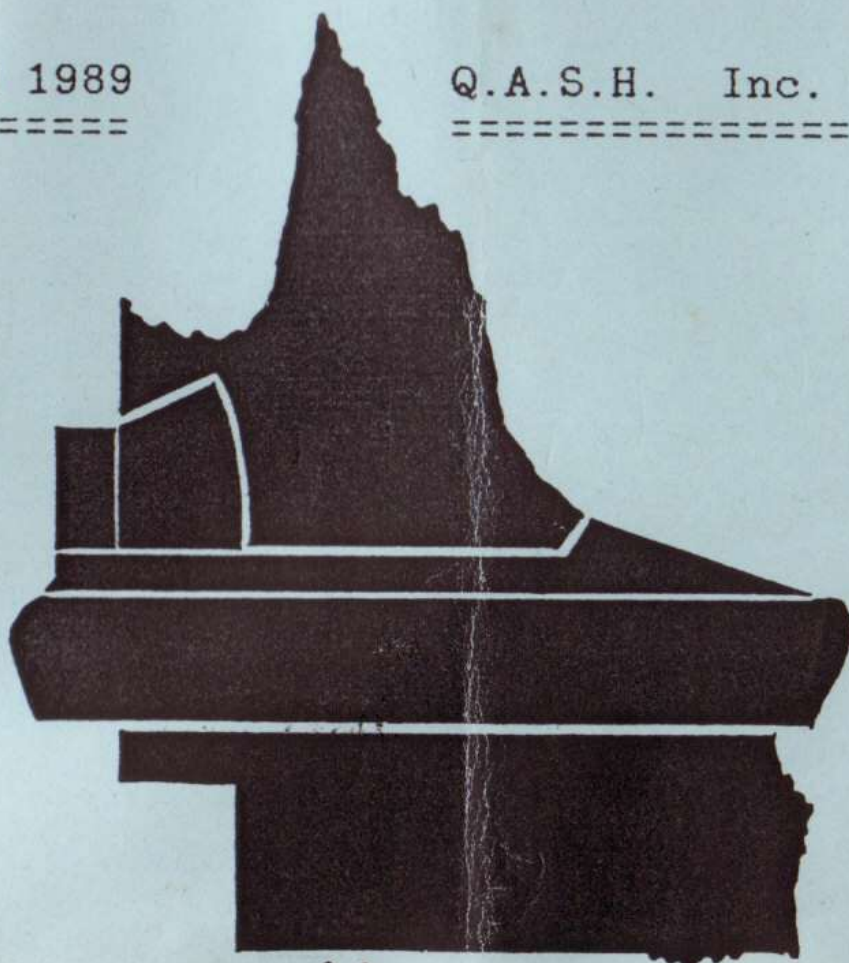


# QUEENSLAND AMATEUR SPORTING HOVERCRAFT

MARCH 1989  
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Q.A.S.H. Inc. 22nd EDITION  
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Q. A. S. H.

QUEENSLAND AMATEUR SPORTING HOVERCRAFT Inc.

c/o 52 Utrecht St.,  
LOGANHOLME Qld. 4129

Committee of management.  
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President : Mark Dobson 15 Daisy Hill Rd., Daisy Hill 4128  
ph 8084395  
Vice President : Des Goss 43 Luprena St., Mansfield 41  
ph 349974  
Secretary : Steven Odgaard 52 Utrecht St., Loganholme 4129  
ph 2098498  
Treasurer : John Russell 10 Brodie St., Holland Park 4121  
Public Relations : Elizabeth Julian ph 3783338  
Chief Race Marshal: Kyle Kerr ph 2072653  
Craft Scrutineer: Phillip Audsley ph 071 459268

Yearly Membership \$30-00 Associate Member \$15-00

Queensland Emblem on front cover designed by John Rapley.

INSURANCE  
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Private insurance is available for club members through the Victorian Association. Apply to the Victorian Treasurer: Brian Watts  
Ph 03 7231964 for details. Prices advertised in the H.A.V. newsletter vary between \$107-\$250 for between \$4,000 - \$10,000 craft and trailer coverage including \$1,000,000 public liability cover.

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Dear Air Cushion Vehicle enthusiast,

A good sunny long weekend is for sport hovercraft owners, a great time to meet at some otherwise inaccessible stretch of waterway riddled with sandbanks or weed covered shoals and to let loose with the exhilaration of high speed and great open expanse. For this reason the next two rallies have been moved from the traditional weekend of the third Saturday in favour of an Easter Camp at Poona in the Great Sandy Strait and a May Day weekend Houseboat excursion from Tewantin to Kinaba along the Noosa River, Lake Cooroibah and Lake Cootharaba.

Mark Dobson has made bookings for campsites at the Poona caravan park for the club and confirmation can be made by contacting any of the committee members or by turning up to the next Archerfield meeting which will be held on Wednesday 22nd March. The majority of members will be arriving at Poona on Thursday night at around 8pm and the best route is via Gympie and the Tin Can Bay Road. The road which follows the western perimeter of the Military Training Site is now sealed all the way.

The main rally destination for this trip will be the Mary River, but many other destinations throughout the Fraser Island region can be planned around the campfire and billy brew. The Great Sandy Strait is very popular for fishing and for short distance trips from Poona, members and friends without operating craft will be most welcome to add to the number of wetted lines in the ( hopefully ) fish infested waters.

As a guide for fuel capacity, the distance from Poona to Maryborough via Turkey Island and South Head is 70 km.

Mark has also booked well in advance for the hiring of two houseboats over the May Day long weekend and we have based our costs on catering for 14 people.

Details are as follows:

8 BERTH		6 BERTH	
PRICE	\$ 480.00	PRICE	\$ 400.00
BOND	\$ 200.00	BOND	\$ 200.00
<hr/>		<hr/>	
SUB-TOTAL	= \$ 680.00	SUB-TOTAL	= \$ 600.00

FUEL COSTS TO BE DEDUCTED FROM BOND ( MAXIMUM FUEL COST = \$ 100.00 )  
TOTAL COST \$1280.00 = \$ 91.43 each

FOOTNOTE- PENSIONERS PAY FULL PRICE

VENUE PROFILE  
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Carbrook Lake.

The Carbrook Caravan Park is under new management and the theme for the area has changed from " Pensioner City " to "Sports and Recreation" and activities such as 4 Wheel-Drive Club Barbecues and Jetski racing are already being conducted.

Anyone who has used a hovercraft from the boatramp before August 88 may well remember the hostility expressed at these so called non-conforming boats by the caretaker, old people living in caravans sited right next to the ramp and old boaties who thought they owned the river. This attitude has now completely reversed and the new owner and caretaker are now welcoming sporting activities which will draw the day-tripping public back to the beautiful grounds.

Hovercraft racing is therefore a possibility providing that the noise levels which are soon to be tested and race track conditions, such as run off areas can be mutually agreed upon by all parties concerned. A small party of hovercraft owners will be visiting the site for a demonstration sometime in April or May.

In the meantime, anyone wishing to use their hovercraft in the Logan River will find the parking facility and recently widened boatramp very safe and convenient, and a caretaker who will welcome you with a pleasant smile: But Please! for the sake of our recently improved relations - DON'T HIT ANY CARS.

Licence Testing at Victoria Point.

On Sunday 5th March 1989, the club had its second session of private ACV tests which was organized by Mark Dobson of the Q.A.S.H. and Tom McNamara of the Boating and Fisheries Patrol. Congratulations to Grahame Becker, Steve Koncz, Geoff Langford, Geoff Perry-Keene, John Russell and Tony Thatcher who each successfully demonstrated their competency as master of a light air cushion vehicle. Grahame Becker had flown his Turbo 240 across from its home on Russell Island, Geoff Langford had his small Osprey Harrier with a recently installed flashing amber light, Geoff Perry-Keene had his new Turbo 240 and John Russell had his trusty Turbo 235 featuring new shirt, Yamaha engine implant and a spring mounted rotary light that would almost put the Expo Needle to shame. Friends who turned up to give their support were Daniel Venn, Ann Russell with Nicky and Cameron, Mark Dobson with his recently revived Turbo 240 and myself with a tired old Scarab 2.

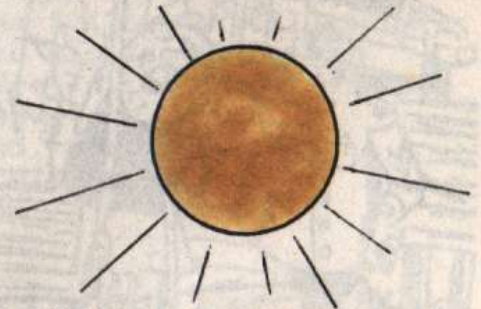
++++  
+ The Australian Hovercraft Federation requires a national logo. +  
+ Members or friends talented in this area are invited to submit +  
+ designs or ideas for consideration. +  
++++

## Bribie Island Trip.

On Sunday 18th February 1989, six members met at Toorbul Point for the February rally to Caloundra via the beautiful Pumicestone Passage. Peter Woolnough who joined the Q.A.S.H. in January, turned up and met Phillip Audsley in a Turbo 225, Mark Dobson in a Scarab 16, Goeff and Aaron Langford in an Osprey Harrier, Steven Odgaard in a Scarab 2 and Geoff Perry-Keene in a Turbo 240. The small fleet of hovercraft left at 11am and with stops at Donnybrook and Bribie Island, arrived at Caloundra near Bells Creek in good time to rendezvous with a skillful surfjet rider named Steve Koncz. Steve led us back to a small park where Sue Langford and Margaret Kovacs were waiting with the Osprey's pickup - the mighty Jag. coupled to a very basic stretcher on wheels which Geoff refers to as a trailer.

The Surfjet, a surfboard powered by a very compact jet pump was trialed by a few brave souls including Mark who had never surfed before in his life and to the disappointment of Geoff Langford, didn't even fall off. After a short downpour, we ventured further north to Caloundra to buy fuel and tucker and then headed back to Toorbul. As we ventured south through the islands and across the mudflats, I thought of previous trips with Des Goss and John Russell: It was very unusual to travel back at such a leisurely pace. Even after loading our craft on their trailers, we just sat around at the kiosk for dinner and a good hearty chat with Geoff Perry-Keene who had just completed his first cruise with the club.

"SUNSHINE"

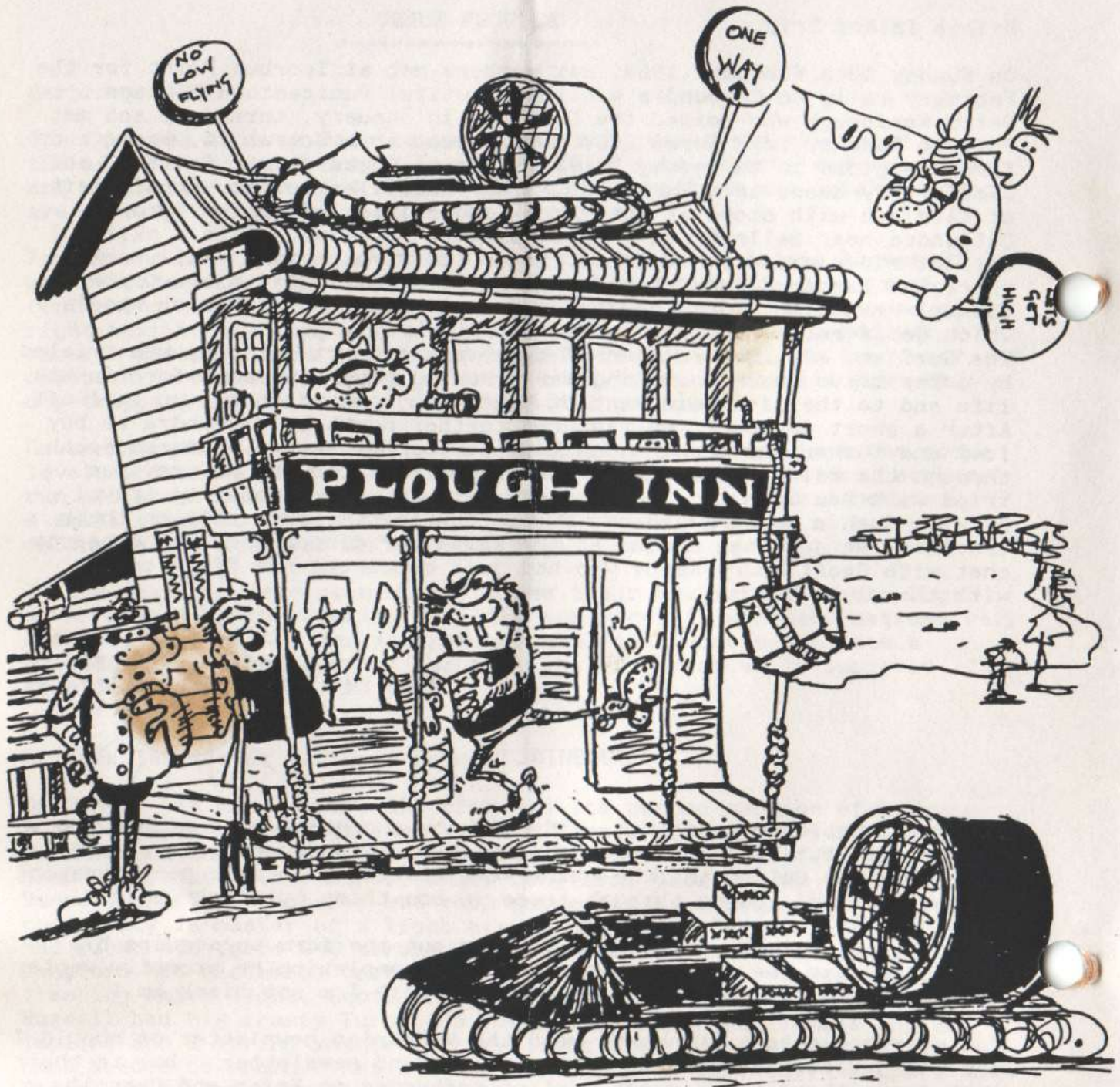


Here's a couple of good ones, did you know a certain club member who I won't name, but owns a Scarab 2, did a bit of landscaping to a rock wall down the Gold Coast the other week resulting in some panel beating to the old girl, going through trees is one thing but rock walls ?

And what about the guy that was filling out the form to acquire his licence and in the column which is marked complexion he promptly wrote WHITE and when asked about it, replied, " Well I'm not black am I ".

Not everyone gets a chance to read the Victorian newsletter or should I say the " Victorian version of the Queensland newsletter " but in their last issue there was a great cartoon referring to Brian and Carroll about how much gear they took to the national rally, and with the combination of the cartoon and the photo showing the water spout which appeared when one of their tent pegs was removed from the ground, it kind of reminds you of the Beverly Hillbillys, doesn't it.

HOVER ACTION  
CARTOON COMMENT - By Pauline Leaske



It's the Queensland Hovercraft mob.....  
I think they use it for fuel!!!!

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XXXX !!! Angus Kerr only uses a strict blend of OP BUNDABERG RUM.

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## RACING NEWS

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As mentioned previously in this issue racing may commence at Carbrook. Because of the Jet skiers using the lake on a regular basis, a calendar for the remainder of the year for the Hovercraft racing cannot be formulated at this stage, but we should have it for the next issue. The first thing to be done is to have at least six craft turn up on site to do a noise test and while we are there a short working bee may be required to get everything in order. When the racing does start, it will entail one race meeting per month until the end of the year, when the Queensland Championships will be held in early December.

The scoring and results procedure will be as follows :

- a. Results shall be provisionally displayed as soon as possible after the race.
- b. Scoring of points for all races shall be 20 for winner, 17 for second, 15 for third, 14 for fourth, reducing by one point to 1 for all qualifying finishers.
- c. In the event of a red flag being raised, the following will apply:-
  - i. Each driver still in the race will add to his lap score the number of laps required to finish the race, - the number of laps required by the leader to finish the race.
  - ii. The driver/s for whom the flag was raised, remains with the number of laps that he has completed to his credit.

The above is just a very small extraction from the rule book, so if you or any of your friends are interested in racing please contact Steve for a copy of the rules.

THERE IS ONE PROBLEM WHICH THE RACING ORGANIZERS WILL COME UP AGAINST AND THAT IS A SHORTAGE OF RACE MARSHALS. RACE MARSHALS HAVE A VERY IMPORTANT PARTICIPATION IN INSURING THAT THE RACES ARE CONDUCTED IN A SPORTING AND SAFE WAY. MAYBE THERE IS SOMEONE OUT THERE NOT QUITE SURE ABOUT JUMPING INTO A SPORT THAT IS RELATIVELY UNKNOWN AT THIS STAGE, BUT BEING A MARSHAL WOULD BE ONE WAY TO GET CLOSE TO THE ACTION AND LEARN ABOUT RACING. THOSE OF YOU THAT ARE INTERESTED IN GETTING THE SPORT OFF THE GROUND, PLEASE CONTACT A CLUB OFFICIAL: I KNOW THEY WOULD APPRECIATE THE HELP.



ANGUS KERR - TURBO 10S - QUEENSLAND



OWEN ELLIS - TURBO 235 CST - VICTORIA



MURRAY RUSSELL - F/GLASS CYCLONE - QUEENSLAND

PART 2. Fan Blade Pitch Selection by John Russell.

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I must acknowledge all the help that Tony Johnson from Luke Air Conditioning has given me in compiling this information. He is an extremely approachable bloke and is only too eager to help when possible.

The two graphs of his show the relationship between fan revs and theoretical absorbed horsepower. This assumes that no blade flex (straightening) occurs. The PP blades (polypropylene and green in colour) with their inherent flex, may not consume the actual horsepower stated.

It is also to be noted that Luke Australia's tip speed limit is only 90 m/sec for PAG. The same blades in the UK carry a higher tip speed rating (thought to be 137 m/sec.). Tony has also supplied me with a full set of technical brochures for the 3H, 4Z and the new 5Z rotors. Anyone wishing to peruse these can borrow them from the club.

In forthcoming newsletters, graphs showing :

1. maximum fan speed vs fan diameter and
2. thrust available from different blade combinations for the superduct will be given.

Letter from LUKE AIR CONDITIONING re Hovercraft applications.

#### INTRODUCTION

During the last two years it has become evident that there has been ever increasing interest in the manufacture of hovercraft both in the professional and amateur fields. Luke Air Conditioning are manufacturers and agents for the Multiwing range of axial fans which have proved extremely popular for use in hovercraft in the United Kingdom and which we find are rapidly becoming the preferred fan for Australian hovercraft.

Therefore we have prepared the following short discussion on fan selection and hopefully a few helpful suggestions.

#### FANS

The most often requested fan has been the twelve bladed polypropylene 4Z type rotor. With this fan the blades may be adjusted to any of six angles thus enabling the hovercraft user to experiment, if necessary with various settings, thereby achieving the best combination for lift and power take off. As will be noted from the 4Z Brochure the fan can be supplied with a flat plate centre making it suitable for direct bolting to the drive unit. The polypropylene blades are extremely sturdy and in comparison with other fan manufacturers, have a large mounting base firmly secured in the split hub.

Experience has shown that the weakest part of most fans occurs where the blade joins the hub and this has been overcome with the Multiwing design.

#### INITIAL SELECTION

Obviously the heart of every hovercraft is the engine. In the initial selection one must decide how much power is going to be available for the fan and at what speed. It is important at this stage, that we bring your attention to the technical data on page 4 of the 42 Brochure, which states the maximum tip speeds of the fan. We are aware that hovercraft people regularly exceed these limits with no detrimental effects, but we would emphasize that as manufacturers we cannot accept any responsibility for any fan run over the limits laid down in the brochure. As a quick check:- Tip Speed Metres/sec = Fan diameter ( metres ) x RPM x .0524

We attach two curves for two different fans - 12 bladed and 9 bladed showing the relationship between fan speed and fan diameter. The fan diameters are deliberately chosen as the maximum available for the length of the blade. This has obvious advantages in quick replacement should blades be damaged ( a common occurrence in hovercraft ) by " foreign - bodies " being drawn through or in most cases, accidentally dropped through! Should however, smaller diameters be required, the blades are relatively easy to trim down.

#### GENERAL DESIGN

It would appear from the majority of our customers that hovercraft design is still very much a " black-art " in Australia but from the amount of work being carried out a back-log of experience must be slowly building up.

As fan manufacturers, we are accustomed to working to fixed parameters of flow quantity, static pressure, RPM and power consumed, and from these values supplying the most efficient fan for the purpose. However, in hovercraft applications at the present time flow and pressure appear to be somewhat unknown quantities - the main emphasis being fan speed and the power taken from the engine - the result being somewhat " suck it and see ". As a company we would be pleased to receive any technical data in this area which would possibly enable us to select more suitable units.

#### CONCLUSIONS

A major consideration obviously is " What is it going to cost ? ". One can only give a general approximation based on today's prices. A twelve bladed fan with flat centre: approximately \$ 185.00 , the nine bladed fan: \$ 145.00. These approximate prices are for polypropylene blades. Available also are fans of similar performance and configuration but with polyamide glass reinforced blades ( see technical data ) with maximum diameters of 842mm and 761mm respectively. The prices of PAG bladed fans are approximately 50% higher than PP bladed fans.

As a company, we are always available to offer advice on any technical problems and to supply performance details for any non-standard requirements where sufficient information can be provided. We hope that the information provided will be of assistance.

137m/sec. Tip Speed

3450

100m/sec PAG blades.

2540

MANUFACTURERS TIP-SPEED

2280

LIMIT.  
PP blades 90m/sec.

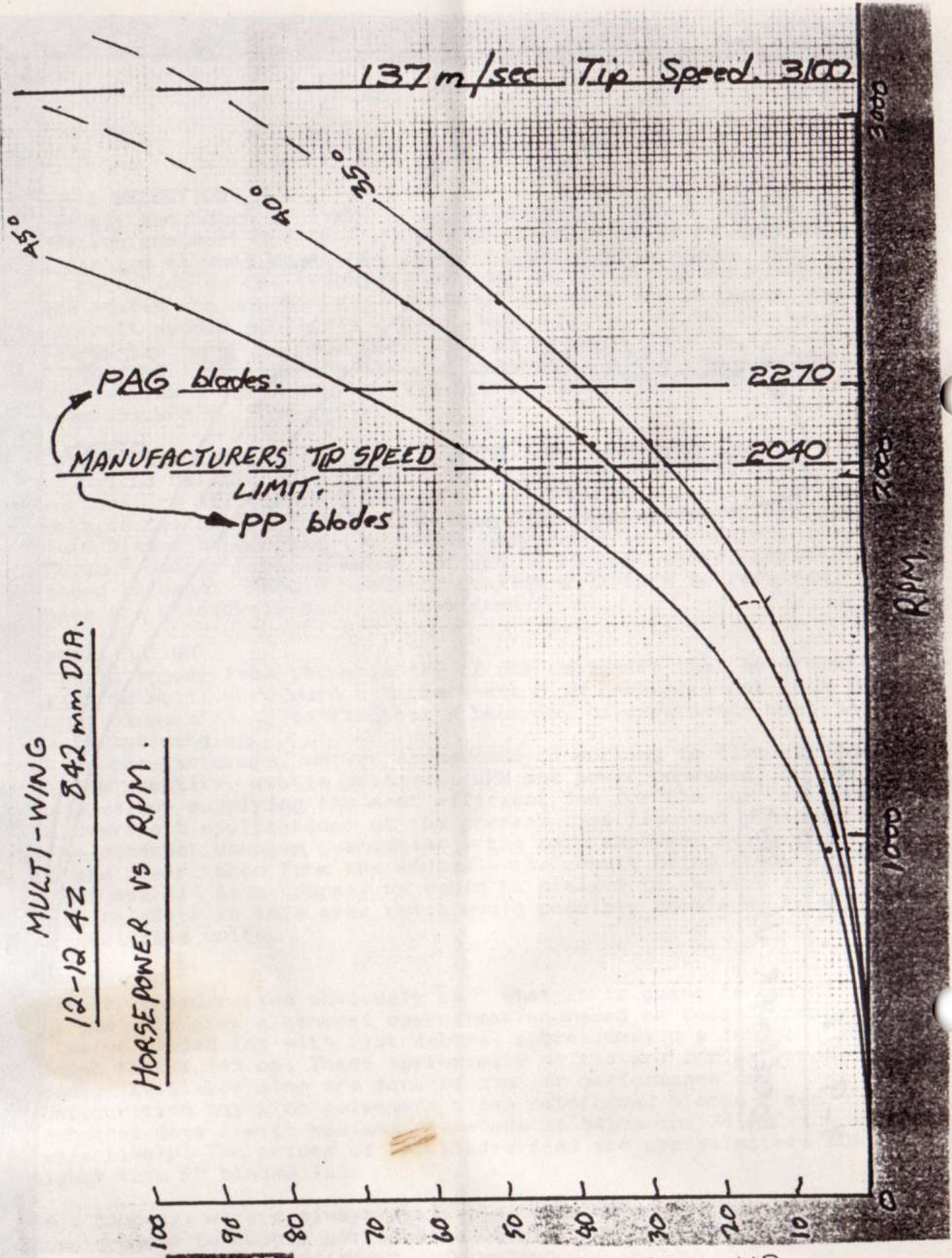
MULTI-WING  
9-9 AZ . 753mm DIA

HORSEPOWER VS RPM



MULTI-WING  
12-12 4Z 842 mm DIA.

HORSEPOWER VS RPM.



ABSORBED H.P.

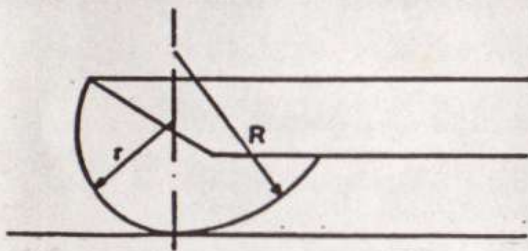


SERIES ON HOVERCRAFT SKIRTS No 5.

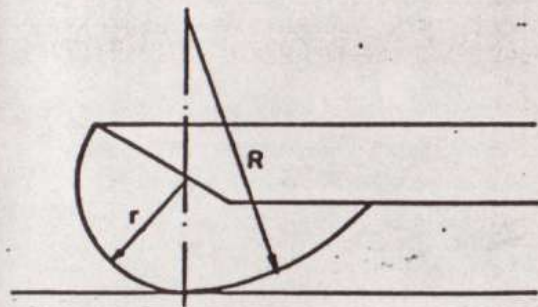
The bag skirt - bow section.

An ordinary side cross section at the bow would be very prone to plough-in problems, therefore the bow section is usually designed with a less bellowed outer curve. This shape however, does not have balanced geometry and so it will not automatically take up this shape but must be forced to do so by the tailoring. The inner curve has the same radius as that of the side cross-section, but the outer radius is now centred on a point retracted well in from the leading edge of the hull. This is quite acceptable if the bow corners are tapered back, thereby providing a number of joints where the skirt can be forced into this shape.

If the bow is straight with square corners, the long front panels of the skirt will not adopt this shape and will tend to round out. To overcome this problem, the bow skirt will need to be designed with balanced geometry which means using a much larger inner radius.



Bow plan - tapered corners.



Bow plan - straight with sq. corners.

To layout this cross section, centre the outer radius at a distance equal to  $r \times 0.85$  in from the leading edge and maintaining a hover height of  $1/8$  hull width, use an inside radius equal to  $r \times \text{FACTOR}$  as used in calculating the side cross section - see table below.

Pressure Differential bag pressure / cushion pressure	Factor inner radius / outer radius
1.2 : 1	6.0
1.3 : 1	4.53
1.4 : 1	3.5
1.5 : 1	3.0
1.6 : 1	2.66
1.7 : 1	2.43
1.8 : 1	2.25

The disadvantage of this skirt is the large overall width of material.

Club Tee Shirts are now available - White emblem on maroon shirt.  
A MUST for all members \$20-00 each.  
Contact Mark or John for orders.

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Proposed Trips for the coming months:

Easter	24th - 27th March	1989	Mary River & Fraser Island
Labour Day	28th April - 1st May	1989	Noosa & Lake Cootharaba

This month we welcome Geoff Perry-Keene and Grahame Becker as new members to our club. Geoff owns a new Turbo 240 and a Bill Baker Vehicle and Grahame has recently purchased Arthur Underwood's Turbo.

The 20th general meeting is convened for 7-30pm Wed. 22nd March 1989 at Archerfield Airport in the S.A.A.A. building.

Steven Odgaard  
sec.

FOR SALE

1. Scarab 2 Hovercraft  
2 seater 12' orange with yellow strips plywood hull  
50hp Robin 44PM thrust driving 2 x 24" multiwing ducted fans  
8hp Briggs and Stratton lift motor  
Good condition

Price : \$ 1,800

Ph 2075371

2. 2 fibreglass Cyclone hovercraft  
Black Cyclone 10' x 6'  
18hp Robin engine 630mm Duct  
Price : \$ 3,000 ono  
White Cyclone 10' x 6'  
2 Seater  
Rotax 503 engine 760mm Duct  
Price : \$ 6,000

Ph 8121136

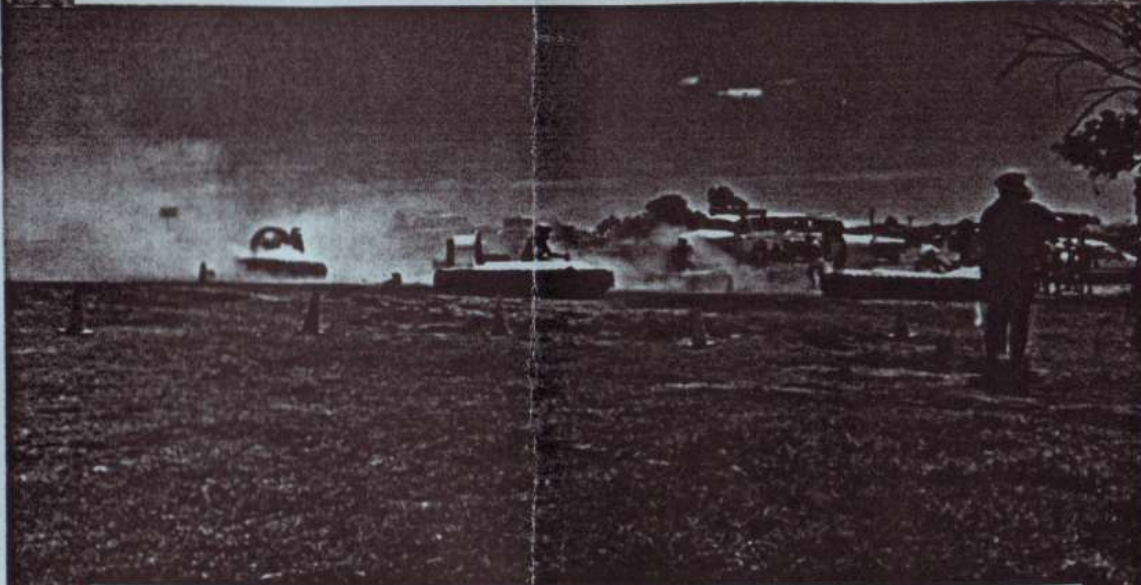
3. TURBO VORTEX  
Latest design by Paul Moody of Turbo Hovercraft Victoria  
Features new antiplough-in fibreglass hull  
and very stylish deck  
Colour co-ordinated skirt  
Complete with trailer  
Contact Queensland Hovercraft Supplies

Price : \$ 16,000

Ph 2072759



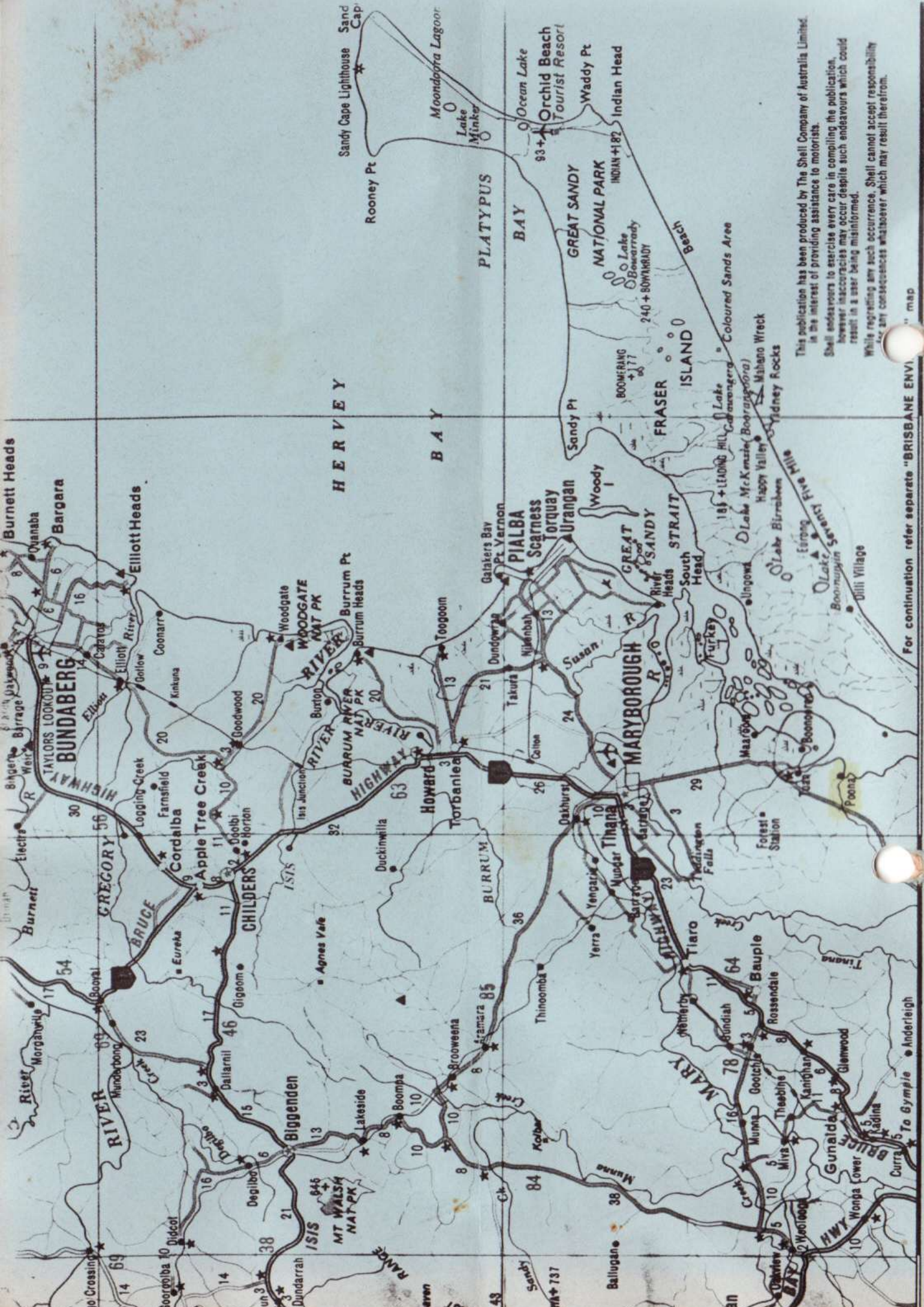
AND THEY'RE OFF - LAKE CARGELLIGO TIME TRIAL.



TONY THATCHER GOES WIDE ON THE FIRST LAND BEND.



BOB, ROBIN, KRISTIE AND DANIEL GOING FOR A CRUISE ON L.CARGELLIGO



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For continuation refer separate "BRISBANE ENVIRONMENTAL" map