



N.S.W. Police Service

Report to the Coroner

1998 Sydney to Hobart Yacht Race

***Coroner's Inquest
1998 Sydney to Hobart Yacht Race***

Report to the Coroner

***Analysis of Statistical Data from Post Race Survey Questionnaire
Circulated by the Cruising Yacht Club of Australia***

***Sergeant C Polley
Information Training Unit
School of Investigation and Information Management
N.S.W. Police Academy
8 March 2000***

CONTENTS

PREFACE.....	i
1. METHODOLOGY.....	1
2. CYCA DATA	1
3. BOATS INCLUDED IN ANALYSIS	2
4. MISSING DOCUMENTATION.....	3
5. SURVEY STRUCTURE	3
6. SURVEY BIAS	4
7. TESTING AND VALIDATION OF SURVEY.....	5
8. SURVEY DATA	5
9. MISSING DATA.....	5
10. QUESTIONS WHICH SHOULD HAVE BEEN ASKED.....	5
11. STRUCTURE OF QUESTIONS.....	6
12. CONCLUSION.....	7
Q1B.....	10
Q1C.....	10
Q1D.....	11
Q1E.....	11
Q1F.....	12
Q1G.....	13
Q2A.....	13
Q3A.....	14
Q3B.....	14
Q3C.....	14
Q4A.....	15
Q4B.....	16
Q5A.....	16
Q5B.....	16
Q7.....	17
Q8.....	17
Q9.....	17
Q10.....	17
Q11.....	18
Q12A.....	18
Q12B.....	18
Q13.....	19
Q14.....	19
Q15.....	19
Q16A.....	19
Q16B.....	20
Q16C.....	20
Q17.....	21
Q18A.....	21
Q18B.....	22
Q19.....	22
Q20.....	22
Q21.....	23
Q22.....	23

Q23	23
Q24A.....	23
Q24B.....	24
Q25	24
Q26A.....	24
Q26B.....	25
Q27	25
Q28A.....	25
Q28B.....	26
Q28C.....	28
Q29	28
Q30.....	28
Q32.....	31
Q33	33
Q35	35
Q36.....	36
Q37	37
Q38.....	37
Q39.....	39
Q41	39
Q42.....	40
Q43.....	40
Q44.....	40
Q45	41
Q46.....	41
Q47.....	42
Q48A.....	42
Q48B.....	42
Q49.....	43
Q50.....	44
Q51	44
Q52.....	44
Q53.....	45
Q54.....	45
Q55.....	45
Q56.....	45
Q57.....	46
Q58.....	46
Q59A.....	46
Q59B.....	47
Q60.....	47
Q61.....	48
Q62.....	48
Q63A.....	49
Q63B.....	49
Q64A.....	49
Q64B.....	50
Q65A.....	50
Q65B.....	51
Q66A.....	51

Q66B.....	51
Q67A.....	52
Q67B.....	52
Q68.....	53
Q69.....	54
Q70A.....	55
Q70B.....	56
Q71A.....	56
Q71B.....	56
Q72A.....	57
Q72B.....	57
Q72C.....	57
Q73A.....	59
Q73B.....	59
Q73C.....	59
Q73D.....	60
Q74A.....	60
Q74B.....	60
Q75A.....	61
Q75B.....	61
Q76A.....	61
Q76B.....	62
Q77A.....	62
Q77B.....	62
Q77C.....	63
Q78A.....	63
Q 78B.....	63
Q78C.....	63
Q78D.....	64
Q79A.....	64
Q79B.....	64
Q79C.....	65
Q80.....	65
Q81A.....	65
Q81B.....	66
Q82.....	66
Q83.....	68
Q84A.....	68
Q84B.....	69
Q84C.....	69
Q84D.....	69
Q85A.....	71
Q85B.....	71
Q85C.....	71
Q86A.....	72
Q86B.....	72
Q87.....	72
Q88A.....	73
Q88B.....	73
Q89.....	73

Q90.....	73
Q91A.....	74
Q91B.....	74
Q91C.....	74
Q92A.....	74
Q92B.....	75
Q93.....	75
Q94.....	75
Q95.....	75
Q96.....	76
Q97.....	76
Q98.....	76
Q99.....	77
<i>Graphs of Selected Survey Data</i>	79

PREFACE

In August, 1999 the Information Training Unit, School of Investigation and Information Management, N.S.W. Police Service, received a request to assist the investigation into the deaths of sailors involved in the 1998 Sydney to Hobart Yacht Race.

The purpose of this report is to:

- Validate the data used to produce the Report of the CYCA 1998 Race Review Committee
- Establish whether any bias exists in the survey questionnaire
- Identify any issue not addressed by the survey

1. METHODOLOGY

Only a quantitative analysis was to be carried out - establishing only the frequency of responses to each of the questions in the survey. In the absence of specialised software, all data was entered into a spreadsheet and the results tabulated. Where appropriate: mean, minimum, maximum and mode are included.

At the completion of data entry; all data was individually checked for accuracy. The police data was then tabulated and checked against the data received from the market research firm of Yann, Campbell, Hoare and Wheeler. The tabulated data is attached to this report.

2. CYCA DATA

The CYCA Report includes information which was not included in the survey - Boat Age, Boat Size etc. Due to the large number of non-responses to age, I believe that the ages of the crew were obtained from sources other than the survey.

The number of crew on board each boat, its construction are a matter of record and have not been included for analysis

An examination of a random sample of the stated sailing experience data supplied by crews was carried out. The process involved subtracting the sailing experience from the age. This analysis revealed that one crew member began sailing before he/she was born and a number of others were sailing from the time of their birth. A wider examination of crew sailing and racing experience revealed that about 16% of the respondents claimed to be sailing from under the age of 10 years. The high non-response rate to the question of age made it difficult to carry out a more accurate assessment of the accuracy of the stated sailing experience.

3. BOATS INCLUDED IN ANALYSIS

The following table indicates the boats which completed the survey and were included in the analysis.

Adagio	Henry Kendall Akubra	Red Jacket
Adrenalin	Hogs Breath Witchdoctor	Relish IV
Aera	Impeccable	Renegade
AFR Midnight Rambler	Indian Pacific	Ruff N Tumble
Alexander of Creswell	Industrial Quest	Sagacious V
Allusive	Inner Circle	Sea Jay
Antipodes of Sydney	Innkeeper	Secret Men's Business
Antuka	Jack Guy	She II
Aspect Computing	Jubilation	She's Apples Two
Assassin	Kendell (Anduril)	Siena
Atara	Kickatinalong	Sledgehammer
Aurora	King Billy	Solo Globe Challenger
Ausmaid	Kingurra	Southerly
Avanti	Komatsu Blue Lady	Spirit of Downunder
B52	Lady Penrhyn	Sword of Orion
Bacardi	Liquid Asset	Sydney
Berrimilla	Loki	T42 Solandra
Bin Rouge	Maglieri Wines	Tartan
Blistex Ninety Seven	Marchioness	Team Jaguar Infinity III
Bobsled	Margaret Rintoul II	Tenacious
Boomaroo Morse Fans	Mark Twain	Terra Firma
Breakaway	Mercedes IV	Tilting at Windmills
Bright Morning Star	Midnight Special	Trust Bank Hummingbird
Brindabella	Miintinta	Unipro Ocean Road
Business Post Naiad	Mirrabooka	Vagrant
Canon Maris	Misty	Valheru
Challenge Again	Morning Tide	VC Offshore Stand Aside
Chutzpah	New Horizon	Veto
Computerland	Nokia	Waitangi II
Cyclone	Not Negotiable	Wide Load
Dixie Chicken	Ocean Designs	Wild One
Doctel Rager	Outlaw	Wild Thing
Forzado	Pippin	Winston Churchill
Foxtel Titan Ford	Polaris	Yendys
Fudge	Quest	Zeus II
Gundy Grey	Ragamuffin	
Helsal II	Rapscallion	

4. MISSING DOCUMENTATION

During data entry it was noted that a large number of pages were missing from the subpoenaed survey documents. Some of these pages were omitted because they had no data (i.e. crew details). However, a large number of the remaining outstanding pages had significant data which was required. The outstanding pages from the survey questionnaires were produced upon request by Instructing Counsel. A further three surveys from boats not previously listed were also supplied (Business Post Naiad, Misty and Fudge). A notation on the bottom of the 'Misty' survey indicates that the surveys for Aera, Misty and Computerland arrived late and 'not included in survey'.

It appears that some recipients of the survey have copied and distributed the questionnaire to their crew members; submitting multiple responses. The subpoenaed documents indicate that the CYCA data represents 110 responses. The Police data that I examined was based on 109 boat responses with only one response from each boat included. In instances of multiple responses, the response of the Owner / Skipper was the response accepted. Any significant data in the additional responses was appended to the boat data.

5. SURVEY STRUCTURE

The cover sheet required the person completing the survey to identify themselves. The additional requirement of a signature on each survey are, in my view, intimidating. Lack of anonymity of the survey does not encourage candid responses. The extremely high response rate of 95% may be an indicator that the respondents felt compelled to respond.

An examination of the questionnaire reveals that there are a total of 162 items. These items were broken down into the following categories:

1	ORGANISING AUTHORITY	2	1.23%
2	COMMENTS / SUGGESTIONS	2	1.23%
3	LIFE RAFTS	3	1.85%
4	DAMAGE	3	1.85%
5	INJURIES	4	2.47%
6	COMMUNICATIONS	5	3.09%
7	LOCATIONS/COURSE/TIMINGS	7	4.32%

8	CREW <ul style="list-style-type: none"> • Experience • Age / Sex 	8	4.94%
9	BOAT <ul style="list-style-type: none"> • Construction • Rigging Inspection • Previous SHYRs 	11	6.79%
10	WEATHER <ul style="list-style-type: none"> • Weather Information • Weather Sources • Weather Conditions 	16	9.88%
11	EQUIPMENT <ul style="list-style-type: none"> • Category 1 • Condition • Failure 	16	9.88%
12	DECISION MAKING	24	14.81%
13	SEARCH & RESCUE	29	17.90%
14	CONDUCT OF RACE <ul style="list-style-type: none"> • Meals • Skills • Sails and Sailing 	32	19.75%
Total Items – All Categories		162	100%

6. SURVEY BIAS

The above table indicates that there is a clear bias in the structure of the questionnaire in the number of questions and the amount of detail required of crews. The bias shifts the focus from the Organising Authority to the Owners/Skippers, Bureau of Meteorology, and AusSAR.

The questionnaire is heavily weighted against the Owner / Skippers of participating boats (Crew, Boat, Equipment, Decision Making, Conduct of Race), Weather and Search and Rescue. Categories which may impact on the 'Organising Authority' (Information supplied to participants, Life Rafts, Damage, Injuries, Communications) received minimal attention.

An examination of the contents of the CYCA's Race Review Committee Report correlates with the above categories.

7. TESTING AND VALIDATION OF SURVEY

It is accepted practice that any survey be validated and tested on a representative sample of the population being surveyed. The purpose is to identify any deficiencies in the survey and make corrections prior to surveying the target population. There is nothing to suggest that such actions were carried out.

8. SURVEY DATA

I am not satisfied that the data I examined and the data obtained from the market research firm Yann, Campbell, Hoare and Wheeler is the same data. An examination of this data indicates similar response rates to the each of the questions but with some deviation. This deviation in all probability, is the result of multiple responses from some boats.

9. MISSING DATA

There is missing data in the report. One reported near drowning where a crew member had to be resuscitated was not mentioned in the report.

10. QUESTIONS WHICH SHOULD HAVE BEEN ASKED

Q4A: 'Do you feel the Organising Authority provided you with sufficient information on all aspects of the Event prior to the start of the race?' needed to be expanded upon. Separate questions should have been asked with regard to each function of the Organising Authority i.e. weather information, safety equipment standards, pre-race inspections of boats, training needs of crews, radio procedures, life raft training, emergency and search and rescue procedures.

Important question were not asked:

'Should the Organising Authority have suspend the race in severe weather conditions?

Is there any further information that the Organising Authority could have provided to assist you in this Event?

Is there any training need that you have identified that could have better prepared boat crews for this Event?

Are there any improvements to the Organising Authority's Procedures which could assist in improving the conduct of the Event?

How can radio communication during the Event be improved?

What aspects of life raft procedures do your crew need training?

What aspects of Search and Rescue procedures do you need training in?

Is there any additional safety equipment that should be made mandatory for Category 1 events?

11.STRUCTURE OF QUESTIONS

There was some confusion on the part of respondents as to what the survey required. Some were not clearly understood by the respondents. Many questions were closed, too specific in their wording, too general or vague or required a subjective response. Some of the crews responded appropriately with comments like 'stupid question' or failed to respond at all.

Although there are many examples, the following are a sample:

Q3A - The organising Authority should know if each of the participants is equipped with all the mandatory safety equipment and that equipment has been inspected.

Q5A - Some respondents answered NO but then proceeded to list equipment. However, some of this equipment was mandatory for Category 1 racing.

Q12A – Q12B ‘If No, Why did the routine break down?’ The question suggests that the skippers got it wrong – better to have said ‘Why did you change your routine’. The wording does not encourage a candid response.

Q14 - What does ‘trained in forecasting’ mean. The question is unspecific and subjective - what level, what qualifications. Who is responsible for forecasting the weather? Did the respondents interpret the question as shifting responsibility onto them?

Q24A - Was anyone seriously injured while below? This question requires a subjective answer of what is ‘seriously injured’ means. The survey should have identified all injuries above and below deck to establish the true cost of the race in terms of crew injury.

Q35 - There appears to be a discrepancy in the height of the waves in the responses given. I believe this discrepancy is the result of respondents not differentiating between swell and waves. This discrepancy would have been identified if the survey had been tested.

Q83 - ‘adequate medical supplies ...to meet any / all injuries on board?’ The question is badly phrased. No medical kit can be complete enough to treat any / all injuries.

Q82 - ‘list any ‘significant’ injuries to each member ...’ This question requires a subjective judgement on what is ‘significant’. The question should have asked to list all crew injuries and their cause.

The two most important questions in the survey are:

Q100 ‘Do you have any other comments or suggestions that you would like to make in respect to any aspect of the Event? (Please provide a separate attachment)’

Q101 Do you have any suggestions to do with any aspects of the race, particularly improving the ability of boats and crew to withstand difficult or extreme conditions? (Please provide a separate attachment)

These questions were left until last. It is these questions that the survey should have explored and expanded upon.

12.CONCLUSION

The survey questionnaire is heavily biased against owners / skippers, weather and search and rescue organisations and avoids questions about the role of the Organising Authority.

Many of the questions could have been omitted and serve no purpose in seeking information regarding how and why certain events occurred.

The most important and useful information was provided by Q100 and Q101. The survey failed to capitalise on the opportunity to ask specific questions regarding critical aspects of the Event. Due to the unstructured nature of written responses analysis would be very difficult.

The data supplied to police and the data on which the CYCA based their report is not the same data.

The error rate in the data is within acceptable statistical practice.

C Polley
Sergeant
Information Training Unit
School of Investigation and Information Management
10 March 2000

Data

*Police data is in the middle column and CYCA data the right column
unless specified otherwise*

Q1A

Hull Construction

Timber	17
Alloy	7
GRP	67
Exotic	24
No Response	1
Total	116

- *CYCA Data*

Q1B

Keel Type

Full Length	12
Fin	46
Fin With Bulb	51
Other	1
No Response	1
Total	111

- *CYCA Data*

Q1C

Rudder Type

Timber	13
Alloy	9
GRP	70
Carbon	21
No Response	2
Total	115

- *CYCA Data*

Q1D

Rudder Stock

Stainless Steel	77
Carbon	26
Timber	1
Bronze	2
No Response	4
Totals	110

- *CYCA Data*

Q1E

Mast Mast Age

Alloy	96
Carbon	11
No Response	3
Totals	110

CYCA Data

Age in Years	No. of Yachts
<1	5
1-1.9	11
2	6
3-3.9	8
4	9
5	5
6	8
7	5
8	7
9	6
10	9
11	1
12	6
13	1
14	4
15	1
17	2
18	3
19	2
22	1
26	1
30	2
Unknown	7
Totals	110

Q1F

Boom

Timber	1
Alloy	90
Carbon	11
No Response	8
Totals	110

- *CYCA data*

Boom Age

Age in Years	No
<1	5
1-1.9	11
2	8
3-3.9	11
4	10
5	9
6	7
7	2
8	5
9	6
10	10
11	1
12	2
13	1
14	4
15	1
17	2
18	1
19	2
20	2
30	2
Unknown	8
Totals	110

- *CYCA Data*

Q1G

Rigging

Rod	45
Dyform	20
Wire	43
No Response	4
Totals	112

- *CYCA Data*

Rigging Age

Age	No
<1	14
1-1.9	21
2	15
3	14
4	15
5	8
6	4
7	2
8	6
9	1
10	2
12	1
17	1
Unknown	6
Totals	110

- *CYCA Data*

Q2A

Date at which rigging was last inspected / serviced by a qualified rigger. Month Year

Not analysed.

Police data is in the middle column and CYCA data the right column unless specified otherwise

Q3A

When you started the race, to the best of your knowledge, was all the yacht's equipment serviceable and in reliable operating condition?

Yes	105	106
No	4	4
No Response	0	0
Total	109	110

Q3B

If No, Provide details

Tartan	All except handheld VHF
Berrimilla	Inner forestay has one strand severed at lower swage. I decided to sail with it in this condition-clearly a foolish decision.
Foxtel Titan Ford	Speedo stopped just as (race) started.
Winston Churchill	Not stated

Q3C

Did any of this equipment fail during the race or prior to you making port?

Yes	54	59
No	54	50
No Response	1	1
Total	109	110

Equipment that failed.

Batteries suffered salt water penetration of their bulkhead
Battery Charger, Steering Compass, wind indicator
Blew out #4 Jib
Dismasted
Electrics, some instruments
GPS Played up, VHS plug broken
Headsail halyard, Mainsail halyard
HF radio swamped with water
HF radio mounts, radio inoperable, wind and boat instruments due to water ingress,
Inflatable Dan buoy washed off mount, but we retrieved before cord extended and Dan buoy inflated (put together gain)
Inner forestay stranded during storm-temporary stay rigged while original wire bulldog clipped and spare mainsheet used to tension.
Radios suffered water damage HF was able to be repaired prior to finish.
Spinnaker pole car on mast broke, Wind vane blew off, Dan buoy lost during storm
Spinnaker pole, mast headboard car for mainsail boom...
Topping lift halyard, engine
UHF Radio, Masthead wind instrument
VHF Radio wet, Boom support broke
Wind direction instrument

Q4A

Do you feel the Organising Authority provided you with sufficient information on all aspects of the Event prior to the start of the race?

Yes	103	103
No	6	7
No Response	0	0
Total	109	110

Q4B

If No, Provide full details.

Forecast casual, not given all current material available
Improper weather reports, failure to advise situation
Not sure whether can use motor to seek shelter
Weather forecast was useless

Q5A

Apart from specified Category 1 Safety equipment did you have any additional safety / SAR equipment on-board?

Yes	104	104
No	5	6
No Response	0	0
Total	109	110

- *Confusion on the part of respondents. Answered No but then proceeded to indicate items of equipment.*

Q5B

You may choose more than one response:

Hand Held VHF Radio	31	32
Personal EPIRBS	31	32
Personal strobe light	84	84
Ships drogue	23	25
Private PFD	74	77
Hand Held GPS	96	93
Other	18	22
Mobile Phone	0	3
Int. Harness/ Life Jacket	0	1
EPIRB in Raft	0	4
No Response	1	0
Total	358	373

Q7

Had any member of your crew experienced similar weather conditions at sea previously?

Yes	91	92
No	15	16
No Response	3	2
Total	109	110

Q8

Did your crew train in heavy weather or practice heavy weather procedures prior to the 1998 Sydney Hobart Race?

Yes	69	69
No	35	38
No Response	5	3
Total	109	110

Q9

Did you believe you had adequate crew experience on board when you started the race?

Yes	105	106
No	1	2
No Response	3	2
Total	109	110

Q10

Do you now believe you had adequate crew experience on board when you started the race?

Yes	100	101
No	6	7
No Response	3	2
Total	109	110

Q11

Did you run an organised watch system, where the crew were designated specific tasks and watch times?

Yes	102	104
No	4	4
No Response	3	2
Total	109	110

Q12A

Did you follow the routine for the entire race / until you retired?

Yes	70	65
No	36	39
No Response	3	0
Total	109	104

Q12B

If No, Why did the routine break down? (You may choose more than one response).

Sea Sickness	18	18
Crew Injury	9	10
Crew Fatigue	11	13
Weather Conditions	20	20
Combination of Above	5	6
Other	6	2
Safety		3
Total	69	72

Q13

Did your yacht have a specialised navigator?

Yes	94	94
No	14	16
No Response	1	
Total	109	110

Q14

If Yes, was the navigator trained in weather forecasting?

Yes	73	73
No	21	21
Total	94	94

Q15

Was any member of the crew (other than the navigator) trained in weather forecasting?

Yes	75	73
No	33	36
No Response	1	1
Total	109	110

Q16A

Did you begin a log book for the event?

Yes	78	73
No	30	36
No Response	1	1
Total	109	110

Q16B

If Yes, Did you maintain the log book for the entire event?

Yes	55	55
No	35	25
No Response	0	1
Total	90	81

Q16C

If No, Why?

All paper wet
Barometer indicator of weather conditions
Barometer kept
Chart updated instead
Chore, electronic equipment
Destroyed in storm
Didn't consider a log book necessary
Dismasted
Don't need
I use a scratch sheet. I find a pad easier to use in rough conditions when a lot is happening
Intended to later
Log book got wet
Log book kept on chart
Log book not kept up to date
Log book started then left
Log lost (2)
Log lost in rollover
Log maintained on charts (4)
Log ruined by weather
Lost - found destroyed by water - too rough
Lost with boat
No value with modern navigation gear
Not needed, reliable GPS
Not possible to maintain log
Not relevant
Periodic notations on charts
Race and conditions too quick
Recorded on laptop computer, water logged
Recorded position on charts
Relied on electrical equipment
Retired sunk

Time
Too busy - lack of space
Too busy sailing in the conditions (2)
Too difficult to write
Too hard - log book soaked
Too time consuming
Water damage / Water Logged (6)
Weather conditions prevented
Weather, fatigue, more immediate commitments
Wet navigation area
Written when possible

Summary

Wet / Water Damaged	11	10
Lost Destroyed	7	4
Too Busy / Time	13	8
Too Difficult	2	
Not Necessary	4	
Other	15	6
Total	52	28

Q17

Did you use / maintain paper charts for navigation / plotting?

Yes	105	107
No	3	3
No Response	1	
Total	109	110

Q18A

Did your yachts routine call for the deployment of any form of safety equipment as a matter of course? Eg. Safety harnesses to be worn after sunset.

Yes	94	93
No	14	17
No Response	1	
Total	109	110

Q18B

If Yes, please give details.

Harness After Dark	15	
Harness Winds > 30 kmh	4	
Harness All Times	69	
Harnesses		85
Torches / Strobes	3	18
Life Jackets		9
Wash / Storm Boards		8
Crew Discretion	1	
When Conditions Req.	3	
Other		16
No Response		1
Total	95	137

Q19

Was it possible to serve Hot / Acceptable food during the storm?

Yes	67	69
No	37	38
No Response	5	3
Total	109	110

Q20

Did you carry specially prepared food for severe conditions?

Yes	89	92
No	19	18
No Response	1	0
Total	109	110

Q21

Were you able to keep the cabin in reasonable order?

Yes	100	103
No	7	7
No Response	2	0
Total	109	110

Q22

Did you find loose gear was a problem or hazard?

Yes	22	23
No	85	86
No Response	2	1
Total	109	110

Q23

Did you have sufficient grab / hand rails below deck?

Yes	91	93
No	16	16
No Response	2	1
Total	109	110

Q24A

Was anyone seriously injured while below?

Yes	16	14
No	92	96
No Response	1	
Total	109	110

Q24B

If Yes, was in your opinion, the injury a result of poor interior design?

Yes	8	7
No	11	7
No Response	0	
Total	19	14

Q25

Please indicate the sources used to get weather information for the race: (You may choose more than one response).

CYCA Race Briefing	103	106
Weather Bureau Package-CYCA	88	93
Sydney Radio (VIS) Skeds	62	68
Penta Comstat Skeds	59	62
Radio Relay Vessel Skeds	103	104
Melbourne Radio (VIM)	36	37
Local AM / FM Radio Stations	20	23
Weather Bureau Poll Fax	22	21
Newspapers	38	36
Internet	41	40
Onboard Weather Fax	36	34
Other (Please specify)	24	24
Other Boats		2
Roger Badham		14
Totals	632	664

Q26A

During the Race did you get weather forecasts other than those issued by the Radio Relay Vessel?

Yes	82	81
No	24	29
No Response	3	
Total	109	110

Q26B

If Yes, Please nominate sources:

Sydney Radio (VIS) Skeds	44	44
Penta Comstat Skeds	39	45
Radio Relay Vessel Skeds	5	3
Melbourne Radio (VIM)	27	30
Local AM / FM Radio Stations	14	16
Weather Bureau Poll Fax	7	10
Newspapers	1	2
Internet	6	9
Onboard Weather Fax	13	9
Other	18	24
Other Boats		5
Totals	174	197

Q27

How frequently did you get these weather updates between Radio Relay skeds?

Once	9	10
Once or Twice	44	46
Three of Four times	27	26
More Than Five Times	7	6
Other	0	1
No Response	22	22
Totals	109	111

Q28A

When you received a weather forecast from the Radio Relay Vessel what did you infer actual wind and sea conditions would be? (You may choose one answer only).

Much stronger	11	12
Slightly stronger	44	45
As forecast	52	51
Slightly less strong	5	5
Much less strong	0	0
Totals	112	113

Q28B

Please explain your choice.

40th crossing - prior storm warning - huge winds
50-60 expected compared with 70-80 experienced
Accepted forecast was correct
Ahead of storm centre
Allow +/-10%
Allowances for occasional gusts in excess of forecast
Always allow extra 5 knots
Always err on the safe side
As forecast (2)
As forecast until fax at 13:00 27th
Assumed forecast was correct
Assumed forecasts would be of highest quality
Assumed slightly worse than forecast
At face value
Badham's advice
Believed forecast was correct (2)
Believed what we were told
Conditions before Bass Strait stronger than forecast - SOO 78 knots
Conditions experienced
Confirmed by weather fax
Confirmed visually what was on weather fax/forecast
Consistent
Expect variance from forecast up & down
Expected accuracy
Expected Mean wind as forecast depending on localised conditions of land and clouds
Experience (4)
Experience tends to add extra (2)
Experience tends to add extra 10%
Experienced stronger winds than forecast
Forecast based on Mean wind speeds
Forecast should be accurate (3)
Forecasts are usually under estimated
Forecasts not consistent with Tasmanian forecast
Forecasts should be correct
Forecast 50-55 Radio relay suggested 55+
Forecast provided Mean wind not highest gusts - assumed worse than forecast
Forecasts are reasonably reliable
Got more wind than advised
I always add on 10 knots as safety factor
I don't understand this question
Instruments read stronger than forecast
Knowledge of Bass Strait
Most strong wind forecasts are stronger than forecast

No other information to suggest otherwise (4)
No reason to doubt credibility of forecast
No wind instruments
Observed rapid fall in barometric pressure
Only expected 50 knots
Presumed forecast was correct
Presumed forecast was correct
Reading of weather map
Reports from other boats ahead
Retired to Eden for repairs
Rodgers report
RRV forecast more accurate than expected
Safety margin
Seems a bit more in gusts
Self Explanatory
Sometimes get it wrong, generally .. Correct
Strong winds over Victoria
Studied barometer - Conditions in strait would be worse than forecast
Stupid question
Taken as issued
Thought strong weather had passed
Understanding that the forecast would be as predicted
Used forecasts with safety margin built in
Very strong winds indicated
Visual observation and past experience
Weather bureau is supposed to be professional
Weather fax and fast falling barometer ind. V strong winds
Weather forecast usually correct
Weather forecasts should be accurate by professionals
Weather forecasts tent to err on the high side
Weather forecasts usually conservative
Weather forecast 40-50 kts - gusts to 50 knots, abating as we cleared the coast
Weather forecast is a prediction that may need modification...
Weather forecasts from RRV have been v accurate and reliable
Wind and sea conditions were then as Forecast.....
Wind gusts 90% stronger than forecasts
Wind heavier than forecast (7)

Summary

Experience/Expected More	27	36
Observations	26	
Presumed Accurate	35	36
Other	6	23
No Response	15	15
Totals	109	110

Q28C

When you receive a weather forecast of say 45-55 knot winds, what do you expect the maximum gust will be? Knots

Min	50	50
Max	75	75
Mean	60.8	60.2

50 Knots	3	4
55 Knots	24	30
60 Knots	45	42
65 Knots	25	26
70 Knots	8	6
75 Knots	2	1
80 Knots	0	0
No Response	2	1
Totals	109	110

- *CYCA data bracketed nearest 5 Where a range given - upper limit taken*

Q29

Did your yacht hear the Radio Relay Vessel sked on the afternoon of 27 December when the operator read Sailing instruction Item 7.4 dealing with Skippers Responsibilities with respect to continuing racing?

Yes	93	94
No	13	14
No Response	3	2
Total	109	110

Q30

*Approximately what time did the high winds hit your yacht?
Date Time*

Yacht	Date	Time
Chutzpah	27	1:00
Kickatinalong	27	1:00
Tartan	27	1:30

Valheru	27	2:30
Marchioness	27	4:00
Ragamuffin	27	8:00
Brindabella	27	9:00
Canon Maris	27	9:00
Terra Firma	27	9:30
She's Apples Two	27	10:30
Aurora	27	11:00
Sagacious V	27	11:00
Sword of Orion	27	11:00
Ausmaid	27	11:30
Quest	27	11:30
Sea Jay	27	11:30
Team Jaguar Infinity III	27	11:30
Trust Bank Hummingbird	27	11:30
Aera	27	12:00
AFR Midnight Rambler	27	12:00
B52	27	12:00
Challenge Again	27	12:00
Computerland	27	12:00
Cyclone	27	12:00
Dixie Chicken	27	12:00
Forzado	27	12:00
Midnight Special	27	12:00
Relish IV	27	12:00
Solo Globe Challenger	27	12:00
VC Offshore Stand Aside	27	12:00
Wide Load	27	12:00
Helsal II	27	12:30
Ocean Designs	27	12:30
Adagio	27	13:00
Antipodes of Sydney	27	13:00
Aspect Computing	27	13:00
Atara	27	13:00
Bright Morning Star	27	13:00
Business Post Naiad	27	13:00
Loki	27	13:00
Mark Twain	27	13:00
Mercedes IV	27	13:00
Red Jacket	27	13:00
Renegade	27	13:00
Spirit of Downunder	27	13:00
Wild One	27	13:00
Indian Pacific	27	13:30
Yendys	27	13:30
Foxtel Titan Ford	27	13:40
Adrenalin	27	14:00

Industrial Quest	27	14:00
Margaret Rintoul II	27	14:00
Not Negotiable	27	14:00
Outlaw	27	14:00
Polaris	27	14:00
Ruff N Tumble	27	14:00
Siena	27	14:00
Tilting at Windmills	27	14:00
Veto	27	14:00
Wild Thing	27	14:00
Winston Churchill	27	14:00
Allusive	27	14:00
Avanti	27	14:00
Henry Kendall Akubra	27	14:30
Hogs Breath Witchdoctor	27	14:30
Impeccable	27	14:30
Jack Guy	27	14:30
Lady Penrhyn	27	14:30
T42 Solandra	27	14:30
Fudge	27	15:00
Gundy Grey	27	15:00
Kingurra	27	15:00
Pippin	27	15:00
Inner Circle	27	15:30
Innkeeper	27	15:30
Bacardi	27	16:00
Komatsu Blue Lady	27	16:00
Misty	27	16:00
Southerly	27	16:20
Mirrabooka	27	16:30
Unipro Ocean Road	27	16:30
Bin Rouge	27	17:00
Breakaway	27	17:00
Miintinta	27	17:00
New Horizon	27	17:00
Zeus II	27	17:00
Alexander of Creswell	27	18:00
Kendell (Anduril)	27	18:00
Secret Mens Business	27	18:00
Blistex Ninety Seven	27	18:00
Bobsled	27	18:30
Antuka	27	20:00
Berrimilla	27	20:00
Tenacious	27	20:00
Waitangi II	27	20:00
Boomaroo Morse Fans	27	20:15
She II	27	21:00

Rapscallion	27	23:00
Doctel Rager	27	
Nokia	28	5:00
Jubilation	28	8:00
Vagrant	28	20:00
Morning Tide	28	22:00
Assassin		
King Billy		
Liquid Asset		
Maglieri Wines		
Sledgehammer		
Sydney		

Q32

What was your course at that time?

Magnetic

Yacht	Course (Magnetic)
Team Jaguar Infinity III	10
Hogs Breath Witchdoctor	19
Bobsled	70
Spirit of Downunder	135
VC Offshore Stand Aside	140
Doctel Rager	160
Valheru	160
Aspect Computing	165
Fudge	165
Kingurra	165
Lady Penrhyn	165
Mirrabooka	165
Henry Kendall Akubra	168
Not Negotiable	170
Siena	172
Foxtel Titan Ford	174
Ragamuffin	175
Sea Jay	175
Tilting at Windmills	175
Adrenalin	178
Adagio	180
Aera	180
Alexander of Creswell	180
Aurora	180
Bin Rouge	180
Blistex Ninety Seven	180

Boomaroo Morse Fans	180
Bright Morning Star	180
Business Post Naiad	180
Chutzpah	180
Computerland	180
Cyclone	180
Forzado	180
Gundy Grey	180
Impeccable	180
Indian Pacific	180
Inner Circle	180
Jack Guy	180
Jubilation	180
Kendell (Anduril)	180
Kickatinalong	180
Komatsu Blue Lady	180
Loki	180
Margaret Rintoul II	180
Mercedes IV	180
Midnight Special	180
Misty	180
Morning Tide	180
Pippin	180
Relish IV	180
Secret Mens Business	180
Solo Globe Challenger	180
T42 Solandra	180
Tenacious	180
Trust Bank Hummingbird	180
Unipro Ocean Road	180
Vagrant	180
Veto	180
Waitangi II	180
Wide Load	180
Wild One	180
Winston Churchill	180
Yendys	180
Bacardi	181
Ausmaid	182.5
B52	183
She's Apples Two	183
AFR Midnight Rambler	185
Antuka	185
Atara	185
Canon Maris	185
Dixie Chicken	185
Helsal II	185

Marchioness	185
Renegade	185
Sagacious V	185
Sword of Orion	185
Tartan	185
Terra Firma	185
Quest	187
She II	188
Brindabella	190
Ocean Designs	190
Outlaw	190
Ruff N Tumble	190
Zeus II	190
Mark Twain	195
Southerly	195
Antipodes of Sydney	200
Breakaway	200
Challenge Again	200
Industrial Quest	200
New Horizon	200
Berrimilla	210
Nokia	240
Polaris	300
Red Jacket	320
Wild Thing	330
No Response	11

Q33

*During the Storm what was the Mean wind speed and direction recorded on your yacht?
Knots True - Degrees Magnetic*

30 Knots	1	1
35 Knots	3	3
38 Knots	0	1
40 Knots	4	4
45 Knots	3	3
47 Knots	2	2
48 Knots	1	1
50 Knots	16	17
52.5 Knots	2	0
53 Knots	3	5
55 Knots	16	16
57 Knots	0	1
58 Knots	3	4
60 Knots	11	9

62.5 Knots	1	1
63 Knots	1	2
64 Knots	1	1
65 Knots	9	9
67 Knots	1	1
68 Knots	0	1
70 Knots	4	4
72.5 Knots	1	1
75 Knots	3	2
76 Knots	1	1
78 Knots	1	1
80 Knots	2	3
No Response	19	16
Total	109	110
Min	30	30
Max	80	80
Mean	56.5	56.4
Mode	50	50

- *Wind direction not examined. Wind direction would vary according to each yacht's position in relation to the storm.*

Q34

What was the strongest wind gust and direction recorded on your yacht? Knots True

40 Knots	1	1
42 Knots	1	1
45 Knots	1	1
49 Knots	1	1
50 Knots	4	3
52.5 Knots	1	0
53 Knots	0	2
55 Knots	3	4
60 Knots	10	10
64 Knots	1	1
65 Knots	9	9
67 Knots	3	3
68 Knots	10	10
69 Knots	1	1
70 Knots	11	11
72 Knots	4	6
73 Knots	2	1
74 Knots	2	2
75 Knots	4	4
76 Knots	1	1
77 Knots	1	1

78 Knots	3	3
80 Knots	5	6
81 Knots	1	1
83 Knots	1	0
85 Knots	1	0
86 Knots	1	1
90 Knots	4	3
92 Knots	1	1
No Response	21	22
Total	109	110
Min	40	40
Max	92	92
Mean	68.4	67.8
Mode	70	70

Q35

*In your opinion, what was the Mean height of waves during the Storm?
Metres*

4 Metres	5	6
4.5 Metres	1	0
5 Metres	5	8
5.5 Metres	1	0
6 Metres	14	15
6.5 Metres	1	0
7 Metres	8	10
7.5 Metres	0	1
8 Metres	11	9
9 Metres	7	7
10 Metres	16	15
11 Metres	1	2
12 Metres	6	6
13 Metres	3	4
13.5 Metres	2	0
14 Metres	3	4
15 Metres	8	6
16 Metres	1	1
17 Metres	1	2
20 Metres	1	1
25 Metres	1	1
27 Metres	1	1
No Response	12	11
Total	109	110

Min	4	4
Max	27	27
Mean	9.8	9.4
Mode	10	6 & 10

Q36

In your opinion, what was the biggest wave you encountered? Metres

4 Metres	2	2
5 Metres	1	1
6 Metres	4	6
6.5 Metres	1	0
7 Metres	2	4
8 Metres	7	7
9 Metres	3	3
10 Metres	13	13
11 Metres	1	2
12 Metres	10	9
13 Metres	5	5
13.5 Metres	0	1
14 Metres	5	5
14.5 Metres	1	1
15 Metres	12	10
16 Metres	2	3
16.5 Metres	1	0
17 Metres	1	1
18 Metres	0	1
19 Metres	1	1
20 Metres	14	13
22 Metres	0	1
24 Metres	1	1
25 Metres	2	1
27 Metres	2	2
29 Metres	1	0
30 Metres	1	1
35 Metres	0	1
45 Metres	0	1
No Response	16	14
Total	109	110
Min	4	4
Max	30	45
Mean	14.1	13.85
Mode	20	10 & 20

Q37

What direction was the wave pattern coming from? Degrees Magnetic

115°	1
150°	1
195°	1
200°	2
202°	1
210°	2
220°	6
225°	15
230°	9
235°	1
240°	5
245°	1
247°	4
247.5°	1
250°	11
255°	3
257°	1
260°	10
265°	2
270°	17
275°	1
295°	1
No Response	13
Total	109
Min	115
Max	295
Mean	243
Mode	270

- *Comparison with CYCA data no carried out. Direction of wave pattern would vary with date/time and position of storm and yacht.*

Q38

What is your estimate of the current speed and direction at the time? Knots - Degrees Magnetic

0	4	4
0.5	4	3
0.75	1	1
1	8	9
1.2	1	1
1.5	8	7
1.7	1	1

1.75	1	1
2	17	17
2.5	6	5
3	11	12
3.5	1	1
4	4	4
5	1	1
5.5	1	1
6	1	1
7	1	1
8	1	1
12	0	1
14	1	1
48	0	1
No Response	36	36
Total	109	110
Min	0	0
Max	14	48
Mean	2.6	3.16
Mode	2.0	2.0

Degrees Magnetic

0°	2	2
5°	0	2
10°	1	2
20°	1	0
30°	1	1
70°	0	1
80°	1	1
90°	5	5
120°	1	2
130°	2	1
135°	1	1
145°	1	1
150°	3	3
155°	1	1
160°	4	4
165°	1	1
170°	2	1
180°	27	26
182°	1	1
185°	1	1
190°	1	1
200°	2	2
210°	1	1
225°	2	2
247°	0	1
260°	2	2

270 °	1	1
290 °	1	1
320 °	1	1
360 °	0	1
No Response	42	40
Total	109	110
Min	0	0
Max	320	320
Mean	167	159.9
Mode	180	180

Q39

During the storm, what was the duration of the maximum severe wind and sea conditions experienced on your boat? Hours

1 Hour	1	1
2 Hours	6	6
3 Hours	13	13
4 Hours	12	14
5 Hours	10	8
6 Hours	22	25
Other (>6 hrs)	34	30
No Response	11	13
Total	109	110
Mode	> 6 HRS	>6 HRS

YACHTS THAT RETIRED

Q41

What was the primary reason for your decision to retire? (You may choose only one response).

Lack of Crew Experience	0	0
Crew not in Condition to Continue	6	6
Yacht/Equip Not in Condition to Cont.	24	26
Weather Conditions	10	14
Forecast Deteriorating Weather	15	17
Other	6	5
No Response - N/A	8	2
Total	69	70

Q42

What were the contributing factors to your decision to retire? (You may choose more than one response).

Lack of Crew Experience	5	5
Crew not in Condition to Continue	13	16
Yacht/Equip Not in Condition to Cont.	28	28
Weather Conditions	24	22
Forecast Deteriorating Weather	27	28
Other	13	11
No Response - N/A	4	4
Total	114	114

Q43

If your crew were not in a condition to continue, what was the single biggest factor? (You may choose only one response).

Sea Sickness (General)	2	3
Sea Sickness (Multiple or Chronic)	3	2
Injury	7	7
Fatigue	3	3
Low Morale	0	0
Other	3	0
No Response	0	1
Total	18	16

Q44

If your crew were not in a condition to continue what were the contributing factors. (You may choose more than one response)

Sea Sickness (General)	2	3
Sea Sickness (Multiple or Chronic)	3	2
Injury	6	6
Fatigue	7	7
Low Morale	2	2
Other	0	1
No Response	3	1
Total	23	22

Q45

If your yacht was not in a condition to continue, what was the single biggest factor? (You may choose only one response).

Gear Failure-Sails, Blocks, Sheets, etc	4	5
Equip. Failure-Radio, Electronics, etc	6	6
Engine Failure (inc. flat batteries)	6	4
Hull / Structural Damage	4	3
Rig Damage	4	4
Dismasting	6	5
Taking Water – Unknown Source	1	0
Hull / Deck Breached	2	1
Other	2	2
No Response	8	18
Total	43	48

Q46

What were the contributing factors? (You may choose more than one response).

Gear Failure-Sails, Blocks, Sheets, etc	5	6
Equip. Failure-Radio, Electronics, etc	6	6
Engine Failure (inc. flat batteries)	8	5
Hull / Structural Damage	5	5
Rig Damage	8	10
Dismasting	7	6
Taking Water – Unknown Source	2	1
Hull / Deck Breached	4	2
Other	3	5
No Response	38	19
Total		65

Q47

Who took the decision to retire? (Please choose only one response)

Owner / Skipper	33	35
Skipper	2	2
Navigator	0	0
Skipper / Navigator or other core group	15	16
Consensus with crew	17	16
Other	0	0
Total	67	69

Q48A

Was there a particular event or incident that triggered the decision?

Yes	53	55
No	12	13
No Response	2	1
Total	67	69

Q48B

If Yes, what was it?

3" movement in the deck
360o roll over, thus dismasting the boat
90o knock down
Advise from Sword of Orion, worse weather ahead
Asked to stand by stricken vessel
Batteries dead & 100o knockdown
Boat dumped by wave causing damage and injury
Conditions were too dangerous
Cracked Deck, No electronics
Deteriorating conditions and radios out
Deteriorating weather
Dismasting (4)
Forecast from Telstra Control
Forward hull frames broken
Inability to repair rig damage
Injury to crew (2)
Jib foil being fractured

Knockdown and damage (3)
Knockdown and getting worse
Knocked down 100 degrees, water taken on
Lack of info. on storm centre & direction. Av. wind speed 70 knots after eye
Lower starboard spreader cracked at the base
Mast tube crack in side wall
Navigator washed overboard without harness
No progress under storm sails
Other reports of stronger winds (2)
Repeated knockdowns, too much damage
Report from Sword of Orion, 70 K winds
Reported 80 knot winds
Ripped mainsail & no storm jib
Rudder bearings collapsed
Sea sickness deteriorated
Steering cable parted
Storm jib blown out
Telstra asked to stand by for Global Challenge
The loss of Winston Churchill and other boats damaged
Unacceptable conditions threatening crew and boat (2)
Unsafe
Weather conditions gusting to 60 knots
Weather forecast (3)
Wind speed too strong for tri-sail
Yacht rolled 360 whilst under bare poles

Q49

How long did the decision take? (You may choose only one response)

Number of Hours	14	14
Approx 1 hour	11	11
Very soon after incident / event	23	23
Very soon after weather forecast	8	9
Very soon after: "Skippers Resp."	3	3
Other	3	2
No Response	5	7
Total	67	69

Q50

Do you consider fatigue was a factor in your decision?

Yes	7	7
No	56	57
No Response	4	5
Total	67	69

Q51

How would you describe crew morale in the hour prior to retiring? (You may choose only one response).

High Spirits	6	6
Relaxed, Confident	10	10
Concerned but positive	46	49
Concerned but apprehensive	2	2
Anxious	0	0
Fearful	0	0
No Response	3	2
Total	67	69

Q52

Did morale improve after the decision to retire?

Yes	11	12
No	48	53
No Response	8	4
Total	67	69

Q53

A couple of hours after retirement, but before reaching port, how would you describe crew morale?

High Spirits	0	0
Relaxed, Confident	30	30
Concerned but positive	26	29
Concerned but apprehensive	4	4
Anxious	4	3
Fearful	1	1
No Response	2	3
Total	67	70

Q54

Was there any time where those of you on board became fearful of the potential risks the storm presented to both boat and crew?

Yes	30	32
No	31	32
No Response	6	5
Total	67	69

Q55

What was your position when you took the decision to retire? Latitude - Longitude

Not analysed

Q56

What date & time did you retire? Date - Time

Not analysed

Q57

Who did you advise of your retirement? (You may choose more than one response)

Radio relay Vessel	53	55
RVCP Eden	10	10
No one	1	1
Unable, Radios US	7	8
Other	6	6
No Response	1	0
Total	78	80

Q58

What destination did you advise?

Sydney	8	10
Eden	38	40
Ulladulla	3	3
Jervis Bay	4	4
None	5	4
Other	5	8
No Response	4	3
Total	67	72

Q59A

After you retired, did you alter your original course / destination as a result of the wind or wave actions on your boat?

Yes	27	27
No	37	40
No Response	3	2
Total	67	69

Q59B*If Yes, give details.*

240 to Sydney
Altered course from 175 to 025
Bearing to Eden 010, Course 340
Changed course to run before the wind
Changed course to run before the wind
Could only safely lay Montague Is. For 12 hrs
Course adjusted to suit wave conditions
Decided to head back to Pittwater
Easiest course on the boat
Head into seas
Headed north initially then the wind eased
Hove to for 8 hours
NNW
Safest course to Ulladulla
Sailed to conditions
Sailed to conditions
Sought shelter at Eden
Sought shelter at Eden
Steered for Eden
Steered 45 degrees because of danger
Sydney
Tried to run for Eden, ended up at Bermagui
Unsafe to steer to Eden
Without mast or motor, just drifted with waves and current

Q60*When you retired approximately how far were you from port? Nautical Miles*

0	0	2
1	1	2
20	1	1
25	0	2
30	3	3
31	0	1
35	3	3
38	2	2
40	6	6
42	1	0
45	2	2
48	0	1
50	8	6
52	1	1

55	1	1
57	1	1
60	13	12
62	1	1
70	1	1
75	1	2
80	3	3
85	1	1
90	1	1
100	1	1
110	2	2
120	1	1
140	1	1
150	1	1
165	1	1
230	2	2
No Response	7	5
Total	67	69
Min	0	0
Max	230	230
Mean	65.5	62.31

Q61




When you retired how long did it take you to get to port? Hours

Min	0.25	0.25
Max	62.0	62
Mean	21.1	18.8

- *Excludes yachts already in port when they retired.*

Q62

What was your fuel situation on reaching port?

Empty	2	1
Almost Empty	6	5
 Tank	10	11
 Tank	16	16
 Tank	26	26
Full Tank	0	4
No Response/Other	7	6
Total	67	69

- *Survey did not include the option of 'Full tank' or 'Other'.*

Q63A

In retrospect, are there actions you could have taken before you retired that would have changed your decision to retire?

Yes	16	17
No	49	50
No Response	2	2
Total	67	69

Q63B

If Yes, please give details:

Closure of companionway
Could have obtained weather from Flinders Island, weather worse ahead than behind
Headed for port before storm
Hove to awaiting improved weather
If known of wind gusts, would have retired prior to rolling 360°
Ingress could have been found
Radio operator to have short harness
Radio U/S
Retired due to injury, boat in good condition
Rig damage
Sailed to anchorage at Gabo Is.
Set a para anchor
Should have ran East, sailed 60o to the wind
Sought safe anchorage
Update of weather forecast, winds easing

Q64A

In retrospect, are there actions you could have taken after you retired that would have made riding out the storm easier / more manageable?

Yes	9	13
No	52	51
No Response	6	5
Total	67	69

Q64B

If Yes, please give details:

Better to drift out to sea than head to Eden
Lowered storm jib sooner
Minimise use of engine
Misunderstanding of rigging instructions
Possibly heaving too
Reduce headsail size
Retired earlier
Should have prepared sooner
Sole use of Tri-sail gave the best results
Steer 320 magnetic

Reduce Sail	2
Steer more northerly	4
Other	7
Total	13

- *Source CYCA data*

ALL YACHTS

Q65A

Did you set storm sails or other heavy weather equipment during the Storm?

Yes	95	95
No	10	12
No Response	4	3
Total	109	110

Q65B

If Yes, please give details. (You may choose more than one response)

Storm Jib	42	82
Tri-Sail	4	46
Drogue	0	3
Warps	1	2
Other	5	15
Storm Jib & Tri-Sail	32	
Storm Jib, Tri-Sail & Drogue	2	
Storm Jib, Tri-Sail & Other	4	
Storm Jib & Other	32	
Tri-Sail & Other	32	
No Response	13	
Total	167	148

- *CYCA data only grouped by the five options in the question. Police data grouped by combinations of sails set during storm.*

Q66A

Were conditions such that storm sails, proved to be too large in area?

Yes	45	46
No	57	57
No Response	7	7
Total	109	110

Q66B

If Yes, did you remove storm sails?

Storm-Jib	12	10
Storm Tri-Sail	12	13
Both	11	9
Other		2
Did not remove		7
No Response	10	5
Total	45	46

- *CYCA data includes Other and Did not remove - responses not included in the survey.*

Q67A

Was your yacht at any time under bare poles?

Yes	32	32
No	73	73
No Response	4	5
Total	109	110

Q67B

It Yes, how long were you under bare poles? Hours

0.3 Hrs	1	1
0.5 Hrs	6	6
0.75 Hrs	1	2
1 Hr	3	3
1.5 Hrs	1	0
2 Hrs	2	2
3 Hrs	2	2
4 Hrs	2	2
4.5 Hrs	1	1
10 Hrs	3	3
12 Hrs	5	5
13 Hrs	1	1
15 Hrs	2	2
20 Hrs	1	1
Total	31	32
Min	0.33	0.33
Max	20	20
Mean	5.9	5.7

- *CYCA data includes one response for '0' which should not have been included (not shown but included in total).*

Q68

What other actions if any, did you take to better prepare your yacht to weather the storm?

Spinnaker/Jockey poles below deck	3	3
Remove kite sheet / braces	13	13
Loose gear below deck	27	28
Tied off halyard tails	24	24
Installed storm boards	84	86
Other	21	15
No Response/Not App/None	17	17
Total	189	186

The above actions in most case did not occur on their own but in combination with others.

Spinnaker/Jockey poles below deck	0
Spinnaker/Jockey poles below deck	1
Remove kite sheet / braces	
Loose gear below deck	
Tied off halyard tails	
Spinnaker/Jockey poles below deck	1
Remove kite sheet / braces	
Loose gear below deck	
Tied off halyard tails	
Installed storm boards	
Other	
Spinnaker/Jockey poles below deck	1
Other	
Remove kite sheet / braces	1
Remove kite sheet / braces	7
Loose gear below deck	
Tied off halyard tails	
Installed storm boards	
Remove kite sheet / braces	1
Loose gear below deck	
Tied off halyard tails	
Installed storm boards	
Other	
Remove kite sheet / braces	2
Loose gear below deck	
Installed storm boards	
Loose gear below deck	1
Loose gear below deck	2
Tied off halyard tails	
Loose gear below deck	4
Tied off halyard tails	
Installed storm boards	

Loose gear below deck	1
Tied off halyard tails	
Installed storm boards	
Other	
Loose gear below deck	7
Installed storm boards	
Tied off halyard tails	0
Tied off halyard tails	3
Installed storm boards	
Tied off halyard tails	4
Installed storm boards	
Other	
Installed storm boards	43
Installed storm boards	11
Other	

Q69

During the Storm, what was the most severe outcome of the wind and wave actions on your yacht? (You may select more than one response)

Broach	20	20
Knockdown to 90°	40	43
Knockdown beyond 90°	18	19
Rolled 360°	6	5
Pitch Pole	0	0
Pooped (Wave over stern)	5	25
Waves on board		10
Other	12	15
No Response	23	21
Total	124	158

- *CYCA data includes 'Waves on Board' which was not a response available on the survey.*

Q70A*How frequently did this occur?*

<i>Outcome</i>	<i>Frequency</i>	<i>No. of Yachts</i>
Broach	X 1	6
	X 2	6
	X 3	1
	X 4	1
	X 10	3
	X 35	1
Knockdown to 90°	X 1	20
	X 2	12
	X 3	5
	X 4	1
	X 8	1
	X 10	2
	X 12	1
Knockdown beyond 90°	X 1	7
	X 2	8
	X 3	1
	X 4	1
Rolled 360°	X 1	3
	X 2	3
	X 12	1
Pitch Pole	X 1	1
	X 2	1
Pooped	X 1	6
	X 2	3
	X 3	3
	X 4	2
	X 5	1
	X 6	1
	X 7	1
	X 10	1
	X 13	1
	X 15	1
Other	X 1	6
	X 2	2
	X 3	1
	X 4	1
	X 20	1

Q70B

If rolled please specify how long did you vessel remain inverted? Seconds / Minutes

B52	3-5 min	
Business Post Naiad	40 sec	4.5 min
Kingurra	10 sec	
Midnight Special	1 min	30 sec
Renegade	3 sec	
Sword of Orion	5 sec	
VC Offshore Stand Aside	10 sec	

- *CYCA data only indicates 5 inversions*

Q71A

Did you deliberately deploy any safety equipment during the event?

Yes	84	87
No	21	20
No Response	4	3
Total	109	110

Q71B

If Yes, Please give details (You may choose more than one response)

Harnesses	84	84
Life Jackets	33	33
EPIRB	11	10
Life Raft	4	3
Personal EPIRB	8	7
Life Ring(s)	1	1
Dan Buoy / Jon Buoy	2	3
Pyrotechnics	11	10
Other	9	12
No Response	22	
Total	185	163

Q72A

Were there any instances of safety equipment failure?

Yes	40	43
No	65	64
No Response	4	3
Total	109	110

Q72B

If Yes, please nominate equipment: (You may choose more than one response)

Safety Harnesses	7	6
Jack Stay	1	1
Life Jacket	7	5
Life Ring	7	7
Dan Buoy / Jon Buoy	19	21
Man Overboard Equip.	2	2
EPIRB	3	3
Pyrotechnics	5	5
Life Raft	5	4
Other	9	11
No Response	0	1
Total	65	66

Q72C

Describe in detail, the nature of the failure of each piece of equipment.

Aerials broken
Water damage to radios
Auto inflate on deck, Dan buoy lost
Broken aerial
Burke harness attachment is complex
Crewman washed overboard & slipped out of harness
Dan Buoy washed overboard, with Drogue & Sea Blitz
Dan Buoy lost overboard
Drogue attached to one life ring washed away

Dan Buoy became detached from boat, top section broke off.
EPIRB Aerial
Inadequate pumping,
Full medical kit and first aid manuals destroyed by water
Dan buoy deployed itself...when submerged in cockpit. Line attaching it to the life ring broke and could not be retrieved.
Inflatable Dan buoy was deployed the cord attaching the life ring became tangled around life lines and had to be cut away.
Inflatable Dan buoy washed off plastic mounting but caught before it actually inflated
Jack stay broke
Life rings swept away
Pyrotechnics failed
Jon Buoy washed overboard with strobe light attached
Jon Buoy washed overboard
Life ring fitting snapped
Jon Buoy-clips failed / lost overboard
Life jackets self inflated whilst crew was on deck
Life ring and strobe lost
Life Ring attachment not strong enough
Life ring brackets
Life rings had to be lashed to the rail in danger of being lost.
Dan buoy lost overboard and had to be retrieved.
Life sling tore out of its attachment
Lower life line failed at terminal-Norsman terminal.
Navman
One life raft failed to inflate
PFD inflated whilst working to leeward in cockpit
Premature inflation of life jacket inside boat
Premature inflation of life vests
Safety harness hook U/S
Stitching appeared to have frayed where shoulder strap met waist
Stitching at the tether clip broke after boom broke free and swung across deck
Jon Buoy auto inflated after wave hit
EPIRB cord broke free after being deployed, cord too light.
Trouble with bilge pumps handle and diaphragm
Washed away
Washed off mounting and overboard
Water in strobe lights on life rings
Went overboard, not seen to inflate
Window blew out, hull flexed

CYCA Data grouping

Jon/Dan Buoy Washed Overboard	16
Horseshoe/Lifesling/Lifering Lost	8
Flares would not light	4
Other	23
No Response	5
Total	56

Q73A

On deck were there sufficient strong points for harnesses

Yes	103	105
No	3	3
No Response	3	2
Total	109	110

Q73B

On deck were there sufficient: hand holds

Yes	93	95
No	11	11
No Response	5	4
Total	109	110

Q73C

Did any of those fail?

Yes	3	3
No	103	105
No Response	3	2
Total	109	110

Q73D*Was their accessibility to companionway adequate?*

Yes	101	103
No	4	4
No Response	4	3
Total	109	110

Q74A*Did you turn on your EPIRB at any time?*

Yes	10	9
No	95	98
No Response	4	3
Total	109	110

Q74B*If Yes, please describe Full details of the situation.*

Activated on abandoning boat
After advised man overboard
After dismasting
Boat rolled 360, knee deep water in cabin
Dismasted, no other means of communications other than EPIRB
Dismasted and deck breached
EPIRB switched on and deployed after 360° rollover, helicopter located vessel 90 minutes after.
Mast broken, deck split, radios out
More strong points and hand holds
Radios u/s, motor U/S.
Without mast and motor and radio

Q75A

At any time did you have a man overboard, not attached to the boat?

Yes	9	8
No	97	100
No Response	3	2
Total	109	110

Q75B

If Yes, please give describe in full detail recovery procedures used by your crew.

26/12/98, 2320hrs Crewman detached lanyard from a strong point as the yacht broached, he was thrown from the deck. Life sling used to lift him from the water.
Crew member assisted back onto boat
Crewman pulled on board by harness
Man over board after rollover, due to wind speed did not deploy life rings, useless
Man washed over when harness broke, thrown life ring and dragged on board
Slipped out of harness
Swam back to yacht after inverted
When inverted 2nd time for 4.5 min. Matthews had to disconnect himself

Q76A

Did your yacht ask for assistance at any time during the race or after your retirement?

Yes	16	16
No	89	92
No Response	4	2
Total	109	110

Q76B

If Yes, How was that assistance requested?

HF Radio	5	4
VHF Radio	5	6
EPIRB	5	5
Mobile Phone	1	1
Other	4	3
Total	20	19

- *Police data includes one accidental activation of Satcom C.*

Q77A

Did your yacht launch pyrotechnics?

Yes	12	11
No	94	97
No Response	3	2
Total	109	110

Q77B

If Yes, please provide details of the circumstances.

2 x White flares instruction from Eden
All coms out, fired red flare towards Endeavour
Flares fired whilst sinking
Flares ignited to attract attention
Launched red flare when helicopter arrived
Parachute flare launched + 2 orange smoke
Red flare to attract plane
Red para to freighter, red smoke to chopper
Several Flares for various reasons
To indicate lack of radio contact as required in sailing instructions
Upon sighting rescue aircraft
White and red flares launched

Q77C

If Yes, did any yacht or SAR aircraft / vessel respond to your pyrotechnics?

Yes	8	7
No	6	4
Total	14	11

Q78A

Did Your yacht send out an urgency or distress call?

Yes	12	11
No	94	97
No Response	3	2
Total	109	110

- *Includes Miintinta's accidental activation of Satcom C.*

Q 78B

If Yes, was it:

Pan Pan	3	3
May Day	7	7
Pan Pan & May Day	2	1
Total	12	11

- *Miintinta requested tow from Eden Coastal Control whilst sinking.*
- *Accidental activation of Satcom C not included.*

Q78C

Describe the situation(s) that resulted in the Pan Pan / May Day call?

After loosing man overboard called immediate Pan Pan
Deck breached after 360 rollover
Deck breached after 360 rollover
Dismasted
Man overboard

Mast lost and possible hull penetration
Mayday called
Structural damage & mast broken
Unknown underwater damage vessel sinking
Unsure condition of transmitter

- *Does not include accidental activation of Satcom C*

Q78D

Did you subsequently downgrade / cancel your urgency or distress call?

Yes	3	3
No	9	8
No Response	0	0
Total	12	11

Q79A

Did you launch one or more life rafts at any time?

Yes	5	3
No	92	95
No Response	12	12
Total	109	110

Includes accidental launchings

Q79B

If Yes, how many?

One	2	1
Two	3	2
Three	0	0
Total	5	3

- *Includes an accidental launchings*

Q79C

Please describe the full details of the situation that resulted in the launch:

Accidental launch by Business Post Naiad
Boat sunk under tow
Deck breached after 360 rollover
Unknown underwater damage caused vessel to sink
Failed to inflate
Lost
Yacht all but sunk

Q80

*In your opinion under which trim was your yacht under best control during the storm?
(Please choose only one answer)*

Beating into it	10	15
Easing off up to 15o	38	40
Reaching off more than 15o	26	27
Running before the storm	10	12
Lying ahull	4	4
Other	5	7
Easing off up to 15o	1	
Reaching off more than 15o		
Reaching off more than 15o	1	
Easing off up to 15o		
Running before the storm		
Lying ahull	1	
Other		
Reaching off more than 15o	1	
Running before the storm		
No Response	12	10
Total	109	115

- *Antipodes of Sydney, Bacardi, Liquid Asset and Valheru gave multiple responses.*

Q81A

Did any of your crew take sea sickness medications?

Yes	89	91
No	15	16
No Response	5	3
Total	109	110

Q81B*If Yes, were they effective?*

Yes	67	70
No	21	21
No Response	1	0
Total	89	91

Q82*Please list any significant injuries to each member of you crew, that occurred during the race or after retiring?*

Yacht	Injuries
Adrenalin	1-Broken ribs, concussion
AFR Midnight Rambler	1-Left hand badly bruised (unable to move) 2-3" gash to head, mild concussion
Assassin	1-Concussion
Ausmaid	1-5 cracked ribs & punctured lung
Bin Rouge	1-Cut hand
Blistex Ninety Seven	1-Chipped front teeth 2-Mild concussion 3-Bruised ribs 4-Chronic sea sickness
Bright Morning Star	1-Cracked ribs 2- Cracked ribs 3- Cracked ribs
Business Post Naiad	1-Phil Skeggs Drowned, 2-Bruce Guy heart attack, 3-3 broken ribs 4-Numerous bruises and cuts
Challenge Again	1-Fracture of two ribs
Computerland	1-Dislocated finger, 2-corked thighs, 3-bruising, 4-unspecified
Foxtel Titan Ford	1-Fractured rib, 2-Severe internal bruising, 3-Concussion
Helsal II	2 injured-unknown details
Inner Circle	1-Broken rib
Jack Guy	1-Broken fingers 2-Broken knee 3-Mashed hand

Kingurra	1-Ruptured spleen, collapsed lung, m. fracture of ribs 2-Broken bones, dislocated fractured jaw, fractured check bone 3-knee damage
Loki	1-Blood clot in leg (result of being thrown around 2-Neck injury-compression, trauma
Marchioness	1-Multiple contusions, cracked and broken teeth, Head injury
Mercedes IV	1-Cracked/broken ribs, 2-Gash to forehead
Midnight Special	1-Torn muscle in arm, sprained ankle 2-two crushed vertebrae, four broken ribs 3-Broken nose, ribs, thumb 4-Crushed vertebrae, broken leg 5-Broken ribs 6-Broken ribs 7-Concussion, torn ligaments 8-Broken ribs
Miintinta	1-Cut and bruising 2-Back injury 3-Dislocated shoulder 4-Broken foot
Mirrabooka	1-cracked ribs
Nat Tel Adrenalin	1-Broken ribs, concussion
Rapscallion	1-Four broken ribs,
Red Jacket	1-Bruised shoulder, cut eye
Relish IV	1-Three broken ribs, punctured lung
Renegade	1- Drowning resuscitation 2-Concussion
Ruff N' Tumble	1-broken ribs and toes
Sea Jay	1- strains to arms, chest injury 2- unspecified injury when knocked overboard
Secret Men's Business	1-Torn leg muscle
Siena	1-Broken Ribs, punctured lung 2-Damage to right hand
Solo Globe Challenger	1-Head laceration 2-2 broken ribs 3-Multiple broken ribs 4-Severe bruising, torn tendons
Sword of Orion	1-Torn Knee ligaments, 2-Fractured Shoulder, 3-Muscle fatigue and bruising
T42 Solandra	1-Broken nose
Team Jaguar Infinity III	1-Cut finger 2-Boken finger Cut shin
Vagrant	1-Unspecified – Dislocated shoulder
Valheru	1-bruised/fractured ribs,

	2-bruised ribs/spleen
VC Offshore Stand Aside	1-Severed top of Finger, Gash in leg 2-Gash in Scalp, 3-3 Ribs broken, 4-2 ribs broken 5-Gash in head 6-Laceration to thumb 7-Torn ligaments
Wide Load	1-Damaged kidneys, 2-Damage kidneys 3-Concussion
Winston Churchill	1-Broken leg, 2-Broken thumb, 3-Lacerations

Summary of Injuries

Broken/Cracked Ribs	19
Lacerations	10
Concussion/Head Injury	8
Muscle Tear/Strain/Bruise	13
Other	17
No Response	1
Total	68

- *CYCA data*

Q83

Were there adequate medical supplies in the medical kit to meet any / all injuries on board?

Yes	96	97
No	3	3
No Response	10	10
Total	109	110

Q84A

Did you observe any pyrotechnics?

Yes	19	20
No	88	88
No Response	2	2
Total	109	110

Q84B

Did you respond to any pyrotechnics?

Yes	13	13
No	6	7
Total	109	20

Q84C

If Yes, please provide details.

Called Telstra
Notified sighting
Provided position of flare to Radio vessel
Provided position of flare to Radio vessel
Provided position of flare to Radio vessel
Provided position of flare to Radio vessel
Radio details to RRV
Reported sighting red flares
Reported sighting red flares
Sighted flares The yacht is believed to have been "Rimtinga"?
Tried but failed due to damage to our boat

Summary - CYCA data

Advised RRV	12
Other	1
Total	13

Q84D

If No, please provide details.

Helicopter responding to another boat
Manned Radio and watched for flares

Monitored radio
None sighted
Not sighted
Other yachts responded-too many responses blocking essential radio time.
Too far away to be of assistance

YACHTS THAT COMPLETED THE RACE

Q85A

Did you at any time consider retiring from the race?

Yes	10	8
No	32	32
No Response	0	0
Total	42	40

Q85B

If Yes, Why:

Weather Conditions	2	2
Condition of Crew	1	2
Condition of Boat	0	5
Potential Risks-Boat/Crew	5	2
Deteriorating Forecast	3	1
Other (Injury)	1	0
Total	12	12

- *Multiple responses*

Q85C

If you considered retiring but did not, why? (Please give details)

Constant check maintained on injured...Turning and going with the breeze would have put all of us in greater danger than continuing south into the waves.
Best option to sail with the storm rather than return to Eden or similar.
Boat and crew in good order, Consideration after weather forecast/sked
Decided to head back to NSW coast, headed roughly for Eden, weather subsided noticeable as we got behind coast and waited for further forecasts..... Shelter, then take up the race again if time and weather conditions permitted.
Delayed making the decision until next morning. Crew condition was assessed after resting. Crew were unanimous in wanting to continue.
Due to crew injury
Meeting of full crew, boat was handling , handling wind and sea relatively comfortably, too dangerous to run before such a sea.
Too far out, No danger,
Went to Eden, shelter, continued next day, lost 30 hrs

Q86A

Did your yacht sustain any damage as a result of the storm that you were aware of while racing?

Yes	28	23
No	21	17
No Response	0	0
Total	49	40

- *Police data - Seven yachts which retired responded to this question when they should not have. Total responses should have been a max. of 42.*

Q86B

If Yes, to:

Hull	1	1
Keel	1	1
Rudder	0	0
Mast	0	1
Rigging	6	4
Sails	14	12
Frames	1	1
Other-Structural	1	2
Other-Equipment	13	10
Other (Specify)	5	3
Total	42	35

- *One yacht - unspecified damage*

Q87

For yachts that sought refuge and then continued racing did you take on additional fuel when in port?

Yes	1	1
No	12	11
No Response	29	28
Total	42	40

Q88A

Did your yacht become involved in any search and rescue activities?

Yes	19	19
No	83	85
No Response	7	6
Total	109	110

Q88B

If Yes, were you:

Rendering Assistance	9	11
Requiring Assistance	10	9
Total	19	20

Q89

How many crew members of your yacht have previous experience / training in Search and Rescue methods?

All	0	0
Most	9	9
Some	59	62
None	31	31
No Response	10	8
Total	109	110

- *Assassin and Wild Thing - both responded with 'Some' and 'None' - both recorded as 'Some'*

Q90

Did any of your crew get air-lifted by helicopter?

Yes	7	6
No	96	100
No Response	6	4
Total	109	110

Q91A

If Yes were you able to communicate with the helicopter?

Yes	3	3
No	4	3
Total	7	6

Q91B

If Yes, how?(You may select more than one answer)

HF Radio	0	0
VHF Radio (yachts)	2	2
VHF Radio (Hand held)	1	1
Other	1	1
Total	4	4

Q91C

If No, How did you communicate? (Please give details)

Hand Signals (3)
No Comms

Q92A

If your crew had little / no experience or training in SAR techniques, did it in your opinion hamper rescue procedures?

Yes	1	1
No	5	4
No Response	1	1
Total	7	6

Q92B

Please provide details on what occurred.

All crew lifted off boat
By hand signals
Crew winched aboard helicopter from life raft
Difficulty in acquiring safety harness from helicopter & putting it on

Q93

Initially, did you have difficulty spotting / seeing SAR Aircraft/Helicopter?

Yes	2	2
No	5	4
Total	109	6

Q94

Did you have difficulty staying in visual contact with SAR Aircraft after initial contact?

Yes	2	2
No	5	4
Total	7	6

Q95

How did SAR Aircraft / Helicopter locate you?

Flare(s)	6	5
Lights/Torches	2	2
EPIRB deployed	6	5
Dye Marker(s)	0	0
Radio contact with GPS	3	3
Chance	1	1
Other	2	0
Total	20	16

- *Strobe included in 'Other'.*

Q96

When did SAR Aircraft / Helicopter locate you?

Daylight	7	6
Darkness	0	2
Total	7	8

- *Three indicated Daylight/Darkness - taken to mean Dusk / Overcast conditions.*

Q97

How long after your emergency call, or advising you needed SAR was it before an SAR aircraft or vessel located you?

Within 1 hour	1	1
1-2 Hours	2	2
2-3 Hours	1	1
3-4 Hours	0	0
4-5 Hours	0	0
5-6 Hours	1	1
6-7 Hours	0	0
More than 7 Hours	2	1
Total	7	6

Q98

If your boat / crew were involved in a helicopter rescue, do you have any observations or experiences that would be useful? (Please give details)

Bad design of May West
Flippers, mask & snorkel would have reduced fatigue whilst swimming to life raft
Prefer the Victorian Police method of rescue
Telstra should have advised helicopter on way, to update GPS
Used buoyancy in water for pick-up
Waterproof hand held VHF radios in the emergency grab bags are essential.

Q99

At the end of the race, or in port after retiring, what was the extent of damage to your yacht and equipment? (You may choose more than one response).

Data sorted in Ascending order of frequency.

Rudder Damage	2	2
Hull Breached	4	3
Keel Damage	4	3
Deck Breached	6	4
Vessel Abandoned / Sunk	6	6
Torches U/S	7	6
Internal Frames (hull)	10	8
Internal Frames (cabin)	10	8
Dismasted	10	10
Boom Damaged / Broken	10	11
Electricals U/S (Flat Batteries)	10	4
VHF U/S (Flat Batteries)	11	11
Port Hole/Window Breach	12	10
HF U/S (Flat Batteries)	12	9
GPS U/S (Flat Batteries)	12	11
Steering Damaged/Broken	13	12
Engine U/S (Flat Batteries)	15	12
Electricals U/S-Other than batt	18	18
Rig Damage	22	23
Life Lines Damaged	22	20
Wind Inst/Log U/S (Flat Batt)	23	20
Other	27	
Other Radio Damage		11
Other Engine Damage		5
Other Structural Damage		18
Sail Damage	41	42
Nil Damage		5
No Response	21	16
Total	328	

- *The extent of damage and failure of equipment and boats indicated by the crews in previous questions appears to be understated. The responses to Q99 indicates a more complete summary of the damage to yachts and equipment.*

The damage to yachts and equipment has been collated in the following tables.

Boat Damage

Rudder Damage	2
Hull Breached	4
Keel Damage	4
Deck Breached	6
Internal Frames (hull)	10
Internal Frames (cabin)	10
Dismasted	10
Boom Damaged / Broken	10
Port Hole/Window Breach	12
Steering Damaged/Broken	13
Rig Damage	22
Sail Damage	41
Vessel Abandoned / Sunk	6
Sub Totals	150

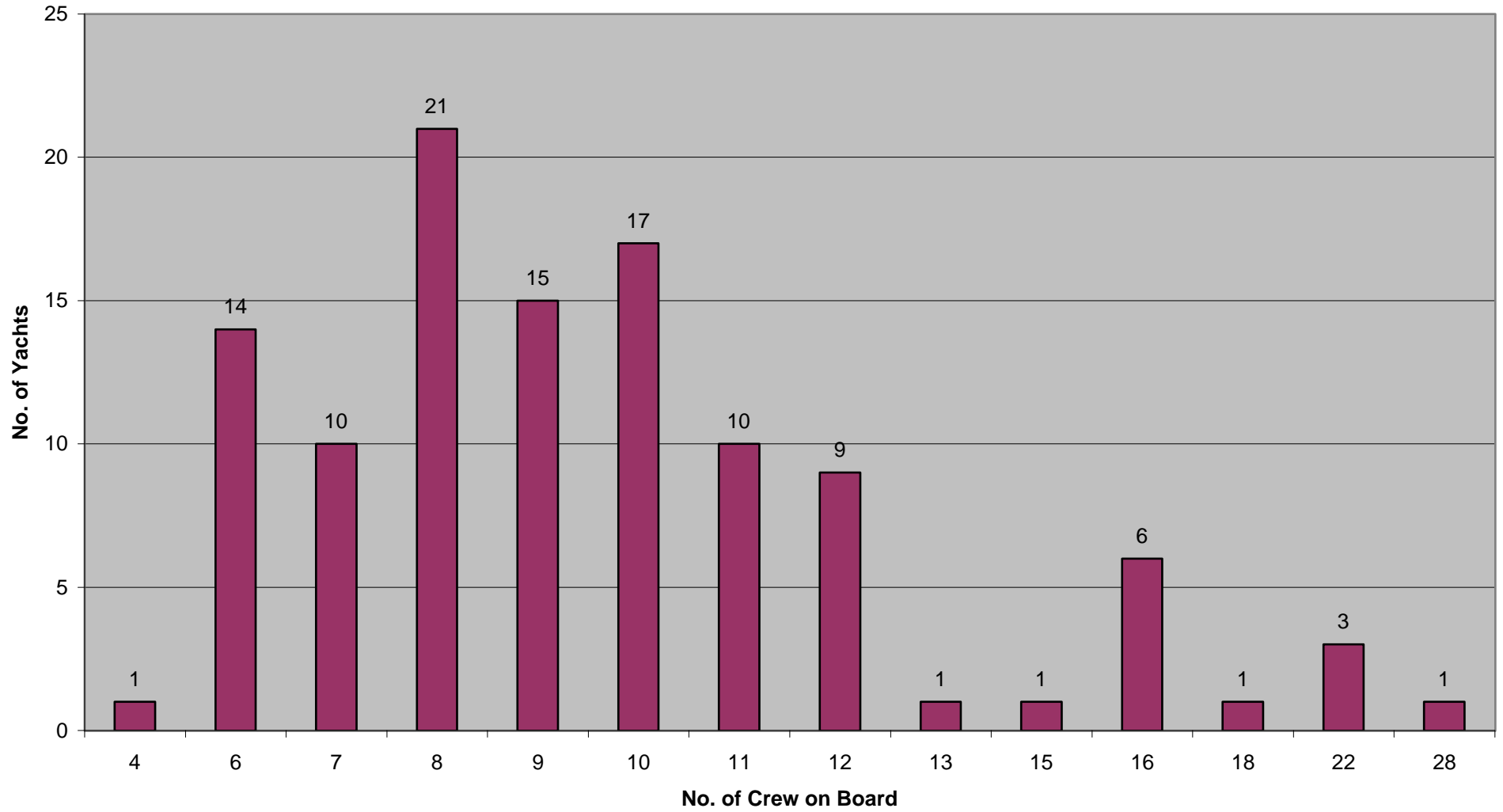
Equipment Damage

Torches U/S	7
Electricals U/S (Flat Batteries)	10
VHF U/S (Flat Batteries)	11
HF U/S (Flat Batteries)	12
GPS U/S (Flat Batteries)	12
Engine U/S (Flat Batteries)	15
Electricals U/S-Other than batt	18
Life Lines Damaged	22
Wind Inst/Log U/S (Flat Batt)	23
Sub Total	130
Other	27
No Response	21
Grand Total	328

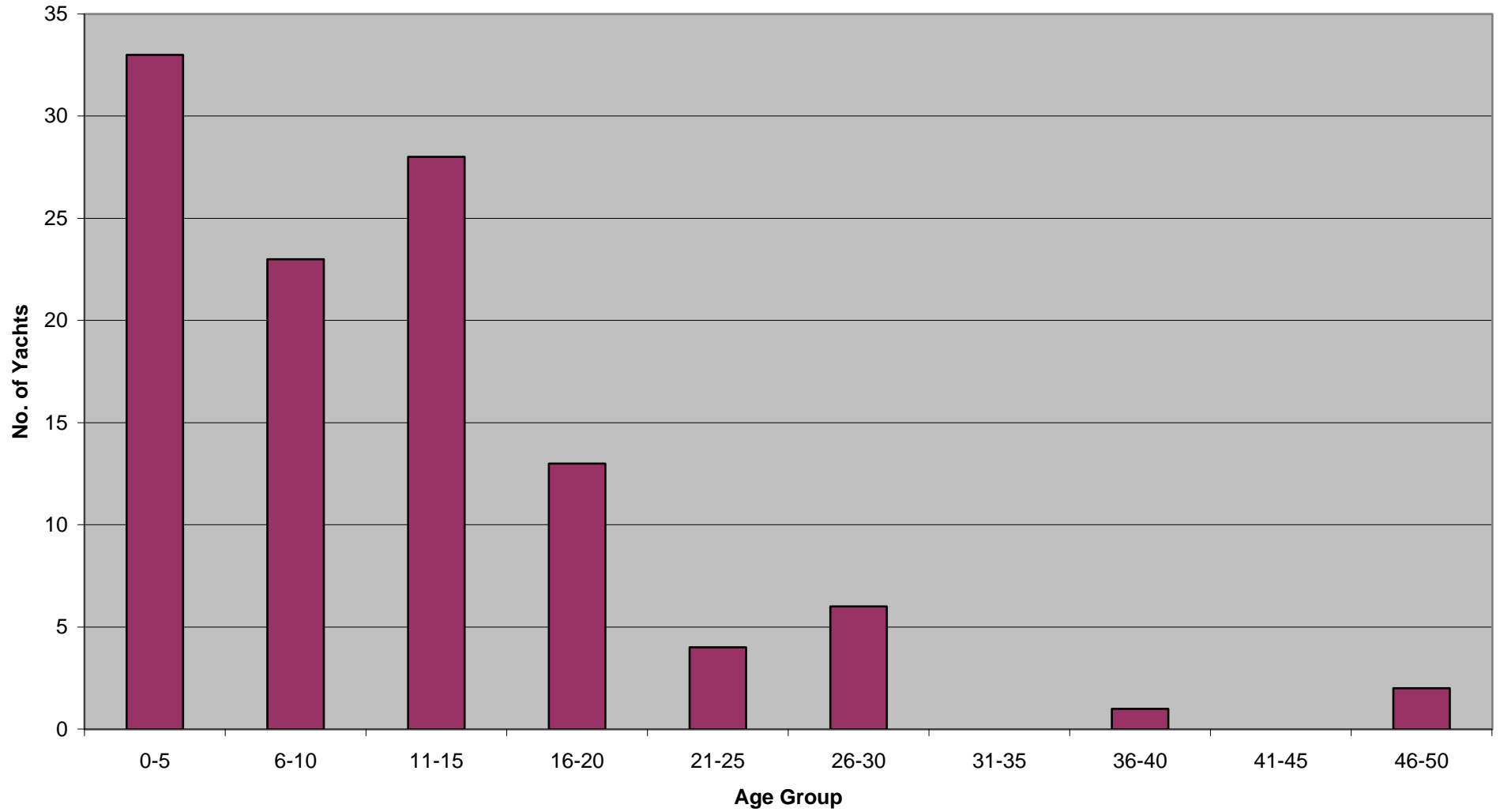
Graphs of Selected Survey Data

(Source – CYCA Data

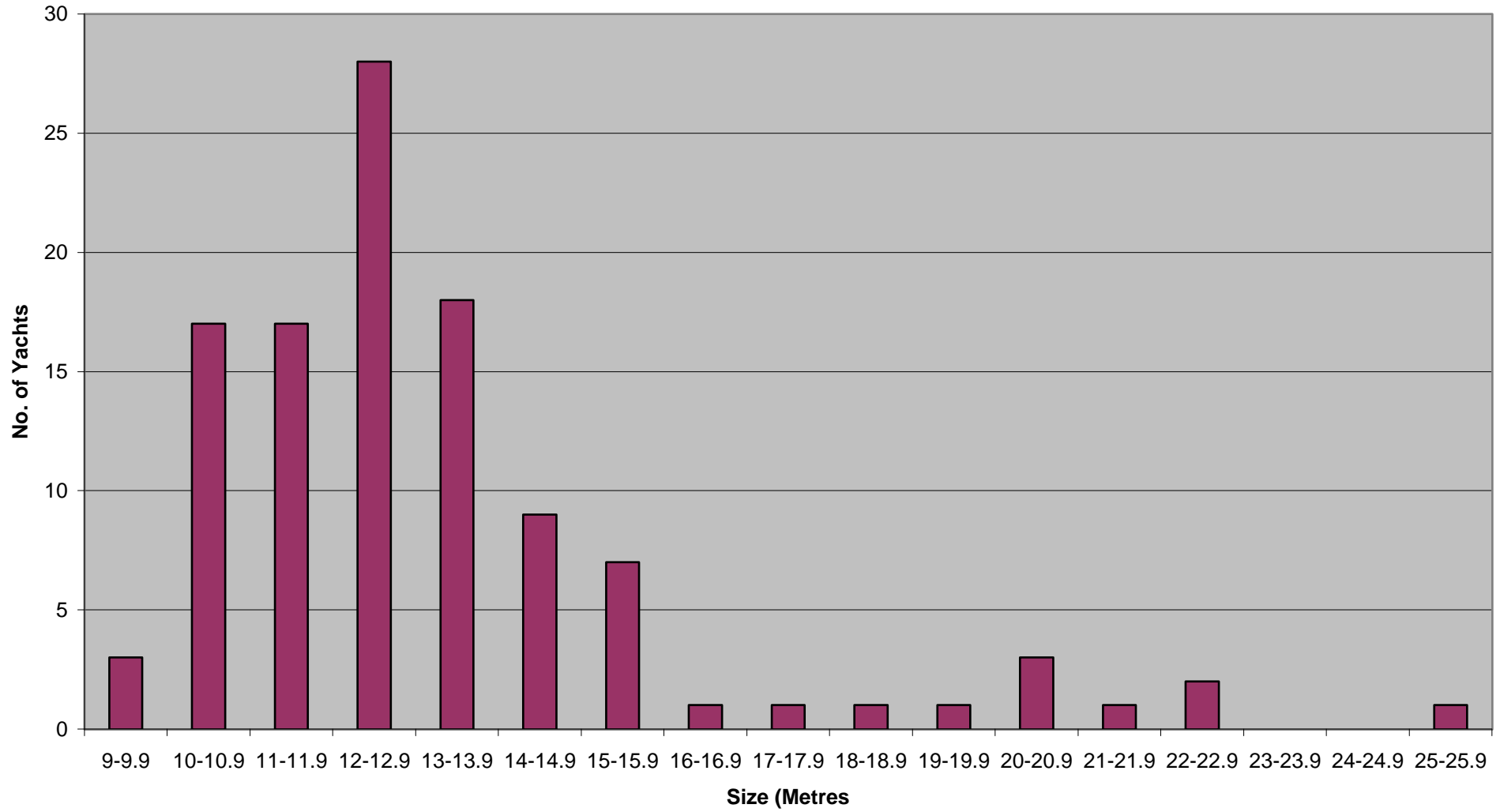
Yachts by No of Crew on Board (CYCA Data)



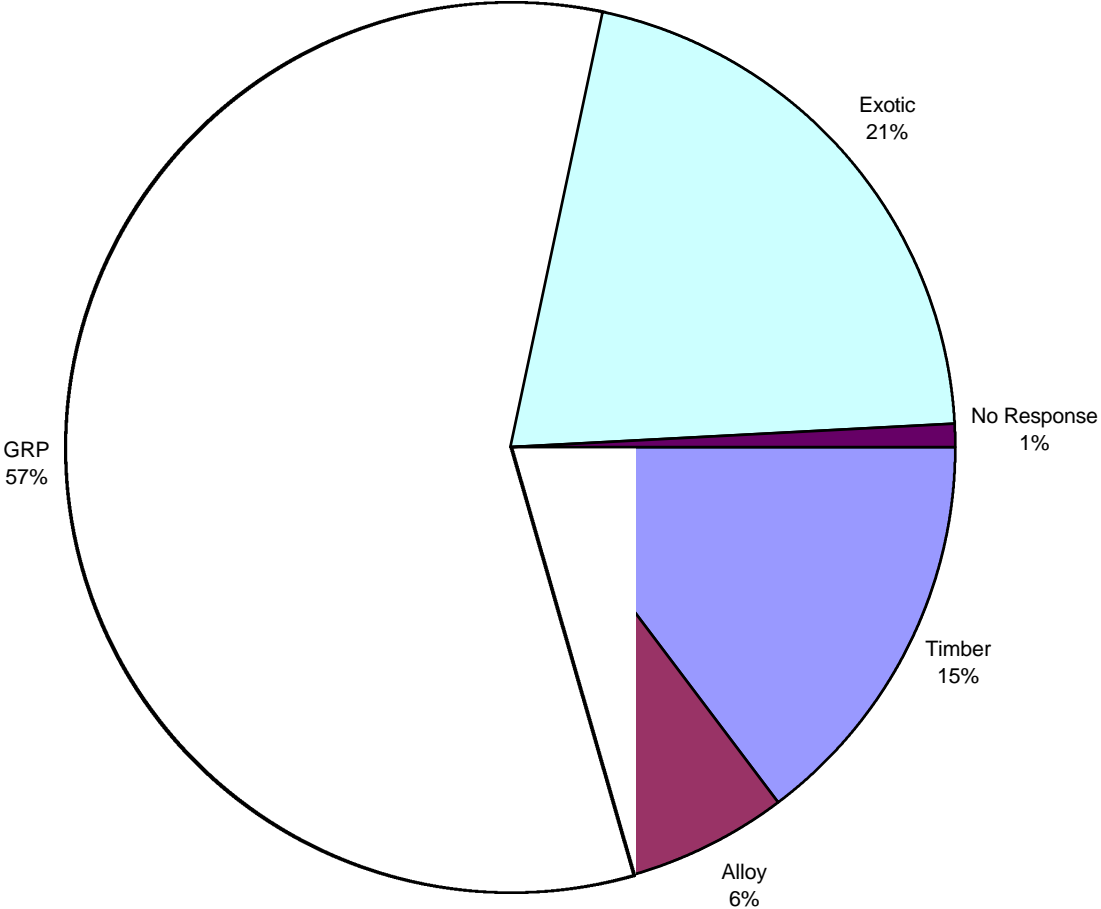
Age of Yachts in Years (CYCA Data)



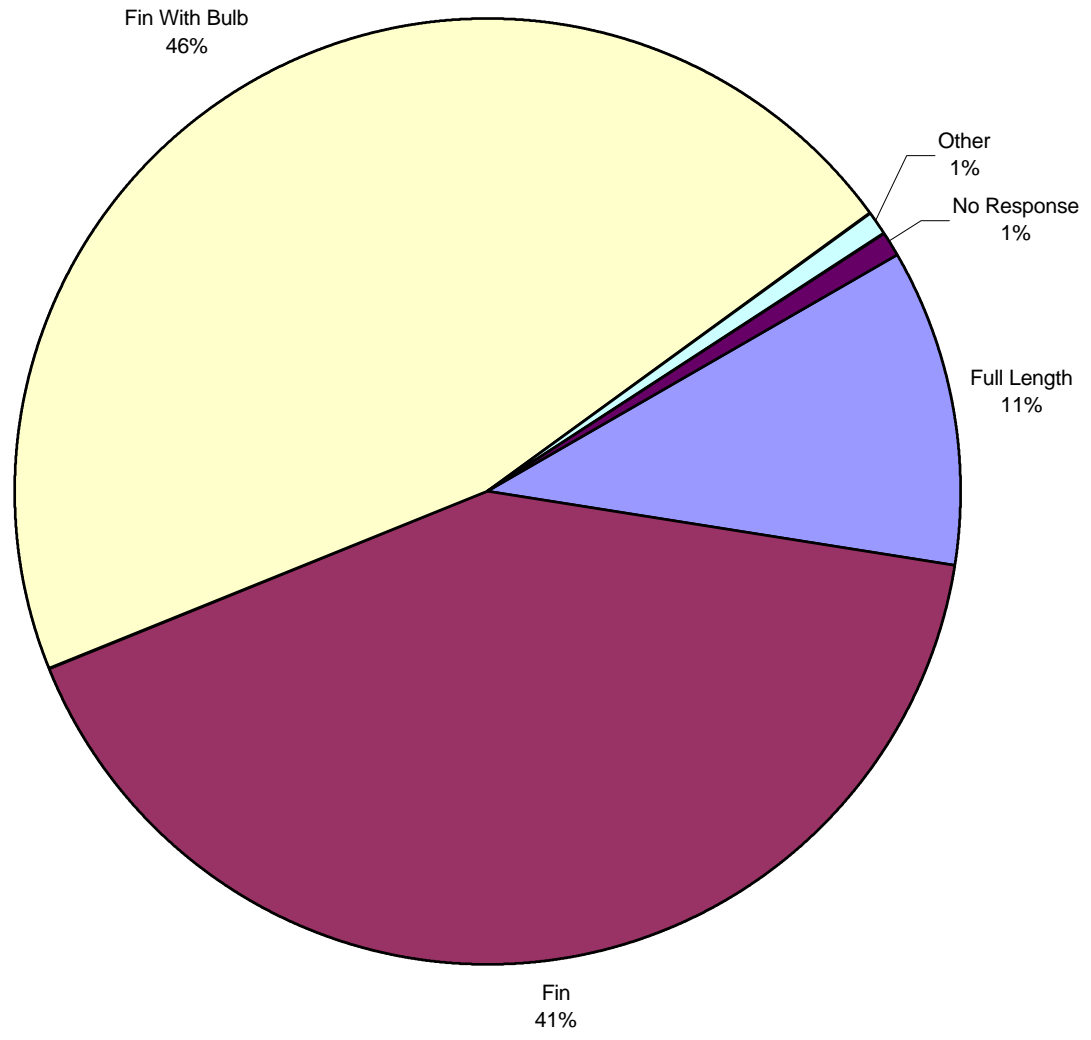
Yachts Length - Metres (CYCA Data)



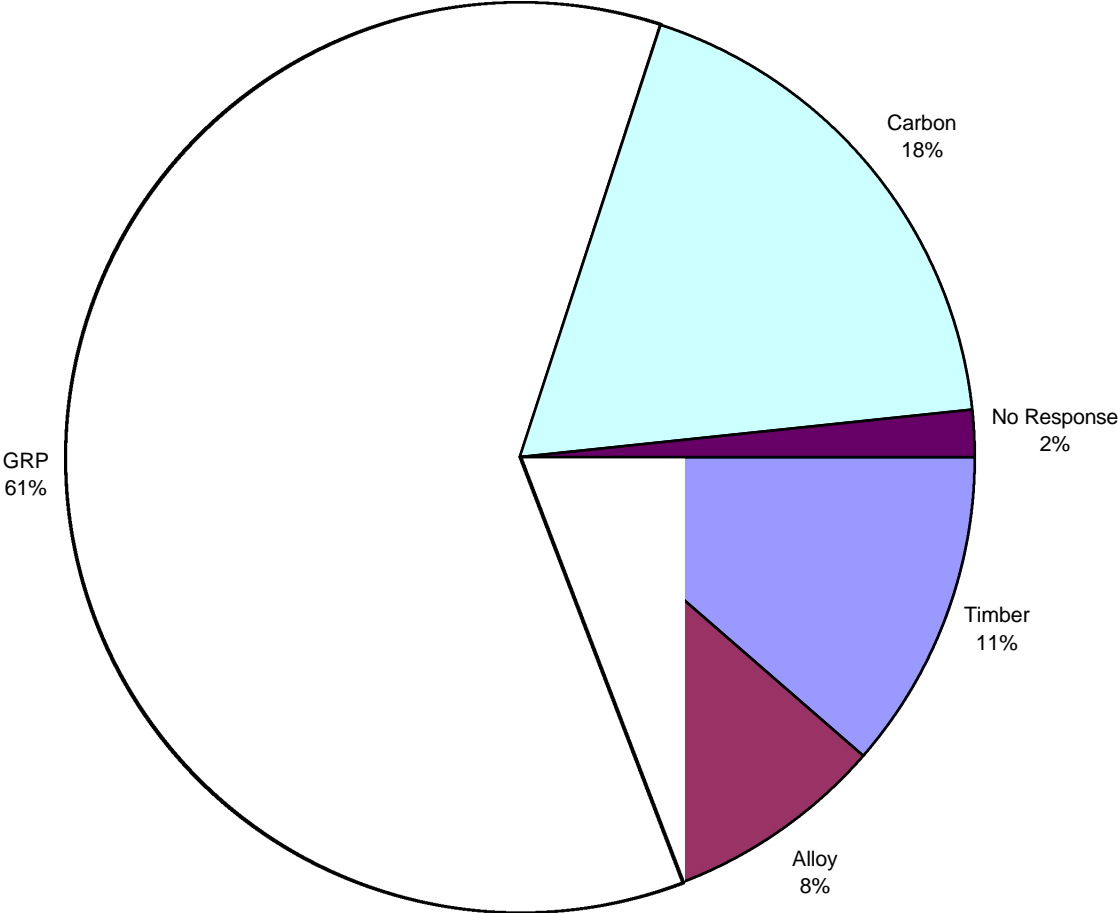
Q1A - Hull Construction - All Yachts (CYCA Data)



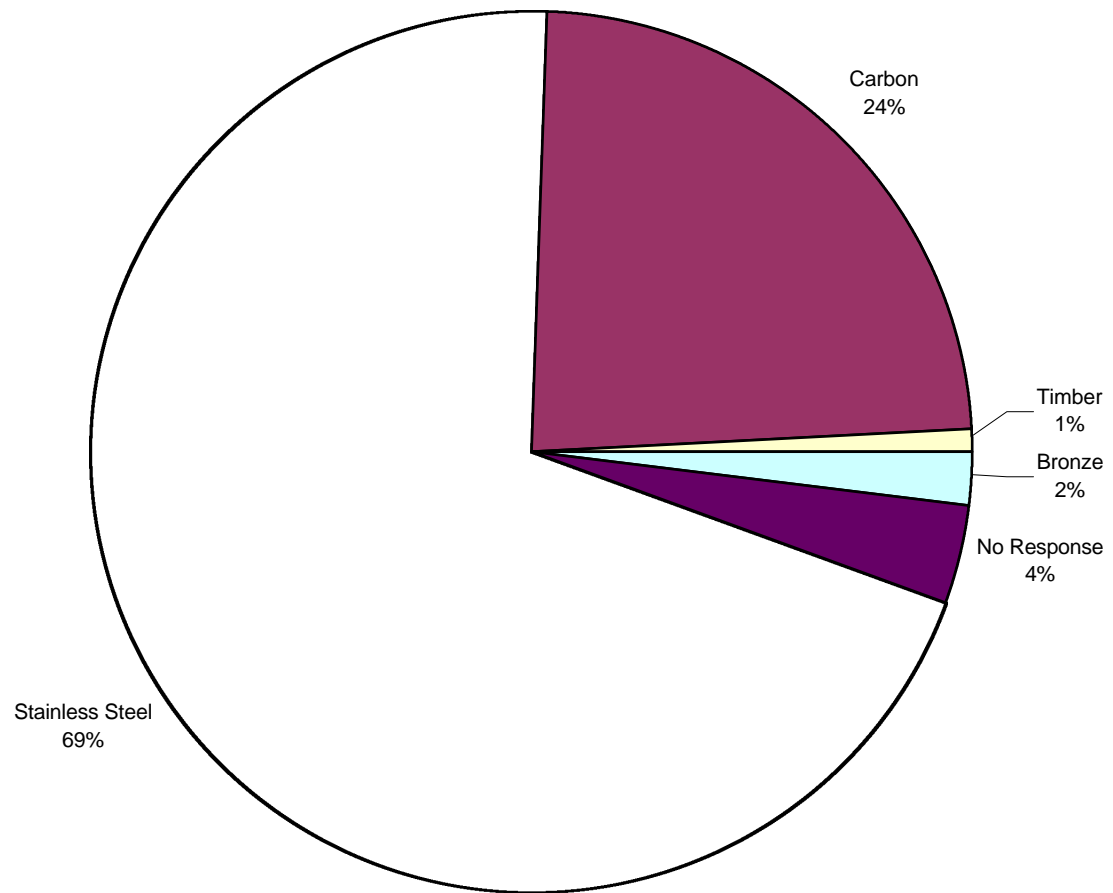
Q1B - Keel Construction of Yachts (CYCA Data)



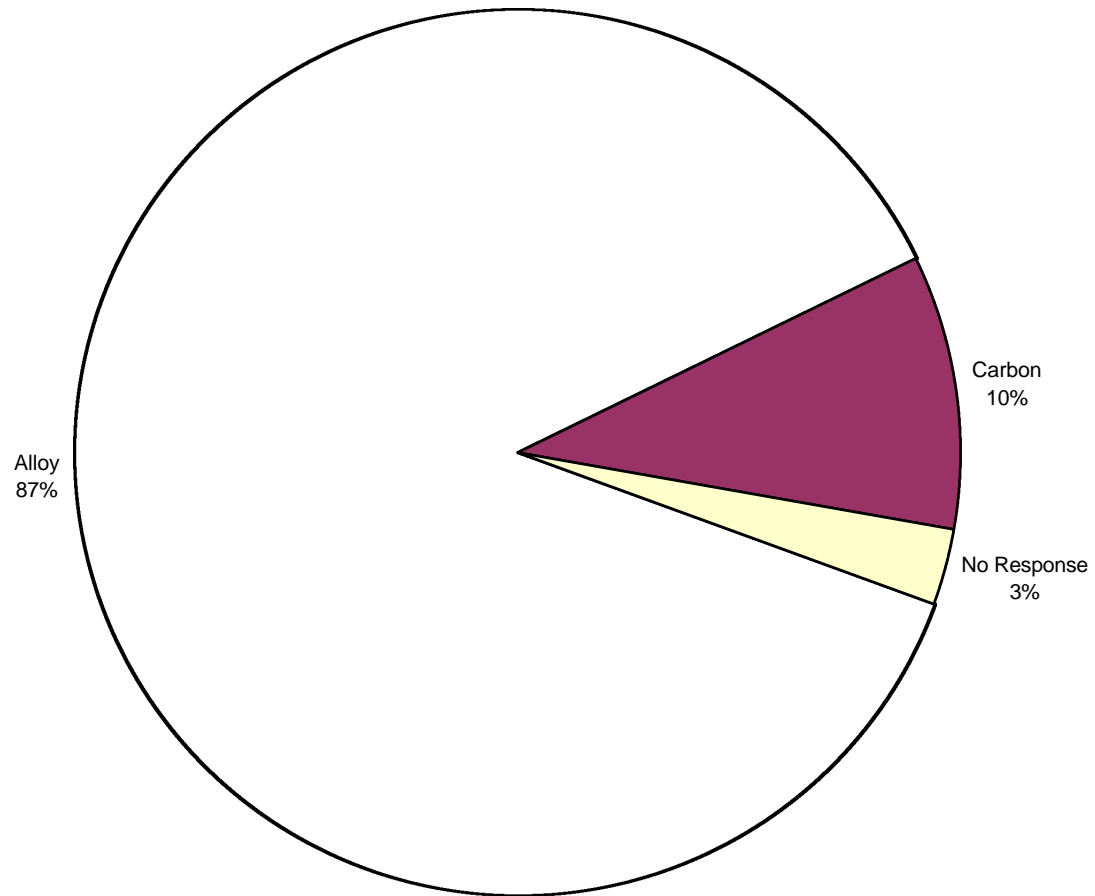
Q1C - Rudder Construction (CYCA Data)



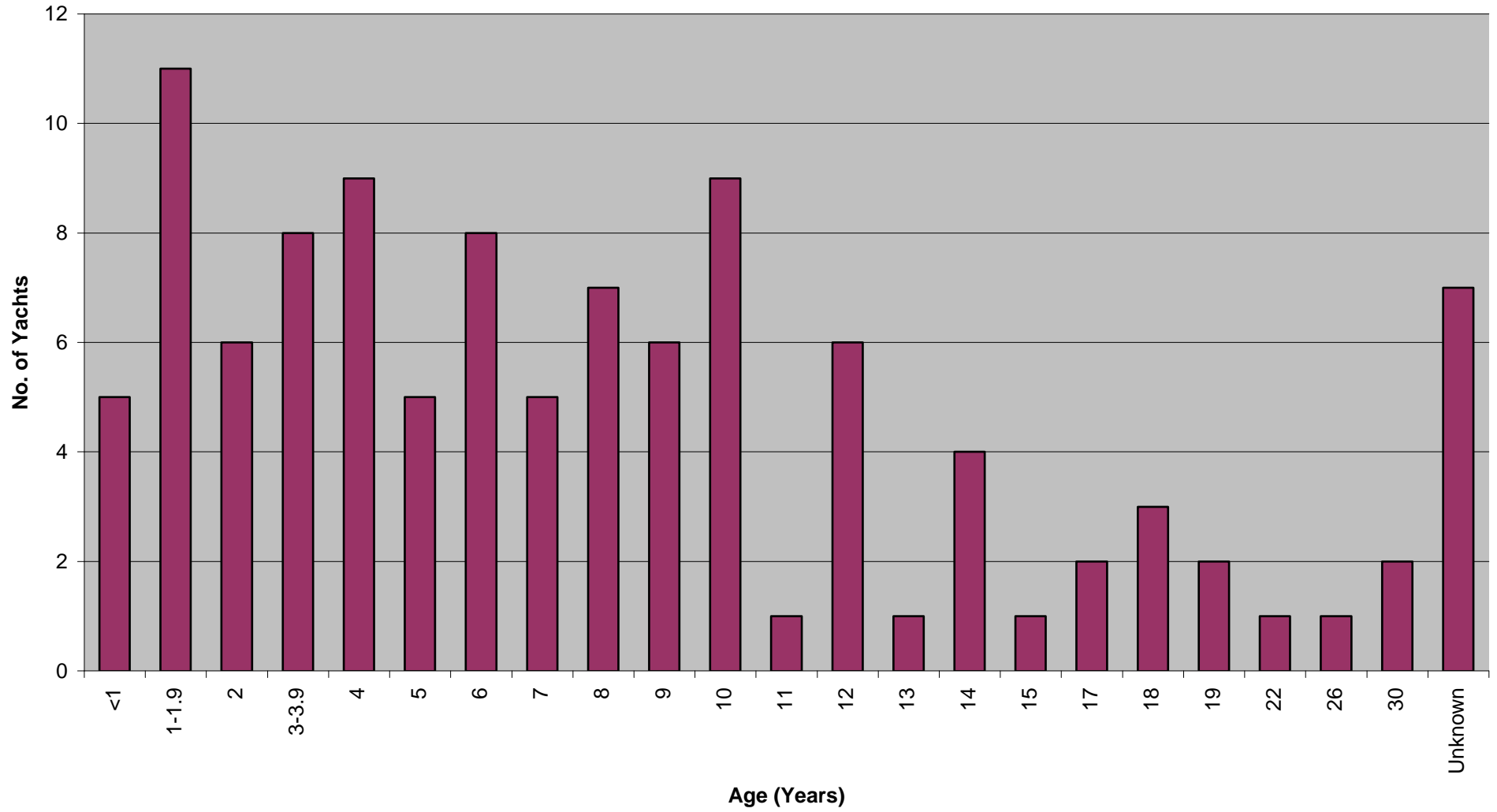
Q1D - Rudder Stock Construction (CYCA Data)



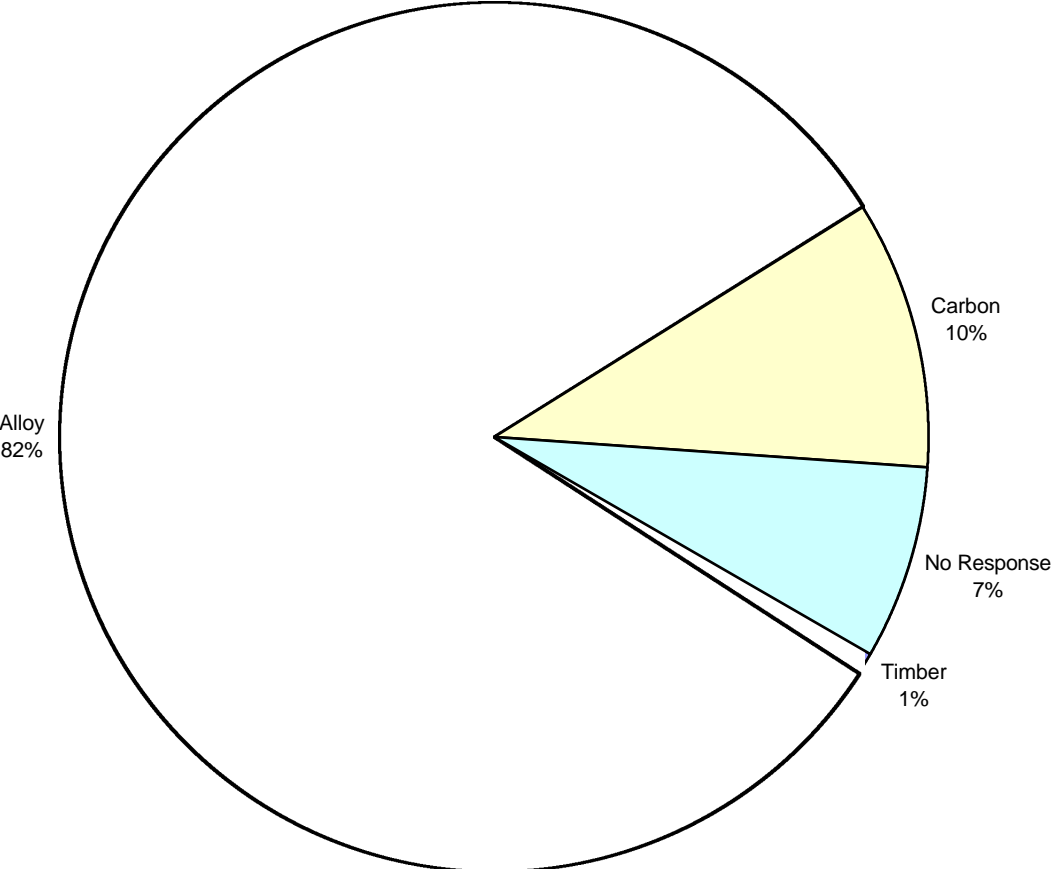
Q1E - Mast Construction of Yachts (CYCA Data)



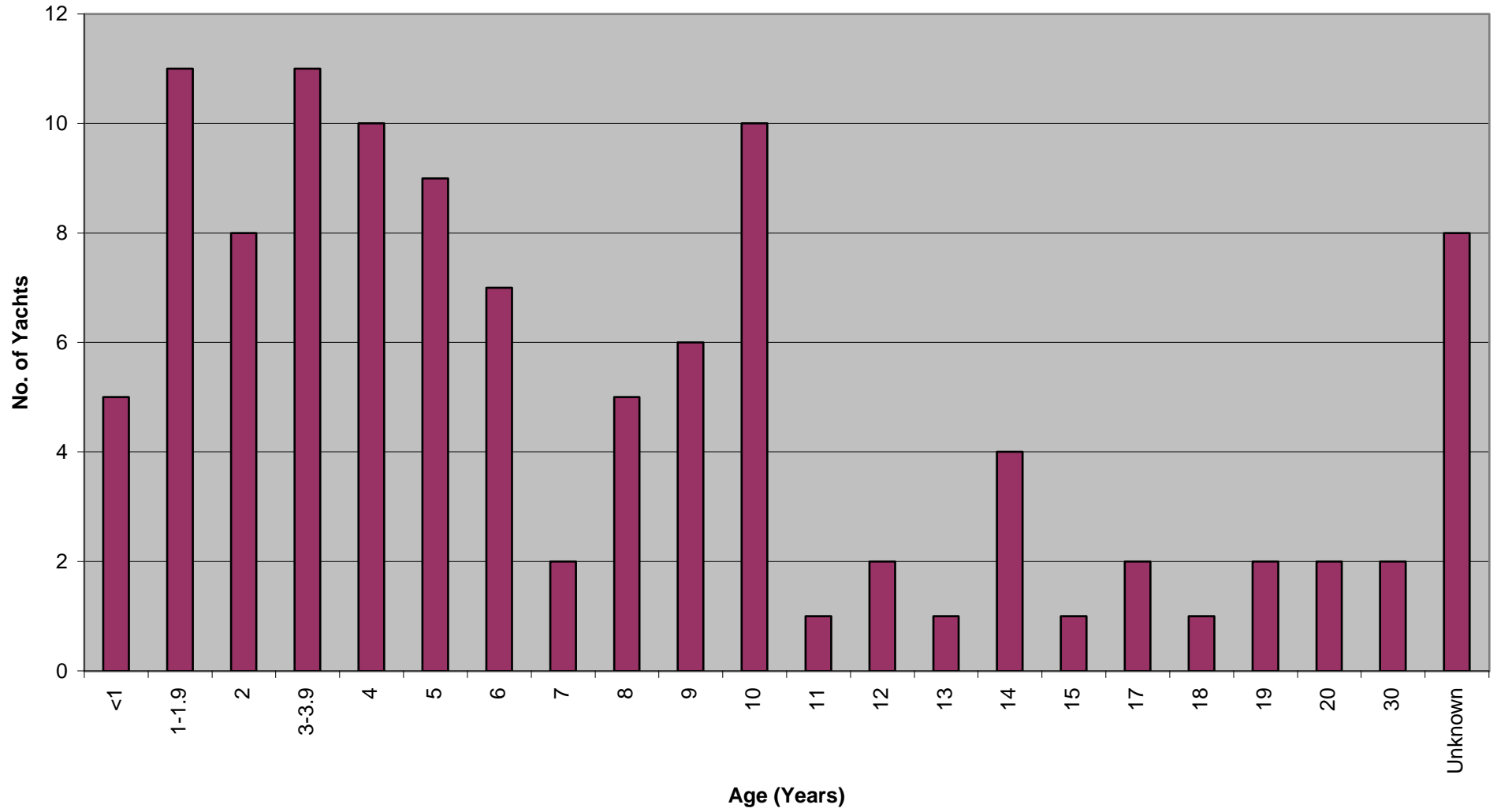
Q1E - Mast Age of Yachts (CYCA Data)



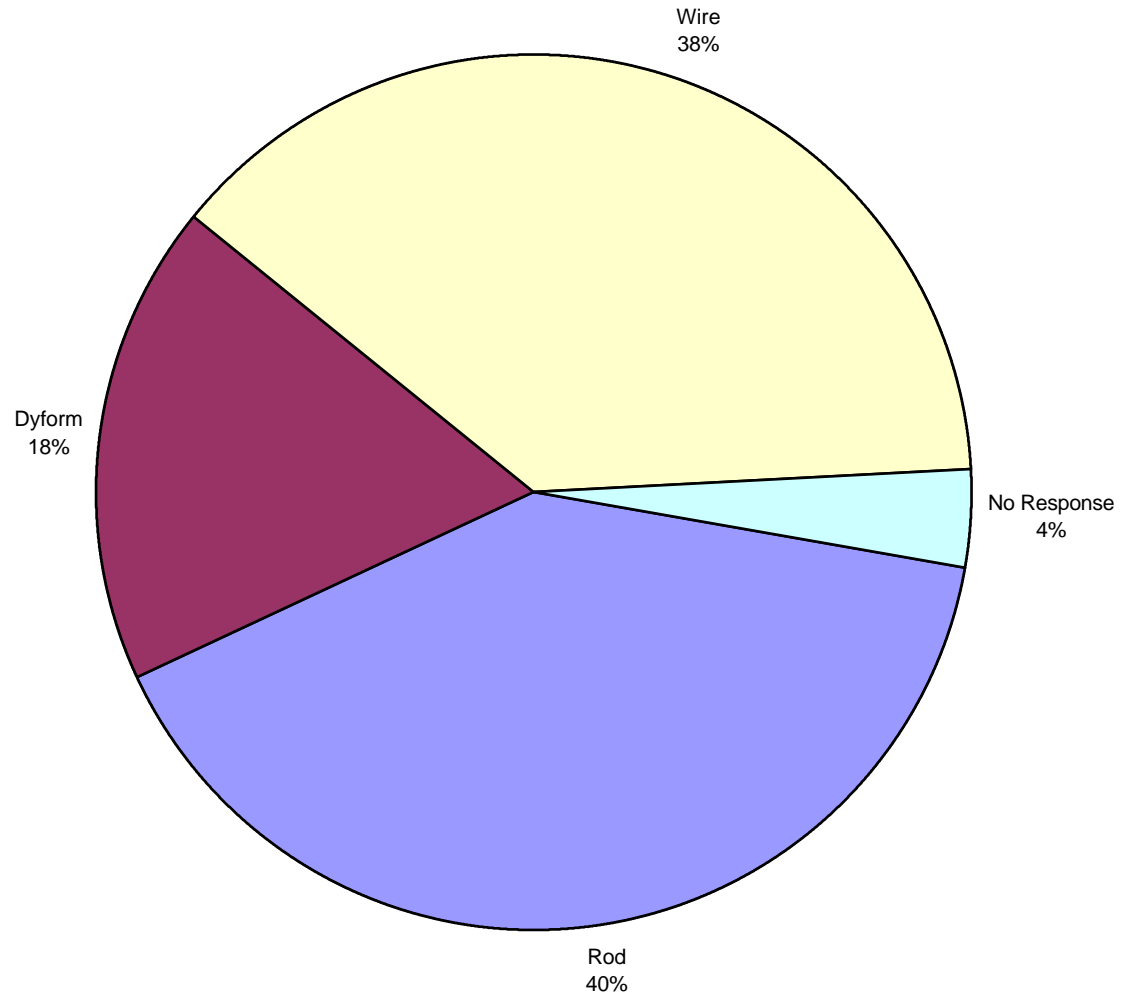
Q1F - Boom Construction of Yachts (CYCA Data)



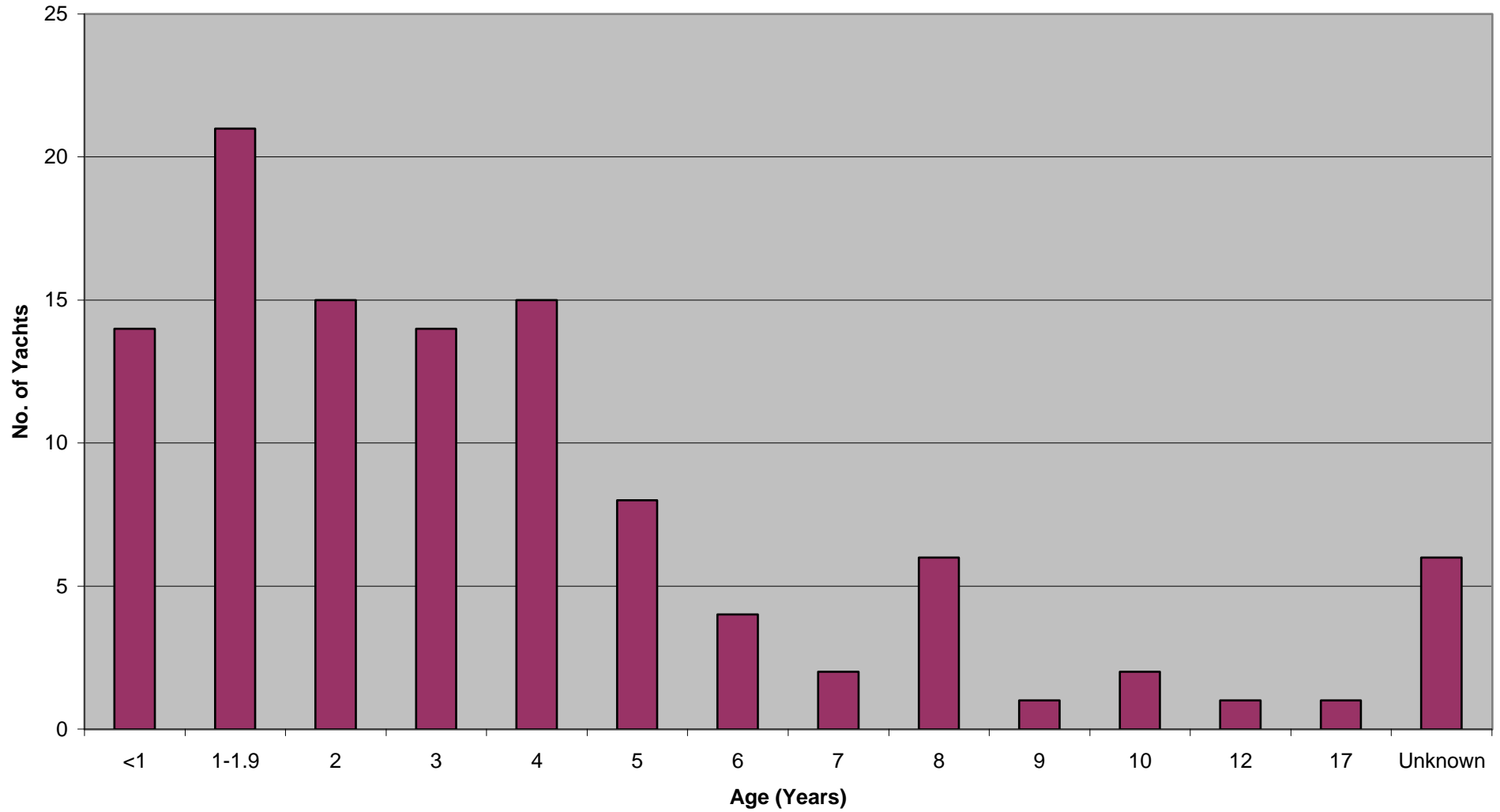
Q1F - Age of Boom (CYCA Data)



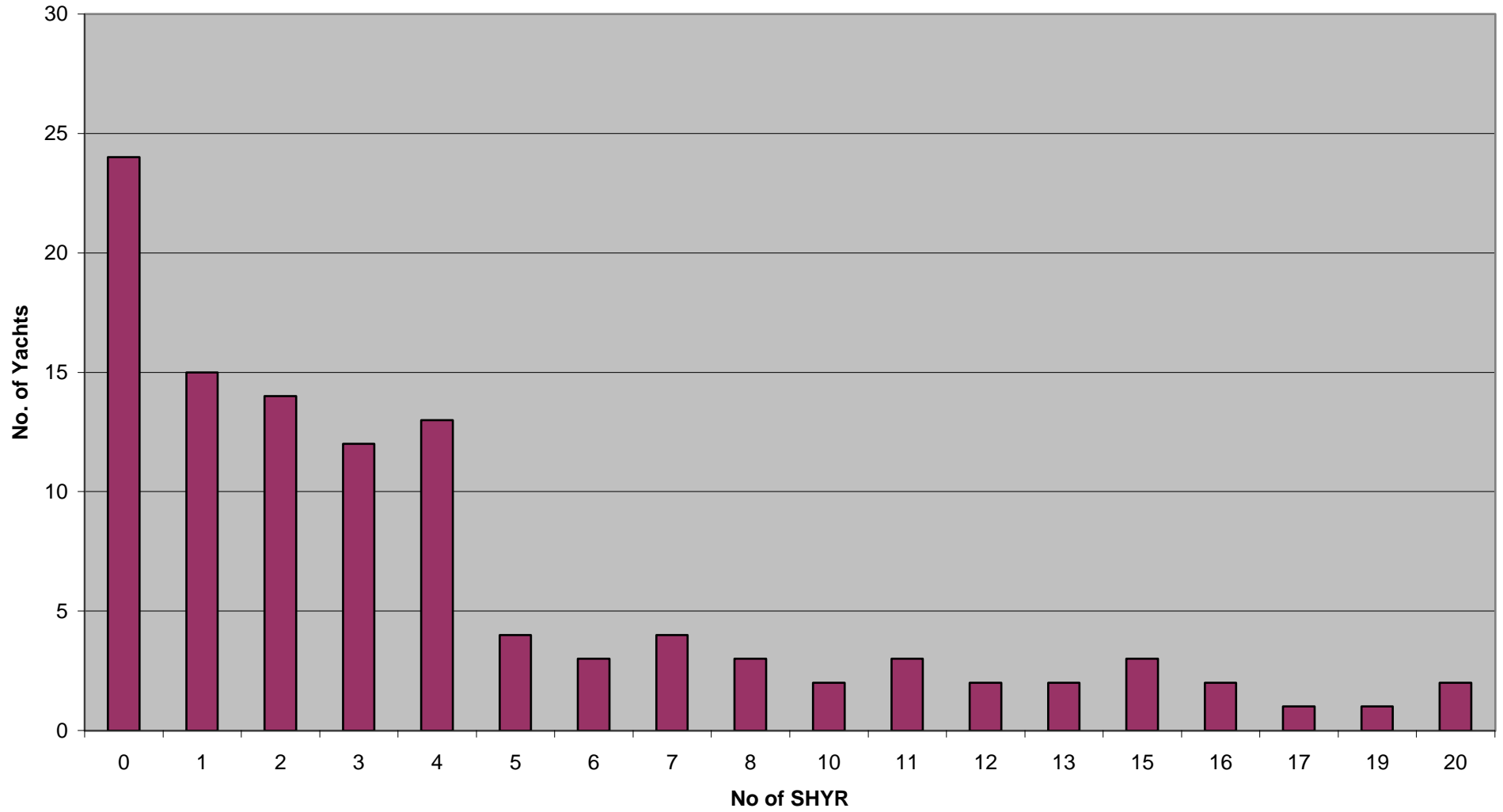
Q1G - Rigging Construction of Yachts (CYCA Data)



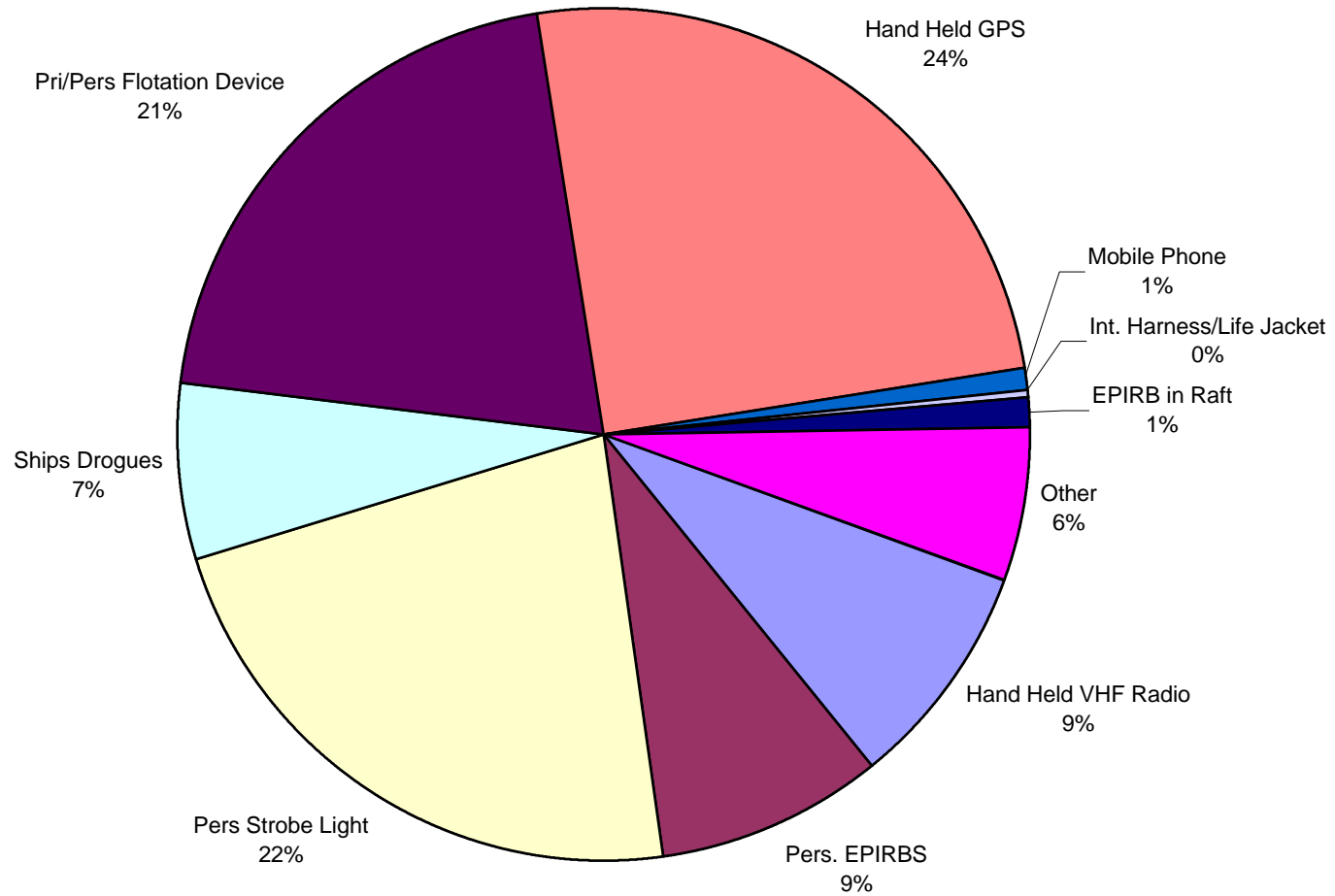
Q1G - Rigging Age (CYCA Data)



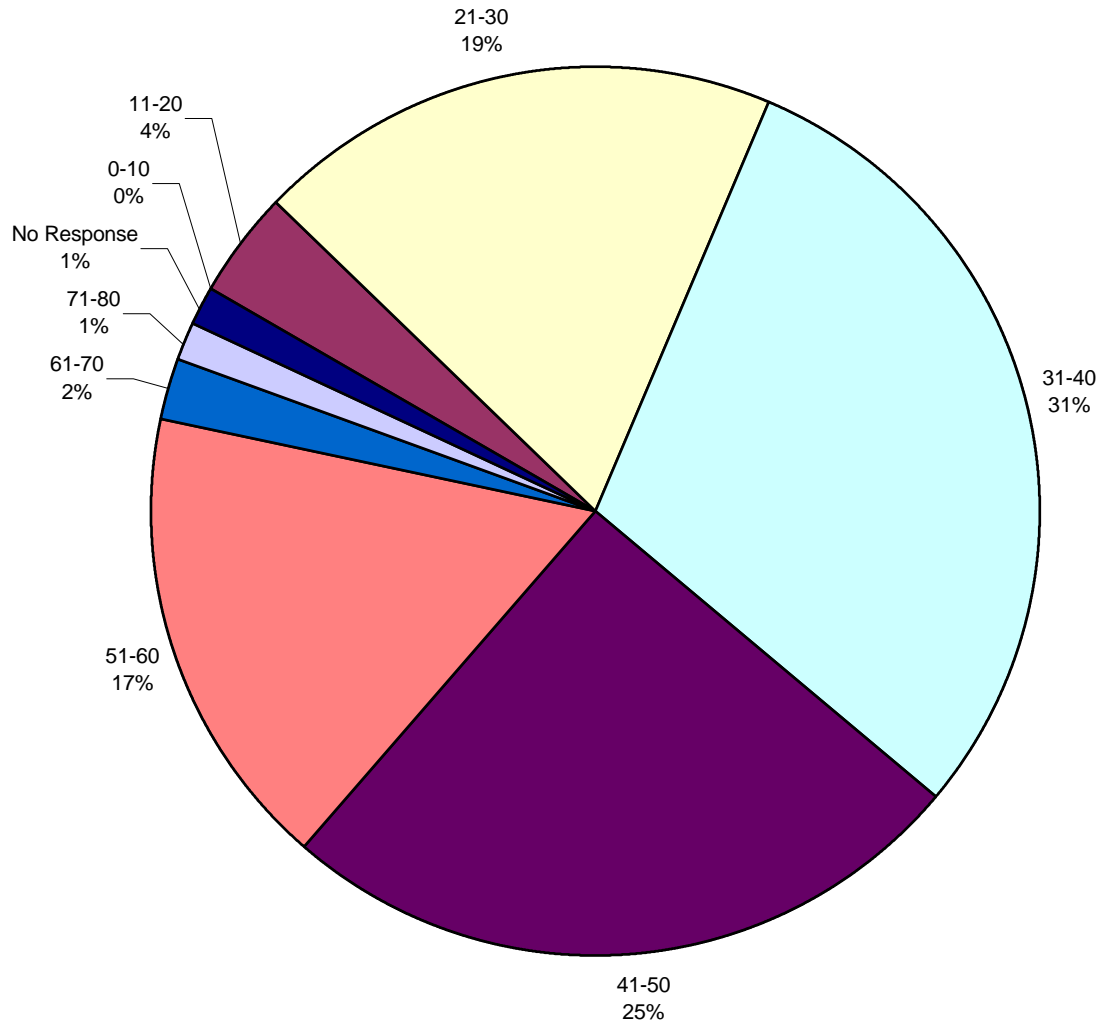
Q2A - Previous SHYR Yachts HaveCompeted In (CYCA Data)



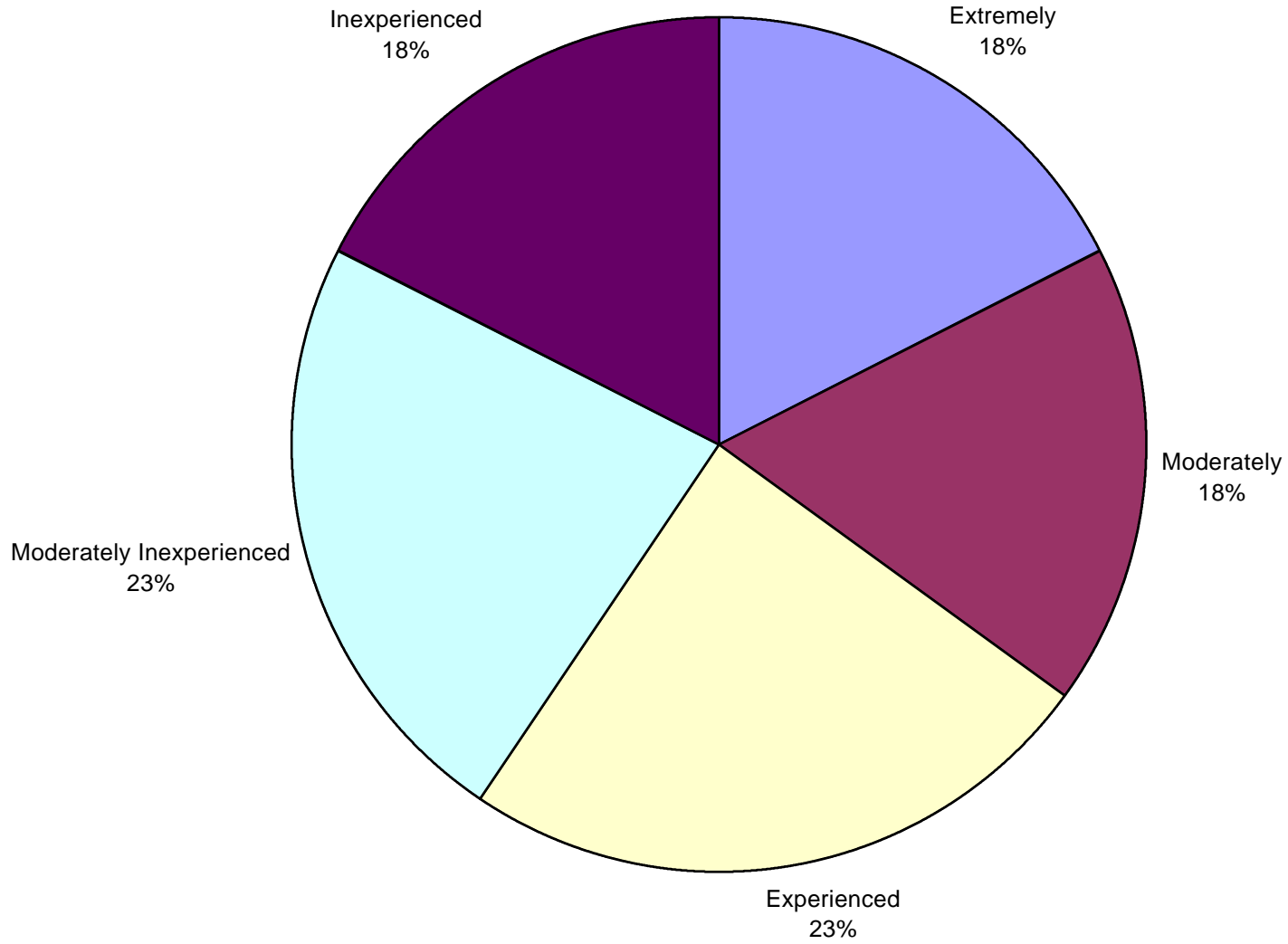
Q5B-Additional Safety / SAR Equipment Carried



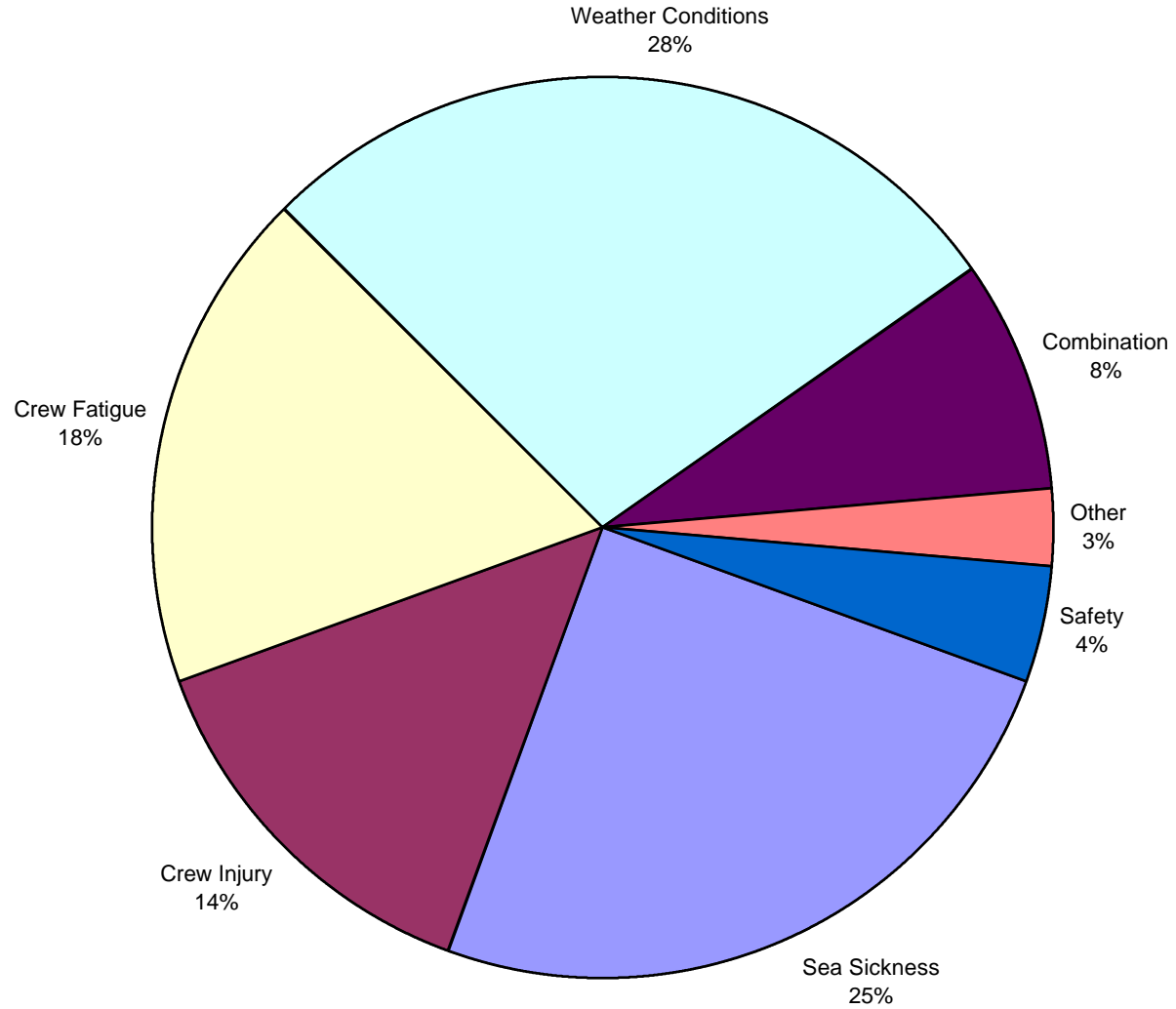
Q6A-Age of Crew Members (CYCA Data)



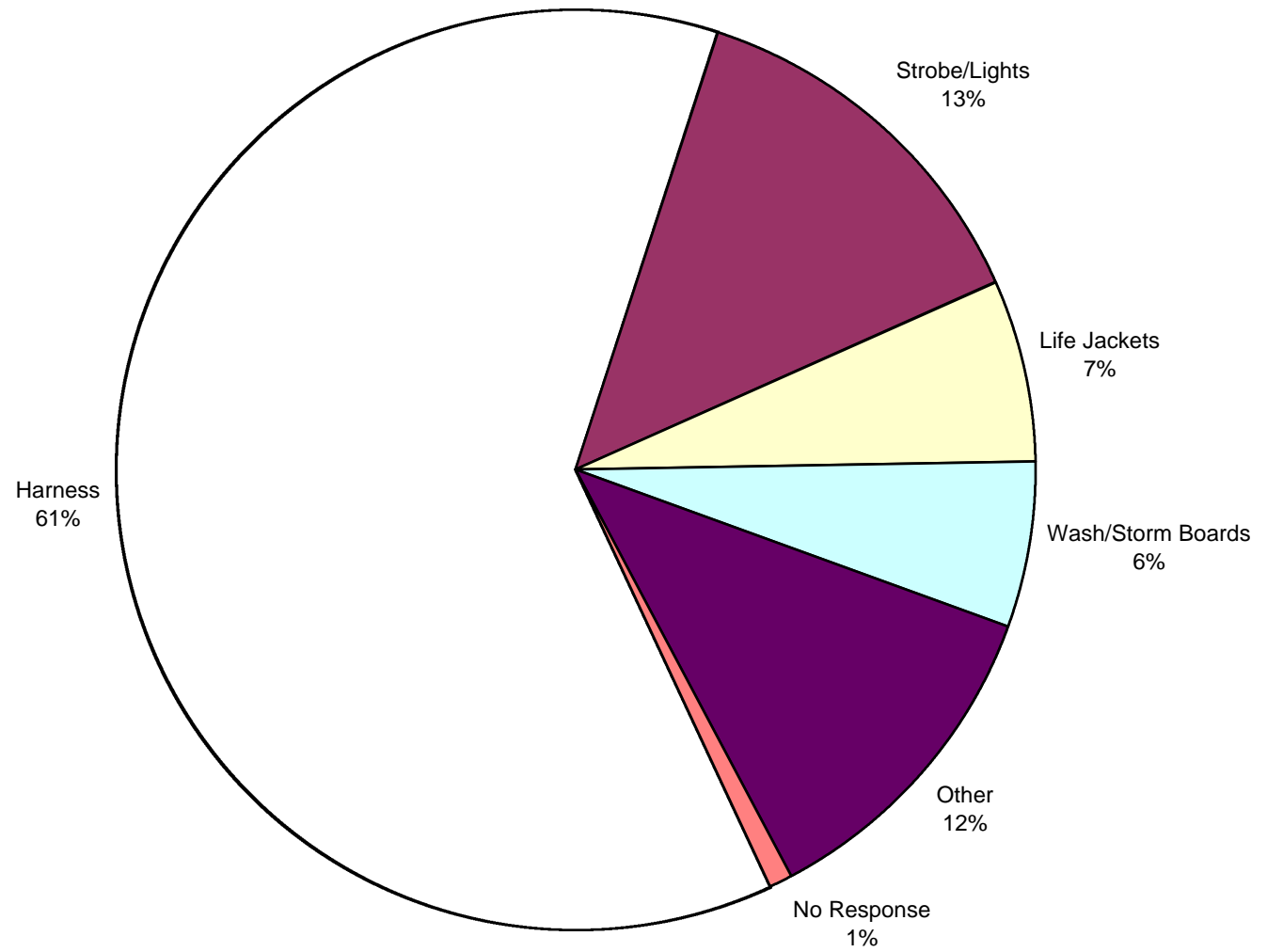
Q6: Crew Experience



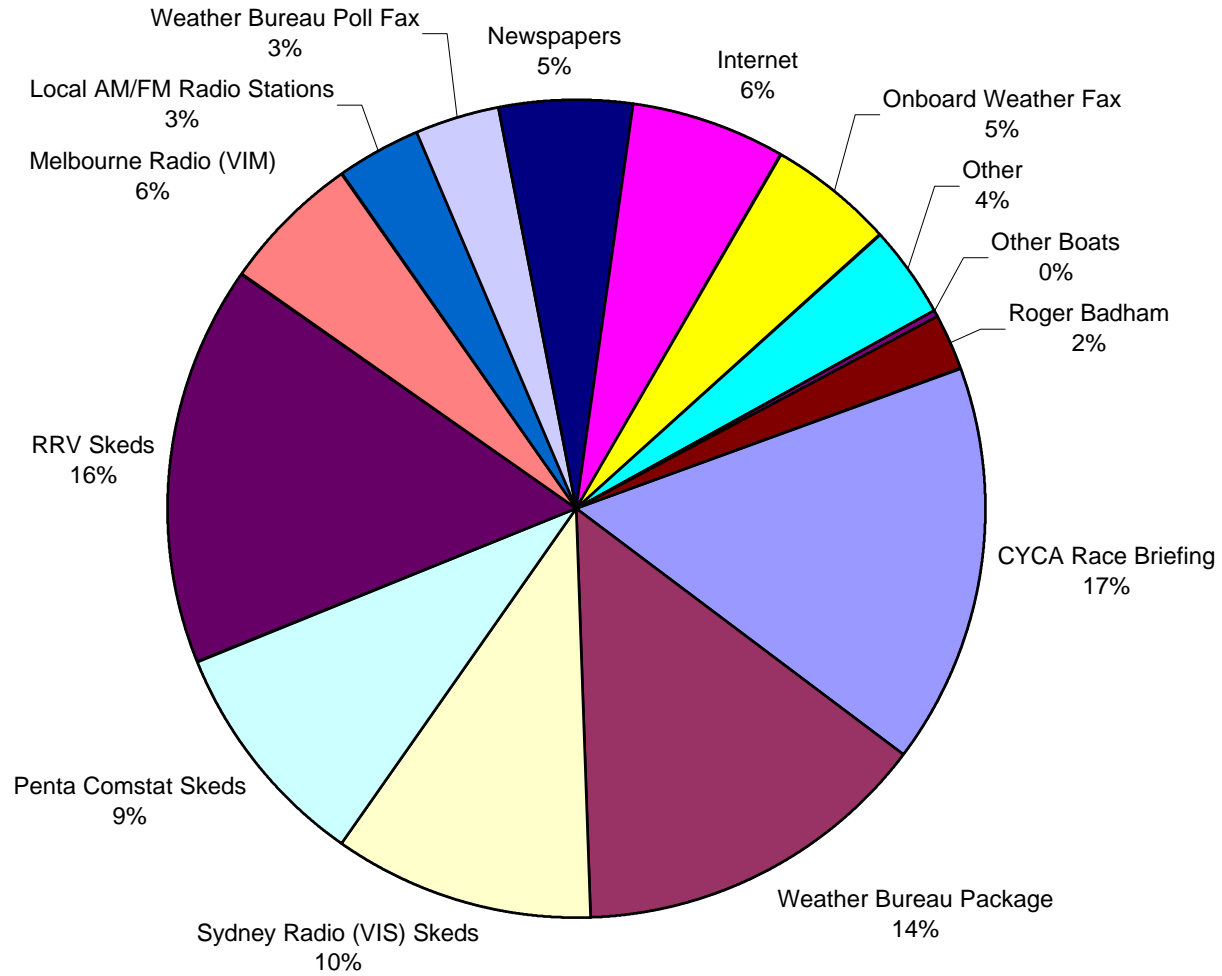
Q12B: Why Did Routine Break Down (CYCA Data)



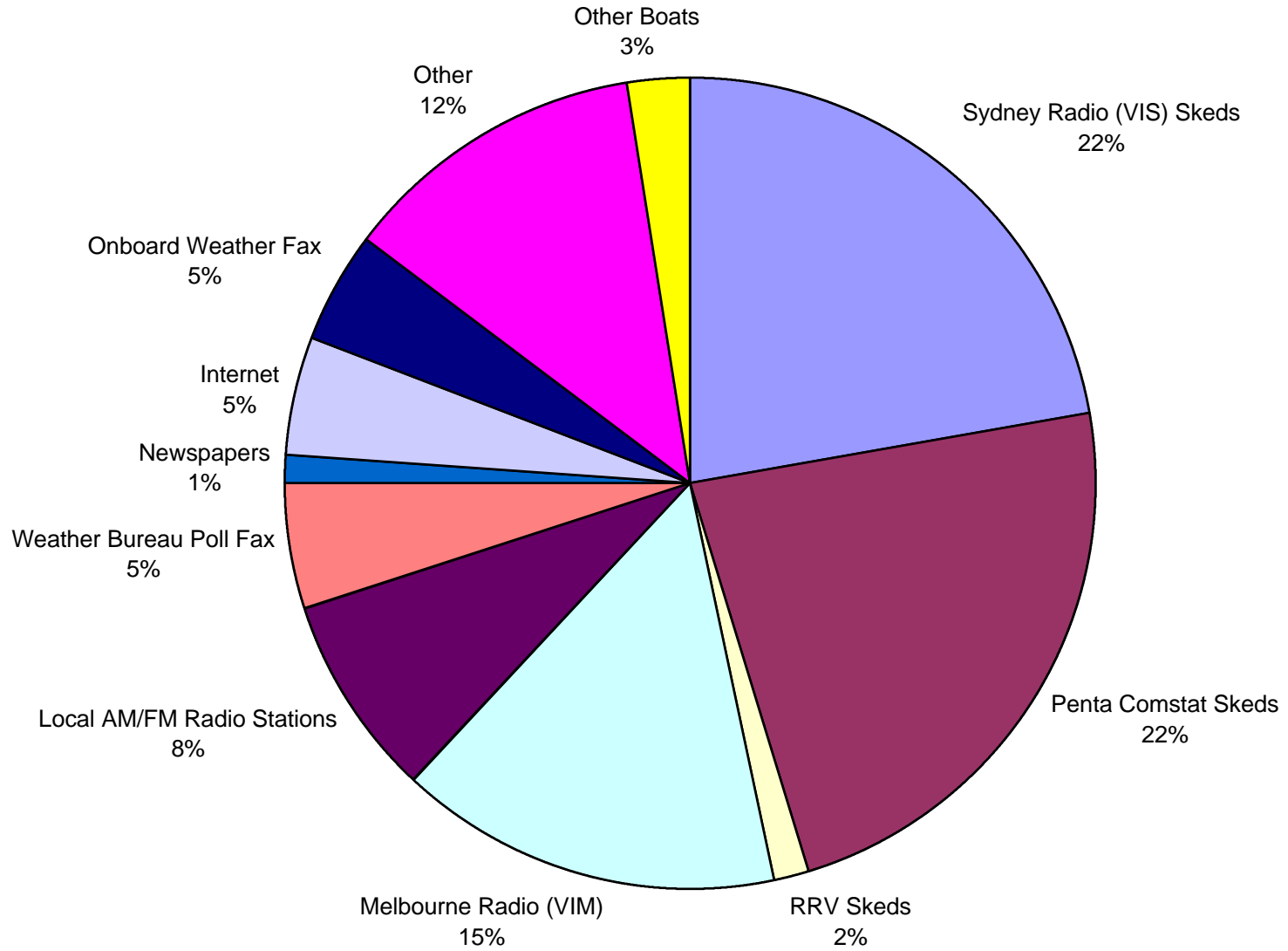
Q18B - Details of Safety Routine



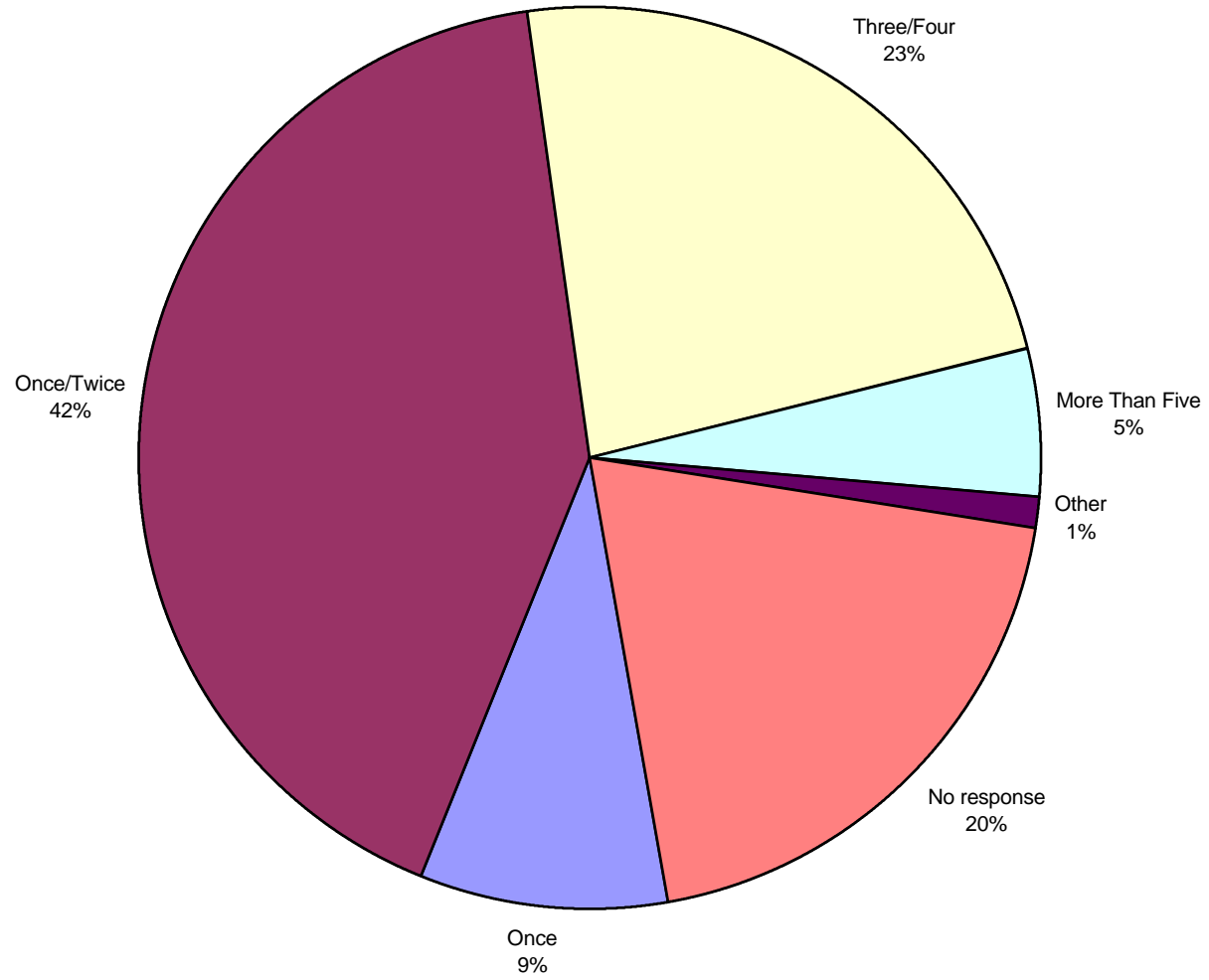
Q25 - Sources Used to Get Weather Information for Race



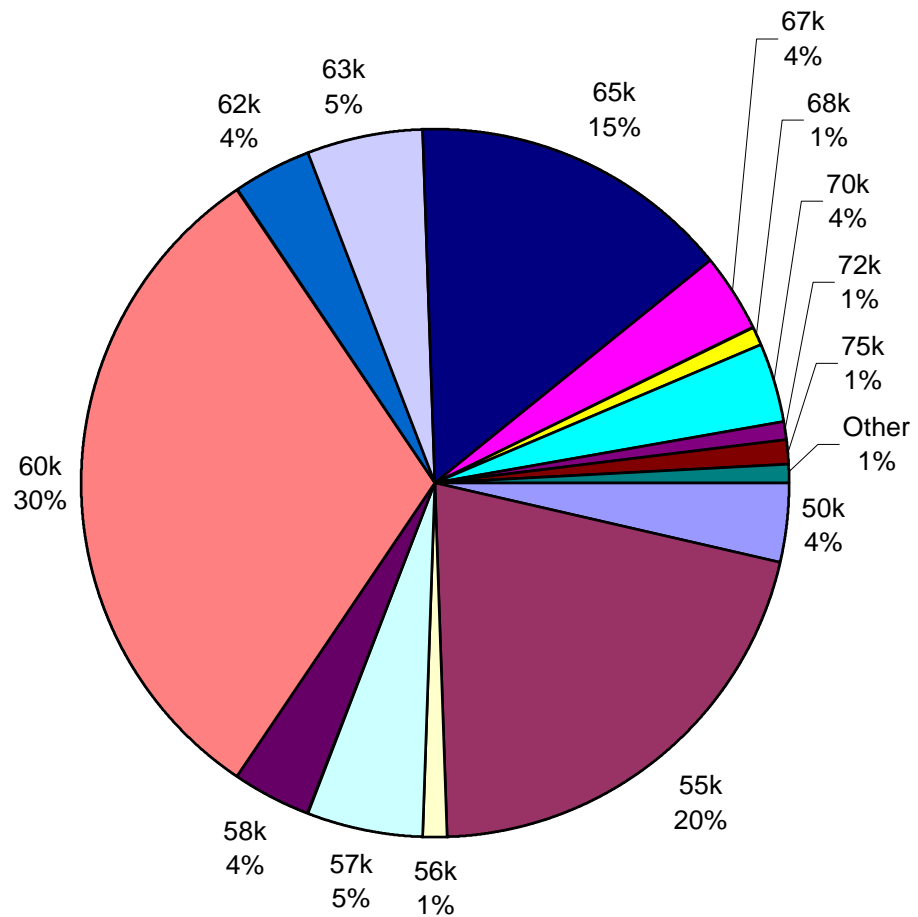
Q26B - Sources of Weather Forecasts



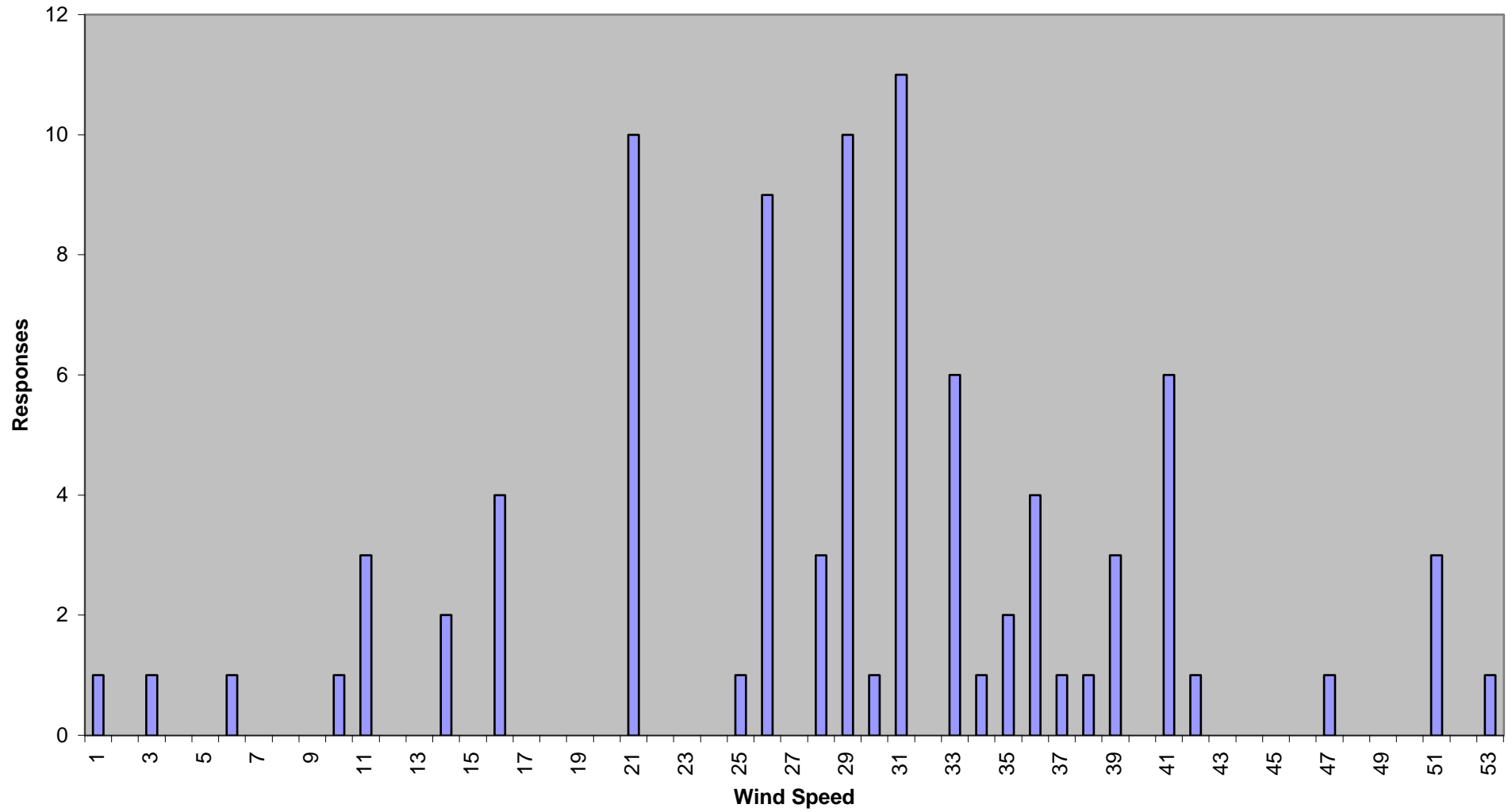
Q27 - Frequency of Weather Updates Between Radio Relay Skeds



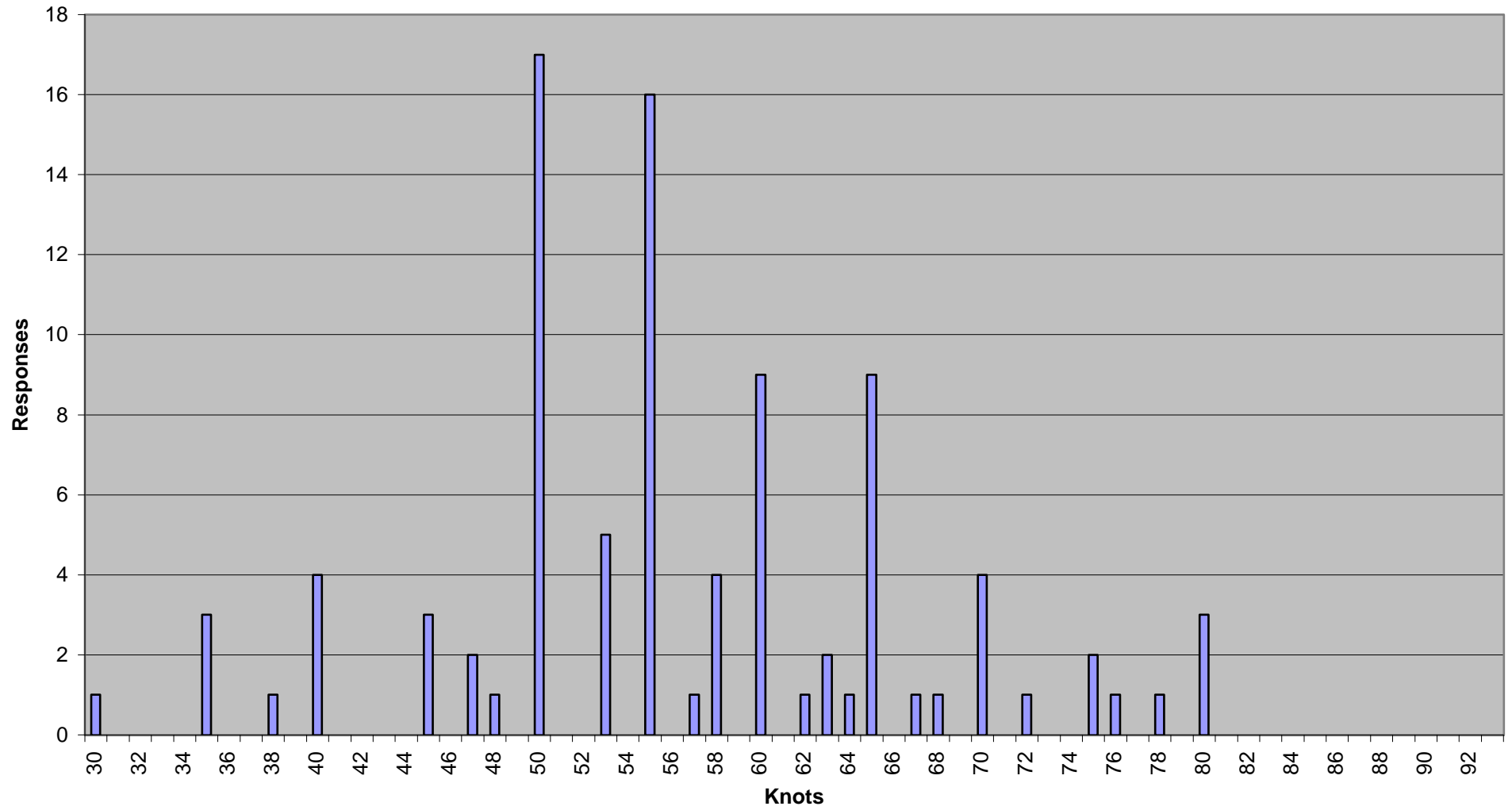
Q28C - What Did You Expect the Max Gust to Be



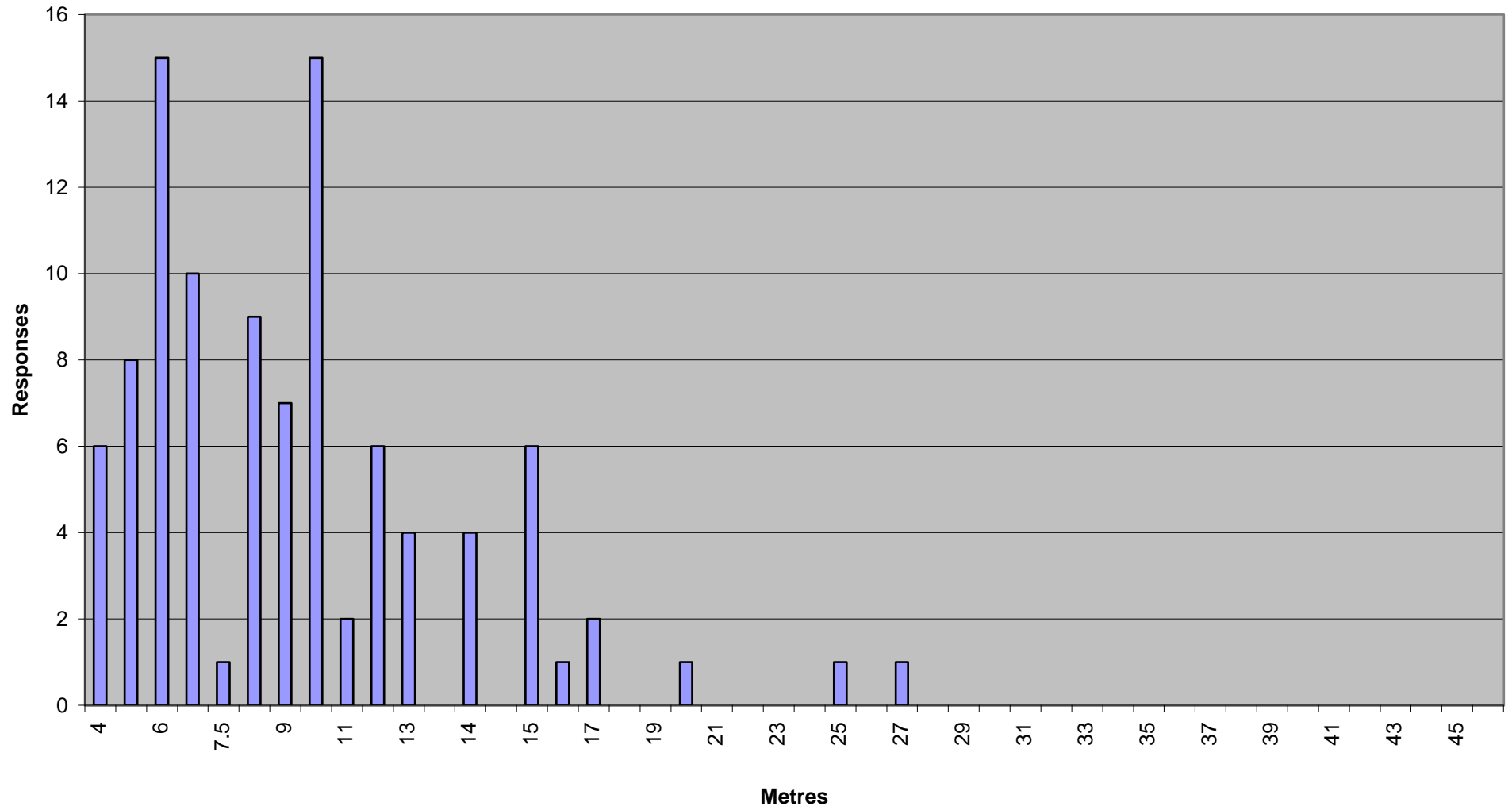
Q34 - Strongest Wind Speed Recorded



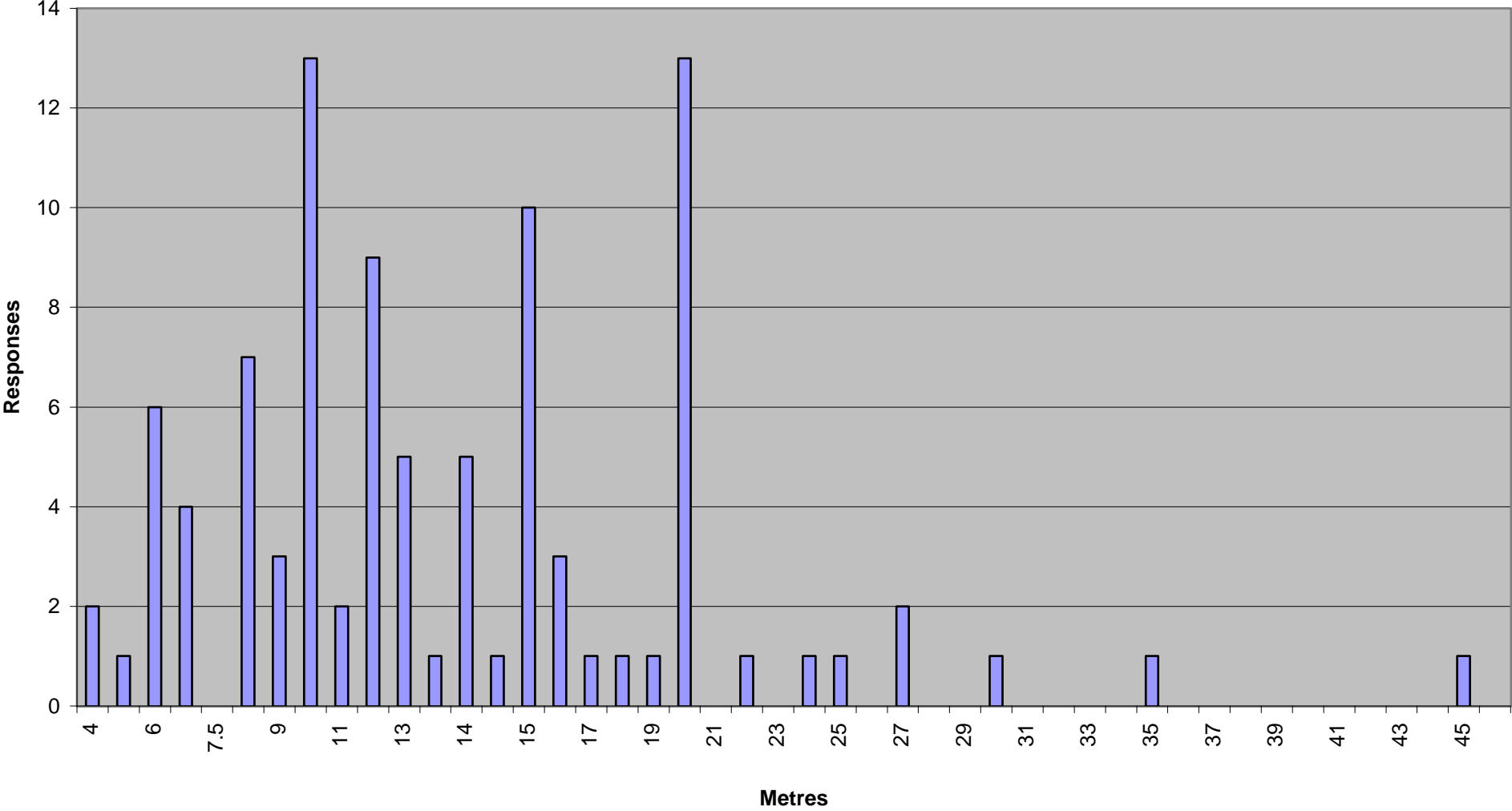
Q33 - Average Wind Speed



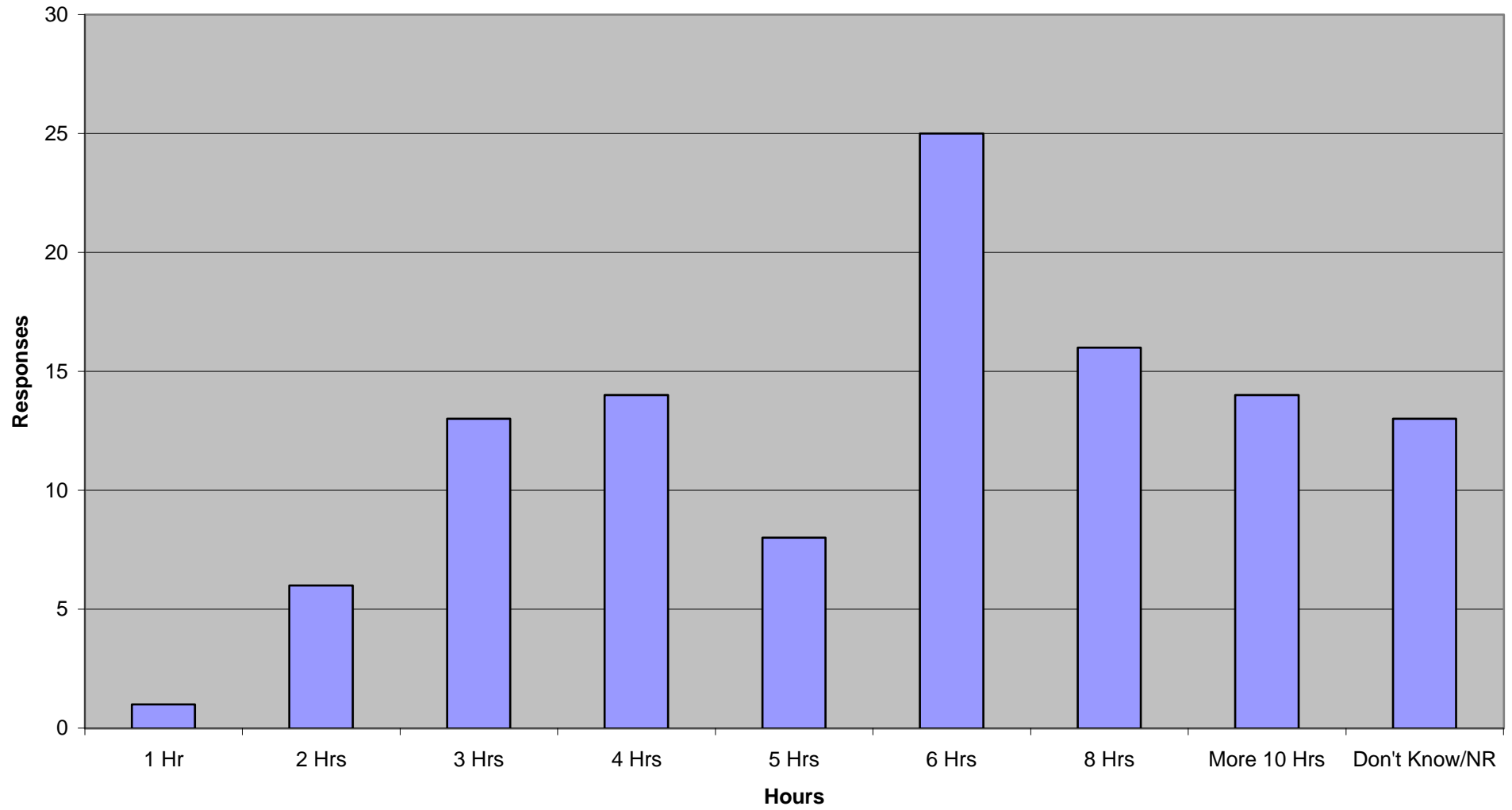
Q35 - Average Wave Height During Storm



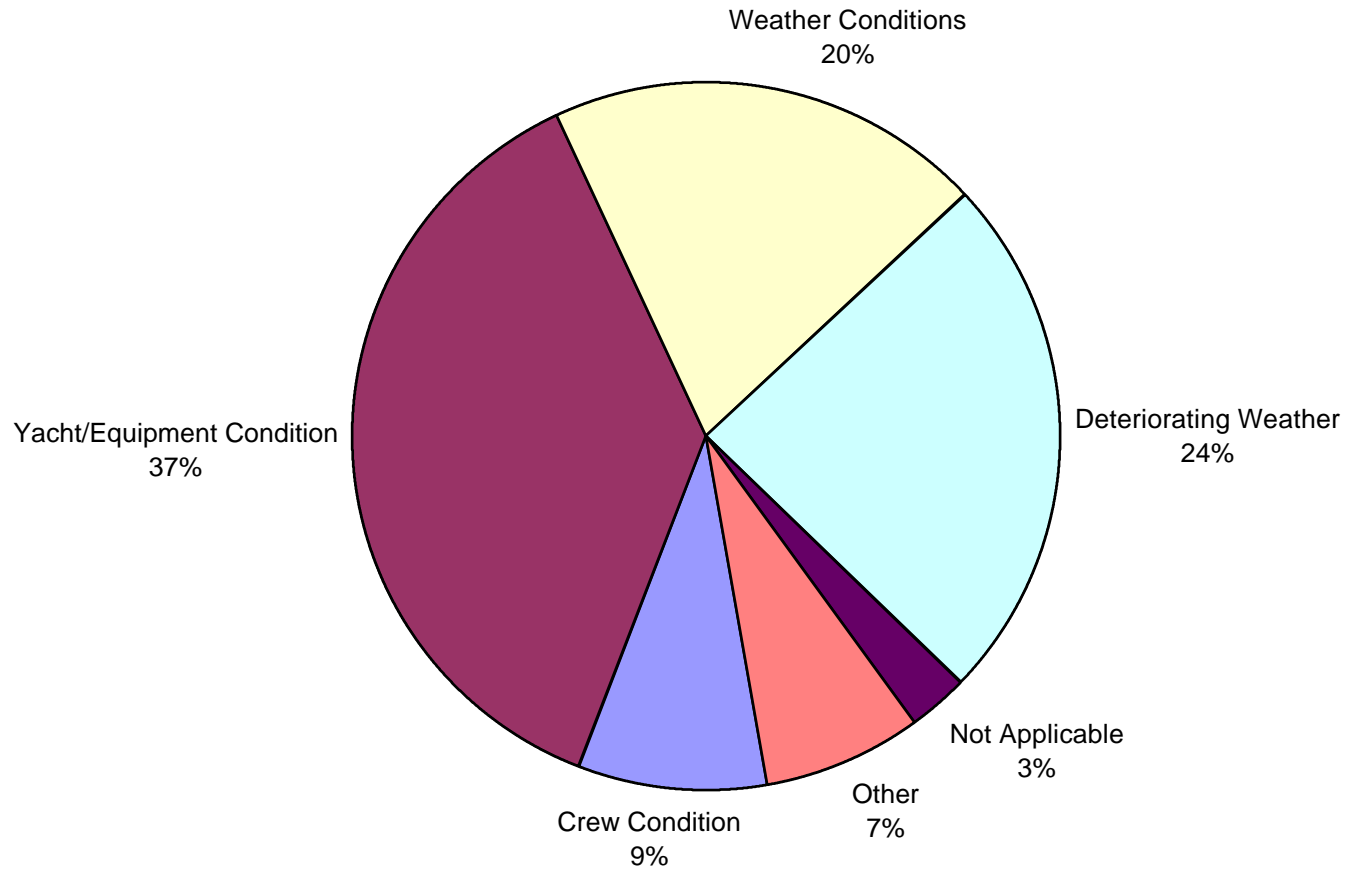
Q36 - Maximum Wave Height Encountered



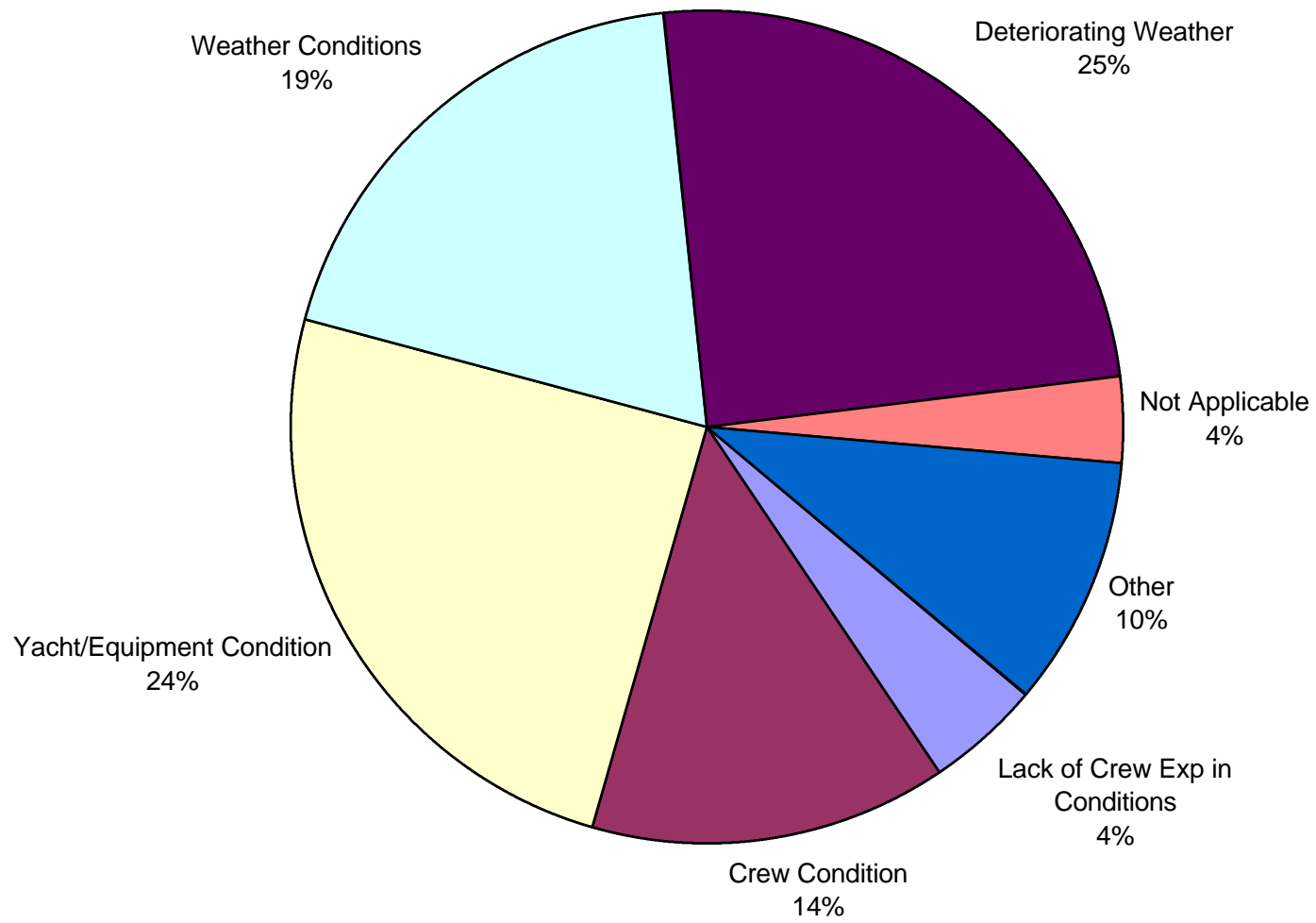
Q39 - Duration of Maximum Severe Conditions



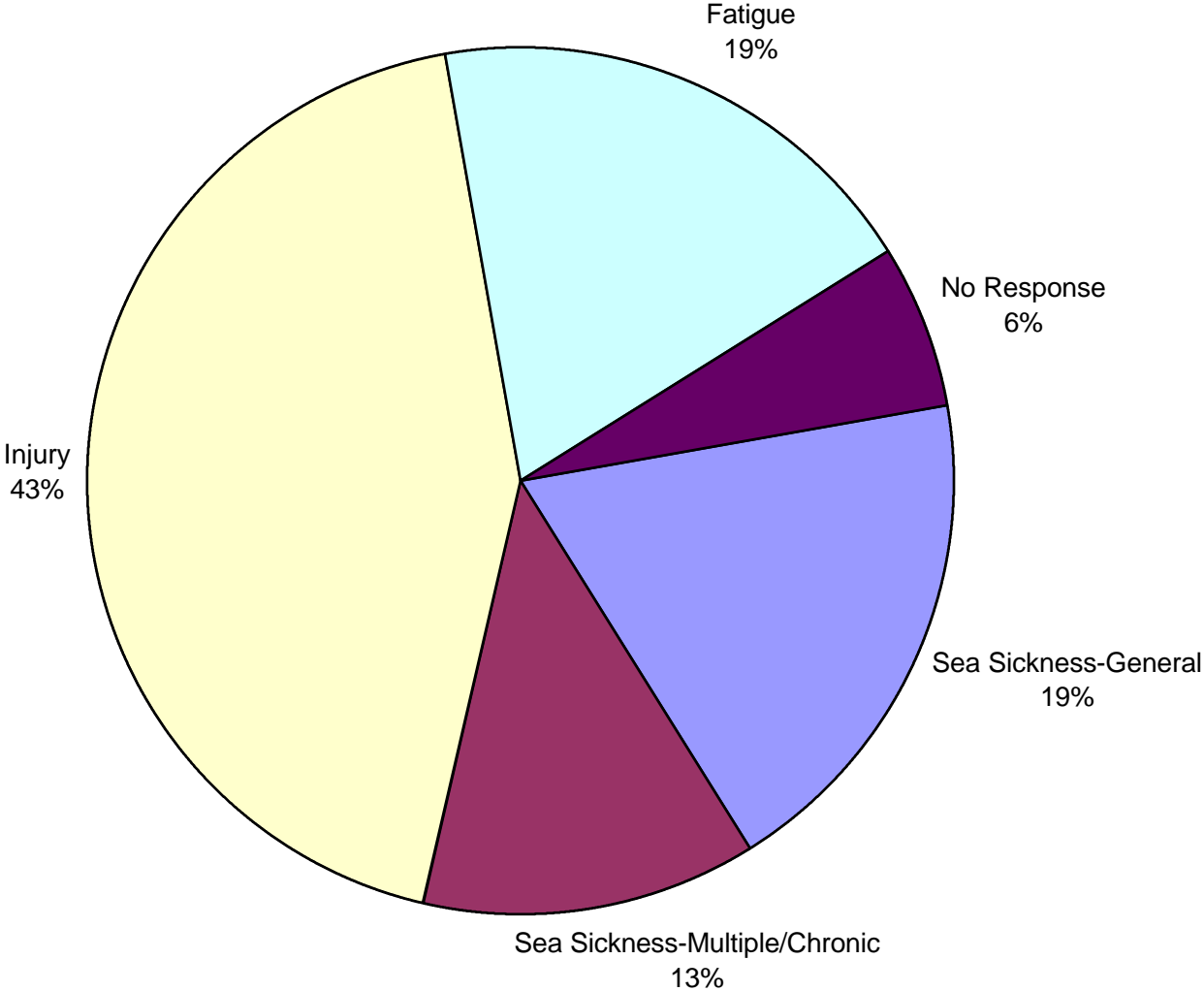
Q41- Primary Reason for Retiring



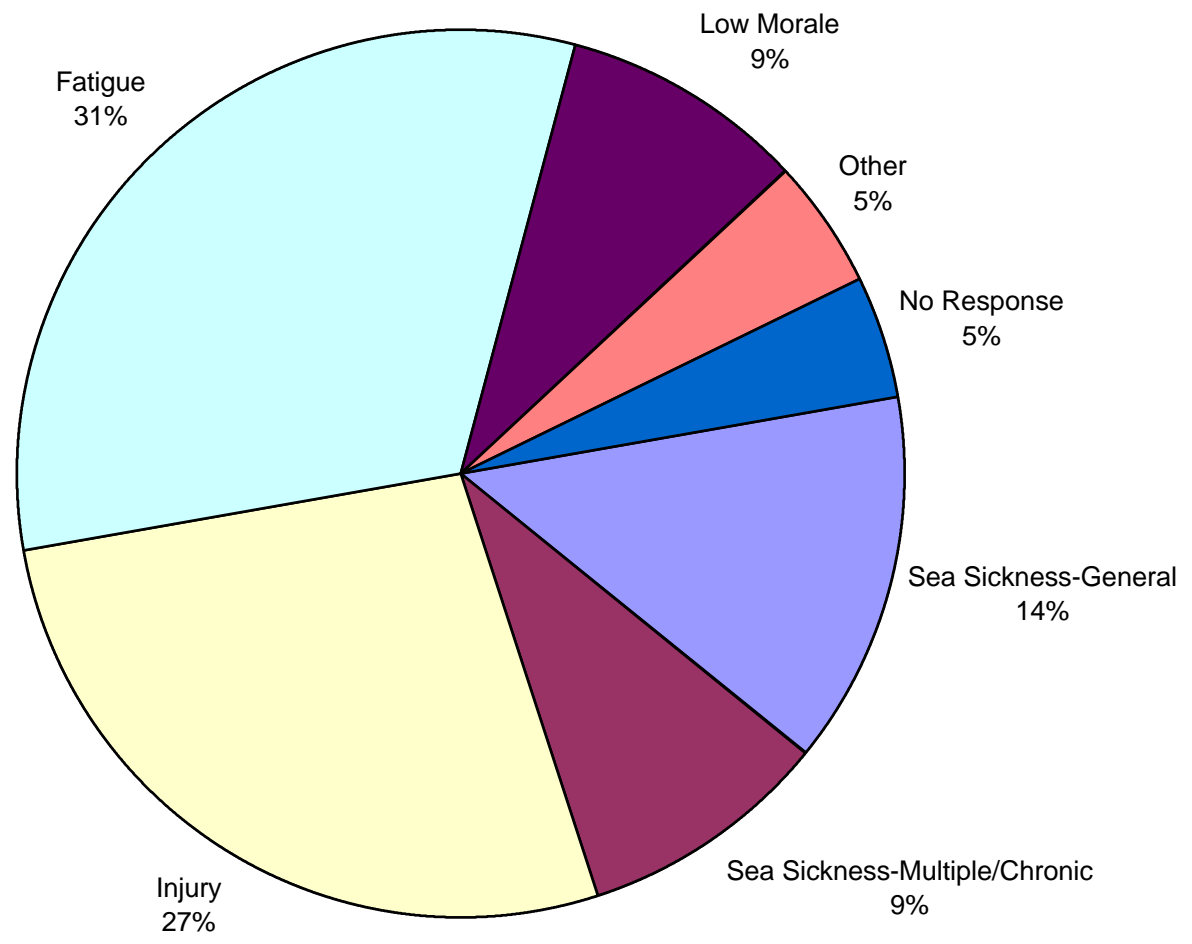
Q42 - Contributing Factors in Decision to Retire



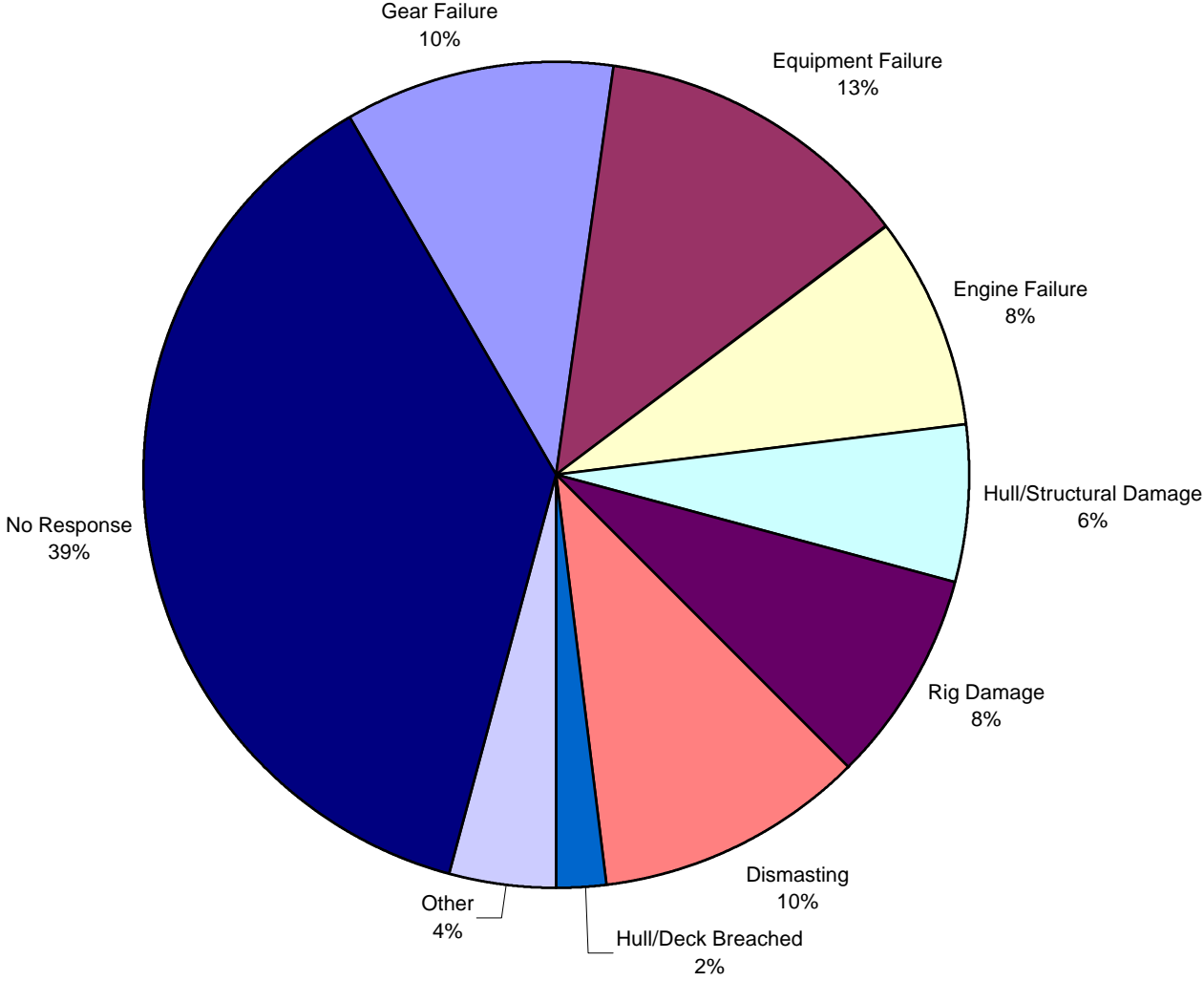
Q43 - What was the Main Factor for Crew Condition



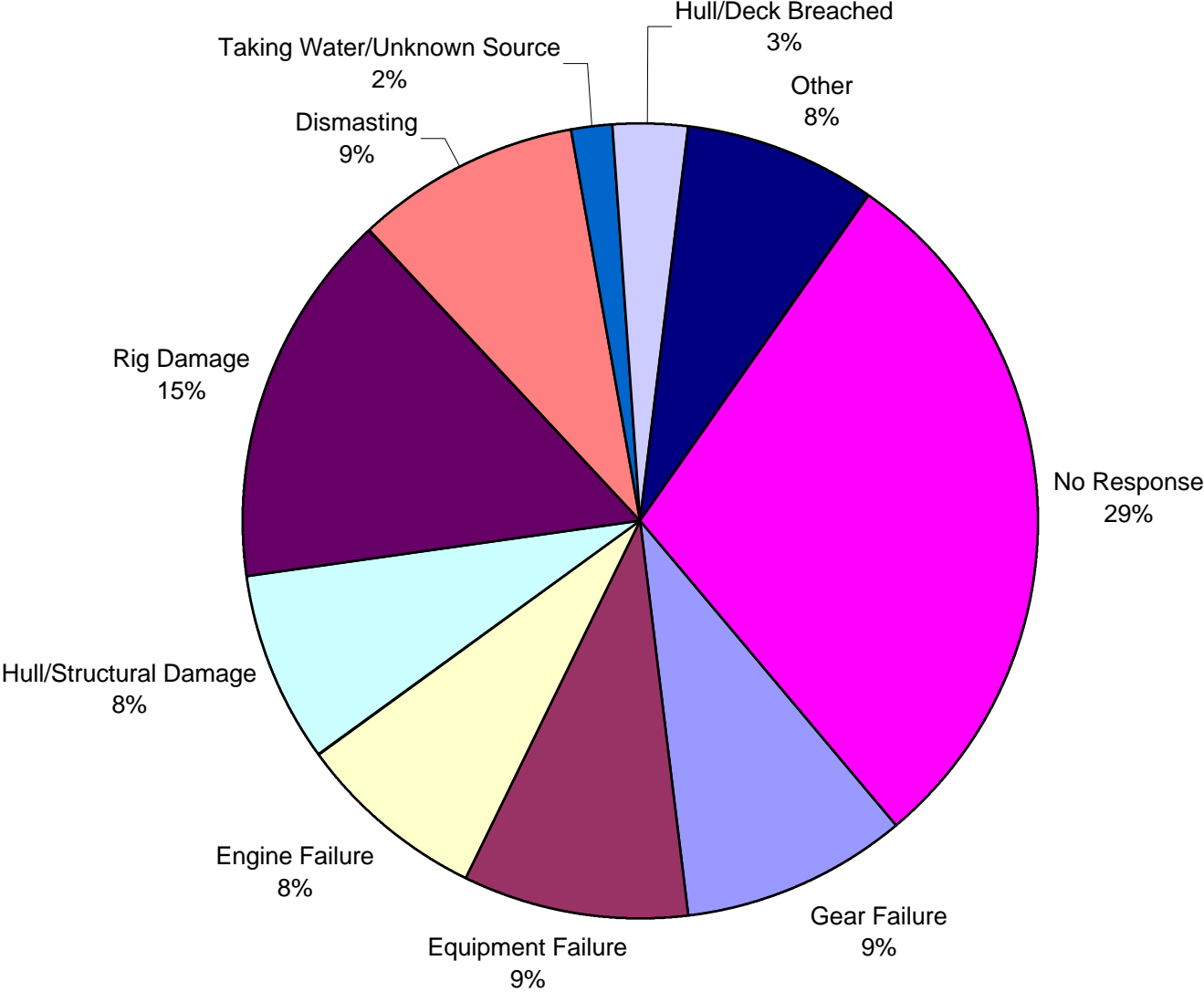
Q44 - Contributing Factors for Crew Condition



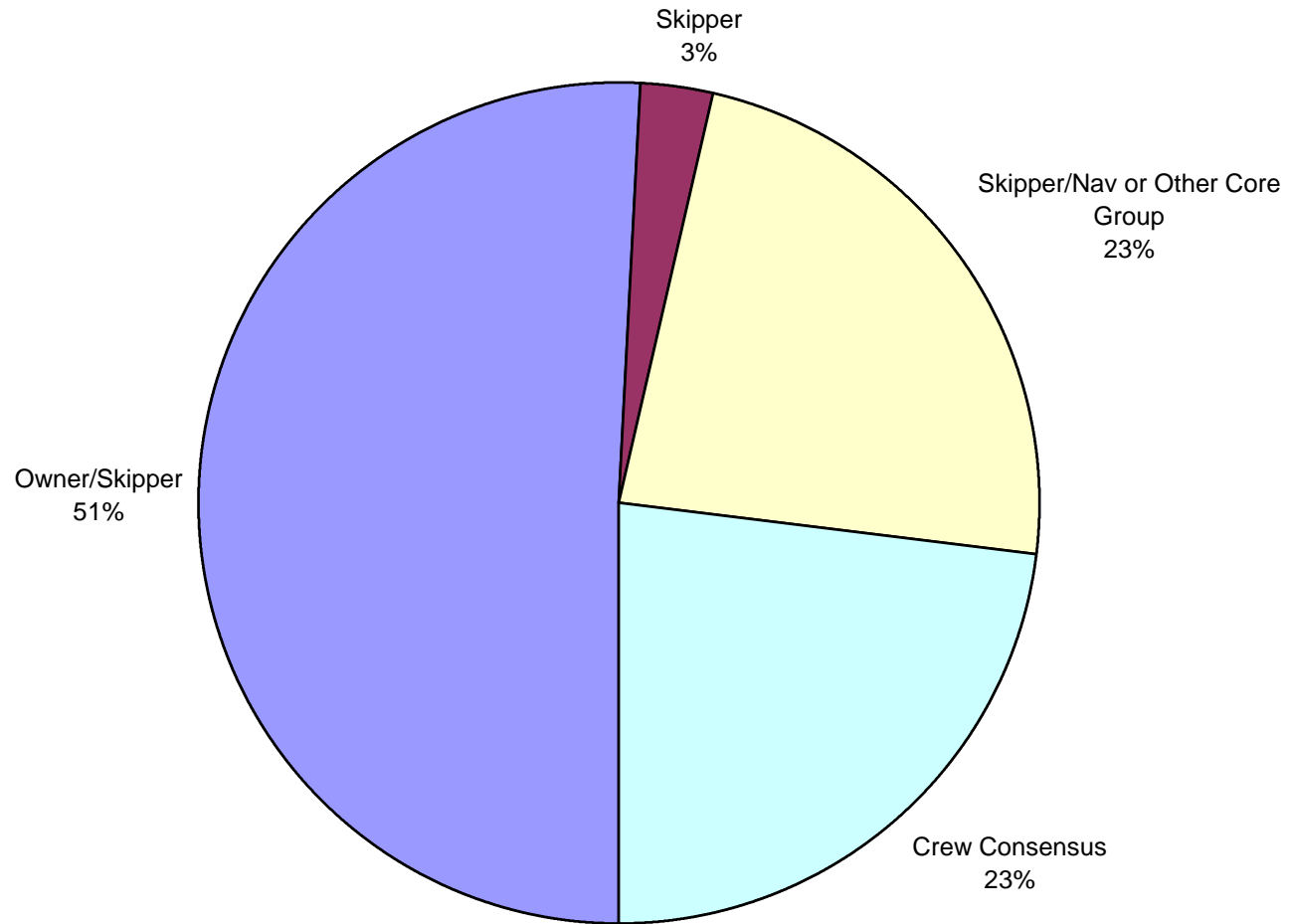
Q45 - Main Factor for Yacht's Condition



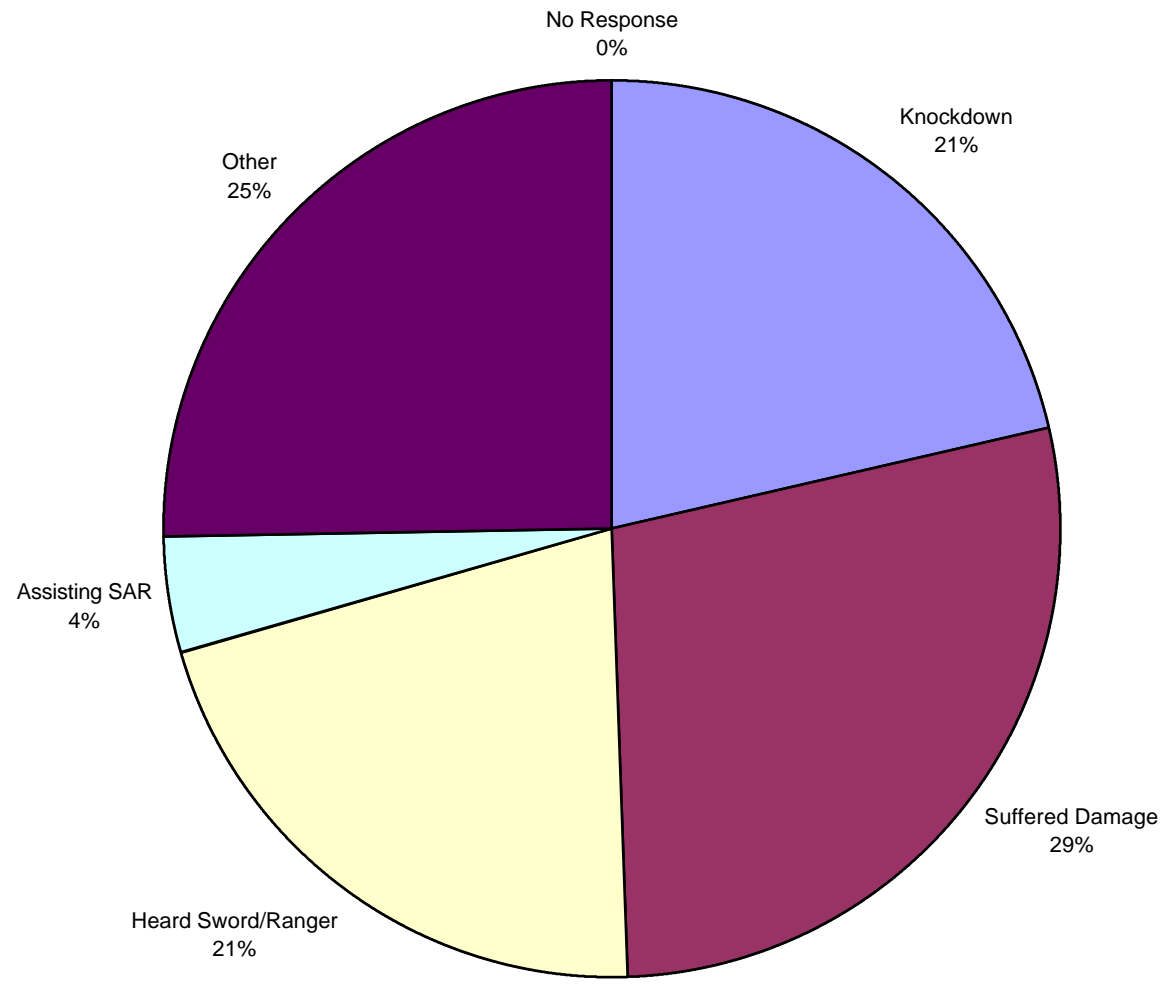
Q46 - Contributing Factors for Yacht's Condition



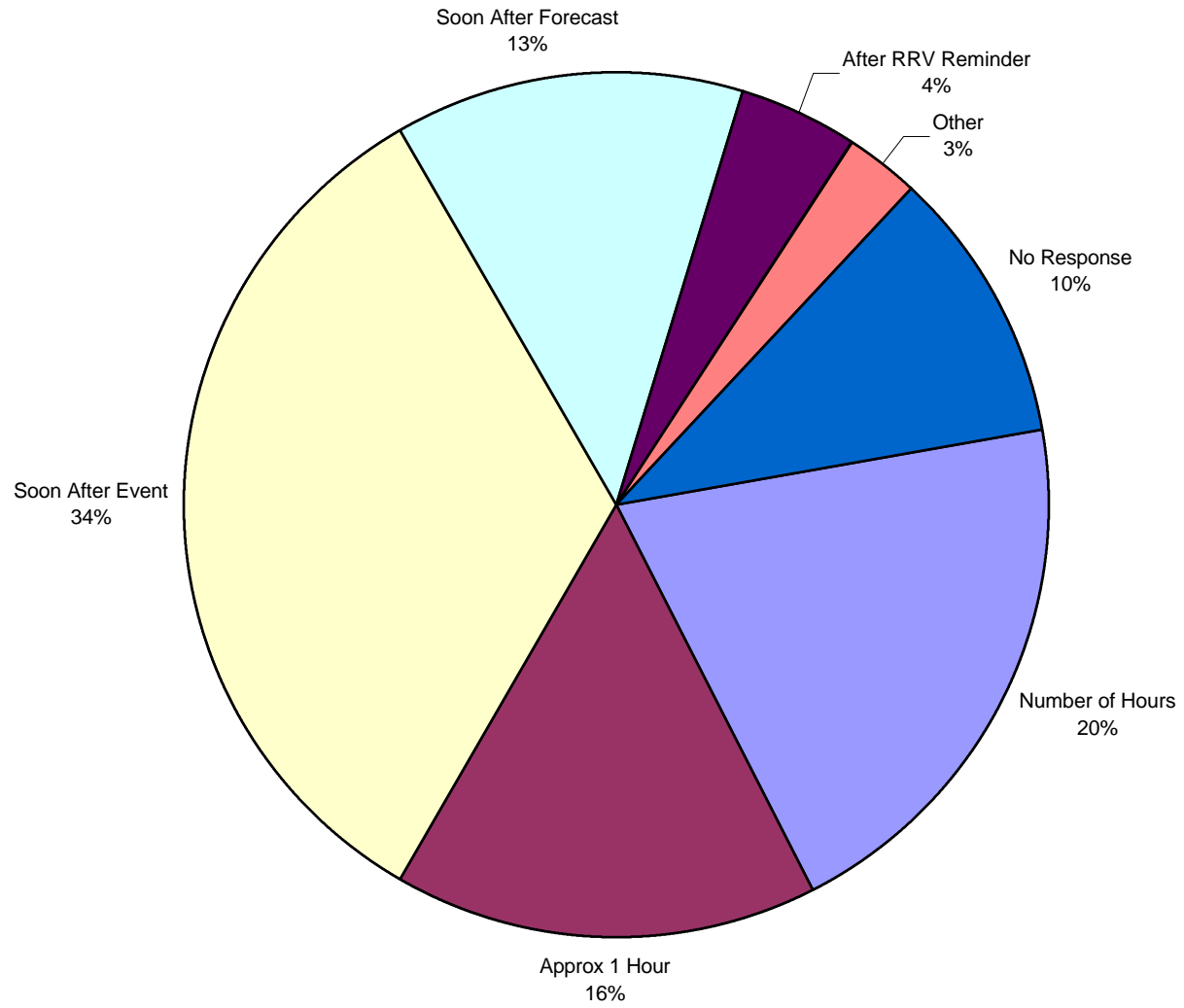
Q47 - Who made the Decision to Retire



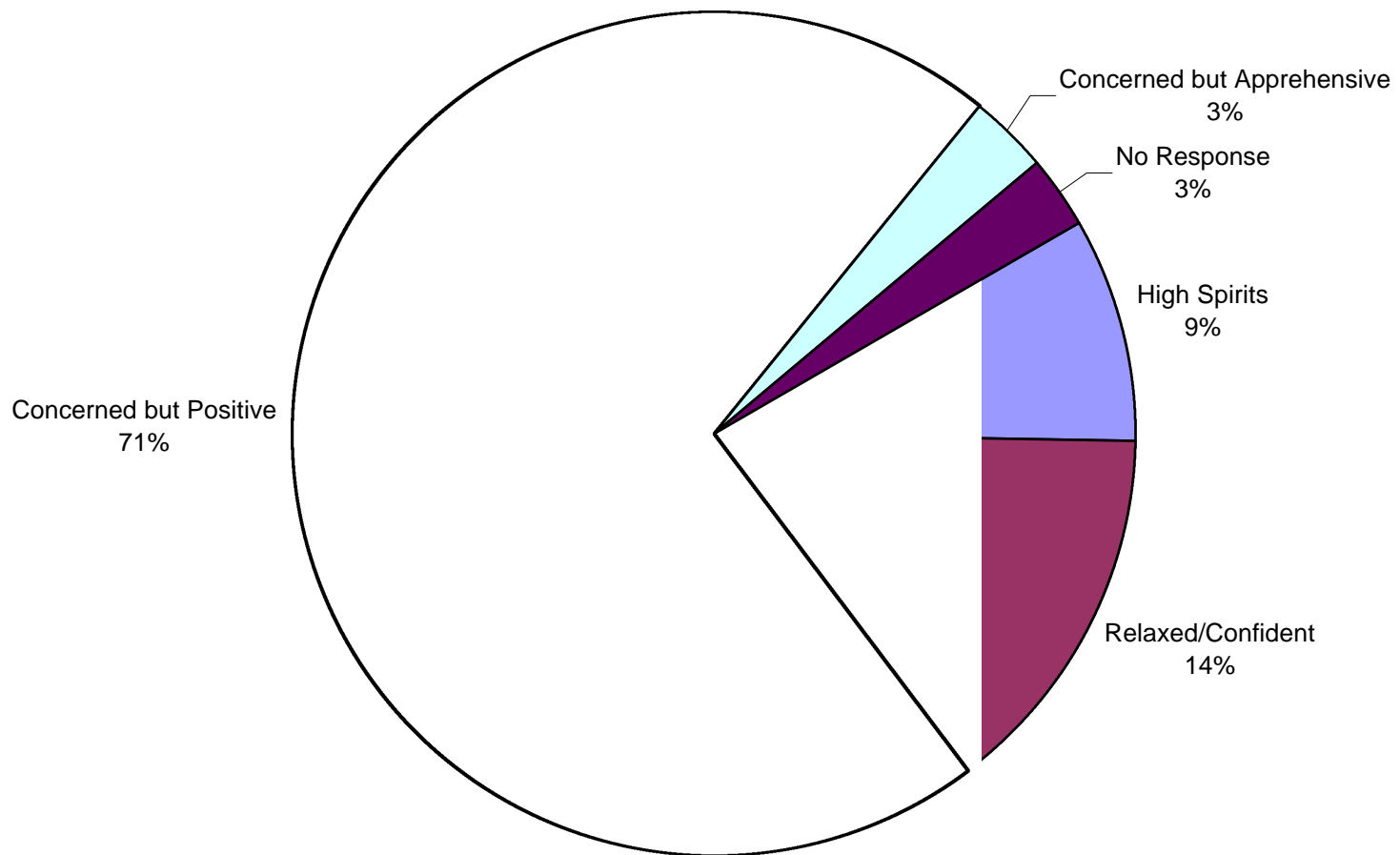
Q48B - Event That Triggered Decision to Retire



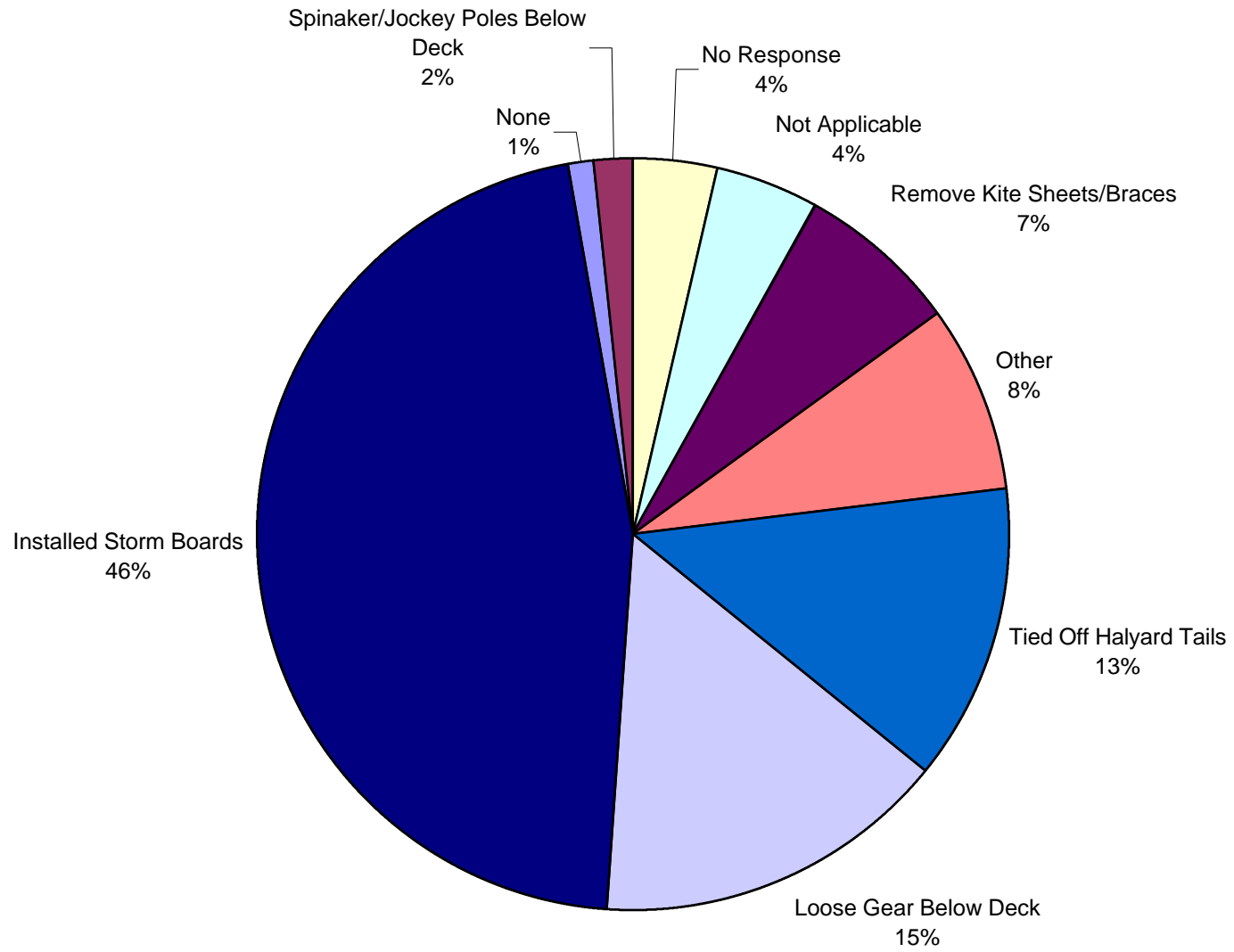
Q49 - Time Taken to Make Decision to Retire



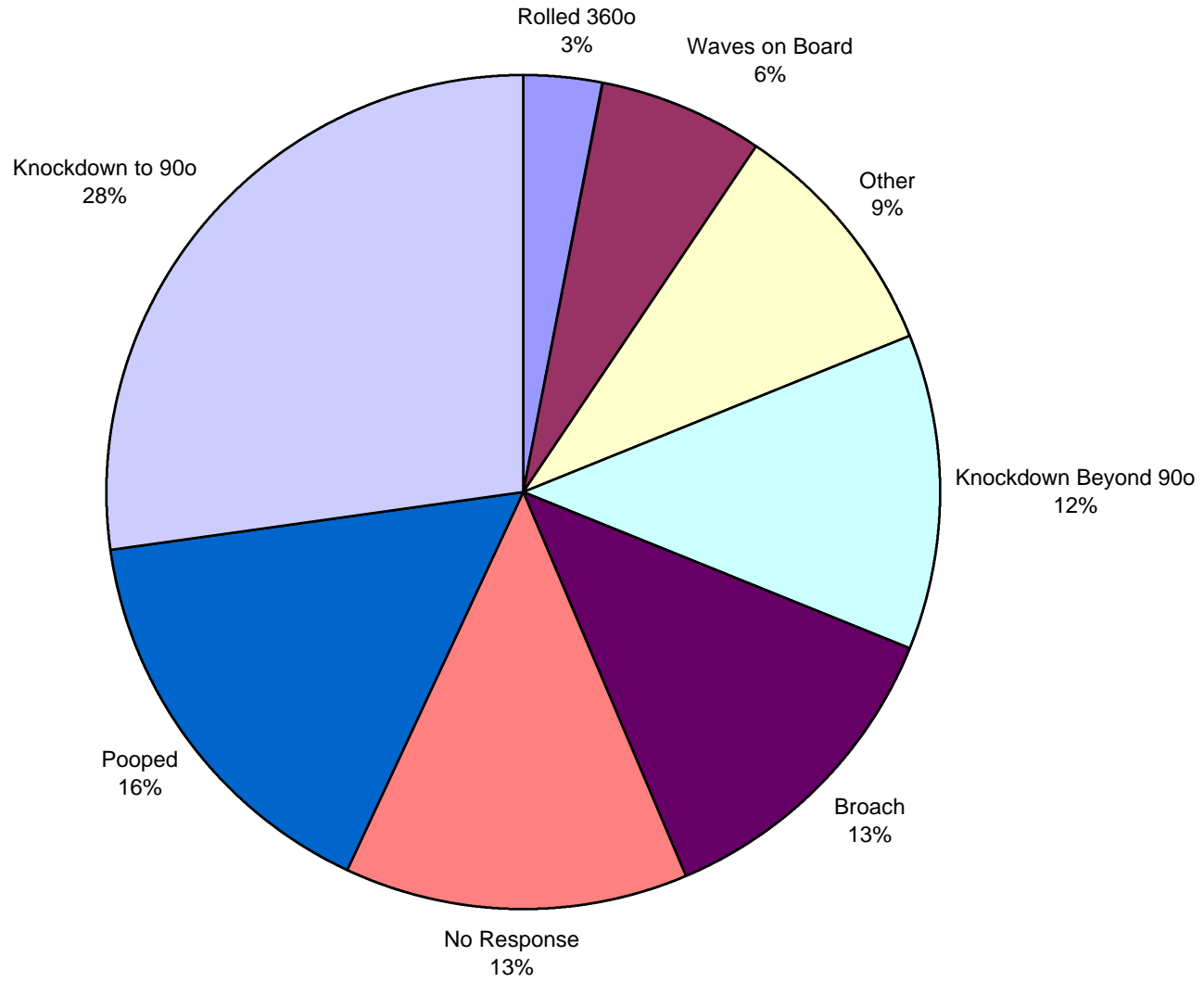
Q51 - Crew Morale Prior to Retiring



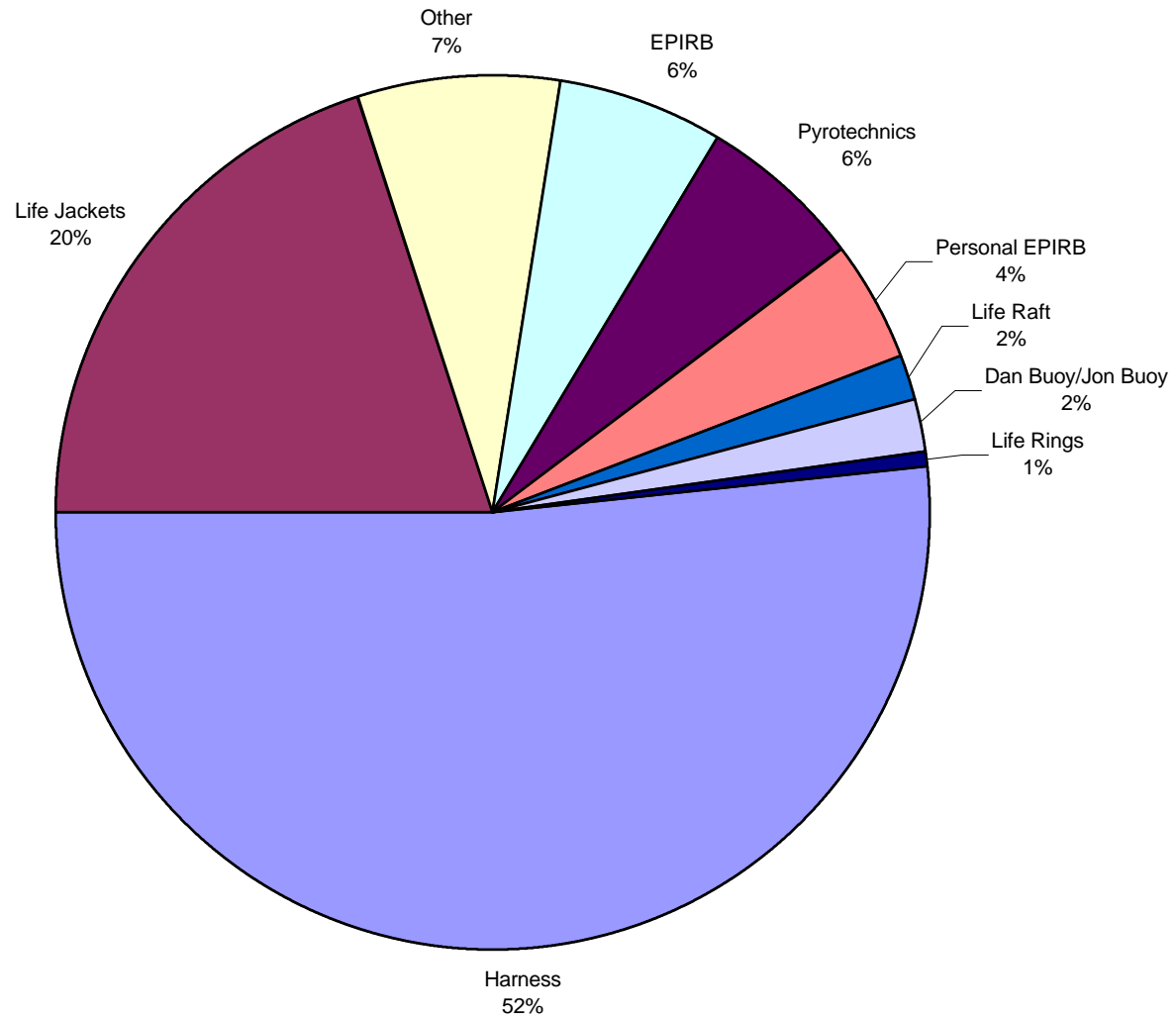
Q68 - Other Actions Taken to Prepare Yacht for Storm



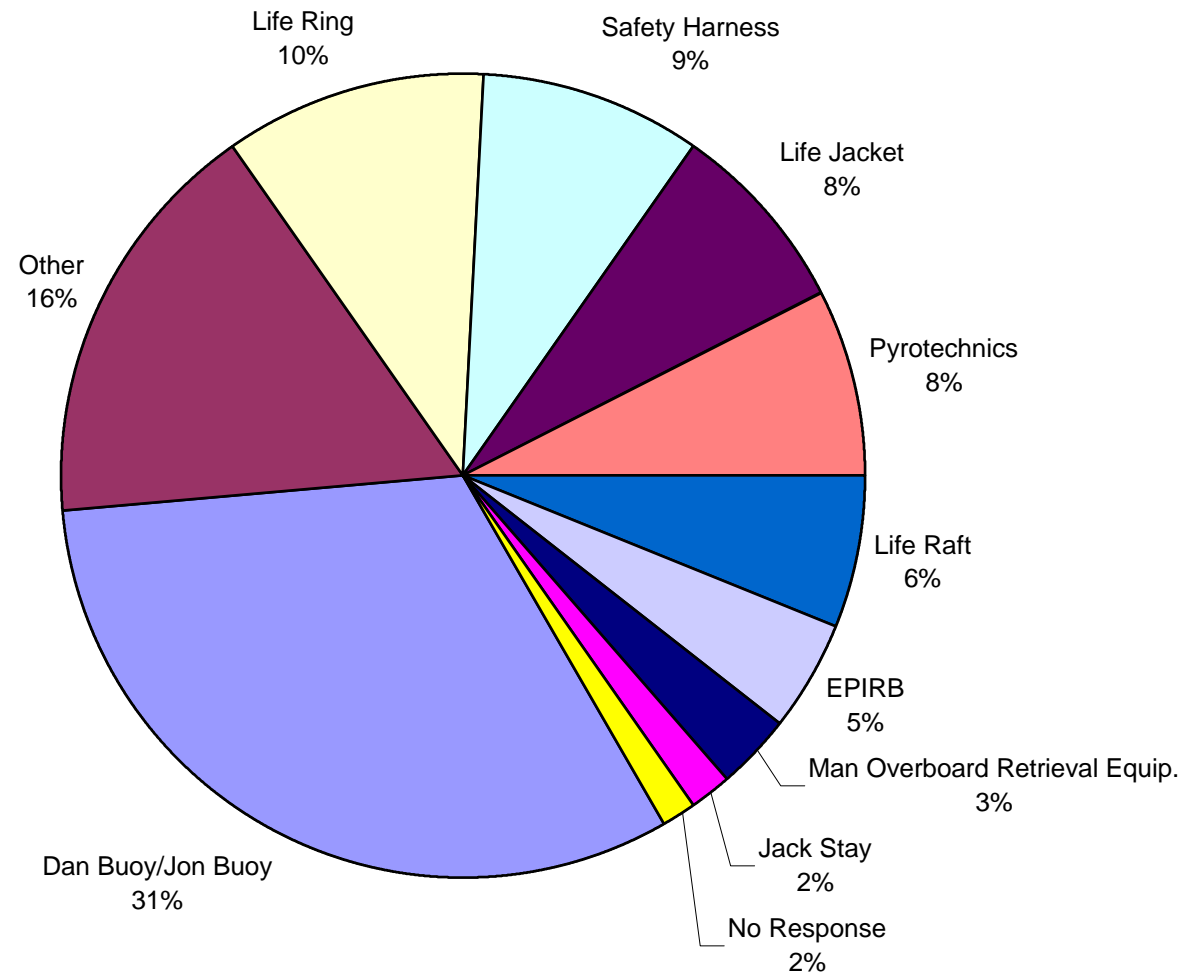
Q69 - Most Severe Outcome of Wind and Wave



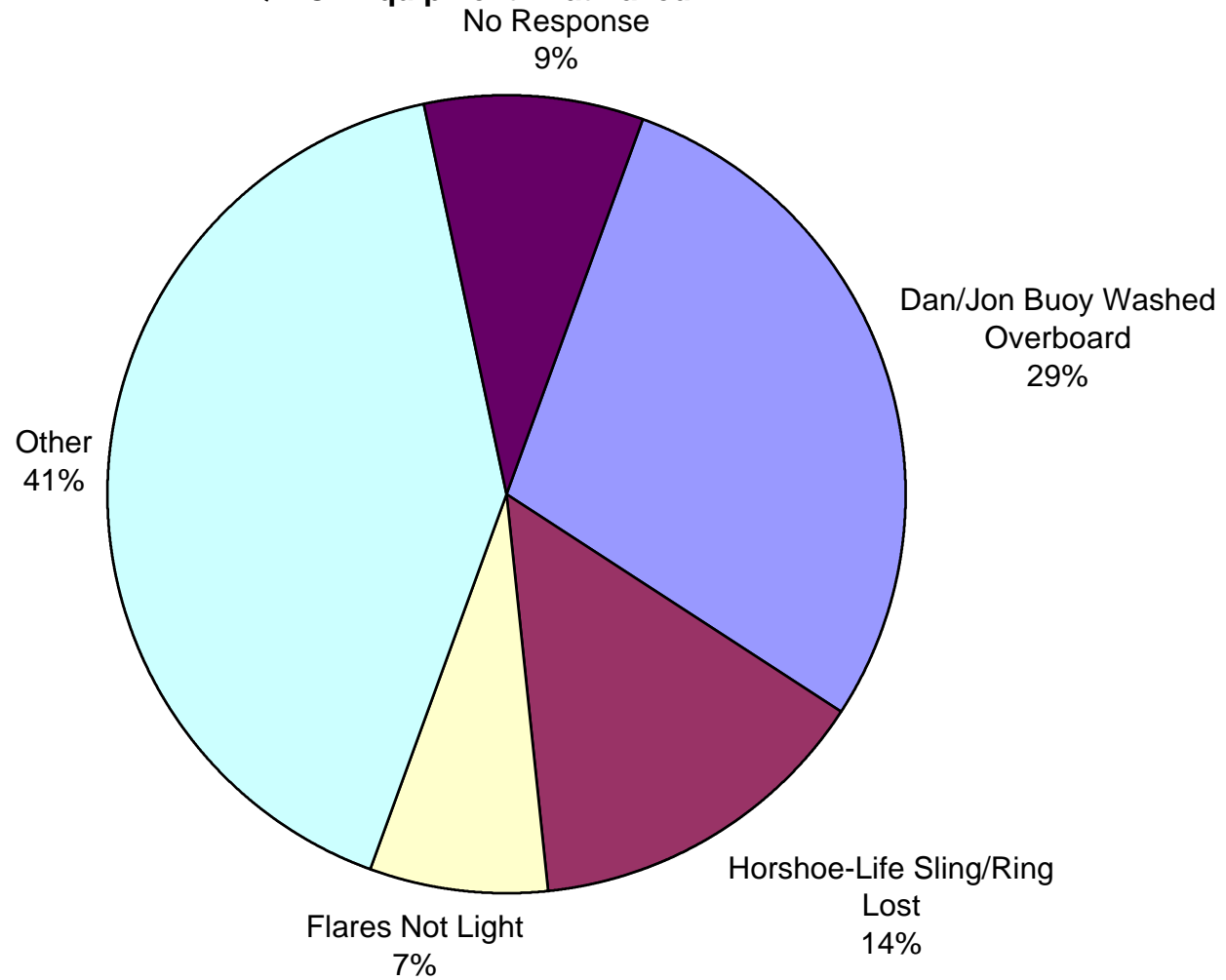
Q71B - Safety Equipment Deployed



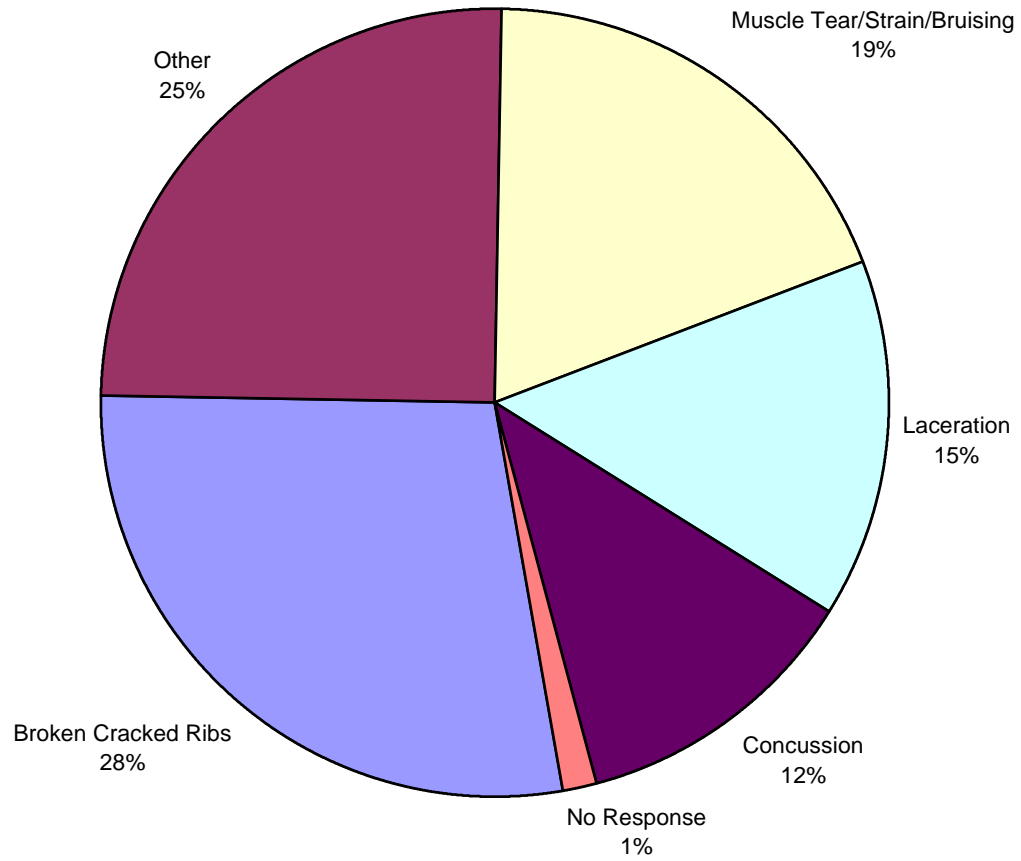
Q72B - Equipment That Failed



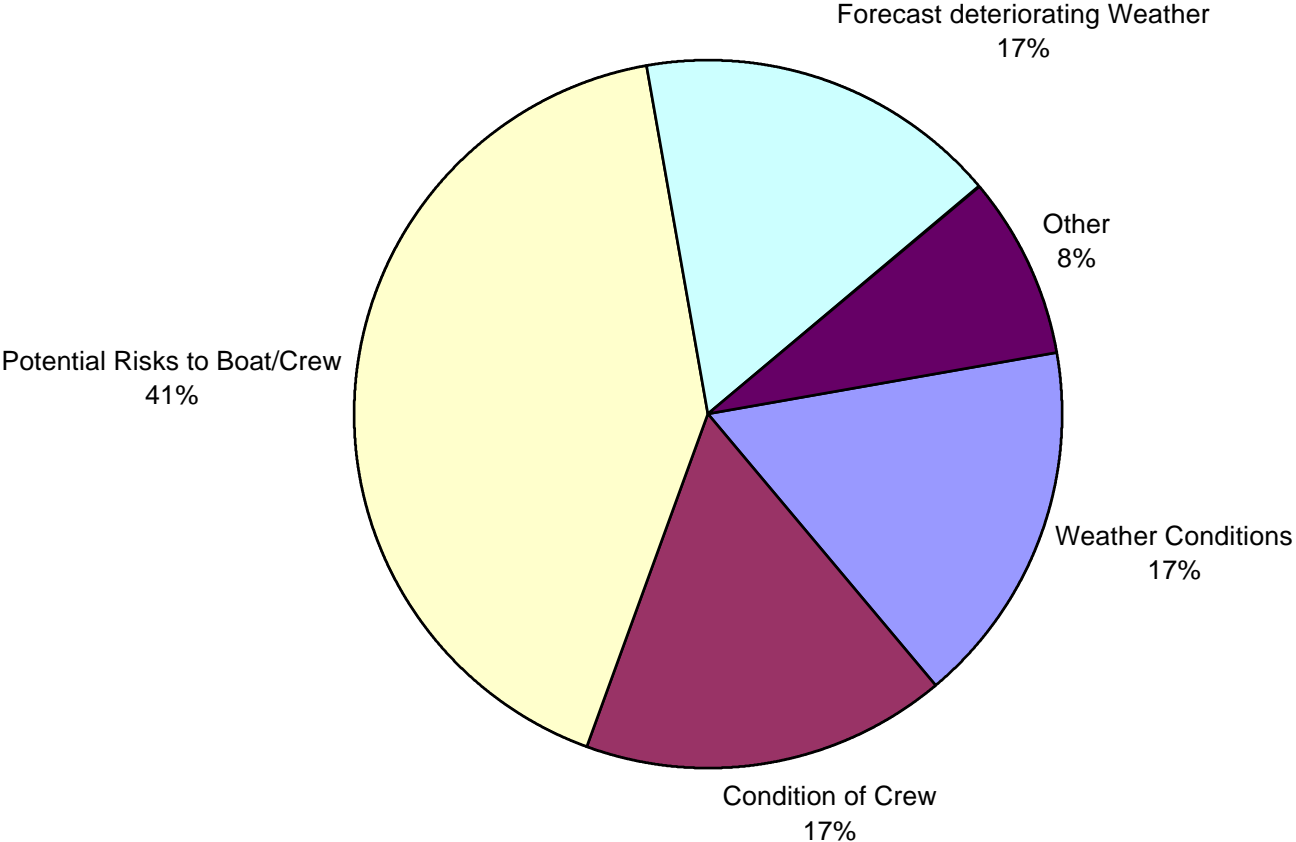
Q72C - Equipment That Failed



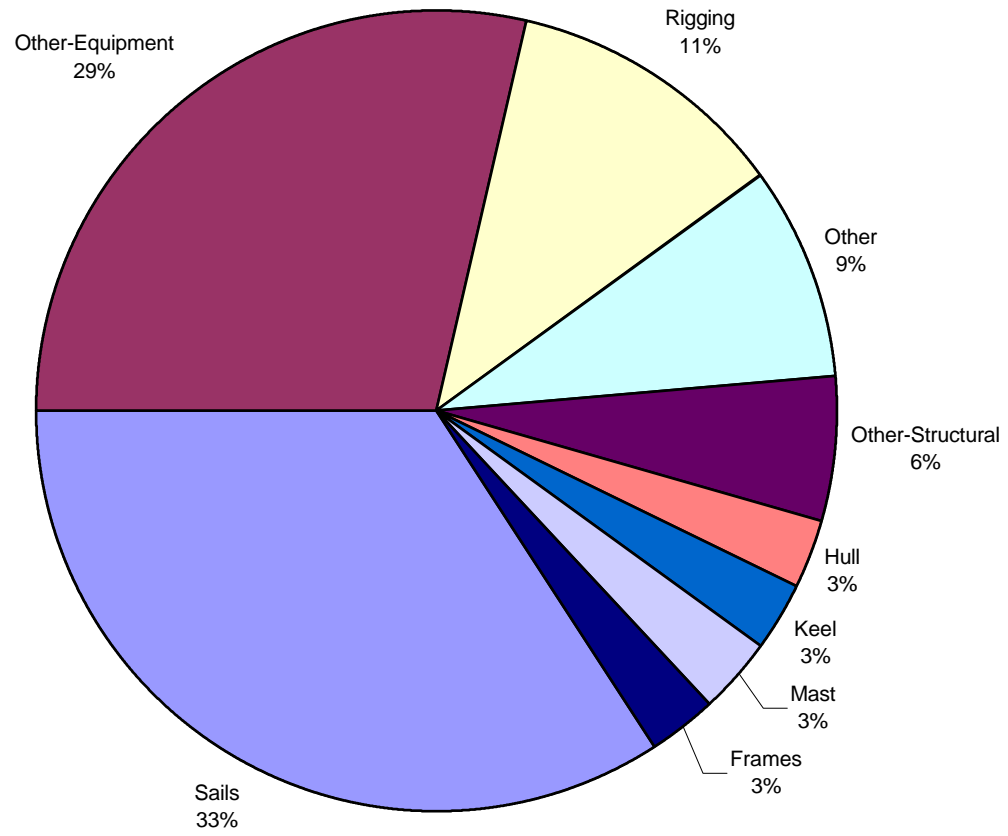
Q82 - Injuries Sustained



Q85B - Why Did You Consider Retiring?



Q86B - Damage Sustained - Yachts That Finished



Q99 - Extent of Damage

