

# UIM Aquabike One day Introductory Training Course

2019 Edition  
[www.UIM.sport](http://www.UIM.sport)



**Dream ...**

**Train ...**

**Race ...**



# Introductory Training ...

Dear Friends of the Aquabike/Jet Ski Sport

Welcome to the UIM Aquabike/Jet Ski One-Day Introductory training course.

The UIM is delighted to present this new one-day training course which provides an exciting introduction into the world of Jet Ski Racing which is one of the fastest growing disciplines within the UIM.

The UIM is the world governing body for the sport with over 60 member National Authorities many of whom run both National and International racing.

This course will help you to understand how to safely operate a ski, have fun on the water and most importantly have an appreciation of other water users and the environment.

This course will provide a basic introduction to Jet Skis, if you enjoy this one-day taster why not have a look at the full UIM Aquabike Training manual. This is a comprehensive guide designed to take you through the different skill levels from Basic Training to Advanced where you will learn how to race and then go on to competitive practice where you will learn how to develop your skills and become a UIM Aquabike Champion.

Enjoy your day on the water and we hope you return to further develop your skills and join the UIM Aquabike family.

Dr Raffaele Chiulli  
President - Union Internationale Motonautique.



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INTERNATIONAL  
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COMMITTEE



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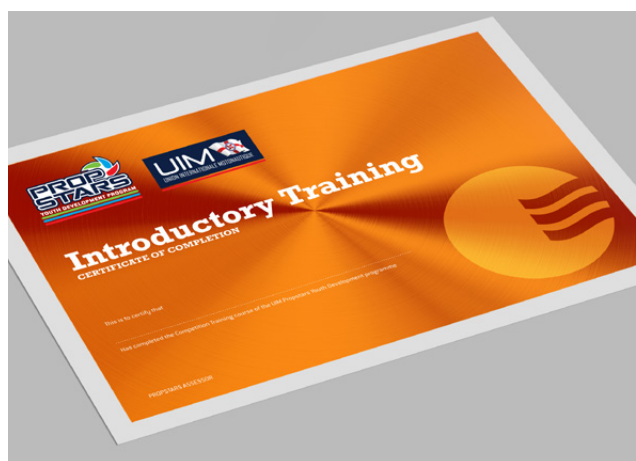
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# Introduction



## REMEMBER...

Riding a Jet Ski is exciting, enjoyable and fast and therefore must be taken seriously at all times, Pay good attention to the classroom theory session if you don't you may not be allowed out on the water

## Arriving for your first training session

Make sure you have made contact with your training centre or instructor and that you have the programme of activities and timetable for the day. Part of your instruction will be theory and classroom based so don't forget to take notes during the day as the subject is large and varied. For the on water training session you will need suitable clothing for the day which will vary from venue to venue and country to country. Soft shoes or wet suit boots, a full wet suit or shorty depending on the climate and temperature of the water. The UIM training centre will provide you with a suitable life jacket, goggles and helmet if required.

## Safe and Responsible riding:

Riding a Jet Ski is exciting, enjoyable and fast and therefore must be taken seriously at all times. Your instructor will help you to understand how the ski works, what to do and most importantly what not to do. Pay good attention to the classroom theory session if you don't you may not be allowed out on the water.

## How to operate safely:

Safety will be a key feature of this one day introductory course, you will be taught how to board a ski, how to ride in calm and choppy waters and how to recover from a capsized.

## Do I have to know how to swim?

You will need to check this with your local training centre but in most cases as you are likely to end up in the water at some time the ability to swim and be comfortable with the water is extremely useful. You will be required to wear a full lifejacket at all times whilst on the pontoons and out on the water.

## Are there any age restrictions?

Again check with your local centre as some National restrictions may apply. The Basic Aquabike/Jet Ski Training Course is suitable for children from the age of 10 years upwards, they will be taught to use sit down runabout skis similar to the Seadoo Spark which is an ideal entry level machine, these are safe and fun skis to drive and provide the ideal training platform from which to progress.

## How to get the best from your training courses?

Spend some time reading through this booklet and get to understand the terminology as well as the content and detail of the topics included at each level. Time spent in preparation at this stage will be invaluable and will help you to understand the syllabus as you proceed through the various levels.



# Introduction



## Introduction to one day UIM Basic Aquabike Course:

This one day course is structured to encourage you to go on to the next levels the first of which is the UIM Basic Aquabike Course. Ask your instructor for details of this next course.

### Licences:

In some countries you are required to have a licence before you can ride a Jet Ski, talk to your instructor who will help you to understand what is required.

## UIM Introductory Aquabike Course Completion Certificate:

At the end of your one day training session your instructor will talk to you about your progress, how did you get on, did you ride safely, did you listen to the classroom sessions? If in his opinion you have successfully completed the training course you will be awarded a UIM Aquabike Introductory course completion certificate.

### Your future training:

Enjoy the sport more, learn how to race and compete at National and International levels, take the challenge and join the sport!



# The Skis

## The Skis

It is likely that you will be using a variety of different skis during your initial training period; the machines that you will use will be determined by what is available at your local training centre. The most popular makes are those provided by Seadoo, Yamaha and Kawasaki.

## Sit Down Skis also known as Runabout

These skis come in a variety of formats; they are predominately two seater but are also available as three seat machines which are great for families. Sit down or runabout skis are now available with engines from 60hp to over 300hp. The lower end machines although fitted with less power are extremely light and therefore are very sporty and it is likely that this is the type of machine that you will start your training on.

The high end machines with 200+ HP are heavier and therefore more stable in rough conditions, they also incorporate a range of sophisticated electronics designed to help you manage the machine.

The UIM Racing Classes in the Runabout category are: Runabout GP4 and GP3 are the entry level classes through GP2 to GP1 being the unlimited top end class. Full details of these UIM Classes can be found in the UIM Aquabike Rule book at [www.UIM.sport](http://www.UIM.sport)





# The Skis

## Stand Up Skis

In general stand up skis are becoming less popular particularly with the advent of the new sporty 60 and 90hp lightweight sit down machines. Stand up machines are however still used in racing and in order to ride one well you must be in good physical shape and it is essential that you develop a good riding technique.

The UIM Racing Classes in this category are GP3 entry level through to GP2 and GP1 being the unlimited top end class. Full details of these UIM Classes can be found in the UIM Aquabike Rule book at [www.UIM.sport](http://www.UIM.sport)

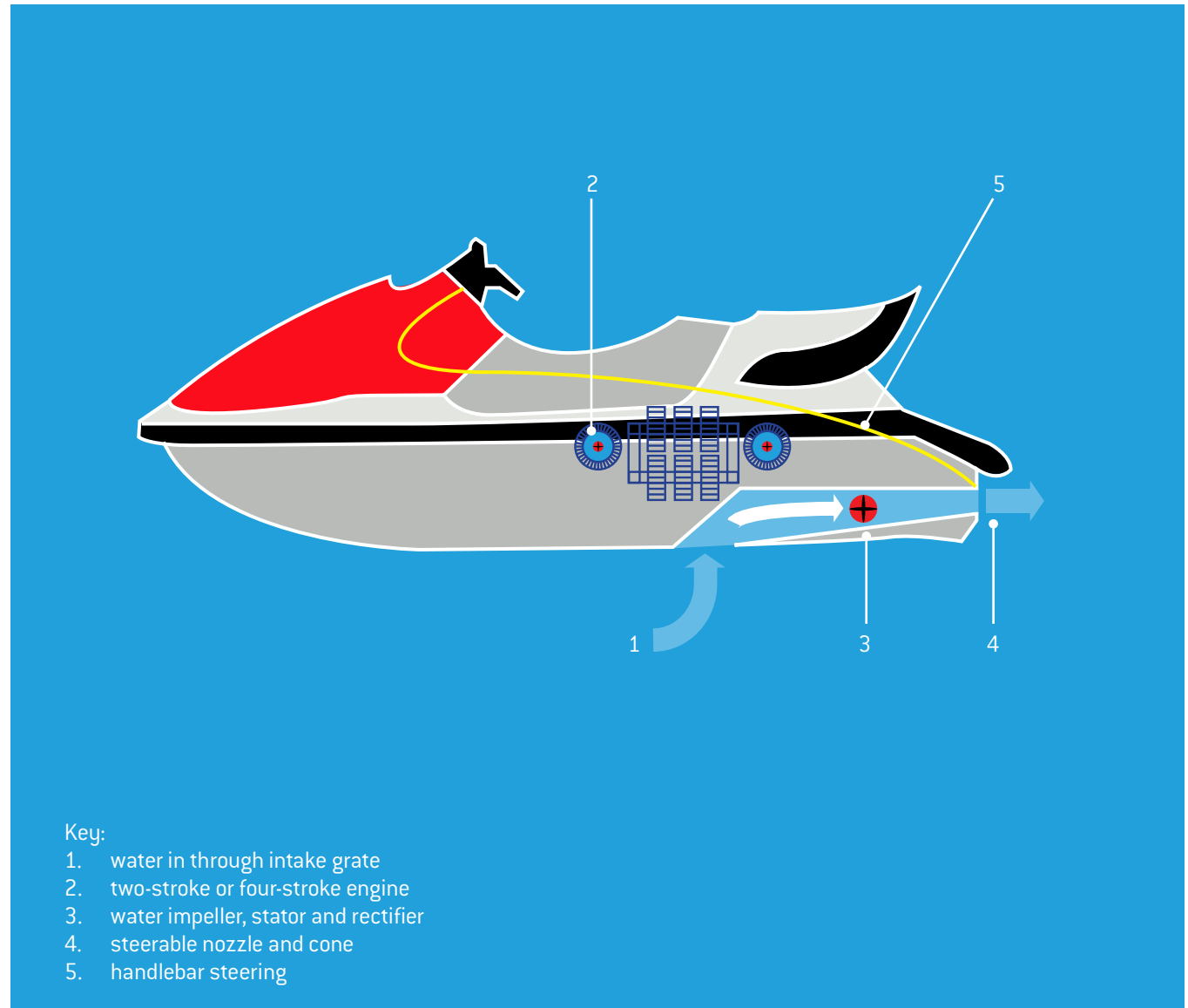




# How the Jet Ski Works

## How the Jet Ski Works

1. A typical Aquabike/Jet Ski is powered by an inboard petrol engine which can be either two stroke or four stroke. Engines vary considerably in HP, basic models generally have approx. 90hp and top of the range racing models now have over 300hp so learning to handle the basic machines first is vital.
2. The engine provides power to the Jet Pump which sucks in water through an open grate in the bottom of the hull and then expels it at high speed out through the nozzle at the rear of the ski. This nozzle is directional and thereby provides the steering.
3. Don't forget that the moment you start the engine the pump is running and therefore it will start to propel you forwards or backwards but more on that later.



# The Jet Pump, Engines and Control systems

## The Jet Pump

1. The engine provides the power via a direct drive shaft to the Jet Pump which consists of an impeller similar to a propeller but in this case the impeller is located in a fixed tube similar to a cylinder on an engine, this is also called the stator. The impeller which has a number of fixed blades is designed to fit the stator extremely accurately and rotates at speed as the speed of the engine is increased. The impeller is the only moving part in the Jet Pump.
2. When boat propellers spin they cause the water to spin or turn in the direction that the propeller is rotating, impellers on a Jet Ski only turn in one direction as there is no gearbox on the engine so to overcome the effect of the impeller spinning the water which would tend to make the ski unstable and difficult to control they use a “flow rectifier” The flow rectifier consists of a series of fixed blades tilted in the opposite direction to the impeller which reduces the propeller effect and improves the output and performance of the pump.

The final part of the Jet Pump consists of a fixed nozzle, a cone and a steering nozzle so let's now look at how these work.

3. The Fixed nozzle has the effect of compressing the water output and thereby increasing the speed of the ski.
4. The Cone is mounted on the outlet side of the flow rectifier and inside the fixed nozzle. The cone is normally made out of alloy or plastic and its function is to optimise the flow of water and to reduce cavitation. The effect of cavitation is more fully described in the Competition section of this training manual.
5. The steering nozzle is mounted on the fixed nozzle where the water flow exits at high speed; this nozzle is directional and is directly controlled by the handlebars of the ski so when the handle bars are turned left or right so the ski will change direction. This steering nozzle can also change direction up or down thus acting as a trim control however this function is only normally found on runabout machines at the higher end of the market. Again more information is given on trim control in the Advanced section of this manual.
6. The Jet Pump body also incorporates a water inlet which provides cooling water to the engine and on some machines a vacuum system is used to suck out any water from inside the ski.





# The Jet Pump, Engines and Control systems

## The Scoop and Ride Plate

The scoop is located beneath the jet pump and its function is to direct a constant flow of water to the Jet Pump to optimise best performance.

The Ride Plate is designed to ensure your machine is always at the right angle to the water in all conditions and will give stability, control, and grip and thus more speed. The ride plate also ensures that the ski will leave a clean wake which will optimise the flow of the water jet again giving improved performance and speed.

Both of these items come in many different shapes and designs and part of correctly setting up a racing ski is to select the best one for your particular machine. Do however check that any modifications you make in this area comply with the racing rules either of your own country or if racing internationally the UIM.





# The Jet Pump, Engines and Control systems

## Engine Operation

Most of the current four stroke engines used in modern Jet Skis are derived from motor cycle engines, these engines are complex, powerful and heavy particularly as many of the larger machines are fitted with super-charger to boost the power output. Unlike motorcycle engines air cooling is not possible so engines are water cooled.

Most engines are indirectly cooled, water is sucked up into the cooling system and passed around a closed inner water jacket via a system of heat exchangers and then ejected out through the exhaust. The closed inner water jacket is filled with coolant to protect the engine from salt water corrosion. Many recreational skis use a high velocity water tell-tale which squirts high into the air from the back of the machine, this tells the rider that the water cooling system is working properly.

As with all engines it is important to keep them well maintained and clean, the engine bay on an Aquabike/ Jet Ski is confined and difficult to work in. The engine bay should ideally be painted white so that any oil or exhaust leaks can be spotted immediately.

There is no gear box on an Aquabike/Jet Ski, the drive shaft is taken directly from the engine to the Jet Pump, it is therefore very important to ensure the capacity and power of the engine is correctly matched to the Jet Pump, more about that in the Competition section.



### CAUTION...

On some skis an external heat exchanger is fitted under the hull, if a capsize occurs this will be hot so be careful when righting the ski.





# The Jet Pump, Engines and Control systems

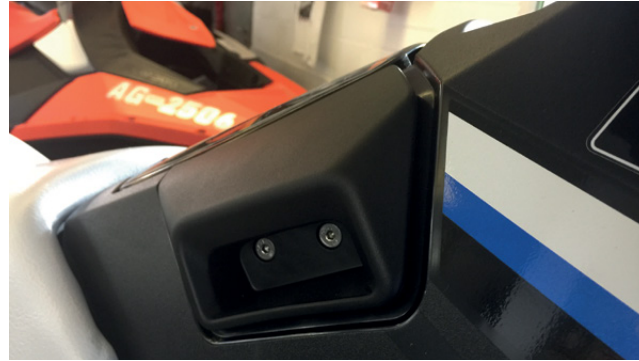


## The effect of the reverse bucket

Most modern skis have a reverse bucket which hinges over the water jet to re direct the water and enable the Jet Ski to go backwards. On modern sit down or runabout skis this operation is achieved by using the lever on the left handle bar and the on board electronics will activate the bucket but on some older machines it is necessary to pull up a lever close to the jockey seat.

**CAUTION SOME OLDER SKIS DO NOT HAVE A REVERSE BUCKET FACILITY AND THEREFORE NO REVERSE CONTROL IS POSSIBLE, SKIS WILL NOT STOP EASILY VERY IMPORTANT POINT TO CONSIDER WHEN USING THIS TYPE OF SKI.**

Remember when you start the engine the pump is running which will propel the ski forwards or backwards.



## Electronic Reverse bucket control

### Advantages

- Easy to use
- Neutral position simple to find
- Additional safety feature of IBR (Intelligent Brake Reverse)
- System can be switched off

### Disadvantages

- Additional cost of machines fitted with electronic systems
- When the system fails it can be expensive to repair
- Rider input and skills limited by system, similar to ABS on a car



## Manual Reverse Bucket Controls

### Advantages

- No expensive electronics to go wrong
- Machines cheaper to purchase

### Disadvantages

- Clunky old fashioned method of control. Levers and cables prone to break, difficult to maintain and unreliable
- No safety IBR system

## No Reverse Bucket

Machines with no reverse bucket are difficult to stop and consequently more dangerous. To stop a machine with no reverse bucket the technique is to fully turn the handle bars to one side or another and put the ski into a sideways slide, kill the power and stop. This is not easy for a rider new to the sport.



# The Jet Pump, Engines and Control systems

## Handle Bar Controls, steering, forwards, reverse, throttle, reverse brake, trim, stop start

**Under way at Low Speed:** The ski is steered by using the handle bars just the same as a motor bike or bicycle however you will need to apply small amounts of throttle which will provide the necessary thrust from the jet pump to give you directional control. The best way to do this in close quarters situations i.e. near a jetty, dock or other skis is to apply small bursts of power.

**Underway at High Speed:** At higher speeds a ski will require thrust from the jet pump to steer and therefore throttle must be used in order to steer and maintain control. Don't forget that if you go into a turn to avoid an object you must keep the power or throttle on, if you take all power off you will lose control of the ski which could be extremely dangerous.

Use **EXTREME CAUTION** when travelling fast in close proximity to other water users, follow the highway code of the sea, the International Regulations for the Prevention of Collisions at Sea at all times. More details can be found on this in the Basic Navigation section of this manual.



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## Handle Bar Left Lever

The lever on the left handle bar has multi functions:

1. One click on left lever will engage the neutral position, this means that the nozzle is pointing downwards and therefore little or no forward or reverse movement is occurring.
2. Depress the left lever fully and reverse thrust is selected, the on board computer electronics will activate the reverse bucket which re directs the thrust backwards and thereby slows the ski down. To increase the effect of this additional throttle can be applied by the right lever.



## Handle Bar Right Lever

The lever on the handle bar on the right side of the ski is the throttle, this is used to increase forwards thrust and to increase and decrease speed.





# The Jet Pump, Engines and Control systems

## Know the controls on your machine and how they work before going on the water

Before you take to the water know how the controls on your machine work, described below are some of the main types available today:

### Seadoo IBR (Intelligent Brake and Reverse) Dual levers

Control	Result
Right throttle lever	Forward gear, ski moves forwards
Right throttle lever	Ski accelerates forwards
Left control lever apply one click	Neutral engaged, nozzle points downwards
Left lever squeeze fully and hold	Reverse bucket engaged, ski moves backwards
Left Lever used whilst moving forwards	Reverse bucket engaged, ski slows down (brakes)

### Yamaha RiDE (Reverse and Intuitive Deceleration Electronics) Dual throttles

Right throttle lever	Forward gear, ski moves forwards
Right throttle lever	Ski accelerates forwards
Right and left throttle lever	Release both levers to engage neutral
Left throttle lever	Reverse bucket engaged, ski moves backwards
Left throttle lever	Reverse acceleration
Left throttle lever	Reverse bucket engaged, ski slows down (brakes)

NOTE THE IMPORTANT CONTROL SYSTEM DIFFERENCES BETWEEN THE DIFFERENT MANUFACTURERS, ESPECIALLY HOW TO ENGAGE THE NEUTRAL POSITION.

There are several other electronic systems available to assist rider control: OPAS, Off Power Assisted Steering and OTS off Throttle Steering, these systems kick in when power is taken off and full steering lock is applied, the machine senses that a course correction is urgently required and automatically kicks in with a burst of power to provide sufficient thrust to make the course correction.





# The Jet Pump, Engines and Control systems



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## Handle Bar Trim Control

Some skis have a variable trim control, trimming up will get you on the plane quicker especially if you have a passenger on board. Trimming up will also lift the nose of the ski upwards which is useful in choppy waters. Trimming down can also be useful especially on the start line in racing conditions, powerful machines will tend to accelerate very quickly from the start line and having the nose trimmed down to start with will help however quickly return to the neutral trim position once you have started as this will ensure optimum performance.

On some machines the trim is activated electronically via buttons on the handle bars and on older racing machines it is operated by squeezing the trim lever.



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## Control gauge and multi- functions:

The central control gauge will provide information and alarms on the following:

- Engine RPM
- Fuel time and distance to empty
- Speed
- Engine Coolant (alarm)
- Engine oil pressure (alarm)
- Position GPS on some models
- Compass heading
- Operational Mode, Cruise, Sport, Eco and no wake



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The operational modes are described in more detail below:

### Cruise mode:

In this mode the engine is not in high performance but delivering fuel efficient fast cruising.

### Sport Mode and sometimes Sport Plus:

Hang on in this mode you have got full performance

### Eco Mode:

The engine is delivering the most fuel efficient and economical power possible.

### No wake mode:

As the name suggests low power, minimal wake ideal for marinas and small rivers.

# The Jet Pump, Engines and Control systems

## Stop start control

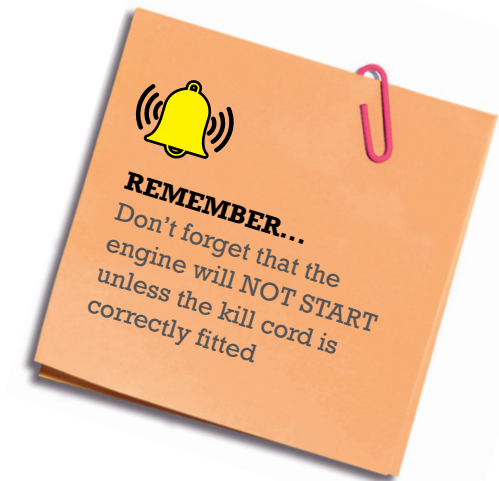
Make sure that the battery is connected, the power is switched on, and if fitted the fuel valve is set to open. On most machines the stop start control is mounted on the left handle bar; do not start the engine whilst in shallow water, min depth approx. 1.0m as sand and debris can be sucked into the impeller and cause major damage.

**DON'T FORGET THAT THE ENGINE WILL NOT START UNLESS THE KILL CORD IS CORRECTLY FITTED**

**DON'T FORGET AS SOON AS THE ENGINE IS STARTED THE IMPELLER IS TURNING AND CONSEQUENTLY THE SKI CAN TRAVEL FORWARDS**

**DON'T FORGET THAT IN AN EMERGENCY YOU CAN STOP THE ENGINE BY REMOVING THE KILL CORD.**

**DO NOT RUN THE SKI UP ONTO THE BEACH WITH THE ENGINE RUNNING; AVOID ALL DEBRIS IN THE SEA ESPECIALLY PLASTIC, ROPE ETC.**





# The Jet Pump, Engines and Control systems

## Kill Cords

Kill cords are an essential part of the on board safety equipment the rider must always ensure the kill cord is securely attached to his/her person. The ski will not operate unless the kill cord is correctly fitted. If the rider is thrown off the ski the kill cord should immediately detach from its fitting on the ski and the engine will stop. Many new skis models have intelligent kill cord keys with electronics built into the key, the green learner key and the standard operation yellow key, we will look at the function of these keys next.

**MOST IMPORTANT TO ENSURE KILL CORD IS PROPERLY ATTACHED TO YOU OTHERWISE RISK OF RUNAWAY SKI**

### Kill Cord Green Key – Learner key

Most modern skis fitted with electronics will incorporate a Learning Key into the Kill Cord, these systems will electronically limit the power output of the engine which is a great help when starting to learn to ride and is especially helpful when trying to master the throttle controls on a powerful machine.



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### Kill Cord Standard Yellow Key

When the standard Yellow Kill Cord key is fitted the electronics return the machine to full power output.

**ONLY EXPERIENCED RIDERS SHOULD OPERATE THE SKI IN THIS MODE.**



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## Engine Stopping

The engine is stopped by pressing the stop/start button on the handlebars. Do not stop the engine until you are securely tied up and safe. The engine can also be stopped by removing the kill cord.





# Personal Equipment



## Personal Equipment

The Personal equipment listed below is essential for both the safety and comfort of the rider. As with accessories in any sport fashion changes and the new colours or a new look for the season are what many riders will go for but take time to understand the importance of this essential kit and how it will work best for you.



# Personal Equipment



## Life Vest, Racing vests, life jackets and buoyancy aids

What is the difference between a racing vest commonly known as a life jacket and a buoyancy Aid.

**A RACING VEST OR LIFE JACKET WHEN CORRECTLY FITTED WILL ENSURE AN UNCONSCIOUS PERSON FLOATS FACE UP IN THE WATER. A BUOYANCY AID WILL NOT DO THIS.**

The choice of equipment you make is personal but this is the most important piece of equipment you will need and it should be worn at all times you are on the ski. Lifejackets and buoyancy aids are measured in Newtons 10 Newtons (10N) = 1KG. You should choose one of not less than 50Newtons. You should always make sure that all straps and zips are done up tightly before going out on the ski.

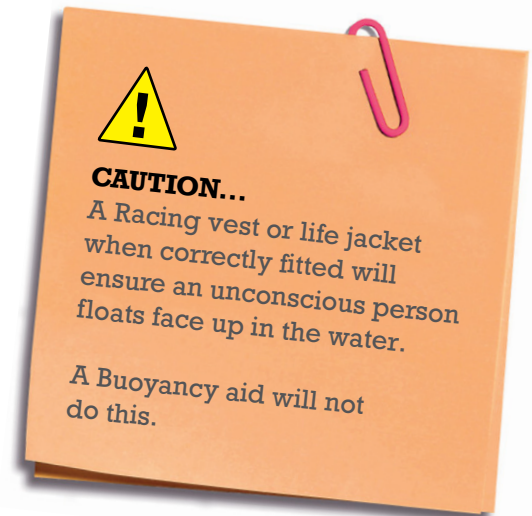
Failure to do this could result in the racing vest, life jacket or buoyancy aid pulling up over your head which will render it useless. Lacing ties and/or straps shall be adequate and in good condition. There should be lifting straps at the front or on the shoulders.

In all disciplines of racing strict rules apply which govern the type of racing vests or life jackets that are acceptable, some of the key points are as follows:

- Zips are not permitted as the sole means of fastening on a racing vest
- Where zips are used as an ancillary means of closure they must be in working order
- Tears or rips or bad repairs through which buoyancy material may leak out are not permitted
- Vests must have a lifting eye or strap attached to the

- main harness. Vests must not be able to ride up over the wearer's head, and must be secure to the body
- For lifejackets the disposition of the solid buoyancy must be such as to ensure that an unconscious person will float face up in the water. The vest must have impact protection material covering the back.

Please contact your National Authority for additional information if you are unsure of the type of product that is acceptable. If you are racing in International events the UIM Rules apply which can be found at [www.UIM.sport](http://www.UIM.sport)



# Personal Equipment



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## Kill cord

As we have previously mentioned Kill cords are an essential part of your personal on board safety equipment the rider must always ensure the kill cord is securely attached to his/her person. The ski will not operate unless the kill cord is correctly fitted.



## Protective Helmets

The wearing of helmets is mandatory in racing and highly recommended in recreational use, the helmet will protect you against impacts with the machine and the water which at high speed can often be violent. The wearing of a helmet also provides support for goggles vital for eye protection. As with most other water sports requiring the use of helmets there are few purpose made available for our sport so some research is required. Generally choose a Motocross style helmet with a removable internal liner also look for a helmet with a chin strap that secures with a double ring, some of the modern clips or snap attachments can fail as a result of corrosion from sea water.



## Protective Helmets for racing

Protective helmets must be worn at all times when racing and under the direction of the Officer of the Day. It is mandatory to wear a helmet made to a minimum standard to include Snell M2000, or M2005 or Snell SA2000 or SA2005. Helmets must have temple protection and must be coloured "orange" or an equivalent bright colour acceptable to the organising body. A correctly fitting helmet is essential, seek advice from your supplier but be aware that if there is excessive movement in the fit or you can pull your helmet off from behind it is useless. Look after your helmet at all times, it is a vital piece of safety equipment, if you drop your helmet onto a hard surface it is extremely likely that it will be irrevocably damaged. Check the current International requirements for helmets at [www.UIM.sport](http://www.UIM.sport)



# Personal Equipment

## Wet suit

A good fitting wet suit is essential for comfortable riding; wet suits are available in many different forms, weights (thickness), full suit or shorty and many different colours. The first thing to remember is that a wet suit does not keep you dry, when fitted correctly it will allow water to enter between the wet suit and the skin and your body heat will then warm this layer of water which in turn will keep you warm.

Wet suits are available as a full suit or a shorty covering the torso only; generally speaking the shorty suit is for summer use but clearly the choice of which one is best for you will depend on the location in which you are operating. You should choose a suit that fits snugly and is approx. 2-3mm thick, the thicker the suit the warmer it will be but a heavy suit will limit your movement which is not good.

Wet suits both full and shorty are available; these tend to have more padding so best to research this area thoroughly before purchasing.



---

# Personal Equipment



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## Whistle

It is always a good idea to have a whistle attached to your buoyancy aid or life jacket, it a great way of attracting attention especially if you are separated from your ski.



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## Gloves

An essential part of your personal equipment, a good pair of neoprene gloves will help you grip the controls and will also prevent blisters. Expect to go through several pairs in the course of a season and always carry a spare pair with you.



## Boots

This is another essential piece of personal equipment, a good fitting pair of boots with ankle support will provide stability, support and protection when both on and off the ski.



# Water awareness skills on land and water

## Handling your ski on the water

This is a really important skill to master; the art of making a ski stand still in all conditions is something that will take time to develop and a lot of practice. It is possible to steer a ski with very little forwards momentum and one of the most common mistakes is to apply too much power. The most important factors to take into consideration are the momentum of the ski, the effects of the wind, tide or stream, and how to use the reverse bucket to both stop the ski and turn it round in its own length. It is also important to understand where the pivot point of the ski is as this will be important in close quarters handling. Before you attempt to carry out any manoeuvres you must know how the direction of the wind or tide will affect your ski.

## Balance and Stability

One of the most important skills you can master is that of standing and moving around the ski with confidence and ability. In this section the trainee will be given a number of basic tasks which will include:

- Standing and moving around a stationary ski in calm water
- Standing and moving around a stationary ski in rougher water
- Carrying out the same tasks but with a second person on the ski
- Moving forwards and backwards on the ski and observing how this changes the pivot points with the ski in neutral
- With two persons on the ski the trainees will swap places, this to be carried out in calm and rough water

## Deep water boarding

In this section we look at the skills and techniques required to re board a ski in deep water. This skill is very important and should be discussed with the trainees before going out into open water. The skills involved will include:

- Understanding how to use the deep water boarding step (if fitted)
- Understanding how to re board a ski in deep water with no boarding step
- Correct use of arms and legs to assist in the re board
- Correct balance, keep your weight in the centre line of the ski



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# Water awareness skills on land and water

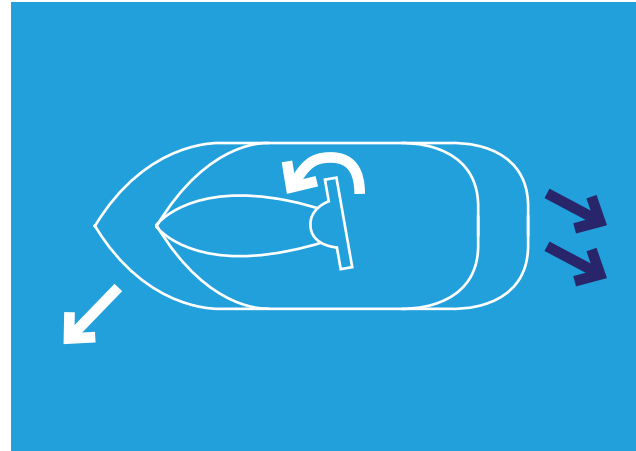
## Steering and the effects of thrust from the water jet.

One of the most important points to remember is that the moment you start the engine the jet pump is running and this will try to move the ski forwards or backwards. To go forwards apply one click to the control lever on the left side of the handlebars, this will direct the thrust forwards via the steering nozzle, to go faster simply apply a small amount of throttle.

To disengage forwards drive reduce throttle and click the left lever once more this will select the neutral position and the reverse bucket will direct the thrust downwards.

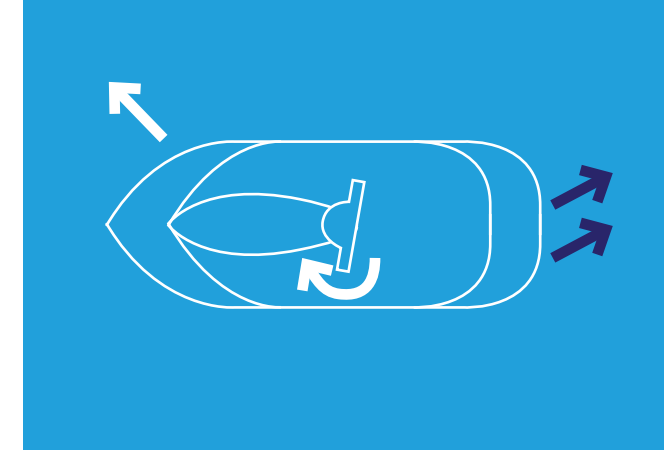
To engage reverse pull and hold the lever on the left side this will engage the reverse bucket and the thrust will be directed backwards, to increase the power of the jet simply apply more throttle.

On some of the older machines without electronic controls the method of engaging the reverse bucket is by a manual process. These older machines are fitted with a lever which you pull up to engage reverse and push down to disengage.



### Turn to the left (Port)

- Turn handlebars to Left
- Increase power to increase thrust to turn Left



### Turn to the Right (Starboard)

- Turn handlebars to the Right
- Increase power to increase thrust to turn Right

## Key

→ Direction of travel

→ Direction of thrust

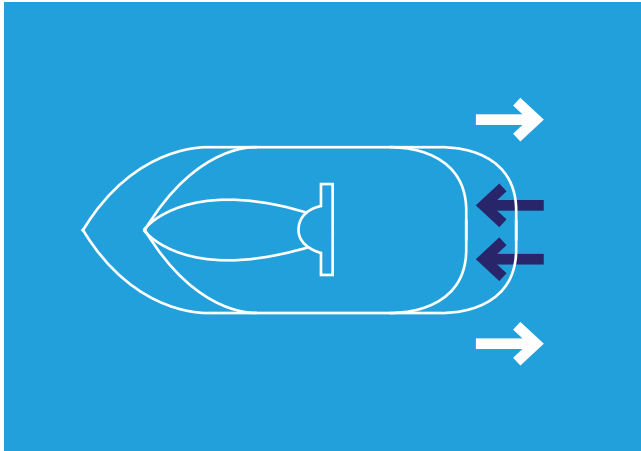


### CAUTION...

One of the most important points to remember is that the moment you start the engine the jet pump is running and this will try to move the ski forwards or backwards.

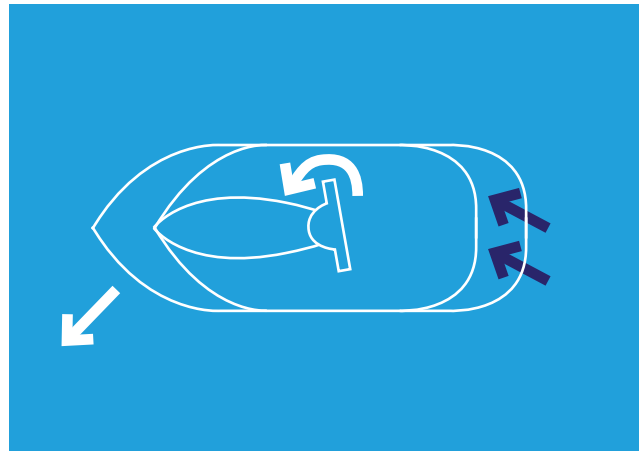


# Water awareness skills on land and water



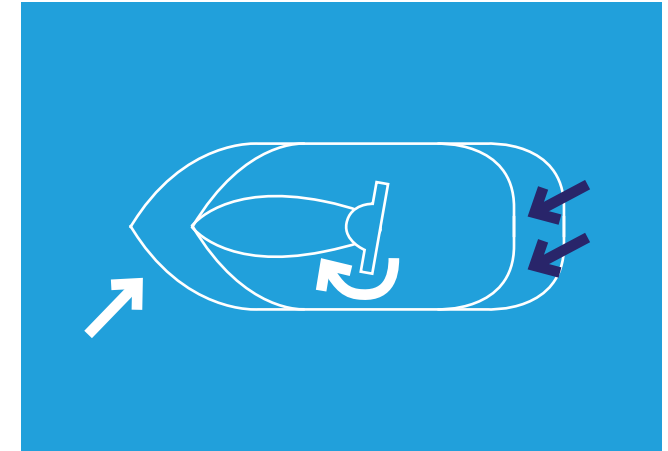
## Reversing (To reverse backwards in a straight line)

- Handlebars straight
- Increase power to increase thrust to go backwards



## Direction of rotation

- Rotating ski clockwise
- Handle bars to left ski goes left with forwards thrust
- If reverse bucket is engaged stern of ski will rotate in a clockwise direction



## Direction of rotation

- Rotating ski anti-clockwise
- Handle bars to right ski goes right with forwards thrust
- If reverse bucket is engaged stern of ski will rotate in an anti-clockwise direction

### Key

→ Direction of travel

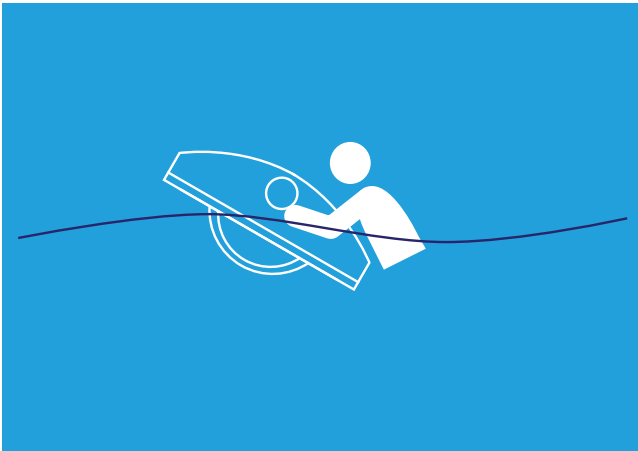
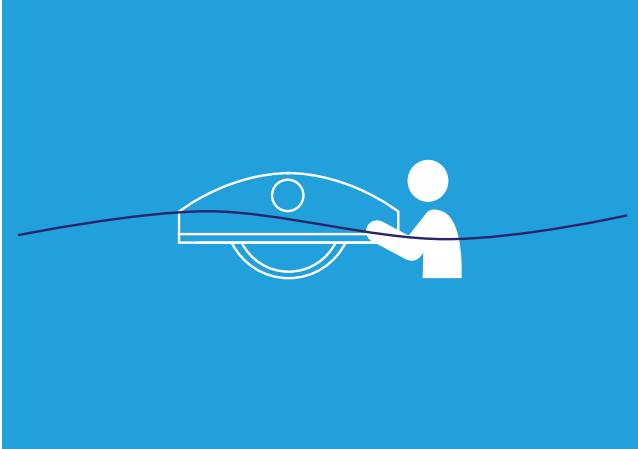
→ Direction of thrust



### CAUTION...

On some of the new skis with a fixed reverse bucket the skis will rotate in the opposite direction when reverse thrust is engaged.

# Water awareness skills on land and water



## Capsize Procedures

All riders of skis must fully understand how to deal with a capsize, modern Skis are designed to cope with this situation however as a rider you must take sensible precautions and in the event of a capsize follow a set procedure.

1. Always make sure that you and your passenger are wearing a life jacket or buoyancy aid, this must be fitted properly and in good condition. [See section on Personal Equipment Life Vest].
2. Once a capsize occurs and you are in the water, check that your passenger is OK, next make sure the engine is not running. The kill cord should have ensured this.
3. Keep hold of the ski at all times or immediately swim back to it.
4. Check the direction of rotation of the ski, this varies between different models and a label on the stern will always show the correct way to rotate.
5. Swim to the side of the machine that you intend to rotate towards you, put your knee on the rubbing strake and catch hold of the grill under the impeller.
6. Pull the ski towards you using your weight to help it rotate.
7. When the ski is upright, re board in the usual way from the stern.
8. Once righted the petrol in the fuel system will then return to its normal state and after a few moments you should re connect your kill cord and start the engine.



## Visual Distress Signals

If you have capsized and are now in Distress you can signal to others that you need assistance by slowly raising and lowering your arms. This is not the best way of indicating Distress as Flares, VHF Radio or mobile phone are much better but if none of those are available this method is a recognised Distress signal.

In all UIM and National Racing it is the responsibility of the Rescue services to provide the required assistance to any casualties in the water and all competitors must observe the rules and regulations as described by the race organisers and the Officer of the Day. More details on this will be covered in the Advanced section of this manual.



# Basic Navigation

## Basic Navigation

In this section we look at how to avoid collisions by understanding the International Rules of the Road, how to recognise ships we have to give way to and how to read and understand the Buoyage system. We will also consider the effect of tides and tidal streams as well as looking at weather and how to avoid getting caught out in rough conditions.

## Collision avoidance Rules of the Road

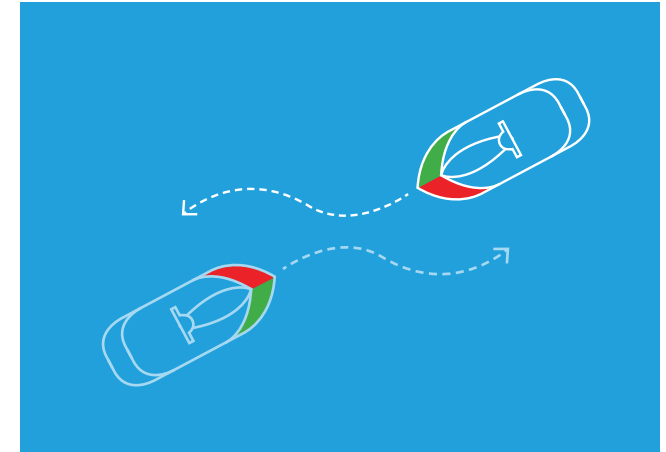
Just like travelling on the road safely driving at sea is controlled by a number of simple rules. If you know and understand these rules you will avoid problems, if you ignore them you could have a serious collision for which you may be held responsible and subsequently prosecuted.

One of the most important things to remember is that it is your responsibility to avoid a collision and you must take whatever measures necessary to do so, you should also remember that the other riders may not know the rules or worse never heard of them so don't take their ability for granted.

The most important rule is to maintain a proper lookout at all times:

- Don't suddenly change course at high speed without looking who may be behind you.
- Don't rely on your mirrors, look behind you
- Anticipate what other people may do on the water
- Always cruise at a safe speed with particular reference to sea conditions, density of traffic and visibility

Let's now look at some of the basic rules and what you should do:



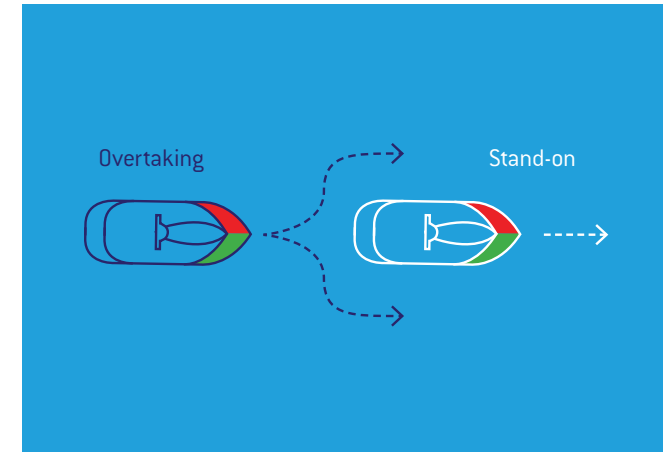
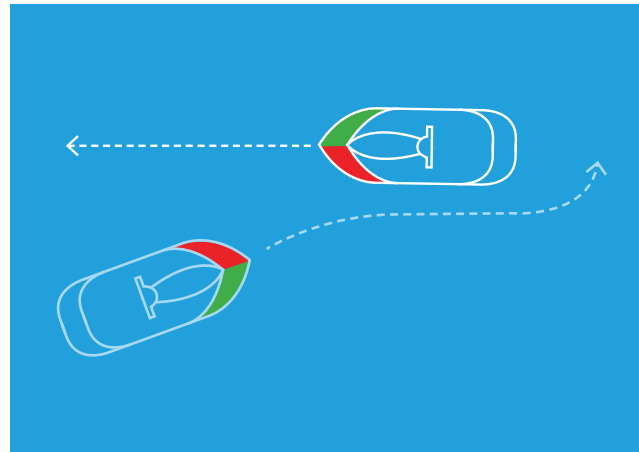
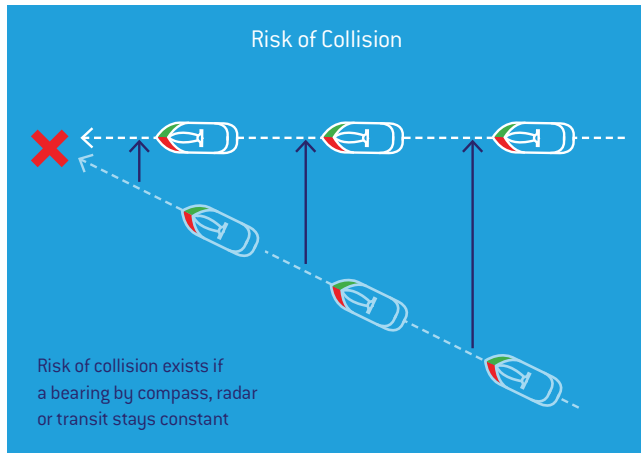
## Head on

i.e. two craft travelling towards each other

Turn to the right (Starboard) make sure your turn is made early enough so that your intentions are clear to the other vessel. If there is no room to turn slow down or stop.

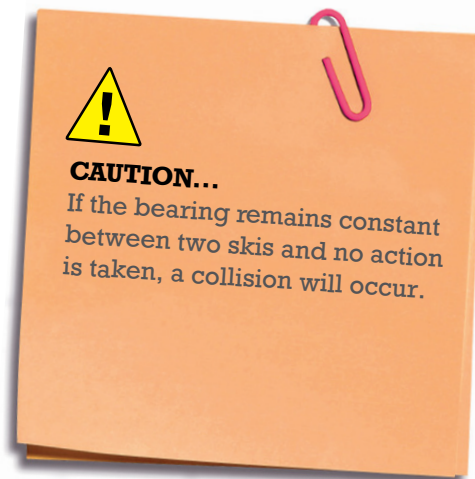
In this situation both craft alter course to the right (starboard) and pass left to left i.e. port to port. You should avoid crossing ahead of an oncoming boat as it is difficult to estimate their speed.

# Basic Navigation



## Crossing other craft

If a danger of collision exists in other words the relative bearing between the two craft remains constant YOU MUST ACT. In this case turn to the right to pass behind the other vessel.



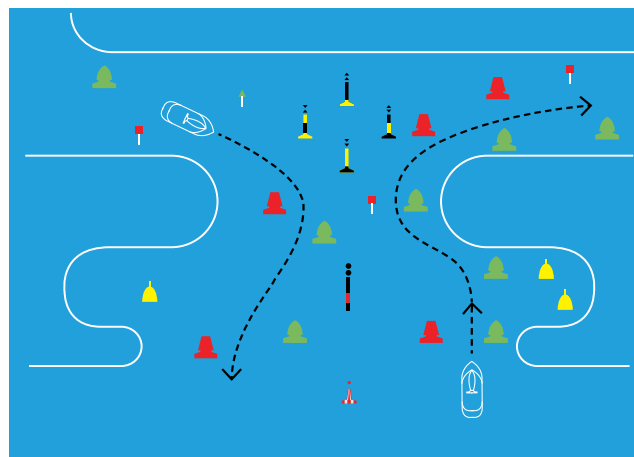
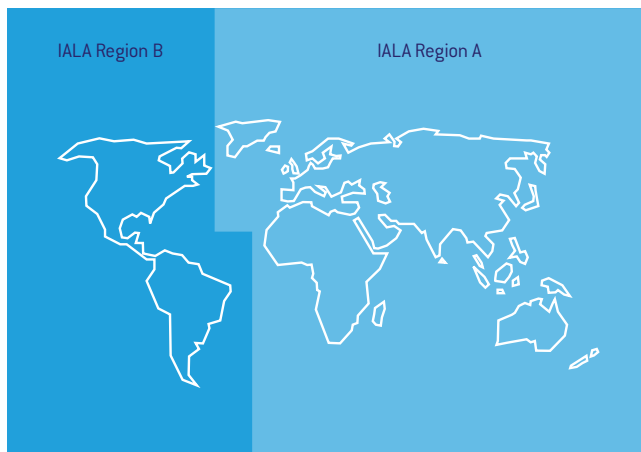
If another vessel is approaching you from your left and the relative bearing is constant that vessel should give way to you and pass behind you. Keep a sharp lookout in this situation and if the other vessel fails to alter course be prepared to take avoiding action, best to turn to the right and pass behind the other vessel.

## Overtaking

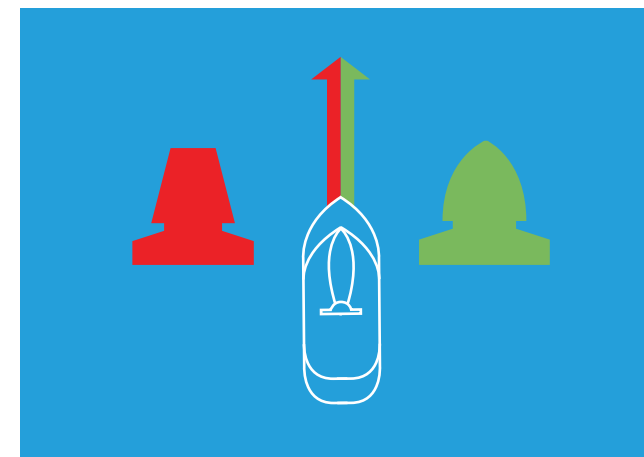
If you are overtaking another vessel it is your responsibility to keep clear, you can pass on either side so choose the one that is safest.



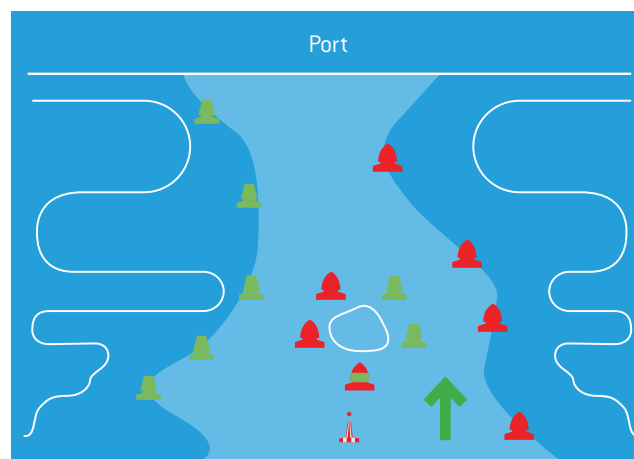
# Basic Navigation



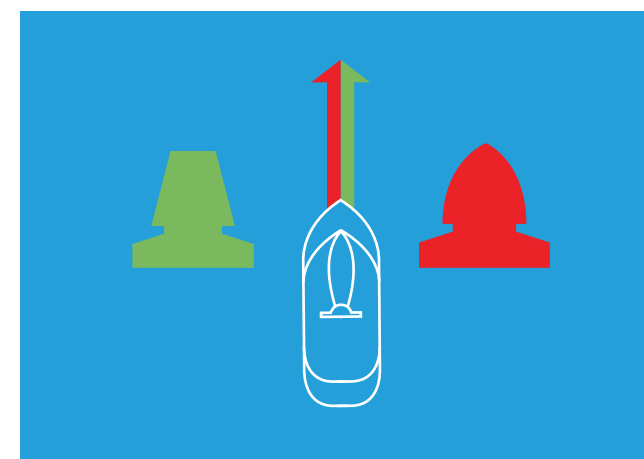
IALA Region A



From Sea into port



IALA Region B



From Sea to port

## International Buoyage System

In order to safely navigate at sea and avoid dangers and obstructions a system of Buoyage is used. This falls into two categories. IALA region A and IALA region B. The diagram below shows where the two systems apply.

### IALA Region A

The most important point to remember when using this system is that Port hand buoys are can shaped and Red and when entering a port from seaward they must be left on your left side.

### IALA Region B

In the IALA B region you must leave the Green Can shaped buoys to Port and the Red Cone shaped buoys to Starboard when entering a port from the sea.

As we can see from the diagrams above the buoys act like road signs and they will guide you into safe water, the Red and Green buoys in both systems are called Lateral Marks.

# Jet Skis, Riding and the Environment





# Jet Skis, Riding and the Environment

## General Rules

As the sport has progressed over the years manufactures have improved their engines and modern jet skis today are now quieter and more environmentally friendly especially with the advent of four stroke engines. Development is also well advanced with electric Jet Skis an area in which the UIM is extremely supportive. That having been said it still remains the responsibility of the rider to ride responsibly and to minimise the impact of the Jet Ski on other water users.

At many locations around the world Jet Skiing has gained a poor reputation and this is often as a result of thoughtless non considerate riding so now lets look at some of the do's and don'ts of Jet Ski Riding.



# Jet Skis, Riding and the Environment

## Good points:

- When launching and recovering the ski keep noise levels down to a minimum especially in crowded marinas and harbours
- Observe all local speed limits
- Follow dedicated channels in and out of harbours and keep out of the way of other maritime traffic
- Observe the International Regulations for Prevention of Collisions at Sea, know the rules and follow them
- Carry basic safety equipment on board at all times, see lists in UIM Basic Training manual
- Drive within your limits at all times
- Use Eco mode on ski when riding longer distances, this will save fuel and help the environment
- Check weather conditions before going to sea, wear appropriate clothing
- Wear your lifejacket and kill cord at all times
- Before you go out for the day tell someone on shore where you are going, how long you will be out and what time you will be back.
- Carry a VHF Radio, mobile phone etc
- When washing skis down use biodegradable products

## Bad points:

- Don't break speed limits and create undue noise
- Don't ride closely to other craft especially in quiet anchorages
- Don't go to sea unless the weather is within your driving limits
- Don't ride in dedicated swimming areas
- Don't throw rubbish in the sea
- Don't pollute the sea with oil or petrol
- Don't ride recklessly

Follow these simple guide lines and you will enjoy your sport and other water users will appreciate your common sense and courtesy.











# Introductory Training

## CERTIFICATE OF COMPLETION

This is to certify that

.....  
Has completed the Competition Training course of the UIM Propstars Youth Development programme

PROPSTARS ASSESSOR





## **Acknowledgements**

The UIM would like to thank H2O Racing and Bombardier Recreational Products Inc for kindly supplying many of the exciting photographs used in this UIM Aquabike/Jet Ski Training manual.

Grateful thanks are also extended to Marco Pietrini from H2O Racing and Aleksandar Petrovic from SMSCG The Powerboat Federation of Montenegro who assisted in the technical content and proof reading of this manual.



**Dream ...**

**Train ...**

**Race ...**

Organisation  
recognised by the



INTERNATIONAL  
OLYMPIC  
COMMITTEE

The UIM is recognised as the sole competent authority in Powerboating including Aquabike/ Jet Ski by the International Olympic Committee

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