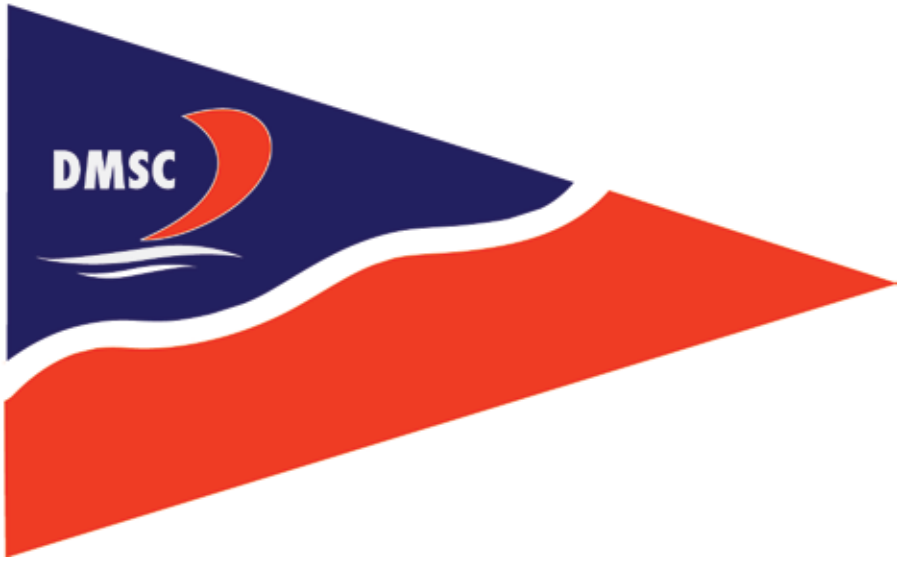
## Dome Marina Sailing Centre




# Sailing Course Manual

Edition 1

# Dome Marina Sailing Centre
# Sailing Course Manual

**Edition 2**

Compiled and Designed by Darla Jean Hueske

March 2012

www.sailinegypt.com

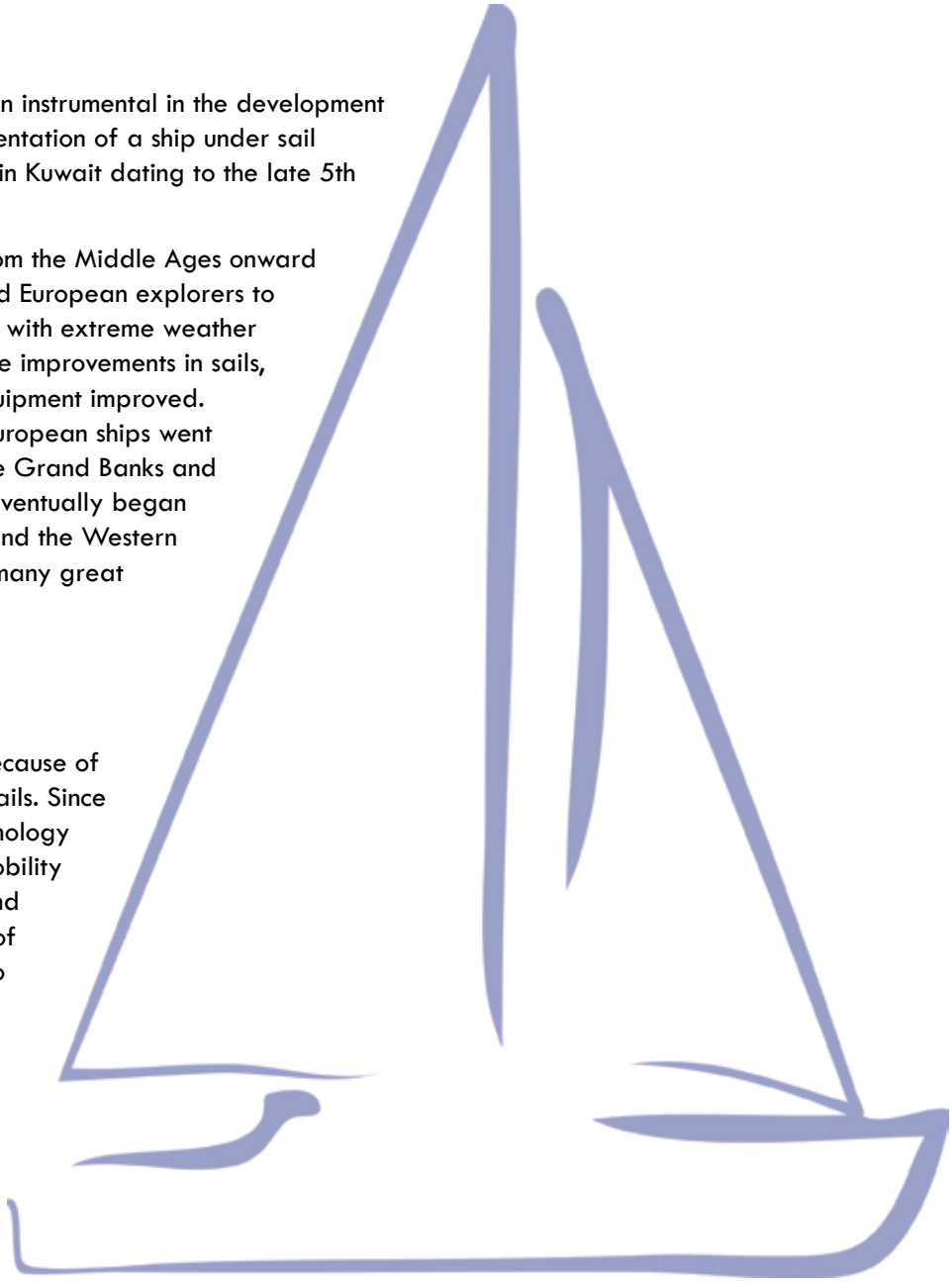
## Sailing History

Throughout history sailing has been instrumental in the development of civilization. The earliest representation of a ship under sail appears on a painted disc found in Kuwait dating to the late 5th millennium BC.

Advances in sailing technology from the Middle Ages onward enabled Arab, Chinese, Indian and European explorers to make longer voyages into regions with extreme weather and climatic conditions. There were improvements in sails, masts and rigging; navigation equipment improved. From the 15th century onwards, European ships went further north, stayed longer on the Grand Banks and in the Gulf of St. Lawrence, and eventually began to explore the Pacific Northwest and the Western Arctic. Sailing has contributed to many great explorations in the world.

## Introduction to Sailing

A sailing vessel moves forward because of the reaction of moving air on its sails. Since the dawn of history this vital technology has afforded mankind greater mobility and capacity for fishing, trade, and warfare. From moving the stones of the great pyramids from Aswan to Giza, to allowing man to migrate throughout Polynesia, to Nelson's defeat of the French and Spanish navies at the Battle of Trafalgar, mankind's history has been intertwined with this seemingly simple technology.



Layout, design, and editing by Focus On The Spirit Productions dot com

# DMSC SAILING COURSE OF INSTRUCTION

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## Introduction, Guidelines, Safety

Participants accept inherent risks associated with this activity, including but not limited to: adverse weather conditions, tidal extremes, and the activities of other vessels. In addition, sailors agree to operate DMSC's boats in a safe and prudent manner at all times.

No participant shall be allowed to access DMSC's vessels unless he or she is wearing a Personal Flotation Device (PFD). At no time shall the number of persons exceed the number of PFD's in any vessel. Any injury or property damage is to be reported immediately upon returning to the dock. Reckless behavior or intentional misuse of DMSC equipment will result in the suspension of sailing privileges.

Protocol for using the boats - These are your responsibilities:

1) Return boat to mooring.
2) Secure the boat.
3) Fold sails.
4) Hang life vests.

## Sailing Area

The sailing area is subject to change based on weather conditions. DMSC uses storm warning flags to signal boats of the changing wind and weather conditions. The flags are displayed on the upper deck of the DMSC club house. In strong wind conditions, the red flag will be raised. DMSC is not responsible for any sailor choosing to sail in these conditions. The sailing area is Marina El Wadi Dome is the area defined below.

## Boat Diagram - Mercury

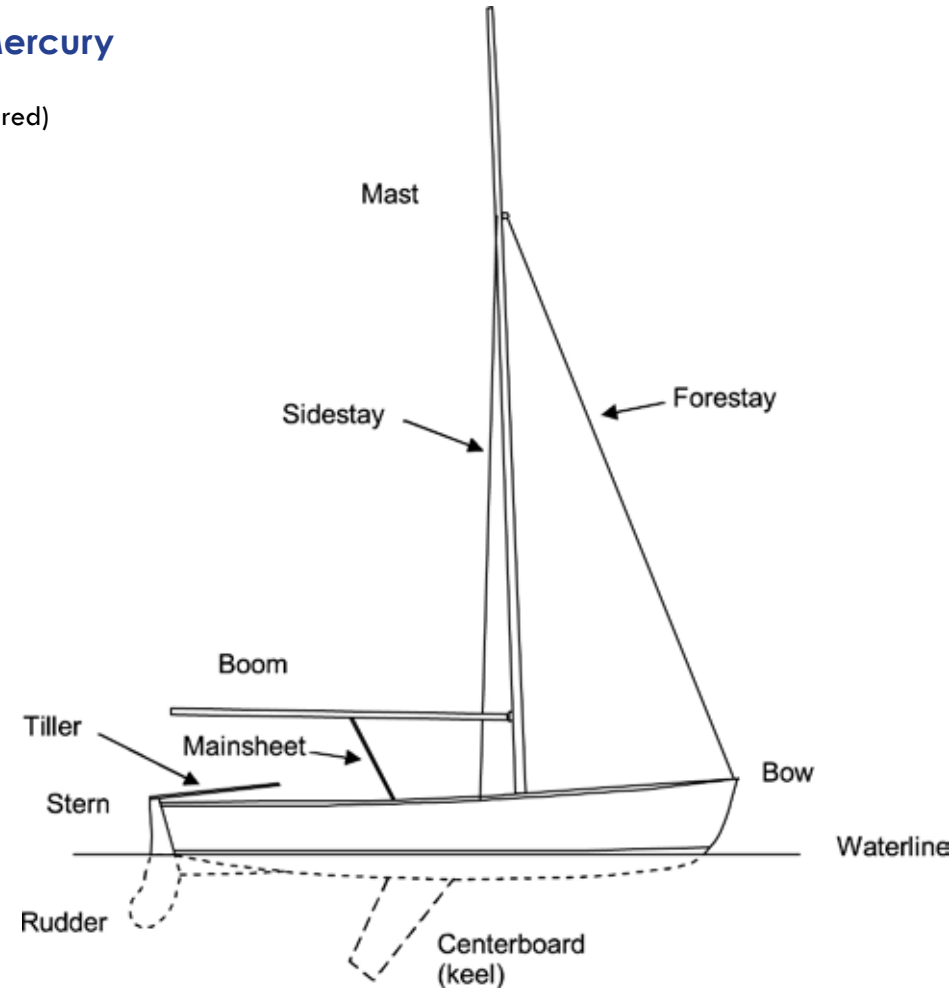
Running Rigging (not pictured)

**Mainsail**

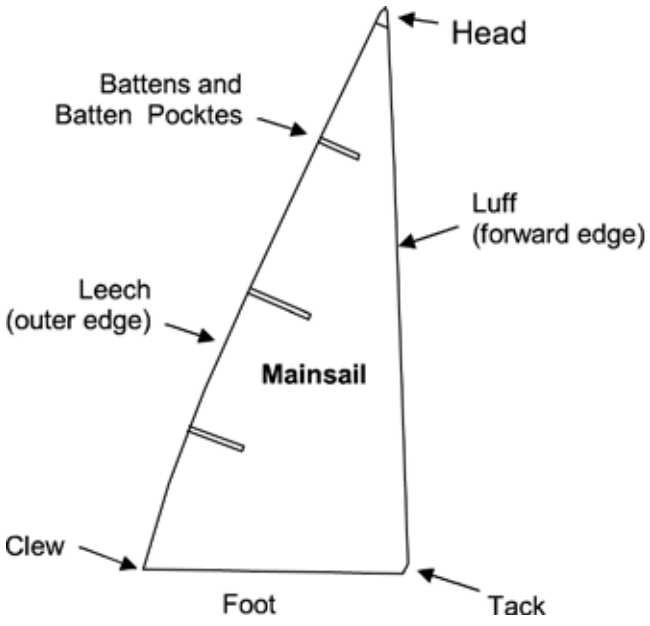
- Main Halyard
- Mainsail Shackle
- Downhaul
- Outhaul
- Tack Pin
- Main Sheet
- Traveler
- Boom Vang

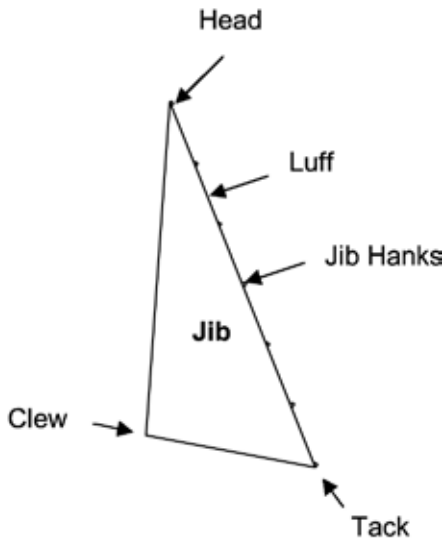
**Jib**

- Jib Halyard
- Jib Shackle




## Sail Diagram - Mercury



## Points of Sail

The **points of sail** are the most important parts of sail theory to remember. The no-go zone is about 45° either side of the true wind for a racing hull and sail plan optimized for upwind work. The three major points of sail are **close haul**, **reaching**, and **running**. Each one is a separate situation. Each situation is described below on what you might experience while sailing.

### Close Haul

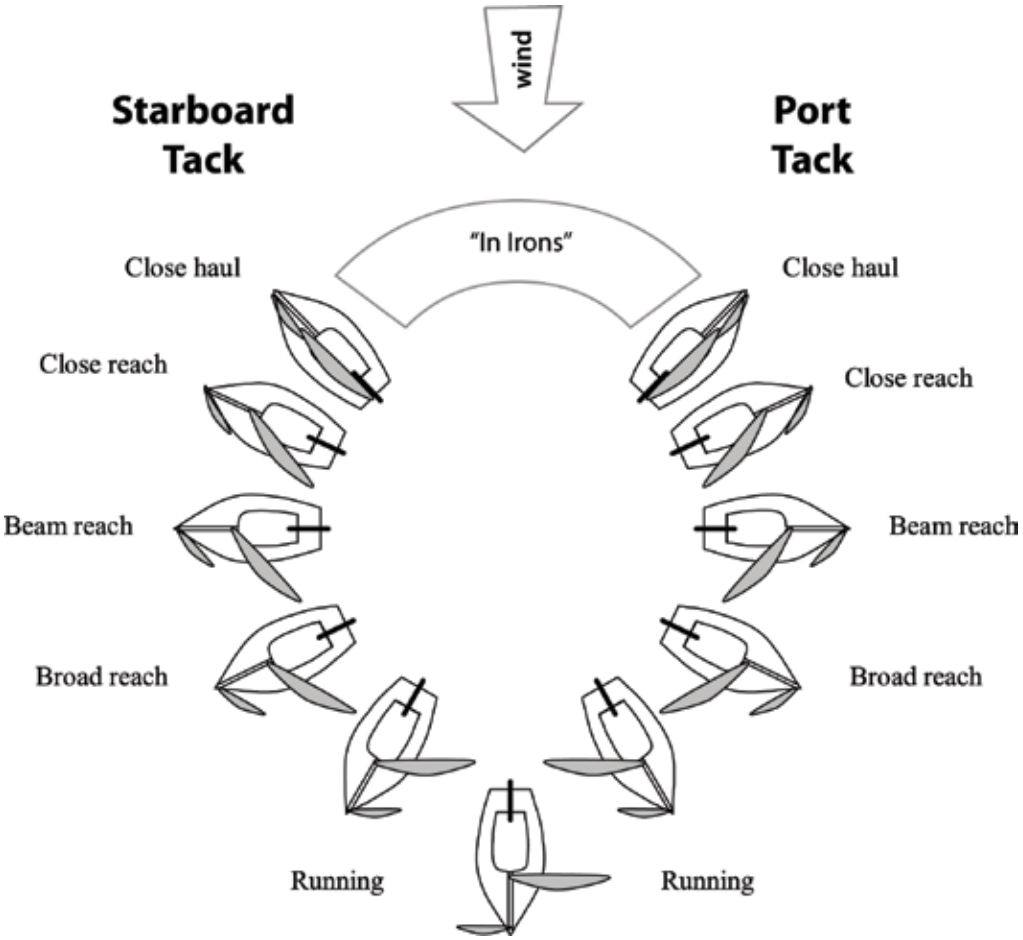
Wind will be coming from the forward direction. Most boats at close haul, sail within a 45-degree angle to the wind. Getting to an upwind direction requires careful observation of your course, attention to sail trim and boat heel.

### Reaching

The wind is coming over the side, perpendicular to the centerline of the boat. The most important object of reaching is sail trim and holding your course. Ease out the sail until it begins to luff, then trim in until the sail holds its shape.

### Running

The boat is running, if the wind is coming from the stern of the boat. It is important to know that the centerboard, while the boat sails upright, moves without much resistance through the water. Without the stabilizing force of the water on the centerboard, the boat is less stable.

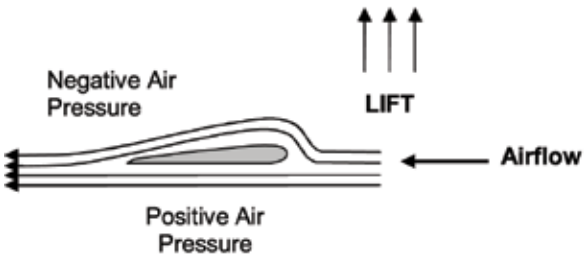


## Sailing Theory

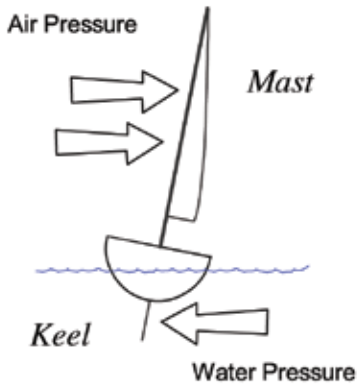
The sail acts as an airfoil, similar to how an airplane wing generates lift. First you have to understand that airflow over the sail must be smooth. Like the airplane wing providing lift, the sail provides lift that will pull the boat along with it. An interruption in smooth flow will diminish the lift. Any turbulence around the sail is called luffing, which indicates that you have less than perfect lift and need to make a correction. Making corrections to the airflow is called sail trim.

Understanding airflow over the sail only provides half of the picture. The centerboard provides resistance in a lateral direction to the lift provided by the sail. Without the centerboard, the boat would be blown sideways. Water pressure created by the centerboard balances out to a forward direction.

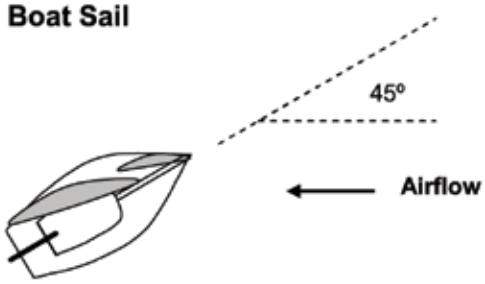
**Airplane Wing**

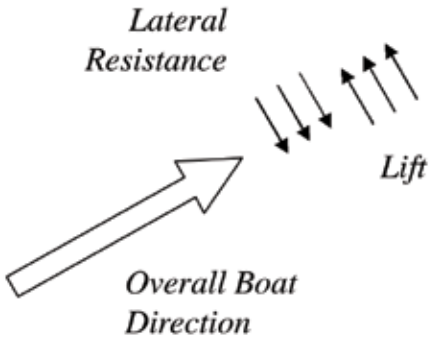



**The Keel provides lateral resistance to slipping**




**Boat Sail**

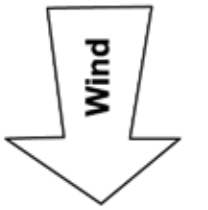


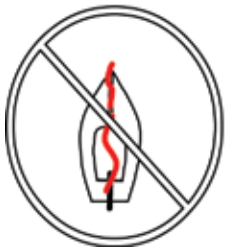



## Tacking - Concepts to Know

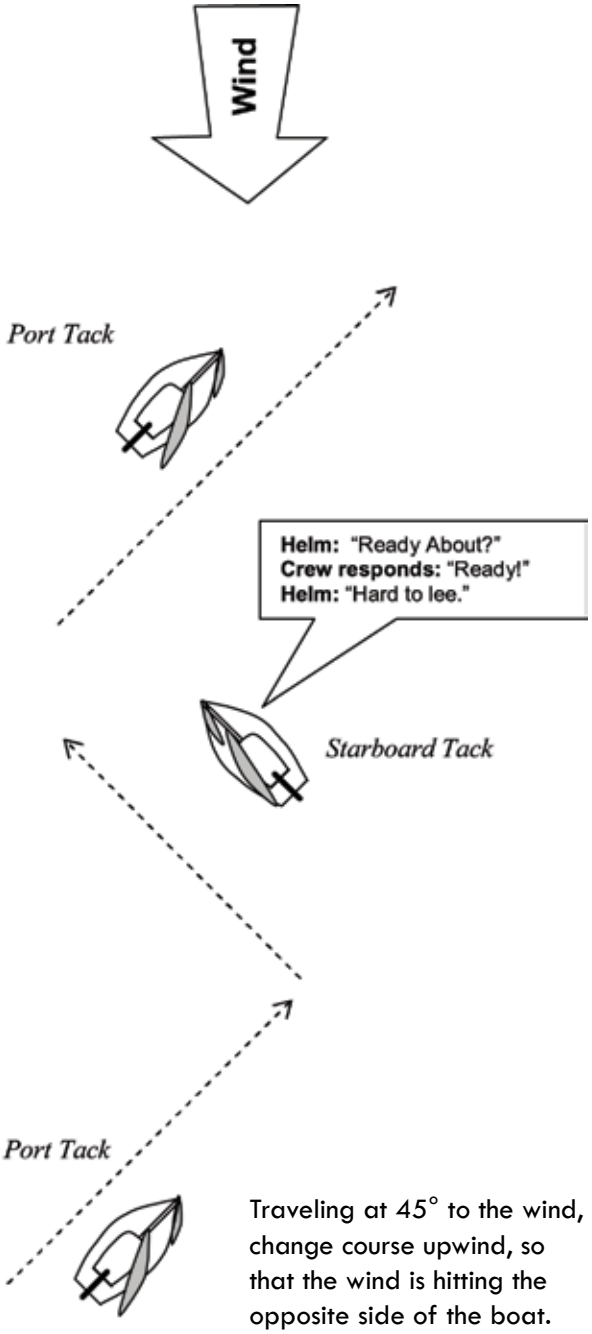
The tacking maneuver is used whenever a course change involves turning the bow through the wind. For example: The boat is heading up wind. The wind is hitting the port side. By changing course 90° to the left, the wind will then be hitting the starboard side.

1. The helmsman and crew cooperate as a team to execute. The helmsman gives the preparatory order: "*Ready about?*"
2. The crew prepares to shift weight, and responds "*Ready!*"
3. The helmsman says "*Hard to Lee*",·and starts the turn into the wind by pushing the tiller towards the sail.
4. When the boat is heading directly into the wind, the sails will be flapping, the crew shifts under the boom to the opposite side.
5. The helmsman stays on the turn until the sail fills, and sets their new course.



By understanding the principle of sailing you will know that you can't sail directly up wind.




Traveling at 45° to the wind, change course upwind, so that the wind is hitting the opposite side of the boat. The boom also moves to the opposite side as well.

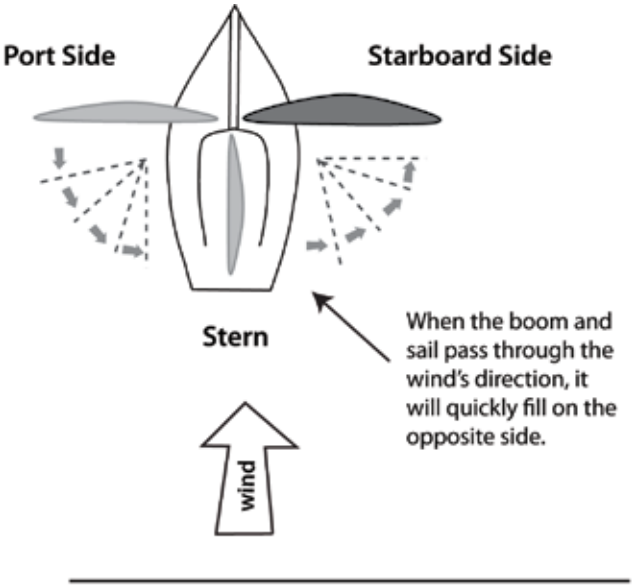
## Jibing - Concepts to Know

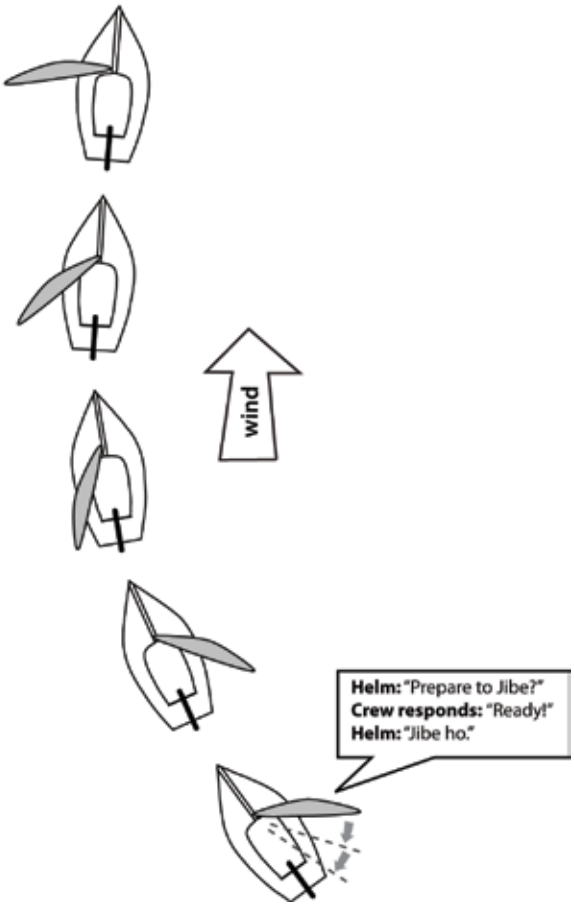
Jibing is changing the direction of the boat while heading downwind, on a run, so that the boom changes side.

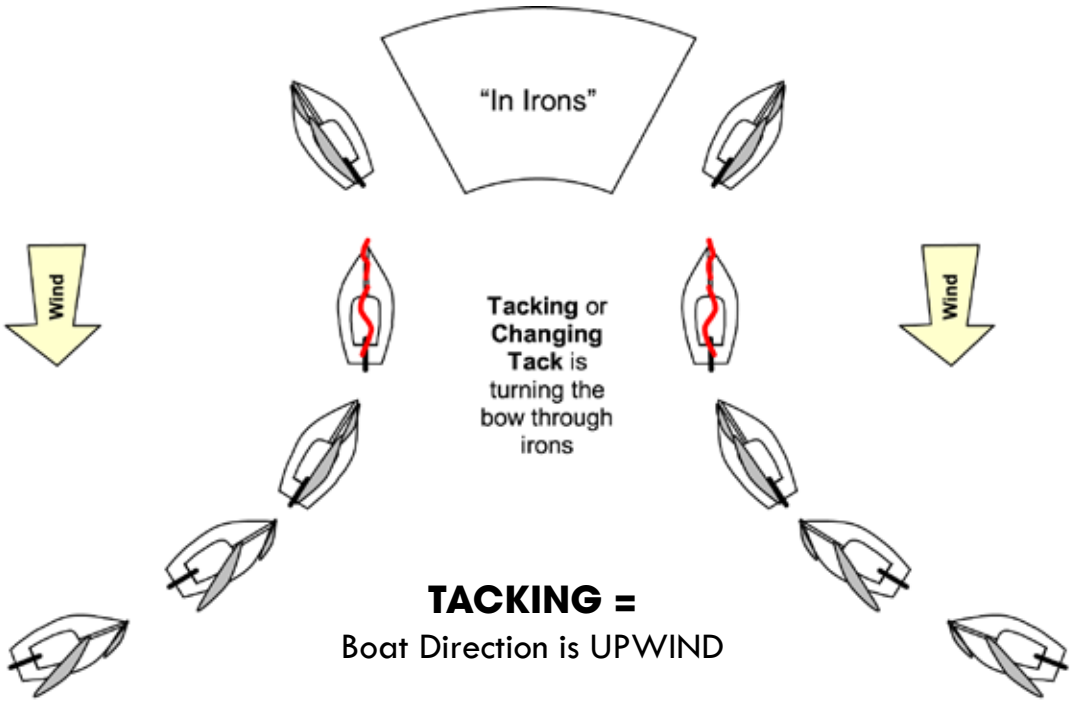
For example: the boat is heading downwind. The wind is hitting the rear port side. The course is changed to the right, the boom will move to the opposite side.

Successful Jibing is one of sailing's greatest challenges. The possibility to capsize the boat is great. The centerboard provides no lateral resistance on a run, therefore the boat is less stable. More attention to distributing weight is necessary.

1. The helmsman and crew cooperate to execute maneuver. The helmsman gives the preparatory command: "*Prepare to Jibe?*"
2. The crew prepare to balancing weight in the middle of the boat, and responds: "*Ready!*"
3. The helmsman steers the boat, pulling the tiller away from the sail, so that the end of the boom crosses directly into the direction of the wind.
4. The crew and helmsman duck under the crossing boom, and prepare to sit and take sail on the new side.

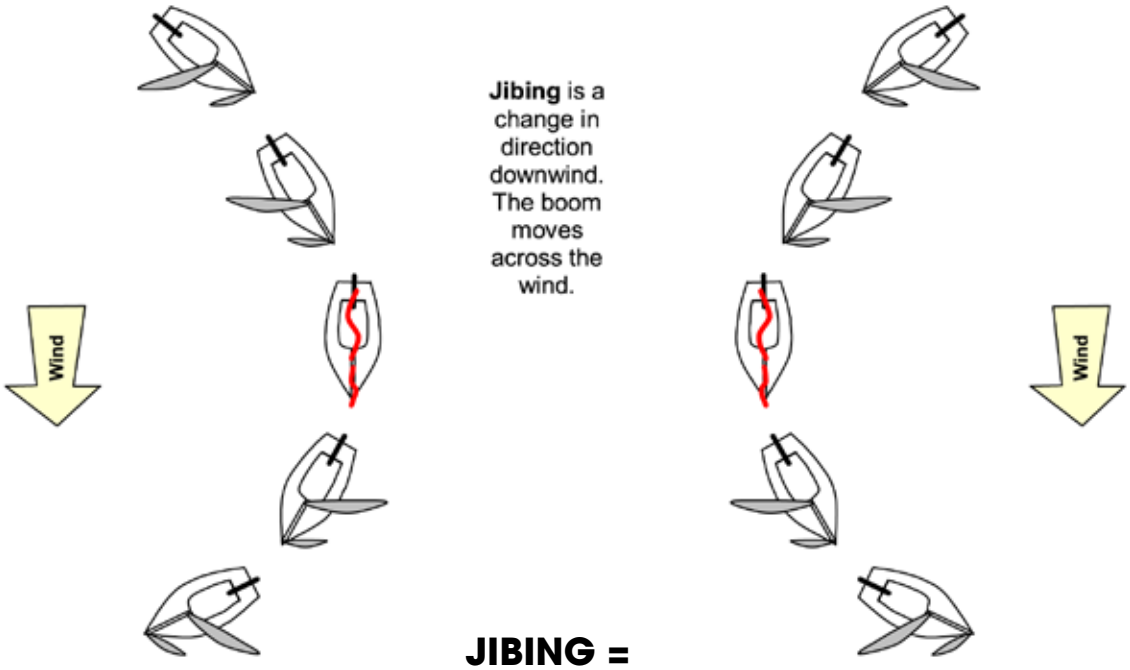





**TACKING =**

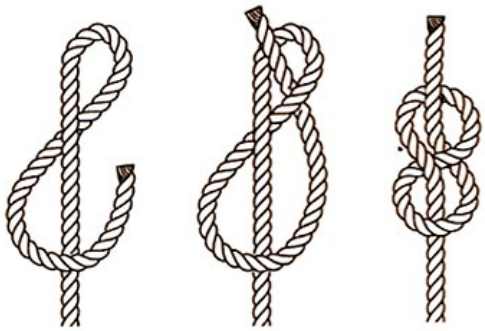
Boat Direction is UPWIND




**JIBING =**

Boat Direction is DOWNWIND

## The Figure Eight Knot



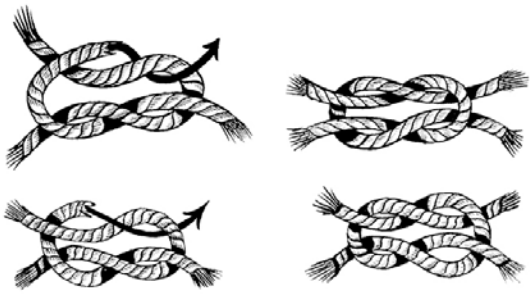
**Use:** Ideal knot to keep the end of a rope from running out of a tackle or pulley. Can be taken out very easily.

Step 1. Make underhand loop, bringing end around and over the standing part.

Step 2. Pass end under, then up through the loop.

Step 3. Draw up tight.

## The Square Knot



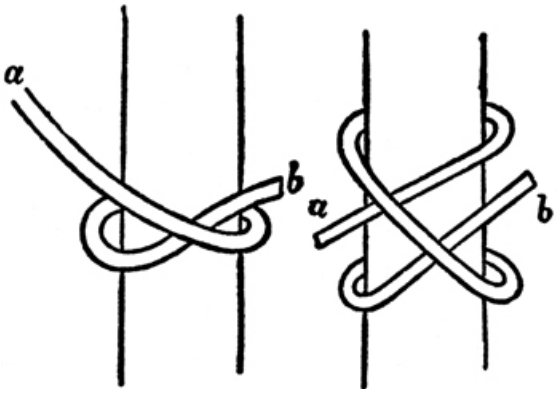
**Use:** The square knot is used for joining small lines of equal size, reefing sail, tying lashings, tying in battens.

**Not Used:** Where there is a great deal of pull on the line, because knot will tighten and be very difficult to untie.

Step 1: Hold one rope in each hand. Now cross left over right, and

Step 2: ... right over left. The knot has a "square" look to it.

## The Clove Hitch

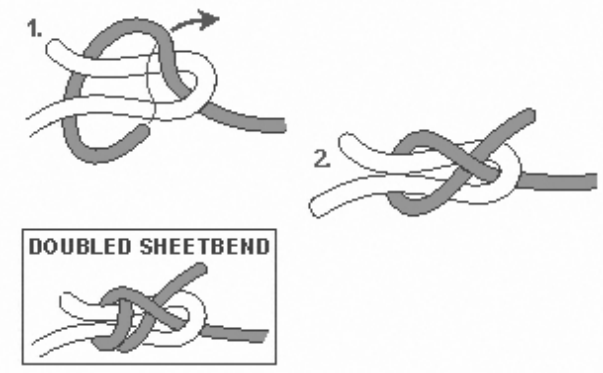



**Use:** Tying line to any round piling or post, but not for heavy pulling. Good for temporary moorings.

Step 1: Form an underhand loop and drop over post.

Step 2: Form second underhand loop just like the first, and drop over post also.

## Sheet Bend



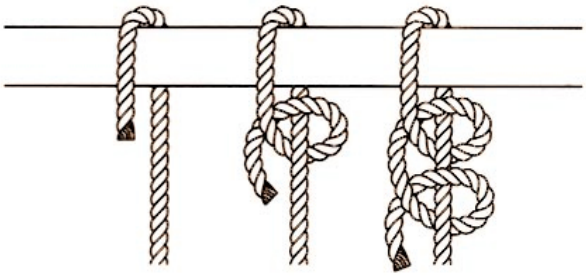

**Use:** For tying two lines of unequal size. It is quickly tied and does not jam. However it may slip in some situations.

Step 1: Make a loop, insert second end.

Step 2: Wrap second line under and around loop and under itself

Step 3: Pull tight.

## The Two Half Hitch, with round turn



**Use:** For mooring boat to dock or piling, fastening anchor line to anchor, tying towline to mast.

The round turn reduces amount of chafing and wearing on rope. If there is a heavy pull, add extra turns.

Step 1. Pass end of rope around post or other object.

Step 2. Wrap short end of rope under and over long part of rope, pushing the end down through the loop. This is a half hitch.

Step 3. Repeat on long rope below first half hitch and draw up tight.

## The Bowline

**Use:** One of your important knots, the bowline, is used whenever a loop is needed that won't slip. It is used for mooring lines, seats, towlines, joining two ropes together, etc. It will always come out easily when strain is taken off line.

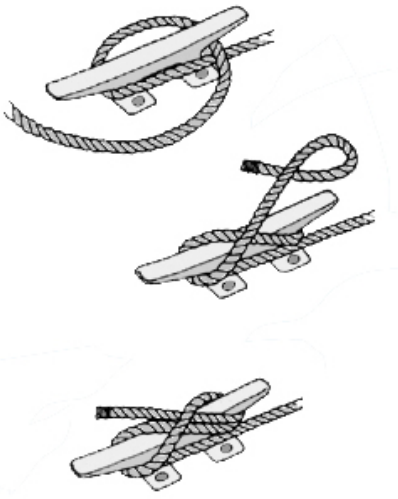
Step 1: Make small loop near end, with shorter part crossing on top.

Step 2: Put end through loop, from underneath.

Step 3: Swing end around main part of line.

Step 4: Put end back through loop in same way it came out.

## The Cleat Hitch



**Use:** The cleating of a line is used for fastening halyards, outhauls, down hauls. It is never used for fastening the sheet, as the sheet often has to be released in a hurry.

**Other Uses:** It can be used on a cleat that fastens a mooring line, by making one or two of the Figure-B turns a locking half hitch, so the line is more securely held.

Step 1: Take full round turn around cleat.

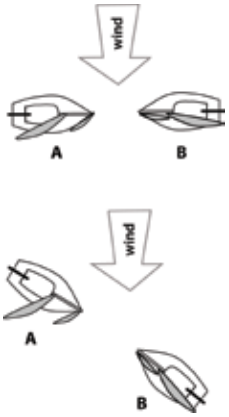
Step 2: Cross over top of cleat to form one or two Figure-Bs.

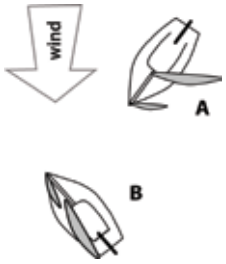
Step 3: Finish with one or two full round turns, each pulled in tight.

## Navigation Rules -"Rules of the Road"

The most common boating accident is a collision with another boat. Staying alert and keeping proper lookout is basic to avoiding collision. Here are five rules crucial to actively avoid collisions with other vessels. For these illustrations Boat B always has the right of way.

**Basic Rule 1.**
The boat on the starboard tack has the right-of-way over a boat on a port tack.



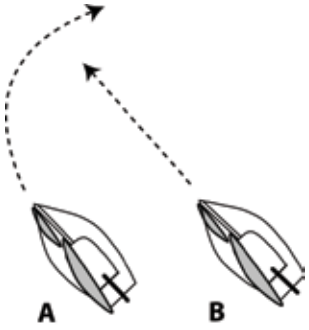



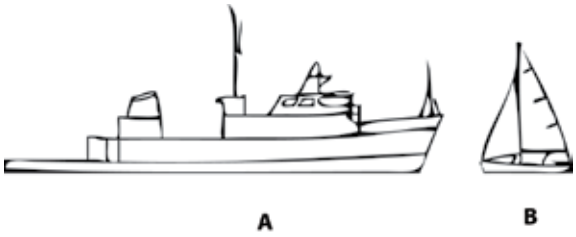

**Basic Rule 2.**
If on the same tack, the windward boat shall give way to a leeward boat when on the same tack.

**Basic Rule 3.**
A boat that is overtaking shall give way to a boat ahead, regardless to the type of vessels or tack.


**Basic Rule 4.**
If a vessel with the wind on the port side sees a vessel to windward and cannot determine with certainty whether the other vessel has the wind on the port or on the starboard side, she shall keep out of the way of the other.

**Basic Rule 5.**
A boat that is coming about (tacking) or jibing shall give way to a boat on a steady heading. Thus, if your vessel is the stand-on vessel, you are required not to turn or alter course. If the stand-on vessel does alter course, it must be to avoid collision. If your vessel is the give-way vessel, you must turn away from the stand-on vessel to avoid collision.




**Basic Rule 6.**
Sailboats generally have the right-of-way over powerboats. The more maneuverable vessel gives way to the less maneuverable vessel. It is generally assumed that this means that power 'gives way' to sail, but this is not always the case. It is prudent for a small sailing vessel to stay out of the way of large power driven ships by making an early and obvious alteration in course. For large vessels, who have to operate in deep water or a restricted channel, it is best to stay clear.

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The "rules of the road" or International Regulations for Preventing Collisions at Sea (COLREGS) set forth by the International Maritime Organization 1972 (http://www.imo.org/) are particularly relevant to sailboats because they may be sharing the same body of water as powered vessels, who are bound by the COLREGS. IMO has over 200 titles available in English. Many are translated into French, Spanish, Arabic, Chinese and Russian. Also see http://www.navcenter.org/mwv/navrules/rotr_online.htm

## Terms

**Aft** Toward the stern, or back, of the boat

**Apparent wind** The result of wind direction modified by the boats forward movement

**Batten** A plastic strip that fits into the following edge of the sail (the leech) to stiffen the sail

**Beam reach** The point of sail at which the boat is sailing at a 90 degree angle to the wind

**Bear Off** To alter the boats course away from the wind

**Bearing** The direction of an object from your boat

**Beaufort Scale** A scale for measuring wind strength

**Bow** The front of the sailboat

**Broad Reach** The point of sail at which the boat is sailing away from the wind but not straight downwind. The wind hits either of the stern quarters.

**Buoy** A float that is attached by a line to the sea bottom

**By the lee** Sailing downwind with the wind blowing over the leeward side of the sail, creating an unexpected jibe

**Capsize** Accidental overturning of the boat

**Centerboard** A keel design that pivots Into the water for lateral resistance and into the boat when not needed

**Cleat** A fitting attached to a boat or a dock used to secure a rope

**Close Hauled** The point of sail at which the boat is sailing as close to the wind as possible

**Close Reach** The point of sail at which the boat is sailing toward the wind but not dose hauled

**Course** The direction you are sailing according to compass or wind angle

**Crew** The person (or people) who assists the helmsman by trimming the sails

**Downhaul** Attaches to the boom by the mast and tightens the luff by puling the boom down

**Draft** The depth of the boat, measured from the waterline to the lowest point of the boat

**Ease** Let out, as In "ease the sheets or sails"

**Forward** Toward the front of the boat

**Jibing** Turning the stern of the boat through the wind, the sail and boom changes sides

**Grounding** When the hull or keel Is against the sea floor

**Halyard** A line used to raise or lower sails by connecting to the head of the sail

**Haul** To pull in, as in "haul in the mainsheet"

**Head Up** To alter course toward the wind

**Heel** The angle at which a boat leans over when sailing

**Helm** A boat's steering apparatus; also a measure of balance between hull and sails indicated by steering effort

**Helmsman** The person who steers the boat

**In "Irons"** Stuck head to wind with sails luffing and no steerage

**Jib** The forward sail attached to the forestay

**Knot** A measure of wind or boat speed: one nautical mile (6060.2 feet or 1,852 metres) per hour leeward The side of the boat that the wind does not hit, the same side that the boom is on luff The forward edge of a sail luffing Sails flogging in the wind, the boat is without sail power

**Mainsail** The primary sail attached to the mast and boom; the "main"

**Mainsheet** The line attached to the mainsail, via the boom, to control the trim (adjustment)

**Mooring** A fixed float with a permanent anchor, used for overnight storage of a boat

**One design** Any boat built to conform to rules so that it is identical to all others in the same racing class

**Outhaul** Attaches to the clew of the main and adjusts the main's foot tension

**Points of Sail** The direction in which the boat is sailing relative to the wind

**Port side** The left side of the boat when you're facing forward

**Port tack** When the wind blows over the port side thus the boom is on the starboard side Port To the left

**Rudder** An underwater blade used to steer the boat, attached to the stem

**Run** The point of sail at which the wind Is directly behind the boat

**Reaching** The point of sail at which the wind on the beam

**Sheet** A line used to trim or ease sails

**Shroud/Stay** Fixed wire rope that supports the masts

**Spinnaker** A large, light sail used for sailing downwind

**Starboard side** The right side of the boat when you're facing forward

**Starboard tack** When the wind blows over the starboard side of the boat and the boom is on the port side

**Starboard** To the right

**Stem** The back of the sailboat

**Tacking** Turning the bow of the boat through the wind with the sails changing sides

**Tiller** attached to the rudder, used to steer the sailboat

**Trim** Pull in, as In "trim the sails'

**True wind** The wind strength or direction felt when the boat is stationary

**Windward** The side of the boat that the wind will hit first, or the opposite of the side the boom is on; also, toward the wind or upwind (a "windward" boat is toward the wind from the "leeward" boat)

## What's Next

It is good to know exactly where you are as you learn about sailing. The area of study that you just completed with DMSC and this manual is basic keelboat sailing. If you want to advance in your understanding of sailing, there are seven well defined areas of knowledge and skill that you should understand:

1. Basic keelboat sailing
2. Basic coastal cruising
3. Intermediate coastal cruising
4. Coastal navigation
5. Advanced coastal cruising
6. Celestial navigation
7. Offshore passage making

### RYA Instruction

RYA training stands out as a badge of quality wherever you work in the world. From local watersports managers and instructors to military personnel and superyacht captains, an RYA qualification takes your career forward. RYA instruction is supported by people working in the business, so you will also benefit from their real world experience. These people are proof that the RYA is a passport to achieving your goals.

## Books We Recommend

We recommend any of the **RYA publications**.

**The Complete Sailor: Learning the Art of Sailing. By David Seidman**
The Complete Sailor takes the reader from the first sail to a mastery of small-boat handling. The Complete Sailor goes beyond other learn-to-sail books to cover navigation, boat design, and seamanship.

**Sailing For Dummies by J. J. Isler**
Interested in learning to sail but feel like you're navigating in murky waters? Sailing for Dummies, Second Edition introduces the basics of sailing, looks at the different types of sailboats and their basic parts, and teaches you everything you need to know before you leave the dock.

**The Handbook Of Sailing by Bob Bond**
The first question most would-be sailors ask is: where do I begin?

## Sailing web site references

**Royal Yachting Association**
http://www.rya.org.uk/

**International Sailing Federation**
http://www.sailing.org/

**Fédération Française de Voile**
http://www.ffvoile.fr/ffv/web/

**American Sailing Association**
http://www.asa.com/sme.html

**Online Small Boat Sailing Course, School and Lessons:**
http://www.smallboat.sailingcourse.com/

**Sailing Issues**
http://sailingissues.com/navcourse0.html

**Sail Magazine:**
http://www.sailmagazine.com/

## Dome Marina Sailing Centre

Dome Marina Sailing Centre (DMSC) is a membership organization dedicated to the promotion and teaching of sailing as a safe and eco-friendly sport. The Centre provides beginner to advanced sailing courses, as well as recreational sailing programs.

DMSC is located at Marina Wadi Dome, 150 kilometres east of Cairo on the Katameya Road. Our location offers two restaurants, a bar and a sitting area, all on a beautiful beachside setting.

Our facilities are unique because we are one of the few centres along the Red Sea that offers an expansive sandy beach. When you're not sailing, you can relax by the beach or in our community centre.

**Bring your boat. Sail with us.**

Dome Marina Sailing Centre (DMSC) is located next to Marina Wadi Dome in Ain Sokhna, Egypt.

DMSC has spaces available for storing your sailboat. The spaces are limited, so contact the Centre with the type and size of the boat you have, or plan to purchase, for annual storage fees and availability.

**David Megalli**, lead instructor at DMSC received his **Royal Yachting Association** Yachtmaster certification from Rock Sailing Gibraltar in 2011. RYA Yachtmaster Coastal and Offshore Certificates of Competence are recognised and respected around the world and are the ultimate aim of many skippers. A Yachtmaster is a yachtsman or woman competent to skipper a cruising yacht on any passage that can be completed without the use of astro navigation.

**Contact details**

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