APPENDIX 15

CYCA Review of the 1993 SHYR

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NEWS RELEASE 4 May 1994

CYCA FINDS SAFETY EQUIPMENT SATISFACTORY AFTER POST SYDNEY-HOBART QUESTIONNAIRE

The Cruising Yacht Club of Australia is satisfied that mandatory safety equipment carried by yachts in the 1993 Kodak Sydney Hobart Yacht Race, together with its own safety screen of the fleet, was more than adequate for the galeforce conditions encountered in Bass Strait.

However, with a record fleet of more than 200 yachts expected for this year's 50th race, Australia's premier ocean racing club has moved to upgrade personal safety equipment, refine radio communications with the fleet, and place greater emphasis on crew experience.

The CYCA's view is backed up by the great majority of yacht owners and skippers who sailed in the rugged 1993 race in which only 38 out of 104 yachts completed the 630 nautical mile course.

They have also totally backed the CYCA's fundamental rule that the decision to start in any ocean race, and continue to race, must remain the sole responsibility of each yacht's owner/skipper.

The views of the CYCA and yachtsmen have come out of an extensive questionnaire sent to owners and skippers of every yacht which sailed in the race, which achieved a 78 percent response rate.

While not mandatory equipment, the questionnaire showed that 100 per cent of yachts in the 1983 Kodak Sydney Hobart Race carried GPS navigation units on board.

The precise positioning available from these units had played a significant role in the search and rescue of John Quinn, and the location of other yachts and crews in distress.

Skippers also reported that the compulsory flares carried by each yacht had proved invaluable in guiding rescuers to those yachts which required assistance.

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With the huge fleet expected for this year's Kodak 50th Sydney Hobart Race, the CYCA Sailing Committee has recommended:

> Educational seminars for competitors in heavy weather boat handling techniques, necessary to conserve yachts under such conditions, together with Education and training of crew in safety equipment and safety procedures as part of an essential requirement for acceptance in the Sydney Hobart.
>
> Closer scrutiny of crew experience before long ocean races to ensure that each yacht competing has experienced sailors aboard.
>
> Development of more "user friendly" safety equipment to encourage crews to wear safety harnesses and life jackets when on deck, especially at night.
>
> Encourage the use of safety equipment including the carrying of personal strobe lights.
>
> Development of an inflatable lifejacket with crutch strap, lifting eye and pocket for light, bleeper and safety line.
>
> Annual checks by yacht owners of all webbing and stitching on safety harnesses against saltwater deterioration.
>
> Refinement of radio communications and improved radio protocol by yacht operators, including special courses during the year.
>
> Compulsory 24 hour listening watches by all yachts if and when directed by the radio relay vessel to broaden the Club's race safety net.

The CYCA has already changed its eligibility requirements for the 1994 race in that yachts owners must make an application for an entry into the race, giving the Sailing Committee the right to assess carefully the seagoing qualities and crew experience of any yacht.

In assessing the problems behind the high attrition rate in the Sydney Hobart, the CYCA used the questionnaire responses and also checked the Club's radio log books to determine the reason for retirement for yachts which did not respond.

The questionnaire was sent to the owner/skipper of every yacht which sailed in the 1993 Kodak Sydney Hobart, with 86 per cent of finishers and 68 per cent of retirees responding.

Among those who responded at length was John Quinn, who survived five hours in the sea after being washed overboard from his 35 foot yacht, MEM, on the second night at sea.

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The assessment by the CYCA produced the following reasons for retirement of 66 yachts out of the fleet of 104 starters :-

REASONS	Voluntary Retirement		Involuntary Retirement	
	Yachts	% Fleet	Yachts	% Fleet
Seamanship/Weather	19	30		
Rigging Damage	15	23		
Crew Injury	4	6		
Engine/Battery Charging	2	3		
Water in Deck Wells	2	3		
Rescue of other Crews	2	3		
TOTAL	44	68		
Structural Damage			11	16
Dismasted			8	12
Sank			2	3
Man Overboard			1	1
TOTAL			22	32
TOTAL RETIREMENT	66	100		

Releasing the summary of the questionnaire today, the Club's Sailing Committee stressed that continued training of crews was needed on safety equipment and procedures in emergency situations before the 50th race to Hobart in December this year.

The report said that long ocean racing experience was a key factor in coping with heavy weather ocean sailing, a fact borne out in the questionnaire which showed that 66% of the yachts which completed the 1993 race had crew who had competed in the similar stormy weather races of 1977 and 1984.

At the same time, the Sailing Committee paid tribute to those yacht owners who chose to retire from the last Sydney Hobart although their yachts had not sustained serious damage.

"People who know their limits are good seamen and they represented 30 per cent of the yachts which retired", the Sailing Committee commented.

The Committee said the questionnaire had certainly highlighted a number of problem areas but there appeared to be no need for further regulation.

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"The areas of most concern are obviously the sinkings, dismastings, rigging damage and structural problems, the spokesman said, adding that the Sailing Committee had attempted to analyse the four categories.

Earlier criticism of the ABS (American Bureau of Shipping) Standards of hull construction did not appear to be valid as only two yachts suffered real damage that could be attributed directly to ABS not being tough enough.

Both yachts which sank were designed and built prior to the introduction of ABS but both had a bulb added to their keel.

One yacht lost its keel at the hull joint and turned over, the other suffered hull failure in the keel area, took on water and sank.

Six other yachts designed and built to the ABS guidelines had problems. Three suffered delamination to the bow areas although a subsequent investigation by professional consultants and revealed that one yacht suffered the damage after hitting ocean debris or sea life.

Owners commented that poor workmanship appeared to be the cause of the other three yacht's problems.

"This left only two yachts in a fleet of 104 in question, and it thus could not be said that the ABS did not seem robust enough for last year's conditions. Additionally, it should be remembered that the ABS is a minimum guide to designers and builders", the Sailing Committee spokesman commented.

Commenting on problems with rigging, the Sailing Committee said rod rigging failure accounted for eight yachts (7% of the fleet) being forced to retire, but only one of these 8 lost its mast.

Six of the failures occurred on the end fittings or stem ball joints, suggesting that incorrect alignment or insufficient scope to move probably caused the fatigue.

Two yachts suffered broken forestays, again suggesting that correct toggling was essential.

On personal safety, as a result of his man overboard experience, John Quinn's suggestions had included :-

> Life jackets should be inflatable to control the buoyancy and be comfortable to wear and work in aboard the yacht. An inflatable jacket on a harness would be excellent, or an inflatable jacket worn around the waist in a pouch.
>
> Personal strobes which could easily be attached to the jacket on the arm be included in equipment.

Every yacht should have a power light off its battery supply and floating waterproof torches should be kept in cockpit lockers or below for emergency use. Torches kept on deck were washed overboard.

Companionway washboards should be two-part with the lower section high to reduce the water intake through the companionway in the event of a knockdown.

The CYCA has received a separate report, with recommendations, on what happened with John Quinn's harness and also on the value of buoyancy vest that kept him afloat for five hours.

The investigation was not able to find why Quinn's safety harness had broken because the jacket, including harness, was discarded by Quinn after he had been in the water for about 40 minutes.

The report strongly recommends that skippers annually check all webbing and stitching on safety harnesses because they will deteriorate as a result of exposure to salt water, ultra violet light and constant chafe.

The report also recommends fitting of a crutch strap to harnesses and life jackets to stop people falling out of them.

The questionnaire showed that 30% of crew had jackets with inbuilt harnesses and they were preferable due to ease of operation.

However, the Questionnaire disclosed that on the majority of yachts it was left to the discretion of individual crew members as to when they wore safety harnesses.

In general, the 80% of owner/skippers of yachts which retired from the Kodak Sydney Hobart Race said existing safety equipment was adequate, as did 70% of those who completed the race.

However, the questionnaire did highlight problems with a liferaft overturning and in locating liferafts stowed below after a severe knockdown, and difficulty in cutting away rod rigging after dismasting.

Based on their experiences in the 1993 race, many skippers indicated they would pay greater attention to yacht and crew preparation, with many suggesting extensive education in radio operating, safety equipment usage and first aid.

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C.Y.C.A. QUESTIONAIRE - SUMMARY.

1993 Kodak Sydney Hobart Yacht Race - Fleet = 104.

Response: Finishers 33 (86%) Retirees 45 (68%) Total 78 (75%)

What were the wind and sea conditions leading up to retirement or at the time other yachts were retiring.

The major concensus of opinion is that the wind was between 45 and 55 knots from the SSW and SW with a 4 to 6 metre confused sea and a 1 metre wind wave on top. The worst conditions were experienced in Bass Strait with several participants recording higher wind gusts to 60/70 knots for short periods. Most experienced 30 to 40 knot winds from the SW with 3 to 4 metre seas on the NSW coast.

What was the date and time time of retirement.

Hours	26th	27th	28th	29th	30th
0000 - 0600		1 = 2%	8 = 18%		1 = 2%
0600 - 1200		1 = 2%	8 = 18%	2 = 4%	
1200 - 1800		4 = 9%	5 = 12%	1 = 2%	
1800 - 2400	1 = 2%	9 = 21%	3 = 6%	1 = 2%	

As you can see from the above table 35% of the fleet retired from Noon on the 27th to darkness on the 28th. Most of the yachts had made their way into Bass Strait before retiring.

As a finisher, did you contemplate retiring.

Did not consider	21	63%
Considered retiring but continued:-		
Crew wanted to continue	5	15%
Sheltered	3	10%
Rigging repaired	1	3%
Sail damage	1	3%
Battery/Electrics	1	3%
Start collision	1	3%

If you sheltered, for how long and where and what purpose was served in sheltering.

Did not consider	26	78%
Sought shelter	5	16%
Hove-to	2	6%

Those who sought shelter did so in Twofold Bay for between 6 and 48 hours. Three due to weather and 1 due to rescue work.

Of the two yachts who Hove-to, one did so for crew rest, the other to carry out repairs.

What was the prime reason for retirement.

In an effort to totally understand the problems behind the retirements, we used the questionaire responses and checked the Club's radio log books to determine the reason for retirement for those who did not respond, if no reason was given, we assumed that prudent seamanship was the reason and recorded the yacht in that catergory. The percentages for this question are therefore based on the entire retirement fleet of 66, not just the 45 who responded to the questionaire.

	Questionaire	Race Info.	Total	
Seamanship/Weather	8	11	19	30%
Rigging Damage	12	3	15	23%
Structural Damage	9	2	11	16%
Dismasted	6	2	8	12%
Crew Injury	3		4	6%
Sank	1		2	3%
Engine/Battery Charging	2		2	3%
Water in deck wells	2		2	3%
Rescue	1		2	3%
Man Overboard	1			1%

The areas of most concern are obviously the sinkings,rigging, dismastings and structural problems. We have attempted to analyse the four categories from the questionaire responses as follows:-

SANK

Keel broke off	Yacht built prior to ABS requirement
Suspected hull failure near keel	Yacht built prior to ABS requirement

STRUCTURAL

Keel breaking away	Yacht built prior to ABS requirement
Caulking sprung from planks	Old timber planked yacht.
Bulkhead fracture	Timber yacht with ABS
Delamination to bow	Carbon cored yacht with ABS
Delamination to bow	Kevlar cored yacht with ABS
Lost ballast bulb to keel	Fiberglass cored yacht with ABS
Hull/Deck joint leaked	Old solid fiberglass production yacht.
Suspected keel loose	Kevlar yacht with ABS (Subsequently not a structural problem)
Broken rudder box	Faulty welding to external rudder

Of the two yachts in this section who did not respond to the questionaire, enquiries have shown the following:-
Both yachts were designed and built to the ABS Guidelines.
One had delamination caused by hitting debris or sealife.
One had minor internal problems with a new yacht which were really not structural.

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COMMENT

Investigation indicated that both the yachts which sank were designed and built prior to the introduction of ABS. However both yachts had a bulb added to their keel to increase their stability to meet the IMS requirements. One yacht lost its keel at the hull joint and turned over, the other suffered hull failure in the keel area, took on water and sank.

Six other yachts designed and built to the ABS Guidelines had problems. Three suffered delamination in the bow areas although a subsequent investigation by professional consultants has revealed that one yacht suffered the damage after hitting ocean debris or sealife. Owners suggested that workmanship appeared to be the cause of the other three yacht's problems. One had a timber bulkhead move allowing the deck to flex, another lost the lead ballast lower section of the fin keel through a fastening problem and the remaining yacht, a new vessel, suffered teething troubles with water ingress.

In only 2 yachts in a fleet of 104 could it be said that the ABS did not seem to be robust enough for this years conditions, however it should be remembered that the ABS is a **minimum** guide to designers and builders.

RIGGING

D3 end fitting unwound	2
Rod D3 broke	
Rod D2 end fitting broke	3
Rod Forestay broke	2
Rod Lower shroud broke	1
Wire intermediate unravelled	
Crack in a mast weld at deck level	1
Headfoil parted	1
Minor running rigging damage	3

DISMASTED

Spreader gave way	2
Mast compression	1
Capsize	1
D1 broke at spreader bar	1
Chainplate support below deck failed.	2
Wire checkstay parted and spreader collapsed	1

COMMENT

Rod rigging failure accounted for 8 yachts (7% of the fleet) being forced to retire with only one yacht losing her mast. 6 of the failures occured on the end fittings or stem ball joints, indicating that incorrect alignment or insufficient scope to move probably caused the fatigue. Two yachts suffered broken forestays again indicating that correct toggling is essential.

Two yachts suffered mast failure from compression, one caused by a 360 degree rollover, the other through slamming load. 2 (possibly 3) yachts suffered spreader failure. The chainplates on two yachts caused mast failure, one was through a rigging screw below deck, in the other case the bulkhead attachment let go, pulling through the deck.

Of the other categories:-

CREW INJURY

All were caused by unavoidable accidents and while painful were relatively minor.

ENGINE/BATTERY CHARGING

Not a lot of information was presented but probably a more thorough preparation is required.

WATER IN DECK WELLS

Others reported this problem as well as the two yachts who were forced to retire. With the prevailing sea conditions, the anchor/foredeck wells were constantly filling with water. The water leaked into various sections of the yacht many metres from the bow and with the interior trim of the cruiser/racer yachts, the crew suspected a more severe problem.

RESCUE

Two yachts did not continue to race, due to shortage of fuel after escorting yachts which were in difficulty back to Port. With the rules as they were for this race, the yachts risked disqualification if they refuelled. The Sailing Committee is currently addressing this and the entire Redress situation.

MAN OVERBOARD.

Extensive first-hand reports were published in the February/March 1994 issue of the Club's "Offshore" magazine. Following are suggestions from John Quinn learnt from both his ordeal and from a report by Musto Australia about the equipment.

John Quinn Suggestions:-

Life Jackets	You need to control the bouyancy therefore an inflatable life jacket is required. It needs to be comfortable to wear and work in. An inflatable jacket on a harness would be excellent or an inflatable jacket worn around the waist in a pouch.
Personal Strobe	Which can easily be attached to the jacket on the arm.
Man Over Board Equip.	Stronger supports required for 'Jon Bouy' or similar to prevent it being washed overboard.
Spotlight	Powerful light off yacht's battery supply.

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Floating Torches	Waterproof torches that float should be kept in cockpit lockers or below for emergency use. They are washed away in a knockdown if left on deck.
Companionway Washboards	Two part washboards with the lower section high to reduce the water intake through the companionway in the event of a knockdown.

Would you have done anything differently at the time to prevent retirement.

Most said nothing different would have prevented retirement. Ten yachts made comment that reinforced their decision to retire. Several advised that they should have slowed the yacht, however being part of a team, racing in an event you must push to the limit.

As a finisher, what damage did you suffer to:-

Rig, Sails and Equipment.

No damage	11	34%
Torn sails	10	30%
Chafed sails	6	18%
Other minor damage	6	18%

Hull.

None	29	88%
Minimal Damage	4	14%

Of the four yachts sustaining minor damage, the problems were:-

Internal furniture moving.
Hairline crack to a forward stringer
Minor bulkhead fracture
Minor cracking to hull keel jont.

To what port did you originally intend to retire. Comment on the facilities and assistance given in the port.

Eden	27	61%
Ulladulla	7	16%
Jervis Bay	3	7%
Sydney	6	14%
St Helens	1	2%

Three yachts proposed Eden as a destination but altered course to Ulladulla because it was easier on the yachts to sail down the waves rather than across them.
The support from the Eden community and the Authorities and Coast Guard was exceptional however one yacht did get broken into after it was lifted out of the water for repairs.

Not having mobile phone service to the area put an extra load on the public facilities and many made mention of that fact in their replies. The Club has been asked to support the Eden community in their efforts to have the Government install a mobile phone antenna in the area. Reports from Ulladulla were equally glowing with only one exception and the Navy at Jervis Bay were very helpful as they always are.

What sails were you using at the time of retirement or when conditions were at there worst.

Finishers	Storm Jib and Trisail	11	34%
	Trisail only	3	9%
	Storm Jib only	3	9%
	Trisail and small jib	2	6%
	Small Jib only	5	15%
	Deep reef main and storm jib	5	15%
	Deep reef main and small jib	4	12%

Retirees — All those who sailed into the night of December 27th were under Storm Jib and Trisail. Those who retired earlier seemed to carry a double or triple reefed mainsail and either a #4 or #5. Several yachts carried the Storm Jib or Trisail only and many complained of the yacht being forced low by the wave action resulting in reaching across the face of the waves because of inbalance with only one sail set.

Comment on the size and construction of the Storm Sails used in the race.

	Finishers	Retirees	Combined
Suitable	27 = 84%	28 = 62%	55 = 71%
No comment	4 = 11%	10 = 22%	14 = 17%
Needs revision	2 = 5%		2 = 2%
Both sails too big		1 = 2%	1 = 1%
Storm Jib too big		4 = 9%	4 = 7%
Trisail too big		2 = 5%	2 = 2%

Three had sails under the maximum and found them excellent. Three made mention of construction being inadequate. It must be remembered, that the sizes indicated in the AYF Rule book are **maximum** and owners are free to choose any size under the maximum which he feels would be suitable for his yacht.

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Comment on the adequacy of the Radio Comunications as experienced during the race and after retirement.

	Finishers	Retirees	Combined
Very Good/Excellent/Very Professional	10 = 32%	20 = 45%	30 = 38%
Adequate/Satisfactory/Good	11 = 33%	19 = 42%	30 = 38%
Below Expectations/Could be Improved	7 = 20%	6 = 13%	13 = 17%
No Comment	5 = 15%	-	5 = 7%

The general message through the responses was that the Radio Relay Vessel is imperative and that its signal strength could have been higher. Other comments were that emergencies should have been conducted on the emergency frequencies and that greater radio discipline is required. Also that skeds clash with other long races.

Did seasickness effect the crew significantly among the finishers.

Yes	12	34%
No comment	21	66%

Did you have crew who had competed in 1977 and 1984.

	Finishers	Retirees	Combined
Yes	22 = 66%	25 = 55%	47 = 60%
No	11 = 34%	20 = 45%	31 = 40%

Of those who competed in other years, the majority thought that 1993 was similar in wind and sea strength to 1984 however the extended duration of this storm made it a harder race. Those who competed in 1970 still feel that was the toughest.

Comment on the adequacy of the Safety Equipment.

	Finishers	Retirees	Combine
Adequate	23 = 69%	36 = 80%	59 = 76%
Problems with equipment	8 = 25%	5 = 11%	13 = 16%
No Comment	2 = 6%	4 = 9%	6 = 8%

The items which caused problems were as follows:-
Safety Harness Clips. (One comment without detail)
Liferaft overturned and was dangerous - greater education required for their use.
Man-overboard equipment being washed overboard resulting in remaining equipment being lashed down and so preventing quick release. (Seamanship)

Safety Equipment (continued)

Several yachts advised problems with bolt cutters on rod rigging and suggested hydraulic cutters required if rod rigging installed.
Flares were excellent in guiding rescuers to survivors after yacht had sunk.
Liferafts stowed inside the cabin are difficult to locate after a knockdown or capsize.
Other helpful comments made:-
Fitting a perspex slide to companionway so you can see crew on deck are okay.
Liferaft visibility poor.
A light should be attached to each lifering.
All crew should carry chemical lights in oilskin pockets.

Does your yacht have bilge pumps connected to cockpit drains?

	Finishers	Retirees	Combined
Yes	5 = 15%	5 = 12%	10 = 13%
No	28 = 85%	40 = 89%	68 = 87%

Of those who answered yes, 3 yachts had cockpits which opened aft to the sea.

Was your yacht equipped with GPS.

	Finishers	Retirees	Combined
Yes	33 = 100%	45 = 100%	78 = 100%
No	0	0	0

Should a Personal EPIRB be compulsory for Category 1 & 2 Races.

	Finishers	Retirees	Combined
Yes	4 = 13%	2 = 5%	6 = 8%
Undecided	4 = 13%	5 = 12%	9 = 11%
No	22 = 66%	26 = 58%	48 = 62%
Recommend only	3 = 8%	12 = 28%	15 = 19%

Should a Personal Strobe Light be compulsory for Category 1 & 2 Races

	Finishers	Retirees	Combined
Yes	16 = 48%	26 = 57%	42 = 54%
Undecided	6 = 18%	1 = 2%	7 = 9%
No	4 = 12%	10 = 22%	14 = 18%
Recommend only	7 = 22%	8 = 19%	15 = 19%

What is your experience on the use of Safety Harnesses and whether or not they are inbuilt with jackets.

	Finishers	Retirees	Combined
Left to own discretion to wear	22 = 67%	31 = 69%	53 = 68%
When weather becomes rough	1 = 3%	3 = 7%	4 = 5%
At all times offshore	3 = 9%	2 = 4%	5 = 6%
At night regardless of conditions	7 = 22%	6 = 13%	13 = 17%
No comment		3 = 7%	3 = 4%

Comment was made by over 30% of the responses that they had crew with the in-built harness in their jackets and they were preferable to the external harness due to the ease of operation. Two yachts complained that they felt the in-built harnesses were dangerous.

Other comments made, were as follows:-
The AYF should lobby the government to have the import duty and tax lifted from jackets with the in-built harness.
Harness should have an in-built floatation collar.
Float vests should be compulsory.

Assuming the same weather and sea conditions were anticipated in next year's race, is there anything you would do differently prior to the start.

This question resulted in a variety of answers from Not go, Visit a psychologist, Pay more attention to preparation than rating certificates, etc. however the general comment was on preparation of both yacht and crew and maintenance.

i)	Yacht preparation	13	16%
ii)	Upgrade pumping system	4	5%
iii)	Crew preparation/health,diet,compatability /Compete in more long races	9	
iv)	Check rigging/Carry spare rigging/ Redesign rig/Change mast makers	9	12%
v)	Understand/Prepare safety equipment	4	5%
vi)	Service/Recut and replace old sails	3	3%
vii)	General comments:- Carry spare GPS. Sail heavier displacement yacht. Appraise conditions better.	9	12%
vii)	No comment	27	

Comments on matters which would interest the Sailing Committee.

This question provoked many constructive answers:-

i)	Radio education and Safety/First Aid Lectures are vital	10	12%
ii)	ABS must be more strictly enforced	8	10%
iii)	Crew experience and preparation needs to be greater	7	9%
iv)	Prudent seamanship in retiring to be encouraged	5	6%
v)	Yachts need to be stronger/Hull structure needs improving with utilisation of hybrid Kevlar Carbon designs	4	6%
vi)	Longer races must be sailed to qualify for a Hobart	3	4%
vii)	Drop sail limitations	3	4%
viii)	Radio Relay Vessel is vital and must be better equipped	2	3%
ix)	Other comments:-	5	6%
	Investigate rod rigging failures		
	Address the redress situation, encourage assistance		
	Have more emergency services on stand-by		
	Adhere to the 'Blue' book		
	Yachts with low stability should not compete		
x)	No comment	31	

Suggested improvements to Pre-race Briefing.

i)	Make shorter	6	
	Presentations should be at a seperate function		
	Perhaps two briefings necessary to accomodate large fleet		
	Small briefings encourage questions		
ii)	0800 weather update on 26/12	2	6%
iii)	Highlight points in instructions, dont read entirely	2	6%
iv)	Other comments:-	7	22%
	Stress seamanship, no shame in retiring.		
	Prefer non-racing crew (independent) weather forcasters.		
	Emphasis on radio procedures.		
	Select relay yachts prior to briefing.		
	Identify yachts with Doctors aboard.		
	Instructions should be available earlier.		
	Fax copy of instructions to interstate competitors.		
	Incorrect assumption that most have competed before.		
	Many participants cannot see or hear information.		
v)	Satisfactory	6	18%
vi)	No comment	10	30%

C.Y.C.A. Sailing Committee
May 1994.