Bates College: Geology of the Coast of Maine by Sea Kayak

"A smooth sea never made a skillful mariner."

MAINE ISLAND KAYAK CO

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MIKCo's Fundamentals Course Notes

Summary of Course Content

- Kayaks, Paddles and Equipment
- Dressing for Paddling
- Connecting with your Paddle and Boat
- Entry, Wet Exits and Basic Safety
- Assisted Rescue and Eskimo Rescue
- Basic Propulsion, Maneuvering and Support Strokes
- Kayak Control Skills
- Environmental Awareness
- Introduction to Route Selection
- Elemental Seamanship
- Charts & Rules of the Road
- Environmental Factors: Wind, Waves, and Tides
- Navigation
- Paddling in Conditions
- Bracing and Support Strokes
- Solo and Assisted Rescues
- General Safety Concerns

Introduction and Objectives

- Weather Summary: History, Reports & 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 her ship must balance environmental, personal and equipment factors.
- If it hurts, don't do it. Warm up before activity.

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 affect chosen solution.

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 Brace Recovery and Sculling. Low brace on the move.
- Low Brace Turns.
- Moving sideways - Stationery and moving draws.
- Controlling the boat's bow - Bow rudders.

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, tows, etc.

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

"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 three 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 – less to turn.

Materials
- Injection or roto-molded plastic.
- Laminated / Composite (Epoxy, Polyester, Vynalester 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: More feather for more efficient / vertical paddling style (Euro, not Greenland paddles).

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, 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.
- Flashlight.
- Sound Signals - horn, bell, whistle.

US Coast Guard requirements:

- At night you need one of three approved devices: 1. Three USCG approved flares; 2. Emergency Strobe; or 3. Approved spotlight.
- 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: 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.
- Layering: wicking to keep dry layer next to the skin – Wool, polypropylene, fleece insulation layers to trap warmth. Windproof layer to trap warmth, Waterproof layer to protect insulation.
- Wetsuits, 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 suits for different seasons.
- Drysuits, no insulation in the drysuit. Keeps the insulation dry and keeps 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:

- Hats, gloves, feet - wool, neoprene or fleece hat, baseball cap, wetsuit booties with or without soles (sandals and laces can catch on peddles and cause real entrapment issues), wool or synthetic socks, gloves or poggies (paddle mitts).
- Eye protection from water or the sun - glasses, goggles. Croakies, floats.
- Helmet – If you have a $10 head, wear a $10 helmet.

Emergency/spare clothes:

- Need to protect from temperature, moisture and wind (and sun). How and where do you pack them? Extra layers top and bottom - hat, gloves, wind protection.

On Land

Carrying the Boats

- Get someone to help you.
- Hold and carry under the hull, not by the fittings.
- Lift with legs. Keep spine vertical.
- Be wary of boats 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.
- Keyhole cockpits vs. use of paddle for support.
- Proper seating position. Top of pelvis should be rolled forward to stack, to align vertebra.
- Foot pegs properly adjusted.
- Practice managing your spray skirt.

Connecting with your boat

- Points of contact: heels, balls of your feet, 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.

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. Maintain contact with boat and paddle.
6. Listen to your rescuer's instructions.
7. Think about the group position on the water and while any rescue is taking place.

Before leaving shore, always make a computation of anticipated wind and waves, tides and currents, effect of landforms, lightning, fog and navigational traffic.

Learn the effect on your paddling ability of wind and waves, temperature, and wetness. Learn your limits.

Seamanship / Awareness of the Environment

The beginning kayaker focuses on their paddling skills and rescues. The wiser beginning 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.

Awareness of the environment must be coupled with an understanding of our personal paddling limitations as well as that of our kayaks and equipment. This enables us to make safe, effective decisions on the sea.

Route Selection

The essence of smart, safe paddling. 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 and crux points: constrictions of current, weather shores, headlands and points, no landing zones, shipping and 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 the 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 group desires.
- "Destination Disease" can be fatal.
- 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

Listen religiously. Develop an understanding of what the forecast means when you are on the water. What might you use for both information gathering and understanding?

- Predicting conditions from forecasts.
- Predicting changes from on-the-water observations.
- Wind speed, wind direction and forecast and anticipated changes.
- Approaching fronts and what warm and cold fronts mean on the sea.
- Dew point, water/air temperature, and fog.
- Causes of lightning and methods of protecting group.
- Effect on sea state.
- Influence on swells and integration with landforms.

Environmental Analysis should consider at a minimum:

- Wind speed and direction, and probably changes throughout the trip.
- Tidal current direction and strength, and anticipated changes.
- Swell height and length.
- Air temperature and dew point.
- Approaching fronts and weather systems.
- Fog and its impact on the 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 on chart based on compass directions, velocity, time and drift. Usually computed on land. For use in fog, low visibility or night.
- 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, landmarks, buoys, navigator's eye to stay on an intended path or stay located.

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 or waves.

Charts as Information

- Charts on the sea, maps on the land.
- True and Magnetic North.
- Scale and distance.
- 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 ft in a mile.
- 10 degree = 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 two stationery (usually) 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 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. They also help us determine 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 if the moving boat will 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. Plot course lines, 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, affecting depth and shoreline. Tidal currents are horizontal movements of water affecting 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 wave shape.
- 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, and seldom have right of way.
- The nautical road or shipping channel is between the red and green aids to navigation.
- Cross the shipping channel is the same as crossing the freeway: look both ways, cross at the shortest distance and don't stop in the middle.
- Kayaks are safe 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 road, "drive" on the right side of the channel.
- Be polite, signal your intentions, and stay out of the way.

Wind, Waves, and Swells

- Wind waves are a function of: fetch, velocity, and duration.
- Swells are longer, faster, much higher energy, more mature waves.
- Breaking waves could be spilling or dumping.

Group Management on the Water

- Buddy system: i.e. paired up and watching out for each other.
- Line up and watch for the person each side of you.
- Count heads. How often?
- Everyone is responsible for themselves and for everyone else in the group.
- Hand or paddle signals. Go left, go right, stop, come, go.
- Side by side? Pleasant for chatting and good for communication. Easy to check group. Blocks less of a shipping lane when crossing channels.
- Close groups are easier for other water users to see and cause less obstruction.
- Lead and sweeps? 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 difficult. Tends to be overused.
- Formation paddling. Good for formal group control. Good kayak control exercise.
- Danger line/zone. Stay to right or left of guide/rock/surf break.
- Stay within communication distance. What about when windy? Foggy?
- It is easier to stay together than to find a lost person.
- Large groups are hard to manage, have larger environmental impact and affect more surface.

Technique

Fundamental skills all involve driving the paddle force through our body and into the kayak to drive the boat forward or obtain the results intended.

- **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/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 if’s”. Good seamanship. Coordination, fluidity, timing, efficiency, working smart.

Connecting with your Paddle

- Hand Position. Don’t grip too tightly, not too wide or narrow.
- Keep wrist aligned so hand extends straight from forearm. Avoid wrist rotation side to side and rolling up and down.
- Constant position for control hand. Usually the hand you write with.
- Angle of Paddle Feather. More feather = more vertical/dynamic paddling style.
- Avoid injury by keeping your hands in your field of view on all strokes.
- Maximize efficiency by using whole body not just arms.

Propulsion Strokes

- **Catch.** Set the blade fully in the water, the "Catch", as far forward as possible. Avoid air paddling by dropping the paddle blade vertically down in the water (not diagonally back.)
- **Set and Pull.** Use whole arm-shoulder-torso to pull the paddle straight back through the water. Experiment with the shaft angle. Power side arm stays mostly straight (not locked.) Engage your core. (If stomach isn't tensed you aren't engaged adequately.)
- **Exit.** As blade gets off your hip, while leaving the power one, slice it out of the water sideways. Don't shovel the water. Use elbows to lift.
- **Recover.** Wind up the other side of your torso (rotating around your spine) to prep for your next "Catch".

Basic Maneuvering Strokes

- **Stopping.** Using back of the blade, paddle out to side, level with or just behind hip. Do this gradually, not all in one go. Try and keep boat straight.
- **Paddling backwards.** Using back of the blade, place paddle on the water, out at 45 degrees, behind hip and push down and forward toward your feet.
- **Sweep Strokes: Forward and Reverse.** To keep boat on course, to initiate turns or spin around when stopped. Horizontal paddle shaft. Paddle path, from bow to stern in semi-circle. Extending out from center of boat. Arm straight but not locked. Use body's trunk for power. Some climbing blade angle for support.
- **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 to start again.
- **Stern Rudder.** To steer while moving. Blade upright in water. Shaft parallel to side, not across boat. Water pressure usually on outside/back of the blade will turn towards the paddle.

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. Commitment to paddle.
- **Low Brace Recovery.** For getting back to upright when knocked over. Body and non-power side 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, hips to ribs and push with knee 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

- Paddle blade moving horizontally through or across the water. Blade close to horizontal with leading edge raised or upper edge leading. Blade wants to climb to the surface.
- Closer the blade angle is to horizontal = more lift; closer to vertical = more movement of the kayak.

- Combine rising blade angle with sweep strokes, forward paddling, etc. to increase your stability in rough water.

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.

Outside Edge Turns
Very powerful and positive carving turn.

- 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) 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 down on one side of seat.
- Once the turn has been 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 your course of the kayak, and to assist staying on your course if boat is turning into the wind (weather cocking).

Explore the effect 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?

Stern Rudders. Turning towards the paddle side is easy - pressure is on the back of the paddle blade. Try rotating blade 10° to 20° each side of upright to allow pressure change from power to backside of the blade, while pushing out or pulling in on forward arm. This will allow a stern rudder to turn the kayak in both directions without changing 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 paddle at the bow or stern will affect that end of the kayak (bow or stern rudder/draw). Placing 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 towards the inside of a turn encourages the stern to skid. This speeds 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 between turning and support. Sculling low brace return.
- Keyhole 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 blade forward and backwards, power face down, with a respective climbing blade angle in each direction. With the sculling blade on the surface, you will have support - sculling for support. The shaft is like you are hanging under a pull up bar. Now, while sculling w pressure on 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 the power side of the blade only. Longer, slower strokes are more effective.

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. Paddleas a platform for the hip snap back to upright position. Slap, Snap, Retrieve. 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 to avoid serious injury risk. 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. 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, breathe, 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 easiest direction for boat control but requires emphasis on power, on driving the kayak 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 but avoid paddle shaft hitting you in teeth in breaking waves.

Paddling in Beam or Quartering Seas

- Combine forward stroke with possible stern rudder on downwind side with a power forward sweep on upwind side and edging deck toward the wind.
- Brace toward the wave.
- Edge toward the wave.
- Let the wave and boat roll under you.
- A zig zaging (tacking) course may be easier than going straight in short, steep chop.

Paddling with Waves

- The faster you are traveling, the more free ride you'll get sliding down the hill, and the less you get turned by the waves.
- Try and accelerate down the wave face, relax and catch your breath as the wave goes underneath you.
- Use forward strokes, edging and sweeps to steer. Use stern rudder is a last resort.
- Diagonal runs down waves may be easier than straight ahead, but higher skills required.

Going Downwind, Downwave and Across Wave

- Use of rudders and skegs. Set the rudder or skeg to offset 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 encourage wave-cocking (turning in to the waves).
- 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 loosing 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 peddling your legs, hips, pressure on your knees, feet? What angle is your paddle shaft, your blade?

Are you Edging or Leaning?

Should your torso be leaning forward or backward?

Support Component of a Stroke. For each stroke try to incorporate 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 and effectiveness.

Technique. There is no purely right or wrong technique; there is no correct stroke, no approved or perfect way. Each paddler in each boat in various conditions should modify strokes for the situation. As a paddler we want strong, effective, committed strokes. For example you might think of your stroke as follows -

It works. It works well. It works really well. Its 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. Maintain contact with boat and paddle.
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.
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 out perpendicular from 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.
- 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 now be clear of the water. Roll the kayak back upright and slide it in to the water.
- Victim can assist by pushing down on stern or lifting – pulling over rescuer’s kayak but 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 half 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: Boats 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: Useful primarily as a training exercise for bracing and practice rescues, also when practicing strokes.

Practice by holding the bow of your partner’s boat, lower your self into the water and hipsnap/ pull back 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 paddler’s assistance.
- The Eskimo Roll
- Paddle Float Rescue
- Paddle Float Re-entry and Roll
- Re-entry and Roll

Eskimo Rolling Demo and Discussion: Commit to trying to learn this skill.
- Sweep or Combat roll
- C to C roll
- 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 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.
- Scoop Rescue. For injured, unconscious or person unable to otherwise climb aboard.
- Hand of God. Getting an unconscious person upright while still in their kayak. Use your body weight not muscles. Victim on back deck of kayak not sat 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 control of the situation. Be calm, decisive and positive.
- Use victim's boat to stabilize yourself while rescuing.
- Use your weight and boat to avoid strain or injury.
- If in waves or wind, keep tight hold of victim's boat to avoid losing it or being hit by it.
- Assess: empty boat and then retrieve victim OR retrieve victim and empty boat.
- Fast and efficient, not rushed and sloppy.
- Scoop rescue for tired or injured victim.
- Practice, practice…practice. Practice in the conditions you paddle in and with the people you paddle with. How many rescues are too many to practice: 300?

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 a minimum and many of us will 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 you.

- 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.
- Boat mounted tows. Line attached to the kayak via a quick release mechanism. Less strain on the paddler. Generally used in more testing conditions and for longer distances.

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