February 2014

Question mark hangs over the Murray's future

Glen Orchard flew the flag again for Lane Cove River Kayakers at the 2013 Murray Marathon, taking out the coveted Margaret Baker handicap winner's trophy. It capped a fine year for Glen, following his great result in the Hawkesbury Classic where he was the fastest single.

Anjie Lees continued her amazing progress and stamped herself as an endurance paddler of repute with a third place on handicap.

But much of the talk centred on the date change for this year's Murray Marathon, and doubts expressed by many paddlers that the iconic event will survive. Admitting that "fewer people are coming to the event in its current timeframe" of the last 5 days of each year, the organisers have brought the race forward to Nov 24-28. They said the decision was made after "long and thorough consultation with the wider paddling community ... and other key stakeholders".

This "consultation" was news to the LCRK competitors who were not approached, despite the club being a dominant performer with a string of wins in the past decade.

While the Christmas/New Year format does pose problems, at least most businesses are closed in this period and paddlers can get away. With the new dates, not only paddlers but also landcrew will have to take time off work to compete. How many can afford to do this? It is thought the new dates may also conflict with school exams, and this could jeopardise the participation of a traditionally strong school contingent.

The Murray has been going since 1969, for the first 4 decades under the auspices of the Red Cross, and since 2009 run by the YMCA. Competitor numbers this year were little more than a third of that of the final Red Cross year, 2008.

Because of bushfire threats and checkpoint access difficulties, this year's race was reduced to 4 days instead of 5, with the days 2 and 3 legs – considered by most to be the best sections of the course – being abandoned and the final day 5 section being raced twice.

Glen Orchard, on his Fenn ski, had a continuing tussle with Manly Warringah's Brett Greenwood, but after staying with him for the first few kilos each day, found Brett was able to slip ahead in his Vajda K1. Brett's total race time was 27 minutes faster than Glen's 22.13.00, but the positions were reversed when the handicap factors were applied, giving Glen on 21.53.40 a very comfortable victory by 1.46.17.

Top performers Anjie Lees and Glen Orchard

A mixed relay double was entered in the name of Lane Cove River Kayakers. The enthusiastic team comprised Tony Hystek, Alanna Ewin, Carmen and Jason Cooper, James Mumme and Lee Wright. Their official line was that "part of the reason for the relay was to have a social paddle while allowing some of the crew to experience the event without having to do full distance", but they were soon involved in a dingdong contest with a veterans double relay from Manly Warringah.

Tony Hystek sent in this race report:

"The last Christmas-New Year Murray Marathon has been a frustrating event in some ways, but in others rewarded paddlers with good water flows and generally mild conditions.

"Day 1, 92km, we had the wind largely behind us and our relay made good progress, coming in a couple of minutes ahead of our main competition, the MWKC V60 relay team. The strongest performances of the day were the solo efforts of Brett Greenwood and Glen Orchard, whose times were just 3 minutes apart, and Anjie who recorded a time of 8.48.

The Lane Cove crew : Tony Hystek, Lee Wright, James Mumme, Morgan Chamney, Jason Cooper, Brianna Lees, Carmen Cooper, Anjie Lees

"Our answer to losing the second day and the best sections of the race was to paddle the narrows and Echuca section, and many others had the same idea! Alanna, Anjie and I had a leisurely paddle down to checkpoint A from Picnic Point and swapped over to Carmen and Jason who paddled on to Barmah. Later that day James, Lee and Angie paddled down to Echuca from an upstream boat ramp.

"Day 3 we did the former day 4 course from Echuca to Torumbarry and were joined by the single-day event paddlers in the face of stiff headwinds. Anjie had a great day, smashing her expected time by 30 minutes. We were glad to see the back of Echuca; a wounded bull has nothing on this place! Sky high prices everywhere.

"The last section, Murrabit to Swan Hill, we did twice, on days 4 and 5. It rather took the edge off things coming in to the finish line twice. At the end of day 4 I stupidly told Manly Warringah's vet 60 crew, who were level pegging with us, that the LCRK relay team was going to try and beat them. Forewarned, they plotted and planned, and put their best combinations together, and ended up beating us by 10 minutes – 22.38.02 to 22.48.49."

Competitor	*Cat*	*Day 1*	*Day 3*	*Day 4*	*Day 5*	*Total*	*Plc*	*Hcp*	*Hcp*
Glen Orchard	OSI 40+	6.48.09	4.39.15	5.27.11	5.22.03	22.13.40	2	21.53.40	1
Anjie Lees	W K1 40+	8.48.45	5.53.07	6.50.31	6.43.35	28.16.00	19	23.48.02	3
LCRK Relay	X UNR2	6.52.46	4.47.20	5.35.12	5.33.30	22.48.49	8		

Pictures by Alanna Ewin

Surfing the Doctor

"The 20 knot wind was behind us, the waves got bigger near the finish and were up to 1½ metres, we were catching runners constantly and we were surfing them for 100 metres at times," said an exhilarated Tim Hookins after finishing The Doctor ocean ski race on Jan 18. "The conditions were fantastic and it was a great event."

Tim did the race in 2.34.39, placing 243rd in a field of 318 and coming 5th in the 60+ ski category.

Glen Orchard paired with Jason Cunningham to take out 61st spot and 5th in the double category in 1.56.26.

Also competing were Kobi Simmat (2.04.03, 98th, 46th in open ski) and Matt Shields (2.20.42, 183rd, 72nd in open ski).

The race went from Rottnest Island to Sorrento Beach, north of Perth.


Tim Hookins and Matt Shields

Adrian Clayton doing some "rock gardening" at Freshwater. Adrian says: "My view is that rock gardening to sea kayakers is akin to what rapids are to white water paddlers. The activity takes place in the zone where sea and rocks meet. Sea caving is very much part of it. Rock gardening can extend from the mild (for those who like to smell the roses) to the wild (for the adrenalin junkies) and the level is mainly dictated by the sea and swell conditions. The state of the tide also plays a vital part. Good boat control skills, using a broad repertoire of linked paddle strokes with an active body, and an understanding of the forces at play are key factors in emerging from the activity unscathed. Not surprisingly, plastic sea kayaks are usually the boat of choice. Helmets need to be worn."

Sprint titles

Tony Hystek had three wins out of three races at the NSW sprint championships on Jan 18/19.

He took out the 55+ K1 1000m by 14 seconds in 4.26.86, the K1 500m by 10 seconds in 2.09.20 and the K1 200m by 4 seconds in 50.42.

Ann Lloyd-Green won the women's K1 500m in 2.56.64 and the K1 200m in 1.06.54.

Open water series

Tim Hookins was the sole Lane Cover in the opening race of the PNSW Open Water and Harbour Series, the 24km Newcastle Downwind on Jan 11. His time of 1.51.09 placed him 50th overall and he was the only competitor in the 60+ category, so not only did he win that but he was the oldest paddler in the field.

In this new series there are 11 events from January to August, starting with open water races then moving into harbour races over the cooler months.

Timekeepers

Feb 19	Danielle Seisun, Tim McNamara
Feb 26	Ann Lloyd –Green, Bruce Goodall
Mar 5	Caron Jander, Michael Day
Mar 12	Richard Barnes, Bob Turner
Mar 19	Toby Hogbin, Tony Mathers
Mar 26	Friederike Welter, Tim Knox
Apr 2	Bill McIntosh, Chris Thompson
Apr 9	John Thearle, Matt Acheson
Apr 16	Neil and Rae Duffy
Apr 23	Richard Lindsay, Steve Paget
Apr 30	Tony D'Andreti, Dave Hammond
May 7	Wayne Wanders, Stuart Myers
May 14	Alanna Ewin, Andrew Kucyper
May 21	Warwick Sherwood, Kate Lord
May 28	Kyle Wilson, Shane Gibson
Jun 4	Stuart French, Michael Venter
Jun 11	Greg Morris, Heather Kent
Jun 18	Merrick Underwood, Robert Manning
Jun 25	David Bloomfield, Tracey Hansford
Jul 2	Brett Franzi, Phil Helman

Classic forecast

If you're looking for a fast time in the Hawkesbury Classic, this could be your year. Low tide at Mooney Mooney will be 4am Sunday, meaning a run-out tide finish for faster boats. High tide at Wisemans will be about 00.30am. But it will be dark … again. No moon. So maybe GPS would be an advantage.

Left: Congratulations to Sally and Craig Ellis on the arrival on Dec 3 of Spencer William Ellis, the newest member of the Lane Cove family.

PADDLER'S DIARY

Marathon 10 Series
Sat Mar 15 Canberra
Sun May 4 Wyong
Sat May 17 Woronora
Sun Jun 1 Narrabeen
Sat Jun 28 Penrith
Sat Jul 19 Burrill Lake
Sat Aug 9 Windsor
Sat Aug 30 Grays Point
Sat Sep 6 Lane Cove
Sat Sep 27 Wagga Wagga

Fri-Mon Apr 18-21 Australian Marathon Canoe championships, Ballarat
Sat-Sun Oct 11-12 State Marathon Championships, SIRC

Open Water and Harbour Series
Sat Feb 8 Ulladullah
Sat Feb 15 Sans Souci
Sat Mar 8 Bayview
Sat Mar 22 Cronulla
Sun Apr 13 Rose Bay
Sat May 3 Clontarf
Sat May 24 Grays Point
Sat Jun 21 Bayview
Sun Jul 20 Rose Bay
Sat Aug 16 Clontarf

Sprint Series
Sun Aug 24, Sun Oct 25, Sun Nov 2, Sun Nov 30. SIRC
Sat-Sun Jan 17-18 2015 NSW Championships

Sun Feb 23 Bridge to Beach
Fri-Mon Apr 18-21 Devizes to Westminster International Canoe Race, UK
Sat-Mon Jun 7-9 Riverland Paddling Marathon, SA
Sun Aug 10 City2Surf
Sat Aug 16 Akuna Bay Multisport
Sat-Sun Aug 2-3 Avon Descent, Northam, WA
Sat Sep 13 Myall Classic
Fri-Sat Oct 10-11 Fish River Marathon, South Africa
Sat-Sun Oct 25-26 Hawkesbury Canoe Classic
Mon-Fri Nov 24-28 Murray Marathon

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A kayak event to push your boundaries

by Richard Barnes

What is the easiest way to tackle long distances and extended times in a kayak? That is the essential conundrum when tackling the 24-hour marathon hosted by Burley Griffin Canoe Club in late November. LCRK sent a contingent down to Canberra to test their theories.

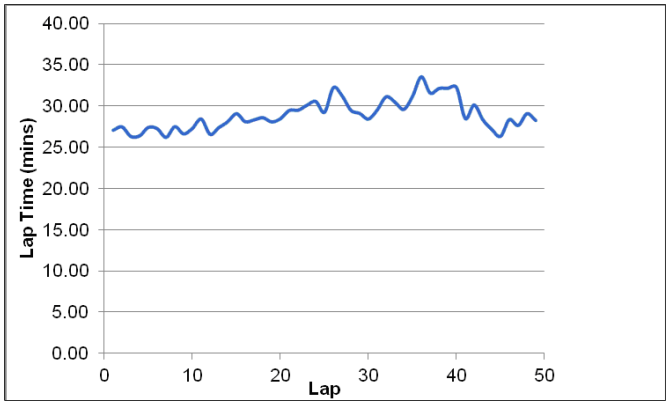
Alanna and Joy went as landcrew. Anyone who's been in the Classic knows this can be a tough gig, coping with the idiosyncrasies and weird demands of weary paddlers.

Tony Hystek and Richard Robinson took a K2, and without doubt were the fastest and possibly the least stable on the 4km circuit. Their goal was to use Canberra as a training run for the Devises Marathon in England over Easter. Every lap, they alone hopped out and did a short portage. They called it quits after about 16 hours, 41 laps and 164km. The trauma for going so fast was stomach cramps for Tony and leg seizure for Richard steering up front. Who else in the club could contemplate going this far this fast in this much pain?

Anjie Lees is our upcoming marathon Queen. This was her third of four big events for 2013, following conquest of the Murray 200 and Hawkesbury Classic, and to be followed by the Murray 400 at Christmas. She chose her Epic V10 for speed and comfort, if not for stability nor accommodation of gear. She stuck to a plan of taking a short land break every 4 hours, hinting at the joys of chocolate treats, freshly brewed coffee, and a warming fire. When her children were not off at the movies, they also helped with landcrewing support. Tackled this way, Anjie finished her 40 laps as fast as she started her first, for a total of 160km, with an on-water average of 8km/h.

My own goal was aiming to paddle nonstop for the complete 24 hours, not getting out of the boat along the way. To make it possible, I had two bottles beside my seat, one for water in, the other for water out. I chose my trusty Bass Strait crosser, Mirage 580 Maatsuyker, for the task. It is supremely comfortable, and stable enough for antics like falling asleep. It also has plenty of accessible room to carry all food, water and spare clothes.

Overtaken by many of the hares, this tortoise plodded on for 49 laps or tantalisingly close to 200km. The graph shows the variation in my speed through the 24 hours. The fastest laps, around 26mins for 4km, came very early, a regular case of too hard too soon or starting over-exuberance. Slow laps, round 33mins, were near midnight and just before dawn, when I was



Team LCRK: Brianna Lees, Anjie Lees, Aaron Lees, Joy Robinson, Richard Robinson, Tony Hystek, Alanna Ewin, Richard Barnes.

falling asleep.

The pattern was wiggle a bit to get more comfortable, lie back on backrest, paddle rate drops as doze off, wake with a start to wonder exactly where I might be and the direction to take to the next obscure buoy, prop eyes open, dream some weird dreams, miss a stroke to find something to nibble, and start the cycle again. Revitalisation in both instances came

Not content with paddling for 16 hours, Tony Hystek and Richard Robinson jumped out of the boat and did a portage most laps

from gifts of life from my adopted landcrew. At midnight it was a thermos of tea from Alanna, and at dawn a cup of coffee from Joy.

The outright record for the event was set by dual club member Bob Turner and former member Kristy Benjamin, paddling in a team with a second doubles pair from Sutherland Shire CC in Supersonics. They completed 62 laps for a total 24 hour tally of 248km.

This is a kayak event to push your boundaries and expand what's possible. It's on again next year, so think about whether it's a worthy goal for you for 2014.

In among selecting your favourite craft and paddling a long way, there is much to appeal. It's nesting time for the heron-like birds who build their homes in the branches that stretch out over the river. Black swans cruise by, mostly unperturbed by paddlers only metres away. There is a tent city full of partying landcrew and resting paddlers. Relay options allow as much or as little paddling as you prefer. You might even indulge and stay a day to tour the Capital.

My thanks to Tom and Christine Simmat for transporting my boat and gear to Canberra. It may be okay to fall asleep at the paddle but not at the wheel on the long drive home.

Alanna Ewin and Joy Robinson … the *crème de la crème* of land crew

As the night passed, each lap revealed a little more daylight

by Anjie Lees

This was one of the loveliest events I have done. The weather was perfect and the atmosphere very relaxed and friendly.

There were many relay teams which was great. Only a few paddled all night. Many stopped and slept in their Riverside camps.

It's always lovely to see LCRKers Richard Barnes, Tony and Alanna, Richard and Joy Robinson. Alanna and Joy are the crème de la crème of land crew, with yummy offerings and always up for a chat which was nice, especially when the kids were not there.

The event consisted of 4km laps which you may think could be boring … it's quite the opposite. It was like time-lapse photography in the afternoon/evening with a stunning lightning show in the distance. Pretty much passing the same place every 30 minutes. As the night passed, each lap revealed a little more daylight and the waking birds chirping to greet the new day.

With 4km laps there is always someone to paddle with and chat to on the water … even during the night.

I stopped for a few minutes every 4 or 5 laps and had a drink, chat or something to eat. My kids came down for the weekend and were really helpful in between shopping, going to the movies and sleeping. I was really glad Brianna did the driving home.

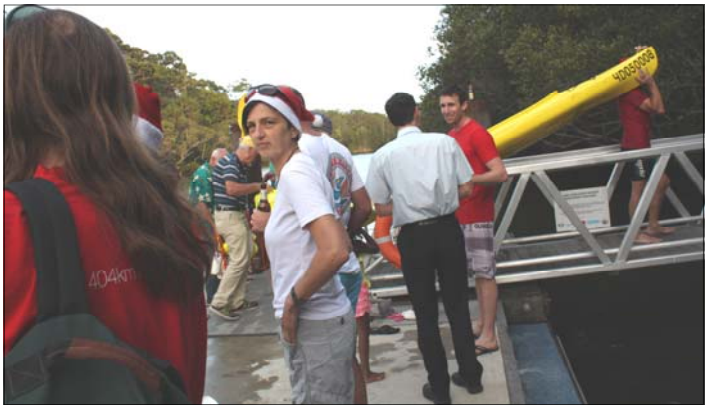
The barrel fire was very enticing and around 2am there were half a dozen paddlers standing by it keeping warm. It was difficult to drag myself away and back into my ski.

Richard Barnes was my inspiration to paddle the full 24 hours although he managed it without stopping, second year in a row, and achieved an incredible 49 laps. I surprised myself by doing 40 laps over the 24 hours.

It would be really great to see at least one LCRK relay at next year's event.

CHRISTMAS PADDLE AND BBQ

CHRISTMAS PADDLE AND BBQ



CHRISTMAS PADDLE AND BBQ

Pictures by Alanna Ewin, Phil Geddes and Justin Paine

Nature Notes by Jon Harris

A few paddlers have reported seeing turtles in Lane Cove River. This is unfortunate because they are freshwater turtles and they don't live very long in saline water. I have only ever seen one and it was dead. There are in fact 2 species that inhabit the freshwater areas above the weir, and either find their way around the weir or are washed over during heavy rain into the saline water downstream.

Chelodina Longicollis or Eastern Long-neck turtle

As the name suggests, it has an extremely long neck, sometimes as long as its shell, obliging it to fold the neck sideways into the shell rather than retracting directly back. The shell or carapace is dark brown with black-edged divisions and has distinctive black markings underneath.

When threatened this turtle will release a foul-smelling liquid from its musk glands. It can occasionally be seen basking on a sunny log or rock. They are found in many slow-moving inland waterways and swamps from N. Qld to S. Australia. Like most turtles they are carnivorous, eating frogs, insects, molluscs, worms, etc and have powerful webbed feet for swimming, digging and holding prey.

The female lays 3-10 eggs in a hole in a mudbank in spring, then once or twice during the year. After about 3 months the eggs hatch, but the hatchlings are an easy snack for large fish, foxes, birds, goannas and others. They will hibernate in temperatures below about 10°C. Fortunately the hard-shelled adult has few natural predators, and can live to 100 years or more.

Emydura Macquarii or Murray River turtle

This is a short-necked turtle and is originally from the Murray-Darling system and some east coast rivers. It can grow up to 30cm and can live up to 30 years. It will eat vegetable matter but is generally carnivorous and does not hibernate, maybe due to its preference for a warmer climate.

It has 2 fleshy barbells under the chin and the carapace is brown on top and creamy yellow underneath. It also has a yellow stripe from the corner of the mouth rearwards along the neck.

These turtles are often bred and sold as pets, however like all baby animals they grow and cease to be "cute". They are often given incorrect diet, grow too large and are then dumped in a local dam or creek by ignorant and uncaring humans. Consequently they have now spread far beyond their original habitat and can often be found in suburban wetlands. It is illegal to take a turtle from the wild, and illegal to keep one without a licence.

Pack your paddle when you travel

by Tony Carr

As day jobs go, mine isn't too bad. I make a buck out of taking groups on day paddles around Sydney. I get to introduce lots of people to the joys of paddling and best of all, spend a lot of time on Sydney's outstanding waterways. We really do have the best in the world for kayaking, .

As the numbers paddling with my group have grown, the demand for new destinations, weekends away and longer trips have kept me on my toes. These days I spend a lot of time looking at possible destinations in Australia and overseas for longer trips. We'll do about 6 this year. The devil is in the detail – I have to make sure there are decent boats available, that we can offer lots of variety and fun in the week or two the group will be together and that the travel arrangements are seamless. We work to a formula that continues to evolve and people seem to like.

Here are 5 of the places that have worked well for us. Most you can paddle on your own, although it's much more fun to be part of a group. And yes, many airlines will allow you to take your paddle (after a bit of moaning). Air New Zealand classifies paddles as "weapons". They travel in a high security locker!

Fiji The Northern Yasawa Islands are very remote and close enough to each other to make visiting a new one each day quite feasible. The interaction with the locals is wonderful. On some islands they've prepared grassed areas for tents and built toilets for visitors. The kava flows and the grins are infectious. On others you are absolutely alone. The beaches are glorious and the opportunities to go rock gardening (see picture, page 3) and kayak surfing are everywhere.

Bay of Islands, NZ Considered the birthplace of New Zealand, it's an area rich in both culture and early Maori and European history. We stay at quaint little Russell, the country's first capital, which used to be called "Hellhole of the Pacific" when its only businesses were whaling and prostitution. There are 144 islands in the Bay and the pick of them is Urupukapuka, site of a 1920s resort built by American western writer Zane Grey, where we stay in modest original wooden huts. Paddling through the Hole in the Rock raises the heart rate.

Matt Swann with Margaret Heine in Fiji

Ningaloo Reef WA Bit of a hidden gem, this one. Travel from south to north between Cape Range National Park and Australia's largest fringing coral reef. Snorkel straight over the side of your kayak, into water rarely more than 4m deep. Multitudes of tropical fish, big rays, coral gardens and the opportunity to swim with (friendly) whale sharks.

Tony Carr (red boat) with a group in the popular Bay of Islands, NZ

Mediterranean Coast of Turkey Paddle the Turquoise Coast from Koycegiz Lake to Gocek Bay and then spend a second week walking the Lyceum Trail. Steeped in history. As our guide said, "We only stop for things BC, no time for the rest." Abundant marine and bird life. The locals love to serve a sort of rose hip tea to Australians. You do get to see a lot of family pics.

Abel Tasman National Park, NZ This is all about the Wilson family and their obsession with the park since 1841. Current head of the family Daryl Wilson welcomes you personally. Stay at replicas of their original family home and holiday chalet. Sheltered coves and islands offer some of the best sea kayaking territory in the world – one golden, sandy beach after another, fur seals, little blue penguins and a wealth of birdlife.

Details from tonycarr@ozemail.com.au.

Rudders: what they are and how to use them

by Phil Geddes

Most of us are familiar with our rudders as a means of steering our boats with varying degrees of success in changing the direction to where we want to go.

Commonly we see two types of rudders on kayaks.

Underslung rudders are favoured by K1s and 2s, ocean racing skis and some Rec class boats. These are rudders mounted below the hull and usually 80% to 88% distance from the bow of the boat.

The key feature of these rudders is that they do not penetrate the surface of the water, instead butt up against the underside of the hull.

Overslung rudders are favoured by sea kayaks, TK1s and 2s and some Rec boats. These are hung off the back of the boat and usually have the ability to "kick up" when they hit underwater objects.

The key feature of these rudders is that they penetrate the surface of the water and act on the extreme end of the boat for increased leverage but also experience more of the disturbed flow coming off the hull.

Which is the best type of rudder depends on where the kayak is going to be used and the type of usage. For downriver racing (eg Avon Descent) where snags and rocks are an issue, overslung rudders are preferable. For flatwater racing it's going to come down to type of weed management and the usual major determinant – personal preference.

What use does a rudder get?

The most obvious use is to change the direction of the boat, the type of directional change will vary with boat usage. For example, in sprint racing, apart from manoeuvring the boat before and after the race, the rudder does not have a great deal of use during the event. Hence we see quite small rudders on sprint boats, aimed at minimum turning and minimum drag.

Then there's marathon racing. One-way river racing (eg Murray Classic, Hawkesbury Classic) does not require tight changes in direction, but round-the-buoy racing as we experience in the Marathon Series and Harbour Series requires the boat to perform relatively tight turns. Hence we may see bigger rudders on the marathon boats, sized to optimise turn requirements against drag. This usually requires large changes in rudder angles to produce the turns.

A secondary but important use of a rudder is to keep the boat on course in cross winds and cross currents, turbulent flows coursed by bends and waves and turbulence from other boats. Rudder usage here usually involves moderate to small changes in rudder angle.

One important area for the marathon paddler that embodies both change of direction and directional control is washriding, where judicious use of the rudder is paramount in maintaining a ride. This area of usage usually involves small but constant changes in rudder angle

How a rudder works

The angle through which a rudder has to be used will have a big effect on determining the thickness and cross-sectional profile of the rudder. Similarly whether a rudder is used in areas where weed is prevalent or not will determine the rake on the leading edge.

To understand how these criteria affect the choice of rudder we need to understand a little of how a rudder actually works to generate the forces involved.

Forces on the rudder

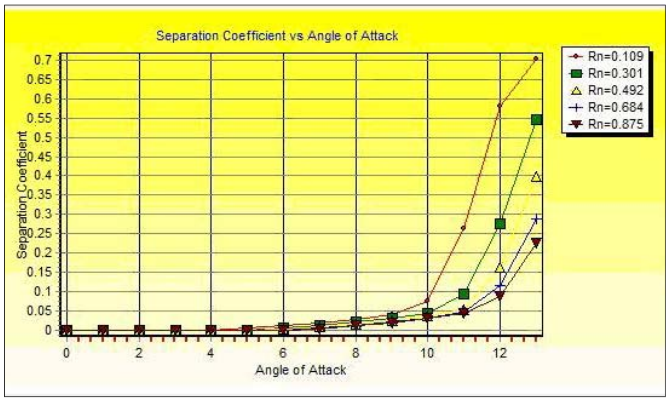
There are two main forces generated by the rudder:

Angle of Attack To understand the forces on a rudder we need to understand the concept of angle of attack (AA). This is simply the angle the flow of water makes with the direction the rudder is pointing. The AA can vary during the use of the rudder due to changes in flow around the rudder caused by cross currents or simply by the turn itself. As the rear of the boat swings out during the turn it will alter the angle at which the rudder makes to the flow. This is important to understand as it affects how the rudder is used.

Lift This is a force at right angles to the rudder that pushes the boats rear around, creating the turn.

Lift is created by the shape of the rudder profile, rudder length and the angle of attack. The force the rudder creates increases with the AA up to a point where the flow separates from the rudder creating turbulence and cavitation, resulting in a loss of lift and a large increase in drag.

The angle of attack the rudder can go to without separation is basically determined by the profile or shape of the cross section of the rudder.



Drag This is a force that acts along the axis of the boat in the opposite direction of travel which results in slowing the boat. Drag is determined by the profile of the rudder both in cross-sectional and side-on profile and the angle of attack that determines the drag coefficient (how much drag is produced for a given speed of the water over the rudder) and amount of turbulence produced.

Whether the rudder is underslung or overslung also affects the drag. With an underslung rudder the hull prevents water flowing around the top of the rudder, improving the hydrodynamics and reducing drag. With an overslung the flow is complicated by the rudder cutting the surface which can cause air to be dragged down along the rudder, resulting in premature separation of flow and increased turbulence around the rudder. This can be minimised by the design of the rudder.

Shape of the rudder tip controls flow around the bottom of the rudder, affecting the formation of drag-inducing vortices. Elliptical rudders minimise this problem.

Performance of a rudder is optimised when we can maximise lift and minimise drag, either by the design of the rudder and/or by the use of the rudder.

Shapes of rudders

Rudders currently used on kayaks and skis range from flat plates of aluminium of varying shapes to works of art in carbon fibre with hydrofoil cross sections and elliptical profiles.

Ironically flat-plate rudders 3 millimetres or so thick actually create more drag and generate less lift than rudders some 10 to 12 mm thick but made with hydrofoil-like cross-sections.

Cross-section shapes are designated by series numbers that define the hydrofoil section by the thickness as a percent-

age of the width of the foil, the radius of the leading edge and the distance back from the leading edge where the maximum thickness occurs. Of the sections shown below the NACA 0012 and NACA 0011 offer the best all-round performance, though profiles similar to the Eppler E836 are commonly seen on ocean racing skis where higher speeds are experienced.

Among high performance vessels rudder profiles that offer the best lift-to-drag ratios tend to be elliptical shape similar to that shown in the underslung rudder pictured on the previous page. This is a flat-water weedless rudder, designed to shed weed, hence the exaggerated rearward rake on the leading edge of 38 degrees. This is a compromise as rake angles beyond 15 degrees result in a noticeable increase in drag; however not as much drag as a weed-covered rudder. In areas where little weed is expected, as in ocean racing, the elliptical rudders have an almost vertical leading edge.

Below the following rudder section diagrams is a set of drag force and lift-to-drag ratio charts for a NACA 0012 sectioned rudder showing how the forces develop with changing angle of attack (leeway angle on the diagram). These curves are useful for determining the type of rudder one wants and how a rudder is used. As can be seen from the two curves below and the curve of separation coefficients graph in the previous section on rudder forces, use of rudder angles beyond 10 degrees can be quite inefficient and counter productive.

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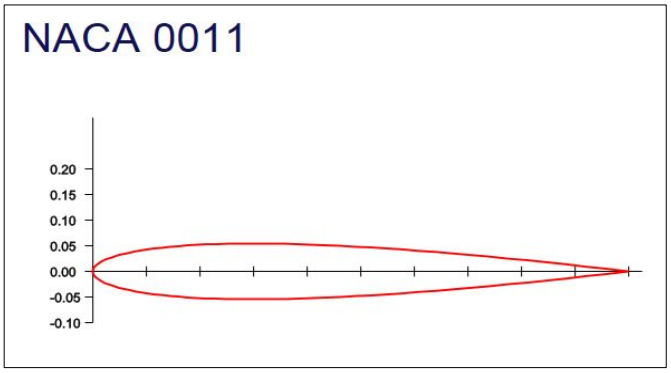
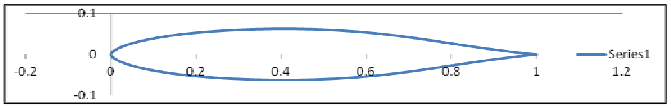
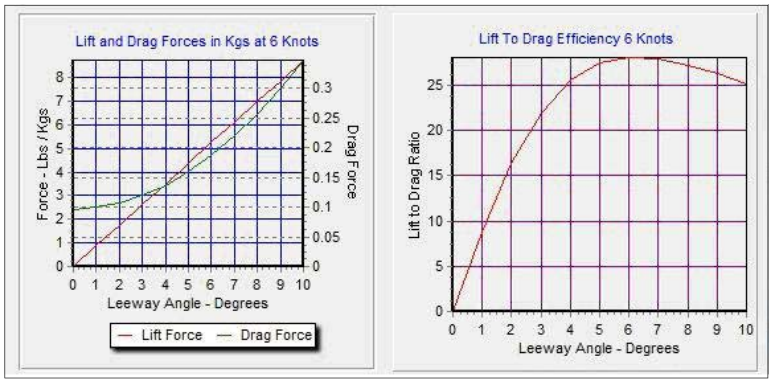


EPPLER E836





How to use the rudder

Let's consider where the rudder is used and how to use it in various situations.

Turning the kayak

Large turning angles – eg 90 to 180+ degrees. These can be influenced by changes in the angle of attack induced by the turn itself, hence the best approach is to use medium rudder input to start the turn, avoiding flow separation to avoid creating too much drag. As the turn progresses and the angle of attack reduces, feed in more rudder angle to keep the lift force up but still avoiding separation. As the end of the turn is approached start feeding off rudder angle, straightening the boat. This also changes the angle of attack of the rudder so that reduced rudder angle reduces drag. Accelerating out of the turn also increases the angle of attack as flow along the hull increases. Hence reducing the drag by feeding off the rudder allows acceleration to be optimised.

Small turning angles – up to 90 degrees. Smaller turns are approached in a similar manner to the large turn in feeding the rudder in at the start of the turn and feeding off at the exit of the turn. These turns, though, can differ in the total angle of rudder used. Use of a lesser rudder angle will result in minimised drag allowing the paddler to power through the turn. Hence a slightly larger turn can be paddled at a higher speed, offsetting the slightly larger distance covered. Naturally the diameter of the curve has to be balanced with the speed of the turn so that the extra distance paddled does not negate the extra speed. Keeping the speed up reduces the need to accelerate harder after the turn to get back to speed.

Keeping the kayak on course This is where selection of rudder cross-section can be of most advantage. It is very rare that a rudder operates with no angle of attack. Even when paddling in a straight line the rudder is subject to cross flows caused by eddy currents, cross current flows caused by waves, wind and even wash from adjacent boats. All this can result in small fluctuations in the angle of attack on the rudder. It is therefore important that the rudder offer as little drag as possible with small angles of attack, hence rudder sections such as the NACA 0012 can display less drag than a thin plate that may have less drag in perfect straight-ahead flow conditions but create much greater drag with small angles of attack.

When using the rudder for course correction, movements of the rudder should be kept small. Only sufficient rudder should be used to keep the boat on course. In some conditions a constant small rudder angle may be best, however in other conditions it may be advantages to restrict course correction to a small number of quick sharp small turns to keep pointing in the direction required. The best method will depend on prevailing conditions and whether waves and other flow conditions are present.

Washriding The main aim of washriding is to gain an advantage through reduced drag by closely following in the wake of another boat. It is often necessary to resort to frequent use of the rudder in order to stay on station. Care should be exercised in the amount of rudder angle used here as too much may result in flow separating from the rudder creating a large increase in drag which may result in the loss of the tow. It should be realised that the flow from the leading kayak will affect the angle of attack of the rudder and hull on the following kayak which may result in unintended turning of the following kayak.

Paddling in turbulence and cross currents The effect of this is to change the angle of attack on the rudder which can result in unintended changes in direction. It is best to understand the currents through which you are paddling and try and anticipate potential changes. If the rudder must be used to control the direction of the kayak, rudder angle changes should be kept smooth and progressive; anticipation helps here as it can avoid sudden large uses of the rudder in reaction to unexpected changes in direction.

In summary, use of the rudder should be smooth and progressive with the total angle of deflection such that the rudder is kept below the angle of attack at which separation occurs.

Next issue: Rudder design

Wednesday nights at the pontoon with Wade Rowston

Happy New Year to everyone! As was expected, the numbers participating on Wednesday nights dropped back to more usual numbers in the mid 30s in Nov and Dec, as everyone took a big sigh of relief after the HCC and started to wind down for Christmas. That is, except for the LCRKers who powered on to the Murray Marathon.

There was an interesting increase in participation on Wednesday evenings in 2013 when compared to 2012, even though the number of members remained about the same. There were 1469 times and timekeepers' results recorded in the spreadsheet for all weeks in 2012. In 2013 there were 1937, making it 438 more than 2012. This averages out to around 8 more paddlers every Wednesday night. Congratulations to everyone for your enthusiasm and thank you for all your contributions.

We had a really pleasant Christmas and Presentation Night on Wed Dec 18. Thanks to Tony Carr, who supplied recreation kayaks/canoes for novelty races and "doubles" canoe polo, a fun time was had by everyone. There were numerous Santas and Santa's helpers, all adding to the festive atmosphere. Congratulations to the annual trophies winners awarded on the night:

2013 Crudslime Cup (and No 1 plate holder for 2014) – Phil Geddes

2013 Coffee Cup (and No 2 plate holder for 2014) – Ruby Gamble

2013 Doubles Cup – Jeremy Spear

2013 Most Improved – John Duffy, Jeremy Spear

2013 Rookie of the Year – Dru Spork

It was great to see during the whole calendar year so many paddlers improving their time trial times with improved fitness and technique. It was a very difficult decision for the committee to decide who should take out the Most Improved as improvement can be measure in many ways. Big improvers who just missed out included Tim McNamara, Ruby Gamble and Peter Edney. David Young and Christian Cox also improved dramatically but just missed out on the award as they were not LCRK members at the beginning of the year.

Phil Geddes, who won the coveted Crudslime Cup, paddled superbly for the whole year and picked up big points most weeks. It was a little unusual to see that he pretty much had it wrapped up with two months to go. The Crudslime Cup top 10 were Phil Geddes 399 points 1, Paul van Koesveld 384 2, Tom Holloway 369 3, Anjie Lees 353 4, Paul Seaberg 352 5, Paul Gibson 351 6, Dearnley 337 7, Tony Hystek 335 8, Matt Blundell 324 9, Peter Edney 322 10.

It was a great finish to the Coffee Cup with the decision coming down to the last round. George von Martini continued to paddle with an injured shoulder in the last few months, hoping to hang on to his lead, but just missed out in the last month when big improver Ruby Gamble clinched the title in the last Cup night with a very fast paddle.

So on to another year. Last year we introduced the Doubles Cup and reverse direction night which have been well received. Already this year we have made a small change by making the minimum handicap 0, but still starting the clock at 6:25pm. This just means everyone has 5 minutes added to their handicap as the 0 to -5 times have been eliminated. It makes it a lot easier for the timekeepers at the start line.

I'm looking forward to another great year of paddling on Wednesday evening and hope you can all make it along regularly for 'Fun and Fitness'.

Happy Paddling!

Coffee and Crudslime Cup winners Ruby Gamble and Phil Geddes

Award winners Jeremy Spear, John Duffy and Dru Spork