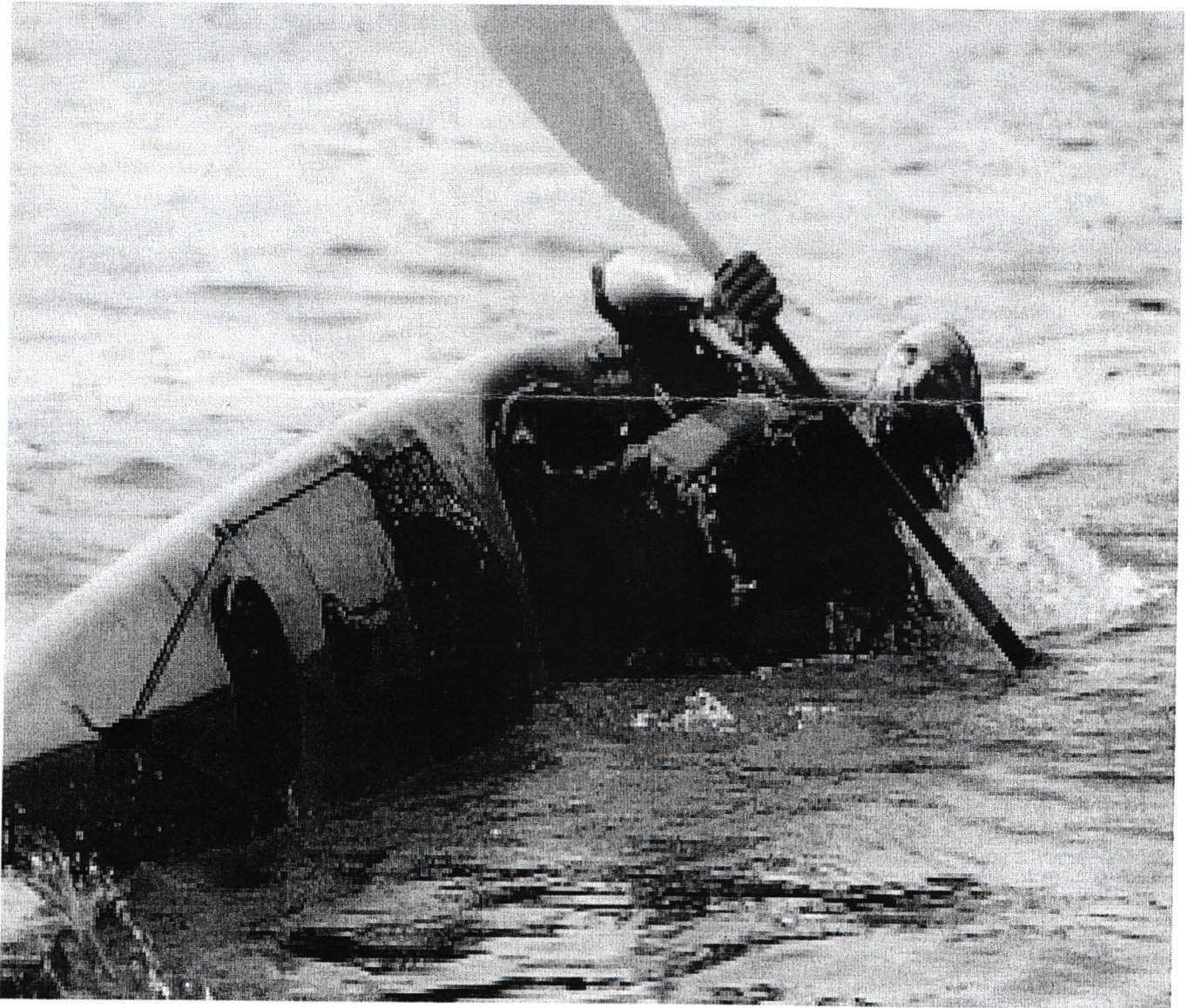

NSW Sea Kayaker

Newsletter of the NSW Sea Kayak Club Inc 28 Loureiro St, Condor ACT 2906

Issue 33

February 1997



Editorial

I was reluctant to take on this role as filling Mark's place was going to be a difficult task. He did a great job and brought the magazine out of the doldrums adding a sense of humour and colour, even if he did get a few people offside. I believe Marks taken time off to re-establish friendships lost during his time as editor. I have no experience at all at being an editor so forgive me if the magazine appears a bit disjointed as I experiment with layout and style while I find my way. I had a lot of trouble using Word for this and will probably switch to a publishing package. In the end I ran out of time so this one is a bit rushed.

I think the magazine is one of the great benefits of being in the club, for how many outdoors magazines have articles on sea kayaking. I have gained an enormous amount from the club so this is my way of repaying that back. I agree with Mark in the newsletter being fundamental to the health of the club especially in one that has its members spread over such a wide geographical area. But, the magazine relies on submissions, it will soon become apparent I not a good writer so I'm relying on others to give me articles. All the usual columns will still be there plus a couple of new ones. I will even keep the Members Hall of Shame; funny though, when I created the heading Jim Crofts name automatically appeared, must be something to do with the software Mark gave me.

I have a section called **Quick Snaps**. This is just for odd photos that don't belong to a story but may have an amusing caption, if you have any send them in with the caption.

The other section is called **Easy Cruising**. There must be others like myself who are still feeling their way on the open ocean but often enjoy going for a paddle by themselves or with their partner and are interested in safe day trips. There are many such areas such as estuaries, lakes and rivers that are lovely to cruise around in the comfort and safety of a sea kayak. I'm sure many of you have favourite places so why not write a small article about them and drop it in. For example there are lots of bays etc around Sydney, Pittwater, Hawkesbury that others may be interested in. I was going to do the first one for this issue but problems with creating the mag means I will have to wait to the next one

Don't forget to send some letters to editor. I haven't included any in this issue as no-one as sent any.

In submitting articles notice I have an internet. If sending articles this way send them as plain text files. If posting articles on a floppy, plain text or Word 97 will be fine. Remember to send Photos or scans of photos but they need to be done on a scanner with an optical resolution of 600dpi. For those who haven't quite got to the twentieth century and still using a typewriter then that's fine.

I look forward to producing the newsletter and hope I haven't bitten off more than I can chew so see you on the water

David.

In This Issue

Controversy

Laurie Ford's visit and paddle with the NSW Kayak club has caused some accusations and counter-accusations

Broughton Island

Visit this lovely Island off Port Stephens

Kayak Design

Leading North American Kayak designer takes Norm's design to task.

Plus

President's Report
Rock & Roll highlights
Hypothermia
Kayaking photos

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PRESIDENT'S REPORT

By Norm Sanders



Another year, another AGM. Honeymoon Bay was the venue again, but without all the usual hassles with hoons and noise. We were allotted our own area, due to the understanding and generosity of National Parks. There were well over 50 kayaks and a good time was had by almost everybody.

Sadly, the Club lost two stalwart members of the Executive. Arunas Pilka wanted a rest from the taxing job of Sec. Treas. and Fishkiller (AKA Mark Pearson) decided that it was time to wash the printers ink from his hands for the last time. Both of them served the NSWSKC with distinction and deserve our heartfelt thanks. Under Arunas' skilled (some uncharitable folks have called it tightfisted) guidance, the club treasury grew to monumental proportions.

Fishkiller transformed a rather stodgy London Times type newsletter into a racy Rupert Murdoch tabloid. Of course, the truth had to be bent a bit along the way, but that's show biz.

Tasmanian legend Laurie Ford was the speaker at the AGM, enticed to the mainland by a fare paid for by the NSWSKC. He recently commented on his

impressions of the visit in a copy of his own club Newsletter, "The Sea Canoeist." In general, he thought our AGM was too structured. He also attended the AGM of the Victorian sea kayakers, which was held in a pub and was more to his liking. He was also quite critical of our club Grading System. He says,

"I first saw this about 12 months ago and my first impression was that this was a device to stop people going sea canoeing - you virtually don't go anywhere interesting unless you are a bit of an expert."

Ford would rather depend on his own assessments of the paddlers on a trip. This is all very well for him and his club which is small enough to know everyone personally. (Laurie Ford says, "If it ever gets more than 20 members, I'll start to worry.") However, with our large membership, the NSWSKC needs some sort of reference point for safety.

Safety is a big item in Laurie Ford's lengthy writeup. He was rightly concerned over the lack of cohesion on a trip he took with club paddlers on the South Coast before the AGM. (see Arunas Pilka's article in this issue - Ed) However, he chose not to say anything at Honeymoon Bay: "I actually took a lot of photocopied material specially for this AGM, intending to distribute it and have a few words to say about various subjects - but after the Eden trip I had a rethink. They have about 180 members and if that's the way

they want to have their club run, then that's their business. So I just ended up showing 160 slides of Japan, Fiji and Tasmania."

Ford then included in his writeup a garbled list of the "disasters" which have befallen club members due to alleged carelessness or neglect. It is a pity that he avoided the chance to state his disquiet publicly at the AGM and thus spark a discussion which would have been a good learning experience for us all.

Strangely, he was also disparaging about using kayaks in the surf. He actually ran a picture in his newsletter which was taken from a kayak advertising brochure. It shows a kayak with a breaking wave in the background.

He says, "Picture this conversation as Mr. Eskimo looks out of his igloo entrance. 'Gee darling, there's a good 3 metre break over the bar today. I think I'll go out and play for a few hours.'" "...the above advertisement gives the impression a modern day sea kayaker going out for a day's fun in the breakers, exactly what the Eskimos never did." Laurie Ford's Tasmanian paddling grounds are blessed with a plethora of sheltered bays and coves. For many of us in NSW, punching out through the surf is the only way we can reach the open ocean to go sea kayaking. But then, as they say, different strokes for different folks.

Laurie Ford and I DO share some common ground: We both agree with Victorian Sea Kayak Club member Pete Dingle who Ford quotes as saying: "Sea kayaking is about journeyming. Sea kayaking is about sharing experiences and memories with others. There is more to sea kayaking than just paddling."

Have a good year.

The Long Story of a Relatively Short Paddle with the Famous and Controversial Laurie Ford

By Arunas Pilka



Things got off to a reasonably good start, John, Tim (the new Evan and almost complete novice to sea paddling) and I had arrived at the Eden dock only about 90 seconds after the 12.00 noon meeting time, this was enough to earn the mild opprobrium of Mr Ford who had already gone for a paddle to test some repairs he had made to his rudder, was packed and ready to go. John and Laurie set off to do the car shuffle leaving Tim & myself to pack our boats and John's so that we could get away as soon as Laurie & John returned. I patiently explained to Tim as he packed John's boat that it was essential to get all the really heavy things as far forward as possible as this would enhance the boat's handling in the advent of following seas or surf landings. Tim ignored my advice and John insisted on virtually repacking his boat when he got back anyway, so much for trust.

We got away at about 3.00 pm for the short paddle to Mowarry Point. Despite a SW wind of about 10 knots Laurie & John managed to get some sailing in and we arrived at Mowarry Point at about 4.30 pm. After pitching camp Laurie spotted some whales frolicking off the point and he and John paddled off after them, Tim & I watched from the Headland.

Day two dawned clear & bright with light wind from the South West. We stopped for a quick break at Bitangabee Bay then made our way to the tip of Greencape where we chanced upon a pack sea lions sleeping with 1 flipper in the air. As we approached they stirred and then out of curiosity followed us for a short distance while frolicking about the kayaks.

From Greencape I was in favour of heading straight across Disaster Bay for Merica River. Laurie however said that paddling way off shore was boring and he wanted to explore the southern side of Greencape. It was a lovely day, the wind had dropped almost to dead calm and we were in no hurry so it was decided to go to Womboyn Lake for lunch. Just as we got there a big South Easterly blew up. The surf on the bar was only about a metre but Tim managed to get tipped out and swam to shore. We found a sheltered spot inside the lake for lunch and by the time we left the wind had kicked up waves of at least two metres. Laurie who had not bothered with lunch, eating every day not being necessary let alone three times a day!, was out past the breakers already as Tim and I set out right next to each other with John close behind. It seems the set of the day arrived as Tim and I were almost out, I dug in hard and just made it over a large wave about to break then looked across to Tim to say that it was lucky we managed to get through and that John would probably get creamed by that one, trouble was Tim wasn't there. Fortunately John had seen it coming and had backed off affording himself a

good view of Tim getting surfed backward and going for his second swim.

Tim managed to get out on his second attempt and we had a pretty hard slog into the wind to get to Merica River. Dirk Stuber who had driven down from Wollongong that morning and had gotten the Womboyn shopkeeper to drop him off at the southern end of the beach in order to avoid the bar joined us just as we arrived. We got mussels and oysters off the rocks for hors d'oeuvres but Laurie wouldn't eat any. He reckons that anything but white bread, hamburgers, meat pies and Sao biscuits with peanut butter is junk food and that there is no proven need to eat vegetables or to get vitamin C. It seems to work for him.

The next day the wind had shifted to the south but was still blowing at about 25-30kn, the forecast was for easing winds so we decided to delay our departure to about 10 am, if anything the wind strengthened. As we left Dave and Ron arrived. They had spent the night at Bitangabee Bay and had had to slog all the way across Disaster Bay into the wind. No problem for Dave but Ron hasn't done a lot of paddling lately and apparently was pretty shot. We probably should have gone back into Merica to give him a rest but he said he was OK and we pressed on. Paddling into the wind the group spread out somewhat with Dave and Dirk out front Tim and me not far behind and Laurie, John and Ron a couple of hundred metres behind us.. The four of us got to the southern end of Newtons beach and waited for the

others in the lee of the headland. When they arrived instead of paddling up to where we were they headed for the beach. We had hardly been paddling for an hour and it was a bit early for lunch for us so Tim went back to tell them that we would go on ahead and that we would meet them at Nadgee Lake. By the time we got to Nadgee River and Tim wanted a break so we decided that Dirk would stop with him and Dave and I would go onto the lake. Dirk and Tim arrived at the campsite as Dave and I were starting to set up camp. After we got the tents up we had lunch then went for a walk back towards Nadgee River. Ron and John arrived just as we got back, without Laurie!

Apparently Laurie had been really upset when he got to Newtons beach and stormed off the beach for about an hour. It turns out he was really angry over the group spreading out the way it did and in particular that when they went to the beach we did not go back to them. About half an hour after they got under way again he paddled up to John and asked him if they would be alright to go on without him, when they said yes he turned around and headed back to Eden with the parting words of "*worst group management I have ever seen*"

That night the wind dropped but by the time we got away the breeze was picking up from the west, we paddled to Gabo, into another howling headwind from Cape Howe on (the caretaker's wife at the lighthouse said the wind was gusting to 37kn). Despite the fact that there is no camping on Gabo the caretaker wasn't going to throw us off with the weather the way it was so we set up camp on the lush green grass near the jetty. For dinner that night John and I found some abalone and Dirk speared a few fish, after dinner we settled down to watch the penguin parade (Gabo Island is the largest

Little Penguin Rookery in the world according to the caretaker).

Once again that night the wind dropped so the next morning we got away at 5am to beat the wind into Malacoota, we needn't have worried it turned out to be relatively calm the whole day. We arrived just before the bakery opened for breakfast then spent the day lazing around in Malacoota and surfing on the bar.

John had picked up a tick on his wrist back at Nadgee Lake and it was getting pretty swollen. I had some anti-histamine tablets but the cardboard box they came in was long gone. John had taken one the previous morning but it seemed to be having little effect. On arriving at Malacoota John asked me what the recommended dosage was, I couldn't remember but said that it was probably 2 or 3 every couple of hours. John took my advice and ended up a zombie for the rest of the day. He vows never to forgive me for trying to poison him.

Tim had become thoroughly enthused about sea kayaking so Dirk swooped on the opportunity to sell him his much loved (almost to death) Arctic Raider like the proverbial seagull on a sick prawn. The next day we headed home with one more boat than we started out with.

ps. One of the old lighthouse keepers houses on Gabo is available for accommodation at a rate of \$80.00 per night and sleeps 8 people.

Comment

Over the years, from John Wild and others I have heard stories of the exploits of Laurie Ford, as a result I hold a great deal of admiration for his capabilities as a sea canoeist and was eagerly looking forward to paddling with him. I have also been aware of his reputation for controversy and conflict to the extent that I was

surprised when I met him to find that he was quite amiable and communicative. His decision to abandon the trip the way he did does however confirm that reputation.

He obviously holds strong views and is not afraid to express them, something I find admirable even if I will not always agree with him. He has expressed those views in regard to this trip on his web site and I encourage members with access to check it out at <http://www.tassie.net.au/~lford/philos.htm>. There is however more than one side to any story and I would like to take the opportunity to put my side of it.

The issue of group spread is a thorny one and causes consternation in every club, group of paddlers and every sea kayaking publication that I have come across. It is easy to take the high moral ground and insist that a group never be out of voice communication range at any time or every 20 minutes or whatever, but the reality is that people paddle at differing speeds (even more so into a headwind) and it is better in my view to recognise this and deal with it rather than impose an unrealistic model that leads to frustration and ultimately in it being ignored.

This trip was not really a club trip, excluding Tim every member was either an instructor or a senior instructor. Most more experienced paddlers in the club feel an obligation towards less experienced paddlers and this is especially true for instructors. The obligation to "nursemaid beginners" is a bit tedious after a while and this trip with a highly experienced group was to be a bit of a holiday from that obligation.

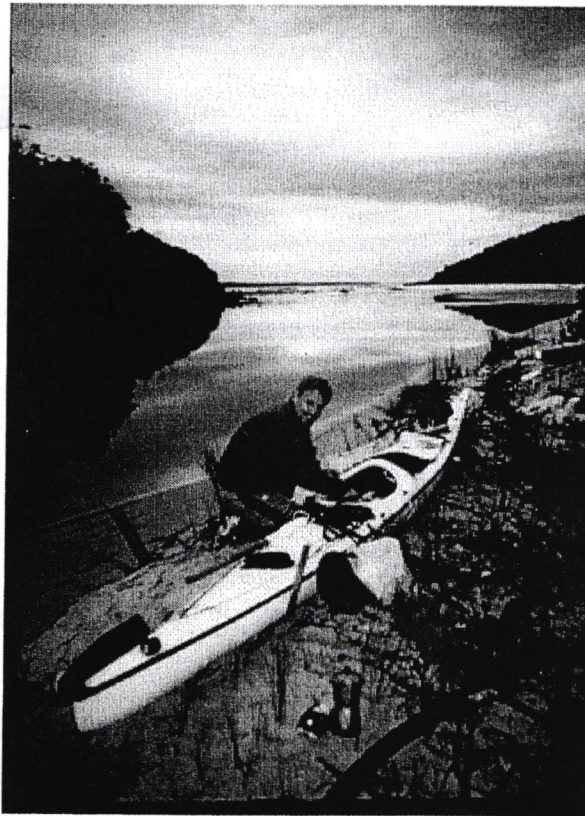
On the day in question we split into 3 groups, Dave and Dirk out front paddling strongly and obviously capable of looking after themselves, Tim and myself, I felt an obligation to look after Tim as the only novice but he was paddling at

a comfortable pace so that wasn't a problem and Laurie, John and Ron behind us, if you can't leave two senior instructors and an instructor on their own for an hour then good grief. This to my way of thinking is the realistic way of dealing with group spread, let the group split into self contained sub groups that can look after themselves while always being aware of who is in each group and where they are then stop regularly say each hour for a break and regroup. Laurie in his home page says *"The single biggest crime you can commit is to leave a paddler on their own."* I tend to agree unless you have mutually decided to do so and in this case as far as I was concerned this did not happen, Ron was in the capable hands of two senior instructors.

To support his argument Laurie recounts the story of a friend that was suddenly struck by a rare debilitating medical condition that rendered him incapacitated while paddling on his own behind the group *"when I looked round I saw Jeff way behind" and was only saved because "Just out of sheer instinct I stopped to wait for him,"* (the chronology of this is as per the text of Laurie's home page). If the single biggest crime you can commit is to leave a paddler on their own then surely he has committed it. I point this out not to be judgemental (I wasn't there, know to little of the detail and wouldn't presume to) but to highlight

the fact that it is easy if one is trying to find fault in another to apply unrealistic standards and then not apply those standards to oneself.

Laurie also makes much of the fact that we did not land with him, John and Ron at Newtons Beach "John wanted to go along to the next point where the others were resting and waiting, to tell them, but I suggested that this was unnecessary as they would see us go ashore and follow us in. Imagine my absolute disgust to see this group watch us land and then race off down the coast as fast as they could," This is only partially true and the omitted detail leads to an extremely false impression. The way I saw the incident is this. We stopped in the lee of the point to the south of Newtons Beach and waited for the others. They paddled to a



**Dirk at one of the lovely campsites
Photo John Wilde**

spot just off the beach and about 150m to 200m away from where we were. We were somewhat mystified as to why they didn't paddle up to where

we were as they had been paddling normally and there seemed to be no alarm, we decided that perhaps they wanted to stop early for lunch. We felt that it was too early for lunch and Tim who thought his lunch was in John's boat paddled back to where they were to confer. He came back saying that Ron was feeling tired and that they were going to stop for lunch to give him a rest and would meet us at the campsite. If I'm to be believed that puts quite a different slant on it, as far as I was concerned we had split the group by mutual consent.

I take further issue with some other things on Laurie's home page but will leave those for another time. The upshot of the whole thing is that during the entire trip no one was put in any unnecessary danger and on that I rest my case. Again I urge you all to check out his web site for his side of the story and I only regret that this incident has resulted in some animosity between old friends, that I did not get to know Laurie better and that he missed out on the second half of what could have been a very pleasant trip.

BROUGHTON ISLAND

By David Whyte



Broughton Island in the distance

January is probably not the best time to camp on Broughton Island but as I was spending Christmas on Lake Macquarie and I live in Canberra, it was the only time suitable. As it was the weather was kind to us and there were not too many people. I have heard stories of people being trapped on the island for days due to bad weather and we all had about 4 days food for a two day trip.

I was a bit reluctant to do the trip by myself so I contacted Andrew Eddy who brought along a few friends. One of them – Stuart – commented it was one of the best trips he's been on.

We were originally going to go up on Friday night to get an early start from Shoal Bay but just about every camping site in Nelson's Bay was booked. I invited them to stay at my Parents place on Lake Macquarie giving us an hour and a half drive the next day. I gave Andrew instructions on how to get there and he passed it on to the others if they got lost they could give me a call. About 8:30 Andrew and Dennis came down the driveway and Stuart was meant to be about half an hour behind. A couple of hours later with still no sign of Stuart we called him on his mobile – well he must have had the "Pedal to the Metal" because he had just passed the turn off for Myall Lakes (140 k further north). We gave him instructions on how to get to Nelson's Bay

and told him to sleep by the car and we would meet him there the next morning.

When we drove up the next day we wondered whether we would meet him but he was there ready to go complaining about lack of sleep from bivying next to a chook farm. We were on the water at Shoal Bay by 8 am.

The day was overcast with a moderate easterly wind (< 10 knots). The tide was running out so it wasn't long before we were heading out the heads and swung around to the north to head for Cabbage Tree island which blocks the view of Broughton. Stuart was ahead of us by this stage veering south and heading for New Zealand. A quick blast on the whistle and we indicated "This way Stuart".

Cabbage Tree was only about 4 k from the start but we sheltered in the lee for a while and had a bite to eat before the next leg about 14k across open water, or to be exact, 13.5 according to Andrews GPS. As we came around the corner of Cabbage tree Broughton appeared in the distance and my first impression was - that's a hell of a long way away. Although I had paddle long distances this was the longest open sea stretch I had done and my first sea trip with a fully loaded canoe.

I was expecting the wind to pick up but fortunately it stayed around the 10 knot mark and the overcast day kept the temperature around 25C. The only incident was when a fin came out of the water about 20 feet in front of us. Some one said it's a sleeping dolphin but we didn't need to watch it for long before we realised it definitely wasn't a dolphin. Judging by the amount of fin out of the water I guessed the size of the shark to be around 8 to 9 feet. It didn't come too close and disappeared into the blue yonder. The only other wild life were several flocks of fairy penguins (now here's an interesting question – is a flock of penguins in the water a flock or a school).

The wind had picked up a bit by the time we reached the east side of Broughton Island and there was a lot of back chop from the rocky shore line. We were heading for Esmeralda Cove but guarding the entrance was a huge bombora which needed a bit of careful

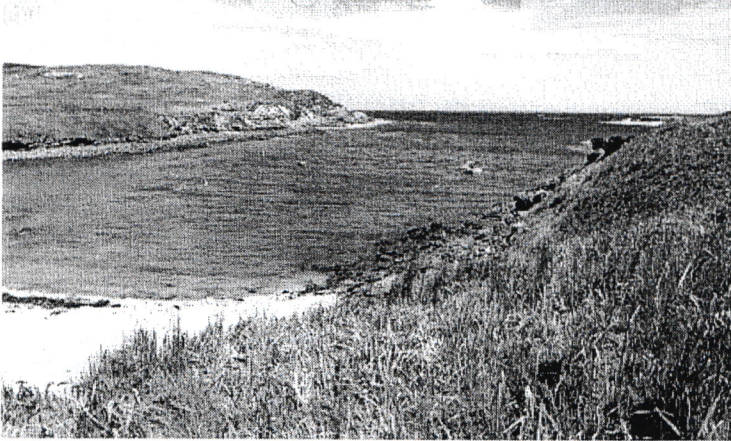


The beach at Esmeralda Cove

paddling to sneak in around the side of it. Once inside the cove it was quite sheltered with no waves at all breaking on the shore. There are two small bays one has huts belonging to fisherman and their

I spotted one rat near dusk and we all packed our stuff away but that was the only one I saw or heard. The biggest sleep disturber were the shearwaters who flew into the burrows near the campsites after

dusk. They made this errie kooning noise all night and one crashed straight into my tent during its sunrise takeoff. Stephens. The weather was glorious with the sun shining, clear water and a gentle breeze. In fact the wind didn't pick up until we reached the headlands when it started to reach about 20 knots. This in itself wouldn't of been a problem except the tide was going out creating a huge uneven chop. It took us nearly a hour to get through the heads and at some stages we didn't appear to be going anywhere. Tired and weary we pulled into the shore at shoal bay to the amazed onlook on the tourists sunning on the beach. Hamburgers and milkshakes were called for before heading back home



Esmeralda Cove

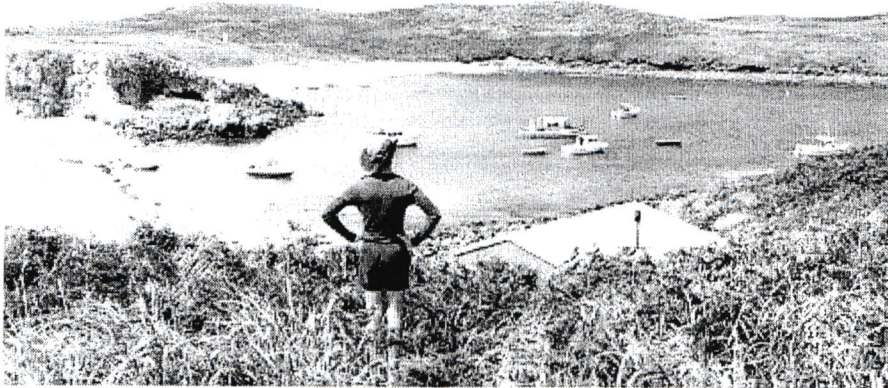
families the other was deserted except for a compost toilet on the top of the hill. It had a few grassy campsites and some fresh running water. We pulled in around lunch time with the whole journey taking around 3.5 hours.

We were on the water just after 0700 and headed down the south part of the island to explore the coves. The water was clear and sheltered with a small flotilla of yachts anchored. A women from one of the yachts came over for a chat. She used to be a keen white water canoeist and was interested in our trip.

Broughton Island is a great sea kayak trip and I could easy spend a few days there, and all of us were of the opinion we should come back again but as a 3 or 4 day trip. The island also has one huge advantage for sea kayakers for there are 3 good landing beaches - one faces east (Esmeralda Cove) with good shelter from the north easterly, the other faces north and the other faces south making landing in nearly any sort of wind possible. It would not be too difficult to carry your canoes from the north facing beach over Esmeralda cove

After lunch and the setting up of tents

we set off to explore the Island and I thought, what a lovely island. The sun had come out now and it was getting a bit hot



but this didn't slow Dennis down who must of covered nearly all the island in the afternoon. The rest of us went back to find some shade. Stuart found the best spot to read was in the compost toilet on top of the hill. To cool down we did some rolling practice and some snorkeling but the water in the cove was fairly cloudy. There were very good snorkeling bays around the point.

Once past the western end of the island we made a line for dark point, a small rocky outcrop on the long sandy expanse of beach running to Hawks nest. We pulled in for a rest before following the coast around. "There's a pod of dolphins working along this shore" said one of the fisherman and it wasn't long before a pod of around 30 dolphins were swimming under our canoes. We followed the shore for a while before cutting over to the entrance to Port

Rock & Roll Highlights

Photos by Jan Murrell

Paddling Blues

Terry Prosser's Paddling Technique session drew a large gathering eager to learn from a leading sprint paddling coach. Terry was blunt in his assessment of what constituted a good paddle; propeller blades were infinitely more efficient than 'flats', short shafts were preferable, and unfeathered paddles, well... the serious paddler wouldn't even think about one! Not surprisingly, depression descended upon those watching who were clutching long, unfeathered flat-bladed paddles.

But there was more to come. Despite some knowledgeable heckling from Laurie Ford, Terry argued forcibly that a 'high' power style was not a liability in strong cross winds and that the 'low' sea-paddler's technique in this situation was unnecessary. Terry then rubbed more salt into sea-paddlers' wounds by stating that his young charges, atop their magnificent K1's, could handle strong cross winds, heavy seas, everything...!

As the gloomy crowd dispersed there were mixed feelings; some cursing the day they had ever heard the name 'Terry Prosser', others wondering why on earth they had purchased heavy, ponderous sea kayaks when it appeared that K1's could do the job just as well and twice as fast! Summing up the feelings of many, one prominent club official was heard to say "maybe bloody Jim Croft isn't mad after all!"

Yacht's Not

A large crowd gathered along the rock platforms of Jervis Bay to witness six hopeful kayakers line up for the inaugural running of the Mini-America's Cup. All the boats were equipped with deck-mounted sailing rigs,

with the exception of one 'joke' entrant, a shy but charismatic stranger by the name of John, who boasted nothing but a large hand-held umbrella. The course was a simple one; the fleet would run northwest, around the 'buoy' (Andrew Eddy's precisely positioned Arctic Raider) and then head north east to finish at the entrance of Honeymoon Bay.

The starting gun sounded, the crowd roared, and the sailors feverishly began the task of assembling their rigs - the first competitor to reach full erection having an obvious

out of earshot. In the end coming last was just too much for Mark so he took a short cut and bypassed the last marker.

Within minutes it became obvious that the impossible was happening. Much to the crowd's delight, John's kayak, its umbrella proudly held aloft and pointing the way, had hit the front, cheekily pulling away from the grim-faced John Wilde and his \$2,000 NASA-designed kevlar/carbon Wing Sail. Further back, old-salt Norm Sanders had his gaff-rigged Classic moving well but not yet challenging the



The winning sailor - John Wilde

advantage! But skulduggery was afoot! Mark Pearson, brashly over-confident before the race, found his control line had been sabotaged. Unsure of who had been the culprit (but was that a knowing smirk on Doug Fraser's face?), the furious ex-Editor let fly a tirade of abuse in the general direction of his competitors, only ceasing when they were

surprise leader. Surprisingly, Doug Fraser's much vaunted Pittarak was at this stage wallowing pathetically and running second from last!

But were was the marker buoy? As the fleet approached the half way mark there was still no sign of the usually reliable Mr Eddy. A minute later a cry rang out as his cleverly camouflaged green Arctic Raider was sighted some 500 metres north of the correct position ("how was I to know that wind causes drift?" excused the



The umbrella Man from the Mary Poppins kayaking club

Advanced Proficiency qualified Mr Eddy at the race debriefing). However, Mr Eddy's shocking lapse was greeted with relief by the red-faced hi-tech boats - the second leg would now require the field to track directly east across wind to finish inside Honeymoon Bay, conditions known not to favour umbrella-powered kayaks!

And so it proved. The mood of the crowd changed to disappointment as slowly but surely the grim-faced John Wilde, the slick Norm Sanders and the smirking Doug Fraser overhauled the plucky umbrella hero.

Some minutes later it was all over. Screaming "aaahh'm the Man, aaahh'm the Man" and High-Fiving everyone in reach, John Wilde cruised into Honeymoon Bay for Line Honours to deafening jeers. Next came Doug Fraser, who, having somehow willed his mediocre Pittarak past President Sanders, chose to celebrate second placing by making obscene gestures to the hostile crowd. Blown off course, poor John the Umbrella Man was forced to cross the line under hand-paddling power and was reluctantly disqualified by the Judging Panel.

But then more controversy. The frenzied and distasteful celebrations of Wilde and Fraser were short lived when they were quietly informed of Race Rule 45 b)i), "at race end, all competitors must be able to complete a full eskimo roll with sailing rig in upright position".

Again grim-faced with concentration, the macho pair dutifully capsized but, to the crowd's delight, failed miserably to right their kayaks. They surfaced, bedraggled, noses streaming and clinging miserably to their upturned vessels - their only hope now a similar failure by the third-placed Sanders. But our wily President, as always seizing his chance to both humiliate

others and gain personal glory in front of an audience, performed a perfect Pawlata to win the magnificent First Prize - a jumbo-size Greg Norman Golf Umbrella!

Propeller Repeller

Following the Terry Prosser session, those paddlers equipped with 'propeller' paddlers could be seen licking their collective lips at the thought of taking on the antiquated 'flats' in a true test of blade efficiency - the inaugural Tug of War! But the ladies event didn't quite go as expected - the crowd were stunned into silence as the powerfully-built and propeller-bladed Jeanette Mill was towed backwards by flat-bladed and lighter opponents in consecutive match-ups. The ladies event eventually going to the energetic and anatomically correct Margie.

In fact, so complete was poor Ms Mill's humiliation, the administrators were kept busy re-drafting the men's competition as hordes of 'propeller-bladers', desperate to protect their fragile ego's, withdrew from the event! In the wash-up, an entertaining and hard fought men's competition was won by Matt (Horse Power) Turner with a very large flat-bladed paddle.

Footnote; In moments of high drama before the event, punters favourites David Winkworth and Arunas Pilka refused to compete after organisers failed to meet their demands for 'appearance fees'.

Cut and Thrust!

Despite the Figurehead Race being billed as a race displaying female figureheads, the race start saw menfolk of various sizes draped unflatteringly over the bows, their shapely posteriors exposed to the lascivious gaze of their opportunistic female teammates. As predicted, the event was tough from the very

start, with obvious heavy contact and verbal sledging as the six kayaks sped out towards the marker buoy. The turn round the marker was particularly rugged, with several kayaks colliding and a male rider injured. He later reported "as we rounded the turned I felt severe pain and turned to find the sharp end of a Spectrum embedded in the back of my thigh, I pulled it out, staunched the bleeding with my hat, and told my partner to keep going". This team (led by Jeannette Mill) went on to win the event in a tight finish. The Spectrum paddler, 'tough as teak' Jan Murrell, was unrepentant "OK, so the wimp got a flesh wound .. so what! He should thank his lucky stars I wasn't paddling a Pittarak - he's still able to have kids isn't he...!"

Turned Off

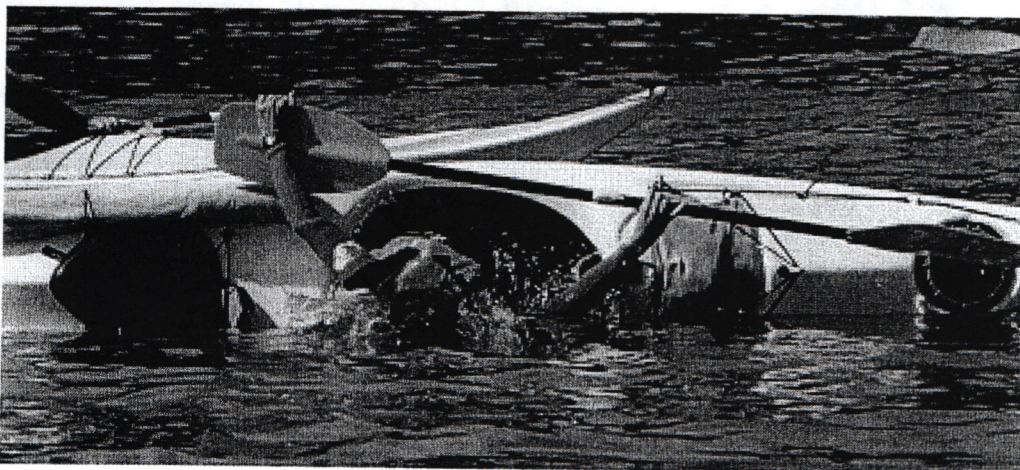
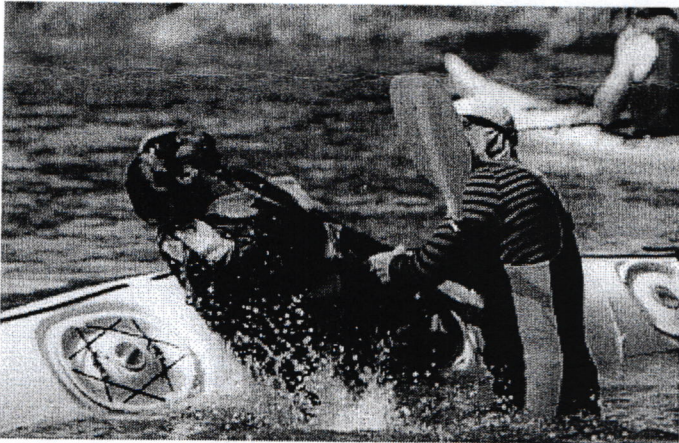
Over the weekend, many paddlers took the opportunity to paddle Dave Winkworth's all new sea-kayak, the *Gimlet*. Although all agreed the boat was obviously a true ocean craft and an absolute flier, several exhausted test-paddlers had to be carried back to their tents after attempting to turn the straight-running *Gimlet* into the wind. Catching up with Mr Winkworth as he worked out in his personal gym, our Flotsam reporter followed up on the story. "Look, that's utter bullshit" grunted a pumped-up and sweaty Mr Winkworth "with the correct technique and body position the *Gimlet* will turn beautifully and with hardly any effort at all! Believe me, strength has got nothing to do with it, those blokes just didn't know how to paddle her now pass me that 100kg dumbbell would you

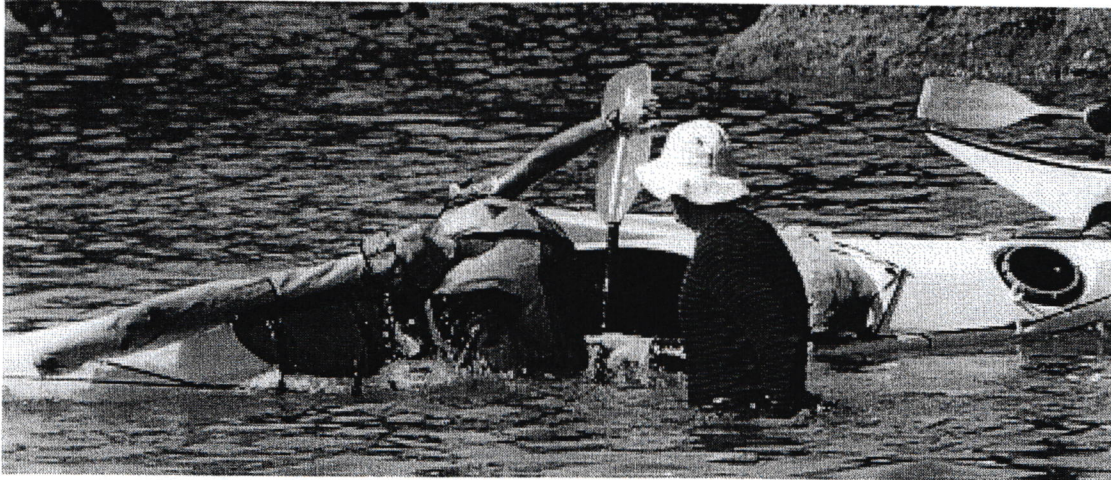
QUICK SNAPS



Getting ready to do some rolling practice Honeymoon Bay Nov 97

Rolling practice





**Doug Fraser
Giving some
lessons**



**Norm Sanders, the ever
inventive sea kayak
designer, has come up
with the pocket sea
kayak.**

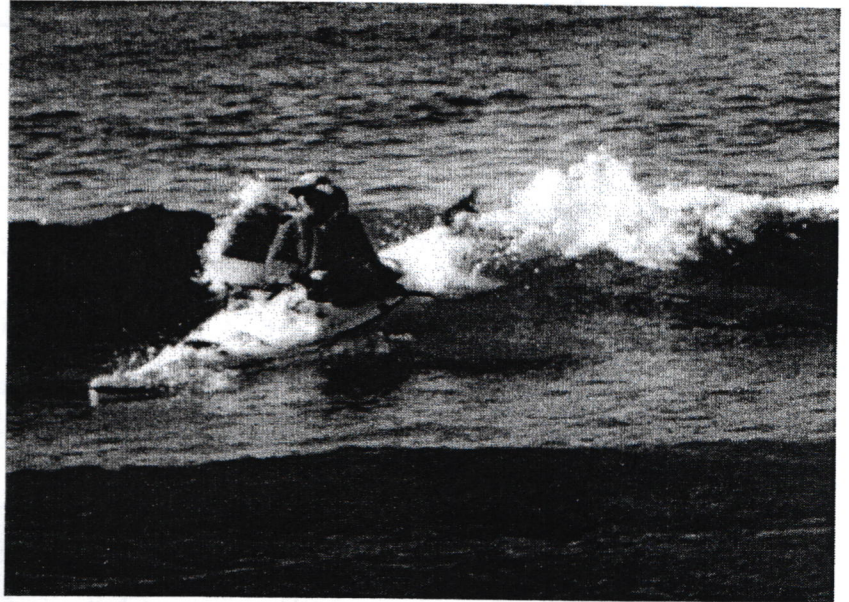
**The sailors in the inaugural
Americas Cup at
Honeymoon Bay**

Photo Jan Murrell





One of the important things to do before a trip is feel your backside, because at the end of it you won't be able to. Here Senior sea kayak instructor Dave Winkworth demonstrates the correct technique



Gordon Carswell shows us one of the important skills of a sea kayaker – landing through the surf.

Important Deadline

The deadline for the next issue is April 1st. So please send in something even if it's just one paragraph or one photo.



Surprising what you can fit into a back hatch

OLD SEA DOG'S GEAR LOCKER

By Norm Sanders

Staying afloat in the water is a prime concern for mammals such as the OSD. As the Tibetans say, "Breathe out. If you can't breathe in, you're dead." It's easy enough to keep breathing in the cockpit of a sea kayak, but every once in a while kayakers are forced by circumstance to forsake that warmth and comfort for the wet, cold embrace of sea water.

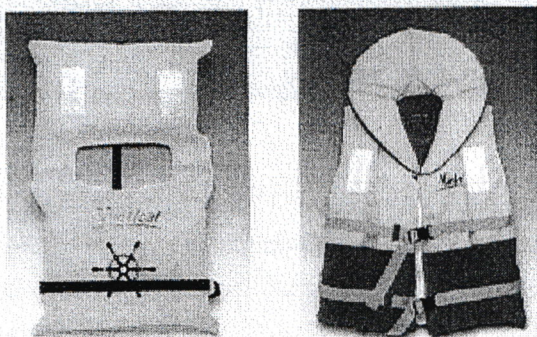
When this happens, keeping the breathing apparatus operating becomes extremely important. Hence the multitude of flotation aids available on the market (and required by LAW.) A few rebelliously independent sea kayakers refuse to wear such equipment and rely instead on their luck and/or swimming ability. Most, however wear a Personal Flotation Device (PFD.)

Waterways (The NSW boating regulatory body) states that, for canoes and kayaks, "Occupants MUST wear a PFD except when the craft is:

- (a) propelled by paddles and oars in enclosed waters during daylight,
- (b) not being used as a tender,
- (c) so constructed as to stay afloat if capsized, and
- (d) not more than 400 metres from the nearest shore."

The OSD wears one all the time anyway, out of habit. He finds that the PFD keeps him warm in winter and is a comfort the rest of the time. He has had several immersion events on the infamous Tuross Bar and has been very glad to receive the comforting support of his faithful PFD.

Like all bits of gear, there are various types of PFD's. Waterways requires a PFD 1 for each person on any vessel operating in the open sea. The PFD 1 is commonly called a lifejacket. It has a high collar which is designed to float an unconscious person face up, so they can breathe. The PFD1 is a



PFD1's

bulky item and makes any type of useful activity very difficult. In West Australia, sea kayakers have to carry the brutes, which they do by stuffing them down a hatch or tying them to the deck lines. Of course, they are thus absolutely useless in an emergency. The Letter of the Law requires a PFD 1 for sea kayaks in NSW as well, but common sense has generally prevailed here and PFD 2's seem to be unofficially accepted. Incidentally, PFD 1's cost from \$21.50 up to above \$80.00.

Most sea kayakers use either a PFD 2 or PFD 3. The 2 and 3 models are called buoyancy vests and, according to Waterways, are designed for use on protected inland waters. However, they allow jet skiers to use a PFD 2 offshore. The NSWKC is lobbying to have the same exemption officially applied to kayaks. In order to be effective, the PFD 2 requires that the wearer be awake and mobile and able to

keep upright by swimming motions. It is a big help in surf.

The PFD 3 is just like a PFD 2, except that the 3 doesn't have a covering in the officially approved colours, "safety orange" or "safety yellow." Waterways says, "PFD 3's are not recommended for general boating use because the colours are less visible in search and rescue operations." In addition, "To be acceptable by Waterways, the PFD must be designed and manufactured in accordance with Standards Australia specifications and bear the appropriate stamp of that organisation."

So, what should sea kayakers use? The OSD actually recently bought a snappy blue PFD 3 to replace his ancient PFD which may once have been "safety yellow" but which had faded to unsafe, dirty gray over the years. The reason he bought a PFD 3 instead of a PFD 2 had more to do with fit than colour.

Fit is an all important consideration for paddlers. Often a PFD feels good in the shop, but chafes badly under the arms once on the water when the spray deck pushes the PFD upwards into the arm pits. Most PFD's are made with arm holes which are far too small for active kayak paddling. The arm holes can be enlarged, but it is better to spend a few more bucks and get a PFD which is specifically suited to paddling.

One good design, made by ULTRA, has triangular flotation cells front and rear which leave a great deal of room for the arms. The model is called "The Edge" and is elegantly simple with few straps and buckles. It is pulled over the head to wear and costs \$115. ULTRA (An Australian firm which has it's factory in Fiji) is coming out with a new model called "The Pinnacle" in March. It will have a side entry, neoprene waist, open mesh front pocket, adjustable shoulder straps and a

whistle holder and will sell for \$119. This is about \$20 to \$30 more than the average PFD 2 or 3, but the extra expense is worth it in comfort. ULTRA PFD's are rated as 3, but come in orange and yellow colours which are as visible as the officially sanctioned hues.

For the ultimate in comfort and compliance with regulations, inflatable PFD 1's are available. They can be inflated either by pulling a lanyard attached to a CO2 cartridge, or, alternatively, by allowing the PFD to self inflate through contact with sea water. The second option would be of little value to the average spray-soaked sea kayaker. These inflatables might be convenient, but the price of \$190 is daunting.

The chronically impoverished OSD is leaning in the direction of the ULTRA Pinnacle, in spite of the cost and the fact that he just bought another PFD 3. After all, at his age, he deserves the most user-friendly gear he can find.

Happy floating!

(I recommend paddlers go into their nearest waterways office and get a free copy of the "NSW Safe Boating Handbook". Its got some useful information in it - Ed)

FOR SALE
UCP Skerray Sea Kayak
Excellent condition, with
paddle and spray deck.
Phone John Wilde on
0262956062

LOST
One Spray skirt at
Honeymoon Bay Rock
and Roll weekend. If
found please contact
Don Andrews

Important: **New arrangements for Mystery Bay Camping.**

The club is leaving it up to each individual to organise their own payment of camping fees. There will not be a ranger coming around to collect them so you will need to pay before hand but they do come around to see if you have a permit. This can be done by paying in person or sending a cheque to the Narooma Tourist Information Centre. Their hours are 9-5, 7 days a work and their phone number is 02 4476 2881. The cost is \$8 per site per night. One site should take a large tent and a small one - so my guess is each site could take 3 hiking tents. There are around 40 sites all up.

Some interesting web sites

If you are interested in diving then check out
<http://members.tripod.com/~kavakingdiving/>

Hypothermia in the Hawkesbury Classic

By Don Andrews

My general fitness is good and my regular training routine consists of a 12 km training paddle mid week and a 12 km race on Sundays, with increased training for longer or important races. I train and race in a 22 ft. Rocket most of the time, with some training in a K1 and some in a sea kayak.

For this race my training started on September 12th with an 8 day paddle from Mackay to Airlie Beach via Brampton and Border Islands averaging 30 km per day, in a fully loaded Pacific Tourer sea kayak, in 20 knots of wind, up to 2 metre waves and tidal races. The Pacific Tourer handled it well. Most days were hard work outs against the tide.

On September 27th I paddled 26 km. in the Penrith Marathon on a hot day in a Rocket. My heart rate at the start was 155 with an average of 140 for most of the race finishing with 135. For the next three weeks I trained twice a week and raced on Sundays, a 12 km and 20 km race. In the 12 km. race my heart rate was 160 to 150 for the whole race, and in the 20 km. race the first lap was at 160 to 150, the next a planned 140.

The week leading up to the Hawkesbury I went off alcohol and carbo loaded on Maxim at the recommended dosage. I practiced mind power. I could visualise myself at Brooklyn winning the race. I started using mind power 4 years ago after a serious vehicle accident. I used it to win the sea kayak section of the Murray Marathon, and last year's Hawkesbury Classic.

On the day of the race I was my normal uptight nervous self. Registration, scrutineering and my stretching all went O.K. I had

entered the Pacific Tourer in the Long Recreational Class using a



Don Andrews in Action

small bladed paddle. I had 4 litres of water and 2 litres of Maxim flavoured with Isosports and wore a long sleeve thermal, paddling shorts and a hat, the same as last year. I had no spray skirt as my boat is fitted with a foot pump. I had a light short sleeve nylon jacket in the cockpit. In the rear tank I had a heavy jacket, a cap and an emergency bivvy bag. I am a Level 1 Coach and a trainee Sea Kayak Instructor. I have a First Aid Certificate and I've given 10 minute talks on hypothermia.

The gun went off at 4.45 pm and I lead from the first bridge to the finish. I had two HRMs, one on the deck with a light, and the other on my wrist, with the alarm set at 130 to 150. At the bridge I had a heart rate of 155. For the next five kms 145, and for next 10 kms 138. I was drinking water and some Maxim. It was hot most of the time. From Spencer to Dargle I was cold. I was drinking water and more Maxim. My heart rate was 130-135 relying on the alarm as it was so dark and I was worried the light from the HRM

would interfere with my night vision.

From Dargle on, the HRM alarm was on most of the time. I guess my heart rate was 125. I was cold but I was not worried about it. I was against the tide, boat speed was O.K., my heart rate was low and I could not get it above 130. Five kms from Wiseman's Ferry two double sea kayakers passed me. I was on their wash for 2 kms. The alarm went off so I guess I was doing about 135. Coming into Wiseman's I was not feeling well. I was nauseous, I was drinking water but could not drink Maxim.

When I got out of the boat I was shivering violently. I did not feel cold but I put on another

thermal and a

light weight jacket. My land crew gave me my times. I was doing better than my estimated time at Dargle, and still on time. I was told everybody was having trouble with the tide. I had used 3 litres of water and 1 litre of Maxim. We put a fresh 4 litres of water on board and turned on the light on the deck HRM, and turned the alarm off on the other. I was out of the boat for 5 minutes. I was feeling better, I was still leading, I felt warmer and on time to do the 10 hours I had planned.

After leaving Wiseman's I was still against the tide, I had forgotten my hat, my heart rate was 125 and dropping. At the tide change at Check Point K, my heart rate was 115. I was forcing myself to drink water, I was feeling sick with stomach pains and pain from the kidney area. I was burping wind and I had doubts about finishing. I started using mind power - I never pull out, the pain is O.K., the tide is with me and you never pull out at Spencer. I thought I would never get to Spencer. The wind was cold and against me, the water was getting rough and my balance was not good. My

A simple sail rig

By Carlos Stotz

paddle went under the boat twice and I nearly capsized. My heart rate was down to 105 at Spencer. My boat speed seemed to be O.K., the tide was moving me along, I had made the decision I was going to finish and win. I was now worried they would catch me. I tried to increase my speed. My heart rate was 100 and with the increased effort it went up to 110 and then down to 98. I felt like going to sleep my head was aching from the cold. My legs, arms and body did not seem to be cold. I was forcing the water down but still feeling sick, pain in the stomach, back and bottom. The only thing normal was the sore bottom. I should have been worried with a heart rate of 100 and my eyes closing but my only worry was that they would catch me. I could not look behind as my balance had gone.

I had finished and won. I did not know my time. I think it was about 10 hrs. 17 minutes. I had used a total of 6 litres of water and 1 litre of Maxim. I walked to the car and changed in to dry clothes. I did not feel cold, just sick. When I got home I was freezing and even in a hot shower it took 30 minutes to warm up. My back and forearm was sore. On Sunday I felt better, my muscles felt good apart from normal soreness you would expect from paddling 111 km. I was worried about my experience with low heart rate so I looked up the first aid book which indicated hypothermia. How dangerous it is you do not know.

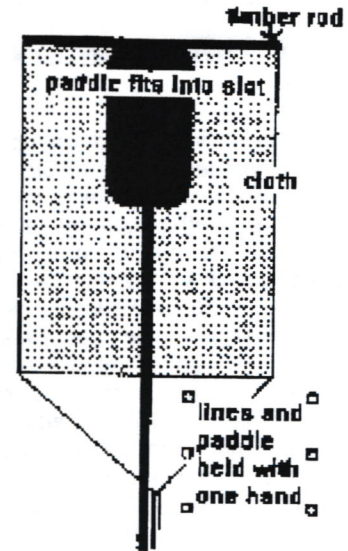
In retrospect I should have stopped when the sun went down and put my jacket on. After Wisemans, I should have stopped and put my spare cap on. Maybe I should have been stopped at Wisemans from continuing, or retired at Spencer. But I am O.K. now and I won and beat the record in a time of 10 hrs. 15 minutes.

Hypothermia is dangerous and maybe even more so when combined with mind power.

This is a simple way to rig a sail for a kayak and one that can be used in kayaks with no rudder. I hope the drawings help understand how the sail is made and rigged (you can always give me a call on 02-91812468.

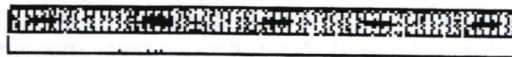
Note that the way the cloth is stapled to the timber rod creates a small slot into which the tip of the paddle is inserted. The paddle is held upright with one hand with the bottom blade held between the thighs (no, its not painful). Steering is achieved by tilting the paddle to the left or right.

I tried this sail on my big plastic chinook and worked well downwind and on a very broad reach. But the biggest surprise was to try this sail on a little Minnow. In less than 10 knots of wind, the Minnow sailed faster than when paddled and it was easy to steer around moored boats. ♦



Attaching the cloth to the timber rod:

Staple cloth to rod,



Roll cloth around rod once and staple at the ends



Boat Design

By John Winters

Any one with a good memory may remember Norm's article of Sea Kayak design (or was it an add for an Inuit) in January 1997. Norm's article ended up in the hands of John Winters - a leading North American sea kayak designer. He has been conversing with Norm via the internet and questions some of Norm ideas. At Norms request he has written an article about design and in particular Norms design philosophy. A word of warning, before reading this article read the rest of the magazine first, go for a paddle, grab a beer then sit down and read it; its rather long - Ed

I can still recall when a dearly held opinion of mine on how sails worked was crushed under the weight of a more accurate explanation. It surprised and perplexed me that I could have sailed successfully for so long without a proper understanding of aerodynamics. Of course, like many things, it was simply a matter of doing the right things for the wrong reasons thus proving that you can be wrong but still be right - more or less.

Sea kayakers and canoeists also fall prey to erroneous notions of how things work. The boats are simple and aboriginal people made successful boats without knowing anything about hydrodynamics so what could be complicated about them? The reality is that it is rather difficult not to make a good boat if it is light enough, narrow enough, and pointed at both ends. That, however, doesn't mean that the principles of fluid dynamics are simple. It was once said that "one need not understand the principles of digestion to enjoy one's meal" and that also applies to paddling.

We manage to paddle along successfully even if we believe in magic or its equivalent. So long as what we

believe doesn't drown us we have no need to prove anything. Science on the other hand, is held to a more rigid standard. Every theory must come with a test that can prove the theory wrong. This might seem strange but that is the nature of science. A theory's value is a function of its ability to withstand efforts to disprove it. To put things in perspective, it is worth noting that some professional naval architects hold rather bizarre opinions that spring from incomplete information or a failure to critically examine a phenomenon or theory. (Some day I will write a book about the ones that I have embraced to my everlasting embarrassment) In this article I will examine just a few ideas that form what might be called "the common wisdom". Norm Sanders has graciously agreed to "draw fire" for me through his article on sea kayak design in New South Wales Sea Kayaker, No. 29 to demonstrate the point. Now, before anyone draws any hasty conclusions about how "smart" Norm is, let me say that Norm has drawn his conclusions from his personal observations and experience. He is no better or worse off than ship designers of two hundred years ago who, in the absence of more exact knowledge, based their opinions and theories of ship design on their experiences and observations. He is probably better off than the Inuit who built developed the sea kayak. In any case, no one should expect him to know any more about fluid dynamics than I know about politics - which is bloody little. In the article in question Norm says;

"Another design consideration is the location of the greatest width of the boat, the beam. There are three basic choices:

- 1. Fish-form—greatest beam forward of centre.
- 2. Symmetrical— greatest beam at centre.

- 3. Swede- form—greatest beam aft of centre. Boat design is a massive collection of compromises. Fish-form is fastest, but hard to handle without a rudder. (Have you ever seen a fish without a tail?) Symmetrical is easier to steer and slightly slower. Swede-form sacrifices a little more speed for a lot of directional stability.

The shape tracks well and is easy to turn, the obvious result of sitting further aft with the paddle."

First let's discuss geometry. Most people assume that fish form has to do with the location of the greatest beam relative to the centre of the boat. But is this valid? Is it just beam that determines the type or is it also the distribution of volume? Most Greenland style kayaks have the greatest beam forward of midships but their greatest volume aft. (Comment based on the study of twenty-seven traditional Greenland boats done by the author for Eugene Arima's next volume of "Contributions to Kayak Studies") Are they fish form or swede form? Most modern sea kayaks that are swede form have both the widest point of the waterline (called the longitudinal center of flotation - LCF for short) and the longitudinal center of buoyancy (LCB for short) aft of midships. Interestingly the location of the LCB has been shown to be more important to performance than the location of the LCF and yet it is the LCF that most paddlers use to define the type. Naval architects stubbornly refuse to label the boat in such a general way and refer to the LCB and the LCF separately thus avoiding the confusion inherent in simplistic terms.

Those who carefully observe boats will know that visually determining the location of the LCF is much easier than the LCB. Perhaps that is why paddlers have adopted the simplistic view - it is too difficult to handle the more complex relationship in casual conversation. Now, let us examine the meat in the statement - that the fish form is the fastest. Is there any reason why it shouldn't be true if our experience tells us it is true? For the moment, let us imagine two kayaks with the same beam, waterline length, and displacement but one having its LCB

and LCF forward of midships (fish form and designated boat "A") and one having its LCB and LCF aft of amidships (Swede form and designated boat "B"). Now suppose we paddle both boats and "A" proves to be faster. (The method of determining which is faster is of no consequence) Is it not reasonable to assume that the fish form is faster? But suppose everything isn't equal. Suppose the fish form boat had less wetted surface. In this case we won't know if it is the volume distribution or the lower wetted surface that made the boat faster. Now, suppose the waterline length of our boats is 14 feet and we are testing the boats at 4 knots. At this Speed/Length ratio a boat with a prismatic coefficient of 0.60 will have approximately 38% more wavemaking resistance than a boat with a prismatic coefficient of 0.53. If boat "A" had the latter C_p then it would definitely be easier to paddle than "B" at our test speeds and now we don't know if it is the volume distribution or the wetted surface or the prismatic coefficient that makes boat "A" faster. Since the opposite is also true, one can see the problem.

This is precisely the problem that faced naval architects up until the late nineteenth century. It was William Froude who showed that frictional resistance was largely separate from wavemaking resistance, increased at a different rate, and was affected by different factors. This simple discovery ushered in the beginnings of modern hydrodynamics. Until naval architects could separate the two types of resistance they could never know how and to what degree the various differences in shape affected performance. This simple discovery made it possible to isolate the various effects and find out how a change in shape actually affected performance. Unfortunately, one needs either a test tank or a sophisticated Computational Fluid Dynamics program to do the work. The average paddler is no better off than naval architects prior to

Froude's discovery. Incomplete knowledge often led them to erroneous conclusions about hull shape just as paddlers are led to erroneous conclusions from their observations. An excellent documentation of this problem can be found in Howard Chappelle's "The Search for Speed Under Sail" and reading some of the early texts on hydrodynamics reveals the scientific method at its best as theories were proposed, applied, and cast aside as knowledge increased.

Now, let us return to my earlier statement about proof and the scientific method. If one reaches a conclusion based upon experience how do we prove it is wrong? This is quite simple, we just perform the same experiment with a different paddler and see if the results are the same. If they aren't we know that, either the test method is flawed or the conclusion is wrong. Unfortunately there are plenty of paddlers who have reached just the opposite conclusion from Norm Sanders. Who is right? Obviously experience can produce much different results and it is apparent that experience and personal observation are badly flawed by prejudice, mood, and superstition. A better way is to do methodical tests under controlled impartial circumstances using a generic hull shape and changing only the parameter of interest. This is precisely what has been done. Literally thousands of tests have been performed on all types of boats in test tanks around the world and the result is that, for the Speed/Length ratios of sea kayaks when cruising, the LCB is best located slightly aft of midships. The appropriate range appears to be between fifty and fifty-five percent aft of the forward waterline ending².

Now let us look at the danger in using inappropriate analogies. We know an analogy is best when the conditions are congruent. That is, when all the circumstances that affect one thing are similar to or identical to those that affect the other. To find out we ask some simple questions. What are the similarities between a fish and a

sea kayak? Do sea kayaks travel underwater? Do fish swim at the surface? Are sea kayaks propelled by a fin on the stern? The answer is no to all but why are these questions important? The reason is that kayaks are surface craft and make waves. These waves are indications of lost energy and the shapes that are best for wave reduction are different from those of reducing resistance when fully submerged. We can turn to the U.S. Navy for some valuable instruction here. Attack submarines when submerged are much faster than surface ships and the submarines are fish form. Does this mean that surface ships should be fish form? If so, then the submarines should also be faster on the surface but they aren't. When attack submarines are on the surface they are pathetically slow. Why? In simple terms, because their hull form is best for underwater travel but not good for surface travel. Now let us add another consideration. The tail fin of a fish is used for propulsion as well as steering. Its shape has evolved to best serve a multiple function. It is worth noting that research is underway to create more efficient propulsion devices that function like a fish's tail and if you think you know how a tail works you might be surprised at what the research has discovered. Obviously we must be careful when drawing analogies because a fishes tail doesn't have a lot in common with a paddle or paddler. Let's move along in the article.

"Yet another consideration is deadrise—the amount of "V" measured upward from the keel. A deep V hull with a lot of deadrise will track well and have less wetted surface, but be initially unstable. Again, compromise is necessary. I find that deadrise of about 12 degrees works well."

This is an easy one because our good friends at the U.S. Navy put dozens of engineers to work to determine exactly what kind of shape produced the lowest wetted surface. As it happens, for a consistent displacement, a semi-circular hull section has the least wetted surface but things are more complicated. The most critical factor is the ratio of beam to draft and the ideal ratio is 2.8:1 for the lowest total surface area. Why not 2:1? Because any section forward of midships will be of a lower ratio due to

the different curvature of the waterlines and keel line. 2.8:1 seems to hit the right balance overall or so say the Navy engineers. The interesting thing is that a deep "V" hull may track well but not necessarily because it is a deep "V". It tracks well because the ratio of beam to draft is low and the lower it is in relative terms the better the boat will track (once again in relative terms). Now, suppose our deep "V" hull had lots of rocker fore and aft and we compared it with a round bilge boat had a very straight keel line aft and rocker forward similar to many modern sprint kayaks. Now we would have a situation where the round bottom or low deadrise hull would track straighter than the deep "V". All of this has to do with something called stability roots (in this case stability is course stability) and the primary factors that affect the stability roots are length, profile coefficients, beam, draft, and LCB but not section shape midships. How do we know? Once again lots of engineers studying course stability to make sure a fully loaded ship doesn't run amuck in a harbor. The reference in footnote 2 is a good one for an overview of the topic.

Now let us look at another comment.

"There is still another hull characteristic to consider: the keel line from bow to stern. For many years, racing kayakers and canoeists thought that a flat run was the most efficient. Now the trend is for the bow and stern to be raised in the form of rocker. Rocker yields less wetted surface and thus reduces drag. Pronounced rocker also allows the bow to lift more easily over breaking waves. However, the main advantage for sea kayakers is the additional ease of turning." Here we have a classic problem. What we know is that the straighter keel line is more efficient in racing kayaks because the net resistance is lower even though the surface area is higher. The problem is that straight keel

line hulls don't handle very well so rocker is added for improved handling. The result is a boat that is "slower" but is actually faster at the end of a race because it is more controllable and the paddler wastes less energy steering. An interesting aspect of this is the role of paddle stroke mechanics. When the racing stroke was straight up and down, directional stability was less important because there was low turning moment with each stroke. With the wider wing paddle stroke the turning moments are greater and directional stability is more of a problem. Now we see recent designs returning to the straighter keel line aft to improve directional stability while the bow remains rockered to allow course corrections for riding waves. >From tank test results we know that course stability improves with:

- A lower block coefficient (CB)
- Increased L/B ratio
- Stern-down trim
- Increased hull profile aft
- Increased L/H ratio (Length to draft)

Course stability is slightly affected by:

- Location of LCB
- Mid-section shape.
- Waterline shape
- CP within normal limits.

The next question is whether the rockered bow "...allows the bow to lift more easily over breaking waves". This is a common observation and one would be perfectly justified in assuming that it was the profile that lifted the boat. But suppose we had a very fine hull with no flare but a rockered profile and compared that to a boat with a straight profile but a flared hull - sort of like a naval ship. The results would be much different. So, is it the profile or the way volume is distributed in the forward sections. As it happens, extensive testing in wave tanks shows that it is how the volume is distributed. So, if some boats with cut-away profiles perform well in waves the rocker is not the cause of the good

performance so much as a coincidental factor.

Perhaps the area where opinions differ most is on the topic of weathercocking. Here is what Norm said. "This is particularly noticeable in fish-form kayaks where the long sweep of hull behind the cockpit acts like the tail on a weather vane. Swede-form kayaks behave better, with the bow tending to head more downwind. This is because the paddler's weight is well aft. Downwind tracking ability can be enhanced in any kayak on extended trips by loading heavier items in the aft compartment. If the kayak is Swede-form and the bow is high due to pronounced sheer, the kayak may actually lay naturally almost downwind which means that the paddler can use far fewer course-correcting sweep strokes and concentrate on forward progress."

Wind from any direction except dead ahead and dead aft will exert a turning moment (yaw) on the hull. This moment is determined by the relationship between the wind force and the hydrodynamic forces created. Figure 1 shows these forces. For steady motion and in the absence of a rudder the forces must balance so that:

$$R \sin b = W \sin a$$

If C and L coincide there is no turning moment. If L is forward of C the boat will turn into the wind. This is the normal condition but, on some canoes with very full waterlines forward and high ends, L will be aft of C and the canoe will turn away from the wind.

<Picture>

The locations of C and L depend upon the wind direction and the yaw angle. C does not always move aft uniformly and the limits imposed by seating do not always permit effective adjustment of windage or trim for control purposes. This turning moment is offset by the lateral resistance aft due to hull shape, skeg, or rudder action. From the discussion of course stability we can see that whether a boat is swede or fish form is of minor importance but, more importantly, we can't really know from paddling boats which factor caused what and to what degree. Either type can have weather helm or lee helm depending upon the profile coefficient and the stability roots. If the

turning moment aft is high enough, it will offset the turning moment forward and cause the boat to develop lee helm. Some of the most exciting boats to paddle are Greenland style boats like Figure 199 in The Adney - Chappelle book "Bark and Skin Boats of North America. Here is a swede form boat that has a mind of its own. One must assume that either the owner was one hell of a paddler or one hell of a lousy boat builder. The flip side of this was a Chestnut canoe that could only be held into the wind by trimming well down in the bow and paddling only on the lee side. A good friend sums it up nicely - Boats are inscrutable sometimes." In some boats the tendency towards weather helm is so strong that an inordinate amount of effort is required to maintain course. One method of correcting this is through the use of a retractable skeg. The skeg shifts the center lateral area aft and balances the turning moments at the bow. The farther aft the skeg is located the smaller it needs to be and the lower the added resistance will be. Thick skegs of airfoil shape and high aspect ratio are not always the best answer. In theory they do develop more lateral resistance through lift but this can be offset by the turbulence in the skeg trunk. One must be careful to balance merits of increased lift over increased drag.

The point is that there are so many factors that influence how

the boat handles that blaming or crediting a characteristic on one is rarely valid even though ones experience suggests that it is so. Do not, get the idea that everything in Norm's article is wrong or even that being wrong does a lot of harm. As I mentioned, science is held to more rigid standards than paddlers who can believe anything they want and do so without any visible penalty. What I have done here is show how easy it is to be mistaken.

Does it matter?

One can believe the earth is flat, board a plane in Toronto and fly to Melbourne and your belief that the world is flat won't change things or endanger your life. You can believe that sea kayaks are propelled by levitating cats and still have loads of fun paddling about with or without your cat. The degree to which anything matters depends upon its importance to you either perceived or real. If you are racing kayaks it is important that you have the fastest boat and an incorrect belief could lead to unwittingly paddling a slower boat. If you are paddling in the open ocean, a mistaken belief might lead to paddling a boat that was less seaworthy than you would like.

If you perceive a boat is superior in some way relative to other boats it may be superior. That fact, however, does not mean you will know "why" it is better. I can tell from reading Norm's article that he is a keen student of boats and a good observer without ever having

met him. The problem is that, no matter how good he or anyone else is, it is not possible to isolate the effect of every different hull form variation through experience. Things are just too complicated. That, of course, is why billions of dollars have been spent building test tanks, testing boats and doing all the mathematical joss that we do to try to understand these very complex issues.

The flip side of this is that one need not understand it to enjoy paddling nor do you have to know it to design good boats. On the wall behind my computer I have a drawing of a seventeenth century West Greenland kayak. The lines were taken of the original and it is one gorgeous boat. My replica is also a heck of a nice paddling boat and I am willing to bet that the builder didn't even know what a square root from a spruce root.

John Winters
Redwing
Armour Township
Burk's Falls, Ontario

Those who are interested in this kind of thing might find an article by the author in the Winter 1996 issue of Kanawa, the magazine of the Canadian Recreational Canoe Association, entertaining. In it I showed how a good boat was almost inevitable so long as the builder does not try to force natural materials to do unnatural things. "The Principles of Naval Architecture" published by the Society of Naval Architects and Marine Engineers is a good source of information on the various theories and tests that have been performed.

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Wischer	Rob	NEWPORT	NSW	(02) 9973-1306	(02) 9364-2411
Witt	Peter	PORTLAND	NSW	(02) 6355-5144	(02) 6352-1422
IF INCORRECT RING DOUG FRASER ON (02) 6294-1044 WITH CORRECTIONS					

1998 CLUB CALENDAR

Call Andrew Eddy (02 9888 2073 home & MessageBank or e-mail at Andrew.Eddy@dfst.csiro.au) to include new events
 Compiled January 1998

WHEN	WHAT	WHERE
Regular events		
Tuesday (evening) ①	The Canberra pod usually go for a paddle on <i>Lake Burley Griffin</i> for an hour or so, sometimes followed by a barbecue. Meet at Black Mountain Peninsula at 6.00 pm. Contact Arunas Pilka (06) 248 7828 (h) or (06) 283 5404 (w).	Canberra
Thursday (evening) ②	Nevil Lazarus and friends paddle on <i>Middle Harbour</i> regularly on Thursday nights, leaving from Roseville Bridge Boat Ramp at quarter to seven and paddling to Balmoral Beach and return, a fast trip of about 18 km. Nevil would welcome other club members to come along, so if you are interested give him a call at home on (02) 9498 1706 or at work on (02) 9624 2511	Sydney Area

FEBRUARY

Sunday 8 ②	<i>Jerusalem Bay, Ku-rin-gai National Park.</i> Launch from the canoe launching ramp at Bobbin Head at 8:30 am for a paddle through the scenic sandstone gorge of Cowan Water. It will be about 10 km of paddling to Jerusalem Bay for a picnic lunch. On the way back we could explore some of the tidal creeks. See the bird life and the waterfalls (if it rains!). Salo John, 02 98754252 (h)	Sydney - Nth, Broken Bay
Sunday 15	Manly Warringah Kayak Club invites NSWKSC members to participate in their <i>Fishermans Beach sea kayak race</i> . Includes outrigger canoes, OC1's and surf skis. Entry fees and minimum equipment standards apply. Contact Don Andrews (MWKC) on (02) 9971 6842 (h) for further details.	Sydney
Weekend 21-22 ③	Feast on paddling & pancakes during Lent. The 6 th annual <i>Pancake Day Paddle</i> is on. We will camp at picturesque Mystery Bay and spend the Saturday paddling out to Montague Island (about 10 km each way - be prepared to have lunch in your boat as we are not allowed to land). On Sunday after a breakfast of pancakes we usually spend the day surfing and exploring the local coastline. Contact Arunas Pilka on (02) 6248-7828 (h) or (02) 6283-5562 (w) to let him know that you are coming so that he can cater pancakes.	Mystery Bay, NSW South Coast
Weekend 21-22 ②	It's a four hour drive to <i>Bateman's Bay</i> from Sydney, so we'll need to leave early on Friday. This is a weekend for everyone - the Clyde River, the Bay, out to the Tollgate Islands, Surf Beach, the rocks around North Head. Meet at <i>The Shed</i> at 7 pm on Friday night to discuss the weekend plans over fish and chips. Camping is at Glenhaven Caravan Park, 51 Beach Road, \$9 per person, per night. Mike, from <i>Batemans Bay Power and Sail</i> will lend us an <i>Inuit Classic</i> to try out. Warwick Ford, 02 9979 5469 (h) or 02 9905 0588 (w) for details.	Batemans Bay, South Coast
Sunday 22 ③	This is a harbour paddle from the end of Angelo Street, <i>Woolwich to Manly Cove</i> , about 30 km return. Be ready for an 8 am departure. Bring something for a snack break at Manly Cove. You should expect significant swell and chop crossing the Heads. Dennis Kleinberg, 02 9817 4296 (h) or 0412 234 886 (w).	Sydney harbour

MARCH

1 ②	<i>Bundeena</i> , where gentle waves run parallel to the beach! Surf the gentle swell rolling in through the heads of Port Hacking. It's a lot of fun. Note: NPWS will extract \$7 from you, but it's well worth it. <i>Gregory's</i> map 523 K9. Bring a picnic lunch. Warwick Ford, 02 9979 5469 (h) or 02 9905 0588 (w) for details.	Sydney south
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Sunday 8 ⑤	<i>The Three Bridges:</i> paddle under Ryde, Gladesville and the Harbour Bridges. Depart the boat ramp, Bennelong Park, Waterview Street, Putney at 9 am, paddle upstream to Ryde Bridge, back down to the Harbour Bridge, and return via Clarkes Point Park (stop for a break and a view) to Bennelong Park. Dennis Kleinberg, 02 9817 4296 (h) or 0412 234 886 (w).	Sydney
Weekend 7-8 ①	<i>The Molonglo Archipelago Tour.</i> This is the first weekend of the Canberra Festival. At dawn on Saturday morning the hot-air balloons take off, and if the morning is still, they will just hang over Lake Burley Griffin in a colourful display of gaudy shapes. Bring a camera, bring the kids. Return to shore for a late breakfast, then off for a tour of the islands for picnic lunch. Saturday night is scheduled for a fireworks display. On Sunday, continue island hopping or join the Burley Griffin Canoe Club for their weekly time trial. Contact Phil Winkworth on 02 6247 3581 (h).	Canberra
Weekend 14-15 ①	<i>Introductory kayak skills.</i> This is a weekend camp at Patonga caravan park, on the Central Coast, held in conjunction with the Lane Cove Valley Canoe Club. Saturday will be focussed on offering new and inexperienced paddlers an opportunity to practice the basic paddling techniques, in readiness for forthcoming grade 1 and 2 paddles. Capsizes, wet exits, assisted and solo re-entries, forward and reverse paddling, support and turning strokes. More experienced paddlers are welcome to come and practice or assist, either in the lagoon, or in the waves on Patonga beach, close by. <i>Risk assessment</i> is a key part of the weekend. On Sunday, those who feel confident and who are able can come for a short trip along the cliffs of Middle Head and Warrah Lookout, around Lion Island and back. Contact Andrew Eddy 02 9888 2073 (h)	Sydney, Central Coast
Weekend 21-22 ③	About 20 km from Port Stephens, lies <i>Broughton Island, Little Broughton Island, and Looking Glass Rock.</i> This group of islands is part of the Myall Lakes National Park, and offers snorkelling, paddling into caves and along cliffs, bird watching, extensive walks. Meet Friday night for an <i>early</i> morning start from Fingal Bay. There is almost no shelter from the sun, so bring your shadiest tent and of course gourmet food. On the return leg on Sunday, we will cruise the <i>looong</i> exposed beach on the foreshore of the national park. Bring a sail, if you have one. Contact Andrew Eddy 02 9888 2073 (h)	Newcastle, Port Stephens
Sunday 29 ②	<i>Brooklyn to Mullet Creek and return via Dangar Island.</i> Meet at the boat ramp at Flat Rock Point, Brooklyn. This is a shallow estuarine creek, so we will cruise up on the incoming tide and out on the outgoing tide. Bring lunch, as it may be necessary to wait out the tides. Dennis Kleinberg, 02 9817 4296 (h) or 0412 234 886 (w).	Sydney, Broken Bay

APRIL		
Weekend 4 - 5 ①	<i>The Next Step, 1998.</i> The autumn follow on to the Rock and Roll weekend. This weekend is designed for new and inexperienced paddlers; it offers a variety of opportunities to see and practice paddling techniques and to discuss important kayaking issues such as safety, design and construction. We would encourage everyone, both competent paddlers and novices, to attend and contribute to the training, discussions and social activity. The weekend kicks off on the sheltered waters of Honeymoon Bay, Jervis Bay. Think about possible events, workshops, whatever, that you may wish to contribute to or participate in and then ... contact Dave Winkworth on 02 6494 1366 (h) or (064) 95 9714 (w) or Andrew Eddy on 02 9888 2073 (h).	Jervis Bay, NSW South Coast
Two weeks Mid-April ⑥	A call for expressions of interest in joining us in a circumnavigation of <i>King Island, Bass Strait.</i> The weather should be OK in the middle of April, nonetheless we will allow twelve days for a 200 km paddle around this large island. King Island is the home of some of our best cheeses, creams, beef and seafood. The exposed rocky west coast is very different to the east coast, which has long sandy beaches. Contact Andrew Eddy, as soon as possible, on 02 9888 2073 (h).	Bass Strait, Tasmania

Saturday 18	The MWKC invites NSWSKC members to participate in their <i>Bayview to Barrenjoey and return</i> race for sea kayaks and surf skis. Entry fees and minimum equipment standards apply. Contact Don Andrews (MWKC) on (02) 9971 6842 (h) for further details.	Sydney, north
Sunday 26 ③	This scenic ocean day-paddle takes you from <i>Lake Illawarra to Kiama</i> . There is no heavy industry south of Lake Illawarra, just cliffs and beaches, the marine reserve at Bass Point, sheltered swimming and snorkelling at Bushrangers Bay and, of course, the <i>Kiama Blowhole</i> . Contact Dirk Stuber on 02 4268 1001 (h).	Wollongong, Illawarra

MAY

Sunday 3 ③	Have you seen Sydney from the outside? You can be just a few hundred metres from Sydney's suburbs and be truly in an ocean wilderness. Paddle from <i>Camp Cove to Bondi Beach (and return)</i> . Parking fills up quickly, so <i>be early</i> for an 8 am start. Expect significant wind, swell and reflected waves off the <i>cliffs of the Eastern Suburbs</i> . Look forward to a leisurely one hour break at Bondi Beach, if the swell permits a landing. Dennis Kleinberg, 02 9817 4296 (h) or 0412 234 886 (w).	Sydney - Tasman Sea
Saturday 16	The MWKC invites NSWSKC members to participate in their race for sea kayaks and surf skis off <i>Fishermans Beach</i> . The race format will be 12 km in two laps around the buoys. Entry fees and minimum equipment standards apply. Contact Don Andrews (MWKC) on (02) 9971 6842 (h) for further details.	Sydney, north
Weekend 16-17 ③	<i>The Royal Banquet</i> is a gourmet overnight paddle along the cliffs of the Royal National Park, from Bundeena to Coledale. Saturday night's camp, behind the dunes at North Era, will be the site of the consummate decadence of a shared feast of tasty offerings (share your culinary skills), enlivened by erudite discussion on a sea kayak topics. Meet early at Bundeena for a longish car-shuffle. Contact Dirk Stuber on 02 4268 1001 (h).	Sydney - Wollongong
Weekend 23-24 ②	<i>Lake Eucumbene</i> is a large artificial lake in the Snowy Mountains hydro-electric scheme. Its steep-sided inlets and cold, <i>fresh</i> water promise a trip with a difference. Who knows, very early snowfalls could make an exploration of the Kosciusko National Park side of the lake into a trip that takes your kayak back to its distant Arctic heritage? Contact Dave Winkworth on 02 6494 1366 (h) (064) 95 9714 (w).	Snowy mountains
Sunday 31 ②	<i>Connels Bay to Engadine (return)</i> on the Woronora River. Explore the estuaries of southern Sydney, travelling with the tides. Meet at Donnelly Park, off Kyle Parade, Kyle Bay, Connels Bay at 8 am for a 8:30 am launch. Dennis Kleinberg, 02 9817 4296 (h) or 0412 234 886 (w).	Sydney, south

JUNE

Long weekend 6-8	Come down to <i>Batemans Bay for a weekend of whale watching</i> . There is the luxury of camping right on the bay foreshores in a caravan park with all mod cons, and the attraction of humpback whales on their annual winter migration. Also visit the Tollgate Islands off the mouth of the bay, Snapper Island in the bay, and come play in the gentle surf at Tomakin. More details in the next calendar. Contact Doug Fraser on 02 6294 1044	Batemans Bay, South Coast
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Continued next page: calendar grading system

NSWSKC Paddle Grading System

ABILITY

Sea kayaking is by its nature dangerous. The sea does not suffer complacency kindly. Paddlers should, therefore, aim to minimise their risk. The paddle grading system is provided as a guide for members to **SELF-ASSESS** their suitability for club paddles. The various grades are a reflection of ability, experience and fitness. Through inspection of the grading system and/or discussion with the particular 'paddle coordinator', prospective paddlers should determine whether they are competent to attend. With the exception of grade 0-2 paddles; where very little experience and ability are expected, prospective paddlers should determine their suitability of their **OWN ACCORD**. You should not expect strangers/others to simply assess your competence and stamina. If you are in doubt then don't go.

The NSWSKC reserves the right to prevent people from participating in club paddles. Authority is vested in the paddle coordinator and/or senior/experienced paddler(s) and/or instructor(s). The occasion may arise where a coordinator(s) and/or one or more of the senior/experienced paddler(s) and/or instructor(s) may prohibit a person from paddling on the 'club paddle'. Such an exclusion does not constitute an implicit approval of remaining non-prohibited paddlers. For the exclusion might, for example, be generated from a personal knowledge of the excluded individual's deficient paddling ability or equipment. Such a vetting process will be exceptional as paddlers will be expected to exclude themselves. **ALL RESPONSIBILITY** lies with the individual contemplating participating in the paddle to comply with the advertised standard.

Paddles of grading 0-2 will usually have a 'paddle leader' to offer both instruction and leadership where required.

Paddles ranked >2 (greater than 2) may or may not have an identifiable 'paddle leader'. Often there will be a consensus achieved through negotiation. No one person, including the 'paddle coordinator' assumes responsibility for paddlers. In such circumstances paddlers are obviously committed to communal safety and well-being but they should be prepared to care for themselves in the event of complications.

EQUIPMENT

Any paddler anticipating attending a club paddle should, unless otherwise stated, possess as a minimum the following equipment.

Essential:

Well maintained <i>sea</i> kayak with bulkhead(s) and buoyancy.	
Fitted decklines	Spray skirt
Personal Flotation Device (PFD)	Whistle Compass
Tow rope (>10m)	Paddle and paddle leash
Cagg or paddle jacket	Warm clothing, matches, food and water.
1st Aid Kit (group)	Spare paddle (group)

Recommended:

map(s); flares; knife and relevant personal items eg. medication.

Possession of this equipment and enforcement of these requirements are not the responsibility of the 'paddle coordinator' for paddles Graded >2 (greater than 2). The individual paddler is expected to conform of their own accord. Obvious failure to meet the standard may lead to prohibition from the particular club paddle by the coordinator(s) and/or experienced paddler(s) and/or instructor(s). Where an individual fails to meet the required minimum standard of equipment and/or competence and yet undertakes to continue, the paddle coordinator(s)/experienced paddler(s)/instructor(s) assume no responsibility for that action. The individual is most familiar with their own gear and ability. Emphasis is upon **SELF-REGULATION**.

Definitions

'Club paddle': a paddle advertised in the NSWSKC calendar.

'Paddle coordinator': member who disseminates information about a particular paddle. There is no imputed onus of leadership.

'Senior/experienced paddler': member with considerable paddling experience.

'Instructor': a person with sea kayak instructor qualifications recognised by the ACF or NSW Board of Canoe Education.

'Paddle leader': person(s) who formally lead paddles Graded from 0-2. On paddles Graded >2 a leader is a person who has formally nominated themselves as such through the paddle advertising. In both instances they may be distinct from the paddle coordinator. It should be remembered that in the second instance (grade >2) there may be no leader.

* All advertised paddles should clearly identify paddle coordinator, paddle leader (where appropriate) and base grade.

The grading system is intended as a rough guide for members to self-assess their suitability for club paddles.

Grade	Description & Pre-requisites	Scaling Factors									
①	Beginner - Closed or protected water - instruction available. No experience required. Might not be influenced by bad weather.	For grades ① & ② <table border="0"> <tr> <td>Wind</td> <td>Seas</td> <td>Add(for each)</td> </tr> <tr> <td><10kn</td> <td><1.5m</td> <td>0</td> </tr> <tr> <td>10-15kn</td> <td>1.5-2.5m</td> <td>0.5</td> </tr> </table>	Wind	Seas	Add(for each)	<10kn	<1.5m	0	10-15kn	1.5-2.5m	0.5
Wind	Seas	Add(for each)									
<10kn	<1.5m	0									
10-15kn	1.5-2.5m	0.5									
②	Novice with some paddling experience. <15km paddling day(s) primarily along accessible coastline or on protected water. Pre-requisite: able to perform assisted rescues.	<table border="0"> <tr> <td>15-25kn</td> <td>>2.5m</td> <td>1.0</td> </tr> <tr> <td>>25kn</td> <td>>3.0m</td> <td>1.5</td> </tr> </table>	15-25kn	>2.5m	1.0	>25kn	>3.0m	1.5			
15-25kn	>2.5m	1.0									
>25kn	>3.0m	1.5									
③	Proficient . <25km paddling day(s). Possibly short open water crossings or non landable stretches: up to 5km. Pre-requisites: able to perform assisted rescues & surf entries & exits.	For Grades ③ & ④ <table border="0"> <tr> <td>Wind</td> <td>Seas</td> <td>Add(for each)</td> </tr> <tr> <td>>20kn</td> <td>>2.5m</td> <td>1.0</td> </tr> </table>	Wind	Seas	Add(for each)	>20kn	>2.5m	1.0			
Wind	Seas	Add(for each)									
>20kn	>2.5m	1.0									
④	Intermediate . <40km paddling day(s). Longer open crossings and non landable stretches: up to 10km. Pre-requisites: able to perform assisted rescues and rescue others; surf entries & exits; reliable eskimo roll.										
⑤	Advanced . Long open ocean paddling in large seas and adverse conditions. Pre-requisites: very reliable surfing skills & eskimo roll, ability to self rescue & rescue others.	For Grades ⑤ & ⑥ No weather modifications. Paddlers know their limits.									
⑥	Expedition . Potentially very challenging conditions. Only for experienced advanced paddlers. Probably invitation only.										

To obtain modified grading **add** the value for wind & seas.

eg. For a grade ② paddle on a weekend with forecasted 12kn winds & 2m seas the new grade would be:

$$\text{Grade } ② + 0.5 (\text{wind}) + 0.5 (\text{seas}) = \text{Grade } ③$$

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