release from your person, and you should practice releasing same after capsizing. If you don't have a tow on you, you're a client not a leader.

**Waist tows.** Line attached to the rescuer's lower torso via a quick release belt. Requires no adaptation of the kayak. Some strain on the paddler especially in rough seas, but is our most used tow system. Can be transferred to another for their use or if you tire.

**Boat mounted tows.** Line attached to the kayak via a quick release mechanism. Less strain on the paddler. Generally used in bigger, longer conditions and for longer distance tows.

**Contact tows.** With or without a line. Useful for keeping a victim close and allowing them to support on your boat. PFD tethers. Practice, practice.

**Serial or line tow.** Sharing the effort of towing between two or more paddlers. In-line or Husky. Supporting a victim while towing. Towing 2 or more kayaks to allow support for incapacitated person(s). Kayaks facing the same way or opposing.

**Moving a swimmer in the water or on your boat.** Note the differences of varying wind and currents or having person on your fore or aft deck.

**Anchoring a rescue.**

**Towing a raft.** Holding a group in position or towing to safety. Possible use if have an unconscious person across decks.

## **Marine Medicine**

- Importance of good first aid training.
- What actually works in the situation?
- Dangers of cold water paddling.
- Immersion hypothermia / exposure.
- Hyperthermia.
- Cuts and wounds.
- Dislocations and breaks.
- *Are you mentally and physically prepared to deal with most situations?*

## **Basic Scenarios**

- Lost boat and equipment.
- Multiple self and assisted rescues.
- Surf and rock garden rescues.
- Mild hypothermia.
- Boat handling problems.
- Missing person.
- Towing incapacitated swimmer and paddler.



- Surf landings and launchings.
- Field repair.

**Thank you for getting a paddle wet with Maine Island Kayak Co.**

*“We don’t take trips. Trips take us.” J. Steinbeck*

**Some more focused Trips & Courses offered at Maine Island Kayak Co:**

### **MIKCO's Instruction & Courses**

Fundamentals I to IV  
Plan, Prepare, Paddle Safety Training  
Fast Track I (3-5 day )  
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Ocean School (5 day)  
The Gulf of Maine Environment  
Surf & Rescue  
Rocks & Ledges

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Registered Maine Guide Training  
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Coach & Instructor Training  
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