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KAYAKING

Guide for Beginners

Thesis

CENTRAL OSTROBOTHNIA UNIVERSITY OF APPLIED SCIENCES

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ABSTRACT

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<p>The aim of the thesis is to study about the kayak and kayaking, and to provide detailed information for the beginners, about how to start kayaking and to reduce risk. With the study from different books, magazines, and online as it has been realized that each and everything has its own form and functions. In order to enjoy kayaking one should have the right information. This thesis provides the reader with necessary information about kayaking, to reduce the risks in the water. Experienced paddlers will have less risk as they are already used to with the upcoming situation; due to lack of proper information beginners bear unnecessary risk in the water. The detail information of thesis provides the paddler to handle the dangerous situation and have fun in the water.</p>		

Key Words

Kayaking, risk in water, fun in water, paddlers, dangerous situations

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1 INTRODUCTION

Kayak is the way of thinking about the act of travelling in which one sit and propelled water with double bladed paddle. It displaces water in order to float. The hull must displace a greater volume of water than the combined weight of kayak and the paddler. If the hull displaces a volume of water less than the combined weights, then it sinks. When we think of a kayak, the traditional hard shell normally comes in our mind. Fiberglass, polyethylene plastics, woods and fiberglass composites with paper and of concrete, fiberglass composites are the most technologically advanced design. Mass production of well-designed plastic kayaks is bringing the cost of kayaks down. But when we weight plastic and fiberglass hulls of equal quality one feels more comfortable with a fiberglass kayak. As the corners and edges of the fiberglass hull are a little sharper than those of its plastic counterpart.

1.1 Aim of the thesis

The purpose of the thesis is to provide, lively accessible guide for kayaking. Shortly kayaks are described with the introduction and the materials used for manufacturing the different types of kayaks. While in the water the kayaker has to face the extreme hot, cold, waves and wind. Handling this entire situation by controlling their kayak one can find the real value of kayaking. The kayakers must have information about the different parts of kayaks and paddle. The detail information and the different condition while kayaking are important for the kayaker; Beginners can get prepared for avoiding risk. This guide provides the kayaker to enjoy kayaking and to handle the dangerous situations while in the water. Experienced kayakers also can reduce their risk by following the guide. Both the experienced and the beginners can take this as a reference guide who takes care about spending their time in the water.

1.2 Methodology

All the information used throughout the thesis is gathered form the eBooks, materials form the library, articles from newspaper, and different websites form the internet and the books written by experts. Collecting the couple of information form a kayak manufacturing

company and writes personal experienced in research based activities in a Kayak Company also helped collecting the right information about the kayak. There is also a try to collect the information from the experienced paddlers. Basically the eBooks were much fruitful for collection variety of information about different types of kayaks.

2 WHAT ARE KAYAKS MADE OF

There are kayaks made of a traditional fiberglass which is one of the high strength materials such as kevlar. In the real world builders make up their mind with incredible variety of resin formulas, and search fabrics for making the strongest, toughest and lightest hull. The strength of a hull is indicated in its ability to retain its shape under stress, without cracking. Its toughness depends on its ability to withstand sandpaper like abrasion of landing marks of day to day existence. Most people concern about the weight as the hull consists of only one fourth of the total weight of the boat. (Stuhaug, Dennis 2006, 19)

A petrochemical substance was not in practical use in kayaks earlier, later it was discovered as string huge numbers of ethylene molecules together as polyethylene and new plastics industry was born. Today fiberglass is still the most popular building material for cruising kayaks; polyethylene plastic is nipping right at its heels. There are two ways of forming polyethylene boats which produce fine hulls. Each start by melting polyethylene pellets within a mold. Rot molded hulls are formed by rotation and tilting the mode to spread polyethylene and blow-molding, air pressure is used to force the molten plastic into every corner and crack of the mold.(the plastic kayak are shown in appendices 1/3) (Stuhaug, Dennis 2006, 21)

Frame and fabric kayaks remind of the origin of a kayak. This type of boat comes with a hull made of a fabric treated with waterproofing coating and a deck of lighter and quite water repellent fabric stretched over a frame. Some paddlers prefer aluminum as they say it requires less maintenance while the paddler in a boat with a wooden frame says aluminum must be equally cleaned and protected from saltwater decomposition. (Stuhaug, Dennis 2006, 23-24)

Wooden kayaks are not very popular at present. They used to be popular around a century ago or even more. There is a common technique in building wooden kayaks; strip-built boats are constructed out of narrow strips of thin wood fitted over a mold with each strip of wood edge glued to its neighbors. Hulls and decks are formed separately and removed from their molds before being coupled together. Most are covered with a layer or two of fiberglass and resin. Stitch and glue boats are shaped out accurately cut beams of thin

plywood that are wrapped around molds and then stitched together along each edge with a wire thread. (Stuhaug, Dennis 2006, 25)

Inflatable kayaks are a series of airtight tubes engineered in to a long and relatively narrow form, with a floor joining the tubes. Backrests, seats and foot braces can be added; some inflatables have the floor supported above the water level, and valves or slots in the floor allow water to drain away. Multiple air chambers provide more security. If one chamber oozes air the other will continue to support the kayak and passenger. For minimizing the cost of a kayak plastics and rubber are mixed which are normally the efficient designs. Nylon and polyester are also the popular base material of kayak. (Stuhaug, Dennis 2006, 25)

3 BASIC DESIGN AND OUTFITS FOR KAYAKING

Every kayak needs at least one seat, it is understandable that all paddler's bodies are not alike and therefore manufacturers equip their boats with adjustable back supports. Some adjustable seats have a curved back panel joined in some fashion on the bottom, with an adjusting mechanism that allows a paddler to dial in the angle of the most comfortable back support. (The parts of kayaks are shown in appendices 1/1)

If only one person was to paddle a boat, he or she could pad out the rigid support so that it fits properly and comfortably. The kayaks which are made without any form of back support the paddler cannot paddle effectively until paddler cobbled together a back support system. It is necessary that the paddler should lock into the kayak to float across the water.

When the floating starts the paddlers spend quite a lot of time in that seat so one should look over a couple of things. First the seat should be right within the boat, one should check the front of the seat for an upraised lip, and should be aware of the position of the seat. If the front edge of the seat presses against the back of paddler thighs during normal paddling position, the paddler will soon be in an extremely discomfort able position.

3.1 Design of kayaks

Basically the seat in many ways determines the size of the cockpit. Small cockpits mean small spray decks, and small spray deck may be set more tightly and is less likely to be blown off than a larger one. Larger cockpits mean boarding and exiting are easier, and larger items may be stowed in the cockpit itself. (Stuhaug, Dennis 2006, 29)

A spray deck is an accessory and it is a part of the kayak. It should fit quite tightly around the cockpit coaming, so that it will not pop off if a bit of wave falls on paddler and can be stretchy enough so that paddler can pop it off in an emergency. (Stuhaug, Dennis 2006, 29)

Paddlers must have their feet solidly placed on a structural support to paddle. It does not matter how people paddle today. Some foot-pegs assemblies are formed right into the hull

itself, other foot pegs are part of an adjustable system in which the distance from the back support to the foot peg may be mechanically different. Some foot pegs have a control bar from the rudder system. (Stuhaug, Dennis 2006, 30)

When it comes to the interior design there are two choices, one can choose for an open interior from bow to stern, or divide the kayak into a series of rooms with water proof called bulkheads. Bulkheads are common in kayak design; front and rear water tight bulkheads create air chambers at each end of the kayak which provide substantial flexibility. (Benner Bob & Benner David 2002)

There are two common types of hatches, one is circular, short, wide and can be fixed into or out of a deck fitting. The other one may be in a rectangular shape, which is placed by clips or by lines passing over it. These commonly have a ring between the hatches and a deck fitting to keep them watertight. (Stuhaug, Dennis 2006, 30)

If there are no bulkheads, or have only a rear bulkhead then paddlers should have inflatable flotation bags which should keep secure at the end of the boat. If it is not kept secure then when a kayak sinks it will drift merrily away. Flotation bags may hold more than air, several makers build bags that may be opened and filled with paddler gear, resealed, and then inflated. (Mattos, Bill 2002, 170)

If the ends of a kayak is sealed off - by bulkheads or flotation bags - with one just behind seat and other ahead of foot pegs, a limited amount of water can enter into the kayak, which might be neglected. A high volume of cruising kayak with no interior walls or flotation bags can swallow up a ton or more of water and lots of water has to be pumped out. (Mattos, Bill 2002, 170)

A rudder is a device used to steer a kayak, it is not designed to turn a kayak, the weight of the paddler and the paddle turn the kayak. Rarely the paddler comes across a kayak with a ruder that is fixed permanently in the down position. Skeg is a fixed-direction rudder like blade mounted on the stern that a paddler can dip deeper into or remove from the water. It provides precise and mechanically simple directional control in wind and sea. (Stuhaug, Dennis 2006, 33)

Paddle floats are made with a spare paddle and a float, it is a temporary outrigger used to stabilize a swamped kayak, allow a paddler to freeboard. Compasses are an important navigation tools in kayaks. It might be difficult to find the way without a compass. Kayaks

should have one either permanently mounted deck compass or hand held unit. (Stuhaug, Dannis 2006, 124)

3.2 Paddles

Kayak paddles have a blade at each end. Kayak paddles come in a huge variety of shapes and sizes, and can be made from many different combinations of materials. The cheapest paddles will have plastic blades and a metal alloy shaft. They are commonly used for teaching beginners because they are inexpensive and fairly durable when used for low power, low stress paddling. They are, however, heavy and invariably more difficult to use when compared with more expensive paddles. (Fine, Michael R 2006, 10)

Composite paddles (carbon or molded fiberglass) are light and strong, and they feel exquisite, but they are very expensive. They are probably the only type of paddle to deliver a really good flex pattern; this means the paddle is designed to flex enough to absorb shocks caused by impact with the water, but not enough to bend in a way that wastes energy or diminishes control. Most paddlers prefer stiff blades with some flex in the shaft. (Fine, Michael R 2006, 10)

When choosing a paddle, paddlers will find themselves faced with a range of shapes and sizes they may seem bewildering until a paddler knows what he is looking for. Some paddlers have dihedral faces, which means they have a raised spine on the drive face, sloping back either side. This adds strength and stiffness, but is mainly intended to stabilize the blade by allowing water to flow evenly off the face at each side. These paddles tend to be more powerful than spoon-shape ones. (Mattos, Bill 2002, 37)

Paddles can have either symmetrical or asymmetrical blades. Asymmetrical blades are designed to enter the water more cleanly when paddling forward, and the disadvantage is that paddler cannot use them either way around. It is better for beginners to choose a symmetrical blade. Moreover a paddle can be feathered or feathered. Feather is the term used to describe the angle between the two blades on a kayak paddle. Most of the paddles are set at 90 degree, feather paddle are mostly used by sea kayakers and racers. (Mattos, Bill 2002, 37)

For beginners and general recreational paddling, the right length of paddle for paddler is determined by their height and their reaches the best way to check the length of kayak paddle is to stand it up, level with their foot and reach up and grasp the top blade. Paddlers will be able to do it comfortably with their arm only slightly bent. The experienced paddlers can increase or decrease the length of a paddle which suits them. White water paddles can be up to 20 cm shorter than the general purpose of a flat water kayak paddle. Open water and sea touring and racing paddles can be up to 10 cm longer in order to give more power to each stroke. (Mattos, Bill 2002, 38)

Usually the shaft of the paddle will be round, but some paddles have an oval section where the hand goes, so that paddlers can feel which way the blade is facing. Some expensive paddles have bent shafts which apply less stress to the wrists by loading them in a way that is more anatomically sound. Many of the paddlers who use straight-shafted paddles find strength at first but feel comfort later. (Mattos, Bill 2002, 38)

3.3 Essential Clothing

Basically when we will be in water it might be cold and one might suffer quickly, so right clothing is important according to weather. Before getting into the boat the instructions should be followed if an instructor is available.

Insulation requirement will depend on the weather conditions which will be experienced in boating time. So it is necessary to check the weather forecast before setting out, and have to adapt the level of clothing accordingly.

If the climate is tropical and the water is warm, then insulation is not needed. A paddler can paddle in light and sun protecting clothes. If the weather is balmy, t-shirt and shorts will be nice and something warmer in case of swimming and getting drenched. Whatever a paddler wears should not get heavy when soaked; items made of polyester or polypropylene are better for warmth when wet than cotton. Board shorts, popular with surfers, are ideal for boating because they are durable for sliding in and out of kayak, but do not soak up much water. (www.atlantickayaktours.com)

If the water temperature is less than pleasant for dangling, the air is chilly for a t-shirt, and then a thermal base layer is necessary. One should choose which is made from polyester

fleece or polypropylene thermal material, or wear a wetsuit over ones thermal layers. The wetsuit should be as close fitting as possible without being restrictive.

If wind chill is an issue, one can add a wind proof shell top on over thermals for upper body warmth. There is a wide variety available from water – sports suppliers, including wind-tops, spray-tops, paddling jackets or cags; different manufacturers give their products different names though the items function same. The features to look for waterproof fabric, neoprene cuffs, comfortable neck seal and an adjustable or elasticized waist.

(www.atlantickayaktours.com) , (Gullson Laurie 1993, 44)

A paddler cannot paddle well if they are wearing heavy, cumbersome footwear. In most water environment it is good to wear something on feet. Running shoes are often recommended but they are bulky and the rubber soles can jam on the inside of the boat. If the weather is warm sandals will be appropriate. They are comfortable, light and inexpensive. Wetsuit boots are also best to walk, scramble and swim in but they are a bit expensive and are light weight too. (Mattos, Bill 2002, 44)

A buoyancy or flotation aid is important paddling equipment. Some of the overconfidence people think that the buoyancy aid is surplus to their requirement. But it does not matter how strong a swimmer he/she is, you have to wear while in a buoyancy aid water. It is extremely rare for anyone to drown while kayaking with a buoyancy aid. There are many different styles on the market, but the important thing is that it should be a buoyancy aid and not a life jacket, and it should allow you to wave your arms about freely. It should fit well enough so that it does not pull up and off when you are in water. One can check it by pulling up or someone else to pull up, the shoulders. (Fine, Michael.R 2006, 4)

The beginners should try to paddle on still water, although this is often surprisingly hard to find. Non-tidal rivers, lakes in calm weather or reservoirs where public access to the water is allowed would be suitable but there must be good bank in case one has to swim ashore. Beaches are generally safe for the beginners as waves are less and wind is not blowing offshore. (British Canoe Union, www.bcu.org.uk)

There are a number of situations that are unsuitable for paddling. Some situations can be difficult and some might be dangerous, one should avoid such places and not paddle where it might be difficult to get out of the water. You might get cold and tired after capsizing. Avoid any obstacle that might present a problem, such as steep banks, deep mud and

slippery rocks, which can be a night mare to a tired paddler with a kayak full of water. If there is current water, avoid paddling where there are rocks, trees, pontoons or obstructions in the water. A barely visible current can be enough to pin a boat or a person against the upstream side of an obstruction and this is common cause of paddling accidents. (British Canoe Union, (www.bcu.org.uk), (Harrison David 2003, 78)

3.4 Exposure to Nature Elements

Whether you are kayaking on an inland stream or out at sea, you are generally more exposed to the elements than when you are on land. It is necessary to take precautions since the effects of heat and cold, and sudden changes of wind direction, can strike very suddenly.

When you are out on the water the effects of sun are greater than normal, and ultimately these may dictate how long you can stay out. It is quite possible to get severe sunburn in as little as 30 minutes on the water during a day, when you can sun bath on the shore for much longer. It is extremely important that you always take with you an adequate sunscreen for you face, neck, arms and legs. If you are not wearing a helmet, protect you head and the back of your neck with a sunhat to minimize the risk of sunstroke. (www.smart-start-kayaking.com)

The effects of wind are also much more pronounced when you are on the water, a light breeze ashore, which necessitates no more than a thin summer shirt, might cause serious wind chill when you are afloat. As a general guide, there are few days when you will not need a windproof top plus at least one thermal layer, even when the sun is out and the weather is hot. If you are wet after a swim, these potential problems will all magnify. Always take with you a selection of clothes that allow you to adjust your level of insulation during the course of the trip. (www.smart-start-kayaking.com)

Never go paddling during a storm. High winds make it almost impossible to control a kayak, and you will struggle to hang on to your paddle. In addition, the water will become rough and unpredictable. You will not be able to make forward progress against anything more than a stiff breeze but, bizarrely, it is a following wind or a cross wind that makes the boat hard to control. (www.smart-start-kayaking.com)

It can be very pleasant to paddle in the rain in a sensible dress. Cold and wet makes a problem and uncomfortable therefore, water proof garments are necessary. (www.smart-start-kayaking.com)

In hot climates, apart from the dangers of sunburn and sunstroke, there is a real danger of dehydration and heat stroke. The most important thing is to keep drinking water with you. If you feel thirsty, you are already dehydrated. If you cannot quench your thirst, or have a limited water supply, you need to get into the shade and cool down. One of the problems with very hot, tropical environment is the humidity. The air is so saturated that the process sweating does not cool you down, although your body does not realize and carries on sweating. This is why you get dehydrated even though you may be soaking wet the whole time. (www.smart-start-kayaking.com), (Hutchinson Derek C 1995, 17)

In very cold air or water, the key is to dress both warm and dry. If you get soaked in a freezing environment you only have a few minutes to get warm and dry before you start suffer from hypothermia. Wear gloves on your hand which help to prevent your hand from getting frozen. (www.smart-start-kayaking.com), (Mitchell Jeff 2010,19)

4 BASICS IN KAYAKING

The first thing to understand is how to get in to the kayak while it is a float. One should be able to practice on dry land, if it is sure that the boat is strong enough to take the weight on hull. It is important to find the place where the bank is not too much higher than the gunwale of a kayak. Place the boat on the surface of the water, making sure that the water is sufficiently deep that person will still float after getting in. If it is deep enough to capsize, a person should ensure that it is also deep enough to get out of the boat when upside down. (Mattos, Bill 2002, 54)

Do not leave the kayak on the bank, which would make things difficult if capsized. It may be possible to step into the boat while holding on to the bank, simply pick up your paddle and paddle away, but this can often be tricky. A useful technique is to place paddle across the kayak at the back of the cockpit, and hold on to it and the cockpit rim at the same time. The paddle blade will then be resting on the bank, and this will stop the boat floating away, as well as supporting the back deck of the boat. (Mattos, Bill 2002, 54)

Now that the kayak is afloat and you are holding on to it and the paddle, place one foot on the bottom of the kayak, and make sure it is right in the middle before you put any weight on it. Transfer all your weight on to that foot and still holding on to the kayak and paddle with one hand, place your other foot right inside the kayak and sit down on the back deck. Take a moment to get settled. (Mattos, Bill 2002, 54)

In most kayaks there will be a seat with the position of the backrests and footrests, will dictate which way you are supposed to face. What is not always obvious is the correct posture. Maintaining good spinal posture means keeping your back straight and shoulders back, so that your spine is curved like the lesser S, and you cannot paddle properly. If a kayak is equipped with a back strap, the strap will give support and encourage sitting properly. (Mattos, Bill 2002, 55)

4.1 Capsize drill in a kayaks

Paddlers should practice the capsize drill every time and need to fully warm up before going for kayaking, until they are fully confident that after practice they can hold the kayak with one hand and with the other hand paddle.

When a person tries to get out of kayak while in the process of capsizing, the risk increase and the head will be under water and the person cannot be free. It is better to wait until the kayak has capsized and stopped moving and then get out. While in the water the person will not be aware of being upside down. Everything will look and feel exactly the same as when upright except holding breath. (www.abc-of-kayaking.com)

First remove the spray deck, if you are wearing one, by pulling up the release handle and letting it go. Then, bang on the bottom or sides of the boat to attract attention. Lean forwards and push yourself out by placing your hands on either side of the cockpit. You will naturally do a somersault in the water, breaking surface in front of the cockpit. Sometime you come up directly under the boat because kayaks are so narrow that there is no way you will be stuck underneath. If you can open your eyes it helps, but you can easily escape blind. If possible, try to keep hold of your paddle, but this is often difficult. As soon as your head breaks surface, take hold of the kayak and paddle or swim to the bow or stern. From there you can swim the kayak ashore. Alternatively, someone may rescue you and help you back to land or put you back in your kayak so that you can continue paddling. (www.abc-of-kayaking.com), (Seidman David 1991, 65)

4.2 Paddling instructions

Paddling is the critical thing, if a paddler wants to use it properly. This is because the correct grip enables the paddler to apply the maximum amount of water with the little effort. It is also important to hold the paddle in the same way every time when you pick it up. You can paddle properly if you have a consistent grip. (www.paddling.about.com)

Almost all kayak paddles are feathered (one blade at an angle to the other), which means that with each stroke you will turn the paddle to put the other blade in the water. One hand will control your hand and will grip the paddle at all times. Allow the paddle shaft to turn in the other, non-control hand, gripping it only as you make the stroke on that side. (www.paddling.about.com), (www.utha.com)

Find your best hand position by putting the middle of the paddle shaft on your head and shuffling your hands until your elbows make 90 degrees, making sure that your hands are still equidistant from the blades when you have finished. (www.paddling.about.com)

Hold the paddle out in front of you with your arms straight and horizontal, knuckles up. Grip the paddle with your control hand so that the blade on the control side is vertical and the drive (concave) face is forward. If it is your paddle, you can mark the hand positions with tape. Now you are ready to paddle. (www.paddling.about.com)

Paddling is an art. Which means following certain rules, a good paddler put the whole of the blade in the water but not more. There is no advantage to the blade being deeper in the water, and it will not work properly if it is only half in, the whole blade should be just immersed.

When you make a stroke, you should always try to rotate your shoulders to give you as much reach as possible. This also means that much of the power for the stroke will come from your leg and torso muscles, the other point that a kayak paddler should concentrate on is head rotation. Before making a stroke you should make sure your head is facing in the direction you want the boat to move in, so for forward paddling, you must be looking at the horizon. If you want to turn the boat to the left or right, you should first turn your head to look that way. This helps the whole of your body make the strokes. It also tends to inhabit various bad practices, such as looking at the paddle blades or the end of your kayak, neither of which are any help and will encourage bad posture, which can lead to injury. (www.wikihow.com)

A good forward paddling stroke is a basic requirement, but it is not the easiest stroke. The main aim is to propel the kayak forward while applying as little turning force as possible. Normally if you make a stroke on one side, the boat will move forwards while turning away from the paddle blade that made the stroke. In order to minimize this effect, one should make the stroke as close to the boat as possible, with the paddle shaft as upright as possible. Reach forward as far as you can, leaning from the hips but without bending your spine forward. One should be able to put the blade in the water about 2.5 cm from the kayak, near your feet, and drive face back. When the blade is fully immersed, pull it back using your shoulders and torso, straightening up your top arm to push the “air blade” to the side of the kayak that the stroke is on. This will make the paddle vertical and a lot more comfortable for you. Continue to pull the paddle blade through the water until it levels with

the back of the seat. Try to resist the urge to pull with your bottom arm for as long as possible. When your arm finally does bend at the elbow, it will be time to extract the blade from the water. Keep this blade the same distance from the boat throughout the stroke. As soon as the blade is out the water, rotate your body the other way to make the next stroke on the other side. As you do so, you will have to rotate the shaft with your control hand; drop in the blade with the drive face pointing the same way as before. (www.kayakpaddling.net)

Paddling backwards is in principal no different from paddling forwards. It is not necessary to change your grip on the paddle, this is the mistake made by most. Always back paddle using the back of the blade, there is no need to turn the paddle around since its curvature actually helps you to make the back stroke, and because it is bad practice to change your grip. (www.kayakpaddling.net)

It is not possible to keep the paddle shaft as vertical as you do with forward paddling, or to keep the blades so close to the kayak, but this is what you should aim for. Make a big effort to rotate your shoulders as far as you can to place the blade behind you, this also helps you to glance behind and see where you are going. Push your paddle forward through the water with your arms fairly straight, and make the stroke as long as you can. (www.kayakpaddling.net)

Stopping the boat quickly is important. When the boat is in good pace jab one blade into the water next to your body as if to paddle backwards. The drive face should be pointing backwards with the shaft perpendicular. Repel the force on the blade, but as soon as you tense against that force and the boat begins to turn, jab the other blade in quickly on the other side. Repeat on the first side, and by the time you make your forth jab the boat should have stopped. (www.activetravelvietnam.com)

The forward sweep is the most useful turning stroke in a kayaker's repertoire. It will turn the kayak on the spot, and can be used to turn the kayak through 180 degree. By inserting just one sweep stroke, you can also change or correct your direction while paddling forwards, without breaking your rhythm. (www.paddling.about.com)

Start by placing the blade in the water as far forward as possible, with the shaft fairly low and the drive face pointing away from the boat. Rotate head and shoulders so that they are facing the direction of travel. Keeping your bottom arm straight, sweep the paddle in as

wide, and arc as you can. When you have turned as far as you need to, or the blade is coming close to hitting the back of the kayak, lift the blade straight out of the water. It helps considerably if you can edge the kayak slightly, so that the side opposite your stroke is raised a little for the first half of the stroke. Level the kayak again as the paddle passes perpendicular to the kayak, or you may catch the paddle. (www.paddling.about.com)

Reverse stroke is the exact opposite of the forward sweep. It is a much more powerful turning stroke, but it should not be used while moving forwards unless you want to turn and head back in the other direction because it will arrest all forward motion.

Start with the paddle blade as far back as you can reach, on the side you want to turn towards. Rotate head and shoulders in this direction. drop the blade into the water with the drive face towards the kayak, then sweep the blade forward in the widest arc you can, until you are pointing the right way, or until the blade is about to hit the front of the kayak. Lift the blade straight up out of the water. (www.paddling.about.com)

Keep your bottom arm as straight as you can throughout the stroke, and try to keep the kayak level in the water. It should be easy to turn the most common kayaks through 180 degree with one reverse sweep. Once the blade is out of water, the kayak continues to spin for further rotations. Practice spinning using alternative forward and reverse sweep strokes. Go forward on the left and reverse on the right to turn clockwise. To forward on the right, then reverse on the left to spin in the opposite direction. (www.paddling.about.com)

This stroke moves the kayak through the water sideways, and although you can get by without being very good at it, learning to do it well will help you to improve many of your other skills. The draw stroke is curiously, a fairly obscure technique that many paddlers never learn to do properly. (www.paddling.about.com)

Place the blade in the water as far from the side of the kayak as you can reach, with the drive face pointing towards the kayak. Push out your top arm out as far as you can, so that the paddle shaft is as vertical as possible. Lift the edge of the kayak with your knee on the stroke side, and pull the blade towards your body. This should pull a general-purpose kayak about 50 cm sideways. (www.paddling.about.com)

As the blade approaches, raise your wrists back quickly to rotate the blade 90 degree, and then slice it back to where it started. If you do not, and the blade hits the boat, you may be

knocked off the balance or fall in. If you try to stop the stroke before it hits the hull, the same thing happens. (www.paddling.about.com)

5 KAYAKING IN DIFFERENT CONDITIONS

Kayaking in open water without assistance is the most difficult task, with practice however; open water kayaking became an easy task today. Knowing about wind and waves is extremely important if you are planning to paddle a kayak out at sea or on any large body of water, ignoring those means possibly endangering your safety.

(www.emsexploration.com)

When paddling in the open sea, winds and waves are important features, and they can have an immediate effect on what you are trying to do. It is crucial that you appreciate their power the way in which they work.

It does not take a strong wind to affect a kayak. Even a light breeze, which you would barely notice on shore, can have quite a dramatic effect. Surprisingly, it is not paddling into the wind that causes most people problems, because this merely slows you down. When it strikes, your kayak will constantly try to turn around to face upwind, and most of your energy is used to keep the boat pointing the way you want to go. Kayaks suffer the worse from this, especially if a solo paddler is sitting in the back. It happens because the center of drag of the kayak is usually quite far forward, and the tail half of the boat slews around quite easily. kayaks are often designed this way to make them easy to turn the solution is to have a skeg, or rudder, at the back, or even to move your weight back, if you can to make the tail a little heavier, some short kayaks as short as 3m long. (Stuhaug, Dennis 2006, 219)

The cross-wind has much the same effect, blowing the tail away and making the kayak turn towards the wind. It is less annoying and more predictable than a tail-wind because you know which way it wants to turn, but it is still very tiring as you constantly have to sweep stroke to keep the boat on track. Many of the designed features of sea kayaks are specifically intended to combat the effect of wind, but they can never eradicate it completely without rendering the boat impossible to maneuver. (Stuhaug, Dennis 2006, 219) (www.recreationalkayaking.com)

On the open sea, waves are caused by the wind unless the water is moving quickly over submerged rocks. In the latter case, the effect is exactly the same as a white water river. Wind-blown waves are another matter, and they fall in two categories: chop and swell. (Open water kayaking is shown in the appendices 1/2), (www.kayaksandpaddles.co.uk)

Random small waves, created by variable winds over a short distance, are known as chop. A calm sea can become choppy in a matter of minutes when the wind strength increases. Chop can be confusing for paddlers because waves seem to come at them from all directions. The best thing is to ignore the waves as much as possible try to relax and trust your balance. Sometimes it can help to surf the waves, if only for a few seconds. (Mattos, Bill 2002, 159), (www.paddling.about.com)

Winds blowing in the same direction for a long distance create a swell. The longer the wind pushes, the bigger the waves get, winds blowing around the outside of a storm system commonly send 6 m waves radiating out across the ocean. Once these waves are made, they do not diminish unless they meet an oncoming wind, which reduces them. They will still be very large even after travelling 1000 km without any further power from the wind that created them. Swell only ever occurs over oceanic distances, and is rarely a concern in small enclosed seas such as the Mediterranean. Small swells of 1m can occur, for example, in some of the larger lakes in the North American and Canadian great lakes, but they do not rival the swells of the Pacific or Atlantic which commonly reach 10 m. (Mattos, Bill 2002, 159), (www.canoe.org.au)

River paddling is another competitive class of paddling, it is extremer than the open water paddling. River paddling are low down the hills with a medium size kayak, if the rivers are straight the kayak can be long as well. The river kayaking is done with short kayaks. It is also necessary to have a narrow kayak to move faster. River kayaks have a deep, vertical bow for slicing through waves, a narrow hull for speed, and wide deck, which creates the minimum width while also providing the necessary volume to stop the boat rearing up when punching through hydraulic water. River paddling will be fun in a fast flow river. The rivers in the middle will be deeper than the water in the bank. In the deep river paddler find easy to move on straight, where the river is flowing. The beginner should have to identify the grading of river before he starts. The grading 1 river will be easy as the water flows slowly and a paddler can control the kayak though he has less experience. (River kayaking is shown in appendices 1/2 & 1/3) (www.chargercomposites.com)

The white water kayaking is extreme as paddlers have to pass the extreme path such as rocks, trees, woods. White water kayaking will be exciting in narrow and fast flow rivers. Nowadays it is affordable as it has been commercialized in different parts of the world.

Before paddling in white water the paddler has to be able to identify the necessary components and grading of river. The white water river flows predominantly downstream and some parts will be faster than others. Sometimes water even moves upstream. The water in the middle of the river will be faster and deeper than the water near the bank. For the beginners grade 1 river will be suitable, as first grade rivers are flat water. Flat water moves with little energy and the kayak will be not affected. (www.emsexploration.com)

The white water kayaks will usually be made of plastic. It should have enough buoyance to float well even when completely full of water. If there is any significant risk that, when full of water, a paddler should end up summing out of his kayak, an airbag should be kept inside the kayak to minimize the risk. Most of the kayaks for white water kayaking will be of short length with maximum of 2.5 meter and fairly flat bottomed, and paddles are also short with maximum of 2 meter. The paddle must be strong enough to last being smashed against rocks, and it should be stiff enough to provide good feedback from the water. Short kayaks and short paddles are used to make faster paddle strokes. (www.canoe.org.au), (www.emsexploration.com)

The primary requirements for the white water paddling are its accessories and clothing. Spray decks for kayaks are essential in rough water which is made from neoprene. A good neoprene spray deck will keep out every drop of water, and will not come off the cockpit rim, unless a paddler pulls hard on the release strap, which is usually located at the front. Some basic spray decks are available for the less confident and the new paddler. Along with the spray decks a flotation device is necessary for paddler. For severe white waters, some paddlers use special aids with a quick release chest best in case they need to be rescued. However a paddler should get only one of them if they know how to use one. Otherwise it is more likely to endanger than to save a paddler. (Mattos, Bill 2002, 126)

All white water paddlers are advised to use helmets because of high risk of finding themselves in the water and knocking their boats against rocks. A paddler should choose a good model that fits well on them and will protect their temples and forehead. The helmet must have the holes to let out any water that gets in during capsize or roll. (Mattos, Bill 2002, 127), (www.kahukayaks.co.nz), (www.whitewaterchallengers.com)

Clothing is the important accessories in white water paddling. So in hot weather the main purpose of clothing on upper body is to keep water from entering the spray deck tube and protect paddler from the sun. In colder climates or on cold water the paddlers need the

several layers of clothing to keep warm, but today most kayakers use specially designed paddling jackets called cagoule or cag. (Mattos, Bill 2002, 127)

If the paddlers are in number then there should be at least three people who make it easy to rescue. In the event of an accident or medical emergency one person can stay with the victim and other can go for help. Good planning and appropriate equipment prevent many difficulties and accidents. The biggest part of safety and rescue on the water is communication.

Kayaking is the safest sports when compared to many other adventure activities. Whereas minor injuries are common in all sports, the most common mechanism of serious injury is striking an object such as a rock, paddle or another kayak. If minor cuts happen then clean the wound with the clean water if the water is not clean then it is better to keep the wound dry.

6 CONCLUSION

The kayak is the small human powered boat designed to propel by a double blade paddle have long history. The product started form the wood to the technologically advanced product made of fiberglass and plastics is the most demanding product in the world. People who are not familiar with the kayak but want to experience in it get all the information what they want. The thesis has provided detail information on the kayaks and kayaking from the very basic level. To provide necessary information related to kayaking not only for the beginners but also to help reducing the risks for the experienced paddlers is the aim of the thesis.

The information which is given here can be used by any paddler whenever wanted. Following all the information makes paddling safe as well as fun. It provides all the related information for the beginners to choose the right place and to reduce risk while paddling. It is important to know to each paddler for the upcoming situation and handling it in a right way. Many paddlers have faced difficulties and some of them have lost even life due to the lack of proper information about paddling. Even experienced paddlers have crossed dangerous situations while paddling. All paddler should have the right information to reduce the risk and enjoy paddling. It is world famous sport with less risk comparatively with other sports. Though there are dangerous places for kayaking, which are chosen by the experienced paddlers, information has been collected about those places for the risk taker.

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APPENDICES



Parts of Kayaks



Glass Fiber Kayaks



Open Water Kayaking



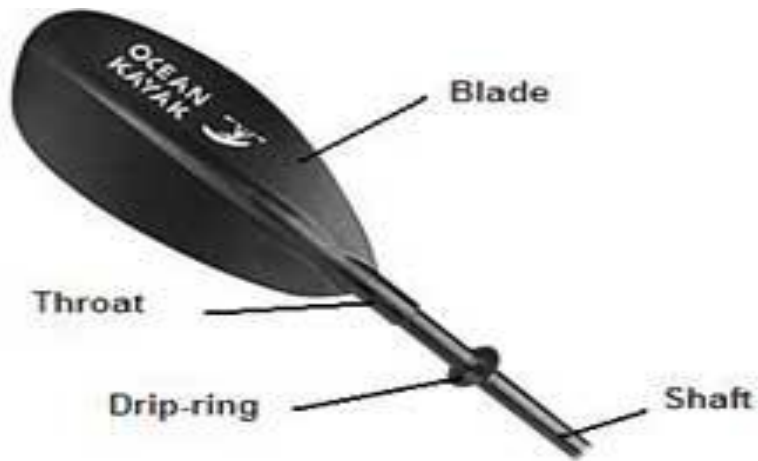
River Kayaking in Nepal



River Kayaking with Plastic Kayaks



White Water Kayak made with Plastics



Paddles Parts



White Water Kayaking Paddles are shorter than open water kayaking paddles