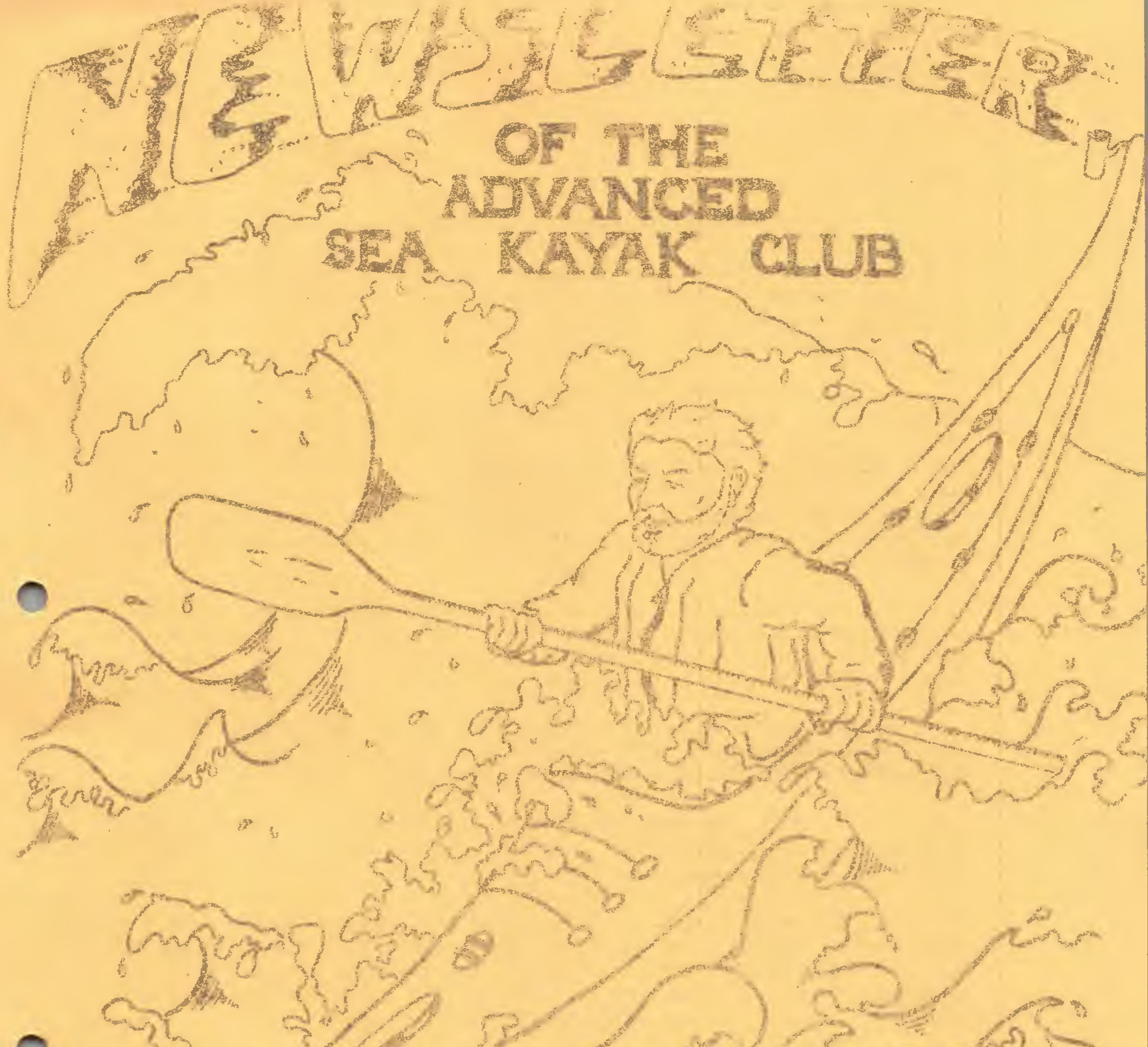
NEWSLETTER OF THE ADVANCED SEA KAYAK CLUB



AIMS:

Promotion of sea canoeing

Communication

Organisation of events and conferences

Safety and coaching

SECRETARY:
John J. Ramwell,
7, Miller Close,
Newport,
Isle of Wight.
PO30 5PS

AN INTERNATIONAL SEA KAYAKING CLUB
OPEN TO ALL INTERESTED IN THIS ASPECT OF CANOEING

ADVANCED SEA KAYAK CLUB

NEWSLETTER NO.65

JANUARY 1988

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NEWPORT
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EDITORIAL

First, A HAPPY NEW YEAR. Now that the shortest day is behind us, it is down hill to spring, sunshine and balmy breezes - well, I can dream!! My article on British Weather (largely poached from the Sunday Telegraph Magazine) - maintains that we don't experience a climate, rather a series of passing weather patterns; so it all remains a lottery - or maybe the sun really only does shine on the righteous after all!

The 6th International Sea Kayaking Symposium held at YMCA Lakeside in Cumbria over the weekend of the 6/7/8th November last year was clearly a great success. I have received encouraging feedback and certainly I enjoyed myself immensely Barry Howell is compiling the official Symposium Report Once it is available and costed I will announce its' availability here in this newsletter as well as in the canoe press The report will be a reflection of the excellent papers presented over the weekend and should therefore be worth having Watch this space.

Over the years I have accrued a large number of sea kayaking expedition reports which I now have listed on computer Should you wish a copy of this list, send a stamped, self-addressed envelope Then if you want a copy of a specific report you then let me know.

I recently received an Expedition Report on paddling the Yugoslavian coast during 1987 This expedition focused on islands off the mainland at Rijeka called Cres, Losinj and Unije.

Our next big occasion is the Canoe Exhibition at Crystal Palace over the weekend of the 20/21st February 1988. We will see you there at the ASKC stand in our usual place.

The QAJAQ books recently arrived and I have despatched them to the first on the list. I have an order outstanding with University of Washington Press, U.S.A. for some more. I should then have sufficient to fulfil outstanding orders with some left over for sale at the Canoe Exhibition in February. Cost £7.00 including postage and packing.

FOR SALE

Robin Ruddock of 12, Glenvale Avenue, Portrush, Co. Antrim, BT56 8HL, has produced a written guide to the Irish Causeway Coast which he is retailing at £2.oo (including postage and packing).

Tim Ward of Chiltern Canoes, Henley Villa, Wycombe Road, Stokenchurch, High Wycombe, Bucks HP14 3RJ (024 026 2959) has the following buoyancy aids available:-

> Wildwater Instructor and Expedition (clearance stock - brand new) small size only at £24 00 for the Instructor model and £30 for the Expedition, postage and packing inclusive

In return for a copy of Ernie Palmieri's "SEA KAYAKERS TRIP CLASSIFICATION AND CHECK LIST" send a stamped, self-addressed envelope The main purpose of this list is to offer the kayaker a list of essential elements that should be considered when planning and organising a trip on the ocean. In addition it should serve as a tool to help measure the proficiency level of a trip and a means of classifying it for various skill levels. Ernie gives a full explanation of how to use his check list.

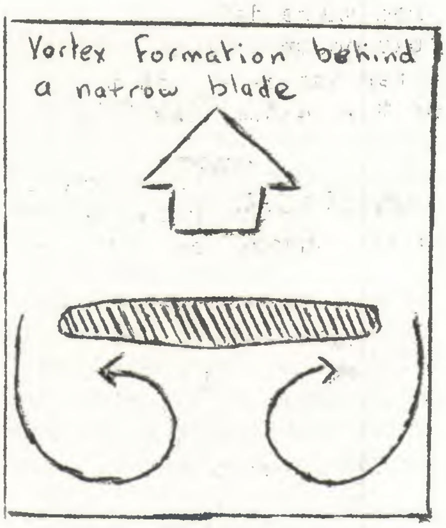
MEMBERSHIP

Renewals are coming in thick and fast which is encouraging. I have enclosed yet another renewal form for those of you yet to renew. Once the Canoe Exhibition is over I shall be publishing the 1988 ASKC membership list for distribution. Do let me know should you not wish your name/ address to appear on this.

THE NARROW BLADE
THEORY AND PRACTICE

By John Heath

Picture a grown man with an armload of assorted double-bladed kayak paddles, walking from a Texas ranchhouse to a nearby water trough. After nervously looking down the lane that leads to the nearest road, the man selects a paddle, dips it in the knee-deep water and starts making paddling motions with it. Then he repeats the procedure with each paddle, until all have been used. Finally, he tries each paddle again, picks them all up in a bundle and heads back to the house.



A water trough wacko? So it might seem but the water trough was the handiest place where I could study a phenomenon that is associated with narrow-bladed paddles. Luckily, my nearest neighbour lives a mile away, so my only embarrassment came from the sidewise glance of a nearby cow.

The data I was seeking involved a process called vortex shedding, or the Karman phenomenon, after one of the early researchers who studied it. When a paddle is dipped into the water to propel a canoe or kayak forward, the water on the working side of the blade moves outward, toward the edge of the blade, as the paddling force is applied. This water curls around each edge of the blade and forms an eddy or vortex with an axis parallel to the blade edge.

It is only noticeable with a narrow paddle, because then the vortex is large in relation to the width of the blade. That is why a narrow paddle zigzags as it is drawn through the water at certain speeds.

The same thing occurs when a round stick is held perpendicularly and drawn through water at certain speeds. You can do this at home with a round stick in the bathtub. (Remember to close the bathroom door behind you, though.)

Some kayakers find the zigzag motion of narrow paddles to be disturbing. To me it is an advantage, because it seems to spread the slip of the blade over more time and distance, so that for a given unit of time, the paddle has not seemed to love as far aft relative to the kayak. This might be real or just apparent, but it merits more study. Little can be observed from a kayak in motion, so the ideal way to study this would be from a kayak that is tethered at the stern. (Too bad, because the pond in my hayfield is in full view of the road - such is the dilemma of a shadetree scientist... - Ah well, back to the water trough.)

As a long-time student of traditional kayaks and techniques, I find the whole subject of narrow blades fascinating. To me, there is no truth to the assumption that narrow blades were the result of lack of suitable materials. The fact that they came into disuse is merely a sign that the Victorian paddlers who popularized canoeing as we know it made some wrong turns along the way. Quite simply, to attempt certain rolling and rescue techniques with a feathered, wide-bladed paddle is like trying to thread a needle while wearing boxing gloves - with one glove on backwards.

However, it remains hard for some kayakers to believe that a narrow paddle can be an effective propulsion device This brings to mind a discussion I had, 25 years ago, with an engineering colleague of mine. He had just read a magazine article in which I had advocated replicas of traditional kayaks and their narrow paddles for recreational use (The Kayak of the Eskimo, American White Water, August 1961). My friend had no comment on kayaks, but as an engineer, he disagreed with my recommendation for using narrow blades. In his opinion, the ideal shape for a paddle blade would be circular. To prove his point, he suggested that we refer to some tables in Hydrodynamics in Ship Design by Harold E. Saunders.

The tables give the coefficient of drag for various shapes that are positioned normal to the flow in a liquid. My friend reasoned that for a given area and if all other factors were equal, the shape with the highest coefficient of drag would indicate the most effective shape for a paddle.

He was surprised at what he found. A circular flat plate has the lowest coefficient of drag among all the flat shapes listed. For a given area, the longer and narrower a shape, the higher the coefficient of drag. From these data, my friend concluded that the highest drag during paddling must occur as the working face of the paddle blade exerts pressure on the water and causes it to accelerate. Once water starts moving across the face of the paddle, the distance it has to travel becomes less important.

However, a kayak paddle cannot be held vertically, i.e., normal to the flow, throughout the stroke. Thus it would be difficult to make full use of the theoretical efficiency of narrow blades.

It would, that is, if you restricted your paddling style to the modern repertoire of strokes. But there is a simple technique that Greenlanders have used for a long time, which makes it possible to use a long narrow blade to its near-optimum efficiency. This involves keeping the paddle moving lengthwise through the hands with each stroke. In this, the paddle is grasped with both hands in the middle with the thumbs touching. The control, or lower hand, remains in this position on the paddle as it is drawn aft. The forward-moving, or upper hand, slides outward along the blade during the stroke. As the paddle blade is lifted from the water, the upper and lower hands are brought together so that the thumbs touch momentarily and the hands then reverse roles. It is all done in a smooth continuous movement so that the paddle is always sliding through one hand as the other hand grips it.

The Greenlanders who commented on this stroke emphasized that the reason for it is to get the paddle blade fully immersed for more thrust and control. However, it also prevents the upper, or forward moving blade, from hanging out in the wind, so it accomplishes the same results as feathering. However, with parallel blades, there is no danger of a beam wind catching the upper blade, which could happen with a feathered one.

With a long blade, it is impractical to take deep strokes close to the gunwales. Thus, with the above stroke or in regular paddling, the angle that the paddle makes with the water, as seen from ahead or behind, is usually less than 30 degrees.

The logic of narrow bladed paddles for sea kayaking is proved - to my satisfaction, at least - by the fact that the two great deep sea kayaking cultures, the Aleuts and the Greenlanders, developed paddles that were remarkably similar in general shape. Yet they were separated by thousands of miles, and their ancestors separated thousands of years ago.

Both paddles have long narrow blades that rarely exceed 4" (10cm) in width. The aspect ratio, or length of blade divided by average width, is sometimes as much as fifteen. In more than thirty years of studying aboriginal kayaks and paddles, the only groups that I have found who used double-bladed paddles consistently over 4" wide were those who did much of their kayaking in shoal waters, where a short wide blade is less likely to hit bottom, or where rapid acceleration from a standing start is needed, as in intercepting caribou in midstream. (See David Zimmerly's Arctic Kayak Paddles, Sea Kayaker, Vol.1, No.3.)

The blades of a paddle are importantm but so is the loom. Mention was made of the pioneers of recreational canoeing making some wrong turns, and perhaps one of the greatest among these was to give the looms of paddles a round cross-section. I believe that this is one of the main reasons that feathering became popular. Several generations of paddlers have gone twirling off into the sunset without realizing that the tendency of round looms to rotate during the stroke has as much to do with their preference for feathered paddles as does wind resistance. Traditional paddles, with few exceptions, have looms that have oval cross-sections, with the greater diameter at right angles to the plane of parallel blades. This is particularly important if the loom is so long that the hands cannot grip the roots of the blades, because not only is it stronger for a given weight, but it enables the paddler to orient the blades when he is upside down in cold water, trying to think with a half-drowned brain.

Both oval looms and narrow blades are important in controlling the twisting force caused by the lower edge of a blade catching water and twisting the blade about the axis of the loom. (This is annoying when using a wide paddle with a square tip at sea; if the blade catches a corner, it twists and breaks the paddling rhythm.)

It is generally accepted that the optimum cruising speed of most displacement boats is at a speed/length ratio (speed in knots divided by the square root of the waterline length in feet) of approximately one. This means that a slender kayak of 16 feet waterline length should be able to be propelled all day at about 4 knots, provided the hull lines are reasonably fair and the skin is taut.

If such a kayak is paddled at an average speed of 4 knots, speed might drop by as much as a knot or more during the interval between strokes. For a pleasant trip, it is best to keep the variation in speed as low as possible because it makes travel jerky, and also because it is more tiring to accelerate and slow down than it is to keep speed uniform.

This is where a good narrow paddle can help a sea kayaker. By not taking too big a bit with each stroke, it smooths out the intermittent application of one's paddling force and helps maintain a uniform cruising speed.

In the event of capsize, a long narrow blade is far better as a hydrofoil than a short wide one for any brace or roll that involves a planing sweep or sculling motion. I have never heard of a traditional narrow paddle breaking at the shaft, but I've seen quite a few round-loomed, wide-bladed ones snap, almost always at the ferrule where stress is concentrated.

Narrow-bladed paddles are not for everyone. But those who give them a fair trial might come to understand why they have been used for centuries by the world's most experienced sea kayakers.

GETTING THE MESSAGE ACROSS

Radio Communication For The Kayaker:
CB, Marine VHF and EPIRB Units
by Mark Rognstad

A growing safety awareness has led many paddlers to consider a tool that is found on almost all larger vessels - the radio. The ability to broadcast a distress message over hundreds of miles offers a tremendous increase in the chances of a rapid rescue and in many situations of distress time is of the essence. Studies made of emergency situations - downed aircraft and wrecked ships - show a survival rate of roughly 50 per cent when a rescue is effected within eight hours. If rescue is delayed by 48 hours survival rate drops to 10 per cent.

The most important safety tool in kayaking - as well as for everything else - is sufficient experience and judgement to prevent life-threatening emergencies. Not all circumstances can be foreseen, however, and when the unexpected happens, the ability to call for help can make the difference between life and death.

There are a number of ways in which a radio can increase your margin of safety. You can listen to marine weather forecasts and Coast Guard warnings, talk to a passing vessel to find out what conditions are like ahead, or let others in your group know that you've found a hazard or an easier route. The communication capability of radios can help you to keep emergency situations from developing In spite of your best efforts, you may still suffer from some accident, or come across another person in need of assistance well beyond your own resources In those situations, you need to be able to call for help.

A radio transmission is characterized primarily by its frequency, by international agreement, certain frequency ranges, or bands, are allocated to specific uses. Frequency is measured in the unit Hertz, named after the German scientist who first characterized radio waves. One Hertz is a frequency of once per second.

The AM radio that you probably have in your car can receive radio transmissions in the range between 500 to 1600 kiloHertz, or thousand Hertz - abbreviated kHz. FM broadcasts are close to 100 megaHertz (mHz) or million Hertz. Different frequency radio waves travel in different ways. The low frequency waves bend more easily, and can bounce off the ionosphere; depending on atmospheric conditions, they can travel around the globe. Higher frequencies don't bend as much, and are less affected by the ionosphere. (Visible light is exactly the same as radio waves - it just has a frequency of about a thousand million Hertz.) This greater range might seem to be an advantage for the lower frequencies, but it is a mixed blessing. Imagine yourself at a party where you can hear someone on the other side of the room as well as a person standing right next to you; how easy will it be to carry on a conversation?

There are three types of radios that kayakers should consider for use while paddling Citizens Band radios, marine band VHF radiotelephones, and Emergency Position Indicating Radio Beacons Each type has advantages and disadvantages; by familiarizing yourself with the differences, you can choose the one (or ones) that are best for you.

CITIZENS BAND RADIO

Citizens Band, or CB, is the band of frequencies between 26.965 and 27.405 megaHertz. It is divided into 40 channels, equally spaced in frequency; this is done to allow 40 different transmitters to operate in one area at one time without interference. These frequencies are set aside for private use by both individuals and businesses, for short range, two-way voice communications. These frequencies are potentially quite long range, however; in order to enforce the short-range character of the Citizens Band, the Federal Communications Commission prohibits the use of transmitters in this band with a power greater than six watts.

There are many millions of Citizens Band radios in operation in the U.S. Licenses are no longer required, anyone with a transmitter can go on the air. Channel 9, 27.065 mHz, is restricted to emergency communications and traveller assistance only; all other channels are unrestricted in the type of usage and available to all users. The large market for CB radios has driven their prices quite low; a decent handheld transceiver (a contraction of transmitter and receiver, meaning a two-way radio) can be purchased for less than one hundred dollars. This is the greatest advantage of CB radios - they are very inexpensive. If your primary purpose for having radios was to communicate within a group of kayakers, Citizens Band radios would be a substantially less expensive option. They present another advantage in that there are a tremendous number of CB radios out there If you are not far from a populated area, the odds are very good that you could contact someone else.

The CB band has several disadvantages for the kayaker, due mainly to the wide variety of uses made of these channels. Boaters of all types form a tiny minority of users, and their needs are all but ignored. With rare exceptions, commercial vessels carry no CB equipment and there is no requirement that anyone monitor any particular channel. The U.S. Coast Guard frequently monitors the emergency channel 9, but this is not a high priority, and there is no guarantee that they will be listening at any given time. The Canadian Coast Goard does not monitor CB frequencies at all.

Another disadvantage is that usage of these frequencies is not intended for international communications. Citizens of the U.S. must obtain prior written permission from the Canadian Department of Communications before operating their transmitters in Canada, and similar restrictions apply to Canadians in the U.S. Mexico does not allow foreigners to operate transmitters in this band at all.

A further disadvantage for their use in kayaking is that Citizens Band transceivers are not waterproof The less expensive units are very poorly sealed and a splash would probably do them in. The waterproof bags available for marine VHF radios will not fit the much longer telescoping antenna featured by handheld CB radios. Leaving the antenna partially extended cuts down appreciably on the range and sensitivity.

MARINE VHF RADIOTELEPHONE

The Marine VHF Radiotelephone band is several times higher in frequency than the Citizens Band at 156 to 162 mHz. (The letters VHF are an acronym for Very High Frequency. You may see those letters on your television, associated with channels 2 through 13; those channels' frequencies are just a bit lower than the marine band.) Radio waves of this frequency do not bend very much; if the horizon is ten miles away, they will bend enough to travel twelve or thirteen miles before heading up into space. (And they'll keep going, right through the ionosphere.) This physically limits the range of the marine band.

Transmitter power is limited to 25 watts - substantially more than CB, but this isn't as great a difference as you might think. The range of a transmitter is proportional to the square root of the power, so a 25-watt transmitter has only 2.5 times the range of a 4-watt one. Portable, handheld transceivers of any kind have a practical limit of about five watts of power anyway; most are around three watts. The problem is that the batteries in handheld transceivers would run down in just a few minutes if they had to power a 25-watt broadcast, and if you put a bigger battery in to compensate, you'd end up with something too heavy to lift with one hand. Of course, if you wanted to carry a car battery in your kayak, you could use the most powerful marine VHF radio available.

The biggest limitation of range for marine VHF is the nature of radio waves at those frequencies, not the limit on transmission power. Range will only extend a bit beyond the horizon, and the distance to the horizon depends on elevation - the elevation of your radio's antenna, that of the antenna you wish to communicate with, and that of any hills that may be between On the water, these distances are easy to calculate: the distance to the horizon depends on the square root of your elevation. If your eye is 25 feet above the water, to choose an unlikely example, your horizon will be the quare root of 25, (5), times 1.06 nautical miles away. The earth's atmosphere bends visible light a little bit, and so you can see 1.17 times the square root of your height in feet; VHF radio waves are bent even more - the constant there is about 1.4, or, for the very tall kayaker (25 feet above the water?), seven nautical miles. For a more realistic height, say three feet, your radio horizon is just three miles away.

Not very far, is it? Fortunately that's only half the story. Your radio horizon is just how far away on the surface of the water your radio's waves will reach. Your radio waves don't stop there, they just start going up into space (or, more accurately, the earth's surface curves away beneath them). If there is an antenna up above the surface of the earth, it may be able to receive your signal even though it is beyond your horizon. All that is necessary is for your horizon to overlap with the horizon of the other radio. So the whole formula becomes: 1.4 times the square root of the height of your antenna (in feet) plus 1.4 times the square root of the height of the other antenna will give you the range in nautical miles. (For those of you in the metric world, 4.7 times the square root of the height in metres will give distance in kilometres.)

It is for just this reason that the antennas for marine VHF radios are mounted as high as possible on the vessel. Land stations, like those operated by the Coast Guard and National Weather Service, often have antennas placed on top of mountains, giving them ranges of as much as a few hundred miles The power of the transmitter, the sensitivity of the receiver, and the type of antenna all affect the range of communication possible.

The Fall 1984 issue of "Boating Equipment Reports" magazine described tests done with 3-watt handheld VHF radios, using different antennas located at different heights above the water. They found that ranges of the radios were between half and three-quarters of the theoretical. The range between two radios using the six-inch antenna which is usual on handheld marine radios was just over three miles, the range from the handheld to a Coast Guard antenna tower 90 feet high was ten and one-half miles. Connecting the handheld radio to an eight-foot antenna would give about 50% greater range.

The marine VHF radiotelephone band is much more closely regulated than the Citizens Band. By both federal law and international agreement, its usage is tailored specifically for oceangoing vessels. Channel 16 may be used only for distress and safety communications or for establishing contact with other stations. All radios must have this channel, and all stations are required by law to monitor this channel whenever their radio is on and not in use on some other channel. Coast guards organizations throughout the world monitor this channel continuously, and virtually all large commercial vessels do so as well.

Other channels also have very well defined uses. Channel 6, also required for all radios, is designated as intership safety channel, and is used by search and rescue vessels and aircraft of the Coast Guard. Certain channels are set aside for commercial vessels only; others are restricted to recreational boats Port operations and harbour control have certain channels allotted, and other channels can be used to place and receive telephone calls to and from telephones on shore. Channel 22 is reserved for communication with the Coast Guard, and Coast Guard stations broadcast notices to mariners on this channel several times daily These notices can be warnings, information about missing aids to navigation (lights or buoys), or requests for help with locating overdue vessels.

Adjacent to the marine VHF band, around 162.5 MHz, are several channels used by the National Oceanic and Atmospheric Administration for the broadcast of weather information from the National Weather Service. As weather information is of great importance to mariners, virtually all marine VHF radios have the capability of receiving these channels. Broadcast on these channels are recorded weather messages which repeat continuously and are updated every few hours.

The biggest disadvantage of marine VHF radios is their cost. The least expensive CB radios will operate on only one frequency, but all marine VHF radios must be capable of operating on at least three channels - 6, 16 and one other. Since there are so many different channels with such specific uses, virtually all marine VHF radios on the market today contain digital frequency synthesizers which can access dozens of channels. All marine radios must also have the capability of transmitting with a power of one watt or less, as certain channels cannot be used with a transmit power greater than that These all add to the complexity of even the least expensive unit, and so you should expect to spend close to two hundred U.S. dollars or more to purchase a handheld marine VHF transceiver. As these radios are used exclusively on the water they tend to be much more water-resistant than CB radios, but none of them are waterproof. Several manufacturers make waterproof bags for these transceivers, which allow you to use them in the wettest conditions, and will keep the unit afloat should it fall overboard. While these bags are not infallible - you must handle them with care, and check frequently for leaks - they are relatively inexpensive protection, and well worth having. They cost $20 to $30.

It is also necessary to have both a station license, and in Canada, an operator's license before using the marine band. (Operator's licenses are issued by the U.S. Federal Communications Commission, but are optional for transmitters operated solely in U.S. waters.) Both these licences are free in the U.S. and require simply filling out a form, but in Canada the operator's certificate is issued only after the successful passing of an examination, and the ship's station license costs $20.00 a year. After obtaining the required permits, it is then legal to operate a transmitter, but only from your boat. Unlike the Citizens Band, Marine VHF radios are strictly for maritime uses, you cannot use them for communication while hiking inland, or to call from your camp to a passing vessel. A special license is necessary to broadcast from shore, and these are restricted to commercial and nonprofit organizations providing marine services - fuelling docks, harbour traffic control, towing services, etc.

EPIRBs

Emergency Position Indicating Radio Beacons, or EPIRBs, are the third type of radio that a sea kayaker might consider for emergency signalling EPIRBs are small transmitters which broadcast a signal on frequencies used for distress calls only. This signal can then be used to home in on the location of the transmitter by search and rescue organizations These devices transmit a beacon signal only, they cannot transmit voice communications, nor can they receive. There are three types of EPIRBs: Class A, Class B and Class C

Class A and Class B EPIRBs broadcast on the frequencies of 121.5MHz and 243 MHz simultaneously. They must transmit a power of at least 75 milliwatts (.075 watts - about one thirteenth of a watt) for no less than 48 hours continuously when at a temperature of -20 degrees Celsius. At +20 degrees, they typically will operate for periods of up to a week. They must be waterproof (although it would be a mistake not to double-bag them); Class A EPIRBs must also be designed to activate automatically by floating free of a sinking ship.

Class C EPIRBs transmit their beacon signal alternately on two channe;s in the marine VHF band, channels 15 and 16. They send a brief tone on channel 16, indicating an emergency, then a much longer homing signal on channel 15. The transmit power of Class C devices must be at least one watt. They are also required to be waterproof, and must float with the antenna completely out of the water. Interestingly, these EPIRBs must turn themselves off automatically after transmitting for 24 hours; they can be reactivated by switching them off and then back on, although the batteries will probably not last a whole lot longer.

Why are there these two different types of EPIRBs? The first type, Classes A and B, are adaptations of radiobeacons designed for aircraft. Those frequencies, 121.5 and 243 MHz are in the aircraft/air traffic control bands. All commercial aircraft carry similar transmitters which are activated by impact. Air traffic control stations monitor these frequencies continuously. While the Coast Guard does not monitor these channels, its search and rescue ships and aircraft can home in on them. Both civilian and military aircraft can monitor these frequencies, and frequently do so while in flight. Remember the calculations of radio horizon? Imagine - or better yet, calculate - the horizon for an antenna at 37,000 feet! (It's 270 miles.) It is not surprising that boaters have wanted the use of radio-beacons like these. At first people would simply use aircraft-type beacons, although this was (and still is) illegal. Now the Federal Communications Commission has approved the use of similar transmitters, i.e., Class A and Class B, aboard oceangoing vessels.

That isn't all of the story about EPIRB range. In addition to aircraft, satellites also monitor these distress frequencies. This is a result of an admirable effort in international co-operation called SARSAT (Search and Rescue SATellite) involving the U.S., Canada, France, the U.K., Norway, Sweden, Finland, Denmark, Bulgaria and the Soviet Union. There are currently four satellites operating in the SARSAT system, three Russian and one American. These satellites are in polar orbits with periods of roughly 100 minutes; whenever a satellite receives a signal on these distress frequencies, it retransmits the signal to the ground. If the satellite is within range of an earth station, the signal will be received and then processed by computer to calculate the transmitter's location, with an accuracy of about 12 miles.

If the satellite is not within range of an earth station, however, nothing will happen - the satellite is not capable of holding distress signals until later in its orbit when it passes closer to a station. These ground stations are located at Kodiak, Alaska; Point Reyes, California; Scott Air Force Base, Illinois; Ottawa, Canada; Toulouse, France; Tromso, Norway; and Archangelsk, Moscow, and Vladivostok in the U.S.S.R. Three additional stations are planned for Canada, and Brazil is planning to become an active participant in the SARSAT system soon.

This is good news for people in the waters off Canada and the continental U.S., and in the North Atlantic and Soviet Union. Any spot within roughly 1600 miles of an earth station should come within range on an average of ten times a day. If a satellite passes just inside the radio horizon of a ground station, range can extend as far as 2200 miles. Coverage improves at higher latitudes due to the satellites' polar orbits; at the north pole, every satellite would be within range on every orbit. There is some bad news too, however. Ninety-seven per cent of the distress signals received by SARSAT are false alarms - beacons set off accidentally or even maliciously. This means that the Rescue Co-ordination Centre responsible for the area where a signal is located will wait for confirmation before initiating rescue operations. Confirmation can be an independent report of the distress signal, or the SARSAT system picking up the same signal at the same location on subsequent orbits.

The other type of EPIRB, the Class C, is entirely different. As it transmits in the marine VHF band, it is not monitored by aircraft or by satellite. This class seems to have been designed to alleviate some of the problems caused by false distress signals. The combination of low power and low elevation monitoring stations severely limits the range; the requirement that this class shut down automatically after 24 hours also means that accidentally triggered units will turn themselves off. Unfortunately, this means that Class C EPIRBs combine the drawbacks of EPIRBs - transmitting only a nonspecific distress signal - with the drawbacks of marine VHF radio-telephones - comparatively less range and coverage. Class C EPIRBs are less expensive, at $150 to $250, than Class B units, which cost $200 to $300 - but I feel they are significantly less effective and would not recommend them.

All EPIRBs require a station license. This is the same license as is required for marine VHF radiotelephones - exactly the same for a Class C EPIRB, and with a different box checked off for the Class A or B. In the United States, station licences are not issued for Class A and B EPIRBs to recreational boaters unless the vessel is "expected to operate in international waters beyond range of marine VHF distress coverage". The apparent intent of the law is to limit the proliferation of Class A and B EPIRBs; if you really do want this type of EPIRB, you must be expecting to make a trip beyond the range of VHF coverage.

It is important to keep these legal requirements for all of these radios in perspective. In the event of a bonafide emergency, where life is endangered, you should not hesitate to use a transmitter simply because it is not legal. The U.S. Federal Communication Commission has an unofficial policy of not prosecuting infractions of this type. Many people don't bother with licenses for EPIRBs, reasoning that the only time they will use the device would be in an emergency situation. However, the licenses are so easy to get, particularly in the U.S., that there really is no reason not to have them. A similar situation for the marine VHF user would be an emergency arising while ashore; don't wait to get in your boat and paddle offshore before calling for help. Of course, you may need to paddle out in order to reach the Coast Guard, if there are cliffs or hills near the coast that block your transmissions. In a genuine emergency, you should consider going ashore and climbing a hill to transmit if you cannot make contact from the water.

MAKE A CHOICE

Now that you know something about the different options available to you, you can begin to select the best one or best ones, for you. How much money do you have to spend? Where do you plan to go? Will you be part of a large group, or with one or two (or no) others? If your resources are limited, or you'll be part of a group that tends to get separated, Citizens Band radios may be the best. Marine VHF radios are expensivem but offer a lot of capabilities, combining the communication power of a CB with some of the distress signalling ability of an EPIRB If all you are interested in is distress signalling, and you are planning trips to extremely remote areas covered by satellite - a solo river trip in Northern Canada, for example - only an EPIRB will do you any good. Of course, if you can afford it, you could get more than one type of radio.

Whatever you do choose, learn how to use it properly and legally; not only will you save yourself some expensive fines, but you will make things much easier on those people whose business is our safety. If you get an EPIRB, please make sure it is off unless you are in a real emergency. Observe the rules and protocol for communications on the marine VHF and CB bands, don't interfere with legitimate users who will be sharing these frequencies with you.

From Howard Jeffs, Hyfrydle, Capel Curig, Gwynedd

At the end of the recent Canoe Exhibition I had a few days spare in which to occupy myself.

After reading Gino Watkins' fascinating book I had found out that his replica Eskimo kayak was kept in The Royal Geographical Society Building in London. The RGS is not normally opeh for casual visitors except for use of their very extensive reference library, but after a little persuasion I was taken on a short guided tour up to where the kayak was kept.

The kayak sits on two tressles in a hallway and is approximately 15ft long, 20in wide. I am not sure of the stature or height of Gino Watkins but the foredeck is very low indeed and would take a very small person by modern day standards to fit into the kayak.

It is a shame the kayak is in such a restricted viewing area and perhaps if more interested people requested to see it then the RGS may be persuaded to move it to a more suitable but safe viewing spot.

The following extract was in the cockpit of the kayak and may be of interest to ASKC members. So next time you are in London why not see if you can have a look?

Keep up the good work John, ...

Good paddling,

Howard.

WATKINS' KAYAK

J. R. Rymill

The kayak which we found adrift on 20 August 1932 has been hung among the relics in the Museum of the Society with all its hunting gear in place; and the following brief account is designed to explain its construction and use.

The East Greenland kayak consists of a wooden frame covered with sealskin, usually of the crested or bearded seal. It requires great skill and long experience to make a kayak frame. The young men seldom build their own, usually getting help or leaving it entirely in the hands of an old and experienced hunter. If the curves are not just right the skins will be cut by young ice, or if the proportions are slightly wrong it will be a bad boat in a rough sea. Each kayak must be made to fit its owner, for when one is in a kayak it must be part of one, neither moving independently of the other. If this were not so it would be quite impossible to right the kayak again after it had been capsized, which is actually quite an easy thing to do either with the paddle, harpoon thrower, or hand alone. When the kayak frame is finished the women cover it with sealskin, sewing it with sinew thread and using a waterproof stitch. This is done by passing the needle through only half the thickness of the skin at each stitch, therefore when the thread is pulled tight there will be no stitching visible on the outside of the skin. When the women have finished the covering, the whole kayak is given several coats of blubber to preserve the skins and also to fill up any small holes left in the seams.

We will describe the kayak gear, beginning with the bows. First comes the framework for the screen. This screen is made of white material and may be seen rolled up and lying under the tray holding the harpoon line. When the screen is rigged on the frame for hunting it looks remarkably like a small piece of drifting ice when seen from some distance in front of the kayak and is used to hide behind when stalking a seal.

Behind the screen frame comes the tray for holding the harpoon line. Under the tray will be seen a sealskin rifle bag. Between the tray and the cockpit is a collection of small wooden objects which are used for plugging holes in dead seals to prevent the blood escaping. One of these is longer than the rest. This is forced between the skin and blubber of the seal and the hole thus formed is filled with air and when plugged causes the seal to float while being towed behind the kayak. Near these pegs is a piece of wood pushed under the sealskin bands which go over the kayak deck. When fishing and shooting or getting in and out of the kayak one end of the paddle is placed under this piece of wood in such a manner that it will hold the paddle at right angles to the kayak, thus giving the effect of an out-rigger. Lying along the right side of the kayak is the harpoon, in such a position that it can be quickly picked up in the right hand. The end of the harpoon consists of a narwhal-ivory shaft about 18 inches long attached to the main wooden shaft by short sealskin thongs. Behind the cockpit is a bladder float made from the skin of a young fjord seal. This bladder is attached to the harpoon line, which is coiled up in the tray. On the other end of the line is the harpoon head, which lies in the centre of the tray. When the kayak is rigged for hunting the harpoon line lies along the harpoon shaft, and the head, which has a small hole between the barbs, is placed on the ivory end of the harpoon. The line is then pulled tight and attached to a bone peg about halfway down the shaft by means of a toggle, any slack line is then taken up and coiled in the tray. When the end is given a strong pull sideways it becomes detached from the wooden shaft, thereby slackening the harpoon line and freeing the head. When the harpoon is thrown the hunter immediately throws the bladder overboard. After the line has run out of the tray, which is a matter of a few seconds, the harpooned seal has no connection with the kayak. One of the dangers of this method of hunting is the possibility of the line being badly coiled and catching as it runs out of the tray, or else getting caught on part of the deck cargo, in which case the hunted seal would overturn the kayak as it pulled on the line. The hunter usually carries a knife on the deck pushed under the two thongs which hold down the back support of the tray. If he is overturned he can cut the line while upside down in the water and then right himself in the usual way. Behind the cockpit and to the right of the bladder is the paddle. This is made as short and as narrow as possible with a protective covering of whalebone or narwhal ivory along both edges and at the end of the blades, which are very thick. This construction is necessary as the paddle is often used as a pole when pushing about among ice floes. The bone edges are necessary when breaking through young ice, for without their protection the paddle would be cut and splintered in a few days.

To the left of the bladder is the lance. This is used for killing wounded seals and is thrown with the same throwing stick as the harpoon. Unlike the harpoon however it has no barb on the end. When the lance strikes a wounded seal the end becomes detached, and as the thongs holding the end are fastened in the centre of the shaft, it will float at right angles to the head, and thus the drag on the shaft will pull out the head of the lance as the seal swims through the water. The lance can then be picked up and used again. This should be unnecessary with a fjord seal, but when hunting larger seals or narwhal it is sometimes necessary to throw the lance several times before hitting a vital spot.

Seals must be the staple food for anybody proposing to live off the country in South-East Greenland. To procure seals in these waters it is essential to become an efficient kayak hunter. During the summer months if seals are killed while in the water they will sink at once. To prevent their sinking and so being lost, the Eskimo has evolved a method of harpooning them with the harpoon head attached to the bladder float. This cannot be done from a boat as the seals are too shy to come within harpoon range; so the kayak must be msed with its protecting screen. When hiding behind this screen it is possible for a good hunter to approach within a few yards of a seal. The seal can then be shot and harpooned while it is sinking, or if the hunter is expert enough it may be only harpooned.

In Greenland on H.G. Watkins' last expedition we had a small supply of provisions, but we relied on the country to furnish us with the greater part of our food. We had no difficulty in providing for ourselves, but it occupied about half our time.

There is a certain amount of risk attached to kayak hunting which was made very apparent by the tragic death of Watkins when his expedition had only been in Greenland for a few weeks. According to evidence which we found I do not think there is very much doubt concerning the cause of his death. I will not give a detailed account of the evidence here as it could only be appreciated by an experienced kayaker; it is sufficient to say that we found his trousers and kayak apron on a very small ice floe close to an active glacier. His trousers were wet and must have been in the sea. We also found his kayak floating full of water and with the hunting gear not seriously out of place.

If while out hunting the kayak screen is knocked by a piece of ice it is likely to get disarranged, and if this happens it is necessary to get out of the kayak for a few minutes to right the screen, as it cannot be reached from the cockpit. We think this happened to Watkins' screen, and he, thinking he would only be a minute, landed on a small floe in a dangerous locality. While on the floe a large piece of ice broke off the glacier, starting a wave big enough to upset the floe on which he had landed. There was a strong wind blowing off the glacier at the time, which would carry his kayak away while he was climbing back on to the floe. He then took off his trousers and kayak apron and tried to swim after his kayak. It would be impossible for him to get into his kayak in the water and he must have been overcome by the cold before he could get it to an ice floe. This of course is only a theory, but from the evidence we found and from personal experience it seems the only possible solution to a great Polar tragedy.

Fair Harbour Charters, Fair Harbour, c/o Box 103, Zeballos, B.C., V0P 2A0, Canada.
April 10, 1986

Dear Sir/Madame,

It might please your membership to know that we have reopened our security parking service in Fair Harbour and are supplying emergency services such as: tire repair, 5 gallons of gas, oil, battery jumps etc. This year we are also operating a charterboat service for Kayakers who wish to explore our remote, protected waters off the west coast of Vancouver Island; Brooks Peninsula, Bunsby Islands, Kyuquot Sound.

Bookings should be made in advance to be sure we are available. Due to our locale, radio communication is extremely difficult, one can make arrangements by calling area code 604 761-4231 and leaving a recorded message or by writing the above address.

Here are a few of the things this area has to offer the Kayaker:

The Barrier Islands, an area containing many reefs, rocks and islands over 33 miles long and 7 miles wide, provide protection from the open sea and wind. Some of these rocks are impregnated with fossilized shells, while some islands are the nesting site of thousands of sea birds including the Horned and Tufted Puffins.

There are two main inhabited islands in this group, a native village on Aktis Island and the fishing village Kyuquot on Walters Island. Services include fuel, telephone, general store, post office, Red Cross nurse, Federal dock, marine and coffee shop.

The Bunsby Islands, lying nine miles west of Kyuquot, provide the ideal combination of semi-exposed shores, sheltered bays and miles of shallow water in which over 300 sea otters flourish. In Checleset Bay where the sea otters have been eating the urchins there are magnificent kelp forests that go down to 90 feet and the diversity of life and lushness is incredible.

Brooks Peninsula, a long narrow mountain range that protrudes further out to sea than any other land mass on Vancouver Island, lies at the westerly end of the Barrier Islands. It is situated on the edge of the continental shelf and protects Checleset Bay from ocean swells and summer westerlies. It is believed that like the Queen Charlotte Islands it was not covered by the continental icesheets during the last ice age. Some species and sub-species originally considered unique to the Charlottes have been found on this peninsula.

Rugged Point with its mile and a half of white sandy beaches is situated on the east side of Kyuquot Channel. All along this part of the coast from Rugged Point to Brooks Peninsula Grey, Mink and Killer whales can be spotted.

The Tahsish and Artlish Valleys, virgin forests soon to be logged, are found at the head of Kyuquot Sound. The Tahsish, with Rosenvelt elk, cougar, wolves, deer and black bear, has the largest known Sitka Spruce stands in Canada, over 800 years old. The Artlish, with its deep box canyons, meadows and network of caves is also an excellent fishing river for Steelhead and Cutthroat trout.

If we can be of any service please give us a call. We wish you all a safe and enjoyable holiday and are looking forward to seeing you in our area this summer.

BRITISH WEATHER BY JOHN RAMWELL FROM AN ARTICLE TAKEN FROM THE SUNDAY TELEGRAPH MAGAZINE

Other countries have climates; we have weather. But the British weather, like the earth's climate, seems to be changing, and as it becomes less predictable, so the number of experts predicting it increases. They talk of the 'ozone gap' and the 'greenhouse effect'. The earth, they say, is getting hotter, or maybe colder. Wetter, or maybe drier.

Their main contention is that our planet is going to become a good deal hotter, from the combined effects of these two phenomena.

THE OZONE GAP

The ozone layer is a protective cloud of oxygen-like molecules between six and 30 miles up in the atmosphere. Although ozone allows heat to escape from the earth, it keeps out much of the sun's incoming radiation, and this prevents the earth from becoming unacceptably hot. In 1985, the British Antarctic Survey discovered the ozone gap, a series of holes which have appeared in the ozone layer over Antarctica The bigger the holes get, the more radiation will penetrate, probably causing the earth to become much hotter These holes are thought to be caused by an excess of carbon dioxide and chlorofluorocarbons These are produced by smoke, car exhausts, deforestation, aerosols, refrigerants and the plastic foam cartons which fast food is sold in - almost everything in fact, on which modern industrial society is based At a recent UN conference, delegates from some 40 countries agreed in principle to measures which would freeze consumption of chlorofluorocarbons, with reductions to follow But it may be too little, too late: the earth is already getting hotter

THE GREENHOUSE EFFECT

There is now about 25 per cent more carbon dioxide in the atmosphere than there was before the Industrial Revolution. Much of this now forms a cloud - a sort of malignant counterpart to the ozone layer - around the earth, allowing the sun's rays to penetrate but preventing heat from escaping. Like the walls of a greenhouse, this cloud causes the area enclosed by it - the earth - to become unnaturally hot. Some people believe that the average global temperature could increase by as much as $5^{\circ}C$ in the next 100 years. The short term effect, however, is unlikely to be warmer weather: instead, the slow changing of the atmosphere could well result in extreme fluctuations in local climates. Sudden showers are as likely as sunny spells.

When you think back to the storms and floods of October, the rains of June and those exceptional cold temperatures of January, it is hard to believe that the earth is doing anything apart from getting colder. The figures show otherwise. During the last Ice Age, 10,000 years ago, the average global temperature was some $10^{\circ}C$ lower than it is now - which means that the earth has been getting one degree hotter every 1,000 years. But according to the climatic research unit at the University of East Anglia, there has already been a rise of half a degree since reliable records began in 1850 In other words, the rate at which the earth is heating up seems to be accelerating

Most experts agree that this is a result of the industrial revolution - since when levels of carbon dioxide in the atmosphere have increased by about 25 per cent According to the Department of the Environment the next 100 years could see a further rise in temperature of anything from $1\frac{1}{2}^{\circ}C$ to $4\frac{1}{2}^{\circ}C$

The disagreements only start when meteorologists try to translate this development into changing patterns of weather. For example, it has been said that within 20 years British summers could be as hot and dry as those in the south of France, although we might have to live through a period of extreme climatic instability in the meantime. This statement was taken to prove that the recent vagaries of British weather were merely part of a long term climatic change.

There is also a view that the world will warm up on average over the next few years though it cannot be said with certainty what will happen in particular areas. Specific weather conditions are very difficult to predict on a small scale, and the British climate is pretty small-scale in meteorological terms.

It is hard to know what to believe and tempting to believe neither view, for there is a school of thought which holds that meteorologists don't know what they are talking about. If the 'experts' cannot predict a major hurricane force wind which is only hours away, how can we take their long-term predictions seriously?

Short-term weather forecasting is based on observations from satellites and weather balloons all over the world Forecasters claim that there are not nearly enough of these, but their observations are numerous enough to require computers to interpret them As far as the average giant computer is concerned, Britain is only a couple of dots on a world grid.

When it comes to predicting long term changes in climates, however, these problems are multiplied a hundredfold The quantities of data which need to be interpreted are unmanageably vast, and much of the data is of doubtful reliability. Really accurate records have only been kept since 1947, reasonably reliable records since 1850.

Those who claim that records are showing changes have an impressive set of statistics to back them up. This January was the coldest since 1947, they say. This April was the hottest since 1947; February 1986 was the coldest since 1947; autumn 1985 was the coldest since 1921. Surely our climate is becoming more extreme?

Those who disagree have statistics of their own: the maximum air temperature ever recorded in Britain was 38.1°c at Tonbridge in Kent in 1865; the minimum ever recorded was -27.2°C at Braemar, Scotland in 1895; in Victorian times the Thames used to freeze over regularly; and in the year 134 the Thames froze over for two whole months while in 139 it dried up completely for two days. Surely this suggests that today's climate is actually a lot less extreme than it used to be.

The trouble is that no one knows what sort of time scale we should be looking at. Obviously there will be differences in weather from year to year, just as there are from day to day, without implying any long term changes in the climate How do we know that the same is not true of variations from decade to decade, or century to century? Should we be looking for cycles of hundreds of years or thousands of years?

BUT according to the Meteorological Office records, January 1987 was nothing like the coldest January since 1947 - it wasn't even as cold as January 1985 And October 1987 was not even as wet as October 1960 - quite apart from the fact that it was the warmest October for 50 years More importantly (because you can twist statistics to show that just about ANY day was the coldest or wettest for years in some part of the country), they don't accept that there has been ANYTHING remarkable about recent weather.

At the Meteorological Office there has been nothing unusually unusual about this year's weather or this decade's weather. The only long term trends which have been observed are that winters seem to have been becoming slightly harsher since 1940, and that autumns seem to have been becoming slightly warmer. There has been an overall increase of about $\frac{1}{3}$°C in the average global temperature in the last 100 years or so, but there is no evidence to suggest that this is changing the climate in a systematic manner.

The most likely effect of the world getting warmer would be for the wind patterns to change, and wind patterns dictate local weather. Available knowledge is insufficient to predict wind patterns accurately and so it cannot be said what difference the greenhouse effect will make to the climate of the future.

Neither can the effects of the ozone gap be predicted. The science of predicting long-term climate changes is much younger than the science of short-term weather forecasting

Most of Britain's leading meteorologists are agreed that there has been nothing significant or sinister about this year's weather But this could be taken to mean precisely the opposite And if the experts are only speculating, then why shouldn't we, in the time honoured British tradition, speculate about the weather too?

NORTH TO ALASKA by TONY FORD

Off the Pacific coast of North America, in an area of spectacular scenery and virtually unlimited adventure, lies Vancouver Island. Running parallel to the British Columbian mainland, this 450 km long island covers 3,175,000 hectare of ocean beaches, magnificent snow capped mountains, lakes, rivers and valleys. This was the setting for Exercise 'SILVER ORCA' an attempt by five British soldiers to kayak 1,000 kms of largely uninhabited coastline.

The organisation began at the Army Mountain Training Centre Silberhuette, in West Germany, with Warrant Officer Tony Ford's idea to take a team on an offshore kayaking expedition, starting in Vancouver and, after four or five years, finishing in Glacier Bay, Alaska. In 1986, Tony had led six kayakers on the first part of the journey, from Vancouver to Gold River. The 1987 expedition was to start from Gold River on the west coast of the island and go north to Prince Rupert. Everything needed to survive would be carried in or on the eighteen foot kayaks. The team which was drawn from Army kayakers serving in West Germany and England included Staff Sergeant Don Chester, Lance Corporals Alan Williams and Nigel Emmerson and Private Bruce Rossiter

The group met at Gutersloh for the outward journey via Iceland and Calgary where a Greyhound coach took them to Vancouver A quick change to coaches and ferries brought the party to Cambell River where they were met by Gary Richardson to take them on the last leg of the journey to Gold River

After sorting out the kayaks and gear which had been left in Gold River over the previous winter, three weeks foodstuffs were bought. These provisions were waterproofed and repacked together with tents, clothing, sleeping bags and other equipment into the kayaks. When fully loaded, it took four men to lift and carry the kayaks to the water.

At 0530 hrs on May 27th, the kayaks were launched and the five man team made its way up the steep sided Muchalat Inlet, surprising a black bear busying itself at the waters edge near the first nights stop opposite Bligh Island.

The forecast high winds turned into gales and it was felt prudent to take advantage of the shelter offered by the 'inside passage' around Nootka Island. After a further two days paddling, Catala Island, at the mouth of Esparanza inlet was reached and it was quite clear that no further progress would be made against the high winds and rough seas beyond.

A cave on the shingle beach on the north side of the island was made as comfortable as possible for the three day wait before the gales died away. 'Alf' Williams specialised in fresh caught sea food, "anyone for a limpet?" Most of us had a taste, but declined 'seconds'. Whilst on the island came the now immortal line, "who's coming for a walk?" It was Tony Ford, doing his Rambo impression We set off at 1100 hrs suitably armed with a few boiled sweets and a packet of nuts in the secure knowledge that soldiers don't get lost on atiny island not much more than three square miles in size After finding human remains in a cave, possibly an Indian burial site, we hacked our way through the rain forest interior and waded through swamp after swamp before dead reckoning, tinged with a little luck, brought us onto a recognisable stretch of beach Nigel and Bruce rushed off ahead to get back to the campsite, as it was now late in the afternoon, to get the fire ready for the rest of us We returned to our cave home an hour later to find no one there Four hours later, just before nightfall, and after a further two laps of the island the lost couple 'dropped' in, having had to jump off a cliff and swim the last few remaining yards back to the beach since they had been cut off by the rising tide. We learned a salutory lesson on self reliance and dead reckoning navigation in rain forest - next time we would be better prepared!

Once the weather became more settled, kayaks were repacked and we made our way to the Bunsby Islands where we saw numerous sea otters, re-introduced after being exterminated by the fur trade at the turn of the century. Our plans were then to round Brooks Peninsula and land on the far side, however, the full effect of the westerlies hit us as we climbed wave after wave. Any hope of landing was out of the question, as we could see and hear, the waves breaking from three miles offshore. We were forced to continue and at 1930 hrs landed at Heater Point having paddled 33 km. Morale had taken a knock after such a long open sea passage on a quartering sea. We were relieved to reach the beach safely and drag our boats and weary bodies beyond the beach to the shelter of the nearby cliffs.

A further three days of paddling brought the five to Lowrie Bay to take refuge from escalating winds. Three days and nights of continuous rain, awesome storm, surf and the rain from the forests overflowing onto the beach proved too much for the tents on the beach. Refuge was taken in a small hut just off the beach for the remainder of our stay "Anyone for a walk?" - we should have known better, after a quarter of an hour we were up to our knees in swamp as we made our way along one of the Cape Scott Provincial Park's footpaths to Sea Otter cove There were but two fishing boats in Sea Otter cove, however, the break from the enforced inactivity had done us a power of good, and before long the weather had eased and we were back at sea heading for Cape Scott

Cape Scott, a rugged rain forested area on the lonely northern tip of the island, first inhabited by the Kwakiutl Indians and later by hardy Danish settlers has largely returned to its natural state with its sea birds and mammals, including bear, cougar and wolves Rounding the Cape was quite an experience - the forecast promised two to three foot waves, however, nothing had been said of the six foot westerly swell which accompanied the waves. News that two fishing boats had gone down in the area during the previous storms left us thankful that we had sought refuge; nevertheless, the rips and overfalls between the Cape and Cox island are no place for unskilled paddlers. Eventually we surfed in to Experiment Bight to make camp and again wait for favourable weather before making an attempt to paddle through the Goletas Channel and the five knot streams across Nahwitti Bar. Over the Bar, a ledge of sand which extends across the Goletas Channel, the kayaks bounced from wave to wave making the most of the remaining flood - yachtsmen with a dislike for such conditions are advised to take a less exciting route around the channel, especially in wind against tide situations where the waves can engulf small craft.

We had now covered 375 kms and had taken 21 days to do it. Pulling into the Sunny Sanctuary campsite near Port Hardy, thoughts of a hot shower were uppermost. We were fast running out of time and our goal to reach Prince Rupert in the fourteen days we had left was now out of the question. Furthermore, because we had arrived in Port Hardy nine days, the Post Office had returned the charts and other navigational aids needed for the second part of our journey back to Gold River - without these we could not continue.

Plan B - If we could not reach Prince Rupert, then why not go in search of the killer whales which are said to frequent Robson Bight at this time of the year? Don, who had been suffering from a neck injury remained behind to collect one of the kayaks left in Port Alberni and to find somewhere to leave all six kayaks to await the 1988 expedition Four of us then paddled to Cormorant Island, much of it a Nimpkish Indian reserve with its totems and cultural centre, as well as a branch of the Canadian Legion where the group were well entertained

Whilst camped in Robson Bight, and visited by inquisitive bear and elk, Nigel and Bruce suffered from a mild attack of food poisoning Tony and Alf took this lull to do a spot of fishing nearby. It was whilst fishing that the two spotted killer whales nearby, rubbing themselves on a pebble beach. It would appear this is a regular occurrence, and the pod of six or seven whales were watched at close range from the kayaks for a good fifteen minutes before it swam off down Johnstone Strait. Having seen at least five pods of killer whale in the next two days, the four paddlers returned to Port Hardy where equipment was cleaned up and packed away for the winter.

Our return trip to Germany took in a visit to the Provincial Museum in Victoria, where there are fine displays of the pioneer days, together with exhibits of the Province's wildlife and Indian culture.

"Silver Orca" had been designed to be demanding as well as instructive and had amply provided both. The time at sea had tested everyone's endurance, both mentally and physically. The wilderness taught us a lot about ourselves; expedition work and the need for flexibility. Living closely with others had shown how differently people see and react to danger, either real or supposed. The experience was invaluable and provided fuel for future expeditions. Above all, however, the trip brings back memories of the friendliness of those we met on our travels, in particular the people of Gold River, Port Hardy and Alert Bay; to these new found friends we say "Thank you".

The Sea Kayaker's Trip Classification and Check List

By Ernie Palmieri

The main purpose of the Sea Kayaker's Classification and Check List is to offer the kayaker or trip leader a list of essential elements that should be considered when planning and organising a trip on the ocean. In addition it should serve as a tool to help measure the proficiency level of a trip and a means of classifying it for various skills levels. Even though the items are listed separately, it should be understood that items influence and in some cases magnify one another to produce difficult and even hazardous conditions for the sea kayaker Further, it should be noted that it is a difficult chore to place a numerical value on some of the variables and for that reason the scoring system should only serve as a guide in achieving a numerical score.

The classification system is designed to work as follows: The kayaker should review all items listed under the heading of "Sea Conditions and Trip Route Rating", score each one and add up all the items to get a total score. Do the same for the section entitled "Personal Proficiency Rating". The section entitled "Equipment Rating" should be reviewed and the kayaker scores one point for every item he/she will be carrying on the trip, and add up all points for a total score.

Compare totals with appropriate rating scales to find rating levels. If rating levels match up between "Sea Conditions and Trip Route" with "Personal Proficiency Rating", you should be able to handle the trip you've planned. If there is a discrepance in rating levels one should make changes in trip plans to match the Personal Proficiency Rating level.

Finally, compare equipment rating score with equipment rating scale, If the rating is below the "Good Level" you should plan on upgrading equipment you are deficient in before attempting a trip.

1st May 1984

SEA CONDITIONS AND TRIP ROUTE RATING

____ 1. WINDS

Score	Wind Speed
0	calm
1	1-5 mph
2	6-11 mph
3	12-17 mph
4	18-23 mph
5	24-29 mph
6	30-35 mph
7	36+ mph

Score ____

____ 2. WAVE HEIGHT

Score	Wave Height
1	Flat water
2	1-2 feet
3	2-3 feet
4	4-5 feet
5	6-7 feet
6	8-9 feet

Score ____

____ 3. CURRENTS

Score	Current Speed Knots
0	0 knots
1	1 knot
2	2 knots
3	3 knots
4	4 knots
5	5 knots
6	6 knots and above

Score ____

____ 4. TIDE STREAMS

Score	Speed in knots
0	0 knots
1	1 knot
2	2 knots
3	3 knots
4	4 knots
5	5 knots
6	6+

Score ____

____ 5. VISIBILITY

Score	Visibility
0	Clear (unlimited)
1	15-20
2	10-15
3	5-10
4	1-5
5	500 yards-1 mile
6	less than 500 yards

Score ____

____ 6. TIME OF DAY

Score	Time
1	daylight
6	night time

Score ____

____ 7. WEATHER FORECAST

Score	Forecasts
1	Sunny and clear
2	Partly cloudy
3	Precipitation (rain or snow)
6	Storm warnings

Score ____

____ 8. AIR TEMPERATURE (Fahrenheit)

Score	Air Temperature
0	75° +
1	65-75°
2	55-65°
3	45-55°
4	35-45°
5	25-35°
6	below 25°

Score ____

____9 WATER TEMPERATURE

Score	Water Temperature
1	80^{o}+
2	$70-80^{o}$
3	$60-70^{o}$
4	$50-60^{o}$
5	$40-50^{o}$
6	$32-40^{o}$

Score ______

____10. SHIPPING AND BOATING TRAFFIC

Score	Condition of Traffic
0	none
2	light
4	moderate
6	heavy

Score ______

____11. LANDINGS

Score	Landing Condition
1	protected beach (sand)
2	protected but rocky
3	light surf (rocky)
4	light surf (sandy)
5	moderate surf (sand)
6	moderate surf (rocky)
7	heavy surf (sand or rocky)

Score ______

____12. ESCAPE ROUTES

Score	Escape Routes
1	numerous and easily accessible
3	few but accessible
6	few and far between

Score ______

____13. EMERGENCY HELP CONDITION

Score	Condition
1	numerous, easily accessible and close by
3	few but accessible
6	few and far between

Score ______

____14. TRIP ROUTE

Score	Condition
1	in sight of land at all times
3	partially in sight of land
6	open water crossing

Score ______

____15. LOCAL HAZARDS CONDITION

Score	Condition
6	Overfalls, races, williwaws tide rips, undertows, whirlpools, river entering ocean, headlands, high winds, ice floes, wildlife hazards
0	no known local hazards

Score ______

____16. TRIP MILEAGE PER DAY

Score	Condition
1	1-5 miles
2	5-10 miles
3	10-15 miles
4	15-20 miles
5	20-25 miles
6	25-30+ miles

Score ______

PERSONAL PROFICIENCY RATING

_____ 1. KAYAKING SKILL LEVEL

Score	Condition
6	Advanced
4	Intermediate
2	Novice
1	Beginner

Score _____

_____ 2. SKILLS AND KNOWLEDGE OF RESCUES

Score	Condition
6	Ability to perform rolls consistently in variety of conditions
4	Deep water re-entry and roll
3	Deep water re-entry using flotation on paddle
2	Deep water rescues (dual and group rescues)
0	No knowledge or skill in the above

Score _____

_____ 3. LIFESAVING SKILLS

Score	Condition
6	W.S.I. and/or Advanced Lifesaving Certificate
3	Artificial Respiration and CPR
0	No knowledge in the area

Score _____

_____ 4. FIRST AID KNOWLEDGE

Score	Condition
6	E.M.T., Advanced First Aid or Multimedia
3	Basic knowledge of First Aid
1	No knowledge of First Aid

Score _____

_____ 5. FAMILIARITY WITH TRIP ROUTE

Score	Condition
6	Prior experience on trip route
3	Partial experience of route
2	Charts, maps and gathered information from other's experience
1	Charts, maps and no other information or experience

Score _____

Personal Proficiency Rating (cont'd.)

_____ 6. PHYSICAL FITNESS LEVEL (based on Dr Coopers 12 minute Run Test) OF WEAKEST PERSON IN GROUP

Score	Condition
6	Superior
5	Excellent
4	Good
3	Fair
2	Poor
1	Very poor

Score _____

_____ 7. KNOWLEDGE OF BASIC NAVIGATION

Score	Condition
6	Basic knowledge and skills in navigation and course planning
3	Knowledge of compass only
0	No knowledge of compass or navigation

Score _____

_____ 8. AMOUNT AND WEIGHT OF EQUIPMENT CARRIED IN KAYAKS

Score	Condition
6	Day trips - boat basically empty
5	20-50 lbs
4	50-80 lbs
3	80-110 lbs
2	110-140 lbs
1	140+ lbs

Score _____

_____ 9. KNOWLEDGE OF WEATHER

Score	Condition
6	Excellent
5	Very good
4	Very good
3	Fair
2	Poor
1	Very poor
0	No knowledge of weather

Score _____

_____ 10. NUMBER INVOLVED WITH TRIP

Score	Condition
6	3 people
5	3-6 people
4	6-9 people
3	9-12 people
2	12-14 people
1	person

Score _____

Personal Proficiency Rating (cont'd.)

____11. PERSONAL HEALTH

Score	Condition
6	Excellent
5	Very good
4	Good
3	Fair
2	Poor
1	Very poor

Score _____

____12. SWIMMING ABILITY

Score	Condition
6	Excellent
5	Very good
4	Good
3	Fair
2	Poor
1	Very poor
0	Cannot swim at all

Score _____

____13. KNOWLEDGE OF NUTRITION FOR STRENUOUS ACTIVITY

Score	Condition
6	Excellent
5	Very good
4	Good
3	Fair
2	Poor
1	Very poor
0	No knowledge

Score _____

EQUIPMENT RATING

Give yourself one (1) point for every piece of equipment you will be carrying with you on your trip.

- ________ Kayak especially designed for the sea
- ________ E.P.I.R.B.
- ________ C.B. radio
- ________ Flare gun and flares
- ________ Hand held flares
- ________ Flash light or strobe light
- ________ Air horn
- ________ Whistle
- ________ Deck lines and tow lines
- ________ Paddle wing or float for deep water re-entry
- ________ Bailer
- ________ Bilge pump
- ________ Sponge
- ________ Spare paddle
- ________ First Aid kit
- ________ Sea anchor and line
- ________ Compass
- ________ Nautical charts
- ________ Tide tables
- ________ Floatation bags in bow and stern
- ________ Airtight bulkheads and access hatches
- ________ Spray skirt
- ________ Wet suit gloves
- ________ Change of clothes (clothes suitable for condition)
- ________ Foot protection (wet suit boots or sneakers and wool socks)
- ________ Matches or lighter
- ________ Wet suit
- ________ Extra line
- ________ Survival rations
- ________ Water
- ________ Food
- ________ Life jacket (class I, II or III)
- ________ Hat
- ________ Sun glasses
- ________ Sun screen lotion

Sea Conditions and Trip Route Rating Scale

Score	Rating level
1-24	Beginner
25-49	Novice
50-73	Intermediate
74-98	Advanced

Personal Proficiency Rating Scale

Score	Rating level
1-18	Beginner
19-39	Novice
40-57	Intermediate
56-78	Advanced

Equipment Rating Scale

Score	Rating level
26-35	Excellent
18-25	Good
9-17	Fair
1- 8	Poor