ORCV

SAFETY & SEA SURVIVAL

Full Course Theory Notes

Australian Sailing Accrediated Centre and Course

Blue Book specifies Absolute MINIMUM

www.sailingresources.org.au/safety/specialregs

Recreational boating compliance

Boating

- Australian State and Territory Law

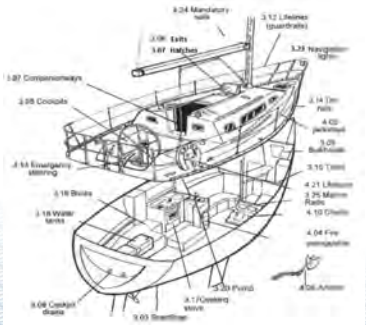
Sailing - mandatory for racing, recommended for cruising

- Word Sailing - Special Regulations
- **Australian Sailing - Special Regulations**
- Organising Authority - Special Regulations
- Organising Authority - Notice of Race & Sailing Instructions

AS Special Regulations
Part 1 – For Racing Boats, Rec For Cruising Boats

		Pages
1.	Fundamentals & Definitions	6-10
2.	Application & General Requirements	12-14
3.	Part 1 Structural Features, Stability	16-21
	Part 2 Fixed Equipment	22-43
4.	Portable Equipment and Supplies	46-69
5.	Personal Equipment	71-75
6.	Training	76
7.	Appendices Referenced in Special Regs	78-90
8.	Advisory Appendices	91-105
9.	Index	4-6

Specifies Absolute 'Minimum'



BB p3, RYA p11

Structural Features & Stability

Special Regulations
Section 3 Pt1 BB p16-21
Certificates/Declarations
Age dates 3.03.2
Naval Architect 3.03.2 (f)
Measurement/Inclination
Appendix B BB p80
Keel Inspection and Groundings

Equipment-Briefly

Toe Rails
Foghorn
Distress Sheet
Hand Holds
Batteries, Barometer
Companionway Hatch
Emergency Steering
Tools, etc. and Spare Parts
Storm & Heavy Weather Sails

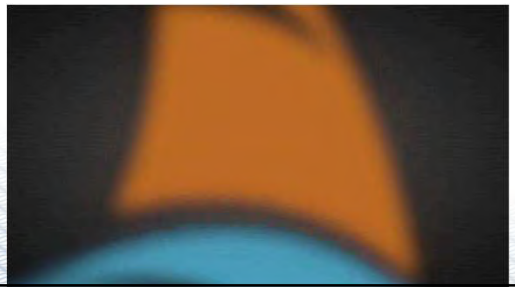
RYA p16

Other

Seacocks, Bungs & Plugs
Emergency/Reserve Navigation Lights
GPS-boat & hand-held spare
Boat Name on Equipment
-Personal PFD
Material Safety Data Sheets

Why?

GMDSS Video



Marine Radio

GMDSS & DSC (with DSC if new)
Fitted with frequencies/channels specified
Licensed Radio Operator(s)
Emergency antenna for VHF & mast supported HF aerial
Installed VHF to be >25w, requires a Masthead Antenna
Waterproof Hand Held VHF >5w
Brief crew on operation
Records/Log
Silence periods (not mandatory but advisable)
Sat Phones, Sat Com C

BB p40-43, RYA p65-69

Marine Radio

Vessel radio Call Sign & Emergency Stickers Different types of calls:

- Mayday/ Pan Pan / Securite Listening watch, Silence Periods
- Warning signals for Distress and Navigation Signals
- Medical assistance available

RYA p78

Marine Radio

Mayday **VOICE** Distress Call Sticker with script

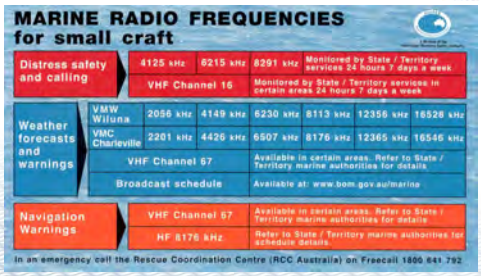
© Ocean Racing Club of Victoria Inc

Marine Radio

Mayday **DSC** Distress Call

Sticker with script

Marine Radio



Marine Radio

Communications-ORCV Year Book

Distress & Safety monitoring:

- Marine Radio Victoria (monitors VHF 16,67,70)

Weather broadcasting

- BOM to Eastern Aus from Charleville VMC on HF & VHF
- Also Marine Radio Victoria

Navigation warnings

- AMSA – only on Inmarsat
- Coast Radio Stations on HF & VHF

Position reporting

- Coast Guard and VMR stations, Smithton Sea Rescue VKT750

Other communications

- VHF & 27Mhz by local coastal patrols
- Ship-to-Ship on HF & VHF

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Jackstays, Clipping Points & Static Safety Lines

Jackstays

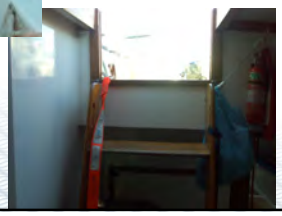
- Types

Clipping Points

- 2/3rds crew simultaneously clipped on without depending on jackstays

Static Safety Lines

BB p46



Fire Extinguishers

- readily accessible
- minimum ratings and capacities (10BE rating)
- serviced and tested (refer BB notes)
- different types

Other Equipment

- Fire blankets
- Buckets with lanyards
- Fixed systems

BB p47-48 RYA p164-165

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Medical Kit & Manual

Detailed minimum contents listed
Ship Captains Medical Guide 'OR'
Qualified Crew
Waterproof container & contents listed so as visible w/out opening
Crew Size & Race Requirements
Specific crew medications
Storage Temperature
Seasickness trials

BB p51-58 SR 4.07, RYA p172

Injected medications

Morphine & Antidote

Consider Alternatives

Individual Crew Medications

- Insulin
- EpiPens - Allergies
- Heart & BP

BB p52

Radio Medical - IMT

Warnings

Prescription and all drugs
Severe Pain
Eye Injuries
Burns
Cardiac Emergency
Documentation in log

BB p53

Remote Medical

- Call 000 on mobile or sat phone
- Use HF/VHF emergency frequencies
- Contact ORCV Race Management by phone/radio
- Call AMSA 1800 641 792/+61 2 6230 6811

Automatic Identification System (AIS)

What is AIS? (compulsory Cat 1, Cat 2 after 1st July 2021)

Automatic tracking system used on ships and by Vessel Traffic Services (VTS) for identifying & locating vessels by electronically exchanging data with other nearby ships and AIS Base stations on dedicated VHF radio channels.

Class A and B

Vessels continually transmit their ID, position, course, speed and other data.

BB p58 SR4.09

AIS

AIS - Overview

Unlike radar and other aids to navigation, the AIS systems do not need to have visual line-of-sight to share this information.

Benefits of AIS

Collision avoidance

Aid to Navigation

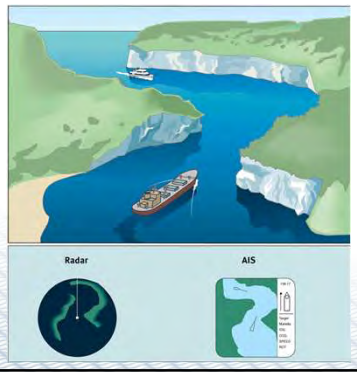
Identify other vessels

MOB SART

RYA p74, 133

AIS - Features

- Networked AIS displays vessel positions across the world
- AIS AtoN - transmitting position and status of buoys and lights, which can then show up on an electronic chart, display or radar
- Synthetic AIS. Transmitter is located near – but **not on** the object of interest – such as submerged rock
- AIS SART. Search and Rescue Transmitters help locate life-rafts
- AIS MOB with GPS. Personal AIS transponders
- AIS satellites to give extended reception of the VHF signal - even when out at sea



AIS - Collision avoidance

Vessels can be seen "around corners" – with ID, course and speed

Some systems offer automatic warning if vessels are on a collision course

Emergency Steering

Emergency tiller

- Tested
- Quickly fitted

Other Methods

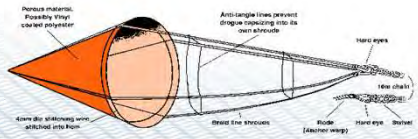
- Auto-pilot
- 'Bacardi' Solution

Spares- eg Cables

BB p59 SR4.14 RYA p10 & 147

Drogues, Sea Anchor

Recommended
BB p68, 4.25



RYA p145

Boat - Emergency Position Indicating Radio Beacon (EPIRB)

406 MHz EPIRB with GPS for Cat 1,2 & 3

Registered in boat's name

Registered with a national registration Authority

Australia- www.beacons.amsa.gov.au

Qty not less than number of Liferafts

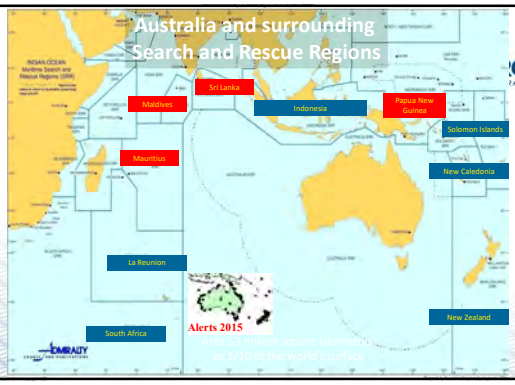
Storage

Within battery life

Regularly tested

BB p61, RYA p70-71

COSPAS-SARSAT System Overview



Liferafts

Capable of carrying entire crew

Compliance –several types. BB p61 -Pack & service requirements
BB p63 NOR & Grab-bag

Recovery Time

Certificate - valid annual certificate

Canopy

Extra items - specific medications, glasses etc

Insulated floor & canopy optional

BB p61 & Appendix A p78, RYA p49-64

Liferafts

Contemplating a Raft purchase?

Appendix A in ref section Notes Pt B

Certificate of compliance

Consider weight, stowage conditions & servicing.

BB pps 62,63 & Appendix A p78

Precautions BB p63 4.19.4

RYA p49-64

Grab Bag

Recommended for Cat 1 & 2 , Compulsory by NOR?

Should be accessible, appropriately packed, labelled and water proofed

Easy to open by wet fingers w/out tools

Equipment in Grab Bag may include that required under Special Regs and NOR (including Raft?)

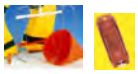
Contents

Extra Items

BB p64, RYA pages 62-64

Lifebuoys

Lifebuoy with a drogue, self-igniting light



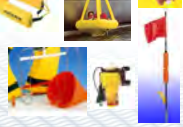
OR

Lifesling, Seattle sling or MOB Module, (without a drogue) self-igniting light

AND

Lifebuoy with a drogue, self-igniting light

– with whistle attached and with pole and flag attached



BB p65

Pyrotechnics (Flares)

Different types

Standards

Consider use

Storage & Expiry

More in Crew Preparation & practical exercise

BB p66 SR4.22, RYA p78-83

Pyrotechnics (Flares) EXERCISE

Using the handout labelled 'Exercises & Revision'

How many hand flares are required for Cat 3?

How many rockets are required for Cat 1 ?

Pyrotechnics (Flares) EXERCISE - Answers

SECTION 4 - PORTABLE EQUIPMENT AND SUPPLIES

Red parachute flares	Red hand flares	White hand flares *	Orange smoke	RACE CATEGORY
6	4	2	4	1
4	4	2	4	2 3
	2	2	2	4
	2		2	5

* Specifications (except colour and candela rating) should comply with LSA Code Chapter III 3.2

Other Items

Retro-Reflective Tape
Retrieval of Crew from the Water
Flashlights
Heaving Line
Knives

Location Diagram - Exercise

Using the handout labelled
'Exercises & Revision'

Draw a chart of the boat you sail on

Where are the main safety items?

What else would crew need to find?

Lifejackets
Personal Flotation Devices

- Different types
- Check Comply with Australian Std & Local Law
- Attachments
- Combined PFD1 & Safety Harness
- 1 PFD for each crew, compatible with Harness
- Spare Jacket, gas, activation head
- Serviced as per manufacturer's recommendations

BB p71, RYA p34-48

Lifejackets
Personal Flotation Devices

Must comply with Australian or more stringent overseas Standard

150N or 275N

Australian

- AS4758-2008 (min Level 150) or
- AS1512-1996 Type 1 (not < 150N)

Overseas

- ISO 12402-3 (Level 150) or

Suspend unconscious person face upwards

Replaced EN396

- ISO 12402-2 (Level 275)

Replaced EN399

Type and Markings	Suggested Uses
275 EN 399 - 275N	For offshore use in extreme conditions when heavy protective clothing is being worn or when extra loads are being carried. Turns unconscious wearers face up in water under almost all circumstances. May be suitable for use in situations where there may be a delay in rescue.
150 EN 396 - 150N	For swimmers and non-swimmers of any age. For offshore use. Turns most unconscious wearers face up in water (depending on the clothing worn). These may be suitable for use in tidal waters or when foul weather clothing is being worn and where the wearers may not be capable of helping themselves due to injury or exhaustion.
100 EN 395 - 100N	For swimmers of any age. For use in relatively sheltered waters, will not turn unconscious wearers face up in water (depending on the clothing worn). May be suitable in instances where the wearers remain capable of helping themselves.
50 EN 393 - 50N	Only for good swimmers and for use in sheltered waters where help is close at hand. Will not hold the face of an unconscious wearer clear of the water. For adults only (>40kg). May be suitable in circumstances where more bulky or buoyant devices could impair the user's activity or actually endanger them. Not a lifejacket.

RYA p34-48

PFDs - What features are important ?

Spinlock Deckvest VITO

Spinlock Deckvest 6D

TeamO BackTow

Ability to turn you upright **AND NEW BACK TOW**

Activation - Auto hammer hydrostatic or manual

Spray hood if in cold or rough water

Tether cutter or **NEW HARNESS RELEASE SYSTEM**

Light – water activated

Buoyancy rating 150N, 170N, 275N

Bladder integral or well attached

Thigh straps or crotch strap

Ability to view whether activated or not

Soft loop or metal tether attachment

Other attachments

Whistle

RYA p34-48

Exercise

How often should you check your PFD inflation ?

Safety Harnesses & Safety Lines

1 for each crew & PFD compatible.

Tether not more than 2m long with snap hook @ each end

Fitted before race

Standards AS2227 or ISO 12401 (replaced EN1095 in 1998)

Crotch strap or thigh straps should be fitted

2nd tether for at least 30% of crew

- not more than 1m or
- 2m tether with factory fitted mid point snap hook

BB p73 , RYA p151-153 & 99

Personal Lights/Strobes

For Cat 1, 2 & 3 - Personal location light carried by or attached to each crew member while on deck at night

Torch per crew member

- Regularly test

BB p74

Personal Locator Beacons (PLB)

Cat 1 & 2 - each crew member while on deck

406 GPS Type registered to self

- Crew to be trained in use
- Battery life, features, accuracy

Some do NOT float - attach to PFD or Jacket

Direction Finder

Submersible?

CHECK! B4 purchase

BB P 76, RYA p72

Heavy weather preparations before leaving port

Imagine the boat upside down.

What will happen to:

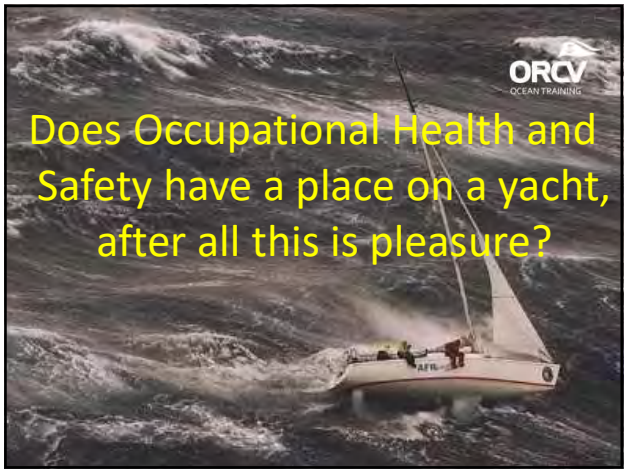
- Anchors?
- Chain?
- Tool box?
- Chart table?
- Cutlery?
- Tinned goods?
- Water Bottles?
- Other heavy objects?

Care and maintenance

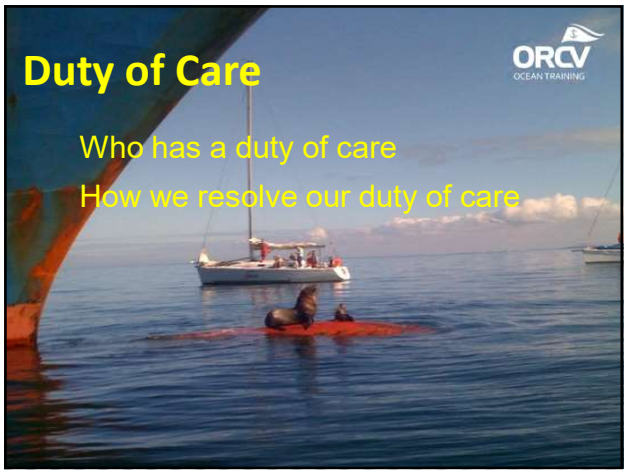
- Is all equipment ready?
- Lifebuoy lights working
- Navigation and emergency nav lights working?
- Radios
- PFDs – periodic
- Fire Extinguishers maintained & up to pressure
- Flares in date
- Replace any Spare equipment used

RYA p18

Crew Preparation
ORCV
OCEAN TRAINING


ORCV
OCEAN TRAINING
Does Occupational Health and Safety have a place on a yacht, after all this is pleasure?

Coroners Court of Victoria
ORCV
OCEAN TRAINING



A five point approach

- Develop a safety policy
- The process must involve the whole crew
- Risk assessment
- Training program
- Promote, maintain and improve strategies

RYA p6-8

Safety Policy

- Your safety policy is a statement of principle that your boat upholds
- Show commitment
- Encourages and ensures accountability
- Co-operation

Safety Briefing

1. **Safety Policy**

Our aim is to take all steps to control risks against injury

RYA Pages 5..9

How to involve the crew

Nominate Crew for

- Weather and tide/currents
- Safety equipment
- Blue book
- Safety drills
- The course

Four Rules of Risk Management

Integrate risk management into planning

Accept no unnecessary risks

Make risk decisions at a proper level

Accept risks if benefits outweigh costs

Definitions

Hazard

A source or situation with the potential to cause harm or loss

Risk

Risk is the potential

Issue

A realised risk-it has happened

Risk analysis

The systematic use of available information to determine the likelihood and consequence of an event

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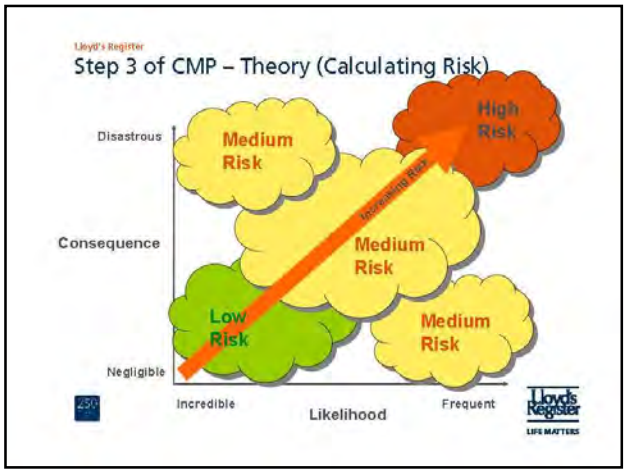
Options for Risk Management

One or more of:

- Reduce the likelihood e.g.: engineering, substitution, avoidance, elimination
- Reduce the impact e.g.: training
- Transfer e.g.: insurance

Do Something!



SOP Port Philip Heads

Red Zone Navigation dangers I steer 1 navigating 1 observer

Life Jacket on Why?

Storm boards in

Suitable sails

Wind conditions https://www.vicports.vic.gov.au/community-and-bay-users/Pages/Waves-wind-weather.aspx

Wave conditions https://www.vicports.vic.gov.au/community-and-bay-users/Pages/Waves-wind-weather.aspx

Tidal Streams http://www.bom.gov.au/australia/tides/#!/vic-the-rip

Traffic https://www.vicports.vic.gov.au/operations/Pages/ship-movements.aspx

Risk assessment summary

Item or event considered	What is the trigger event possible?	How would you? Reduce likelihood	How would you? Reduce the impact?
Jammers	Crew injury	Always use a winch	Eliminated

Safety Briefing

1. **Safety Policy**

   Our aim is to take all steps to control risks against injury

2. **Dangers**

Training programs

- MOB
- Boat handling
- Spinnaker control
- Life Raft Drill
- Emergency steering
- Storm sails
- Fire
- Abandon ship-RYA 92..119

Yacht Briefing

1. **Safety Policy**

Our aim is to take all steps to control risks against injury

2. **Dangers**

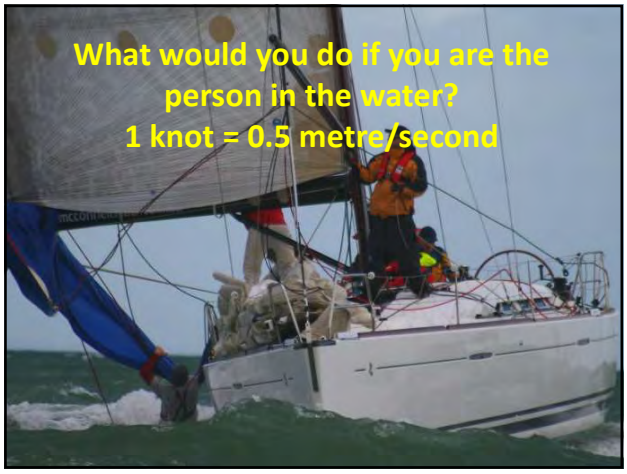
Jammers, winches, Triangles of death, your location on the boat, halyards, boom, hygiene

3. Training programs

Personal AIS MOB Device

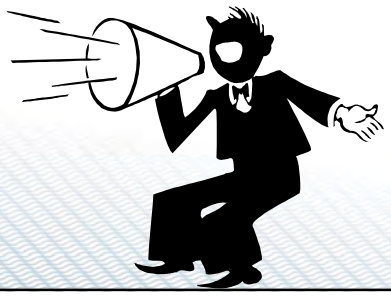
Man Overboard Training

RYA 154

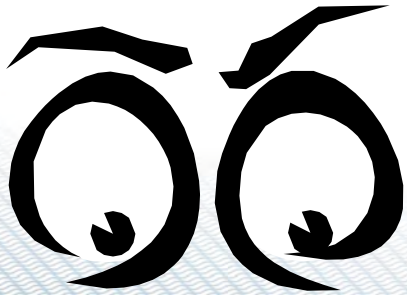


Man Over Board

All Hands!



Appoint a look- out



Flotation

GPS
Pan Pan

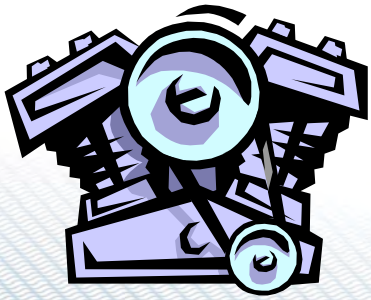
Radio call once the vessel is secure

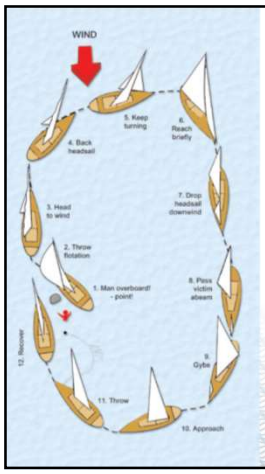
Head to wind

Secure the vessel

Start the engine

Check for ropes before put into gear

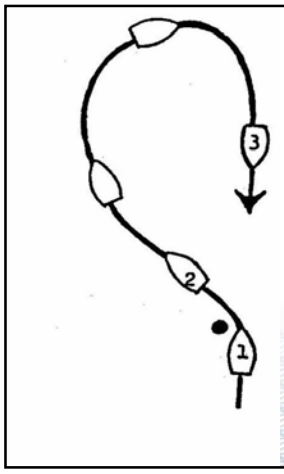




Quick Stop method

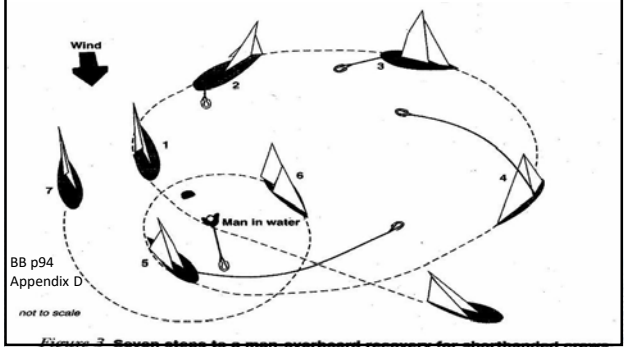
recommended in the Blue book

RYA p157 BB p91 Appendix D



Williamson's Turn

Recovery Strategy: Short handed crews



BB p94
Appendix D

Retrieval from water – how?

RYA p159, BBp 95-97 Appendix D

MOB

1. Man overboard-all hands
2. Flotation
3. Appoint a lookout, GPS
4. Head to wind
5. Secure the boat
6. Commence recovery Radio call

Training:

Fire

RYA p163

Fire Extinguisher colour coding

Dry powder

Red with white stripe

2 required x 10B(E) or equivalent
- see BB p48

Carbon Dioxide

Red with black stripe

RYA p164-5

Type of Fire, Class and Suitability

Pre 1997	Current	Extinguishing Agent		A Wood Paper Plastic	B Flammable & Combustible Liquids	C Flammable Gases	E Electrically Energised Equipment	F Cooking Oils and Fats	Comments	D Metal Fires
		Water		✓	✗	✗	✗	✗	Dangerous if used on flammable liquid, energised electrical equipment and cooking oil/fat fires	Use only special purpose extinguishers and seek expert advice.
		Wet Chemical		✓	✗	✗	✗	✓	Dangerous if used on energised electrical equipment	
		Foam*		✓	✓	✗	✗	LIMITED	Dangerous if used on energised electrical equipment	
		Powder	(ABE)	✓	✓	✓	✓	✗	Look carefully at the extinguisher to determine if it is a BE or ABE unit as the capability is different	
			(BE)	✗	✓	✓	✓	✓		
		Carbon Dioxide		LIMITED	LIMITED	✗	✓	✗	Not suitable for outdoor use or smouldering deep seated A Class Fires	
		Vaporising Liquid		✓	LIMITED	LIMITED	✓	✗	Check the characteristics of the specific extinguishing agent. 5 Yearly servicing must be done by ODS &SGG licensed persons.	
		Fire Blanket		LIMITED*	LIMITED	✗	✗	✓	* Fire Blankets may be used as a thermal barrier against radiated heat and to control a fire in clothes being worn by a person	

Using a portable fire extinguisher

Pull the pin or release any other type of locking device and test

Aim low pointing the nozzle at the base of the fire

Squeeze the handle to release the extinguishing agent

Sweep from side to side until the fire is extinguished

Fighting a Fire

Safety Briefing

1. **Safety Policy**

   Our aim is to take all steps to control risks against injury

2. **Dangers,**

   Jammers, winches, Triangles of death, you location on the boat, halyards, boom, hygiene

3. **Training programs**

   MOB
   1. Man overboard-all hands
   2. Flotation
   3. Appoint a lookout, gps
   4. Head to wind
   5. Secure the boat
   6. Commence recovery Radio call

4. **Abandon Ship**

Muster List

Crew Member	Muster Role
Main sheet hand	Aft Life raft
Navigator	Mayday
Runners	EPIRB/Hand held VHF
Grinders	Forward life raft
Pit Boss	Flares
Mast man	Grab bag

Safety Briefing

1. Safety Policy

Our aim is to take all steps to control risks against injury

2. Dangers,

Jammers, winches, Triangles of death, you location on the boat, halyards, boom, hygiene

3. Training programs

MOB

1. Man overboard-all hands
2. Flotation
3. Appoint a lookout, gps
4. Head to wind
5. Secure the boat
6. Commence recovery Radio call

4. Abandon Ship

5. Safety Equipment location & training

Safety Training

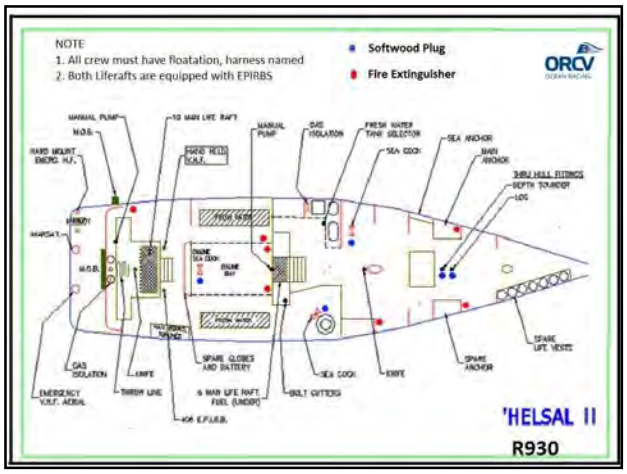
Does it fit

How does it work

Where is it

Does it work

Safety is everyone's responsibility



Additions to day safety - for passages

- Watches and muster list
- Weather and sea conditions
- Voyage plan
- Life raft drill
- M.O.B GPS training
- Safety harnesses No 3

Life Jacket Safety Harness

- Skipper choice/Boat policy
- Wind
- Wave Height
- Night time now compulsory

Change to the Special Regs

5.01.1(g) A Lifejacket shall be worn by each member of the crew when on deck between the hours of sunset and sunrise.

(h) It is strongly recommended that a Lifejacket be worn by each member of the crew at times such as , but not limited to:

(i) When on deck alone

(ii) When the true wind speed is 25 knots or above

(iii) When visibility is less than 1 nautical mile

BB p72

Melbourne Hobart crew positions

Crew	*Gybe*	*Watch*	*Watch*
Simon	Main	Captain	
Robin	Helm		Captain
Nifty	Sheets		Office/Nav
Noel	Mast	Office/Nav	
Peter	Bow	Bow	
Paul	Brace/Trim		Bow
Mary	Topper/Kicker	Runner	
Jane	Runner		Runner

Safety Briefing

1.Safety Policy

Our aim is to take all steps to control risks against injury

2. Dangers,

Jammers, winches, Triangles of death, you location on the boat, halyards, boom, hygiene

3. Training programs

MOB

1. Man overboard-all hands
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6. Commence recovery Radio call

4. Abandon Ship

Muster station

Muster List

5. Safety Equipment location and training

6. Additions for longer passages

RYA p6

A five point approach

- Develop a safety policy
- The process must involve the whole crew
- Risk assessment
- Training program
- Promote, maintain and improve strategies

Crew Clothing

Importance of staying warm while underway

Protect the head in particular to prevent heat loss

Retro-reflective tape valuable for night rescue

RYA p8, BB p74

Three layered System

Inner layer

Mid layer

Outer layer

RYA p8

Level 2 First aid

- 2 for Cat 1 events
- 1 for Cat 2
- Know radio medical procedures BB p 53
- Marine emergencies knowledge

BB p52, 4.07.6

Race crew requirements

- Experience
- Fitness
- Retaining fitness
- Training in safety and sailing
- Familiarity with use of safety equipment and location
- Personal medical condition

Responsibility - Person in charge

1. The Boat
2. Safety equipment
3. Navigation
4. Watch keeping
5. Voyage plan
6. Training
7. Safety culture
8. Emergency procedures

BB p7.1.02.1

How can a duty of care become part of sailing ?

Practice

Share the responsibility amongst the crew

Document your policy

Record all accidents, practices and training in your log book

Why?

Training

At least 50% of a crew including the skipper

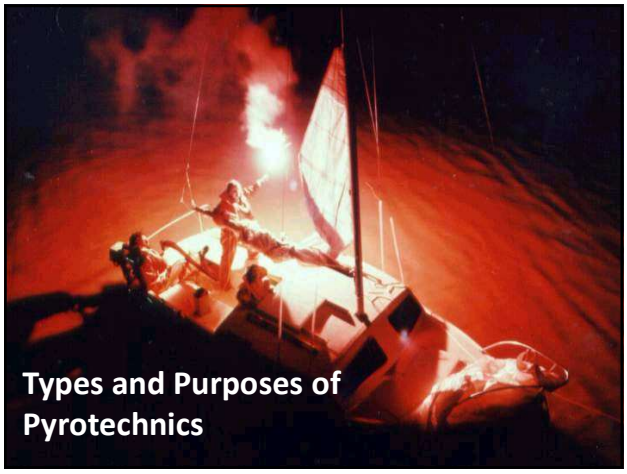
shall have undertaken training

within the five years before the start of the race

in both theoretical and practical sessions

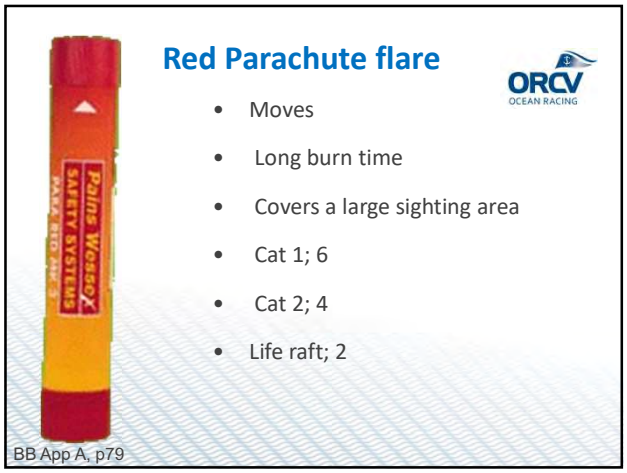
BB p76, SR 6.01

ORCV
Safety is a personal responsibility

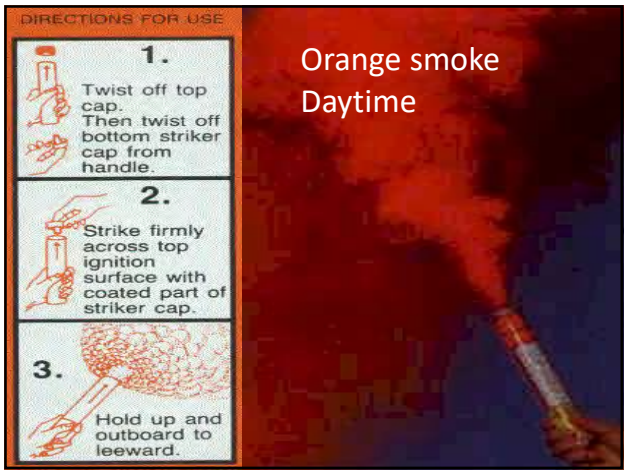

Types and Purposes of Pyrotechnics

ORCV
Distress
Daytime Distress
Collision Avoidance
Aircraft

Attract Attention
Signals


Red Parachute flare
ORCV
OCEAN RACING
Moves
Long burn time
Covers a large sighting area
Cat 1; 6
Cat 2; 4
Life raft; 2
Pains Wessex
SAFETY SYSTEMS
BB App A, p79

Pinpoint Position
Signals



White Flare

Designed for use as a collision warning signal

or for illuminating small areas

where an intense white light is required.

Burning time: minimum 60 seconds at 10,000 candela.

Hazards and dangers of use

Let go to leeward of yacht or raft

Beware of molten discharge from flare damaging raft

Hand and eye protection

Be careful of flammable clothing

Practical Training

Cautions

You must use gloves and Protective eyewear

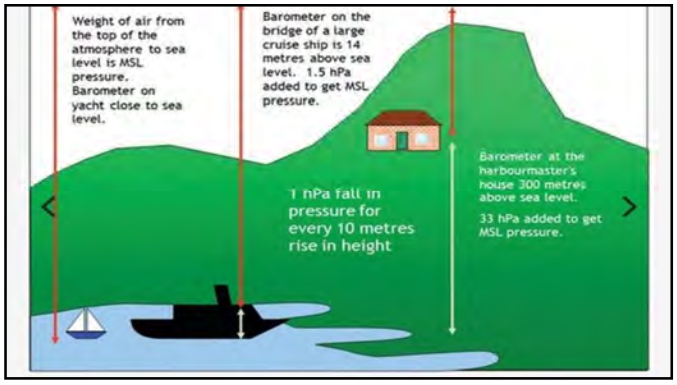
Hold flare downwind

Water bucket for hot

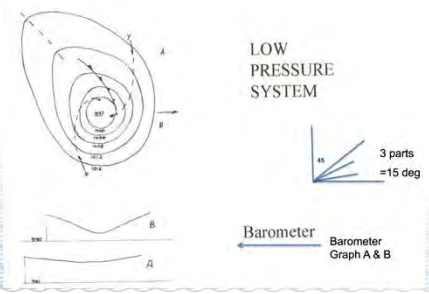
Remainders

Definitions

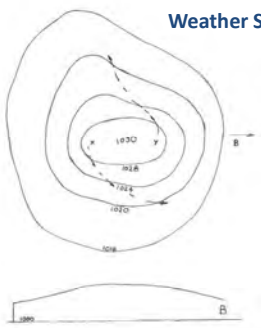
- Weather
- Climate
- Pressure(Temp/Pressure/Volume)
- Temperature
- Relative Humidity
- Wind
- Gusts
- Squalls
- Waves and Swell



Weather Systems – Lows – Buys-Ballot Law



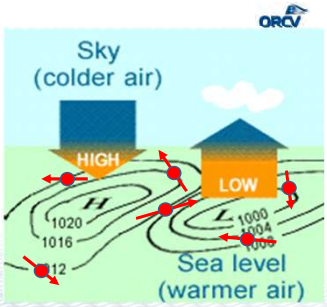
Weather Systems – Highs



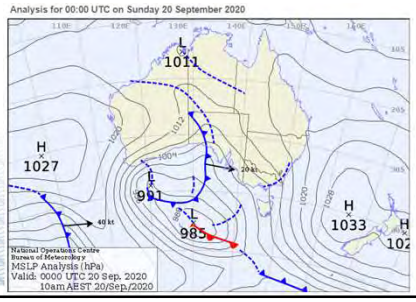
Highs and Lows

- High – High Pressure System. Descending, colder air (heavier), dome shape, outward air flow. Higher pressure at surface
- Low – Low Pressure System. Rising, warmer air (lighter), cone shape, inward air flow. Lower pressure at surface

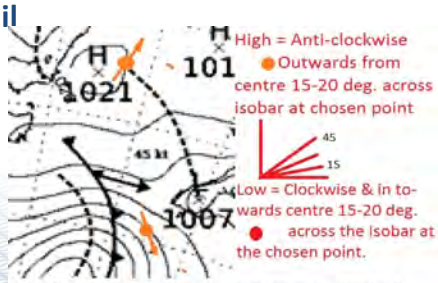
Write these down for later on….



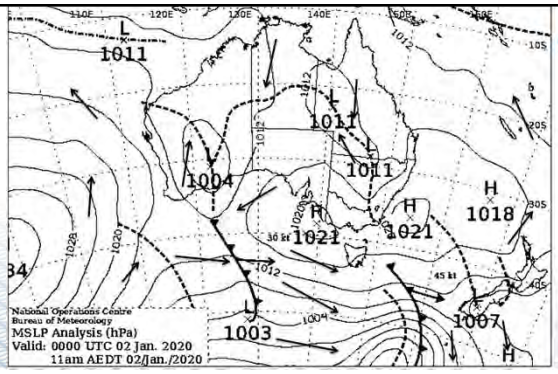
Map Features and Determine Wind Example



Wind Direction – How to Draw it Detail

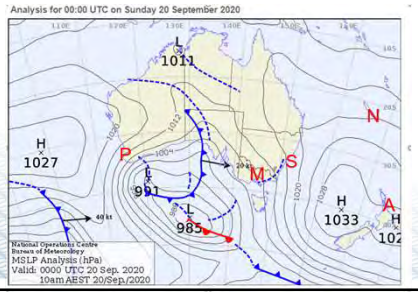


Look for the Isobar values. increasing or decreasing?

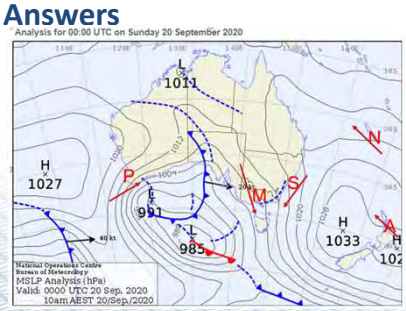


Poll

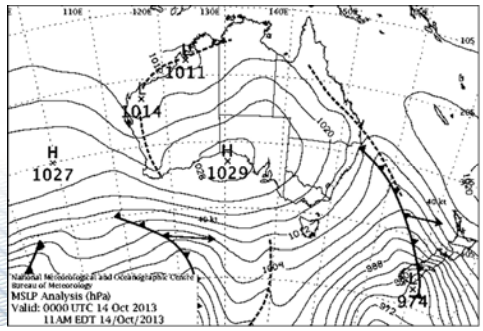
What is the wind direction at Auckland (A), Melbourne (M), Sydney (S), Perth (P), Noumea (N).



Answers



Auckland – SE
Melbourne –NW
Perth – SW
Sydney – NE
Noumea - SE

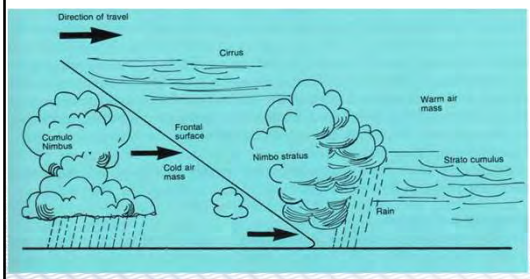


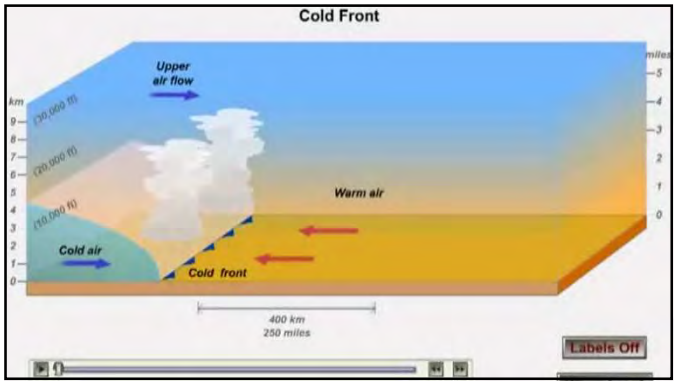
Cold Fronts on a weather map

Cold Fronts

- Cold Fronts – boundary between warm and cold air masses
- Wind shifts with squalls, gust fronts, lightning
- Cold air pushes ahead forming a wedge that undercuts the less dense warmer air.
- The warmer air is forced to rise ahead of the front.
- The rising air reaches condensation level to form cloud

Cold Fronts 2

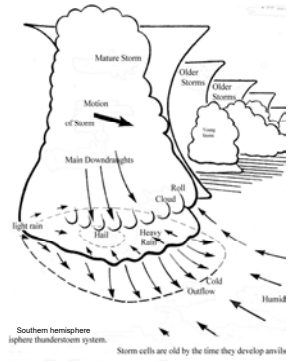


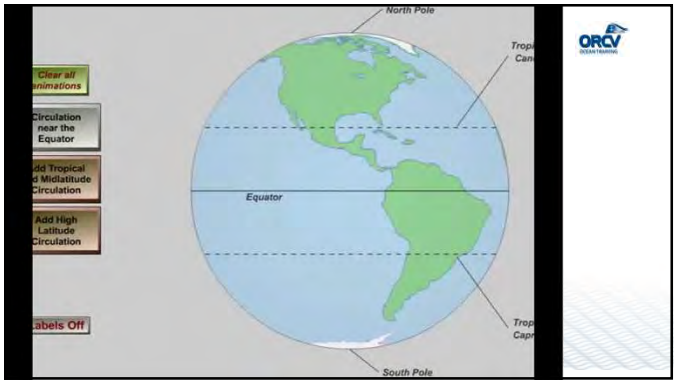


Thunderstorms

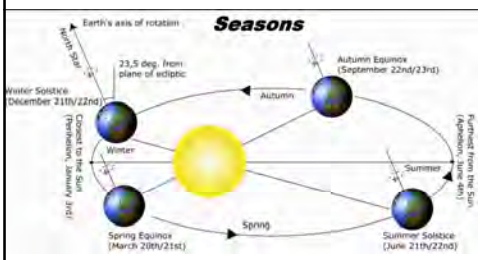
Lightning, squalls, hail, waterspouts

Shelf Clouds/Roll Clouds often they accompany the leading edge of a squall or gust front

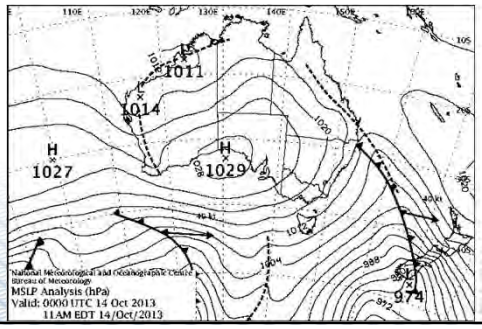




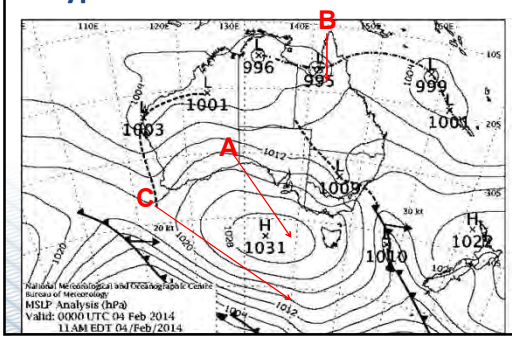
Global Weather



Typical Spring

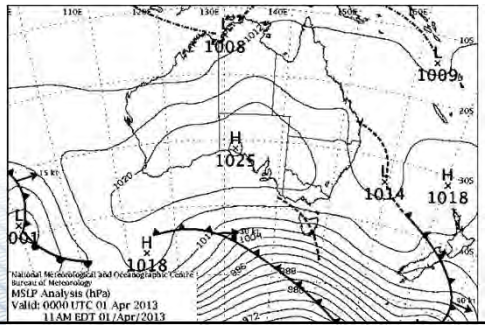


Typical Summer

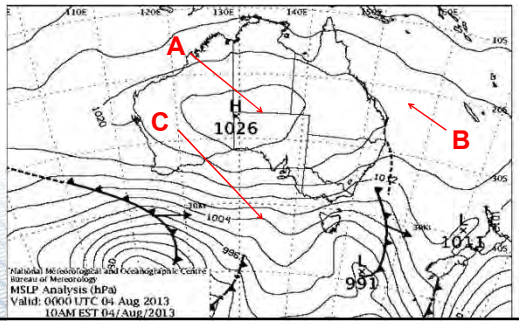


A-High
B-Low on the Monsoonal Trough
C-Westerlies

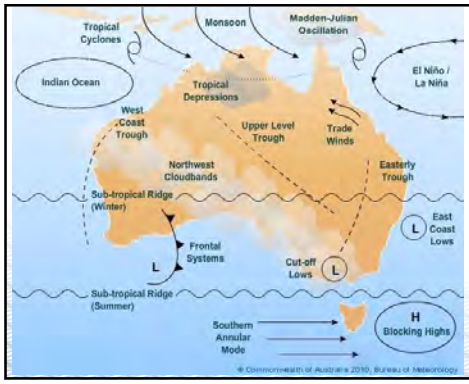
Typical Autumn



Typical Winter



A-High
B-SE Trades
C-Westerlies



Climate Factors

Sources of weather forecasts

- Radio, (Know the zones)
- HF, VHF, Broadcast
- TV, Newspapers
- (The Age-3 days maps)

- Internet www.bom.gov.au
- for weather, currents and tides

ORCV

Terms and warnings

Strong wind 26 – 33 knots
Gale warning 34 – 47 knots
Storm warning 48 – 63 knots
Hurricane warning 64 knots or more
Wind speed is the mean average taken over 10 minutes.
Gusts can be up to 40% stronger than forecast wind speed!

ORCV

Beaufort Scale

Internationally understood

Rya p20

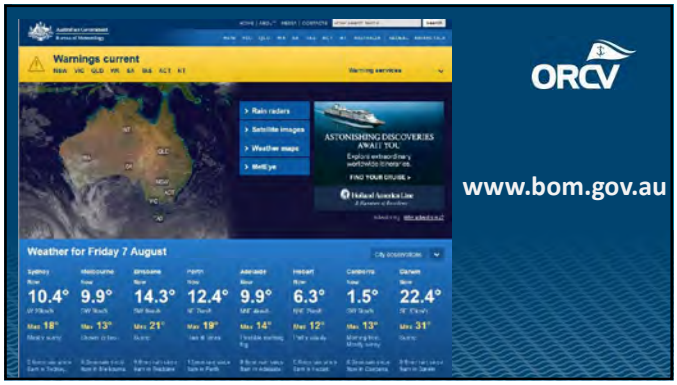
Note Beaufort storm force is different to BOM Storm warning 48-63 kts

ORCV

Weather Forecasting

Analysis, Prognosis

- Models – Fluid Dynamics – Supercomputers
- BoM ACCESS Model (Based on UK Met model)
- ACCESS-G global, 10 day, 6 hr steps, 25 km resolution
- ACCESS-R Regional, 3 day, 3 hr, 12 km resolution
- ACCESS-C+ Capitals, Vic, Tas, 1.5 days, 1 hr, 4 km resolution
- Meteye
- Overseas Models (i.e. ECMWF, GFS, JMA, **PREDICT WIND, Windy**)
- New ones, SPIRE, UKMO and ICON we are yet to work out if any are worthwhile



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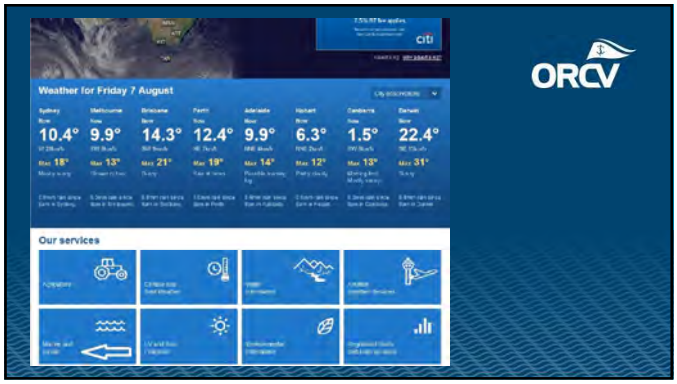

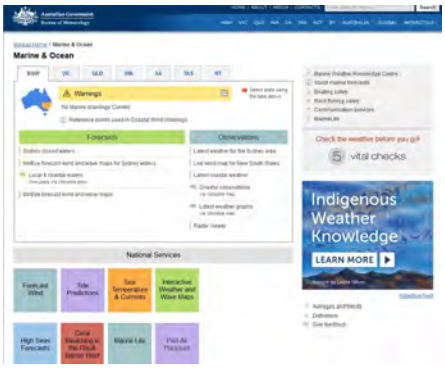
Marine & Ocean
Warnings
Forecasts
Observations
National Services
Check the weather before you go!
5 vital checks
Indigenous Weather Knowledge
LEARN MORE
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Marine wind forecast maps (ACCESS model)
BOM
BOM Weather app
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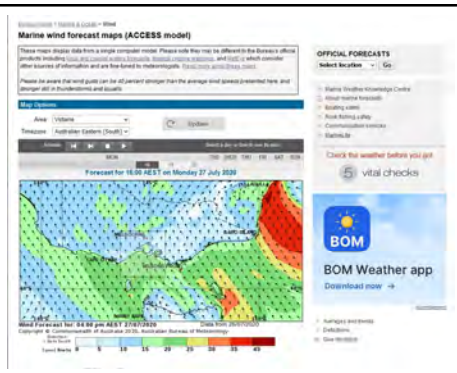
Marine wind forecast maps (ACCESS model)
OFFICIAL FORECASTS
Forecast for 16:00 AEST on Monday 27 July 2020
5 vital checks
BOM
BOM Weather app
Download now
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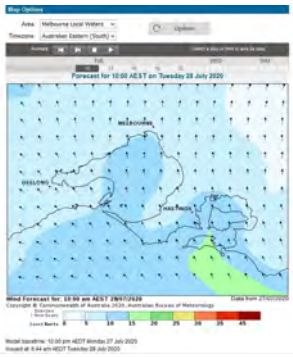
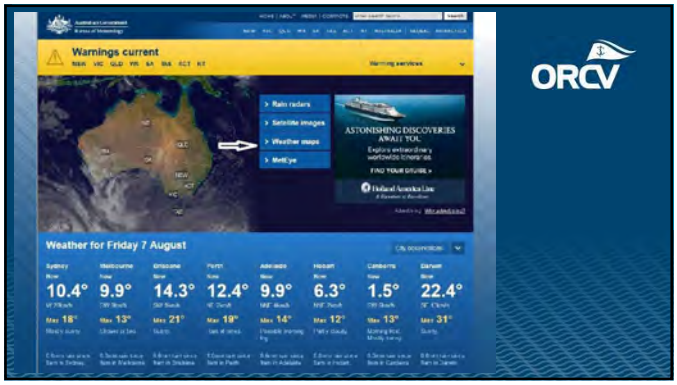
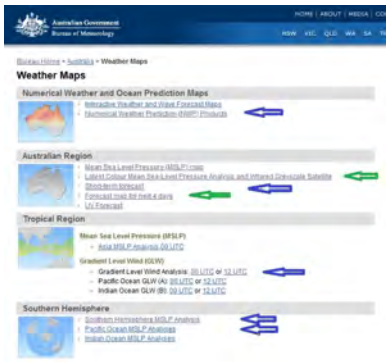
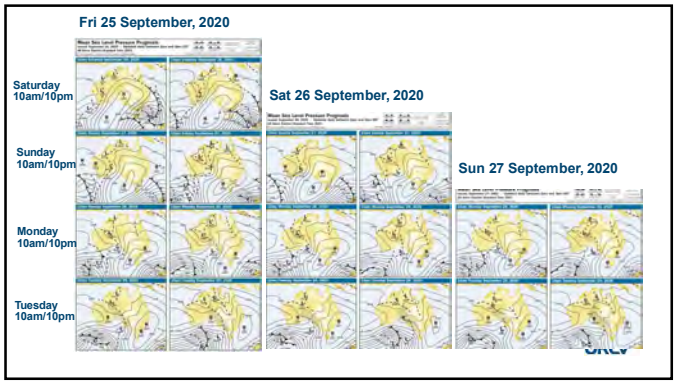
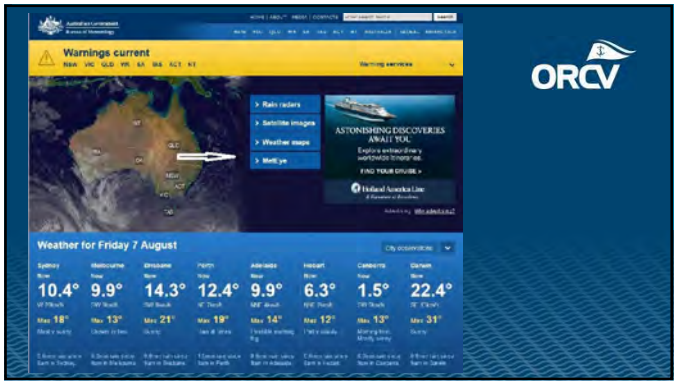

Forecast for 10:00 AEST on Tuesday 28 July 2020
MELBOURNE
HOBART


Warnings current
Rain radars
Satellite images
Weather maps
MetEye
ASTONISHING DISCOVERIES AWAIT YOU.
FIND YOUR CRUISE
Weather for Friday 7 August
Sydney 10.4°
Melbourne 9.9°
Brisbane 14.3°
Perth 12.4°
Adelaide 9.9°
Hobart 6.3°
Canberra 1.5°
Darwin 22.4°


Weather Maps
Numerical Weather and Ocean Prediction Maps
Australian Region
Tropical Region
Southern Hemisphere





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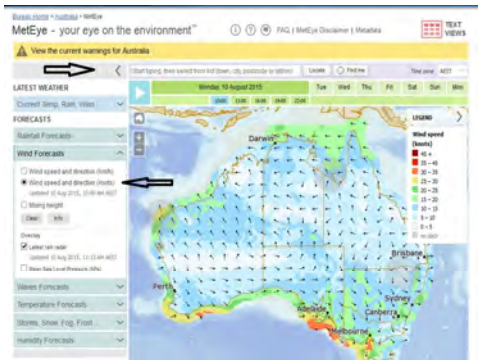
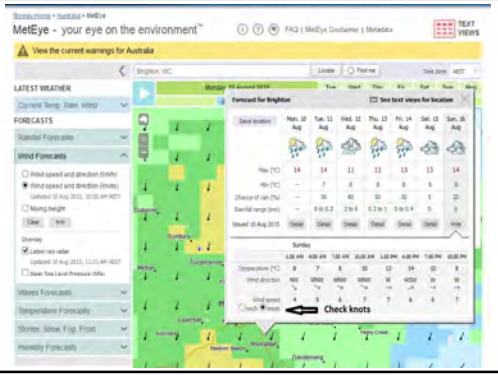

MetEye - your eye on the environment
View the current warnings for Australia
LATEST WEATHER
FORECASTS
Wind Forecasts
Darwin
Brisbane
Perth
Sydney
Canberra
Adelaide
Melbourne
ORCV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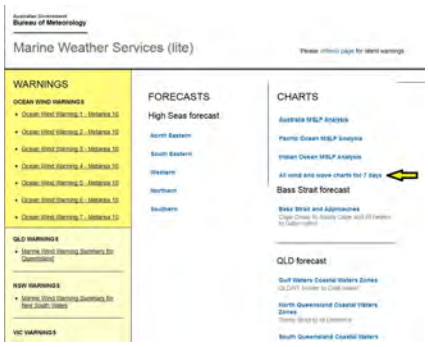
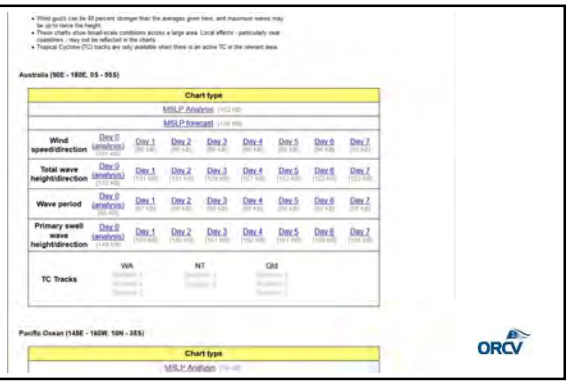
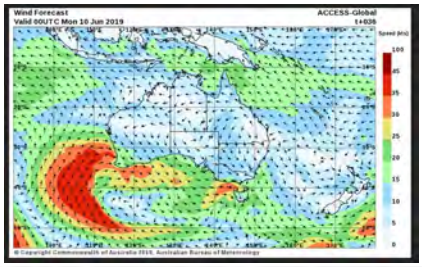
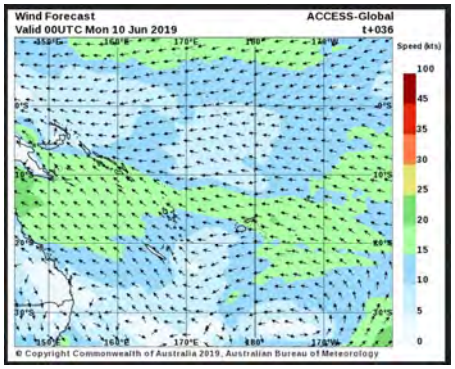




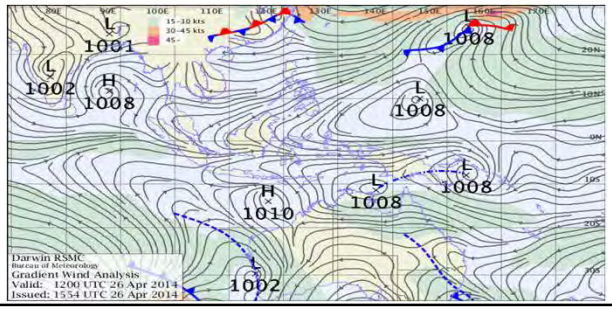
Marine Lite Chart Sample

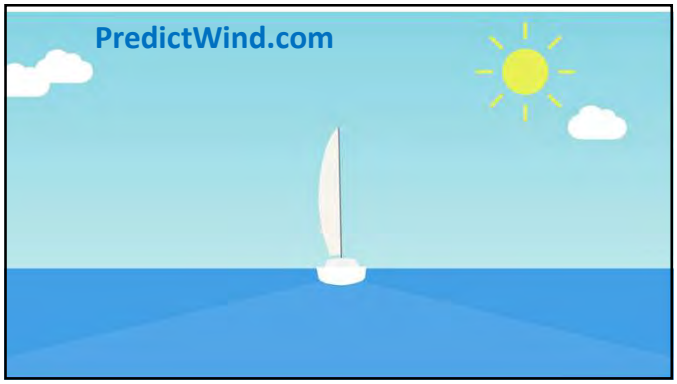


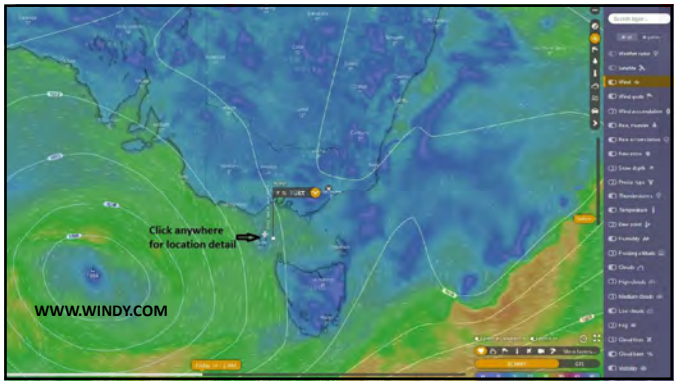
www.bom.gov.au/charts_data/IDY20010/current/windarrow/IDY20010.windarrow.day2.png



Gradient wind analysis (Tropics)

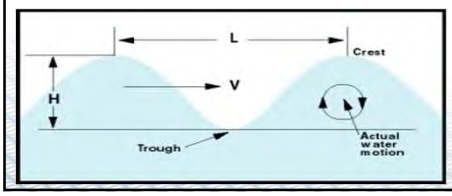


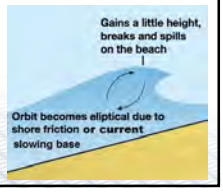




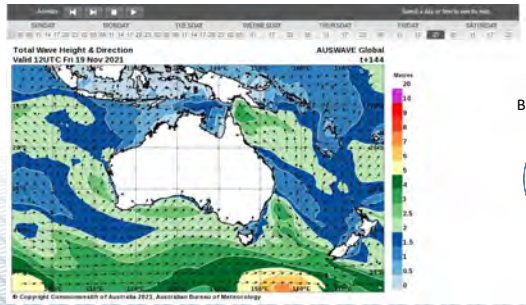
Waves

- Waves are generated by wind friction on the sea surface
- Wave size depends on depth, wind speed, duration and fetch
- Waves transfer energy, circular particle motion





Australia Waves Forecast-7 day prognosis



BOM Selection Box

Sea state

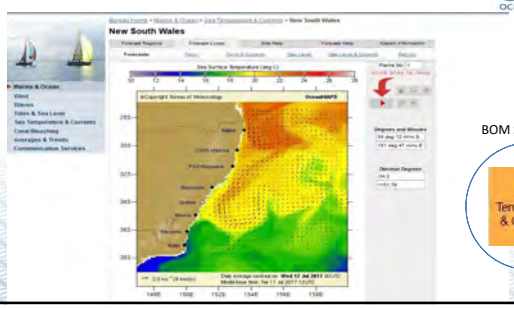
What storm winds do to the sea state

- Average wave height in 48 knots of wind is seven metres (Depends on fetch length and storm duration)
- Every thousandth wave (2 ½ hours) will be 1.86 times average wave height
- Every two thousandth wave (5-6 hours) will be twice wave height.
- Rogue wave will be up to 2.4 times higher than average.

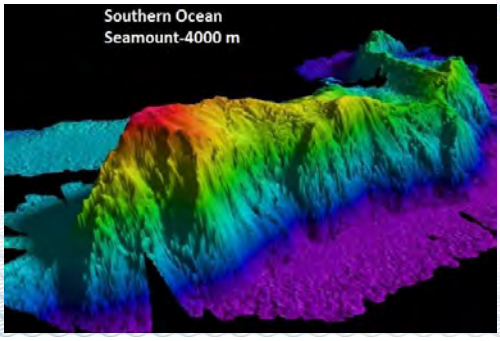
In a fleet of 20 yachts experiencing storm force winds one will experience a 17 metre wave every 5-6 hours!

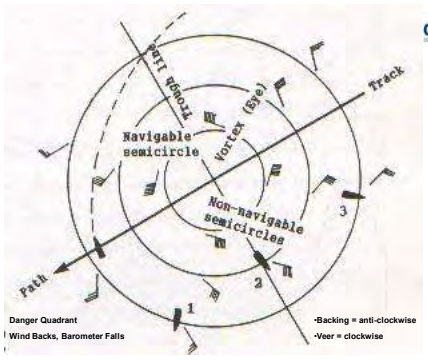
•RYA p139

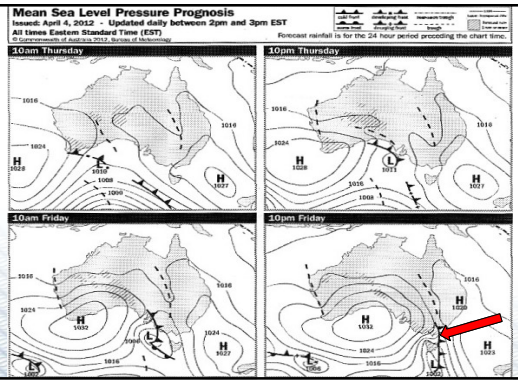
Sea Temperature & Currents



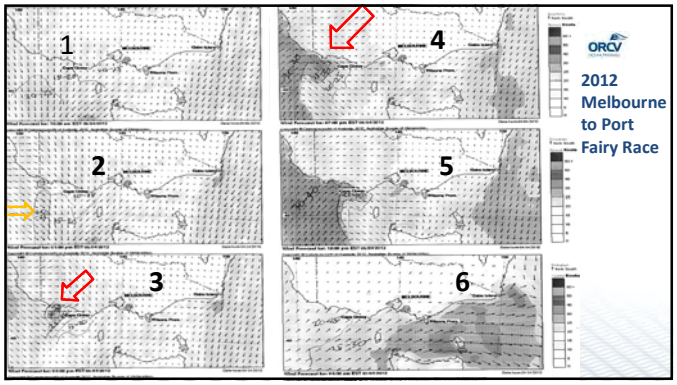
BOM Selection Box







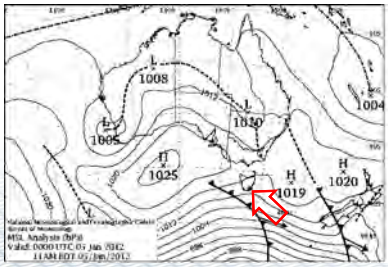
2012 Melbourne to Port Fairy Race

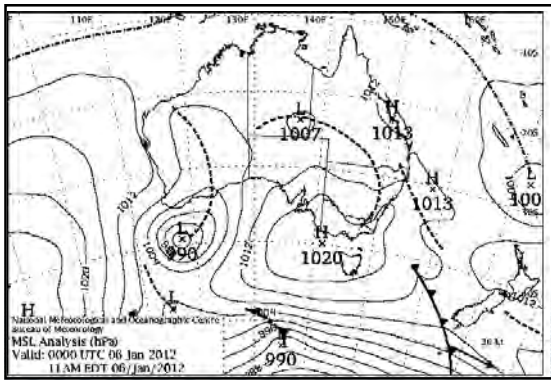


2012 Melbourne to Port Fairy Race

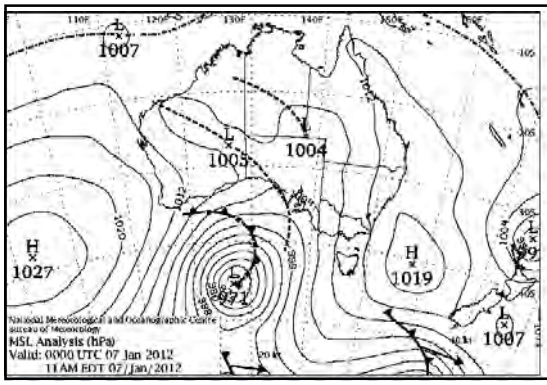
Coastal Voyage Preparation
2012 Hobart to Melbourne

- Approaching Cold Front
- Keep an eye on the 1005 Low near Perth
- 5 Jan 2012 No. 1 in Sequence

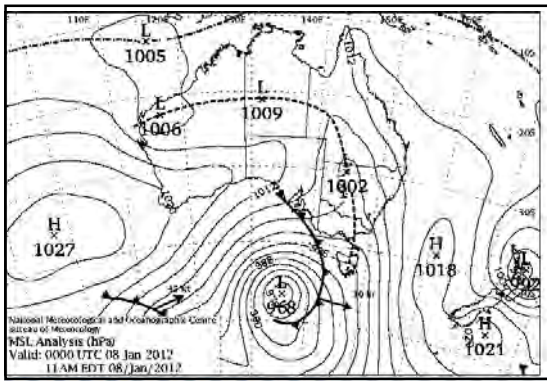




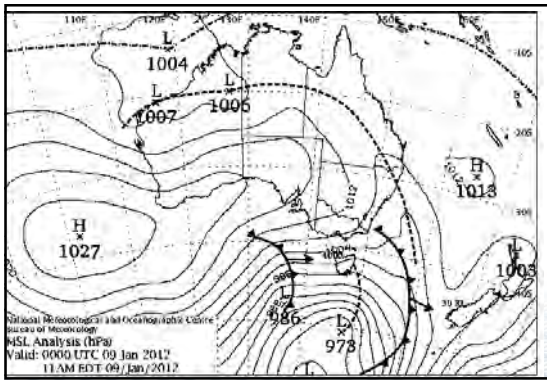
2012 Hobart to Melbourne 6 Jan 2012 No.2 in Sequence



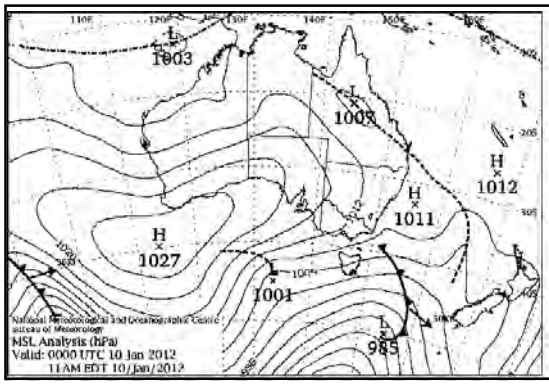
2012
Hobart to
Melbourne
7 Jan 2012
No.3 in
Sequence



2012
Hobart to
Melbourne
8 Jan 2012
No.4 in
Sequence



2012
Hobart to
Melbourne
9 Jan 2012
No.5 in
Sequence



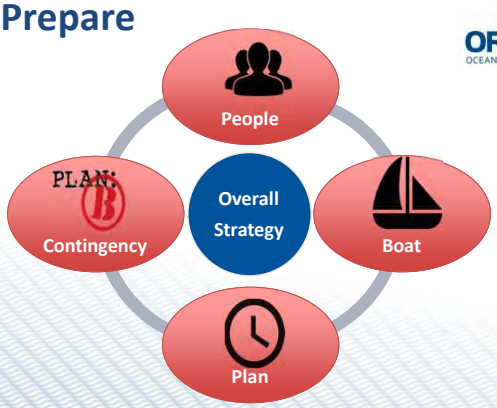
2012 Hobart to Melbourne 10 Jan 2012 No.6 in Sequence

4. Heavy Weather

Prepare, Avoid, Train

RYA Ch11

Prepare



Galley prep

Consider galley operations

Identify & eliminate dangers

Provisioning & training

RYA p137

Below deck prep

- Gear storage
- PFD, Safety Harness, clothing
- Position – log & report
- Safety Gear
- Sea Sickness Medications
- Review crew roster, Rest?

RYA P137

Checks (before)

Write your own list of things to check, sooner the better!

- Lee cloths
- Clothing and related personal equipment including strobe, PLB and torches
- Hospital wee bottle
- Charge batteries, fuel top up
- Move as much gear as possible aft
- Small sails to the top
- Navigation planning & weather forecast
- Food and provisions
- Grab bag, torches etc
- Buckets (Seasickness prep)

RYA P137

Checks (during)

Regularly check

- Crew below deck (sickness etc)
- Navigation
- Steering system
- Keel bolts, chain plates
- Engine, fuel, batteries
- Water
  - Toilet, Tanks, Bilge, Seacocks

RYA P137

On Deck prep

Remove all unnecessary ropes (spinnaker sheets etc)

Check rig tension

Tension halyards

Check reef lines are all run and ready

Jack stays

Check stowed gear:

- Poles, Life raft, Safety gear
- Storage lockers, Fuel containers
- Biminis, Dodgers, Cruising gear

RYA P137, 143

Prepare a plan

Command hierarchy

Watch keeping (minimizing numbers on deck)

Fatigue management

Sufficiency of skills (helm, navigation/radio)

Sea room and navigation options

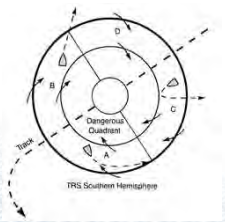
Collision avoidance

On shore communications/tracking

Sail plans (minimizing going forward)

Avoid (Weather)

General *guidelines*



- If in the dangerous quadrant, keep the wind on the port bow, or heave to
- If in the path; run with the wind on the port quarter
- If in other areas; keep the wind on the port quarter

Southern Hemisphere

9

Avoid (On deck risks)

Motto: Get it off early and get it off deck!!

Safety harness hooked on before coming through the companionway.

Never be unclipped while on deck – ever !! (use 3 point tether)

While changing sails put the best people in the critical positions.

Choose best course and speed to look after the crew on the deck.

Keep water out – storm boards etc

Constantly check for:

- Chafe; sails, halyards, sheets.
- Leech flutter
- Rigging harmonics
- Running rigging

RYAp137,143

Avoid (Rig stress)

When reefing, if main headboard is considerably below the forestay fitting there is risk of negative mast bend

Adjust the backstay or runners/checkstays, add baby stay or inner forestay

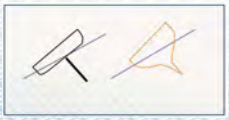
Similar issues can arise from the load created by Trysail sheets to the spinnaker sheet blocks

Use halyards to create inner stays if need be

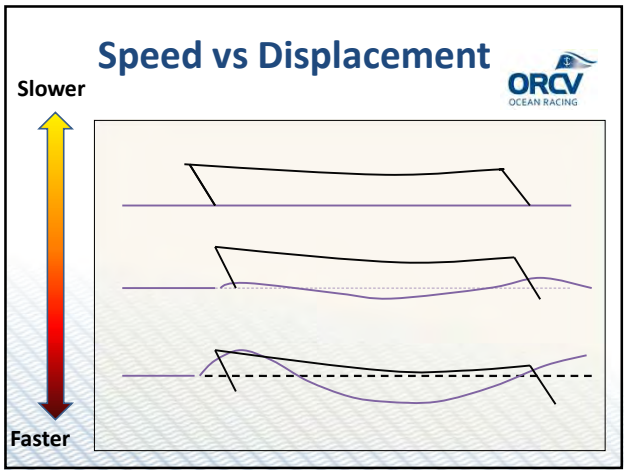
11

Train (Know your boat)

- Inertia
- Momentum
- Acceleration
- Centre of Gyration
- Stability

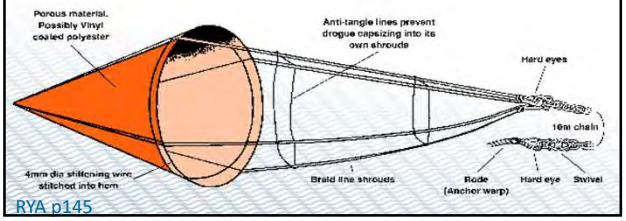


Speed vs Displacement



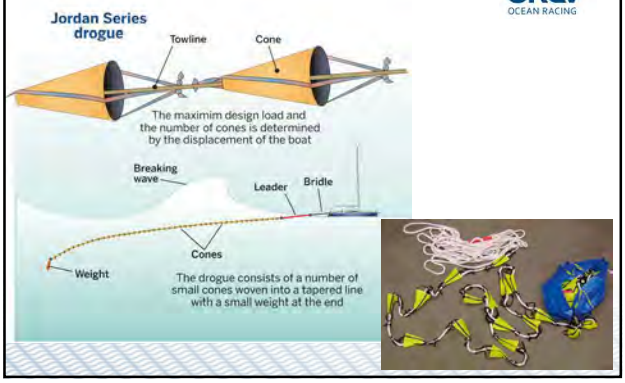
Drogues

A drogue is Recommended BB p68, 4.25

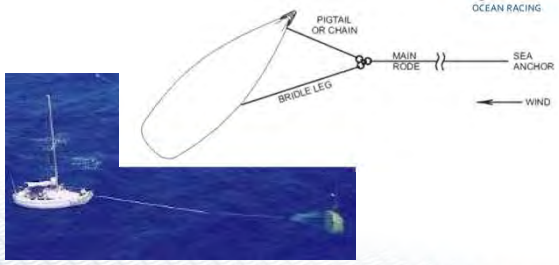


RYA p145

Series Drogue



Sea Anchor



A drag device generally deployed from the bow

16

Active fore-reaching

- 55° to 90 ° to wind
- Power up into breaking crest
- Pull away late just before crest

17

Active running

- Reduces apparent wind, may increase exposure
- Waves and excessive speed become main risk
- Need experienced helms and spotters
- High fatigue, need sufficient helms
- High rudder loads
- Risk of pitch pole, so slow down
- Risk of broach
- Risk of swamping

18

Hove to

- **Hove-to**: Yacht has helm a-lee and her sails shortened and so trimmed that as she comes to the wind, she will fall off again on the same tack and thus make no headway. More effective if combined with sea anchor
- **Slick**: The turbulent wake created when a boat's keel stalls and creates vortices, which disturb the water pattern on the windward side of the boat
- Modern boats struggle to hove to and too fast to maintain slick
- Fastnet 79, 26 yachts Hove to, none were capsized or suffered serious damage

19

Continuous assessment

Continually assess and review the plan

- Objectives – boat and crew members
- Options available
  - Hove-to, Drogue, Parachute anchor ?
  - Are sails small enough?
  - Viability of seeking shelter
- Observations and forecast (duration of storm, tides/current)
- Communications
- Risk assessment
  - Depth, Lee shore etc
  - Waves and headlands
  - Boat and crew condition

Still racing or survival mode ?

RYA Ch12

Emergencies

Topics

1. Causes of Marine Emergencies
2. Principles for Survival at Sea
3. Types of Emergencies
   & Strategies to address them

Causes of Marine Emergencies

1. Weather conditions and sea state
2. Equipment failure
3. Yacht design
4. Poor seamanship
5. Poor navigation
6. Collisions
7. Medical
8. Fire

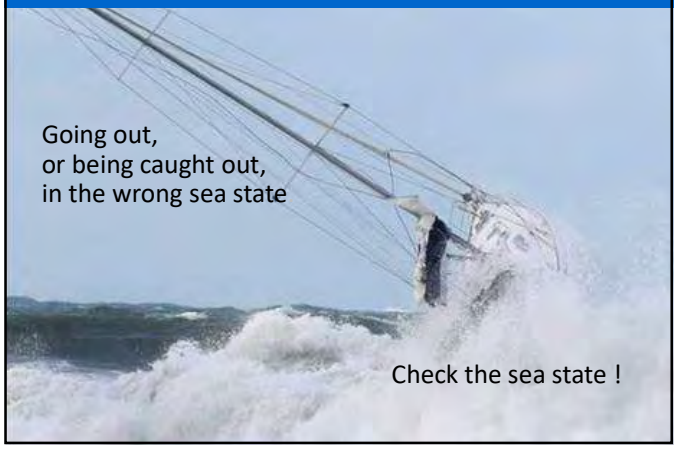
Causes of Marine Emergencies

1. **Weather conditions and sea state**
2. Equipment failure
3. Yacht design
4. Poor seamanship
5. Poor navigation
6. Collisions
7. Medical
8. Fire

Causes of Marine Emergencies

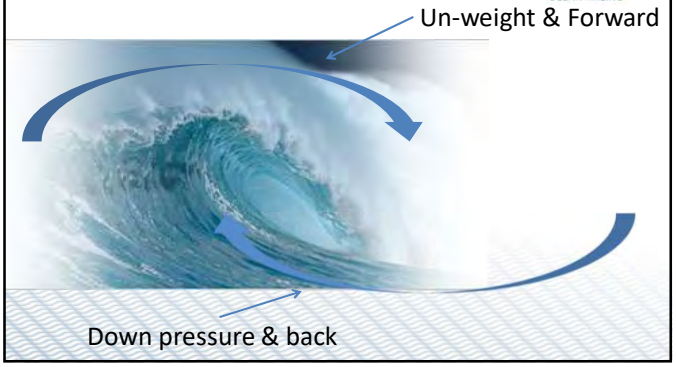
Weather conditions and sea state

Weather conditions and sea state



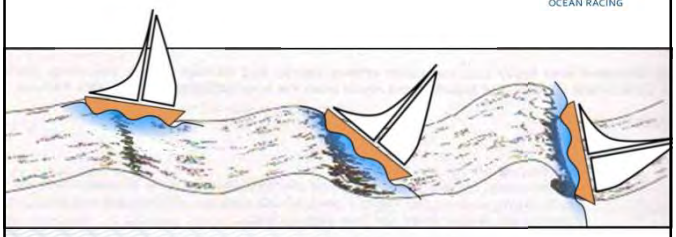
Weather conditions and sea state

Understanding Wave Action



Weather conditions and sea state

Broaching – Wave action



Stern un-weighted & forward
Bow pushed down & back
Use drogue to reduce speed and regain control
Assist to keep stern-to

Weather conditions and sea state

Broaching - Wind

Death Rolls

Match sails to conditions

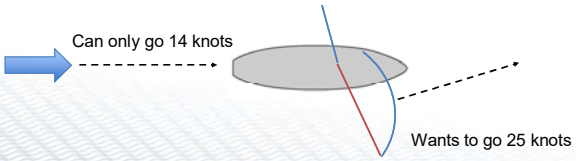
Keep boat under Spinnaker

Try different angle of attack

Broaching - Wind

Wind speed
25 knots

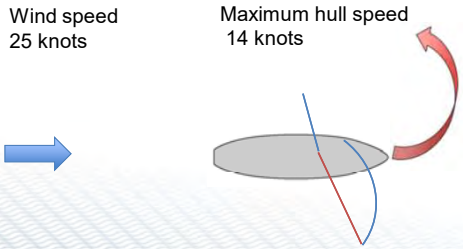
Maximum hull speed
14 knots



Broaching - Wind

Wind speed
25 knots

Maximum hull speed
14 knots



Broaching - Wind

Wind speed
25 knots

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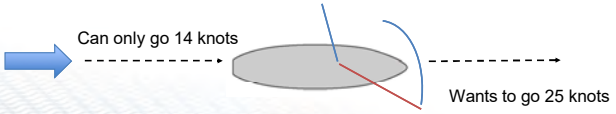
14 knots



Pooping

What is Pooping:
When the stern wave catches up with the boat;
either propelling it forward or breaking over the stern
(possibly causing swamping).

Causes:
- When speed is reduced too quickly e.g. surf into a trough.
- When travelling in a following sea – Wind, waves and the boat going in the same direction.

Pooping

Strategy
Balance boat speed to sea conditions
- Slower
  - using drogues, warps (RYA Page 145)

Change angle or even gybe
Storm Boards in

Pitch poling

"To turn end over end in very rough seas."

Silk II - Murray 41 Cowes Week 1996

Causes of Marine Emergencies

1. Weather conditions and sea state
2. **Equipment failure**
3. Yacht design
4. Poor seamanship
5. Poor navigation
6. Collisions
7. Medical
8. Fire

2. Equipment failure

Poor Construction

Poor maintenance
- Mast inspection
- Loose fittings
- Old equipment

Equipment Failure

Mast inspection

Helsal II

66ft Adams design
2003 Transpac
- Los Angeles to Hawaii
- 2250 nm straight line
- 3000 nm sailed

11 days at sea
16 crew

Causes of Marine Emergencies

1. Weather conditions and sea state
2. Equipment failure
3. **Yacht design**
4. Poor seamanship
5. Poor navigation
6. Collisions
7. Medical
8. Fire

3. Yacht Design
- Inappropriate for the conditions ?

Stability index

Structural Integrity

- Slamming into /off waves
- How much can it take?

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Causes of Marine Emergencies

1. Weather conditions and sea state
2. Equipment failure
3. Yacht design
4. **Poor seamanship**
5. **Poor navigation**
6. Collisions
7. Medical
8. Fire

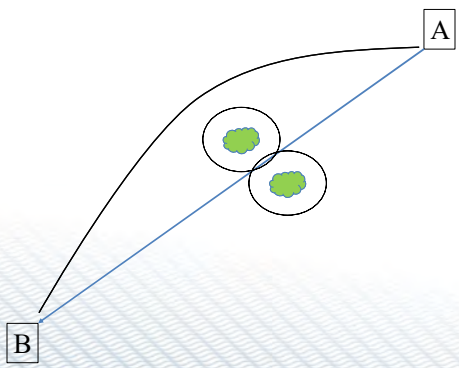
4. Poor Seamanship

- Bad Vessel handling
- Fail to take early precautions
  - Reef down
  - Storm boards in
  - Fit Trysail
  - Poor stowage of gear
- No Watch planning
  - Share workload to limit fatigue
  - Leave crew exhausted or lack balance of skills

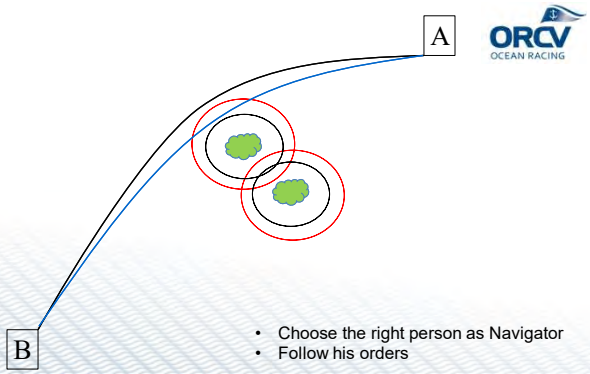
5. Poor Navigation

- Allocate right person as Navigator – nothing left to chance
- Running aground / rocks

Poor Navigation



Poor Navigation



- Choose the right person as Navigator
- Follow his orders

Poor Navigation

Is the win worth the risk?

Racers sometimes place themselves in dodgy situations under the spur of competition (Rick Tomlinson picture).

Poor Navigation

Perhaps Not

Causes of Marine Emergencies

1. Weather conditions and sea state
2. Equipment failure
3. Yacht design
4. Poor seamanship
5. Poor navigation
6. **Collisions**
7. Medical
8. Fire

6. Collisions - Other vessels, object, sea life

- Clear visibility 10km
- Wind < 5 knots
- No narrow channels
- Port vs Starboard?
- Power vs Sail?
- Commercial vs Recreational?
- Hydrofoil/ Hovercraft vs Normal?
- Must avoid collision?

6. Collisions - Other vessels, object, sea life

- Master 'Sun Paradise'
  - Not on Bridge
- Master 'Pride of Airlie'
  - Not on Bridge
  - Paying tourist at helm
- Outcome
  - Both Responsible
  - Both Masters lost ticket

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6. Collisions - Other vessels, object, sea life

Why?
Failure to:
- Maintain a full and proper lookout
- Adequate handover
- Avoid a collision

Lesson:
- Know your "Col Regs"
- Standard Operating Procedure

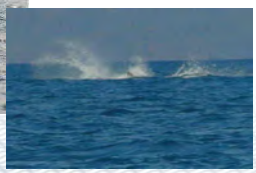
6. Collisions – Col Regs

1. Trawler, nets out, port side
2. Towing, tow >200m, Bow
3. Towing, tow <200m, Bow
4. Dredging, go to starboard

https://www.safe-skipper.com

6. Collisions - Other vessels, object, sea life

Set a course away from trouble



Collisions

W
A
T
C
H
K
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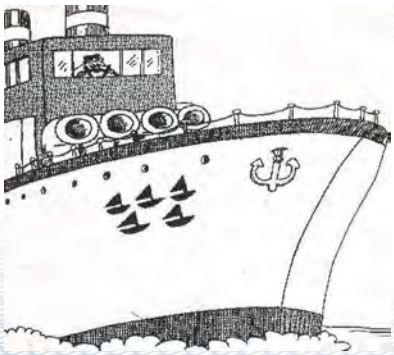
E
P
I
N
G



Collisions

Handover / Watch change

Standard Operating Procedure

- Other vessels
- Land mass
- Sea life
- Wind speed
- Sea state
- Boat speed / wind angle
- # crew on deck
- Crew fatigue ?
- Building/abating
- Sail Plan
- Chaffing

Causes of Marine Emergencies

1. Weather conditions and sea state
2. Equipment failure
3. Yacht design
4. Poor seamanship
5. Poor navigation
6. Collisions
7. **Medical**
8. Fire

7. Medical

- Impact –Fractures, Concussion eg: Boom
- Crushes eg: Hand / Finger
- Burns or scalding
- Lacerations
- Dehydration
- Hypothermia
- Fear/Anxiety
- Seasickness
- Major eg: Heart Attack, Hernia

Do you have a Standard Operating Procedure ?

7. Medical

All existing medical conditions should be known to the skipper before the event

Initial help should come from on-board first aid people

- Ships Doctor's Guide

Available outside assistance

- Radio; fleet, shore

Medical evacuation

- Boat to boat
- Boat to shore
- Boat to helicopter

Causes of Marine Emergencies

1. Weather conditions and sea state
2. Equipment failure
3. Yacht design
4. Poor seamanship
5. Poor navigation
6. Collisions
7. Medical
8. **Fire**

8. Fire

Standard Operating Procedure ? Toxic Smoke!

- Who fights?
- Who extracts?
- Who's on the hand held radio?
- GPS near radio
- Who steers?
- Medical at the ready
- Safety measures

Prepare to **Abandon Ship**

Topics

1. Causes of Marine Emergencies
2. **Principles for Survival at Sea**
3. Types of Emergencies
   & Strategies to address them

Principles of survival at sea

Prevention - Good Seamanship

- Maintain your yacht
- Don't take risks
- Crew training

Protection

- Take options that protect boat & crew

Principles of survival at sea

Location

Position with respect to dangers, coast, storm, rescue

Attention to basic needs

Watch systems – Share workload to limit fatigue
Nutrition gives energy , clearer thinking

Injury management

Warm, dry, stable, fed & watered, monitor

Positive morale

Attitude
Keep people focused on surviving
Inspire confidence

Topics

1. Causes of Marine Emergencies
2. Principles for Survival at Sea
3. **Types of Emergencies & Strategies to address them**

Handling Emergencies

- Secure the Vessel
- Assess the situation
- Discuss the strategies
- Prepare the boat & crew
- Take Action

3. Types of Emergencies

1. Man Overboard
2. Loss of Steering
3. Loss of Rudder - Broken or lost
4. Capsize/Knock Down
5. Mast - Broken or dropped
6. Loss of Keel
7. Towing
8. Flooding
9. Fire
10. Stranding / Run Aground
11. Engine Loss

Man Overboard

"Man overboard" call by the
first person to witness/notice the departure

All hands

Lookout points

Throw the safety gear

Navigator – GPS – Radio 2nd Navigator

Secure the vessel

Man Overboard

Different Techniques

Man Overboard

Practice the drill

- Announced & Unannounced
- Day & Night
- Rough & Calm

Everyone must know their job
Record practice drills in the Ship's log
Hat blows off - good opportunity

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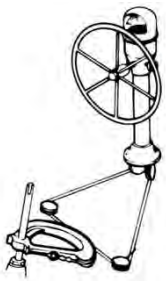
2. Loss of Steering



Rudder OK but:

- Steering cable/quadrant broken
- Wheel bent

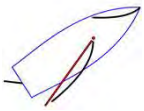
Mitigate the problem:

- Carry spare cables and wires
- Practice replacement
- Tools and instructions on board
- Emergency Tiller
  - All Crew to know where it is
  - Practice fitting it

2. Loss of Steering

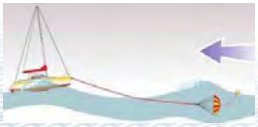
First Thoughts – Risk of incident cascading:

- Lifejackets & headcount
- Clip on & hold on
- Collision warnings and avoidance
- Slow, stop & gain control
- Autopilots and obstructions
- Radio call?



Dealing with the problem

- Take sails off or heave-to
- Sea Anchor
- Repair steering system if possible



2. Loss of Steering

Emergency Tiller

All crew should know:

- where it's stowed, and
- how to fit emergency steering device

Beware of its limitations

3. Loss of Rudder

'Georgia'

Upper bearing failed resulted in rudder tearing a hole in the hull…

What would you do?

3. Loss of Rudder

Dealing with the problem

- Gain control
- Wind and sea state may dictate response
- Lower head sails, sheet mainsail hard
- Anchor, sea anchor, drogue
- Undertake a tow
- Emergency rudder / Improvisation

3. Loss of Rudder

Check hull integrity

Steering systems ?

- Multiple options
- Drogue and bridle - Quickest in an emergency
- Spinnaker pole
- Discuss options and then see what works in practice

Practice beforehand

RYA p147

Emergencies & Strategies

Drogue & Bridle

- Line from drogue through blocks on both sides then to winch
  - Kite bag – 5 kg weight
  - Storm drogue too big
- Great loads
  - Use Anchor chain instead
- Works in moderate winds
  - Less effective in light winds.
- Set 2 or more waves behind

Important: Match sail area to Wind, to maintain effectiveness

(Chris Tibbs BT Global Challenge skipper & 250,000 sea miles)

Emergencies & Strategies

Spinnaker Pole and washboard

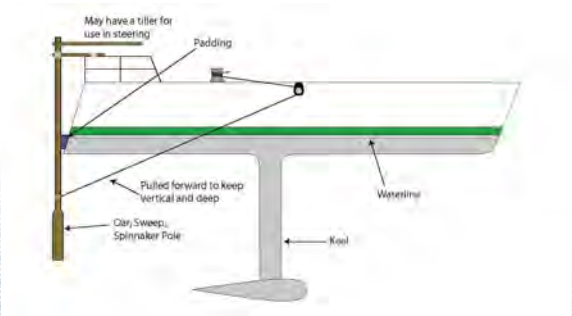
Works in light winds

Have to remove sails or heave to in heavy winds.

Pole skips out as speed increases

(Chris Tibbs BT Global Challenge skipper & 250,000 sea miles)

Emergency Rudder



The Bacardi Solution

Emergencies & Strategies

4. Capsize / Knockdown

Emergencies & Strategies

4. Capsize / Knockdown

- Secure the vessel
- Head count
- Treat injuries
- Rig threat
- Hull integrity
- Critical assessment of situation

Emergencies & Strategies

4. Capsize / Knockdown

Imagine the boat upside down.
What will happen to:

- Anchors?
- Chain?
- Tool box?
- Chart table?
- Cutlery?
- Tinned goods?
- Water Bottles?
- Other heavy objects?

Emergencies & Strategies

5. Loss of Mast

Do NOT start the engine!!
One Leader to control on-deck operations
Most able people in the critical positions
Navigator at Nav. Station
Anchor or drogue required?

Emergencies & Strategies

5. Loss of Mast

What are the bits
of mast doing to the boat?

Remove all stays, Cut halyards

Secure everything

Check for any
trailing ropes before
starting engine.

5. Loss of Mast

Re-establish communications

Devise a
"Return to Port" strategy
- Jury rig, tow, motor to nearest harbour.

Jury Rig?

6. Loss of Keel

6. Loss of Keel

- If you have notice:
  - Prepare for **abandonment**
  - Communication - radio, flares, EPIRB
- Stay with boat if possible - larger target
- Determine remaining assets

What's this for?

7. Towing or being towed

First rule is not to have two boats in the same trouble!

Long springy line

Bridle to share the load

Strong points

Catenary - use chain or anchor

Emergency release mechanism

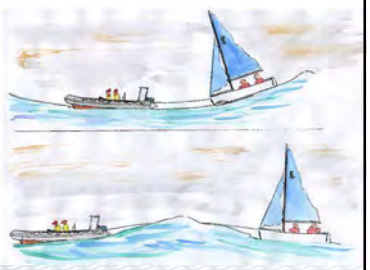
7. Towing

Long springy line

Same wave pattern

Too short

– Jerk and break rope or fitting

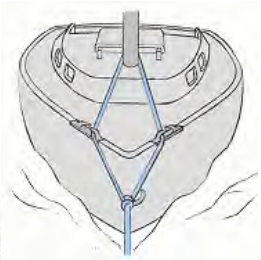


7. Towing

Bridle to share the load

Strong points

Primary winches



7. Towing

Catenary

Use chain or anchor to weight centre of line

Shock absorber effect

8. Flooding and Water Ingress

Email communications…

Cheeki Rafiki:

"We have been taking on a lot of water yesterday and today. Today seems worse. I think water tank has split so that is drained. Checked hull and sea cocks for damage but can't see any. Will go for a swim when weather improves in about 24 hours"

Stormforce Coaching:

"Is water fresh or salty?"

8. Flooding

Stormforce Coaching:

"Focus on finding the leak, reducing the rate of ingress and getting rid of water on board…"

"Engine cooling system - follow the water supply from the sea cock in through the engine to the exhaust out and see if there is a small leak, nick in a pipe etc..."

"Every sea cock – close any you don't need…"

"Bilge pump piping - make sure you are not pumping the same water around the boat…"

"All other skin fittings including Log and depth transducers…"

"Steering post/rudder and Sail drive leg…"

8. Flooding

Stormforce Coaching (continued):

"If you can get the boat empty enough it may become easier to establish where the ingress is…"

"Shower drain pump - you will need to connect either the fridge out or shower drain out pipe into the bilge…"

"Monitor your main bilge pump – don't allow to block up and run dry…"

"Close the engine water intake and stick the engine water intake hose into the bilge - the engine can not be allowed to run dry…"

"Pull the interior apart to get to the interior of the hull where you can – see if the problem is only there on one tack…"

"Look at the keel bolts and make sure there is no cracking around them."

Emergencies & Strategies

8. Flooding

Boat Flooding Rates in Litres per Minute				
Depth of Hole Below Waterline	Diameter of Opening or Hole			
	1 in /25mm	2 in /50mm	3 in /175mm	4 in /100mm
1 ft	88	354	795	1,418
2 ft	126	505	1,136	2,018
3 ft	154	618	1,386	2,468
4 ft	178	713	1,604	2,857

Rate of flow

- A 2 inch (50 mm) hole, 1 foot (300 mm) below waterline = 44-gallon drum (200 litre) in 33.8 seconds!
- 4 inch (100mm) hole fills the same drum in 8.4 seconds!

RYA p149

Emergencies & Strategies

8. Flooding

Boat Flooding Rates in Litres per Minute				
Depth of Hole Below Waterline	Diameter of Opening or Hole			
	1 in /25mm	2 in /50mm	3 in /175mm	4 in /100mm
1 ft	88	354	795	1,418
2 ft	126	505	1,136	2,018
3 ft	154	618	1,386	2,468
4 ft	178	713	1,604	2,857

Few bilge pumps can handle that volume

Hi–power bilge pump = 83 litres per minute

RYA p149

Emergencies & Strategies

8. Flooding

Boat Flooding Rates in Litres per Minute				
Depth of Hole Below Waterline	Diameter of Opening or Hole			
	1 in /25mm	2 in /50mm	3 in /175mm	4 in /100mm
1 ft	88	354	795	1,418
2 ft	126	505	1,136	2,018
3 ft	154	618	1,386	2,468
4 ft	178	713	1,604	2,857

Added weight

- 1 litre of salt water = about 0.86 kg.
- 2 inch hole, 1 foot deep = **300 kgs per minute**.
- As boat fills with water, the effective hole depth increases, forcing faster water ingress!

RYA p149

8. Flooding

Conclusion

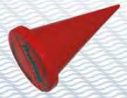
- **Hole size is the major determinate** (more so than depth)
- Primary effort = **reduce the flow of water**.

RYA p149

8. Flooding

Strategy

- Confirm fresh or salt
- Fill/cover the hole
- Bungs attached to hull fittings
- Plugs, collision mats, cushions , sailbags…. Must be part of your hull-hole toolkit.
- Steer a course that will minimize the inflow of water
- Use the radio – Protect ship batteries



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8. Flooding

Prevention & Preparation

Regularly inspect bilge

- Before you leave
- While racing
  - Regular Schedule
  - Enter Log

Eliminate common entries – close sea-cocks, inspect plumbing & fittings, engine intakes, rudder bearings

Regularly test power & hand pumps

Know how to use Salt Water intake to assist pumping.
(beware of sucking up rubbish)

8. Flooding

Plan for Abandonment

Don't leave the boat until you have to step up to the life raft!

Consider intentional grounding

9. Fire

Prevention of fires
- Good housekeeping
- Maintenance
- Fire retardant materials

Steps to fight a fire
- Raise alarm – "All Hands"
- Fuel valves off
- Fight/contain fire. Use appropriate equipment
- Watch for reflash

10. Stranding / Run Aground

"Preservation of life" is paramount

"Mayday" call for help

Prepare
- Lifejackets
- EPIRB
- Life raft
- Flares
- Grab bag

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11. Engine Failure

Loss of engine could result in:

- No charging
- No electrics
- No communications
- No lights…

11. Engine Failure

Prevention

Engine checks:

- Include Fuel tank & filler, filters & hoses
- Include sail drive oil / gearbox
- Include engine mounts and alternator brackets

Spares:

- Fuel and filters, impeller and gasket
- Tools that fit – try them (shifters are next to useless)

Procedures:

- Instructions for bleeding injectors (laminated)
- Train Crew

Handling Emergencies

- Secure the Vessel
- Assess the situation
- Discuss the strategies
- Prepare the boat & crew
- Take Action

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Do you have to give assistance?

State legislation & Federal Navigation Act

Obliged to give assistance unless :

unable, unreasonable or unnecessary

Assistance must be appropriate to your circumstances

Definition of Category 1

Races of :

- long distance and well offshore,
- where boats must be self-sufficient for extended periods of time,
- capable of withstanding heavy storms, and
- prepared to meet serious emergencies without the expectation of outside assistance.

Can you say your boat and your crew are truly ready?

Only you know if your boat and crew are up to it……

The responsibility for a boat's decision to participate in a race or to continue racing is hers alone

World Sailing - Fundamental rule 3.

Yachting Australia
Safety & Sea Survival Course
(SSSC)

Exercises
&
Revision

Yacht Preparation – Flares Exercise

1. How many hand flares are required for Cat 3?

_____

_____

2. What is the SOLAS code for rockets?

_____

_____

3. How many rockets for Cat 1?

_____

_____

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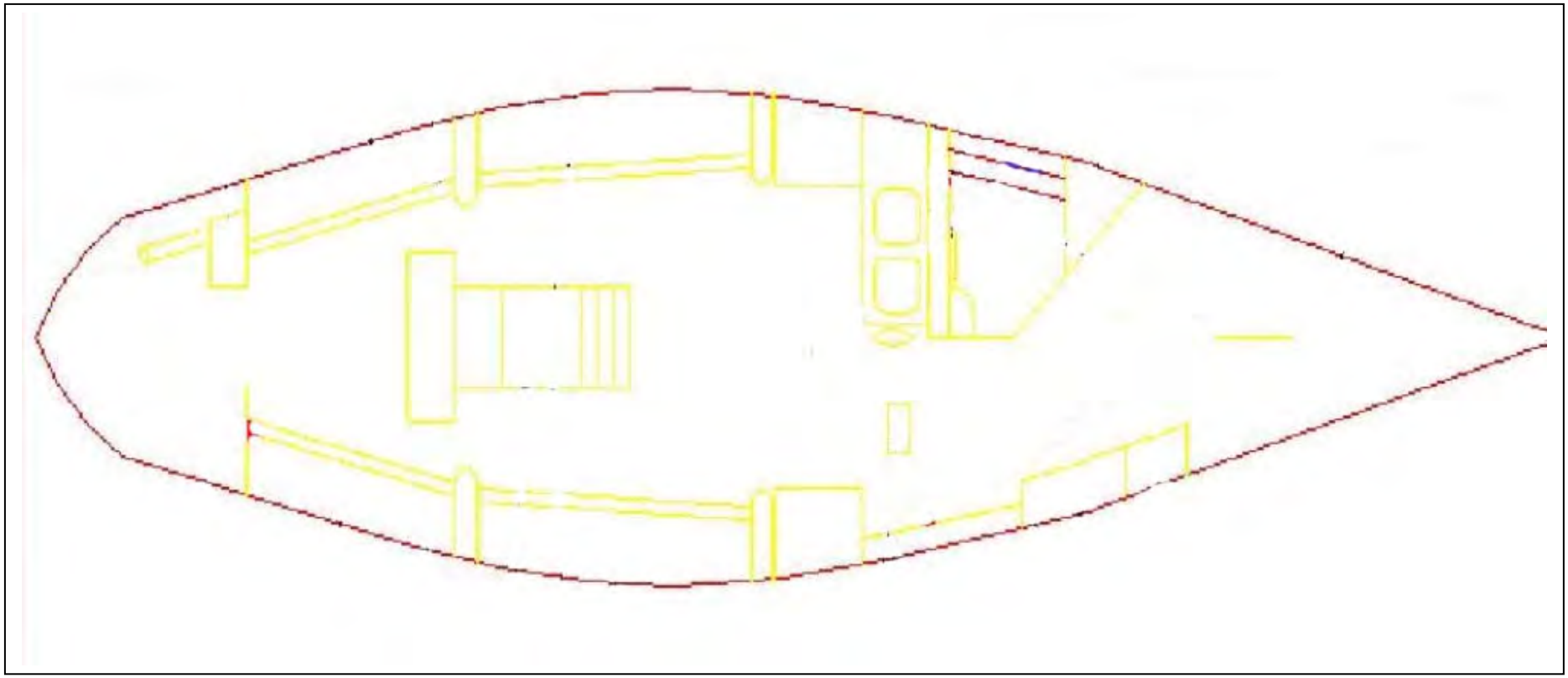
Yacht Preparation – Location Diagram Exercise



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Crew Preparation - Safety briefing Exercise

1. Safety Policy

2. Dangers

3. Training programs

MOB

1. Man overboard - “All hands”
2. Flotation
3. Appoint a LOOKOUT
4. GPS
5. Head to wind
6. Secure the boat
7. Commence recovery
   a. Talk about recovery methods
   b. Consider Radio call “Pan Pan”

4. Abandon Ship

Crew person	Muster Role

5. Crew Positions

Crew	Gybe	Watch	Watch

6. Safety equipment

a. _____

b. _____

c. _____

d. _____

7. Safety Harness/life jacket policy

_____

_____

_____

_____

Crew Preparation - Risk Assessment Summary Exercise

Risk	Consequence	Control	Risk
Winches			
Boom			
Clothing			
Halyards			
Reefing			
Gybing			
Steering			
Man over board			
Injury			

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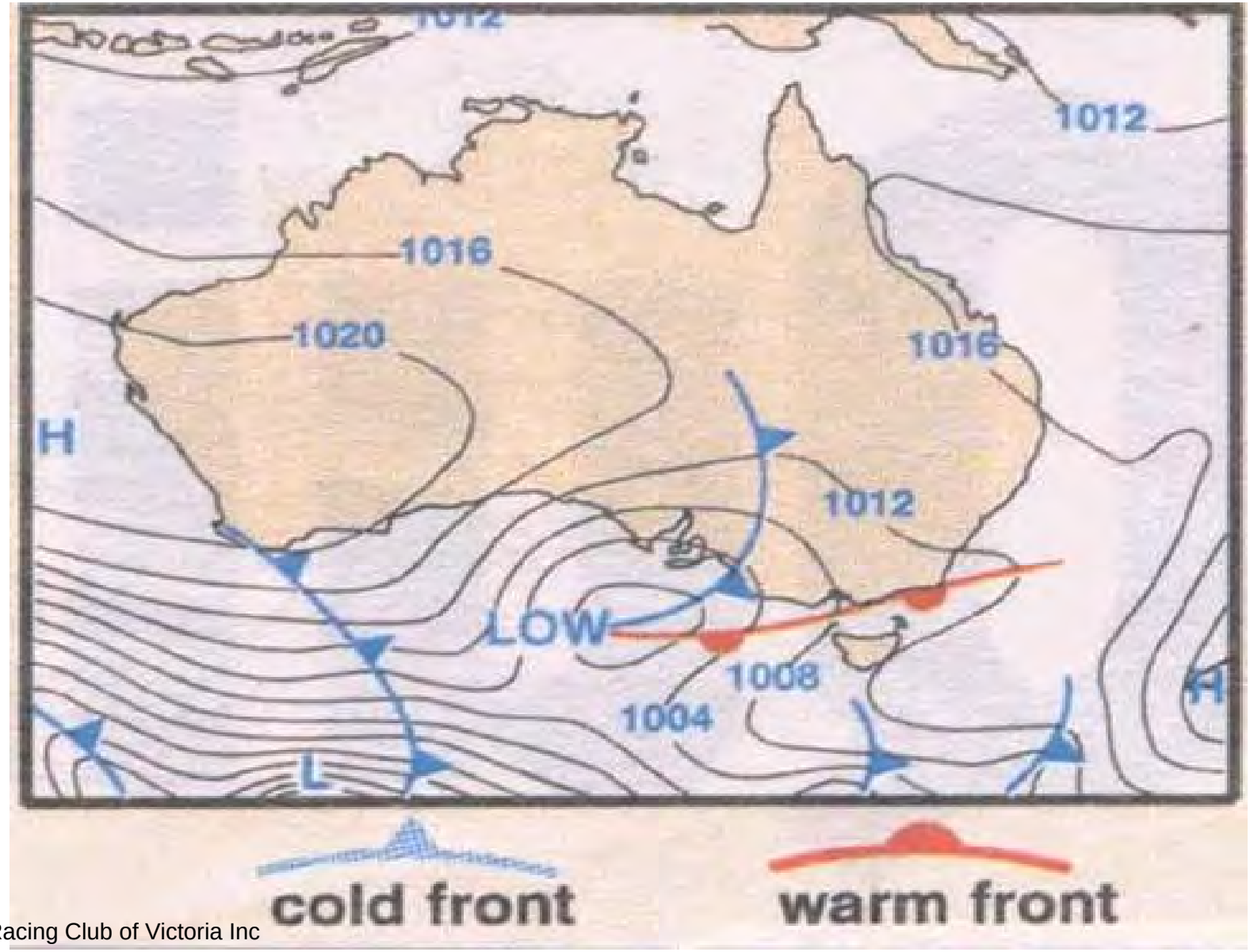
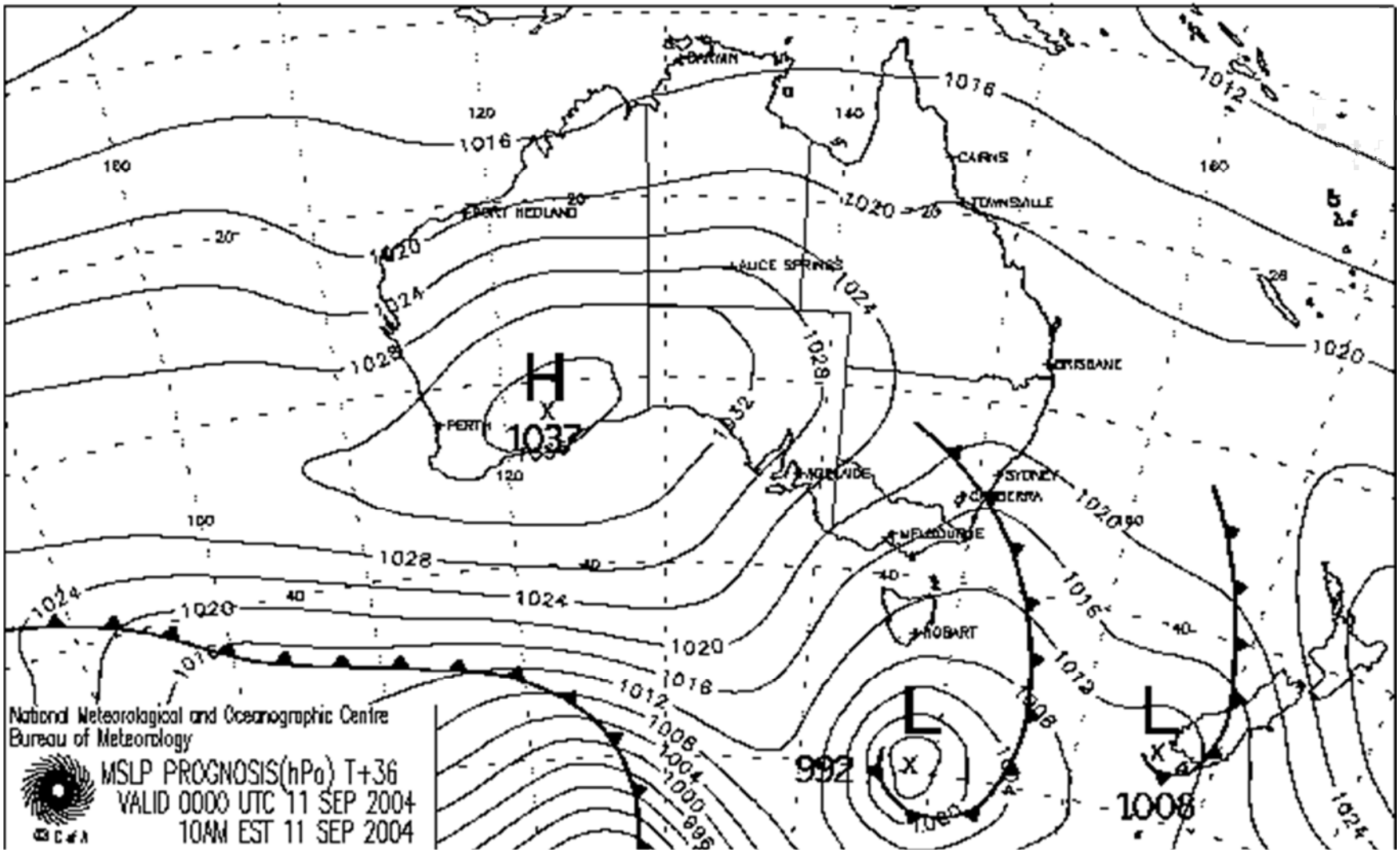
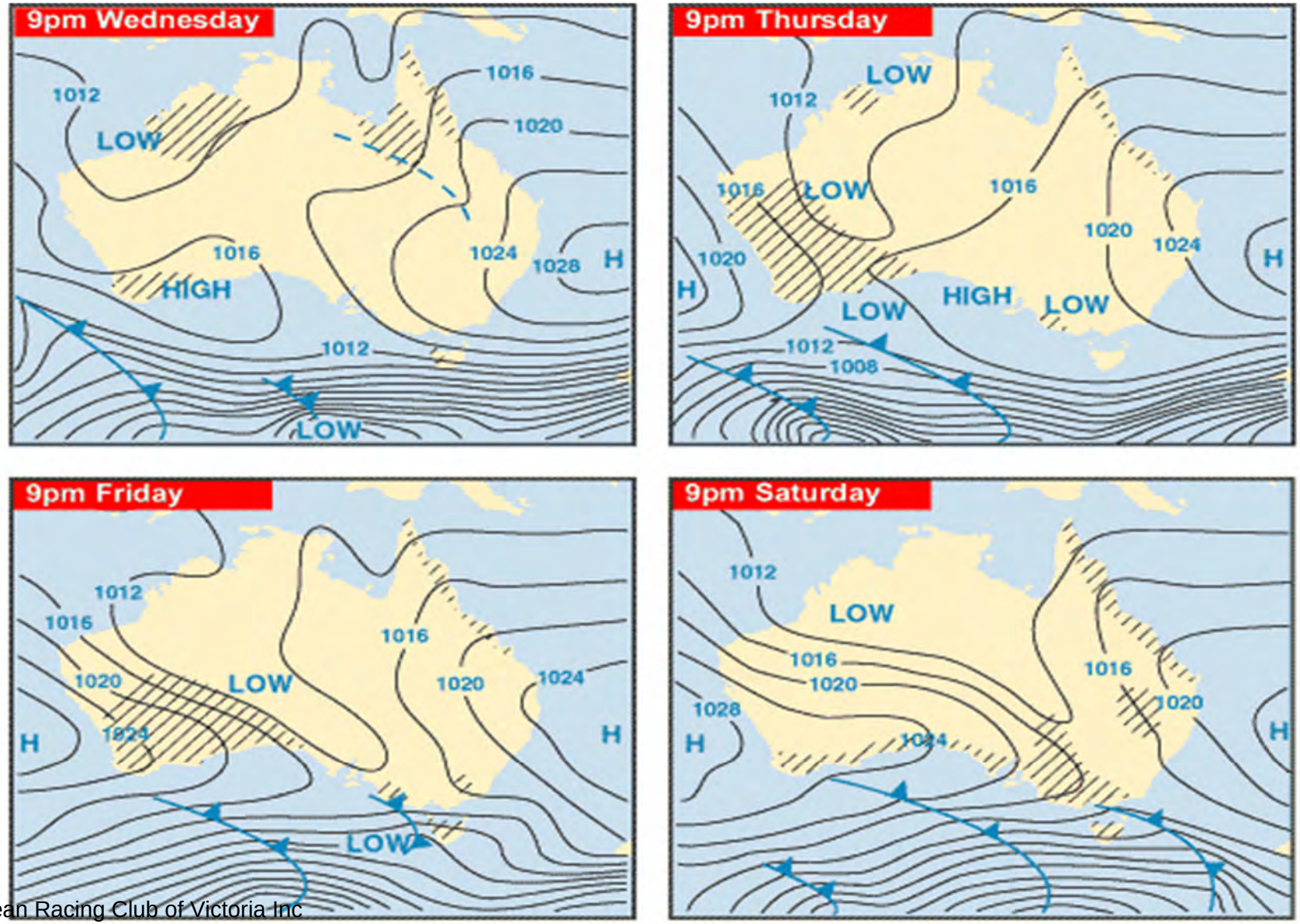
Racing & Weather - Wind Direction Exercise 1



Racing & Weather - Wind Direction Exercise 2



Racing & Weather - Melbourne to Hobart - 4 day Forecast



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Racing & Weather - Melbourne to Hobart - 4 day Forecast

Course

Expected weather

Day 1 _____

_____

Day 2 _____

_____

Day 3 _____

_____

Day 4 _____

_____

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Emergencies - Internationally Recognised Distress Signals

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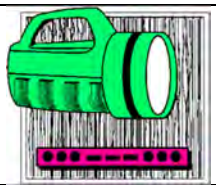
1		
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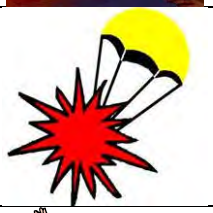
5		
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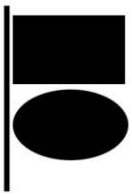
7		
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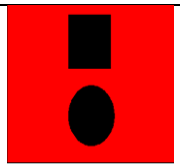
14		
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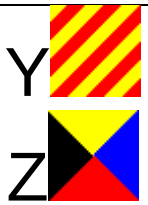
18		

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Emergencies – Upside Down Exercise

It's night, you are off watch and laying asleep in your bunk. You are woken by the call "Wave!!" when you feel the boat heave, slip sideways then dig in, stop and roll over. It takes an eternity but eventually the noise and mayhem is over and the boat is strangely quiet. Your first thoughts are to "Secure the vessel" and "Assess the situation".

List 12 situations that you are likely to encounter and indicate what you could have done to avoid each.

	Problem	**Prevention**
Example	Cutlery all over the cabin	Locking cutlery draw / not left open
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

Emergencies – Grab Bag Exercise

The boat has been pounding head-on into severe seas for some time; you drop off a wave and hear an almighty cracking sound. You go down below and find that water is pouring in through a large crack in the bow near a bulkhead. After plugging the crack and bailing continually the crew realises that it is a losing battle and the skipper, correctly, tells the crew to prepare to abandon ship. Before you left shore, you were allocated the task of collecting the grab bag in the case of an “abandon ship” call. You collect the bag and take it with you on deck while you wait for the liferaft to be launched by others in the crew and for the skipper to give the final “Abandon Ship” call.

When you are all in the liferaft, you open the Grab bag.
List at least 10 items that you would expect to find in the Grab bag

	Contents
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Revision Scenario Exercises

Aim of these exercises

- Assess errors in judgement made by the skipper and crew and, using the information provided earlier in this course, supplemented by input from other attendees, suggest the correct or alternative actions that should have been taken.

Requirement of Attendees

- Discuss the situation with others in your workgroup and contribute your thoughts on things that were handled poorly or incompetently. Suggest the correct course of action.
- As a group appoint a spokesperson to relay your group's suggestions (in point form only) back to the other groups.
- A course instructor will be roaming from table to table and can offer assistance with the format, but not the content, of this exercise.

Revision Scenario Exercise 1

Scene: 27TH December 200? – 13:20 - A frantic skipper paces up and down Portsea Pier next to his yacht "Venus". Fred, an interested observer approaches the skipper:

Fred: G'day mate how are you going?
Skipper: Not so good, here we are all ready to kick off the Melbourne to Hobart race and I'm one crew short. We got down early yesterday and, because it was cold, we hit the pub straight away. Shep was matching us one-for-one early in the night but I saw him with some friends later on and now, here we are ready to cast off, and he's nowhere to be seen. What's worse is that he's got some of the food.
Fred: If he doesn't turn up, do you need someone to fill in? I came down on the off chance that I might get a ride. Are you interested?
Skipper: You bet, jump on, we need to get going. What's your name?
Fred: Fred.
Skipper: Welcome aboard Fred, I am Larry, this is Moe and over there's Curly Joe. It's 10 minutes to the start, we'll only just get there on time, let's cast off and get going.

The good ship "Venus" sails away just reaching the start line in time to hear the start gun fire. Sails are sheeted in and they are away.

Using what you have learned in the course, discuss the scenario with the other members of your workgroup and devise a list of errors in judgement / seamanship and suggest correct course of action.

Poor Judgement / Error	Correct / Alternative

Revision Scenario Exercise 2

Scene: It's just after dusk. As it turns out Fred hasn't done much sailing before and definitely no ocean racing. This is his first time across Bass Strait and it's blowing 25 knots. After the excitement of the start, Fred begins to feel a little nauseous. He's been sleeping in a bunk in his shorts and T-shirt but he decides to come up on deck for some fresh air. Scratching his head he looks at the skipper.

Fred: I'm not feeling all that well. I'm often get a bit queazy for the first couple of days.

Larry: Just go up the bow and have a little sit down. Keep low as you walk and hold onto something sturdy. There's a torch here if you need it. Throw a jacket on, there's a wave or two coming across the deck.

Poor Judgement / Error	Correct / Alternative

Revision Scenario Exercise 3

Scene: The wind was blowing quite strongly now and Larry as skipper was just about to order the trysail to be fitted, when through the darkness the crew hear the roar of breaking water from the beam. The boat rises quickly and keeps going up. Water crashes over the deck as a rogue wave that no one saw coming envelopes the "Good Ship Venus" rolling her 270 degrees. She lays on her side momentarily as the foam and breaking waves settled. Very slowly she starts to right herself but the water on the mainsail slows the progress. Water is streaming into the cabin through the companionway. The mast which was buckled by the roll eventually bends and breaks under the strain of the boat trying to right herself against the pressure of the water, the waves and the wind. The mast snaps free and falls over the side.

The skipper is shaken and finds himself on the cockpit floor in front of the wheel. Fred, who had managed to dangle from the lifelines while the boat was on its side, now crawls on board again. Moe can be heard groaning from down below. Nothing is heard from Curly Joe.

Skipper: Now we're in for it, quick Moe start the engine, we need to get out of here before the next one comes. I need to get some steerage.
Fred: (Running up to the mast) I'll drag the mainsail on board, Moe you get the genoa, Larry save the boom.
Moe: The galley's a mess, I've spilled the dinner. I'll be there in a minute. Cut all the halyards.
Skipper: No save the halyards, cut the side stays.
Fred: I can't, I'm pulling in the mainsail.
Skipper: (yelling) Come on you guys we need to get out of here.
Fred: Don't yell at me I'm doing the best I can. I've never worked the mast before, I usually do the runners. Where do these halyards come out, which one's the main halyard?
Skipper: (yelling) Come on you guys we need to get out of here
Moe (appearing through the companionway) I've got the soup off the floor, how's it going?
Skipper: (yelling) Too late we're going (engaging forward gear)
Fred: Wait, the mast is over the side.
Moe: Anyone for coffee?

Poor Judgement / Error	Correct / Alternative

Revision Scenario Exercise 4

Scene: It didn't take too long cutting the ropes away from the propeller shaft, but Moe got very cold in the process. The crew tried to retrieve him over the gunnel near the prop but were unsuccessful. After some discussion, they decided to drag him on board over the stern. Curly Joe has stopped bleeding now that he has applied some bandages. He's sleeping comfortably. Working as a team, the crew have cut away the halyards, retrieved the genoa, cut the main free of the luff cars and have stowed them both down below. The water that came in on the knock down has been pumped out. All that remains is to retrieve the broken mast which is proving to be a difficult task as the waves continue to pound the boat but they are keen to save the stainless rigging as it was expensive to replace and the insurance companies never pay for that. It's dawn and there is land about 3 miles to leeward. Suddenly, the boat drops off the back of a breaking wave and the jagged edge of the mast pierces the hull, forward of the beam.

Fred: We're taking water. We're going to sink, I'll launch the liferaft.
Skipper: No, maybe we can swim for it. It's not far.
Fred: We're sinking, we're sinking. I've cut the raft free. Help me throw it over the side.

With that Fred throws the liferaft over the side, jumps into the water, finds and pulls the release cord, waits for it to inflate fully and climbs on board. Fred calls to his fellow crew.

Fred: Come on you guys, I'll help you in.
Skipper: I'll wake Curly Joe. Quick Moe, jump in before it floats away.
Fred: Come on Moe, jump I'll catch you.

Moe makes a good leap and lands on the raft. Curly Joe and Larry (the skipper) aren't as accurate and fall short as the raft has drifted away a little. They swim to the raft and are helped aboard by Fred. The four crew, exhausted by the ordeal, quickly fall asleep and are awaken later by the sound of Fred retching into the raft. The skipper looks outside and sees the yacht 500 metres away.

Poor Judgement / Error	Correct / Alternative

Revision Scenario Exercise 5

Scene: THE RESCUE

The water in the raft has wet everyone's clothes but Fred is really doing it tough. In his haste to abandon ship, he didn't get enough clothes but luckily he remembered his hip flask. Being wet and very cold, he pulls out the flask and takes 2 nips of brandy, sheds his wet jacket and drapes it outside to dry. While Larry, Moe and Curly Joe huddle together, Fred has an alcoholic glow, finds himself a corner and drops off to sleep. Later that night Fred wakes but is clumsy and confused. His skin is clammy and cold and he looks a bit blue. Larry comes to his aid by shaking him vigorously and massaging Fred's body and limbs and moves him to the open flap of the liferaft to get some fresh air.

By chance the skipper managed to take the EPIRB with him as he left the boat and deployed it once he was in the liferaft. Later that night, Larry heard the sound of a plane nearby. He sticks his head out and sees a fixed wing aircraft flying away. Acting quickly before the plane flies off, Larry lights an orange flare which blows the expected dense clouds of smoke. Unfortunately, the plane doesn't see the flare but 20 minutes later it returns as part of a search pattern. Larry was about to light another flare but stops when he sees the plane drop a green flare and change direction. To his surprise the plane flies past without showing any sign of sighting the liferaft. The plane returned in 20 minutes and as it approached from upwind it waggled its wings up and down, flicking green lights. Larry wasn't sure that the rescue plane would see them, so he reached for a parachute flare and aiming at the plane lit the flare and succeeded in gaining the attention of the pilot as he swerved to miss the parachute.

The sea rescue helicopter arrived at 08:00 and dangled a line to the liferaft below. Curly snags the line and quickly clips it to the raft so that it is secure and can't blow away. To his surprise the helicopter detaches the line. The helicopter moves away and lowers around line into the water. Everyone jumps out of the raft and swims for the line. Moe is first to reach it and places his arms through the sling, holding tightly onto the swivel and yells up to the crane operator to hoist him up. Half way though the hoist, Curly Joe waves to signal the winchman and slips out of the sling back into the water. Eventually a rescuer jumps from the helicopter and assists the crew members one by one into the helicopter.

Poor Judgement / Error	Correct / Alternative

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