KEAS | CUBS | SCOUTS | VENTURERS | ROVERS | LEADERS

The SCOUTS New Zealand Boat Book

ADVENTURE PLUS!

SCOUTS® New Zealand

0800 SCOUTS

scouts.org.nz

Acknowledgements

Compiled by Warren Megget
Regional Water Activities Advisor
Central North Island Region

Published by the Scout Association of New Zealand

P.O. Box 11348

Wellington 6142

Version 1.1 January 2014

Approved by: Roger Horton, National Water Activities Advisor

Authorised by: Alex Warriner, National Operations Manager

Table of Contents

SCOUTS New Zealand Boat Book

INTRODUCTION

This booklet is intended as an aid to Water Activities Leaders and those participating in Scout water activities. It is not a replacement for the New Zealand Sea Scout Handbook but it owes part of its contents to this publication. We encourage you to have a copy of the New Zealand Sea Scout Handbook in every Scout ship.

Boat work is only one side of Sea Scout training, but it is a most important one. The physical exercise required to row a boat will develop both the body and muscles, while the skill required and the thrill of sailing a small boat has to be experienced to be realised.

- A good Sea Scout will be amphibious – equally at home on the land or on the water.
- Additional training in maritime rules and regulations can only be of benefit and can help ensure that Scouts enjoy their boating safely.

Additional resources are available and some recommended ones are listed in the appendix of this publication.

SAFETY

Scout Management Procedures

The safety of our young people and their leaders is paramount. Scouting has a number of rules related to safety that are found in the Scout Management Procedures – section 43 publication that can be downloaded from the National website. Key excerpts are listed below and on pages 8, 9, and 10.

Rules and procedures do get revised from time to time. The key excerpts below are a guide only and should be confirmed in SCOUTS New Zealand Rule Book and Management Procedures on the website.

2.3 Activity intention forms

(a) The purpose of the activity intention form is to ensure that due consideration of risks, risk management strategies and appropriately qualified personnel are in place to ensure the safety of the youth and adults involved in Scout activities.

(b) An activity intention form must be approved for every water activity unless the activity is exempted as specified in Clause 2.4.

(c) The activity intention form, where water activities are involved, is approved by the Group Leader and copies provided in advance of the activity to the Group's Zone Leader and the Water Activities Adviser for the Zone where the Water Activity is to take place.

3.9 Boat surveys and seaworthiness inspections

(part only)

(a) All Scout vessels including canoes and kayaks must be surveyed annually and, except when undergoing maintenance, must continually be in survey. A vessel that passes its survey will be issued a Boat Certificate – Clause 3.11.

3.12 Permanent buoyancy in boats, canoes, kayaks

(part only).

(a) All Scout vessels are to have permanent buoyancy fitted to the satisfaction of the boat surveyor.

(b) Permanent buoyancy is to be made up of closed solid foam blocks, solid plastic tubes, buoyancy compartments or similar devices. Buoyancy compartments are to be filled with as many small closed plastic bottles as possible to provide additional integrity.

Other safety requirements

Refer also to the following paragraphs in Section 43 of the Management Procedures

2.7 - youth to adult ratios
2.13 - swimming
2.17 - voyage planning
4.6 - extended water activities

CHARGE CERTIFICATE

Charge Certificate explained

Persons in charge of boating activities must hold a valid Scout Charge Certificate of the appropriate type issued by the Scout Zone or Regional Water Activity Adviser. It is the responsibility of the Group Leader to ensure that this rule is observed.

The Charge Certificate acknowledges that the holder has completed training in boat handling skills and knowledge of local water and weather conditions to the satisfaction of the examiner.

Charge Certificates for water activities must be held by Leaders in charge of the following:

1. Sailing
2. Rowing
3. Canoeing and Kayaking

Limits of Operation

The limits of operation will be shown on Boat Certificates and on Charge Certificates. These limits are to be strictly observed. In each Zone the Water Activities Adviser is to record the approved limits and is to keep this record up to date and available on demand.

In special circumstances the Zone Water Activities Adviser may extend a Group's Boat and Charge Certificates to cover more than one locality. Such extensions may be granted if the Zone Water Activities Adviser is satisfied that the leaders concerned have the knowledge needed and the craft are suitable for the water and weather conditions.

Group Training Limits

A training area shall be defined by the Group Leader in consultation with the Regional or Zone Water Activities Adviser having regard to local conditions, provided always that the boats are under the supervision of an Adult Leader holding a Charge Certificate, or are operating under the control of a recognised Yacht Club.

A large scale chart of this Training Area shall be displayed at the Boat Shed or Group H.Q. and a copy is to be recorded by the Regional and or Zone Water Activities Adviser.

Charge Certificate Endorsements

Charge Certificates will be endorsed for the Zone the applicant is examined in, and for any one or more of the following type of vessels:

- Open boats under oars.
- Open or decked vessels propelled by outboard motor.
- Open vessels under sail.

5.3 Charge Certificate Syllabus

The following components must be completed by each applicant before a Charge Certificate will be issued:

(a) Be familiar with the Groups' boat certificates in respect to number of persons the vessels are permitted to carry and the limits of the areas that the vessels may operate in.

(b) Be familiar with the waters in local area and be able to read the largest scale charts. Have a good local knowledge of navigation marks, dangers, safe-landing places, and know how the tides and weather affect the area.

(c) Have successfully completed Unit Standard 6915, Coastguard Boating Education Day Skipper course or obtained a higher maritime document.

(d) Have a thorough knowledge of the SCOUTS New Zealand's Water Activities Rules and satisfactorily complete a Charge Certificate Theory examination.

(e) Complete a practical test and manoeuvre a Scout vessel to the directions of the examiner using a crew of youth members.

Provisions for endorsement

The provisions for the various classes of endorsement are set out below.

Open vessels under Oars:

- Qualify as in Clause 5.3 (a) above
- Take charge of a boats crew, prepare the boat with the correct equipment, launch the boat, using the correct orders maintain boat discipline and handle boat as directed by Examiner.
- Complete the rowing practical test.

Open or Decked Vessels Propelled by Outboard Motor:

- Qualify as in Clause 5.3 (a) above
- Take charge of a vessels crew, prepare the vessel with the correct equipment, launch the vessel, and demonstrate ability to handle the vessel as directed by the Examiner, using the outboard motor.
- Be able to manoeuvre the vessel by a secondary method of propulsion.
- Understand the operation of an outboard motor, the safety precautions to be taken, and be able to do simple maintenance.
- Complete the powerboat practical test.

Open Vessels Under Sail:

- Qualify as in Clause 5.3 (a) above
- Qualify and "Open Vessels Under Oars" Endorsement.
- Take charge of a vessels crew, prepare the vessel with the correct equipment, launch the vessel, using the correct orders, maintain discipline and manoeuvre the vessel under sail as directed by the examiner.

- Complete the sailing practical test.

Approval for another boating area

Any holder of a Charge Certificate who wishes to obtain an approval for another boating area, must make application to the Regional Water Activity Adviser but need only be examined by an Examiner in that Zone in respect of local hazards and conditions.

Canoes and Kayaks (rules and requirements)

2.10 Canoeing and kayaking

(a) Before permitting youth members to take part in canoeing or kayaking activities outside Group training limits, the Water Activity Leader must be satisfied that adequate training for the proposed activity has been undertaken by all participants, that the leader of any such activity has been further trained to a level where that person is competent to lead the activity safely.

(b) All canoeing or kayaking activities require an activity intention form, except National, Regional or Zone activities and those carried out at an approved centre where, in the opinion of the Regional or Zone Water Activities Adviser, adequate supervision exists.

5.13 Kayak - Leaders Certificate

(a) Leaders wishing to take youth members kayaking in sheltered waters must be in possession of a Kayak Leaders Certificate. Regional and Zone Water Activities Advisers will arrange courses so that these certificates can be obtained and will keep a register of those leaders so qualified. An activity intention form will be produced and copies circulated to the Regional or Zone Water Activities Adviser for all kayak and canoe activities

(b) Leaders wishing to take youth members on more challenging waters than covered in 5.13 (a) must ensure that a suitably qualified instructor is available and their qualifications are approved by the Zone or Regional Water Activities Adviser.

(c) Charge Certificate applicable clauses:

(i) Clauses from Rule 5 which apply to Kayak Leader Certificates are:

5.2 Charge Certificate Candidate eligibility
5.6 Charge Certificate Register
5.7 Charge Certificate details displayed
5.9 Expiry of Charge Certificate
5.10 Renewal or reissue of Charge Certificate
5.11 Suspension of Charge Certificate
5.12 Review of Charge Certificate suspension

(ii) Clauses from Rule 5 which do not apply to Kayak Leader Certificate are:

5.1 Charge Certificate examination
5.3 Charge Certificate syllabus
5.4 Charge Certificate practical test
5.5 Charge Certificate for new boating limits

In addition

- All canoes and kayaks must be surveyed and have permanent buoyancy fitted to the satisfaction of the boat surveyor.
- Make sure that Adult to youth ratios comply with Clause 2.7.
- It is also recommended that two or more support vessels are in attendance during the activity and manned by competent and trained personal.

Kayak Leaders Certification Course.

This course is for Youth Leaders wishing to undertake kayaking programs with youth.

- The course aim is to give the participant a sound basis on which to teach basic kayaking skills and recognise their own limitations as well as those of their pupils.
- It is limited to teaching basic kayaking and risk management identification on flat water – still or moving.
- Once the basic experience has been gained the pupil will be able to undertake and understand one of the many adult kayak courses that are available.

A Kayak Instructor must have the following skills

General

- Be able to swim at least 50 metres with buoyancy aid
- Have a basic knowledge of outdoor first aid, with particular emphasis on recognising the onset of hypothermia
- Understand and be able to teach basic weather
- Teach simple trip planning

Risk Management

- Understand the principles of identifying risks by classification
- People
- Equipment
- Environment
- Understand the principles of minimising the risks and evaluating the residual risk
- Plan for emergency situations should everything go wrong. This includes the instructor themselves becoming incapacitated in some way.

Kayak or canoe?

- Understand the different types of kayak so that activities chosen are suitable for the type of kayak available
- Be aware of the essential equipment that should always be taken no matter how short the intended trip
- Be competent in wet exits and self-rescue
- Understand and practice rafting skills as a means of controlling a group
- Understand the difference between kayaking on still water and in moving water
- Be able to teach pupils wet exits and assisted rescues

- Understand the importance of correct paddle strokes and how to avoid shoulder injuries
- Be able to teach pupils how to empty their kayaks in deep water and in shallow water
- Understand the importance of communications and know how to use them appropriately

Pupil Skills

The course handbook is aimed at providing the instructor with skills to manage pupils with no previous experience. Required pupil skills are therefore minimal.

- Since all water sports carry a finite level of danger it is necessary to restrict the activity to pupils who can understand these dangers and respect them. A disruptive pupil can cause the instructor to become distracted and therefore unable to manage the safety of the group.
- Instructors should also have completed the 'Club Safety Boat' course or are 'Scout Powerboat Charge Certificate' holders.

The course is in two parts

It is envisaged that the course usually be done in two parts.

1. Theory - approximately 2 hours
2. Practical - 2 – 4 hours depending on the numbers involved.

The course handbook would be available to all instructor participants.

RISK MANAGEMENT

Instructor/Leaders

Scout Leaders should have experience and competence in a wide range of skills that are relevant to the situations they will be working in with the students. Where boats are concerned, this experience:

- Should include recent knowledge of the location and the equipment being used.
- Should have a recognised boating or sailing qualification.
- Should have a current NZQA certified outdoor first aid certificate.

Dinghy Sailing

Key dangers identified

The key dangers in dinghy sailing are:

- Capsizing
- Collision with another boat
- Collision with another person in the water
- Drowning
- Running aground
- Colliding with rocks
- Hypothermia

Risk Management Guidelines for dinghy's

People

The nature of the risks involved in sailing are explained and understood by all.

Leader: student ratios will depend on

- the experience of the students,
- the type of activity being performed, the type of vessel being used,
- the Scout Management Procedures Guidelines,
- the environmental factors of the weather, sea conditions, locality etc.

Briefing

- The students are prepared and briefed before the activity and debriefed following it.

Safety vessel

- A safety vessel with a suitably qualified instructor shall be present.

Equipment

- P.F.D.s meeting NZ Standards to be worn by all.
- All craft to have sufficient floatation to float and support the crew in the event of swamping and/or capsize.
- Sailing dinghies are to be equipped with paddles, a bailer and any other safety equipment considered necessary.

Environment

- Care must be taken in order not to damage any marine water life.
- Leave the shoreline as clean as when you found it.

Emergency Preparedness

The safety vessel should be equipped with the following.

- reaching and throwing equipment,
- a first aid kit in a waterproof container,
- spare PFDs,
- a tow rope,
- flares and possibly spare warm dry clothing,
- on the water and adequately crewed.
- a shore based lookout person is required.
- a suitable recall and emergency communication system between the shore, the safety vessel and the students is established.

Canoeing and Kayaking

Key Dangers Identified

The key dangers are:

- Drowning
- Injury from equipment, e.g. paddles hitting heads
- Being blown out to sea
- Collision with another boat
- Hypothermia

Risk Management Guidelines for Canoes and Kayaks

Instructor/Leader requirements

Leaders should have:

- A current NZQA certified outdoor first aid certificate.
- An appropriate level of understanding of kayaking principles.
- An awareness of and compliance with access and legal statutes as well as the rules and regulations relevant to the activity.

People

The following will be in place:

- Appropriate planning procedures are conducted.
- The nature of the risks involved in kayaking are explained.
- Participants health concerns are known and catered for.
- Adequate supervision is provided relevant to the needs, abilities and student numbers.
- Adequate instruction is provided. This should include weight distribution, communication, re-entry after capsizing, safety procedures, weather and sea conditions.
- Appropriate assessment and planning procedures are followed.
- Students have demonstrated appropriate swimming skills.
- Safety procedures are followed including a safety vessel with a suitably qualified instructor if appropriate.
- The activities are appropriately designed for the age groups involved.

Equipment

- PFD's are worn at all times whilst on the water.
- All kayaks have appropriate floatation to float a boat awash with one person aboard.
- All participants have appropriate clothing and protective equipment.

Environmental

- The area selected is appropriate for the needs, abilities and numbers of people involved.
- The leaders are familiar with the area of operations. A pre-site investigation has been carried out to evaluate environmental conditions, site access, and hazard identification and assessment.
- Proper activities preparations are conducted.
- Leaders are aware of the historical and cultural characteristics of the environment.

Emergency Preparedness

- Leaders have training in kayak rescue.
- Adequate rescue equipment is available in the support vessel.
- A suitable recall and emergency communication system between the shore, the safety vessel and the students is established.
- The activities have established boundaries and emergency notification protocols.
- Capsize drills are conducted with support personal.

Additional notes

There should be a pre-determined rescue plan that includes:

- designated support boats
- rafting together
- situation controller

Emergency preparations could include

- swim evaluations
- swim tests with PFDs on
- capsize single boat drills
- multiple boat capsize drills
- hypothermia drills
- drown proofing techniques
- practicing rescue procedures

Safety Boat Equipment

Patrol and safety boats

Patrol/Safety boats used for Scout water activities shall be provided with the following equipment and crew consistent with the size of vessel and task undertaken:

(a) One plug and inspection port for each drain hole and buoyancy compartment opening.

(b) At least two oars or two paddles or some other means of secondary propulsion. If oars are provided then there shall be two crutches permanently attached to the vessel.

(c) At least one outboard motor clamped or bolted to the transom. There shall be an additional wire or chain lanyard connecting any clamped motor to a strong point inside the vessel.

(d) An approved marine grade fuel tank and hose system that holds sufficient fuel for the task undertaken.

(e) At least two bailers attached to the vessel with lanyards, one must have a capacity greater than 5 litres. If the patrol boat is fitted with an electric bilge pump, only one bailer need be carried.

(f) An anchor shackled to galvanized chain, (suitable for the vessel being used), which is shackled to at least 30 metres of anchor warp which is permanently attached to the vessel.

(g) A painter permanently fitted in the bow, which is of such length that it cannot become tangled in the propeller.

(h) A 10 metre towing painter permanently fitted in the stern of sufficient strength to hold one fully swamped cutter head to wind.

(i) A fully charged marine grade VHF radio or cell phone in a zip lock bag.

(j) A knife, duct tape and simple tool kit.

(k) A first aid kit in a waterproof container.

(l) One horseshoe buoyancy ring or rescue tube.

(m) Minimum of 2 crew.

Additional equipment

Depending on the planned water activity, area of operation and duration, the leader in charge must consider carrying some or all of the following:

(a) Charts or sections of charts contained in a waterproof wallet.

(b) Extra fully charges hand held VHF radios or cell phones in a zip lock bag

(c) Temporary anchor, warp and float to hold or buoy capsized vessels

(d) A boat hook.

(e) A Fire Extinguisher.

(f) Tools and spare parts kit.

(g) Drinking water and food supplies.

(h) A waterproof torch, spare bulb and spare batteries.

(i) A heliograph, mirror (or old CD / DVD).

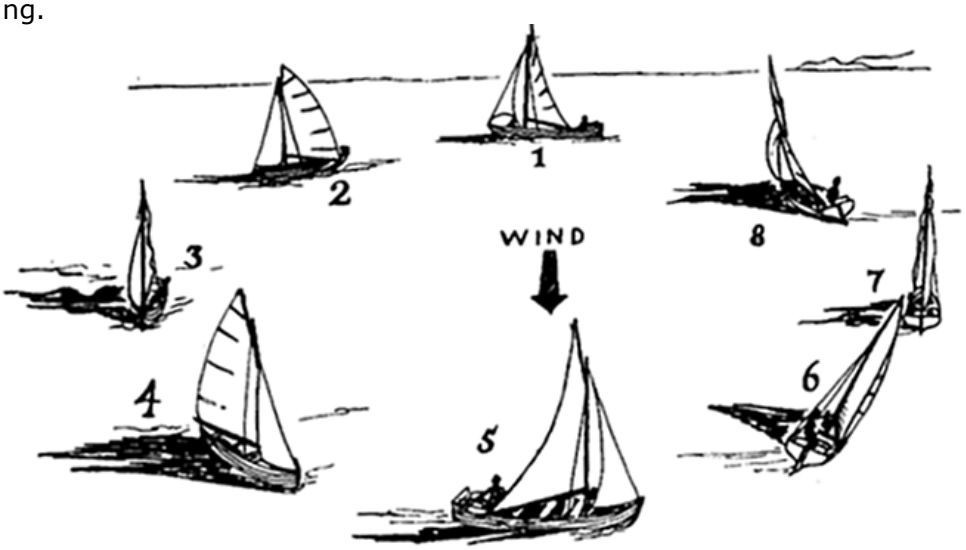
(j) Distress flares, both red hand held and orange smoke.

(k) Floating throw line.

(l) Any additional equipment specified by any Water Activities Adviser or Group Leader.

SAILING TERMS

You will find these terms and explanations helpful if you are new to sailing and rowing.



1. REACHING ON THE STARBOARD TACK. 2. RUNNING ON THE STARBOARD GYBE. 3. GYBING FROM THE STARBOARD TO THE PORT GYBE. 4. RUNNING ON THE PORT GYBE. 5. REACHING ON THE PORT TACK. 6. SAILING - CLOSE HAULED ON THE PORT TACK. 7. GOING ABOUT FROM THE PORT TO THE STARBOARD TACK. 8. SAILING CLOSE HAULED ON THE STARBOARD TACK

Close-hauled:

A boat is "close-hauled" when all the sails are drawing and it is sailing as close as possible to the direction from which the wind is blowing. (see 'Hug the wind' as well)

Sailing Free:

A boat is sailing free whenever the sails are filled and it is not sailing close-hauled, i.e., when it is free to manoeuvre freely on either side of its course without having to go about.

Reaching:

A boat is reaching when it is sailing free, with the wind abeam or a little before the beam.

Running:

A boat is running when sailing with the wind from behind the beam.

Port and Starboard Tacks:

When either close-hauled or reaching a boat is on the "port tack" when it has the wind on the port side and the "starboard tack" when it has the wind on the starboard side.

Tacking and Going About:

A boat "tacks" or "goes about" when it changes from one tack to another by altering course into the wind and then away from it on the opposite tack. The order "Ready about" or "lee-o" is a warning to the crew to stand by to tack.

Beating:

When a boat works close-hauled to windward in a series of tacks it is said to be beating.

Gybes and Gybing:

A boat "Wears" or "Gybes" when it changes from one tack to another, stern to wind, ie., opposite to tacking.

As the boat's stern passes through the wind when wearing, the mainsail will be blown from one side to the other and the boat is then said to "gybe". When running with the wind on the starboard quarter the boat is said to be on the "starboard gybe" and with the wind on the port quarter it is said to be the "port gybe".

A boat running before the wind "gybes" when either purposely or accidently the mainsail is blown across to the opposite side of the boat.

To Miss Stays:

A boat "misses stays" when it fails to go about from one tack to the other and pays off on the original tack.

In Irons:

A boat is "in irons" when it fails to go about from one tack to another and lies head to wind unable to pay off on either tack. It is then necessary to "back the foresail" and check the mainsail to get it to pay off on to the new tack. If it gathers sternway it is necessary to put the helm over to the opposite side.

The Helm:

- The coxswain always sits to windward of the tiller.
- "Up helm" or "Bear up" are orders to the coxswain to move the tiller up to windward and the bows will pay off from the wind.
- "Down helm" is an order to the coxswain to push the tiller to leeward and the bows will turn toward the wind.
- "Weather helm" is when a boat tends to come up into the wind even with the helm held amidships.

Lee helm

This is when the boat tends to pay off with the helm amidships. Most Standards carry a weather helm.

Weather

To "weather" an object such as a buoy is to pass on the windward side of it.

Luff

To "luff" is to bring the boat's bow closer to the wind.

Back a sail

To "back a sail" is to trim it so as to catch the wind on its fore side (i.e., back the foresail).

Heave to

"Heave to" is to lie close to the wind and stopped, by backing the foresail.

Hug the wind

"Hug the wind" is to sail as close to it as possible.

Pinch

"Pinch" is to hug the wind too closely so that the luff flaps and the sails are not properly filled.

Set sail

"Set" or "make sail" is to hoist sails and get under way.

Goose wing

"Goose wing" is to set the foresail and the mainsail on opposite sides when running before the wind.

SEA SCOUT CUTTER

Standard Wooden Boat Construction

The New Zealand Sea Scout Standard boat was designed in 1944 by the firm of Miller and Tunnage Ltd of Dunedin, to the order of the Dominion Commissioner for Sea Scouts, Mr A. J. Black. The firm were asked to design a boat similar to the Royal Navy's 16-foot skiff and the "Standard" is the result of their efforts.

Up until this time Sea Scouts used almost anything which would float, and this included a large number of ex-naval whalers and gigs, which had become very hard to acquire and too expensive to build, apart from which they were rather heavy for the smaller Scouts to handle.

The first two Standard boats were completed in time to be used at the Picton Regatta in January 1945. One of these, the Takitimu, was built by the designers in Dunedin and the other, the Rodney, was built in Auckland. Since then boats have been built in yards all over the country, including the Naval dockyard, which built the boats for Sea Cadets units.

Briefly, the Standard is a 5.2 m long, 1.5 m beam clinker built open rowing and sailing boat. In clinker built boats the planks run fore and aft with the lower edge of one plank overlapping outboard, the upper edge of the plank below it. The planks are fitted to the timbers of the boat and to each other by copper nails which are clenched over washers called "roves".

For single skinned boats this is a strong and light method of construction and is also comparatively easy to repair because a damaged plank may be removed and replaced without unduly disturbing the adjacent planks.

Standard Fibreglass Construction

In 1966 a mould was taken from a Miller and Tunnage boat and the hull reproduced in fibreglass. These hulls have become very popular and are being used alongside the wooden boats. Moulds are currently held in Auckland, Christchurch and Southland.

Scouts both row and sail these vessels and the following is designed to assist you in the enjoyment of them.

CUTTER UNDER OARS

Checking the Equipment of a Standard Boat under Oars

Before taking away a boat the coxswain should see that all the equipment is correct.

- The plug should be securely inserted in its hole.
- There should be a full complement of oars and one spare. Blades forward in a double banked boat, looms squared off on the stroke thwart.
- There should be a full complement of crutches and one spare, all secured to the boat by their lanyards.
- A stretcher should be fitted for each oarsman.
- The rudder should be shipped and the tiller secured with its pin.
- The painter and sternfast should be secured and coiled down.
- The inboard end of the anchor cable should be passed through the fore ringbolt and secured to the foremost thwart. If the boat has a fairlead fitted on the gunwale it will not be necessary to lead the cable through the ringbolt.
- Bailers and fenders should be secured to the boat by their lanyards.
- The boat hook should be handy to the bowman forward and the lifebuoy on the bottom boards aft within easy reach of the coxswain.

Known by your boat

It is an old Navy saying that a ship is known by her boats, and this is equally true of Sea Scout Troops. When away in a boat, remember that you carry the credit of your Scout Troop with you. See that the crew man the boat smartly and that they are properly dressed and the boat's gear neatly stowed.

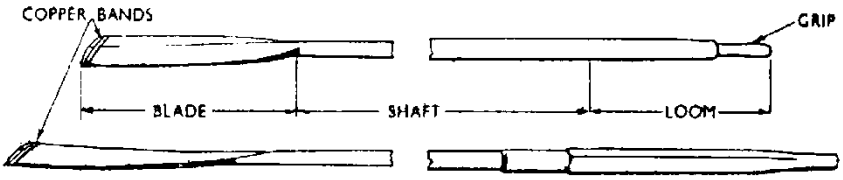
No standing

No member of the crew should be allowed to stand in the boat except when necessary to carry out duties, and the crew should be warned against placing hands or arms on the gunwale, especially when coming alongside.

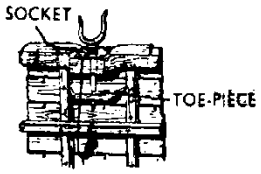
Carry a boat Bag

If the boat is to be away from H.Q. for the day it is a good plan to carry a "Boat's Bag" containing gear to enable minor running repairs to be carried out if necessary. It should include the following:

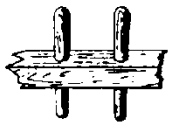
- Palm and needle
- Marline spike
- Sailmakers twine
- Spare cordage
- A hammer
- Some copper nails
- A spare plug
- A torch
- Copper tacks
- Dynel cloth, tape
- Fibreglass resin
- Red hand flares,
- Orange smoke flare
- Day glow square of plastic sheet

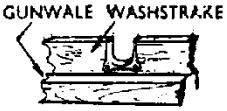


AN OAR



CRUTCH

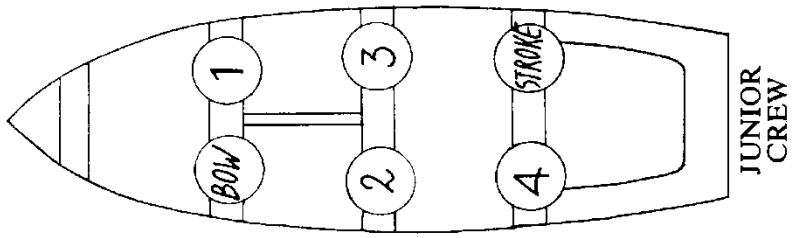

THOLE PINS

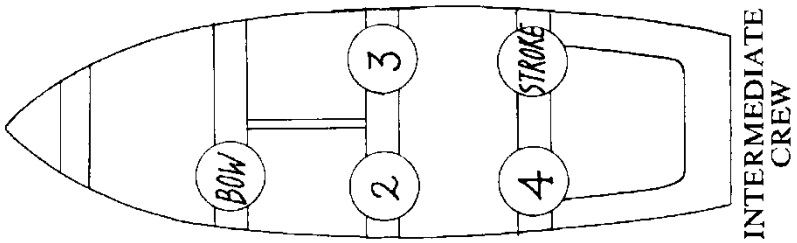


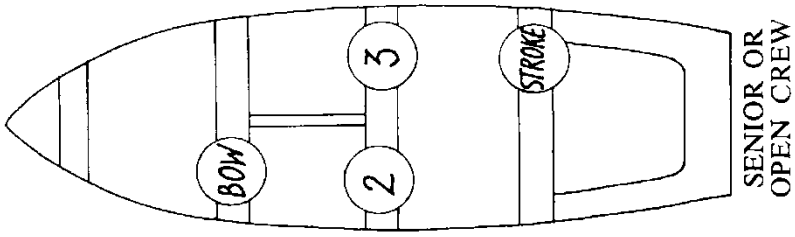
ROWLOCK

Instruction in Boat Pulling

The crew should be detailed off for their thwarts before manning the boat. There are three basic arrangements of oarsmen for four, five or six rowers respectively as illustrated.







- It will be noted that Stroke is always the aftermost oarsman on the starboard side and that the numbering of the positions of other oarsman does not alter with changes in the sizes of crews.
- Only in the case of a 6 oar crew are two bow oars carried. This is also a convenient arrangement of rowers for Patrol cruises.
- If during rowing instruction it is desired to distinguish between the bow oars, number the starboard bow oar one, preserving the general rule of odd numbers, starboard; even numbers, port.

- When boarding the boat the crew should be taught to step (not jump) on to the thwarts or benches, thence on to the bottom boards; they should also be taught to avoid stepping on to the gunwale, to move carefully in the boat, and to step over thwarts and not jump from thwart to thwart.
- The crutches should be unshipped, fenders out and oars squared off at the stroke thwart, blades forward.
- Each rower should sit squarely and upright on their thwart, with the after edge of the thwart where their buttocks meet their thigh muscles. The stretcher should be adjusted so that when their feet are resting on it, the knees are slightly bent.

Getting Under Way in a Standard

From Alongside:

At the order "Bear off" the bowhand bears the boat off and the near side crew on the stroke thwart springs the boat ahead.

From a Boom:

If at an inner berth order the bowhand to bear off by pushing the boat astern to clear the other boats alongside. At an outboard berth order the bowhand to move the boat ahead.

From a Buoy:

Order the bowhand to "Let go". Have the remainder of the crew at "Oars" to immediately be able to get under way.

In Fenders:

Bring fenders inboard.

Ship Crutches:

Place the crutches in their sockets.

Select Your Oars:

Each rower grasps their oar (stroke oarsman outboard oars) and raises the blade to the gunwale.

Toss Oars:

The oars are raised smartly to a vertical position with the looms resting on the bottom boards - blades fore and aft.

Oars:

The oars are lowered gently into the crutches, care being taken not to allow the blade to touch the water. The crew sit squarely and upright on their thwarts with the oars horizontal and blades "feathered", i.e., parallel with the water. NOTE: When given under way "Oars" or “ship oars” is an order to stop rowing and assume the position described above.

Give Way Together:

'Give way together' is then ordered.

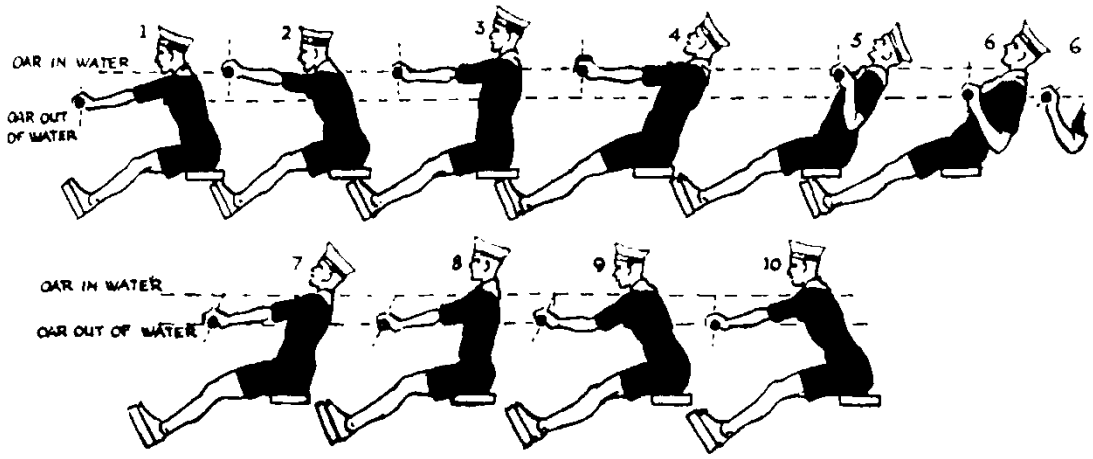
- In a tideway it may be necessary to have the crutches shipped and the oars tossed before ordering the bowhand to bear off to avoid the boat being carried away by the tide.
- These orders are given in rapid sequence and are executed in precise unison by the crew.

Rowing method

- In all methods of rowing the oar is pivoted at about one-third its length from the grip, and is used as a lever by dipping the blade in the water and pulling on the loom, thus driving the boat through the water.
- The sequence of body and arm movements is shown in the accompanying illustration. The hands should grasp the oars about 30 to 45 cm apart, the inner hand on the grip. The grip on the oars should be firm but light, fingers on top, thumb underneath. Both elbows should be kept close in to the body and the back straight.
- At the commencement of the stroke the rower leans forward keeping the shoulders braced back. They then lower the blade of the oar into the water by raising their hands and pulling the blade aft through the water by driving their feet against the stretcher, all the while keeping the back and arms straight, swinging the trunk of their body backwards until it is from 10^{o} to 20^{o} beyond the vertical. The end of the stroke is made with the trunk still in this position by bending the elbows and pulling the loom of the oar on to the chest with the arm and shoulder muscles. This should bring the oar with the blade just clear of the water at an angle of 45^{o} with the vertical.
- From the moment the oar enters the water, and throughout the stroke, the legs should exert a powerful drive against the stretcher.
- The cycle is completed by lowering the hands slightly to make sure the blade clears the water, dropping the wrists to feather the blade. The arms are then thrust forward and the trunk swung upright by the stomach muscles.
- The crew should reach well aft at the commencement of the stroke and raise the wrist so that the blade of the oar presents the correct angle to the water.
- The catch should be made exactly together, with as much weight as possible on the looms of the oars, and the arms should be kept straight until the body reaches its backward position. If this is done correctly the oars will come home easily at the end of the stroke.

There are then four parts to a complete stroke:

1. Leaning forward and lowering the blade in the water ready to start the pull.
2. The sweep of the blade toward the stern to give the headway.
3. Raising the blade out of the water and turning it flat (feathering).
4. Swinging the oar back to position for the next stroke. Be careful not to make this recovery too rapidly. Give the crew time to breathe correctly.



Pulling Orders

When a pulling boat is under way, any order to the crew is obeyed by completing one full stroke after the order is given. The exception is "Hold water" which is obeyed instantly.

All such orders should be given at the moment when the blades of the oars are in the water. Obeying the order the crew should take their time by the stroke oars.

"Port" or "Starboard" orders

When "Port" or "Starboard" is included in the order it refers to the bank of oars on the port or starboard side of the boat respectively, i.e., "Give way port" if only the port bank of oars is required to give way.

"Back together"

"Back together" is the order to back water together by pushing on the looms of the oars instead of pulling (or "Back port" or "Back starboard").

"Easy All"

"Easy All" is the order- to pull less vigorously so that the speed of the boat will be reduced. If the boat is being turned, "Easy port" or "Easy starboard" may be given. To resume normal pulling the order- "Give way together" is given.

"Stroke together"

"Stroke together" is the order for all to give one stroke together.

"Oars"

"Oars" is the order to stop pulling which is given when the oars are about to be boated or tossed.

NOTE:

- If the oars are not to be boated or tossed the order "Oars" is given; for example, when ordering "Rest on oars". This order allows the crew to relax by laying their oars athwart the boat with the grips on the gunwale, blades flat.
- With a heavier oar, such as is used in naval whalers and cutters, the grip is slipped under the gunwale, the weight of the outboard end of the oar holding it in place.

"Shipped" and "Boated"

Oars, crutches, etc., are "shipped" when placed ready for use and "boated" when stowed away in the boat.

"Mind your oars"

"Mind your oars" is a warning to the crew to keep the blades of their oars clear of some obstruction ("Mind your port oars" – "Mind your starboard oars").

"Eyes in the boat"

"Eyes in the boat" is an order to the crew to keep their gaze from wandering abroad and to pay attention to the job. There is, tendency with new Scouts to watch the blade of the oar, which should be discouraged at an early stage.

Going Alongside in a Standard Cutter

When the boat is within 50 metres or so of her destination the order, "Fenders out", is given, followed by the order, "Bows".

- At this the bowhand tosses their oar and then boats it, passing the loom aft.
- The bowhand then stands in the head sheets with the boat hook vertical and stands by to fend off the boat. They should also make sure the painter is clear and ready to be made fast.
- Then the order "Oars" is given, followed by "Toss oars" and "Boat oars", at which order the oars are lowered gently into the boat, stroke oars nearest gunwale, blades forward and squared off at the stroke thwart. The crew then unship their crutches and the stroke stands up in the stern sheets ready to fend off or check the way and make fast aft.
- Where there is insufficient height for the oars to remain tossed the order, "Toss and boat your oars", is given after "Oars". The oars are tossed and held vertically for an instant and then laid in together.
- Oars are never tossed when going alongside in heavy sea or swell in case the blades of the oars catch under some projection and drive the loom through the bottom.

- Under such conditions "Oars" – "boat your oars"- is given, and the oars are lifted clear of the crutches and the blades swung forward in a horizontal arc and as the oars are boated the looms are passed aft.

Making Fast

Learn to “make fast” by making a knot using a bight in the rope instead of hauling yards of rope through to make a knot at the right length.

- If the painter is long enough, pass it round some object (ringbolt, bollard, etc.) ashore and secure it back in the boat.
- If the boat is likely to be alongside for long, don't forget the tide. It's no fun to return to find the painter secured under water or the boat slung up by its painter.

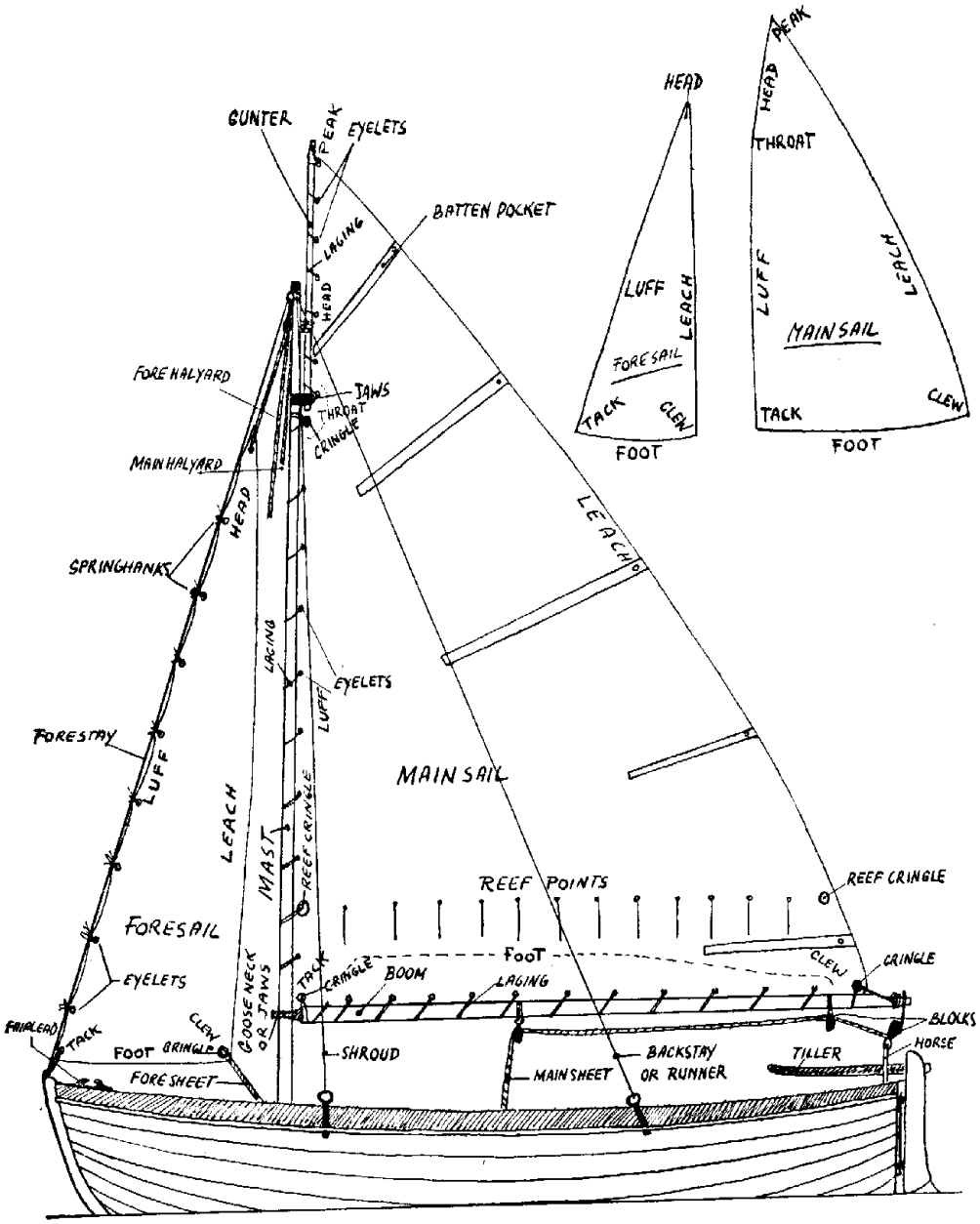
SCOUT SAILING CUTTER

Rig of a Standard Cutter

The Standard cutter is "Sloop" rigged; that is to say, it has a single mast carrying one headsail, called a foresail, and one mainsail. The mainsail is Gunter rigged, a compromise between Bermuda and Gaff rigs. See illustration below.

This rig means that while the sail is cut to almost the same shape as Bermuda sails, the top half of the luff, or the head of the sail, is secured to a gaff, which is hauled close up to the mast and serves as an extension to it. It's particularly suited to the Standard boat because of the desirability of having a mast which can be stowed inside the boat.

Standard boat illustrated



Sails and Rigging

The sails are usually made of terylene, a hard wearing light fabric which lasts longer than cotton or canvas.

The parts of three and four-sided sails are named in the illustration of a Standard boat. The details are common to most fore-and-aft rigged boats.

Additional information about boat sails and rigging follows:

A bolt rope

This is the roping on the edge of a sail. It is always sewn on the side of the sail which will be to port when the sail is set. The luff, head and foot of a Standard mainsail are roped.

Sheet

This a rope bent to the clew of a sail by which the sail is trimmed as required and is named after the sail to which it is bent, i.e., fore-sheet, mainsheet.

- To 'check a sheet' is to ease it away so that the sail is eased out.
- To 'aft a sheet' is to haul it in so that the clew of the sail is hauled aft.
- To 'let fly' a sheet is to let it run so the sail flaps and the wind is spilled out of it.

Halyard

This a rope by which a sail is hoisted and lowered, and to 'settle' a halyard is to ease it away.

Cringle

These are eyes worked into the bolt rope at the sides and corners of the sail.

In the case of a Standard foresail cringles are the eyes to which are bent the halyards, sheets and tack hook.

In the case of the Standard mainsail cringles are the eyes to which are bent the peak, throat, tack, and clew earings.

Two extra cringles are fitted at the end of the line of reef points on the mainsail and these become the tack and clew when a reef has been taken in.

Eyelet

These are eyes worked into the head, luff, and foot of the sail for lacing it to a spar.

Earing

This is the lashing which secures the throat, peak, clew or tack of a sail to its spar.

Yard and gaff

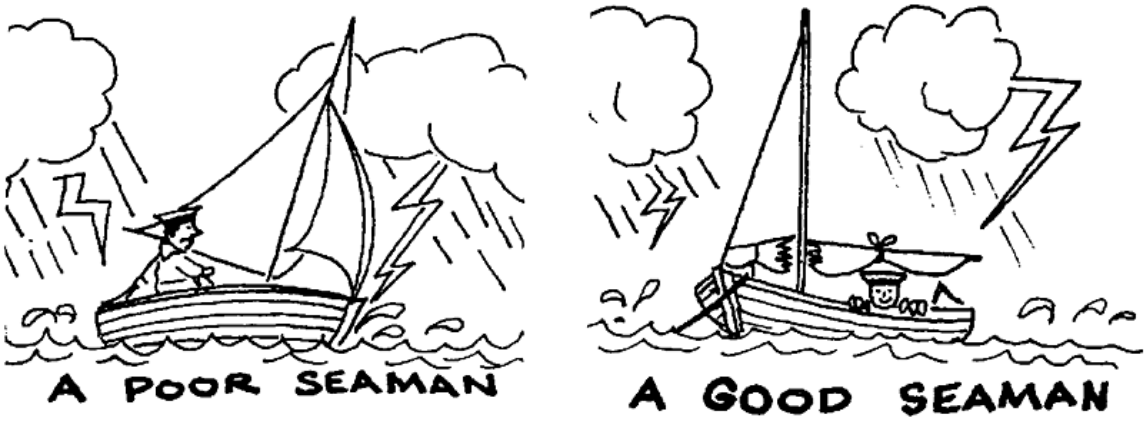
The head of a four-sided sail is bent to and supported by either a yard or a gaff has a yard crosses the mast, but a gaff has jaws at its throat which fit around the mast.

Reef points

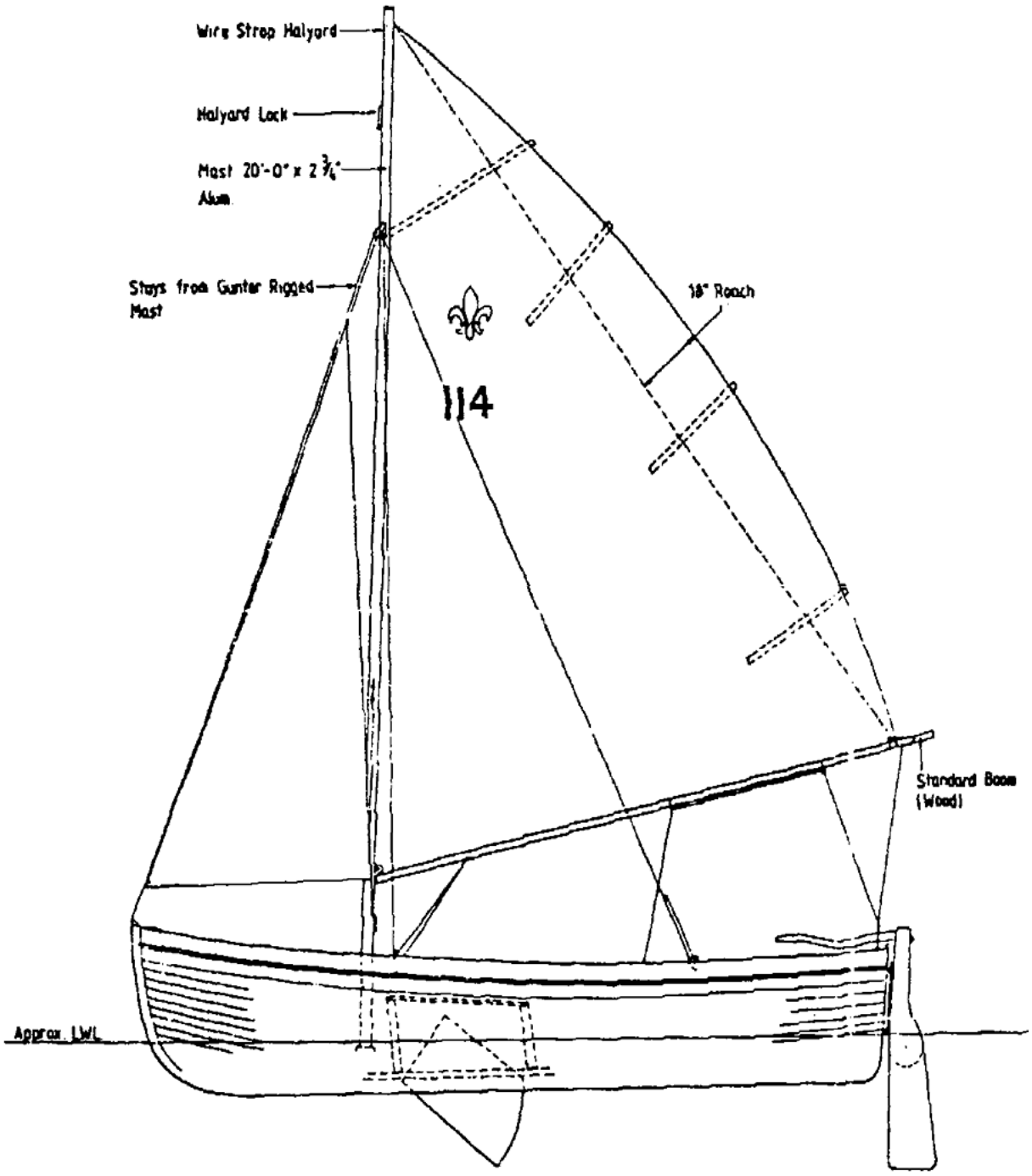
These are short lengths of line secured to each side of a sail in pairs, above its foot, and are used for reefing the sail. To "reef" a sail is to reduce its area to prevent heeling too far over and capsizing. A Standard sail is reefed by settling the halyard until the reef points can be secured round the foot of the sail. "Taking down a reef" is putting a reef in a sail and "shaking out a reef" is to take it out again.

Foresail

This is the sail set before the mast. (NOTE: The Standard headsail is a foresail, not a jib. A jib is any headsail set before the foresail.)



Rig of a Scout Cutter - Alternate Rig



Alternate cutter rig illustration

Mast

- Aluminium extrusion with Continuous luff groove to the following dimensions:
- Length: 6100 mm (20’-0”)
- Cross Section: 77 x 63 mm. minimum

- No buoyancy to be added.
- A 16 mm diameter hole to be drilled in the base for drainage.

Goose Neck

- Either fixed or adjustable – Material is Stainless Steel.

Halyard Locks

- Two locks are fitted to mast so that the main sail can either be fully hoisted or lowered to reef point.

Boom

- Either original wood or aluminium.
- Aluminium extrusion with continuous foot groove.
- Length: 3860 mm (12’-8”)
- Cross Section: 63 x 57 mm minimum.

Boom Vang

- Own choice.

Jib Sail

- Jib Foot: 1651 mm (5 ‘-5”)
- Luff: 3530 mm (l1’-7”)
- Leach: 3251 mm (10’-8”)

Main Sail:

- Foot: 3632 mm (11’-l1”)
- Luff: 4699 mm (15’-5”)
- Leach: 5410 mm (17’-9”)
- Leach Roach: 457mm (1’-6”)
- 1 Reef Point: 914 mm (3’-0”)
- Either slab or reef points at 3’ up luff.
- N.B. If aluminium boom is used then foot of main sail requires bolt rope sewn in.

Other information

- A tri-sail has been designed for the Standard. It is a triangular, loose-footed sail set in place of the mainsail.
- A forestay leads forward from the masthead and is secured either to a stem-head shackle or a chain-plate on the stem-head.
- Shrouds lead from the masthead to chain plates on the sides of the boat and support the mast athwartships.

- Backstays, commonly called “runners”, lead aft from the masthead to support the mast, particularly when sailing with the wind abaft the beam.
- Standing rigging comprises all the permanently fitted and secured wires such as stays and shrouds. In a Standard cutter these are made from 20 mm steel wire rope with served hard eyes each end and are shackled to the masthead spiderband with D-shackles. Nowadays stainless steel wire with talurit splices are used for the stays. The lower ends are fitted with lanyards, usually a nylon cord.
- Running rigging comprises all the movable ropes such as sheets and halyards. Made from 30 mm rope in Standards, usually nylon.

Principal Parts of a Standard Cutter

Apron:
A piece of wood fitted to the after side of the stem and extending throughout its length, to which are secured the forward ends of the planks.

Benches:
The seats fitted round the sides and after end of the stern sheets. (See "Stern Sheets.")

Bilge:
The space between the bottom of the boat and the floorboards.

Bilge Rails:
Lengths of wood fitted along the outside of the turn at the bilge.

Bottom Boards:
Slats of wood which form the flooring of the boat. They can be removed if required. (See also "Floorboards.")

Breast Hook:
A piece of wood of the thickness of the gunwale and grown to shape, which is fitted to the curve of the gunwale in the eyes of the boat where they join the apron and so serves to strengthen the bows of the boat.

Capping:
A strip of timber which is fitted to the top of the gunwale or washstrake to strengthen and protect it. At intervals it is pierced to take the sockets for the crutches.

Centre-Plate or Drop keel:
A metal plate which can be lowered through a slot in the keel so that it projects below the boat and thus checks the leeway when under sail. It is housed in a wooden casing known as the "keel box" or "centre case"

Counter:
The overhanging part of a square-sterned boat.

Deadwood:
The piece of timber which joins the apron to the hog thus strengthening the joint between the stem and the keel or the sternpost and the keel.

Eyes:

The foremost part of the boat just abaft the stem.

Floorboards:

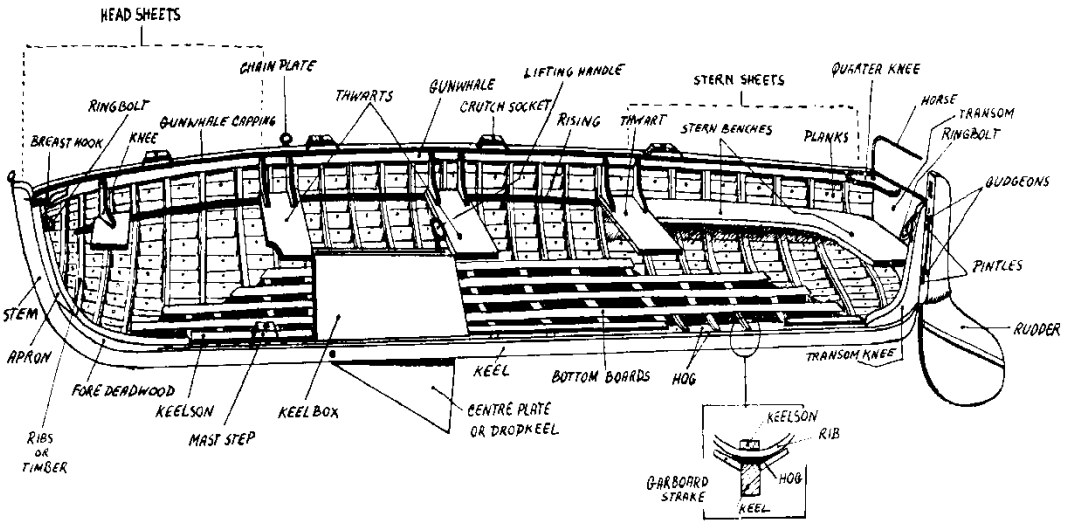
These consist of removable gratings or planks which form a platform over the bottom of the boat extending from the head sheets to the stern sheets. Some Standard boats are fitted with floorboards in the head and stern sheets only and have bottom boards between them.

Garboard Strakes:

The line or strake of planks which runs next to and on either side of the keel.

Gudgeons and Pintles:

The fittings by which the rudder is hung and pivoted to the transom. The pintle is the vertical pin, and the gudgeons the horizontal eyebolts into which the pintle fits.



N.B. Buoyancy not shown. PARTS OF A BOAT

Head Sheets or Bow Sheets:

The space in the bows of the boat between the stem and the bow thwart.

Hog:

The length of wood fitted to the upper part of the keel. With the keel and deadwood it provides the anchorage for the inner edges of the garboard strakes and the lower ends of the timbers. It also serves to strengthen the keel.

Knees:

Wooden fittings which secure the thwarts to the side of the boat.

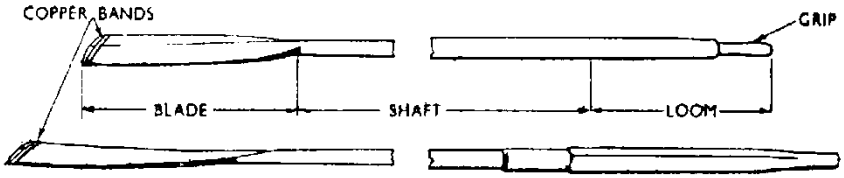
Mast Step:
A piece of wood shaped to take the heel of the mast and fitted to the keel.

Number:
All standard boats are registered with N.H.Q. The number is carved in the transom on the starboard side or otherwise permanently affixed. It is also carried on the mainsail in numerals 30 cm high and of black material 0.65 cm in width.

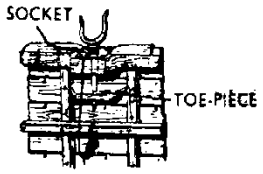
Plug:
A wooden bung, cork, or screwed metal plug which fits into a hole bored into one of the garboard strakes for draining the boat.

Risings:
(see "Stringers").

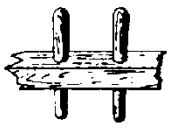
Rubbers or Rubbing Strakes:
Strips of wood extending from the stem to transom outside the washstrake. They protect and strengthen the top strakes.

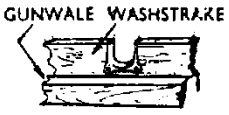


AN OAR



CRUTCH


THOLE PINS



ROWLOCK

Sockets:
Round holes in the capping and gunwale lined with metal to take the crutches.

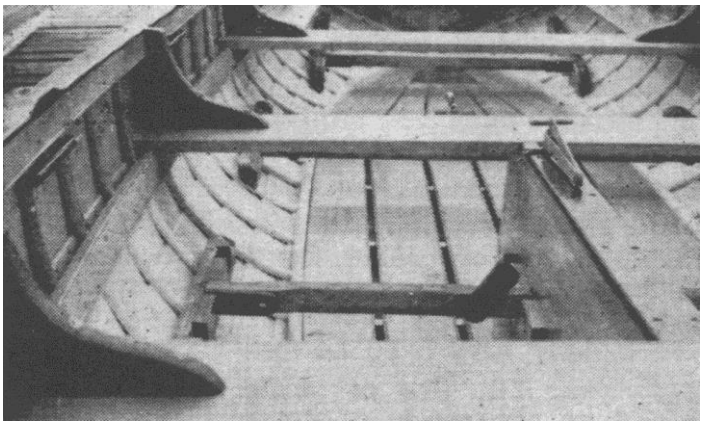
Stem:
The foremost vertical member of the hull, the lower end of which is scarfed to the keel.

Stern Sheets:

The space extending from the stroke thwart to the transom, and round the sides and after end of which are built the stern benches.

Strakes:

Lengths of planking which in clinker built boats extend parallel with each other from stem to stern.



Stretchers:

Adjustable wooden bars fitted athwart the bottom boards to provide footrests for the oarsmen.

Stringers: Lengths of wood extending fore and aft over the timbers to which they are fastened. The stringers which support the thwarts are called "risings"; these are the only stringers fitted in a Standard boat.

Thwarts:

Benches fitted athwart the boat on which the oarsmen sit.

Timbers:

Curved pieces of wood which extend upward from the keel at short intervals throughout its length. Frequently called "ribs".

Top Strake:

The uppermost strake of a boat's planking.

Transom:

A board which is fitted to the after side of the stern post and extends to each side of the boat. The after ends of the planking are fastened to it.

Transom Knee:
A piece of wood grown to shape which fits between the hog and transom of a square-sterned boat. It is extended almost the full height of the transom in a Standard boat and also serves as a sternpost.

Fittings on a Standard Cutter

Boat's Cable or Anchor Cable:
A 20metre length of up to 30 mm rope attached to 5 metres of chain and a 2kg anchor which the boat rides when at anchor. The cable is roved through the stem ringbolt and secured to the foremost thwart.

Buoyancy:
1.5 cu. m of buoyancy is fitted at the bow and stern of the standard boat. It is usually made of polystyrene or polyurethane foam blocks or could be made of copper tanks. The buoyancy is fitted to give the boat a greater safety margin in the event of swamping or capsize. Most but not all Fibre Glass boats have the buoyancy built into the hull and thwarts.

Chainplates:
15 cm metal eye plates fitted to the stemhead and the outside of the top strake to take the forestay, shrouds and runners.

Cleats:
Shaped pieces of wood or metal on which the halyards and runners are belayed.

Crutches:
U-shaped fittings which fit into meal sockets in the gunwale and are always secured in the boat by a lanyard.

Horse:
A curved bar of brass, fitted along the top of the transom to which the block of the mainsheet is shackled; the block travels from side to side of the horse when the boat is put about.

Keelson:
A length of wood fitted to the upper part of the hog. The inboard edges of the floorboards are secured to it. Some Standards do not have a separate keelson but incorporate it with the bottom boards.

Mast Clamp or Bracket:
A metal clamp or bracket fitted to the mast thwart for clamping the mast in position.

Painter:
A length of stout cordage (generally 30 mm) secured to the fore ringbolt and by which the boat is secure when alongside or at a boom. Minimum length is 6 metres.

Ring Bolts:
Eyed bolts with a ring through the eye clenched through the stem and the sternpost.

Sternfast:
A rope similar to the painter, secured to the after ringbolt for marking fast the stern of the boat.

SAILING A STANDARD CUTTER

Rigging a Standard Cutter

- Stow the oars under the thwarts, blades aft, two each side of the centre case on the bottom boards.
- Place the mast in the boat, heel forward, and the mainsail on its spars alongside the mast, peak aft.
- Step the mast through its bracket into the mast step and secure the forestay and shrouds, taking care to evenly divide the strain.
- Set up the runners (if fitted) and leave them slack.
- Bend the foresail halyard to the peak of the foresail, and attach the clips on the luff of the foresail to the forestay. The tack of the foresail should be secured to the stemhead chainplate by a shackle or lanyard so that the foot of the foresail when set will be approximately the same height as the foot of the mainsail.
- Secure the foresheet leading blocks to the shroud chainplate and reeve the sheets (put a stopper knot, such as a figure of eight, in the ends of the sheets to prevent them unreeving), leave the foresail lowered and belay the end of the halyard to the cleat on the starboard side of the mast.
- Secure the main halyard to the gaff with a rolling hitch (with the two turns toward the peak), and make sure the knot is so made that the halyard leads fairly into the masthead sheave, otherwise the gaff will twist and upset the set of the sail.
- Check that the peak and clew earings have been hauled taut and secured. (This should be done ashore before the sail is placed in the boat.)
- Hoist the sail, passing back and forth lacing from the lull round the mast.
- Fit the battens and secure them in their pockets, with the exception of the bottom batten unless it is intended to leave the sail hoisted.
- Pass the eye of the mainsheet over the outboard end of the boom, then reeve the sheet through the single block on the horse, then through the block at the end of the boom and forward through the leading block above the stroke thwart and coil down on the bottom boards.
- The tack of the mainsail is secured by a short tack line if the boom is fitted with jaws. The tack line prevents the boom from riding up the mast and keeps the luff taut. Larger vessels have a tack tackle. There is no tack line if the boom is secured by a gooseneck swivel.
- When the sail is fully hoisted the boom should be about a foot above the gunwale and the gaff close up to the mast with no slacking away at the peak.
- The halyard should then be belayed to the cleat on the forward side of the mast. Always use this cleat for the main halyard, and the cleat on the

starboard side of the mast for the foresail; then there can be no mistakes among the crew if a halyard is required in a hurry.

- Fit the sailing tiller in the rudder head and secure it with its pin. Lower the centre-plate.

Launching a Cutter

General information

Rig your cutter on its trailer while parked somewhere flat, away from the slipway so you don't get in others' way.

(a) Face the trailer into the wind. Once the sails are up, if the wind gets behind the sail a dangerous situation can easily develop.

(b) Generally you only want light people in a cutter while on its trailer so the hull is not subject to damage.

(c) The exception may be when raising the mast- a cutter mast is long and quite hard to manage, usually needing a strong adult in the boat to control it.

To raise the mast,

(a) First make sure you have all the associated ropes and wires under control. For example, you need to make sure that the fore- and side-stays are not tangled, and you need to have both ends of the halyards tied off at the bottom end of the mast so they don't disappear when you need them.

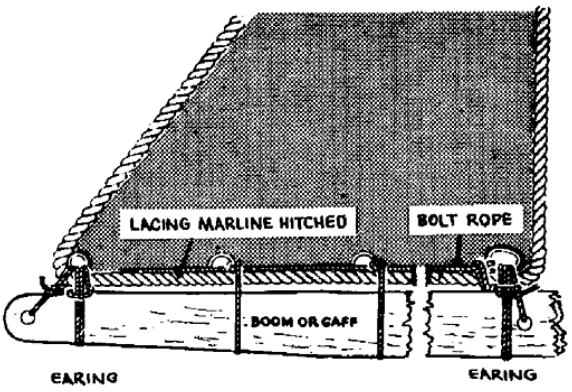
(b) Have a team of young people feed the mast into the boat over the transom, bottom end first. The adult (or strong Venturer) in the boat guides the mast bottom into position first, then goes to the stern and walks forward, lifting the mast from laying flat to standing vertical as they go. They then hold the mast in place while the other team members secure the fore and side stays.

(c) Rig the sails last. Once the sails are in the boat it becomes harder to check everything else- so do the everything else first. For example, the anchor, bailers, oars, rudder and tiller, life ring and don't forget the bungs.

When rigging the sails

(a) Pay particular attention to keeping control of the halyards. It's very easy to let the top end of the halyard get pulled up out of your reach and have to drop the mast again to catch it.

(b) Pull the headsail all the way up, check that the sheets are taken to the correct sides of the boat and not crossed. Take each sheet through its fairlead and tie it off with a figure-of-eight knot on the

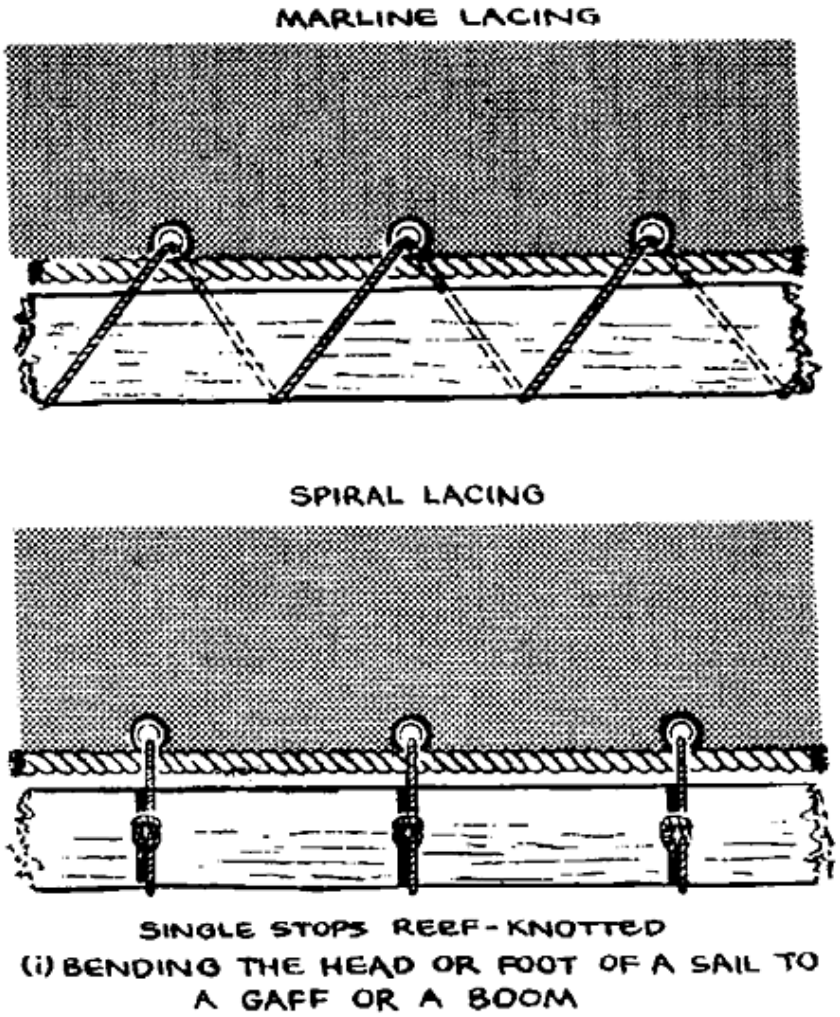


other side to stop it coming out again. Then drop the headsail again so it doesn't flap in the wind.

(c) Pull the mainsail up. If the front edge of the sail has a rope sewn in, it runs in a track up the mast and someone will have to feed it into the track as someone else pulls the halyard to hoist the sail. Older cutters may have the sail laced to the mast instead. Make sure the mainsail is hoisted right up to the top of the mast.

(d) While the mainsail is up, attach the bottom edge of the mainsail to the boom (methods vary), attach the boom to the mast and attach the vang (diagonal pulley which holds the boom into the mast). Now rig the main sheet (again, methods vary quite considerably).

(e) Then drop the mainsail again, without disconnecting any of the rigging.



Launching the cutter

(a) Now you are ready to manoeuvre the cutter to the water. Normally, you will need to use a car to tow the cutter trailer to the slipway and reverse down to the water.

(b) Slipways are often slippery, so move slowly and carefully. This applies especially to people walking around on the slipway.

(c) No-one should walk behind the boat (between the boat and the water). The car driver cannot see anyone behind the boat and might knock them over.

(d) Someone must be responsible to hold the cutter's painter so that when it is afloat it cannot float away. Ideally that should be their only job.

(e) Back the cutter to the water so that the trailer wheels are in the water, but no further than absolutely necessary. It should be possible to push the cutter back off the trailer without submerging the trailer.

(f) Once the cutter is afloat, get everyone clear of the trailer and have the car tow it out of the way so the slipway is clear for other users.

Hoist the sails

(a) Now get the crew into the cutter and start hoisting sails (main first). Someone must still be outside the boat, holding the boat head into wind. Again it will be dangerous if the wind gets behind the sails before the crew is completely ready to sail away.

(b) At a Regatta, you normally need the Beach Officer's permission to sail away (to make sure the crew knows the latest information about the race, and that safety cover is ready). In other circumstances, the helmsman should be satisfied that safety cover is in place and then sail away to clear the slipway for other users.

Halyard and gaff

Having got our boat rigged and a fair idea of the terms and orders used, we are ready to set sail.

- The set of the sails is almost as important as their trim and the chief factor in setting sail is to see that the luff is hauled up taut.
- The position of the halyard in the gaff is all-important if the sail is to set correctly.
- Once set, it should be clearly marked so that the sail is the correct height above the gunwale and the gaff hard up to the mast.

Foresheets

The correct lead of the foresheets is also important.

- There should be a sufficiently wide gap between the leach of the foresail and the luff of the mainsail for the wind to flow freely between them.

- When correctly led the sheet should approximately bisect the angle of the clew, and the pull of the sheet should tend to tauten the leach rather than the foot.
- The mainsail is cut to set in a slight curve whose greatest depth is just abaft the luff.

Trimming the Sails

The strength and direction of even a steady wind is continuously altering and the art of sailing a boat lies mainly in paying constant attention to its slightest change and then altering course or trimming the sails to meet it.

- The sheets should always be kept in hand and never belayed.

Getting Under Way

With the sails set and the lee back-stay slack, order the bows to "bear off', the "aft fore", "check main", and the boat will pay off on to the wind.

- If you are alongside a jetty and can hang on aft until the bows have paid off, so much the better.
- As soon as the bows have come round "aft main", then pay attention to the trim of the sails and shift the crew to balance the wind and keep the boat upright.
- Sailing the boat along with the lee gunwale nearly awash may look fun, but a lot of the wind will be spilling off the top of the sails instead of driving the boat along.
- Keep a curve in your sails – they can be set flatter in a high wind than in a light wind.
- When sailing on the wind, as when beating, the luffs of the sails should be just not shivering, so keep an eye on the luff of the mainsail, and if it starts to shiver ease up on the helm until the sail is steady.

Going About

Before going about from one tack to another the boat should be paid off a little so as to gather way to enable it to get round; the coxswain calls "Ready about", ease the helm down gently, and the, boat sails through the wind to opposite tack.

- As the helm is put down the mainsheet should be hauled aft and the foresail checked slightly, and as the bows pass through the eye of the wind the foresail should be backed by hauling aft the windward foresheet, and the mainsail should be checked; this helps the boat to pay off on the other tack.
- As soon as it is certain that the bows will pay off on the new tack, the order, "Let draw, aft sheets," should be given, the Ice foresheet and the mainsheet being hauled aft.

Reaching

When reaching keep the boat on as even a keel as possible and check the sheets until the sails start to shiver, then haul them in a little until the sails are well filled and taut.

Running

When running the sails should be set so they are at right angles to the wind. When running dead before the wind the sails may be goose-winged and the centre—plate up, but running dead before a strong wind is to be avoided as the boat will tend to yaw uncontrollably and may gybe, broach to and capsize.

Downwind

If your destination is down wind, steer a zig-zag course, keeping the wind well on the quarter. No time will be lost doing this as the boat sails faster with the wind on the quarter.

Wearing

Wearing is the reverse of tacking, the boat changing from one tack to the other, with the stern passing through the wind.

- To wear, the helm should be eased up gently and the mainsheet hauled aft as the helm is eased up, and checked quickly as soon as the wind is on the other side of the sail.

Gybing

It is important to avoid gybing the boat heavily because the weight of the boom swinging over may carry away the shrouds or backstays and heel the boat over before the crew have a chance to trim it on the new tack, in which case it may capsize.

Rough Weather

When struck by a squall the sheets should be quickly checked, particularly the foresail, and the helm eased down to luff the boat up and spill the wind from the sails; the sheets can then be hauled aft and the boat paid off as necessary to continue on the original course.

Reefing

Take in a reef as soon as the boat starts to get "wet", that is, when the water starts to splash in over the lee gunwale.

- Luff the boat up into the wind, take out the bottom sail batten and lower the main halyard so that the sail when reefed will set at the correct height above the gunwale.
- Tie the reef cringle earings around the boom, mast end first; then tie the reef points round the foot of the sail, gathering the sail neatly.

- To shake out a reef reverse this procedure, i.e., luff up and spill the wind from the sail, untie the reef points, let go the reef earings, then haul taut on the main halyard and replace the bottom sail batten.

Capsizing

In the event of a capsize instruct the crew to stay with the boat.

- If possible, try and bring the boat back upright. If the boat cannot be righted, raise the drop keel, unship the mast and allow the sails and spars to float clear but secured by a line tied to the boat.

Swamped boat

Whenever possible a swamped sailing boat should be unrigged and the mast unshipped before it is taken in tow.

- With buoyancy fitted in the boat it may if weather conditions permit be possible to recover the boat.
- By righting, lowering the sails and getting one Scout in to start bailing furiously, with a large bailer.

Going Alongside

Always go alongside head to wind if possible, approach the landing place on a reach, checking the sheets to control the speed.

- Order the bowhand to stand by and at the same time order the fenders out. Haul the sheets aft as you ease the helm down to round up into the wind and "let fly" when you judge the boat to have sufficient way on to come exactly alongside without bumping.
- Remember that a heavily laden boat will carry her way much further than a lightly laden one.

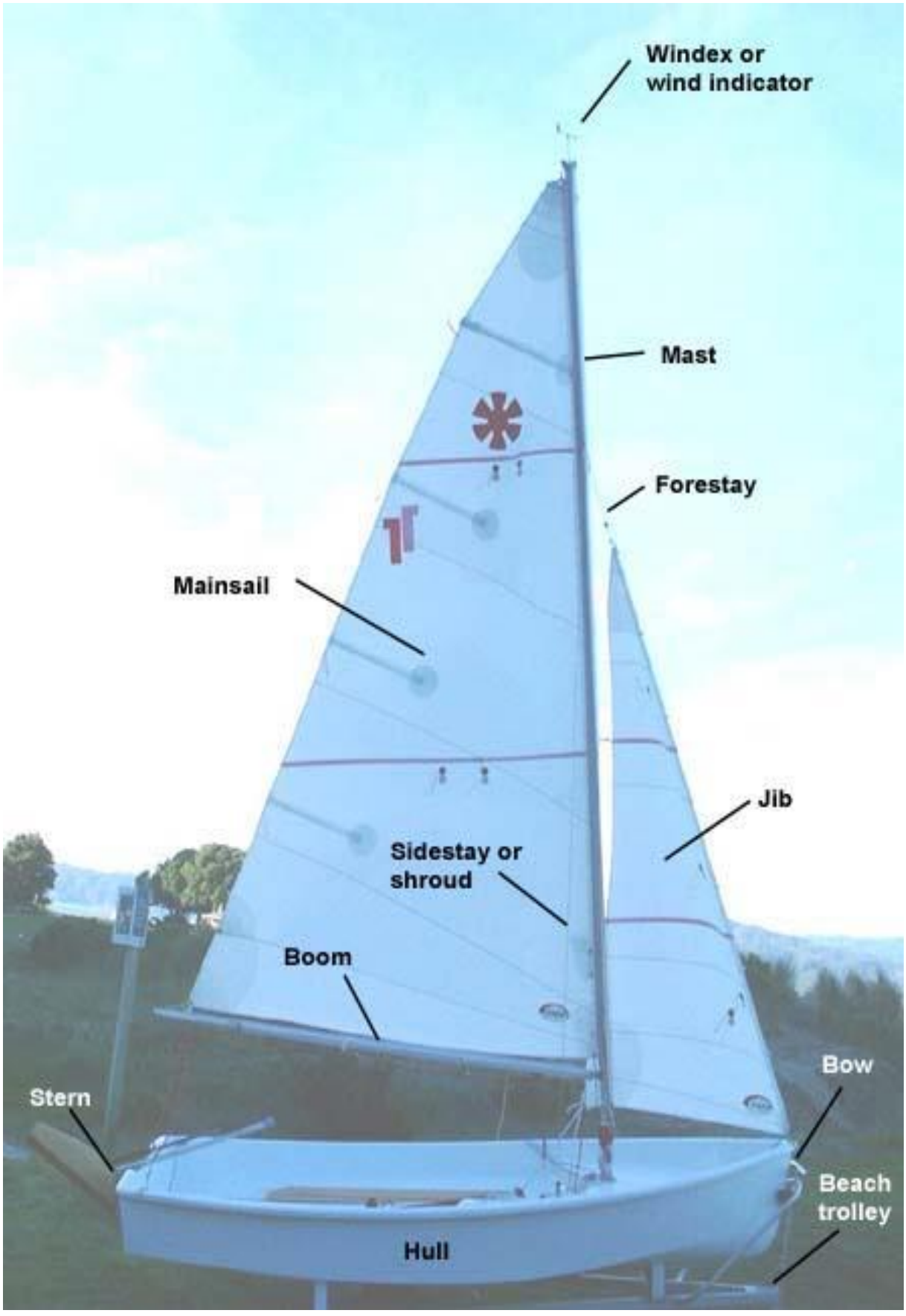
Crew Overboard

If a member of the crew falls overboard, immediately detail one of the crew to keep their eyes on them and continue to point to them so the helmsman can see at a glance where the person is. Then detail someone else to throw the lifebuoy so they have something to swim and cling to.

- If you are beating or reaching, wear your boat round so as to bring it to leeward of the person, then you can approach them close-hauled and luff up alongside them.
- If you are running you must run on for a bit, then bring your boat round close-hauled on the same tack and then go about, so that you will come up just to leeward of the person and so able to luff up alongside them.
- In either case the boat must be nearly stopped as you come alongside them or the crew will not be able to hold on to them.

Sailing is an art which required practice to develop skilled coxswains. Get out as often as you can and try out these instructions in handling.

SAILING A SUNBURST DINGHY

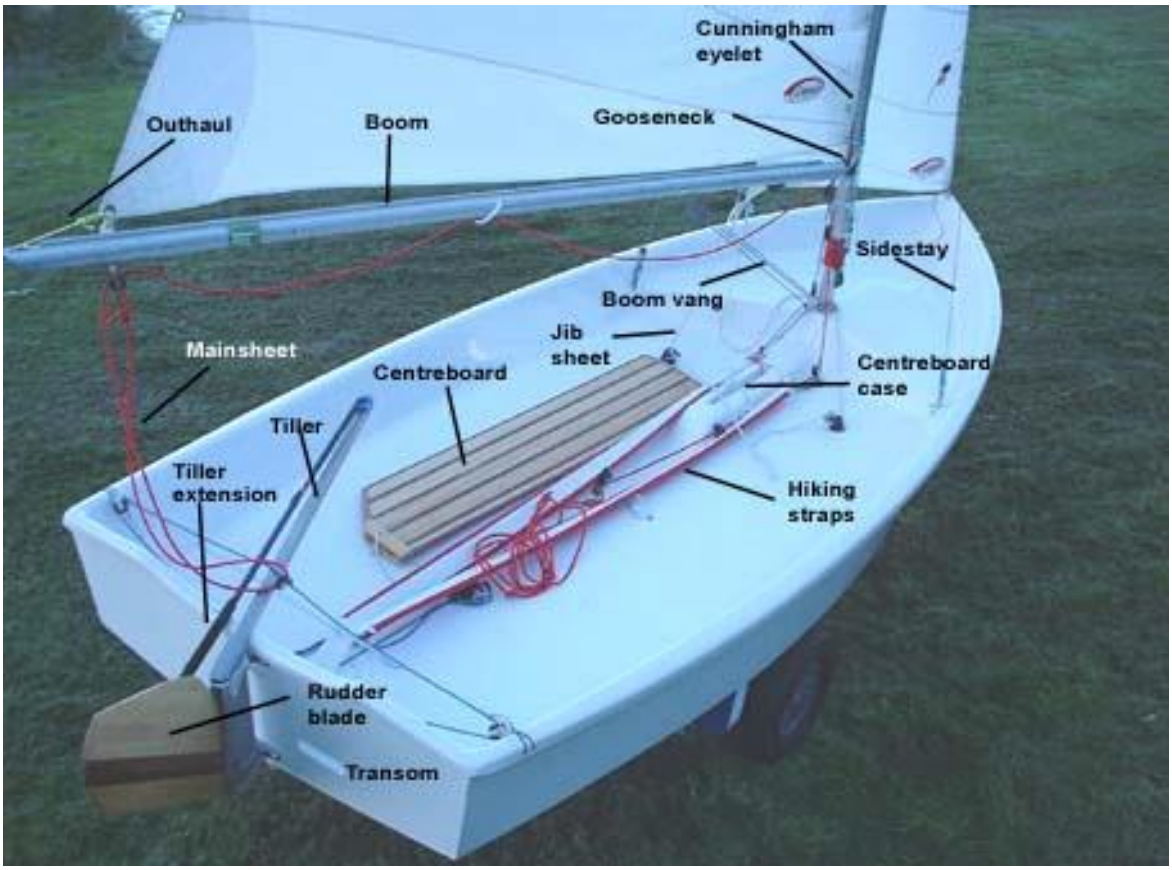


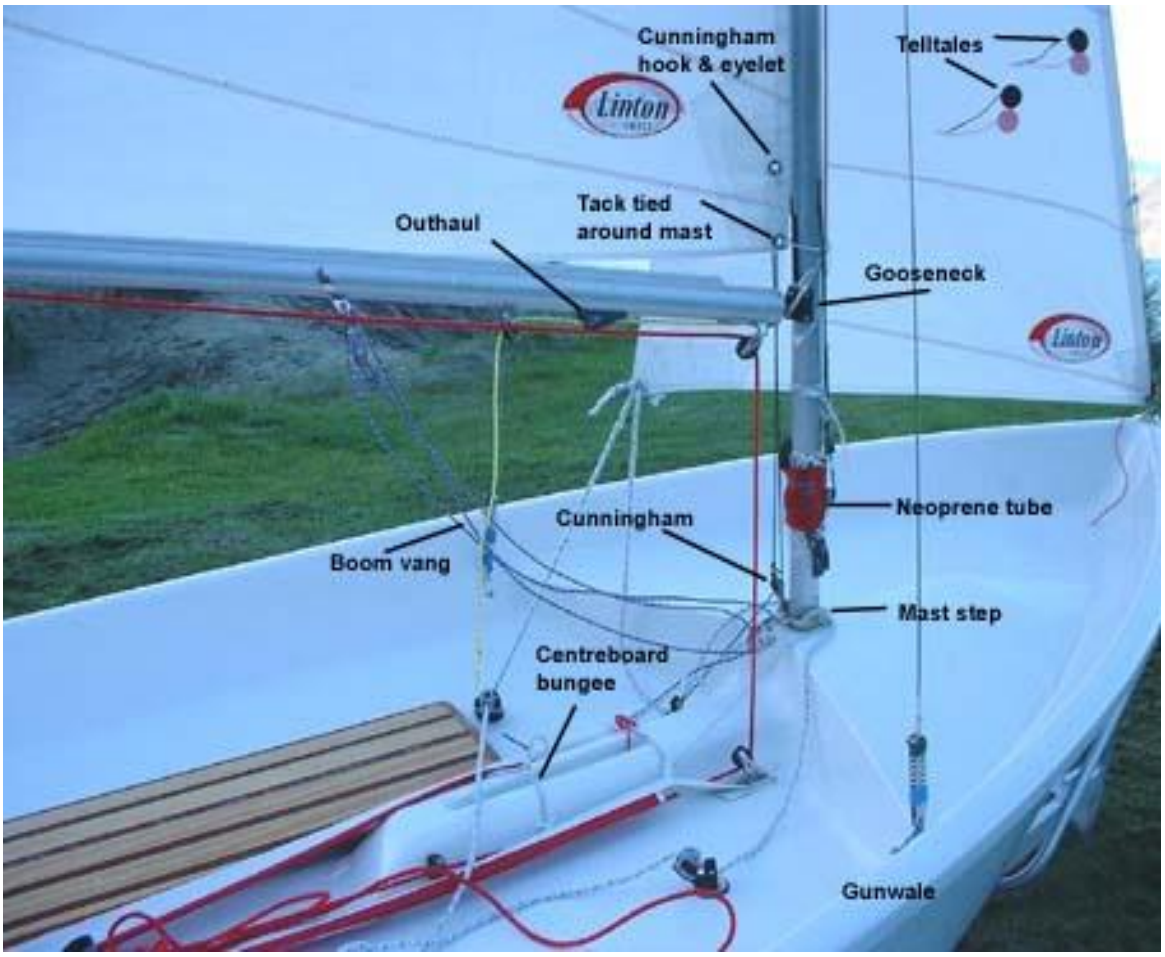
Rigging a Sunburst dinghy

Step	Action
1	Pull the boat out of the shed, be careful not to damage the boat or the rudder. Park the boat **head to wind**.
2	Check that the side-stays and forestay are in the boat and not tangled up.
3	Ensure that the jib sheets are led around (forward of) the mast.
4	Collect your mast and lie it on the boat, with the top facing up, heel of the mast forward of the bow, top of the mast behind the stern.
5	Fit the side stays (make sure they are not kinked), forestay and windex. Take care that the forestay is fitted to starboard of the main halyard (running down the front of the mast). The halyard has a knot, which locks into a cleat, which is offset near the top of the mast.
6	Helm**:** Lift the mast vertical, with the heel of the mast resting on the ground.
7	Crew: Get ready to guide the mast heel into the mast step.
8	Helm: Lift mast up and over the bow. Crew: guide the heel into the mast step, then pull forward on the fore-stay. Lifting the mast up & in is not easy at first. If you have a weak back, better to ask someone to help you.
9	Helm: Keep pushing the mast forward to hold it upright while Crew tensions the forestay by tightening and tying the forestay to the bow fitting. If the mast does not seem to go into the correct position and the side-stays seem too tight, look up. One of the side-stays may be twisted in its connection to the mast. 
10	Fit the jib hanks to the forestay, make sure they are attached in the same way and not twisted. Hoist the jib and tension the halyard. Coil any spare line and stuff it into the neoprene tube on the mast (to stop it getting tangled while sailing).
11	Fit the boom-vang shackle onto the mast step, and the boom onto the gooseneck (making sure the mainsheet is not twisted). Release the outhaul and vang.

Continued overleaf

Step	Action
12	Feed the luff of the main into the mast track and attach the halyard shackle. Hoist the main slowly, feeding the luff of the main in as it goes up. Lift the boom off the deck as the sail is hoisted to make it easier, and to avoid damaging the deck. Lock off the halyard by guiding the knot into the cleat near the top of the mast.
13	Tie the tack of the main loosely around the mast and fit the cunningham (the cunningham rope passes through the tack eyelet and down through the goose-neck, finish with a double overhand stopper knot).
14	Tension the cunningham and outhaul as required, but leave the boom vang loose until you are ready to launch on the beach (this will de-power the sail, making it less likely to capsize – before you get to the water)
15	Do a final check for loose lines. Check that you have a centreboard and that all inspection ports & bungs are securely fitted.
Note	*When moving the boat to the beach always be aware of the wind direction. Try to move the boat with the bow pointing towards the wind, so that the sails are free to flap and be less likely to tip over.* *In windy conditions, it's better to hoist the sails when you are head-to – wind on the beach and ready to go.*




Cunningham
hook & eyelet
Telltales
Tack tied
around mast
Outhaul
Gooseneck
Neoprene tube
Cunningham
Boom vang
Mast step
Centreboard
bungee
Gunwale

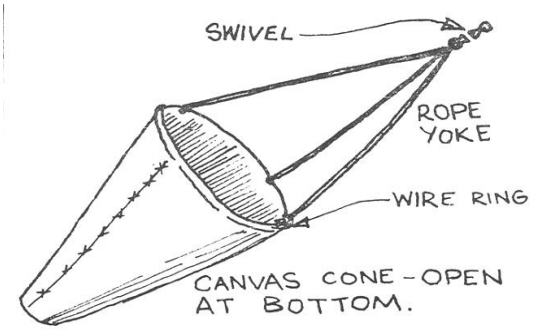
Launching a Sunburst Dinghy

Here are some instructions to help launch the craft with minimum fuss and bother.

Step	Action
1	Assess the wind direction at the water's edge.
2	Assess wind direction and strength further out from the shore.
3	Decide (due to wind direction & presence of waves) whether to launch the boat bow or stern first.
4	Do a final check to make sure you are both ready and that the sheets are free (to let the sails flap).
5	Push/pull the boat into the water. As the boat floats, pull the beach trolley out from under the boat.
6	**Helm** returns trolley to the beach, well up from the water's edge. Meanwhile **Crew** holds on to the boat, with their back to the wind, one hand on the forestay, the other on the side of the boat near the side stay. Hold the boat steady, almost head-to-wind.
7	Make sure you are in deep enough water (about waist deep) then: Helm pushes rudder completely down (vertical). Check to ensure the mainsheet is not tangled, and climb in.
8	Helm fits the centreboard, but do not push it right down. Make sure the tiller is free to move and that you have the mainsheet in your hand.
9	Crew then pushes the bow of the boat away from the wind and jumps in while the Helm balances the boat.
10	Push the centreboard down, look where you're going. **YOU'RE SAILING!**

ANCHORS

Riding to a Sea Anchor



If a boat is overtaken by a gale and has little sea room it is best to ride out the gale to a sea anchor. This is a cone shaped bag of canvas open at both ends and with one end much larger than the other. It is streamed over the bows secured to the boat's cable (anchor warp) to the full extent and the boat then rides to the sea anchor with her head to wind and sea as she drags it slowly through the water.

Standard the dimensions of the sea anchor

- Diameter of the mouth 40 centimetres
- Length of sea anchor 70 centimetres
- Diameter of tail 0.6 centimetres
- The mouth is strengthened with wire to keep it open.

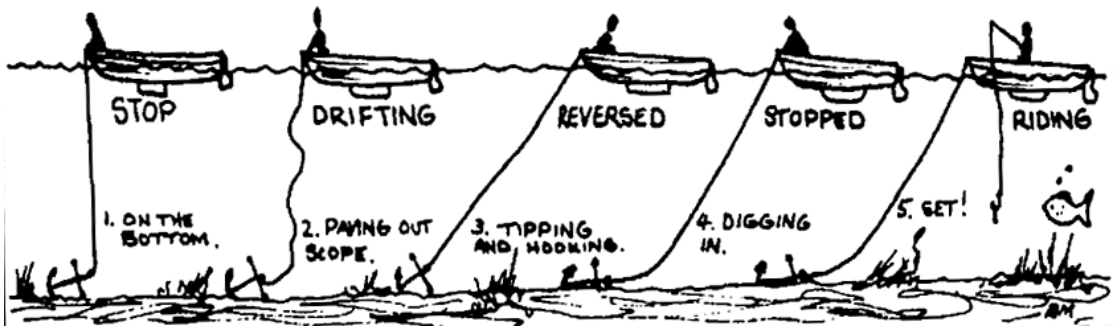
Jury Sea Anchor

A jury sea anchor (makeshift anchor) can be rigged by securing the foresail by its luff to an oar or spar and weighting the clew with the anchor. Bend a three-legged bridle on to the three corners and secure to the boat's cable.

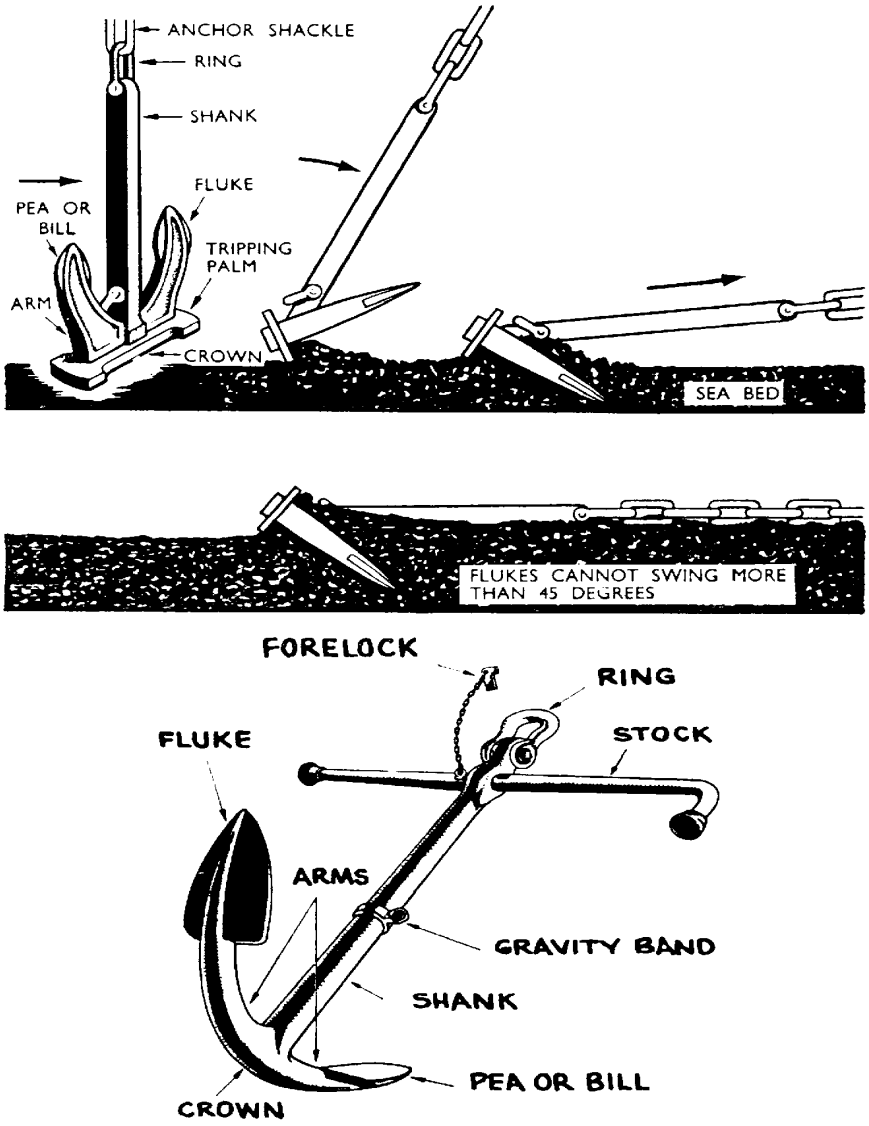
If no sails or awnings are available a sea anchor can be made by securely lashing together oars, stretchers, and other such fittings and securing them to the boat's cable by a two-legged bridle so that the boat will tow them broadside through the water.

Anchors and Anchoring

Ships cannot be anchored where the water is too deep. It is not just a question of whether the cable is long enough to reach the bottom; it is important to remember that an anchor is designed to hook firmly into the sea-bed when the cable is pulling straight along the ground from the anchor; and to break out of the ground easily when the cable is pulling from above.



Common Anchors



Danforth Anchor (top), Stocked (below)

Several types of anchor are available for use with small craft, but those most commonly used with Sea Scout boats will be the 'Stocked' anchor of the Admiralty pattern; the 'Stockless' or 'Patent' anchor and 'Danforth' anchor. Of these the 'Danforth' has the greater holding power, weight for weight.

- All have the advantage that they can be easily stowed, the 'Stocked' anchor having a stock which can move through the shank after removing the pin and which stows alongside the shank (the reason for the curve in the stock).
- Other useful anchors are C.Q.R. (Plough) and the Mushroom anchor which is used for permanent moorings, in mud it not only buries itself deeply, so that the weight of the mud in the bell adds to its holding qualities, but it actually sets up a suction condition, making it extremely hard to break out.

Points for Guidance when Anchoring

Here are some key points about anchors.

- Always make sure the inboard end of the cable is secured aboard the boat. (Many an anchor has been lost overboard with all its cable.)
- Always check the depth of water and, if possible, the type of bottom before anchoring. (Clay, mud and sand are good holding grounds; shingle, shell and rock make poor holding ground.)
- Don't choose an anchorage where the water is too shallow-otherwise at low tides you may find yourself aground. Leave plenty of swinging room. If the boat is swung round by the wind it may strike or chafe against any obstruction.
- Approach your anchorage heading into the wind or current, whichever is the stronger. Use moored boats as a guide and turn your own boat in the same direction.
- Before the anchor is let go (never attempt to throw it) see that the boat has lost her headway, and backwater. This helps to lay the rope along the bottom. When you have paid out rope two or three times the depth of water, snub it and feel the anchor starting to hold, then pay out the required length, which should be about three to five times the depth of water. Pay out more rope (5 to 7 times the depth) in strong winds.
- Make sure your foot is not inside a bight of the rope before you let go.
- In a boat under sail it is advisable to drop the foresail as the boat rounds up into the wind and "let fly" the mainsheet.
- Wait until you are satisfied the boat is secure. Thereafter check your position regularly.
- If it becomes necessary to anchor on a rocky bottom, bend the cable to the crown of the anchor and stop it to the anchor ring or shackle with a seizing of some light line so that if the anchor becomes wedged under a rock, a sharp pull on the cable will snap the seizing and the anchor can be pulled out by its crown.

CARE AND MAINTENANCE

Refitting

Every year the Group Council, the Patrol Leaders Council and Venturer Unit where applicable have to spend time planning the annual refit of the Troop's boats to bring them up to top line before survey for the next year's Boat Certificate of Seaworthiness.

The planning has to cover the extent of the refitting of each boat, which falls into three main categories:

- Hull,
- Fittings (chain plates, centre plate, horse, floors, etc.),
- Equipment (oars, spars, riggings, etc.)

Plus of course the hands to do the job. This means making provision for the Sea Scouts who may be tackling the Boatswain badge.

The Group Council will need to detail off a Leader and Patrol Leader to make out a full "Defect List" under the categories listed above and Patrol Leaders will be required to supply a list of Scouts wishing to qualify for the badges. With this information the planning can proceed.

Wooden Hull

The older wooden cutters and dinghies can be stripped of paint using blow lamps, or gas torches but only in adult and experienced hands so as to avoid damaging the copper rivets. A better option is hot air paint stripping guns.

- When the boat has dried out it can be treated with Evidure or similar compound before painting.
- The caulking along the keel and garboard strake can be done using a flexible caulking compound applied with a pressure gun. Maintained well your wooden boat will last a long time.

Preparation:

The hull must first be thoroughly scrubbed out and hosed to remove all sand and dirt, particular care being taken to clean out between ribs and planks.

- All paintwork should then be well washed down with painter's sugar-soap, and then well washed down to remove all traces of the soap and caustic.
- The paintwork can then be sanded down, using a medium grade paper to start with. Broken paintwork must be removed. Sanding down is a long job and a case where many hands make light work. Even the youngest Recruit can help.
- Avoid using a blowlamp in unskilled hands because the timber can be badly charred, and also the heating of the copper nails tends to loosen the roves. Scrapers and coarse sandpaper on broken paintwork are a safer proposition.

- See that all sanding is done with the grain or the general run of the planks as cross sanding will take a lot of removing when it comes time to finish off the work with a fine paper.
- If the paintwork is in good condition sand it down just enough to provide a smooth, even surface.

Painting

Where the preparatory work has exposed bare wood a primer coat of paint must be applied.

- It is most important that the wood is dry or the paint will not adhere to the surface satisfactorily. When the primer has dried hard, a light sanding with a fine paper will smooth the surface.
- The undercoat should be applied next, and this should be a similar colour to the final coat as the two will blend more easily and any knocks later will be less noticeable.
- When dry, the undercoat can be smoothed, using wet-and-dry paper, and the hull washed down with a turpentine-laden rag and wiped off with a clean rag before applying the final coat.
- The final coat will be enamel, and care is to be taken to avoid the coat being applied too thickly, which will cause "curtains" and unsightly runs. Take care, too, to avoid any "holidays"- unpainted patches.
- It is better to have two thin, even coats than one thick one. Turn the boat upside down on trestles if possible to do the outside of the hull.

Cutting a Waterline

Set the boat on an even keel, decide on the height of the waterline and mark off, using a square to the floor at intervals round the hull.

- These marks can then be joined up in pencil. Once the waterline has been marked it is a good plan to score it lightly into the hull so that the business of measuring off does not have to be done when next time a repaint is due.
- Paint the lighter hull colour first, using a masking tape to ensure a straight waterline, unless a "tame" skilled painter is available to help.

Points to remember when painting boats:

- Be sure that the surface is clean, dry and free from grease.
- Be sure that the atmosphere is free from dust as this will settle on the wet paint, causing a rough surface.
- When painting in a salt-laden atmosphere, as is likely in a boatshed over the water or near the sea, be sure that no salt deposit has formed on the surface to be painted.
- If it has, wipe the area over completely with a turpentine-laden rag and wipe off with a clean, dry rag.

Spars

- At the end of the boating season the sails will have been removed from the spars, washed and stowed away where air can circulate freely round them.
- Masts, spars and oars should all be scraped down to bare wood and sanded off.
- When this has been done a generous coating of raw linseed oil should be worked into the wood. The first coat should be about three-quarters linseed oil and one-quarter kerosene to carry the oil deep into the timber.
- When dry apply the second coat, which is to be 100 per cent raw linseed oil.
- When the oil is dry the spars can be varnished with a clear spar varnish, the varnish being warmed gently before application in thin coats.
- If two coats of varnish are necessary, wipe the surface lightly between coats with turpentine.
- Hard clear polyurethane varnishes are often used on spars nowadays. Oars may be varnished, but must be well oiled first.

Rigging

- All rigging should be inspected periodically for frayed or broken fibres or wires, and wire rope should be well lubricated with boiled linseed oil.
- Particularly inspect the lower ends of shrouds and' stays, and if there is any sign of rust remove the serving over the eye splices, wire brush and treat with boiled linseed oil before re-serving. Removing all shackles from the stayband, wire brush and lubricate with graphite grease.
- Stainless steel rigging will only require a good inspection.
- Replace all lanyards on the stays, check the blocks and masthead sheave to see they are free running, and grease lightly.

Drop-keel

- Remove from the centre case and inspect the pin for wear.
- Scale off all rust and paint with K16 or some similar rust proofing paint, or fit a stainless steel pin.

Cost of Overhauling a Standard Wooden Cutter

In 2010, wooden cutter 113 was stripped to bare wood, repairs made, repainted and new sails purchased. The professional boat builders charged $1155 (2010) for repairs to ribs and strakes etc.

The total cash outlay was $5500 with volunteers spending 265 hours on the craft. A full report on the work done is available from Manukau Scout Zone.

(G.R.P.) Glass Reinforced Plastic Hulls

While the increasing use of fibre glass boats with their relative maintenance free operation is great, Sea Scouts should be aware that these boats will only be maintenance free if they are looked after very carefully.

- With use the surface of these boats will become scratched, or may become cracked. As the result of an accident it may have a hole punched in it.
- Repairs should be done while they are still small; if damage is left it could get worse and harder to patch up.
- Small repairs can be done by the Sea Scout Group.
- A large repair job is probably better left to an expert or boat builder.
- Small scratches may be repaired by first removing any loose material, then cleaning and drying the affected area. An epoxy resin putty is applied to the area, smoothed off and allowed to harden. After hardening it may be sanded smooth.
- With deep scratches and gouges which are into the laminate layers, an epoxy resin is used. The first step is to apply a reinforcing material, depending on the size of the gouge or deep scratch. With large gouges the reinforcing material (usually dynel cloth) should cover well beyond the damaged area.
- Several coats of resin are laid on. The final coat should be covered (sealed) by cellophane to give it a smooth finish and stop the resin from undercuring. At all times the manufacturer's instructions should be followed when using the resin. When the repair has set hard the cellophane is removed and the patch sanded smooth.
- Patches may be coloured by using tinting pigments. It is very hard to match colours as the hull colour will have faded. An easy way round this is to paint the patched area only.
- Bad cracks should be repaired from inside the hull where this is possible.
- Care should be taken that any resin used will not destroy the polystyrene buoyancy if it comes in contact with it.
- To keep the hull of your fibre glass boat looking good, clean the boat well inside and out with detergent, then polish the hull well with a good car polish.
- Don't leave your boat banging against jetty piles, alongside other boats or lying on a beach banging around in the waves.
- Always stow the boat on a flat surface and well supported on padded chocks.
- When the boat is being transported by trailer make sure the chocks are set exactly to the hull of the boat or you may arrive at a regatta ready to win but with your bilges stove in.

Boats sails

Care of the Sails

Boat's sails must always be carefully handled and properly maintained, otherwise they will not set correctly and will lose their effectiveness. Cotton and canvas sails stretch when new, terylene does not stretch.

Stretching new cotton sails

The best method of stretching new sails is to sail with them on a sunny day in a light breeze, but the following precautions must be observed:

- Do not set up the halyards or tack line too taut, otherwise the luff may be stretched more than the leach.
- Do not haul the sheets flat aft because this may distort the clew or stretch the leach. Constantly take up any slack in the head and foot with the peak and clew earings.
- Keep the sails dry and do not reef until the sails are fully stretched, and, if the sail should get wet, settle the halyard and ease away the peak and clew earings.

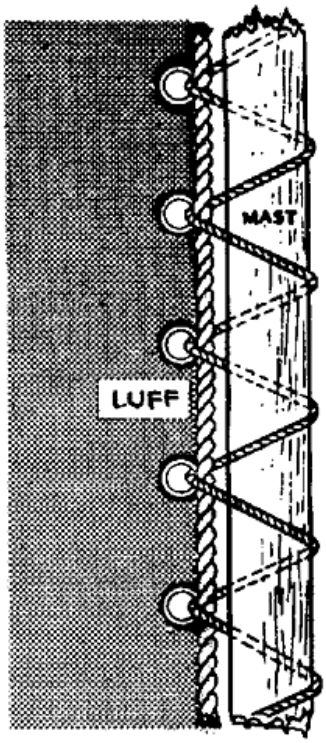
Storing sails

- During the winter sails should be unbent from the spars for stowage in a locker in which the air can circulate freely.
- During the boating season ease away the peak and clew earings before stowing the sails away. When this has been done lay the gaff on the boom, then gather the bight up underneath. The last of the bight should then be rolled up round both spars.
- Do not stow sails away with metal fittings or wet sheets. No sail should be stowed away wet; if wet from salt water it should be rinsed in fresh water, then dried before being stowed.
- Dirty sails can be washed in fresh water with soap and if necessary, very lightly scrubbed.

To Bend a Sail to a Spar

- The head of a mainsail is bent to the gaff by peak and throat earings and a lacing; the throat earing is the fixed anchorage and the peak the movable one.
- The foot of the mainsail is bent to the boom by tack and clew earings and a lacing; the tack earing is the fixed anchorage.
- The sail may be laced to the spar by any one of the three methods illustrated, lacing from the throat or tack towards the peak or clew.
- The spiral lacing is the best for light sails because it allows the head and foot to take up a natural set along the spar. Heavier sails are usually marled to their spars or secured by single stops.

- The luff of the mainsails is laced to the mast by the back and forth lacing shown in the illustration. If the lacing is passed spirally it tends to jam when the sail is hoisted or lowered.



SEA SCOUT PERSONAL CHALLENGE BADGES

Boatman - Cornerstone: Outdoors

Requirements

1. List what clothing to wear and the personal equipment needed for sailing and rowing.
2. List the different features of a Type 402 lifejacket and Type 403 buoyancy aid. Select an appropriate sized PFD and demonstrate wearing it correctly.
3. Swim 50 metres and then tread water for five minutes.
4. Correctly describe the following terms:
    - Port.
    - Starboard.
    - Bow.
    - Stern.
5. Take part in launching and retrieving a boat.
6. Demonstrate how to board a boat from a wharf, from a beach or from another boat.
7. Explain the dangers and precautions to take when a boat is coming alongside, when moving in a boat, raising and lowering spars and oars, removing equipment such as boathooks.
8. Be able to bail, fend and lash loose equipment securely and cast off
9. Know the basic distress signals that can be performed with equipment normally found in a cutter.
10. Complete four hours practise in Scout cutters on the water.
11. Be able to tie the following knots:
    - Figure-eight
    - Clove-hitch
    - Reef knot
    - Make fast to a cleat

Oarsman - Cornerstone: Outdoors Record Card

Requirements

Pass the Boatman Personal Challenge before commencing this challenge.

1. Be able to identify the following parts of a Sea Scout standard cutter:
    - Thwarts, bow sheets and stern sheets.
    - Oars, crutches, crutch sockets and stretchers.
    - Knees, breast hook, quarter knees and transom knee.
    - Keel, planks, ribs, gunwale and gunwale capping.
    - Stem, towing eye and painter.
    - Transom, horse, gudgeons and pintles.
    - Rudder and tiller.
2. Assist with the preparation of the boat for rowing.
3. As a member of a boat's crew be able to respond correctly to the following orders:

- Give way.
- Oars.
- Backwater.
- Hold water.
- Rest oars.
- Toss, ship and boat oars.

4. Assist with anchoring and make fast to a wharf or other boat under directions from a coxswain.
5. Throw a life ring and a 12-metre line accurately to a chosen mark.
6. Demonstrate how to row competently as a member of a crew.
7. Demonstrate how to tie the following knots correctly:
   - Bowline.
   - Sheet bend.
   - The knots specified for the Boatman Personal Challenge.
8. Complete at least eight hours rowing practise during at least six separate occasions since obtaining the Boatman Personal Challenge.
9. Crew in at least one rowing race at a Zone or Regional Scout Regatta.

Coxswain - Cornerstone: Outdoors

Requirements

The Oarsman and Swimmers Personal Challenge must be completed before attempting this challenge.

1. Supervise the preparation of the boat for rowing, ensuring that the crew are dressed appropriately.
2. Supervise the launching and retrieving of the boat as well as assisting in securing the boat onto the boat trailer.
3. Know the Scout Water Activity Rules applicable to:
4. Charge certificates and boating limits.
5. Boat Certificate.
6. Correctly explain:
   - "The rules of the road at sea" (Maritime Rules Part 22, 22.11 to 22.18)
   - Maritime Rules that apply to small power boats (less than 20 m) and sail boats.
   - Maritime Rules Part 91 or Regional Council Navigation Safety Bylaws.
   - Knowledge of water ski access lanes and white power cable markers.

7. Identify correctly the equipment that must be carried in a boat being rowed.
8. Explain the steps for prevention of hypothermia. Describe the symptoms and emergency treatments of hypothermia and artificial resuscitation.
9. Competently take charge of the boat and maintain discipline while:
   - Letting go and coming alongside a wharf.
   - Anchoring.
   - Beaching.
   - Coming alongside another boat.
   - Coming up to a buoy.

10. Recover a person or piece of equipment that has fallen overboard.
11. Explain what to do if:
    - Carried away by wind.
    - Carried away by Tide.
    - Swamped.
    - Involved in a collision.
12. Demonstrate how to prepare a boat for towing and then tow another boat.
13. Row a boat with only one other oarsman and no coxswain.
14. Demonstrate how to correctly load a boat with stores and row it to another location and correctly unload.
15. Explain what to do in the event of capsize.
16. Describe how raise the alarm in an emergency.
17. Demonstrate how to tie and use the following correctly:
    - Eye splice.
    - Sailmaker's whipping.
    - The knots specified in Boatman and Oarsman badges.
18. Completed at least four hours as coxswain during rowing practise on at least three separate occasions since obtaining Oarsman badge.
19. Cox in at least one rowing race at a Zone or Regional Scout Regatta.

Sailor - Cornerstone: Outdoors

Requirements

The Oarsman and Swimmers Personal Challenge must be completed before attempting this challenge.

1. Be able to identify the following parts of a Sea Scout standard cutter rigged for sailing:
    - Chain plate.
    - Centre case.
    - Centre plate.
    - Mast, mast step, hounds band, sheaves, halyards.
    - Forestay, side stays, running back stays.
    - Boom, gooseneck, boom vang and outhaul.
    - Main and jib sheets.
2. Be able to identify the following parts of a sail.
    - Tack, throat, head, peak and clew.
    - Luff, head, leach and foot.
    - Reef points and Cunningham.
    - Batten pockets.
    - Gunter.
3. Assist with the rigging and derigging of a standard cutter on land and in the water.
4. Demonstrate how to tie and use correctly:
    - An Eye Splice.
    - A Sailmaker's Whipping.
    - A Rolling Hitch.
    - The knots specified in Boatman and Oarsman badges.

5. Demonstrate how to effectively trim the boat under sail.
6. Demonstrate how to do the following :
    - Let fly.
    - Ease.
    - Tighten.
    - Cleat.
    - Lee-o.
    - Gybe.
7. Assist in reefing the main sail of a standard cutter
8. Assist in annual swamp test of a standard cutter.
9. Row or paddle the boat while rigged for sailing as one of a two man crew.
10. Complete at least six hours sailing practise during at least three separate occasions since completing the Oarsman Personal Challenge.
11. Crew in at least one sailing race at a Zone or Regional Scout Regatta.

Helmsman - Cornerstone: Outdoors

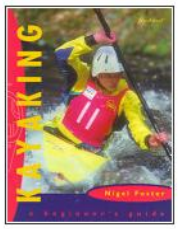
Requirements

The Sailor and Coxswain Personal Challenge must be completed before attempting this challenge.

1. Supervise the rigging and derigging of a Sea Scout standard cutter.
2. Know the Scout Water Activity Rules applicable to:
    - Charge certificates and boating limits
    - Boat certificates.
    - Understand Maritime Rules Part 91that is applicable to sailing.
    - Know the National and Regional Regatta rules.
    - Know the rules of the road at sea Maritime Rules Part 22 (22.11 to 22.18) and ISAF Rules Part 2 under sail.
3. Know the gear that must be carried in a Sea Scout standard cutter under sail.
4. Take charge of a Sea Scout standard cutter under sail and show how to:
    - Tack and gybe
    - Sail from a wharf and come back alongside it
    - Sail up to a buoy
    - Get a boat "out of irons"
    - Retrieve a person or piece of equipment from the water.
    - Anchor and reef, anchor and remove a reef
    - Capsize, bail out and sail away
5. Be able to interpret sailing instructions.
6. Sail a triangular course competently
7. Know the basic starting procedure in yacht racing.
8. Know the causes of and be able to correct:
    - Weather and lee helm
    - Excessive rolling downwind
9. Complete at least four hours as helmsman during sailing practice on at least three separate occasions since obtaining Sailor badge.

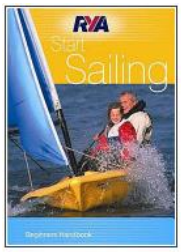
Appendix

The following are useful resources:

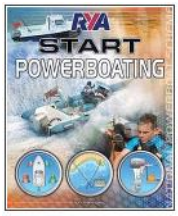


Kayaking - A beginner's Guide

Nigel Foster



Start Sailing - Beginner's Handbook
RYA
Steve Sleight



Start Powerboating
RYA
Jon Mendez and Paul Marra

Sail Training Manual	megsea@ihug.co.nz
Youth Training Handbook for Water Activities	megsea@ihug.co.nz
Sea Kayaking Course	Coastguard Boating Education
Day Skipper's Course	Coastguard Boating Education
RYA Powerboat Course	Coastguard Boating Education
Club Safety Boat Course	Coastguard Boating Education

Rowing Orders

Listed in approximate order for getting underway.

(Highlighted cells are required for the Oarsman Badge).

Ship Crutches	Place the crutches in their sockets
Select Oars	Each crew member selects an oar and gives it a small twist so as be assured no one else has the oar.
Toss Oars	The oars are raised to a vertical position with the looms resting on the bottom boards and the blades fore and aft
• Oars.	When oars are tossed = lower oars into the crutches and hold the oars feathered and clear of the water – Also sometimes "Ship Oars" When rowing = stop rowing and hold the oars feathered and clear of the water
Forward to row	Rowers lean forward and place oars in the water with the blades vertical
• Give way Give way together Give way Port Give way Starboard	Begin rowing. Together =: everyone rows Port or starboard = the side as appropriate.
• Backwater. Back together Back Port Back Starboard	Rowing backwards
• Hold water.	Stop rowing and leave the blades vertical in the water
• Rest oars.	Oars are laid across the boat
• Way enough	Finished rowing – the oars are about to be boated or tossed
• Toss oars. Boat Oars Boat crutches	As above Lower the oars into the boat, blades forward Remove the crutches from the sockets and stow in the boat.

NATIONAL SCOUT CENTRE

SCOUTS New Zealand

PO Box 11348
Wellington 6142
New Zealand

scouts.org.nz

0800 SCOUTS

reception@scouts.org.nz

REGISTERED CHARITY CC10556

SCOUTS® New Zealand